Supporting Information for

Global landscape of total organic carbon, nitrogen and phosphorus in lake water

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Sources of Data

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Table S1. Summary of data for countries/regions.

Country/Region	No. of analyzed lakes
Albania	4
Antarctica	28
Arctic Canada	57
Argentina	147
Austria	91
Bangladesh	1
Belarus	3
Belgium	5
Bosnia and Herzegovina	10
BRAZIL	5
Bulgaria	30
Canada	362
Chile	60
china	53
Croatia	9
Cyprus	9
Democratic Republic of Congo	1
Denmark	67
Ecuador	1
Egypt	1
Estonia	19
Ethiopia	1
Finland	273
France	137
Germany	79
Greece	16
Hungary	24
Iceland	39
India	1
Ireland	149
Israel	1
Italy	261
Japan	4
Korea	2
Kosovo under the UNSCR 1244/99	4
Latvia	74
Lithuania	51
Macedonia, the Former Yugoslav Republic of	2
Malta	2
Mongolia	5
Montenegro	3
Mozambique	14

Nepal	2
Netherlands	15
New Zealand	21
Norway	162
POLAND	345
Portugal	35
Romania	17
Russia	1
Rwanda	1
Senegal	1
Serbia	29
Slovakia	34
Slovenia	32
South Africa	8
Spain	470
Sweden	2770
Switzerland	55
Tajikistan	1
Tanzania	1
The Republic of Malawi	1
Turkey	3
Ugandan	6
United Kingdom	157
Uruguay	21
USA	2052
Zimbabwe	1

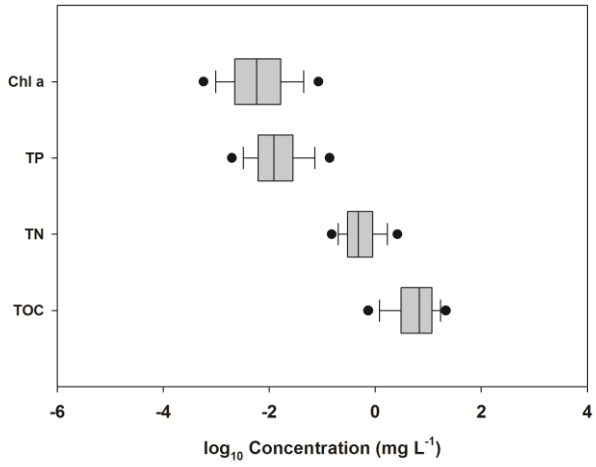

Fig. S1. Box- and whisker plot showing TOC, TN, TP and Chl *a* concentrations in global lake water.

