

Table S4. Porewater probe measurements (DO, pH, conductivity, ORP and temperature) collected in an anaerobic chamber, anion and cation concentrations (all in units of mg/L), and sediment core Ra activities measured via gamma spectrometry (all in units of Bq/kg).

Sample	Depth from surface (cm)	DO (mg/L)	DO (%)	pH	Conductivity ($\mu\text{S}/\text{cm}$)	Eh (mV)	Temperature ($^{\circ}\text{C}$)	Sr	Mn	K	Mg	Fe	B	Na	Ca	Li	Ba	Cl	SO ₄	Estimated HCO ₃	²²⁶ Ra \pm error	²²⁸ Ra \pm error	²²⁸ Ra/ ²²⁶ Ra
DC-W1 27-29 cm	29	0.24	3.0	8.12	1661.6	101	26.0	3.05	0.01	23	18	0.14	0.85	250	66	0.31	0.06	180	413	160.5	617.8 \pm 4.1	129.6 \pm 7.2	0.21
DC-W1 25-27 cm	27	0.14	1.8	8.16	1634.9	93	25.5	2.74	0.01	22	16	0.12	0.67	235	58	0.30	0.06	168	419	98.9	633.0 \pm 3.9	123.8 \pm 6.8	0.20
DC-W1 23-25 cm	25	0.05	0.6	7.90	1604.1	112	25.1	3.19	0.03	76	19	0.31	0.61	247	73	0.33	0.06	231	451	124.7	590.1 \pm 4.1	95.2 \pm 7.2	0.16
DC-W1 21-23 cm	23	0.15	1.9	7.95	1568.5	61	24.9	2.80	0.02	24	17	0.35	0.58	218	62	0.31	0.05	160	396	114.3	641.6 \pm 3.7	130.9 \pm 6.3	0.20
DC-W1 19-21 cm	21	0.26	3.3	7.49	1733.8	112	25.1	3.36	0.02	25	20	0.09	0.59	254	72	0.33	0.08	176	432	186.9	627.4 \pm 3.3	125.8 \pm 5.8	0.20
DC-W1 17-19 cm	19	0.19	2.4	7.82	1594.4	87	25.5	3.69	0.03	27	21	0.57	0.65	274	82	0.33	0.08	199	482	178.5	605.0 \pm 1.7	137.1 \pm 3.1	0.23
DC-W1 15-17 cm	17	0.24	3.0	7.95	1055.2	95	24.1	3.91	0.03	29	23	0.07	0.61	294	86	0.34	0.08	237	518	141.7	662.3 \pm 4.5	150.5 \pm 8.0	0.23
DC-W1 13-15 cm	15	0.62	7.6	8.07	1681.4	117	23.7	3.58	0.03	23	21	0.08	0.63	291	79	0.36	0.07	220	459	195.4	652.1 \pm 1.3	149.7 \pm 2.4	0.23
DC-W1 11-13 cm	13	0.06	0.8	7.23	2730.7	220	26.5	7.62	0.25	87	44	1.35	1.13	398	195	0.46	0.20	316	501	838.6	623.3 \pm 2.5	168.3 \pm 4.8	0.27
DC-W1 9-11 cm	11	0.05	0.6	6.34	2811.7	183	24.8	7.61	0.32	86	46	1.03	0.91	389	185	0.47	0.19	315	552	727.5	431.9 \pm 2.6	166.9 \pm 5.9	0.39
DC-W1 7-9 cm	9	0.15	1.9	7.80	2110.7	60	26.8	4.80	0.12	26	29	0.12	1.13	352	108	0.46	0.15	261	287	638.0	610.2 \pm 3.2	222.6 \pm 7.2	0.36
DC-W1 5-7 cm	7	0.22	2.8	7.89	1934.6	117	24.7	4.12	0.42	41	27	0.86	1.22	319	84	0.49	0.22	258	309	467.6	708.6 \pm 4.2	321.3 \pm 9.7	0.45
DC-W1 3-5 cm	5	0.60	7.7	7.64	1719.6	95	26.3	4.93	0.12	31	34	0.30	0.80	333	99	0.44	0.15	237	355	553.0	708.7 \pm 3.2	274.1 \pm 7.3	0.39
DC-W1 0-3 cm	3	0.32	4.1	7.48	2119.4	7	24.7	6.27	0.26	29	49	0.15	0.76	321	114	0.47	0.13	225	458	528.7	534.8 \pm 4.4	261.4 \pm 9.9	0.49
