

Table 1. 3AS3 soil characteristics averaged by community and depth including concentrations of total nitrogen (TN), total carbon (TC), calcium, ash, bulk density (Db), total phosphorus expressed as mass per unit volume and the mass ratio of Ca to HCl-P. All parameters varied significantly across community types with HH soils have lower TN (F=6.99, p<0.0001) and TC (F=5.71, p<0.0001) and higher Ca (F=4.47, p<0.0001), ash (F=4.95, p<0.0001), bulk density (F=7.08, p<0.0001), and TP (F=3.22, p=0.0013).

Community	Depth (cm)	n	TN (mg g ⁻¹)	TC (mg g ⁻¹)	Ca (mg g ⁻¹)	Ash (%)	Db (g cm ⁻³)	TP (ug cm ⁻³)	mass Ca/mass HCl-P
High Head	0-10	3	15.13 ± 4.58	306.94 ± 84.44	147.89 ± 62.38	45.77 ± 18.33	0.22 ± 0.06	4162.01 ± 2674.92	13.22
	10-20	3	13.01 ± 6.58	253.89 ± 90.01	175.67 ± 76.32	56.57 ± 23.46	0.38 ± 0.14	9315.74 ± 6444.01	19.59
	20-30	3	8.91 ± 6.03	197.39 ± 68.39	224.89 ± 69.09	72.72 ± 17.61	0.48 ± 0.15	12252.27 ± 8262.01	29.96
Wet head	0-10	5	27.97 ± 1.30	480.20 ± 11.80	25.00 ± 1.82	9.45 ± 0.37	0.09 ± 0.01	58.25 ± 2.84	1116.07
	10-20	5	28.64 ± 1.08	441.40 ± 11.87	35.20 ± 7.20	14.24 ± 2.05	0.13 ± 0.01	101.17 ± 29.92	313.73
	20-30	5	29.02 ± 4.36	392.60 ± 40.00	67.00 ± 33.27	27.04 ± 9.75	0.17 ± 0.02	140.53 ± 48.77	541.20
Near tail	0-10	8	27.04 ± 0.74	465.67 ± 2.07	26.75 ± 0.96	9.78 ± 0.28	0.08 ± 0.01	50.21 ± 5.69	1239.38
	10-20	8	30.96 ± 1.03	442.17 ± 9.12	32.42 ± 3.16	14.39 ± 1.47	0.11 ± 0.01	79.88 ± 18.70	707.92
	20-30	8	28.84 ± 2.90	397.69 ± 29.92	70.23 ± 24.30	25.80 ± 7.19	0.13 ± 0.02	85.50 ± 22.77	1068.46
Far tail	0-10	3	26.88 ± 0.49	471.78 ± 3.08	24.94 ± 0.75	9.17 ± 0.41	0.06 ± 0.01	35.62 ± 2.86	1275.57
	10-20	3	30.83 ± 0.50	466.00 ± 3.61	30.28 ± 2.42	11.18 ± 1.23	0.09 ± 0.01	43.06 ± 5.81	1103.24
	20-30	3	30.39 ± 0.72	458.72 ± 5.75	36.67 ± 2.96	12.89 ± 0.71	0.09 ± 0.01	34.90 ± 6.88	1952.66
Marsh	0-10	2	41.52 ± 0.02	479.17 ± 3.17	20.08 ± 0.92	9.33 ± 1.27	0.07 ± 0.01	24.29 ± 2.21	934.11
	10-20	2	40.92 ± 1.12	472.17 ± 21.17	19.00 ± 1.00	11.67 ± 3.23	0.07 ± 0.01	19.60 ± 2.24	1676.47
	20-30	2	37.98 ± 0.68	478.67 ± 17.67	20.75 ± 0.75	14.37 ± 3.83	0.07 ± 0.01	13.73 ± 0.44	1111.61

Table 2. A. Additional general and inorganic analytes of surface and subsurface sampling locations in four tree island plant communities and adjacent deep-water slough averaged over the four sampling periods with standard error.