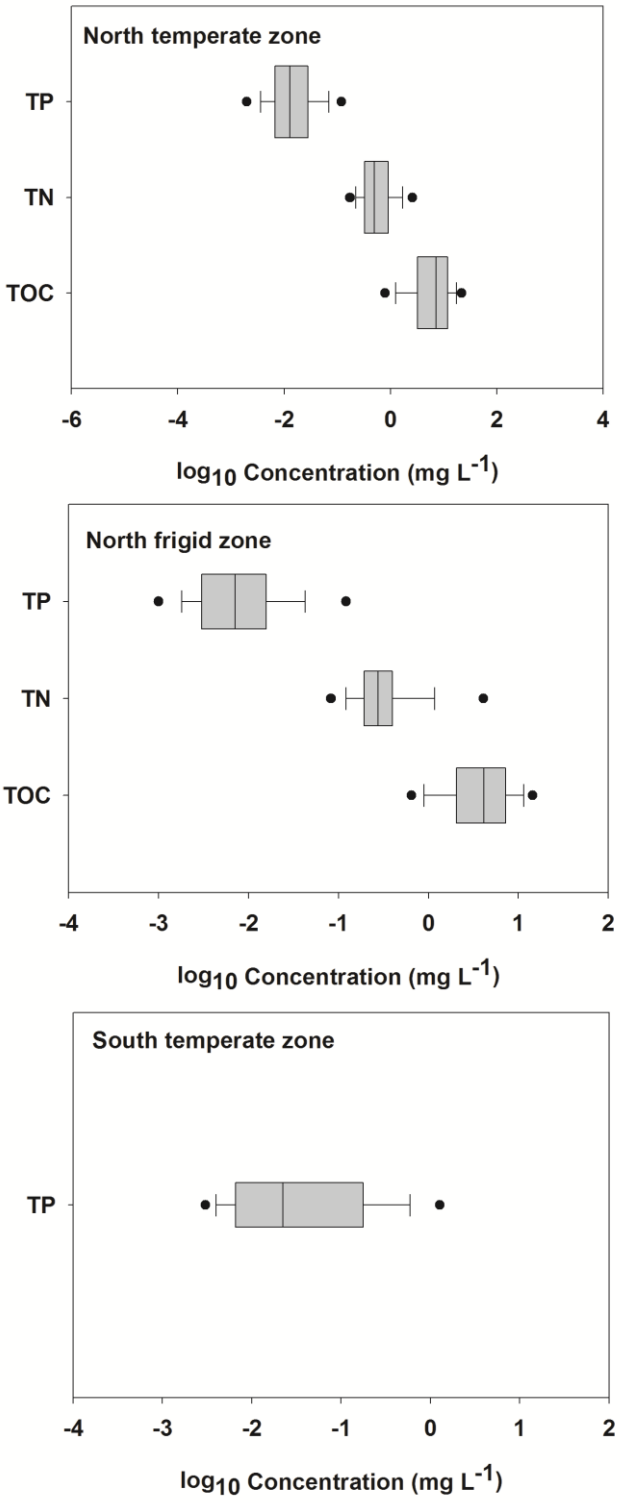

Fig. S2. Box- and whisker plot showing TOC, TN and TP concentrations for lakes divided into different climate zones.

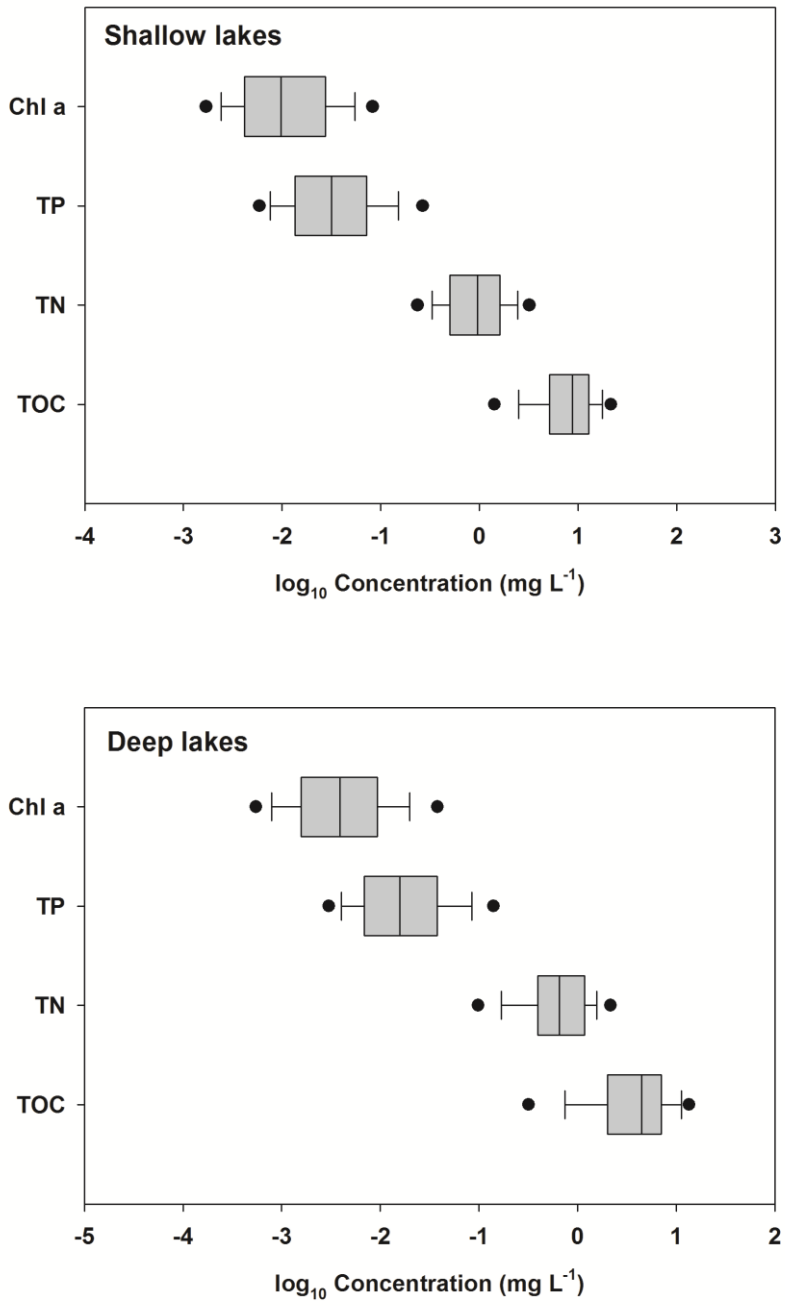

Fig. S3. Box- and whisker plot showing TOC, TN, TP and Chl *a* concentrations in shallow and deep lakes.

