

16 Ohawini

Description and geomorphology

Ohawini is located approximately 41 km north of Whangarei. The site includes the two embayment beaches of Ohawini (northern beach, cells 16A to 16E) and Parutahi Beach (southern beach, cells 16F to 16H). Both beaches are east to north east facing and are relatively sheltered being situated within the Whangaruru Harbour.

Parutahi Beach is approximately 400 m long and is located at the northern end of Ohawini Road. The beach comprises fine to medium sand and is situated between two Greywacke headlands and associated rock reefs. The backshore is relatively low lying with elevations of RL 2 to 4 m. A small stream enters the shoreline at the middle of the site.

Ohawini is located immediately north of Parutahi Beach and access is limited to the foreshore via an intertidal section of road constructed over the rock reef. The beach is approximately 850 m long and comprises fine to medium sand. A Greywacke cliff is located near the southern end of the beach and the majority of the shoreline south of the cliff is protected by a grouted rock seawall.

The Ohawini Stream enters the site immediately north of the cliff and meanders some 100 m north along the shoreline before cutting through the beach slope. The beach north of Ohawini Stream has a berm width of approximately 5 m. The backshore is relatively low in this area with elevations of RL 2 to 5 m. No native dune vegetation exists in this area.

Local considerations

There are a wide range of erosion protection structures located on the site. Approximately 300 m of shoreline is currently protected by seawalls or revetments including concrete block and grouted rock seawalls and rock revetments.

Vehicle access is provided by Ohawini Road which is located at the southern end of Parutahi Beach.



Site Photograph A (Parutahi Beach)



Site Photograph B (southern end of Ohawini)



Site Photograph C (northern end of Ohawini)

Coastal Erosion Hazard Assessment

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

Adopted component values are presented within Table 16-1. Short term erosion values range

from 5 to 10 m as the bay is relatively sheltered from large NE to SE events. Long-term trends are variable on the beaches (-0.1 to +0.15 m/year) and the greywacke cliffs exhibit typical low erosion rates (-0.02 to -0.05 m/year).

Histograms of individual components and resultant CEHZ distances using a Monte Carlo technique are shown in Figure 16-1 to Figure 16-8.

Coastal Erosion Hazard Zone widths are presented within Table 16-2 and Figure 16-9. CEHZ1 values range from 10 to 20 m for the cliffs and 17 to 18 m for beaches and CEHZ2 values range from 25 to 28 m for cliffs and 55 to 58 m for beaches. CEHZ's have been mapped in agreement with the calculated values.

Figure 16-10 shows the available historic shorelines for Ohawini

Table 16-1 Component values for Erosion Hazard Assessment

Site		16. Ohawini							
Cell		16A	16B	16C	16D	16E ²	16F	16G	16H
Cell centre (NZTM)	E	1721722	1721689	1721678	1721697	1721747	1721948	1722042	1722170
	N	6084871	6084739	6084526	6084389	6084268	6084188	6084076	6083999
Chainage, m (from N/W)		0-50	50-280	280-500	500-580	580-900	900-970	970-1200	1200-1290
Morphology		Dune	Dune	Dune	Greywacke	Dune	Greywacke	Dune	Greywacke
Short-term (m)	Min	5	5	5	0	5	0	4	0
	Mode	8	8	8	0	8	0	6	0
	Max	10	10	10	0	10	0	8	0
Dune/Cliff elevation (m above toe or scarp)	Min	2.1	2.4	1.9	6.2	1.2	2.6	1.4	2.0
	Mode	2.5	3.1	2.6	7.6	3.1	4.0	3.0	3.7
	Max	2.9	3.4	3.7	9.2	4.9	5.8	4.8	4.7
Stable angle (deg)	Min	30	30	30	18.4	30	18.4	30	18.4
	Mode	32	32	32	22.5	32	22.5	32	22.5
	Max	34	34	34	26.6	34	26.6	34	26.6
Long-term (m) -ve erosion +ve accretion	Min	0.15	0.15	0.15	-0.02	0.15	-0.02	0.1	-0.02
	Mode	0.05	0.05	0.05	-0.03	0	-0.03	0	-0.03
	Max	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.1	-0.05
Closure slope (beaches)	Min	0.046	0.046	0.046	0.5	0.046	0.5	0.046	0.5
	Mode	0.022	0.022	0.022	0.25	0.022	0.25	0.022	0.25
	Max	0.013	0.013	0.013	0	0.013	0	0.013	0
SLR 2065 (m)	Min	0.19	0.19	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	0.29	0.29
	Max	0.39	0.39	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	0.45	0.45
	Mode	0.77	0.77	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	1.1	1.1

