

Table S1: GPS coordinates of the sample locations

	Low marsh	High marsh
Freshwater marsh	51° 7' 3.12" N 4° 16' 5.42" E	51° 7' 5.78" N 4° 16' 17.75" E
Brackish marsh	51° 24' 10.71" N 4° 6' 22.18" E	51° 24' 17.47" N 4° 6' 22.46" E
Saltmarsh	51° 21' 0.08" N 3° 43' 14.81" E	51° 20' 59.15" N 3° 43' 10.60" E

Table S2: Average values (\pm standard deviation) for aboveground, belowground (maximum root depth is given in brackets (m)) and total biomass, biomass production, organic carbon and nitrogen concentration (%), C:N ratio as well as the $\delta^{13}\text{C}$ signal (‰) for vegetation at the study sites.

	Vegetation type		Biomass (g DW m ⁻²)	Annual biomass production (g DW m ⁻² yr ⁻¹) ^A	Organic carbon %	Nitrogen %	C:N	$\delta^{13}\text{C}$ (‰)
Freshwater low	<i>P. australis</i>	Above-ground	2775 \pm 858	2775 \pm 858	45.7 \pm 0.5	1.12 \pm 0.03	47.5 \pm 2.0	-26.3 \pm 0.2
		Litter	-	-	45.2 \pm 0.8	1.00 \pm 0.10	53.3 \pm 7.6	-26.6 \pm 0.2
		Below-ground	6400 \pm 1943 (0.8m)	4352 \pm 1321	42.1 \pm 1.0	0.83 \pm 0.11	61.3 \pm 9.6	-26.2 \pm 0.2
		Total	9175 \pm 2124					
Freshwater high	<i>Salix</i> (leaves) <i>U. dioica</i>	Above-ground	215 \pm 72	215 \pm 72	42.9 \pm 1.6	1.60 \pm 0.02	31.9 \pm 1.2	-30.5 \pm 0.5
		Above-ground	202 \pm 146	202 \pm 146	43.1 \pm 0.6	1.25 \pm 0.03	40.7 \pm 1.8	-29.6 \pm 0.3
		Below-ground	160 \pm 92 (0.35m)	34 \pm 19	42.1 \pm 0.7	1.33 \pm 0.01	36.8 \pm 0.2	-29.8 \pm 0.1
		Total	577 \pm 187					
Brackish water low	<i>E. athericus</i>	Above-ground	2331 \pm 560	3754 \pm 902	45.0 \pm 0.4	0.96 \pm 0.03	54.6 \pm 2.6	-26.9 \pm 0.3
		Below-ground	25 \pm 8 (0.40m)	88 \pm 28	34.4 \pm 4.0	0.55 \pm 0.03	73.1 \pm 7.8	-28.3 \pm 0.4
		Total	2356 \pm 560					
Brackish water high	<i>E. athericus</i>	Above-ground	1746 \pm 295	2811 \pm 475	44.4 \pm 0.7	0.96 \pm 0.06	54.4 \pm 2.1	-27.0 \pm 0.3
		Below-ground	43 \pm 14 (0.20m)	151 \pm 49	35.2 \pm 3.5	0.58 \pm 0.04	68.5 \pm 10.8	-27.9 \pm 0.4
		Total	1789 \pm 295					
Saltwater low	<i>S. anglica</i>	Above-ground	680 \pm 163	1333 \pm 319	39.5 \pm 0.8	1.56 \pm 0.10	29.6 \pm 2.7	-14.0 \pm 0.02
		Below-ground	1728 \pm 399 (0.45m)	2177 \pm 503	40.4 \pm 1.7	1.19 \pm 0.12	40.0 \pm 4.8	-13.5 \pm 0.3
		Total	2408 \pm 431					
Saltwater high	Mixed vegetation ^B	Above-ground	1214 \pm 331	1748 \pm 477	40.3 \pm 0.3	1.75 \pm 0.04	26.9 \pm 0.9	-24.7 \pm 0.3
		Below-ground	11 \pm 5 (0.45m)	22 \pm 10	36.8 \pm 1.9	1.67 \pm 0.07	25.7 \pm 0.9	-27.4 \pm 0.2
		Total	1225 \pm 331					

Notes: ^ATurnover rates are presented in table S3, ^B*Atriplex portulacoides*, *Limonium vulgare*, *Triglochin maritima*, *Elymus athericus*, *Puccinellia maritima*

Table S3: Turnover rates for above- and belowground biomass at the study sites. Vegetation type is given in table S2.

