Supplementary Methods

Detailed Site Description. Chain Valley Bay is located on the southern shores of Lake Macquarie on the central coast of NSW, Australia (33°5.5’S, 151°35’E). Lake Macquarie lies within the Sydney Basin and is situated upon extensive Permian coal measures that extend throughout the Sydney Basin from Newcastle to the Illawarra. The history of coal mining in the central coast extends to the late 1800s, and since this time coal mining activity has increased. Chain Valley Colliery became operational within the Chain Valley Bay sub-catchment in 1962. Following partial pillar extraction from the underground long wall mine, Chain Valley Bay encountered lateral and vertical subsidence[1]. Rapid inundation occurred as elevation decreased. Low-lying areas of the foreshore, including private residences, became prone to flooding and inundation. Initial measurements of the subsidence in 1986 were approximately 500 mm, increasing to 607 mm in June 1987, 750 mm by June 1988 and 782 mm by December 1988[1]. By 1989 subsidence had reached 818 mm, and 850 mm by 1991. During a visit to the Chain Valley Bay site in 2014 a nearby resident (pers. comm., 8th September) verified subsidence was still occurring.

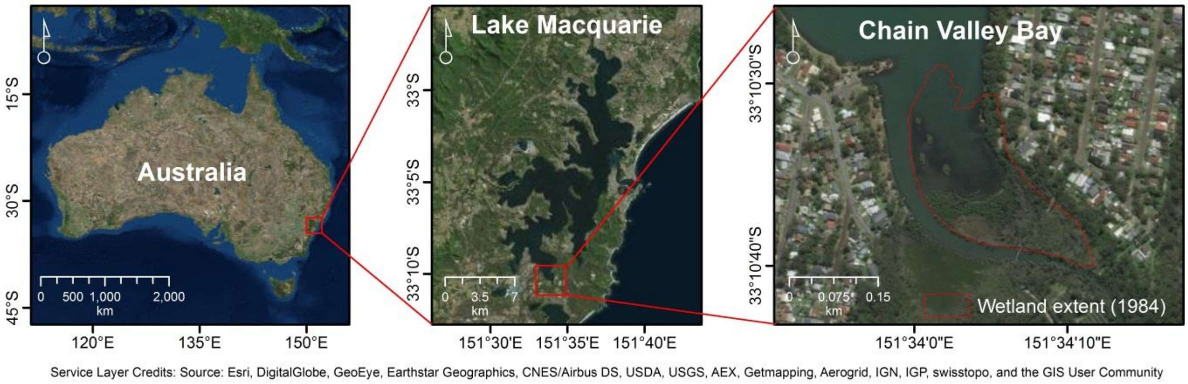

Figure 1: Location of study site within a) Australia, b) Lake Macquarie, and c) Chain Valley Bay. Wetland extent indicate pre-subsidence extent, derived from aerial photography before the subsidence event.

The Chain Valley Bay wetland is situated on a fluvial delta that formed as sediments transported by the Karignan Creek tributary entered Lake Macquarie. Lake Macquarie is a large, immature barrier estuary that has not undergone complete infill. It drains a catchment of approximately 605 km^2 and has an estuary area of approximately 115 km^2. The Chain Valley Bay wetland has a variable extent, estimated at < 2 km^2 at the time of the study. Lake Macquarie has a semi-diurnal tide regime and a tidal range of 1.18 m based on a tide gauge located 500 m upstream of the entrance[2]. However, as tides are attenuated as they enter the large immature barrier estuaries[3], the tidal range of the study site is markedly less than that recorded at the nearest tide gauge. Tidal inundation is an important control on the distribution of coastal wetland vegetation[3] and the landward limit of coastal wetland vegetation and upper tidal limits typically coincide.

As Lake Macquarie is youthful, substrates suitable for coastal wetland vegetation establishment are not extensive and limited to fluvial deltas where a continuous supply of sediment facilitates delta progradation and expansion of wetland vegetation over time. Fluvial delta development at Chain Valley Bay is not extensive, but substrates support a mosaic of vegetation including subtidal seagrass beds dominated by *Zostera capricornia*, *Posidonia australis*, *Halophila ovalis* and *Ruppia megacarpa*. The mangrove zone support two mangrove species that extend to temperate regions in southeastern Australia, *Avicennia marina* and *Aegiecras corniculatum*, but is dominated by the former, which exhibits broad tolerance of a range of salinity and inundation regimes. Coastal saltmarsh species situated within the upper intertidal zone are typical of the region and include *Juncus krausii*, *Sarcocornia quinqueflora*, *Sporobolous virginicus* and *Suaeda australis*. Where overland flows deliver freshwater to the wetland, the saltmarsh also supports brackish species such as *Bauma juncea*, *Ficinea nodosa*, *Selliera radicans* and *Phragmites australis*. The saltmarsh transitions to terrestrial forests dominated by *Casuarina glauca* and *Melaleuca quinquenervia*.

Influence of global climate and salinity variation on C concentration. Global variation in tidal wetland carbon storage has previously been related to climate[4], with higher rainfall proposed to increase C inputs via enhanced primary production[5] and lower temperature proposed to slow rates of organic matter decomposition[6]. At a local scale, salinity may influence wetland carbon storage by influencing rates and pathways (e.g. sulfate reduction) of carbon decomposition[7]. Data sets were identified that could be used to explore the global-scale effect of these factors on variation in tidal wetland carbon storage. Carbon storage data were assigned to broad Köppen climate zones (four levels: Tropical, Arid, Warm Temperate, Cool Temperate) based on their geographic location with respect to these zones. Global scale variation in sea surface salinity values extracted from gridded data of global variation in mean annual sea surface salinity in 2015, derived from the Aquarius Satellite Mission, were also assigned to tidal carbon storage data based on their geographic location. Linear regression analysis was initially undertaken to identify a relationship between salinity and %C. Linear mixed models were used to analyse the influence of climate or salinity on the relationship between RSLR and %C. Linear regression analysis. However, as small scale variation in salinity is likely high within a tidal wetland due to climatic and hydrologic variability, the effect of salinity is more likely to be detected at local scales, as reported previously[8,9]. Furthermore, the temporal scales of %C data and sea surface salinity data do not correspond, as sea surface salinity data has been time averaged over a 12 month period and %C has accumulated over millennia. For these reasons, relationships between %C and salinity should be interpreted cautiously.

