

Appendix A: Data

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Table A-1. Years sampled and size of the sampling extent for sites included in the northern North Island bivalve surveys since 1999–2000. Surveys are ordered by site and year. The original and retained extent are areas in ha, density is listed as average number of cockles per m², and the SE is the standard error of the density. The retained extent and strata list the area and strata retained for analysis after manual parsing to assure comparability of surveys through time.

Survey site	Year	Original extent	Retained extent	Strata	Density	SE
Aotea Harbour	2005–06	9.60	8.00	A	14.80	0.72
	2009–10	28.10	8.00	A	40.82	3.36
	2014–15	19.46	9.83	A	5.57	0.79
Bowentown Beach	2001–02	1.58	1.58	A, B, C	89.01	0.85
	2010–11	1.58	1.58	A, B, C	5.21	0.22
	2012–13	1.58	1.58	A, B, C	4.23	0.23
Cockle Bay	2010–11	16.00	16.00	A, B	133.08	4.34
	2012–13	16.00	16.00	A, B	227.86	8.00
	2013–14	15.77	15.77	A, B	133.29	5.03
Eastern Beach	1999–00	48.00	48.00	A, B, C, D	0.00	0.00
	2001–02	43.38	43.38	A, B, C, D	21.46	2.40
	2014–15	41.42	41.42	A, B, C, D	31.00	5.30
Grahams Beach	2006–07	24.75	23.75	A, B	0.00	0.00
	2010–11	25.15	23.50	A	0.00	0.00
	2012–13	20.06	20.06	A	0.00	0.00
	2013–14	26.76	26.76	A	0.45	0.30
Kawakawa Bay (West)	2004–05	60.37	60.37	A, B, C, D, E	22.00	3.00
	2006–07	62.94	62.94	A, B, C, D, E	33.74	6.09
	2014–15	60.90	60.90	A, B, C, D, E	32.51	4.01
Little Waihi Estuary	2000–01	3.00	1.70	A, C	8.18	0.41
	2002–03	3.00	1.70	A, C	1.66	0.09
	2003–04	3.12	2.50	A, C	15.71	0.40
	2004–05	3.75	2.50	A, C	13.00	0.22
	2006–07	3.16	1.70	A, C	0.00	0.00
	2013–14	17.09	3.10	A, C	1.03	0.20
Mangawhai Harbour	1999–00	9.40	4.00	A, B	147.45	5.22
	2000–01	8.40	4.00	A, B, C	407.19	6.99
	2001–02	8.40	4.00	A, B, C	113.85	2.99
	2002–03	8.40	4.00	A, B, C	133.39	3.37
	2003–04	8.40	4.00	A, B, C	172.34	3.62
	2010–11	9.00	4.25	A, B, C	47.56	2.38
	2014–15	8.55	4.21	A, B, C	38.18	1.50
Mill Bay	1999–00	4.60	4.60	A, B, C	16.15	0.42
	2000–01	4.80	4.80	A, B, C, D, E, F	25.60	0.53
	2001–02	4.50	4.50	A, B, C	8.42	0.24
	2003–04	4.50	4.50	A, B, C	7.13	0.22
	2004–05	4.50	4.50	A, B, C, D, E, F	6.76	0.21
	2005–06	4.50	4.50	A, B, C, D, E, F	8.72	0.22
	2009–10	4.95	4.95	A	3.63	0.26

