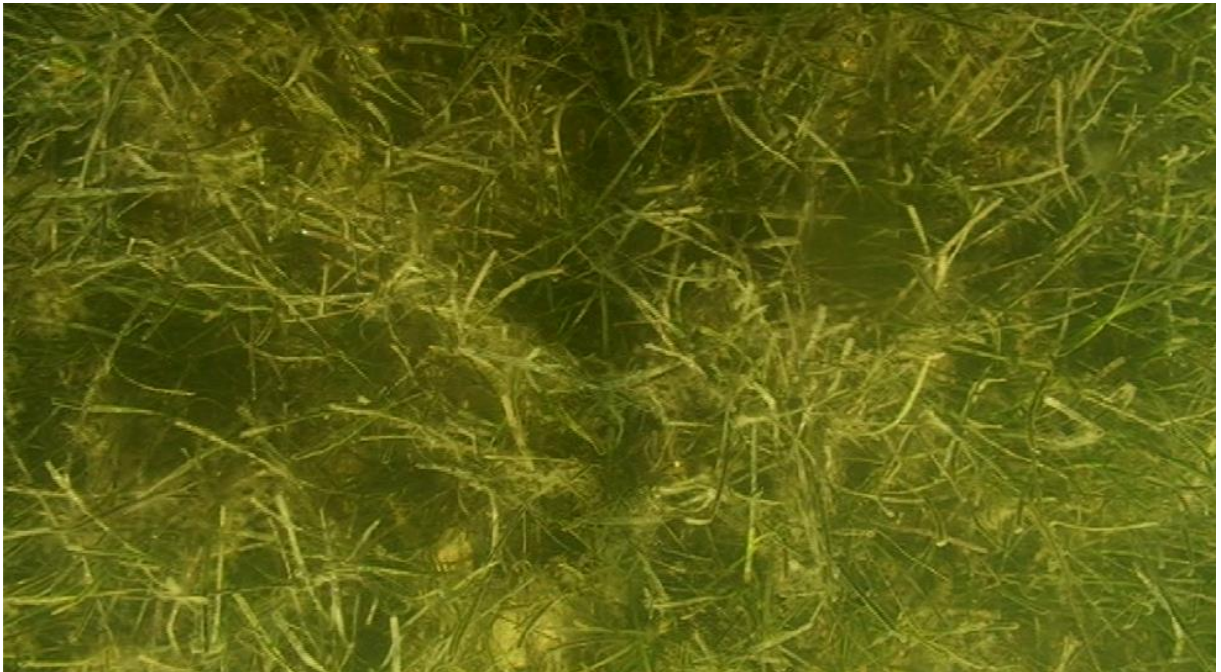


**Great Southern Energy Pty Ltd (trading Delta Coal)
Chain Valley Colliery**

Seagrass Survey of Chain Valley Bay, Summerland Point, Bardens Bay and Crangan Bay, Lake Macquarie, NSW

(Results for 2008 to 2019)



by John H. Laxton and Emma Laxton

July 2019

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Summary

Table of Transect Endpoint Coordinates and sea bed heights.

Transect Endpoint Coordinates MGA Zone 56 / metres A.H.D										
Transect No.	Easting	Northing	2013	2014	2015	2016	2017	2018	2019	Diff 08-
E1 Inner	363985.72	6331796.94	-0.68	-0.68	-0.67	-0.69	-0.70	-0.68	-0.66	-0.02
E1 Outer	364003.72	6331816.06	-0.99	-0.99	-1.02	-1.02	-1.02	-1.05	-0.99	-0.01
E2 Inner	364035.49	6331701.00	-0.67	-0.65	-0.67	-0.67	-0.67	-0.69	-0.63	-0.01
E2 Outer	364077.23	6331716.71	-1.70	-1.84	-1.81	-1.84	-1.85	-1.80	-1.76	-0.02
E3 Inner	363953.11	6331405.11	-0.33	-0.28	-0.31	-0.33	-0.33	-0.31	-0.30	-0.02
E3 Outer	364027.16	6331417.57	-2.29	-2.30	-2.35	-2.33	-2.34	-2.38	-2.34	0.00
E4 Inner	364220.00	6331077.87	-0.48	-0.46	-0.47	-0.47	-0.46	-0.47	-0.46	0.00
E4 Outer	364259.75	6331121.87	-1.69	-1.71	-1.63	-1.67	-1.66	-1.67	-1.56	-0.13
E5 Inner	365005.84	6330163.57	-0.41	-0.38	-0.42	-0.38	-0.39	-0.43	-0.35	-0.11
E5 Outer	365034.05	6330224.84	-1.59	-1.58	-1.55	-1.56	-1.57	-1.60	-1.53	-0.15
E6 Inner	365118.47	6329788.47	-0.45	-0.45	-0.48	-0.48	-0.44	-0.44	-0.48	0.00
E6 Outer	365174.78	6329802.22	-1.13	-1.13	-1.14	-1.16	-1.16	-1.16	-1.14	-0.07
E7 Inner	385350.82	6332350.29	-0.23	-0.23	-0.22	-0.16	-0.19	-0.22	-0.22	-0.02
E7 Outer	365298.68	6332344.74	-1.65	-1.68	-1.74	-1.72	-1.77	-1.69	-1.66	-0.02
E8 Inner	365128.03	6331795.60	-0.28	-0.31	-0.32	-0.31	-0.25	-0.34	-0.38	0.11
E8 Outer	365096.65	6331811.91	-0.96	-1.00	-1.02	-1.10	-1.00	-1.04	-1.01	0.02
E9 Inner	365040.22	6331607.83	-0.26	-0.28	-0.29	-0.30	-0.25	-0.29	-0.30	0.11
E9 Outer	364912.70	6331523.88	-1.14	-1.16	-1.18	-1.21	-1.17	-1.20	-1.31	0.24
E10 Inner	365422.57	6331427.14	-0.42	-0.42		-0.43	-0.42	-0.43	-0.49	0.04
E10 Outer	365395.00	6331361.69	-1.68	-1.73		-1.69	-1.70	-1.79	-1.80	0.07
E11 Inner	365553.95	6331410.18	-0.35	-0.34		-0.37	-0.35	-0.37	-0.41	-0.09
E11 Outer	365524.48	6331343.17	-1.04	-1.07		-1.09	-1.08	-1.10	-1.14	-0.05
E12 Inner	365750.13	6331328.50	-0.55	-0.55		-0.59	-0.55	-0.56	-0.59	0.02
E12 Outer	365734.72	6331284.93	-1.38	-1.39		-1.44	-1.41	-1.44	-1.53	-0.07
E13 Inner	365990.66	6331278.21	-0.54	-0.59		-0.58	-0.58	-0.58	-0.65	0.03
E13 Outer	365970.63	6331190.94	-1.35	-1.40		-1.39	-1.44	-1.42	-1.46	0.01
E14 Inner	366447.40	6331046.59	-0.48	-0.45		-0.45	-0.45	-0.45	-0.54	-0.02
E14 Outer	366371.08	6330984.10	-1.31	-1.30		-1.31	-1.32	-1.34	-1.38	-0.04
E15 Inner	366657.36	6330098.68	-0.37	-0.32		-0.33	-0.31	-0.32	-0.36	-0.02
E15 Outer	366611.13	6330167.43	-1.11	-1.13		-1.18	-1.12	-1.16	-1.17	-0.10
-10E16 Inner	366310.74	6329644.22	-0.44	-0.42		-0.46	-0.45	-0.48	-0.47	-0.10
E16 Outer	366272.62	6329666.71	-0.96	-0.95		-0.98	-0.98	-1.01	-0.99	-0.13
C1 Inner	56368596	6332235								
C1 Outer	56368616	6332250								
C2 Inner	56368619	6332147								
C2 Outer	56368658	6332151								
C3 Inner	56368524	6331811								
C3 Outer	56368538	6331806								

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C4 Inner	56368467	6331435								
C4 Outer	56368486	6331421								
C5 inner	56365676	6333038						-0.09	0.03	
C5 outer	56365703	6333084						-2.18	-2.17	
C6 inner	56366045	6332831						-0.04	0.01	
C6 outer	56366058	6332871						-2.00	-1.82	
T1 inner	365388.39	6333100.63	-0.38	-0.47	-0.43	-0.46	-0.45	-0.48	-0.37	-0.03
T1 outer	365400.16	6332952.03	-1.18	-1.15	-1.19	--	-1.21	-1.20	-1.17	0.02
T2 inner	365383.99	6332949.75	-0.72	-0.75	-0.74	-0.72	-0.72	-0.74	-0.83	0.13
T2 outer	365377.34	6332816.66	-1.34	-1.35	-1.37	-1.35	-1.37	-1.36	-1.35	0.04
T3 inner	365357.00	6332831.43	-0.34	-0.35	-0.34	-0.38	-0.35	-0.38	-0.37	0.08
T3 outer	365350.44	6332589.92	-1.03	-1.03	-1.06	-1.03	-1.04	-1.06	-1.11	0.10
T4 inner	365303.47	6332575.45	-0.46	-0.49	-0.46	-0.49	-0.50	-0.50	-0.38	-0.08
T4 outer	365347.64	6332380.21	-1.16	-1.13	-1.15	-1.15	-1.16	-1.15	-1.16	0.04
T5 inner	365299.87	6332338.33	-0.43	-0.48	-0.43	-0.46	-0.47	-0.52	-0.50	0.08
T5 outer	365320.77	6332207.30	-1.43	-1.47	-1.43	-1.44	-1.46	-1.47	-1.50	0.12
T6 inner	365267.87	6332207.03	-0.45	-0.45	-0.42	-0.42	-0.41	-0.42	-0.39	-0.08
T6 outer	365336.78	6332262.48	-1.61	-1.63	-1.68	-1.63	-1.64	-1.64	-1.64	0.03
T7 inner	365295.26	6332270.84	-0.18	-0.20	-0.21	-0.20	-0.12	-0.22	-0.26	0.09
T7 outer	365267.87	6332207.03	-1.63	-1.71	-1.67	-1.67	-1.67	-1.69	-1.69	0.05
T8 inner	365336.78	6332262.48	-0.13	-0.20	-0.17	-0.27	-0.18	-0.27	-0.15	-0.05
T8 outer	365295.26	6332270.84	-1.18	-1.18	-1.23	-1.18	-1.18	-1.24	-1.20	0.06
A1 inner	365336.78	6332262.48		-0.51	-0.57	-0.56	-0.59	-0.58	-0.52	0.01
A1 outer	365295.26	6332270.84		-1.19	-1.20	-1.24	-1.25	-1.25	-1.32	0.13
A2 inner	365336.78	6332262.48		-0.39	-0.44	-0.42	-0.45	-0.46	-0.45	0.06
A2 outer	365295.26	6332270.84		-0.81	-0.87	-0.86	-0.86	-0.89	-0.91	0.10
A3 inner	365336.78	6332262.48		-0.33	-0.34	-0.31	-0.30	-0.35	-0.25	-0.08
A3 outer	365295.26	6332270.84		-3.44	-1.38	-1.42	-1.43	-1.44	-1.24	-0.20
A4 inner	365336.78	6332262.48		-0.16	-0.19	-0.16	-0.16	-0.17	-0.17	0.01
A4 outer	365295.26	6332270.84		-0.72	-0.73	-0.73	-0.71	-0.71	-0.68	-0.04
A5 inner	365336.78	6332262.48		-0.30	-0.32	-0.33	-0.30	-0.32	-0.36	0.06
A5 outer	365295.26	6332270.84		-0.96	-0.95	-0.95	-0.95	-0.98	-1.01	0.05
A6 inner	365336.78	6332262.48		-0.14	-0.16	-0.14	-0.14	-0.15	-0.20	0.06
A6 outer	365295.26	6332270.84		-0.68	-0.69	-0.68	-0.68	-0.73	-0.76	0.08
L1 inner	364292.51	6330367.71			-1.12	-1.14	-1.11	-1.12	-1.07	-0.05
L1 outer	364304.21	6330399.90			-1.63	-1.66	-1.70	-1.63	-1.68	0.05
F1 inner	56366321	6333281.31						-0.22	-0.30	0.08
F1 outer	56366285	6333250.37						-1.28	-1.22	-0.06
F2 inner	56366342	6333330.55						-0.21	-0.19	-0.025
F2 outer	56366291	6333450.83						-1.95	-1.94	-0.01
F3 inner	56366611	6333163.06						-0.08	-0.12	0.04
F3 outer	56366620	6333228.02						-1.85	-1.70	-0.15
F4 inner	56366968	6333242.58						-0.08	-0.10	0.02
F4 outer	56366918	6333284.49						-2.42	-2.44	0.02
F5 inner	56367106	6333361.98						-0.30	-0.29	-0.01

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F5 outer	56367068	6333421.28							-2.43	-2.48	0.05
F6 inner	56367271	6333493.19							-0.27	-0.28	0.01
F6 outer	56367202	6333522.83							-2.78	-2.75	-0.03
F7 inner	56367402	6333682.09							-0.45	-0.45	0.00
F7 outer	56367374	6333694.93							-1.37	-1.47	0.10
S1 inner	56365009	6334470.41							-0.61	-0.56	-0.05
S1 outer	56365077	6334481.77							-1.75	-1.71	-0.04
S2 inner	56364642	6334943.57							-0.25	-0.23	-0.02
S2 outer	56364673	6334939.82							-1.56	-1.51	-0.05
S3 inner	56365017	6335008.93							-0.08	-0.15	0.07
S3 outer	56365041	6334932.70							-1.84	-1.94	0.10
S4 inner	56365235	6334992.86							-0.08	-0.14	-0.66
S4 outer	56365217	6334889.31							-1.70	-1.74	0.04
S5 inner	56362275	6334709.08							-0.66	-0.66	0.00
S5 outer	56365569	6334693.44							-1.36	-1.40	0.04
S6 inner	56366144	6334765.21							-0.07	-0.06	-0.01
S6 outer	56366172	6334761.92							-0.89	-0.89	0.00

Seagrass cover at each transect for each year sampled.

Transect E1	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	84.15		81.01	77.75	98.62	99.44	96.85	92.44	99.88	97.96	97.87	99.12
% no seagrass	15.85		18.99	22.25	1.38	0.56	3.15	7.56	0.12	2.04	2.13	0.88
Transect E2	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	83.72		75.87	73.38	95.49	99.09	98.38	98.49	99.71	100.0	97.94	97.94
% no seagrass	16.28		24.13	26.62	4.49	0.91	1.62	1.51	0.29	0.00	2.06	2.06
Transect E3	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	98.29		98.97	92.76	96.97	99.16	97.66	100.0	83.53	98.90	94.56	98.97
% no seagrass	1.71		1.03	7.24	1.54	0.84	2.34	0.00	16.47	1.10	5.44	1.03
Transect E4	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	80.16		98.54	95.74	100.0	97.50	98.06	96.43	98.01	96.76	99.71	99.85
% no seagrass	19.84		1.46	4.26	0.00	2.50	1.94	3.57	1.99	3.24	0.29	0.15
Transect E5	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	95.88		94.93	95.19	100.0	98.82	97.01	99.82	100.0	97.22	99.41	98.97
% no seagrass	4.12		5.07	4.81	0.00	1.18	2.99	0.18	0.00	2.78	0.59	1.03
Transect E6	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	17.74		34.06	49.56	55.51	54.93	83.24	76.62	100.0	99.56	89.91	76.69
% no seagrass	82.16		65.94	50.44	44.49	45.07	16.76	23.38	0.00	0.44	10.09	23.31
Transect E7	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	97.93		51.40	45.47	68.31	43.38	87.65	92.65	100.0	98.16	98.16	97.65
% no seagrass	2.07		48.60	54.53	31.69	56.62	12.35	7.35	0.00	1.84	1.84	2.35

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Transect E8	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	99.32		84.26	95.56	90.96	99.93	99.26	99.85	100.0	99.34	100.0	99.34
% no seagrass	0.68		15.74	4.44	9.04	0.07	0.74	0.15	0.00	0.66	0.00	0.66
Transect E9	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	95.94		99.39	95.51	99.49	99.71	99.71	99.56	100.0	99.78	100.0	100.0
% no seagrass	4.06		0.61	4.49	0.51	0.29	0.29	0.44	0.00	0.22	0.00	0.00
Transect E10	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	97.94		92.21	86.25	98.99	98.82	98.87	NS	100.0	100.0	100.0	98.21
% no seagrass	2.06		7.79	13.75	1.01	1.18	1.13		0.00	0.00	0.00	1.79
Transect E11	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass				86.93	99.85	99.49	97.65	NS	100.0	100.0	100.0	98.94
% no seagrass				13.07	0.15	0.51	2.35		0.00	0.00	0.00	1.06
Transect E12	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass				95.68	95.53	98.09	97.94	NS	100.0	100.0	100.0	97.0
% no seagrass				7.32	4.47	1.91	2.06		0.00	0.00	0.00	3.0
Transect E13	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass				93.97	99.26	100.0	99.93	NS	100.0	100.0	100.0	99.95
% no seagrass				6.03	0.74	0.00	0.07		0.00	0.00	0.00	0.05
Transect E14	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass				86.54	99.34	100.0	99.68	NS	100.0	90.44	100.0	98.24
% no seagrass				13.46	0.56	0.00	0.32		0.00	9.56	0.00	1.76
Transect E15	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass				90.29	99.93	99.66	92.28	NS	100.0	93.31	99.85	50.66
% no seagrass				9.71	0.07	0.34	7.72		0.00	6.69	0.15	49.34
Transect E16	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass				82.79	93.22	94.12	97.87	NS	100.0	99.94	99.71	95.0
% no seagrass				17.21	6.78	5.88	2.13		0.00	0.06	0.29	5.0
Transect T1	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	88.94		41.90	32.60	77.91	94.41	94.85	94.65	97.35	99.47	85.29	59.92
% no seagrass	11.06		58.10	67.40	22.09	5.59	5.15	5.35	2.65	0.53	14.71	40.08
Transect T2	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	77.91		70.29	7.95	75.74	60.83	93.68	74.41	90.59	93.31	90.00	76.87
% no seagrass	22.09		29.71	92.05	24.26	39.17	6.32	25.59	9.41	6.69	10.00	23.13
Transect T3	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	46.20		63.16	58.53	83.53	89.93	92.65	93.82	96.10	98.19	97.57	63.01
% no seagrass	53.80		36.84	41.47	16.47	10.07	7.35	6.18	3.90	1.81	2.43	36.99
Transect T4	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	83.51		81.89	70.37	90.37	97.28	99.41	97.94	99.85	95.76	95.07	70.44
% no seagrass	16.49		18.01	29.63	9.63	2.72	0.59	2.06	0.15	4.24	4.93	29.56

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	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Transect T5	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	81.78		77.00	51.40	92.35	99.12	98.24	99.41	98.82	99.56	89.63	62.65
% no seagrass	18.22		23.00	48.60	7.65	0.88	1.76	0.59	1.18	0.44	10.37	37.35
Transect T6	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	53.82		59.63	44.77	65.59	95.22	99.85	95.74	98.82	94.41	97.13	46.18
% no seagrass	46.18		40.37	53.23	34.41	4.78	0.15	4.26	1.18	5.59	2.87	53.82
Transect T7	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	97.93		70.79	89.34	89.09	99.78	98.97	98.38	100.0	99.85	98.97	25.88
% no seagrass	2.07		29.51	10.66	10.91	0.22	1.03	1.62	0.00	0.15	1.03	74.12
Transect T8	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	95.94		60.29	76.99	87.64	96.76	99.85	99.26	99.26	98.24	100.0	46.32
% no seagrass	4.06		39.71	23.01	13.26	3.24	0.15	0.74	0.74	1.76	0.00	53.68
Transect A1	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass							97.97	98.09	88.97	99.85	96.18	85.15
% no seagrass							2.03	1.91	11.03	0.15	3.82	14.85
Transect A2	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass							92.38	96.99	98.75	98.38	94.93	98.09
% no seagrass							7.62	3.01	1.25	1.62	5.07	1.91
Transect A3	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass							100.0	86.40	94.85	96.69	98.01	99.26
% no seagrass							0.00	13.60	5.15	3.31	1.99	0.74
Transect A4	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass							94.51	93.97	99.12	100.0	89.78	48.98
% no seagrass							5.49	6.03	0.88	0.00	10.22	51.02
Transect A5	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass							96.37	95.59	99.71	100.0	97.35	84.50
% no seagrass							3.63	4.41	0.29	0.00	2.65	15.50
Transect A6	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass							99.56	98.01	96.97	97.65	93.53	90.88
% no seagrass							0.44	1.99	3.03	2.35	6.47	9.12
Transect C1	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	48.60		80.53	68.71	85.38	99.31	97.82	94.04	99.94	76.18	99.68	34.26
% no seagrass	51.40		19.47	31.29	14.62	0.69	2.18	5.96	0.06	23.82	0.32	65.74
Transect C2	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	93.09		98.03	67.79	95.21	97.24	96.69	100.0	98.09	99.40	96.69	81.62
% no seagrass	6.91		1.97	32.21	4.79	2.76	3.31	0.00	1.91	0.60	3.31	18.38
Transect C3	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	95.59		88.75	94.41	97.16	99.93	98.75	98.46	99.90	96.47	100.0	87.21
% no seagrass	4.41		11.25	5.59	2.84	0.07	1.25	1.54	0.10	3.53	0.00	12.79

Seagrass Survey of Chain Valley Bay, Summerland Point, Bardens Bay and Crangan Bay (2019)

Transect C4	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	87.25		86.56	58.09	90.40	100.0	98.49	99.49	99.96	96.47	96.76	74.56
% no seagrass	12.75		13.44	41.91	9.60	0.00	1.51	0.51	0.04	3.53	3.24	25.44
Transect C5	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass											100.0	100.0
% no seagrass											0.00	0.00
Transect C6	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass											99.56	97.76
% no seagrass											0.44	2.24
Transect L1	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass								99.12	99.71	97.87	97.87	94.63
% no seagrass								0.88	0.29	2.13	2.13	5.37
Transect F1	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass											97.81	100.0
% no seagrass											2.19	0.00
Transect F2	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass											99.63	94.93
% no seagrass											0.37	5.07
Transect F3	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass											99.93	87.82
% no seagrass											0.07	12.18
Transect F4	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass											98.16	48.90
% no seagrass											1.84	51.1
Transect F5	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass											99.04	80.80
% no seagrass											0.96	19.2
Transect F6	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass											100.0	81.99
% no seagrass											10.00	18.01
Transect F7	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass											98.24	97.65
% no seagrass											1.76	2.35
Transect S1	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass											62.50	24.71
% no seagrass											37.50	75.29
Transect S2	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass											96.62	85.83
% no seagrass											3.38	14.17

Transect S3	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass											99.19	97.13
% no seagrass											0.81	2.87
Transect S4	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass											99.97	98.82
% no seagrass											0.03	1.18
Transect S5	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass											99.12	67.08
% no seagrass											0.88	32.92
Transect S6	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass											100.0	99.78
% no seagrass											0.00	0.22

Changes in Seagrass Cover in each region of Lake Macquarie

Fourteen stations in Chain Valley Bay, ten off Summerland Point and four in Crangan Bay were surveyed for seagrass cover from 2011 to 2019. Seagrass cover for these three regions of the lake are shown in the table below. In 2014 six stations in Bardens Bay were added to the sampling schedule. By 2018, 50 seagrass transects were being sampled.

Year	Total SG	% long	% short	% long 1	% long 2	% short 1	% short 2	algae	Bare Gr.
Summerland Point, Frying Pan Bay and Sugar Bay									
2011	61.74	9.88	51.86	9.98	0.00	51.86	0.00	0.27	38.13
2012	82.18	38.03	44.15	38.03	0.00	44.15	0.00	0.00	17.85
2013	90.92	25.19	65.88	25.03	0.32	64.92	0.80	0.82	8.26
2014	96.74	19.73	80.27	19.93	0.00	80.27	0.00	0.00	3.26
2015	95.06	17.31	69.33	17.31	0.00	77.75	0.00	0.00	4.93
2016	98.15	20.82	77.64	28.32	0.00	77.66	0.00	0.00	1.30
2017	97.92	17.05	80.63	14.61	2.50	65.14	15.63	0.24	1.35
2018	96.22	28.00	66.03	25.44	5.36	67.00	0.91	1.31	2.28
2019	77.37	32.99	40.16	36.46	0.00	44.00	0.00	2.11	20.51

Seagrass Survey of Chain Valley Bay, Summerland Point, Bardens Bay and Crangan Bay (2019)

Chain Valley Bay									
2011	85.44	41.75	43.68	40.28	1.47	43.68	0.00	0.99	13.32
2012	95.26	89.97	5.28	89.97	0.00	5.28	0.00	2.89	1.92
2013	95.63	62.25	35.84	55.83	1.06	35.84	0.00	0.25	4.00
2014	96.57	34.15	65.85	34.14	0.64	65.85	0.00	0.69	2.74
2015	94.70	70.26	18.80	58.28	11.97	24.45	0.00	1.02	5.06
2016	98.65	74.52	27.13	71.30	0.00	27.13	0.00	1.20	0.15
2017	97.63	52.60	42.79	36.35	18.19	49.82	0.11	0.60	1.62
2018	98.46	72.25	25.48	66.32	5.88	23.48	1.79	0.83	0.71
2019	93.15	84.48	8.64	84.48	0.00	15.66	0.00	0.39	6.72
Crangan Bay									
2011	72.52	28.47	44.05	28.47	0.00	43.31	0.74	0.87	26.98
2012	92.38	0.00	92.38	0.00	0.00	92.38	0.00	0.01	7.99
2013	98.82	13.79	85.52	10.84	2.96	85.52	0.00	0.02	1.02
2014	97.94	23.23	76.77	23.23	0.00	76.77	0.00	0.06	2.02
2016	99.47	15.90	83.30	6.99	9.18	55.37	27.93	0.13	0.49
2017	92.48	16.73	75.75	15.99	3.20	74.71	1.05	0.02	7.57
2018	98.28	46.25	52.03	5.48	89.13	49.09	2.94	0.01	1.74
2019	69.39	39.56	29.95	39.56	0.00	29.95	0.00	0.00	30.40
Bardens Bay									
2014	96.87	54.20	45.80	54.20	0.00	45.80	0.00	1.20	2.03
2015	94.84	68.18	26.67	68.18	0.00	26.67	0.00	0.00	2.92
2016	96.40	63.48	33.01	63.98	0.00	33.01	0.00	0.00	3.61
2017	98.78	76.02	22.75	51.51	24.51	20.59	3.78	0.03	1.23
2018	94.96	55.58	39.39	38.78	16.80	37.67	2.45	2.19	2.68
2019	84.48	73.08	6.40	73.03	11.40	11.40	0.00	0.00	15.52

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1. Introduction

Lake Macquarie is the largest saline lake in New South Wales. It lies on the central coast between Sydney and Newcastle within the local government areas of Wyong Shire and Lake Macquarie City. Lake Macquarie has a catchment of 700 square kilometers and a water surface area of 125 square kilometers (Bell & Edwards, 1980). The lake has a permanent entrance to coastal waters at Swansea and has an average depth of around 6 meters (Laxton, 2005).

The catchment of Lake Macquarie is largely rural with large areas of bushland and grazing land. The shoreline of Lake Macquarie is heavily urbanized, especially the eastern, western and northern shorelines. The region has a relatively long history of coal mining and power generation, with mining occurring since the late 1800s and the first power station at Lake Macquarie commencing operations in 1958.

Chain Valley Colliery is situated on the southern shores of Lake Macquarie near Mannering Park, NSW. The mine has been operating since 1963. Mining is continuing within the Chain Valley Coal Lease Area using the miniwall method. Prior to mining, there were three economically viable seams in the lease area, namely the Wallarah seam (mined completely of coal by 1997); the Great Northern seam, and the Fassifern seam. In 2018 Chain Valley Colliery went into voluntary receivership and was taken over by Delta Coal to provide coal for Vales Point Power Station

Chain Valley Colliery is mining the Fassifern Seam beneath Lake Macquarie. As part of the protection of the lake foreshore, the mining leases require a protection zone. This zone, to be known as the High Water Mark (HWM) Subsidence Barrier, was calculated using a 35° angle of draw from the depth of mining. The zone is approximately 130 meters wide. J.H. & E.S. Laxton – Environmental Consultants P/L were engaged by Mr. Keith Harris of Chain Valley Colliery in 2007 to assess the potential effects of pillar extraction mining beneath Lake Macquarie on seagrasses, benthic fauna and bathymetry. The work in 2012-15 was supervised by Mr Chris Ellis of LDO Group. In 2016/18, the ecological studies were supervised by Mr Wade Covey. In 2019 the work was supervised by Mr Chris Armit.

J.H. & E.S. Laxton – Environmental Consultants P/L was engaged in 2007 to provide the following:

- a bathymetric survey of the study area;
- a soft bottom benthic survey of the study area; and
- a seagrass survey of the western and eastern shorelines in the area proposed for underground mining.

The bathymetric and benthic surveys were conducted on 30th and 31st July 2007 by Dr John H. Laxton and Dr Emma Laxton of J.H. & E.S. Laxton – Environmental Consultants P/L and Mr Robert Payne of Ecological Surveys & Management, and the seagrass survey was conducted by John Laxton and Emma Laxton on 27th August 2007. A report entitled:

Peabody/Lake Coal. Chain Valley Colliery. *Aquatic Biology of Chain Valley Bay Lake Macquarie, NSW* by Emma Laxton and John H. Laxton. August 2007

was prepared.

This report drew attention to the following:

- There was only one species of seagrass present in the lease area of Chain Valley Bay in 2007. It was *Zostera capricorni*. Later surveys in 2010, 2013, 2014, 2015 and 2017 found the small seagrass *Halophila ovalis* in the study area.
- There could be changes to the distribution and density of seagrass beds in Chain Valley Bay that were unrelated to underground coal mining,

- It was recommended that an annual survey of seagrass beds in Chain Valley Bay be carried out over the life of the current proposal to mine the Fassifern seam.
- A pre-mining survey carried out in June/July 2008 would establish baseline conditions of seagrass beds in Chain Valley Bay.

NSW Department of Industry and Investment and Fisheries Divisions both accepted this recommendation.

A meeting was held on 17th April 2008 attended by Mine Environment Manager Mr Shaun McDonell (Contact: 02 43580880), Mr Owen Farrugia (the previous Manager of Mining Engineering Chain Valley Colliery), Mr James Sakker of NSW Department of Primary Industries, Fisheries Division (contact: 02 49163955) and Drs John and Emma Laxton of J.H. & E.S. Laxton – Environmental Consultants P/L (contact: 0447 653 387).

At this meeting, and at subsequent discussions between NSW Government Departments and the mine management, the following programme was agreed upon:

- Ten experimental transects through the seagrass beds were to be established in the area to be mined in Chain Valley Bay. Four control transects were to be established in Crangan Bay, Lake Macquarie.
- The outer ends of the transects were to be marked by cast concrete blocks fitted with subsurface buoys.
- Differential GPS survey methods were to be used to establish the precise location and height of the lake bed at the inner and outer ends of each transect in Chain Valley Bay. This procedure was used to establish the baseline to detect any subsidence of the lake bed due to underground mining.
- Seagrass distribution, density and condition along each transect was to be recorded using a video camera enclosed within a waterproof housing and mounted on a floating platform.

The work was supervised by Mr Keith Harris of Lake Coal. A report entitled:

Chain Valley Colliery. Seagrass survey of Chain Valley Bay, Lake Macquarie, NSW by John H. Laxton and Emma Laxton. July 2008.

was produced.

In 2009, a further survey of the Lake along Summerland Point (Domain No. 2) was carried out. The following aspects were investigated:

- a bathymetric survey of the study area was undertaken,
- a soft bottom benthic survey of the study area was carried out,
- a survey to determine the maximum seaward extent of the seagrass beds and the maximum depth at which they occurred was undertaken,
- a photographic seagrass survey of the shoreline of Summerland Point in the area proposed for underground mining was carried out (the original ten experimental stations and four control stations). Also eight new permanent transects (T1 to T8) were established and surveyed using the underwater video camera.

A report entitled :

Peabody Energy – Chain Valley Colliery. Aquatic Biology of Domain No. 2 off Summerland Point, Lake Macquarie, NSW. Emma and John H. Laxton. July 2009

was prepared.

In June 2010 a video photographic resurvey of all 22 permanent seagrass transects was carried out, including a survey, using differential GPS, to determine the elevation and location of the inner and outer ends of each transect (by Pearson & Associates Pty. Ltd.).

In June 2011 a further photographic resurvey of the 22 permanent seagrass transects was carried out, including determination of the elevation of the inner and outer ends of each transect using differential GPS (Pearson and Associates Pty. Ltd). A further 6 transects through the seagrass beds were added to the schedule. These new transects were located along the eastern shoreline of Chain Valley Bay (Figure 4.1).

In June 2012 and June 2013, 28 transects were resurveyed using the underwater video camera mounted on the floating platform. The lake bed heights of the inner and outer ends of each transect (excluding the control transects in Crangan Bay) were measured by Pearson and Associates Pty. Ltd.

LDO Lake Coal has new plans to mine coal beneath Bardens Bay. Mr Chris Ellis required the 2014 seagrass survey to be brought forward to April so that baseline data on seagrasses and lake bed levels in Bardens Bay were available before mining commenced. Six new seagrass transects were established in Bardens Bay (A1 to A6 - Figure 4.2). Documents were required for submission by 23rd June 2014.

Bardens Bay around Trinity Point on the southern side is quite deep and seagrasses occupy only a narrow band along the shoreline. At the tip of Trinity Point rocks outcrop at the shoreline leaving no room for seagrasses.

In 2015, the seagrass survey was conducted between 24th and 26th May 2015. We were instructed not to resurvey Transects E10 to E16, located in Chain Valley Bay because no mining was to be undertaken in this area in the near future. A new Transect L1 was established and photographed.

The seagrass photographic survey in 2016 was undertaken between June 14th and 16th 2016. Very rough weather with heavy rainfall preceded the survey in June 2016. Purchase Order 486395.

In 2017 all established seagrass transects (35) were re-photographed between June 20th and 23rd. The weather prior to sampling included a period of heavy rain which caused the water transparency in the lake to deteriorate. Seagrass photography was delayed until the lake water cleared.

In 2018 the seagrass survey was carried out between 18th and 19th May 2018. Fifteen new seagrass transects were added to the sampling schedule in 2018, bringing the total number of transects sampled to 50. The purchase order was 520872.

The 2019 seagrass survey was carried out between June 25th and June 27th. Order No. D100504.

2. Participants in the 2019 Survey and sequence of events

Mr Chris Armit, on behalf of Delta Coal, authorised the 2019 resurvey of the existing seagrass transects and the 15 new transects. The video photography was carried out between 25th and 27th June 2019 (Purchase order D100504). Ms. Zofia Laxton provided assistance in the field and laboratory during this work; The determination of the elevations of the inner and outer ends of the transects by differential GPS was undertaken in July 2019. This phase of the work was carried out by Mr Sean Price and Mr Chris Smith of Daly.Smith Pty. Ltd. (02 4973 2745) of Morisset.

