

Spatio-Temporal Distribution and Adsorption-Release Characteristics of Phosphorus
and the **Community** of Phosphorus Accumulating Organisms of Sediments in a
Shallow Lake

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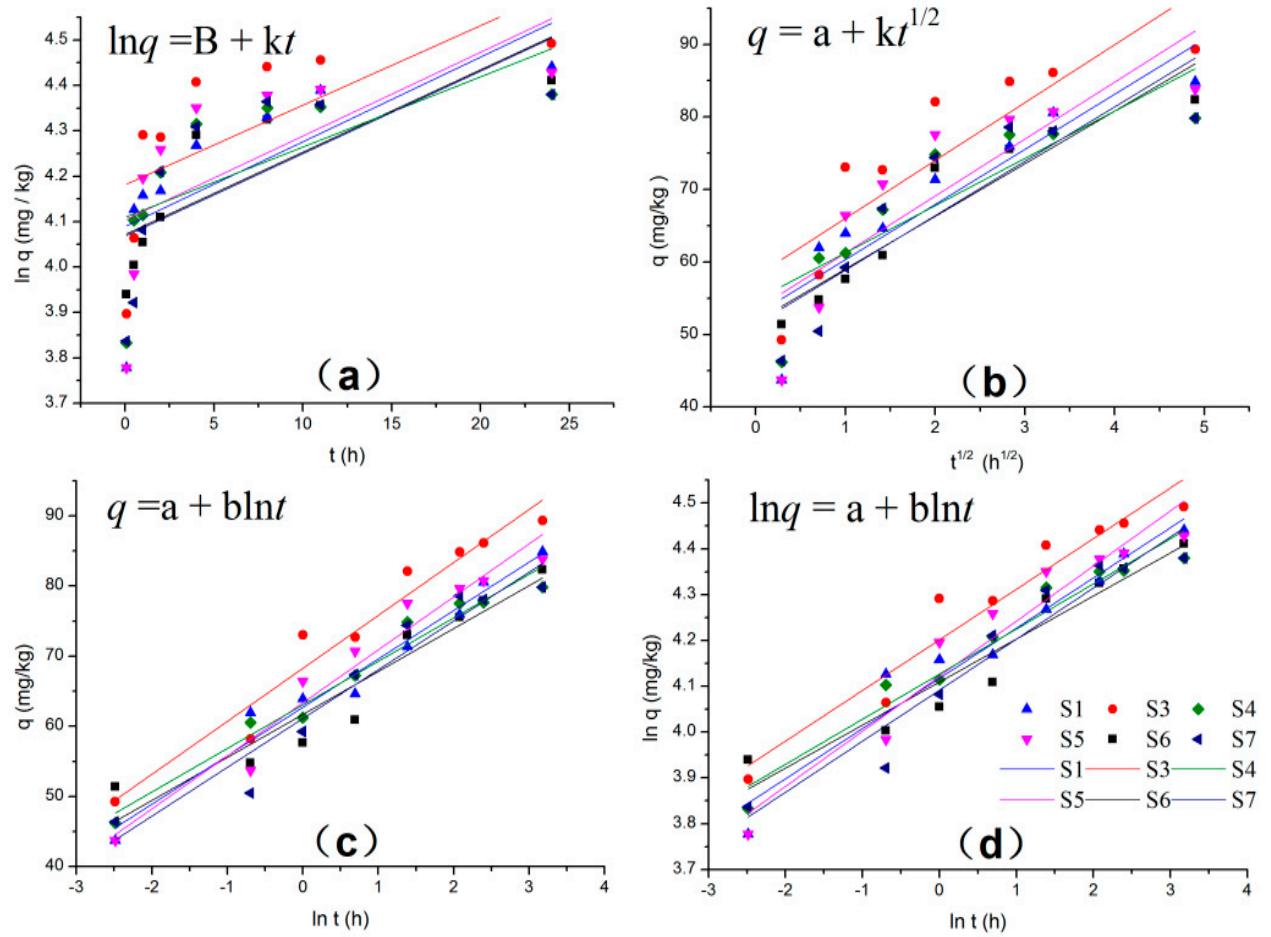


Figure S1: Results from fitting different kinetic equations with the observed phosphate sorption on sediment