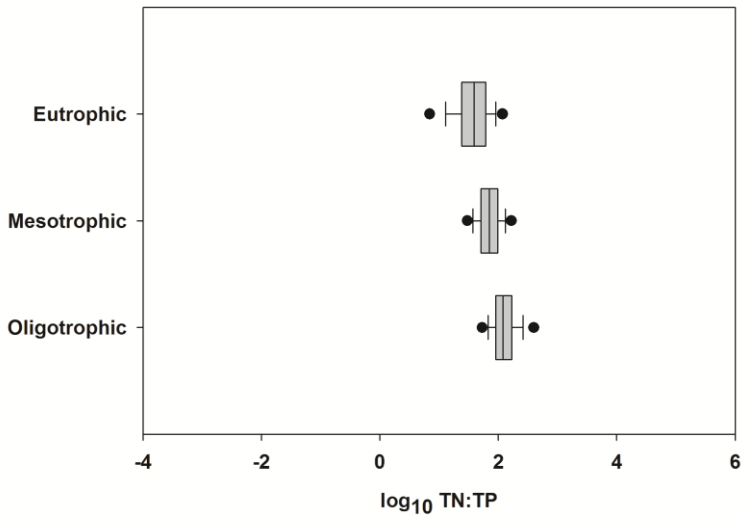

Fig. S4. Box- and whisker plot showing TN:TP ratios in lakes with different trophic states.

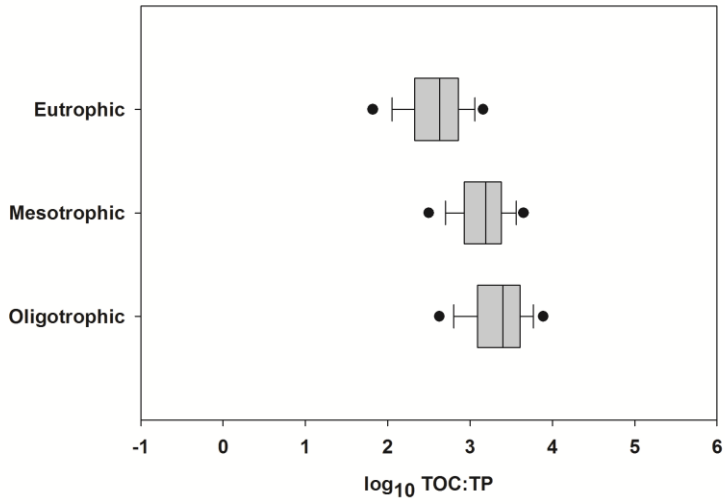

Fig. S5. Box- and whisker plot showing TOC:TP ratios in lakes with different trophic states.