²CEHZO included behind coastal protection structure.

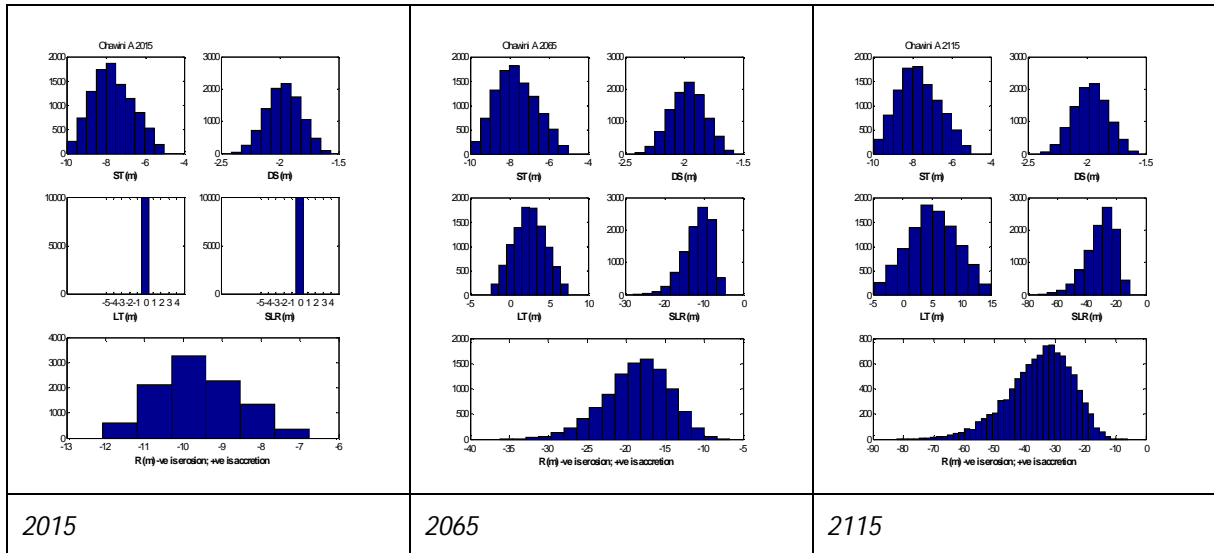


Figure 16-1 Histograms of parameter samples and the resultant shoreline distances for 2015, 2065 and 2115 timeframes for cell 16A

