

**Supporting Information for:**

Continental-scale increase in lake and stream phosphorus: Are oligotrophic systems disappearing in the U.S.?

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**Table S1**

Years of data collection and details of sample sizes for lake and stream surveys used in this analysis.

Sampling Year(s)	Survey	Total Resource Represented	No. Probability Sites (total)	Probability Sites Used in this Analysis <sup>1</sup>	Resurveyed Sites (sites in common with earlier survey)	Resurveyed Sites in Minimally Disturbed Catchments <sup>2</sup>
2000-04	Wadeable Streams Assessment	1,079,952 km of wadeable streams	1392 (1 <sup>st</sup> -4 <sup>th</sup> order streams)	1392 (1 <sup>st</sup> -4 <sup>th</sup> order streams)	N/A	N/A
2008-09	National Rivers and Streams Assessment	1,921,199 km of rivers and streams	1924 rivers and streams	961 (1 <sup>st</sup> -4 <sup>th</sup> order streams)	356	91
2013-14	National Rivers and Streams Assessment	2,314,928 km of rivers and streams	2003 rivers and streams	1167 (1 <sup>st</sup> -4 <sup>th</sup> order streams)	520	68
2007	National Lakes Assessment	49,805 lakes with surface area > 4ha	1028 (lakes with surface area > 4ha)	1028 (lakes with surface area > 4ha)	N/A	N/A
2012	National Lakes Assessment	111,819 lakes with surface area > 1ha	1130 (lakes with surface area > 1ha)	1038 (lakes with surface area > 4ha)	403	47

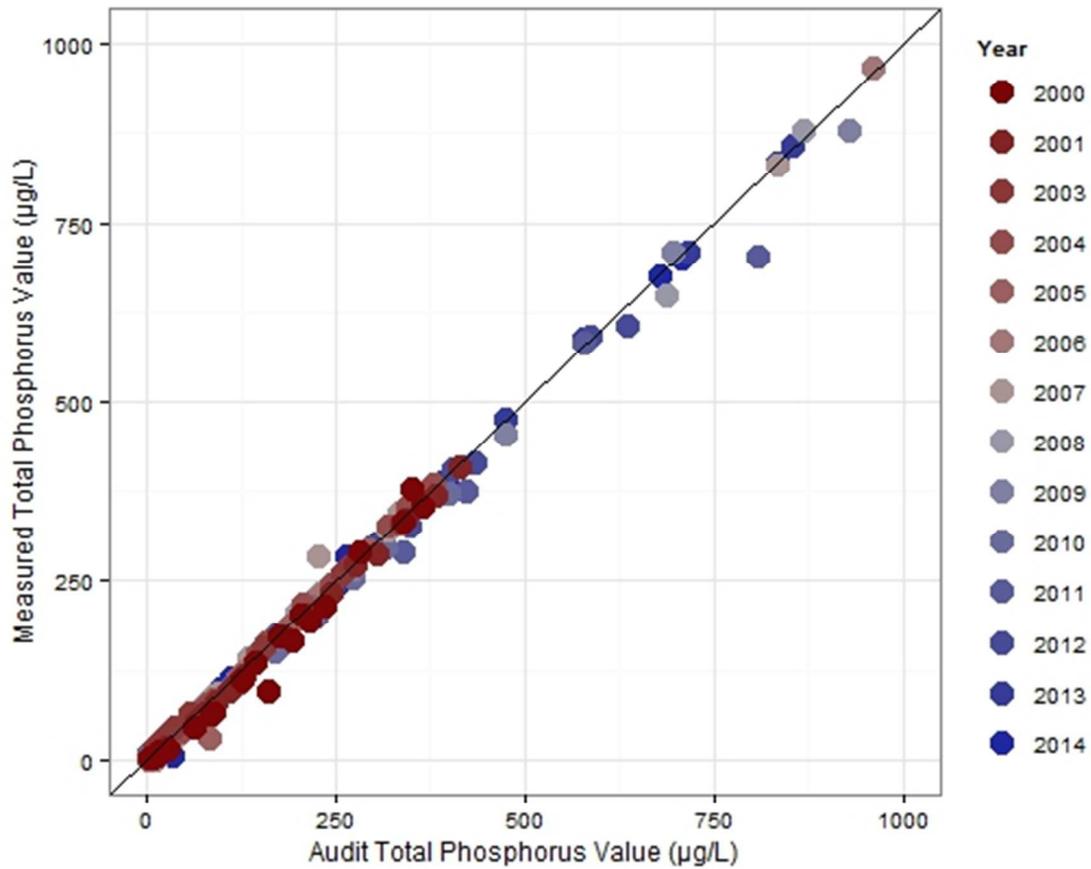
<sup>1</sup> Used to create population estimates for Figure 1.

<sup>2</sup> Used to create 1:1 plots.

