

Supplementary Material

Table S1. Linear regression to predict lab-equivalent nitrate (as nitrate+nitrite minus nitrite) from field measurements of nitrate using the MABARI ISSUS nitrate probe.

Date (n)	Intercept	Slope	R ² (p-value)
23 May 2012 (21)	161	0.40	0.43 (<0.0012) ^a
4 July 2012 (26)	-16.1	0.64	0.83 (<0.001)
17 October 2012 (25)	-68.1	0.92	0.98 (<0.001)
25 April 2013 (29)	-22.6	0.87	0.97 (<0.001)

Note: ^a, the reason for the poor correspondence between the field and lab data is unclear; examination of the distribution of the field and lab data supports the utility of the field data to represent spatial pattern.

Table S2. Upper water column average K₆₆₀ among sampling events when water column profiles were collected over the full extent of the study area in 2012 and 2013.

Date (n)	K ₆₆₀ (/m)		
	Mean (min-max)	Median	n
22 May 2012	0.85 (0.72–1.02)	0.85	66
23 May 2012	0.85 (0.69–1.16)	0.83	28
3 July 2012	0.96 (0.78–1.69)	0.94	69
4 July 2012	1.21 (0.91–3.71)	1.04	35
12 October 2012	0.53 (0.42–1.00)	0.49	40
25 April 2013	0.89 (0.52–3.75)	0.64	31

Table S3. Percent SRP of DP immediately above the nearbed at varying distances along the WSW-ESE alongshore flow axis from the Duffins Creek WPCP outfall and the mouth of Duffins Creek.

%SRP	Depth (m)	Duffins Creek WPCP			Duffins Creek Mouth			Offshore
		WSW (>1 km)	WSW (0–1 km)	ESE (0–1 km)	ESE (0–1 km)	ESE (1–2 km)	ESE (>2 km)	
May 2012	<6	26	37		55	18	45	
	6–10		38	23		64	13	
	20							65
June 2012	<6	47	47		34	56	42	
	6–10		47	54	59		32	
	20							61
July 2012	<6	5	10		41	7	21	
	6–10		12	10	83	10	33	
	20							28
August 2012	<6	21	17		21	21	7	
	6–10		27	36	31		6	
	20							51
October 2012	<6	70	70		72	12	59	
	6–10	35	58	79	75	80	74	
	20							71
June 2013	<6		22		23	37	52	
	6–10		44	36		44	31	
	20							37
July 2013	<6		34		30	38	43	
	6–10		69	bd		60	56	
	20							73

Table S4. Pearson correlations between nearbed SRP, DP and TIN concentrations and average values of UVFR, chlorophyll *a* fluorescence (Chl *a*) K_{660} , depth and temperature (temp) measured from 1m above lakebed to the lakebed in water column profiles collected during sampling events.

	SRP					DP					TIN				
	UVFR	Chl <i>a</i>	K_{660}	Temp	Depth	UVFR	Chl <i>a</i>	K_{660}	Temp	Depth	UVFR	Chl <i>a</i>	K_{660}	Temp	Depth
Survey (n)	<i>r</i> -value (p)					<i>r</i> -value (p)					<i>r</i> -value (p)				
S1 (18)	-	-	-	-	-	0.48 (0.04)	-	-	-	-	-	-	-	-	-
S3 (20)	-	-	-	-	-	0.48 (0.04)	-	-	-	-	0.73 (0.002)	0.61 (0.004)	0.57 (0.008)	-0.52 (0.018)	-
S5 (22)	-	-	-	-	-	-	-	-	-	-	-	-	0.58 (0.005)	-	-0.47 (0.03)
S6 (19)	-	-	-	-	-	-	-	-	-	-	-	0.39 (0.04)	-	-0.48 (0.04)	-
S7 (18)	-	0.47 (0.04)	-	-	-	-	0.49 (0.04)	-	-	-	-	-	-	-	-
Summer Months (57)	-	-	-0.27 (0.04)	-	-	-	-	-	-	-	0.37 (0.005)	-0.52 (<0.001)	-	-0.57 (<0.001)	-
All (97)	-	-0.45 (<0.001)	-0.50 (<0.001)	-0.54 (<0.001)	-	-	-0.22 (0.03)	-0.21 (0.04)	-0.22 (<0.03)	-	0.24 (0.017)	-0.67 (<0.001)	-0.52 (<0.001)	-0.75 (<0.001)	-

