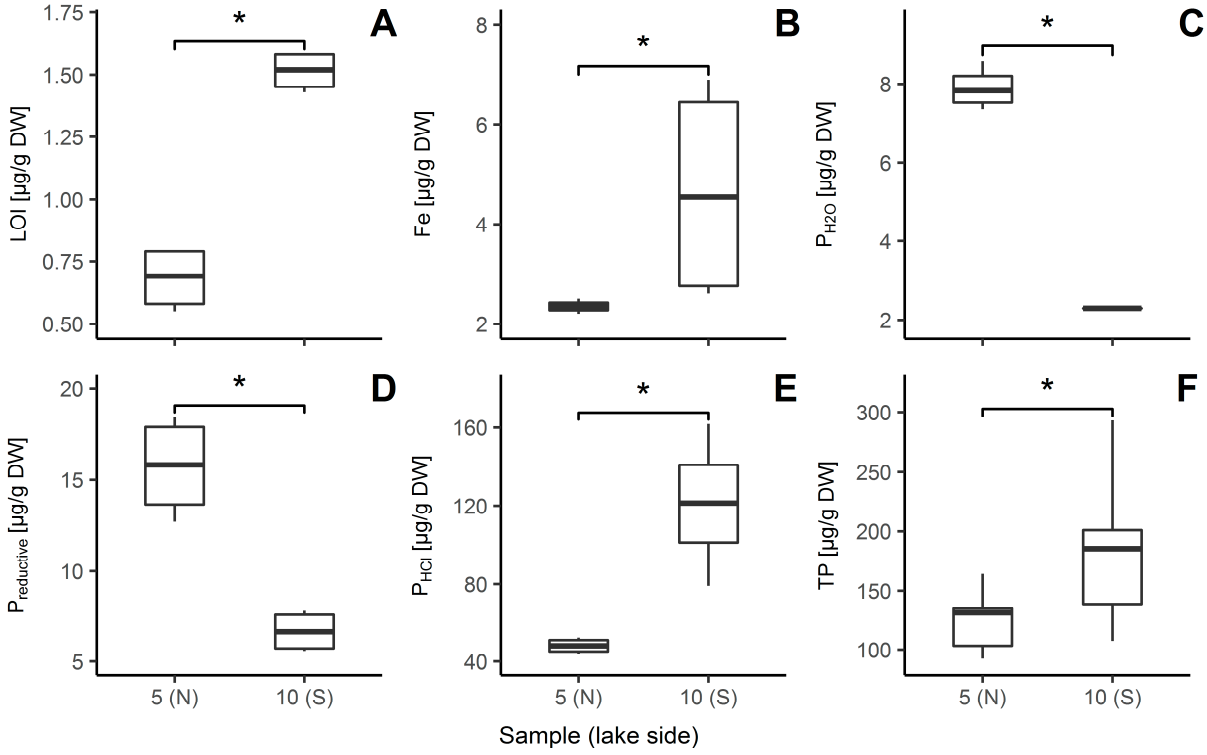

Figure S1. Parameters of littoral sediment taken from two locations in Lake Müggelsee (5 and 10, see Figure 1). Two sediment layers, two replicates (five replicates for TP analysis): Loss on ignition at 450 °C (A, LOI) and content of reductive soluble iron (B, Fe), aerobic desorbed P (C, P_{H2O}), reductive soluble P (D, $P_{reductive}$), acid-soluble P (E, P_{HCl}) and total phosphorus (F, TP). In the case of Fe, P_{H2O}, $P_{reductive}$ and P_{HCl} the contents are the sum of three extractions.

