

1 Table S1. Physical-chemical sediment characteristics, P fractions, total P and nitrogen
2 concentration at different depth intervals, Firth of Thames, New Zealand.

Ecosystem	n	Inun. d/y ¹	Sal. ‰	pH	Ca-P μmol/g	Al/Fe-P μmol/g	Eh mV	Ca-P _{meta} μmol/g	Inorg. P μmol/g	Org. P μmol/g	TP μmol/g	Nitrogen mmol/g
0-5 cm												
Bay	4	365	31	7.40	9.98	5.30	-97	3.11	15.28	21.75	37.03	0.08
Tidal flat	3	128	21	7.37	6.73	8.22	19	2.21	14.95	17.25	32.20	0.20
Seedlings	3	107	23	7.24	6.83	10.00	1	2.42	16.83	20.43	37.26	0.23
Mangrove	9	28	29	6.69	6.20	12.09	244	2.38	18.28	21.81	40.09	0.29
Salt Marsh	6	2	26	6.05	3.83	12.68	505	1.76	16.51	23.39	39.90	0.38
Pasture	3	0	0	5.20	3.37	17.90	563	2.31	21.27	34.35	55.65	0.80
Average	28		22	6.66	6.16	11.03	206	2.37	17.19	23.16	40.35	0.33
Rivers	6	365	11	7.36	7.13	12.81	-10	ND	19.95	ND	ND	0.12
10-15 cm												
Bay	4	365	33	7.39	11.37	5.15	-141	2.76	16.52	ND	ND	0.10
Tidal flat	3	128	22	7.18	7.26	6.03	-66	2.09	13.29	ND	ND	0.19
Seedlings	3	107	23	7.24	7.58	6.75	-61	1.87	14.33	ND	ND	0.20
Mangrove	9	28	32	6.68	7.17	10.57	208	2.37	17.75	ND	ND	0.21
Salt Marsh	6	2	25	6.14	7.44	15.41	450	1.88	22.85	ND	ND	0.21
Pasture	3	0	0	5.18	4.66	11.50	607	1.28	16.16	ND	ND	0.25
Average	28		23	6.64	7.58	9.24	166	2.04	16.82	ND	ND	0.19
Rivers	6	365	12	7.10	6.79	8.05	-32	ND	14.84	ND	ND	0.12
30-35 cm												
Bay	4	365	31	7.29	11.11	3.94	-140	2.83	15.05	19.87	34.92	0.09
Tidal flat	3	128	20	7.32	6.59	5.78	-90	2.16	12.37	18.55	30.92	0.15
Seedlings	3	107	23	7.34	7.28	6.05	-130	2.07	13.33	17.82	31.15	0.17
Mangrove	9	28	39	6.70	7.12	13.50	142	2.56	20.62	18.31	38.93	0.19
Salt Marsh	6	2	25	6.47	7.36	13.21	401	2.24	20.57	18.40	38.97	0.15
Pasture	3	0	0	5.30	4.06	11.90	596	1.12	15.96	18.24	34.20	0.13
Average	28		23	6.74	7.25	9.06	130	2.16	16.32	18.53	34.85	0.15
Rivers	6	365	15	7.23	7.63	5.20	-62	ND	12.82	14.19	27.01	0.09
35-40 cm												
Bay	4	365	31	7.27	10.84	4.60	-119	2.53	15.45	ND	ND	0.09
Tidal flat	3	128	21	7.31	6.85	5.46	-127	2.21	12.31	ND	ND	0.13
Seedlings	3	107	23	7.34	7.17	6.15	-135	2.21	13.32	ND	ND	0.15
Mangrove	9	28	39	6.64	6.77	9.87	22	2.35	16.64	ND	ND	0.18
Salt Marsh	6	2	25	6.53	7.03	14.57	378	2.82	21.60	ND	ND	0.13
Pasture	3	0	0	5.27	4.32	10.77	621	1.10	15.10	ND	ND	0.12
Average	28		23	6.73	7.16	8.75	107	2.20	15.74	ND	ND	0.13
Rivers	6	365	16	7.22	7.06	5.48	-81	ND	12.54	ND	ND	0.09
All layers												
Bay	16	365	32	7.34	10.83	4.75	-124	2.81	15.58	ND	ND	0.09
Tidal flat	12	128	21	7.30	6.86	6.37	-66	2.17	13.23	ND	ND	0.17
Seedlings	12	107	23	7.29	7.22	7.24	-81	2.14	14.45	ND	ND	0.19
Mangrove	36	28	35	6.68	6.82	11.51	154	2.42	18.32	ND	ND	0.22
Salt Marsh	24	2	25	6.30	6.42	13.97	434	2.18	20.38	ND	ND	0.22
Pasture	12	0	0	5.24	4.10	13.02	597	1.45	17.12	ND	ND	0.33
Average	112		23	6.69	7.04	9.48	152	2.19	16.51	ND	ND	0.20
Rivers	24	365	14	7.23	7.15	7.89	-46	ND	15.04	ND	ND	0.11
Change from pasture to bay												
Average ²	28				+6.73	-8.27			-1.54	ND	ND	
Change from 0-5 to 30-35 cm												
Native ³	25				+1.18	-1.16			+0.02	-2.34	-2.32	
Pasture	3				+0.69	-6.00			-5.31	-16.11	-21.45	

3 ¹Inundation frequency (days/year)

4 ²Increase or decrease from pasture to bay (average among all layers)

5 ³Increase or decrease with depth (average among bay, tidal flat, seedlings, mangrove and salt marsh)

6 ND: not determined