Supplementary Materials

Nutrient Dynamics and Ecosystem Metabolism of Megacity Rivers: Influence of Elevated Nutrient Concentrations in Beijing's Waterways

Meng Zhang[1] (0000-0002-6218-4074); Robert A Francis[1] (0000-0002-4598-0861) and Michael A Chadwick [1*] (0000-0003-4891-4357)

[1] Department of Geography, King's College London 40 Bush House (Northeast Wing, Aldwych, London WC2B 4BG

MZ: meng.zhang@kcl.ac.uk; RAF: robert.francis@kcl.ac.uk; MAC: michael.chadwick@kcl.ac.uk

Supplementary Tables

Table S1. Water quality parameter for each sampling site. The number in the parentheses represents the standard deviation.

Sep 6

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	29.30 (0.11)	1.76 (0.06)	1.33	10.02	28.6	6.26	7.75
L2	33.31 (0.10)	1.34 (0.06)	0.98	8.68	29.3	6.76	7.92
T1	30.18 (0.08)	1.15 (0.04)	0.56	9.84	30.6	9.78	7.53
T2	38.55 (0.08)	0.96 (0.04)	0.84	9.37	32.8	11.12	8.42
W1	20.76 (0.06)	1.05 (0.03)	1.17	7.52	33.1	10.82	8.26
W2	22.03 (0.04)	1.19 (0.05)	1.26	8.47	33.6	10.62	8.32

Sep 13

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	32.16 (0.07)	1.40 (0.04)	1.14	10.34	25.3	6.80	7.86
L2	36.22 (0.08)	1.13 (0.06)	0.73	9.47	27.5	7.07	8.09
T1	31.46 (0.10)	1.03 (0.06)	0.36	10.82	26.5	10.65	7.67
T2	39.12 (0.12)	0.84 (0.05)	0.61	9.60	26.8	11.26	8.60
W1	22.24 (0.11)	0.87 (0.03)	0.83	9.04	25.6	11.04	8.39
W2	25.58 (0.10)	0.96 (0.04)	1.02	9.40	26.6	10.78	8.44

Sep 20

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	34.87 (0.06)	1.26 (0.03)	1.03	10.56	23.8	6.87	7.79
L2	38.18 (0.07)	0.98 (0.04)	0.62	9.72	24.6	7.15	8.01

T1	32.22 (0.05)	0.96 (0.04)	0.22	10.93	25.5	10.74	7.62
T2	40.41 (0.07)	0.78 (0.03)	0.48	9.88	26.2	11.18	8.48
W1	24.56 (0.04)	0.83 (0.05)	0.75	9.35	25.4	11.12	8.30
W2	28.26 (0.04)	0.87 (0.03)	0.97	9.77	26.1	10.83	8.36

Sep 28 (after rain)

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	38.28 (0.09)	1.55 (0.06)	1.28	13.76	21.6	6.68	7.78
L2	45.30 (0.06)	1.32 (0.05)	0.86	13.06	23.8	7.02	7.97
T1	37.76 (0.07)	1.16 (0.05)	0.52	14.13	22.1	10.43	7.56
T2	44.85 (0.06)	1.02 (0.03)	0.67	13.22	22.8	10.98	8.42
W1	29.43 (0.08)	1.15 (0.04)	0.93	12.58	21.3	10.82	8.18
W2	37.14 (0.07)	1.21 (0.03)	1.12	14.38	22.2	10.67	8.24

Oct 11

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	36.42 (0.10)	1.24 (0.04)	1.15	10.69	18.3	6.58	8.07
L2	41.86 (0.08)	1.04 (0.03)	0.74	10.11	20.8	6.92	8.22
T1	32.47 (0.08)	0.93 (0.03)	0.41	11.10	19.5	10.22	7.99
T2	41.37 (0.11)	0.80 (0.03)	0.58	10.63	20.1	10.66	8.78
W1	27.22 (0.09)	0.75 (0.02)	0.83	9.99	19.0	10.68	8.46
W2	33.18 (0.07)	0.82 (0.02)	1.01	10.30	19.8	10.52	8.50

Oct 18

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	38.75 (0.08)	1.17 (0.03)	1.26	10.84	16.4	6.36	8.10
L2	44.46 (0.06)	0.94 (0.04)	0.91	10.20	17.8	6.73	8.24
T1	31.73 (0.06)	0.84 (0.03)	0.62	11.24	17.3	9.77	8.02
T2	39.84 (0.07)	0.74 (0.02)	0.77	10.70	18.5	10.24	8.73
W1	30.35 (0.05)	0.71 (0.03)	1.02	10.18	17.2	10.50	8.44
W2	34.95 (0.06)	0.75 (0.02)	1.13	10.38	18.1	10.32	8.47

Oct 24

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	40.52 (0.11)	1.12 (0.03)	1.34	11.17	14.6	6.13	8.13
L2	46.38 (0.08)	0.86 (0.05)	1.04	10.28	16.8	6.55	8.28
T1	30.73 (0.06)	0.78 (0.03)	0.72	11.34	16.2	9.56	8.04
T2	38.12	0.71	0.85	10.76	17.8	9.89	8.71

	(0.04)	(0.02)					
W1	32.61 (0.04)	0.66 (0.02)	1.12	10.35	15.8	10.08	8.41
W2	38.23 (0.06)	0.69 (0.03)	1.20	10.48	16.6	9.82	8.45

Oct 31

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	42.30 (0.10)	1.26 (0.02)	1.29	16.32	18.7	5.93	7.90
L2	48.45 (0.08)	0.98 (0.01)	1.10	12.88	20.4	6.16	8.42
T1	32.55 (0.08)	0.95 (0.02)	0.84	15.17	19.7	8.96	8.26
T2	38.27 (0.06)	0.67 (0.03)	0.96	14.83	17.7	9.34	8.48
W1	34.44 (0.06)	0.73 (0.02)	1.18	13.45	16.3	9.51	8.43
W2	42.02 (0.07)	0.61 (0.02)	1.25	14.49	15.7	9.38	8.46

Nov 6

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	44.31 (0.11)	1.18 (0.03)	1.27	13.63	17.9	5.81	8.05
L2	51.87 (0.09)	0.93 (0.02)	1.13	10.84	19.4	6.03	8.36
T1	33.99 (0.07)	0.85 (0.02)	0.93	13.53	18.4	8.28	8.07
T2	36.21 (0.10)	0.62 (0.03)	1.02	11.37	17.4	8.67	8.47
W1	36.50 (0.08)	0.52 (0.02)	1.21	10.67	14.4	8.94	8.27
W2	45.01 (0.07)	0.56 (0.01)	1.30	11.22	14.8	8.63	8.29

Nov 13

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	42.13 (0.12)	1.07 (0.03)	1.29	14.18	17.2	5.61	7.96
L2	46.08 (0.10)	0.87 (0.02)	1.17	11.32	18.7	5.76	8.18
T1	31.13 (0.10)	0.76 (0.03)	0.97	12.17	17.8	7.67	8.12
T2	34.58 (0.07)	0.55 (0.02)	1.08	11.96	16.7	8.04	8.26
W1	33.52 (0.07)	0.41 (0.02)	1.16	11.30	13.2	8.31	8.04
W2	41.13 (0.11)	0.46 (0.01)	1.22	12.07	13.6	8.08	8.23

Nov 20 (after rain)

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	44.68 (0.16)	1.28 (0.04)	1.35	16.66	13.1	5.28	7.92
L2	49.42 (0.12)	1.16 (0.02)	1.22	12.28	14.5	5.36	8.04
T1	38.66 (0.08)	1.09 (0.03)	1.06	13.16	13.5	7.26	7.98
T2	45.26 (0.10)	0.87 (0.02)	1.16	12.43	12.6	7.63	8.14
W1	42.48 (0.08)	0.72 (0.02)	1.25	11.78	10.1	7.82	8.02

W2	48.58 (0.09)	0.90 (0.03)	1.30	12.85	10.5	7.56	8.12

Nov 27

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	40.75 (0.10)	1.06 (0.06)	1.28	14.30	10.2	5.16	7.87
L2	45.44 (0.07)	0.92 (0.04)	1.14	11.12	11.6	5.22	8.11
T1	35.64 (0.09)	0.77 (0.03)	0.94	12.06	10.8	6.72	7.95
T2	43.80 (0.06)	0.57 (0.03)	1.05	11.35	10.1	7.22	8.08
W1	36.38 (0.08)	0.48 (0.04)	1.17	10.88	8.2	7.33	7.98
W2	42.23 (0.05)	0.62 (0.02)	1.26	11.82	8.8	6.96	8.09

Dec 3

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	38.55 (0.13)	0.96 (0.05)	1.16	11.92	7.5	4.92	7.89
L2	43.36 (0.10)	0.76 (0.02)	1.05	9.83	8.3	5.16	8.17
T1	33.48 (0.08)	0.62 (0.06)	0.83	10.20	7.7	6.53	7.92
T2	40.62 (0.08)	0.42 (0.05)	0.95	8.95	7.1	6.78	8.04
W1	33.53 (0.06)	0.31 (0.03)	1.06	10.24	5.3	6.98	7.96
W2	39.37 (0.07)	0.36 (0.04)	1.13	11.12	5.8	6.71	8.07

Dec 9

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	35.36 (0.09)	1.03 (0.03)	1.22	12.81	5.8	4.79	8.01
L2	39.94 (0.07)	0.88 (0.04)	1.09	10.45	6.6	4.96	8.13
T1	32.06 (0.04)	0.74 (0.03)	0.87	11.49	5.5	6.24	7.75
T2	38.10 (0.05)	0.58 (0.02)	0.99	10.31	5.0	6.44	8.01
W1	31.69 (0.06)	0.38 (0.03)	1.10	11.32	4.4	6.68	7.92
W2	36.44 (0.04)	0.47 (0.02)	1.18	12.61	4.8	6.40	8.02

Dec 15

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	33.26 (0.08)	0.92 (0.04)	1.27	13.88	4.4	4.62	7.92
L2	36.35 (0.06)	0.73 (0.05)	1.12	11.55	5.3	4.78	8.02
T1	29.58 (0.07)	0.61 (0.04)	0.92	12.52	4.6	5.98	7.89
T2	36.53 (0.06)	0.45 (0.03)	1.06	11.27	4.0	6.14	8.10
W1	28.18 (0.06)	0.31 (0.03)	1.15	12.48	3.5	6.33	8.04
W2	33.81 (0.05)	0.39 (0.02)	1.23	13.64	4.1	6.10	8.13

Dec 22

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	30.42 (0.08)	0.86 (0.05)	1.33	15.36	2.1	4.13	8.02
L2	33.58 (0.07)	0.68 (0.04)	1.18	13.01	2.8	4.27	8.14
T1	25.66 (0.07)	0.66 (0.04)	0.98	14.23	2.4	5.30	7.97
T2	34.18 (0.05)	0.53 (0.05)	1.10	12.66	1.9	5.48	8.21
W1	24.88 (0.06)	0.38 (0.04)	1.22	13.73	1.3	5.72	8.17
W2	29.16 (0.04)	0.44 (0.02)	1.29	14.90	1.8	5.42	8.25

Mar 9

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	25.36 (0.11)	1.92 (0.03)	1.06	6.00	11.4	5.86	8.35
L2	27.38 (0.08)	1.42 (0.01)	0.78	4.92	11.9	6.14	8.66
T1	24.06 (0.06)	1.26 (0.01)	0.55	6.27	7.2	6.24	7.55
T2	33.13 (0.08)	1.21 (0.04)	0.67	5.76	6.2	6.72	7.77
W1	20.47 (0.10)	1.52 (0.02)	0.84	5.07	9.1	7.18	8.18
W2	23.72 (0.07)	1.77 (0.03)	0.97	6.35	10.2	6.92	8.32

Mar 22 (more aquatic vegetation at each site)

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	29.84 (0.08)	1.68 (0.01)	0.93	6.58	12.8	6.16	8.01
L2	28.46 (0.06)	1.36 (0.02)	0.65	5.48	13.8	6.42	8.33
T1	27.08 (0.07)	1.71 (0.03)	0.41	7.02	14.5	6.65	8.22
T2	35.37 (0.06)	1.55 (0.04)	0.53	7.29	15.4	7.20	8.04
W1	22.36 (0.06)	1.86 (0.03)	0.79	5.69	16.3	7.35	8.17
W2	26.02 (0.04)	2.07 (0.02)	0.86	6.26	15.8	7.13	8.35

Mar 30

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	33.12 (0.07)	2.17 (0.05)	0.82	7.00	17.6	6.33	8.14
L2	31.48 (0.08)	1.73 (0.06)	0.57	6.40	18.5	6.71	8.28
T1	29.27 (0.06)	1.67 (0.03)	0.36	6.00	11.4	6.87	8.04
T2	37.33 (0.05)	1.93 (0.04)	0.45	6.91	15.2	7.34	7.90
W1	23.94 (0.06)	2.19 (0.06)	0.66	6.04	18.4	7.46	8.09
W2	28.82 (0.04)	2.48 (0.03)	0.78	6.80	18.0	7.24	8.23

Apr 6

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	29.58 (0.08)	2.40 (0.04)	0.89	6.46	18.7	6.26	8.33

L2	30.62 (0.10)	2.25 (0.05)	0.63	6.00	19.6	6.62	8.45
T1	28.80 (0.08)	1.72 (0.04)	0.41	5.90	13.5	6.78	8.08
T2	37.85 (0.09)	2.04 (0.06)	0.49	6.75	15.3	7.30	7.74
W1	25.81 (0.07)	1.89 (0.03)	0.59	5.20	17.5	7.55	8.31
W2	30.84 (0.06)	1.94 (0.04)	0.68	5.32	16.4	7.32	8.36

Apr 15

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	33.62 (0.08)	2.28 (0.05)	0.76	6.69	14.6	6.56	8.22
L2	36.68 (0.06)	1.97 (0.06)	0.54	6.34	15.4	6.89	8.34
T1	26.53 (0.06)	1.82 (0.04)	0.48	6.46	17.8	6.48	8.18
T2	34.74 (0.05)	2.12 (0.03)	0.60	6.62	19.2	6.93	7.83
W1	22.42 (0.04)	2.01 (0.04)	0.65	5.63	21.5	7.27	8.15
W2	26.68 (0.04)	2.13 (0.03)	0.72	5.90	20.8	7.08	8.26

May 3

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	26.45 (0.08)	2.82 (0.04)	0.54	5.90	19.4	7.45	8.21
L2	29.59 (0.07)	2.41 (0.04)	0.36	5.09	20.4	7.63	8.54
T1	24.15 (0.06)	2.18 (0.04)	0.27	6.50	21.3	7.16	8.20
T2	30.96 (0.06)	2.23 (0.03)	0.40	5.75	21.6	7.55	8.11
W1	24.80 (0.06)	1.96 (0.03)	0.58	5.20	20.3	7.82	8.46
W2	28.40 (0.06)	2.09 (0.03)	0.66	5.73	20.7	7.60	8.52

May 16 (after rain)

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	31.84 (0.06)	3.19 (0.04)	0.83	6.55	20.5	7.83	8.12
L2	33.01 (0.07)	2.85 (0.04)	0.57	5.76	21.2	8.14	8.32
T1	28.86 (0.06)	2.39 (0.03)	0.46	6.87	22.2	7.52	8.29
T2	33.34 (0.05)	2.46 (0.04)	0.60	6.28	22.7	7.83	8.22
W1	27.62 (0.04)	2.43 (0.04)	0.75	5.61	23.0	8.24	8.34
W2	31.26 (0.05)	2.56 (0.03)	0.91	6.19	23.5	8.08	8.56

May 22

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	28.82 (0.07)	2.96 (0.03)	0.68	6.15	23.4	8.02	8.23
L2	30.21 (0.06)	2.62 (0.03)	0.45	5.42	24.2	8.21	8.40
T1	27.10	2.29	0.37	6.63	25.3	7.67	8.38

	(0.06)	(0.04)					
T2	31.57 (0.05)	2.32 (0.03)	0.49	6.03	26.0	7.97	8.32
W1	26.36 (0.05)	2.14 (0.02)	0.63	5.47	26.8	8.43	8.41
W2	29.45 (0.05)	2.28 (0.03)	0.77	5.92	27.5	8.29	8.48

June 11

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	23.37 (0.06)	3.30 (0.01)	0.61	5.76	28.5	8.33	7.78
L2	22.96 (0.06)	3.12 (0.03)	0.38	5.25	32.7	8.55	8.03
T1	17.62 (0.05)	2.45 (0.02)	0.31	5.66	28.4	8.04	7.57
T2	29.12 (0.03)	2.57 (0.03)	0.42	5.63	28.0	8.32	7.43
W1	13.85 (0.04)	2.48 (0.02)	0.54	4.62	31.4	8.72	8.10
W2	18.99 (0.03)	2.63 (0.02)	0.69	5.26	31.6	8.58	8.22

June 19 (eutrophication occurred at L2 and W1 sites)

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	25.74 (0.05)	3.37 (0.03)	0.54	5.97	30.2	8.47	8.01
L2	26.66 (0.04)	3.24 (0.02)	0.47	5.54	33.4	8.38	8.28
T1	22.27 (0.05)	2.52 (0.03)	0.23	5.85	30.6	8.28	7.81
T2	34.26 (0.04)	2.65 (0.03)	0.33	5.70	31.8	8.63	7.74
W1	18.33 (0.04)	2.60 (0.02)	0.66	5.22	32.6	8.59	8.32
W2	20.78 (0.03)	2.72 (0.02)	0.73	5.58	33.5	8.65	8.43

June 24 (after rain)

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	28.64 (0.04)	3.14 (0.02)	0.77	6.34	26.4	8.53	7.83
L2	29.13 (0.04)	3.03 (0.03)	0.64	5.92	27.5	8.36	8.04
T1	25.48 (0.03)	2.40 (0.02)	0.41	6.18	28.7	8.12	7.67
T2	36.60 (0.02)	2.57 (0.02)	0.50	6.04	29.6	8.50	7.54
W1	22.71 (0.05)	2.49 (0.03)	0.85	5.51	30.8	8.42	8.13
W2	25.47 (0.04)	2.60 (0.02)	0.97	5.86	31.5	8.45	8.27

July 6 (continuous precipitation increased the water level and flow at each site)

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	27.67 (0.05)	3.22 (0.03)	0.87	6.55	27.5	8.42	7.97
L2	28.14 (0.04)	3.10 (0.02)	0.73	6.16	28.3	8.22	8.16
T1	24.84 (0.02)	2.48 (0.02)	0.48	6.38	29.4	8.03	7.78
T2	34.55 (0.03)	2.63 (0.03)	0.62	6.26	30.3	8.37	7.66

W1	21.38 (0.02)	2.54 (0.02)	0.98	5.80	31.4	8.30	8.25
W2	23.30 (0.02)	2.69 (0.03)	1.11	6.12	32.2	8.26	8.34

July 17 (after rain)

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	25.88 (0.04)	3.03 (0.03)	1.03	6.72	24.3	8.22	7.74
L2	26.36 (0.04)	2.85 (0.03)	0.84	6.34	25.1	8.06	7.87
T1	23.08 (0.03)	2.24 (0.04)	0.61	6.50	26.6	7.87	7.56
T2	32.83 (0.04)	2.41 (0.03)	0.74	6.44	27.3	8.25	7.48
W1	19.67 (0.03)	2.28 (0.02)	1.07	6.01	28.0	8.13	8.04
W2	21.18 (0.03)	2.47 (0.02)	1.23	6.33	28.6	8.02	8.16

July 24 (eutrophication mitigated at W1 site)

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	21.28 (0.05)	2.82 (0.02)	0.89	6.13	28.8	8.18	7.78
L2	24.62 (0.04)	3.11 (0.04)	0.80	5.83	30.2	7.74	7.95
T1	22.29 (0.05)	2.42 (0.04)	0.55	6.06	31.4	7.49	7.72
T2	31.88 (0.05)	2.48 (0.02)	0.67	5.69	31.1	8.10	7.85
W1	17.26 (0.04)	2.36 (0.03)	0.98	5.55	29.8	7.94	8.06
W2	19.48 (0.04)	2.53 (0.03)	1.16	5.78	29.4	7.81	8.20

Aug 15 (after rain, eutrophication disappeared at W1 site)

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	26.24 (0.05)	2.56 (0.03)	1.02	5.55	26.6	8.38	7.61
L2	25.72 (0.04)	2.78 (0.03)	0.96	5.26	27.8	7.98	7.84
T1	22.86 (0.04)	2.17 (0.02)	0.66	5.40	29.3	7.74	7.53
T2	32.90 (0.03)	2.29 (0.02)	0.81	5.11	29.9	8.26	7.66
W1	18.93 (0.03)	2.08 (0.03)	1.11	4.79	28.7	8.06	7.88
W2	20.31 (0.04)	2.23 (0.02)	1.33	5.18	28.1	7.95	8.04

Aug 21

River	NO_3^-	NH_4^+	PO_4^{3-}	DOC	temp	DO	pH
L1	31.08 (0.04)	2.90 (0.02)	1.10	4.82	29.4	8.05	8.16
L2	29.07 (0.02)	3.33 (0.02)	1.04	4.66	30.3	7.64	8.05
T1	25.02 (0.03)	1.74 (0.03)	0.53	4.75	27.1	8.02	7.68
T2	34.90 (0.02)	2.04 (0.03)	0.71	4.47	28.4	8.41	7.80
W1	13.82 (0.03)	2.18 (0.02)	1.17	4.33	28.9	7.93	8.02
W2	16.25	2.56	1.48	4.67	29.6	7.35	8.19

	(0.02)	(0.02)					

Table S2. Flux of nutrients at sediment-water interface. The number in the parentheses represents the standard deviation.

Autumn flux

L1

DO C_0	DO C_1	DO C_2	DO flux 1	DO flux 2
5.39	4.12	3.63	-0.03	-0.01
5.31	4.04	3.47	-0.03	-0.01
5.35	4.22	3.53	-0.03	-0.01
NO_3^- C_0	NO_3^- C_1	NO_3^- C_2	NO_3^- flux 1	NO_3^- flux 2
29.30 (0.11)	24.81 (0.08)	26.72 (0.07)	-0.12	0.02
29.30 (0.11)	24.63 (0.06)	27.18 (0.06)	-0.12	0.03
29.30 (0.11)	24.76 (0.05)	26.86 (0.06)	-0.12	0.02
NH_4^+ C_0	NH_4^+ C_1	NH_4^+ C_2	NH_4^+ flux 1	NH_4^+ flux 2
1.76 (0.06)	2.08 (0.04)	1.85 (0.03)	0.01	-0.003
1.76 (0.06)	2.16 (0.02)	1.84 (0.02)	0.01	-0.004
1.76 (0.06)	2.13 (0.04)	1.82 (0.02)	0.01	-0.004
PO_4^{3-} C_0	PO_4^{3-} C_1	PO_4^{3-} C_2	PO_4^{3-} flux 1	PO_4^{3-} flux 2
1.33	1.14	0.96	-0.005	-0.002
1.33	1.16	1.07	-0.005	-0.001
1.33	1.13	0.93	-0.005	-0.002
DOC C_0	DOC C_1	DOC C_2	DOC flux 1	DOC flux 2
10.02	8.89	8.63	-0.03	-0.003
10.02	8.52	8.28	-0.04	-0.003
10.02	8.96	8.52	-0.03	-0.005

L2

DO C_0	DO C_1	DO C_2	DO flux 1	DO flux 2
5.74	4.68	4.03	-0.03	-0.01
5.66	4.61	3.94	-0.03	-0.01
5.69	4.66	4.06	-0.03	-0.01
NO_3^- C_0	NO_3^- C_1	NO_3^- C_2	NO_3^- flux 1	NO_3^- flux 2
33.31 (0.10)	37.35 (0.06)	40.91 (0.08)	0.11	0.04
33.31 (0.10)	37.53 (0.06)	40.62 (0.10)	0.11	0.04
33.31 (0.10)	37.55 (0.04)	40.71 (0.04)	0.11	0.04
NH_4^+ C_0	NH_4^+ C_1	NH_4^+ C_2	NH_4^+ flux 1	NH_4^+ flux 2
1.34 (0.06)	1.52 (0.03)	1.71 (0.04)	0.01	0.002
1.34 (0.06)	1.58 (0.02)	1.68 (0.04)	0.01	0.001
1.34 (0.06)	1.55 (0.03)	1.66 (0.03)	0.01	0.001
PO_4^{3-} C_0	PO_4^{3-} C_1	PO_4^{3-} C_2	PO_4^{3-} flux 1	PO_4^{3-} flux 2
0.98	1.25	1.34	0.008	0.001
0.98	1.27	1.37	0.008	0.001
0.98	1.28	1.42	0.008	0.002
DOC C_0	DOC C_1	DOC C_2	DOC flux 1	DOC flux 2
8.68	12.45	15.97	0.10	0.04
8.68	12.82	16.36	0.11	0.04
8.68	12.76	16.21	0.11	0.04

T1

DO C_0	DO C_1	DO C_2	DO flux 1	DO flux 2
7.12	6.33	5.63	-0.02	-0.01
7.27	6.24	5.47	-0.03	-0.01
7.16	6.16	5.56	-0.03	-0.01
NO_3^- C_0	NO_3^- C_1	NO_3^- C_2	NO_3^- flux 1	NO_3^- flux 2
30.18 (0.08)	35.26 (0.09)	33.77 (0.08)	0.13	-0.02
30.18 (0.08)	35.48 (0.05)	34.22 (0.06)	0.14	-0.01
30.18 (0.08)	35.36 (0.04)	34.39 (0.05)	0.14	-0.01
NH_4^+ C_0	NH_4^+ C_1	NH_4^+ C_2	NH_4^+ flux 1	NH_4^+ flux 2
1.15 (0.04)	1.53 (0.03)	1.35 (0.03)	0.01	-0.002
1.15 (0.04)	1.80 (0.02)	1.71 (0.02)	0.02	-0.001

1.15 (0.04)	1.71 (0.02)	1.53 (0.03)	0.01	-0.002
PO_4^{3-} C_0	PO_4^{3-} C_1	PO_4^{3-} C_2	PO_4^{3-} flux 1	PO_4^{3-} flux 2
0.56	0.83	0.72	0.007	-0.001
0.56	0.78	0.67	0.007	-0.001
0.56	0.86	0.74	0.007	-0.001
DOC C_0	DOC C_1	DOC C_2	DOC flux 1	DOC flux 2
9.84	10.59	9.71	0.02	-0.01
9.84	10.51	10.96	0.02	-0.02
9.84	10.66	10.77	0.02	-0.01

T2

DO C_0	DO C_1	DO C_2	DO flux 1	DO flux 2
7.59	6.72	6.13	-0.02	-0.01
7.71	6.64	6.02	-0.03	-0.01
7.65	6.59	5.83	-0.03	-0.01
NO_3^- C_0	NO_3^- C_1	NO_3^- C_2	NO_3^- flux 1	NO_3^- flux 2
38.55 (0.08)	36.76 (0.07)	35.38 (0.06)	-0.05	-0.02
38.55 (0.08)	36.88 (0.04)	35.62 (0.02)	-0.05	-0.01
38.55 (0.08)	36.82 (0.03)	35.21 (0.03)	-0.05	-0.02
NH_4^+ C_0	NH_4^+ C_1	NH_4^+ C_2	NH_4^+ flux 1	NH_4^+ flux 2
0.96 (0.04)	1.26 (0.03)	1.44 (0.02)	0.01	0.002
0.96 (0.04)	1.19 (0.02)	1.50 (0.03)	0.01	0.004
0.96 (0.04)	1.29 (0.02)	1.56 (0.03)	0.01	0.003
PO_4^{3-} C_0	PO_4^{3-} C_1	PO_4^{3-} C_2	PO_4^{3-} flux 1	PO_4^{3-} flux 2
0.84	1.22	1.04	0.01	-0.002
0.84	1.15	0.96	0.01	-0.002
0.84	1.18	0.92	0.01	-0.003
DOC C_0	DOC C_1	DOC C_2	DOC flux 1	DOC flux 2
9.37	13.14	15.78	0.10	0.03
9.37	13.35	15.12	0.10	0.02
9.37	13.29	15.96	0.10	0.03

W1

DO C_0	DO C_1	DO C_2	DO flux 1	DO flux 2
6.68	5.79	5.11	-0.02	-0.01
6.57	5.66	5.02	-0.02	-0.01
6.74	5.73	4.89	-0.03	-0.01
NO_3^- C_0	NO_3^- C_1	NO_3^- C_2	NO_3^- flux 1	NO_3^- flux 2
20.76 (0.04)	16.24 (0.05)	12.72 (0.04)	-0.12	-0.04
20.76 (0.04)	16.62 (0.03)	13.10 (0.04)	-0.11	-0.04
20.76 (0.04)	16.03 (0.03)	12.51 (0.03)	-0.12	-0.04
NH_4^+ C_0	NH_4^+ C_1	NH_4^+ C_2	NH_4^+ flux 1	NH_4^+ flux 2
1.05 (0.03)	1.24 (0.02)	1.32 (0.03)	0.01	0.001
1.05 (0.03)	1.26 (0.01)	1.34 (0.01)	0.01	0.001
1.05 (0.03)	1.28 (0.01)	1.40 (0.01)	0.01	0.001
PO_4^{3-} C_0	PO_4^{3-} C_1	PO_4^{3-} C_2	PO_4^{3-} flux 1	PO_4^{3-} flux 2
1.17	0.97	1.09	-0.005	0.001
1.17	0.92	1.03	-0.005	0.001
1.17	0.93	1.05	-0.005	0.001
DOC C_0	DOC C_1	DOC C_2	DOC flux 1	DOC flux 2
7.52	11.66	14.30	0.11	0.03
7.52	11.55	14.18	0.11	0.03
7.52	11.63	14.34	0.12	0.03