3. Methods

Seagrass photography

A Sony Handycam 6.1 megapixel video camera (DCR-SR300E) with 40 GB hard drive fitted with a wide conversion lens x0.7 (VCL-HG737C) was inserted into an underwater housing. The underwater housing was mounted vertically in the centre of a 1m long surf board. This rig was towed alongside the 5.9m work boat. Experimentation revealed that the best photographic results were obtained when the boat and

photographic rig were poled very slowly along the transect line on windless days. Good quality photographs were obtained both in boat shadow and full sunlight although half shadow sequences could still be evaluated satisfactorily. In 2011 LED lights were added to the photographic rig to permit photography before dawn and to provide additional illumination when the rig was photographing in the boat shadow. This illumination provided excellent photographs in 2012 and 2013. In 2014, the level of Lake Macquarie was low because of the effect of the high pressure ridge over the western Tasman Sea. Although conditions were calm and seemingly ideal for video photography, a problem was encountered that was not apparent in earlier years. As the photographic rig was poled slowly across the seagrass beds in shallow water, bubbles of oxygen derived from photosynthesis rose through the water column and adhered to the face plate of the camera housing. This caused the video camera to focus on the bubbles and not the seagrass below. The result were badly out of focus video footage. At least ten stations had to be rephotographed the next day, making sure that any bubbles of oxygen were wiped away.

In 2015 good photographs were obtained at all Transects except A3 and A4 where bubbles of oxygen caused the camera to focus on the front lens of the camera housing.

In 2016 a new photographic platform was built incorporating the same camera and housing and utilized two powerful 12v LED underwater lights to illuminate the substratum. This rig could be used at night and allowed stations to be photographed before the problem with oxygen bubbles could manifest (around mid-day). This photographic rig was used in the 2017, 2018 and 2019 seagrass surveys.

The water depth along most of the transect lines ranged from around 0.5 to 1.2m (depending upon the lake water level). At the end of the transect line the water depth could be around 1.8m. Transect lines were photographed from the outer end to the inner end. The beginning of each transect was marked by photographing a label with the transect number printed in large type.

At the end of the each day's photography, the hard drive of the video camera was downloaded to a desk top computer. The videos were played using Windows Media Player. The film was paused at around 1m intervals along the transect line. Each still frame was examined and the following information was recorded on a data sheet:

1. The file name and number of the video segment being examined.
2. The transect number and the date the video was taken.
3. The percentage areas occupied by the following plants and animals in each still photograph or quadrat:
 - (a) % area occupied by long leaved seagrass (*Zostera capricorni*);
 - (b) % area occupied by short leaved seagrass (*Zostera capricorni*);
 - (c) % area occupied by the small seagrass *Halophila ovalis*;
 - (d) degree of fouling of the seagrass leaves by algae 1=no fouling, 2=light fouling, 3=heavy fouling;
 - (e) % area occupied by the large brown alga (*Sargassum* sp., *Hormosira banksii* or *Cystophyllum omustum*);
 - (f) % area occupied by filamentous and thallose algae (green or brown algae);
 - (g) Number of the large bivalve *Pinna menkei*;
 - (h) % area of uncolonised ground (bare ground, no macroscopic epibenthos).

Sixty-eight still photographs or quadrats were analyzed along each transect. At the end of the analysis of the photographs, the results were entered into a Lotus 123 work sheet and mean values for each category of organism were calculated.

Surveying Methods

Mr Sean Price of Daly.Smith P/L and staff established base stations for their differential GPS equipment along the shore of Chain Valley Bay. A measured carbon fibre staff fitted with a 110mm diameter aluminium base plate (to prevent penetration into the sediment) was attached to the end of the staff. Survey data (x, y & z coordinates) were recorded on a separate hand piece. Communication between the GPS receiver, the base stations and the hand piece was by coded radio signals.

The boat was maneuvered into position at the inshore end of each transect. The staff was placed on the lake bed and held vertically until the observation was made and recorded. Next, the boat was moved outwards from the shore where intermediate points along the transect were established and recorded. When the outer end of the transect was reached, the staff was placed on the exact coordinates and the position and height of the lake bed was recorded.

The memory of the hand held computer was downloaded and the following plots were made:

- A map of the position of transects in Chain Valley Bay, Summerland Point, Bardens Bay, Sugar Bay and Frying Pan Bay;
- A table of the coordinates of the inner and outer ends of each transect and the coordinates of the base stations was made;
- The elevations of the seabed at the inner and outer ends of each transect, relative to AHD, were established and tabulated

4. Locations of permanent seagrass monitoring transects

Figures 4.1, 4.2 and 4.3 shows the area of Chain Valley Bay, Summerland Point, Bardens Bay, Brightwaters and Crangan Bay where the seagrass transects are located. In 2018 and 2019, a total of 50 transects were photographed.



Figure 4.1. Locations of Transects in Chain Valley Bay, Summerland Point and Crangan Bay, Lake Macquarie.



Figure 4.2. Locations of Transects A1 to A6 in Bardens Bay, Lake Macquarie established in 2014.

Transects E1 to E16	Established experimental transects in Chain Valley Bay and Summerland Point.
Transects T1 to T8	Established experimental transects along Summerland Point.
Transects C1 to C4	Established control stations in Crangan Bay.
Transects A1 to A6	Established experimental stations in Bardens Bay in 2014.
Transect L1	Established in Chain Valley Bay in 2015.
Transects C5 to C6	Established in 2018.
Transects F1 to F7	Established in 2018.
Transects S1 to S6	Established in 2018.

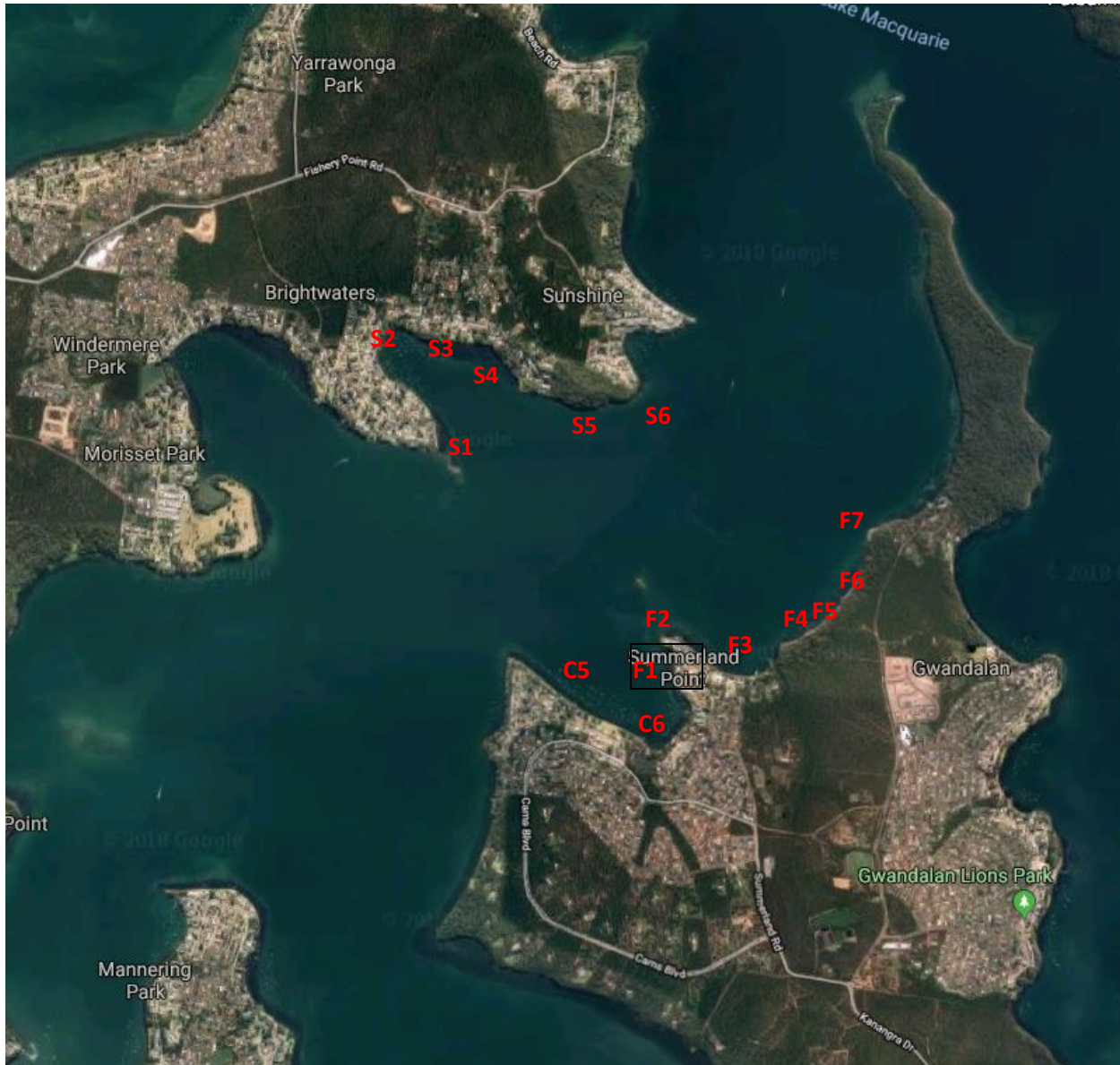


Figure 4.3. Location of transects C5-C6, F1-F7 and S1-S6.

Table 4.1 shows the precise locations of the inner and outer ends of the permanent seagrass monitoring transects in Chain Valley Bay, Summerland Point, Bardens Bay and Brightwaters as determined by differential GPS. Transects in Crangan Bay were for biological purposes only and did not require precise locations (hand held GPS coordinates were sufficient to re-locate them).

Table 4.1 Coordinates of inner and outer ends of permanent seagrass monitoring transects in Chain Valley Bay and Summerland Point and Bardens Bay.

Transect No.	Easting	Northing
E1 Inner	56363985.72	6331796.94
E1 Outer	56364003.72	6331816.06
E2 Inner	56364035.49	6331701.00
E2 Outer	56364077.23	6331716.71
E3 Inner	56363953.11	6331405.11
E3 Outer	56364027.16	6331417.57
E4 Inner	56364220.00	6331077.87
E4 Outer	56364259.75	6331121.87
E5 Inner	56365005.84	6330163.57
E5 Outer	56365034.05	6330224.84
E6 Inner	56365118.47	6329788.47
E6 Outer	56365174.78	6329802.22
E7 Inner	56385350.82	6332350.29
E7 Outer	56365298.68	6332344.74
E8 Inner	56365128.03	6331795.60
E8 Outer	56365096.65	6331811.91
E9 Inner	56365040.22	6331607.83
E9 Outer	56364912.70	6331523.88
E10 Inner	56365422.57	6331427.14
E10 Outer	56365395.00	6331361.69
E11 Inner	56365553.95	6331410.18
E11 Outer	56365524.48	6331343.17
E12 Inner	56365750.13	6331328.50
E12 Outer	56365734.72	6331284.93
E13 Inner	56365990.66	6331278.21
E13 Outer	56365970.63	6331190.94
E14 Inner	56366447.40	6331046.59
E14 Outer	56366371.08	6330984.10
E15 Inner	56366657.36	6330098.68
E15 Outer	56366611.13	6330167.43
E16 Inner	56366310.74	6329644.22
E16 Outer	56366272.62	6329666.71
C1 Inner	56368596	6332235
C1 Outer	56368616	6332250
C2 Inner	56368619	6332147
C2 Outer	56368658	6332151
C3 Inner	56368524	6331811
C3 Outer	56368538	6331806
C4 Inner	56368467	6331435
C4 Outer	56368486	6331421

C5 inner	56365676.16	6333038.72
C5 outer	56365703.00	6333084.97
C6 inner	56366045.25	6332831.74
C6 outer	56366058.27	6332871.22
T1 inner	56365388.39	6333100.63
T1 outer	56365400.16	6332952.03
T2 inner	56365383.99	6332949.75
T2 outer	56365377.34	6332816.66
T3 inner	56365357.00	6332831.43
T3 outer	56365350.44	6332589.92
T4 inner	56365303.47	6332575.45
T4 outer	56365347.64	6332380.21
T5 inner	56365299.87	6332338.33
T5 outer	56365320.77	6332207.30
T6 inner	56365267.87	6332207.03
T6 outer	56365336.78	6332262.48
T7 inner	56365295.26	6332270.84
T7 outer	56365267.87	6332207.03
T8 inner	56365336.78	6332262.48
T8 outer	56365295.26	6332270.84
A1 inner	56365336.78	6332262.48
A1 outer	56365295.26	6332270.84
A2 inner	56365336.78	6332262.48
A2 outer	56365295.26	6332270.84
A3 inner	56365336.78	6332262.48
A3 outer	56365295.26	6332270.84
A4 inner	56365336.78	6332262.48
A4 outer	56365295.26	6332270.84
A5 inner	56365336.78	6332262.48
A5 outer	56365295.26	6332270.84
A6 inner	56365336.78	6332262.48
A6 outer	56365295.26	6332270.84
L1 inner	56364292.51	6330367.71
L1 outer	56364304.21	6330399.90
F1 inner	56366321.02	6333250.37
F1 outer	56366285.49	6333250.37
F2 inner	56366342.20	6333330.55
F2 outer	56366291.43	6333450.83
F3 inner	56366611.15	6333163.06
F3 outer	56366620.59	6333228.02
F4 inner	56366968.12	6333242.58
F4 outer	56366918.39	6333284.49
F5 inner	56367106.95	6333361.98
F5 outer	56367068.97	6333421.28
F6 inner	56367271.10	6333493.19

F6 outer	56367202.42	6333522.83
F7 inner	56367402.36	6333682.09
F7 outer	56367374.73	6333694.93
S1 inner	56365009.02	6334470.41
S1 outer	56365077.72	6334481.77
S2 inner	5636642.29	6334943.57
S2 outer	56364673.53	6334939.82
S3 inner	56365017.76	6335008.93
S3 outer	56365041.97	6334932.70
S4 inner	56365235.10	6334992.86
S4 outer	56365217.43	6334889.31
S5 inner	56365575.20	6334709.08
S5 outer	36365569.66	6334693.44
S6 inner	56366144.58	6334765.21
S6 outer	56366172.04	6334761.92

The outer end of Transect A3 was relocated in July 2015 because it had been placed in 2014 in water so deep that the survey staff and GPS unit could not reach the lake bed. In 2015 the end of the transect was moved inshore to coincide with the outer edge of the seagrass bed.

5. Transect length and depth profiles

Table 5.1 shows the length of each permanent transect.

Table 5.1. Transect lengths in Chain Valley Bay

Transect Number	Length (m)	Transect Number	Length (m)
Transect E1	26.25	Transect E2	44.60
Transect E3	75.09	Transect E4	59.30
Transect E5	67.45	Transect E6	57.97
Transect E7	52.44	Transect E8	35.36
Transect E9	152.68	Transect E10	71.01
Transect E11	73.21	Transect E12	46.22
Transect E13	89.54	Transect E14	98.63

Transect E15	82.85	Transect E16	44.26
Transect T1	47.48	Transect T2	14.39
Transect T3	16.32	Transect T4	25.14
Transect T5	49.14	Transect T6	63.53
Transect T7	52.90	Transect T8	42.36
Transect A1	42.60	Transect A2	24.00
Transect A3	34.80	Transect A4	26.30
Transect A5	18.30	Transect A6	13.70
Transect L1	20.00	Transect C5	41.573
Transect C6	13.673	Transect F1	47.114
Transect F2	130.552	Transect F3	65.638
Transect F4	65.037	Transect F5	70.461
Transect F6	74.807	Transect F7	30.473
Transect S1	69.635	Transect S2	31.461
Transect S3	79.984	Transect S4	105.048
Transect S5	16.599	Transect S6	27.665

6. Definitions of seagrass characteristics, fouling levels and other organisms

The following photographs show the various characteristics of seagrass (*Zostera capricorni*) and other organisms defined in Section 3, whose percentage cover was determined in each quadrat.

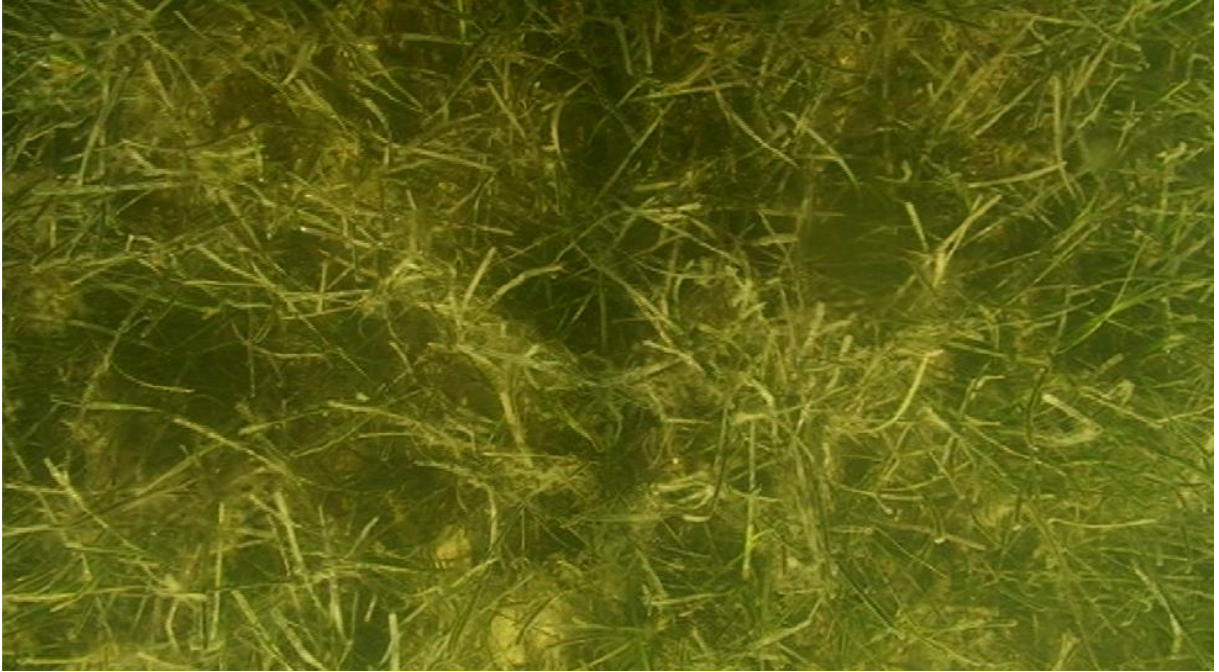


Plate 1. Short leaved sea grass with level 1 fouling (no fouling).



Plate 2. Short leaved seagrass with level 2 fouling (low fouling).

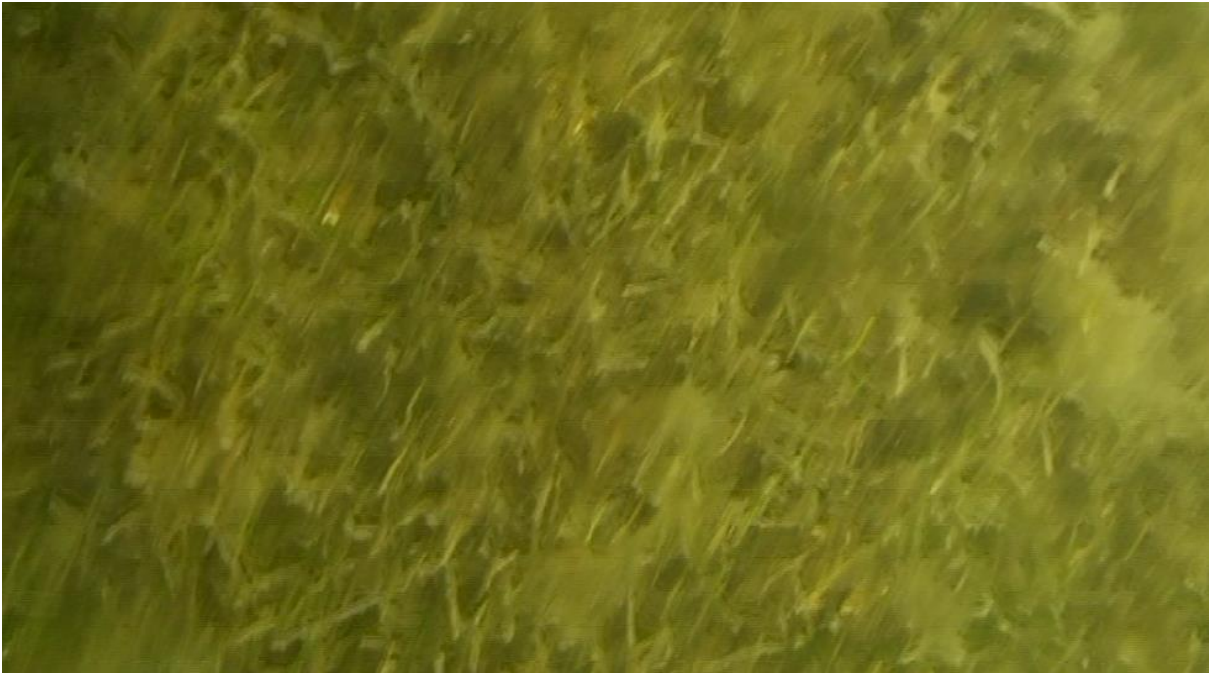


Plate 3. Short leaved seagrass with level 3 fouling (heavy fouling)



Plate 4. Dense long leaved seagrass with level 1 fouling (no fouling).



Plate 5. Long leaved seagrass with level 2 fouling (low fouling).



Plate 6. Seagrass with some bare ground.



Plate 7. Short leaved seagrass with a single *Cystophyllum onustum* plant.



Plate 8. Short leaved seagrass with level 2 fouling (low fouling) and a *Cystophyllum onustum* plant.



Plate 9. Algal mat and some bareground.

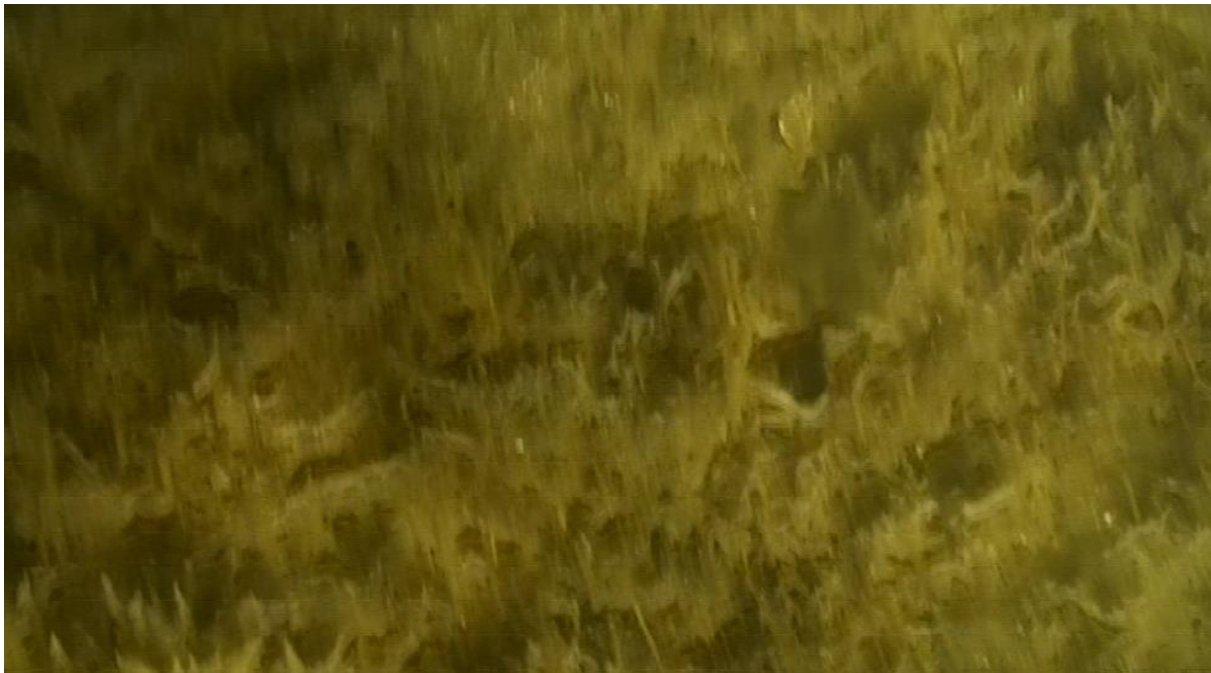


Plate 10. Dense algal mat.



Plate 11. Horse mussel or *Pinna menkei*.



Plate 12. *Halophila ovalis* (paddle weed) seen at transect E6 in Chain Valley Bay for the first time on 12th June 2010.



Plate 13. *Hormosira banksii* (fucoid brown alga) found at Transect C1 in Crangan Bay for the first time on 12th June 2010.



Plate 14. The brown alga *Cystophyllum onustum* growing on a shell in Chain Valley Bay.

7. Results of analysis of quadrats along permanent transects

Table 7.1 shows the percentage of seagrass present along each permanent transect in Chain Valley Bay, Summerland Point, Bardens Bay, Brightwaters and Crangan Bay between the period 2008 to 2018. The table shows that since 2008, seagrass coverage has been increasing throughout the study area, and percentage cover has been consistent since 2012 (Table 7.1). Figure 7.1 shows changes in the percentage cover of seagrasses at Transects E1 to E10 that have been sampled for 10 years.

Table 7.1 Percentage seagrass present along each transect (2008-2019)

Transect Endpoint Coordinates MGA Zone 56 / metres A.H.D										
Transect No.	Easting	Northing	2013	2014	2015	2016	2017	2018	2019	Diff 08-
E1 Inner	363985.72	6331796.94	-0.68	-0.68	-0.67	-0.69	-0.70	-0.68	-0.66	-0.02
E1 Outer	364003.72	6331816.06	-0.99	-0.99	-1.02	-1.02	-1.02	-1.05	-0.99	-0.01
E2 Inner	364035.49	6331701.00	-0.67	-0.65	-0.67	-0.67	-0.67	-0.69	-0.63	-0.01
E2 Outer	364077.23	6331716.71	-1.70	-1.84	-1.81	-1.84	-1.85	-1.80	-1.76	-0.02
E3 Inner	363953.11	6331405.11	-0.33	-0.28	-0.31	-0.33	-0.33	-0.31	-0.30	-0.02
E3 Outer	364027.16	6331417.57	-2.29	-2.30	-2.35	-2.33	-2.34	-2.38	-2.34	0.00
E4 Inner	364220.00	6331077.87	-0.48	-0.46	-0.47	-0.47	-0.46	-0.47	-0.46	0.00
E4 Outer	364259.75	6331121.87	-1.69	-1.71	-1.63	-1.67	-1.66	-1.67	-1.56	-0.13
E5 Inner	365005.84	6330163.57	-0.41	-0.38	-0.42	-0.38	-0.39	-0.43	-0.35	-0.11
E5 Outer	365034.05	6330224.84	-1.59	-1.58	-1.55	-1.56	-1.57	-1.60	-1.53	-0.15
E6 Inner	365118.47	6329788.47	-0.45	-0.45	-0.48	-0.48	-0.44	-0.44	-0.48	0.00
E6 Outer	365174.78	6329802.22	-1.13	-1.13	-1.14	-1.16	-1.16	-1.16	-1.14	-0.07
E7 Inner	385350.82	6332350.29	-0.23	-0.23	-0.22	-0.16	-0.19	-0.22	-0.22	-0.02
E7 Outer	365298.68	6332344.74	-1.65	-1.68	-1.74	-1.72	-1.77	-1.69	-1.66	-0.02
E8 Inner	365128.03	6331795.60	-0.28	-0.31	-0.32	-0.31	-0.25	-0.34	-0.38	0.11
E8 Outer	365096.65	6331811.91	-0.96	-1.00	-1.02	-1.10	-1.00	-1.04	-1.01	0.02
E9 Inner	365040.22	6331607.83	-0.26	-0.28	-0.29	-0.30	-0.25	-0.29	-0.30	0.11
E9 Outer	364912.70	6331523.88	-1.14	-1.16	-1.18	-1.21	-1.17	-1.20	-1.31	0.24
E10 Inner	365422.57	6331427.14	-0.42	-0.42		-0.43	-0.42	-0.43	-0.49	0.04
E10 Outer	365395.00	6331361.69	-1.68	-1.73		-1.69	-1.70	-1.79	-1.80	0.07
E11 Inner	365553.95	6331410.18	-0.35	-0.34		-0.37	-0.35	-0.37	-0.41	-0.09
E11 Outer	365524.48	6331343.17	-1.04	-1.07		-1.09	-1.08	-1.10	-1.14	-0.05
E12 Inner	365750.13	6331328.50	-0.55	-0.55		-0.59	-0.55	-0.56	-0.59	0.02
E12 Outer	365734.72	6331284.93	-1.38	-1.39		-1.44	-1.41	-1.44	-1.53	-0.07
E13 Inner	365990.66	6331278.21	-0.54	-0.59		-0.58	-0.58	-0.58	-0.65	0.03
E13 Outer	365970.63	6331190.94	-1.35	-1.40		-1.39	-1.44	-1.42	-1.46	0.01
E14 Inner	366447.40	6331046.59	-0.48	-0.45		-0.45	-0.45	-0.45	-0.54	-0.02
E14 Outer	366371.08	6330984.10	-1.31	-1.30		-1.31	-1.32	-1.34	-1.38	-0.04
E15 Inner	366657.36	6330098.68	-0.37	-0.32		-0.33	-0.31	-0.32	-0.36	-0.02
E15 Outer	366611.13	6330167.43	-1.11	-1.13		-1.18	-1.12	-1.16	-1.17	-0.10

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-.10E16 Inner	366310.74	6329644.22	-0.44	-0.42		-0.46	-0.45	-0.48	-0.47	-0.10
E16 Outer	366272.62	6329666.71	-0.96	-0.95		-0.98	-0.98	-1.01	-0.99	-0.13
C1 Inner	56368596	6332235								
C1 Outer	56368616	6332250								
C2 Inner	56368619	6332147								
C2 Outer	56368658	6332151								
C3 Inner	56368524	6331811								
C3 Outer	56368538	6331806								
C4 Inner	56368467	6331435								
C4 Outer	56368486	6331421								
C5 inner	56365676	6333038						-0.09	0.03	
C5 outer	56365703	6333084						-2.18	-2.17	
C6 inner	56366045	6332831						-0.04	0.01	
C6 outer	56366058	6332871						-2.00	-1.82	
T1 inner	365388.39	6333100.63	-0.38	-0.47	-0.43	-0.46	-0.45	-0.48	-0.37	-0.03
T1 outer	365400.16	6332952.03	-1.18	-1.15	-1.19	--	-1.21	-1.20	-1.17	0.02
T2 inner	365383.99	6332949.75	-0.72	-0.75	-0.74	-0.72	-0.72	-0.74	-0.83	0.13
T2 outer	365377.34	6332816.66	-1.34	-1.35	-1.37	-1.35	-1.37	-1.36	-1.35	0.04
T3 inner	365357.00	6332831.43	-0.34	-0.35	-0.34	-0.38	-0.35	-0.38	-0.37	0.08
T3 outer	365350.44	6332589.92	-1.03	-1.03	-1.06	-1.03	-1.04	-1.06	-1.11	0.10
T4 inner	365303.47	6332575.45	-0.46	-0.49	-0.46	-0.49	-0.50	-0.50	-0.38	-0.08
T4 outer	365347.64	6332380.21	-1.16	-1.13	-1.15	-1.15	-1.16	-1.15	-1.16	0.04
T5 inner	365299.87	6332338.33	-0.43	-0.48	-0.43	-0.46	-0.47	-0.52	-0.50	0.08
T5 outer	365320.77	6332207.30	-1.43	-1.47	-1.43	-1.44	-1.46	-1.47	-1.50	0.12
T6 inner	365267.87	6332207.03	-0.45	-0.45	-0.42	-0.42	-0.41	-0.42	-0.39	-0.08
T6 outer	365336.78	6332262.48	-1.61	-1.63	-1.68	-1.63	-1.64	-1.64	-1.64	0.03
T7 inner	365295.26	6332270.84	-0.18	-0.20	-0.21	-0.20	-0.12	-0.22	-0.26	0.09
T7 outer	365267.87	6332207.03	-1.63	-1.71	-1.67	-1.67	-1.67	-1.69	-1.69	0.05
T8 inner	365336.78	6332262.48	-0.13	-0.20	-0.17	-0.27	-0.18	-0.27	-0.15	-0.05
T8 outer	365295.26	6332270.84	-1.18	-1.18	-1.23	-1.18	-1.18	-1.24	-1.20	0.06
A1 inner	365336.78	6332262.48		-0.51	-0.57	-0.56	-0.59	-0.58	-0.52	0.01
A1 outer	365295.26	6332270.84		-1.19	-1.20	-1.24	-1.25	-1.25	-1.32	0.13
A2 inner	365336.78	6332262.48		-0.39	-0.44	-0.42	-0.45	-0.46	-0.45	0.06
A2 outer	365295.26	6332270.84		-0.81	-0.87	-0.86	-0.86	-0.89	-0.91	0.10
A3 inner	365336.78	6332262.48		-0.33	-0.34	-0.31	-0.30	-0.35	-0.25	-0.08
A3 outer	365295.26	6332270.84		-3.44	-1.38	-1.42	-1.43	-1.44	-1.24	-0.20
A4 inner	365336.78	6332262.48		-0.16	-0.19	-0.16	-0.16	-0.17	-0.17	0.01
A4 outer	365295.26	6332270.84		-0.72	-0.73	-0.73	-0.71	-0.71	-0.68	-0.04
A5 inner	365336.78	6332262.48		-0.30	-0.32	-0.33	-0.30	-0.32	-0.36	0.06
A5 outer	365295.26	6332270.84		-0.96	-0.95	-0.95	-0.95	-0.98	-1.01	0.05
A6 inner	365336.78	6332262.48		-0.14	-0.16	-0.14	-0.14	-0.15	-0.20	0.06
A6 outer	365295.26	6332270.84		-0.68	-0.69	-0.68	-0.68	-0.73	-0.76	0.08
L1 inner	364292.51	6330367.71			-1.12	-1.14	-1.11	-1.12	-1.07	-0.05
L1 outer	364304.21	6330399.90			-1.63	-1.66	-1.70	-1.63	-1.68	0.05
F1 inner	56366321	6333281.31						-0.22	-0.30	0.08

F1 outer	56366285	6333250.37						-1.28	-1.22	-0.06
F2 inner	56366342	6333330.55						-0.21	-0.19	-0.25
F2 outer	56366291	6333450.83						-1.95	-1.94	-0.01
F3 inner	56366611	6333163.06						-0.08	-0.12	0.04
F3 outer	56366620	6333228.02						-1.85	-1.70	-0.15
F4 inner	56366968	6333242.58						-0.08	-0.10	0.02
F4 outer	56366918	6333284.49						-2.42	-2.44	0.02
F5 inner	56367106	6333361.98						-0.30	-0.29	-0.01
F5 outer	56367068	6333421.28						-2.43	-2.48	0.05
F6 inner	56367271	6333493.19						-0.27	-0.28	0.01
F6 outer	56367202	6333522.83						-2.78	-2.75	-0.03
F7 inner	56367402	6333682.09						-0.45	-0.45	0.00
F7 outer	56367374	6333694.93						-1.37	-1.47	0.10
S1 inner	56365009	6334470.41						-0.61	-0.56	-0.05
S1 outer	56365077	6334481.77						-1.75	-1.71	-0.04
S2 inner	56364642	6334943.57						-0.25	-0.23	-0.02
S2 outer	56364673	6334939.82						-1.56	-1.51	-0.05
S3 inner	56365017	6335008.93						-0.08	-0.15	0.07
S3 outer	56365041	6334932.70						-1.84	-1.94	0.10
S4 inner	56365235	6334992.86						-0.08	-0.14	-0.66
S4 outer	56365217	6334889.31						-1.70	-1.74	0.04
S5 inner	56362275	6334709.08						-0.66	-0.66	0.00
S5 outer	56365569	6334693.44						-1.36	-1.40	0.04
S6 inner	56366144	6334765.21						-0.07	-0.06	-0.01
S6 outer	56366172	6334761.92						-0.89	-0.89	0.00

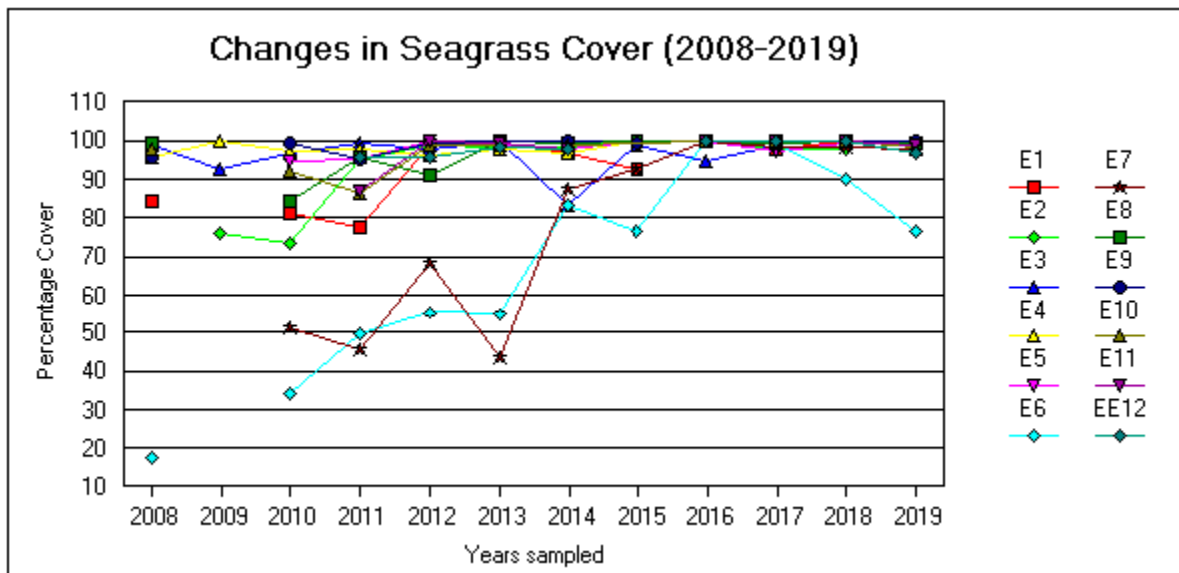


Figure 7.1. Changes in percentage area of seagrasses at Transects E1 to E12 that had been sampled for 11 years.