Influence of RSLR variability on C density. We further validated the role of Holocene RSLR variation on C storage by analysing the relationship between C density (g C cm^{-3}) and RSLR zones. Where C density values were available for a study site, these were directly incorporated into our analysis. In the absence of C density values, the models of Holmquist et al.[10] (i.e. equation 1 and 2) were used to estimate bulk density.

$$OC=(0.074\pm0.014)OM^2+(0.421\pm0.012)OM-(0.0080\pm0.0021) \quad \text{Eq. (1)}$$

Where:

OC = fraction organic carbon

OM = fraction organic matter

$$BD=1/((OM/k1)+((1-OM)/k2)) \quad \text{Eq. (2)}$$

Where:

BD = bulk density

OM = fraction organic matter

$k1$ = self-packing density of pure organic matter, estimated to be 0.098 g cm^{-3} ± 0.001(s.e.)[10]

$k2$ = self-packing density of pure mineral matter, estimated to be 1.67 g cm^{-3} ± 0.025(s.e.)[10]

C density was then estimated from bulk density based on reported C concentration (%C). We endeavoured to minimise the number of model-derived bulk density values by using equation 2 when the organic matter fraction was reported. In the absence of organic matter fraction values, we used equation 1 to generate model-derived organic matter fraction values, and equation 2 to generate model-derived bulk density values. Following the statistical approach applied to C concentration, we applied a linear mixed model to assess the relationship between the dependent variable of C density and the fixed factors of soil depth (three repeated measure levels: 0-20cm, 20-50cm, 50-100cm) and RSLR zones (eight levels: Zones I through V and I-II, II-III and IV-V transitional regions). To further assess variations in C density with soil depth, a separate repeated measures analysis of variance (RM-ANOVA)[36] was completed for each data-rich RSLR zone.

Supplementary Tables

Supplementary Table 1. Compilation of tidal marsh soil carbon concentration (%C) data by relative sea-level zones identified by modelling by Clark et al. (1978)[11]. Records include locations for which carbon or organic matter concentrations were reported over the 0-100cm depth range or beyond. Mean values are reported where multiple cores were collected from a location, though separate records are presented where differences in geomorphic setting or vegetation composition were reported from the same site.

						% C													
Record	**SLR_Zone**	**Latitude**	**Longitude**	**Sieved?**	**Sieve size (mm)**	**0-20cm**	**20-50cm**	**50-100cm**	**100-150cm**	**150-200cm**	**200-250cm**	**250-300cm**	**300-350cm**	**350-400cm**	**400-450cm**	**450-500cm**	**500-550cm**	**550-600cm**	**Reference**
1	I	48.77	-64.29	Y	0.063	5.25	1.23	0.31	0.23										12
2	I	48.77	-64.29	Y	0.063	11.23	3.54	1.12	0.42										12
3	I-II transition	42.76	-70.81			17.97	19.46	17.58											13
4	I-II transition	42.78	-70.81			13.69	9.60	8.24											13
5	I-II transition	43.27	-70.59			15.74	12.76	12.00											13
6	I-II transition	43.32	-70.57			19.04	13.36	10.55											13
7	I-II transition	41.56	-70.54			31.32	39.97	22.41											7
8	I-II transition	41.56	-70.54			26.10	35.34	24.43											7
9	I-II transition	41.56	-70.58			25.77	27.10	29.17											7
10	I-II transition	41.56	-70.58			26.99	30.42	22.74											7
11	I-II transition	41.58	-70.50			31.89	27.66	46.22	50.72										7
12	I-II transition	41.58	-70.50			41.70	40.20	48.54	52.11	55.49									7
13	I-II transition	41.58	-70.50			40.70	43.33	59.70											7
14	I-II transition	41.55	-70.51			26.10	35.34	24.43											7
15	I-II transition	41.55	-70.51			30.92	25.54	34.81											7
16	I-II transition	48.40	-4.51			2.35						0.46	4.35						14
17	I-II transition	41.24	-72.99			8.11	8.21	6.65											15
18	I-II transition	41.10	-73.39			16.12	7.04	7.54											15
19	I-II transition	41.12	-73.32			24.49	14.89	13.91											15

20	I-II transition	41.07	-73.43			22.31	13.57	10.25											15
21	I-II transition	41.08	-73.41			18.09	10.04	8.76											15
22	I-II transition	41.08	-73.41			21.17	13.38	7.66											15
23	I-II transition	40.95	-73.70			19.66	12.99	9.69											15
24	I-II transition	40.95	-73.72			19.05	11.46	13.93											15
25	I-II transition	40.87	-73.81			26.50	24.01	32.97											15
26	I-II transition	40.87	-73.82			24.72	15.14	12.81											15
27	I-II transition	40.61	-74.20			33.08	22.84	16.10											15
28	I-II transition	41.12	-73.32			5.14	11.77	12.91											15
29	I-II transition	41.08	-73.42			15.25	20.34	21.14											15
30	I-II transition	43.74	-69.83			28.05	27.23	13.22	22.60	4.32	2.08	11.50							16
31	I-II transition	43.10	-70.87			25.89	12.08	13.05	10.03	17.70	32.86								17
32	I-II transition	43.00	-70.94			29.80	18.30	5.47											17
33	I-II transition	43.02	-70.93			16.48	11.87	4.25											17
34	I-II transition	43.02	-70.93			36.73	43.75	43.54	32.32										17
35	I-II transition	43.04	-70.92			21.09	18.14	8.66											17
36	I-II transition	43.00	-70.94			34.59	26.44	14.04	8.81	4.43									17
37	I-II transition	43.02	-70.93			29.17	35.68	22.08	14.40	19.91	26.08								17
38	I-II transition	43.06	-70.90			7.33	10.28	4.78											17
39	I-II transition	43.00	-70.94			31.05	16.64	11.08	10.14	3.75									17
40	II	51.78	-0.85			2.64	1.84	0.80											18
41	II	51.70	-0.72			3.69	2.99	4.00											18
42	II	51.76	-0.85			3.71	3.32	1.98	1.17										18
43	II	53.70	-0.29			3.07	1.94	1.38											19
44	II	53.70	-0.29			5.25	3.11	3.23											19
45	II	53.70	-0.29			5.21	4.22	2.80											19
46	II	40.75	-74.09			17.62	15.57	13.11	5.98	4.28	6.48								20
47	II	38.90	-75.30			12.41	4.25	3.80											21
48	II	38.83	-75.23			22.44	3.69	4.74											21
49	II	38.83	-75.26			33.28	6.21	3.87											21
50	II	38.89	-75.30			22.56	16.06	16.49											21