Time	Point	% in TP			
		Fe/Al-P	Ca-P	IP	OP
summer	S1	39.6%	17.9%	47.9%	37.5%
	S3	44.6%	23.5%	60.5%	34.1%
	S4	36.6%	32.5%	48.8%	38.1%
	S5	44.6%	17.8%	57.2%	32.4%
	S7	62.2%	17.7%	45.8%	38.6%
	Max.	62.2%	32.5%	60.5%	38.6%
	Min.	36.6%	17.7%	45.8%	32.4%
	Ave.	45.5%	21.9%	52.1%	36.2%
Autumn	S1	37.1%	20.5%	50.5%	42.0%
	S3	43.4%	17.8%	51.7%	38.9%
	S4	39.1%	18.2%	48.3%	39.0%
	S5	40.0%	20.0%	51.2%	39.2%
	S7	36.9%	19.1%	47.6%	40.7%
	S8	131.0%	74.1%	49.9%	27.0%
	S9	43.7%	16.8%	46.2%	37.6%
	Max.	43.7%	20.5%	51.7%	42.0%
	Min.	36.9%	16.8%	46.2%	37.6%
	Ave.	40.0%	18.7%	49.2%	39.6%

Table S1: Relationships among the relative contents of the different P fractions in summer and winter

Table S2: The rates of phosphate adsorption on the surface sediments from Sanshiliujiao Lake during different periods

t/h	V/(mg/kg/h)						
	S1	S3	S4	S5	S6	S7	Ave.
0.001~0.1	Min	61.25	75.50	69.02	75.56	62.07	69.56
	Max	6124.97	7550.29	6902.32	7555.74	6206.97	6955.78
	Ave.	284.91	351.22	321.07	351.47	288.73	323.56 320.16
0.1~0.5	Min	12.25	15.10	13.80	15.11	12.41	13.91
	Max	61.25	75.50	69.02	75.56	62.07	69.56
	Ave.	24.64	30.38	27.77	30.40	24.97	27.99 27.69
0.5~1.0	Min	6.12	7.55	6.90	7.56	6.21	6.96
	Max	12.25	15.10	13.80	15.11	12.41	13.91
	Ave.	8.49	10.47	9.57	10.47	8.60	9.64 9.54
1.0~2.0	Min	3.06	3.78	3.45	3.78	3.10	3.48
	Max	6.12	7.55	6.90	7.56	6.21	6.96
	Ave.	4.25	5.23	4.78	5.24	4.30	4.82 4.77
2.0~4.0	Min	1.53	1.89	1.73	1.89	1.55	1.74
	Max	3.06	3.78	3.45	3.78	3.10	3.48
	Ave.	2.12	2.62	2.39	2.62	2.15	2.41 2.39
4.0~8.0	Min	0.77	0.94	0.86	0.94	0.78	0.87
	Max	1.53	1.89	1.73	1.89	1.55	1.74
	Ave.	1.06	1.31	1.20	1.31	1.08	1.21 1.19
8.0~11.0	Min	0.56	0.69	0.63	0.69	0.56	0.63
	Max	0.77	0.94	0.86	0.94	0.78	0.87
	Ave.	0.65	0.80	0.73	0.80	0.66	0.74 0.73
11.0~24.0	Min	0.26	0.31	0.29	0.31	0.26	0.29
	Max	0.56	0.69	0.63	0.69	0.56	0.63
	Ave.	0.37	0.45	0.41	0.45	0.37	0.42 0.41

Min., Max. and Ave. represent the minimum, maximum and average values respectively

Figure S2. Langmuir and Freundlich Isotherm Model descriptions of adsorption isotherms for phosphate adsorption on the sediments from Sanshiliujiao Lake

