

20 Matauri Bay

Description and geomorphology

Matauri Bay is located approximately 22 km north of Kerikeri. The site includes the two embayment beaches of Matauri Bay and Putataua Bay.

Matauri Bay is an east facing sandy beach which is approximately 1 km long. The sandy beach comprises fine to medium sand and is a relatively flat dissipative beach. There is a 5 to 10 m berm above the high tide line. There is a high portion of shell material above the high tide line.

The dune system is relatively low lying ranging from RL 3 to 7 m, with no established dune vegetation. There is an erosion scarp along the northern 200 m of the shoreline fronting the campground.

Putataua Bay is a north facing sandy beach which is approximately 330 m long situated between two Greywacke rocky headlands. The beach is a mixed sand and pebble beach with the majority of the pebble material located at the eastern end of the bay. There are a number of rock reefs located along the eastern half of the bay. The topography rises up at the western end of the bay towards the Greywacke headland.

Local considerations

The Matauri Creek entrance is located at the southern end of the site. The creek meanders across the flats behind the site and the closest position of the creek bank to the dune toe is approximately 80 m. There is a spit feature formed at the southern end of the shoreline, which appears to be building in a southerly direction.

There is a rock revetment structure located at the western end of Putataua Bay that is approximately 80 m long.

Coastal Erosion Hazard Assessment

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



Site Photograph A (Matauri Bay - north)



Site Photograph B (Matauri Bay - south)



Site Photograph C (Putataua Bay)

Adopted component values are presented within Table 20-1. Long-term trends on the east facing coast are variable to accretionary at the southern end and variable to slightly erosional for the north facing beach. Offshore slopes are very flat on the east facing beach (up to 1 in 140)

resulting in large SLR-induced recession distances. The north facing beach is slightly steeper offshore .

Histograms of individual components and resultant CEHZ distances using a Monte Carlo technique are shown in Figure 20-1 to Figure 20-4.

Coastal Erosion Hazard Zone widths are presented within Table 20-2 to 20-4 and Figure

20-5. CEHZ1 values range from 28 to 36 m, CEHZ2 from 70 to 114 m and CEHZ3 values from 87 to 147 with the east facing beaches having larger distances due to the very flat offshore slopes. CEHZ's have been mapped in agreement with the calculated values.

Figure 20-6 shows the available historic shorelines for Matauri Bay.

Table 20-1 Component values for Erosion Hazard Assessment

Site		20. Matauri			
Cell		20A ²	20B	20BB	20C
Cell centre (NZTM)	E	1683613	1683367	1683367	1683293
	N	6123401	6122984	6122984	6122477
Chainage, m (from N/W)		0-300	300-620	620-1260	1260-1350
Morphology		Dune	Dune	Dune	Dune
Short-term (m)	Min	5	5	5	5
	Mode	10	10	10	10
	Max	15	15	15	20
Dune/Cliff elevation (m above toe or scarp)	Min	5.2	3.1	3.1	3.0
	Mode	6.2	3.8	3.8	3.2
	Max	7.2	4.4	4.4	3.6
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	0.05	-0.05	0.05	0.1
	Mode	-0.05	-0.1	0	0.05
	Max	-0.15	-0.15	-0.1	0
Closure slope (beaches)	Min	0.05	0.032	0.032	0.032
	Mode	0.02	0.012	0.012	0.012
	Max	0.015	0.007	0.007	0.007
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