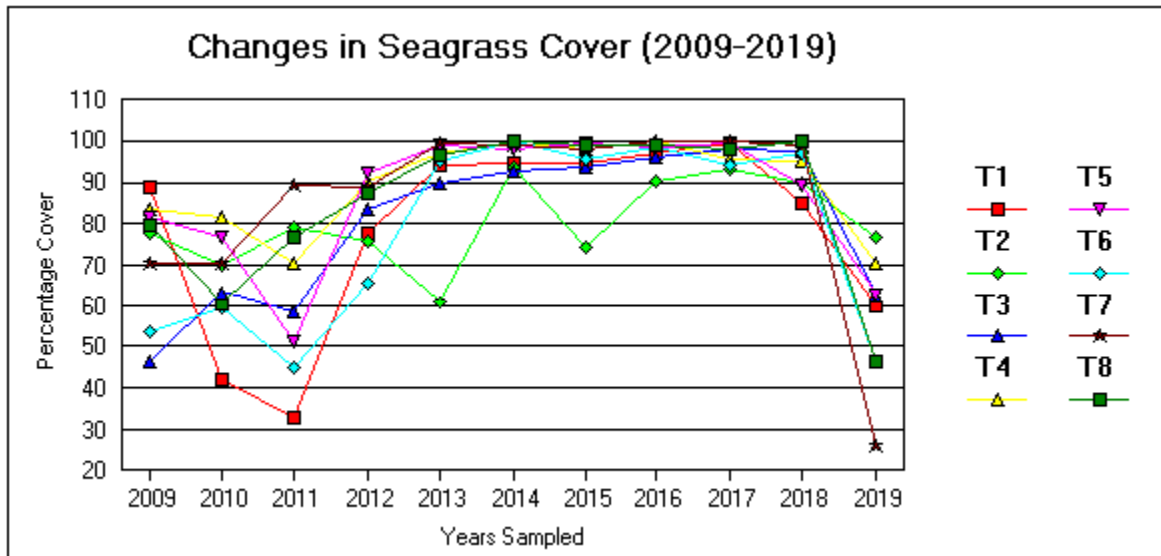


Figure 7.2 Changes in percentage area of seagrasses at Transects T1 to T8 that had been sampled for 10 years.

In June 2019, seagrass cover at the transects ranged from 24.71 to 100 percent in the study area (Table 7.1). The health and condition of the seagrass was good generally but, at some stations, the percentage cover was much lower than it was 2018 (Figure 7.2) particularly at Transects T1 to T8. Some seagrasses were lightly fouled with epiphytic algae while others were clear of epiphytic algae. The brown seaweed *Cystophyllum onustum* was present on shells and pebbles protruding through the seagrass, almost reaching the surface at Transects E1 to E4.

Plate 15 shows sand deposited on seagrasses along Summerland Point after strong onshore winds in June 2011. This event demonstrated how climatic conditions can effect seagrass coverage. It also shows how the movement of sand from deeper waters due to strong winds can increase water depth in some areas whilst decreasing water depth closer to shore as sediment is deposited.

Changes in the percentage area of the substratum covered by seagrasses in 2016 to 2019, compared with the 2008 values are shown in Table 7.2. At transects where the percentage area of substratum covered was relatively low, such as Transects E6 (17.74%), T3 (46.20%) and T6 (53.82%), seagrass coverage has increased by about 82%, 52% and 41% respectively.



Plate 15. *Zostera capricorni* covered by sand along Summerland Point after strong southwesterly winds

Table 7.2

Transect E1	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	84.15		81.01	77.75	98.62	99.44	96.85	92.44	99.88	97.96	97.87	99.12
% no seagrass	15.85		18.99	22.25	1.38	0.56	3.15	7.56	0.12	2.04	2.13	0.88
Transect E2	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	83.72		75.87	73.38	95.49	99.09	98.38	98.49	99.71	100.0	97.94	97.94
% no seagrass	16.28		24.13	26.62	4.49	0.91	1.62	1.51	0.29	0.00	2.06	2.06
Transect E3	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	98.29		98.97	92.76	96.97	99.16	97.66	100.0	83.53	98.90	94.56	98.97
% no seagrass	1.71		1.03	7.24	1.54	0.84	2.34	0.00	16.47	1.10	5.44	1.03
Transect E4	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	80.16		98.54	95.74	100.0	97.50	98.06	96.43	98.01	96.76	99.71	99.85
% no seagrass	19.84		1.46	4.26	0.00	2.50	1.94	3.57	1.99	3.24	0.29	0.15

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Transect E5	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	95.88		94.93	95.19	100.0	98.82	97.01	99.82	100.0	97.22	99.41	98.97
% no seagrass	4.12		5.07	4.81	0.00	1.18	2.99	0.18	0.00	2.78	0.59	1.03
Transect E6	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	17.74		34.06	49.56	55.51	54.93	83.24	76.62	100.0	99.56	89.91	76.69
% no seagrass	82.16		65.94	50.44	44.49	45.07	16.76	23.38	0.00	0.44	10.09	23.31
Transect E7	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	97.93		51.40	45.47	68.31	43.38	87.65	92.65	100.0	98.16	98.16	97.65
% no seagrass	2.07		48.60	54.53	31.69	56.62	12.35	7.35	0.00	1.84	1.84	2.35
Transect E8	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	99.32		84.26	95.56	90.96	99.93	99.26	99.85	100.0	99.34	100.0	99.34
% no seagrass	0.68		15.74	4.44	9.04	0.07	0.74	0.15	0.00	0.66	0.00	0.66
Transect E9	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	95.94		99.39	95.51	99.49	99.71	99.71	99.56	100.0	99.78	100.0	100.0
% no seagrass	4.06		0.61	4.49	0.51	0.29	0.29	0.44	0.00	0.22	0.00	0.00
Transect E10	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	97.94		92.21	86.25	98.99	98.82	98.87	NS	100.0	100.0	100.0	98.21
% no seagrass	2.06		7.79	13.75	1.01	1.18	1.13		0.00	0.00	0.00	1.79
Transect E11	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass				86.93	99.85	99.49	97.65	NS	100.0	100.0	100.0	98.94
% no seagrass				13.07	0.15	0.51	2.35		0.00	0.00	0.00	1.06
Transect E12	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass				95.68	95.53	98.09	97.94	NS	100.0	100.0	100.0	97.0
% no seagrass				7.32	4.47	1.91	2.06		0.00	0.00	0.00	3.0
Transect E13	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass				93.97	99.26	100.0	99.93	NS	100.0	100.0	100.0	99.95
% no seagrass				6.03	0.74	0.00	0.07		0.00	0.00	0.00	0.05
Transect E14	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass				86.54	99.34	100.0	99.68	NS	100.0	90.44	100.0	98.24
% no seagrass				13.46	0.56	0.00	0.32		0.00	9.56	0.00	1.76
Transect E15	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass				90.29	99.93	99.66	92.28	NS	100.0	93.31	99.85	50.66
% no seagrass				9.71	0.07	0.34	7.72		0.00	6.69	0.15	49.34
Transect E16	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass				82.79	93.22	94.12	97.87	NS	100.0	99.94	99.71	95.0
% no seagrass				17.21	6.78	5.88	2.13		0.00	0.06	0.29	5.0
Transect T1	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	88.94		41.90	32.60	77.91	94.41	94.85	94.65	97.35	99.47	85.29	59.92
% no seagrass	11.06		58.10	67.40	22.09	5.59	5.15	5.35	2.65	0.53	14.71	40.08

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Transect T2	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	77.91		70.29	7.95	75.74	60.83	93.68	74.41	90.59	93.31	90.00	76.87
% no seagrass	22.09		29.71	92.05	24.26	39.17	6.32	25.59	9.41	6.69	10.00	23.13
Transect T3	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	46.20		63.16	58.53	83.53	89.93	92.65	93.82	96.10	98.19	97.57	63.01
% no seagrass	53.80		36.84	41.47	16.47	10.07	7.35	6.18	3.90	1.81	2.43	36.99
Transect T4	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	83.51		81.89	70.37	90.37	97.28	99.41	97.94	99.85	95.76	95.07	70.44
% no seagrass	16.49		18.01	29.63	9.63	2.72	0.59	2.06	0.15	4.24	4.93	29.56
Transect T5	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	81.78		77.00	51.40	92.35	99.12	98.24	99.41	98.82	99.56	89.63	62.65
% no seagrass	18.22		23.00	48.60	7.65	0.88	1.76	0.59	1.18	0.44	10.37	37.35
Transect T6	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	53.82		59.63	44.77	65.59	95.22	99.85	95.74	98.82	94.41	97.13	46.18
% no seagrass	46.18		40.37	53.23	34.41	4.78	0.15	4.26	1.18	5.59	2.87	53.82
Transect T7	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	97.93		70.79	89.34	89.09	99.78	98.97	98.38	100.0	99.85	98.97	25.88
% no seagrass	2.07		29.51	10.66	10.91	0.22	1.03	1.62	0.00	0.15	1.03	74.12
Transect T8	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	95.94		60.29	76.99	87.64	96.76	99.85	99.26	99.26	98.24	100.0	46.32
% no seagrass	4.06		39.71	23.01	13.26	3.24	0.15	0.74	0.74	1.76	0.00	53.68
Transect A1	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass							97.97	98.09	88.97	99.85	96.18	85.15
% no seagrass							2.03	1.91	11.03	0.15	3.82	14.85
Transect A2	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass							92.38	96.99	98.75	98.38	94.93	98.09
% no seagrass							7.62	3.01	1.25	1.62	5.07	1.91
Transect A3	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass							100.0	86.40	94.85	96.69	98.01	99.26
% no seagrass							0.00	13.60	5.15	3.31	1.99	0.74
Transect A4	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass							94.51	93.97	99.12	100.0	89.78	48.98
% no seagrass							5.49	6.03	0.88	0.00	10.22	51.02
Transect A5	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass							96.37	95.59	99.71	100.0	97.35	84.50
% no seagrass							3.63	4.41	0.29	0.00	2.65	15.50
Transect A6	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass							99.56	98.01	96.97	97.65	93.53	90.88
% no seagrass							0.44	1.99	3.03	2.35	6.47	9.12
Transect C1	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019

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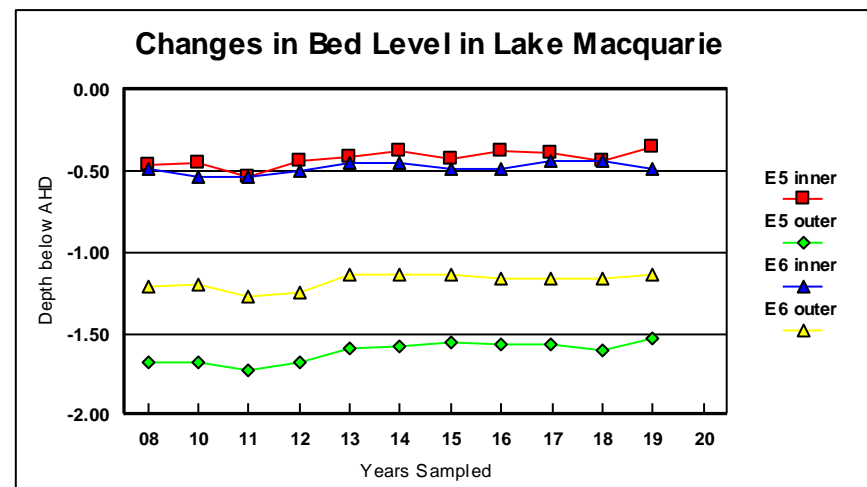
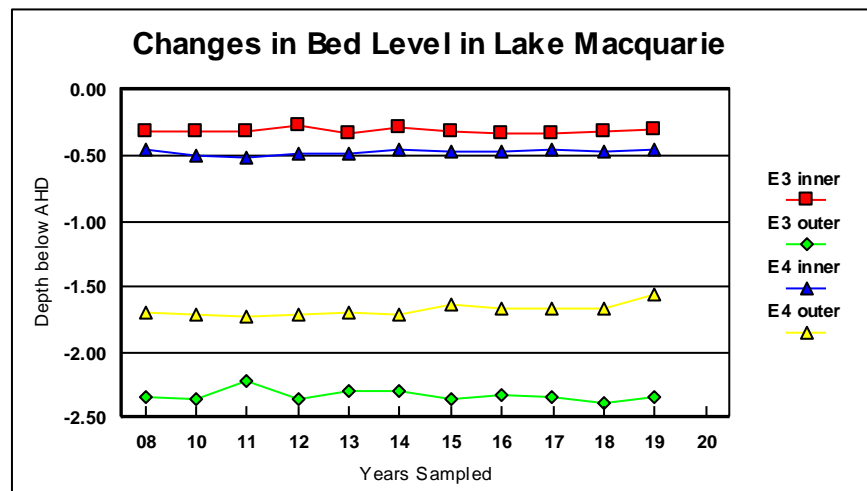
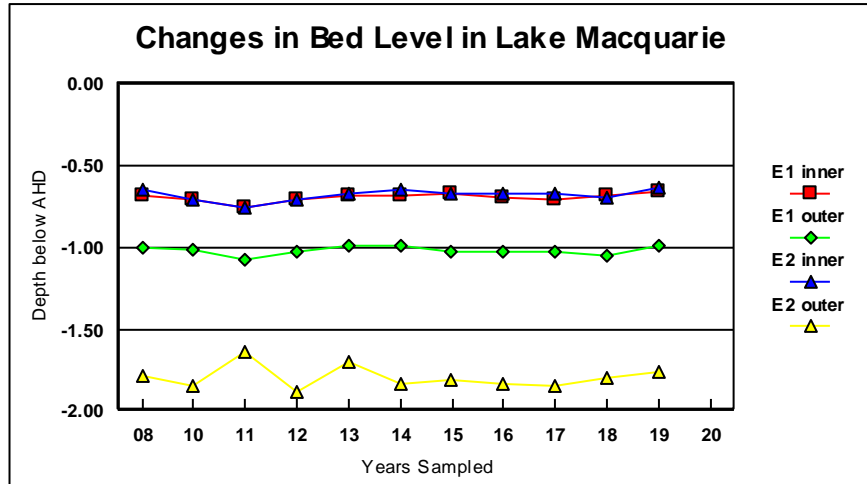
% seagrass	48.60		80.53	68.71	85.38	99.31	97.82	94.04	99.94	76.18	99.68	34.26
% no seagrass	51.40		19.47	31.29	14.62	0.69	2.18	5.96	0.06	23.82	0.32	65.74
Transect C2	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	93.09		98.03	67.79	95.21	97.24	96.69	100.0	98.09	99.40	96.69	81.62
% no seagrass	6.91		1.97	32.21	4.79	2.76	3.31	0.00	1.91	0.60	3.31	18.38
Transect C3	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	95.59		88.75	94.41	97.16	99.93	98.75	98.46	99.90	96.47	100.0	87.21
% no seagrass	4.41		11.25	5.59	2.84	0.07	1.25	1.54	0.10	3.53	0.00	12.79
Transect C4	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass	87.25		86.56	58.09	90.40	100.0	98.49	99.49	99.96	96.47	96.76	74.56
% no seagrass	12.75		13.44	41.91	9.60	0.00	1.51	0.51	0.04	3.53	3.24	25.44
Transect C5	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass											100.0	100.0
% no seagrass											0.00	0.00
Transect C6	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass											99.56	97.76
% no seagrass											0.44	2.24
Transect L1	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass								99.12	99.71	97.87	97.87	94.63
% no seagrass								0.88	0.29	2.13	2.13	5.37
Transect F1	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass											97.81	100.0
% no seagrass											2.19	0.00
Transect F2	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass											99.63	94.93
% no seagrass											0.37	5.07
Transect F3	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass											99.93	87.82
% no seagrass											0.07	12.18
Transect F4	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass											98.16	48.90
% no seagrass											1.84	51.1
Transect F5	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass											99.04	80.80
% no seagrass											0.96	19.2
Transect F6	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass											100.0	81.99
% no seagrass											10.00	18.01
Transect F7	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass											98.24	97.65

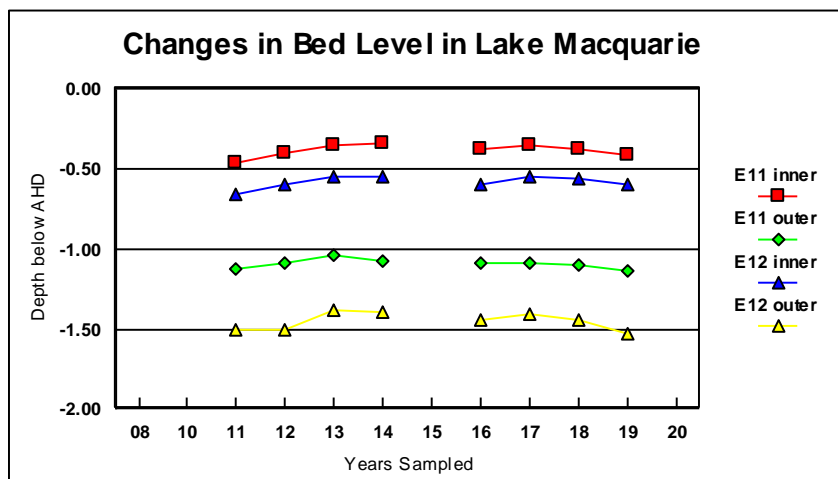
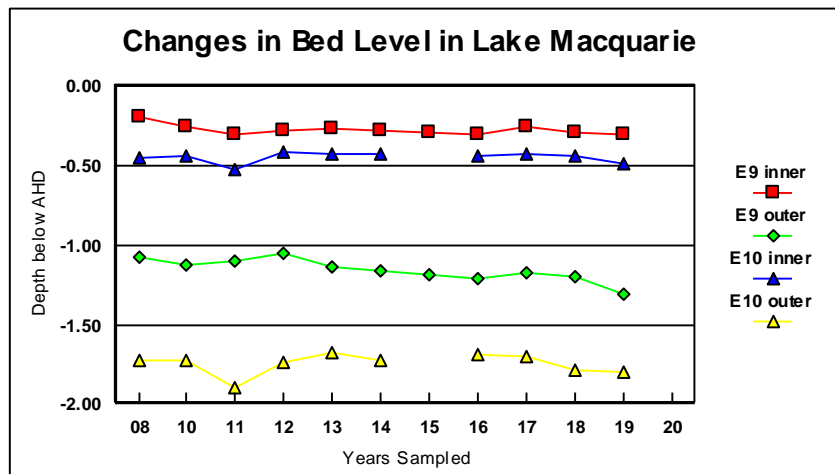
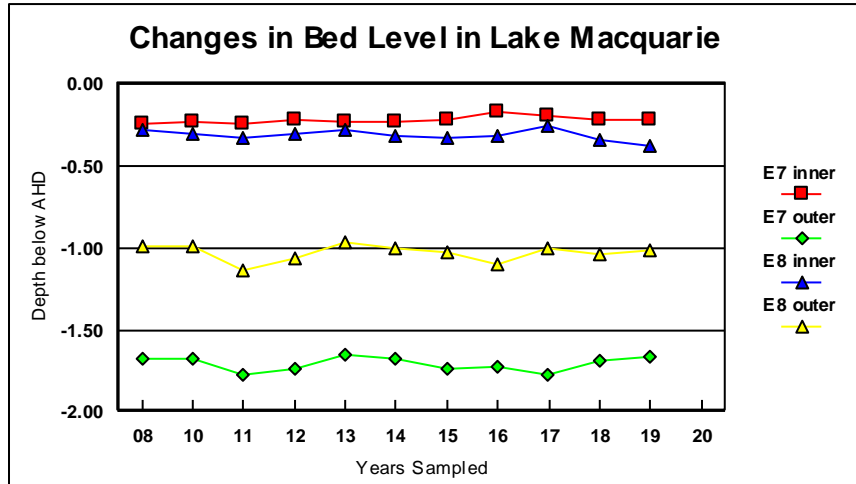
% no seagrass											1.76	2.35
Transect S1	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass											62.50	24.71
% no seagrass											37.50	75.29
Transect S2	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass											96.62	85.83
% no seagrass											3.38	14.17
Transect S3	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass											99.19	97.13
% no seagrass											0.81	2.87
Transect S4	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass											99.97	98.82
% no seagrass											0.03	1.18
Transect S5	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass											99.12	67.08
% no seagrass											0.88	32.92
Transect S6	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
% seagrass											100.0	99.78
% no seagrass											0.00	0.22

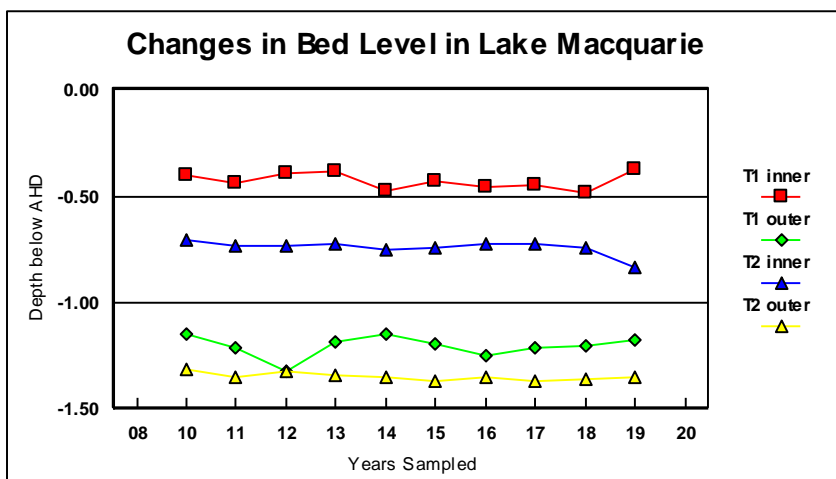
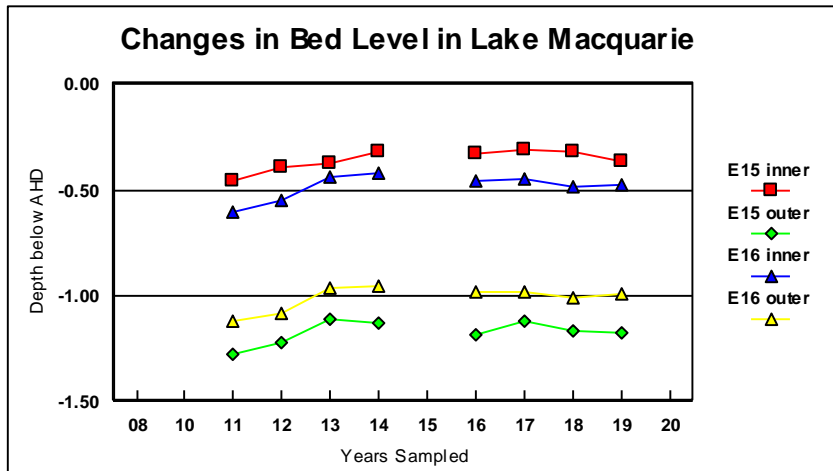
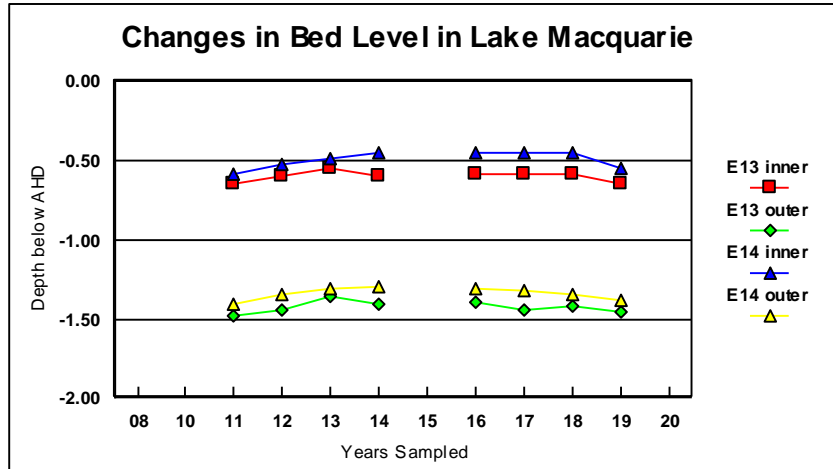
Table 7.2. Changes in the percentage area of the substratum covered by seagrasses in 2008 to 2019.

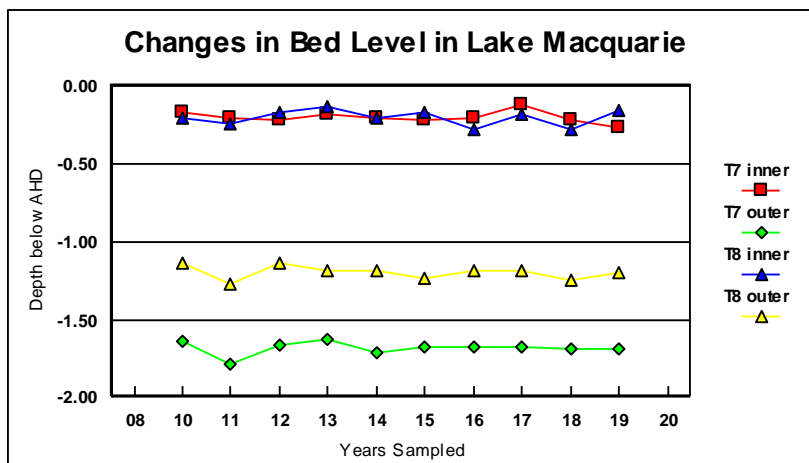
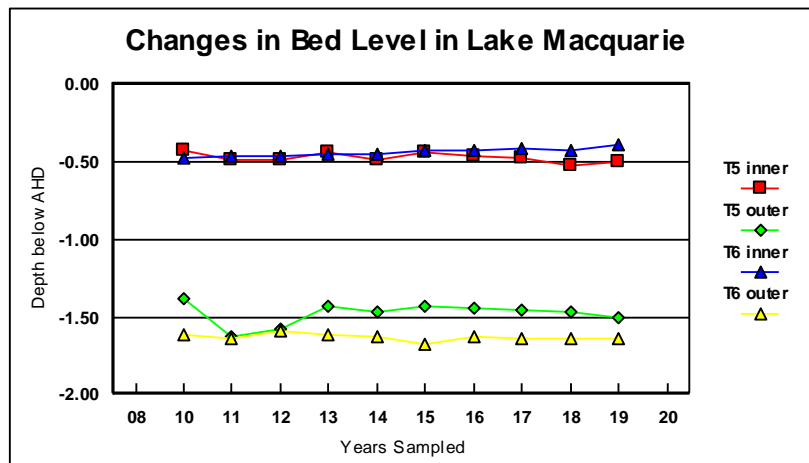
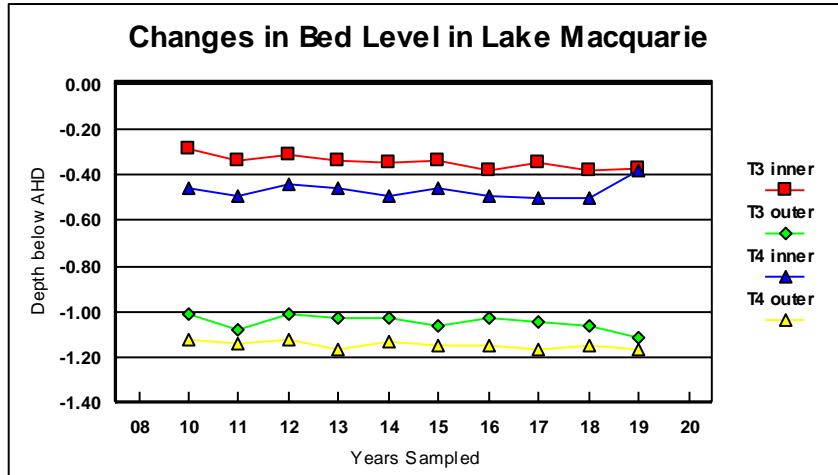
8. Changes in Elevation of the Lake Bed

Figure 8.1 shows changes to the level of the lake bed at the inner and outer ends of Transects that have been sampled for eleven years. Table 8.1 compares the elevation of the lake bed at the inner and outer ends of each transect for the years 2013 to 2019 compared with 2008.









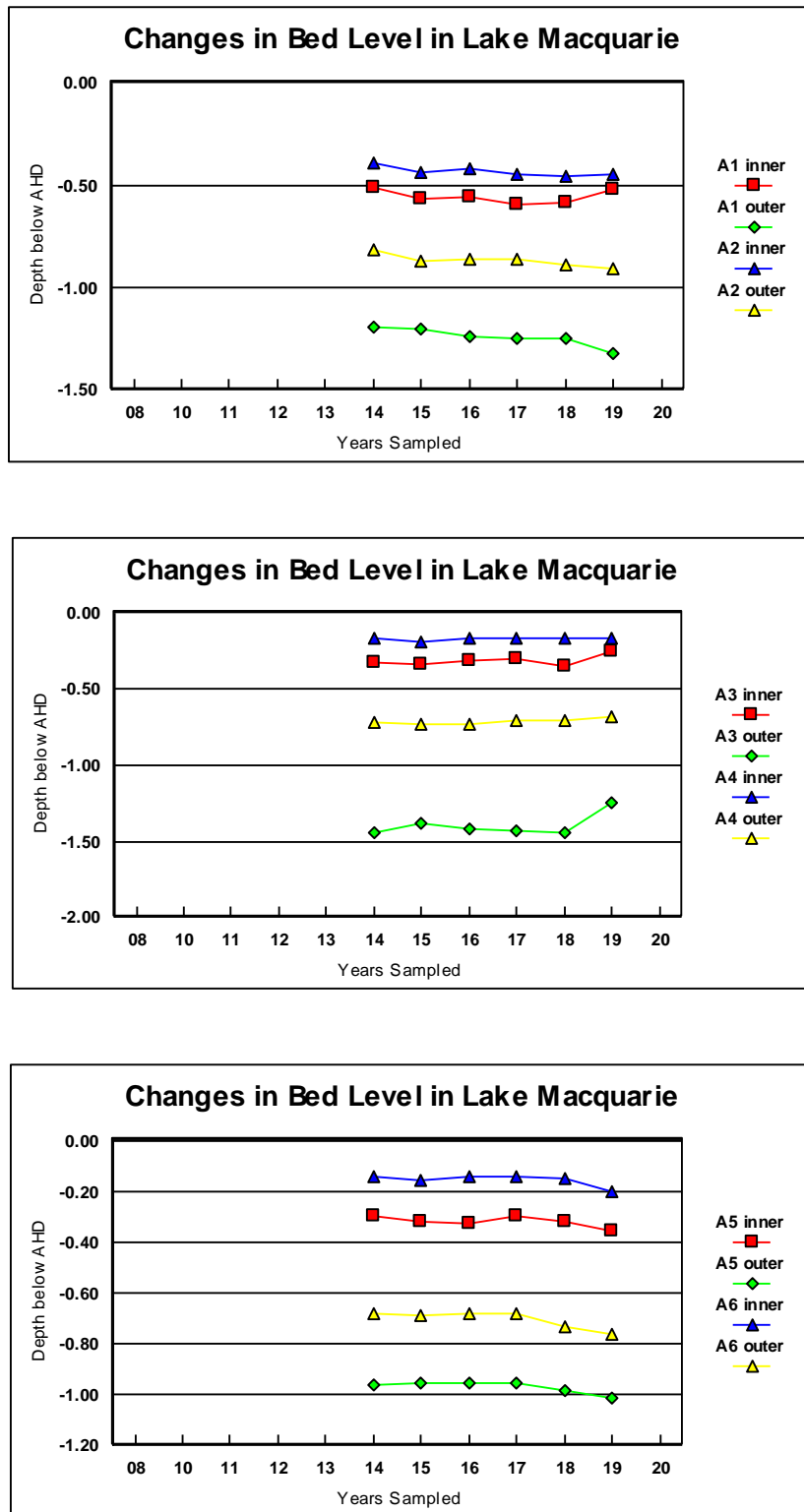


Figure 8.1. Changes in lake bed level at the inner and outer ends of each transect.