Community type	depth (m)	TEMP (°C)	DO (mg L ⁻¹)	NH ₄ (μmol L ⁻¹)	SRP (μmol L ⁻¹)	NO ₂ + NO ₃ (μmol L ⁻¹)
HEAD (N)	0.2-0.3	23.4 ± 1.7	1.72 ± 1.28	109.9 ± 37.2	0.14 ± 0.03	0.12 ± 0.07
	0.5-0.6	23.2 ± 1.6	2.11 ± 1.82	93.5 ± 32.9	0.09 ± 0.03	1.81 ± 1.73
HIGH HEAD	0.2-0.3	26.0 n/a	2.29 n/a	1.3 n/a	9.28 n/a	0.27 n/a
	0.5-0.6	22.2 ± 1.5	0.65 ± 0.31	62.2 ± 5.7	8.11 ± 0.98	0.14 ± 0.02
2	24.0 ± 1.0	4.95 ± 2.74	99.3 ± 5.6	0.16 ± 0.03	1.72 ± 1.62	
	8	24.0 ± 0.3	1.64 ± 1.10	112.8 ± 6.1	0.05 ± 0.02	0.51 ± 0.45
	0.2-0.3	22.9 ± 1.9	1.38 ± 0.90	192.2 ± 27.2	18.07 ± 6.60	0.94 ± 0.36
WET HEAD	0.5-0.6	23.2 ± 1.6	4.85 ± 2.36	546.6 ± 50.1	7.14 ± 4.65	0.87 ± 0.45
	0.2-0.3	22.6 ± 2.1	1.71 ± 1.20	4.8 ± 1.9	0.92 ± 0.47	0.59 ± 0.06
NEAR TAIL	0.5-0.6	23.5 ± 2.1	2.40 ± 0.73	4.5 ± 1.3	0.31 ± 0.13	2.50 ± 1.86
	0	24.8 ± 2.6	3.34 ± 1.49	0.5 ± 0.2	0.10 ± 0.05	0.13 ± 0.05
FAR TAIL	0.1-0.3	22.3 ± 2.6	1.34 ± 0.51	94.7 ± 34.4	0.22 ± 0.12	7.51 ± 7.04
	0.4-0.5	23.6 ± 2.1	1.86 ± 0.27	190.9 ± 45.8	0.22 ± 0.14	1.81 ± 0.80
	2	23.7 ± 0.5	1.09 ± 0.41	137.7 ± 6.1	0.11 ± 0.02	0.30 ± 0.10
MARSH	8	23.6 ± 0.1	0.83 ± 0.55	125.2 ± 4.8	0.08 ± 0.01	0.21 ± 0.09
	0	23.8 ± 2.6	5.08 ± 0.66	2.3 ± 1.3	0.07 ± 0.03	0.23 ± 0.07
	0.1-0.3	22.9 ± 2.5	2.17 ± 0.87	1.0 ± 0.3	0.06 ± 0.02	0.88 ± 0.16
0.4-0.5	23.2 ± 2.2	2.26 ± 0.38	1.1 ± 0.2	0.05 ± 0.02	0.69 ± 0.09	
	2	24.2 ± 0.6	0.72 ± 0.30	115.6 ± 9.4	0.06 ± 0.01	0.10 ± 0.02
	8	24.3 ± 0.2	0.69 ± 0.33	124.4 ± 18.0	0.06 ± 0.01	0.06 ± 0.02

Table 2. B. Ion analytes of surface and subsurface sampling locations in four tree island plant communities and adjacent deep-water slough averaged over the four sampling periods with standard error.