W2

DO C_0	DO C_1	DO C_2	DO flux 1	DO flux 2
6.32	5.09	4.35	-0.03	-0.01
6.17	5.16	4.42	-0.03	-0.01
6.25	4.93	4.19	-0.04	-0.01
NO_3^- C_0	NO_3^- C_1	NO_3^- C_2	NO_3^- flux 1	NO_3^- flux 2
22.03 (0.06)	14.49 (0.08)	6.58 (0.05)	-0.20	-0.09
22.03 (0.06)	14.12 (0.07)	6.21 (0.04)	-0.21	-0.09

22.03 (0.06)	14.66 (0.08)	5.87 (0.04)	-0.20	-0.10
NH_4^+ C_0	NH_4^+ C_1	NH_4^+ C_2	NH_4^+ flux 1	NH_4^+ flux 2
1.15 (0.05)	1.37 (0.04)	1.51 (0.03)	0.02	0.002
1.15 (0.05)	1.41 (0.02)	1.55 (0.02)	0.02	0.002
1.15 (0.05)	1.42 (0.02)	1.58 (0.02)	0.02	0.002
PO_4^{3-} C_0	PO_4^{3-} C_1	PO_4^{3-} C_2	PO_4^{3-} flux 1	PO_4^{3-} flux 2
1.26	1.01	0.96	-0.007	-0.001
1.26	0.99	0.92	-0.007	-0.001
1.26	0.98	0.82	-0.007	-0.002
DOC C_0	DOC C_1	DOC C_2	DOC flux 1	DOC flux 2
8.47	8.09	7.65	-0.01	-0.005
8.47	8.02	7.58	-0.01	-0.005
8.47	7.73	7.28	-0.02	-0.005

Winter flux

L1

DO C_0	DO C_1	DO C_2	DO flux 1	DO flux 2
5.11	3.89	3.14	-0.03	-0.01
5.25	3.96	3.12	-0.03	-0.01
4.94	3.83	2.94	-0.03	-0.01
NO_3^- C_0	NO_3^- C_1	NO_3^- C_2	NO_3^- flux 1	NO_3^- flux 2
44.31 (0.11)	44.97 (0.10)	35.21 (0.12)	0.02	-0.11
44.31 (0.11)	45.39 (0.11)	35.53 (0.10)	0.03	-0.11
44.31 (0.11)	45.25 (0.08)	35.69 (0.10)	0.02	-0.11
NH_4^+ C_0	NH_4^+ C_1	NH_4^+ C_2	NH_4^+ flux 1	NH_4^+ flux 2
1.18 (0.03)	2.31 (0.02)	3.19 (0.02)	0.03	0.01
1.18 (0.03)	2.27 (0.03)	3.15 (0.02)	0.03	0.01
1.18 (0.03)	2.45 (0.02)	3.12 (0.01)	0.03	0.01
PO_4^{3-} C_0	PO_4^{3-} C_1	PO_4^{3-} C_2	PO_4^{3-} flux 1	PO_4^{3-} flux 2
1.27	0.89	0.71	-0.01	-0.002
1.27	0.91	0.72	-0.01	-0.002
1.27	0.87	0.63	-0.01	-0.003
DOC C_0	DOC C_1	DOC C_2	DOC flux 1	DOC flux 2
13.63	14.76	14.41	0.03	-0.004
13.63	14.92	14.57	0.03	-0.004
13.63	14.82	14.47	0.03	-0.004

L2

DO C_0	DO C_1	DO C_2	DO flux 1	DO flux 2
5.42	3.63	3.01	-0.05	-0.01
5.23	3.46	2.92	-0.05	-0.01
5.31	3.49	2.83	-0.05	-0.01
NO_3^- C_0	NO_3^- C_1	NO_3^- C_2	NO_3^- flux 1	NO_3^- flux 2
51.87 (0.09)	40.08 (0.08)	36.68 (0.06)	-0.31	-0.04
51.87 (0.09)	40.44 (0.06)	36.97 (0.06)	-0.30	-0.04
51.87 (0.09)	40.21 (0.07)	36.77 (0.08)	-0.31	-0.04
NH_4^+ C_0	NH_4^+ C_1	NH_4^+ C_2	NH_4^+ flux 1	NH_4^+ flux 2
0.93 (0.02)	2.44 (0.03)	3.32 (0.02)	0.04	0.01
0.93 (0.02)	2.26 (0.04)	3.05 (0.02)	0.04	0.01
0.93 (0.02)	2.35 (0.03)	3.18 (0.03)	0.04	0.01
PO_4^{3-} C_0	PO_4^{3-} C_1	PO_4^{3-} C_2	PO_4^{3-} flux 1	PO_4^{3-} flux 2
1.13	0.85	0.67	-0.007	-0.002
1.13	0.83	0.66	-0.007	-0.002
1.13	0.87	0.69	-0.007	-0.002
DOC C_0	DOC C_1	DOC C_2	DOC flux 1	DOC flux 2
10.84	12.25	12.69	0.04	0.005
10.84	12.23	12.90	0.04	0.004
10.84	12.27	12.58	0.04	0.005

T1

DO C_0	DO C_1	DO C_2	DO flux 1	DO flux 2
5.68	4.69	4.02	-0.03	-0.01

5.77	4.73	4.14	-0.03	-0.01
5.61	4.62	3.91	-0.03	-0.01
NO_3^- C_0	NO_3^- C_1	NO_3^- C_2	NO_3^- flux 1	NO_3^- flux 2
33.99 (0.07)	45.63 (0.05)	36.41 (0.07)	0.31	-0.10
33.99 (0.07)	45.48 (0.06)	36.11 (0.04)	0.30	-0.11
33.99 (0.07)	45.32 (0.06)	36.28 (0.07)	0.30	-0.10
NH_4^+ C_0	NH_4^+ C_1	NH_4^+ C_2	NH_4^+ flux 1	NH_4^+ flux 2
0.85 (0.02)	1.98 (0.03)	2.86 (0.02)	0.03	0.01
0.85 (0.02)	1.93 (0.02)	2.81 (0.01)	0.03	0.01
0.85 (0.02)	2.26 (0.03)	3.03 (0.02)	0.04	0.01
PO_4^{3-} C_0	PO_4^{3-} C_1	PO_4^{3-} C_2	PO_4^{3-} flux 1	PO_4^{3-} flux 2
0.93	0.81	0.88	-0.003	0.001
0.93	0.77	0.86	-0.004	0.001
0.93	0.82	0.95	-0.003	0.001
DOC C_0	DOC C_1	DOC C_2	DOC flux 1	DOC flux 2
13.53	13.91	13.65	0.01	-0.003
13.53	13.85	13.61	0.01	-0.003
13.53	13.98	14.16	0.01	-0.002

T2

DO C_0	DO C_1	DO C_2	DO flux 1	DO flux 2
6.32	5.44	4.96	-0.02	-0.01
6.22	5.36	4.83	-0.02	-0.01
6.24	5.38	4.92	-0.02	-0.01
NO_3^- C_0	NO_3^- C_1	NO_3^- C_2	NO_3^- flux 1	NO_3^- flux 2
36.21 (0.10)	34.01 (0.07)	38.82 (0.06)	-0.06	0.05
36.21 (0.10)	33.88 (0.06)	38.60 (0.05)	-0.06	0.05
36.21 (0.10)	34.12 (0.04)	38.74 (0.05)	-0.06	0.05
NH_4^+ C_0	NH_4^+ C_1	NH_4^+ C_2	NH_4^+ flux 1	NH_4^+ flux 2
0.62 (0.03)	1.37 (0.02)	1.81 (0.03)	0.02	0.005
0.62 (0.03)	1.45 (0.02)	1.88 (0.02)	0.02	0.005
0.62 (0.03)	1.41 (0.01)	1.85 (0.02)	0.02	0.005
PO_4^{3-} C_0	PO_4^{3-} C_1	PO_4^{3-} C_2	PO_4^{3-} flux 1	PO_4^{3-} flux 2
1.02	0.87	0.69	-0.004	-0.002
1.02	0.88	0.71	-0.004	-0.002
1.02	0.86	0.60	-0.004	-0.003
DOC C_0	DOC C_1	DOC C_2	DOC flux 1	DOC flux 2
11.37	12.12	11.86	0.02	-0.003
11.37	12.23	11.96	0.02	-0.003
11.37	12.39	12.04	0.03	-0.004

W1

DO C_0	DO C_1	DO C_2	DO flux 1	DO flux 2
6.64	5.57	5.02	-0.03	-0.01
6.62	5.44	4.76	-0.03	-0.01
6.54	5.51	4.87	-0.03	-0.01
NO_3^- C_0	NO_3^- C_1	NO_3^- C_2	NO_3^- flux 1	NO_3^- flux 2
36.50 (0.07)	38.79 (0.05)	42.31 (0.07)	0.06	0.04
36.50 (0.07)	39.03 (0.06)	41.66 (0.04)	0.07	0.03
36.50 (0.07)	38.88 (0.04)	41.52 (0.03)	0.06	0.03
NH_4^+ C_0	NH_4^+ C_1	NH_4^+ C_2	NH_4^+ flux 1	NH_4^+ flux 2
0.52 (0.01)	2.40 (0.02)	3.25 (0.01)	0.05	0.01
0.52 (0.01)	2.02 (0.01)	2.83 (0.02)	0.04	0.01
0.52 (0.01)	2.24 (0.02)	3.11 (0.02)	0.05	0.01
PO_4^{3-} C_0	PO_4^{3-} C_1	PO_4^{3-} C_2	PO_4^{3-} flux 1	PO_4^{3-} flux 2
1.21	0.91	0.75	-0.008	-0.002
1.21	0.89	0.73	-0.008	-0.002
1.21	0.87	0.63	-0.009	-0.003
DOC C_0	DOC C_1	DOC C_2	DOC flux 1	DOC flux 2
10.67	10.29	10.11	-0.01	-0.002
10.67	10.17	9.91	-0.01	-0.003

10.67	10.22	9.96	-0.01	-0.003

W2

DO C_0	DO C_1	DO C_2	DO flux 1	DO flux 2
6.13	5.29	4.66	-0.02	-0.01
6.02	5.24	4.53	-0.02	-0.01
5.96	5.18	4.62	-0.02	-0.01
NO_3^- C_0	NO_3^- C_1	NO_3^- C_2	NO_3^- flux 1	NO_3^- flux 2
45.01 (0.08)	41.62 (0.09)	38.96 (0.07)	-0.09	-0.03
45.01 (0.08)	42.02 (0.06)	39.43 (0.08)	-0.08	-0.03
45.01 (0.08)	41.88 (0.06)	39.25 (0.08)	-0.08	-0.03
NH_4^+ C_0	NH_4^+ C_1	NH_4^+ C_2	NH_4^+ flux 1	NH_4^+ flux 2
0.56 (0.02)	2.10 (0.03)	2.88 (0.04)	0.04	0.01
0.56 (0.02)	1.95 (0.02)	2.71 (0.02)	0.04	0.01
0.56 (0.02)	2.27 (0.02)	3.13 (0.02)	0.05	0.01
PO_4^{3-} C_0	PO_4^{3-} C_1	PO_4^{3-} C_2	PO_4^{3-} flux 1	PO_4^{3-} flux 2
1.30	0.96	0.78	-0.009	-0.002
1.30	0.89	0.63	-0.011	-0.003
1.30	0.92	0.66	-0.010	-0.003
DOC C_0	DOC C_1	DOC C_2	DOC flux 1	DOC flux 2
11.22	9.71	8.83	-0.04	-0.010
11.22	9.78	8.87	-0.04	-0.010
11.22	9.69	8.90	-0.04	-0.009

Spring flux

L1

DO C_0	DO C_1	DO C_2	DO flux 1	DO flux 2
5.82	5.18	4.66	-0.02	-0.01
5.72	5.12	4.63	-0.02	-0.01
5.77	5.16	4.52	-0.02	-0.01
NO_3^- C_0	NO_3^- C_1	NO_3^- C_2	NO_3^- flux 1	NO_3^- flux 2
33.12 (0.07)	40.92 (0.10)	33.52 (0.11)	0.21	-0.08
33.12 (0.07)	41.13 (0.08)	33.44 (0.09)	0.21	-0.09
33.12 (0.07)	40.81 (0.08)	33.65 (0.08)	0.20	-0.08
NH_4^+ C_0	NH_4^+ C_1	NH_4^+ C_2	NH_4^+ flux 1	NH_4^+ flux 2
2.17 (0.05)	2.21 (0.04)	1.94 (0.04)	0.001	-0.003
2.17 (0.05)	2.24 (0.05)	1.88 (0.03)	0.002	-0.004
2.17 (0.05)	2.26 (0.04)	1.92 (0.03)	0.002	-0.004
PO_4^{3-} C_0	PO_4^{3-} C_1	PO_4^{3-} C_2	PO_4^{3-} flux 1	PO_4^{3-} flux 2
0.82	1.05	1.23	0.006	0.002
0.82	1.07	1.24	0.006	0.002
0.82	1.04	1.24	0.006	0.002
DOC C_0	DOC C_1	DOC C_2	DOC flux 1	DOC flux 2
7.00	9.64	9.90	0.07	0.003
7.00	9.73	9.99	0.07	0.003
7.00	9.79	10.07	0.07	0.003

L2:

DO C_0	DO C_1	DO C_2	DO flux 1	DO flux 2
6.29	5.35	4.68	-0.02	-0.01
6.41	5.42	4.83	-0.03	-0.01
6.35	5.33	4.62	-0.03	-0.01
NO_3^- C_0	NO_3^- C_1	NO_3^- C_2	NO_3^- flux 1	NO_3^- flux 2
31.48 (0.08)	28.26 (0.10)	32.22 (0.08)	-0.09	0.05
31.48 (0.08)	28.11 (0.12)	32.35 (0.08)	-0.09	0.05
31.48 (0.08)	28.03 (0.09)	32.15 (0.07)	-0.09	0.05
NH_4^+ C_0	NH_4^+ C_1	NH_4^+ C_2	NH_4^+ flux 1	NH_4^+ flux 2
1.73 (0.06)	2.02 (0.08)	1.78 (0.07)	0.01	-0.003
1.73 (0.06)	2.11 (0.05)	1.69 (0.08)	0.01	-0.005
1.73 (0.06)	2.08 (0.06)	1.72 (0.06)	0.01	-0.004
PO_4^{3-} C_0	PO_4^{3-} C_1	PO_4^{3-} C_2	PO_4^{3-} flux 1	PO_4^{3-} flux 2
0.57	0.85	1.11	0.007	0.003

0.57	0.83	1.06	0.007	0.003
0.57	0.88	1.13	0.007	0.003
DOC C_0	DOC C_1	DOC C_2	DOC flux 1	DOC flux 2
6.40	8.28	8.45	0.05	0.002
6.40	8.37	8.63	0.05	0.003
6.40	8.44	8.62	0.05	0.002

T1:

DO C_0	DO C_1	DO C_2	DO flux 1	DO flux 2
6.44	5.53	4.96	-0.02	-0.01
6.53	5.72	5.15	-0.02	-0.01
6.49	5.66	5.03	-0.02	-0.01
NO_3^- C_0	NO_3^- C_1	NO_3^- C_2	NO_3^- flux 1	NO_3^- flux 2
29.27 (0.06)	26.26 (0.09)	24.57 (0.06)	-0.08	-0.02
29.27 (0.06)	26.08 (0.07)	24.43 (0.05)	-0.08	-0.02
29.27 (0.06)	26.15 (0.07)	24.51 (0.06)	-0.08	-0.02
NH_4^+ C_0	NH_4^+ C_1	NH_4^+ C_2	NH_4^+ flux 1	NH_4^+ flux 2
1.67 (0.03)	1.29 (0.05)	1.13 (0.03)	-0.01	-0.002
1.67 (0.03)	1.34 (0.06)	1.11 (0.04)	-0.01	-0.002
1.67 (0.03)	1.38 (0.05)	1.18 (0.03)	-0.01	-0.002
PO_4^{3-} C_0	PO_4^{3-} C_1	PO_4^{3-} C_2	PO_4^{3-} flux 1	PO_4^{3-} flux 2
0.36	0.29	0.23	-0.002	-0.001
0.36	0.26	0.21	-0.003	-0.001
0.36	0.27	0.21	-0.002	-0.001
DOC C_0	DOC C_1	DOC C_2	DOC flux 1	DOC flux 2
6.00	10.52	12.29	0.12	0.02
6.00	10.43	12.13	0.12	0.02
6.00	10.48	12.22	0.12	0.02

T2

DO C_0	DO C_1	DO C_2	DO flux 1	DO flux 2
6.74	5.88	5.24	-0.02	-0.01
6.65	5.96	5.34	-0.02	-0.01
6.61	5.78	5.15	-0.02	-0.01
NO_3^- C_0	NO_3^- C_1	NO_3^- C_2	NO_3^- flux 1	NO_3^- flux 2
41.33 (0.05)	33.73 (0.08)	30.14 (0.05)	-0.20	-0.04
41.33 (0.05)	34.25 (0.10)	30.38 (0.07)	-0.19	-0.04
41.33 (0.05)	33.96 (0.06)	29.86 (0.06)	-0.20	-0.05
NH_4^+ C_0	NH_4^+ C_1	NH_4^+ C_2	NH_4^+ flux 1	NH_4^+ flux 2
1.93 (0.04)	2.08 (0.06)	1.99 (0.05)	0.004	-0.001
1.93 (0.04)	2.06 (0.05)	1.95 (0.04)	0.004	-0.001
1.93 (0.04)	2.11 (0.06)	1.93 (0.04)	0.005	-0.002
PO_4^{3-} C_0	PO_4^{3-} C_1	PO_4^{3-} C_2	PO_4^{3-} flux 1	PO_4^{3-} flux 2
0.45	0.33	0.39	-0.003	0.001
0.45	0.35	0.40	-0.003	0.001
0.45	0.32	0.37	-0.003	0.001
DOC C_0	DOC C_1	DOC C_2	DOC flux 1	DOC flux 2
6.91	9.20	8.85	0.06	-0.004
6.91	9.17	8.82	0.06	-0.004
6.91	9.22	8.77	0.06	-0.005

W1

DO C_0	DO C_1	DO C_2	DO flux 1	DO flux 2
6.46	5.57	4.97	-0.02	-0.01
6.55	5.52	4.85	-0.03	-0.01
6.50	5.46	4.77	-0.03	-0.01
NO_3^- C_0	NO_3^- C_1	NO_3^- C_2	NO_3^- flux 1	NO_3^- flux 2
23.94 (0.06)	21.30 (0.10)	19.54 (0.09)	-0.07	-0.02
23.94 (0.06)	21.42 (0.08)	19.68 (0.08)	-0.07	-0.02
23.94 (0.06)	21.65 (0.07)	19.89 (0.05)	-0.06	-0.02
NH_4^+ C_0	NH_4^+ C_1	NH_4^+ C_2	NH_4^+ flux 1	NH_4^+ flux 2
2.19 (0.06)	2.08 (0.06)	1.88 (0.03)	-0.003	-0.002

2.19 (0.06)	2.04 (0.05)	1.91 (0.04)	-0.004	-0.001
2.19 (0.06)	1.99 (0.05)	1.82 (0.03)	-0.005	-0.002
PO_4^{3-} C_0	PO_4^{3-} C_1	PO_4^{3-} C_2	PO_4^{3-} flux 1	PO_4^{3-} flux 2
0.66	0.47	0.41	-0.005	-0.001
0.66	0.50	0.44	-0.004	-0.001
0.66	0.45	0.38	-0.006	-0.001
DOC C_0	DOC C_1	DOC C_2	DOC flux 1	DOC flux 2
6.04	7.17	6.30	0.03	-0.01
6.04	7.19	6.33	0.03	-0.01
6.04	7.22	6.34	0.03	-0.01

W2

DO C_0	DO C_1	DO C_2	DO flux 1	DO flux 2
6.12	5.37	4.77	-0.02	-0.01
5.96	5.26	4.56	-0.02	-0.01
6.04	5.33	4.62	-0.02	-0.01
NO_3^- C_0	NO_3^- C_1	NO_3^- C_2	NO_3^- flux 1	NO_3^- flux 2
28.82 (0.04)	24.11 (0.07)	20.46 (0.05)	-0.13	-0.04
28.82 (0.04)	23.88 (0.09)	20.14 (0.06)	-0.13	-0.04
28.82 (0.04)	23.72 (0.06)	20.28 (0.03)	-0.14	-0.04
NH_4^+ C_0	NH_4^+ C_1	NH_4^+ C_2	NH_4^+ flux 1	NH_4^+ flux 2
2.48 (0.03)	2.02 (0.04)	1.60 (0.03)	-0.01	-0.005
2.48 (0.03)	1.93 (0.03)	1.53 (0.02)	-0.01	-0.005
2.48 (0.03)	1.97 (0.03)	1.56 (0.03)	-0.01	-0.005
PO_4^{3-} C_0	PO_4^{3-} C_1	PO_4^{3-} C_2	PO_4^{3-} flux 1	PO_4^{3-} flux 2
0.78	0.58	0.47	-0.005	-0.001
0.78	0.55	0.44	-0.006	-0.001
0.78	0.59	0.48	-0.005	-0.001
DOC C_0	DOC C_1	DOC C_2	DOC flux 1	DOC flux 2
6.80	7.55	6.67	0.02	-0.010
6.80	7.58	6.71	0.02	-0.010
6.80	7.60	6.63	0.02	-0.011

Summer flux

L1

DO C_0	DO C_1	DO C_2	DO flux 1	DO flux 2
7.76	6.79	6.23	-0.03	-0.01
7.64	6.63	6.16	-0.03	-0.01
7.55	6.67	6.25	-0.02	-0.01
NO_3^- C_0	NO_3^- C_1	NO_3^- C_2	NO_3^- flux 1	NO_3^- flux 2
23.37 (0.06)	22.27 (0.05)	23.53 (0.04)	-0.03	0.01
23.37 (0.06)	22.06 (0.04)	23.42 (0.03)	-0.03	0.02
23.37 (0.06)	22.14 (0.04)	23.48 (0.03)	-0.03	0.02
NH_4^+ C_0	NH_4^+ C_1	NH_4^+ C_2	NH_4^+ flux 1	NH_4^+ flux 2
3.30 (0.01)	4.60 (0.02)	4.50 (0.03)	0.03	-0.001
3.30 (0.01)	4.66 (0.02)	4.55 (0.02)	0.04	-0.001
3.30 (0.01)	4.63 (0.03)	4.52 (0.02)	0.04	-0.001
PO_4^{3-} C_0	PO_4^{3-} C_1	PO_4^{3-} C_2	PO_4^{3-} flux 1	PO_4^{3-} flux 2
0.61	0.76	0.86	0.004	0.001
0.61	0.80	0.92	0.005	0.001
0.61	0.82	0.96	0.006	0.002
DOC C_0	DOC C_1	DOC C_2	DOC flux 1	DOC flux 2
5.76	9.15	8.27	0.09	-0.01
5.76	8.98	8.10	0.09	-0.01
5.76	9.04	8.33	0.09	-0.01

L2

DO C_0	DO C_1	DO C_2	DO flux 1	DO flux 2
7.84	7.03	6.47	-0.02	-0.01
7.71	6.94	6.33	-0.02	-0.01
7.75	6.91	6.16	-0.02	-0.01
NO_3^- C_0	NO_3^- C_1	NO_3^- C_2	NO_3^- flux 1	NO_3^- flux 2

22.96 (0.06)	21.23 (0.03)	21.04 (0.05)	-0.05	-0.002
22.96 (0.06)	21.14 (0.04)	20.93 (0.03)	-0.05	-0.002
22.96 (0.06)	21.11 (0.04)	20.86 (0.03)	-0.05	-0.003
NH_4^+ C_0	NH_4^+ C_1	NH_4^+ C_2	NH_4^+ flux 1	NH_4^+ flux 2
3.12 (0.03)	4.42 (0.02)	4.34 (0.03)	0.03	-0.001
3.12 (0.03)	4.45 (0.02)	4.35 (0.02)	0.03	-0.001
3.12 (0.03)	4.54 (0.03)	4.45 (0.02)	0.04	-0.001
PO_4^{3-} C_0	PO_4^{3-} C_1	PO_4^{3-} C_2	PO_4^{3-} flux 1	PO_4^{3-} flux 2
0.38	0.22	0.29	-0.004	0.001
0.38	0.24	0.33	-0.004	0.001
0.38	0.21	0.30	-0.005	0.001
DOC C_0	DOC C_1	DOC C_2	DOC flux 1	DOC flux 2
5.25	5.62	4.75	0.01	-0.01
5.25	5.66	4.88	0.01	-0.01
5.25	5.63	4.27	0.01	-0.02

T1

DO C_0	DO C_1	DO C_2	DO flux 1	DO flux 2
6.95	6.06	5.43	-0.02	-0.01
7.07	6.14	5.49	-0.02	-0.01
6.92	6.02	5.34	-0.02	-0.01
NO_3^- C_0	NO_3^- C_1	NO_3^- C_2	NO_3^- flux 1	NO_3^- flux 2
17.62 (0.05)	13.85 (0.04)	11.21 (0.02)	-0.10	-0.03
17.62 (0.05)	13.90 (0.02)	10.48 (0.03)	-0.10	-0.04
17.62 (0.05)	13.81 (0.02)	10.65 (0.03)	-0.10	-0.04
NH_4^+ C_0	NH_4^+ C_1	NH_4^+ C_2	NH_4^+ flux 1	NH_4^+ flux 2
2.45 (0.02)	4.49 (0.03)	5.63 (0.02)	0.05	0.01
2.45 (0.02)	4.43 (0.03)	5.57 (0.02)	0.05	0.01
2.45 (0.02)	4.52 (0.02)	5.68 (0.03)	0.05	0.01
PO_4^{3-} C_0	PO_4^{3-} C_1	PO_4^{3-} C_2	PO_4^{3-} flux 1	PO_4^{3-} flux 2
0.31	0.21	0.16	-0.003	-0.001
0.31	0.19	0.15	-0.003	-0.001
0.31	0.22	0.18	-0.002	-0.001
DOC C_0	DOC C_1	DOC C_2	DOC flux 1	DOC flux 2
5.66	10.56	10.12	0.13	-0.005
5.66	10.42	9.80	0.13	-0.007
5.66	10.48	10.04	0.13	-0.005

T2

DO C_0	DO C_1	DO C_2	DO flux 1	DO flux 2
7.68	6.63	5.97	-0.03	-0.01
7.55	6.71	6.03	-0.02	-0.01
7.58	6.64	5.93	-0.02	-0.01
NO_3^- C_0	NO_3^- C_1	NO_3^- C_2	NO_3^- flux 1	NO_3^- flux 2
31.12 (0.03)	28.87 (0.03)	27.77 (0.02)	-0.06	-0.01
31.12 (0.03)	28.76 (0.02)	27.68 (0.03)	-0.06	-0.01
31.12 (0.03)	28.81 (0.02)	27.72 (0.03)	-0.06	-0.01
NH_4^+ C_0	NH_4^+ C_1	NH_4^+ C_2	NH_4^+ flux 1	NH_4^+ flux 2
2.57 (0.03)	3.97 (0.03)	4.21 (0.04)	0.04	0.003
2.57 (0.03)	3.88 (0.03)	4.14 (0.03)	0.03	0.003
2.57 (0.03)	4.02 (0.02)	4.24 (0.04)	0.04	0.003
PO_4^{3-} C_0	PO_4^{3-} C_1	PO_4^{3-} C_2	PO_4^{3-} flux 1	PO_4^{3-} flux 2
0.42	0.31	0.25	-0.003	-0.001
0.42	0.29	0.22	-0.003	-0.001
0.42	0.28	0.20	-0.004	-0.001
DOC C_0	DOC C_1	DOC C_2	DOC flux 1	DOC flux 2
5.63	7.14	6.26	0.04	-0.01
5.63	7.05	6.14	0.04	-0.01
5.63	7.19	6.33	0.04	-0.01