DC-W2 18-20 cm	20	0.16	2.0	7.92	2292.8	42	25.6	4.74	0.44	34	35	3.05	1.42	387	133	0.48	0.33	329	9	1091.2	323.5 \pm 1.6	114.5 \pm 3.3	0.35
DC-W2 16-18 cm	18	0.29	3.7	7.85	2255.3	77	25.5	3.76	0.44	34	33	1.67	1.30	382	84	0.46	0.22	321	6	935.5	267.7 \pm 1.1	110.4 \pm 2.5	0.41
DC-W2 14-16 cm	16	0.11	1.5	7.23	2181.1	15	25.0	3.91	0.39	50	34	1.69	1.20	398	87	0.48	0.21	311	5	1036.0	377.9 \pm 1.8	120.8 \pm 3.7	0.32
DC-W2 12-14 cm	14	0.20	2.6	7.74	2241.8	80	25.2	5.77	0.45	33	37	1.48	1.30	386	174	0.46	0.32	273	7	1321.7	368.1 \pm 2.6	132.1 \pm 5.5	0.36
DC-W2 10-12 cm	12	O.O.R.	O.O.R.	7.94	2155.9	-85	24.4	3.71	0.22	30	34	0.34	1.33	376	77	0.43	0.16	265	78	899.1	385.4 \pm 2.1	115.5 \pm 4.5	0.30
DC-W2 8-10 cm	10	O.O.R.	O.O.R.	7.87	2346.9	-18	24.0	6.11	0.53	35	49	12.48	1.31	387	184	0.51	0.29	262	216	1170.5	331.3 \pm 2.8	134.5 \pm 6.1	0.41
DC-W2 6-8 cm	8	0.33	3.9	7.58	2058.0	13	21.7	5.27	0.34	32	49	0.38	1.09	372	111	0.47	0.12	241	354	765.9	355.2 \pm 2.2	127.5 \pm 4.7	0.36
DC-W2 4-6 cm	6	0.55	6.5	7.18	2476.4	89	21.8	6.33	0.69	27	54	1.31	1.12	353	148	0.45	0.11	238	541	609.9	428.6 \pm 1.8	138.5 \pm 3.7	0.32
DC-W2 2-4 cm	4	O.O.R.	O.O.R.	7.09	2297.1	-60	21.8	6.57	0.99	39	51	7.27	0.89	322	151	0.41	0.12	214	499	638.5	432.8 \pm 3.1	154.1 \pm 6.7	0.36
DC-W2 0-2 cm	2	0.99	11.4	7.18	2918.4	126	20.7	11.61	0.97	52	90	2.57	0.92	355	216	0.47	0.19	201	1095	412.2	616.8 \pm 4.3	204.2 \pm 9.2	0.33
DA-W1 14-16 cm	16	0.57	7.2	8.20	5914.4	59	25.5	9.13	0.16	107	73	0.88	2.64	1044	269	1.31	0.06	743	2108	180.7	304.9 \pm 2.5	162.6 \pm 5.8	0.53
DA-W1 12-14 cm	14	0.31	4.0	8.08	6057.7	-3	25.8	9.25	0.05	110	74	0.12	2.85	1051	276	1.36	0.05	785	2133	121.4	116.0 \pm 1.3	88.8 \pm 3.8	0.77
DA-W1 10-12 cm	12	0.17	2.2	7.32	5803.9	-13	25.8	8.64	0.07	105	71	0.52	3.26	1022	265	1.35	0.03	729	2121	103.1	493.7 \pm 2.0	159.4 \pm 4.1	0.32
DA-W1 8-10 cm	10	0.28	3.5	8.18	5167.0	4	25.8	7.39	0.07	93	65	0.14	2.62	866	226	1.11	0.03	615	1882	14.4	1155.2 \pm 6.0	242.6 \pm 11.1	0.21
DA-W1 6-8 cm	8	0.45	5.7	7.83	3963.5	44	25.5	7.67	0.06	107	67	0.19	2.80	872	228	1.09	0.03	641	1907	0.0	1218.5 \pm 6.2	331.5 \pm 11.9	0.27
DA-W1 4-6 cm	6	2.35	28.1	8.08	5075.1	137	22.5	8.04	0.06	92	69	0.00	2.94	885	245	1.07	0.03	635	1949	30.4	1442.7 \pm 3.2	613.2 \pm 7.4	0.43
DA-W1 2-4 cm	4	0.54	6.9	8.00	5268.4	65	25.7	8.13	0.04	87	69	0.19	2.84	859	257	0.99	0.04	610	1954	23.8	1570.5 \pm 6.4	890.1 \pm 16.4	0.57
DA-W1 0-2 cm	2	0.08	1.0	7.86	6033.6	-31	25.0	9.12	0.05	162	75	0.26	2.90	888	306	1.10	0.03	716	2116	8.7	1392.1 \pm 6.8	911.8 \pm 19.1	0.65
