Supplementary Figures

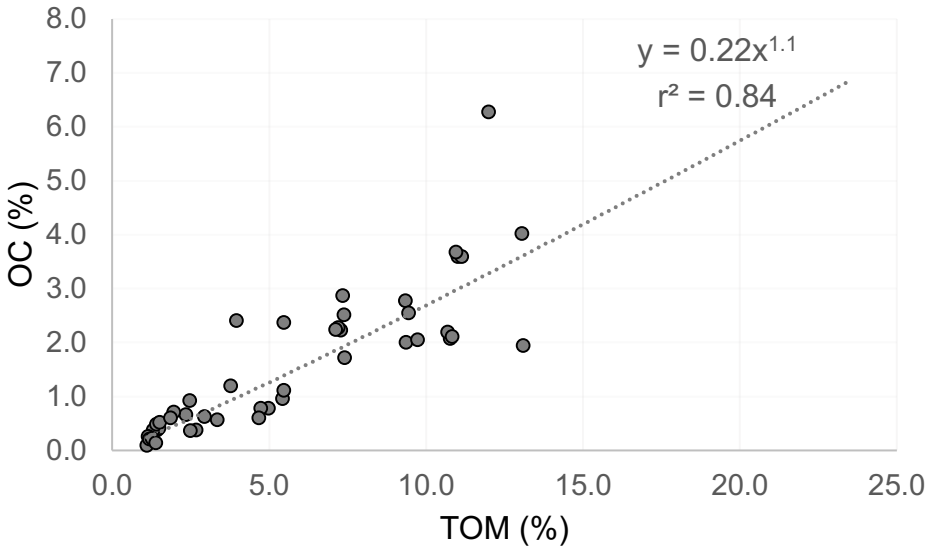

Figure S1: Total organic carbon (OC) was estimated using a power model developed between measured total organic material (TOM, %) and measured total OC (%) in a subset of samples. A power model was selected over a linear model for these data to avoid negative estimates of carbon stocks at low levels of TOM.