Aboveground biomass

Site	Turnover rate (yr ⁻¹)	Reference	Remark
Freshwater low	1	Soetaert <i>et al.</i> (2004)	-
Freshwater high	1	-	As only fallen vegetation is sampled the turnover rate is assumed to be 1 /yr
Brackish water low and high	1.61	Groenendijk (1984)	Marsh near Krabbendijke (Eastern Scheldt), calculated based on the paired-plot data
		Wolff <i>et al.</i> (1979)	Marsh near Stroodorpepolder (Eastern Scheldt), based on max biomass and biomass production
Saltwater low	1.96	Gray & Benham (1990)	Tidal marsh in the UK, based on primary production
		Groenendijk (1984)	Marsh near Krabbendijke (Eastern Scheldt), calculated based on the paired-plot data
Saltwater high	1.44	Groenendijk (1984)	<i>Triglochin maritima</i> , marsh near Krabbendijke (Eastern Scheldt), calculated based on the single-plot data
		Wolff <i>et al.</i> (1979)	<i>Elymus athericus</i> , marsh near Stroodorpepolder (Eastern Scheldt), based on max biomass and biomass production

Belowground biomass

Site	Turnover rate (yr ⁻¹)	Reference	Remark
Freshwater low	0.68	Soetaert <i>et al.</i> , 2004)	Average value for roots and rhizomes
Freshwater high	0.21	Gill & Jackson (2000)	<i>Salix bebbiana</i> (Canada); <i>Salix spp.</i> (Alaska)
Brackish water low and high	3.5	Bouma <i>et al.</i> (2002)	Based on root ingrowth cores, marsh near Waarde (Western Scheldt)
Saltwater low	1.26	Bouma <i>et al.</i> (2002)	Based on root ingrowth cores, marsh near Waarde (Western Scheldt)
		Gray & Benham (1990)	Tidal marsh in the UK, based on primary production
Saltwater high	1.99	Bouma <i>et al.</i> (2002)	<i>E. athericus</i> , based on root ingrowth cores, marsh near Waarde (Western Scheldt)
		Groenendijk & Vink-Lievaart (1987)	<i>Triglochin maritima</i> , average for 0-60 cm depth, Eastern Scheldt, based on biomass production / max. biomass

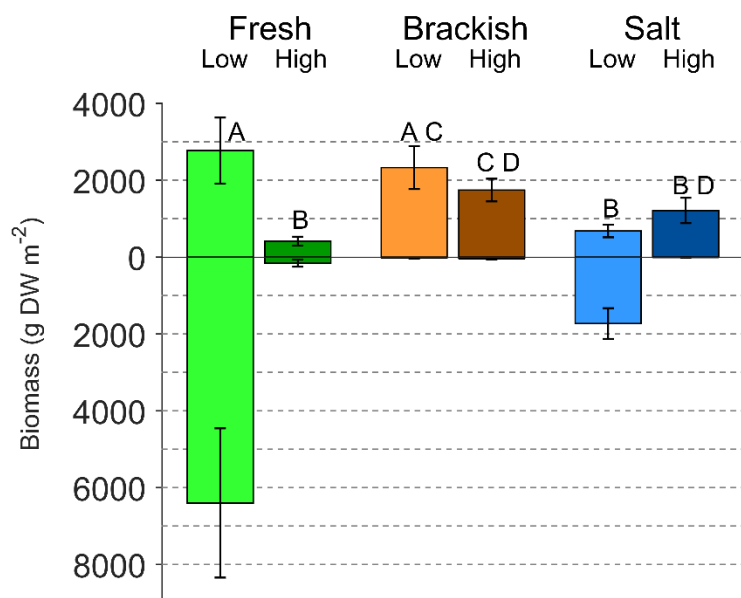


Figure S1: Total above- and belowground biomass for the study sites (g dry weight m⁻²), with upward pointing bars representing aboveground biomass and downward pointing bars representing belowground biomass (data is provided in table S2). Standard deviations for aboveground biomass are calculated based on 5 replicates, for root biomass on 3 replicates. Sample locations that do not share a letter have significantly ($p < 0.05$) different aboveground biomass.