Table 8.1. Changes in elevation of the lake bed in 2012 to 2019 compared with 2008 and the starting dates of each new transect.

Transect Endpoint Coordinates MGA Zone 56 / metres A.H.D										
Transect No.	Easting	Northing	2013	2014	2015	2016	2017	2018	2019	Diff 08-
E1 Inner	363985.72	6331796.94	-0.68	-0.68	-0.67	-0.69	-0.70	-0.68	-0.66	-0.02
E1 Outer	364003.72	6331816.06	-0.99	-0.99	-1.02	-1.02	-1.02	-1.05	-0.99	-0.01
E2 Inner	364035.49	6331701.00	-0.67	-0.65	-0.67	-0.67	-0.67	-0.69	-0.63	-0.01
E2 Outer	364077.23	6331716.71	-1.70	-1.84	-1.81	-1.84	-1.85	-1.80	-1.76	-0.02
E3 Inner	363953.11	6331405.11	-0.33	-0.28	-0.31	-0.33	-0.33	-0.31	-0.30	-0.02
E3 Outer	364027.16	6331417.57	-2.29	-2.30	-2.35	-2.33	-2.34	-2.38	-2.34	0.00
E4 Inner	364220.00	6331077.87	-0.48	-0.46	-0.47	-0.47	-0.46	-0.47	-0.46	0.00
E4 Outer	364259.75	6331121.87	-1.69	-1.71	-1.63	-1.67	-1.66	-1.67	-1.56	-0.13
E5 Inner	365005.84	6330163.57	-0.41	-0.38	-0.42	-0.38	-0.39	-0.43	-0.35	-0.11
E5 Outer	365034.05	6330224.84	-1.59	-1.58	-1.55	-1.56	-1.57	-1.60	-1.53	-0.15
E6 Inner	365118.47	6329788.47	-0.45	-0.45	-0.48	-0.48	-0.44	-0.44	-0.48	0.00
E6 Outer	365174.78	6329802.22	-1.13	-1.13	-1.14	-1.16	-1.16	-1.16	-1.14	-0.07
E7 Inner	385350.82	6332350.29	-0.23	-0.23	-0.22	-0.16	-0.19	-0.22	-0.22	-0.02
E7 Outer	365298.68	6332344.74	-1.65	-1.68	-1.74	-1.72	-1.77	-1.69	-1.66	-0.02
E8 Inner	365128.03	6331795.60	-0.28	-0.31	-0.32	-0.31	-0.25	-0.34	-0.38	0.11
E8 Outer	365096.65	6331811.91	-0.96	-1.00	-1.02	-1.10	-1.00	-1.04	-1.01	0.02
E9 Inner	365040.22	6331607.83	-0.26	-0.28	-0.29	-0.30	-0.25	-0.29	-0.30	0.11
E9 Outer	364912.70	6331523.88	-1.14	-1.16	-1.18	-1.21	-1.17	-1.20	-1.31	0.24
E10 Inner	365422.57	6331427.14	-0.42	-0.42		-0.43	-0.42	-0.43	-0.49	0.04
E10 Outer	365395.00	6331361.69	-1.68	-1.73		-1.69	-1.70	-1.79	-1.80	0.07
E11 Inner	365553.95	6331410.18	-0.35	-0.34		-0.37	-0.35	-0.37	-0.41	-0.09
E11 Outer	365524.48	6331343.17	-1.04	-1.07		-1.09	-1.08	-1.10	-1.14	-0.05
E12 Inner	365750.13	6331328.50	-0.55	-0.55		-0.59	-0.55	-0.56	-0.59	0.02
E12 Outer	365734.72	6331284.93	-1.38	-1.39		-1.44	-1.41	-1.44	-1.53	-0.07
E13 Inner	365990.66	6331278.21	-0.54	-0.59		-0.58	-0.58	-0.58	-0.65	0.03
E13 Outer	365970.63	6331190.94	-1.35	-1.40		-1.39	-1.44	-1.42	-1.46	0.01
E14 Inner	366447.40	6331046.59	-0.48	-0.45		-0.45	-0.45	-0.45	-0.54	-0.02
E14 Outer	366371.08	6330984.10	-1.31	-1.30		-1.31	-1.32	-1.34	-1.38	-0.04
E15 Inner	366657.36	6330098.68	-0.37	-0.32		-0.33	-0.31	-0.32	-0.36	-0.02
E15 Outer	366611.13	6330167.43	-1.11	-1.13		-1.18	-1.12	-1.16	-1.17	-0.10
E16 Inner	366310.74	6329644.22	-0.44	-0.42		-0.46	-0.45	-0.48	-0.47	-0.10
E16 Outer	366272.62	6329666.71	-0.96	-0.95		-0.98	-0.98	-1.01	-0.99	-0.13
C1 Inner	56368596	6332235								
C1 Outer	56368616	6332250								
C2 Inner	56368619	6332147								
C2 Outer	56368658	6332151								
C3 Inner	56368524	6331811								
C3 Outer	56368538	6331806								

Seagrass Survey of Chain Valley Bay, Summerland Point, Bardens Bay and Crangan Bay (2019)

C4 Inner	56368467	6331435								
C4 Outer	56368486	6331421								
C5 inner	56365676	6333038						-0.09	0.03	
C5 outer	56365703	6333084						-2.18	-2.17	
C6 inner	56366045	6332831						-0.04	0.01	
C6 outer	56366058	6332871						-2.00	-1.82	
T1 inner	365388.39	6333100.63	-0.38	-0.47	-0.43	-0.46	-0.45	-0.48	-0.37	-0.03
T1 outer	365400.16	6332952.03	-1.18	-1.15	-1.19	--	-1.21	-1.20	-1.17	0.02
T2 inner	365383.99	6332949.75	-0.72	-0.75	-0.74	-0.72	-0.72	-0.74	-0.83	0.13
T2 outer	365377.34	6332816.66	-1.34	-1.35	-1.37	-1.35	-1.37	-1.36	-1.35	0.04
T3 inner	365357.00	6332831.43	-0.34	-0.35	-0.34	-0.38	-0.35	-0.38	-0.37	0.08
T3 outer	365350.44	6332589.92	-1.03	-1.03	-1.06	-1.03	-1.04	-1.06	-1.11	0.10
T4 inner	365303.47	6332575.45	-0.46	-0.49	-0.46	-0.49	-0.50	-0.50	-0.38	-0.08
T4 outer	365347.64	6332380.21	-1.16	-1.13	-1.15	-1.15	-1.16	-1.15	-1.16	0.04
T5 inner	365299.87	6332338.33	-0.43	-0.48	-0.43	-0.46	-0.47	-0.52	-0.50	0.08
T5 outer	365320.77	6332207.30	-1.43	-1.47	-1.43	-1.44	-1.46	-1.47	-1.50	0.12
T6 inner	365267.87	6332207.03	-0.45	-0.45	-0.42	-0.42	-0.41	-0.42	-0.39	-0.08
T6 outer	365336.78	6332262.48	-1.61	-1.63	-1.68	-1.63	-1.64	-1.64	-1.64	0.03
T7 inner	365295.26	6332270.84	-0.18	-0.20	-0.21	-0.20	-0.12	-0.22	-0.26	0.09
T7 outer	365267.87	6332207.03	-1.63	-1.71	-1.67	-1.67	-1.67	-1.69	-1.69	0.05
T8 inner	365336.78	6332262.48	-0.13	-0.20	-0.17	-0.27	-0.18	-0.27	-0.15	-0.05
T8 outer	365295.26	6332270.84	-1.18	-1.18	-1.23	-1.18	-1.18	-1.24	-1.20	0.06
A1 inner	365336.78	6332262.48		-0.51	-0.57	-0.56	-0.59	-0.58	-0.52	0.01
A1 outer	365295.26	6332270.84		-1.19	-1.20	-1.24	-1.25	-1.25	-1.32	0.13
A2 inner	365336.78	6332262.48		-0.39	-0.44	-0.42	-0.45	-0.46	-0.45	0.06
A2 outer	365295.26	6332270.84		-0.81	-0.87	-0.86	-0.86	-0.89	-0.91	0.10
A3 inner	365336.78	6332262.48		-0.33	-0.34	-0.31	-0.30	-0.35	-0.25	-0.08
A3 outer	365295.26	6332270.84		-3.44	-1.38	-1.42	-1.43	-1.44	-1.24	-0.20
A4 inner	365336.78	6332262.48		-0.16	-0.19	-0.16	-0.16	-0.17	-0.17	0.01
A4 outer	365295.26	6332270.84		-0.72	-0.73	-0.73	-0.71	-0.71	-0.68	-0.04
A5 inner	365336.78	6332262.48		-0.30	-0.32	-0.33	-0.30	-0.32	-0.36	0.06
A5 outer	365295.26	6332270.84		-0.96	-0.95	-0.95	-0.95	-0.98	-1.01	0.05
A6 inner	365336.78	6332262.48		-0.14	-0.16	-0.14	-0.14	-0.15	-0.20	0.06
A6 outer	365295.26	6332270.84		-0.68	-0.69	-0.68	-0.68	-0.73	-0.76	0.08
L1 inner	364292.51	6330367.71			-1.12	-1.14	-1.11	-1.12	-1.07	-0.05
L1 outer	364304.21	6330399.90			-1.63	-1.66	-1.70	-1.63	-1.68	0.05
F1 inner	56366321	6333281.31						-0.22	-0.30	0.08
F1 outer	56366285	6333250.37						-1.28	-1.22	-0.06
F2 inner	56366342	6333330.55						-0.21	-0.19	-0.025
F2 outer	56366291	6333450.83						-1.95	-1.94	-0.01
F3 inner	56366611	6333163.06						-0.08	-0.12	0.04
F3 outer	56366620	6333228.02						-1.85	-1.70	-0.15
F4 inner	56366968	6333242.58						-0.08	-0.10	0.02
F4 outer	56366918	6333284.49						-2.42	-2.44	0.02
F5 inner	56367106	6333361.98						-0.30	-0.29	-0.01

F5 outer	56367068	6333421.28						-2.43	-2.48	0.05
F6 inner	56367271	6333493.19						-0.27	-0.28	0.01
F6 outer	56367202	6333522.83						-2.78	-2.75	-0.03
F7 inner	56367402	6333682.09						-0.45	-0.45	0.00
F7 outer	56367374	6333694.93						-1.37	-1.47	0.10
S1 inner	56365009	6334470.41						-0.61	-0.56	-0.05
S1 outer	56365077	6334481.77						-1.75	-1.71	-0.04
S2 inner	56364642	6334943.57						-0.25	-0.23	-0.02
S2 outer	56364673	6334939.82						-1.56	-1.51	-0.05
S3 inner	56365017	6335008.93						-0.08	-0.15	0.07
S3 outer	56365041	6334932.70						-1.84	-1.94	0.10
S4 inner	56365235	6334992.86						-0.08	-0.14	-0.66
S4 outer	56365217	6334889.31						-1.70	-1.74	0.04
S5 inner	56362275	6334709.08						-0.66	-0.66	0.00
S5 outer	56365569	6334693.44						-1.36	-1.40	0.04
S6 inner	56366144	6334765.21						-0.07	-0.06	-0.01
S6 outer	56366172	6334761.92						-0.89	-0.89	0.00

In Table 8.1 the differences in seabed height between 2008 and 2019 are shown in red. In 2019 no bed elevation had changed by more than 0.15 m compared with values from 2008.

9. Coal Mining in 2019

Figure 9.1 shows the extent of mining up to June 2019.

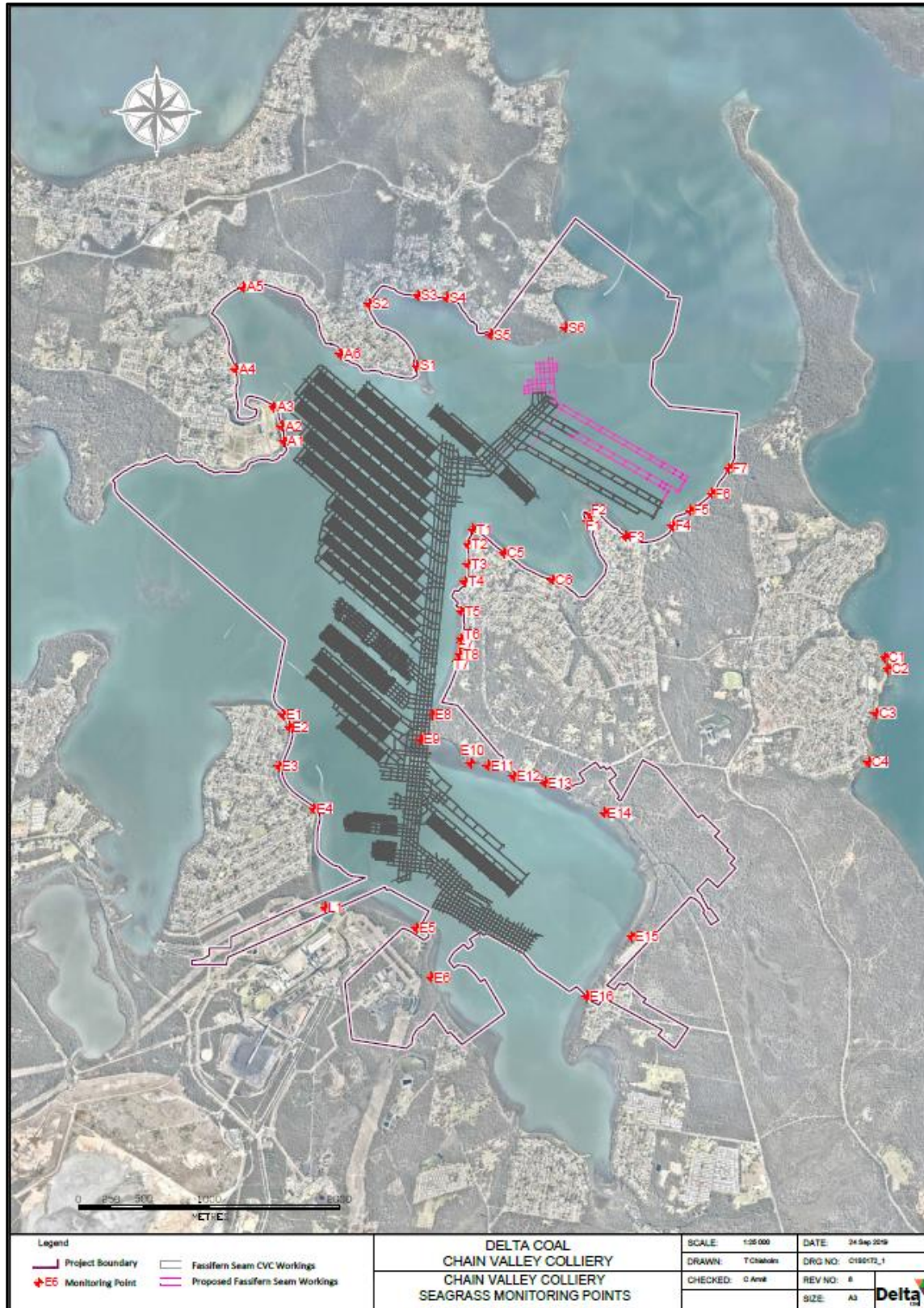


Figure 9.1. Extent of Underground Mining up to June 2019.

10. Compliance status statement and seagrass management plan

The results from the June 2019 seagrass monitoring results show compliance to the Schedule 4 Environmental Conditions – underground mining of SSD5465 - Modification 2 in the Performance Measures table with respect to the Subsidence Impact Performance Measure for seagrass which displays nil to minor environmental consequences due to underground mining.

The below summary of findings outline the historical basis for this compliance statement and the compliance is detailed in the below table.

Condition from SSD5465 - Mod 2	Compliance Status and Comments
<p>Schedule 4 Environmental Conditions – underground mining Performance Measures - Natural Environment Biodiversity - Benthic Communities</p> <p>Subsidence Impact Performance Measure - Negligible environmental consequences including: negligible change in the size and distribution of seagrass beds; negligible change in the functioning of seagrass beds; and negligible change to the composition or distribution of seagrass species within seagrass beds.</p>	<p>Compliant – See sections 7, 8 and 11 - Conclusions</p>
<p>Measurements undertaken by generally accepted methods</p>	<p>Compliant – See section 3 Methods</p>
<p>Measurements Methods fully described</p>	<p>Compliant – See sections 3 Methods</p>
<p>Statement of Commitments - Marine Ecology – continue annual seagrass surveys/monitoring</p>	<p>Compliant – See historical seagrass surveys/monitoring</p>

Table 10.1 Compliance table

The mine, in conjunction with the relevant stake holders, has developed a Seagrass Management Plan. While the colliery is not mining beneath the seagrass beds, the purpose of the plan is to monitor any changes and identify if subsidence is the cause.

Elements of the plan require:

- That the July 2008 survey is to act as a baseline of seagrass distribution, density and condition. Since this time new seagrass transects have been added to the sampling schedule (now 50 transects in 2018-2019).
- Annual re-surveys of the permanent transect lines will be carried out.
- If, during the annual re-surveys, either:
 - Subsidence along the seagrass permanent transects greater than 150mm is detected, or
 - There are reductions in seagrass cover of 20% or more (compared to 2008 values),

then Mine Management will notify the relevant stakeholders of the event and convene a meeting to discuss the implications.

11. Discussion

In 2019 seagrass cover along the transects ranged from 24.71 to 100% of the substratum. Since 2011 seagrass cover has increased progressively. This annual increase in seagrass cover was treated with some suspicion until it was realized that almost all of the beaches in the study area were used by commercial fishermen as net landing grounds. Nets up the 2-3 km in length were drawn across the lake and hauled up on beaches to extract and sort the various fish species. This fishing effort caused minor damage to seagrass beds over the 150 years of commercial fishing in Lake Macquarie. Netting was stopped eventually and the minor damage to seagrass beds began to heal. This healing process took place over the period of this study and is almost complete in most areas.

In 2019, however, at a time of very low rainfall and a very long lived high atmospheric pressure over the lake, there was some reductions in seagrass cover at some transects. This reduction in seagrass cover in 2019 was most noticeable along the shore of Summerland Point. Water level in the lake was depressed for long periods by around 0.3m. This lowered lake level caused increased water temperature over the seagrass beds and increased damaging wave attack during periods of strong westerly winds. Less water over the seagrass beds also increased the likelihood of damage by boats, waders and swimmers.

Now that the full complement of stations have been sampled for ten consecutive years (except for Bardens Bay), average values for seagrass cover and condition for the three regions of Lake Macquarie under investigation (Summerland Point, Chain Valley Bay, Crangan Bay and Bardens Bay) may be calculated (Table 10.1).

In 2019 there were no changes in sea bed height greater than 0.15m (0.15m limit) compared with the datum years.

Table 10.2. Average composition, % cover and condition of seagrass beds in the four regions of lake Macquarie under investigation for the years 2011 to 2018.

Year	Total SG	% long	% short	% long 1	% long 2	% short 1	% short 2	algae	Bare Gr.
Summerland Point, Frying Pan Bay and Sugar Bay									
2011	61.74	9.88	51.86	9.98	0.00	51.86	0.00	0.27	38.13
2012	82.18	38.03	44.15	38.03	0.00	44.15	0.00	0.00	17.85
2013	90.92	25.19	65.88	25.03	0.32	64.92	0.80	0.82	8.26
2014	96.74	19.73	80.27	19.93	0.00	80.27	0.00	0.00	3.26
2015	95.06	17.31	69.33	17.31	0.00	77.75	0.00	0.00	4.93
2016	98.15	20.82	77.64	28.32	0.00	77.66	0.00	0.00	1.30
2017	97.92	17.05	80.63	14.61	2.50	65.14	15.63	0.24	1.35
2018	96.22	28.00	66.03	25.44	5.36	67.00	0.91	1.31	2.28
2019	77.37	32.99	40.16	36.46	0.00	44.00	0.00	2.11	20.51
Crangan Bay									
2011	85.44	41.75	43.68	40.28	1.47	43.68	0.00	0.99	13.32
2012	95.26	89.97	5.28	89.97	0.00	5.28	0.00	2.89	1.92
2013	95.63	62.25	35.84	55.83	1.06	35.84	0.00	0.25	4.00
2014	96.57	34.15	65.85	34.14	0.64	65.85	0.00	0.69	2.74
2015	94.70	70.26	18.80	58.28	11.97	24.45	0.00	1.02	5.06
2016	98.65	74.52	27.13	71.30	0.00	27.13	0.00	1.20	0.15
2017	97.63	52.60	42.79	36.35	18.19	49.82	0.11	0.60	1.62
2018	98.46	72.25	25.48	66.32	5.88	23.48	1.79	0.83	0.71
2019	93.15	84.48	8.64	84.48	0.00	15.66	0.00	0.39	6.72

Seagrass Survey of Chain Valley Bay, Summerland Point, Bardens Bay and Crangan Bay (2019)

2011	72.52	28.47	44.05	28.47	0.00	43.31	0.74	0.87	26.98
2012	92.38	0.00	92.38	0.00	0.00	92.38	0.00	0.01	7.99
2013	98.82	13.79	85.52	10.84	2.96	85.52	0.00	0.02	1.02
2014	97.94	23.23	76.77	23.23	0.00	76.77	0.00	0.06	2.02
2015	98.00	23.53	74.47	23.53	0.00	74.47	0.00	0.00	2.01
2016	99.47	15.90	83.30	6.99	9.18	55.37	27.93	0.13	0.49
2017	92.48	16.73	75.75	15.99	3.20	74.71	1.05	0.02	7.57
2018	98.28	46.25	52.03	5.48	89.13	49.09	2.94	0.01	1.74
2019	69.39	39.56	29.95	39.56	0.00	29.95	0.00	0.00	30.40
Bardens Bay									
2014	96.87	54.20	45.80	54.20	0.00	45.80	0.00	1.20	2.03
2015	94.84	68.18	26.67	68.18	0.00	26.67	0.00	0.00	2.92
2016	96.40	63.48	33.01	63.98	0.00	33.01	0.00	0.00	3.61
2017	98.78	76.02	22.75	51.51	24.51	20.59	3.78	0.03	1.23
2018	94.96	55.58	39.39	38.78	16.80	37.67	2.45	2.19	2.68
2019	84.48	73.08	6.40	73.03	11.40	11.40	0.00	0.00	15.52

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Mr Chris Smith	Daly.Smith Pty. Ltd., Surveyors.

Appendix 2 – Results of Analysis of Quadrat photographs comprising each Transect (Results for June 2019)

Seagrass Survey of Chain Valley Bay, Summerland Point, Bardens Bay and Crangan Bay (2019)

Transect E1 Quadrat	Sorted data			Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
	Zostera % cover	Long=1 Short=2	Fouling 1,2,3					
34	100	1	1	0	0	0	0	100
36	100	1	1	0	0	0	0	100
40	100	1	1	0	0	0	0	100
39	100	1	1	0	0	0	0	100
38	90	1	1	10	0	0	0	100
37	90	1	1	10	0	0	0	100
35	100	1	1	0	0	0	0	100
42	100	1	1	0	0	0	0	100
2	100	1	1	0	0	0	0	100
33	100	1	1	0	0	0	0	100
32	100	1	1	0	0	0	0	100
31	90	1	1	10	0	0	0	100
41	100	1	1	0	0	0	0	100
43	100	1	1	0	0	0	0	100
29	100	1	1	0	0	0	0	100
63	100	1	1	0	0	0	0	100
67	100	1	1	0	0	0	0	100
66	100	1	1	0	0	0	0	100
65	100	1	1	0	0	0	0	100
64	100	1	1	0	0	0	0	100
55	100	1	1	0	0	0	0	100
47	100	1	1	0	0	0	0	100
54	100	1	1	0	0	0	0	100
52	100	1	1	0	0	0	0	100
51	100	1	1	0	0	0	0	100
48	100	1	1	0	0	0	0	100
30	90	1	1	0	0	0	10	100
68	100	1	1	0	0	0	0	100
28	100	1	1	0	0	0	0	100
10	100	1	1	0	0	0	0	100
13	100	1	1	0	0	0	0	100
27	100	1	1	0	0	0	0	100
11	100	1	1	0	0	0	0	100
8	100	1	1	0	0	0	0	100
9	80	1	1	0	0	0	20	100
15	100	1	1	0	0	0	0	100
7	100	1	1	0	0	0	0	100
6	100	1	1	0	0	0	0	100
5	100	1	1	0	0	0	0	100
14	100	1	1	0	0	0	0	100
12	100	1	1	0	0	0	0	100
16	100	1	1	0	0	0	0	100
20	100	1	1	0	0	0	0	100
26	100	1	1	0	0	0	0	100
25	100	1	1	0	0	0	0	100
24	100	1	1	0	0	0	0	100
17	100	1	1	0	0	0	0	100
22	100	1	1	0	0	0	0	100
21	100	1	1	0	0	0	0	100
23	100	1	1	0	0	0	0	100
50	100	2	1	0	0	0	0	100
61	100	2	1	0	0	0	0	100
3	100	2	1	0	0	0	0	100
4	100	2	1	0	0	0	0	100
44	100	2	1	0	0	0	0	100
45	100	2	1	0	0	0	0	100
46	100	2	1	0	0	0	0	100
62	100	2	1	0	0	0	0	100
59	100	2	1	0	0	0	0	100
60	100	2	1	0	0	0	0	100
49	100	2	1	0	0	0	0	100
58	100	2	1	0	0	0	0	100
57	100	2	1	0	0	0	0	100
56	100	2	1	0	0	0	0	100
18	100	2	1	0	0	0	0	100
19	100	2	1	0	0	0	0	100
53	100	2	1	0	0	0	0	100
1	100	2	1	0	0	0	0	100

Seagrass Survey of Chain Valley Bay, Summerland Point, Bardens Bay and Crangan Bay (2019)

Transect E2 Quadrat	Sorted data			Cystophyllun % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
	Zostera % cover	Long=1 Short=2	Fouling 1,2,3					
1	100	1	1	0	0	0	0	100
2	40	1	1	0	0	0	60	100
3	100	1	1	0	0	0	0	100
4	100	1	1	0	0	0	0	100
5	100	1	1	0	0	0	0	100
6	100	1	1	0	0	0	0	100
7	100	1	1	0	0	0	0	100
8	100	1	1	0	0	0	0	100
9	100	1	1	0	0	0	0	100
10	50	1	1	10	0	0	40	100
11	100	1	1	0	0	0	0	100
12	100	1	1	0	0	0	0	100
13	100	1	1	0	0	0	0	100
14	100	1	1	0	0	0	0	100
15	100	1	1	0	0	0	0	100
16	100	1	1	0	0	0	0	100
17	100	1	1	0	0	0	0	100
18	100	1	1	0	0	0	0	100
19	100	1	1	0	0	0	0	100
20	100	1	1	0	0	0	0	100
21	100	1	1	0	0	0	0	100
22	100	1	1	0	0	0	0	100
23	100	1	1	0	0	0	0	100
24	100	1	1	0	0	0	0	100
25	100	1	1	0	0	0	0	100
26	80	1	1	0	0	0	20	100
27	100	1	1	0	0	0	0	100
28	100	1	1	0	0	0	0	100
29	100	1	1	0	0	0	0	100
30	100	1	1	0	0	0	0	100
31	100	1	1	0	0	0	0	100
32	100	1	1	0	0	0	0	100
33	100	1	1	0	0	0	0	100
34	100	1	1	0	0	0	0	100
35	100	1	1	0	0	0	0	100
36	100	1	1	0	0	0	0	100
37	100	1	1	0	0	0	0	100
38	90	1	1	10	0	0	0	100
39	100	1	1	0	0	0	0	100
40	100	1	1	0	0	0	0	100
41	100	1	1	0	0	0	0	100
42	100	1	1	0	0	0	0	100
43	100	1	1	0	0	0	0	100
44	100	1	1	0	0	0	0	100
45	100	1	1	0	0	0	0	100
46	100	1	1	0	0	0	0	100
47	100	1	1	0	0	0	0	100
48	100	1	1	0	0	0	0	100
49	100	1	1	0	0	0	0	100
50	100	1	1	0	0	0	0	100
51	100	1	1	0	0	0	0	100
52	100	1	1	0	0	0	0	100
53	100	1	1	0	0	0	0	100
54	100	1	1	0	0	0	0	100
55	100	1	1	0	0	0	0	100
56	100	1	1	0	0	0	0	100
57	100	1	1	0	0	0	0	100
58	100	1	1	0	0	0	0	100
59	100	1	1	0	0	0	0	100
60	100	1	1	0	0	0	0	100
61	100	1	1	0	0	0	0	100
62	100	1	1	0	0	0	0	100
63	100	1	1	0	0	0	0	100
64	100	1	1	0	0	0	0	100
65	100	1	1	0	0	0	0	100
66	100	1	1	0	0	0	0	100
67	100	1	1	0	0	0	0	100
68	100	1	1	0	0	0	0	100

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Transect E3	Sorted data							
	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
34	100	1	1	0	0	0	0	100
45	100	1	1	0	0	0	0	100
50	100	1	1	0	0	0	0	100
49	100	1	1	0	0	0	0	100
48	100	1	1	0	0	0	0	100
47	100	1	1	0	0	0	0	100
46	100	1	1	0	0	0	0	100
43	100	1	1	0	0	0	0	100
44	100	1	1	0	0	0	0	100
52	100	1	1	0	0	0	0	100
42	100	1	1	0	0	0	0	100
41	100	1	1	0	0	0	0	100
40	100	1	1	0	0	0	0	100
39	100	1	1	0	0	0	0	100
38	100	1	1	0	0	0	0	100
51	100	1	1	0	0	0	0	100
53	100	1	1	0	0	0	0	100
36	100	1	1	0	0	0	0	100
62	100	1	1	0	0	0	0	100
67	100	1	1	0	0	0	0	100
66	100	1	1	0	0	0	0	100
65	100	1	1	0	0	0	0	100
64	100	1	1	0	0	0	0	100
63	100	1	1	0	0	0	0	100
60	100	1	1	0	0	0	0	100
61	100	1	1	0	0	0	0	100
54	100	1	1	0	0	0	0	100
59	100	1	1	0	0	0	0	100
58	100	1	1	0	0	0	0	100
57	100	1	1	0	0	0	0	100
56	100	1	1	0	0	0	0	100
55	100	1	1	0	0	0	0	100
37	100	1	1	0	0	0	0	100
68	100	1	1	0	0	0	0	100
35	100	1	1	0	0	0	0	100
18	100	1	1	0	0	0	0	100
16	100	1	1	0	0	0	0	100
19	100	1	1	0	0	0	0	100
33	100	1	1	0	0	0	0	100
17	100	1	1	0	0	0	0	100
15	100	1	1	0	0	0	0	100
21	100	1	1	0	0	0	0	100
14	100	1	1	0	0	0	0	100
13	100	1	1	0	0	0	0	100
12	100	1	1	0	0	0	0	100
20	100	1	1	0	0	0	0	100
22	100	1	1	0	0	0	0	100
28	100	1	1	0	0	0	0	100
23	100	1	1	0	0	0	0	100
31	100	1	1	0	0	0	0	100
30	100	1	1	0	0	0	0	100
29	100	1	1	0	0	0	0	100
27	100	1	1	0	0	0	0	100
26	100	1	1	0	0	0	0	100
25	100	1	1	0	0	0	0	100
24	100	1	1	0	0	0	0	100
32	100	1	1	0	0	0	0	100
4	90	2	1	0	0	0	10	100
6	90	2	1	0	0	0	10	100
3	100	2	1	0	0	0	0	100
5	90	2	1	0	0	0	10	100
2	80	2	1	0	0	0	20	100
7	90	2	1	0	0	0	10	100
8	90	2	1	0	0	0	10	110
9	100	2	1	0	0	0	0	100
10	100	2	1	0	0	0	0	100
11	100	2	1	0	0	0	0	100
1	100	2	1	0	0	0	0	100

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Transect E4		Sorted data						
Quadrat	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
1	100	1	1	0	0	0	0	100
45	100	1	1	0	0	0	0	100
50	100	1	1	0	0	0	0	100
49	100	1	1	0	0	0	0	100
48	100	1	1	0	0	0	0	100
47	100	1	1	0	0	0	0	100
46	100	1	1	0	0	0	0	100
43	100	1	1	0	0	0	0	100
44	100	1	1	0	0	0	0	100
52	100	1	1	0	0	0	0	100
42	100	1	1	0	0	0	0	100
41	100	1	1	0	0	0	0	100
40	100	1	1	0	0	0	0	100
39	100	1	1	0	0	0	0	100
38	100	1	1	0	0	0	0	100
51	100	1	1	0	0	0	0	100
53	100	1	1	0	0	0	0	100
36	100	1	1	0	0	0	0	100
62	100	1	1	0	0	0	0	100
67	100	1	1	0	0	0	0	100
66	100	1	1	0	0	0	0	100
65	100	1	1	0	0	0	0	100
64	100	1	1	0	0	0	0	100
63	100	1	1	0	0	0	0	100
60	100	1	1	0	0	0	0	100
61	100	1	1	0	0	0	0	100
54	100	1	1	0	0	0	0	100
59	100	1	1	0	0	0	0	100
58	100	1	1	0	0	0	0	100
57	100	1	1	0	0	0	0	100
56	100	1	1	0	0	0	0	100
55	100	1	1	0	0	0	0	100
37	100	1	1	0	0	0	0	100
34	100	1	1	0	0	0	0	100
35	100	1	1	0	0	0	0	100
2	100	1	1	0	0	0	0	100
10	100	1	1	0	0	0	0	100
15	100	1	1	0	0	0	0	100
14	100	1	1	0	0	0	0	100
13	100	1	1	0	0	0	0	100
12	100	1	1	0	0	0	0	100
11	100	1	1	0	0	0	0	100
8	100	1	1	0	0	0	0	100
9	100	1	1	0	0	0	0	100
17	100	1	1	0	0	0	0	100
7	100	1	1	0	0	0	0	100
6	100	1	1	0	0	0	0	100
5	100	1	1	0	0	0	0	100
4	100	1	1	0	0	0	0	100
3	100	1	1	0	0	0	0	100
16	100	1	1	0	0	0	0	100
68	100	1	1	0	0	0	0	100
33	100	1	1	0	0	0	0	100
27	100	1	1	0	0	0	0	100
32	100	1	1	0	0	0	0	100
31	100	1	1	0	0	0	0	100
30	100	1	1	0	0	0	0	100
29	100	1	1	0	0	0	0	100
28	100	1	1	0	0	0	0	100
25	100	1	1	0	0	0	0	100
26	100	1	1	0	0	0	0	100
19	90	1	1	0	0	0	10	100
24	100	1	1	0	0	0	0	100
23	100	1	1	0	0	0	0	100
22	100	1	1	0	0	0	0	100
21	100	1	1	0	0	0	0	100
20	100	1	1	0	0	0	0	100
18	100	2	1	0	0	0	0	100