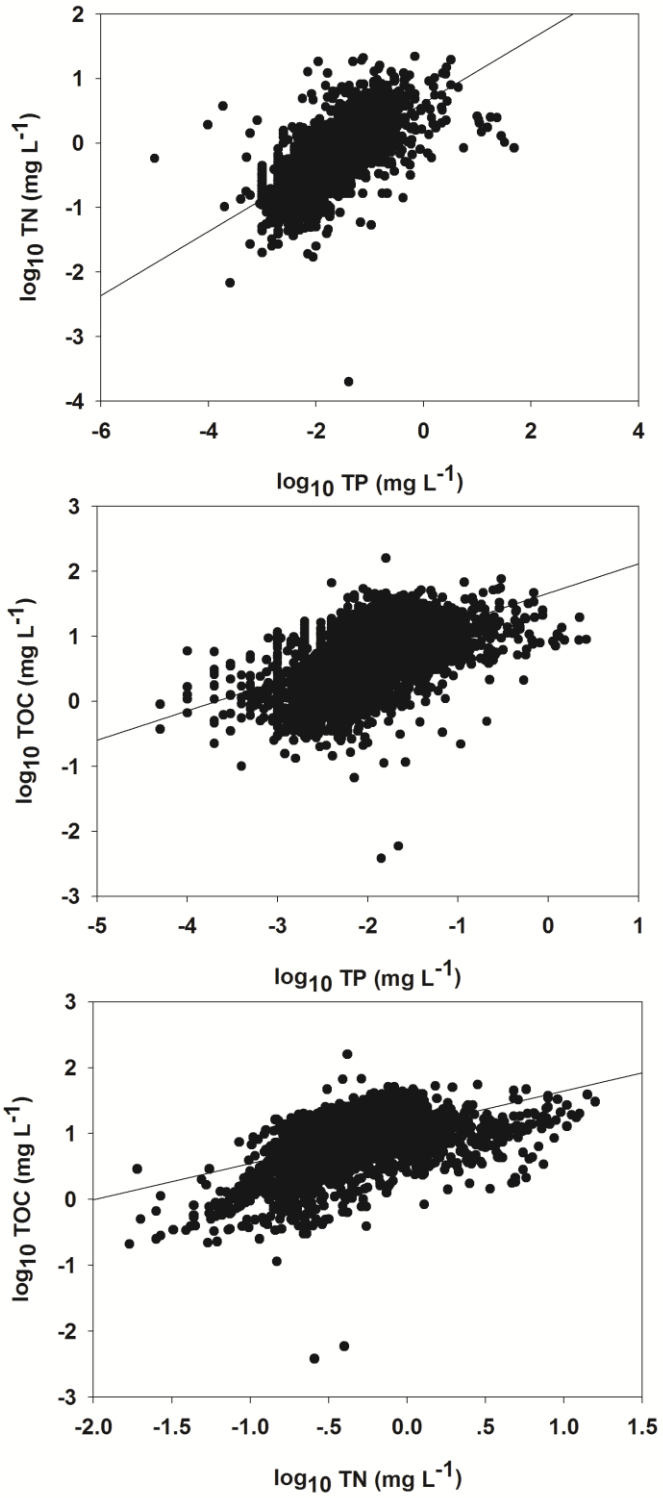

Fig. S6. Relationship between TOC, TN and TP concentrations in global lake water ($\log_{10}$ TN = 0.619 + 0.497$\log_{10}$ TP, R^2 = 0.513, P < 0.001; $\log_{10}$ TOC = 1.663 + 0.452$\log_{10}$ TP, R^2 = 0.249, P < 0.001; $\log_{10}$ TOC = 1.097 + 0.550$\log_{10}$ TN, R^2 = 0.239, P < 0.001).