51	II	38.04	-121.86			6.99	9.91	7.49											22
52	II	38.04	-121.87			23.31	8.07	19.95											22
53	II	38.04	-121.87			22.33	7.47	4.03											22
54	II	38.01	-122.49			5.47	4.97	3.83											22
55	II	38.01	-122.49			3.52	2.98	2.53											22
56	II	37.64	-122.15			3.73	2.23	2.82											22
57	II	38.19	-122.32			5.89	3.70	4.21											22
58	II	37.50	-122.10			5.55	3.65	2.48											22
59	II	37.50	-122.10			3.82	2.99	2.27											22
60	II	37.50	-122.09			4.62	4.31	3.28											22
61	II	37.93	-122.51			1.75	0.88	0.78											22
62	II	38.16	-122.55			9.87	8.85	6.22											22
63	II	38.16	-122.55			4.76	5.09	3.44											22
64	II	38.19	-122.01			15.17	7.95	10.82											22
65	II	38.20	-122.04			7.68	14.36	13.82											22
66	II	37.60	-122.14			5.14	2.86	2.67											22
67	II	37.60	-122.14			3.22	3.11	3.16											22
68	II	37.59	-122.14			4.00	2.88	2.66											22
69	II	37.59	-122.15			3.39	2.51	1.35											22
70	II	37.59	-122.14			3.91	2.58	2.32											22
71	II	40.88	-73.79			19.92	18.40	25.93											23
72	II	41.05	-72.29			38.78	34.08	40.93											23
73	II	48.04	-122.16			5.86	2.00	2.04											24
74	II	48.04	-122.16			3.75	5.00	5.00											24
75	II	48.04	-122.20			4.88	3.71	3.00											24
76	II	47.99	-122.16			6.38	2.56	2.38											24
77	II	48.00	-122.16			1.50	7.00	13.67											24
78	II	39.51	-74.42			9.10	9.03	9.00											13
79	II	39.54	-74.43			19.52	16.72	16.27											13
80	II	40.77	-72.89			18.95	13.62	11.92											13
81	II	40.77	-72.89			20.19	15.36	14.80											13

82	II	38.51	-75.07			8.90	36.00	10.00											25
83	II	38.51	-75.07			10.28	7.60	2.47											25
84	II	38.42	-75.07			25.92	2.39	0.71											25
85	II	38.42	-75.07			30.78	23.24	11.48											25
86	II	53.95	8.71	Y	2	3.29	2.47	1.30											26
87	II	38.30	-75.90			9.50	10.52	10.52											27
88	II	38.30	-75.90			16.49	12.09	12.09											27
89	II	38.30	-75.90			20.60	14.80	14.80											27
90	II	40.03	-74.08			0.19	0.13	0.13											28
91	II	40.77	-72.89			32.89	17.27	28.21											29
92	II	40.91	-72.57			15.70	11.78	7.36											29
93	II	40.90	-73.23			6.83	6.34	4.08											29
94	II	40.77	-72.82			23.08	14.50	8.06											29
95	II	38.87	-76.55			38.72	40.01	41.40											30
96	II	38.77	-75.98			13.00	13.94	13.82											31
97	II	38.73	-76.01			8.87	13.10	13.50											31
98	II	38.63	-75.97			15.86	11.78	11.95											31
99	II	38.78	-76.71			17.50	16.03	23.14	18.37										31
100	II	38.78	-76.71			8.19	7.17	6.04	10.21										31
101	II	38.23	-75.78			12.71	14.09	23.48											31
102	II	38.21	-75.80			8.64	23.55	35.04											31
103	II	38.20	-75.83			14.41	11.85	17.98											31
104	II	39.44	-76.28			5.95	5.57	3.61											31
105	II	39.44	-76.28			5.57	4.86	4.87											31
106	II	39.44	-76.28			4.64	4.60	3.48											31
107	II	38.81	-76.71			10.57	6.45	5.07	6.31										31
108	II	38.79	-76.72			9.66	4.56	4.78	3.27										31
109	II	38.81	-76.74			17.05	7.56	4.31											31
110	II	38.78	-76.71			8.65	6.16	6.02	8.74										31
111	II	38.75	-76.70			10.39	10.66	12.47	17.24										31
112	II	38.69	-76.69			15.54	17.07	12.61	18.45										31

113	II	38.68	-76.69			30.67	12.87	14.98											31
114	II	38.68	-76.69			10.46	8.50	6.23											31
115	II	38.67	-76.69			21.42	45.63	53.91	42.51										31
116	II	38.63	-76.69			8.38	8.06	6.63	5.36										31
117	II	38.62	-76.68			10.36	9.32	10.82	15.39										31
118	II	42.04	-73.92			8.53	7.30	5.26											31
119	II	42.04	-73.92			4.35	3.83	3.13											31
120	II	42.04	-73.92			4.47	4.40	2.97											31
121	II	42.03	-73.92			4.52	4.37	3.07											31
122	II	42.03	-73.92			15.48	19.39	27.40											31
123	II	38.74	-76.69			10.21	8.75	9.08											31
124	II	38.74	-76.69			10.20	9.39	14.85											31
125	II	38.74	-76.69			13.68	11.21	36.64											31
126	II	38.74	-76.69			11.99	12.33	21.11											31
127	II	38.69	-76.69			9.44	10.91	9.51											31
128	II	38.69	-76.69			8.94	7.29	8.54											31
129	II	38.69	-76.69			17.04	13.11	11.73											31
130	II	38.69	-76.69			20.86	18.08	17.64											31
131	II	38.62	-76.67			7.65	14.94	25.31	9.44										31
132	II	38.62	-76.67			35.67	30.99	27.03	16.38										31
133	II	38.62	-76.67			35.75	37.01	41.58	29.85										31
134	II	38.87	-76.55			20.72	8.46	5.12											32
135	II	37.50	-122.00			3.47	3.03	2.89	2.90	2.43									33
136	II	37.60	-122.14			3.83	2.21	8.77											33
137	II	37.55	-122.23			6.98	3.69	3.22	2.37	1.64									33
138	II	37.62	-75.67			0.88	0.46	0.46											34
139	II	37.62	-75.67			0.34	0.31	0.54											34
140	II	38.00	-122.29			8.64	5.34	5.46	5.86	6.84	5.82	5.42	5.90						34
141	II	38.19	-122.32			9.86	6.03	5.90	4.68	3.50	3.42	3.27	10.35						34
142	II	38.20	-122.32			5.95	6.40	4.39	3.14	3.42									34
143	II	38.20	-122.03			14.54	13.09	13.96	10.33	10.88	11.59	26.14	27.31	22.41	18.15	20.17			34