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Transect E5 Quadrat	Sorted data							
	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
34	100	1	1	0	0	0	0	100
60	100	1	1	0	0	0	0	100
41	100	1	1	0	0	0	0	100
40	100	1	1	0	0	0	0	100
58	100	1	1	0	0	0	0	100
59	100	1	1	0	0	0	0	100
61	100	1	1	0	0	0	0	100
43	100	1	1	0	0	0	0	100
62	100	1	1	0	0	0	0	100
63	100	1	1	0	0	0	0	100
64	100	1	1	0	0	0	0	100
32	100	1	1	0	0	0	0	100
42	100	1	1	0	0	0	0	100
44	100	1	1	0	0	0	0	100
30	90	1	1	10	0	0	0	100
51	100	1	1	0	0	0	0	100
55	100	1	1	0	0	0	0	100
54	100	1	1	0	0	0	0	100
53	100	1	1	0	0	0	0	100
52	100	1	1	0	0	0	0	100
50	100	1	1	0	0	0	0	100
45	100	1	1	0	0	0	0	100
49	100	1	1	0	0	0	0	100
48	100	1	1	0	0	0	0	100
47	100	1	1	0	0	0	0	100
46	100	1	1	0	0	0	0	100
31	100	1	1	0	0	0	0	100
28	100	1	1	0	0	0	0	100
29	100	1	1	0	0	0	0	100
57	100	1	1	0	0	0	0	100
9	100	1	1	0	0	0	0	100
12	100	1	1	0	0	0	0	100
11	100	1	1	0	0	0	0	100
10	100	1	1	0	0	0	0	100
65	100	1	1	0	0	0	0	100
8	100	1	1	0	0	0	0	100
14	100	1	1	0	0	0	0	100
6	100	1	1	0	0	0	0	100
5	100	1	1	0	0	0	0	100
66	100	1	1	0	0	0	0	100
13	100	1	1	0	0	0	0	100
15	100	1	1	0	0	0	0	100
27	100	1	1	0	0	0	0	100
16	100	1	1	0	0	0	0	100
23	100	1	1	0	0	0	0	100
26	100	1	1	0	0	0	0	100
25	100	1	1	0	0	0	0	100
24	100	1	1	0	0	0	0	100
22	100	1	1	0	0	0	0	100
17	100	1	1	0	0	0	0	100
21	100	1	1	0	0	0	0	100
20	100	1	1	0	0	0	0	100
19	100	1	1	0	0	0	0	100
18	100	1	1	0	0	0	0	100
56	100	1	1	0	0	0	0	100
67	100	2	1	0	0	0	0	100
1	100	2	1	0	0	0	0	100
39	100	2	1	0	0	0	0	100
33	40	2	1	0	0	0	60	100
3	100	2	1	0	0	0	0	100
4	100	2	1	0	0	0	0	100
7	100	2	1	0	0	0	0	100
2	100	2	1	0	0	0	0	100
38	100	2	1	0	0	0	0	100
35	100	2	1	0	0	0	0	100
36	100	2	1	0	0	0	0	100
37	100	2	1	0	0	0	0	100
68	100	2	1	0	0	0	0	100

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Transect E6 Quadrat	Sorted data							
	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
1	100	1	1	0	0	0	0	100
37	80	1	1	0	20	0	0	100
41	80	1	1	0	20	0	0	100
40	60	1	1	0	0	0	40	100
39	80	1	1	0	20	0	0	100
38	80	1	1	0	20	0	0	100
36	80	1	1	0	20	0	0	100
43	90	1	1	0	10	0	0	100
35	80	1	1	0	20	0	0	100
2	95	1	1	5	0	0	0	100
33	10	1	1	90	0	0	0	100
32	10	1	1	90	0	0	0	100
42	80	1	1	0	20	0	0	100
44	100	1	1	0	0	0	0	100
30	10	1	1	90	0	0	0	100
63	60	1	1	0	40	0	0	100
67	100	1	1	0	0	0	0	100
66	80	1	1	0	0	0	20	100
65	60	1	1	0	0	0	40	100
64	80	1	1	0	0	0	20	100
62	80	1	1	0	0	0	20	100
46	90	1	1	0	0	0	10	100
56	80	1	1	0	10	0	10	100
53	90	1	1	0	10	0	0	100
52	90	1	1	0	10	0	0	100
47	100	1	1	0	0	0	0	100
31	10	1	1	90	0	0	0	100
34	70	1	1	0	0	0	30	100
29	100	1	1	0	0	0	0	100
28	80	1	1	0	0	0	20	100
8	60	1	1	0	0	0	40	100
27	100	1	1	0	0	0	0	100
11	100	1	1	0	0	0	0	100
10	100	1	1	0	0	0	0	100
9	100	1	1	0	0	0	0	100
7	60	1	1	0	10	0	30	100
13	90	1	1	0	0	0	10	100
6	50	1	1	0	10	0	40	100
5	60	1	1	0	10	0	30	100
4	50	1	1	0	0	0	50	100
3	90	1	1	0	0	0	10	100
12	90	1	1	0	10	0	0	100
68	90	1	1	10	0	0	0	100
14	90	1	1	0	10	0	0	100
20	100	1	1	0	0	0	0	100
19	100	1	1	0	0	0	0	100
21	80	1	1	0	0	0	10	90
15	90	1	1	0	0	0	10	100
22	100	1	1	0	0	0	0	100
23	100	1	1	0	0	0	0	100
24	90	1	1	0	0	0	10	100
18	90	1	1	0	0	0	10	100
25	100	1	1	0	0	0	0	100
17	80	1	1	0	0	0	20	100
26	100	1	1	0	0	0	0	100
16	60	1	1	0	0	0	40	100
60	70	2	1	0	0	0	30	100
61	60	2	1	0	0	0	40	100
45	40	2	1	60	0	0	0	100
59	70	2	1	0	0	0	30	100
58	90	2	1	0	0	0	10	100
57	100	2	1	0	0	0	0	100
55	40	2	1	0	0	0	60	100
54	60	2	1	0	0	0	40	100
51	50	2	1	0	0	0	50	100
50	70	2	1	0	0	0	30	100
48	70	2	1	0	0	0	30	100
49	70	2	1	0	0	0	30	100

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Transect E7	Sorted data							
	Quadrat	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllun % cover	% algae filamentous	Pinna Number	% Bare Ground
68	100	1	1	0	0	0	0	100
51	100	1	1	0	0	0	0	100
61	100	1	1	0	0	0	0	100
59	100	1	1	0	0	0	0	100
53	100	1	1	0	0	0	0	100
52	100	1	1	0	0	0	0	100
49	100	1	1	0	0	0	0	100
50	100	1	1	0	0	0	0	100
63	100	1	1	0	0	0	0	100
45	100	1	1	0	0	0	0	100
44	100	1	1	0	0	0	0	100
43	100	1	1	0	0	0	0	100
42	100	1	1	0	0	0	0	100
62	100	1	1	0	0	0	0	100
60	100	1	1	0	0	0	0	100
64	100	1	1	0	0	0	0	100
11	100	1	1	0	0	0	0	100
67	100	1	1	0	0	0	0	100
6	100	1	1	0	0	0	0	100
7	100	1	1	0	0	0	0	100
8	100	1	1	0	0	0	0	100
9	100	1	1	0	0	0	0	100
14	100	1	1	0	0	0	0	100
10	100	1	1	0	0	0	0	100
13	100	1	1	0	0	0	0	100
12	100	1	1	0	0	0	0	100
54	100	2	1	0	0	0	0	100
46	100	2	1	0	0	0	0	100
66	100	2	1	0	0	0	0	100
65	100	2	1	0	0	0	0	100
40	100	2	1	0	0	0	0	100
48	100	2	1	0	0	0	0	100
47	100	2	1	0	0	0	0	100
55	100	2	1	0	0	0	0	100
58	100	2	1	0	0	0	0	100
57	100	2	1	0	0	0	0	100
56	100	2	1	0	0	0	0	100
41	100	2	1	0	0	0	0	100
34	100	2	1	0	0	0	0	100
39	100	2	1	0	0	0	0	100
18	100	2	1	0	0	0	0	100
22	100	2	1	0	0	0	0	100
21	70	2	1	0	0	0	30	100
20	100	2	1	0	0	0	0	100
19	100	2	1	0	0	0	0	100
16	100	2	1	0	0	0	0	100
17	100	2	1	0	0	0	0	100
24	100	2	1	0	0	0	0	100
15	100	2	1	0	0	0	0	100
5	100	2	1	0	0	0	0	100
4	100	2	1	0	0	0	0	100
3	70	2	1	0	0	0	30	100
23	100	2	1	0	0	0	0	100
25	100	2	1	0	0	0	0	100
38	100	2	1	0	0	0	0	100
33	100	2	1	0	0	0	0	100
37	100	2	1	0	0	0	0	100
36	100	2	1	0	0	0	0	100
35	100	2	1	0	0	0	0	100
2	90	2	1	0	0	0	10	100
31	100	2	1	0	0	0	0	100
32	100	2	1	0	0	0	0	100
26	100	2	1	0	0	0	0	100
30	100	2	1	0	0	0	0	100
29	100	2	1	0	0	0	0	100
28	100	2	1	0	0	0	0	100
27	100	2	1	0	0	0	0	100
1	10	2	1	0	0	0	90	100

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Transect E8	Sorted data							
	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
1	100	2	1	0	0	0	0	100
2	100	2	1	0	0	0	0	100
3	100	2	1	0	0	0	0	100
4	100	2	1	0	0	0	0	100
5	100	2	1	0	0	0	0	100
6	100	2	1	0	0	0	0	100
7	100	2	1	0	0	0	0	100
8	100	2	1	0	0	0	0	100
9	100	2	1	0	0	0	0	100
10	100	2	1	0	0	0	0	100
11	100	2	1	0	0	0	0	100
12	100	2	1	0	0	0	0	100
13	100	2	1	0	0	0	0	100
14	100	2	1	0	0	0	0	100
15	100	2	1	0	0	0	0	100
16	100	2	1	0	0	0	0	100
17	100	2	1	0	0	0	0	100
18	100	2	1	0	0	0	0	100
19	100	2	1	0	0	0	0	100
20	100	2	1	0	0	0	0	100
21	100	2	1	0	0	0	0	100
22	100	2	1	0	0	0	0	100
23	100	2	1	0	0	0	0	100
24	100	2	1	0	0	0	0	100
25	100	2	1	0	0	0	0	100
26	100	2	1	0	0	0	0	100
27	100	2	1	0	0	0	0	100
28	100	2	1	0	0	0	0	100
29	100	2	1	0	0	0	0	100
30	100	2	1	0	0	0	0	100
31	100	2	1	0	0	0	0	100
32	100	2	1	0	0	0	0	100
33	100	2	1	0	0	0	0	100
34	100	2	1	0	0	0	0	100
35	100	2	1	0	0	0	0	100
36	100	2	1	0	0	0	0	100
37	100	2	1	0	0	0	0	100
38	100	2	1	0	0	0	0	100
39	100	2	1	0	0	0	0	100
40	90	2	1	0	0	0	10	100
41	100	2	1	0	0	0	0	100
42	100	2	1	0	0	0	0	100
43	100	2	1	0	0	0	0	100
44	100	2	1	0	0	0	0	100
45	100	2	1	0	0	0	0	100
46	100	2	1	0	0	0	0	100
47	100	2	1	0	0	0	0	100
48	100	2	1	0	0	0	0	100
49	90	2	1	0	0	0	0	90
50	100	2	1	0	0	0	0	100
51	100	2	1	0	0	0	0	100
52	100	2	1	0	0	0	0	100
53	100	2	1	0	0	0	0	100
54	100	2	1	0	0	0	0	100
55	90	2	1	0	0	0	10	100
56	100	2	1	0	0	0	0	100
57	100	2	1	0	0	0	0	100
58	100	2	1	0	0	0	0	100
59	100	2	1	0	0	0	0	100
60	100	2	1	0	0	0	0	100
61	100	2	1	0	0	0	0	100
62	100	2	1	0	0	0	0	100
63	100	2	1	0	0	0	0	100
64	85	2	1	0	0	0	15	100
65	100	2	1	0	0	0	0	100
66	100	2	1	0	0	0	0	100
67	100	2	1	0	0	0	0	100
68	100	2	1	0	0	0	0	100

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Transect E9		Sorted data						
Quadrat	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
1	100	1	1	0	0	0	0	100
2	100	1	1	0	0	0	0	100
3	100	1	1	0	0	0	0	100
4	100	1	1	0	0	0	0	100
5	100	1	1	0	0	0	0	100
6	100	1	1	0	0	0	0	100
7	100	1	1	0	0	0	0	100
8	100	1	1	0	0	0	0	100
9	100	1	1	0	0	0	0	100
10	100	1	1	0	0	0	0	100
11	100	1	1	0	0	0	0	100
12	100	1	1	0	0	0	0	100
13	100	1	1	0	0	0	0	100
14	100	1	1	0	0	0	0	100
15	100	1	1	0	0	0	0	100
16	100	1	1	0	0	0	0	100
17	100	1	1	0	0	0	0	100
18	100	1	1	0	0	0	0	100
19	100	1	1	0	0	0	0	100
20	100	1	1	0	0	0	0	100
21	100	1	1	0	0	0	0	100
22	100	1	1	0	0	0	0	100
23	100	1	1	0	0	0	0	100
24	100	1	1	0	0	0	0	100
25	100	1	1	0	0	0	0	100
26	100	1	1	0	0	0	0	100
27	100	1	1	0	0	0	0	100
28	100	1	1	0	0	0	0	100
29	100	1	1	0	0	0	0	100
30	100	1	1	0	0	0	0	100
31	100	1	1	0	0	0	0	100
32	100	1	1	0	0	0	0	100
33	100	1	1	0	0	0	0	100
34	100	1	1	0	0	0	0	100
35	100	1	1	0	0	0	0	100
36	100	1	1	0	0	0	0	100
37	100	1	1	0	0	0	0	100
38	100	1	1	0	0	0	0	100
39	100	1	1	0	0	0	0	100
40	100	1	1	0	0	0	0	100
41	100	1	1	0	0	0	0	100
42	100	1	1	0	0	0	0	100
43	100	1	1	0	0	0	0	100
44	100	1	1	0	0	0	0	100
45	100	1	1	0	0	0	0	100
46	100	1	1	0	0	0	0	100
47	100	1	1	0	0	0	0	100
48	100	1	1	0	0	0	0	100
49	100	1	1	0	0	0	0	100
50	100	1	1	0	0	0	0	100
51	100	1	1	0	0	0	0	100
52	100	1	1	0	0	0	0	100
53	100	1	1	0	0	0	0	100
54	100	1	1	0	0	0	0	100
55	100	1	1	0	0	0	0	100
56	100	1	1	0	0	0	0	100
57	100	1	1	0	0	0	0	100
58	100	1	1	0	0	0	0	100
59	100	1	1	0	0	0	0	100
60	100	1	1	0	0	0	0	100
61	100	1	1	0	0	0	0	100
62	100	1	1	0	0	0	0	100
63	100	1	1	0	0	0	0	100
64	100	1	1	0	0	0	0	100
65	100	1	1	0	0	0	0	100
66	100	1	1	0	0	0	0	100
67	100	1	1	0	0	0	0	100
68	100	1	1	0	0	0	0	100

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Transect E10		Raw data						
Quadrat	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
1	100	1	1	0	0	0	0	100
2	100	1	1	0	0	0	0	100
3	100	1	1	0	0	0	0	100
4	100	1	1	0	0	0	0	100
5	100	1	1	0	0	0	0	100
6	100	1	1	0	0	0	0	100
7	100	1	1	0	0	0	0	100
8	100	1	1	0	0	0	0	100
9	100	1	1	0	0	0	0	100
10	100	1	1	0	0	0	0	100
11	100	1	1	0	0	0	0	100
12	100	1	1	0	0	0	0	100
13	100	1	1	0	0	0	0	100
14	100	1	1	0	0	0	0	100
15	100	1	1	0	0	0	0	100
16	100	1	1	0	0	0	0	100
17	100	1	1	0	0	0	0	100
18	100	1	1	0	0	0	0	100
19	100	1	1	0	0	0	0	100
20	100	1	1	0	0	0	0	100
21	100	1	1	0	0	0	0	100
22	100	1	1	0	0	0	0	100
23	100	1	1	0	0	0	0	100
24	70	1	1	0	0	0	30	100
25	100	1	1	0	0	0	0	100
26	100	1	1	0	0	0	0	100
27	70	1	1	0	0	0	30	100
28	100	1	1	0	0	0	0	100
29	100	1	1	0	0	0	0	100
30	100	1	1	0	0	0	0	100
31	100	1	1	0	0	0	0	100
32	100	1	1	0	0	0	0	100
33	100	1	1	0	0	0	0	100
34	100	1	1	0	0	0	0	100
35	100	1	1	0	0	0	0	100
36	100	1	1	0	0	0	0	100
37	100	1	1	0	0	0	0	100
38	100	1	1	0	0	0	0	100
39	100	1	1	0	0	0	0	100
40	80	1	1	0	0	0	20	100
41	60	1	1	0	0	0	40	100
42	100	1	1	0	0	0	0	100
43	100	1	1	0	0	0	0	100
44	100	1	1	0	0	0	0	100
45	100	1	1	0	0	0	0	100
46	100	1	1	0	0	0	0	100
47	100	1	1	0	0	0	0	100
48	100	1	1	0	0	0	0	100
49	100	1	1	0	0	0	0	100
50	100	1	1	0	0	0	0	100
51	100	1	1	0	0	0	0	100
52	100	1	1	0	0	0	0	100
53	100	1	1	0	0	0	0	100
54	100	1	1	0	0	0	0	100
55	100	1	1	0	0	0	0	100
56	100	1	1	0	0	0	0	100
57	100	1	1	0	0	0	0	100
58	100	1	1	0	0	0	0	100
59	98	1	1	0	2	0	0	100
60	100	1	1	0	0	0	0	100
61	100	1	1	0	0	0	0	100
62	100	1	1	0	0	0	0	100
63	100	1	1	0	0	0	0	100
64	100	1	1	0	0	0	0	100
65	100	1	1	0	0	0	0	100
66	100	1	1	0	0	0	0	100
67	100	1	1	0	0	0	0	100
68	100	1	1	0	0	0	0	100

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Transect E11	Sorted data							
	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dyctophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
1	100	1	1	0	0	0	0	100
2	100	1	1	0	0	0	0	100
3	98	1	1	0	2	0	0	100
4	100	1	1	0	0	0	0	100
5	100	1	1	0	0	0	0	100
6	100	1	1	0	0	0	0	100
7	100	1	1	0	0	0	0	100
8	100	1	1	0	0	0	0	100
9	100	1	1	0	0	0	0	100
10	100	1	1	0	0	0	0	100
11	100	1	1	0	0	0	0	100
12	100	1	1	0	0	0	0	100
13	100	1	1	0	0	0	0	100
14	100	1	1	0	0	0	0	100
15	100	1	1	0	0	0	0	100
16	100	1	1	0	0	0	0	100
17	100	1	1	0	0	0	0	100
18	100	1	1	0	0	0	0	100
19	100	1	1	0	0	0	0	100
20	100	1	1	0	0	0	0	100
21	100	1	1	0	0	0	0	100
22	100	1	1	0	0	0	0	100
23	100	1	1	0	0	0	0	100
24	100	1	1	0	0	0	0	100
25	100	1	1	0	0	0	0	100
26	100	1	1	0	0	0	0	100
27	100	1	1	0	0	0	0	100
28	100	1	1	0	0	0	0	100
29	100	1	1	0	0	0	0	100
30	100	1	1	0	0	0	0	100
31	100	1	1	0	0	0	0	100
32	100	1	1	0	0	0	0	100
33	100	1	1	0	0	0	0	100
34	100	1	1	0	0	0	0	100
35	100	1	1	0	0	0	0	100
36	100	1	1	0	0	0	0	100
37	98	1	1	0	2	0	0	100
38	100	1	1	0	0	0	0	100
39	100	1	1	0	0	0	0	100
40	100	1	1	0	0	0	0	100
41	100	1	1	0	0	0	0	100
42	97	1	1	0	3	0	0	100
43	100	1	1	0	0	0	0	100
44	95	1	1	0	5	0	0	100
45	100	1	1	0	0	0	0	100
46	100	1	1	0	0	0	0	100
47	100	1	1	0	0	0	0	100
48	100	1	1	0	0	0	0	100
49	100	1	1	0	0	0	0	100
50	100	1	1	0	0	0	0	100
51	100	1	1	0	0	0	0	100
52	100	1	1	0	0	0	0	100
53	100	1	1	0	0	0	0	100
54	100	1	1	0	0	0	0	100
55	100	1	1	0	0	0	0	100
56	100	1	1	0	0	0	0	100
57	100	1	1	0	0	0	0	100
58	90	1	1	0	10	0	0	100
59	100	1	1	0	0	0	0	100
60	100	1	1	0	0	0	0	100
61	100	1	1	0	0	0	0	100
62	100	1	1	0	0	0	0	100
63	100	1	1	0	0	0	0	100
64	100	1	1	0	0	0	0	100
65	100	1	1	0	0	0	0	100
66	100	1	1	0	0	0	0	100
67	50	1	1	0	50	0	0	100
68	100	1	1	0	0	0	0	100

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Transect E12		Sorted data						
Quadrat	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
24	0	0	0	0	0	0	100	100
25	0	0	0	0	0	0	100	100
36	98	1	1	0	2	0	0	100
59	98	1	1	0	2	0	0	100
49	100	1	1	0	0	0	0	100
48	100	1	1	0	0	0	0	100
47	100	1	1	0	0	0	0	100
46	100	1	1	0	0	0	0	100
44	100	1	1	0	0	0	0	100
45	100	1	1	0	0	0	0	100
50	100	1	1	0	0	0	0	100
43	100	1	1	0	0	0	0	100
42	100	1	1	0	0	0	0	100
41	100	1	1	0	0	0	0	100
40	100	1	1	0	0	0	0	100
39	100	1	1	0	0	0	0	100
38	100	1	1	0	0	0	0	100
1	100	1	1	0	0	0	0	100
52	100	1	1	0	0	0	0	100
51	100	1	1	0	0	0	0	100
62	100	1	1	0	0	0	0	100
67	100	1	1	0	0	0	0	100
66	100	1	1	0	0	0	0	100
65	100	1	1	0	0	0	0	100
64	100	1	1	0	0	0	0	100
63	100	1	1	0	0	0	0	100
60	100	1	1	0	0	0	0	100
61	100	1	1	0	0	0	0	100
53	100	1	1	0	0	0	0	100
58	100	1	1	0	0	0	0	100
57	100	1	1	0	0	0	0	100
56	100	1	1	0	0	0	0	100
55	100	1	1	0	0	0	0	100
54	100	1	1	0	0	0	0	100
37	100	1	1	0	0	0	0	100
34	100	1	1	0	0	0	0	100
35	100	1	1	0	0	0	0	100
9	100	1	1	0	0	0	0	100
14	100	1	1	0	0	0	0	100
13	100	1	1	0	0	0	0	100
12	100	1	1	0	0	0	0	100
11	100	1	1	0	0	0	0	100
10	100	1	1	0	0	0	0	100
8	100	1	1	0	0	0	0	100
16	100	1	1	0	0	0	0	100
7	100	1	1	0	0	0	0	100
6	100	1	1	0	0	0	0	100
5	100	1	1	0	0	0	0	100
4	100	1	1	0	0	0	0	100
3	100	1	1	0	0	0	0	100
15	100	1	1	0	0	0	0	100
18	100	1	1	0	0	0	0	100
17	100	1	1	0	0	0	0	100
2	100	1	1	0	0	0	0	100
28	100	1	1	0	0	0	0	100
33	100	1	1	0	0	0	0	100
32	100	1	1	0	0	0	0	100
31	100	1	1	0	0	0	0	100
30	100	1	1	0	0	0	0	100
29	100	1	1	0	0	0	0	100
27	100	1	1	0	0	0	0	100
19	100	1	1	0	0	0	0	100
26	100	1	1	0	0	0	0	100
23	100	1	1	0	0	0	0	100
22	100	1	1	0	0	0	0	100
21	100	1	1	0	0	0	0	100
20	100	1	1	0	0	0	0	100
68	100	1	1	0	0	0	0	100

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Transect E13		Sorted data						
Quadrat	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
68	100	1	1	0	0	0	0	100
30	100	1	1	0	0	0	0	100
32	100	1	1	0	0	0	0	100
31	100	1	1	0	0	0	0	100
28	100	1	1	0	0	0	0	100
29	100	1	1	0	0	0	0	100
47	100	1	1	0	0	0	0	100
27	100	1	1	0	0	0	0	100
26	100	1	1	0	0	0	0	100
33	100	1	1	0	0	0	0	100
36	100	1	1	0	0	0	0	100
35	100	1	1	0	0	0	0	100
24	100	1	1	0	0	0	0	100
42	100	1	1	0	0	0	0	100
44	100	1	1	0	0	0	0	100
43	97	1	1	0	3	0	0	100
40	100	1	1	0	0	0	0	100
41	100	1	1	0	0	0	0	100
37	100	1	1	0	0	0	0	100
39	100	1	1	0	0	0	0	100
38	100	1	1	0	0	0	0	100
25	100	1	1	0	0	0	0	100
48	100	1	1	0	0	0	0	100
46	100	1	1	0	0	0	0	100
63	100	1	1	0	0	0	0	100
61	100	1	1	0	0	0	0	100
62	100	1	1	0	0	0	0	100
65	100	1	1	0	0	0	0	100
64	100	1	1	0	0	0	0	100
59	100	1	1	0	0	0	0	100
66	100	1	1	0	0	0	0	100
67	100	1	1	0	0	0	0	100
60	100	1	1	0	0	0	0	100
57	100	1	1	0	0	0	0	100
58	100	1	1	0	0	0	0	100
49	100	1	1	0	0	0	0	100
51	100	1	1	0	0	0	0	100
21	100	1	1	0	0	0	0	100
50	100	1	1	0	0	0	0	100
53	100	1	1	0	0	0	0	100
52	100	1	1	0	0	0	0	100
56	100	1	1	0	0	0	0	100
54	100	1	1	0	0	0	0	100
55	100	1	1	0	0	0	0	100
45	100	1	1	0	0	0	0	100
34	100	2	1	0	0	0	0	100
2	100	2	1	0	0	0	0	100
7	100	2	1	0	0	0	0	100
9	100	2	1	0	0	0	0	100
8	100	2	1	0	0	0	0	100
5	100	2	1	0	0	0	0	100
6	100	2	1	0	0	0	0	100
11	100	2	1	0	0	0	0	100
4	100	2	1	0	0	0	0	100
3	100	2	1	0	0	0	0	100
10	100	2	1	0	0	0	0	100
13	100	2	1	0	0	0	0	100
12	100	2	1	0	0	0	0	100
23	100	2	1	0	0	0	0	100
19	100	2	1	0	0	0	0	100
22	100	2	1	0	0	0	0	100
20	100	2	1	0	0	0	0	100
17	100	2	1	0	0	0	0	100
18	100	2	1	0	0	0	0	100
14	100	2	1	0	0	0	0	100
16	100	2	1	0	0	0	0	100
15	100	2	1	0	0	0	0	100
1	100	2	1	0	0	0	0	100

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Transect E14		Sorted data						
Quadrat	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
1	100	1	1	0	0	0	0	100
2	100	1	1	0	0	0	0	100
3	100	1	1	0	0	0	0	100
4	100	1	1	0	0	0	0	100
5	100	1	1	0	0	0	0	100
6	90	1	1	10	0	0	0	100
7	100	1	1	0	0	0	0	100
8	100	1	1	0	0	0	0	100
9	80	1	1	20	0	0	0	100
10	100	1	1	0	0	0	0	100
11	100	1	1	0	0	0	0	100
12	100	1	1	0	0	0	0	100
13	100	1	1	0	0	0	0	100
14	100	1	1	0	0	0	0	100
15	100	1	1	0	0	0	0	100
16	90	1	1	10	0	0	0	100
17	100	1	1	0	0	0	0	100
18	100	1	1	0	0	0	0	100
19	100	1	1	0	0	0	0	100
20	100	1	1	0	0	0	0	100
21	100	1	1	0	0	0	0	100
22	100	1	1	0	0	0	0	100
23	100	1	1	0	0	0	0	100
24	100	1	1	0	0	0	0	100
25	100	1	1	0	0	0	0	100
26	100	1	1	0	0	0	0	100
27	90	1	1	10	0	0	0	100
28	100	1	1	0	0	0	0	100
29	100	1	1	0	0	0	0	100
30	100	1	1	0	0	0	0	100
31	100	1	1	0	0	0	0	100
32	100	1	1	0	0	0	0	100
33	100	1	1	0	0	0	0	100
34	100	1	1	0	0	0	0	100
35	100	1	1	0	0	0	0	100
36	100	1	1	0	0	0	0	100
37	100	1	1	0	0	0	0	100
38	100	1	1	0	0	0	0	100
39	100	1	1	0	0	0	0	100
40	100	1	1	0	0	0	0	100
41	100	1	1	0	0	0	0	100
42	100	1	1	0	0	0	0	100
43	100	1	1	0	0	0	0	100
44	100	1	1	0	0	0	0	100
45	100	1	1	0	0	0	0	100
46	100	1	1	0	0	0	0	100
47	100	1	1	0	0	0	0	100
48	100	1	1	0	0	0	0	100
49	100	1	1	0	0	0	0	100
50	100	1	1	0	0	0	0	100
51	100	1	1	0	0	0	0	100
52	100	1	1	0	0	0	0	100
53	100	1	1	0	0	0	0	100
54	100	1	1	0	0	0	0	100
55	100	1	1	0	0	0	0	100
56	100	1	1	0	0	0	0	100
57	100	1	1	0	0	0	0	100
58	100	1	1	0	0	0	0	100
59	100	1	1	0	0	0	0	100
60	90	1	1	10	0	0	0	100
61	100	1	1	0	0	0	0	100
62	100	1	1	0	0	0	0	100
63	100	1	1	0	0	0	0	100
64	100	1	1	0	0	0	0	100
65	40	1	1	60	0	0	0	100
66	100	1	1	0	0	0	0	100
67	100	1	1	0	0	0	0	100
68	100	1	1	0	0	0	0	100

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Transect E15		Sorted data						
Quadrat	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
53	0	0	0	0	0	0	100	100
45	0	0	0	0	0	0	100	100
54	0	0	0	0	0	0	100	100
55	0	0	0	0	0	0	100	100
56	0	0	0	0	0	0	100	100
57	0	0	0	0	0	0	100	100
58	0	0	0	0	0	0	100	100
46	0	0	0	0	0	0	100	100
44	0	0	0	0	0	0	100	100
43	50	1	1	0	0	0	50	100
47	80	1	1	0	0	0	20	100
48	50	1	1	0	0	0	50	100
49	80	2	1	0	0	0	20	100
42	65	2	1	0	0	0	35	100
41	30	2	1	0	0	0	70	100
40	20	2	1	0	0	0	80	100
39	60	2	1	0	0	0	40	100
38	60	2	1	0	0	0	40	100
1	80	2	1	0	0	0	20	100
50	80	2	1	0	0	0	20	100
51	40	2	1	0	0	0	60	100
63	70	2	1	0	0	0	30	100
67	60	2	1	0	0	0	40	100
66	60	2	1	0	0	0	40	100
65	80	2	1	0	0	0	20	100
64	90	2	1	0	0	0	10	100
62	80	2	1	0	0	0	20	100
52	20	2	1	0	0	0	80	100
61	80	2	1	0	0	0	20	100
60	70	2	1	0	0	0	30	100
59	70	2	1	0	0	0	30	100
36	20	2	1	0	0	0	80	100
37	60	2	1	0	0	0	40	100
34	30	2	1	0	0	0	70	100
35	10	2	1	0	0	0	90	100
2	80	2	1	0	0	0	20	100
10	70	2	1	0	0	0	30	100
15	30	2	1	0	0	0	70	100
14	40	2	1	0	0	0	60	100
13	20	2	1	0	0	0	80	100
12	60	2	1	0	0	0	40	100
11	60	2	1	0	0	0	40	100
8	50	2	1	0	0	0	50	100
9	40	2	1	0	0	0	60	100
17	70	2	1	0	0	0	30	100
7	50	2	1	0	0	0	50	100
6	40	2	1	0	0	0	60	100
5	40	2	1	0	0	0	60	100
4	60	2	1	0	0	0	40	100
3	70	2	1	0	0	0	30	100
16	40	2	1	0	0	0	60	100
18	80	2	1	0	0	0	20	100
33	50	2	1	0	0	0	50	100
27	80	2	1	0	0	0	20	100
32	60	2	1	0	0	0	40	100
31	60	2	1	0	0	0	40	100
30	70	2	1	0	0	0	30	100
29	80	2	1	0	0	0	20	100
28	80	2	1	0	0	0	20	100
25	60	2	1	0	0	0	40	100
26	60	2	1	0	0	0	40	100
19	70	2	1	0	0	0	30	100
24	80	2	1	0	0	0	20	100
23	60	2	1	0	0	0	40	100
22	60	2	1	0	0	0	40	100
21	70	2	1	0	0	0	30	100
20	60	2	1	0	0	0	40	100
68	50	2	1	0	0	0	50	100