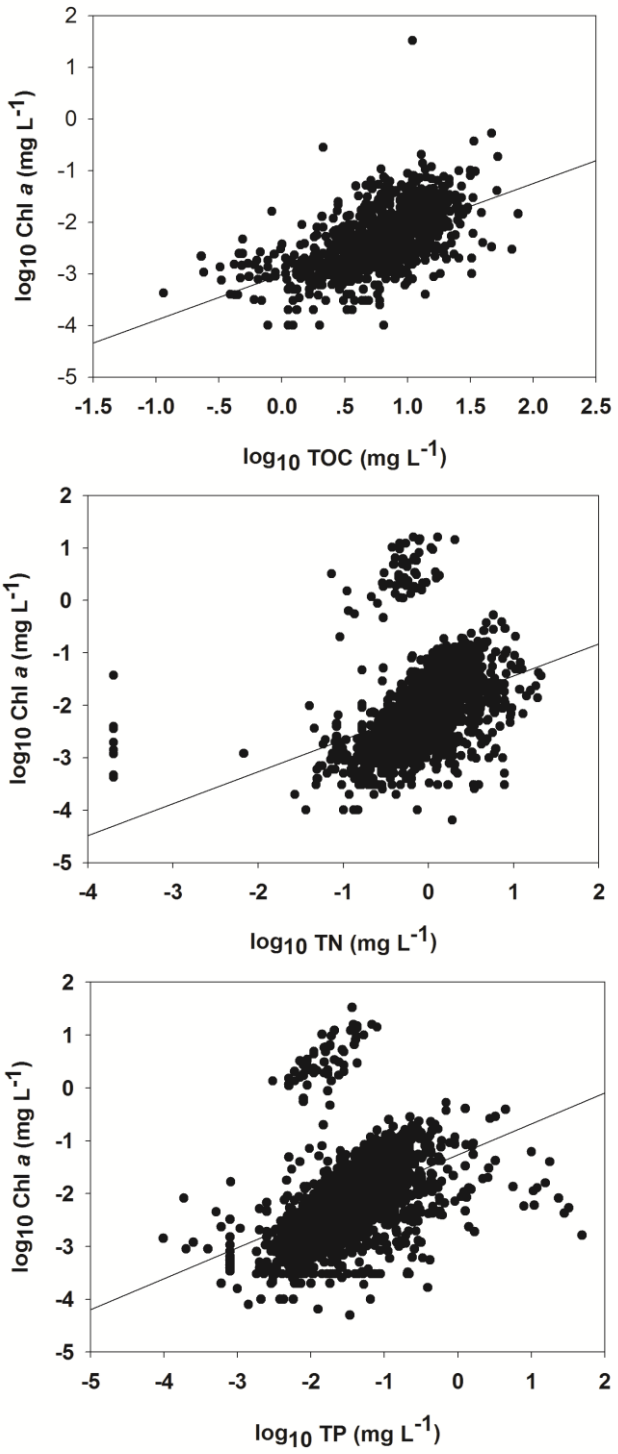

Fig. S7. Influence of TOC, TN and TP concentrations on Chl *a* in global lake water ($\log_{10}$ Chl *a* = -3.014 + 0.884$\log_{10}$ TOC, R^2 = 0.322, P < 0.001; $\log_{10}$ Chl *a* = -2.046 + 0.608$\log_{10}$ TN, R^2 = 0.155, P < 0.001; $\log_{10}$ Chl *a* = -1.268 + 0.586$\log_{10}$ TP, R^2 = 0.220, P < 0.001).

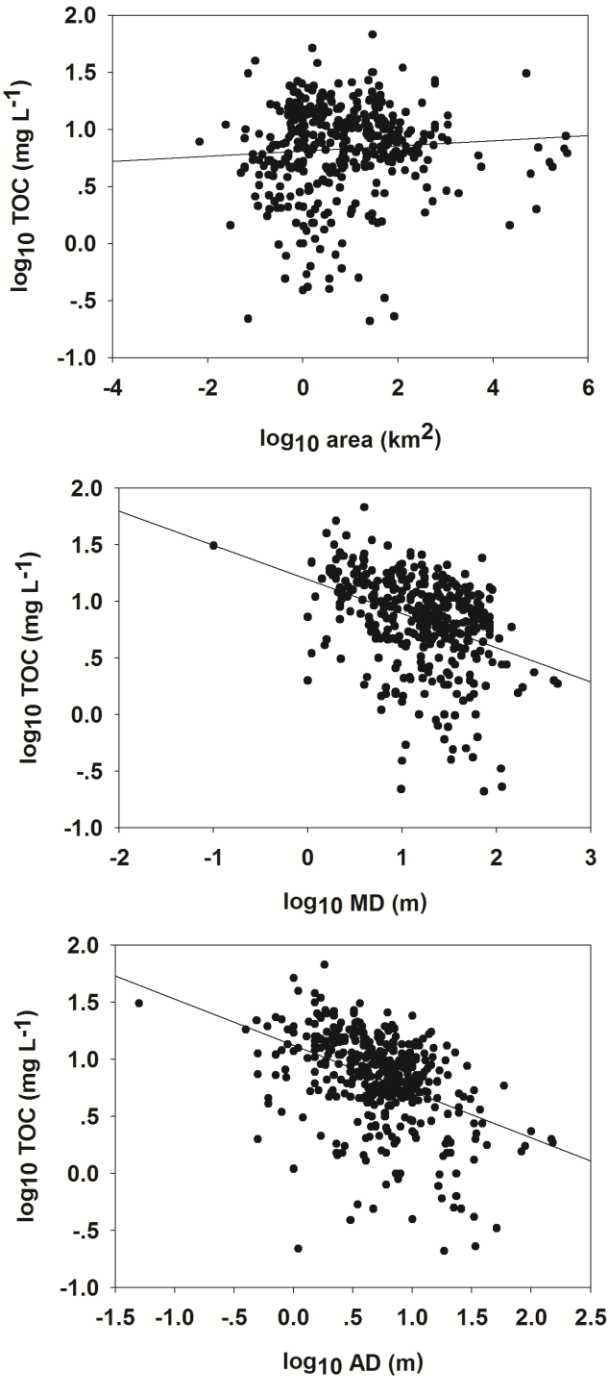

Fig. S8. Influence of morphological characteristics on TOC concentrations in global lake water ($\log_{10}$ TOC = 0.811 + 0.022$\log_{10}$ area, R^2 = 0.005, P > 0.05; $\log_{10}$ TOC = 1.192 - 0.302$\log_{10}$ MD, R^2 = 0.147, P < 0.001; $\log_{10}$ TOC = 1.122 - 0.405$\log_{10}$ AD, R^2 = 0.188, P < 0.001; MD, maximum depth; AD, average depth).