W1

DO C_0	DO C_1	DO C_2	DO flux 1	DO flux 2

7.96	7.04	6.56	-0.02	-0.01
7.92	6.95	6.45	-0.03	-0.01
7.85	6.86	6.63	-0.03	-0.01
NO_3^- C_0	NO_3^- C_1	NO_3^- C_2	NO_3^- flux 1	NO_3^- flux 2
13.85 (0.04)	15.23 (0.04)	17.62 (0.03)	0.04	0.03
13.85 (0.04)	15.28 (0.03)	17.78 (0.04)	0.04	0.03
13.85 (0.04)	15.35 (0.03)	17.86 (0.03)	0.04	0.03
NH_4^+ C_0	NH_4^+ C_1	NH_4^+ C_2	NH_4^+ flux 1	NH_4^+ flux 2
2.48 (0.02)	3.92 (0.03)	4.33 (0.02)	0.04	0.005
2.48 (0.02)	3.82 (0.02)	4.20 (0.02)	0.04	0.005
2.48 (0.02)	4.05 (0.02)	4.45 (0.02)	0.04	0.005
PO_4^{3-} C_0	PO_4^{3-} C_1	PO_4^{3-} C_2	PO_4^{3-} flux 1	PO_4^{3-} flux 2
0.54	0.46	0.56	-0.002	0.001
0.54	0.43	0.57	-0.003	0.001
0.54	0.39	0.52	-0.004	0.001
DOC C_0	DOC C_1	DOC C_2	DOC flux 1	DOC flux 2
4.60	5.35	4.47	0.02	-0.01
4.60	5.38	4.49	0.02	-0.01
4.60	5.40	4.50	0.02	-0.01

W2

DO C_0	DO C_1	DO C_2	DO flux 1	DO flux 2
7.53	6.64	5.92	-0.02	-0.01
7.46	6.52	5.79	-0.02	-0.01
7.38	6.35	5.61	-0.03	-0.01
NO_3^- C_0	NO_3^- C_1	NO_3^- C_2	NO_3^- flux 1	NO_3^- flux 2
18.99 (0.03)	19.53 (0.04)	15.37 (0.04)	0.01	-0.05
18.99 (0.03)	19.59 (0.03)	15.44 (0.02)	0.02	-0.05
18.99 (0.03)	19.57 (0.03)	15.40 (0.02)	0.02	-0.05
NH_4^+ C_0	NH_4^+ C_1	NH_4^+ C_2	NH_4^+ flux 1	NH_4^+ flux 2
2.63 (0.02)	3.68 (0.03)	3.47 (0.03)	0.03	-0.002
2.63 (0.02)	3.64 (0.02)	3.42 (0.02)	0.03	-0.003
2.63 (0.02)	3.71 (0.02)	3.48 (0.02)	0.03	-0.003
PO_4^{3-} C_0	PO_4^{3-} C_1	PO_4^{3-} C_2	PO_4^{3-} flux 1	PO_4^{3-} flux 2
0.69	0.56	0.45	-0.003	-0.001
0.69	0.51	0.43	-0.005	-0.001
0.69	0.54	0.41	-0.004	-0.001
DOC C_0	DOC C_1	DOC C_2	DOC flux 1	DOC flux 2
5.26	5.64	5.11	0.01	-0.006
5.26	5.66	5.04	0.01	-0.007
5.26	5.69	5.16	0.01	-0.006

Table S3. 0-3 min exposure flux measurement with zinc chloride for summer study

L1

DO C_0	DO C_1	DO flux 1
7.76	6.92	-0.02
7.64	6.81	-0.02
7.55	6.87	-0.02
NO_3^- C_0	NO_3^- C_1	NO_3^- flux 1
23.37 (0.06)	22.37 (0.04)	-0.03
23.37 (0.06)	22.32 (0.03)	-0.03
23.37 (0.06)	22.34 (0.04)	-0.03
NH_4^+ C_0	NH_4^+ C_1	NH_4^+ flux 1
3.30 (0.01)	4.34 (0.03)	0.03
3.30 (0.01)	4.25 (0.03)	0.03
3.30 (0.01)	4.45 (0.02)	0.03
PO_4^{3-} C_0	PO_4^{3-} C_1	PO_4^{3-} flux 1
0.61	0.72	0.003
0.61	0.75	0.004
0.61	0.77	0.004
DOC C_0	DOC C_1	DOC flux 1
5.76	9.15	0.09
5.76	9.24	0.09
5.76	9.28	0.09

L2

DO C_0	DO C_1	DO flux 1
7.84	7.15	-0.02
7.71	7.01	-0.02
7.75	7.07	-0.02
NO_3^- C_0	NO_3^- C_1	NO_3^- flux 1
22.96 (0.06)	21.35 (0.03)	-0.04
22.96 (0.06)	21.42 (0.04)	-0.04
22.96 (0.06)	21.28 (0.03)	-0.04
NH_4^+ C_0	NH_4^+ C_1	NH_4^+ flux 1
3.12 (0.03)	4.34 (0.02)	0.03
3.12 (0.02)	4.26 (0.03)	0.03
3.12 (0.02)	4.42 (0.03)	0.03
PO_4^{3-} C_0	PO_4^{3-} C_1	PO_4^{3-} flux 1
0.38	0.24	-0.004
0.38	0.21	-0.005
0.38	0.22	-0.004
DOC C_0	DOC C_1	DOC flux 1
5.25	5.68	0.01
5.25	5.72	0.01
5.25	5.67	0.01

T1

DO C_0	DO C_1	DO flux 1
6.95	6.17	-0.02
7.07	6.29	-0.02
6.92	6.23	-0.02
NO_3^- C_0	NO_3^- C_1	NO_3^- flux 1
17.62 (0.05)	13.48 (0.04)	-0.11
17.62 (0.05)	13.85 (0.03)	-0.10
17.62 (0.05)	14.02 (0.03)	-0.10
NH_4^+ C_0	NH_4^+ C_1	NH_4^+ flux 1
2.45 (0.02)	4.38 (0.03)	0.05
2.45 (0.02)	4.33 (0.03)	0.05
2.45 (0.02)	4.41 (0.02)	0.05
PO_4^{3-} C_0	PO_4^{3-} C_1	PO_4^{3-} flux 1
0.31	0.23	-0.002
0.31	0.17	-0.003
0.31	0.20	-0.003
DOC C_0	DOC C_1	DOC flux 1
5.66	10.18	0.12
5.66	10.35	0.12
5.66	10.26	0.12

T2

DO C_0	DO C_1	DO flux 1
7.68	6.83	-0.02
7.55	6.77	-0.02
7.58	6.72	-0.02
NO_3^- C_0	NO_3^- C_1	NO_3^- flux 1
31.12 (0.03)	28.77 (0.02)	-0.06
31.12 (0.03)	28.71 (0.02)	-0.06
31.12 (0.03)	28.64 (0.03)	-0.07
NH_4^+ C_0	NH_4^+ C_1	NH_4^+ flux 1
2.57 (0.03)	3.88 (0.03)	0.03
2.57 (0.03)	3.95 (0.04)	0.04
2.57 (0.03)	3.97 (0.03)	0.04
PO_4^{3-} C_0	PO_4^{3-} C_1	PO_4^{3-} flux 1
0.42	0.29	-0.003
0.42	0.30	-0.003
0.42	0.27	-0.004
DOC C_0	DOC C_1	DOC flux 1
5.63	7.14	0.04
5.63	7.22	0.04
5.63	7.30	0.04

W1

DO C_0	DO C_1	DO flux 1
7.96	7.22	-0.02
7.92	7.12	-0.02
7.85	7.08	-0.02
NO_3^- C_0	NO_3^- C_1	NO_3^- flux 1
13.85 (0.04)	15.33 (0.03)	0.04
13.85 (0.04)	15.37 (0.02)	0.04
13.85 (0.04)	15.31 (0.03)	0.04
NH_4^+ C_0	NH_4^+ C_1	NH_4^+ flux 1
2.48 (0.02)	3.98 (0.03)	0.04
2.48 (0.02)	3.82 (0.03)	0.04
2.48 (0.02)	4.10 (0.02)	0.04
PO_4^{3-} C_0	PO_4^{3-} C_1	PO_4^{3-} flux 1
0.54	0.43	-0.003
0.54	0.46	-0.002

W2

DO C_0	DO C_1	DO flux 1
7.53	6.74	-0.02
7.46	6.62	-0.02
7.38	6.65	-0.02
NO_3^- C_0	NO_3^- C_1	NO_3^- flux 1
18.99 (0.03)	19.66 (0.02)	0.02
18.99 (0.03)	19.57 (0.02)	0.02
18.99 (0.03)	19.63 (0.03)	0.02
NH_4^+ C_0	NH_4^+ C_1	NH_4^+ flux 1
2.63 (0.02)	3.56 (0.02)	0.02
2.63 (0.02)	3.60 (0.02)	0.03
2.63 (0.02)	3.66 (0.03)	0.03
PO_4^{3-} C_0	PO_4^{3-} C_1	PO_4^{3-} flux 1
0.69	0.53	-0.004
0.69	0.55	-0.004

0.54	0.47	-0.002	0.69	0.49	-0.005
DOC C_0	DOC C_1	DOC flux 1	DOC C_0	DOC C_1	DOC flux 1
4.60	5.35	0.02	5.26	5.65	0.01
4.60	5.37	0.02	5.26	5.67	0.01
4.60	5.33	0.02	5.26	5.64	0.01

Table S4. Equilibrium flux of nutrients at sediment-water interface

Autumn flux

L1 NO_3^- W=26g

C_0 (mg/L)	10	20	30	40	50
C_1 (mg/L)	16.77	21.65	26.58	31.26	36.56
Q (mg/g)	0.0391	0.0095	-0.0197	-0.0504	-0.0775
equation	C=-341.04Q+23.240 (r^2=0.999)				

L1 NH_4^+ W=26g

C_0 (mg/L)	0.5	0.8	1.0	1.5	2.0
C_1 (mg/L)	1.26	1.41	1.55	1.74	2.02
Q (mg/g)	0.0044	0.0035	0.0032	0.0014	0.0001
equation	C=-342.50Q+2.022 (r^2=0.995)				

L1 PO_4^{3-} W=26g

C_0 (mg/L)	0.5	1.0	1.5	2.0	3.0
C_1 (mg/L)	24.65	28.31	30.69	34.35	43.58
Q (mg/g)	0.0014	-0.0001	-0.0015	-0.0023	-0.0060
equation	C=-343.63Q+1.017 (r^2=0.985)				

L1 DOC W=26g

C_0 (mg/L)	5	8	10	15	20
C_1 (mg/L)	8.13	9.76	11.78	12.85	14.76
Q (mg/g)	0.0181	0.0102	0.0103	-0.0124	-0.0302
equation	C=-292.87Q+11.357 (r^2=0.971)				

L2 NO_3^- W=16g

C_0 (mg/L)	10	20	30	40	50
C_1 (mg/L)	24.86	30.45	35.58	40.72	45.76
Q (mg/g)	0.1393	0.0980	0.0523	0.0068	-0.0398
equation	C=-222.45Q+41.416 (r^2=0.999)				

L2 NH_4^+ W=16g

C_0 (mg/L)	0.5	0.8	1.0	1.5	2.0
C_1 (mg/L)	1.12	1.29	1.48	1.69	1.88
Q (mg/g)	0.0058	0.0046	0.0045	0.0018	-0.0011
equation	C=-210.33Q+1.815 (r^2=0.976)				

L2 PO_4^{3-} W=16g

C_0 (mg/L)	0.5	1.0	1.5	2.0	3.0
C_1 (mg/L)	0.91	1.12	1.49	1.74	2.18
Q (mg/g)	0.0038	0.0011	0.0001	-0.0024	-0.0077
equation	C=-220.06Q+1.369 (r^2=0.989)				

L2 DOC W=16g

C_0 (mg/L)	5	8	10	15	20
C_1 (mg/L)	10.83	11.76	13.28	15.73	18.28
Q (mg/g)	0.0547	0.0353	0.0308	0.0068	-0.0161
equation	C=-351.38Q+16.417 (r^2=0.994)				

T1 NO_3^- W=19g

C_0 (mg/L)	10	20	30	40	50
C_1 (mg/L)	23.78	28.66	34.35	38.73	44.41
Q (mg/g)	0.1088	0.0684	0.0343	-0.0100	-0.0441
equation	C=-259.87Q+38.178 (r^2=0.999)				

T1 NH_4^+ W=19g

C_0 (mg/L)	0.5	0.8	1.0	1.5	2.0
C_1 (mg/L)	1.03	1.27	1.38	1.58	1.82
Q (mg/g)	0.0042	0.0037	0.0030	0.0006	-0.0014
equation	C=-249.49Q+1.664 (r^2=0.982)				

T1 PO_4^{3-} W=19g

C_0 (mg/L)	0.5	1.0	1.5	2.0	3.0
C_1 (mg/L)	0.66	0.93	1.18	1.48	1.89
Q (mg/g)	0.0014	-0.0006	-0.0028	-0.0046	-0.0098
equation	C=-223.91Q+0.865 (r^2=0.995)				

T1 DOC W=19g

C_0 (mg/L)	5	8	10	15	20
C_1 (mg/L)	8.76	9.14	9.82	14.10	17.18
Q (mg/g)	0.0297	0.0090	-0.0014	-0.0071	-0.0223
equation	C=-291.92Q+12.062 (r^2=0.904)				

T2 NO_3^- W=17g

C_0 (mg/L)	10	20	30	40	50
C_1 (mg/L)	20.34	25.73	31.53	36.13	40.82
Q (mg/g)	0.0912	0.0506	0.0135	-0.0341	-0.0810
equation	C=-232.40Q+31.866 (r^2=0.997)				

T2 NH_4^+ W=17g

C_0 (mg/L)	0.5	0.8	1.0	1.5	2.0
C_1 (mg/L)	1.12	1.24	1.31	1.61	1.69
Q (mg/g)	0.0055	0.0039	0.0027	0.0010	-0.0027
equation	C=-187.25Q+1.547 (r^2=0.983)				

T2 PO_4^{3-} W=17g

C_0 (mg/L)	0.5	1.0	1.5	2.0	3.0
C_1 (mg/L)	0.85	1.09	1.34	1.69	2.11
Q (mg/g)	0.0028	0.0007	-0.0013	-0.0024	-0.0070
equation	C=-259.52Q+1.223 (r^2=0.993)				

T2 DOC W=17g

C_0 (mg/L)	5	8	10	15	20
C_1 (mg/L)	9.67	11.25	11.83	14.75	18.26
Q (mg/g)	0.0412	0.0287	0.0161	-0.0022	-0.0154
equation	C=-257.88Q+15.131 (r^2=0.982)				

W1 NO_3^- W=20g

C_0 (mg/L)	10	20	30	40	50
C_1 (mg/L)	13.88	18.67	23.39	28.73	34.35
Q (mg/g)	0.0291	-0.0010	-0.0496	-0.0845	-0.1174
equation	C=-271.66Q+17.376 (r^2=0.998)				

W1 NH_4^+ W=20g

C_0 (mg/L)	0.5	0.8	1.0	1.5	2.0
C_1 (mg/L)	0.92	1.06	1.22	1.42	1.67
Q (mg/g)	0.0032	0.0020	0.0017	-0.0006	-0.0025
equation	C=-263.35Q+1.354 (r^2=0.994)				

W1 PO_4^{3-} W=20g

C_0 (mg/L)	0.5	1.0	1.5	2.0	3.0
C_1 (mg/L)	0.71	0.95	1.22	1.48	1.98
Q (mg/g)	0.0016	-0.0004	-0.0021	-0.0039	-0.0077
equation	C=-272.64Q+0.921 (r^2=0.999)				

W1 DOC W=20g

C_0 (mg/L)	5	8	10	15	20
C_1 (mg/L)	10.23	11.84	13.10	15.62	17.82
Q (mg/g)	0.0392	0.0288	0.0233	0.0047	-0.0164
equation	C=-269.95Q+15.896 (r^2=0.997)				

W2 NO_3^- W=18g

C_0 (mg/L)	10	20	30	40	50
C_1 (mg/L)	14.15	18.33	24.51	29.56	34.62
Q (mg/g)	0.0346	-0.0139	-0.0458	-0.0870	-0.1282
equation	C=-250.14Q+17.991 (r^2=0.997)				

W2 NH_4^+ W=18g

C_0 (mg/L)	0.5	0.8	1.0	1.5	2.0
C_1 (mg/L)	1.02	1.13	1.29	1.55	1.88
Q (mg/g)	0.0043	0.0028	0.0024	0.0004	-0.0010
equation	C=-282.76Q+1.664 (r^2=0.988)				

W2 PO_4^{3-} W=18g

C_0 (mg/L)	0.5	1.0	1.5	2.0	3.0
C_1 (mg/L)	0.61	0.86	1.24	1.61	2.08
Q (mg/g)	0.0009	-0.0012	-0.0022	-0.0033	-0.0077

equation	C=-298.05Q+0.805 (r^2=0.977)				

W2 DOC W=18g

C_0 (mg/L)	5	8	10	15	20
C_1 (mg/L)	7.32	8.87	9.95	13.13	16.64
Q (mg/g)	0.0193	0.0073	-0.0004	-0.0158	-0.0280
equation	C=-316.81Q+10.496 (r^2=0.990)				

Winter flux

L1 NO_3^- W=23g

C_0 (mg/L)	10	20	30	40	50
C_1 (mg/L)	26.88	32.65	36.68	43.20	47.72
Q (mg/g)	0.1101	0.0825	0.0436	0.0209	-0.0147
equation	C=-319.45Q+45.471 (r^2=0.995)				

L1 NH_4^+ W=23g

C_0 (mg/L)	0.5	0.8	1.0	1.5	2.0
C_1 (mg/L)	1.92	2.08	2.25	2.42	2.76
Q (mg/g)	0.0093	0.0083	0.0082	0.0060	0.0050
equation	C=-175.15Q+3.572 (r^2=0.937)				

L1 PO_4^{3-} W=23g

C_0 (mg/L)	0.5	1.0	1.5	2.0	3.0
C_1 (mg/L)	0.63	0.98	1.27	1.52	1.88
Q (mg/g)	0.0008	-0.0001	-0.0015	-0.0031	-0.0073
equation	C=-297.33Q+0.933 (r^2=0.979)				

L1 DOC W=23g

C_0 (mg/L)	5	8	10	15	20
C_1 (mg/L)	9.98	12.24	12.93	14.85	16.46
Q (mg/g)	0.0325	0.0277	0.0191	-0.0010	-0.0231
equation	C=-103.44Q+14.433 (r^2=0.915)				

L2 NO_3^- W=20g

C_0 (mg/L)	10	20	30	40	50
C_1 (mg/L)	20.25	24.87	26.39	31.68	35.24
Q (mg/g)	0.0769	0.0365	-0.0271	-0.0624	-0.1107
equation	C=-209.59Q+26.363 (r^2=0.994)				

L2 NH_4^+ W=20g

C_0 (mg/L)	0.5	0.8	1.0	1.5	2.0
C_1 (mg/L)	1.96	2.06	2.23	2.47	2.85
Q (mg/g)	0.0110	0.0095	0.0092	0.0073	0.0064
equation	C=-187.56Q+3.937 (r^2=0.922)				

L2 PO_4^{3-} W=20g

C_0 (mg/L)	0.5	1.0	1.5	2.0	3.0
C_1 (mg/L)	0.60	0.91	1.12	1.29	1.52
Q (mg/g)	0.0008	-0.0007	-0.0029	-0.0053	-0.0111
equation	C=-204.71Q+0.814 (r^2=0.985)				

L2 DOC W=20g

C_0 (mg/L)	5	8	10	15	20
C_1 (mg/L)	8.35	9.97	11.88	13.22	16.02
Q (mg/g)	0.0251	0.0148	0.0141	-0.0134	-0.0299
equation	C=-123.41Q+12.155 (r^2=0.910)				

T1 NO_3^- W=16g

C_0 (mg/L)	10	20	30	40	50
C_1 (mg/L)	27.85	32.67	36.26	42.12	45.65
Q (mg/g)	0.1673	0.1188	0.0587	0.0199	-0.0408
equation	C=-193.43Q+42.531 (r^2=0.997)				

T1 NH_4^+ W=16g

C_0 (mg/L)	0.5	0.8	1.0	1.5	2.0
C_1 (mg/L)	1.68	1.95	2.02	2.27	2.51
Q (mg/g)	0.0111	0.0108	0.0096	0.0072	0.0048
equation	C=-114.63Q+3.081 (r^2=0.924)				

T1 PO_4^{3-} W=16g

C_0 (mg/L)	0.5	1.0	1.5	2.0	3.0
C_1 (mg/L)	0.63	0.91	1.13	1.27	1.72
Q (mg/g)	0.0011	-0.0008	-0.0031	-0.0061	-0.0107
equation	C=-207.03Q+0.793 (r^2=0.996)				

T1 DOC W=16g

C_0 (mg/L)	5	8	10	15	20
C_1 (mg/L)	8.64	10.13	11.17	14.28	16.15
Q (mg/g)	0.0341	0.0200	0.0106	-0.0068	-0.0361
equation	C=-111.95Q+12.560 (r^2=0.967)				

T2 NO_3^- W=18g

C_0 (mg/L)	10	20	30	40	50
C_1 (mg/L)	20.82	27.45	31.28	35.68	40.35
Q (mg/g)	0.0902	0.0621	0.0107	-0.0360	-0.0804
equation	C=-226.08Q+32.103 (r^2=0.993)				

T2 NH_4^+ W=18g

C_0 (mg/L)	0.5	0.8	1.0	1.5	2.0
C_1 (mg/L)	1.12	1.29	1.41	1.54	1.88
Q (mg/g)	0.0052	0.0041	0.0034	0.0033	-0.0010
equation	C=-104.96Q+1.700 (r^2=0.916)				

T2 PO_4^{3-} W=18g

C_0 (mg/L)	0.5	1.0	1.5	2.0	3.0
C_1 (mg/L)	0.69	0.93	1.27	1.46	1.99
Q (mg/g)	0.0018	-0.0007	-0.0022	-0.0051	-0.0095
equation	C=-221.45Q+0.911 (r^2=0.995)				

T2 DOC W=18g

C_0 (mg/L)	5	8	10	15	20
C_1 (mg/L)	8.62	11.02	11.56	13.14	15.53
Q (mg/g)	0.0302	0.0252	0.0130	-0.0155	-0.0373
equation	C=-85.40Q+12.240 (r^2=0.912)				

W1 NO_3^- W=22g

C_0 (mg/L)	10	20	30	40	50
C_1 (mg/L)	26.12	29.32	33.68	37.75	43.65
Q (mg/g)	0.1099	0.0635	0.0251	-0.0153	-0.0433
equation	C=-257.85Q+37.215 (r^2=0.994)				

W1 NH_4^+ W=22g

C_0 (mg/L)	0.5	0.8	1.0	1.5	2.0
C_1 (mg/L)	1.53	1.66	1.78	2.12	2.32
Q (mg/g)	0.0070	0.0059	0.0053	0.0042	0.0022
equation	C=-175.08Q+2.744 (r^2=0.954)				

W1 PO_4^{3-} W=22g

C_0 (mg/L)	0.5	1.0	1.5	2.0	3.0
C_1 (mg/L)	0.73	0.89	1.08	1.19	1.71
Q (mg/g)	0.0016	-0.0008	-0.0029	-0.0055	-0.0088
equation	C=-236.71Q+0.825 (r^2=0.992)				

W1 DOC W=22g

C_0 (mg/L)	5	8	10	15	20
C_1 (mg/L)	8.82	9.96	11.24	12.96	14.08
Q (mg/g)	0.0260	0.0134	0.0085	-0.0139	-0.0404
equation	C=-225.99Q+11.310 (r^2=0.992)				

W2 NO_3^- W=17g

C_0 (mg/L)	10	20	30	40	50
C_1 (mg/L)	19.25	24.32	28.78	33.12	39.15
Q (mg/g)	0.0816	0.0381	-0.0108	-0.0607	-0.0957
equation	C=-219.84Q+27.913 (r^2=0.997)				

W2 NH_4^+ W=17g

C_0 (mg/L)	0.5	0.8	1.0	1.5	2.0
C_1 (mg/L)	1.72	1.86	2.08	2.32	2.67
Q (mg/g)	0.0108	0.0094	0.0095	0.0072	0.0059

equation	C=-187.42Q+3.734 (r^2=0.935)				

W2 PO_4^{3-} W=17g

C_0 (mg/L)	0.5	1.0	1.5	2.0	3.0
C_1 (mg/L)	0.71	0.87	1.10	1.21	1.72
Q (mg/g)	0.0019	-0.0011	-0.0035	-0.0070	-0.0113
equation	C=-187.69Q+0.808 (r^2=0.994)				

W2 DOC W=17g

C_0 (mg/L)	5	8	10	15	20
C_1 (mg/L)	7.67	9.12	10.23	12.47	14.78
Q (mg/g)	0.0236	0.0099	0.0020	-0.0223	-0.0461
equation	C=-214.75Q+10.186 (r^2=0.999)				

Spring flux

L1 NO_3^- W=21g

C_0 (mg/L)	10	20	30	40	50
C_1 (mg/L)	22.85	29.81	34.46	40.22	46.32
Q (mg/g)	0.0918	0.0701	0.0319	0.0016	-0.0026
equation	C=-326.49Q+41.036 (r^2=0.995)				

L1 NH_4^+ W=21g

C_0 (mg/L)	0.5	0.8	1.0	1.5	2.0
C_1 (mg/L)	1.28	1.49	1.66	1.96	2.03
Q (mg/g)	0.0056	0.0049	0.0047	0.0033	0.0002
equation	C=-267.45Q+2.161 (r^2=0.930)				

L1 PO_4^{3-} W=21g

C_0 (mg/L)	0.5	1.0	1.5	2.0	3.0
C_1 (mg/L)	0.66	1.14	1.33	1.73	2.12
Q (mg/g)	0.0011	0.0010	-0.0012	-0.0019	-0.0063
equation	C=-310.69Q+1.147 (r^2=0.950)				

L1 DOC W=21g

C_0 (mg/L)	5	8	10	15	20
C_1 (mg/L)	6.97	8.42	9.88	11.36	14.12
Q (mg/g)	0.0141	0.0030	-0.0009	-0.0260	-0.0420
equation	C=-257.41Q+8.934 (r^2=0.991)				

L2 NO_3^- W=18g

C_0 (mg/L)	10	20	30	40	50
C_1 (mg/L)	18.72	22.14	26.77	31.65	36.85
Q (mg/g)	0.0727	0.0201	-0.0269	-0.0696	-0.1096
equation	C=-219.51Q+25.024 (r^2=0.997)				

L2 NH_4^+ W=18g

C_0 (mg/L)	0.5	0.8	1.0	1.5	2.0
C_1 (mg/L)	1.21	1.44	1.57	1.78	2.01
Q (mg/g)	0.0059	0.0053	0.0048	0.0023	0.0008
equation	C=-242.13Q+2.052 (r^2=0.981)				

L2 PO_4^{3-} W=18g

C_0 (mg/L)	0.5	1.0	1.5	2.0	3.0
C_1 (mg/L)	0.66	0.91	1.18	1.44	1.76
Q (mg/g)	0.0013	-0.0008	-0.0027	-0.0047	-0.0103
equation	C=-214.51Q+0.867 (r^2=0.990)				

L2 DOC W=18g

C_0 (mg/L)	5	8	10	15	20
C_1 (mg/L)	5.92	7.41	8.44	10.87	13.25
Q (mg/g)	0.0077	-0.0049	-0.0130	-0.0344	-0.0563
equation	C=-234.67Q+6.864 (r^2=0.999)				

T1 NO_3^- W=23g

C_0 (mg/L)	10	20	30	40	50
C_1 (mg/L)	18.18	22.16	26.32	28.14	33.87
Q (mg/g)	0.05533	0.0141	-0.0240	-0.0773	-0.1052
equation	C=-243.18Q+23.234 (r^2=0.994)				

T1 NH_4^+ W=23g

C_0 (mg/L)	0.5	0.8	1.0	1.5	2.0
C_1 (mg/L)	1.51	1.62	1.74	1.81	2.02
Q (mg/g)	0.0066	0.0053	0.0048	0.0020	0.0001
equation	$C=-224.40Q+2.009$ ($r^2=0.993$)				

T1 PO_4^{3-} W=23g

C_0 (mg/L)	0.5	1.0	1.5	2.0	3.0
C_1 (mg/L)	0.22	0.34	0.53	0.81	0.88
Q (mg/g)	-0.0018	-0.0043	-0.0063	-0.0078	-0.0138
equation	$C=-211.54Q+0.160$ ($r^2=0.986$)				

T1 DOC W=23g

C_0 (mg/L)	5	8	10	15	20
C_1 (mg/L)	7.85	9.45	10.57	11.88	14.16
Q (mg/g)	0.0186	0.0095	0.0037	-0.0203	-0.0381
equation	$C=-254.15Q+10.244$ ($r^2=0.993$)				

T2 NO_3^- W=16g

C_0 (mg/L)	10	20	30	40	50
C_1 (mg/L)	17.23	22.45	27.58	34.12	38.38
Q (mg/g)	0.0678	0.0230	-0.0227	-0.0551	-0.1089
equation	$C=-230.77Q+25.569$ ($r^2=0.996$)				