Community type	depth (m)	Ca (meq L ⁻¹)	Cl (meq L ⁻¹)	Alkalinity (as CaCO ₃) (mg L ⁻¹)	Mg (meq L ⁻¹)	K (meq L ⁻¹)	Na (meq L ⁻¹)	SO ₄ (meq L ⁻¹)	Sp. Cond. (μmhos cm ⁻¹)	TDS (mg L ⁻¹)	ion balance (%)
HEAD (N)	0.2-0.3	6.21 ± 0.53	1.38 ± 0.18	341 ± 24	0.48 ± 0.07	0.03 ± 0.00	1.70 ± 0.15	0.01 ± 0.02	826 ± 55	470 ± 37	1.24 ± 0.37
	0.5-0.6	5.66 ± 0.30	1.11 ± 0.10	341 ± 10	0.48 ± 0.06	0.03 ± 0.00	1.89 ± 0.24	0.03 ± 0.03	785 ± 21	454 ± 22	0.66 ± 0.48
HIGH HEAD	0.2-0.3	6.46 ± n/a	13.8 ± n/a	754 ± n/a	4.26 ± n/a	0.02 ± n/a	20.9 ± n/a	1.26 ± n/a	3030 ± n/a	1748 ± n/a	2.40 ± n/a
	0.5-0.6	4.68 ± 0.44	4.44 ± 0.43	599 ± 31	3.23 ± 0.21	0.03 ± 0.00	9.27 ± 0.97	0.72 ± 0.26	1611 ± 36	972 ± 27	0.27 ± 0.38
	2	5.66 ± 0.28	2.90 ± 0.26	296 ± 7	0.45 ± 0.03	0.04 ± 0.00	2.66 ± 0.10	0.05 ± 0.01	874 ± 51	571 ± 50	-0.29 ± 0.82
WET HEAD	8	7.11 ± 0.02	1.80 ± 0.04	371 ± 4	0.59 ± 0.01	0.03 ± 0.00	1.63 ± 0.02	0.00 ± 0.00	901 ± 5	554 ± 22	0.80 ± 0.33
	0.2-0.3	4.65 ± 0.34	1.19 ± 0.07	297 ± 27	0.66 ± 0.06	0.04 ± 0.01	2.28 ± 0.67	0.01 ± 0.01	718 ± 50	469 ± 38	3.42 ± 0.58
	0.5-0.6	8.05 ± 0.34	1.35 ± 0.06	493 ± 5	0.83 ± 0.02	0.04 ± 0.00	2.53 ± 0.37	0.01 ± 0.01	1031 ± 17	695 ± 22	0.99 ± 0.48
NEAR TAIL	0.2-0.3	6.30 ± 0.33	1.28 ± 0.10	398 ± 34	0.75 ± 0.03	0.01 ± 0.00	2.80 ± 0.99	0.03 ± 0.04	933 ± 61	579 ± 64	3.11 ± 0.71
	0.5-0.6	8.65 ± 0.58	1.86 ± 0.11	726 ± 43	0.84 ± 0.06	0.02 ± 0.01	7.62 ± 1.35	0.10 ± 0.09	1525 ± 59	1021 ± 74	2.01 ± 0.58
FAR TAIL	0	2.58 ± 0.06	0.71 ± 0.10	140 ± 4	0.30 ± 0.03	0.04 ± 0.01	0.72 ± 0.10	0.00 ± 0.00	353 ± 23	234 ± 22	1.86 ± 0.36
	0.1-0.3	4.65 ± 1.23	0.91 ± 0.03	219 ± 47	0.40 ± 0.05	0.01 ± 0.01	0.93 ± 0.03	0.00 ± 0.00	471 ± 13	359 ± 64	5.15 ± 1.74
	0.4-0.5	7.18 ± 1.43	1.09 ± 0.19	343 ± 67	0.49 ± 0.07	0.01 ± 0.00	1.06 ± 0.12	0.00 ± 0.00	779 ± 129	547 ± 97	4.80 ± 0.31
MARSH	2	10.1 ± 0.17	1.24 ± 0.01	544 ± 16	1.03 ± 0.01	0.06 ± 0.00	1.59 ± 0.01	0.00 ± 0.00	1109 ± 13	793 ± 6	2.92 ± 0.70
	8	11.1 ± 0.07	1.31 ± 0.01	661 ± 10	2.12 ± 0.01	0.03 ± 0.00	1.84 ± 0.01	0.00 ± 0.00	1276 ± 8	903 ± 12	1.85 ± 0.65
	0	2.61 ± 0.07	0.69 ± 0.09	143 ± 5	0.32 ± 0.03	0.04 ± 0.01	0.71 ± 0.09	0.00 ± 0.00	351 ± 22	233 ± 19	1.86 ± 0.29
0.1-0.3	4.94 ± 0.42	0.79 ± 0.03	255 ± 24	0.51 ± 0.01	0.02 ± 0.01	0.96 ± 0.07	0.00 ± 0.00	594 ± 46	372 ± 26	4.48 ± 0.54	
	0.4-0.5	4.79 ± 0.33	0.83 ± 0.04	251 ± 19	0.51 ± 0.02	0.01 ± 0.00	1.00 ± 0.03	0.00 ± 0.00	586 ± 36	379 ± 24	3.72 ± 0.91
	2	6.92 ± 0.07	0.80 ± 0.00	382 ± 2	0.54 ± 0.01	0.04 ± 0.00	1.07 ± 0.01	0.00 ± 0.00	799 ± 4	485 ± 15	0.82 ± 0.62
8	7.10 ± 0.07	0.85 ± 0.00	391 ± 2	0.58 ± 0.01	0.03 ± 0.00	1.11 ± 0.01	0.00 ± 0.00	809 ± 2	504 ± 17	0.95 ± 0.64	