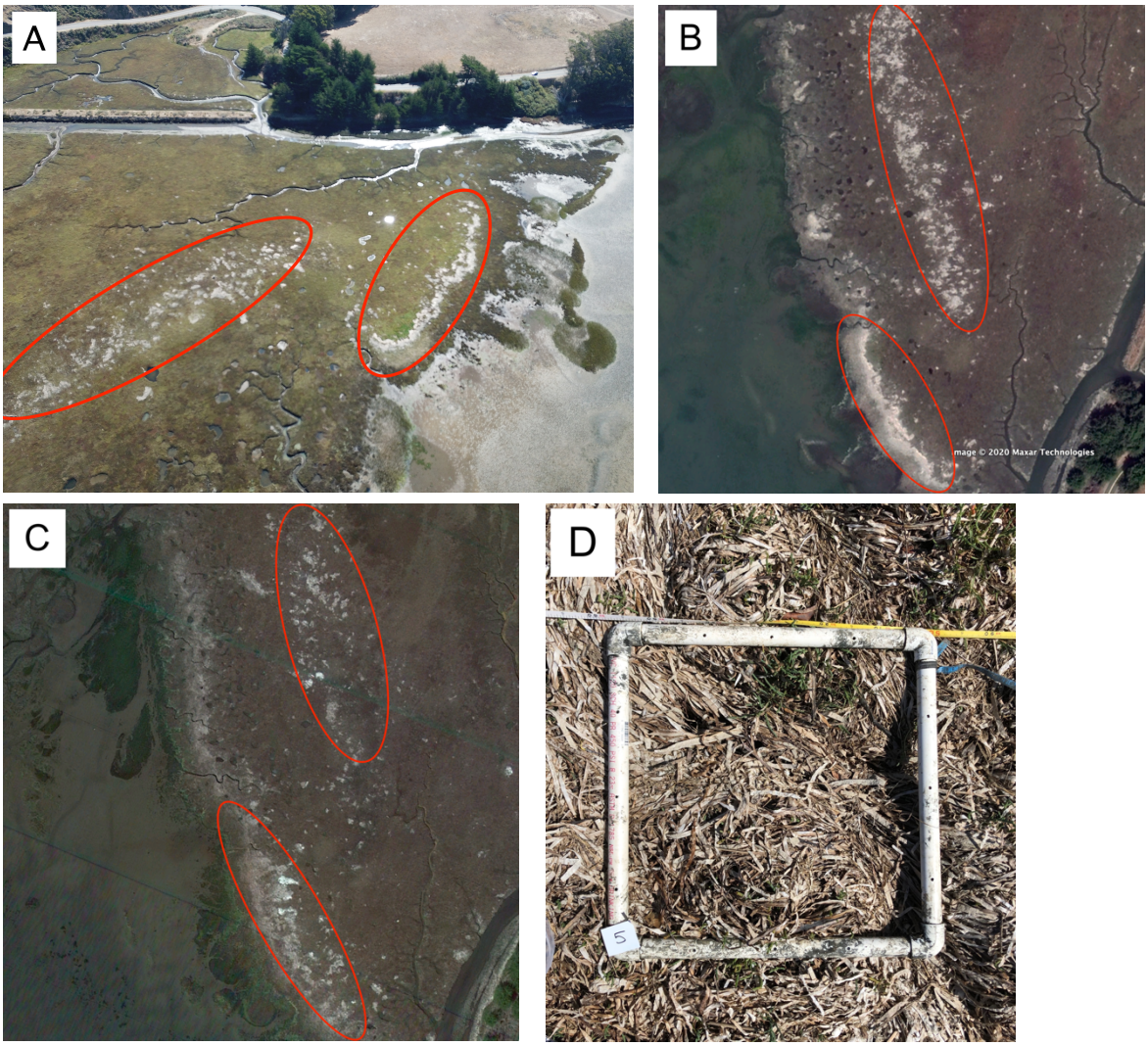

Figure S2: UAV (drone) image collected in October 2019 immediately prior to sediment core collection (A). Historic seagrass wrack lines can be observed in similar locations using satellite imagery, as shown here by the image taken on September 9th, 2018 and October 24th, 2009 (B and C, respectively; © Google Earth, 2020). Seagrass wrack lines are circled in red. Wrack biomass was measured from quadrats along a transect running through the southern wrack line (D).

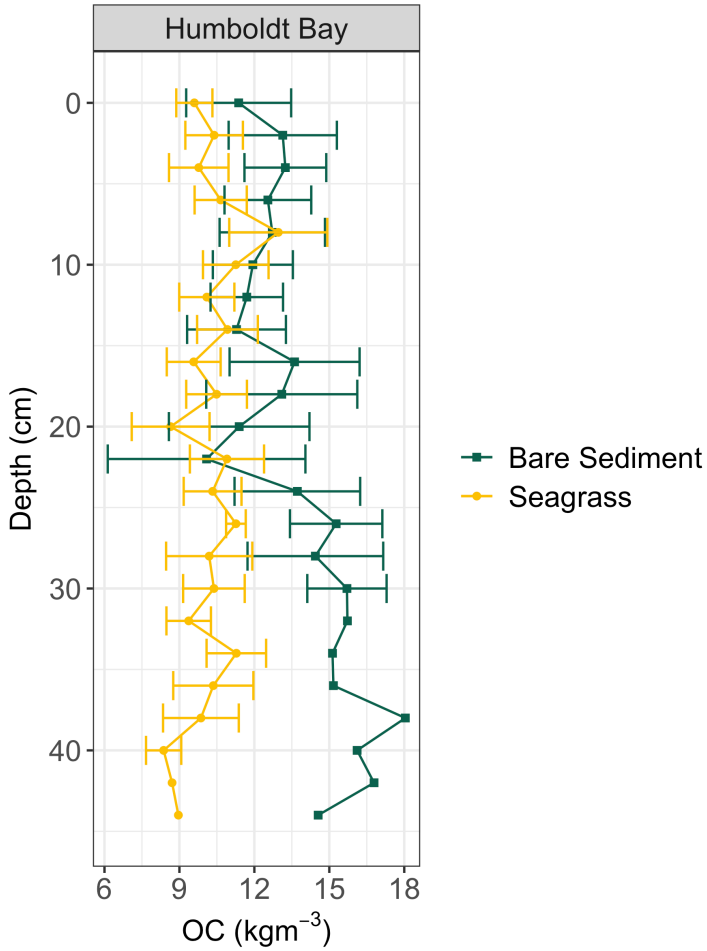

Figure S3: Average organic carbon (kg m^{-3}) in each core depth interval for seagrass meadows and bare sediments in Humboldt Bay. These cores were sampled to 45 centimeters.