144	II	38.20	-122.03			10.64	13.20	17.35	14.36	15.43	23.92	25.21							34
145	II	38.20	-122.03			10.06	14.86	24.26	22.06	1.15									34
146	II	38.20	-122.03			22.61	17.80	23.09	22.54	17.57	30.99	34.23	15.22	23.16					34
147	II	37.62	-75.68			6.74	3.48	1.95	2.39	2.35									34
148	II	38.19	-122.32			6.12	4.28	4.32	3.57	3.83	3.99	4.02	4.34						34
149	II	38.20	-122.03			5.54	6.48	5.40	7.47	10.01	6.90	10.37							34
150	II	38.20	-122.03			7.91	8.30	5.11	7.92	5.64	6.22	4.13							34
151	II	38.87	-76.55					40.45	40.44	37.10	40.51	40.11	40.85	40.37	40.61	33.34	34.04	11.98	34
152	II	34.70	-76.62			0.94	2.00	0.66											35
153	II	34.70	-76.62			3.32	1.61	0.26											35
154	II	34.70	-76.62			5.88	1.77	0.22											35
155	II	34.76	-76.42			6.41	3.97		1.32										35
156	II	34.54	-77.33			7.35	6.13	3.27											35
157	II	34.54	-77.32			8.05	3.53	1.37											35
158	II	51.43	3.53	Y	2	7.76	2.54	1.57	1.36										36
159	II	51.43	3.53	Y	2	3.72	2.20	0.80											36
160	II	51.43	3.53	Y	2	5.37	2.83	2.31											36
161	II	51.43	3.53	Y	2	1.97													36
162	II	38.22	-75.83			1.94	13.75	15.76											37
163	II	38.22	-75.83			11.32	18.37	16.27	14.77	19.94									37
164	II	38.38	-75.85			13.46	18.14	16.62	15.74	18.97									37
165	II	38.22	-75.83			15.14	17.04	20.93	16.73										37
166	II	38.38	-75.85			12.52	22.58	20.64	21.80	13.41									37
167	II	37.52	-122.22			7.43	3.68	8.96	2.96	6.45	6.02	3.12							38
168	II	37.52	-122.21			4.89	4.96	5.42	3.16	2.86									38
169	II	37.52	-122.22			5.07	1.22	2.26	4.33	4.74	2.92								38
170	II	37.51	-122.22			3.80	2.43	4.74	7.26	8.73	5.98								38
171	II	37.52	-122.23			6.09	5.39	6.16	3.58	2.49									38
172	II	37.52	-122.23			9.30	7.10	4.97	3.54	2.73									38
173	II	37.47	-121.95			2.92	3.11	4.63	4.56	2.66									38
174	II	37.45	-121.95			3.36	3.49	3.43	3.36	3.63	2.38								38

175	II	37.46	-121.95			4.34	4.19	4.01	5.05	2.96	2.13								38
176	II	37.46	-121.95			4.52	4.12	3.88	3.75	4.82	3.28	3.07							38
177	II	37.75	-122.21			7.91	4.90	3.40	3.03	1.89									38
178	II	37.75	-122.21			16.60	8.36	6.34	6.20	5.05	3.10								38
179	II	37.50	-122.17			5.44	5.62	5.12	6.65	3.53	3.07								38
180	II	37.47	-121.95			3.63	3.97	4.15	10.48	12.17	4.03								38
181	II	37.47	-121.93			3.45	3.75	3.36	5.16	7.12	7.22	2.35							38
182	II	37.48	-121.95			4.07	6.64	11.30	6.51										38
183	II	37.51	-122.09			5.53	8.50	4.42	7.67	5.44	11.44	12.09	14.62						38
184	II	37.49	-122.15			4.52	3.05	3.40	6.05	4.04									38
185	II	37.49	-122.15			16.60	8.36	6.34	6.20	5.05	3.16								38
186	II	37.55	-122.24			8.40	4.70	3.70	4.21	2.74									38
187	II	37.55	-122.24			12.73	6.97	4.74	3.29										38
188	II	37.46	-121.98			5.09	4.87	4.91	5.97	9.44	5.78	4.46	5.16						38
189	II	37.46	-121.97			3.71	3.80	3.67	3.88	4.14	3.39	2.53							38
190	II	27.94	-97.03			1.40	0.29	0.15											39
191	II	27.94	-97.03			3.74	0.42	0.42											39
192	II	26.97	-82.01			42.84	35.05	15.52	2.08	2.46									40
193	II	27.70	-82.46			40.04	28.07	21.91	6.06										40
194	II	30.00	-89.90			21.68	28.47	33.14	17.67	23.85	19.57	37.70	12.60	23.93					41
195	II	29.71	-89.72			17.11	13.84	19.54											42
196	II	29.67	-89.60			9.72	10.63	16.33											42
197	II-III transition	31.97	-81.02			3.25	1.93	3.06	2.69	3.67	1.52	1.09	0.42	0.74	0.37	0.67	0.64	0.55	43
198	II-III transition	33.74	-118.10	Y		39.55	17.35	17.46	9.37	10.18	7.10	10.05	4.75	9.93	1.38	1.46			44
199	II-III transition	33.74	-118.10	Y		47.16	37.64	17.81	5.23	1.73	10.67	11.15							44
200	II-III transition	59.64	-151.53			3.85	2.26	3.10											34
201	II-III transition	59.64	-151.53			4.12	4.91	7.96											34
202	II-III transition	59.64	-151.53			2.47	2.70	3.26											34
203	II-III transition	59.64	-151.54			9.24	4.01	10.67											34
204	II-III transition	59.64	-151.54			2.73	3.73	6.68											34
205	III	45.73	13.16	Y	2	7.48	6.60	5.29											45

206	III	45.73	13.16	Y	2	4.71	3.07	2.95											45
207	III	24.50	-111.85			0.75	0.76	0.65											46
208	III	30.35	-115.92			4.87	9.57	4.79	3.16	2.56									46
209	III	31.70	-116.62			7.99	4.43	3.80	2.69										46
210	III	27.42	-113.88			4.28	2.46												46
211	III	26.40	-112.75			1.47	1.07	1.06											46
212	IV	37.75	119.17	Y	0.18	0.26	0.19	0.26											47
213	IV	37.75	119.17	Y	0.18	0.41	0.31	0.29											47
214	IV	37.72	119.12	Y	0.15	0.33	0.21	0.18											47
215	IV			Y	2	0.33	0.21	0.18											47
216	IV	26.73	119.80	Y	0.15	1.22	1.21	1.18											47
217	IV	-31.70	18.18			0.80		0.45											48
218	IV	-28.63	16.45			1.28	1.02	1.05											49
219	IV	31.42	121.83	Y	0.15	0.57	0.44	0.37											50
220	IV	31.42	121.83	Y	0.15	0.69	0.50	0.39											50
221	IV	31.42	121.83	Y	0.15	0.56	0.50	0.30											50
222	IV	31.42	121.83	Y	0.15	0.30	0.37	0.24											50
223	IV	37.30	118.90	Y	0.15	0.27	0.32	0.42											51
224	IV	37.30	118.90	Y	0.15	0.19	0.19	0.13											51
225	IV	31.05	122.77	Y	0.841	0.54	0.55	0.43											52
226	IV	31.05	122.77	Y	0.841	0.30	0.45	0.36											52
227	IV	37.58	118.55	Y	2	0.71	0.38	0.27											53
228	IV	24.40	117.92	Y	0.25	1.27	0.72	0.52											54
229	IV	33.18	120.76	Y	0.15	0.75	0.19	0.18											55
230	IV	33.18	120.76	Y	0.15	0.95	0.22	0.19											55
231	IV	33.18	120.76	Y	0.15	0.80	0.21	0.14											55
232	IV	33.18	120.76	Y	0.15	0.51	0.35	0.19											55
233	IV	30.17	122.02	Y	0.45	1.39	1.39	1.39											56
234	IV	30.17	122.02	Y	0.45	1.42	1.39	1.39											56
235	IV	30.17	122.02	Y	0.45	1.51	1.49	1.46											56
236	IV	32.56	120.58	Y	0.15	0.36	0.19	0.20	0.15	0.08	0.16	0.26							57