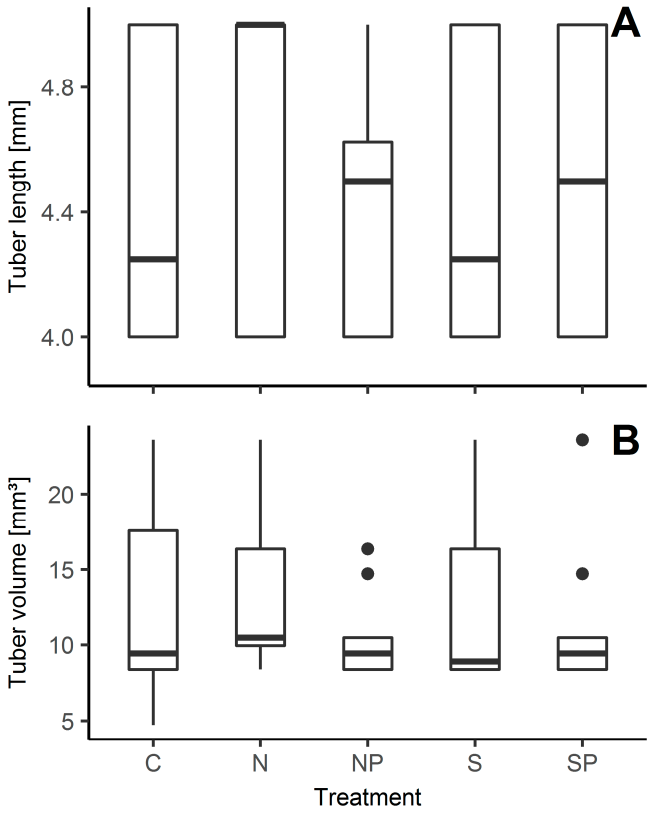

Figure S2. *Stuckenia pectinata* tuber length and volume for each treatment. C = control, N = sediment from N shore, NP = sediment from N shore with P addition to nutrient solution, S = sediment from S shore, SP = sediment from S shore with P addition in nutrient solution.

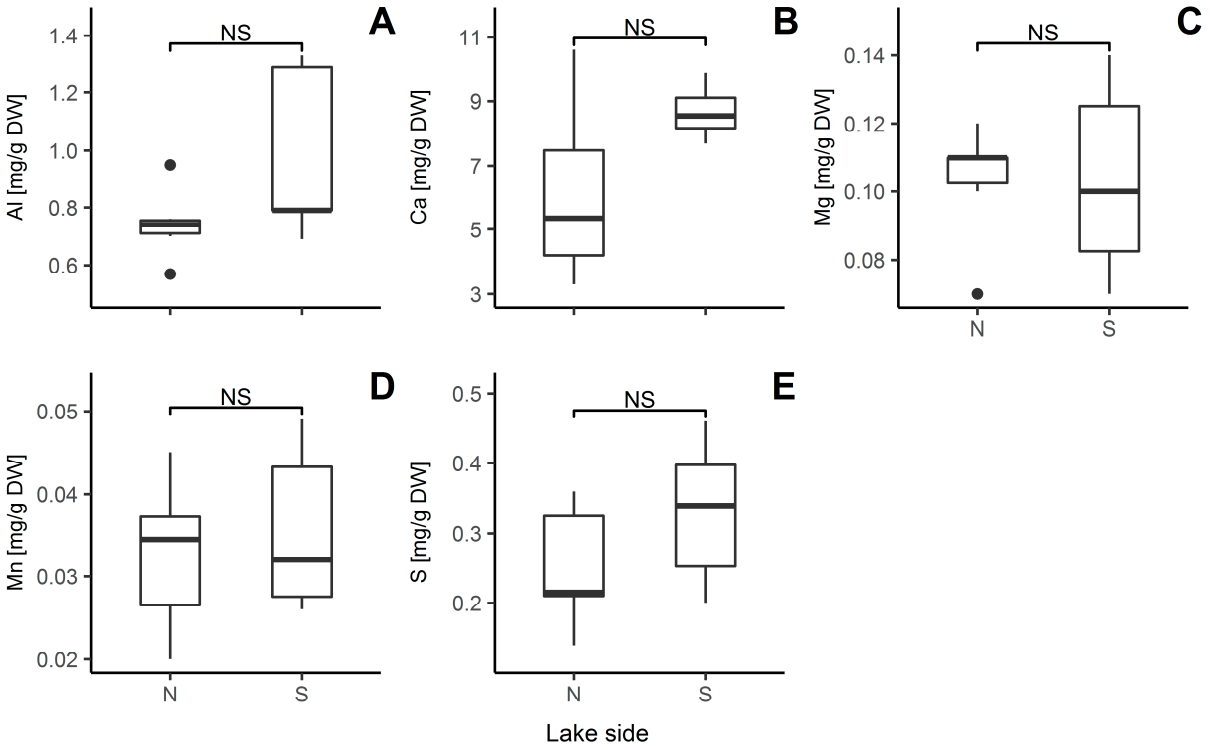

Figure S3. Parameters of littoral sediment taken from north-eastern (N) and south-western (S) shores (see Figure 1): Content of aluminum (A, Al), calcium (B, Ca), magnesium (C, Mg), manganese (D, Mn), and sulphur (E, S).