²CEHZ0 included behind coastal protection structure

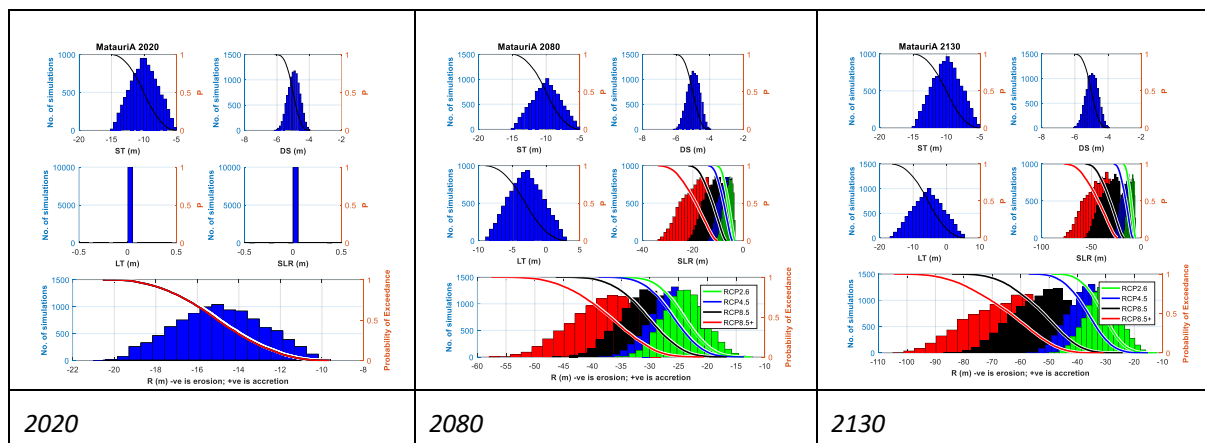


Figure 20-1 Histograms of parameter samples and the resultant shoreline distances for 2020, 2080 and 2130 timeframes for cell 20A

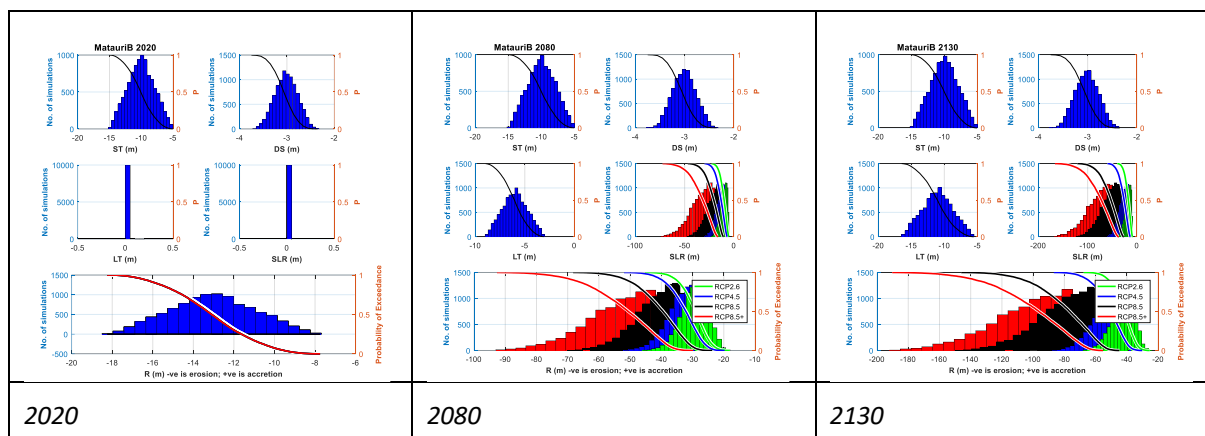


Figure 20-2 Histograms of parameter samples and the resultant shoreline distances for 2020, 2080 and 2130 timeframes for cell 20B

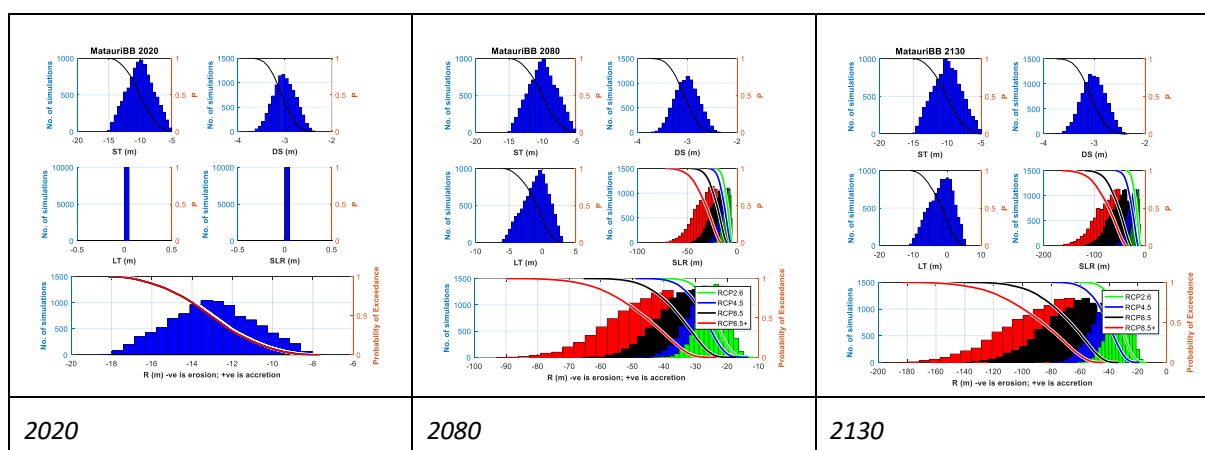


Figure 20-3 Histograms of parameter samples and the resultant shoreline distances for 2020, 2080 and 2130 timeframes for cell 20BB