237	IV	32.56	120.58	Y	0.15	0.19	0.16	0.13	0.15	0.12	0.14	0.12							57
238	IV	32.56	120.58	Y	0.15	0.31	0.34	0.28	0.19	0.19	0.11	0.13							57
239	IV	32.56	120.58	Y	0.15	0.84	0.29	0.17	0.11	0.10	0.15	0.13							57
240	IV	41.00	121.80	Y	0.15	0.93	0.82	0.81											58
241	IV	23.67	118.30	Y	0.15	0.52	0.37	0.34											59
242	IV	24.26	54.24			1.59	1.61	1.63	1.12	1.13									60
243	IV	24.46	54.43			1.07	0.79	0.44	0.33	0.33									60
244	IV	24.50	54.53			1.27	1.29	1.24											60
245	IV	24.52	54.47			0.61	0.65	0.12											60
246	IV	37.78	119.00	Y	0.25	0.52	0.32	0.15											61
247	IV	37.78	119.00	Y	0.25	0.42	0.34	0.22											61
248	IV	38.03	118.73	Y	0.15	0.48	0.16	0.15											61
249	IV	39.30	117.48	Y	0.15	2.18	0.92	0.38											62
250	IV	26.02	119.62	Y	0.15	2.00	1.74	1.38											63
251	IV	26.02	119.62	Y	0.15	2.26	1.87	2.76											63
252	IV	26.02	119.62	Y	0.15	0.83	0.24	0.17											63
253	IV	26.02	119.62	Y	0.15	1.89	2.05	2.13											63
254	IV	26.02	119.62	Y	0.15	2.16	2.27	2.17											63
255	IV	26.02	119.62	Y	0.15	1.67	1.59	1.54											63
256	IV	-30.85	17.58			3.49		1.14											64
257	IV	23.90	117.50	Y	0.074	0.64	0.58	0.55											65
258	IV	36.10	120.15	Y	0.15	0.60	0.76	0.75											66
259	IV	36.10	120.15	Y	0.15	0.77	0.75	0.72											66
260	IV	36.10	120.15	Y	0.15	1.18	0.66	0.63											66
261	IV	32.93	120.22	Y	0.15	0.28	0.25	0.16											67
262	IV	37.67	118.70	Y	0.15	0.22	0.13	0.14											68
263	IV	37.67	118.70	Y	0.15	0.51	0.26	0.14											68
264	IV	37.67	118.70	Y	0.15	0.30	0.17	0.14											68
265	IV	37.67	118.70	Y	0.15	0.37	0.24	0.25											68
266	IV	37.67	118.70	Y	0.15	0.20	0.10	0.05											68
267	IV	37.67	118.70	Y	0.15	0.52	0.35	0.34											68

268	IV	37.58	118.55	Y	2	0.46	0.29	0.31											68
269	IV	37.58	118.55	Y	2	0.48	0.44	0.43											68
270	IV	37.58	118.55	Y	2	0.35	0.24	0.25											68
271	IV	37.58	118.55	Y	2	0.23	0.23	0.25											68
272	IV	37.58	118.55	Y	2	0.44	0.26	0.23											68
273	IV	37.58	118.55	Y	2	0.57	0.50	0.41											68
274	IV	37.58	118.55	Y	2	0.44	0.44	0.46											68
275	IV	37.58	118.55	Y	2	0.62	0.48	0.32											68
276	IV	31.50	122.00	Y	0.15	0.63	0.57	0.49											69
277	IV	36.20	120.10	Y	0.15	0.72	0.61	0.60											70
278	IV	36.20	120.10	Y	0.15	0.74	0.69	0.68											70
279	IV	36.20	120.10	Y	0.15	1.29	1.14	1.07											70
280	IV-V transition	-42.43	-64.12			2.17	0.76	0.40											71
281	IV-V transition	-42.43	-64.12			3.54	1.60	0.77											71
282	IV-V transition	-42.41	-64.62			12.90	14.50	12.75	7.00										71
283	V	-34.14	24.84			0.65		0.44											48
284	V	-33.55	27.04			0.27		0.37											48
285	V	-34.06	22.24			0.80		0.42											48
286	V	-31.68	29.46			0.97		0.32											48
287	V	-34.08	24.92			0.93		0.68											48
288	V	-27.25	153.25			2.94	2.32	2.08	1.09										72
289	V	-27.25	153.25			4.16	5.11	3.00	1.28										72
290	V	-27.25	153.25			1.55	1.47	1.11	0.90										72
291	V	-16.95	145.80			1.47	0.69	1.74	3.34	3.22	3.22	3.22	3.18	3.18					73
292	V	-12.65	130.96			1.23	3.99	5.61	4.08										74
293	V	-29.38	153.35			1.93	1.27	0.60											75
294	V	-29.38	153.35			0.61	0.54	0.25											75
295	V	-35.69	150.10			13.15	8.25	3.94											75
296	V	-35.69	150.10			8.86	3.57	1.76											75
297	V	-34.94	150.71			9.35	1.36	0.31											75
298	V	-34.94	150.71			5.41	1.35	2.87											75

299	V	-31.55	152.85			19.87	14.24	6.37											75
300	V	-31.55	152.85			20.99	21.16	7.93											75
301	V	-30.89	153.00			1.99	0.89	1.17											75
302	V	-30.89	153.00			2.50	1.29	1.31											75
303	V	-32.64	151.99			2.56	1.77	2.17											75
304	V	-32.64	151.99			3.49	1.66	1.83											75
305	V	-36.06	150.06			9.75	4.68	1.52											75
306	V	-36.06	150.06			8.78	3.08	2.45											75
307	V	-32.34	152.49			19.00	7.83	4.52											75
308	V	-32.34	152.49			16.59	9.29	5.27											75
309	V	-36.59	150.02			9.47	0.94	0.35											75
310	V	-36.59	150.02			8.41	0.92	0.84											75
311	V	-35.71	150.17			1.63	1.11	0.99											75
312	V	-35.71	150.17			0.56	0.66	1.07											75
313	V	-34.91	150.74			3.08	0.73	1.72											75
314	V	-34.91	150.74			0.93	0.75	1.57											75
315	V	-31.55	152.85			0.95	0.29	0.24											75
316	V	-31.55	152.85			2.90	0.37	0.22											75
317	V	-30.88	153.02			1.92	0.81	1.41											75
318	V	-30.88	153.02			2.69	2.18	1.28											75
319	V	-32.67	152.15			1.05	1.39	1.02											75
320	V	-32.67	152.15			2.18	2.39	1.27											75
321	V	-32.20	152.51			3.39	0.58	0.15											75
322	V	-32.20	152.51			1.47	0.40	0.46											75
323	V	-36.62	150.02			1.87	0.59	0.18											75
324	V	-36.62	150.02			1.17	0.56	0.13											75
325	V	-36.08	150.12			0.75	0.71	0.41											75
326	V	-36.08	150.12			0.52	0.26	0.34											75
327	V	-29.43	153.36			0.97	0.11	0.08											75
328	V	-29.43	153.36			0.53	0.20	0.06											75
329	V	-38.68	145.80			12.94	14.91	7.90	5.79	2.02	1.46								76