Table S1. Sample site coordinates (see also Figure 1), Lake Müggelsee

Sample	N	E	Degrees, minutes, seconds	
1	52.447903	13.649832	52°26'52.5"N	13°38'59.4"E
2	52.447187	13.654697	52°26'49.9"N	13°39'16.9"E
3	52.446198	13.660063	52°26'46.3"N	13°39'36.2"E
4	52.445223	13.666072	52°26'42.8"N	13°39'57.9"E
5	52.444794	13.671754	52°26'41.3"N	13°40'18.3"E
6	52.443049	13.673989	52°26'35.0"N	13°40'26.4"E
7	52.432339	13.621558	52°25'56.4"N	13°37'17.6"E
8	52.430168	13.62255	52°25'48.6"N	13°37'21.2"E
9	52.429083	13.62608	52°25'44.7"N	13°37'33.9"E
10	52.427279	13.631217	52°25'38.2"N	13°37'52.4"E
11	52.428074	13.636414	52°25'41.1"N	13°38'11.1"E
12	52.42707	13.643058	52°25'37.5"N	13°38'35.0"E

Table S2. Description of sediment samples

Site nr.	Core nr.	Lake side	Comments
1	1A	N	Very few shells
	1B	N	Very few shells
2	2A	N	Very few shells
	2B	N	Very few shells
3	3A	N	Very few shells
	3B	N	Very few shells
4	4A	N	Very few shells
	4B	N	Very few shells
5	5A	N	Few shells
	5B	N	Very few shells, one big mussel (4 cm) at 5 cm depth
6	6A	N	Very few shells
	6B	N	Very few shells
7	7A	S	1-2 mm brown fluffy material on top
	7B	S	Lots of small animals and shells/mussels, 1-2 mm brown fluffy material on top
8	8A	S	Piece of *Elodea*, mussels on stone, lots of shells, 1-2 mm brown fluffy material on top
	8B	S	Small stick 6-16 cm, lots of shells, 1-2 mm brown fluffy material on top
9	9A	S	Lots of shells, 1-2 mm brown fluffy material on top
	9B	S	Lots of shells, 1-2 mm brown fluffy material on top
10	10A	S	A few mussels on top, lots of shells, 1-2 mm brown fluffy material on top
	10B	S	Lots of shells, 1-2 mm brown fluffy material on top
11	11A	S	Some mussels, some shells, 1-2 mm brown fluffy material on top
	11B	S	Some shells, 1-2 mm brown fluffy material on top
12	12A	S	Some mussels, some shells, 1-2 mm brown fluffy material on top
	12B	S	Some shells, 1-2 mm brown fluffy material on top

Table S3. Most parsimonious linear model (R^2_{adj} = 0.63, $p < 10^{-4}$) explaining periphyton biomass (log_{10}-transformed).

	Estimate	Std. Error	t value	Pr(>|t|)
Intercept	-0.23837	0.08628	-2.763	0.01
P_Added_Yes	0.64297	0.10365	6.203	$<10^{-5}$
$log_{10}(P_{H2O})$	0.11925	0.06767	1.762	0.09

Table S4. Most parsimonious linear model (R^2_{adj} = 0.35, p = 0.005) explaining macrophyte biomass and linear model with periphyton biomass as the sole dependent variable explaining macrophyte biomass (R^2_{adj} = 0.28, p = 0.002).

	Estimate	Std. Error	t value	Pr(>|t|)
Intercept	0.63236	0.05741	11.015	$<10^{-9}$
log_{10}(Periphyton)	-0.25457	0.09328	-2.729	0.01
LakeSide_South	0.16524	0.07648	2.160	0.04
Macrophyte biomass explained only by periphyton biomass				
Intercept	0.69216	0.03682	18.797	$<10^{-15}$
log_{10}(Periphyton)	-0.18475	0.05282	-3.498	0.003