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Transect E16		Raw data						
Quadrat	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
1	100	1	1	0	0	0	0	100
2	100	1	1	0	0	0	0	100
3	100	1	1	0	0	0	0	100
4	100	1	1	0	0	0	0	100
5	100	1	1	0	0	0	0	100
6	100	1	1	0	0	0	0	100
7	80	1	1	0	0	0	20	100
8	100	1	1	0	0	0	0	100
9	100	1	1	0	0	0	0	100
10	80	1	1	0	0	0	20	100
11	100	1	1	0	0	0	0	100
12	100	1	1	0	0	0	0	100
13	100	1	1	0	0	0	0	100
14	100	1	1	0	0	0	0	100
15	100	1	1	0	0	0	0	100
16	100	1	1	0	0	0	0	100
17	80	1	1	0	0	0	20	100
18	100	1	1	0	0	0	0	100
19	100	1	1	0	0	0	0	100
20	100	1	1	0	0	0	0	100
21	100	1	1	0	0	0	0	100
22	100	1	1	0	0	0	0	100
23	60	1	1	0	0	0	40	100
24	100	1	1	0	0	0	0	100
25	100	1	1	0	0	0	0	100
26	100	1	1	0	0	0	0	100
27	100	1	1	0	0	0	0	100
28	100	1	1	0	0	0	0	100
29	100	1	1	0	0	0	0	100
30	100	1	1	0	0	0	0	100
31	100	1	1	0	0	0	0	100
32	100	1	1	0	0	0	0	100
33	60	1	1	0	0	0	40	100
34	100	1	1	0	0	0	0	100
35	100	1	1	0	0	0	0	100
36	60	1	1	0	0	0	40	100
37	80	1	1	0	0	0	20	100
38	100	1	1	0	0	0	0	100
39	100	1	1	0	0	0	0	100
40	100	1	1	0	0	0	0	100
41	100	1	1	0	0	0	0	100
42	100	1	1	0	0	0	0	100
43	100	1	1	0	0	0	0	100
44	100	1	1	0	0	0	0	100
45	100	1	1	0	0	0	0	100
46	100	1	1	0	0	0	0	100
47	60	1	1	0	0	0	40	100
48	60	1	1	0	0	0	40	100
49	60	1	1	0	0	0	40	100
50	100	1	1	0	0	0	0	100
51	100	1	1	0	0	0	0	100
52	100	1	1	0	0	0	0	100
53	100	1	1	0	0	0	0	100
54	100	1	1	0	0	0	0	100
55	100	1	1	0	0	0	0	100
56	100	1	1	0	0	0	0	100
57	100	1	1	0	0	0	0	100
58	100	1	1	0	0	0	0	100
59	100	1	1	0	0	0	0	100
60	100	1	1	0	0	0	0	100
61	100	1	1	0	0	0	0	100
62	100	1	1	0	0	0	0	100
63	100	1	1	0	0	0	0	100
64	80	1	1	0	0	0	20	100
65	100	1	1	0	0	0	0	100
66	100	1	1	0	0	0	0	100
67	100	1	1	0	0	0	0	100
68	100	1	1	0	0	0	0	100

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Transect T1 Quadrat	Sorted data							
	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
31	0	0	0	0	0	0	100	100
27	0	0	0	0	0	0	100	100
30	0	0	0	0	0	0	100	100
24	0	0	0	0	0	0	100	100
25	0	0	0	0	0	0	100	100
15	0	0	0	0	0	0	100	100
26	0	0	0	0	0	0	100	100
33	0	0	0	0	0	0	100	100
16	0	0	0	0	0	0	100	100
32	0	0	0	0	0	0	100	100
28	0	0	0	0	0	0	100	100
29	0	0	0	0	0	0	100	100
52	70	1	1	0	0	0	30	100
62	100	1	1	0	0	0	0	100
51	100	1	1	0	0	0	0	100
53	60	1	1	0	0	0	40	100
55	60	1	1	0	0	0	40	100
54	60	1	1	0	0	0	40	100
56	90	1	1	0	0	0	10	100
50	100	1	1	0	0	0	0	100
60	100	1	1	0	0	0	0	100
61	100	1	1	0	0	0	0	100
57	100	1	1	0	0	0	0	100
59	80	1	1	0	0	0	20	100
18	100	2	1	0	0	0	0	100
2	100	2	1	0	0	0	0	100
21	20	2	1	0	0	0	80	100
19	100	2	1	0	0	0	0	100
20	100	2	1	0	0	0	0	100
35	70	2	1	0	0	0	30	100
14	20	2	1	0	0	0	80	100
17	40	2	1	0	0	0	60	100
36	40	2	1	0	0	0	60	100
34	20	2	1	0	0	0	80	100
42	100	2	1	0	0	0	0	100
37	100	2	1	0	0	0	0	100
38	100	2	1	0	0	0	0	100
39	70	2	1	0	0	0	30	100
40	80	2	1	0	0	0	20	100
41	100	2	1	0	0	0	0	100
44	70	2	1	0	0	0	30	100
22	100	2	1	0	0	0	0	100
12	100	2	1	0	0	0	0	100
43	100	2	1	0	0	0	0	100
8	30	2	1	0	0	0	70	100
23	100	2	1	0	0	0	0	100
10	50	2	1	0	0	0	50	100
47	100	2	1	0	0	0	0	100
48	100	2	1	0	0	0	0	100
49	70	2	1	0	0	0	30	100
13	60	2	1	0	0	0	40	100
11	50	2	1	0	0	0	50	100
9	20	2	1	0	0	0	80	100
46	100	2	1	0	0	0	0	100
45	70	2	1	0	0	0	30	100
7	20	2	1	0	0	0	80	100
6	30	2	1	0	0	0	70	100
58	60	2	1	0	0	0	40	100
5	35	2	1	0	0	0	65	100
4	100	2	1	0	0	0	0	100
3	70	2	1	0	0	0	30	100
1	100	2	1	0	0	0	0	100
63								0
64								0
65								0
66								0
67								0
68								0

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Transect T2 Quadrat	Sorted data		Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
	Zostera % cover	Long=1 Short=2						
48	0	0	0	0	0	0	100	100
47	0	0	0	0	0	0	100	100
46	0	0	0	0	0	0	100	100
45	0	0	0	0	0	0	100	100
41	0	0	0	0	0	0	100	100
36	0	0	0	0	0	0	100	100
44	0	0	0	0	0	0	100	100
43	0	0	0	0	0	0	100	100
31	90	1	1	0	0	0	10	100
28	100	1	1	0	0	0	0	100
29	100	1	1	0	0	0	0	100
30	100	1	1	0	0	0	0	100
11	100	1	1	0	0	0	0	100
32	90	1	1	0	0	0	10	100
12	100	1	1	0	0	0	0	100
10	100	1	1	0	0	0	0	100
33	80	1	1	0	0	0	20	100
35	100	1	1	0	0	0	0	100
64	100	1	1	0	0	0	0	100
34	100	1	1	0	0	0	0	100
49	20	2	1	0	0	0	80	100
53	90	2	1	0	0	0	10	100
50	20	2	1	0	0	0	80	100
51	70	2	1	0	0	0	30	100
61	60	2	1	0	0	0	40	100
67	50	2	1	0	0	0	50	100
66	90	2	1	0	0	0	10	100
65	90	2	1	0	0	0	10	100
63	50	2	1	0	0	0	50	100
62	70	2	1	0	0	0	30	100
59	90	2	1	0	0	0	10	100
60	70	2	1	0	0	0	30	100
52	80	2	1	0	0	0	20	100
58	90	2	1	0	0	0	10	100
57	90	2	1	0	0	0	10	100
56	80	2	1	0	0	0	20	100
55	90	2	1	0	0	0	10	100
54	90	2	1	0	0	0	10	100
42	40	2	1	0	0	0	60	100
1	100	2	1	0	0	0	0	100
40	100	2	1	0	0	0	0	100
8	90	2	1	0	0	0	10	100
15	100	2	1	0	0	0	0	100
14	100	2	1	0	0	0	0	100
13	90	2	1	10	0	0	0	100
9	100	2	1	0	0	0	0	100
7	100	2	1	0	0	0	0	100
17	100	2	1	0	0	0	0	100
6	100	2	1	0	0	0	0	100
5	100	2	1	0	0	0	0	100
4	100	2	1	0	0	0	0	100
3	100	2	1	0	0	0	0	100
16	100	2	1	0	0	0	0	100
19	100	2	1	0	0	0	0	100
18	100	2	1	0	0	0	0	100
39	100	2	1	0	0	0	0	100
26	100	2	1	0	0	0	0	100
38	70	2	1	0	0	0	30	100
37	20	2	1	0	0	0	80	100
2	97	2	1	3	0	0	0	100
27	100	2	1	0	0	0	0	100
25	100	2	1	0	0	0	0	100
20	100	2	1	0	0	0	0	100
24	100	2	1	0	0	0	0	100
23	100	2	1	0	0	0	0	100
22	100	2	1	0	0	0	0	100
21	100	2	1	0	0	0	0	100
68	70	2	1	0	0	0	30	100

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Transect T3 Quadrat	Sorted data		Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
	Zostera % cover	Long=1 Short=2						
41	0	0	0	0	0	0	100	100
43	0	0	0	0	0	0	100	100
40	0	0	0	0	0	0	100	100
31	0	0	0	0	0	0	100	100
42	0	0	0	0	0	0	100	100
36	0	0	0	0	0	0	100	100
6	100	1	1	0	0	0	0	100
28	100	1	1	0	0	0	0	100
29	20	1	1	0	0	0	80	100
12	100	1	1	0	0	0	0	100
9	100	1	1	0	0	0	0	100
33	100	1	1	0	0	0	0	100
45	20	2	1	0	0	0	80	100
48	30	2	1	0	0	0	70	100
49	40	2	1	0	0	0	60	100
46	20	2	1	0	0	0	80	100
47	20	2	1	0	0	0	80	100
51	70	2	1	0	0	0	30	100
44	10	2	1	0	0	0	90	100
50	100	2	1	0	0	0	0	100
54	90	2	1	0	0	0	10	100
52	70	2	1	0	0	0	30	100
62	40	2	1	0	0	0	60	100
67	100	2	1	0	0	0	0	100
66	60	2	1	0	0	0	40	100
65	60	2	1	0	0	0	40	100
64	70	2	1	0	0	0	30	100
63	90	2	1	0	0	0	10	100
60	100	2	1	0	0	0	0	100
61	60	2	1	0	0	0	40	100
53	90	2	1	0	0	0	10	100
59	100	2	1	0	0	0	0	100
58	90	2	1	0	0	0	10	100
57	100	2	1	0	0	0	0	100
56	100	2	1	0	0	0	0	100
55	95	2	1	0	0	0	5	100
1	100	2	1	0	0	0	0	100
34	100	2	1	0	0	0	0	100
39	60	2	1	0	0	0	40	100
38	60	2	1	0	0	0	40	100
11	100	2	1	0	0	0	0	100
16	10	2	1	0	0	0	90	100
15	70	2	1	0	0	0	30	100
14	90	2	1	0	0	0	10	100
13	100	2	1	0	0	0	0	100
8	60	2	1	0	0	0	40	100
10	100	2	1	0	0	0	0	100
18	50	2	1	0	0	0	50	100
7	60	2	1	0	0	0	40	100
5	100	2	1	0	0	0	0	100
4	100	2	1	0	0	0	0	100
3	100	2	1	0	0	0	0	100
17	20	2	1	10	0	0	70	100
19	10	2	1	0	0	0	90	100
37	80	2	1	0	0	0	20	100
27	10	2	1	0	0	0	90	100
35	60	2	1	0	0	0	40	100
2	30	2	1	0	0	0	70	100
32	20	2	1	0	0	0	80	100
30	10	2	1	0	0	0	90	100
25	60	2	1	0	0	0	40	100
26	40	2	1	0	0	0	60	100
20	90	2	1	0	0	0	10	100
24	80	2	1	0	0	0	20	100
23	80	2	1	0	20	0	0	100
22	100	2	1	0	0	0	0	100
21	100	2	1	0	0	0	0	100
68	90	2	1	0	0	0	10	100

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Transect T4 Quadrat	Raw data							
	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllun % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
55	0	0	0	0	0	0	100	100
56	0	0	0	0	0	0	100	100
54	0	0	0	0	0	0	100	100
53	0	0	0	0	0	0	100	100
8	100	1	1	0	0	0	0	100
9	100	1	1	0	0	0	0	100
41	70	2	1	0	0	0	30	100
48	60	2	1	0	0	0	40	100
39	60	2	1	0	0	0	40	100
50	60	2	1	0	0	0	40	100
40	70	2	1	0	0	0	30	100
49	60	2	1	0	0	0	40	100
46	70	2	1	0	0	0	30	100
47	60	2	1	0	0	0	40	100
42	60	2	1	0	0	0	40	100
45	60	2	1	0	0	0	40	100
51	40	2	1	0	0	0	60	100
43	50	2	1	0	0	0	50	100
44	70	2	1	0	0	0	30	100
1	70	2	1	0	0	0	30	100
52	30	2	1	0	0	0	70	100
63	60	2	1	0	0	0	40	100
67	60	2	1	0	0	0	40	100
66	70	2	1	0	0	0	30	100
65	70	2	1	0	0	0	30	100
64	70	2	1	0	0	0	30	100
61	40	2	1	0	0	0	60	100
62	50	2	1	0	0	0	50	100
37	90	2	1	0	0	0	10	100
60	30	2	1	0	0	0	70	100
59	70	2	1	0	0	0	30	100
58	60	2	1	0	0	0	40	100
57	80	2	1	0	0	0	20	100
38	60	2	1	0	0	0	40	100
34	80	2	1	0	0	0	20	100
36	80	2	1	0	0	0	20	100
35	80	2	1	0	0	0	20	100
11	100	2	1	0	0	0	0	100
16	80	2	1	0	0	0	20	100
15	100	2	1	0	0	0	0	100
14	80	2	1	0	0	0	20	100
13	100	2	1	0	0	0	0	100
12	100	2	1	0	0	0	0	100
10	100	2	1	0	0	0	0	100
18	80	2	1	0	0	0	20	100
7	90	2	1	0	0	0	10	100
6	100	2	1	0	0	0	0	100
5	100	2	1	0	0	0	0	100
4	100	2	1	0	0	0	0	100
3	100	2	1	0	0	0	0	100
17	80	2	1	0	0	0	20	100
20	100	2	1	0	0	0	0	100
19	80	2	1	0	0	0	20	100
2	90	2	1	0	0	0	10	100
28	90	2	1	0	0	0	10	100
33	80	2	1	0	0	0	20	100
32	80	2	1	0	0	0	20	100
31	90	2	1	0	0	0	10	100
30	60	2	1	0	0	0	40	100
29	80	2	1	0	0	0	20	100
27	100	2	1	0	0	0	0	100
21	60	2	1	0	0	0	40	100
26	70	2	1	0	0	0	30	100
25	70	2	1	0	0	0	30	100
24	60	2	1	0	0	0	40	100
23	80	2	1	0	0	0	20	100
22	60	2	1	0	0	0	40	100
68	90	2	1	0	0	0	10	100

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Transect T5		Raw data						
Quadrat	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
59	0	0	0	0	0	0	100	100
46	90	1	1	0	0	0	10	100
1	70	2	1	0	0	0	30	100
45	80	2	1	0	0	0	20	100
49	50	2	1	0	0	0	50	100
48	40	2	1	0	0	0	60	100
47	70	2	1	0	0	0	30	100
43	90	2	1	0	0	0	14	104
44	80	2	1	0	0	0	20	100
51	40	2	1	0	0	0	60	100
42	80	2	1	0	0	0	20	100
41	80	2	1	0	0	0	20	100
40	90	2	1	0	0	0	10	100
39	90	2	1	0	0	0	10	100
38	80	2	1	0	0	0	20	100
50	60	2	1	0	0	0	40	100
53	50	2	1	0	0	0	50	100
52	40	2	1	0	0	0	60	100
36	80	2	1	0	0	0	20	100
62	50	2	1	0	0	0	50	100
67	20	2	1	0	0	0	80	100
66	10	2	1	0	0	0	90	100
65	20	2	1	0	0	0	80	100
64	20	2	1	0	0	0	80	100
63	70	2	1	0	0	0	30	100
61	50	2	1	0	0	0	50	100
54	80	2	1	0	0	0	20	100
60	20	2	1	0	0	0	80	100
58	10	2	1	0	0	0	90	100
57	40	2	1	0	0	0	60	100
56	40	2	1	0	0	0	60	100
55	60	2	1	0	0	0	40	100
37	90	2	1	0	0	0	10	100
34	70	2	1	0	0	0	30	100
35	90	2	1	0	0	0	10	100
2	60	2	1	0	0	0	40	100
10	60	2	1	0	0	0	40	100
15	80	2	1	0	0	0	20	100
14	70	2	1	0	0	0	30	100
13	60	2	1	0	0	0	40	100
12	60	2	1	0	0	0	40	100
11	70	2	1	0	0	0	30	100
8	70	2	1	0	0	0	30	100
9	60	2	1	0	0	0	40	100
17	50	2	1	0	0	0	50	100
7	70	2	1	0	0	0	30	100
6	70	2	1	0	0	0	30	100
5	50	2	1	0	0	0	50	100
4	50	2	1	0	0	0	50	100
3	50	2	1	0	0	0	50	100
16	50	2	1	0	0	0	50	100
18	50	2	1	0	0	0	50	100
33	80	2	1	0	0	0	20	100
27	80	2	1	0	0	0	20	100
32	90	2	1	0	0	0	10	100
31	90	2	1	0	0	0	10	100
30	90	2	1	0	0	0	10	100
29	90	2	1	0	0	0	10	100
28	70	2	1	0	0	0	30	100
25	90	2	1	0	0	0	10	100
26	80	2	1	0	0	0	20	100
19	60	2	1	0	0	0	40	100
24	90	2	1	0	0	0	10	100
23	80	2	1	0	0	0	20	100
22	80	2	1	0	0	0	20	100
21	70	2	1	0	0	0	30	100
20	70	2	1	0	0	0	30	100
68	20	2	1	0	0	0	80	100

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Transect T6 Quadrat	Raw data			Dystophyllun % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
	Zostera % cover	Long=1 Short=2	Fouling 1,2,3					
53	0	0	0	0	0	0	100	100
51	0	0	0	0	0	0	100	100
55	0	0	0	0	0	0	100	100
52	0	0	0	0	0	0	100	100
49	0	0	0	0	0	0	100	100
50	0	0	0	0	0	0	100	100
58	0	0	0	0	0	0	100	100
48	0	0	0	0	0	0	100	100
46	0	0	0	0	0	0	100	100
56	0	0	0	0	0	0	100	100
57	0	0	0	0	0	0	100	100
59	0	0	0	0	0	0	100	100
63	0	0	0	0	0	0	100	100
67	0	0	0	0	0	0	100	100
66	0	0	0	0	0	0	100	100
65	0	0	0	0	0	0	100	100
64	0	0	0	0	0	0	100	100
45	0	0	0	0	0	0	100	100
61	0	0	0	0	0	0	100	100
60	0	0	0	0	0	0	100	100
42	80	2	1	0	0	0	20	100
40	40	2	1	0	0	0	60	100
39	50	2	1	0	0	0	50	100
41	60	2	1	0	0	0	40	100
38	70	2	1	0	0	0	30	100
1	60	2	1	0	0	0	40	100
43	70	2	1	0	0	0	30	100
44	50	2	1	0	0	0	50	100
47	10	2	1	0	0	0	90	100
36	80	2	1	0	0	0	20	100
54	10	2	1	0	0	0	90	100
62	10	2	1	0	0	0	90	100
37	80	2	1	0	0	0	20	100
34	90	2	1	0	0	0	10	100
35	60	2	1	0	0	0	40	100
2	60	2	1	0	0	0	40	100
10	70	2	1	0	0	0	30	100
15	60	2	1	0	0	0	40	100
14	70	2	1	0	0	0	30	100
13	80	2	1	0	0	0	20	100
12	50	2	1	0	0	0	50	100
11	60	2	1	0	0	0	40	100
8	80	2	1	0	0	0	20	100
9	80	2	1	0	0	0	20	100
17	80	2	1	0	0	0	20	100
7	60	2	1	0	0	0	40	100
6	70	2	1	0	0	0	30	100
5	80	2	1	0	0	0	20	100
4	50	2	1	0	0	0	50	100
3	60	2	1	0	0	0	40	100
16	60	2	1	0	0	0	40	100
18	70	2	1	0	0	0	30	100
33	60	2	1	0	0	0	40	100
27	80	2	1	0	0	0	20	100
32	70	2	1	0	0	0	30	100
31	80	2	1	0	0	0	20	100
30	90	2	1	0	0	0	10	100
29	90	2	1	0	0	0	10	100
28	90	2	1	0	0	0	10	100
25	80	2	1	0	0	0	20	100
26	80	2	1	0	0	0	20	100
19	60	2	1	0	0	0	40	100
24	80	2	1	0	0	0	20	100
23	70	2	1	0	0	0	30	100
22	70	2	1	0	0	0	30	100
21	80	2	1	0	0	0	20	100
20	60	2	1	0	0	0	40	100
68	40	2	1	0	0	0	60	100

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Transect T7 Quadrat	Raw data		Fouling 1,2,3	Dystophyllun % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
	Zostera % cover	Long=1 Short=2						
1	0	0	0	0	0	0	100	100
65	0	0	0	0	0	0	100	100
20	0	0	0	0	0	0	100	100
21	0	0	0	0	0	0	100	100
22	0	0	0	0	0	0	100	100
24	0	0	0	0	0	0	100	100
25	0	0	0	0	0	0	100	100
64	0	0	0	0	0	0	100	100
18	0	0	0	0	0	0	100	100
2	0	0	0	0	0	0	100	100
58	0	0	0	0	0	0	100	100
57	0	0	0	0	0	0	100	100
37	0	0	0	0	0	0	100	100
38	0	0	0	0	0	0	100	100
19	0	0	0	0	0	0	100	100
23	0	0	0	0	0	0	100	100
17	0	0	0	0	0	0	100	100
16	0	0	0	0	0	0	100	100
9	0	0	0	0	0	0	100	100
3	0	0	0	0	0	0	100	100
4	0	0	0	0	0	0	100	100
6	0	0	0	0	0	0	100	100
7	0	0	0	0	0	0	100	100
15	0	0	0	0	0	0	100	100
8	0	0	0	0	0	0	100	100
46	0	0	0	0	0	0	100	100
11	0	0	0	0	0	0	100	100
12	0	0	0	0	0	0	100	100
13	0	0	0	0	0	0	100	100
10	0	0	0	0	0	0	100	100
14	0	0	0	0	0	0	100	100
55	90	2	1	0	0	0	10	100
53	80	2	1	0	0	0	20	100
54	90	2	1	0	0	0	10	100
52	80	2	1	0	0	0	20	100
51	50	2	1	0	0	0	50	100
50	60	2	1	0	0	0	40	100
66	10	2	1	0	0	0	90	100
67	20	2	1	0	0	0	80	100
56	60	2	1	0	0	0	40	100
49	60	2	1	0	0	0	40	100
59	10	2	1	0	0	0	90	100
61	40	2	1	0	0	0	60	100
62	50	2	1	0	0	0	50	100
63	40	2	1	0	0	0	60	100
60	20	2	1	0	0	0	80	100
34	80	2	1	0	0	0	20	100
48	20	2	1	0	0	0	80	100
47	80	2	1	0	0	0	20	100
32	90	2	1	0	0	0	10	100
5	20	2	1	0	0	0	80	100
26	20	2	1	0	0	0	80	100
27	20	2	1	0	0	0	80	100
28	30	2	1	0	0	0	70	100
29	40	2	1	0	0	0	60	100
30	30	2	1	0	0	0	70	100
31	80	2	1	0	0	0	20	100
35	70	2	1	0	0	0	30	100
33	80	2	1	0	0	0	20	100
45	40	2	1	0	0	0	60	100
36	70	2	1	0	0	0	30	100
39	10	2	1	0	0	0	90	100
40	20	2	1	0	0	0	80	100
41	40	2	1	0	0	0	60	100
42	40	2	1	0	0	0	60	100
43	40	2	1	0	0	0	60	100
44	60	2	1	0	0	0	40	100
68	20	2	1	0	0	0	80	100

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Transect T8 Quadrat	Raw data							Total Cover
	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	
35	0	0	0	0	0	0	100	100
31	0	0	0	0	0	0	100	100
32	0	0	0	0	0	0	100	100
33	0	0	0	0	0	0	100	100
39	0	0	0	0	0	0	100	100
45	40	2	1	0	0	0	60	100
49	60	2	1	0	0	0	40	100
48	30	2	1	0	0	0	70	100
47	30	2	1	0	0	0	70	100
46	50	2	1	0	0	0	50	100
42	80	2	1	0	0	0	20	100
44	60	2	1	0	0	0	40	100
43	70	2	1	0	0	0	30	100
51	40	2	1	0	0	0	60	100
41	20	2	1	0	0	0	80	100
40	10	2	1	0	0	0	90	100
50	50	2	1	0	0	0	50	100
52	50	2	1	0	0	0	50	100
38	40	2	1	0	0	0	60	100
61	80	2	1	0	0	0	20	100
67	50	2	1	0	0	0	50	100
66	40	2	1	0	0	0	60	100
65	10	2	1	0	0	0	90	100
64	20	2	1	0	0	0	80	100
63	10	2	1	0	0	0	90	100
62	50	2	1	0	0	0	50	100
60	80	2	1	0	0	0	20	100
53	40	2	1	0	0	0	60	100
59	60	2	1	0	0	0	40	100
58	80	2	1	0	0	0	20	100
57	50	2	1	0	0	0	50	100
56	60	2	1	0	0	0	40	100
55	70	2	1	0	0	0	30	100
54	80	2	1	0	0	0	20	100
1	80	2	1	0	0	0	20	100
34	10	2	1	0	0	0	90	100
37	20	2	1	0	0	0	80	100
36	20	2	1	0	0	0	80	100
9	80	2	1	0	0	0	20	100
14	80	2	1	0	0	0	20	100
13	40	2	1	0	0	0	60	100
12	30	2	1	0	0	0	70	100
11	10	2	1	0	0	0	90	100
10	70	2	1	0	0	0	30	100
8	30	2	1	0	0	0	70	100
16	50	2	1	0	0	0	50	100
7	20	2	1	0	0	0	80	100
6	30	2	1	0	0	0	70	100
5	40	2	1	0	0	0	60	100
4	40	2	1	0	0	0	60	100
3	60	2	1	0	0	0	40	100
15	70	2	1	0	0	0	30	100
17	60	2	1	0	0	0	40	100
2	70	2	1	0	0	0	30	100
25	70	2	1	0	0	0	30	100
30	10	2	1	0	0	0	90	100
29	50	2	1	0	0	0	50	100
28	60	2	1	0	0	0	40	100
27	70	2	1	0	0	0	30	100
26	70	2	1	0	0	0	30	100
24	60	2	1	0	0	0	40	100
18	60	2	1	0	0	0	40	100
23	50	2	1	0	0	0	50	100
22	60	2	1	0	0	0	40	100
21	70	2	1	0	0	0	30	100
20	80	2	1	0	0	0	20	100
19	80	2	1	0	0	0	20	100
68	40	2	1	0	0	0	60	100

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Transect A1 Quadrat	Sorted data		Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
	Zostera % cover	Long=1 Short=2						
20	80	1	1	0	0	0	20	100
10	80	1	1	0	0	0	20	100
16	80	1	1	0	0	0	20	100
15	60	1	1	0	0	0	40	100
19	70	1	1	0	0	0	30	100
48	100	1	1	0	0	0	0	100
21	80	1	1	0	0	0	20	100
9	90	1	1	0	0	0	10	100
18	80	1	1	0	0	0	20	100
8	90	1	1	0	0	0	10	100
7	90	1	1	0	0	0	10	100
6	90	1	1	0	0	0	10	100
22	70	1	1	0	0	0	30	100
17	80	1	1	0	0	0	20	100
51	80	2	1	0	0	0	20	100
52	80	2	1	0	0	0	20	100
53	90	2	1	0	0	0	10	100
49	90	2	1	0	0	0	10	100
50	80	2	1	0	0	0	20	100
55	100	2	1	0	0	0	0	100
47	90	2	1	0	0	0	10	100
46	100	2	1	0	0	0	0	100
45	70	2	1	0	0	0	30	100
44	80	2	1	0	0	0	20	100
54	100	2	1	0	0	0	0	100
1	90	2	1	0	0	0	10	100
56	100	2	1	0	0	0	0	100
57	90	2	1	0	0	0	10	100
63	100	2	1	0	0	0	0	100
67	80	2	1	0	0	0	20	100
66	100	2	1	0	0	0	0	100
65	90	2	1	0	0	0	10	100
64	90	2	1	0	0	0	10	100
62	100	2	1	0	0	0	0	100
58	100	2	1	0	0	0	0	100
61	90	2	1	0	0	0	10	100
42	80	2	1	0	0	0	20	100
60	90	2	1	0	0	0	10	100
59	100	2	1	0	0	0	0	100
43	60	2	1	0	0	0	40	100
34	60	2	1	0	0	0	40	100
41	90	2	1	0	0	0	10	100
13	80	2	1	0	0	0	20	100
25	100	2	1	0	0	0	0	100
24	100	2	1	0	0	0	0	100
23	90	2	1	0	0	0	10	100
14	70	2	1	0	0	0	30	100
12	80	2	1	0	0	0	20	100
27	90	2	1	0	0	0	10	100
11	90	2	1	0	0	0	10	100
5	60	2	1	0	0	0	40	100
4	40	2	1	0	0	0	60	100
3	80	2	1	0	0	0	20	100
26	90	2	1	0	0	0	10	100
28	100	2	1	0	0	0	0	100
40	90	2	1	0	0	0	10	100
35	60	2	1	0	0	0	40	100
39	90	2	1	0	0	0	10	100
38	100	2	1	0	0	0	0	100
37	80	2	1	0	0	0	20	100
36	80	2	1	0	0	0	20	100
2	100	2	1	0	0	0	0	100
29	80	2	1	0	0	0	20	100
33	90	2	1	0	0	0	10	100
32	100	2	1	0	0	0	0	100
31	90	2	1	0	0	0	10	100
30	80	2	1	0	0	0	20	100
68	70	2	1	0	0	0	30	100

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Transect A2 Quadrat	Sorted data							
	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllun % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
1	100	1	1	0	0	0	0	100
2	100	1	1	0	0	0	0	100
3	100	1	1	0	0	0	0	100
4	100	1	1	0	0	0	0	100
5	100	1	1	0	0	0	0	100
6	100	1	1	0	0	0	0	100
7	80	1	1	0	0	0	20	100
8	100	1	1	0	0	0	0	100
9	100	1	1	0	0	0	0	100
10	100	1	1	0	0	0	0	100
11	100	1	1	0	0	0	0	100
12	100	1	1	0	0	0	0	100
13	100	1	1	0	0	0	0	100
14	100	1	1	0	0	0	0	100
15	100	1	1	0	0	0	0	100
16	100	1	1	0	0	0	0	100
17	100	1	1	0	0	0	0	100
18	100	1	1	0	0	0	0	100
19	100	1	1	0	0	0	0	100
20	100	1	1	0	0	0	0	100
21	100	1	1	0	0	0	0	100
22	100	1	1	0	0	0	0	100
23	100	1	1	0	0	0	0	100
24	100	1	1	0	0	0	0	100
25	100	1	1	0	0	0	0	100
26	100	1	1	0	0	0	0	100
27	100	1	1	0	0	0	0	100
28	100	1	1	0	0	0	0	100
29	100	1	1	0	0	0	0	100
30	100	1	1	0	0	0	0	100
31	100	1	1	0	0	0	0	100
32	100	1	1	0	0	0	0	100
33	100	1	1	0	0	0	0	100
34	100	1	1	0	0	0	0	100
35	100	1	1	0	0	0	0	100
36	100	1	1	0	0	0	0	100
37	100	1	1	0	0	0	0	100
38	80	1	1	0	0	0	20	100
39	100	1	1	0	0	0	0	100
40	100	1	1	0	0	0	0	100
41	100	1	1	0	0	0	0	100
42	100	1	1	0	0	0	0	100
43	100	1	1	0	0	0	0	100
44	100	1	1	0	0	0	0	100
45	100	1	1	0	0	0	0	100
46	100	1	1	0	0	0	0	100
47	100	1	1	0	0	0	0	100
48	100	1	1	0	0	0	0	100
49	100	1	1	0	0	0	0	100
50	100	1	1	0	0	0	0	100
51	100	1	1	0	0	0	0	100
52	100	1	1	0	0	0	0	100
53	100	1	1	0	0	0	0	100
54	100	1	1	0	0	0	0	100
55	100	1	1	0	0	0	0	100
56	100	1	1	0	0	0	0	100
57	100	1	1	0	0	0	0	100
58	100	1	1	0	0	0	0	100
59	100	1	1	0	0	0	0	100
60	100	1	1	0	0	0	0	100
61	100	1	1	0	0	0	0	100
62	100	1	1	0	0	0	0	100
63	90	1	1	0	0	0	10	100
64	100	1	1	0	0	0	0	100
65	100	1	1	0	0	0	0	100
66	100	1	1	0	0	0	0	100
67	50	1	1	0	0	0	50	100
68	70	1	1	0	0	0	30	100

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Transect A3		Sorted data							
Quadrat	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover	
1	100	1	1	0	0	0	0	100	
45	100	1	1	0	0	0	0	100	
50	100	1	1	0	0	0	0	100	
49	100	1	1	0	0	0	0	100	
48	100	1	1	0	0	0	0	100	
47	100	1	1	0	0	0	0	100	
46	100	1	1	0	0	0	0	100	
43	100	1	1	0	0	0	0	100	
44	100	1	1	0	0	0	0	100	
52	100	1	1	0	0	0	0	100	
42	100	1	1	0	0	0	0	100	
41	100	1	1	0	0	0	0	100	
40	100	1	1	0	0	0	0	100	
39	100	1	1	0	0	0	0	100	
38	100	1	1	0	0	0	0	100	
51	100	1	1	0	0	0	0	100	
53	100	1	1	0	0	0	0	100	
36	100	1	1	0	0	0	0	100	
62	100	1	1	0	0	0	0	100	
67	100	1	1	0	0	0	0	100	
66	100	1	1	0	0	0	0	100	
65	100	1	1	0	0	0	0	100	
64	100	1	1	0	0	0	0	100	
63	100	1	1	0	0	0	0	100	
60	100	1	1	0	0	0	0	100	
61	100	1	1	0	0	0	0	100	
54	100	1	1	0	0	0	0	100	
59	100	1	1	0	0	0	0	100	
58	100	1	1	0	0	0	0	100	
57	100	1	1	0	0	0	0	100	
56	100	1	1	0	0	0	0	100	
55	100	1	1	0	0	0	0	100	
37	100	1	1	0	0	0	0	100	
34	100	1	1	0	0	0	0	100	
35	100	1	1	0	0	0	0	100	
2	100	1	1	0	0	0	0	100	
16	100	1	1	0	0	0	0	100	
19	100	1	1	0	0	0	0	100	
33	100	1	1	0	0	0	0	100	
17	100	1	1	0	0	0	0	100	
6	50	1	1	0	0	0	50	100	
7	100	1	1	0	0	0	0	100	
21	100	1	1	0	0	0	0	100	
5	100	1	1	0	0	0	0	100	
4	100	1	1	0	0	0	0	100	
3	100	1	1	0	0	0	0	100	
20	100	1	1	0	0	0	0	100	
18	100	1	1	0	0	0	0	100	
22	100	1	1	0	0	0	0	100	
23	100	1	1	0	0	0	0	100	
32	100	1	1	0	0	0	0	100	
31	100	1	1	0	0	0	0	100	
30	100	1	1	0	0	0	0	100	
29	100	1	1	0	0	0	0	100	
68	100	1	1	0	0	0	0	100	
24	100	1	1	0	0	0	0	100	
14	100	1	2	0	0	0	0	100	
28	100	1	2	0	0	0	0	100	
25	100	1	2	0	0	0	0	100	
26	100	1	2	0	0	0	0	100	
27	100	1	2	0	0	0	0	100	
8	100	1	2	0	0	0	0	100	
13	100	1	2	0	0	0	0	100	
9	100	1	2	0	0	0	0	100	
10	100	1	2	0	0	0	0	100	
11	100	1	2	0	0	0	0	100	
15	100	1	2	0	0	0	0	100	
12	100	1	2	0	0	0	0	100	