T2 NH_4^+ W=16g

C_0 (mg/L)	0.5	0.8	1.0	1.5	2.0
C_1 (mg/L)	1.63	1.77	1.91	2.02	2.15
Q (mg/g)	0.0106	0.0091	0.0085	0.0049	0.0014
equation	$C=-158.70Q+2.255$ ($r^2=0.988$)				

T2 PO_4^{3-} W=16g

C_0 (mg/L)	0.5	1.0	1.5	2.0	3.0
C_1 (mg/L)	0.41	0.61	0.88	1.37	1.74
Q (mg/g)	-0.0008	-0.0037	-0.0058	-0.0059	-0.0118
equation	$C=-233.32Q+0.292$ ($r^2=0.958$)				

T2 DOC W=16g

C_0 (mg/L)	5	8	10	15	20
C_1 (mg/L)	7.22	8.78	9.46	11.52	14.15
Q (mg/g)	0.0208	0.0073	-0.0051	-0.0326	-0.0548
equation	$C=-193.67Q+9.105$ ($r^2=0.997$)				

W1 NO_3^- W=22g

C_0 (mg/L)	10	20	30	40	50
C_1 (mg/L)	13.78	19.85	24.28	28.15	32.32
Q (mg/g)	0.0258	-0.0102	-0.0390	-0.0808	-0.1205
equation	$C=-266.97Q+18.489$ ($r^2=0.994$)				

W1 NH_4^+ W=22g

C_0 (mg/L)	0.5	0.8	1.0	1.5	2.0
C_1 (mg/L)	1.27	1.38	1.51	1.66	1.84
Q (mg/g)	0.0053	0.0040	0.0035	0.0011	-0.0011
equation	$C=-234.8Q+1.756$ ($r^2=0.996$)				

W1 PO_4^{3-} W=22g

C_0 (mg/L)	0.5	1.0	1.5	2.0	3.0
C_1 (mg/L)	0.38	0.71	0.93	1.12	1.52
Q (mg/g)	-0.0008	-0.0020	-0.0039	-0.0060	-0.0101
equation	$C=-261.24Q+0.410$ ($r^2=0.992$)				

W1 DOC W=22g

C_0 (mg/L)	5	8	10	15	20
C_1 (mg/L)	6.68	7.81	8.32	10.67	13.15
Q (mg/g)	0.0115	-0.0013	-0.0115	-0.0295	-0.0467
equation	$C=-257.82Q+7.603$ ($r^2=0.996$)				

W2 NO_3^- W=20g

C_0 (mg/L)	10	20	30	40	50
C_1 (mg/L)	12.76	17.68	22.43	26.65	30.36
Q (mg/g)	0.0207	-0.0174	-0.0568	-0.1001	-0.1473

equation	C=-238.33Q+15.657 (r^2=0.999)				

W2 NH_4^+ W=20g

C_0 (mg/L)	0.5	0.8	1.0	1.5	2.0
C_1 (mg/L)	0.96	1.12	1.27	1.45	1.66
Q (mg/g)	0.0035	0.0024	0.0020	-0.0004	-0.0026
equation	C=-243.96Q+1.402 (r^2=0.991)				

W2 PO_4^{3-} W=20g

C_0 (mg/L)	0.5	1.0	1.5	2.0	3.0
C_1 (mg/L)	0.46	0.70	0.95	1.19	1.61
Q (mg/g)	-0.0003	-0.0023	-0.0041	-0.0061	-0.0104
equation	C=-247.48Q+0.453 (r^2=0.999)				

W2 DOC W=20g

C_0 (mg/L)	5	8	10	15	20
C_1 (mg/L)	6.33	7.83	8.67	11.22	13.69
Q (mg/g)	0.0010	-0.0013	-0.0010	-0.0284	-0.0473
equation	C=-261.78Q+7.571 (r^2=0.999)				

Summer flux

L1 NO_3^- W=24g

C_0 (mg/L)	10	20	30	40	50
C_1 (mg/L)	14.68	20.23	25.52	33.10	36.72
Q (mg/g)	0.0293	0.0014	-0.0280	-0.0431	-0.0830
equation	C=-366.42Q+20.954 (r^2=0.986)				

L1 NH_4^+ W=24g

C_0 (mg/L)	0.5	0.8	1.0	1.5	2.0
C_1 (mg/L)	2.42	2.67	2.81	3.02	3.28
Q (mg/g)	0.0120	0.0117	0.0113	0.0095	0.0080
equation	C=-344.63Q+4.779 (r^2=0.973)				

L1 PO_4^{3-} W=24g

C_0 (mg/L)	0.5	1.0	1.5	2.0	3.0
C_1 (mg/L)	0.64	0.92	1.28	1.62	2.01
Q (mg/g)	0.0009	-0.0005	-0.0014	-0.0024	-0.0062
equation	C=-355.16Q+0.921 (r^2=0.973)				

L1 DOC W=24g

C_0 (mg/L)	5	8	10	15	20
C_1 (mg/L)	7.13	8.81	9.94	11.85	15.23
Q (mg/g)	0.0133	0.0051	-0.0038	-0.0197	-0.0298
equation	C=-330.11Q+9.520 (r^2=0.989)				

L2 NO_3^- W=27g

C_0 (mg/L)	10	20	30	40	50
C_1 (mg/L)	17.12	20.86	24.22	28.79	30.84
Q (mg/g)	0.0396	0.0048	-0.0321	-0.0623	-0.1064
equation	C=-277.71Q+21.308 (r^2=0.997)				

L2 NH_4^+ W=27g

C_0 (mg/L)	0.5	0.8	1.0	1.5	2.0
C_1 (mg/L)	2.31	2.54	2.81	2.96	3.18
Q (mg/g)	0.0100	0.0097	0.0100	0.0081	0.0066
equation	C=-369.12Q+4.441 (r^2=0.905)				

L2 PO_4^{3-} W=27g

C_0 (mg/L)	0.5	1.0	1.5	2.0	3.0
C_1 (mg/L)	0.38	0.61	0.98	1.28	1.61
Q (mg/g)	-0.0007	-0.0022	-0.0029	-0.0040	-0.0077
equation	C=-357.06Q+0.354 (r^2=0.974)				

L2 DOC W=27g

C_0 (mg/L)	5	8	10	15	20
C_1 (mg/L)	5.38	6.78	8.04	10.53	13.03
Q (mg/g)	0.0021	-0.0068	-0.0109	-0.0248	-0.0387
equation	C=-369.49Q+5.754 (r^2=0.999)				

T1 NO_3^- W=17g

C_0 (mg/L)	10	20	30	40	50
C_1 (mg/L)	12.86	17.77	25.15	29.34	35.58
Q (mg/g)	0.0252	-0.0197	-0.0428	-0.0941	-0.1272
equation	$C=-261.18Q+16.496$ ($r^2=0.991$)				

T1 NH_4^+ W=17g

C_0 (mg/L)	0.5	0.8	1.0	1.5	2.0
C_1 (mg/L)	2.93	3.18	3.28	3.50	3.81
Q (mg/g)	0.0214	0.0210	0.0201	0.0176	0.0160
equation	$C=-251.36Q+5.995$ ($r^2=0.982$)				

T1 PO_4^{3-} W=17g

C_0 (mg/L)	0.5	1.0	1.5	2.0	3.0
C_1 (mg/L)	0.30	0.52	0.79	1.19	1.54
Q (mg/g)	-0.0018	-0.0042	-0.0063	-0.0071	-0.0129
equation	$C=-229.60Q+0.117$ ($r^2=0.980$)				

T1 DOC W=17g

C_0 (mg/L)	5	8	10	15	20
C_1 (mg/L)	7.55	9.18	10.62	13.66	16.85
Q (mg/g)	0.0225	0.0104	0.0055	-0.0118	-0.0278
equation	$C=-300.92Q+11.526$ ($r^2=0.998$)				

T2 NO_3^- W=19g

C_0 (mg/L)	10	20	30	40	50
C_1 (mg/L)	17.78	22.58	28.66	33.41	37.68
Q (mg/g)	0.0614	0.0204	-0.0106	-0.0520	-0.0973
equation	$C=-255.63Q+26.008$ ($r^2=0.996$)				

T2 NH_4^+ W=19g

C_0 (mg/L)	0.5	0.8	1.0	1.5	2.0
C_1 (mg/L)	2.24	2.51	2.62	2.79	3.10
Q (mg/g)	0.0137	0.0135	0.0128	0.0102	0.0087
equation	$C=-261.59Q+4.241$ ($r^2=0.966$)				

T2 PO_4^{3-} W=19g

C_0 (mg/L)	0.5	1.0	1.5	2.0	3.0
C_1 (mg/L)	0.29	0.58	0.85	1.29	1.59
Q (mg/g)	-0.0017	-0.0033	-0.0051	-0.0056	-0.0111
equation	$C=-263.12Q+0.188$ ($r^2=0.960$)				

T2 DOC W=19g

C_0 (mg/L)	5	8	10	15	20
C_1 (mg/L)	6.06	7.73	8.98	11.65	13.87
Q (mg/g)	0.0084	-0.0021	-0.0081	-0.0264	-0.0484
equation	$C=-264.81Q+7.540$ ($r^2=0.996$)				

W1 NO_3^- W=22g

C_0 (mg/L)	10	20	30	40	50
C_1 (mg/L)	14.48	20.52	24.48	29.67	36.18
Q (mg/g)	0.0305	0.0035	-0.0376	-0.0704	-0.0942
equation	$C=-306.86Q+19.677$ ($r^2=0.993$)				

W1 NH_4^+ W=22g

C_0 (mg/L)	0.5	0.8	1.0	1.5	2.0
C_1 (mg/L)	2.44	2.62	2.73	2.94	3.22
Q (mg/g)	0.0132	0.0124	0.0118	0.0098	0.0083
equation	$C=-295.54Q+4.445$ ($r^2=0.996$)				

W1 PO_4^{3-} W=22g

C_0 (mg/L)	0.5	1.0	1.5	2.0	3.0
C_1 (mg/L)	0.57	0.81	1.12	1.43	1.77
Q (mg/g)	0.0005	-0.0013	-0.0026	-0.0039	-0.0084
equation	$C=-284.92Q+0.706$ ($r^2=0.984$)				

W1 DOC W=22g

C_0 (mg/L)	5	8	10	15	20
C_1 (mg/L)	5.68	7.41	8.38	11.13	13.52
Q (mg/g)	0.0046	-0.0040	-0.0110	-0.0264	-0.0442

equation	C=-307.06Q+6.626 (r^2=0.999)				

W2 NO_3^- W=26g

C_0 (mg/L)	10	20	30	40	50
C_1 (mg/L)	16.06	20.83	24.13	29.21	35.06
Q (mg/g)	0.0350	0.0048	-0.0339	-0.0623	-0.0862
equation	C=-321.17Q+20.843 (r^2=0.994)				

W2 NH_4^+ W=26g

C_0 (mg/L)	0.5	0.8	1.0	1.5	2.0
C_1 (mg/L)	2.08	2.24	2.36	2.57	2.86
Q (mg/g)	0.0091	0.0083	0.0078	0.0062	0.0050
equation	C=-352.18Q+3.724 (r^2=0.997)				

W2 PO_4^{3-} W=26g

C_0 (mg/L)	0.5	1.0	1.5	2.0	3.0
C_1 (mg/L)	0.42	0.68	1.01	1.33	1.73
Q (mg/g)	-0.0005	-0.0018	-0.0028	-0.0039	-0.0073
equation	C=-367.91Q+0.399 (r^2=0.985)				

W2 DOC W=26g

C_0 (mg/L)	5	8	10	15	20
C_1 (mg/L)	5.37	6.94	7.98	10.45	12.94
Q (mg/g)	0.0021	-0.0061	-0.0117	-0.0263	-0.0407
equation	C=-348.75Q+5.838 (r^2=0.999)				

Table S5. Sediment organic matter content measurement

Autumn

Sediment size	Crucible weight m_0	Total weight m_1	Dry weight m_2 (m_1-m_0)	Ignition weight m_3	OM% (m_1-m_3/m_2)
L1 coarse	29.2397	55.2478	26.0081	54.7006	2.1
L1 fine	31.0121	52.5894	21.5773	52.0555	2.5
L2 coarse	33.7833	36.3698	2.5865	35.9712	15.4
L2 fine	29.4537	37.7081	8.2544	35.8361	22.7
T1 coarse	29.5918	59.4320	29.8402	58.5251	3.0
T1 fine	31.0968	41.0526	9.9558	40.6508	4.0
T2 coarse	32.3422	52.3133	19.9711	51.4643	4.3
T2 fine	30.1837	55.6645	25.4808	54.0686	6.3
W1 coarse	33.7853	41.2729	7.4876	40.9651	4.1
W1 fine	29.0825	46.7741	17.6916	46.0216	4.3
W2 coarse	29.7306	35.4428	5.7122	35.0094	7.6
W2 Fine	32.9723	50.4953	17.5230	48.5709	11.0

Winter

Sediment size	Crucible weight m_0	Total weight m_1	Dry weight m_2 (m_1-m_0)	Ignition weight m_3	OM% (m_1-m_3/m_2)
L1 coarse	29.7814	53.0849	23.3035	52.8275	1.1
L1 fine	33.0351	49.9681	16.9330	49.6415	1.9
L2 coarse	33.8391	39.1279	5.2888	38.6246	9.5
L2 fine	29.1409	48.8611	19.7202	46.5756	11.6
T1 coarse	33.8376	36.9002	3.0626	36.7237	5.8
T1 fine	31.1624	32.6165	1.4541	32.4978	8.2
T2 coarse	32.3982	39.5164	7.1182	38.9577	7.8
T2 fine	30.2666	48.0082	17.7416	46.4808	8.6
W1 coarse	29.5166	36.0717	6.5551	35.8442	3.5
W1 fine	29.3012	50.2801	20.9789	49.5157	3.6
W2 coarse	29.6568	40.3237	10.6669	39.8146	4.8
W2 Fine	31.0804	51.8243	20.7439	50.7594	5.1

Spring

Sediment size	Crucible weight m_0	Total weight m_1	Dry weight m_2 (m_1-m_0)	Ignition weight m_3	OM% (m_1-m_3/m_2)
L1 coarse	31.1670	54.4722	23.3052	54.1116	1.5
L1 fine	33.8433	53.6765	19.8332	53.1732	2.5
L2 coarse	32.4041	33.6609	1.2568	33.5327	10.2
L2 fine	30.2682	39.9529	9.6847	38.3058	17.0
T1 coarse	29.3098	30.1275	0.8177	30.0464	9.9
T1 fine	29.5200	30.0978	0.5778	30.0210	13.3
T2 coarse	31.0825	31.6164	0.5339	31.5594	10.7
T2 fine	29.6602	30.2407	0.5805	30.1565	14.5
W1 coarse	33.8436	35.0726	1.2290	35.0222	4.1
W1 fine	29.1478	35.0944	5.9466	34.8090	4.8
W2 coarse	19.7863	59.1538	39.3675	56.7130	6.2
W2 Fine	33.0392	57.3977	24.3585	55.2298	8.9

Summer

Sediment size	Crucible weight m_0	Total weight m_1	Dry weight m_2 (m_1-m_0)	Ignition weight m_3	OM% (m_1-m_3/m_2)
L1 coarse	30.2657	41.7547	11.4890	41.3255	3.7
L1 fine	31.0801	38.3414	7.2613	37.9264	5.7
L2 coarse	29.5190	34.8920	5.3730	34.0646	15.4
L2 fine	29.6601	36.7211	7.0610	35.3534	19.4
T1 coarse	33.0376	33.3671	0.3295	33.3335	10.2
T1 fine	29.3100	30.2072	0.8972	30.0493	17.6
T2 coarse	32.4037	36.6520	4.2483	36.1125	12.7
T2 fine	33.8420	39.9904	6.1484	38.8776	18.1
W1 coarse	33.8426	52.9995	19.1569	52.0609	4.9

W1 fine	31.1631	50.5067	19.3436	49.4041	5.7
W2 coarse	29.7836	34.4887	4.7051	34.1514	7.2
W2 fine	29.1498	37.6707	8.5209	36.8698	9.4

Table S6. DO measurement results and metabolic variables. Green boxes represent nighttime periods.

Autumn measurement

L1

Time period	Day (d-1)	DO deficit	dDO/dt (mg/(L·d	Average Temp (k	ER (mgO2/(L·d))	Ea(eV)	k (d-1)	Corrected reae	Reaeration (mg	GPP (mgO2/(L·	Corrected GPP	NEP (mgO2/(L·d))
9:00-10:00	0.042	0.345229669	17.976	294.9664615	21.44594692	0.564143064	3.02244247	1.04343681	0.99943989	35.6245601	40.0100787	18.56413173
10:00-11:00	0.042	-0.309392457	16.024	296.0802308	23.36531161	0.566273222	3.103343278	-0.960151	-0.89569116	35.5676912	42.8934214	19.52810984
11:00-12:00	0.042	-0.825608814	24.119	297.0504615	25.1767886	0.568128854	3.175580693	-2.62178741	-2.39013752	45.1571375	57.9418442	32.76505557
12:00-13:00	0.042	-1.151192733	7.405	297.3168462	25.69827117	0.568638332	3.195706623	-3.67887424	-3.33270296	29.385703	38.3527126	12.65444142
13:00-14:00	0.042	-1.474815543	1.452	297.5536154	26.17083771	0.569091169	3.213702093	-4.7396178	-4.269591	24.369591	32.2909107	6.120073011
14:00-15:00	0.042	-1.656704171	-6.576	297.7344615	26.53763289	0.569437049	3.2275154	-5.34703822	-4.79615858	16.8681586	22.6109866	-3.926646304
15:00-16:00	0.042	-1.307704171	-16.167	297.7403846	26.54973273	0.569448378	3.227968816	-4.22122828	-3.78580358	6.26680358	8.40354109	-18.14619164
16:00-17:00	0.042	-0.599200739	-16.667	297.56	26.18370035	0.56910338	3.214188751	-1.92594427	-1.73468614	3.71568614	4.925477	-21.25822336
17:00-18:00	0.042	0.245162851	-17.524	297.0063077	25.0913799	0.568044406	3.172257042	0.77771958	0.70974645	0.41425355	0.53003745	-24.56134244
18:00-19:00	0.042	0.91869013	-14.976	298.3843846	27.89876971	0.570680071	3.277649446	3.01114419		0	0	-27.89876971
18:00-20:00	0.083	1.539758322	-15.192	297.8531538	26.78115633	0.569664056	3.236613556	4.98360266		0	0	-26.78115633
18:00-21:00	0.125	2.115475757	-12.816	297.4833846	26.02976506	0.568956848	3.20835371	6.78719449		0	0	-26.02976506
18:00-22:00	0.167	2.648577047	-11.186	297.2683846	25.60260411	0.568545646	3.192035782	8.4543527		0	0	-25.60260411
18:00-23:00	0.208	3.180586524	-9.212	297.2320769	25.53116319	0.568476205	3.189288327	10.1438075		0	0	-25.53116319
18:00-0:00	0.25	3.653719377	-7.968	297.2166923	25.50095177	0.568446781	3.188124865	11.6485136		0	0	-25.50095177
18:00-1:00	0.292	3.95950605	-7.233	297.1984615	25.46519752	0.568411914	3.186746712	12.6179429		0	0	-25.46519752
18:00-2:00	0.333	4.18829637	-6.441	297.2430769	25.55278629	0.568497243	3.190120463	13.36117		0	0	-25.55278629
18:00-3:00	0.375	4.374719907	-5.867	297.238	25.54280412	0.568487533	3.189736373	13.9542032		0	0	-25.54280412
18:00-3:40	0.403	4.457370716	-5.754	297.2548889	25.5760259	0.568519835	3.191014265	14.2235335		0	0	-25.5760259
3:40-4:40	0.042	4.148853918	7.833	295.2024615	21.83902438	0.56459443	3.039406815	12.6100549		0	0	-21.83902438
4:40-5:40	0.042	3.763614772	5.976	295.1148462	21.69225984	0.56442686	3.03309769	11.4154113		0	0	-21.69225984
5:40-6:40	0.042	3.34486377	7.69	295.0102308	21.51830995	0.564226776	3.025581558	10.1201581	9.68338061	16.6546194	18.7572652	-2.761044774
6:40-7:40	0.042	2.808543187	8.452	294.9392308	21.40104954	0.564090984	3.020491149	8.48317984	8.13073253	18.9692675	21.2674101	-0.133639469
7:40-8:40	0.042	2.243167491	15.786	294.8850769	21.31204121	0.563987411	3.016614298	6.76677113	6.49396989	27.9400301	31.2167549	9.904713733

L2

Time period	Day (d-1)	DO deficit	dDO/dt (mg/(L	Average Temp	ER (mgO2/(L·d	Ea(eV)	k (d-1)	Corrected rea	Reaeration (n	GPP (mgO2/(L·	Corrected GP	NEP (mgO2/(L
10:00-11:00	0.042	-0.0800252	7.76190476	294.9874	17.2127636	0.5641831	1.51771685	-0.1214555	-0.1162766	22.8211813	25.664878	8.4521147
11:00-12:00	0.042	-0.5764373	10.2619048	295.51231	17.9223515	0.565187	1.53672898	-0.8858279	-0.8375634	26.0424681	30.286787	12.364435
12:00-13:00	0.042	-1.1245684	12.047619	295.81085	18.3388994	0.565758	1.54764808	-1.7404361	-1.6339978	28.6246169	33.931053	15.592153
13:00-14:00	0.042	-1.6391465	11.0238095	295.87292	18.4267232	0.5658767	1.54992829	-2.5405595	-2.3816799	28.3484894	33.737326	15.310603
14:00-15:00	0.042	-2.0424964	10.3333333	296.05392	18.6852026	0.5662229	1.55659595	-3.1793417	-2.9677473	28.2440807	34.004174	15.318971
15:00-16:00	0.042	-2.0214716	-1.4285714	295.97792	18.5762311	0.5660776	1.55379278	-3.140948	-2.9371983	16.4516269	19.710793	1.1345616
16:00-17:00	0.042	-1.6327003	-8.2619048	296.03215	18.653924	0.5661813	1.5557925	-2.5401429	-2.3723136	9.05340881	10.884605	-7.7693191
17:00-18:00	0.042	-1.2000818	-9.8333333	295.85108	18.3957683	0.565835	1.54912545	-1.8590773	-1.7437189	6.85338555	8.1447828	-10.250985
18:00-19:00	0.042	-0.375906	-19.02381	295.68808	18.1664413	0.5655232	1.54314841	-0.580079		0	0	-18.166441
18:00-20:00	0.083	0.04830619	-14.855422	295.67054	18.1419371	0.5654897	1.54250667	0.0745126		0	0	-18.141937
18:00-21:00	0.125	0.47227176	-13.2	295.70192	18.18581	0.5655497	1.54365524	0.7290248		0	0	-18.18581
18:00-22:00	0.167	0.87923032	-12.173653	295.58385	18.0212983	0.5653239	1.53933847	1.3534331		0	0	-18.021298
18:00-23:00	0.208	1.31630813	-11.759615	295.44362	17.8278527	0.5650557	1.53422747	2.0195161		0	0	-17.827853
18:00-0:00	0.25	1.71829637	-11.312	295.31331	17.6499575	0.5648064	1.52949334	2.6281229		0	0	-17.649957
18:00-1:00	0.292	2.13919811	-11.058219	295.21692	17.519517	0.5646221	1.52600105	3.2644186		0	0	-17.519517
18:00-2:00	0.333	2.5841154	-10.885886	294.95538	17.1704047	0.5641219	1.51656489	3.9189787		0	0	-17.170405
18:00-3:00	0.375	3.0623441	-10.853333	294.72646	16.870543	0.563684	1.50835338	4.6190971		0	0	-16.870543
18:00-4:00	0.417	3.53612636	-10.805755	294.56162	16.6578629	0.5633688	1.50246786	5.3129162		0	0	-16.657863
18:00-5:15	0.469	3.94745645	-10.36887	294.30188	16.3281802	0.562872	1.4932409	5.8945034		0	0	-16.32818
5:15-6:00	0.031	3.73821333	5.61290323	294.2732	16.292186	0.5628172	1.49222574	5.5782581		0	0	-16.292186
6:00-6:40	0.028	3.53848127	7.5	294.30033	16.326243	0.562869	1.4931863	5.2836118	5.1414133	17.3015867	18.621556	2.2953132
6:40-7:40	0.042	3.0828227	10.5714286	294.30331	16.3299807	0.5628747	1.49329164	4.6035534	4.4793414	21.0350872	22.644196	6.3142158
7:40-8:40	0.042	2.56668526	11.9047619	294.37869	16.4249973	0.5630189	1.49596383	3.8396683	3.7293937	23.1183682	25.007037	8.5820399
8:40-9:40	0.042	2.03742298	11.9761905	294.48185	16.5559115	0.5632162	1.49962811	3.0553768	2.9603756	23.9588149	26.087572	9.5316603

T1

Time period	Day (d-1)	DO deficit	dDO/dt (mg/(L·d	Average Temp (	ER (mgO2/(L·d	Ea(eV)	k (d-1)	Corrected reae	Reaeration (mg	GPP (mgO2/(L·	Corrected GPP	NEP (mgO2/(L·
12:00-13:00	0.042	-1.48521822	9.619047619	295.213385	17.1420176	0.5646153	1.1961248	-1.77650636	-1.69166356	25.9357112	29.5918386	12.449821
13:00-14:00	0.042	-1.81256413	7.761904762	295.28	17.2301268	0.5647427	1.19801604	-2.1714809	-2.06451055	24.4514153	28.0173366	10.7872098
14:00-15:00	0.042	-1.36027728	-7.523809524	294.883538	16.7123392	0.5639845	1.18680426	-1.61438287	-1.54935582	8.6505463	9.66410671	-7.04823244
15:00-16:00	0.042	-1.00809194	-9.214285714	294.699846	16.4777365	0.5636331	1.18164514	-1.19120694	-1.14821672	6.55893101	7.24189893	-9.23583756
16:00-17:00	0.042	-0.53462174	-10.23809524	294.506538	16.2344091	0.5632634	1.17624018	-0.62884357	-0.60893416	4.99583892	5.44831417	-10.7860949
17:00-18:00	0.042	-0.04567294	-11.04761905	294.313077	15.9944855	0.5628934	1.17085568	-0.05347642	-0.05202148	3.62940243	10.018894	-5.97559146
18:00-19:00	0.042	0.611902272	-14.3333333	294.083769	15.7146947	0.5624549	1.1645054	0.7125635		0	0	-15.714695
18:00-20:00	0.083	1.190156899	-13.8795181	293.860692	15.447204	0.5620282	1.15836072	1.378631008		0	0	-15.447204
18:00-21:00	0.125	1.648586129	-12.848	293.798	15.3728528	0.5619083	1.1566397	1.906820171		0	0	-15.372853
18:00-22:00	0.167	2.050919472	-11.9281437	293.755462	15.3226074	0.5618269	1.1554734	2.369782893		0	0	-15.322607
18:00-23:00	0.208	2.441879066	-11.3846154	293.656154	15.2059458	0.561637	1.15275519	2.81488877		0	0	-15.205946
18:00-0:00	0.25	2.792314585	-10.808	293.559538	15.0932994	0.5614522	1.15011681	3.211487954		0	0	-15.093299
18:00-1:00	0.292	3.199883038	-10.6130137	293.492385	15.015495	0.5613238	1.14828653	3.674382594		0	0	-15.015495
18:00-2:00	0.333	3.575410028	-10.3573574	293.361077	14.8645189	0.5610727	1.14471614	4.092829575		0	0	-14.864519
18:00-3:00	0.375	3.919944751	-10.08	293.261385	14.7509084	0.560882	1.14201282	4.476627175		0	0	-14.750908
18:00-4:00	0.417	4.265017653	-9.88489209	293.231077	14.7165419	0.560824	1.14119225	4.867205083		0	0	-14.716542
18:00-5:00	0.458	4.611228782	-9.72270742	293.173	14.6509107	0.5607129	1.13962147	5.25505533		0	0	-14.650911
18:00-6:00	0.5	4.9403047	-9.53	293.062231	14.5265438	0.5605011	1.13663154	5.615306163		0	0	-14.526544
6:00-7:00	0.042	4.669758351	6.285714286	293.052462	14.5156261	0.5604824	1.13636823	5.306565016	5.318854762	15.5918595	15.4949621	0.97933599
7:00-8:00	0.042	4.167429157	11.16666667	293.164615	14.6414597	0.5606969	1.13939488	4.748347426	4.74670181	21.0449649	21.0646325	6.42317284
8:00-9:00	0.042	3.521883038	14.54761905	293.327615	14.8262885	0.5610087	1.14380807	4.028358227	4.011424781	25.1611943	25.4484513	10.6221627
9:00-10:00	0.042	2.925438713	12.95238095	293.614923	15.1577713	0.5615582	1.15162852	3.369018656	3.332074694	24.2453063	24.9765609	9.81878964
10:00-11:00	0.042	2.272981753	13.95238095	293.908923	15.5046488	0.5621205	1.15968649	2.635946237	2.588926216	25.9884547	27.2801052	11.7754564
11:00-12:00	0.042	1.486995756	12.66666667	294.180077	15.8316038	0.5626391	1.16716827	1.735574261	1.693688166	25.5979785	27.3399506	11.5083468