Supplementary Tables

Site	Habitat Type	N (cores)	Bulk Density (g/cm3)	Mud (%)	OC (%)	OC (k/gm3)
Bodega Bay	Bare Sediment	3	2.5 ± 0.039	13 ± 0.44	0.3 ± 0.011	7.7 ± 0.22
Bodega Bay	Seagrass	15	1.3 ± 0.18	18 ± 2.5	1 ± 0.28	11 ± 2.7
Elkhorn Slough	Pan	3	0.55 ± 0.027	95 ± 1.4	5 ± 0.8	23 ± 2.2
Elkhorn Slough	Salt Marsh	11	0.66 ± 0.095	93 ± 1.8	4.6 ± 0.56	26 ± 2
Humboldt Bay	Bare Sediment	3	1.4 ± 0.22	NA	0.91 ± 0.16	12 ± 1.9
Humboldt Bay	Seagrass	4	1.7 ± 0.38	NA	0.7 ± 0.14	11 ± 1.1
Newport Bay	Salt Marsh	4	0.85 ± 0.21	76 ± 17	3.7 ± 1.1	17 ± 3.3
Newport Bay	Seagrass	4	0.66 ± 0.074	98 ± 0.59	2.3 ± 0.24	15 ± 0.57
Mission Bay	Bare Sediment	2	0.78 ± 0.12	NA	1.6 ± 0.21	13 ± 3.6
Mission Bay	Seagrass	3	0.6 ± 0.012	NA	1.6 ± 0.26	9.1 ± 1.3
Tomales Bay	Bare Sediment	9	1.4 ± 0.32	66 ± 15	1.6 ± 0.37	14 ± 2.7
Tomales Bay	Salt Marsh	6	0.62 ± 0.088	91 ± 1.9	5.2 ± 0.53	28 ± 4.1
Tomales Bay	Seagrass	15	1.5 ± 0.15	35 ± 9	0.86 ± 0.17	11 ± 1.8

Table S1: Summary of sediment cores collected from each habitat type at each of the six sites. The displayed summary data are the mean values across all cores (± SE).

Site	Source	Mean (%)	95% CI (low)	95% CI (high)
Walker Salt Marsh	Benthic Diatoms	45.5	31.5	58.9
Walker Salt Marsh	C3 Plants	48.7	36.2	61.6
Walker Salt Marsh	C4 Plants	3.2	0.0	7.7
Walker Salt Marsh	Seagrass	2.6	0.0	6.1
Elkhorn Slough	Benthic Diatoms	42.3	35.1	49.6
Elkhorn Slough	C3 Plants	47.2	39.7	54.4
Elkhorn Slough	C4 Plants	5.8	0.0	12.2
Elkhorn Slough	Seagrass	4.7	0.0	9.5

Under wrack?	Source	Mean (%)	95% CI (low)	95% CI (high)
Yes	Benthic Diatoms	34.5	14.1	54.4
Yes	C3 Plants	57.2	39.7	74.5
Yes	C4 Plants	4.8	0.0	11.4
Yes	Seagrass	3.5	0.0	8.4
No	Benthic Diatoms	42.6	34.7	50.7
No	C3 Plants	43.5	35.1	51.6
No	C4 Plants	7.1	0.0	15.2
No	Seagrass	6.8	0.0	12.9

Shallow Vs. Deep	Source	Mean (%)	95% CI (low)	95% CI (high)
Surface	Benthic Diatoms	43.6	33.7	54.1
Surface	C3 Plants	41.2	30.5	51.8
Surface	C4 Plants	7.9	0.0	17.3
Surface	Seagrass	7.3	0.0	14.3
Deep	Benthic Diatoms	41.1	29.6	52.9
Deep	C3 Plants	44.9	33.1	56.2
Deep	C4 Plants	7.7	0.0	16.9
Deep	Seagrass	6.2	0.0	13.0

Table S2: Bayesian mixing model results display the mean (%) contribution of each source (± 95% CI). These results are presented for salt marsh sediments in two sites – Walker salt marsh and Elkhorn salt marsh (Elkhorn Slough) (top panel); for salt marsh sediments in Walker salt marsh under persistent seagrass wrack lines versus not under persistent wrack lines (middle panel); and in shallow versus deep sediments found under wrack in Walker salt marsh.