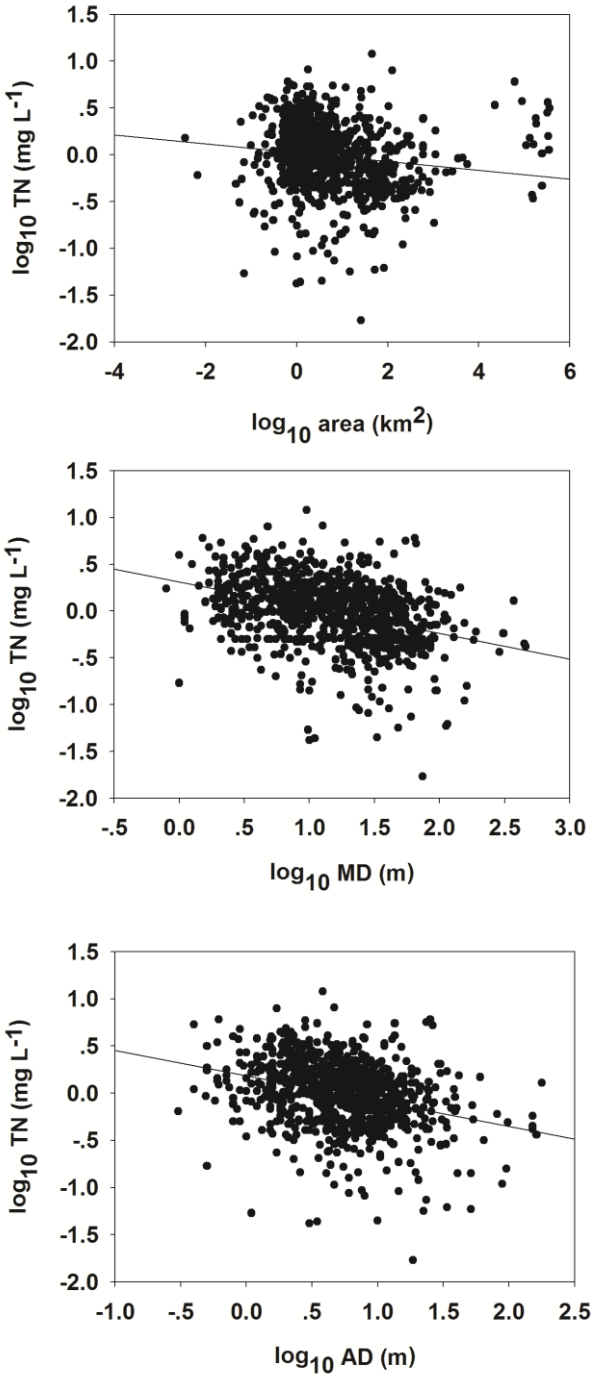

Fig. S9. Influence of morphological characteristics on TN concentrations in global lake water ($\log_{10}$ TN = 0.022 - 0.047$\log_{10}$ area, R^2 = 0.020, P < 0.001; $\log_{10}$ TN = 0.313 - 0.275$\log_{10}$ MD, R^2 = 0.141, P < 0.001; $\log_{10}$ TN = 0.185 - 0.268$\log_{10}$ AD, R^2 = 0.098, P < 0.001; MD, maximum depth; AD, average depth).

