

Supplementary Material

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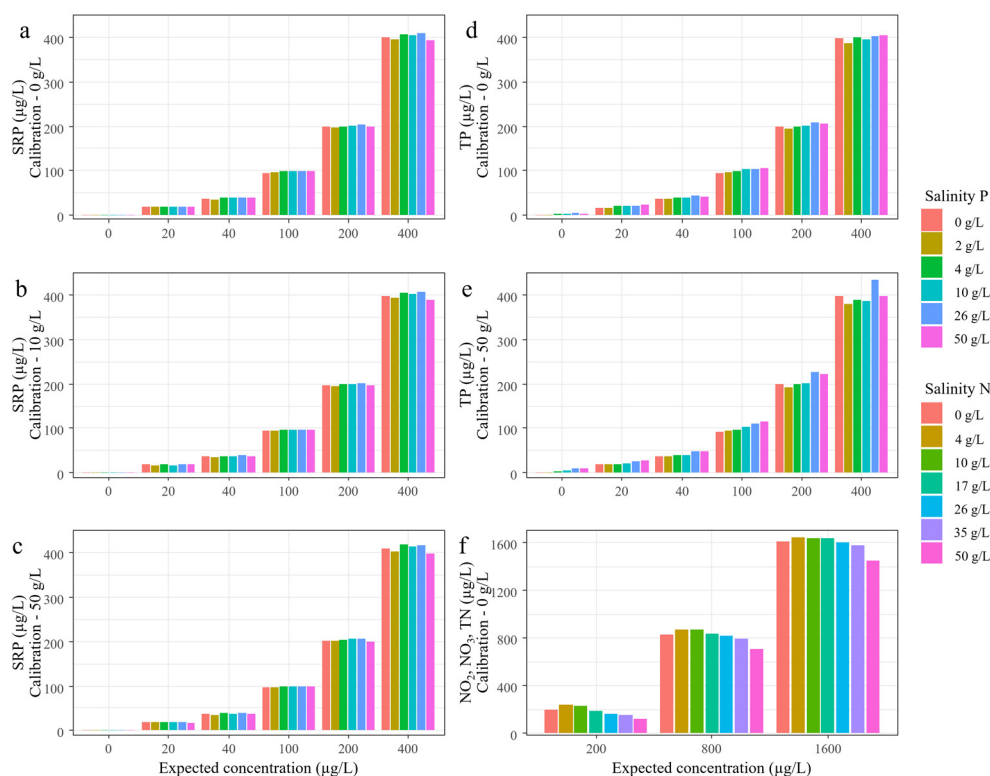


Figure S1. Effects of salinity on the method performance for soluble reactive phosphorus (SRP) (a–c), total phosphorus (TP) (d,e), nitrite (NO₂), nitrate (NO₃), and total nitrogen (TN) (f) quantifications. The standards and samples were prepared with different phosphorus, nitrogen, and salinity concentrations and calibrated with different salinity matrixes (0, 10, and/or 50 g/L).

Table S1. Results of four-way ART-ANOVA comparing water transparency, chlorophyll-a, total suspended solids, soluble reactive phosphorus, total phosphorus, nitrate and nitrite, and total nitrogen based on the factors Place, Salinity, Heating, Phases, and their possible interactions during the heatwave experiment. Bold values represent significant effects ($p < 0.05$).

Factor	df	F-Value	p-Value
Water transparency (cm)			
Place	1	111.874	<0.001
Salinity	1	89.918	<0.001
Heating	1	0.597	0.442
Phases	3	2.938	0.037
Place:Salinity	1	14.202	<0.001
Place:Heating	1	0.458	0.500
Salinity:Heating	1	0.330	0.567
Place:Phases	3	1.021	0.387
Salinities:Phases	3	41.042	<0.001
Heating:Phases	3	0.297	0.828