T2

Time period	Day (d-1)	DO deficit	dDO/dt (mg/(L·d)	Average Temp (K)	ER (mgO2/(L·d))	Ea(eV)	k (d-1)	Corrected reaerati	Reaeration (mgO2	GPP (mgO2/(L·d))	Corrected GPP (m	NEP (mgO2/(L·d))
13:00-14:00	0.042	-1.557026083	2.69047619	294.9032	12.97010276	0.564022072	2.606140904	-4.057829363	-3.892565207	17.9160414	20.04038167	7.070278917
14:00-15:00	0.042	-1.372225999	-4.261904762	294.8645385	12.93156845	0.56394813	2.603752383	-3.572936714	-3.430564996	10.50166023	11.71787223	-1.213696222
15:00-16:00	0.042	-1.087144834	-6.547619048	294.8268462	12.89411041	0.563876041	2.601425849	-2.828126673	-2.717862085	7.503243038	8.352059428	-4.54205098
16:00-17:00	0.042	-0.75454602	-7.404761905	294.7363077	12.80457739	0.56370288	2.59584591	-1.9586852	-1.88636505	5.814603145	6.435044376	-6.36953301
17:00-18:00	0.042	-0.35304624	-8.214285714	294.5166923	12.58997531	0.563282851	2.58236056	-0.911692686	-0.8826156	4.001329886	4.366564865	-8.223410441
18:00-19:00	0.042	0.159482796	-10.52380952	294.1401538	12.23036868	0.562562696	2.559402267	0.40818063		0	0	-12.23036868
18:00-20:00	0.083	0.575196685	-9.939759036	293.8373846	11.94867818	0.561983629	2.541089961	1.461626522		0	0	-11.94867818
18:00-21:00	0.125	0.930375583	-9.168	293.6431538	11.77139525	0.56161215	2.529411402	2.353302608		0	0	-11.77139525
18:00-22:00	0.167	1.280529333	-8.760479042	293.4517692	11.59928314	0.561246114	2.517956475	3.224317125		0	0	-11.59928314
18:00-23:00	0.208	1.482273345	-7.850961538	293.2667692	11.43530507	0.560892289	2.506932997	3.715959959		0	0	-11.43530507
18:00-0:00	0.25	1.658486384	-7.152	293.1413077	11.32542111	0.560652336	2.499484675	4.145361299		0	0	-11.32542111
18:00-1:00	0.292	1.812687583	-6.589041096	293.0471538	11.24365171	0.56047226	2.493909547	4.520678869		0	0	-11.24365171
18:00-2:00	0.333	1.959890833	-6.201201201	292.9580769	11.16683499	0.560301895	2.488646487	4.877475436		0	0	-11.16683499
18:00-3:00	0.375	2.106456864	-5.885333333	292.924	11.13758727	0.56023672	2.48663601	5.237991491		0	0	-11.13758727
18:00-4:00	0.417	2.272137004	-5.67146283	292.9106154	11.12612042	0.560211121	2.485846786	5.648184467		0	0	-11.12612042
4:00-5:00	0.042	2.119179511	3.785714286	292.8636154	11.08594806	0.560121231	2.483077414	5.262086779		0	0	-11.08594806
5:00-6:00	0.042	1.898246907	5.666666667	292.7984615	11.03049884	0.55999662	2.479243468	4.706216244		0	0	-11.03049884
6:00-7:00	0.042	1.626316781	6.619047619	292.7403846	10.98130627	0.559885544	2.475830952	4.026485424	4.065791953	13.88625567	13.5274326	2.546126333
7:00-8:00	0.042	1.226456864	8.642857143	292.8107692	11.04095202	0.560020159	2.479967255	3.041572863	3.066142161	16.90971498	16.54703516	5.506083139
8:00-9:00	0.042	0.766645238	9.714285714	293.0588462	11.25377389	0.560494623	2.494601206	1.912474135	1.916613095	19.13067262	19.0195424	7.765768513
9:00-10:00	0.042	0.271484522	10.14285714	293.4033846	11.55617086	0.561153575	2.515068739	0.682802235	0.678711306	20.79714584	21.13669039	9.580519533
10:00-11:00	0.042	-0.227079638	9.857142857	293.8142308	11.92740526	0.561939346	2.539694958	-0.576713013	-0.567699096	21.75784195	22.70141914	10.77401388
11:00-12:00	0.042	-0.800784535	11.64285714	294.2814615	12.3641021	0.562832956	2.567994052	-2.056409923	-2.001961338	24.97781848	26.85101546	14.48691337
12:00-13:00	0.042	-1.402156326	12.64285714	294.7643846	12.83227581	0.563756579	2.597575026	-3.642206256	-3.505390816	27.48124796	30.46823207	17.63595627

W1

Time period	Day (d-1)	DO deficit	dDO/dt (mg/(L·d)	Average Temp (K)	ER (mgO2/(L·d))	Ea(eV)	k (d-1)	Corrected reaeratio	Reaeration (mgO2	GPP (mgO2/(L·d))	Corrected GPP (mg	NEP (mgO2/(L·d))
13:00-14:00	0.042	-0.579747373	0.5	295.9545385	9.038745221	0.566032828	1.604232524	-0.930049591	-0.870200806	8.654200806	10.35316454	1.314419319
14:00-15:00	0.042	-0.431152122	-3.666666667	296.0676154	9.117748326	0.566249095	1.608540515	-0.693525657	-0.647159335	4.264492669	5.138687641	-3.979060685
15:00-16:00	0.042	-0.22498246	-5.952380952	296.2020769	9.212591407	0.566506261	1.613678275	-0.363049307	-0.337698672	1.669317719	2.028878908	-7.183712499
16:00-17:00	0.042	0.063374914	-5.857142857	296.2467692	9.244333286	0.566591738	1.615389594	0.102375177	0.095125746	1.331731397	1.623208455	-7.62112483
17:00-18:00	0.042	0.373789995	-6.404761905	295.9513077	9.036498076	0.566026648	1.604109608	0.599600122	0.561058782	0.318179313	0.38056462	-8.655933456
18:00-19:00	0.042	0.690264922	-6.452380952	295.6234615	8.811347127	0.565399621	1.591685423	1.098684613		0	0	-8.811347127
18:00-20:00	0.083	1.065215523	-6.156626506	295.0742308	8.446658888	0.56434918	1.571086822	1.673546071		0	0	-8.446658888
18:00-21:00	0.125	1.224215523	-5.36	294.7520769	8.239813168	0.56373304	1.559128876	1.908709773		0	0	-8.239813168
18:00-22:00	0.167	1.38175746	-4.946107784	294.6946154	8.203454697	0.56362314	1.557005561	2.15140405		0	0	-8.203454697
18:00-23:00	0.208	1.549700094	-4.653846154	294.4363077	8.041983374	0.563312911	1.547496251	2.398155086		0	0	-8.041983374
18:00-0:00	0.25	1.725473932	-4.384	294.4363077	8.041983374	0.563312911	1.547496251	2.670164442		0	0	-8.041983374
18:00-1:00	0.292	1.888897709	-4.253424658	294.2070769	7.901352145	0.562690691	1.539106027	2.907213848		0	0	-7.901352145
18:00-2:00	0.333	2.095302593	-4.186186186	294.0146154	7.785179499	0.562322595	1.532096757	3.210206307		0	0	-7.785179499
18:00-3:00	0.396	2.247305842	-3.888888889	293.8432308	7.683167704	0.561994811	1.525881962	3.429123448		0	0	-7.683167704
18:00-4:30	0.438	2.499393703	-4	293.7202105	7.61076854	0.561759526	1.521436517	3.802668851		0	0	-7.61076854
4:30-5:00	0.021	2.444804758	3.380952381	293.6177143	7.550969308	0.561563495	1.517742618	3.710584373		0	0	-7.550969308
5:00-6:00	0.042	2.21887704	4.666666667	293.6746154	7.584108779	0.561672322	1.519792188	3.372231993		0	0	-7.584108779
6:00-7:00	0.042	1.947765487	6.666666667	293.6907692	7.593543334	0.561703218	1.520374552	2.96133308	2.923595995	11.02707067	11.41485503	3.821311693
7:00-8:00	0.042	1.576319297	8.738095238	293.6727692	7.583031291	0.561668791	1.519725647	2.395572862	2.366055264	13.65603997	14.1200226	6.536991312
8:00-9:00	0.042	1.144586129	9.928571429	293.7145385	7.607446952	0.561748678	1.521231865	1.741180892	1.71802378	15.49454765	16.06382305	8.456376096
9:00-10:00	0.042	0.620959506	11.0952381	293.9210769	7.729336656	0.562143696	1.528701709	0.949261858	0.932060219	17.44717788	18.32855085	10.5992142
10:00-11:00	0.042	0.065772561	11.14285714	294.3667692	7.999059631	0.562996113	1.544946207	0.101615069	0.098724615	18.32813253	19.81035824	11.81129861
11:00-12:00	0.042	-0.555807181	11.88095238	294.9698462	8.379074079	0.564149538	1.567202186	-0.87106223	-0.834266579	19.99921896	22.46605809	14.08698401
12:00-13:00	0.042	-1.292727756	11.0952381	296.5728462	9.479257264	0.567215382	1.627930497	-2.104470938	-1.940384361	20.31962246	25.28857022	15.80931296

W2

Time period	Day (d-1)	DO deficit	dDO/dt (mg/(L·d)	Average Temp (K)	ER (mgO2/(L·d))	Ea(eV)	k (d-1)	Corrected reaeratic	Reaeration (mgO2	GPP (mgO2/(L·d))	Corrected GPP (m	NEP (mgO2/(L·d))
12:00-13:00	0.042	-1.176126198	2.80952381	295.2365556	11.33686045	0.564659637	1.871351421	-2.200945431	-2.101737516	14.56626133	16.64428129	5.307420838
13:00-14:00	0.042	-1.334914641	0.071428571	296.2902308	12.29449185	0.566674861	1.918704792	-2.561307119	-2.385492464	12.11192104	14.80393123	2.509439377
14:00-15:00	0.042	-1.090395139	-6.333333333	296.9303077	12.91529582	0.567899051	1.948053701	-2.124148286	-1.948536113	5.270202779	6.710549745	-6.204746079
15:00-16:00	0.042	-0.758698463	-6.547619048	296.7316923	12.71937835	0.567519186	1.938899037	-1.47103972	-1.355794154	4.463175106	5.611276799	-7.108101551
16:00-17:00	0.042	-0.415712003	-6.738095238	296.4423077	12.43923193	0.566965719	1.925637549	-0.800510643	-0.74287735	3.659782112	4.516900133	-7.922331799
17:00-18:00	0.042	-0.02176544	-6.80952381	295.9214615	11.95046848	0.565969566	1.901997112	-0.041397805	-0.038894842	2.884371032	3.443333997	-8.507134488
18:00-19:00	0.042	0.433086745	-8.952380952	295.3317692	11.42023917	0.56484174	1.875581965	0.812289687		0	0	-11.42023917
18:00-20:00	0.083	0.778216898	-7.602409639	294.8413077	10.99720024	0.563903699	1.853891509	1.442729699		0	0	-10.99720024
18:00-21:00	0.125	1.131199583	-7.36	294.3570769	10.59491122	0.562977576	1.832722702	2.073175155		0	0	-10.59491122
18:00-22:00	0.167	1.47943196	-7.19760479	294.0000769	10.30777764	0.562294789	1.817270911	2.688528667		0	0	-10.30777764
18:00-23:00	0.208	1.779053832	-7.076923077	293.7160769	10.08492551	0.56175162	1.805071824	3.211319945		0	0	-10.08492551
18:00-0:00	0.25	1.936106115	-6.492	293.6382308	10.02468613	0.561602734	1.801742302	3.488364288		0	0	-10.02468613
18:00-1:00	0.292	2.124450653	-6.044520548	293.5094615	9.925829998	0.561356455	1.796248249	3.816040764		0	0	-9.925829998
18:00-2:00	0.333	2.376526521	-5.993993994	293.3903846	9.835282409	0.561128712	1.791182636	4.25679304		0	0	-9.835282409
18:00-3:00	0.375	2.606485333	-5.179292929	293.1765556	9.674752518	0.56071975	1.782122037	4.645074951		0	0	-9.674752518
18:00-4:00	0.416	2.693772881	-5.047619048	293.108125	9.623934496	0.560588872	1.779232114	4.792847218		0	0	-9.623934496
18:00-5:00	0.458	2.856677734	-3.166666667	293.0365385	9.571058427	0.560451958	1.776213925	5.074070771		0	0	-9.571058427
5:00-6:00	0.042	2.692929782	4.166666667	292.954	9.510453403	0.560294097	1.772740342	4.773865263		0	0	-9.510453403
6:00-7:00	0.042	2.413039134	6.738095238	292.8864615	9.461147931	0.560164925	1.769903079	4.270845392	4.312100932	12.08099431	11.87921079	2.418062856
7:00-8:00	0.042	2.126795593	6.523809524	292.9019231	9.472412794	0.560194497	1.770552211	3.76560264	3.800583725	12.3782258	12.18351153	2.711098739
8:00-9:00	0.042	1.751526521	7.595238095	293.0897692	9.610348563	0.560553765	1.778457721	3.115015865	3.129977894	14.1202602	14.06600806	4.455659498
9:00-10:00	0.042	1.330009631	7.404761905	293.532	9.94306212	0.561399561	1.797208661	2.390304829	2.376727211	14.68303469	15.04593139	5.102869272
10:00-11:00	0.042	0.924457848	6.904761905	294.2126923	10.47783237	0.56270143	1.826457639	1.688483098	1.652006174	14.90775573	15.95547126	5.477638891
11:00-12:00	0.042	0.541071561	5.333333333	294.825	10.98340678	0.56387251	1.853174633	1.002700091	0.966894879	14.02143845	15.60579465	4.622387864

Winter measurement

L1

Time period	Day (d-1)	DO deficit	dDO/dt (mg/(L·d)	Average Temp (K	ER (mgO2/(L·d))	Ea(eV)	k (d-1)	Corrected reaera	Reaeration (mg(	GPP (mgO2/(L·d	Corrected GPP (	NEP (mgO2/(L·d)
10:00-11:00	0.042	4.119053715	1.904761905	284.7777273	9.816103559	0.544656429	1.194608239	4.920655505	6.001461263	14.60030064	8.550094422	-1.266009138
11:00-12:00	0.042	3.19147526	17.26190476	285.5108462	10.38586607	0.546058568	1.215560554	3.879431435	4.649979454	31.30892531	19.21439009	8.828524026
12:00-13:00	0.042	2.60508093	11.64285714	286.1594615	10.9174668	0.547299089	1.234403967	3.215722234	3.795602915	26.54425423	16.97980589	6.062339094
13:00-14:00	0.042	2.602502718	-0.5	286.4264615	11.14412622	0.547809744	1.2422454	3.23294703	3.791846461	14.40515354	9.37327283	-1.770853394
14:00-15:00	0.042	2.869528524	-6.952380952	286.286	11.02430628	0.547541102	1.238114043	3.552803561	4.180903059	7.563715989	4.877640186	-6.146666093
15:00-16:00	0.042	3.403051059	-10.38095238	285.7753077	10.59941791	0.546564369	1.223208642	4.162641465	4.958245393	3.357802226	2.095821391	-8.503596515
16:00-17:00	0.042	4.277982041	-11.64285714	284.9811538	9.970993005	0.545045496	1.200385638	5.135228201	6.233019834	0.821123023	0.487151332	-9.483841673
17:00-18:00	0.042	4.733748456	-11.69047619	284.1312308	9.339654064	0.543419962	1.176431433	5.568930478		0	0	-9.339654064
17:00-19:00	0.083	4.925962088	-11.44578313	283.5528462	8.933034361	0.542313762	1.160404177	5.716106981		0	0	-8.933034361
17:00-20:00	0.125	5.116681006	-10.936	283.239	8.71985147	0.541713511	1.151798959	5.893387854		0	0	-8.71985147
17:00-21:00	0.167	5.941091898	-9.640718563	283.0230769	8.576145239	0.541300543	1.145915736	6.807990693		0	0	-8.576145239
17:00-22:00	0.208	6.867096287	-9.889423077	282.7041538	8.368209038	0.540690582	1.137281015	7.809818234		0	0	-8.368209038
17:00-23:00	0.25	7.32784916	-9.564	282.3145385	8.121011229	0.539945416	1.126820574	8.257171193		0	0	-8.121011229
17:00-0:00	0.292	7.516720138	-8.643835616	281.9650769	7.905508209	0.539277048	1.117520064	8.400085566		0	0	-7.905508209
17:00-1:00	0.333	7.687296175	-7.57957958	281.7657692	7.785171469	0.538895858	1.112250138	8.550196234		0	0	-7.785171469
17:00-2:00	0.375	7.821679744	-7.312	281.6263846	7.702104826	0.538629276	1.108579423	8.670953214		0	0	-7.702104826
17:00-3:00	0.417	7.964971241	-6.630695444	281.3736923	7.553765514	0.538145985	1.101955592	8.7770446		0	0	-7.553765514
3:00-4:00	0.042	7.768861825	-4.993736952	281.0181053	7.349849474	0.537465901	1.092701557	8.489047415		0	0	-7.349849474
4:00-5:00	0.042	7.503268854	3.380952381	281.1064615	7.399998698	0.537634888	1.094993719	8.216032264		0	0	-7.399998698
5:00-6:00	0.042	7.014308751	23.64285714	281.3715385	7.552513488	0.538141866	1.101899304	7.729061929		0	0	-7.552513488
6:00-7:00	0.042	5.875189268	13.33333333	281.6722308	7.729328684	0.53871696	1.109785449	6.520199562		0	0	-7.729328684
7:00-8:00	0.042	5.640231167	13.0952381	281.9209231	7.878689888	0.539192601	1.116350436	6.296474522	8.21781681	23.57442129	11.50146742	3.622777535
8:00-9:00	0.042	4.704027318	20.78571429	282.1334545	8.008618508	0.539599081	1.121991615	5.277879206	6.853767802	32.62894648	16.13669329	8.128074782
9:00-10:00	0.042	3.831533098	19.64285714	282.2211538	8.06285494	0.539766812	1.124327699	4.307898793	5.582543723	32.75731342	16.2912368	8.228381857

L2

Time period	Day (d-1)	DO deficit	dDO/dt (mg/(L·d	Average Temp (K	ER (mgO2/(L·d))	Ea(eV)	k (d-1)	Corrected reaer	Reaeration (mg	GPP (mgO2/(L·c	Corrected GPP (	NEP (mgO2/(L·d
11:00-12:00	0.042	3.613443525	5.5	284.4545385	7.609473385	0.544038309	1.379135144	4.983426958	6.124786774	14.23421323	8.165292774	0.555819389
12:00-13:00	0.042	3.411828084	5.404761905	284.5273846	7.652254306	0.544177632	1.381519877	4.713508316	5.783048602	14.4807133	8.345459522	0.693205216
13:00-14:00	0.042	3.29556937	0.619047619	284.5842308	7.685805793	0.544286354	1.383383689	4.559036913	5.585990081	9.892057538	5.721696585	-1.96410921
14:00-15:00	0.042	3.521181013	-3.928571429	284.7865385	7.80640878	0.544673281	1.390037163	4.894572465	5.968401817	4.962026754	2.907453568	-4.89895521
15:00-16:00	0.042	3.81824802	-3.833333333	284.3628462	7.555964366	0.543862942	1.376139304	5.254441173	6.471930394	4.553736273	2.596934806	-4.95902956
16:00-17:00	0.042	4.132035458	-3.785714286	283.7526154	7.209309942	0.542695834	1.35636648	5.604554389	7.003800101	4.069485613	2.232001022	-4.97730892
17:00-18:00	0.042	4.424052757	-7.738095238	283.4984615	7.069666401	0.542209748	1.348215373	5.964575938		0	0	-7.0696664
17:00-19:00	0.083	4.846696403	-7.56626506	283.342	6.985047904	0.541910505	1.343221788	6.51018821		0	0	-6.9850479
17:00-20:00	0.125	5.090375207	-6.288	282.8086923	6.704158031	0.540890518	1.326339433	6.751565366		0	0	-6.70415803
17:00-21:00	0.167	5.18348072	-5.628742515	282.9723077	6.789110598	0.541203444	1.331496144	6.901784591		0	0	-6.7891106
17:00-22:00	0.208	5.339159332	-5.235576923	282.908	6.755593031	0.541080451	1.329466954	7.098235893		0	0	-6.75559303
17:00-23:00	0.25	5.477542236	-4.964	283.0778462	6.844478684	0.541405293	1.334833061	7.31160447		0	0	-6.84447868
17:00-0:00	0.292	5.684999011	-4.794520548	282.9793077	6.792769062	0.541216832	1.331717212	7.570811031		0	0	-6.79276906
17:00-1:00	0.333	5.882349638	-4.678678679	282.8155385	6.707691296	0.540903612	1.326554804	7.803259173		0	0	-6.7076913
17:00-2:00	0.375	6.077386209	-4.562666667	282.6636923	6.629759868	0.540613196	1.321786123	8.033004755		0	0	-6.62975987
17:00-3:00	0.417	6.249007071	-4.460431655	282.6289231	6.612043166	0.540546698	1.32069662	8.253042518		0	0	-6.61204317
17:00-4:30	0.479	6.633909037	-4.317327766	282.2040556	6.39933745	0.53973411	1.3074556	8.673541517		0	0	-6.39933745
4:30-5:00	0.021	6.61336677	5.18713867	281.8405	6.222768148	0.539038786	1.296230819	8.572449824		0	0	-6.22276815
5:00-6:00	0.042	6.419159121	4.885564835	281.6605385	6.137176728	0.538694598	1.290710214	8.285274243		0	0	-6.13717673
6:00-7:00	0.042	6.252260137	4.227482149	281.7884615	6.197896209	0.538939259	1.294632034	8.094376262		0	0	-6.19789621
7:00-8:00	0.042	5.827731738	3.625858475	281.9084615	6.255400923	0.539168767	1.298321783	7.566271063	9.878005296	8.60685318	4.195760697	-2.05964023
8:00-9:00	0.042	5.404003932	2.988301839	282.3425385	6.467904976	0.539998968	1.311756779	7.088738792	9.159786665	8.687515174	4.354222865	-2.11368211
9:00-10:00	0.042	4.914408809	2.673696821	282.797	6.698127993	0.540868156	1.325971689	6.516366948	8.329922931	9.202773891	4.748412193	-1.9497158
10:00-11:00	0.042	4.214123897	14.88095238	283.2303333	6.92527573	0.541696935	1.339669179	5.645531902	7.142940005	22.59701238	11.98695308	5.061677348

T1

Time period	Day (d-1)	DO deficit	dDO/dt (mg/(L·d	Average Temp (I	ER (mgO2/(L·d))	Ea(eV)	k (d-1)	Corrected reaera	Reaeration (mgC	GPP (mgO2/(L·d)	Corrected GPP (	NEP (mgO2/(L·d)
11:00-12:00	0.042	1.830021447	4.357142857	287.9316923	8.910316121	0.550688598	1.582512842	2.896032441	3.277568412	14.39357444	10.31152796	1.401211836
12:00-13:00	0.042	1.639032496	3.666666667	287.8616154	8.862390419	0.550554571	1.579884919	2.589482723	2.935507201	14.04515947	10.01695909	1.154568674
13:00-14:00	0.042	1.580004059	1.976190476	287.8429231	8.849650333	0.550518821	1.579184685	2.495118212	2.829787269	12.46040321	8.876105907	0.026455574
14:00-15:00	0.042	1.770366969	-3.595238095	287.7814615	8.807889058	0.550401272	1.576884457	2.791664157	3.170727242	6.548034663	4.646172701	-4.161716357
15:00-16:00	0.042	2.131580089	-6.30952381	287.4543077	8.58889168	0.549775568	1.564696828	3.335276604	3.81765994	3.18681625	2.214422706	-6.374468974
16:00-17:00	0.042	2.43356146	-6.095238095	287.1612308	8.397333358	0.549215039	1.553858695	3.781410636	4.358508576	2.860253329	1.950621498	-6.44671186
17:00-18:00	0.042	2.847073824	-8.78571429	286.9926154	8.289066709	0.548892551	1.547657267	4.406294494		0	0	-8.289066709
17:00-19:00	0.083	3.202267516	-7.78313253	286.6969231	8.102564323	0.54832702	1.536841832	4.921378676		0	0	-8.102564323
17:00-20:00	0.125	3.477962932	-7.152	286.424	7.934149386	0.547805036	1.526926307	5.310593095		0	0	-7.934149386
17:00-21:00	0.167	3.685760982	-6.47305389	286.2946923	7.855583052	0.547557726	1.52225081	5.610652641		0	0	-7.855583052
17:00-22:00	0.208	3.858835556	-5.98076923	286.2584615	7.833709387	0.547488433	1.520943351	5.869070279		0	0	-7.833709387
17:00-23:00	0.25	4.071352947	-5.58	286.1426154	7.764177271	0.547266869	1.516770342	6.175307401		0	0	-7.764177271
17:00-0:00	0.292	4.242326779	-5.37671233	286.0593846	7.714602573	0.547107685	1.513779274	6.421946352		0	0	-7.714602573
17:00-1:00	0.333	4.406872175	-5.15615616	285.9754615	7.664936007	0.546947176	1.510769299	6.657767187		0	0	-7.664936007
17:00-2:00	0.375	4.583855812	-4.984	285.8641538	7.599555871	0.546734293	1.506786382	6.906891513		0	0	-7.599555871
17:00-3:00	0.417	4.788088658	-4.86330935	285.783	7.552239359	0.546579081	1.503889078	7.200754237		0	0	-7.552239359
17:00-4:00	0.458	4.944556152	-4.74017467	285.5824615	7.436575602	0.546195537	1.49675345	7.400781478		0	0	-7.436575602
17:00-5:00	0.5	5.146777605	-4.658	285.5227333	7.402470009	0.546081303	1.494634731	7.692552564		0	0	-7.402470009
5:00-6:00	0.042	5.039754979	2.761904762	285.4269091	7.34807957	0.545898033	1.491241854	7.51549356		0	0	-7.34807957
6:00-7:00	0.042	4.888725286	4.285714286	285.3270769	7.291839225	0.545707097	1.487715259	7.273031204		0	0	-7.291839225
7:00-8:00	0.042	4.653293232	4.5	285.3372308	7.297539664	0.545726517	1.488073564	6.924442646	8.334048178	9.479951822	5.753677234	-1.54386243
8:00-9:00	0.042	4.347446769	6.047619048	285.5705385	7.429754838	0.546172734	1.496330267	6.505216184	7.786277164	11.57534188	7.130979068	-0.29877577
9:00-10:00	0.042	4.105646285	5.642857143	285.7652308	7.54191844	0.546545096	1.503255436	6.171835096	7.353212496	11.60364465	7.237921511	-0.303996929
10:00-11:00	0.042	3.754659729	7.30952381	285.8013846	7.562932579	0.546614242	1.504544946	5.649054317	6.724595575	13.89892823	8.689690152	1.126757573