**Table S2**

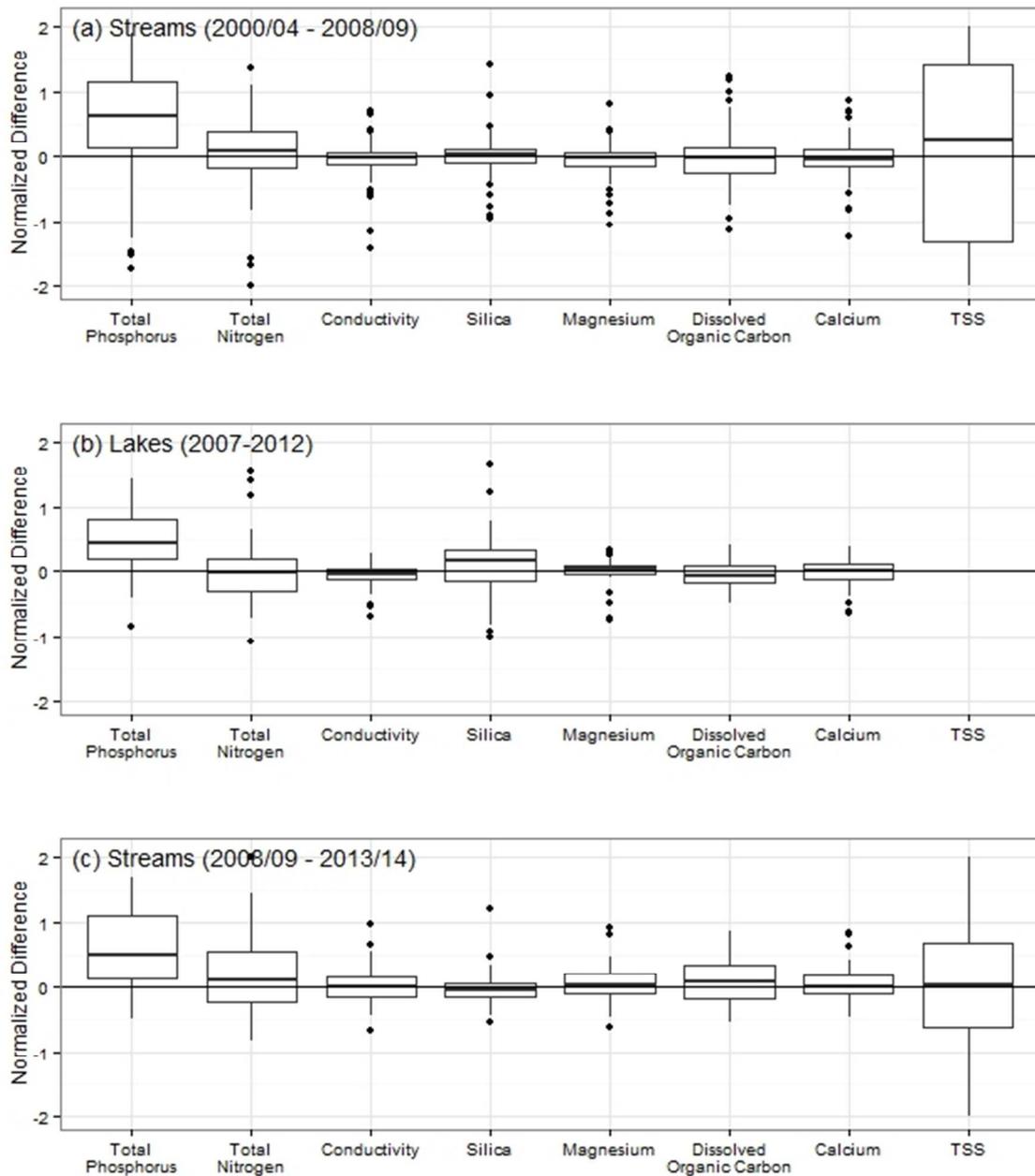
Method detection limits (MDL) for TP analyses for years representing each survey analyzed in this paper, the proportion of the population (% stream length or % of lake number) with values below the MDL, and the number of resurveyed sites in the minimally-disturbed dataset (total number in parentheses) with TP less than the corresponding MDL.