330	V	-38.57	145.33			13.37	4.22	2.33											77
331	V	-38.60	145.35			9.25	3.33	1.78											77
332	V	-38.40	145.43			10.88	2.14	1.80											77
333	V	-23.95	113.63			0.81	1.57	0.77											78
334	V	-33.57	137.95			8.39	5.61	2.14	1.28	0.61									78
335	V	-33.61	115.43			9.61	2.23	1.73	0.37										78
336	V	-33.63	115.41			11.38	0.22	0.74											78
337	V	-33.05	137.57			8.13	6.38	0.41											78
338	V	-33.63	151.12			13.90	10.30	10.05											79
339	V	-34.99	150.77			24.30	0.50	0.70											79
340	V	-35.02	150.67			13.40	11.90	1.75											79
341	V	-32.85	151.72			23.50	4.40	0.50											79
342	V	-33.52	151.10			12.70	11.30	8.80											79
343	V	-33.55	27.04			1.03		0.21											80
344	V	-38.41	144.19	Y	2	12.18	3.49	2.15											81
345	V	-38.40	144.18	Y	2	1.45	1.00	0.94	1.17										81

References

1 NSW Mine Subsidence Board. Chain Valley Bay Restoration Project: Special Report. (NSW Government Mine Subsidence Board, Newcastle, NSW, 1991).

2 MHL. OEH NSW Tidal Planes Analysis: 1990-2010 Harmonic Analysis. Report MHL2053, October 2012. (Manly Hydraulics Laboratory, 2012).

3 Roy, P. S. *et al.* Structure and Function of South-east Australian Estuaries. *Estuarine, Coastal and Shelf Science* **53**, 351-384 (2001).

4 Rovai, A. S. *et al.* Global controls on carbon storage in mangrove soils. *Nature Climate Change*, 1 (2018).

5 Sanders, C. J. *et al.* Are global mangrove carbon stocks driven by rainfall? *Journal of Geophysical Research: Biogeosciences* **121**, 2600-2609 (2016).

6 Chmura, G. L., Anisfeld, S. C., Cahoon, D. R. & Lynch, J. C. Global carbon sequestration in tidal, saline wetland soils. *Global Biogeochem. Cycles* **17**, 1111 (2003).

7 Gonneea, M. E., O'Keefe Suttles, J. A. & Kroeger, K. D. (2018).

8 Poffenbarger, H., Needelman, B. & Megonigal, J. Salinity Influence on Methane Emissions from Tidal Marshes. *Wetlands* **31**, 831-842, doi:10.1007/s13157-011-0197-0 (2011).

9 Craft, C. Freshwater input structures soil properties, vertical accretion, and nutrient accumulation of Georgia and US tidal marshes. *Limnology and oceanography* **52**, 1220-1230 (2007).

10 Holmquist, J. R. *et al.* Accuracy and Precision of Tidal Wetland Soil Carbon Mapping in the Conterminous United States. *Scientific Reports* **8**, 9478, doi:10.1038/s41598-018-26948-7 (2018).

11 Clark, J. A., Farrell, W. E. & Peltier, W. R. Global changes in postglacial sea level: A numerical calculation. *Quaternary Research* **9**, 265-287, doi:http://dx.doi.org/10.1016/0033-5894(78)90033-9 (1978).

12 Gibeault, C., Neumeier, U. & Bernatchez, P. Spatial and Temporal Sediment Dynamics in a Subarctic Salt Marsh (Gulf of St. Lawrence, Canada). *Journal of coastal research* **32**, 1344-1361 (2016).

13 Drake, K., Halifax, H., Adamowicz, S. C. & Craft, C. Carbon Sequestration in Tidal Salt Marshes of the Northeast United States. *Environmental management*, 1-11 (2015).

14 Goslin, J., Sansjofre, P., Van Vliet-Lanoe, B. & Delacourt, C. Carbon stable isotope (delta C-13) and elemental (TOC, TN) geochemistry in saltmarsh surface sediments (Western Brittany, France): a useful tool for reconstructing Holocene relative sea-level. *Journal of Quaternary Science* **32**, 989-1007, doi:10.1002/jqs.2971 (2017).

15 Hill, T. D. & Anisfeld, S. C. Coastal wetland response to sea level rise in Connecticut and New York. *Estuarine, Coastal and Shelf Science* (2015).

16 Johnson, B. J., Moore, K. A., Lehmann, C., Bohlen, C. & Brown, T. A. Middle to late Holocene fluctuations of C3 and C4 vegetation in a Northern New England Salt Marsh, Sprague Marsh, Phippsburg Maine. *Organic Geochemistry* **38**, 394-403 (2007).

17 Ward, L. G., Zaprowski, B. J., Trainer, K. D. & Davis, P. T. Stratigraphy, pollen history and geochronology of tidal marshes in a Gulf of Maine estuarine system: Climatic and relative sea level impacts. *Marine Geology* **256**, 1-17, doi:10.1016/j.margeo.2008.08.004 (2008).

18 Adams, C. A., Andrews, J. E. & Jickells, T. Nitrous oxide and methane fluxes vs. carbon, nitrogen and phosphorous burial in new intertidal and saltmarsh sediments.