T2

Time period	Day (d-1)	DO deficit	dDO/dt (mg/(L·d	Average Temp (I	ER (mgO2/(L·d))	Ea(eV)	k (d-1)	Corrected reaei	Reaeration (mg	GPP (mgO2/(L·d	Corrected GPP (	NEP (mgO2/(L·d))
12:00-13:00	0.042	1.696425852	4.738095238	288.2486923	7.792429769	0.551294882	1.325596782	2.24877665	2.525978094	13.57511714	9.924233755	2.131803986
13:00-14:00	0.042	1.859883839	-4.761904762	288.1786154	7.750516816	0.551160855	1.323395495	2.461361892	2.769367036	3.831728202	2.788707439	-4.961809377
14:00-15:00	0.042	2.150125482	-6.476190476	288.162	7.740612275	0.551129077	1.322874101	2.844345314	3.201536843	1.685272681	1.225228933	-6.515383342
15:00-16:00	0.042	2.441452408	-5.880952381	288.0985385	7.702898786	0.551007703	1.320884558	3.224876785	3.635322636	1.846724983	1.337173535	-6.365725251
16:00-17:00	0.042	2.786496239	-5.952380952	287.7715385	7.511464574	0.550382293	1.310680316	3.652205771	4.149092901	1.261526147	0.894551192	-6.616913382
17:00-18:00	0.042	3.111916352	-6.666666667	287.4782308	7.343805714	0.549821323	1.301594547	4.050453356		0	0	-7.343805714
17:00-19:00	0.083	3.404883897	-6.373493976	287.3096154	7.249122176	0.549498835	1.296399902	4.414091149		0	0	-7.249122176
17:00-20:00	0.125	3.734116991	-6.248	287.0139231	7.086018339	0.548933303	1.287340319	4.80707936		0	0	-7.086018339
17:00-21:00	0.167	3.909694343	-5.508982036	286.7291538	6.932409597	0.548388663	1.278675255	4.999229411		0	0	-6.932409597
17:00-22:00	0.208	4.062012482	-5.100961538	286.6142308	6.871365562	0.548168865	1.275194873	5.179857492		0	0	-6.871365562
17:00-23:00	0.25	4.211962611	-4.804	286.5754615	6.850893885	0.548094716	1.274022907	5.366136849		0	0	-6.850893885
17:00-0:00	0.292	4.410834109	-4.616438356	286.4534615	6.786870188	0.547861383	1.270341956	5.603267631		0	0	-6.786870188
17:00-1:00	0.333	4.56908093	-4.501501502	286.3472308	6.731609448	0.54765821	1.267145453	5.789690127		0	0	-6.731609448
17:00-2:00	0.375	4.73010919	-4.368	286.2901538	6.702104362	0.547549046	1.265431322	5.985628324		0	0	-6.702104362
17:00-3:15	0.427	4.954303309	-4.2529274	286.16525	6.637987504	0.547310159	1.2616883	6.250786518		0	0	-6.637987504
3:15-4:00	0.031	4.858413388	3.612903226	286.0862	6.597726108	0.547158971	1.259325113	6.118321989		0	0	-6.597726108
4:00-5:00	0.042	4.683713011	4.476190476	285.8995385	6.503622922	0.546801968	1.253762449	5.872263495		0	0	-6.503622922
5:00-6:00	0.042	4.497983921	4.846335667	285.8482308	6.477992745	0.546703839	1.252237748	5.632545256		0	0	-6.477992745
6:00-7:00	0.042	4.150247469	4.4489266	285.7519231	6.430155751	0.546519644	1.249380796	5.185239486		0	0	-6.430155751
7:00-8:00	0.042	4.001855143	3.719382007	285.6440769	6.377006638	0.546313381	1.246189293	4.98706903	5.958762308	9.123619699	5.647077279	-0.729929359
8:00-9:00	0.042	3.607004011	3.062978789	285.6546154	6.382180813	0.546333537	1.246500799	4.496133382	5.370828973	9.055149816	5.608474053	-0.77370676
9:00-10:00	0.042	3.151381815	2.26530285	285.8888462	6.49827335	0.546781519	1.253444555	3.950082376	4.692407523	8.935895326	5.618090609	-0.88018274
10:00-11:00	0.042	2.710906423	1.824536803	286.1050769	6.607318169	0.547195074	1.259889033	3.415441272	4.036539664	9.150997139	5.833390469	-0.7739277
11:00-12:00	0.042	2.282624325	1.697042037	286.125	6.617456946	0.547233179	1.260484479	2.877212533	3.39882762	9.661214417	6.166480434	-0.450976512

W1

Time period	Day (d-1)	DO deficit	dDO/dt (mg/(L·	Average Temp (	ER (mgO2/(L·d))	Ea(eV)	k (d-1)	Corrected reaera	Reaeration (mg(	GPP (mgO2/(L·d	Corrected GPP (	NEP (mgO2/(L·d
12:00-13:00	0.042	3.22963094	3.33333333	285.2041538	7.515887922	0.545471999	1.408842495	4.550041308	5.493602225	12.31673111	7.412095088	-0.10379283
13:00-14:00	0.042	3.28344857	0.23809524	285.1546923	7.4852808	0.5453774	1.407190813	4.620438661	5.585146016	9.129949222	5.476977666	-2.00830313
14:00-15:00	0.042	3.57449991	-4.19047619	284.8304615	7.287708032	0.544757287	1.396411537	4.991472914	6.080224348	4.206299461	2.471570804	-4.81613723
15:00-16:00	0.042	3.94405613	-6.73809524	284.3597692	7.010131132	0.543857057	1.380909819	5.44638584	6.708839479	1.030065283	0.587316924	-6.42281421
16:00-17:00	0.042	4.33778058	-7.5	284.0096154	6.810518718	0.543187364	1.369489631	5.940545523	7.378564762	-0.401564762	-0.223894832	-7.03441355
17:00-18:00	0.042	4.71969636	-7.95238095	283.8155385	6.702339899	0.542816179	1.363200587	6.433892844		0	0	-6.7023399
17:00-19:00	0.083	4.93301549	-6.20481928	283.6459231	6.609204031	0.542491778	1.357727872	6.697692618		0	0	-6.60920403
17:00-20:00	0.125	5.13752261	-5.216	283.474	6.516121675	0.542162964	1.352203118	6.946974091		0	0	-6.51612167
17:00-21:00	0.167	5.31773791	-4.77245509	283.2743077	6.409648957	0.541781039	1.345814215	7.156687273		0	0	-6.40964896
17:00-22:00	0.208	5.455676	-4.5	283.1921538	6.366352578	0.541623914	1.343194578	7.328034427		0	0	-6.36635258
17:00-23:00	0.25	5.66239486	-4.348	283.0546154	6.294521304	0.541360863	1.338820303	7.580929207		0	0	-6.2945213
17:00-0:00	0.292	5.82633244	-4.23630137	282.9584615	6.244785597	0.541176962	1.335770689	7.782644091		0	0	-6.2447856
17:00-1:00	0.333	5.99114172	-4.15315315	282.8844615	6.206776758	0.541035432	1.333428436	7.988758736		0	0	-6.20677676
17:00-2:00	0.375	6.18561998	-4.12533333	282.802	6.164694263	0.540877719	1.330823197	8.231966559		0	0	-6.16469426
17:00-3:00	0.417	6.35543919	-4.05275779	282.6973077	6.111677587	0.540677488	1.327522945	8.436991351		0	0	-6.11167759
17:00-4:00	0.458	6.54182189	-4.03275109	282.5973571	6.061487653	0.540486326	1.324379805	8.663856801		0	0	-6.06148765
4:00-5:00	0.042	6.42177654	3.47619048	282.4924167	6.009235524	0.54028562	1.321087756	8.483730355		0	0	-6.00923552
5:00-6:00	0.042	6.21845939	5.69047619	282.3732308	5.950436378	0.540057669	1.317358742	8.191941836		0	0	-5.95043638
6:00-7:00	0.042	5.94079006	7.14285714	282.2668462	5.898438748	0.539854202	1.314039139	7.80643066		0	0	-5.89843875
7:00-8:00	0.042	5.68984367	6.78571429	282.1568462	5.845151783	0.539643819	1.310615518	7.4571974	9.678424075	11.58429021	5.737599202	-0.10755258
8:00-9:00	0.042	5.40284916	7.19047619	282.0606154	5.798929935	0.539459771	1.307627763	7.064915563	9.190246421	12.47722977	6.141972309	0.343042373
9:00-10:00	0.042	5.05758158	7.61904762	282.1073077	5.821311494	0.539549074	1.309076606	6.620761721	8.602946259	13.49310136	6.661890838	0.840579344
10:00-11:00	0.042	4.75575309	6.54761905	282.2038462	5.867860694	0.53973371	1.312077245	6.239915416	8.089536012	12.93508304	6.425909252	0.558048559
11:00-12:00	0.042	4.60386841	2.73809524	282.3083846	5.918687219	0.539933647	1.3153343	6.055626029	7.831180163	9.383915075	4.693006236	-1.22568098

W2

12:00-13:00	0.042	3.686316376	4.5	285.2215385	8.876731677	0.545505248	1.524596832	5.620146268	6.782822132	14.05717787	8.468884507	-0.40784717
13:00-14:00	0.042	3.722733629	0.142857143	285.0243077	8.743008474	0.545128031	1.517481987	5.649181224	6.849829877	9.633027266	5.730813627	-3.012194847
14:00-15:00	0.042	4.016744938	-3.95238095	284.7054615	8.531077032	0.544518216	1.506050182	6.049419447	7.390810686	4.996808361	2.912701041	-5.618375991
15:00-16:00	0.042	4.343898079	-3.33333333	284.0428462	8.106936455	0.54325092	1.482567697	6.440122972	7.992772466	5.013894201	2.801470361	-5.305466093
16:00-17:00	0.042	4.805218175	-5.78571429	283.2635385	7.635005937	0.541760442	1.455417853	6.993600318	8.841601441	1.712684273	0.910451411	-6.724554526
17:00-18:00	0.042	5.178142226	-7.4047619	282.6981538	7.309911212	0.540679106	1.436032473	7.435980388		0	0	-7.309911212
17:00-19:00	0.083	5.450731301	-6.75903614	282.5813077	7.244470774	0.54045563	1.432058471	7.805765932		0	0	-7.244470774
17:00-20:00	0.125	5.629663012	-5.76	282.4892308	7.193315486	0.540279527	1.428934633	8.044420447		0	0	-7.193315486
17:00-21:00	0.167	5.788527676	-5.18562874	282.4398462	7.166027803	0.540185076	1.427261999	8.261745582		0	0	-7.166027803
17:00-22:00	0.208	5.97034356	-4.86057692	282.3512308	7.117322252	0.540015593	1.424265545	8.503354624		0	0	-7.117322252
17:00-23:00	0.25	6.159017297	-4.624	282.2103846	7.040589481	0.539746215	1.419515892	8.742822931		0	0	-7.040589481
17:00-0:00	0.292	6.336871586	-4.46232877	282.0826154	6.971696858	0.539501848	1.415220925	8.968073269		0	0	-6.971696858
17:00-1:00	0.333	6.513948536	-4.34234234	281.95	6.900904077	0.539248212	1.410776798	9.189727461		0	0	-6.900904077
17:00-2:00	0.375	6.681950398	-4.24266667	281.8415385	6.843539823	0.539040772	1.407152477	9.402523053		0	0	-6.843539823
17:00-3:20	0.431	6.933701729	-4.15313225	281.7186471	6.779119766	0.538805734	1.403057221	9.728380281		0	0	-6.779119766
3:20-4:00	0.028	6.848418668	3.714285714	281.5912222	6.712963565	0.538562026	1.398823478	9.579728823		0	0	-6.712963565
4:00-5:00	0.042	6.676721925	5.119047619	281.4820769	6.65681127	0.538353278	1.39520724	9.31541077		0	0	-6.65681127
5:00-6:00	0.042	6.416391804	7.023809524	281.335	6.581886382	0.538071983	1.390349021	8.921024061		0	0	-6.581886382
6:00-7:00	0.042	6.131715802	8	281.2016923	6.514704741	0.537817024	1.385960241	8.498314311	11.28235708	13.05764292	6.08433567	-0.430369071
7:00-8:00	0.042	5.803899045	8.738095238	281.0306923	6.429530713	0.537489975	1.380350825	8.011416838	10.67917424	14.39892099	6.636389148	0.206858435
8:00-9:00	0.042	5.345774843	9.5	281.0204615	6.424470282	0.537470408	1.38001594	7.377254495	9.836225711	16.00377429	7.371236336	0.946766055
9:00-10:00	0.042	4.853030283	9.69047619	281.3148462	6.571685388	0.538033438	1.389684622	6.744181552	8.929575721	17.10090047	8.026166993	1.454481606
10:00-11:00	0.042	4.283736485	9.666666667	281.6963846	6.767514768	0.538763156	1.40231662	6.007154867	7.882075132	18.12459154	8.71661534	1.949100572
11:00-12:00	0.042	3.669275194	9.880952381	282.4624615	7.17851116	0.540228329	1.428027728	5.23982672	6.751466358	19.46948602	9.833277469	2.654766309

Spring

L1

Time period	Day (d-1)	DO deficit	dDO/dt (mg/(L·	Average Temp (	ER (mgO2/(L·d))	Ea(eV)	k (d-1)	Corrected reaer	Reaeration (m	GPP (mgO2/(L·d	Corrected GPP	NEP (mgO2/(L·
10:00-11:00	0.042	1.72123454	11.42857143	290.990385	21.52239358	0.556538552	4.752255069	8.179745545	8.60961515	28.23295628	24.5929977	3.07060413
11:00-12:00	0.042	1.20835782	11	291.318077	22.07208076	0.557165285	4.78933217	5.787226987	6.04420582	30.36979418	27.0142419	4.94216116
12:00-13:00	0.042	0.72236611	9.30952381	291.578385	22.51872189	0.557663141	4.818991021	3.481075788	3.61327527	31.11024854	28.1371322	5.61841029
13:00-14:00	0.042	0.45447262	2.714285714	292.349	23.89464581	0.559136994	4.907874199	2.230494452	2.27327205	25.85501366	24.5646879	0.67004208
14:00-15:00	0.042	0.62540408	-3.47619048	292.643308	24.44204086	0.559699877	4.94225078	3.09090378	3.12827119	18.80953834	18.2101605	-6.2318803
15:00-16:00	0.042	0.92343428	-6.42857143	292.483	24.14234105	0.559393278	4.923496305	4.546525242	4.61901824	14.36641033	13.7668383	-10.375503
16:00-17:00	0.042	1.37374948	-10.5	292.425077	24.03495835	0.559282497	4.916737373	6.754365392	6.87149488	8.042505119	7.67837834	-16.35658
17:00-18:00	0.042	1.99637255	-13.4761905	292.228846	23.67470655	0.558907192	4.893908472	9.770064525	9.98585548	1.951954039	1.84035214	-21.834354
18:00-19:00	0.042	2.53982297	-11.952381	291.956231	23.18316759	0.558385797	4.862369024	12.34955655		0	0	-23.183168
18:00-20:00	0.083	3.02015809	-11.373494	291.723385	22.77142358	0.557940463	4.835591559	14.60425097		0	0	-22.771424
18:00-21:00	0.125	3.30379529	-9.6	291.566154	22.49753515	0.557639749	4.817593372	15.91634227		0	0	-22.497535
18:00-22:00	0.167	3.46898425	-8.07784431	291.457308	22.3098624	0.557431573	4.805173021	16.66906953		0	0	-22.309862
18:00-23:00	0.208	3.57814931	-7.05769231	291.453615	22.30352365	0.557424511	4.804752256	17.19212096		0	0	-22.303524
18:00-0:00	0.25	3.71352865	-6.368	291.435462	22.27238429	0.557389791	4.802684034	17.83490477		0	0	-22.272384
18:00-1:00	0.292	3.83164418	-5.82876712	291.404385	22.2191788	0.557330354	4.799145584	18.38861825		0	0	-22.219179
18:00-2:00	0.333	3.96664418	-5.51651652	291.365462	22.1527195	0.557255911	4.79471744	19.01893804		0	0	-22.152719
18:00-3:00	0.375	4.08322304	-5.192	291.330923	22.09391319	0.557189854	4.79079154	19.56187041		0	0	-22.093913
18:00-3:30	0.396	4.11806567	-4.99242424	291.294833	22.0326324	0.55712083	4.786692744	19.71191506		0	0	-22.032632
3:30-4:30	0.042	4.00847874	3.428571429	291.196786	21.86700322	0.556933308	4.775574944	19.14279063		0	0	-21.867003
4:30-5:30	0.042	3.89445495	3.619047619	291.006308	21.5487845	0.556569006	4.75405005	18.51443373		0	0	-21.548785
5:30-6:30	0.042	3.73785044	4.761904762	290.804846	21.21725407	0.556183697	4.73138953	17.68522643		0	0	-21.217254
6:30-7:30	0.042	3.44663304	7.69047619	290.643846	20.95597889	0.555875774	4.713357825	16.24521482	17.2400585	15.86441772	13.5163775	-7.4396014
7:30-8:30	0.042	3.10281551	8.30952381	290.540385	20.7897793	0.555677897	4.701806609	14.58883849	15.5202832	18.20324061	15.4068226	-5.3829567
8:30-9:30	0.042	2.76539375	8.476190476	290.457692	20.65789148	0.555519742	4.692594583	12.97687172	13.8324995	20.05769095	16.8869027	-3.7709888
9:30-10:00	0.021	2.57465946	7.666666667	290.499	20.72366913	0.555598746	4.697194053	12.09367512	12.8784466	20.20222003	17.053548	-3.6701212

L2

Time period	Day (d-1)	DO deficit	dDO/dt (mg/(L·	Average Temp (	ER (mgO2/(L·d))	Ea(eV)	k (d-1)	Corrected reaera	Reaeration (mg(	GPP (mgO2/(L·d	Corrected GPP	NEP (mgO2/(L·d
11:00-12:00	0.042	0.845436238	2.928571429	295.364462	13.44947289	0.564904266	1.444928352	1.22159479	1.159093083	13.11147835	15.1049372	1.655464316
12:00-13:00	0.042	0.561399099	6.428571429	295.379462	13.46500814	0.564932954	1.445442473	0.811470102	0.769678164	17.00089326	19.6044815	6.139473382
13:00-14:00	0.042	0.107158407	9.952380952	295.584692	13.67937336	0.565325472	1.452495113	0.155647062	0.146914176	21.14746678	24.7080575	11.02868418
14:00-15:00	0.042	-0.310290018	8.357142857	296.015154	14.1401444	0.566148759	1.467399664	-0.455319468	-0.425407615	20.12455047	24.1687868	10.02864236
15:00-16:00	0.042	-0.472733188	4	296.170231	14.30991644	0.566445353	1.472806529	-0.696244526	-0.648117201	15.9901172	19.3947779	5.084861463
16:00-17:00	0.042	-0.299333613	-4	296.116462	14.25082241	0.566342516	1.470929575	-0.440298664	-0.410386383	7.752386383	9.37078751	-4.8800349
17:00-18:00	0.042	-0.00506111	-7.69047619	296.108846	14.24247262	0.566327951	1.470663933	-0.007443192	-0.006938782	3.658462592	4.42005748	-9.82241514
18:00-19:00	0.042	0.415233768	-10.4285714	296.334077	14.49150368	0.56675872	1.478540786	0.613940061		0	0	-14.4915037
18:00-20:00	0.083	0.835347216	-10.2409639	296.289692	14.4420868	0.566673832	1.47698522	1.233795491		0	0	-14.4420868
18:00-21:00	0.125	1.359446473	-10.176	296.072538	14.20273075	0.56625851	1.469398101	1.997568066		0	0	-14.2027307
18:00-22:00	0.167	1.650090507	-9.32335329	295.605846	13.70166182	0.56536593	1.453224007	2.397951139		0	0	-13.7016618
18:00-23:00	0.208	1.869530654	-8.63461538	295.726077	13.82903285	0.56559588	1.457373725	2.724604854		0	0	-13.8290328
18:00-0:00	0.25	2.10248354	-8.088	295.736462	13.84008958	0.565615741	1.457732702	3.064859011		0	0	-13.8400896
18:00-1:00	0.292	2.391399099	-7.79452055	295.655231	13.7538367	0.565460382	1.454927066	3.479311274		0	0	-13.7538367
18:00-2:00	0.333	2.67897867	-7.63063063	295.330846	13.41472307	0.564839974	1.443776856	3.8678474		0	0	-13.4147231
18:00-3:00	0.375	2.949932512	-7.38133333	295.222615	13.3034485	0.564632976	1.440075638	4.248125943		0	0	-13.3034485
18:00-4:00	0.417	3.167714013	-7.09832134	295.015231	13.09280381	0.564236339	1.433010098	4.539366169		0	0	-13.0928038
18:00-4:50	0.451	3.308187834	-6.79822616	294.841455	12.91886637	0.56390398	1.427116289	4.721168746		0	0	-12.9188664
4:50-5:50	0.042	3.108286103	4.380952381	294.755077	12.8332703	0.563738777	1.424195724	4.426807777		0	0	-12.8332703
5:50-6:50	0.042	2.872726561	5.714285714	294.807154	12.8848079	0.563838378	1.425955812	4.096381135		0	0	-12.8848079
6:50-7:50	0.042	2.57946115	7.047619048	294.848615	12.92598799	0.563917676	1.427358677	3.681816255	3.536441236	14.85317781	16.5564871	3.630499104
7:50-8:50	0.042	2.179908109	9.619047619	294.813692	12.89129325	0.563850883	1.426176951	3.108934701	2.988654018	17.9723936	19.9887377	7.097444453
8:50-9:50	0.042	1.695861892	10.97619048	294.827769	12.90526692	0.563877806	1.426653168	2.419406741	2.325026654	19.99316382	22.2562355	9.350968604
9:50-10:50	0.042	1.181703931	11.61904762	294.978385	13.05572889	0.564165868	1.431758391	1.691914519	1.620116089	21.34093153	23.9863529	10.93062398

T1

Time period	Day (d-1)	DO deficit	dDO/dt (mg/(	Average Tem	ER (mgO2/(L·	Ea(eV)	k (d-1)	Corrected rea	Reaeration (	GPP (mgO2/(L	Corrected GP	NEP (mgO2/(L
9:00-10:00	0.042	-0.0381185	4.4047619	294.7148	10.595118	0.5636617	2.26865016	-0.0864775	-0.083327	13.8810889	15.341153	4.74603485
10:00-11:00	0.042	-0.4008563	7.1190476	295.02977	10.855086	0.5642641	2.28566037	-0.9162214	-0.876272	17.3883195	19.608066	8.75297955
11:00-12:00	0.042	-0.8568148	8.5238095	295.365	11.138788	0.5649053	2.30390497	-1.9740199	-1.872997	19.7898067	22.799418	11.6606299
12:00-13:00	0.042	-1.3405994	9.047619	296.12023	11.805397	0.5663497	2.34554304	-3.1444335	-2.93055	21.3711693	25.838874	14.0334774
13:00-14:00	0.042	-1.6141368	5.2857143	296.63746	12.284808	0.567339	2.37449282	-3.8327563	-3.528503	18.2072174	22.753372	10.4685634
14:00-15:00	0.042	-1.7958147	3.5238095	296.80346	12.44276	0.5676564	2.38385949	-4.2809699	-3.925651	16.8424604	21.272347	8.82958726
15:00-16:00	0.042	-1.7818147	-0.3333333	296.87854	12.514862	0.5678	2.38810788	-4.2551657	-3.895047	12.9547136	16.44075	3.9258874
16:00-17:00	0.042	-1.515724	-5.952381	296.91685	12.551813	0.5678733	2.39027853	-3.6230025	-3.313373	6.75399171	8.5924625	-3.9593507
17:00-18:00	0.042	-1.0983336	-8.0952381	296.49069	12.146826	0.5670583	2.36624192	-2.5989231	-2.400957	3.69871926	4.579095	-7.5677309
18:00-19:00	0.042	-0.613116	-10.571429	296.188	11.86713	0.5664793	2.34931594	-1.4404031		0	0	-11.86713
18:00-20:00	0.083	-0.1660818	-10.180723	295.91154	11.617303	0.5659506	2.33396255	-0.3876287		0	0	-11.617303
18:00-21:00	0.125	0.2165627	-9.496	295.68692	11.418205	0.565521	2.32156237	0.50276384		0	0	-11.418205
18:00-22:00	0.167	0.4634758	-8.4071856	295.46308	11.223183	0.5650929	2.30927019	1.07029075		0	0	-11.223183
18:00-23:00	0.208	0.674888	-7.6298077	295.30885	11.090754	0.5647979	2.30083873	1.55280842		0	0	-11.090754
18:00-0:00	0.25	0.8531437	-7.032	295.18446	10.985091	0.56456	2.29406132	1.95716397		0	0	-10.985091
18:00-1:00	0.292	1.0581634	-6.6438356	295.077	10.894615	0.5643545	2.28822209	2.42131277		0	0	-10.894615
18:00-2:00	0.333	1.2770721	-6.3393393	294.89738	10.745051	0.564011	2.27849533	2.90980281		0	0	-10.745051
18:00-3:00	0.375	1.4452504	-6.0933333	294.79177	10.658066	0.563809	2.27279523	3.2847581		0	0	-10.658066
18:00-4:00	0.417	1.6216747	-5.8393285	294.69162	10.57623	0.5636174	2.26740306	3.67699022		0	0	-10.57623
18:00-5:00	0.458	1.8271911	-5.720524	294.57215	10.479439	0.5633889	2.26098812	4.13125741		0	0	-10.479439
18:00-6:00	0.5	1.9780714	-5.512	294.46354	10.392205	0.5631812	2.25517136	4.46088987		0	0	-10.392205
6:00-7:00	0.042	1.7990181	4.3333333	294.39669	10.338879	0.5630533	2.25159893	4.05066727		0	0	-10.338879
7:00-8:00	0.042	1.5653879	4.9285714	294.45385	10.384456	0.5631627	2.25465302	3.52940661	3.421938	10.8996334	11.846853	1.46239731
8:00-9:00	0.042	1.2621634	5.3095238	294.824	10.684537	0.5638706	2.27453322	2.87083249	2.7590891	11.9434347	13.292137	2.60760019

T2

Time period	Day (d-1)	DO deficit	dDO/dt (mg/(L·d	Average Temp (K)	ER (mgO2/(L·d))	Ea(eV)	k (d-1)	Corrected reaerat	Reaeration (mgO	GPP (mgO2/(L·d	Corrected GPP (	NEP (mgO2/(L·d)
11:00-12:00	0.042	-0.874631181	5.833333333	296.1759231	11.07352377	0.56645624	0.682245377	-0.596713081	-0.5553908	15.16172413	18.39669282	7.323169041
12:00-13:00	0.042	-1.263019204	7.785714286	296.5327692	11.38185323	0.567138733	0.688043825	-0.869012564	-0.802017194	17.36073148	21.55084175	10.16898852
13:00-14:00	0.042	-1.660319591	9.071428571	296.814	11.63088521	0.567676605	0.69264829	-1.150017525	-1.05430294	18.89873151	23.88553939	12.25465419
14:00-15:00	0.042	-1.911459739	6.333333333	296.8112308	11.62840666	0.567671309	0.692602801	-1.323882369	-1.213776934	16.32011027	20.62284704	8.994440376
15:00-16:00	0.042	-1.940644728	1.214285714	296.6766923	11.50862478	0.567413995	0.690396376	-1.339814087	-1.232309402	11.21959512	14.0562122	2.547587427
16:00-17:00	0.042	-1.681090483	-5.238095238	296.4788462	11.33471668	0.567035601	0.68716447	-1.155185651	-1.067492456	4.602397218	5.693555555	-5.64116113
17:00-18:00	0.042	-1.27738582	-8.428571429	296.1737692	11.07168835	0.566452121	0.682210528	-0.871446055	-0.811139996	1.155568567	1.401932492	-9.669755862
18:00-19:00	0.042	-0.836972565	-9.785714286	295.9276923	10.86398201	0.565981482	0.678240682	-0.567668843		0	0	-10.86398201
18:00-20:00	0.083	-0.503371266	-9.072289157	295.8706923	10.8164285	0.565872466	0.677324427	-0.340945654		0	0	-10.8164285
18:00-21:00	0.125	-0.198819721	-8.728	296.004	10.92797084	0.566127426	0.679469241	-0.135091885		0	0	-10.92797084
18:00-22:00	0.167	0.08185457	-8.263473054	296.1493846	11.05092998	0.566405484	0.681816107	0.055809764		0	0	-11.05092998
18:00-23:00	0.208	0.464520513	-8.394230769	296.1266154	11.03158191	0.566361936	0.681448021	0.316546585		0	0	-11.03158191
18:00-0:00	0.25	0.794453282	-8.248	296.0198462	10.94130603	0.566157733	0.679724644	0.540009475		0	0	-10.94130603
18:00-1:00	0.292	1.105226236	-8.068493151	295.9276154	10.8639177	0.565981335	0.678239444	0.749608028		0	0	-10.8639177
18:00-2:00	0.333	1.414570447	-7.957957958	295.8269231	10.78005438	0.565788755	0.676621692	0.95712905		0	0	-10.78005438
18:00-3:00	0.375	1.703380603	-7.829333333	295.7764615	10.73827045	0.565692244	0.675812414	1.151165758		0	0	-10.73827045
18:00-4:00	0.417	1.937192401	-7.594724221	295.7654615	10.72918358	0.565671205	0.67563613	1.308837177		0	0	-10.72918358
4:00-5:00	0.042	1.747570447	4.380952381	295.7746154	10.73674484	0.565688713	0.675782825	1.180978094		0	0	-10.73674484
5:00-6:00	0.042	1.486248588	6.19047619	295.7962308	10.75462074	0.565730053	0.676129348	1.00489629		0	0	-10.75462074
6:00-7:00	0.042	1.199248588	6.833333333	295.7915385	10.75073768	0.565721079	0.676054109	0.810756936	0.761522854	14.84481048	17.57504239	6.824304714
7:00-8:00	0.042	0.893743909	6.904761905	295.8276154	10.78062877	0.565790079	0.676632802	0.604736445	0.567527382	15.11023452	17.9305794	7.14995063
8:00-9:00	0.042	0.548958741	7.380952381	295.9856923	10.9125844	0.566092411	0.679174283	0.37283866	0.348588801	15.80536358	18.94590618	8.033321783
9:00-10:00	0.042	0.015250854	8.380952381	296.5704615	11.41491809	0.567210822	0.688659164	0.01050264	0.009684292	17.14426809	21.33346503	9.918546941
10:00-11:00	0.042	-0.35144783	7.80952381	297.3496154	12.12034682	0.568701005	0.701503079	-0.246541735	-0.223169372	16.80569318	21.97991529	9.859568471