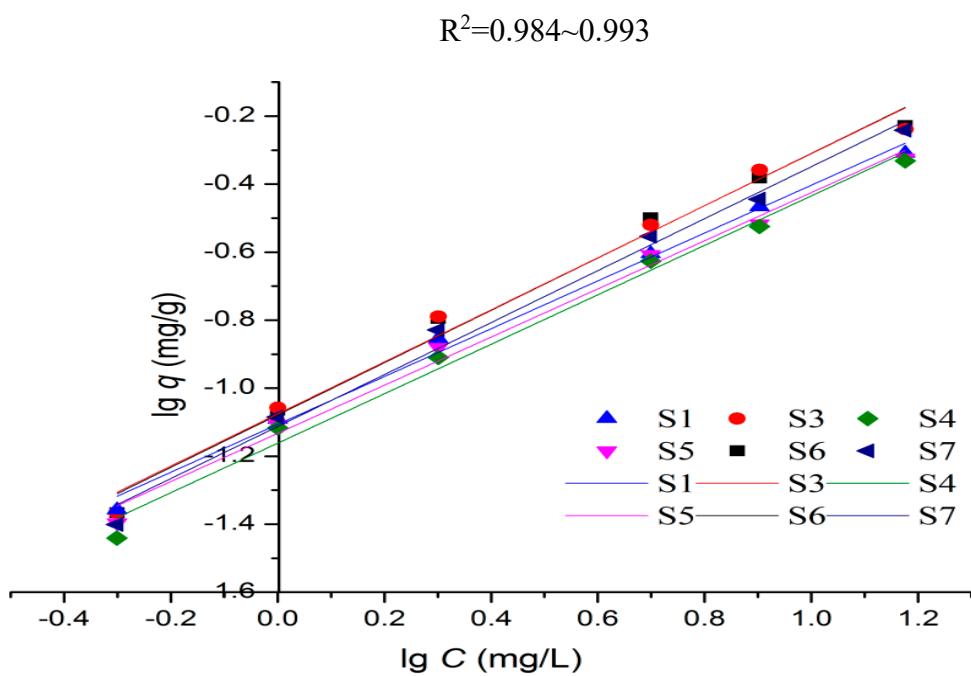
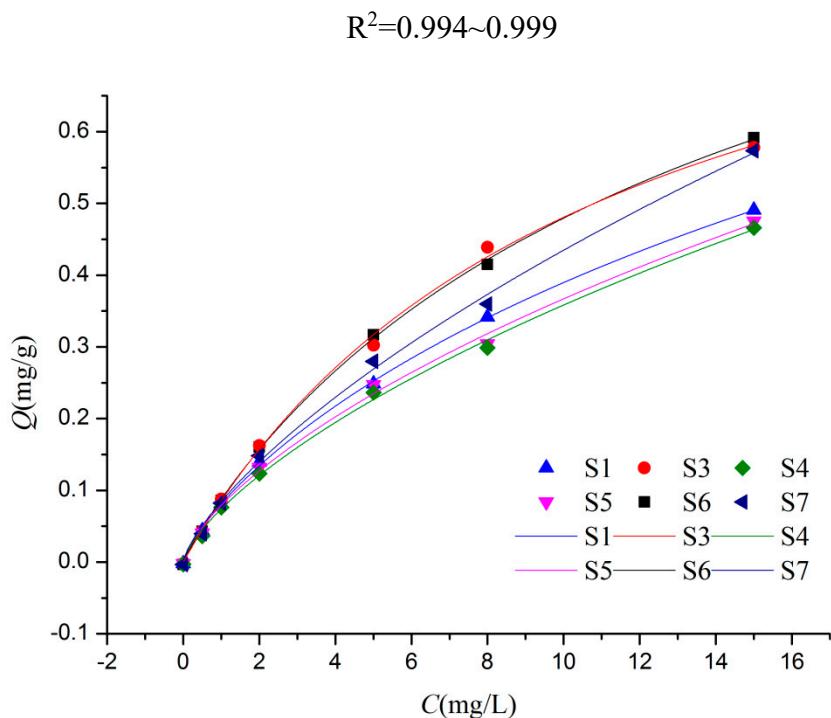


Table S3 Relationships between environmental factors and phosphate adsorption isotherms of the sediments from Sanshiliujiao Lake

	Moisture											
	pH	content	LOI(550)	Fe/Al-P	Ca-P	IP	OP	TP	EPC ₀	NAP	Q _{max}	K
pH	1											
Moisture content		-.271	1									
LOI(550)	.470	.444	1									
Fe/Al-P	.200	.643	.474	1								
Ca-P	.437	.378	.812*	.291	1							
IP	-.065	.883*	.778	.657	.649	1						
OP	.405	.659	.734	.827*	.400	.735	1					
TP	.129	.854*	.762	.848*	.541	.935**	.913*	1				
EPC ₀	.702	-.354	.439	-.327	.666	-.076	-.073	-.150	1			
NAP	.616	-.339	.401	-.123	.724	-.026	-.125	-.101	.888*	1		
Q _{max}	.089	-.462	-.361	.216	-.252	-.415	-.264	-.283	-.172	.207	1	
K	.149	.691	.633	.243	.444	.683	.674	.662	.140	-.160	-.884*	1

*. p<0.05; **. p< 0.01

Figure S3: Characteristics of Bacillariophyta abundance over time in Sanshiliujiao Lake (S3 and S2 nearby)

