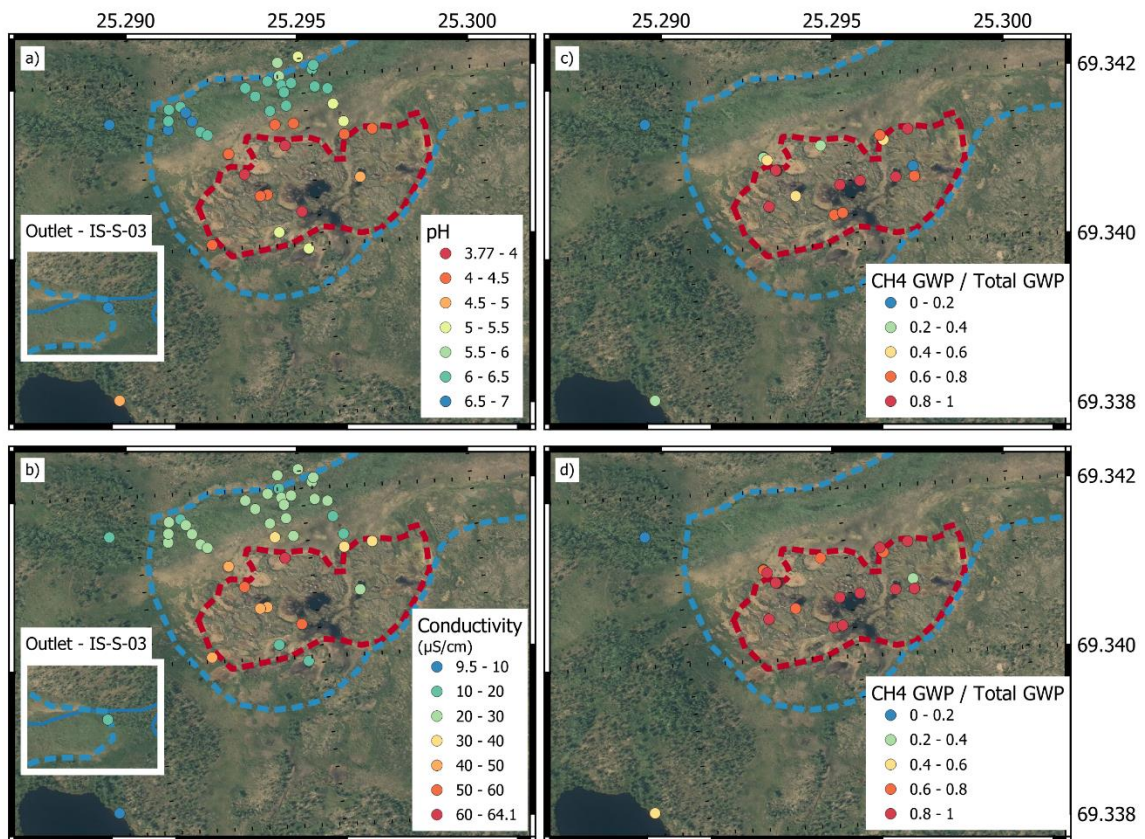
List of Figures and Tables for SI

Figure SI 1 Spatial variability in water pH (a) and conductivity (b) in September 2023 across the wetland, water bodies of the peat plateau and saturated surroundings. Spatial variability in relative importance of CH_4 global warming potential (GWP) compared to total global warming on a 20-year (c) or 100-year (d) horizon.

7   Table SI 1 Temperature and thaw/freeze dates in 2022 from sensor data in the ponds and

8   streams

	Ice-off date	Average T ^{0}C	Max T ^{0}C	Max T date	Ice-on date	Days to max T	Days ice-free
TK-POND 1	15/05/22	8.6	17.7	29/06/22	03/11/22	45	172
TK-POND 2	20/05/22	8.1	14.8	05/07/22	01/11/22	46	165
TK-POND 3	18/05/22	8.4	15.4	05/07/22	03/11/22	48	169
TK-DRAIN	14/05/22	9.4	22.0	29/06/22	26/10/22	46	165
INLET	20/05/22	7.3	14.5	02/07/22	07/11/22	43	171
OUTLET	14/05/22	7.7	17.4	03/07/22	14/11/22	50	184

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10   Table SI 2 Flux and mineralization rates during the ice-free period. CO_2 flux values are reported

11   in **g C/m^2** while DIC mineralization rates are reported in **g C/m3/year**. These values represent

12   the annual CO_2 flux and total DOM mineralization during the active, ice-free portion of the year.

flux and mineralization rates during ice free	CO2 flux g C/m2/yr	stdev	DIC rate g C/m3/yr	stdev
TK-Pond 1	61.2	47.6	116.9	60.0
TK-Pond 2	51.0	37.4	151.0	173.1
TK-Pond 3	86.7	47.6	156.5	148.5
TK-Drain	62.9	25.5	25.5	26.5
Inlet	190.4	78.2	82.2	49.3
Outlet	404.8	211.6	89.7	73.1

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14   Table SI 3 Sampling of cations (calcium: Ca; magnesium: Mg; Potassium: K; and Sodium: Na) in

15   autumn 2020 and summer 2021

site	date	Ca	Mg	K	Na	**Cl**
TK-Pond 1	2020-09-07	0.64	0.26	0.02	0.91	1.27
TK-Pond 1	2021-06-03	0.48	0.27	0.046	0.81	0.37
TK-Pond 1	2021-06-30	0.45	0.27	0.035	0.34	0.087
TK-Pond 2	2020-09-07	0.65	0.29	0.01	0.41	0.8
TK-Pond 2	2021-06-03	0.21	0.11	0.017	0.46	0.43
TK-Pond 2	2021-07-01	0.41	0.24	0.01	0.52	0.36
TK-Pond 3	2020-09-07	0.22	0.064	0.022	0.16	0.52
TK-Pond 3	2021-06-03	0.32	0.2	0.72	0.99	0.46
TK-Pond 3	2021-06-30	0.32	0.21	0.057	0.57	0.34
TK-Drain	2020-09-07	0.57	0.27	0.026	0.85	0.83
TK-Drain	2021-06-03	0.4	0.19	0.018	0.65	0.39

TK-Drain	2021-07-01	0.47	0.26	0.1	0.65	0.43
Inlet	2020-09-07	2.18	1.05	0.49	1.44	0.92
Inlet	2021-06-02	1.17	0.54	0.59	0.9	0.49
Inlet	2021-06-30	2.26	1.02	0.26	1.41	0.4
Outlet	2020-09-07	1.96	0.9	0.6	1.41	1.01
Outlet	2021-06-03	1.07	0.54	0.79	0.82	0.48
Outlet	2021-06-30	1.63	0.78	0.029	1.33	0.25

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