W1

Time period	Day (d-1)	DO deficit	dDO/dt (mg/(L	Average Temp (K	ER (mgO2/(L·d))	Ea(eV)	k (d-1)	Corrected reaer	Reaeration (mg	GPP (mgO2/(L·d	Corrected GPP	NEP (mgO2/(L·d
12:00-13:00	0.042	0.605950997	3.38095238	291.7848889	8.573272824	0.558058094	1.219859913	0.739175331	0.763498256	12.14045412	11.1261078	2.55283498
13:00-14:00	0.042	0.287301057	6.33333333	292.024	8.732500831	0.55851541	1.22679725	0.352460146	0.361999331	15.494334	14.4184409	5.68594005
14:00-15:00	0.042	-0.06196085	7.11904762	292.3225385	8.935459942	0.559086385	1.23551416	-0.07655351	-0.07807067	16.72011829	15.8588367	6.92337673
15:00-16:00	0.042	-0.33148941	7.04761905	292.3812308	8.975912898	0.559198638	1.237235166	-0.41013035	-0.41767665	16.9882957	16.1737575	7.19784459
16:00-17:00	0.042	-0.14955927	-3.5952381	292.2306923	8.872521672	0.558910723	1.232825803	-0.18438052	-0.18844467	6.116206579	5.7671963	-3.10532537
17:00-18:00	0.042	0.121727665	-5.45238095	292.0244615	8.732811019	0.558516293	1.226810679	0.149336799	0.153376857	3.91724219	3.64534488	-5.08746614
18:00-19:00	0.042	0.600453271	-8.61904762	291.6250769	8.468473411	0.557752443	1.21524517	0.729697937		0	0	-8.46847341
18:00-20:00	0.083	1.00900945	-8.38554217	291.0723846	8.115813822	0.556695382	1.199419753	1.210225865		0	0	-8.11581382
18:00-21:00	0.125	1.303840802	-7.592	290.7987692	7.946700072	0.556172074	1.191661669	1.553737107		0	0	-7.94670007
18:00-22:00	0.167	1.624048098	-7.43712575	290.6442308	7.852746289	0.555876509	1.187302086	1.928235694		0	0	-7.85274629
18:00-23:00	0.208	1.920393012	-7.27403846	290.5001538	7.766153575	0.555600953	1.183251993	2.272308859		0	0	-7.76615357
18:00-0:00	0.25	2.212642843	-7.132	290.35	7.676924491	0.555313773	1.179045775	2.608807196		0	0	-7.67692449
18:00-1:00	0.292	2.414231161	-6.70205479	290.2507692	7.61851986	0.555123988	1.176274261	2.839797974		0	0	-7.61851986
18:00-2:00	0.333	2.58730916	-6.32432432	290.1207692	7.542677095	0.554875354	1.172653218	3.034016411		0	0	-7.54267709
18:00-3:00	0.375	2.755776674	-6.01866667	290.0163077	7.482281079	0.554675564	1.169751606	3.22357419		0	0	-7.48228108
18:00-4:00	0.417	2.942105523	-5.79376499	289.904	7.417888038	0.554460768	1.166640062	3.432378169		0	0	-7.41788804
18:00-5:00	0.458	2.96431179	-5.32751092	289.7991	7.358242934	0.55426014	1.163741228	3.449691843		0	0	-7.35824293
5:00-6:00	0.042	2.81964973	3.73809524	289.6831538	7.292874939	0.554038385	1.160545522	3.272331867		0	0	-7.29287494
6:00-7:00	0.042	2.595127457	4.88095238	289.6844615	7.293608941	0.554040887	1.160581515	3.011856957	3.269860596	11.13409178	8.92197777	1.62836883
7:00-8:00	0.042	2.185687121	8.21428571	289.9084615	7.420435516	0.554469301	1.166763513	2.550179985	2.753965773	14.98331994	12.1795714	4.75913591
8:00-9:00	0.042	1.854494059	6.92857143	290.161	7.566066937	0.554952298	1.17377262	2.17675435	2.336662514	14.11490891	11.6603556	4.09428866
9:00-10:00	0.042	1.433017886	8.85714286	290.3899231	7.700548281	0.555390129	1.180162668	1.691194211	1.805602536	16.57454032	13.8940697	6.19352139
10:00-11:00	0.042	0.986399652	9.45238095	290.6518462	7.857350038	0.555891074	1.187516544	1.171365906	1.242863562	17.73251739	15.1157126	7.25836259
11:00-12:00	0.042	0.522345819	9.76190476	290.9040769	8.011366509	0.556373482	1.194641603	0.624016047	0.658155732	18.62674903	16.1360235	8.12465695

W2

Time period	Day (d-1)	DO deficit	dDO/dt (mg/(L·	Average Temp (K	ER (mgO2/(L·d))	Ea(eV)	k (d-1)	Corrected reaer	Reaeration (mg	GPP (mgO2/(L·d	Corrected GPP	NEP (mgO2/(L·d
11:00-12:00	0.042	0.96856335	4.14285714	291.3260769	8.066389802	0.557180586	1.581105119	1.531400467	1.599098087	11.82575906	10.52451327	2.458123467
12:00-13:00	0.042	0.67386671	5.5952381	291.5340769	8.19655479	0.5575784	1.588924039	1.070723009	1.112553932	13.76468416	12.41402864	4.217473854
13:00-14:00	0.042	0.37718485	5.76190476	291.8574615	8.403110502	0.558196894	1.601157239	0.603932253	0.622732187	14.42117257	13.27771429	4.874603791
14:00-15:00	0.042	0.04986079	7	292.1198462	8.574522688	0.558698722	1.611152069	0.080333313	0.082320162	16.19967984	15.16743842	6.592915729
15:00-16:00	0.042	-0.14651615	4.5952381	292.2131538	8.636318439	0.558877179	1.614721391	-0.23658276	-0.24189816	14.11913626	13.29853801	4.662219572
16:00-17:00	0.042	0.04470784	-4.11904762	292.1406154	8.58823935	0.558738445	1.611945876	0.072066617	0.073812643	5.089139738	4.77118966	-3.81704969
17:00-18:00	0.042	0.30997495	-5.95238095	292.0636923	8.537546486	0.558591324	1.609007806	0.498752108	0.511768636	2.817850412	2.62884554	-5.90870095
18:00-19:00	0.042	0.74094851	-8.61904762	291.8588462	8.404005997	0.558199542	1.601209819	1.186414036		0	0	-8.404006
18:00-20:00	0.083	1.05077948	-7.22891566	291.446	8.141182394	0.557409947	1.585608434	1.666124803		0	0	-8.14118239
18:00-21:00	0.125	1.326818	-6.79166667	291.1243077	7.942099427	0.556794688	1.573557185	2.087824		0	0	-7.94209943
18:00-22:00	0.167	1.63892302	-6.47904192	290.8273846	7.762668412	0.556226803	1.562515145	2.560842043		0	0	-7.76266841
18:00-23:00	0.208	1.8736546	-6.16826923	290.6420769	7.652747011	0.55587239	1.555663185	2.914775481		0	0	-7.65274701
18:00-0:00	0.25	2.08499694	-5.848	290.4724615	7.553498951	0.555547989	1.549417808	3.230531389		0	0	-7.55349895
18:00-1:00	0.292	2.2484378	-5.51369863	290.3518462	7.483706627	0.555317304	1.544991911	3.473818219		0	0	-7.48370663
18:00-2:00	0.333	2.40781813	-5.23123123	290.2633077	7.432885902	0.555147968	1.541751103	3.712256254		0	0	-7.4328859
18:00-3:00	0.375	2.59182391	-5.08533333	290.123	7.353055707	0.554879621	1.536629281	3.982672506		0	0	-7.35305571
18:00-4:00	0.417	2.77350445	-4.9088729	290.0046923	7.286409394	0.554653349	1.532323776	4.249906807		0	0	-7.28640939
4:00-5:00	0.042	2.68005134	2.80952381	289.8528462	7.201754292	0.554362933	1.5268154	4.091943655		0	0	-7.20175429
5:00-6:00	0.042	2.52170875	4.35714286	289.7179231	7.127359488	0.554104884	1.521937541	3.837883219		0	0	-7.12735949
6:00-7:00	0.042	2.31771521	5.02380952	289.6389231	7.084157163	0.553953791	1.5190887	3.520814983	3.826547809	10.47926171	8.372844121	1.288686958
7:00-8:00	0.042	2.02411678	5.66666667	289.7249231	7.131200226	0.554118272	1.522190228	3.081090778	3.341816799	11.60684987	9.324891897	2.193691671
8:00-9:00	0.042	1.69150029	6.0952381	290.0531538	7.313635895	0.554746035	1.534085949	2.594906834	2.792666985	12.58457111	10.32472817	3.011092279
9:00-10:00	0.042	1.30778553	6.42857143	290.574	7.612757047	0.555742188	1.553153519	2.031191694	2.159153906	13.55141752	11.49429044	3.881533397
10:00-11:00	0.042	0.90142558	6.9047619	291.1398462	7.951602717	0.556824407	1.574137177	1.418967523	1.488253639	14.69850827	12.92638269	4.974779972

Summer measurement

L1

Time period	Day (d-1)	DO deficit	dDO/dt (mg/(L·	Average Temp (	ER (mgO2/(L·d)	Ea(eV)	k (d-1)	Corrected reae	Reaeration (m	GPP (mgO2/(L·	Corrected GPF	NEP (mgO2/(L
10:00-11:00	0.042	-1.08585211	13.11904762	302.380385	16.8478488	0.578322688	1.62934183	-1.76922426	-1.42138041	22.82042803	41.1655063	24.3176575
11:00-12:00	0.042	-1.71249609	13.0952381	302.933231	17.580153	0.579380043	1.65084576	-2.82706691	-2.24165738	23.61689548	44.1344731	26.5543202
12:00-13:00	0.042	-2.15691958	14.14285714	303.399308	18.222195	0.580271446	1.66919499	-3.60031935	-2.82340773	25.24626488	48.605931	30.3837359
13:00-14:00	0.042	-2.98774729	14.30952381	303.702462	18.652336	0.580851248	1.68123934	-5.02311827	-3.9109612	26.50048501	52.0188393	33.3665032
14:00-15:00	0.042	-3.58137136	13.78571429	303.915231	18.9602814	0.581258183	1.68974456	-6.05160277	-4.68801511	26.7537294	53.2349737	34.2746924
15:00-16:00	0.042	-3.87326907	7.952380952	303.795615	18.7865392	0.581029411	1.68495778	-6.52629486	-5.07010922	21.30249017	42.0651943	23.2786551
16:00-17:00	0.042	-3.64449551	-4.52380952	303.465615	18.3154226	0.580398264	1.67182201	-6.0929478	-4.77064462	8.526835101	16.486198	-1.8292245
17:00-18:00	0.042	-3.35784022	-5.88095238	303.160692	17.890615	0.579815078	1.65977548	-5.57326085	-4.39541285	6.79446047	12.8832019	-5.0074131
18:00-19:00	0.042	-2.98377742	-7.71428571	302.814308	17.4199857	0.579152594	1.64619621	-4.91188308	-3.90576465	4.471478932	8.29287951	-9.1271062
19:00-20:00	0.042	-2.49549001	-12.2380952	302.407077	16.8824943	0.578373738	1.63037361	-4.0685811		0	0	-16.882494
19:00-21:00	0.083	-1.82920147	-10.373494	301.926154	16.2690561	0.577453941	1.6118835	-2.9484597		0	0	-16.269056
19:00-22:00	0.125	-1.14774029	-9.216	301.446143	15.6790082	0.576535888	1.59363756	-1.829082		0	0	-15.679008
19:00-23:00	0.167	-0.47028738	-8.63473054	301.066308	15.2273058	0.575809428	1.57934596	-0.7427465		0	0	-15.227306
19:00-0:00	0.208	0.267215936	-8.28846154	300.714692	14.8207698	0.57513694	1.5662304	0.41852172		0	0	-14.82077
19:00-1:00	0.25	0.887213491	-7.256	300.483308	14.5591835	0.574694401	1.55765903	1.38197611		0	0	-14.559184
19:00-2:00	0.292	1.438453793	-6.06849315	300.317923	14.3750461	0.574378092	1.55156132	2.23184926		0	0	-14.375046
19:00-3:00	0.333	1.904998853	-5.82582583	300.431538	14.501292	0.574595389	1.55574773	2.96369765		0	0	-14.501292
19:00-4:30	0.396	2.490926699	-5.25	300.739	14.8485217	0.57518343	1.56713358	3.90361488		0	0	-14.848522
4:30-5:00	0.021	2.353692134	5.476190476	301.03175	15.1868611	0.575743334	1.57805207	3.71424875		0	0	-15.186861
5:00-6:00	0.042	2.053838332	6.261904762	301.228538	15.4186174	0.576119705	1.58543427	3.25622568	2.68847438	11.85343039	19.8646858	4.44606838
6:00-7:00	0.042	1.621006495	9.095238095	301.547615	15.8019317	0.576729961	1.59747739	2.58952123	2.1218975	15.25334059	26.089112	10.2871803
7:00-8:00	0.042	1.102872736	11.04761905	301.951615	16.3009673	0.577502638	1.61285715	1.77877618	1.44366041	17.88395864	31.3885965	15.0876291
8:00-9:00	0.042	0.308299519	17.21428571	302.408615	16.8844934	0.578376681	1.6304331	0.50266174	0.40356407	25.09072164	45.3426016	28.4581082
9:00-10:00	0.042	-0.56535159	19.11904762	302.964231	17.6221456	0.579439332	1.65205993	-0.9339947	-0.74004523	28.13909285	52.6896974	35.0675518

L2

Time period	Day (d-1)	DO deficit	dDO/dt (mg/(L·d	Average Temp (	ER (mgO2/(L·d)	Ea(eV)	k (d-1)	Corrected reae	Reaeration (mg	GPP (mgO2/(L·	Corrected GPP	NEP (mgO2/(L·d
11:00-12:00	0.042	-1.742752269	11.16666667	300.8855	13.61131727	0.575463621	3.774691779	-6.57835266	-5.47572763	24.1473943	39.5900573	25.97874005
12:00-13:00	0.042	-2.24456534	10.69047619	301.1140769	13.85287949	0.57590079	3.79521014	-8.51859714	-7.0524243	25.2479005	42.0035293	28.15064981
13:00-14:00	0.042	-2.64515891	8.571428571	301.4417692	14.20668542	0.576527523	3.824820375	-10.1172577	-8.31108929	24.3875179	41.4308589	27.22417344
14:00-15:00	0.042	-3.001221233	7.761904762	301.721	14.51528959	0.57706157	3.850233861	-11.5554036	-9.42983712	24.6967419	42.711681	28.19639139
15:00-16:00	0.042	-2.914525091	-2.119047619	301.8491538	14.65916009	0.577306673	3.861953925	-11.2557616	-9.15743784	14.5433902	25.3588673	10.6997072
16:00-17:00	0.042	-2.717284177	-4.285714286	301.8107692	14.61591907	0.57723326	3.858439796	-10.4844774	-8.53770688	11.7569926	20.450079	5.834159882
17:00-18:00	0.042	-2.476797485	-5.476190476	301.6634615	14.45115481	0.576951524	3.844983367	-9.52324513	-7.7820977	9.81090722	16.9051513	2.453996543
18:00-19:00	0.042	-2.117024219	-7.738095238	301.5298462	14.30331244	0.576695976	3.832818312	-8.11416919	-6.6516901	6.41859486	10.9658189	-3.33749355
19:00-20:00	0.042	-1.534065733	-12.73809524	301.185	13.9286996	0.576036435	3.801599241	-5.83190313		0	0	-13.9286996
19:00-21:00	0.083	-1.048120566	-11.8313253	300.8725385	13.59774629	0.575438831	3.773531607	-3.95511608		0	0	-13.5977463
19:00-22:00	0.125	-0.803883969	-9.648	300.6656923	13.38299632	0.575043224	3.75506523	-3.01863674		0	0	-13.3829963
19:00-23:00	0.167	-0.618606804	-8.173652695	300.5428462	13.25706479	0.574808273	3.744140829	-2.31615099		0	0	-13.2570648
19:00-0:00	0.208	-0.34201641	-7.788461538	300.3259231	13.03758026	0.574393393	3.724927954	-1.27398649		0	0	-13.0375803
19:00-1:00	0.25	0.005338359	-7.696	300.1286154	12.84110008	0.574016029	3.707538048	0.01979217		0	0	-12.8411001
19:00-2:00	0.292	0.168078328	-7.133561644	300.0099231	12.72433481	0.573789022	3.697116118	0.62140509		0	0	-12.7243348
19:00-3:00	0.333	0.314247348	-6.63963964	299.8473077	12.56608148	0.573478009	3.682885013	1.15733685		0	0	-12.5660815
19:00-4:00	0.375	0.449677413	-6.296	299.8306154	12.54994873	0.573446084	3.681427308	1.65545471		0	0	-12.5499487
19:00-5:30	0.438	0.60262696	-5.926940639	300.18945	12.90136173	0.574132379	3.712891092	2.23748827		0	0	-12.9013617
5:30-6:00	0.021	0.524173847	2.761904762	300.5618333	13.27645114	0.574844587	3.745827232	1.96346467	1.64695423	8.61995053	13.8432018	0.566750615
6:00-7:00	0.042	0.282822646	4.404761905	300.8355385	13.55908099	0.575368066	3.770221742	1.06630409	0.88862875	11.0211332	18.0117252	4.452644254
7:00-8:00	0.042	-0.031061951	6.380952381	301.217	13.96304482	0.576097637	3.80448548	-0.11817474	-0.09759665	13.983549	23.41719	9.454145181
8:00-9:00	0.042	-0.453018234	9.380952381	301.4530769	14.21905419	0.57654915	3.82584625	-1.73317811	-1.42338329	18.3093357	31.1273961	16.90834194
9:00-10:00	0.042	-1.014672014	11.88095238	301.7891538	14.59162508	0.577191919	3.856462305	-3.91304437	-3.18809947	22.5740518	39.2110326	24.61940756
10:00-11:00	0.042	-1.623255043	13.19047619	302.217	15.08008841	0.578010204	3.895793131	-6.32386585	-5.10026735	25.7957435	46.0492568	30.9691684

T1

Time period	Day (d-1)	DO deficit	dDO/dt (mg/(L·	Average Temp (K	ER (mgO2/(L·d))	Ea(eV)	k (d-1)	Corrected reae	Reaeration (mg	GPP (mgO2/(L·d	Corrected GPP (	NEP (mgO2/(L·d
9:00-10:00	0.042	-1.57869378	10.14285714	300.9546923	12.25268872	0.575595956	2.618465664	-4.13375546	-3.43523767	20.29809481	33.42656262	21.1738739
10:00-11:00	0.042	-2.12560841	11.54761905	301.3706154	12.6512405	0.576391436	2.644422679	-5.62100709	-4.62532391	22.89294295	38.71532684	26.06408634
11:00-12:00	0.042	-2.67832249	11.97619048	301.7483077	13.02437845	0.577113798	2.668216635	-7.14634462	-5.82802974	24.52422021	42.48740376	29.46302531
12:00-13:00	0.042	-3.25245548	11.5	302.2525385	13.53973901	0.578078173	2.700316328	-8.78265864	-7.07734313	25.29734313	45.26222871	31.7224897
13:00-14:00	0.042	-3.69675576	8.738095238	302.9483846	14.28460003	0.579409026	2.745249542	-10.1485171	-8.04414053	23.50223577	43.96275963	29.6781596
14:00-15:00	0.042	-3.77749609	1.928571429	303.2652308	14.63720896	0.580015015	2.765956396	-10.4483895	-8.21983149	16.86840292	32.19915666	17.56194769
15:00-16:00	0.042	-3.48277688	-5.38095238	302.9364615	14.27149832	0.579386222	2.744473366	-9.55838839	-7.5785225	8.917570114	16.66830155	2.396803234
16:00-17:00	0.042	-3.04645743	-8.47619048	302.4013846	13.6957333	0.578362852	2.709865597	-8.25549019	-6.62909137	4.872900896	8.801975499	-4.8937578
17:00-18:00	0.042	-2.49432512	-10.5952381	301.7116923	12.98772796	0.577043769	2.665900589	-6.64962282	-5.42765147	1.552413374	2.683218388	-10.3045096
18:00-19:00	0.042	-1.95079944	-11.6666667	301.0885385	12.37955522	0.575851946	2.626790839	-5.1243421	-4.24493958	-0.70172709	-1.165520396	-13.5450756
19:00-20:00	0.042	-1.45431869	-10.547619	300.7195385	12.03293791	0.575146208	2.603903042	-3.78690485		0	0	-12.0329379
19:00-21:00	0.083	-1.07404006	-9.3253012	300.3450769	11.69111049	0.574430026	2.580880352	-2.7719689		0	0	-11.6911105
19:00-22:00	0.125	-0.93349698	-8.144	300.1173077	11.4879586	0.573994402	2.566976295	-2.39626461		0	0	-11.4879586
19:00-23:00	0.167	-0.51360684	-7.5508982	299.8480769	11.25237399	0.57347948	2.550637808	-1.31002501		0	0	-11.252374
19:00-0:00	0.208	-0.27673434	-7.08653846	299.5835385	11.02560145	0.572973532	2.534685371	-0.70143449		0	0	-11.0256014
19:00-1:00	0.25	-0.07656027	-6.596	299.4110769	10.88022752	0.572643688	2.524339202	-0.19326408		0	0	-10.8802275
19:00-2:00	0.292	0.12746009	-6.26027397	299.2421538	10.73969465	0.572320612	2.514246253	0.32046606		0	0	-10.7396946
19:00-3:00	0.333	0.32476819	-6.00600601	299.0716154	10.59965909	0.571994445	2.50409772	0.81325128		0	0	-10.5996591
19:00-4:00	0.375	0.50581544	-5.74666667	298.8949231	10.45649604	0.57165651	2.493626184	1.26131464		0	0	-10.456496
19:00-5:00	0.417	0.68026221	-5.52517986	298.7256923	10.32119182	0.571332844	2.483637909	1.68952502		0	0	-10.3211918
19:00-6:30	0.479	0.82145179	-5.19832985	298.7009444	10.30155256	0.571285512	2.482180607	2.0389917	1.7874791	-0.26580895	-0.37900793	-10.6805605
6:30-7:00	0.021	0.69140167	3.904761905	299.09775	10.62100014	0.57204443	2.505650296	1.7324108	1.50449004	9.120271868	13.33830668	2.717306536
7:00-8:00	0.042	0.38148164	5.380952381	299.5533846	11.00004431	0.572915861	2.532873352	0.96624468	0.83010405	11.27084833	16.97057913	5.970534813
8:00-9:00	0.042	-0.16385565	10.92857143	300.1363077	11.50476927	0.574030741	2.568133271	-0.42080314	-0.35654988	18.00512131	28.13950312	16.63473385

T2

Time period	Day (d-1)	DO deficit	dDO/dt (mg/(L	Average Temp	ER (mgO2/(L·d))	Ea(eV)	k (d-1)	Corrected reaer	Reaeration (mg	GPP (mgO2/(L·	Corrected GPP	NEP (mgO2/(L·
11:00-12:00	0.042	-2.76716925	9.42857143	300.863538	9.172349803	0.575421618	3.655053682	-10.11415216	-8.4232632	22.9178346	37.52147023	28.3491204
12:00-13:00	0.042	-3.32814043	11.9761905	301.337692	9.513243458	0.576328469	3.696387763	-12.30209757	-10.1308595	27.17305	45.85702102	36.3437776
13:00-14:00	0.042	-3.90307641	12.5714286	301.709692	9.789539165	0.577039944	3.729143604	-14.55513241	-11.8809646	29.5183931	51.01358493	41.2240458
14:00-15:00	0.042	-4.22051731	7.0952381	301.988231	10.00165914	0.577572667	3.753859742	-15.84323004	-12.8472547	25.0084928	43.99588916	33.99423
15:00-16:00	0.042	-4.35033762	4.19047619	301.873692	9.91388197	0.577353605	3.743676391	-16.28625625	-13.2424277	22.4989039	39.29222968	29.3783477
16:00-17:00	0.042	-4.20913836	-1.73809524	301.423077	9.57596358	0.576491773	3.70388063	-15.59014605	-12.8126172	16.1405219	27.38766859	17.811705
17:00-18:00	0.042	-3.93438514	-5.30952381	300.998308	9.267980316	0.575679373	3.666754866	-14.42642587	-11.9762684	11.7327446	19.37522251	10.1072422
18:00-19:00	0.042	-3.50035196	-9.30952381	300.650846	9.023429577	0.57501483	3.636662835	-12.72959989	-10.6550714	6.41154757	10.35536451	1.33193493
19:00-20:00	0.042	-2.89617024	-13.5	300.357923	8.822284199	0.574454595	3.611486063	-10.45947847		0	0	-8.8222842
19:00-21:00	0.083	-2.36570631	-12.8433735	300.132385	8.670471231	0.574023237	3.592219838	-8.498137139		0	0	-8.67047123
19:00-22:00	0.125	-2.02370503	-10.992	299.897077	8.514866333	0.573573196	3.572228638	-7.22913707		0	0	-8.51486633
19:00-23:00	0.167	-1.59948542	-10.5329341	299.638154	8.34687007	0.573077988	3.550359668	-5.678748533		0	0	-8.34687007
19:00-0:00	0.208	-1.3747426	-9.38942308	299.392077	8.19028168	0.57260735	3.529699795	-4.852428684		0	0	-8.19028168
19:00-1:00	0.25	-1.20750668	-8.392	299.237077	8.093160555	0.572310902	3.516748221	-4.246496964		0	0	-8.09316055
19:00-2:00	0.292	-1.01787671	-7.69520548	299.011538	7.953894272	0.571879544	3.497987394	-3.560519886		0	0	-7.95389427
19:00-3:00	0.333	-0.80012089	-7.26726727	298.721846	7.778524231	0.571325488	3.474036859	-2.779649451		0	0	-7.77852423
19:00-4:30	0.396	-0.45809552	-6.82070707	298.38805	7.581244234	0.570687081	3.44664327	-1.57889183		0	0	-7.58124423
4:30-5:00	0.021	-0.51490492	2.52380952	298.174667	7.457760213	0.570278971	3.429244864	-1.765735067		0	0	-7.45776021
5:00-6:00	0.042	-0.75611013	4.71428571	298.334615	7.550131267	0.570584884	3.442278163	-2.602741382	-2.30159923	12.0818849	16.82848911	9.27835784
6:00-7:00	0.042	-1.14144954	7.85714286	298.657538	7.740121968	0.571202496	3.468742452	-3.959394472	-3.4745724	16.3977153	23.31616999	15.576048
7:00-8:00	0.042	-1.71274263	12.2619048	299.066231	7.987444179	0.571984147	3.502527618	-5.998928374	-5.21358857	22.5414933	32.90036472	24.9129205
8:00-9:00	0.042	-2.29703319	12.6190476	299.403077	8.197218274	0.572628388	3.53062075	-8.109953038	-6.99216903	24.6772166	36.80138047	28.6041622
9:00-10:00	0.042	-2.92818303	13.1428571	299.870538	8.497493083	0.573522439	3.569980984	-10.45355772	-8.91338913	27.1222463	41.67436746	33.1768744
10:00-11:00	0.042	-3.57313899	13.3809524	300.440846	8.878766701	0.574613191	3.618595571	-12.92974493	-10.8766351	29.3235875	46.72944362	37.8506769