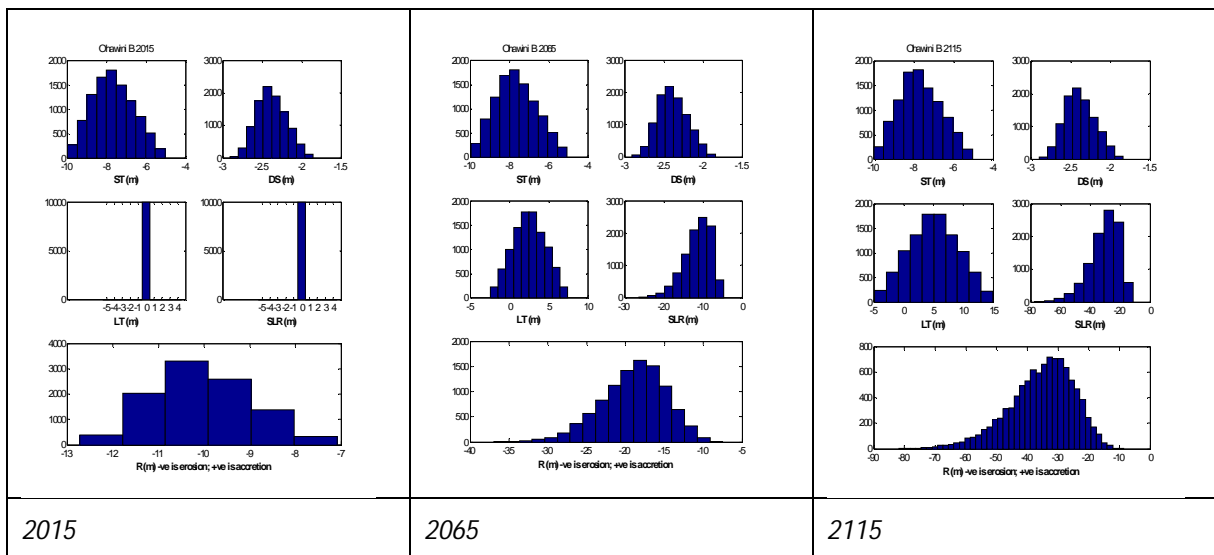


Figure 16-2 Histograms of parameter samples and the resultant shoreline distances for 2015, 2065 and 2115 timeframes for cell 16B

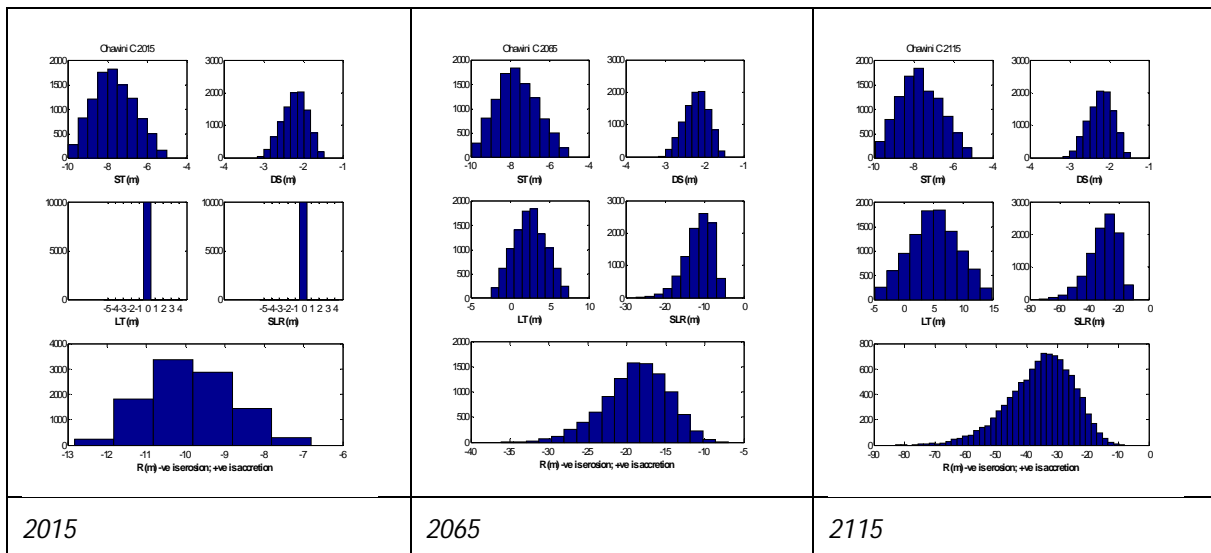


Figure 16-3 Histograms of parameter samples and the resultant shoreline distances for 2015, 2065 and 2115 timeframes for cell 16C