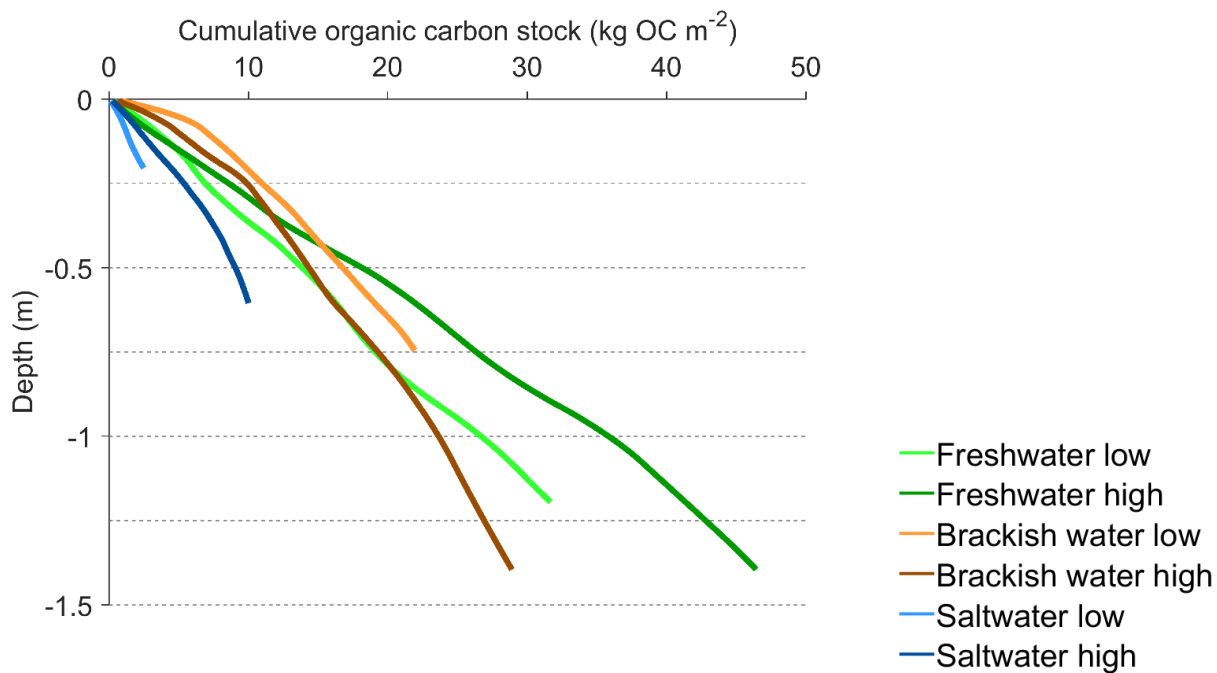


Figure S2: Depth profiles of the cumulative organic carbon stock for depth intervals of 0.01m. No standard deviations are shown to improve readability.

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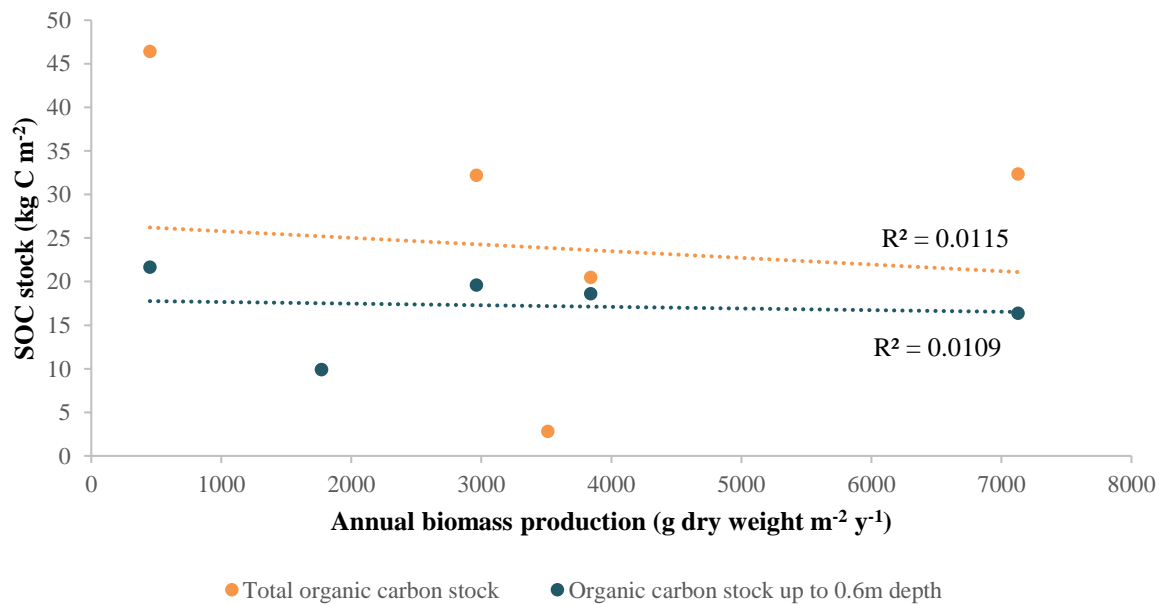


Figure S3: Relationship between the total annual biomass production (above- and belowground) and soil organic carbon stocks, for both total stocks and stocks down to 0.6m depth.

References

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