Years	MDL ( $\mu\text{g L}^{-1}$ )	% of population < MDL	# of minimally-disturbed sites < MDL (total number)
2000-2004	3.1	10.8%	24 (91)
2007	3.9	7.1%	4 (47)
2008-2009	5.5	0.4%	11 (91)
2012	2.9	0%	0 (47)
2013-2014	4.0	0.3%	0 (68)



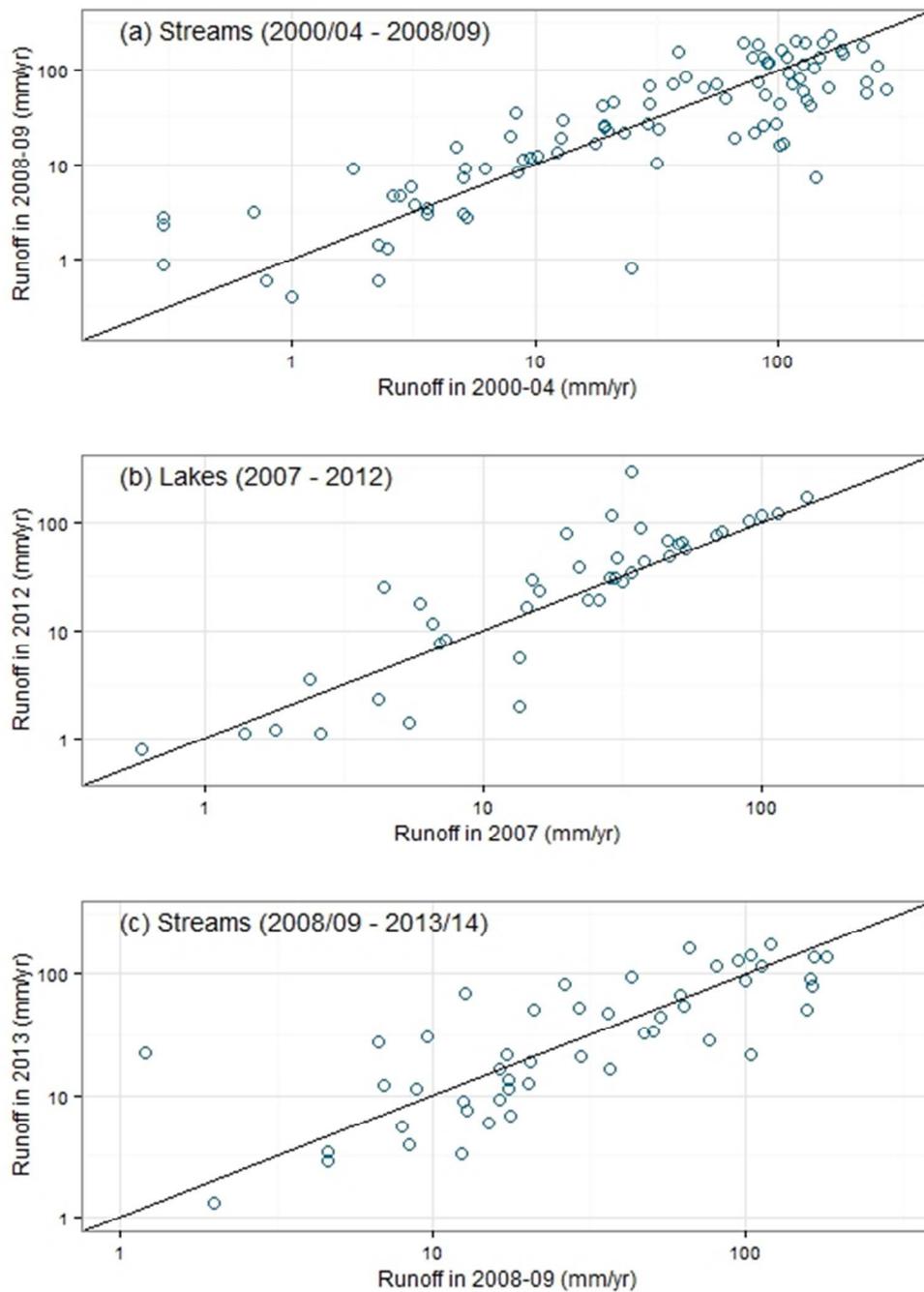
**Figure S1.**

Results of blind audit sample analysis for the U.S. EPA laboratory responsible for analyzing survey samples for 2000-2014, corresponding to the time span of statistical surveys reported in this paper.



**Figure S2**

Box and whisker plots of unweighted, normalized differences between surveys at minimally-disturbed resurveyed sites for Total Phosphorus and selected other chemical variables (Total Nitrogen, Conductivity, Silica, Magnesium and Dissolved Organic Carbon, Calcium and Total Suspended Solids) for: (a) stream surveys in 2000-2004 vs. 2008-2009; (b) lake surveys in 2007 vs. 2012; and (c) stream surveys in 2008-2009 vs. 2013-2014. Normalized differences were calculated as:  $(\text{Survey2} - \text{Survey1}) / \text{mean}(\text{Survey1}, \text{Survey2})$ .



**Figure S3.**

Comparison of quarterly runoff (matched to date of each survey sample) in 8 digit hydrologic units for each least disturbed catchment from: (a) stream surveys in 2000-2004 vs. 2008-2009; (b) lake surveys in 2007 vs. 2012; and (c) stream surveys in 2008-2009 vs. 2013-2014. Lines are 1:1 lines. Only the lake data showed a significant change in runoff between surveys.