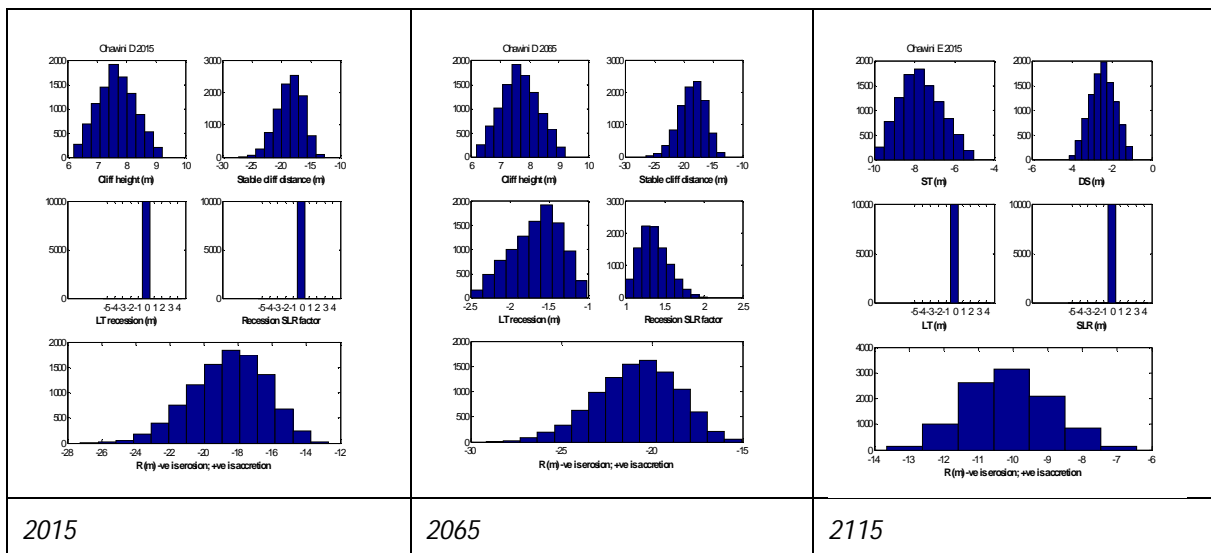


Figure 16-4 Histograms of parameter samples and the resultant shoreline distances for 2015, 2065 and 2115 timeframes for cell 16D

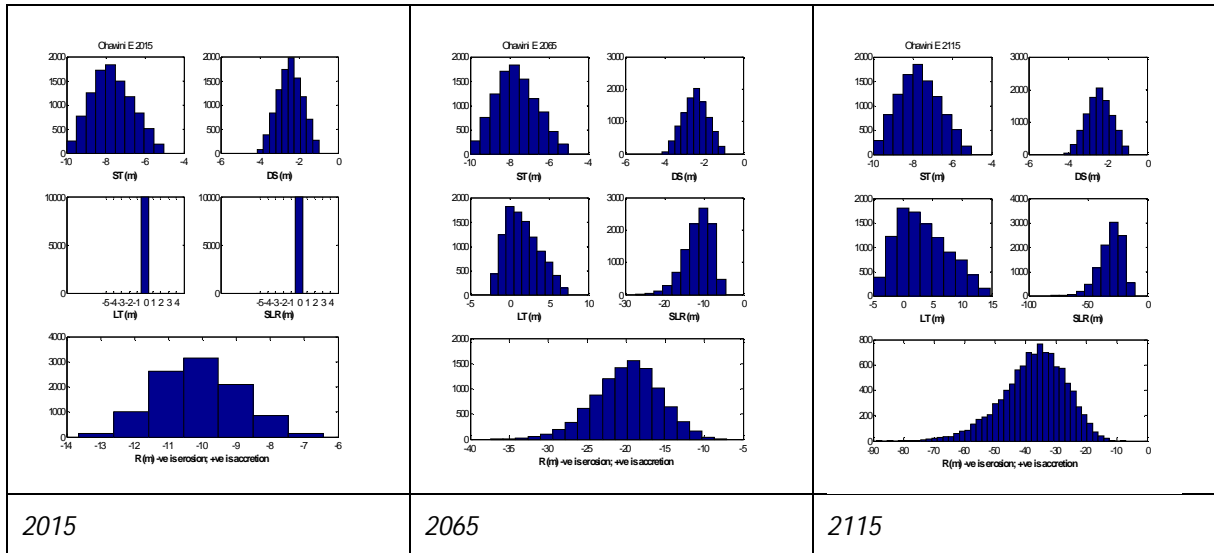


Figure 16-5 Histograms of parameter samples and the resultant shoreline distances for 2015, 2065 and 2115 timeframes for cell 16E