CSW 28-30 cm	30	1.19	14.6	7.79	10641.8	84	24.0	5.77	1.67	23	414	0.60	1.74	2576	285	1.79	0.06	37	7691	0.0	55.7 \pm 0.5	65.8 \pm 1.9	1.18
CSW 26-28 cm	28	0.78	9.6	7.98	16253.5	72	24.6	7.64	3.20	71	637	1.27	2.86	4650	356	3.49	-	87	13811	0.0	57.4 \pm 0.9	68.0 \pm 3.2	1.18
CSW 24-26 cm	26	0.20	2.5	7.94	19174.8	60	24.8	8.42	3.33	15	715	1.43	2.99	4991	356	3.78	-	24	18211	0.0	54.0 \pm 0.5	64.9 \pm 1.8	1.20
CSW 22-24 cm	24	0.12	1.5	7.92	18872.5	42	24.6	9.15	3.39	16	753	3.32	3.00	5037	373	3.84	-	26	24025	0.0	57.5 \pm 0.7	70.8 \pm 2.2	1.23
CSW 20-22 cm	22	0.50	6.2	7.94	19271.4	76	23.8	9.01	2.96	24	772	1.74	2.89	4813	383	3.68	-	30	14890	0.0	58.5 \pm 0.6	75.6 \pm 2.1	1.29
CSW 18-20 cm	20	0.22	2.7	7.84	18933.6	50	24.5	9.17	2.58	22	763	3.79	2.83	4618	390	3.59	-	26	16445	0.0	59.1 \pm 0.6	68.4 \pm 2.1	1.16
CSW 16-18 cm	18	0.20	2.5	7.99	17960.9	51	25.3	9.05	2.05	23	734	2.22	2.65	4281	379	3.38	-	27	14751	0.0	66.8 \pm 1.5	86.0 \pm 5.5	1.29
CSW 14-16 cm	16	0.39	4.8	7.87	17524.5	65	24.3	9.32	1.69	23	759	2.11	2.21	4142	378	3.34	-	26	14455	0.0	54.1 \pm 0.9	74.9 \pm 3.1	1.39
CSW 12-14 cm	14	0.41	5.0	7.91	16462.7	62	24.3	8.76	1.24	26	683	1.22	2.41	3702	350	3.01	0.03	34	14939	0.0	51.5 \pm 0.6	63.2 \pm 2.0	1.23
CSW 10-12 cm	12	0.27	3.3	7.93	14551.7	53	25.3	8.26	0.96	23	659	1.34	2.01	3291	320	2.70	-	24	11643	0.0	54.3 \pm 0.9	60.1 \pm 3.2	1.11
CSW 8-10 cm	10	0.30	3.7	7.92	12994.3	45	23.1	7.66	0.89	22	608	1.15	1.98	2820	299	2.38	-	22	9560	0.0	49.8 \pm 0.6	62.9 \pm 2.2	1.26
CSW 6-8 cm	8	0.08	1.0	7.89	10589.9	-32	23.2	7.56	0.92	22	588	1.38	1.63	2506	298	2.13	0.03	20	9580	0.0	48.1 \pm 0.6	59.8 \pm 2.1	1.24
CSW 4-6 cm	6	0.12	1.5	7.96	9618.4	-46	23.4	6.66	0.83	20	500	0.54	1.26	1983	274	1.68	0.03	17	7086	0.0	44.1 \pm 0.5	51.0 \pm 2.0	1.16
CSW 2-4 cm	4	O.O.R.	O.O.R.	7.87	7926.2	-49	23.7	5.95	0.94	23	413	0.23	1.07	1560	253	1.33	0.05	17	7161	0.0	56.8 \pm 0.7	63.8 \pm 2.4	1.12
CSW 0-2 cm	2	O.O.R.	O.O.R.	7.59	5437.4	-52	23.8	4.09	1.29	27	271	0.30	0.60	932	197	0.76	0.08	17	3144	456.5	61.0 \pm 0.7	65.1 \pm 2.5	1.07
DC-PLAYA 16-18 cm	18	0.17	2.1	7.66	4564.4	48	25.5	6.69	2.73	32	100	7.66	2.69	557	504	0.78	0.03	320	2277	128.4	61.8 \pm 0.7	76.9 \pm 2.39	1.24
DC-PLAYA 14-16 cm	16	0.12	1.5	7.45	4142.7	86	24.4	6.93	3.12	45	103	9.63	2.41	549	511	0.84	-	319	2127	358.0	55.5 \pm 0.9	76.5 \pm 3.11	1.38
DC-PLAYA 12-14 cm	14	0.18	2.2	7.37	4082.2	91	24.1	7.61	3.12	34	103	13.74	2.22	552	457	0.75	0.09	313	1979	388.9	61.9 \pm 0.7	73.3	