W1

Time period	Day (d-1)	DO deficit	dDO/dt (mg/(L	Average Temp	ER (mgO2/(L·d)	Ea(eV)	k (d-1)	Corrected reae	Reaeration (mg	GPP (mgO2/(L·	Corrected GPP	NEP (mgO2/(L·
11:00-12:00	0.042	-2.1959357	9.57142857	300.650308	11.32779983	0.5750138	1.88879452	-4.14767137	-3.47177439	19.403203	31.3372587	20.0094588
12:00-13:00	0.042	-2.7074578	10.6666667	301.091	11.71858455	0.575856653	1.90863914	-5.16755994	-4.28049079	21.3071575	35.3952902	23.6767057
13:00-14:00	0.042	-3.2563379	11.3809524	301.582462	12.17031021	0.576796606	1.93101594	-6.28804043	-5.14827026	22.8892226	39.2367118	27.0664016
14:00-15:00	0.042	-3.5882951	7.02380952	301.989	12.55710976	0.577574138	1.94972422	-6.9961858	-5.6730945	19.056904	33.5272767	20.970167
15:00-16:00	0.042	-3.6276401	1.76190476	302.042385	12.60880722	0.57767624	1.95219432	-7.08185846	-5.73529903	13.8572038	24.4626411	11.8538339
16:00-17:00	0.042	-3.4011541	-3.47619048	301.561538	12.1507286	0.57675659	1.93005796	-6.56442451	-5.3772246	8.26103412	14.1421426	1.99141396
17:00-18:00	0.042	-3.0942105	-5.47619048	301.000615	11.63735184	0.575683787	1.90455215	-5.89308525	-4.8919468	5.77575632	9.53937673	-2.0979751
18:00-19:00	0.042	-2.7346114	-6.66666667	300.425692	11.13366312	0.574584208	1.87875948	-5.13767709	-4.32342062	4.01675395	6.39481685	-4.7388463
19:00-20:00	0.042	-2.2660584	-9.52380952	299.913538	10.70335602	0.57360468	1.85607714	-4.20597915		0	0	-10.703356
19:00-21:00	0.083	-1.8416811	-9.13253012	299.448538	10.32708913	0.572715336	1.83572044	-3.38081156		0	0	-10.327089
19:00-22:00	0.125	-1.4268262	-8.912	299.026462	9.99701927	0.571908086	1.81743618	-2.59316559		0	0	-9.9970193
19:00-23:00	0.167	-1.0333365	-8.7005988	298.635077	9.700385316	0.571159536	1.80064427	-1.86067138		0	0	-9.7003853
19:00-0:00	0.208	-0.8446382	-7.68269231	298.314923	9.464294411	0.570547221	1.78702387	-1.50938858		0	0	-9.4642944
19:00-1:00	0.25	-0.5577519	-7.376	298.042846	9.26817892	0.570026856	1.77552983	-0.99030508		0	0	-9.2681789
19:00-2:00	0.292	-0.3592931	-6.8630137	297.777923	9.081125654	0.569520172	1.76440905	-0.63394006		0	0	-9.0811257
19:00-3:00	0.333	-0.1682026	-6.48948949	297.541615	8.91746461	0.569068218	1.75454826	-0.29511954		0	0	-8.9174646
19:00-4:00	0.375	0.02976049	-6.18933333	297.314308	8.762820543	0.568633477	1.74511503	0.05193547		0	0	-8.7628205
19:00-5:00	0.417	0.14819284	-5.88729017	297.203583	8.688465757	0.568421709	1.74053837	0.25793533		0	0	-8.6884658
5:00-6:00	0.042	-0.159138	5.52380952	297.465429	8.865330792	0.568922506	1.75138085	-0.27871131	-0.25159723	12.1354068	15.9896358	7.12430501
6:00-7:00	0.042	-0.5379244	7.52380952	297.908846	9.173089395	0.569770572	1.76989613	-0.95207036	-0.85045852	14.734268	19.9719667	10.7988773
7:00-8:00	0.042	-0.9941982	8.69047619	298.494462	9.595974635	0.5708906	1.79464929	-1.78423708	-1.57182734	16.6223035	23.390447	13.7944724
8:00-9:00	0.042	-1.6010186	12.2619048	299.096692	10.05119978	0.572042407	1.82046588	-2.91459964	-2.53121033	21.1531151	30.9341287	20.8829289
9:00-10:00	0.042	-2.2717269	13.7619048	299.733154	10.55579239	0.573259682	1.84815363	-4.19850023	-3.59160016	23.7135049	36.1181666	25.5623743
10:00-11:00	0.042	-3.0164195	15.4047619	300.402462	11.11377542	0.574539778	1.87772466	-5.6640052	-4.76895917	26.5337211	42.1799654	31.06619

W2

Time period	Day (d-1)	DO deficit	dDO/dt (mg/(L·	Average Temp (I	ER (mgO2/(L·d))	Ea(eV)	k (d-1)	Corrected reaer	Reaeration (mg	GPP (mgO2/(L·(	Corrected GPP	NEP (mgO2/(L·(
11:00-12:00	0.042	-1.882926761	10.11904762	300.7986154	8.497894335	0.575297448	4.322009089	-8.13802657	-6.78795097	21.62399859	35.25658042	26.7586861
12:00-13:00	0.042	-2.50283776	12.95238095	301.3048462	8.835506691	0.576265648	4.374212032	-10.947943	-9.02273012	26.69211108	44.95092752	36.1154208
13:00-14:00	0.042	-3.112372167	13.26190476	301.7740769	9.160410052	0.577163084	4.423162423	-13.7665276	-11.2201017	29.19900643	50.66970106	41.509291
14:00-15:00	0.042	-3.331820034	4.523809524	302.0810769	9.379420519	0.577750242	4.455484879	-14.8448738	-12.0112112	21.25202075	37.60988119	28.2304607
15:00-16:00	0.042	-3.183593056	-2.61904762	302.0616923	9.365438168	0.577713167	4.453437004	-14.1779311	-11.476853	13.57480535	23.99370298	14.6282648
16:00-17:00	0.042	-2.812930631	-7.26190476	301.6732308	9.089589232	0.576970209	4.412596096	-12.4123267	-10.1406149	7.595710164	13.09632505	4.00673582
17:00-18:00	0.042	-2.354891724	-6.88095238	301.167	8.742268162	0.576002008	4.359935068	-10.267175	-8.48938466	6.325432284	10.55892538	1.81665722
18:00-19:00	0.042	-2.454891724	-7.16666667	300.6607692	8.408218531	0.575033808	4.30790251	-10.5754342	-8.84988466	6.400217998	10.34362401	1.93540548
19:00-20:00	0.042	-1.474999847	-12.6666667	300.1470769	8.082290655	0.574051337	4.255737752	-6.27721253		0	0	-8.08229065
19:00-21:00	0.083	-1.202306678	-8.80722892	299.6216154	7.761962969	0.573046357	4.203031326	-5.05333263		0	0	-7.76196297
19:00-22:00	0.125	-0.984425826	-7.056	299.1476154	7.483912589	0.5721398	4.156046973	-4.09131997		0	0	-7.48391259
19:00-23:00	0.167	-0.770990839	-6.20359281	298.7190769	7.24111328	0.571320192	4.114021148	-3.17187262		0	0	-7.24111328
19:00-0:00	0.208	-0.567447962	-5.72115385	298.3464615	7.036409983	0.57060754	4.077825127	-2.31395356		0	0	-7.03640998
19:00-1:00	0.25	-0.377285811	-5.364	298.0716923	6.88917658	0.570082026	4.051338083	-1.52851238		0	0	-6.88917658
19:00-2:00	0.292	-0.176098598	-5.14726027	297.8162308	6.755054115	0.569593438	4.026866608	-0.70912556		0	0	-6.75505412
19:00-3:00	0.333	0.016672634	-4.96996997	297.5563846	6.621308122	0.569096465	4.002126756	0.066725996		0	0	-6.62130812
19:00-4:00	0.375	0.167554862	-4.79733333	297.4325385	6.558498064	0.568859601	3.990388953	0.668609068		0	0	-6.55849806
19:00-5:30	0.438	0.358219145	-4.5	297.2657778	6.474863635	0.56854066	3.974638195	1.423791497		0	0	-6.47486364
5:30-6:00	0.021	0.261422411	3.333333333	297.3445	6.514210956	0.568691222	3.982065847	1.041001253	0.942427791	7.107905543	9.293284719	2.77907376
6:00-7:00	0.042	-0.019438505	5.142857143	297.6375385	6.662792137	0.569251677	4.009837016	-0.07794524	-0.07007581	9.929932952	13.22841587	6.56562374
7:00-8:00	0.042	-0.420861933	7.428571429	298.1403077	6.925652558	0.570213257	4.057936268	-1.7078309	-1.51720727	13.6627787	18.79559273	11.8699402
8:00-9:00	0.042	-0.944794661	10.33333333	298.7396154	7.252568078	0.571359473	4.11602558	-3.88879899	-3.40598475	18.45631809	26.38135906	19.128791
9:00-10:00	0.042	-1.633009603	14.23809524	299.349	7.600807551	0.572524962	4.175944329	-6.81935719	-5.88699962	24.84209486	36.91944193	29.3186344
10:00-11:00	0.042	-2.391139446	15.83333333	299.9786154	7.978180308	0.573729143	4.238768629	-10.1354869	-8.6200577	29.17039104	45.13209836	37.1539181

Table S7. Nighttime slope equation for metabolism study

Season	Site	Equation	Site	Equation
Autumn	L1	y=2.895x-18.648 (r^2=0.981)	L2	y=1.453x-14.943 (r^2=0.665)
	T1	y=1.139x-14.625 (r^2=0.936)	T2	y=2.500x-11.333 (r^2=0.972)
	W1	y=1.501x-7.284 (r^2=0.891)	W2	y=1.787x-9.655 (r^2=0.860)
Winter	L1	y=1.457x-18.697 (r^2=0.761)	L2	y=1.695x-14.859 (r^2=0.821)
	T1	y=1.791x-13.314 (r^2=0.927)	T2	y=1.489x-11.363 (r^2=0.939)
	W1	y=1.701x-14.477 (r^2=0.694)	W2	y=1.840x-16.340 (r^2=0.854)
Spring	L1	y=5.002x-25.414 (r^2=0.951)	L2	y=1.371x-11.342 (r^2=0.949)
	T1	y=2.186x-9.393 (r^2=0.959)	T2	y=0.655x-8.773 (r^2=0.874)
	W1	y=1.260x-9.523 (r^2=0.947)	W2	y=1.651x-9.282 (r^2=0.951)
Summer	L1	y=1.309x-8.280 (r^2=0.970)	L2	y=3.142x-7.505 (r^2=0.920)
	T1	y=2.176x-6.720 (r^2=0.954)	T2	y=3.044x-5.066 (r^2=0.969)
	W1	y=1.581x-6.360 (r^2=0.943)	W2	y=3.605x-4.717 (r^2=0.762)

Table S8a. SEM estimations. SE=standard error; CR=critical ratio.

Pathway	SE	CR	*p* value	Pathway	SE	CR	*p* value
NO_3^- → Bioactivity	0.178	-1.543	0.123	NH_4^+ → Bioactivity	0.271	4.347	<0.001
PO_4^{3-} → Bioactivity	1.107	5.554	<0.001	DOC → Bioactivity	0.704	-1.317	0.188
Bioactivity → GPP	0.166	2.266	0.023	Bioactivity → ER	0.160	2.343	0.019
GPP → DO	0.264	-1.725	0.085	ER → DO	1.241	-2.768	0.006
Temperature → DO	0.298	-2.335	0.020	DO → Reaeration	2.689	-2.461	0.014
Temperature→ Bioactivity	0.291	1.974	0.023				

Note: The absolute value of CR greater than 1.96 at 95% confidence level is considered as a significant effect.

Table S8b**.** SEM fitting indexes

CMIN	**DF**	***p***	**CMIN/DF**	**CFI**	**RMR**
73.062	22	0.052	3.321	0.917	0.038
GFI	**AGFI**	**PGFI**	**NFI**	**RMSEA**	
0.868	0.814	0.725	0.928	<0.001	

Note: CMIN=Chi-square; DF=Degree of freedom; CMIN/DF<3, the model fit is good; CFI=Comparative fit index, good model fit with the value >0.9; RMR=Root mean square of residual, good model fit with the value <0.05; GFI=Goodness of fit index, the rage is 0-1, with the best fit at 1; AGFI=Adjusted goodness of fit index, the range is 0-1, with the good fit at least 0.9; PGFI=Plain goodness of fit index, the range is 0-1, with the good fit at least 0.5; NFI=Normed fit index, good model fit with the value >0.9; RMSEA=Root mean square error of approximation, good model fit with the value <0.1.

Table S9 Sediment condition summary. Category refers to the proportion of fine and coarse sediments in the sample; OM% = percentage of organic matter. Composition refers to the proportion of particle size in the fine sediment

Season	Site	Category	Mean OM%	Composition	
Autumn 2020	L1	Fine sediment (45.3 %)	2.5	Sand 2.2 %	Clay 7.9 %
		Coarse sediment (54.7 %)	2.1	Silt 89.9 %	
	L2	Fine sediment (76.1 %)	22.7	Sand 1.9 %	Clay 10.7 %
		Coarse sediment (23.9 %)	15.4	Silt 87.4 %	
	T1	Fine sediment (25.0 %)	4.0	Sand 0.7 %	Clay 3.4 %
		Coarse sediment (75.0 %)	3.0	Silt 95.9 %	
	T2	Fine sediment (56.1 %)	6.3	Sand 4.6 %	Clay 8.6%
		Coarse sediment (43.9 %)	4.3	Silt 86.8 %	
	W1	Fine sediment (70.3 %)	4.3	Sand 0.5 %	Clay 6.1%
		Coarse sediment (29.7 %)	4.1	Silt 93.4 %	
	W2	Fine sediment (75.4 %)	11.0	Sand 0.2 %	Clay 4.8 %
		Coarse sediment (24.6 %)	7.6	Silt 95.0 %	
Winter 2020	L1	Fine sediment (42.1 %)	1.9	Sand 2.5 %	Clay 7.2 %
		Coarse sediment (57.9 %)	1.1	Silt 90.3 %	
	L2	Fine sediment (78.9 %)	11.6	Sand 1.4 %	Clay 9.3 %
		Coarse sediment (21.1 %)	9.5	Silt 89.3 %	
	T1	Fine sediment (32.2 %)	8.2	Sand 0.5 %	Clay 3.1 %
		Coarse sediment (67.8 %)	5.8	Silt 96.4 %	
	T2	Fine sediment (71.4 %)	8.6	Sand 4.2 %	Clay 8.2%
		Coarse sediment (28.6 %)	7.8	Silt 87.6 %	
	W1	Fine sediment (76.2 %)	3.6	Sand 0.3 %	Clay 5.8%
		Coarse sediment (23.8 %)	3.5	Silt 93.9 %	
	W2	Fine sediment (66.0 %)	5.1	Sand 0.2 %	Clay 4.6 %
		Coarse sediment (34.0 %)	4.8	Silt 95.2 %	
Spring 2021	L1	Fine sediment (46.0 %)	2.5	Sand 3.2 %	Clay 7.9 %
		Coarse sediment (54.0 %)	1.5	Silt 88.9 %	
	L2	Fine sediment (88.5 %)	17.0	Sand 1.8 %	Clay 10.1 %
		Coarse sediment (11.5 %)	10.2	Silt 88.1 %	
	T1	Fine sediment (41.4 %)	13.3	Sand 0.8 %	Clay 3.6 %
		Coarse sediment (58.6 %)	9.9	Silt 95.6 %	
	T2	Fine sediment (52.1 %)	14.5	Sand 4.6 %	Clay 8.9 %
		Coarse sediment (47.9 %)	10.7	Silt 86.5 %	
	W1	Fine sediment (82.9 %)	4.8	Sand 0.7 %	Clay 6.5%
		Coarse sediment (17.1 %)	4.1	Silt 92.8 %	
	W2	Fine sediment (38.2 %)	8.9	Sand 0.5 %	Clay 5.5 %
		Coarse sediment (61.8 %)	6.2	Silt 94.0 %	
Summer 2021	L1	Fine sediment (38.7 %)	5.7	Sand 2.7 %	Clay 7.5 %
		Coarse sediment (61.3 %)	3.7	Silt 89.8 %	
	L2	Fine sediment (56.8 %)	19.4	Sand 1.4 %	Clay 9.5 %
		Coarse sediment (43.2 %)	15.4	Silt 89.1 %	
	T1	Fine sediment (37.1 %)	17.6	Sand 0.5 %	Clay 3.2 %
		Coarse sediment (26.9 %)	10.2	Silt 96.3 %	
	T2	Fine sediment (59.1 %)	18.1	Sand 4.1 %	Clay 8.4 %
		Coarse sediment (40.9 %)	12.7	Silt 87.5 %	
	W1	Fine sediment (50.2 %)	5.7	Sand 0.4 %	Clay 6.1 %
		Coarse sediment (49.8 %)	4.9	Silt 93.5 %	
	W2	Fine sediment (64.4 %)	9.4	Sand 0.2 %	Clay 5.3 %
		Coarse sediment (35.6 %)	7.2	Silt 94.5 %	

Table S10 The concentration of nutrients with the equilibrium flux at the sediment-water interface (mg/L)

Season	Site	NO_3^-	NH_4^+	PO_4^{3-}	DOC	Site	NO_3^-	NH_4^+	PO_4^{3-}	DOC
Autumn 2020	L1	23.240	2.022	1.017	11.357	L2	41.416	1.815	1.369	16.417
	T1	38.178	1.664	0.865	12.062	T2	31.866	1.547	1.223	15.131
	W1	17.376	1.354	0.921	15.896	W2	17.991	1.664	0.805	10.496
Winter 2020	L1	45.471	3.572	0.933	14.433	L2	26.363	3.937	0.814	12.155
	T1	42.531	3.081	0.793	12.560	T2	32.103	1.700	0.911	12.240
	W1	37.215	2.744	0.825	11.310	W2	27.913	3.734	0.808	10.186
Spring 2021	L1	41.036	2.161	1.147	8.934	L2	25.024	2.052	0.867	6.864
	T1	23.234	2.009	0.160	10.244	T2	25.569	2.255	0.292	9.105
	W1	18.489	1.756	0.410	7.603	W2	15.657	1.402	0.453	7.571
Summer 2021	L1	20.954	4.779	0.921	9.520	L2	21.308	4.441	0.354	5.754
	T1	16.496	5.995	0.117	11.526	T2	26.008	4.241	0.188	7.540
	W1	19.677	4.445	0.706	6.626	W2	20.843	3.724	0.399	5.838

Supplementary Figures

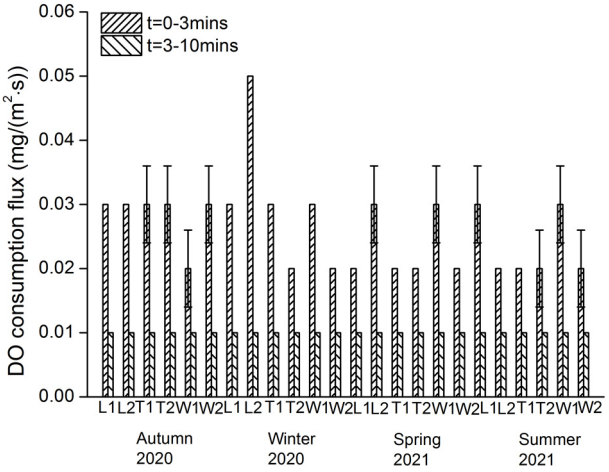

Figure S1 DO consumption flux during both exposures in nutrient flux experiments. The measurement at each site has three replicates, if the results are different, the error line is marked on the bar. The difference in the DO concentration at the beginning and the end of time during the exposure was used to estimate DO consumption flux.

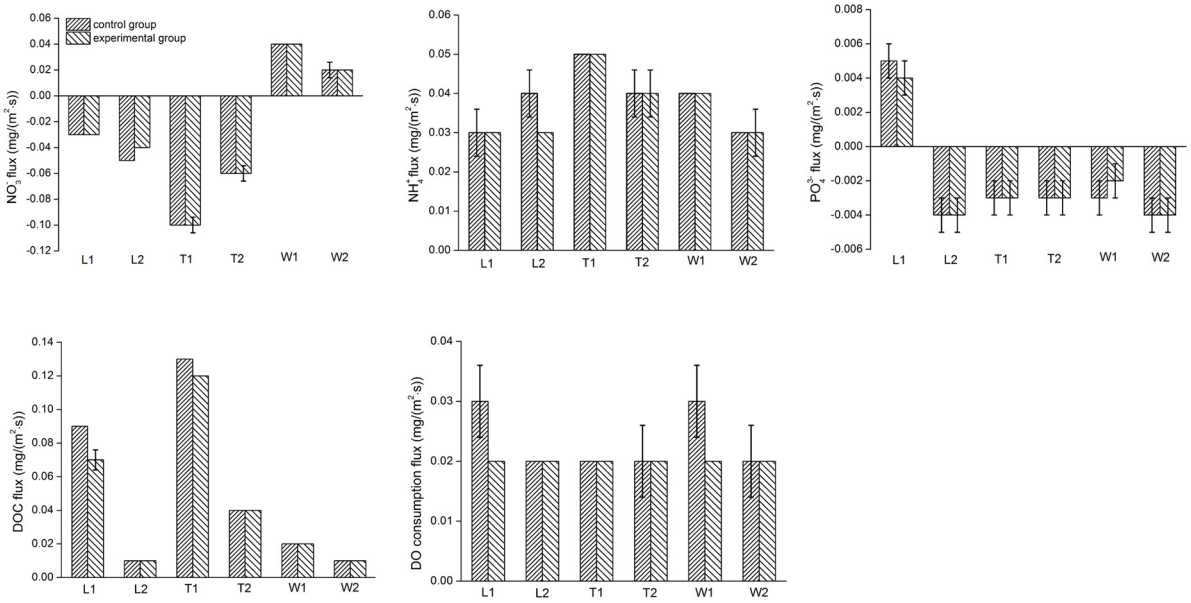

Figure S2 Nutrient and DO consumption fluxes during the 0-3 min exposure in the summer study (June-August 2021). The experimental group was added with 1mg/L of zinc chloride in the chamber, and the control group was under the original experimental conditions. For nutrients, downwards flux represents uptake/removal of nutrients from overlying water to sediment and upwards flux represents regeneration/release of nutrients from sediment to water. The flux experiment at each site has three replicates, if the results are different, the error line is marked on the bar.

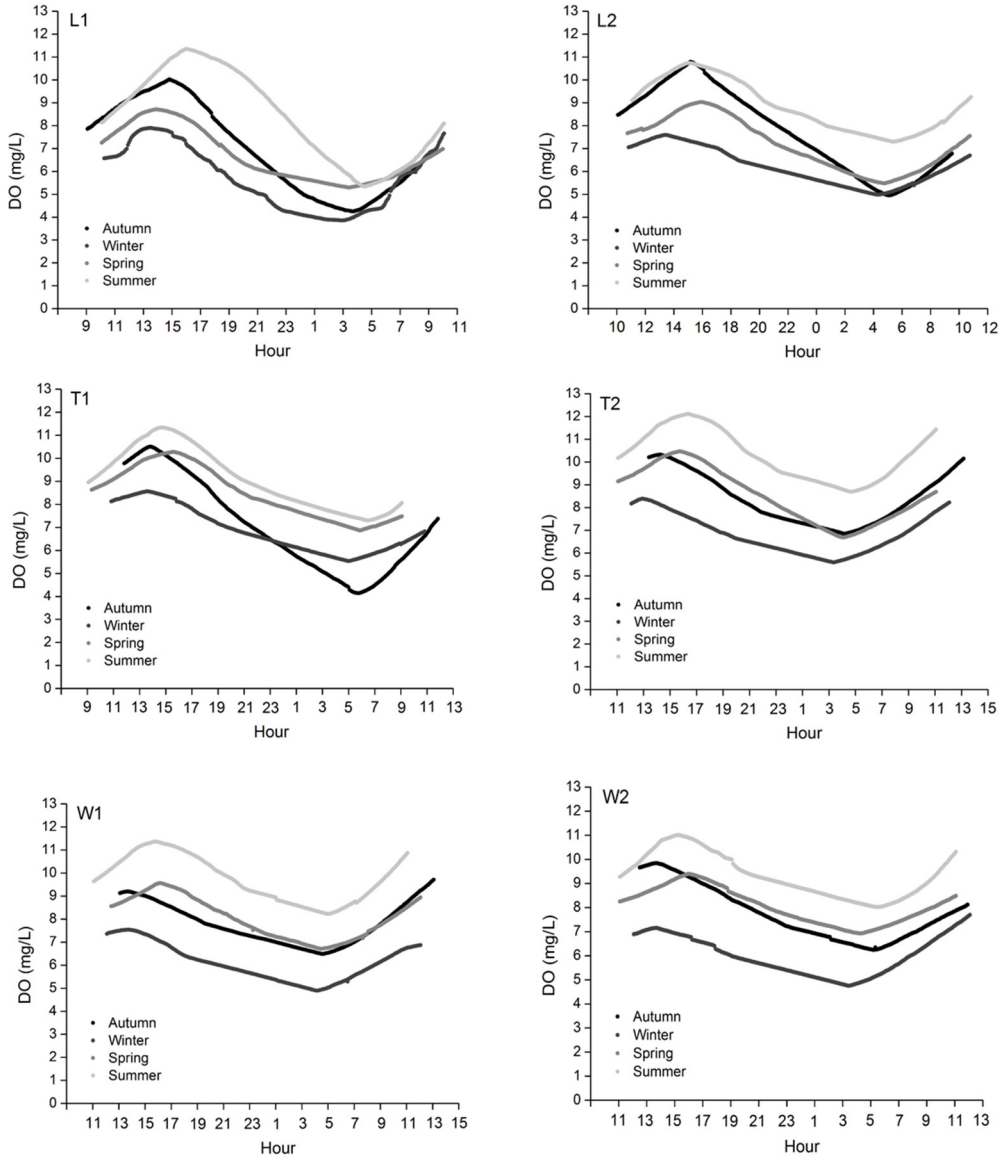

Figure S3 Diurnal variation of DO concentrations in the four seasons across study sites. There was no significant difference in the DO concentration between autumn and winter at T1, but the significant difference was observed at other sites between each season. The maximum and minimum mean DO concentrations at each site appeared in summer and winter, respectively.

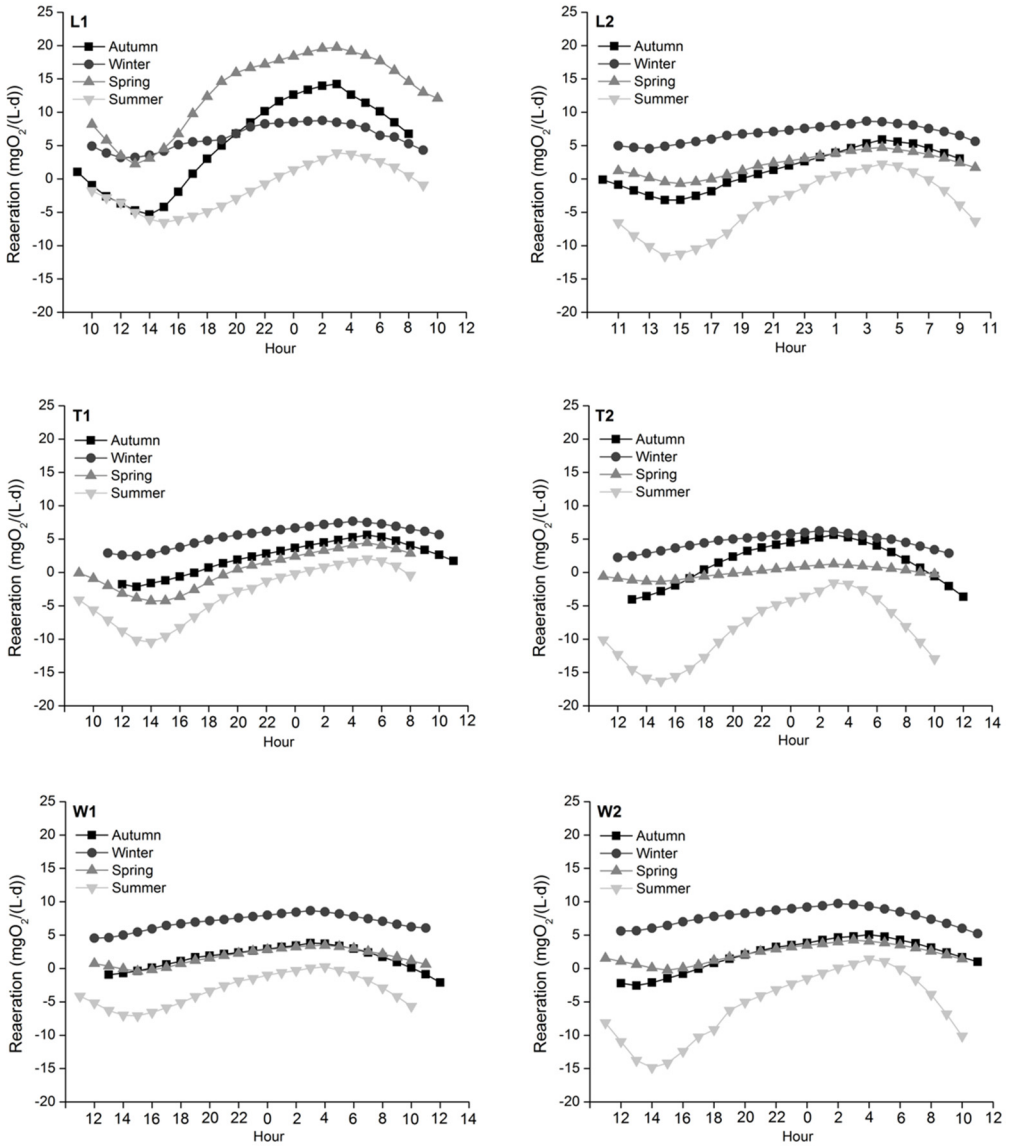

Figure S4 Diurnal variations of reaeration rate in the four seasons across study sites. In each season, the maximum reaeration rate appeared within one hour before sunrise, and gradually decreased with DO accumulation in the GPP process during the daytime. The reaeration rate was the lowest in summer and the highest in winter except L1.