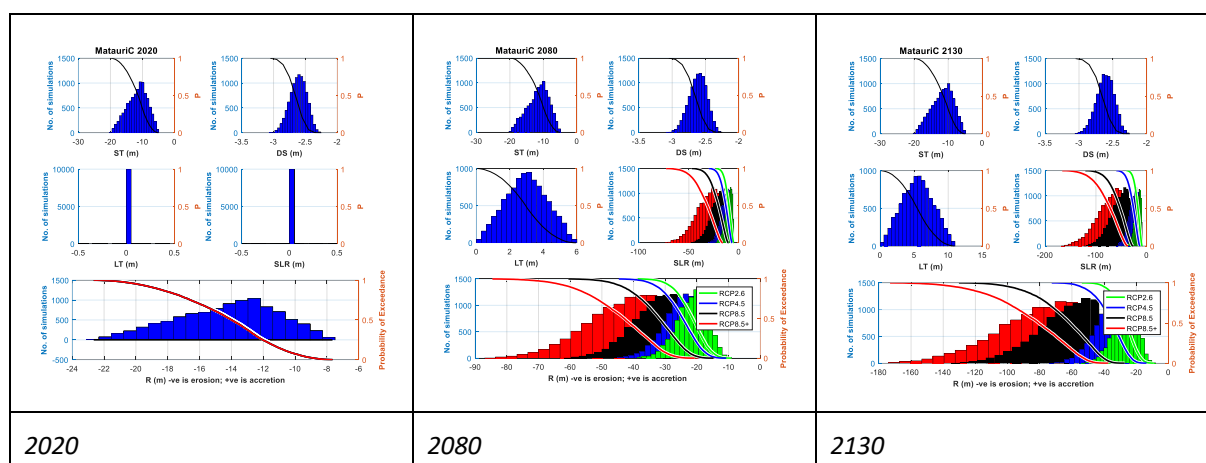


Figure 20-4 Histograms of parameter samples and the resultant shoreline distances for 2020, 2080 and 2130 timeframes for cell 20C

Table 20-2 Coastal Erosion Hazard Zone Widths for 2020

Site		20. Matauri			
Probability of CEHZ (m) Exceedance		A	B	BB	C
	Min	-10	-8	-8	-8
	99%	-11	-9	-9	-8
	95%	-11	-10	-10	-10
	90%	-12	-10	-10	-10
	80%	-13	-11	-11	-12
	70%	-14	-12	-12	-12
	66%	-14	-12	-12	-13
	60%	-14	-13	-12	-13
	50%	-15	-13	-13	-14
	40%	-16	-14	-14	-15
	33%	-16	-14	-14	-16
	30%	-16	-14	-14	-16
	20%	-17	-15	-15	-17
	10%	-18	-16	-16	-19
	5%	-18	-16	-16	-20
	1%	-19	-17	-17	-21
	Max	-20	-18	-18	-23