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Survey site	Year	Original extent	Retained extent	Strata	Density	SE
Ngunguru Estuary	2014–15	4.88	4.88	A	1.47	0.14
	2003–04	1.70	1.70	A, B, C	37.77	0.58
	2004–05	1.80	1.80	A, B, C	24.61	0.55
	2010–11	1.80	1.76	A, B, C	5.26	0.22
	2014–15	5.46	1.82	A, B, C	4.13	0.17
Ohiwa Harbour	2001–02	2.25	0.90	A, B	9.56	0.24
	2005–06	2.70	0.90	A, B	18.72	0.27
	2006–07	5.70	0.90	A, B	0.92	0.06
	2009–10	2.10	0.90	A, B	3.36	0.16
	2012–13	2.63	0.90	A, B	5.64	0.19
Okoromai Bay	1999–00	20.00	20.00	A, B	121.92	2.89
	2001–02	24.00	24.00	A, B	36.07	1.47
	2002–03	20.00	20.00	A, B	35.24	1.03
	2003–04	20.00	20.00	A, B	60.04	2.85
	2004–05	20.00	20.00	A, B	69.00	1.35
	2006–07	20.00	20.00	A, B	35.16	1.92
	2009–10	20.00	20.00	A, B	65.37	3.17
	2012–13	20.00	20.00	A, B	68.04	3.63
	2013–14	19.84	19.84	A, B	22.57	1.96
	Otumoetai	2000–01	5.60	3.60	A, B	1.20
2002–03		5.60	3.60	A, B	0.30	0.04
2005–06		4.60	3.60	A, B	0.50	0.09
2006–07		4.60	3.60	A, B	1.06	0.12
2009–10		5.60	3.60	A, B	5.59	0.86
2014–15		7.67	3.29	A, B	0.54	0.11
Pataua Estuary		2002–03	10.65	10.65	A, B, C, D, E	203.12
	2003–04	10.45	10.45	A, B, C	129.73	3.73
	2005–06	10.45	10.45	A, B, C	198.66	4.75
	2013–14	26.30	26.30	A, B, C, D	24.86	2.03
Raglan Harbour	1999–00	10.10	8.10	A, C, D	80.93	2.89
	2000–01	10.04	8.24	A, C, D	209.25	3.91
	2002–03	8.24	8.24	A, C, D	50.61	1.38
	2003–04	8.24	8.24	A, C, D	45.68	0.98
	2009–10	9.20	8.24	A, C, D	71.62	4.27
	2012–13	8.24	8.24	A, C, D	73.77	4.18
	2014–15	7.24	7.24	A, C, D	33.67	1.38
Tairua Harbour	1999–00	3.70	3.70	A, B, C, D	474.82	7.26
	2000–01	3.90	3.90	A, B, C, D, E	273.09	3.38
	2001–02	3.90	3.90	A, B, C, D, E	117.40	1.87
	2002–03	3.90	3.90	A, B, C, D, E	142.62	1.84
	2005–06	3.90	3.90	A, B, C, D, E	130.92	1.51
	2006–07	4.80	3.90	A, B, C, D, E	92.99	2.51
	2010–11	5.80	4.38	A, B, C, D, E	18.00	1.60
	2013–14	9.38	7.37	A, B, C, D, E	10.80	0.41
Te Haumi Beach	1999–00	10.00	10.00	A, B, C	83.59	2.34
	2000–01	9.90	9.90	A, B, C	41.49	1.34
	2001–02	9.90	9.90	A, B, C	17.63	0.64
	2002–03	9.90	9.90	A, B, C	31.30	1.15
	2006–07	9.81	9.81	A, B, C	20.23	0.92
	2009–10	12.06	9.81	A, B1, B2, C	9.25	1.08
	2012–13	12.06	9.81	A, B, C	20.27	1.12

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Survey site	Year	Original extent	Retained extent	Strata	Density	SE
Umupuia Beach	2014–15	12.78	9.70	A, B, C	33.84	2.14
	1999–00	25.00	25.00	A, B	74.38	2.97
	2000–01	36.00	36.00	A, B, C, D	186.05	9.28
	2001–02	36.00	36.00	A, B, C, D	81.91	4.63
	2002–03	36.00	36.00	A, B, C, D	69.33	3.27
	2003–04	36.00	36.00	A, B, C, D	60.06	4.12
	2004–05	36.00	36.00	A, B, C, D	85.34	4.08
	2005–06	36.00	36.00	A, B, C, D	40.36	3.86
	2006–07	36.00	36.00	A, B, C, D	14.07	2.02
	2009–10	36.00	36.00	A, B, C, D	5.24	0.66
	2010–11	36.00	36.00	A, B, C, D	25.89	2.66
	2012–13	36.00	36.00	A, B, C, D	133.31	11.71
	2013–14	33.86	33.86	A, B, C, D	130.82	13.55
Waikawau Beach	1999–00	2.90	0.50	A	0.00	0.00
	2004–05	3.10	0.50	A	0.15	0.00
Waiotahi Estuary	2002–03	8.50	7.00	A, B, C	7.37	0.32
	2003–04	8.50	7.00	A, B, C	1.26	0.11
	2004–05	9.50	7.00	A, B, C	0.43	0.10
	2005–06	9.50	7.00	A, B, C	1.14	0.17
	2009–10	9.50	7.00	A, B, C	0.80	0.15
	2013–14	11.23	7.09	A, B, C	0.00	0.00
Whangamata Harbour	1999–00	5.48	2.48	A, B	460.01	5.97
	2000–01	5.48	2.48	A, B	362.94	5.38
	2001–02	5.48	2.48	A, B	149.55	2.29
	2002–03	5.48	2.48	A, B	154.12	3.25
	2003–04	5.48	2.48	A, B	265.88	2.93
	2004–05	5.48	2.48	A, B	263.01	1.84
	2006–07	24.61	2.48	A, B	63.83	1.31
	2010–11	5.89	2.45	A, B	21.64	0.82
	2014–15	7.62	4.35	AS, B	47.39	2.42
	Whangapoua Harbour	2003–04	5.20	4.80	A, B, C	132.69
2004–05		5.20	4.80	A, B, C	107.53	2.18
2010–11		5.20	4.80	A, B, C	58.12	2.43
2014–15		6.32	4.90	A, B, C	24.16	0.87
Whangateau Harbour	2001–02	64.19	45.20	A, B	120.74	14.86
	2003–04	64.15	45.20	A, B	97.49	9.79
	2004–05	64.15	45.20	A, B	112.35	11.13
	2006–07	64.15	45.20	A, B	68.85	11.30
	2009–10	64.51	41.60	A, B	11.32	3.17
	2010–11	64.15	45.20	A, B	22.41	3.21
	2012–13	64.20	44.16	A, B	49.52	5.96
	2013–14	110.91	57.12	A, B	46.20	6.24