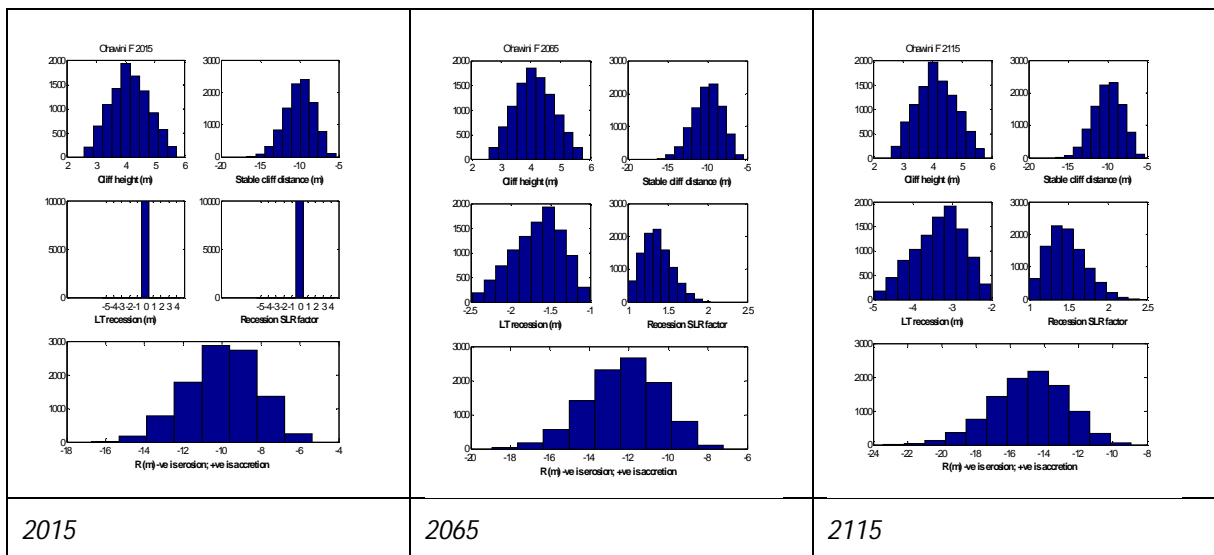


Figure 16-6 Histograms of parameter samples and the resultant shoreline distances for 2015, 2065 and 2115 timeframes for cell 16F