Table 20-3 Coastal Erosion Hazard Zone Widths Projected for 2080

Site		20. Matauri															
Cell		20A				20B				20BB				20C			
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	-12	-14	-17	-21	-18	-20	-24	-30	-12	-13	-17	-23	-9	-11	-15	-21
	99%	-16	-17	-20	-25	-21	-23	-28	-34	-16	-18	-22	-29	-12	-14	-19	-25
	95%	-18	-20	-23	-28	-23	-25	-30	-37	-18	-20	-25	-32	-14	-17	-22	-29
	90%	-19	-21	-24	-30	-24	-26	-32	-39	-19	-21	-27	-34	-16	-18	-23	-31
	80%	-21	-23	-26	-32	-26	-28	-34	-42	-21	-23	-29	-37	-18	-20	-26	-34
	70%	-22	-24	-28	-34	-27	-30	-36	-45	-22	-24	-31	-40	-19	-22	-28	-37
	66%	-22	-24	-28	-34	-27	-30	-36	-46	-22	-25	-31	-41	-19	-22	-29	-38
	60%	-23	-25	-29	-35	-28	-31	-38	-48	-23	-26	-33	-43	-20	-23	-30	-40
	50%	-24	-26	-30	-37	-29	-32	-39	-51	-24	-27	-35	-46	-21	-24	-32	-43
	40%	-25	-27	-32	-39	-30	-34	-42	-54	-25	-29	-37	-49	-23	-26	-34	-46
	33%	-26	-28	-32	-40	-31	-35	-43	-56	-26	-30	-38	-51	-24	-27	-36	-49
	30%	-26	-28	-33	-40	-31	-35	-44	-57	-27	-30	-39	-52	-24	-28	-36	-50
	20%	-27	-29	-34	-43	-33	-37	-47	-62	-28	-32	-42	-57	-26	-30	-39	-54
	10%	-29	-31	-37	-46	-35	-40	-51	-68	-30	-35	-46	-63	-28	-32	-43	-60
	5%	-30	-32	-38	-48	-37	-42	-55	-73	-32	-37	-49	-68	-30	-35	-47	-65
	1%	-32	-35	-41	-51	-40	-46	-61	-83	-35	-41	-55	-77	-34	-39	-53	-75
	Max	-36	-39	-46	-58	-45	-52	-68	-93	-42	-49	-65	-90	-39	-45	-61	-85
CEHZ1		-28				-36				-31				-29			

Table 20-4 Coastal Erosion Hazard Zone Widths Projected for 2130

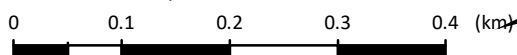
Site		20. Matauri															
Cell		20A				20B				20BB				20C			
RCP scenario		2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+
Probability of CEHZ (m) Exceedance	Min	-12	-15	-24	-31	-25	-30	-45	-55	-14	-19	-33	-44	-9	-14	-27	-37
	99%	-18	-22	-33	-40	-30	-35	-50	-62	-19	-25	-40	-52	-13	-19	-35	-46
	95%	-22	-26	-37	-46	-33	-38	-55	-67	-22	-28	-45	-57	-16	-22	-39	-52
	90%	-24	-28	-40	-49	-34	-40	-58	-71	-24	-30	-48	-61	-18	-24	-43	-56
	80%	-26	-31	-44	-53	-36	-43	-63	-77	-27	-33	-53	-68	-21	-27	-47	-62
	70%	-28	-33	-47	-57	-38	-45	-67	-83	-29	-36	-58	-74	-23	-30	-52	-68
	66%	-29	-34	-48	-58	-39	-46	-69	-86	-30	-37	-59	-76	-23	-31	-53	-70
	60%	-30	-35	-49	-60	-40	-48	-72	-90	-31	-38	-62	-80	-24	-32	-56	-74
	50%	-31	-36	-52	-64	-42	-50	-77	-96	-32	-41	-67	-87	-26	-35	-61	-81
	40%	-33	-38	-55	-68	-43	-53	-82	-104	-34	-44	-73	-94	-28	-37	-66	-88
	33%	-34	-39	-57	-71	-45	-55	-86	-109	-36	-46	-76	-100	-30	-40	-70	-93
	30%	-34	-40	-58	-72	-45	-56	-88	-112	-36	-47	-78	-102	-30	-40	-72	-96
	20%	-36	-42	-62	-77	-48	-59	-95	-122	-39	-50	-86	-112	-33	-44	-79	-105
	10%	-39	-45	-66	-83	-51	-65	-106	-136	-43	-56	-96	-126	-37	-49	-90	-120
	5%	-41	-48	-70	-87	-54	-69	-114	-147	-46	-60	-105	-138	-40	-54	-98	-131
	1%	-44	-51	-76	-95	-60	-77	-130	-169	-51	-68	-120	-159	-45	-62	-113	-153
	Max	-49	-57	-84	-105	-68	-87	-146	-190	-61	-81	-140	-184	-54	-73	-130	-173
	CEHZ2	-70				-114				-105				-98			
	CEHZ3	-87				-147				-138				-131			

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

A4 SCALE 1:7,000



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Coastal Erosion Hazard Assessment
Matauri Bay
Site: 20

FIGURE No.

Figure 20-5

Rev.

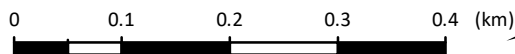
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Notes: Dashed CEHZ indicates greater uncertainty around stream mouths and backshore topography.
Northland 0.4m Rural Aerial Photos (2014-2016).

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NORTHLAND REGIONAL COUNCIL

Historic Shorelines

Matauri Bay

Site: 20

FIGURE No.

Figure 20-6

Rev.

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