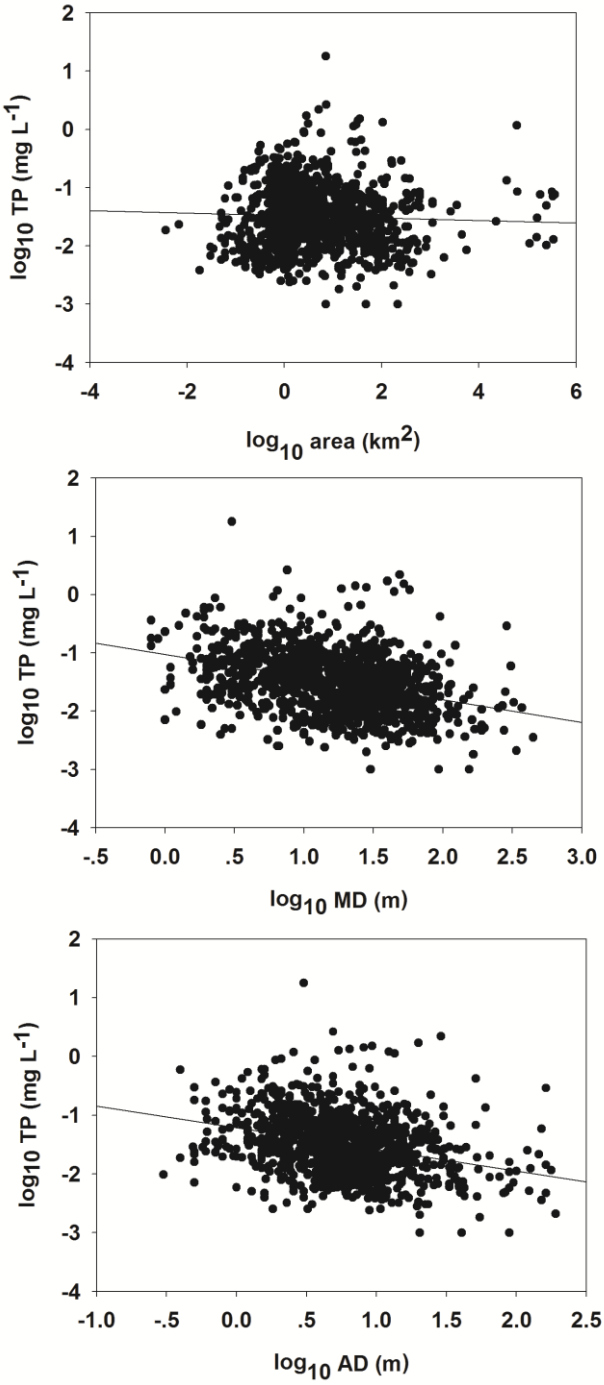

Fig. S10. Influence of morphological characteristics on TP concentrations in global lake water ($\log_{10}$ TP = -1.478 - 0.021$\log_{10}$ area, R^2 = 0.002, P > 0.05; $\log_{10}$ TP = -1.027 - 0.389$\log_{10}$ MD, R^2 = 0.130, P < 0.001; $\log_{10}$ TP = -1.213 - 0.370$\log_{10}$ AD, R^2 = 0.094, P < 0.001; MD, maximum depth; AD, average depth).

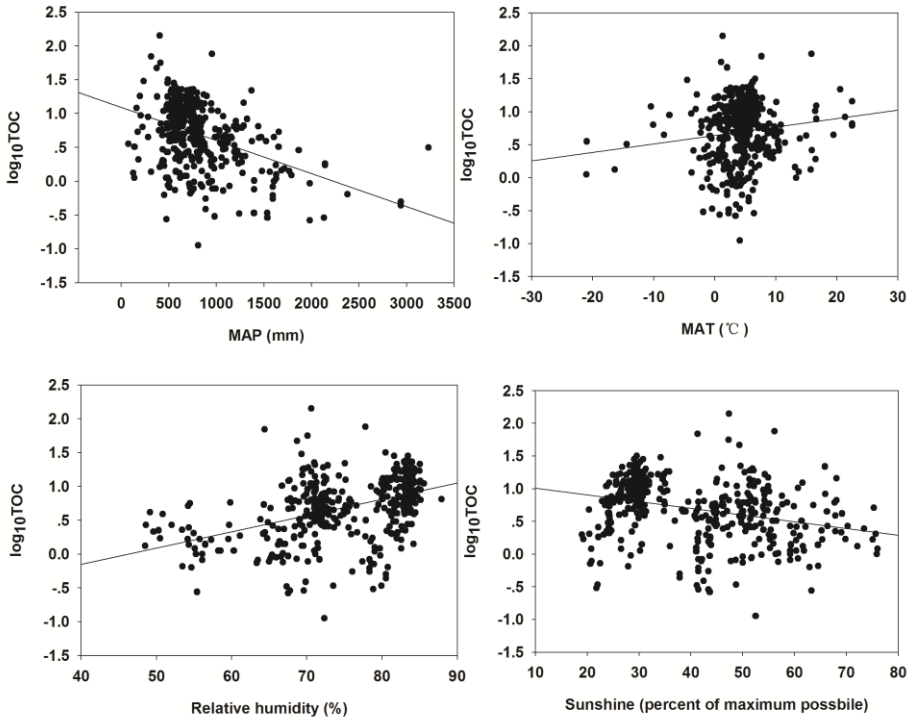

Fig. S11. Influence of climate on TOC concentrations in global lake water ($\log_{10}$ TOC = 1.092 - 0.0005MAP, R^2 = 0.176, P < 0.001; $\log_{10}$ TOC = 0.640 + 0.013MAT, R^2 = 0.017, P < 0.01; $\log_{10}$ TOC = -1.115 + 0.024RH, R^2 = 0.196, P < 0.001; $\log_{10}$ TOC = 1.113 - 0.010SUN, R^2 = 0.088, P < 0.001; MAT, temperature, MAP, precipitation; SUN, sunshine; RH, relative humidity).