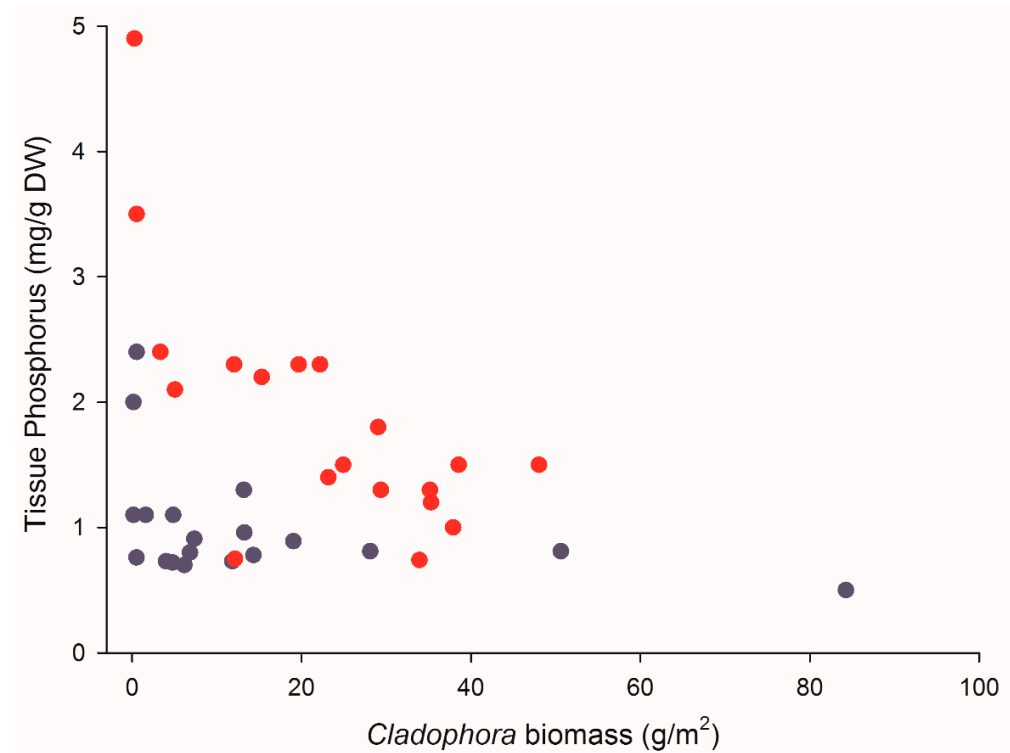


Figure S1. *Cladophora* tissue phosphorus plotted against mean *Cladophora* biomass at sites over the Pickering - Ajax study area in 2012. Blue and red symbols indicate the results for the June and August surveys, respectively.

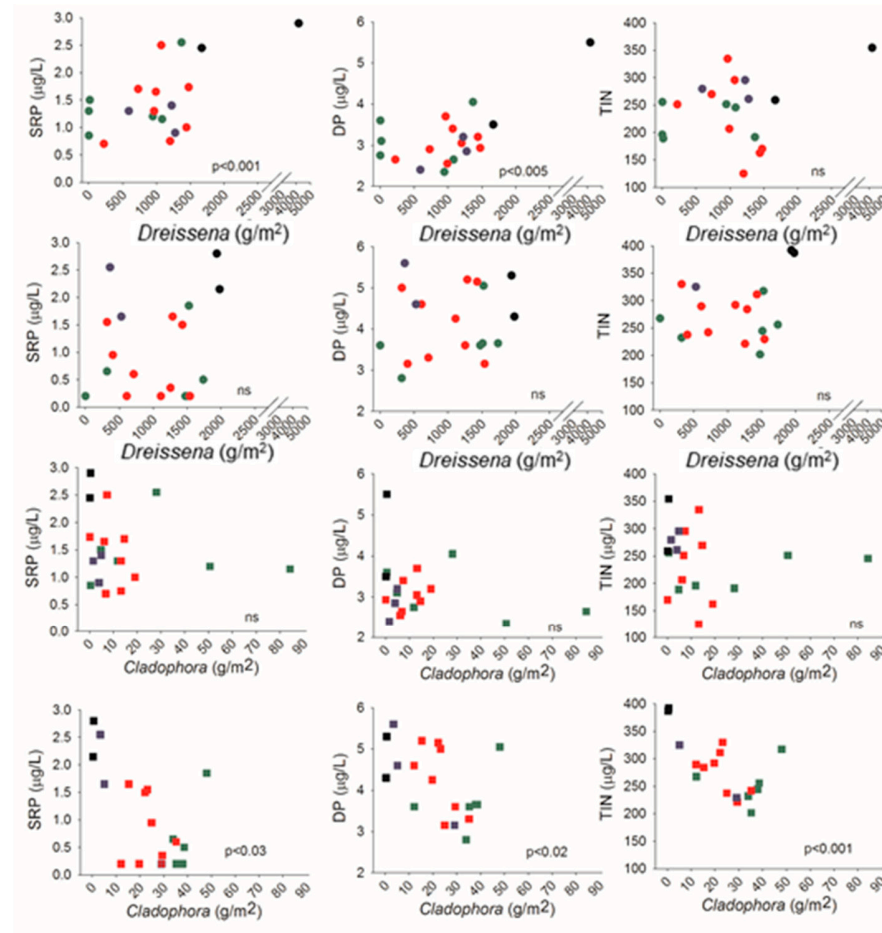


Figure S2. *Cladophora* and *Dreissena* biomass plotted against nearbed SRP, DP and TIN for the July and August 2012 benthic surveys. The upper two panels indicate *Dreissena* results for surveys in June and August, respectively, and the lower two panels indicate *Cladophora* results for June and August, respectively. The symbol colour indicates site depth with green, red, blue and black indicating depth ranges of 3 to 5, 5 to 8 to 12 and 18 to 21, respectively. The p- value at the bottom of the plots indicates the level of significance of the Pearson correlation coefficient between variables; ns indicated the p- value is above 0.05.