Science of The Total Environment **434**, 240-251, doi:http://dx.doi.org/10.1016/j.scitotenv.2011.11.058 (2012).
19 Andrews, J. E., Samways, G. & Shimmield, G. B. Historical storage budgets of organic carbon, nutrient and contaminant elements in saltmarsh sediments: Biogeochemical context for managed realignment, Humber Estuary, UK. *Science of the Total Environment* **405**, 1-13, doi:10.1016/j.scitotenv.2008.07.044 (2008).
20 Artigas, F. *et al.* Long term carbon storage potential and CO2 sink strength of a restored salt marsh in New Jersey. *Agricultural and Forest Meteorology* **200**, 313-321, doi:10.1016/j.agrformet.2014.09.012 (2015).
21 Boyd, B. M. & Sommerfield, C. K. Marsh accretion and sediment accumulation in a managed tidal wetland complex of Delaware Bay. *Ecological Engineering* **92**, 37-46, doi:10.1016/j.ecoleng.2016.03.045 (2016).
22 Callaway, J. C., Borgnis, E. L., Turner, R. E. & Milan, C. S. Carbon Sequestration and Sediment Accretion in San Francisco Bay Tidal Wetlands. *Estuaries and coasts* **35**, 1163-1181 (2012).
23 Cochran, J., Hirschberg, D., Wang, J. & Dere, C. Atmospheric deposition of metals to coastal waters (Long Island Sound, New York USA): evidence from saltmarsh deposits. *Estuarine, Coastal and Shelf Science* **46**, 503-522 (1998).
24 Crooks, S. *et al.* Coastal blue carbon opportunity assessment for the Snohomish Estuary: The climate benefits of estuary restoration. *Report by Environmental Science Associates, Western Washington University, EarthCorps, and Restore America's Estuaries* (2014).
25 Elsey-Quirk, T., Seliskar, D. M., Sommerfield, C. K. & Gallagher, J. L. Salt marsh carbon pool distribution in a mid-atlantic lagoon, USA: sea level rise implications. *Wetlands* **31**, 87-99 (2011).
26 Hansen, K. *et al.* Factors influencing the organic carbon pools in tidal marsh soils of the Elbe estuary (Germany). *J. Soils Sediments* **17**, 47-60, doi:10.1007/s11368-016-1500-8 (2017).
27 Kearney, M. S. & Stevenson, J. C. Island land loss and marsh vertical accretion rate: Evidence for historical sea-level changes in Chesapeake Bay. *Journal of Coastal Research* **7**, 403-415 (1991).
28 Kemp, A. C. *et al.* Use of lead isotopes for developing chronologies in recent salt-marsh sediments. *Quaternary Geochronology* **12**, 40-49, doi:http://dx.doi.org/10.1016/j.quageo.2012.05.004 (2012).
29 Kolker, A. S., Goodbred Jr, S. L., Hameed, S. & Cochran, J. K. High-resolution records of the response of coastal wetland systems to long-term and short-term sea-level variability. *Estuarine, Coastal and Shelf Science* **84**, 493-508, doi:http://dx.doi.org/10.1016/j.ecss.2009.06.030 (2009).
30 Megonigal, J. P. *Unpublished data*.
31 Merrill, J. Tidal freshwater marshes as nutrient sinks: Particulate nutrient burial and denitrification. (2001).
32 Pastore, M. A., Megonigal, J. P. & Langley, J. A. Elevated CO2 and nitrogen addition accelerate net carbon gain in a brackish marsh. *Biogeochemistry* **133**, 73-87, doi:10.1007/s10533-017-0312-2 (2017).
33 Patrick, W. H. Subsidence. accretion. and sea level rise in south San Francisco Bay marshes. *Limnology and Oceanography* **35**, 1389-1395 (1990).
34 Schile-Beers, L. *Unpublished data*.
35 Theuerkauf, E. J., Stephens, J. D., Ridge, J. T., Fodrie, F. J. & Rodriguez, A. B. Carbon export from fringing saltmarsh shoreline erosion overwhelms carbon storage

across a critical width threshold. *Estuarine, Coastal and Shelf Science*, doi:10.1016/j.ecss.2015.08.001 (2015).
36 Van de Broek, M., Temmerman, S., Merckx, R. & Govers, G. Controls on soil organic carbon stocks in tidal marshes along an estuarine salinity gradient. *Biogeosciences* **13**, 6611-6624, doi:10.5194/bg-13-6611-2016 (2016).
37 Ward, L. G. & Kearney, M. S. Variations in sedimentary environments and accretionary patterns in estuarine marshes undergoing rapid submergence, Chesapeake Bay. *Marine Geology* **151**, 111-134 (1998).
38 Watson, E. B. & Byrne, R. Late Holocene Marsh Expansion in Southern San Francisco Bay, California. *Estuaries and coasts* **36**, 643-653 (2013).
39 Bianchi, T. S. *et al.* Historical reconstruction of mangrove expansion in the Gulf of Mexico: Linking climate change with carbon sequestration in coastal wetlands. *Estuarine, Coastal and Shelf Science* **119**, 7-16, doi:http://dx.doi.org/10.1016/j.ecss.2012.12.007 (2013).
40 Gerlach, M. J. *et al.* Reconstructing Common Era relative sea-level change on the Gulf Coast of Florida. *Marine Geology* **390**, 254-269, doi:https://doi.org/10.1016/j.margeo.2017.07.001 (2017).
41 Markewich, H. W. Carbon storage and late holocene chronostratigraphy of a Mississippi River deltaic marsh, St. Bernard Parish, Louisiana. Report No. 2331-1258, (US Geological Survey, 1998).
42 Piazza, S. C. *et al.* Geomorphic and ecological effects of Hurricanes Katrina and Rita on coastal Louisiana marsh communities. Report No. 2331-1258, (US Geological Survey, 2011).
43 Alexander, C., Hodgson, J. & Brandes, J. Sedimentary processes and products in a mesotidal salt marsh environment: insights from Groves Creek, Georgia. *Geo-Marine Letters* **37**, 345-359 (2017).
44 Leeper, R. *et al.* Evidence for coseismic subsidence events in a southern California coastal saltmarsh. *Scientific Reports* **7**, 11, doi:10.1038/srep44615 (2017).
45 Covelli, S., Petranich, E., Langone, L., Emili, A. & Acquavita, A. Historical sedimentary trends of mercury and other trace elements from two saltmarshes of the Marano and Grado lagoon (northern Adriatic Sea). *J. Soils Sediments* **17**, 1972-1985, doi:10.1007/s11368-016-1618-8 (2017).
46 Watson, E. B. & Corona, A. H. Assessment of Blue Carbon Storage by Baja California (Mexico) Tidal Wetlands and Evidence for Wetland Stability in the Face of Anthropogenic and Climatic Impacts. *Sensors* **18**, 17, doi:10.3390/s18010032 (2018).
47 Bai, J. *et al.* Spatial and temporal distributions of soil organic carbon and total nitrogen in two marsh wetlands with different flooding frequencies of the Yellow River Delta, China. *CLEAN–Soil, Air, Water* **40**, 1137-1144 (2012).
48 Bezuidenhout, C. *Macrophytes as indicators of physico-chemical factors in South African estuaries* PhD thesis, Nelson Mandela Metropolitan University, (2011).
49 Bornman, T. G. & Adams, J. B. Response of a hypersaline salt marsh to a large flood and rainfall event along the west coast of southern Africa. *Estuarine, Coastal and Shelf Science* **87**, 378-386, doi:10.1016/j.ecss.2010.01.024 (2010).
50 Bu, N.-S. *et al.* Reclamation of coastal salt marshes promoted carbon loss from previously-sequestered soil carbon pool. *Ecological Engineering* **81**, 335-339, doi:http://dx.doi.org/10.1016/j.ecoleng.2015.04.051 (2015).
51 Cao, L. *Carbon deposition and burial in typical coastal wetlands of the northern Shandong peninsula (in Chinese)* PhD thesis, University of Chinese Academy of Sciences, (2014).