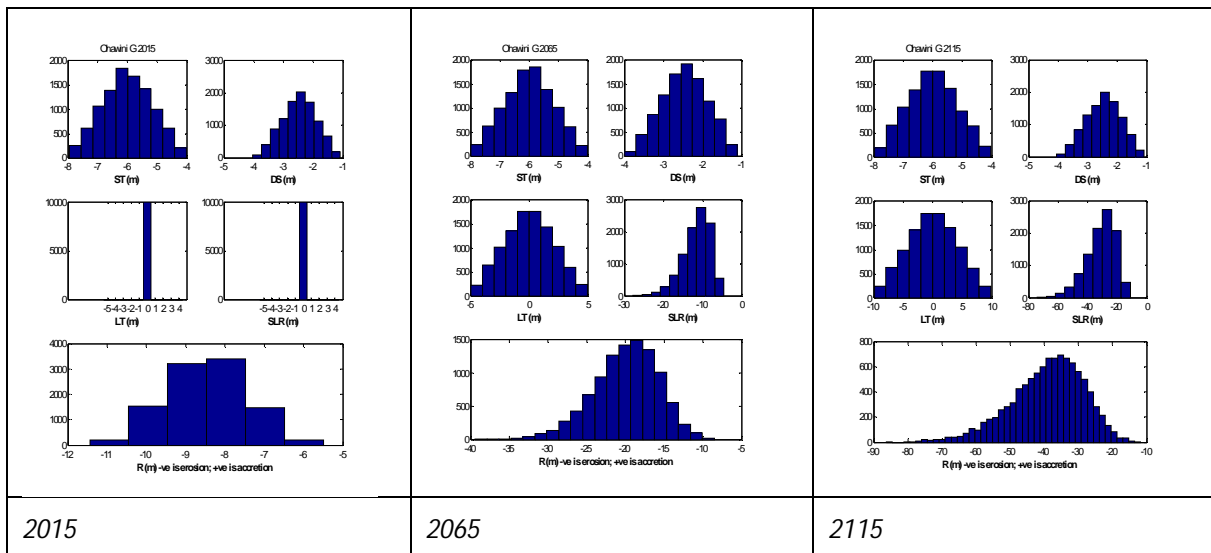


Figure 16-7 Histograms of parameter samples and the resultant shoreline distances for 2015, 2065 and 2115 timeframes for cell 16G

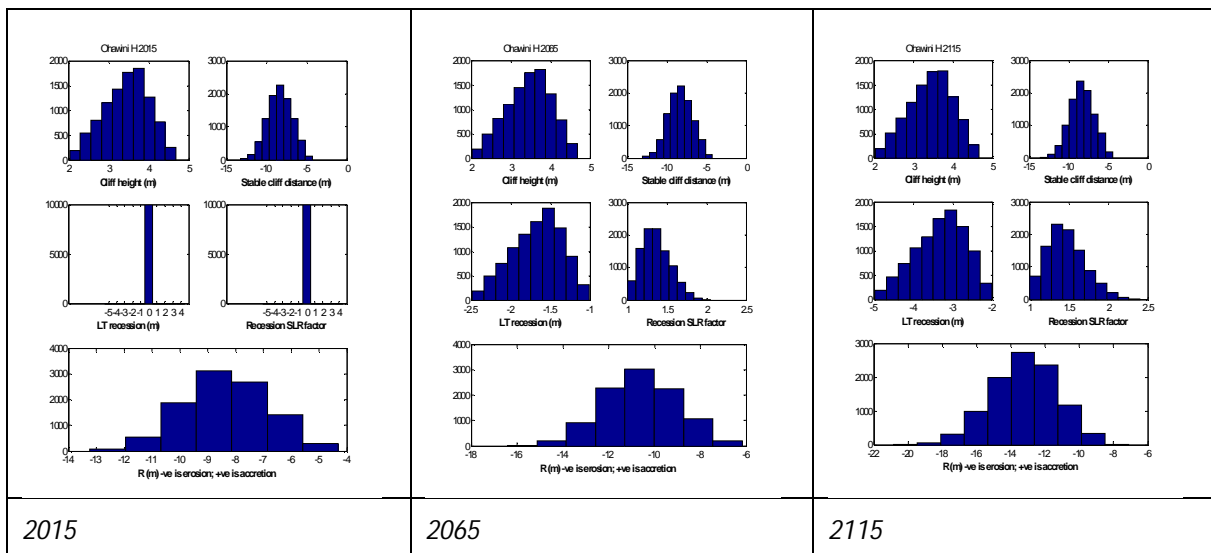


Figure 16-8 Histograms of parameter samples and the resultant shoreline distances for 2015, 2065 and 2115 timeframes for cell 16H