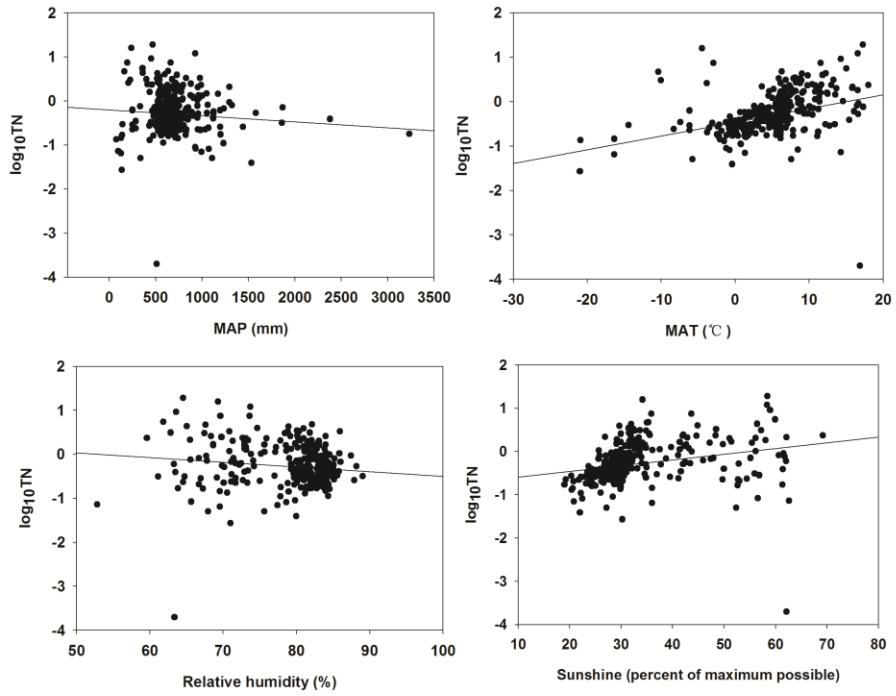

Fig. S12. Influence of climate on TN concentrations in global lake water ($\log_{10}$ TN = -0.204 - 0.0001MAP, R^2 = 0.007, P > 0.05; $\log_{10}$ TN = -0.463 + 0.031MAT, R^2 = 0.126, P < 0.001; $\log_{10}$ TN = 0.570 - 0.011RH, R^2 = 0.021, P < 0.01; $\log_{10}$ TN = -0.725 + 0.013SUN, R^2 = 0.072, P < 0.001; MAT, temperature, MAP, precipitation; SUN, sunshine; RH, relative humidity).

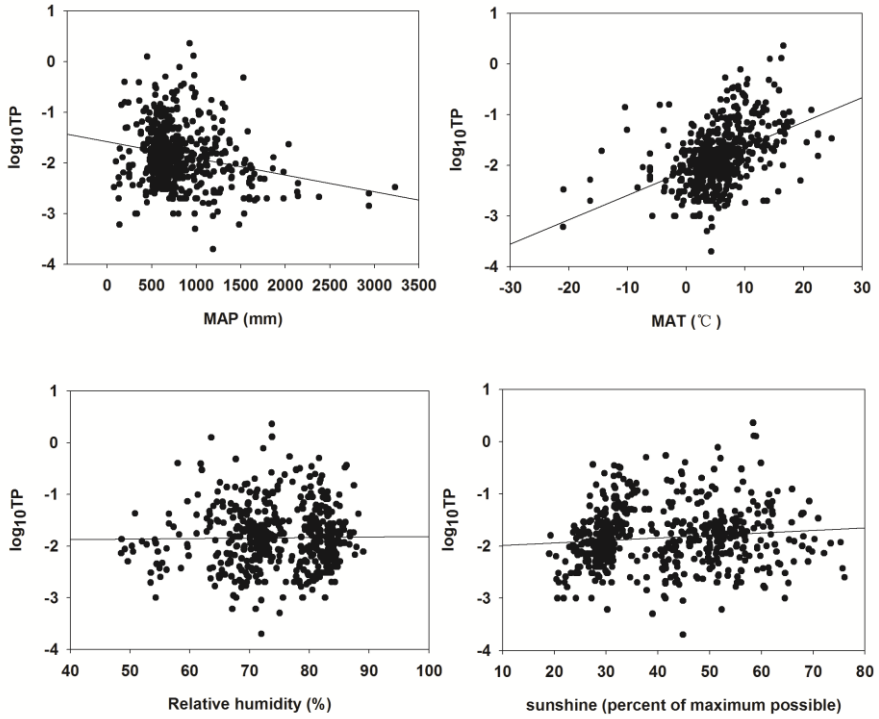

Fig. S13. Influence of climate on TP concentrations in global lake water ($\log_{10}$ TP = -1.578 - 0.0003MAP, R^2 = 0.049, P < 0.001; $\log_{10}$ TP = -2.109 + 0.048MAT, R^2 = 0.199, P < 0.001; $\log_{10}$ TP = -1.915 + 0.001RH, R^2 = 0.000, P =0.741; $\log_{10}$ TP = -2.040 + 0.005SUN, R^2 = 0.012, P < 0.05; MAT, temperature, MAP, precipitation; SUN, sunshine; RH, relative humidity).