52 Cheng, X. *et al.* Short-term C 4 plant Spartina alterniflora invasions change the soil carbon in C 3 plant-dominated tidal wetlands on a growing estuarine Island. *Soil Biology and Biochemistry* **38**, 3380-3386 (2006).
53 Cui, B., Yang, Q., Yang, Z. & Zhang, K. Evaluating the ecological performance of wetland restoration in the Yellow River Delta, China. *Ecological Engineering* **35**, 1090-1103 (2009).
54 Feng, J. *et al.* Effects of short-term invasion of Spartina alterniflora and the subsequent restoration of native mangroves on the soil organic carbon, nitrogen and phosphorus stock. *Chemosphere* **184**, 774-783 (2017).
55 Gao, J. H. *et al.* The effect of biomass variations of Spartina alterniflora on the organic carbon content and composition of a salt marsh in northern Jiangsu Province, China. *Ecological Engineering* **95**, 160-170 (2016).
56 Liao, C. *et al.* Invasion of Spartina alterniflora enhanced ecosystem carbon and nitrogen stocks in the Yangtze Estuary, China. *Ecosystems* **10**, 1351-1361 (2007).
57 Liu, J.-e. *et al.* Effects of exotic Spartina alterniflora on vertical soil organic carbon distribution and storage amount in coastal salt marshes in Jiangsu, China. *Ecological Engineering* **106**, 132-139 (2017).
58 Luo, X., ShanShan, Z. & Dun, M. Spatial Distribution and Seasonal Dynamics Characteristics of Carbon, Nitrogen and Phosphorus in the Liaohe Estuary Wetlands. *Periodical of Ocean University Of China (in Chinese)* **40**, 97-104 (2010).
59 Mo, X., Gong-fu, Y. E., You, S. & et al. Soil microbial biomass and their relationships with soil nutrients in different vegetation restoration patterns on degraded coastal sand. *Journal of Fujian College of Forestry (in Chinese)* **33**, 146-150 (2013).
60 Schile, L. M. *et al.* Limits on carbon sequestration in arid blue carbon ecosystems. *Ecological Applications* **27**, 859-874, doi:10.1002/eap.1489 (2017).
61 Wang, D. *Relationship Between Soil Carbon and Plant Communities In The Yellow River Delta (in Chinese)* Masters thesis, Liaocheng University, (2017).
62 Wang, Y., Wang, Z.-L., Feng, X., Guo, C. & Chen, Q. Long-term effect of agricultural reclamation on soil chemical properties of a coastal saline marsh in Bohai Rim, Northern China. *PloS one* **9**, e93727 (2014).
63 Wang, W. *et al.* Flood regime affects soil stoichiometry and the distribution of the invasive plants in subtropical estuarine wetlands in China. *Catena* **128**, 144-154 (2015).
64 Wooldridge, T. H., Adams, J. B. & Fernandes, M. Biotic responses to extreme hypersalinity in an arid zone estuary, South Africa. *South African Journal of Botany* **107**, 160-169, doi:10.1016/j.sajb.2016.05.004 (2016).
65 Xu, Y. *et al.* Geochemical analysis of sediments from a semi-enclosed bay (Dongshan Bay, southeast China) to determine the anthropogenic impact and source. *Chemosphere* **174**, 764-773 (2017).
66 Yang, L. *Responses of stoichiometric characteristic of carbon, nitrogen and phosphorus of wetland soil in Yanghe estuary (in Chinese)* Masters thesis, Qingdao University, (2017).
67 Yang, T., Ren, H., Zhang, Z.-k. & et al. Distribution and Influence factors of soil organic carbon of different land-use types in the Jiangsu coastal areas. *Journal of Subtropical Resources and Environment (in Chinese)* **11**, 46-52 (2016).
68 Yu, J. *et al.* The spatial distribution characteristics of soil nutrients in new-born coastal wetland in Yellow River delta. *Acta Sci. Circum* **30**, 855-861 (2010).
69 Zhang, Y. *et al.* A multi-proxy study of sedimentary humic substances in the salt marsh of the Changjiang Estuary, China. *Estuarine, Coastal and Shelf Science* (2014).

70 Zi, Y.-y., Xi, M., Kong, F.-l., Li, Y. & Yang, L. Temporal and spatial distribution of soft organic carbon and its storage in the coastal wetlands of Jiaozhou Bay, China. *Chinese Journal of Applied Ecology (in Chinese)* **7**, 005 (2016).
71 Duke, N. C. *et al.* Large-scale dieback of mangroves in Australia's Gulf of Carpentaria: a severe ecosystem response, coincidental with an unusually extreme weather event. *Marine and Freshwater Research*, -, doi:https://doi.org/10.1071/MF16322 (2017).
72 Hayes, M. A. *et al.* Dynamics of sediment carbon stocks across intertidal wetland habitats of Moreton Bay, Australia. *Global Change Biology* **23**, 4222-4234, doi:10.1111/gcb.13722 (2017).
73 Hicks, W. S., Bowman, G. & Fitzpatrick, R. *East Trinity Acid Sulfate Soils: Part 1: Environmental Hazards*. Vol. 31 (CSIRO Land and Water Adelaide, 1999).
74 Hill, J. & Edmeades, B. Acid sulfate soils of the Darwin region. Technical Report No. 092008D., (Department of Natural Resources, Environment the Arts and Sport, Northern Territory, 2008).
75 Kelleway, J. J., Saintilan, N., Macreadie, P. I. & Ralph, P. J. Sedimentary factors are key predictors of carbon storage in SE Australian saltmarshes. *Ecosystems* **19**, 865-880 (2016).
76 Kennedy, D. M. *et al.* Invasive cordgrass (Spartina spp.) in south-eastern Australia induces island formation, salt marsh development, and carbon storage. *Geographical Research* **56**, 80-91, doi:10.1111/1745-5871.12265 (2018).
77 Livesley, S. J. & Andrusiak, S. M. Temperate mangrove and salt marsh sediments are a small methane and nitrous oxide source but important carbon store. *Estuarine, Coastal and Shelf Science* **97**, 19-27 (2012).
78 Macreadie, P. I. *et al.* Carbon sequestration by Australian tidal marshes. *Scientific reports* **7**, 44071 (2017).
79 Saintilan, N., Rogers, K., Mazumder, D. & Woodroffe, C. Allochthonous and autochthonous contributions to carbon accumulation and carbon store in southeastern Australian coastal wetlands. *Estuarine, Coastal and Shelf Science* **128**, 84-92, doi:http://dx.doi.org/10.1016/j.ecss.2013.05.010 (2013).
80 Vromans, D. *Macrophyte phenology in a temporarily open/closed estuary compared with a permanently open estuary* Masters thesis, Nelson Mandela Metropolitan University, (2010).
81 Yau, C. C., Wong, V. N. L. & Kennedy, D. M. Soil chemistry and acidification risk of acid sulfate soils on a temperate estuarine floodplain in southern Australia. *Soil Research* **54**, 787-796, doi:10.1071/sr15174 (2016).