Table 16-2 Coastal Erosion Hazard Zone Widths

Site		16. Ohawini											
Cell		16A			16B			16C			16D		
Time		2015	2065	2115	2015	2065	2115	2015	2065	2115	2015	2065	2115
Probability of CEHZ (m) Exceedance	Min	-7	-7	-6	-7	-8	-9	-7	-7	-8	-13	-15	-16
	99%	-7	-10	-16	-8	-11	-16	-8	-11	-16	-14	-16	-18
	95%	-8	-12	-20	-8	-13	-20	-8	-13	-20	-15	-17	-20
	90%	-8	-14	-23	-9	-14	-23	-8	-14	-23	-16	-18	-20
	80%	-9	-15	-26	-9	-15	-26	-9	-15	-26	-17	-19	-21
	70%	-9	-16	-29	-9	-17	-29	-9	-16	-29	-17	-20	-22
	66%	-9	-17	-30	-10	-17	-30	-9	-17	-30	-18	-20	-22
	60%	-9	-17	-31	-10	-18	-32	-10	-18	-32	-18	-20	-23
	50%	-10	-18	-34	-10	-19	-34	-10	-19	-34	-18	-21	-23
	40%	-10	-19	-37	-10	-20	-37	-10	-20	-37	-19	-21	-24
	33%	-10	-20	-39	-11	-20	-39	-10	-20	-39	-19	-22	-24
	30%	-10	-21	-40	-11	-21	-40	-11	-21	-40	-20	-22	-25
	20%	-11	-22	-44	-11	-22	-44	-11	-22	-44	-20	-23	-26
	10%	-11	-24	-50	-11	-25	-50	-11	-24	-50	-22	-24	-27
	5%	-11	-26	-55	-12	-26	-55	-12	-26	-55	-22	-25	-28
	1%	-12	-30	-65	-12	-30	-66	-12	-30	-65	-24	-26	-30
	Max	-12	-36	-82	-13	-37	-82	-13	-36	-83	-27	-29	-34
	CEHZ1		-17			-17			-17			-20	
CEHZ1		-55			-55			-55			-28		

Site		16. Ohawini											
Cell		16E			16F			16G			16H		
Time		2015	2065	2115	2015	2065	2115	2015	2065	2115	2015	2065	2115
Probability of CEHZ (m) Exceedance	Min	-6	-7	-7	-5	-7	-9	-5	-9	-12	-4	-6	-7
	99%	-7	-11	-17	-6	-9	-10	-6	-11	-19	-5	-7	-9
	95%	-8	-13	-22	-7	-9	-12	-7	-14	-24	-6	-8	-10
	90%	-9	-15	-25	-8	-10	-12	-7	-15	-27	-6	-9	-11
	80%	-9	-16	-28	-8	-11	-13	-8	-16	-30	-7	-9	-12
	70%	-10	-18	-31	-9	-11	-14	-8	-18	-33	-8	-10	-12
	66%	-10	-18	-32	-9	-11	-14	-8	-18	-34	-8	-10	-12
	60%	-10	-19	-34	-9	-12	-14	-8	-19	-35	-8	-10	-13
	50%	-10	-20	-36	-10	-12	-15	-8	-20	-38	-8	-11	-13
	40%	-10	-21	-39	-10	-13	-15	-9	-21	-41	-9	-11	-14
	33%	-11	-22	-41	-11	-13	-16	-9	-21	-43	-9	-11	-14
	30%	-11	-22	-42	-11	-13	-16	-9	-22	-44	-9	-11	-14
	20%	-11	-23	-46	-12	-14	-17	-9	-23	-48	-10	-12	-15
	10%	-12	-25	-51	-12	-15	-18	-10	-25	-54	-10	-13	-16
	5%	-12	-27	-56	-13	-15	-19	-10	-27	-58	-11	-13	-16
	1%	-13	-31	-67	-14	-17	-20	-11	-31	-69	-12	-14	-18
	Max	-14	-37	-89	-17	-19	-23	-11	-39	-86	-13	-16	-21
	CEHZ1	-18			-11			-18			-10		
CEHZ2	-56			-25			-58			-25			

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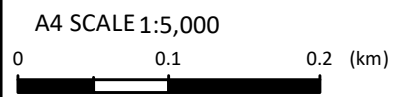
LEGEND

- 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).



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NORTHLAND REGIONAL COUNCIL
 Coastal Erosion Hazard Assessment
 Ohawini
 Site: 16

FIGURE No. **Figure 16-9**

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Legend

↔ Cell Extent

Shorelines

- 2014 baseline
- 14/01/2014
- 25/08/2003
- 29/03/1998
- 13/12/1985
- 02/05/1966
- 19/01/1957

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

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

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Historic shorelines
Ohawini
Site: 16