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Transect A4 Quadrat	Sorted data			Dystophyllun % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
	Zostera % cover	Long=1 Short=2	Fouling 1,2,3					
1	60	1	1	0	0	0	40	100
2	60	1	1	0	0	0	40	100
3	50	1	1	0	0	0	50	100
4	100	1	1	0	0	0	0	100
5	100	1	1	0	0	0	0	100
6	90	1	1	0	0	0	10	100
7	50	1	1	0	0	0	50	100
8	60	1	1	0	0	0	40	100
9	40	1	1	0	0	0	60	100
10	40	1	1	0	0	0	60	100
11	80	1	1	0	0	0	20	100
12	80	1	1	0	0	0	20	100
13	60	1	1	0	0	0	40	100
14	50	1	1	0	0	0	50	100
15	50	1	1	0	0	0	50	100
16	80	1	1	0	0	0	20	100
17	90	1	1	0	0	0	10	100
18	100	1	1	0	0	0	0	100
19	100	1	1	0	0	0	0	100
20	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0
30	80	1	1	0	0	0	20	100
31	90	1	1	0	0	0	10	100
32	50	1	1	0	0	0	50	100
33	60	1	1	0	0	0	40	100
34	50	1	1	0	0	0	50	100
35	50	1	1	0	0	0	50	100
36	40	1	1	0	0	0	60	100
37	20	1	1	0	0	0	80	100
38	40	1	1	0	0	0	60	100
39	50	1	1	0	0	0	50	100
40	20	1	1	0	0	0	80	100
41	60	1	1	0	0	0	40	100
42	60	1	1	0	0	0	40	100
43	60	1	1	0	0	0	40	100
44	60	1	1	0	0	0	40	100
45	80	1	1	0	0	0	20	100
46	20	1	1	0	0	0	80	100
47	10	1	1	0	0	0	90	100
48	80	1	1	0	0	0	20	100
49	80	1	1	0	0	0	20	100
50								0
51								0
52								0
53								0
54								0
55								0
56								0
57								0
58								0
59								0
60								0
61								0
62								0
63								0
64								0
65								0
66								0
67								0
68								0

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Transect A5		Sorted data							
Quadrat	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover	
1	100	1	1	0	0	0	0	100	
2	100	1	1	0	0	0	0	100	
3	100	1	1	0	0	0	0	100	
4	100	1	1	0	0	0	0	100	
5	100	1	1	0	0	0	0	100	
6	100	1	1	0	0	0	0	100	
7	100	1	1	0	0	0	0	100	
8	100	1	1	0	0	0	0	100	
9	100	1	1	0	0	0	0	100	
10	100	1	1	0	0	0	0	100	
11	100	1	1	0	0	0	0	100	
12	100	1	1	0	0	0	0	100	
13	100	1	1	0	0	0	0	100	
14	100	1	1	0	0	0	0	100	
15	100	1	1	0	0	0	0	100	
16	90	1	1	0	0	0	10	100	
17	100	1	1	0	0	0	0	100	
18	100	1	1	0	0	0	0	100	
19	100	1	1	0	0	0	0	100	
20	100	1	1	0	0	0	0	100	
21	100	1	1	0	0	0	0	100	
22	100	1	1	0	0	0	0	100	
23	100	1	1	0	0	0	0	100	
24	100	1	1	0	0	0	0	100	
25	100	1	1	0	0	0	0	100	
26	100	1	1	0	0	0	0	100	
27	100	1	1	0	0	0	0	100	
28	100	1	1	0	0	0	0	100	
29	90	1	1	0	0	0	10	100	
30	100	1	1	0	0	0	0	100	
31	100	1	1	0	0	0	0	100	
32	100	1	1	0	0	0	0	100	
33	100	1	1	0	0	0	0	100	
34	60	1	1	0	0	0	40	100	
35	100	1	1	0	0	0	0	100	
36	100	1	1	0	0	0	0	100	
37	100	1	1	0	0	0	0	100	
38	20	1	1	0	0	0	80	100	
39	20	1	1	0	0	0	80	100	
40	40	1	1	0	0	0	60	100	
41	60	1	1	0	0	0	40	100	
42	60	1	1	0	0	0	40	100	
43	80	1	1	0	0	0	20	100	
44	80	1	1	0	0	0	20	100	
45	40	1	1	0	0	0	60	100	
46	10	1	1	0	0	0	90	100	
47	20	1	1	0	0	0	80	100	
48	20	1	1	0	0	0	80	100	
49	40	1	1	0	0	0	60	100	
50	60	1	1	0	0	0	40	100	
51	100	1	1	0	0	0	0	100	
52	100	1	1	0	0	0	0	100	
53	100	1	1	0	0	0	0	100	
54	100	1	1	0	0	0	0	100	
55	100	1	1	0	0	0	0	100	
56	100	1	1	0	0	0	0	100	
57	80	1	1	0	0	0	20	100	
58	40	1	1	0	0	0	60	100	
59	80	1	1	0	0	0	20	100	
60	80	1	1	0	0	0	20	100	
61								0	
62								0	
63								0	
64								0	
65								0	
66								0	
67								0	
68								0	

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Transect A6 Quadrat	Sorted data							
	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
1	100	1	1	0	0	0	0	100
2	100	1	1	0	0	0	0	100
3	100	1	1	0	0	0	0	100
4	0	0	0	0	0	0	100	100
5	0	0	0	0	0	0	100	100
6	100	1	1	0	0	0	0	100
7	100	1	1	0	0	0	0	100
8	100	1	1	0	0	0	0	100
9	100	1	1	0	0	0	0	100
10	100	1	1	0	0	0	0	100
11	100	1	1	0	0	0	0	100
12	80	1	1	0	0	0	20	100
13	80	1	1	0	0	0	20	100
14	90	1	1	0	0	0	10	100
15	90	1	1	0	0	0	10	100
16	80	1	1	0	0	0	20	100
17	100	1	1	0	0	0	0	100
18	100	1	1	0	0	0	0	100
19	80	1	1	0	0	0	20	100
20	80	1	1	0	0	0	20	100
21	90	1	1	0	0	0	10	100
22	70	1	1	0	0	0	30	100
23	100	1	1	0	0	0	0	100
24	100	1	1	0	0	0	0	100
25	100	1	1	0	0	0	0	100
26	100	1	1	0	0	0	0	100
27	100	1	1	0	0	0	0	100
28	100	1	1	0	0	0	0	100
29	80	1	1	0	0	0	20	100
30	100	1	1	0	0	0	0	100
31	100	1	1	0	0	0	0	100
32	100	1	1	0	0	0	0	100
33	100	1	1	0	0	0	0	100
34	90	1	1	0	0	0	10	100
35	100	1	1	0	0	0	0	100
36	100	1	1	0	0	0	0	100
37	100	1	1	0	0	0	0	100
38	100	1	1	0	0	0	0	100
39	100	1	1	0	0	0	0	100
40	60	1	1	0	0	0	40	100
41	100	1	1	0	0	0	0	100
42	100	1	1	0	0	0	0	100
43	100	1	1	0	0	0	0	100
44	100	1	1	0	0	0	0	100
45	100	1	1	0	0	0	0	100
46	90	1	1	0	0	0	10	100
47	100	1	1	0	0	0	0	100
48	70	1	1	0	0	0	30	100
49	100	1	1	0	0	0	0	100
50	70	1	1	0	0	0	30	100
51	70	1	1	0	0	0	30	100
52	100	1	1	0	0	0	0	100
53	40	1	1	0	0	0	60	100
54	70	1	1	0	0	0	30	100
55	100	1	1	0	0	0	0	100
56	100	1	1	0	0	0	0	100
57	100	1	1	0	0	0	0	100
58	100	1	1	0	0	0	0	100
59	100	1	1	0	0	0	0	100
60	100	1	1	0	0	0	0	100
61	100	1	1	0	0	0	0	100
62	100	1	1	0	0	0	0	100
63	100	1	1	0	0	0	0	100
64	100	1	1	0	0	0	0	100
65	100	1	1	0	0	0	0	100
66	100	1	1	0	0	0	0	100
67	100	1	1	0	0	0	0	100
68	100	1	1	0	0	0	0	100

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Transect C1 Quadrat	Raw data							Total Cover
	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	
68	0	0	0	0	0	0	100	100
23	0	0	0	0	0	0	100	100
28	0	0	0	0	0	0	100	100
17	0	0	0	0	0	0	100	100
16	0	0	0	0	0	0	100	100
29	0	0	0	0	0	0	100	100
14	0	0	0	0	0	0	100	100
30	0	0	0	0	0	0	100	100
31	0	0	0	0	0	0	100	100
32	0	0	0	0	0	0	100	100
65	0	0	0	0	0	0	100	100
67	0	0	0	0	0	0	100	100
61	0	0	0	0	0	2	100	100
49	40	2	1	0	0	0	60	100
48	50	2	1	0	0	0	50	100
47	60	2	1	0	0	0	40	100
46	50	2	1	0	0	0	50	100
42	60	2	1	0	0	0	40	100
43	70	2	1	0	0	0	30	100
44	90	2	1	0	0	0	10	100
45	70	2	1	0	0	0	30	100
50	50	2	1	0	0	0	50	100
54	40	2	1	0	0	0	60	100
51	50	2	1	0	0	0	50	100
59	40	2	1	0	0	0	60	100
66	5	2	1	0	0	0	95	100
64	5	2	1	0	0	0	95	100
63	25	2	1	0	0	0	75	100
62	20	2	1	0	0	2	80	100
60	20	2	1	0	0	1	80	100
58	50	2	1	0	0	0	50	100
52	80	2	1	0	0	0	20	100
57	40	2	1	0	0	1	60	100
56	40	2	1	0	0	0	60	100
55	30	2	1	0	0	0	70	100
40	80	2	1	0	0	0	20	100
53	40	2	1	0	0	1	60	100
41	100	2	1	0	0	0	0	100
34	5	2	1	0	0	0	95	100
39	90	2	1	0	0	0	10	100
9	80	2	1	0	0	0	20	100
13	5	2	1	0	0	0	95	100
12	50	2	1	0	0	0	50	100
11	60	2	1	0	0	0	40	100
10	80	2	1	0	0	0	20	100
7	60	2	1	0	0	0	40	100
8	70	2	1	0	0	0	30	100
18	5	2	1	0	0	0	95	100
6	60	2	1	0	0	0	40	100
5	10	2	1	0	0	0	90	100
4	20	2	1	0	0	0	80	100
3	0	2	1	0	0	0	100	100
15	5	2	1	0	0	0	95	100
19	5	2	1	0	0	0	95	100
38	90	2	1	0	0	0	10	100
33	5	2	1	0	0	0	95	100
37	80	2	1	0	0	0	20	100
36	50	2	1	0	0	0	50	100
35	30	2	1	0	0	0	70	100
2	40	2	1	0	0	0	60	100
26	30	2	1	0	0	0	70	100
27	40	2	1	0	0	0	60	100
20	10	2	1	0	0	0	90	100
25	35	2	1	0	0	0	65	100
24	20	2	1	0	0	0	80	100
22	5	2	1	0	0	0	95	100
21	5	2	1	0	0	0	95	100
1	80	2	1	0	0	0	20	100

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Transect C2 Quadrat	Raw data							
	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
62	0	0	0	0	0	0	100	100
64	0	0	0	0	0	1	100	100
63	0	0	0	0	0	0	100	100
25	100	1	1	0	0	0	0	100
21	100	1	1	0	0	0	0	100
22	100	1	1	0	0	0	0	100
23	100	1	1	0	0	0	0	100
24	100	1	1	0	0	0	0	100
20	100	1	1	0	0	0	0	100
26	100	1	1	0	0	0	0	100
19	100	1	1	0	0	0	0	100
27	100	1	1	0	0	0	0	100
47	100	1	1	0	0	0	0	100
45	100	1	1	0	0	0	0	100
40	100	1	1	0	0	0	0	100
41	100	1	1	0	0	0	0	100
17	100	1	1	0	0	0	0	100
53	10	2	1	0	0	0	90	100
46	60	2	1	0	0	0	40	100
48	100	2	1	0	0	0	0	100
66	100	2	1	0	0	0	0	100
44	40	2	1	0	0	0	60	100
67	100	2	1	0	0	0	0	100
50	100	2	1	0	0	0	0	100
43	80	2	1	0	0	0	20	100
42	100	2	1	0	0	0	0	100
49	90	2	1	0	0	0	10	100
52	60	2	1	0	0	0	40	100
51	40	2	1	0	0	0	60	100
54	60	2	1	0	0	0	40	100
57	30	2	1	0	0	0	70	100
55	20	2	1	0	0	0	80	100
56	10	2	1	0	0	0	90	100
59	50	2	1	0	0	0	50	100
58	20	2	1	0	0	0	80	100
65	70	2	1	0	0	0	30	100
60	50	2	1	0	0	0	50	100
61	50	2	1	0	0	0	50	100
1	100	2	1	0	0	0	0	100
34	100	2	1	0	0	0	0	100
39	100	2	1	0	0	0	0	100
8	100	2	1	0	0	0	0	100
12	100	2	1	0	0	0	0	100
11	100	2	1	0	0	0	0	100
10	100	2	1	0	0	0	0	100
9	100	2	1	0	0	0	0	100
7	100	2	1	0	0	0	0	100
14	100	2	1	0	0	0	0	100
6	100	2	1	0	0	0	0	100
5	100	2	1	0	0	0	0	100
4	100	2	1	0	0	0	0	100
3	100	2	1	0	0	0	0	100
13	100	2	1	0	0	0	0	100
16	90	2	1	0	0	0	10	100
15	100	2	1	0	0	0	0	100
38	100	2	1	0	0	0	0	100
33	100	2	1	0	0	0	0	100
37	100	2	1	0	0	0	0	100
36	100	2	1	0	0	0	0	100
35	100	2	1	0	0	0	0	100
2	100	2	1	0	0	0	0	100
32	100	2	1	0	0	0	0	100
18	100	2	1	0	0	0	0	100
31	100	2	1	0	0	0	0	100
30	100	2	1	0	0	0	0	100
29	100	2	1	0	0	0	0	100
28	100	2	1	0	0	0	0	100
68	20	2	1	0	0	0	80	100

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Transect C3 Quadrat	Raw data							
	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllun % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
34	100	1	1	0	0	0	0	100
45	100	1	1	0	0	0	0	100
50	70	1	1	0	0	0	30	100
49	80	1	1	0	0	1	20	100
48	80	1	1	0	0	0	20	100
47	70	1	1	0	0	0	30	100
46	80	1	1	0	0	0	20	100
43	100	1	1	0	0	0	0	100
44	100	1	1	0	0	0	0	100
52	100	1	1	0	0	0	0	100
42	100	1	1	0	0	0	0	100
41	100	1	1	0	0	0	0	100
40	100	1	1	0	0	0	0	100
39	60	1	1	0	0	0	40	100
38	90	1	1	0	0	0	10	100
51	80	1	1	0	0	0	20	100
53	100	1	1	0	0	0	0	100
36	90	1	1	0	0	0	10	100
62	100	1	1	0	0	0	0	100
67	70	1	1	0	0	0	30	100
66	80	1	1	0	0	0	20	100
65	80	1	1	0	0	0	20	100
64	80	1	1	0	0	0	20	100
63	90	1	1	0	0	0	10	100
60	80	1	1	0	0	0	20	100
61	100	1	1	0	0	0	0	100
54	100	1	1	0	0	0	0	100
59	90	1	1	0	0	0	10	100
58	90	1	1	0	0	0	10	100
57	100	1	1	0	0	0	0	100
56	100	1	1	0	0	0	0	100
55	90	1	1	0	0	0	10	100
37	90	1	1	0	0	0	10	100
68	80	1	1	0	0	0	20	100
35	100	1	1	0	0	0	0	100
24	100	1	1	0	0	0	0	100
27	100	1	1	0	0	0	0	100
23	100	1	1	0	0	0	0	100
25	90	1	1	0	0	0	10	100
26	100	1	1	0	0	0	0	100
28	90	1	1	0	0	0	10	100
33	100	1	1	0	0	0	0	100
29	100	1	1	0	0	0	0	100
30	100	1	1	0	0	0	0	100
31	100	1	1	0	0	0	0	100
32	100	1	1	0	0	0	0	100
9	65	2	1	0	0	1	35	100
8	70	2	1	0	0	0	30	100
7	70	2	1	0	0	0	30	100
2	90	2	1	0	0	0	10	100
6	80	2	1	0	0	0	20	100
5	60	2	1	0	0	0	40	100
4	80	2	1	0	0	0	20	100
3	100	2	1	0	0	0	0	100
11	60	2	1	0	0	0	40	100
10	90	2	1	0	0	0	10	100
18	90	2	1	0	0	0	10	100
12	75	2	1	0	0	0	25	100
13	80	2	1	0	0	0	20	100
20	80	2	1	0	0	0	20	100
22	100	2	1	0	0	0	0	100
21	100	2	1	0	0	0	0	100
17	80	2	1	0	0	0	20	100
19	60	2	1	0	0	0	40	100
14	80	2	1	0	0	0	20	100
16	80	2	1	0	0	0	20	100
15	60	2	1	0	0	0	40	100
1	80	2	1	0	0	0	20	100

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Transect C4 Quadrat	Raw data							
	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
1	80	1	1	0	0	0	20	100
2	80	1	1	0	0	0	20	100
3	80	1	1	0	0	0	20	100
4	80	1	1	0	0	0	20	100
5	80	1	1	0	0	0	20	100
6	80	1	1	0	0	0	20	100
7	80	1	1	0	0	0	20	100
8	80	1	1	0	0	0	20	100
9	80	1	1	0	0	0	20	100
10	90	1	1	0	0	0	10	100
11	70	1	1	0	0	0	30	100
12	100	1	1	0	0	0	0	100
13	60	1	1	0	0	0	40	100
14	90	1	1	0	0	0	10	100
15	60	1	1	0	0	0	40	100
16	80	1	1	0	0	0	20	100
17	90	1	1	0	0	0	10	100
18	70	1	1	0	0	0	30	100
19	60	1	1	0	0	0	40	100
20	60	1	1	0	0	0	40	100
21	60	1	1	0	0	0	40	100
22	70	1	1	0	0	1	30	100
23	70	1	1	0	0	0	30	100
24	40	1	1	0	0	1	60	100
25	80	1	1	0	0	0	20	100
26	60	1	1	0	0	0	40	100
27	60	1	1	0	0	1	40	100
28	90	1	1	0	0	1	10	100
29	100	1	1	0	0	0	0	100
30	100	1	1	0	0	0	0	100
31	60	1	1	0	0	1	40	100
32	60	1	1	0	0	0	40	100
33	90	1	1	0	0	0	10	100
34	90	1	1	0	0	0	10	100
35	90	1	1	0	0	0	10	100
36	90	1	1	0	0	0	10	100
37	90	1	1	0	0	0	10	100
38	80	1	1	0	0	0	20	100
39	90	1	1	0	0	0	10	100
40	90	1	1	0	0	0	10	100
41	90	1	1	0	0	1	10	100
42	90	1	1	0	0	0	10	100
43	90	1	1	0	0	0	10	100
44	90	1	1	0	0	0	10	100
45	30	1	1	0	0	0	70	100
46	0	0	0	0	0	0	100	100
47	80	1	1	0	0	0	20	100
48	90	1	1	0	0	0	10	100
49	90	1	1	0	0	0	10	100
50	100	1	1	0	0	1	0	100
51	90	1	1	0	0	0	10	100
52	60	1	1	0	0	1	40	100
53	60	1	1	0	0	0	40	100
54	90	1	1	0	0	0	10	100
55	90	1	1	0	0	0	10	100
56	90	1	1	0	0	0	10	100
57	90	1	1	0	0	0	10	100
58	90	1	1	0	0	1	10	100
59	80	1	1	0	0	0	20	100
60	30	1	1	0	0	0	70	100
61	20	1	1	0	0	0	80	100
62	30	1	1	0	0	1	70	100
63	60	1	1	0	0	0	30	90
64	80	1	1	0	0	0	20	100
65	60	1	1	0	0	0	40	100
66	80	1	1	0	0	0	20	100
67	50	1	1	0	0	0	50	100
68	60	1	1	0	0	1	40	100

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Transect C5 Quadrat	Raw data							
	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllun % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
1	100	2	1	0	0	0	0	100
2	100	2	1	0	0	0	0	100
3	100	2	1	0	0	0	0	100
4	100	2	1	0	0	0	0	100
5	100	2	1	0	0	0	0	100
6	100	2	1	0	0	0	0	100
7	100	2	1	0	0	0	0	100
8	100	2	1	0	0	0	0	100
9	100	2	1	0	0	0	0	100
10	100	2	1	0	0	0	0	100
11	100	2	1	0	0	0	0	100
12	100	2	1	0	0	0	0	100
13	100	2	1	0	0	0	0	100
14	100	2	1	0	0	0	0	100
15	100	2	1	0	0	0	0	100
16	100	2	1	0	0	0	0	100
17	100	2	1	0	0	0	0	100
18	100	2	1	0	0	0	0	100
19	100	2	1	0	0	0	0	100
20	100	2	1	0	0	0	0	100
21	100	2	1	0	0	0	0	100
22	100	2	1	0	0	0	0	100
23	100	2	1	0	0	0	0	100
24	100	2	1	0	0	0	0	100
25	100	2	1	0	0	0	0	100
26	100	2	1	0	0	0	0	100
27	100	2	1	0	0	0	0	100
28	100	2	1	0	0	0	0	100
29	100	2	1	0	0	0	0	100
30	100	2	1	0	0	0	0	100
31	100	2	1	0	0	0	0	100
32	100	2	1	0	0	0	0	100
33	100	2	1	0	0	0	0	100
34	100	2	1	0	0	0	0	100
35	100	2	1	0	0	0	0	100
36	100	2	1	0	0	0	0	100
37	100	2	1	0	0	0	0	100
38	100	2	1	0	0	0	0	100
39	100	2	1	0	0	0	0	100
40	100	2	1	0	0	0	0	100
41	100	2	1	0	0	0	0	100
42	100	2	1	0	0	0	0	100
43	100	2	1	0	0	0	0	100
44	100	2	1	0	0	0	0	100
45	100	2	1	0	0	0	0	100
46	100	2	1	0	0	0	0	100
47	100	2	1	0	0	0	0	100
48	100	2	1	0	0	0	0	100
49	100	2	1	0	0	0	0	100
50	100	2	1	0	0	0	0	100
51	100	2	1	0	0	0	0	100
52	100	2	1	0	0	0	0	100
53	100	2	1	0	0	0	0	100
54	100	2	1	0	0	0	0	100
55	100	2	1	0	0	0	0	100
56	100	2	1	0	0	0	0	100
57	100	2	1	0	0	0	0	100
58	100	2	1	0	0	0	0	100
59	100	2	1	0	0	0	0	100
60	100	2	1	0	0	0	0	100
61	100	2	1	0	0	0	0	100
62	100	2	1	0	0	0	0	100
63	100	2	1	0	0	0	0	100
64	100	2	1	0	0	0	0	100
65	100	2	1	0	0	0	0	100
66	100	2	1	0	0	0	0	100
67	100	2	1	0	0	0	0	100
68	100	2	1	0	0	0	0	100

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Transect C6 Quadrat	Raw data							
	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllun % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
1	100	2	1	0	0	0	0	100
2	100	2	1	0	0	0	0	100
3	100	2	1	0	0	0	0	100
4	100	2	1	0	0	0	0	100
5	100	2	1	0	0	0	0	100
6	100	2	1	0	0	0	0	100
7	100	2	1	0	0	0	0	100
8	100	2	1	0	0	0	0	100
9	100	2	1	0	0	0	0	100
10	100	2	1	0	0	0	0	100
11	100	2	1	0	0	0	0	100
12	100	2	1	0	0	0	0	100
13	100	2	1	0	0	0	0	100
14	100	2	1	0	0	0	0	100
15	100	2	1	0	0	0	0	100
16	100	2	1	0	0	0	0	100
17	100	2	1	0	0	0	0	100
18	100	2	1	0	0	0	0	100
19	100	2	1	0	0	0	0	100
20	98	2	1	0	2	0	0	100
21	100	2	1	0	0	0	0	100
22	100	2	1	0	0	0	0	100
23	100	2	1	0	0	0	0	100
24	100	2	1	0	0	0	0	100
25	100	2	1	0	0	0	0	100
26	100	2	1	0	0	0	0	100
27	100	2	1	0	0	0	0	100
28	100	2	1	0	0	0	0	100
29	100	2	1	0	0	0	0	100
30	100	2	1	0	0	0	0	100
31	100	2	1	0	0	0	0	100
32	100	2	1	0	0	0	0	100
33	100	2	1	0	0	0	0	100
34	100	2	1	0	0	0	0	100
35	100	2	1	0	0	0	0	100
36	100	2	1	0	0	0	0	100
37	90	2	1	0	0	0	10	100
38	100	2	1	0	0	0	0	100
39	90	2	1	0	0	0	10	100
40	50	2	1	0	0	0	50	100
41	100	2	1	0	0	0	0	100
42	100	2	1	0	0	0	0	100
43	100	2	1	0	0	0	0	100
44	100	2	1	0	0	0	0	100
45	100	2	1	0	0	0	0	100
46	100	2	1	0	0	0	0	100
47	100	2	1	0	0	0	0	100
48	100	2	1	0	0	0	0	100
49	100	2	1	0	0	0	0	100
50	95	2	1	0	0	2	5	100
51	100	2	1	0	0	0	0	100
52	100	2	1	0	0	0	0	100
53	100	2	1	0	0	0	0	100
54	100	2	1	0	0	0	0	100
55	95	2	1	0	0	1	5	100
56	100	2	1	0	0	0	0	100
57	100	2	1	0	0	0	0	100
58	100	2	1	0	0	0	0	100
59	100	2	1	0	0	0	0	100
60	100	2	1	0	0	0	0	100
61	50	2	1	0	0	0	50	100
62	100	2	1	0	0	0	0	100
63	90	2	0	0	0	0	10	100
64	100	2	1	0	0	0	0	100
65	100	2	1	0	0	0	0	100
66	90	2	1	0	0	0	10	100
67	100	2	1	0	0	0	0	100
68	100	2	1	0	0	0	0	100

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Transect L1	Sorted data							
	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
1	100	1	1	0	0	0	0	100
2	100	1	1	0	0	0	0	100
3	100	1	1	0	0	0	0	100
4	100	1	1	0	0	0	0	100
5	100	1	1	0	0	0	0	100
6	80	1	1	0	0	0	20	100
7	100	1	1	0	0	0	0	100
8	100	1	1	0	0	0	0	100
9	100	1	1	0	0	0	0	100
10	80	1	1	0	0	0	20	100
11	90	1	1	0	0	0	10	100
12	70	1	1	0	0	0	30	100
13	80	1	1	0	0	0	20	100
14	90	1	1	0	0	0	10	100
15	60	1	1	0	0	0	40	100
16	60	1	1	0	0	0	40	100
17	40	1	1	0	0	0	60	100
18	40	1	1	0	0	0	60	100
19	100	1	1	0	0	0	0	100
20	100	1	1	0	0	0	0	100
21	100	1	1	0	0	0	0	100
22	100	1	1	0	0	0	0	100
23	100	1	1	0	0	0	0	100
24	80	1	1	0	0	0	20	100
25	100	1	1	0	0	0	0	100
26	100	1	1	0	0	0	0	100
27	100	1	1	0	0	0	0	100
28	100	1	1	0	0	0	0	100
29	100	1	1	0	0	0	0	100
30	80	1	1	0	0	0	20	100
31	100	1	1	0	0	0	0	100
32	100	1	1	0	0	0	0	100
33	100	1	1	0	0	0	0	100
34	100	1	1	0	0	0	0	100
35	100	1	1	0	0	0	0	100
36	100	1	1	0	0	0	0	100
37	100	1	1	0	0	0	0	100
38	100	1	1	0	0	0	0	100
39	100	1	1	0	0	0	0	100
40	100	1	1	0	0	0	0	100
41	100	1	1	0	0	0	0	100
42	100	1	1	0	0	0	0	100
43	100	1	1	0	0	0	0	100
44	100	1	1	0	0	0	0	100
45	100	1	1	0	0	0	0	100
46	100	1	1	0	0	0	0	100
47	100	1	1	0	0	0	0	100
48	100	1	1	0	0	0	0	100
49	100	1	1	0	0	0	0	100
50	90	1	1	0	0	0	10	100
51	100	1	1	0	0	0	0	100
52	100	1	1	0	0	0	0	100
53	100	1	1	0	0	0	0	100
54	100	1	1	0	0	0	0	100
55	100	1	1	0	0	0	0	100
56	100	1	1	0	0	0	0	100
57	100	1	1	0	0	0	0	100
58	100	1	1	0	0	0	0	100
59	100	1	1	0	0	0	0	100
60	100	1	1	0	0	0	0	100
61	100	1	1	0	0	0	0	100
62	100	1	1	0	0	0	0	100
63	100	1	1	0	0	0	0	100
64	100	1	1	0	0	0	0	100
65	100	1	1	0	0	0	0	100
66	100	1	1	0	0	0	0	100
67	100	1	1	0	0	0	0	100
68	100	1	1	0	0	0	0	100

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Transect F1 Quadrat	Raw data							Total Cover
	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllun % cover	% algae filamentous	Pinna Number	% Bare Ground	
1	100	2	1	0	0	0	0	100
2	100	2	1	0	0	0	0	100
3	100	2	1	0	0	0	0	100
4	100	2	1	0	0	0	0	100
5	100	2	1	0	0	0	0	100
6	100	2	1	0	0	0	0	100
7	100	2	1	0	0	0	0	100
8	100	2	1	0	0	0	0	100
9	100	2	1	0	0	0	0	100
10	100	2	1	0	0	0	0	100
11	100	2	1	0	0	0	0	100
12	100	2	1	0	0	0	0	100
13	100	2	1	0	0	0	0	100
14	100	2	1	0	0	0	0	100
15	100	2	1	0	0	0	0	100
16	100	2	1	0	0	0	0	100
17	100	2	1	0	0	0	0	100
18	100	2	1	0	0	0	0	100
19	100	2	1	0	0	0	0	100
20	100	2	1	0	0	0	0	100
21	100	2	1	0	0	0	0	100
22	100	2	1	0	0	0	0	100
23	100	2	1	0	0	0	0	100
24	100	2	1	0	0	0	0	100
25	100	2	1	0	0	0	0	100
26	100	2	1	0	0	0	0	100
27	100	2	1	0	0	0	0	100
28	100	2	1	0	0	0	0	100
29	100	2	1	0	0	0	0	100
30	100	2	1	0	0	0	0	100
31	100	2	1	0	0	0	0	100
32	100	2	1	0	0	0	0	100
33	100	2	1	0	0	0	0	100
34	100	2	1	0	0	0	0	100
35	100	2	1	0	0	0	0	100
36	100	2	1	0	0	0	0	100
37	100	2	1	0	0	0	0	100
38	100	2	1	0	0	0	0	100
39	100	2	1	0	0	0	0	100
40	100	2	1	0	0	0	0	100
41	100	2	1	0	0	0	0	100
42	100	2	1	0	0	0	0	100
43	100	2	1	0	0	0	0	100
44	100	2	1	0	0	0	0	100
45	100	2	1	0	0	0	0	100
46	100	2	1	0	0	0	0	100
47	100	2	1	0	0	0	0	100
48	100	2	1	0	0	0	0	100
49	100	2	1	0	0	0	0	100
50	100	2	1	0	0	0	0	100
51	100	2	1	0	0	0	0	100
52	100	2	1	0	0	0	0	100
53	100	2	1	0	0	0	0	100
54	100	2	1	0	0	0	0	100
55	100	2	1	0	0	0	0	100
56	100	2	1	0	0	0	0	100
57	100	2	1	0	0	0	0	100
58	100	2	1	0	0	0	0	100
59	100	2	1	0	0	0	0	100
60	100	2	1	0	0	0	0	100
61	100	2	1	0	0	0	0	100
62	100	2	1	0	0	0	0	100
63	100	2	1	0	0	0	0	100
64	100	2	1	0	0	0	0	100
65	100	2	1	0	0	0	0	100
66	100	2	1	0	0	0	0	100
67	100	2	1	0	0	0	0	100
68	100	2	1	0	0	0	0	100

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Transect F2 Quadrat	Raw data							
	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
1	100	2	1	0	0	0	0	100
2	95	2	1	0	5	0	0	100
3	100	1	1	0	0	0	0	100
4	100	1	1	0	0	0	0	100
5	98	1	1	0	2	0	0	100
6	98	1	1	0	2	0	0	100
7	100	1	1	0	0	0	0	100
8	100	1	1	0	0	0	0	100
9	97	1	1	0	3	0	0	100
10	98	1	1	0	2	0	0	100
11	100	1	1	0	0	0	0	100
12	100	1	1	0	0	0	0	100
13	100	1	1	0	0	0	0	100
14	100	1	1	0	0	0	0	100
15	98	1	1	0	2	0	0	100
16	98	1	1	0	2	0	0	100
17	100	1	1	0	0	0	0	100
18	100	1	1	0	0	0	0	100
19	100	1	1	0	0	0	0	100
20	100	1	1	0	0	0	0	100
21	98	1	1	0	2	0	0	100
22	100	1	1	0	0	0	0	100
23	100	1	1	0	0	0	0	100
24	100	1	1	0	0	0	0	100
25	100	1	1	0	0	0	0	100
26	95	1	1	0	0	0	5	100
27	100	1	1	0	0	0	0	100
28	100	1	1	0	0	0	0	100
29	100	1	1	0	0	0	0	100
30	100	1	1	0	0	0	0	100
31	90	1	1	0	10	0	0	100
32	90	1	1	0	0	0	10	100
33	100	1	1	0	0	0	0	100
34	100	1	1	0	0	0	0	100
35	100	1	1	0	0	0	0	100
36	100	1	1	0	0	0	0	100
37	100	1	1	0	0	0	0	100
38	100	1	1	0	0	0	0	100
39	100	1	1	0	0	0	0	100
40	100	1	1	0	0	0	0	100
41	100	1	1	0	0	0	0	100
42	95	1	1	0	0	0	5	100
43	100	1	1	0	0	0	0	100
44	100	1	1	0	0	0	0	100
45	100	1	1	0	0	0	0	100
46	95	1	1	0	0	0	5	100
47	95	1	1	0	0	0	5	100
48	95	1	1	0	0	0	5	100
49	100	1	1	0	0	0	0	100
50	90	1	1	0	0	0	10	100
51	80	1	1	0	0	0	20	100
52	100	1	1	0	0	0	0	100
53	100	1	1	0	0	0	0	100
54	100	1	1	0	0	0	0	100
55	100	1	1	0	0	0	0	100
56	95	1	1	0	0	0	5	100
57	95	1	1	0	0	0	5	100
58	95	1	1	0	0	0	5	100
59	85	1	1	0	0	0	15	100
60	70	1	1	0	0	0	30	100
61	70	1	1	0	0	0	30	100
62	50	1	1	0	0	0	50	100
63	80	1	1	0	0	0	20	100
64	85	1	1	0	0	0	15	100
65	90	1	1	0	0	0	5	95
66	100	1	1	0	0	0	0	100
67	70	1	1	0	0	0	30	100
68	65	1	1	0	0	0	35	100