Place:Salinity:Heating	1	1.776	0.186
Place:Salinity:Phases	3	6.581	<0.001
Place:Heating:Phases	3	0.379	0.768
Salinity:Heating:Phases	3	0.548	0.650
Place:Salinity:Heating:Phases	3	0.550	0.649
Chlorophyll- <i>a</i> (µg/L)			
Place	1	100.211	<0.001
Salinity	1	173.984	<0.001
Heating	1	3.179	0.078
Phases	3	13.175	<0.001
Place:Salinity	1	23.349	<0.001
Place:Heating	1	0.345	0.558
Salinity:Heating	1	2.550	0.114
Place:Phases	3	21.831	<0.001
Salinities:Phases	3	29.751	<0.001
Heating:Phases	3	0.422	0.738
Place:Salinity:Heating	1	2.560	0.113
Place:Salinity:Phases	3	14.943	<0.001
Place:Heating:Phases	3	0.836	0.477
Salinity:Heating:Phases	3	0.218	0.884
Place:Salinity:Heating:Phases	3	1.385	0.252
Total suspended solids (mg/L)			
Place	1	46.677	<0.001
Salinity	1	264.751	<0.001
Heating	1	31.080	<0.001
Phases	3	41.419	<0.001
Place:Salinity	1	58.264	<0.001
Place:Heating	1	0.968	0.328
Salinity:Heating	1	24.623	<0.001
Place:Phases	3	20.705	<0.001
Salinities:Phases	3	57.263	<0.001
Heating:Phases	3	8.303	<0.001
Place:Salinity:Heating	1	1.391	0.241
Place:Salinity:Phases	3	26.732	<0.001
Place:Heating:Phases	3	0.503	0.681
Salinity:Heating:Phases	3	9.512	<0.001
Place:Salinity:Heating:Phases	3	1.107	0.350
Soluble reactive phosphorus (µg/L)			
Place	1	174.225	<0.001
Salinity	1	180.535	<0.001
Heating	1	1.812	0.181
Phases	3	64.413	<0.001
Place:Salinity	1	150.797	<0.001
Place:Heating	1	0.771	0.382
Salinity:Heating	1	0.843	0.361
Place:Phases	3	83.019	<0.001
Salinities:Phases	3	92.633	<0.001
Heating:Phases	3	4.363	0.006
Place:Salinity:Heating	1	11.010	0.001
Place:Salinity:Phases	3	64.235	<0.001
Place:Heating:Phases	3	5.474	0.002
Salinity:Heating:Phases	3	2.861	0.041

Place:Salinity:Heating:Phases	3	3.619	0.016
Total phosphorus (µg/L)			
Place	1	186.595	<0.001
Salinity	1	18.604	<0.001
Heating	1	1.292	0.258
Phases	3	31.790	<0.001
Place:Salinity	1	4.647	0.034
Place:Heating	1	0.050	0.824
Salinity:Heating	1	30.803	<0.001
Place:Phases	3	25.432	<0.001
Salinities:Phases	3	7.522	<0.001
Heating:Phases	3	0.212	0.888
Place:Salinity:Heating	1	17.379	<0.001
Place:Salinity:Phases	3	8.285	<0.001
Place:Heating:Phases	3	1.388	0.251
Salinity:Heating:Phases	3	4.472	0.006
Place:Salinity:Heating:Phases	3	4.843	0.004
Nitrate and nitrite (µg/L)			
Place	1	128.536	<0.001
Salinity	1	1.831	0.179
Heating	1	8.908	0.004
Phases	3	35.526	<0.001
Place:Salinity	1	16.180	<0.001
Place:Heating	1	2.828	0.096
Salinity:Heating	1	14.593	<0.001
Place:Phases	3	6.393	<0.001
Salinities:Phases	3	10.646	<0.001
Heating:Phases	3	0.893	0.448
Place:Salinity:Heating	1	15.110	<0.001
Place:Salinity:Phases	3	12.169	<0.001
Place:Heating:Phases	3	1.802	0.152
Salinity:Heating:Phases	3	0.745	0.528
Place:Salinity:Heating:Phases	3	2.234	0.089
Total nitrogen (µg/L)			
Place	1	32.755	<0.001
Salinity	1	169.489	<0.001
Heating	1	0.457	0.501
Phases	3	13.175	<0.001
Place:Salinity	1	0.381	0.538
Place:Heating	1	8.087	0.005
Salinity:Heating	1	2.979	0.088
Place:Phases	3	26.390	<0.001
Salinities:Phases	3	15.797	<0.001
Heating:Phases	3	2.111	0.104
Place:Salinity:Heating	1	1.862	0.176
Place:Salinity:Phases	3	21.862	<0.001
Place:Heating:Phases	3	4.745	0.004
Salinity:Heating:Phases	3	1.542	0.209
Place:Salinity:Heating:Phases	3	0.603	0.615