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Transect F3		Raw data						
Quadrat	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
68	100	1	1	0	0	0	0	100
31	100	1	1	0	0	0	0	100
22	100	1	1	0	0	0	0	100
23	100	1	1	0	0	0	0	100
26	100	1	1	0	0	0	0	100
27	100	1	1	0	0	0	0	100
28	100	1	1	0	0	0	0	100
30	100	1	1	0	0	0	0	100
32	100	1	1	0	0	0	0	100
51	100	1	1	0	0	0	0	100
46	95	1	1	0	0	0	5	100
36	100	1	1	0	0	0	0	100
37	100	1	1	0	0	0	0	100
38	100	1	1	0	0	0	0	100
39	100	1	1	0	0	0	0	100
40	100	1	1	0	0	0	0	100
50	100	1	1	0	0	0	0	100
21	100	1	1	0	0	0	0	100
52	98	1	1	0	2	0	0	100
63	100	1	1	0	0	0	0	100
61	100	1	1	0	0	0	0	100
62	100	1	1	0	0	0	0	100
65	100	1	1	0	0	0	0	100
64	100	1	1	0	0	0	0	100
53	98	1	1	0	2	0	0	100
66	100	1	1	0	0	0	0	100
67	100	1	1	0	0	0	0	100
60	100	1	1	0	0	0	0	100
59	100	1	1	0	0	0	0	100
41	45	1	1	0	0	0	55	100
55	100	1	1	0	0	0	0	100
57	100	1	1	0	0	0	0	100
56	100	1	1	0	0	0	0	100
58	100	1	1	0	0	0	0	100
54	98	1	1	0	2	0	0	100
43	35	2	1	0	0	0	65	100
44	60	2	1	0	0	0	40	100
49	95	2	1	0	0	0	5	100
48	40	2	1	0	0	0	60	100
45	90	2	1	0	0	0	10	100
47	85	2	1	0	0	0	15	100
34	100	2	1	0	0	0	0	100
42	20	2	1	0	0	0	80	100
8	10	2	1	0	0	0	90	100
11	85	2	1	0	0	0	15	100
10	20	2	1	0	0	0	80	100
9	0	2	1	0	0	0	100	100
6	100	2	1	0	0	0	0	100
7	60	2	1	0	0	0	40	100
13	100	2	1	0	0	0	0	100
5	100	2	1	0	0	0	0	100
4	100	2	1	0	0	0	0	100
3	100	2	1	0	0	0	0	100
12	100	2	1	0	0	0	0	100
15	55	2	1	0	0	0	45	100
14	90	2	1	0	0	0	10	100
35	100	2	1	0	0	0	0	100
25	98	2	1	0	0	0	2	100
2	100	2	1	0	0	0	0	100
33	100	2	1	0	0	0	0	100
29	65	2	1	0	0	0	35	100
20	95	2	1	0	0	0	5	100
24	50	2	1	0	0	0	50	100
16	100	2	1	0	0	0	0	100
19	95	2	1	0	0	0	5	100
18	95	2	1	0	0	0	5	100
17	95	2	1	0	0	0	5	100
1	100	2	1	0	0	0	0	100

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Transect F4 Quadrat	Raw data							
	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
1	100	2	1	0	0	0	0	100
2	85	2	1	0	0	0	15	100
3	85	2	1	0	0	0	15	100
4	90	2	1	0	0	0	10	100
5	95	2	1	0	0	0	5	100
6	95	2	1	0	0	2	5	100
7	85	2	1	0	0	1	15	100
8	95	2	1	0	0	0	5	100
9	95	2	1	0	0	0	5	100
10	95	2	1	0	0	0	5	100
11	95	2	1	0	0	0	5	100
12	85	2	1	0	0	0	15	100
13	85	2	1	0	0	0	15	100
14	90	2	1	0	0	0	10	100
15	90	2	1	0	0	0	10	100
16	90	2	1	0	0	0	10	100
17	55	2	1	0	0	0	45	100
18	50	2	1	0	0	0	50	100
19	75	2	1	0	0	0	25	100
20	65	2	1	0	0	0	35	100
21	100	2	1	0	0	0	0	100
22	95	2	1	0	0	0	5	100
23	65	2	1	0	0	0	35	100
24	85	2	1	0	0	0	15	100
25	90	2	1	0	0	0	10	100
26	90	2	1	0	0	0	10	100
27	10	2	1	0	0	1	90	100
28	15	2	1	0	0	0	85	100
29	75	2	1	0	0	0	25	100
30	90	2	1	0	0	0	10	100
31	90	2	1	0	0	1	10	100
32	85	2	1	0	0	0	15	100
33	85	2	1	0	0	0	15	100
34	90	2	1	0	0	0	10	100
35	65	2	1	0	0	0	35	100
36	10	2	1	0	0	0	90	100
37	20	2	1	0	0	0	80	100
38	15	2	1	0	0	0	85	100
39	10	2	1	0	0	0	90	100
40	5	2	1	0	0	1	95	100
41	0	2	1	0	0	0	100	100
42	0	2	1	0	0	0	100	100
43	5	2	1	0	0	1	95	100
44	20	2	1	0	0	0	80	100
45	5	2	1	0	0	1	95	100
46	0	2	1	0	0	0	100	100
47	0	2	1	0	0	0	100	100
48	5	2	1	0	0	1	95	100
49	10	2	1	0	0	0	90	100
50	5	2	1	0	0	1	95	100
51	20	2	1	0	0	0	80	100
52	40	2	1	0	0	0	60	100
53	20	2	1	0	0	0	80	100
54	0	2	1	0	0	0	100	100
55	10	2	1	0	0	0	90	100
56	0	2	1	0	0	0	100	100
57	0	2	1	0	0	0	100	100
58	5	2	1	0	0	0	95	100
59	15	2	1	0	0	0	85	100
60	10	2	1	0	0	0	90	100
61	10	2	1	0	0	0	90	100
62	5	2	1	0	0	0	98	103
63	15	2	1	0	0	0	85	100
64	25	2	1	0	0	0	75	100
65	25	2	1	0	0	0	75	100
66	50	2	1	0	0	0	50	100
67	70	2	1	0	0	0	30	100
68	65	2	1	0	0	0	35	100

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Transect F5		Raw data						
Quadrat	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
1	95	2	1	0	0	0	5	100
2	95	2	1	0	0	0	5	100
3	90	2	1	0	0	1	10	100
4	20	2	1	0	0	0	80	100
5	35	2	1	0	0	0	65	100
6	25	2	1	0	0	0	75	100
7	80	2	1	0	0	0	20	100
8	65	2	1	0	0	0	35	100
9	85	2	1	0	0	0	25	110
10	70	2	1	0	0	0	30	100
11	75	2	1	0	0	0	25	100
12	65	2	1	0	0	0	35	100
13	85	2	1	0	0	0	15	100
14	85	2	1	0	0	0	15	100
15	90	2	1	0	0	0	10	100
16	95	2	1	0	0	0	5	100
17	95	2	1	0	0	0	5	100
18	90	2	1	0	0	0	10	100
19	85	2	1	0	0	0	15	100
20	90	2	1	0	0	0	10	100
21	85	2	1	0	0	0	15	100
22	90	2	1	0	0	0	10	100
23	70	2	1	0	0	0	30	100
24	65	2	1	0	0	0	35	100
25	50	2	1	0	0	0	20	70
26	70	2	1	0	0	0	30	100
27	65	2	1	0	0	0	35	100
28	65	2	1	0	0	0	35	100
29	80	2	1	0	0	0	20	100
30	95	2	1	0	0	0	5	100
31	85	2	1	0	0	0	15	100
32	90	2	1	0	0	0	10	100
33	85	2	1	0	0	0	15	100
34	90	2	1	0	0	0	10	100
35	85	2	1	0	0	0	15	100
36	95	2	1	0	0	0	5	100
37	95	2	1	0	0	0	5	100
38	90	2	1	0	0	0	10	100
39	85	2	1	0	0	0	15	100
40	75	2	1	0	0	0	25	100
41	80	2	1	0	0	0	20	100
42	65	2	1	0	0	0	35	100
43	85	2	1	0	0	0	15	100
44	100	2	1	0	0	0	0	100
45	85	2	1	0	0	0	15	100
46	70	2	1	0	0	0	30	100
47	75	2	1	0	0	0	25	100
48	85	2	1	0	0	0	15	100
49	85	2	1	0	0	0	15	100
50	85	2	1	0	0	0	15	100
51	90	2	1	0	0	0	10	100
52	95	2	1	0	0	0	5	100
53	95	2	1	0	0	0	5	100
54	80	2	1	0	0	0	20	100
55	85	2	1	0	0	0	15	100
56	85	2	1	0	0	0	15	100
57	95	2	1	0	0	0	5	100
58	90	2	1	0	0	0	10	100
59	90	2	1	0	0	0	10	100
60	75	2	1	0	0	0	25	100
61	85	2	1	0	0	0	15	100
62	70	2	1	0	0	0	30	100
63	75	2	1	0	0	0	25	100
64	85	2	1	0	0	0	15	100
65	90	2	1	0	0	0	10	100
66	85	2	1	0	0	0	15	100
67	95	2	1	0	0	0	5	100
68	95	2	1	0	0	0	5	100

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Transect F6		Raw data							Total Cover
Quadrat	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground		
1	95	2	1	0	0	0	5	100	
2	95	2	1	0	0	0	5	100	
3	100	2	1	0	0	0	0	100	
4	85	2	1	0	0	0	15	100	
5	90	2	1	0	0	0	10	100	
6	90	2	1	0	0	0	10	100	
7	95	2	1	0	0	0	5	100	
8	75	2	1	0	0	0	25	100	
9	60	2	1	0	0	0	40	100	
10	85	2	1	0	0	0	15	100	
11	70	2	1	0	0	0	30	100	
12	65	2	1	0	0	0	35	100	
13	50	2	1	0	0	0	50	100	
14	60	2	1	0	0	0	40	100	
15	70	2	1	0	0	0	30	100	
16	85	2	1	0	0	0	15	100	
17	95	2	1	0	0	0	5	100	
18	95	2	1	0	0	0	5	100	
19	100	2	1	0	0	0	0	100	
20	95	2	1	0	0	0	5	100	
21	95	2	1	0	0	0	5	100	
22	100	2	1	0	0	0	0	100	
23	95	2	1	0	0	0	5	100	
24	95	2	1	0	0	0	5	100	
25	85	2	1	0	0	0	15	100	
26	90	2	1	0	0	0	10	100	
27	85	2	1	0	0	0	15	100	
28	95	2	1	0	0	0	5	100	
29	95	2	1	0	0	0	5	100	
30	95	2	1	0	0	0	5	100	
31	95	2	1	0	0	0	5	100	
32	90	2	1	0	0	0	10	100	
33	95	2	1	0	0	0	5	100	
34	80	2	1	0	0	0	20	100	
35	50	2	1	0	0	0	50	100	
36	40	2	1	0	0	0	60	100	
37	65	2	1	0	0	0	45	110	
38	50	2	1	0	0	0	50	100	
39	45	2	1	0	0	0	55	100	
40	75	2	1	0	0	0	25	100	
41	60	2	1	0	0	0	40	100	
42	50	2	1	0	0	0	50	100	
43	65	2	1	0	0	0	35	100	
44	85	2	1	0	0	0	15	100	
45	95	2	1	0	0	0	5	100	
46	85	2	1	0	0	0	15	100	
47	90	2	1	0	0	0	10	100	
48	90	2	1	0	0	0	10	100	
49	80	2	1	0	0	0	20	100	
50	75	2	1	0	0	0	25	100	
51	65	2	1	0	0	0	35	100	
52	85	2	1	0	0	0	15	100	
53	70	2	1	0	0	0	30	100	
54	85	2	1	0	0	0	15	100	
55	65	2	1	0	0	0	35	100	
56	75	2	1	0	0	0	25	100	
57	85	2	1	0	0	0	15	100	
58	80	2	1	0	0	0	20	100	
59	95	2	1	0	0	0	5	100	
60	95	2	1	0	0	0	5	100	
61	90	2	1	0	0	0	10	100	
62	85	2	1	0	0	0	15	100	
63	70	2	1	0	0	0	30	100	
64	95	2	1	0	0	0	5	100	
65	95	2	1	0	0	0	5	100	
66	100	2	1	0	0	0	0	100	
67	95	2	1	0	0	0	5	100	
68	100	2	1	0	0	0	0	100	

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Transect F7 Quadrat	Zostera % cover	Sorted data		Fouling 1,2,3	Dystophyllun % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
		Long=1 Short=2							
1	100	2		1	0	0	0	0	100
2	100	2		1	0	0	0	0	100
3	100	2		1	0	0	0	0	100
4	100	2		1	0	0	0	0	100
5	95	2		1	0	0	0	5	100
6	100	2		1	0	0	0	0	100
7	100	2		1	0	0	0	0	100
8	100	2		1	0	0	0	0	100
9	100	2		1	0	0	0	0	100
10	100	2		1	0	0	0	0	100
11	100	2		1	0	0	0	0	100
12	100	2		1	0	0	0	0	100
13	100	2		1	0	0	0	0	100
14	100	2		1	0	0	0	0	100
15	100	2		1	0	0	0	0	100
16	100	2		1	0	0	0	0	100
17	100	2		1	0	0	1	0	100
18	100	2		1	0	0	0	0	100
19	100	2		1	0	0	0	0	100
20	100	2		1	0	0	0	0	100
21	100	2		1	0	0	0	0	100
22	100	2		1	0	0	0	0	100
23	95	2		1	0	0	0	5	100
24	100	2		1	0	0	0	0	100
25	100	2		1	0	0	0	0	100
26	95	2		1	0	0	0	5	100
27	100	2		1	0	0	0	0	100
28	100	2		1	0	0	0	0	100
29	100	2		1	0	0	0	0	100
30	100	2		1	0	0	0	0	100
31	100	2		1	0	0	0	0	100
32	100	2		1	0	0	0	0	100
33	100	2		1	0	0	0	0	100
34	100	2		1	0	0	0	0	100
35	100	2		1	0	0	0	0	100
36	75	2		1	0	0	0	25	100
37	100	2		1	0	0	0	0	100
38	100	2		1	0	0	0	0	100
39	100	2		1	0	0	0	0	100
40	85	2		1	0	0	0	15	100
41	100	2		1	0	0	0	0	100
42	100	2		1	0	0	0	0	100
43	100	2		1	0	0	0	0	100
44	100	2		1	0	0	0	0	100
45	100	2		1	0	0	0	0	100
46	85	2		1	0	0	0	15	100
47	100	2		1	0	0	0	0	100
48	100	2		1	0	0	0	0	100
49	100	2		1	0	0	0	0	100
50	100	2		1	0	0	0	0	100
51	100	2		1	0	0	0	0	100
52	95	2		1	0	0	0	5	100
53	95	2		1	0	0	0	5	100
54	95	2		1	0	0	0	5	100
55	100	2		1	0	0	0	0	100
56	85	2		1	0	0	0	15	100
57	100	2		1	0	0	0	0	100
58	80	2		1	0	0	0	20	100
59	75	2		1	0	0	0	25	100
60	100	2		1	0	0	0	0	100
61	100	2		1	0	0	0	0	100
62	85	2		1	0	0	0	15	100
63	100	2		1	0	0	0	0	100
64	100	2		1	0	0	0	0	100
65	100	2		1	0	0	0	0	100
66	100	2		1	0	0	0	0	100
67	100	2		1	0	0	0	0	100
68	100	2		1	0	0	0	0	100

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Transect S1 Quadrat	Sorted data		Fouling 1,2,3	Dytophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
	Zostera % cover	Long=1 Short=2						
34	0	0	0	0	10	0	90	100
54	0	0	0	0	30	0	70	100
52	0	0	0	0	60	0	40	100
39	0	0	0	0	100	0	0	100
25	0	0	0	0	90	0	10	100
26	0	0	0	0	100	0	0	100
27	0	0	0	0	100	0	0	100
28	0	0	0	0	30	0	70	100
30	0	0	0	0	100	0	0	100
20	0	0	0	0	100	0	0	100
31	0	0	0	0	90	0	10	100
32	0	0	0	0	10	0	90	100
33	0	0	0	0	0	0	100	100
2	0	0	0	0	100	0	0	100
35	0	0	0	0	10	0	90	100
36	0	0	0	0	0	0	100	100
21	0	0	0	0	100	0	0	100
42	0	0	0	0	100	0	0	100
38	0	0	0	0	65	0	35	100
18	0	0	0	0	100	0	0	100
64	0	0	0	0	100	0	0	100
3	0	0	0	0	100	0	0	100
4	0	0	0	0	0	0	100	100
5	0	0	0	0	40	0	60	100
50	0	0	0	0	80	0	20	100
66	0	0	0	0	100	0	0	100
65	0	0	0	0	100	0	0	100
63	0	0	0	0	100	0	0	100
10	0	0	0	0	100	0	0	100
43	0	0	0	0	100	0	0	100
12	0	0	0	0	100	0	0	100
62	0	0	0	0	100	0	0	100
14	0	0	0	0	100	0	0	100
61	0	0	0	0	100	0	0	100
51	0	0	0	0	80	0	20	100
37	0	0	0	0	0	0	100	100
53	20	1	1	0	0	0	80	100
56	100	1	1	0	0	0	0	100
55	100	1	1	0	0	0	0	100
48	60	1	1	0	0	0	40	100
57	100	1	1	0	0	0	0	100
58	100	1	1	0	0	0	0	100
59	100	1	1	0	0	0	0	100
60	100	1	1	0	0	0	0	100
67	10	1	1	0	90	0	0	100
49	30	1	1	0	70	0	0	100
1	65	1	1	0	10	0	25	100
47	60	1	1	0	40	0	0	100
11	10	1	1	0	90	0	0	100
15	80	1	1	0	0	0	20	100
13	10	1	1	0	90	0	0	100
8	20	1	1	0	2	0	78	100
9	65	1	1	0	2	0	33	100
17	20	1	1	0	80	0	0	100
7	20	1	1	0	0	0	80	100
6	10	1	1	0	10	0	80	100
16	100	1	1	0	0	0	0	100
19	10	1	1	0	90	0	0	100
46	100	1	1	0	0	0	0	100
41	60	1	1	0	40	0	0	100
45	100	1	1	0	0	0	0	100
44	60	1	1	0	40	0	0	100
29	20	1	1	0	0	0	80	100
40	80	1	1	0	20	0	0	100
22	10	1	1	0	90	0	0	100
24	10	1	1	0	90	0	0	100
23	10	1	1	0	90	0	0	100
68	40	1	1	0	60	0	0	100

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Transect S2 Quadrat	Sorted data			Dystophyllun % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
	Zostera % cover	Long=1 Short=2	Fouling 1,2,3					
1	100	1	1	0	0	0	0	100
2	100	1	1	0	0	0	0	100
3	100	1	1	0	0	0	0	100
4	100	1	1	0	0	0	0	100
5	100	1	1	0	0	0	0	100
6	100	1	1	0	0	0	0	100
7	100	1	1	0	0	0	0	100
8	100	1	1	0	0	0	0	100
9	100	1	1	0	0	0	0	100
10	100	1	1	0	0	0	0	100
11	100	1	1	0	0	0	0	100
12	100	1	1	0	0	0	0	100
13	30	1	1	0	0	0	70	100
14	20	1	1	0	0	0	80	100
15	20	1	1	0	0	0	80	100
16	40	1	1	0	0	0	60	100
17	30	1	1	0	0	0	70	100
18	60	1	1	0	0	0	40	100
19	50	1	1	0	0	0	50	100
20	40	1	1	0	0	0	60	100
21	35	1	1	0	0	0	65	100
22	75	1	1	0	0	0	25	100
23	65	1	1	0	0	0	35	100
24	80	1	1	0	0	0	20	100
25	95	1	1	0	0	0	5	100
26	85	1	1	0	0	0	15	100
27	90	1	1	0	0	0	10	100
28	60	1	1	0	0	0	40	100
29	50	1	1	0	0	0	50	100
30	65	1	1	0	0	0	35	100
31	80	1	1	0	0	0	20	100
32	80	1	1	0	0	0	20	100
33	100	1	1	0	0	0	0	100
34	100	1	1	0	0	0	0	100
35	100	1	1	0	0	0	0	100
36	100	1	1	0	0	0	0	100
37	100	1	1	0	0	0	0	100
38	100	1	1	0	0	0	0	100
39	100	1	1	0	0	0	0	100
40	100	1	1	0	0	0	0	100
41	100	1	1	0	0	0	0	100
42	100	1	1	0	0	0	0	100
43	100	1	1	0	0	0	0	100
44	100	1	1	0	0	0	0	100
45	100	1	1	0	0	0	0	100
46	100	1	1	0	0	0	0	100
47	100	1	1	0	0	0	0	100
48	100	1	1	0	0	0	0	100
49	100	1	1	0	0	0	0	100
50	100	1	1	0	0	0	0	100
51	100	1	1	0	0	0	0	100
52	100	1	1	0	0	0	0	100
53	100	1	1	0	0	0	0	100
54	100	1	1	0	0	0	0	100
55	100	1	1	0	0	0	0	100
56	100	1	1	0	0	0	0	100
57	100	1	1	0	0	0	0	100
58	100	1	1	0	0	0	0	100
59	100	1	1	0	0	0	0	100
60	100	1	1	0	0	0	0	100
61								0
62								0
63								0
64								0
65								0
66								0
67								0
68								0

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Transect S3	Sorted data							
	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dyctophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
1	95	1	1	0	0	0	5	100
2	95	1	1	0	0	0	5	100
3	100	1	1	0	0	0	0	100
4	100	1	1	0	0	0	0	100
5	100	1	1	0	0	0	0	100
6	100	1	1	0	0	0	0	100
7	100	1	1	0	0	0	0	100
8	100	1	1	0	0	0	0	100
9	100	1	1	0	0	0	0	100
10	85	1	1	0	0	0	15	100
11	100	1	1	0	0	0	0	100
12	100	1	1	0	0	0	0	100
13	95	1	1	0	0	0	5	100
14	100	1	1	0	0	0	0	100
15	100	1	1	0	0	0	0	100
16	100	1	1	0	0	0	0	100
17	100	1	1	0	0	0	0	100
18	95	1	1	0	0	0	5	100
19	85	1	1	0	0	0	15	100
20	85	1	1	0	0	0	15	100
21	100	1	1	0	0	0	0	100
22	100	1	1	0	0	0	0	100
23	90	1	1	0	0	0	10	100
24	85	1	1	0	0	0	15	100
25	95	1	1	0	0	0	5	100
26	75	1	1	0	0	0	25	100
27	100	1	1	0	0	0	0	100
28	85	1	1	0	0	0	15	100
29	100	1	1	0	0	0	0	100
30	100	1	1	0	0	0	0	100
31	95	1	1	0	0	0	5	100
32	95	1	1	0	0	0	5	100
33	95	1	1	0	0	0	5	100
34	95	1	1	0	0	0	5	100
35	100	1	1	0	0	0	0	100
36	100	1	1	0	0	0	0	100
37	100	1	1	0	0	0	0	100
38	100	1	1	0	0	0	0	100
39	100	1	1	0	0	0	0	100
40	95	1	1	0	0	0	5	100
41	100	1	1	0	0	0	0	100
42	100	1	1	0	0	0	0	100
43	100	1	1	0	0	0	0	100
44	100	1	1	0	0	0	0	100
45	100	1	1	0	0	0	0	100
46	100	1	1	0	0	0	0	100
47	100	1	1	0	0	0	0	100
48	95	1	1	0	0	0	5	100
49	100	1	1	0	0	0	0	100
50	100	1	1	0	0	0	0	100
51	100	1	1	0	0	0	0	100
52	100	1	1	0	0	0	0	100
53	100	1	1	0	0	0	0	100
54	100	1	1	0	0	0	0	100
55	100	1	1	0	0	0	0	100
56	100	1	1	0	0	0	0	100
57	100	1	1	0	0	0	0	100
58	85	1	1	0	0	0	15	100
59	100	1	1	0	0	0	0	100
60	100	1	1	0	0	0	0	100
61	95	1	1	0	0	0	5	100
62	95	1	1	0	0	0	5	100
63	100	1	1	0	0	0	0	100
64	100	1	1	0	0	0	0	100
65	100	1	1	0	0	0	0	100
66	95	1	1	0	0	0	5	100
67	100	1	1	0	0	0	0	100
68	100	1	1	0	0	0	0	100

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Transect S4 Quadrat	Sorted data							
	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
1	100	1	1	0	0	0	0	100
41	100	1	1	0	0	0	0	100
45	100	1	1	0	0	0	0	100
44	100	1	1	0	0	0	0	100
43	100	1	1	0	0	0	0	100
42	100	1	1	0	0	0	0	100
39	100	1	1	0	0	0	0	100
40	100	1	1	0	0	0	0	100
51	100	1	1	0	0	0	0	100
38	100	1	1	0	0	0	0	100
37	100	1	1	0	0	0	0	100
36	100	1	1	0	0	0	0	100
35	100	1	1	0	0	0	0	100
50	100	1	1	0	0	0	0	100
53	100	1	1	0	0	0	0	100
52	100	1	1	0	0	0	0	100
33	100	1	1	0	0	0	0	100
63	100	1	1	0	0	0	0	100
67	100	1	1	0	0	0	0	100
66	100	1	1	0	0	0	0	100
65	100	1	1	0	0	0	0	100
64	100	1	1	0	0	0	0	100
61	100	1	1	0	0	0	0	100
62	100	1	1	0	0	0	0	100
54	100	1	1	0	0	0	0	100
60	100	1	1	0	0	0	0	100
59	100	1	1	0	0	0	0	100
58	100	1	1	0	0	0	0	100
55	100	1	1	0	0	0	0	100
2	100	1	1	0	0	0	0	100
34	100	1	1	0	0	0	0	100
32	100	1	1	0	0	0	0	100
31	100	1	1	0	0	0	0	100
10	100	1	1	0	0	0	0	100
15	100	1	1	0	0	0	0	100
14	100	1	1	0	0	0	0	100
13	100	1	1	0	0	0	0	100
12	100	1	1	0	0	0	0	100
11	100	1	1	0	0	0	0	100
8	100	1	1	0	0	0	0	100
9	100	1	1	0	0	0	0	100
17	100	1	1	0	0	0	0	100
7	100	1	1	0	0	0	0	100
6	100	1	1	0	0	0	0	100
5	100	1	1	0	0	0	0	100
4	100	1	1	0	0	0	0	100
3	100	1	1	0	0	0	0	100
16	100	1	1	0	0	0	0	100
18	100	1	1	0	0	0	0	100
30	100	1	1	0	0	0	0	100
68	100	1	1	0	0	0	0	100
26	100	1	1	0	0	0	0	100
22	80	1	1	0	20	0	0	100
25	100	1	1	0	0	0	0	100
20	100	1	1	0	0	0	0	100
27	100	1	1	0	0	0	0	100
24	100	1	1	0	0	0	0	100
19	100	1	1	0	0	0	0	100
28	100	1	1	0	0	0	0	100
29	100	1	1	0	0	0	0	100
23	100	1	1	0	0	0	0	100
21	40	2	1	0	0	0	60	100
48	100	2	1	0	0	0	0	100
57	100	2	1	0	0	0	0	100
56	100	2	1	0	0	0	0	100
46	100	2	1	0	0	0	0	100
47	100	2	1	0	0	1	0	100
49	100	2	1	0	0	0	0	100

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Transect S5		Sorted data		Fouling 1,2,3	Dyctophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
Quadrat	Zostera % cover	Long=1 Short=2							
1	0	0	0	0	0	0	0	100	100
66	0	0	0	0	0	0	0	100	100
2	0	0	0	0	0	0	0	100	100
17	0	0	0	0	0	0	0	100	100
16	0	0	0	0	0	0	0	100	100
15	0	0	0	0	0	0	0	100	100
65	0	0	0	0	0	0	0	100	100
18	0	0	0	0	0	0	0	100	100
5	0	0	0	0	0	0	0	100	100
4	0	0	0	0	0	0	0	100	100
7	0	0	0	0	0	0	0	100	100
3	0	0	0	0	0	0	0	100	100
6	0	0	0	0	0	0	0	100	100
47	100	1	1	0	0	0	0	0	100
46	100	1	1	0	0	0	0	0	100
45	45	1	1	0	0	0	0	55	100
67	85	1	1	0	0	0	0	15	100
44	75	1	1	0	0	0	0	25	100
49	65	1	1	0	0	0	0	35	100
43	100	1	1	0	0	0	0	0	100
42	95	1	1	0	0	0	0	5	100
41	75	1	1	0	0	0	0	25	100
48	75	1	1	0	0	0	0	25	100
55	95	1	1	0	0	0	0	5	100
50	40	1	1	0	0	0	0	60	100
51	85	1	1	0	0	0	0	15	100
61	60	1	1	0	0	0	0	40	100
64	60	1	1	0	0	0	0	40	100
63	80	1	1	0	0	0	0	20	100
62	100	1	1	0	0	0	0	0	100
39	85	1	1	0	0	0	0	15	100
52	70	1	1	0	0	0	0	30	100
60	100	1	1	0	0	0	0	0	100
57	100	1	1	0	0	0	0	0	100
56	90	1	1	0	0	0	0	10	100
40	80	1	1	0	0	0	0	20	100
34	95	1	1	0	0	0	0	5	100
38	85	1	1	0	0	0	0	15	100
37	100	1	1	0	0	0	0	0	100
36	90	1	1	0	0	0	0	10	100
12	100	1	1	0	0	0	0	0	100
13	100	1	1	0	0	0	0	0	100
19	80	1	1	0	0	0	0	20	100
20	80	1	1	0	0	0	0	20	100
21	80	1	1	0	0	0	0	20	100
22	40	1	1	0	0	0	0	60	100
68	100	1	1	0	0	0	0	0	100
32	100	1	1	0	0	0	0	0	100
35	85	1	1	0	0	0	0	15	100
33	95	1	1	0	0	0	0	5	100
14	20	2	1	0	0	0	0	80	100
10	75	2	1	0	0	0	0	25	100
11	90	2	1	0	0	0	0	10	100
59	65	2	1	0	0	0	0	35	100
9	85	2	1	0	0	0	0	15	100
8	70	2	1	0	0	0	0	30	100
27	95	2	1	0	0	0	0	5	100
58	80	2	1	0	0	0	0	20	100
26	95	2	1	0	0	0	0	5	100
23	95	2	1	0	0	0	0	5	100
25	100	2	1	0	0	0	0	0	100
24	80	2	1	0	0	0	0	20	100
54	95	2	1	0	0	0	0	5	100
28	85	2	1	0	0	0	0	15	100
31	90	2	1	0	0	0	0	10	100
29	85	2	1	0	0	0	0	15	100
30	85	2	1	0	0	0	0	15	100
53	95	2	1	0	0	0	0	5	100

Seagrass Survey of Chain Valley Bay, Summerland Point, Bardens Bay and Crangan Bay (2019)

Transect S6		Raw data						
Quadrat	Zostera % cover	Long=1 Short=2	Fouling 1,2,3	Dystophyllum % cover	% algae filamentous	Pinna Number	% Bare Ground	Total Cover
1	100	1	1	0	0	0	0	100
44	100	1	1	0	0	0	0	100
50	100	1	1	0	0	0	0	100
49	100	1	1	0	0	0	0	100
47	100	1	1	0	0	0	0	100
46	100	1	1	0	0	0	0	100
45	100	1	1	0	0	0	0	100
42	100	1	1	0	0	0	0	100
43	100	1	1	0	0	0	0	100
52	95	1	1	0	0	0	5	100
41	100	1	1	0	0	0	0	100
40	100	1	1	0	0	0	0	100
39	100	1	1	0	0	0	0	100
38	100	1	1	0	0	0	0	100
37	100	1	1	0	0	0	0	100
51	100	1	1	0	0	0	0	100
53	100	1	1	0	0	0	0	100
35	100	1	1	0	0	0	0	100
62	100	1	1	0	0	0	0	100
67	100	1	1	0	0	0	0	100
66	100	1	1	0	0	0	0	100
65	100	1	1	0	0	0	0	100
64	100	1	1	0	0	0	0	100
63	100	1	1	0	0	0	0	100
60	100	1	1	0	0	0	0	100
61	100	1	1	0	0	0	0	100
54	100	1	1	0	0	0	0	100
59	100	1	1	0	0	0	0	100
58	100	1	1	0	0	0	0	100
57	100	1	1	0	0	0	0	100
56	100	1	1	0	0	0	0	100
55	100	1	1	0	0	0	0	100
36	100	1	1	0	0	0	0	100
34	100	1	1	0	0	0	0	100
2	100	1	1	0	0	0	0	100
10	100	1	1	0	0	0	0	100
15	100	1	1	0	0	0	0	100
14	100	1	1	0	0	0	0	100
13	100	1	1	0	0	0	0	100
12	100	1	1	0	0	0	0	100
11	100	1	1	0	0	0	0	100
8	100	1	1	0	0	0	0	100
9	100	1	1	0	0	0	0	100
17	100	1	1	0	0	0	0	100
7	100	1	1	0	0	0	0	100
6	95	1	1	0	0	0	5	100
5	100	1	1	0	0	0	0	100
4	100	1	1	0	0	0	0	100
3	100	1	1	0	0	0	0	100
16	100	1	1	0	0	0	0	100
19	100	1	1	0	0	0	0	100
18	100	1	1	0	0	0	0	100
33	100	1	1	0	0	0	0	100
27	100	1	1	0	0	0	0	100
32	100	1	1	0	0	0	0	100
31	100	1	1	0	0	0	0	100
30	95	1	1	0	0	0	5	100
29	100	1	1	0	0	0	0	100
28	100	1	1	0	0	0	0	100
25	100	1	1	0	0	0	0	100
26	100	1	1	0	0	0	0	100
20	100	1	1	0	0	0	0	100
24	100	1	1	0	0	0	0	100
23	100	1	1	0	0	0	0	100
22	100	1	1	0	0	0	0	100
21	100	1	1	0	0	0	0	100
68	100	1	1	0	0	0	0	100
48	100	2	1	0	0	0	0	100