

Supporting Information

Measurement of dissolved reactive phosphorus using the diffusive gradients in thin films (DGT) technique with a high-capacity binding phase

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The following pages contain 7 figures and 1 table.

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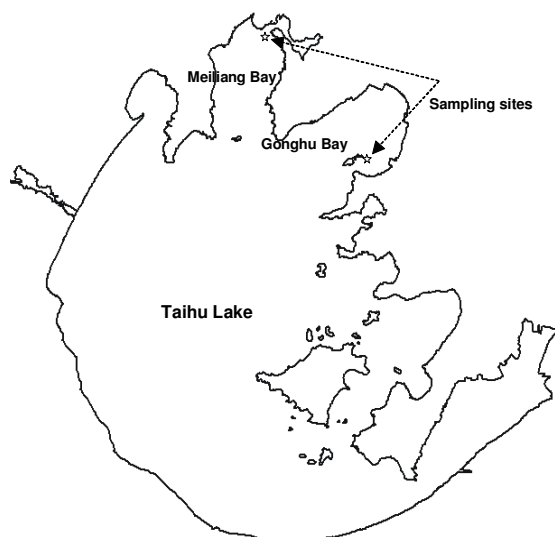


FIGURE S1. Locations of sampling sites in Lake Taihu.

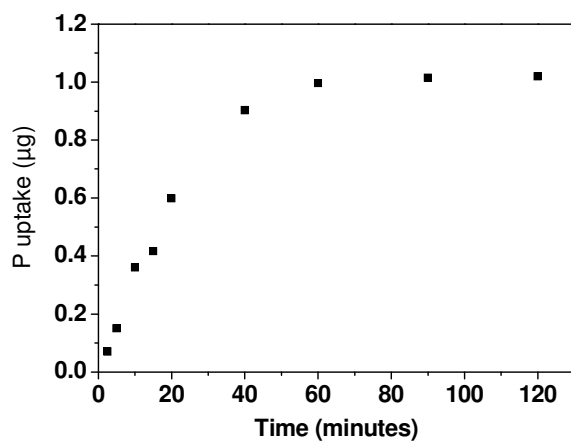


FIGURE S2. Uptake of P by the Zr-oxide gel as a function of time.

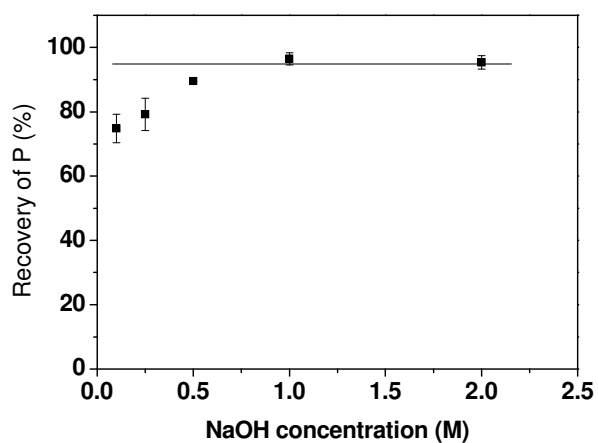


FIGURE S3. Recovery of P loaded on the Zr-oxide gel when treated with different concentrations of NaOH. The solid line shows the recovery rate of P at 95%. Values are means \pm SD of three replicates.

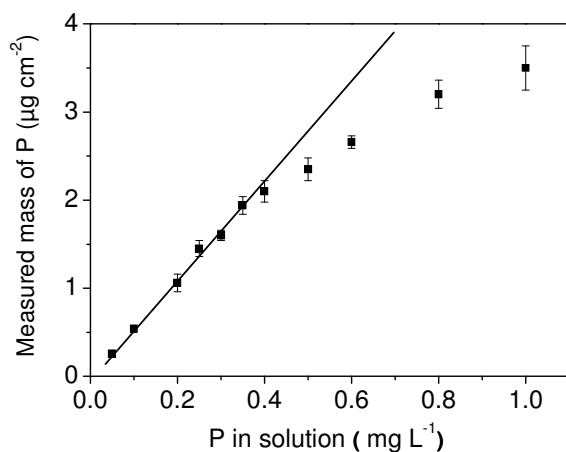


FIGURE S4. Relationship between accumulation mass of P in the Fe-oxide DGT devices and concentration of P in well-stirred solution at pH 7.0 and T = 25°C. The solid line is the theoretical response calculated using eq. 2.

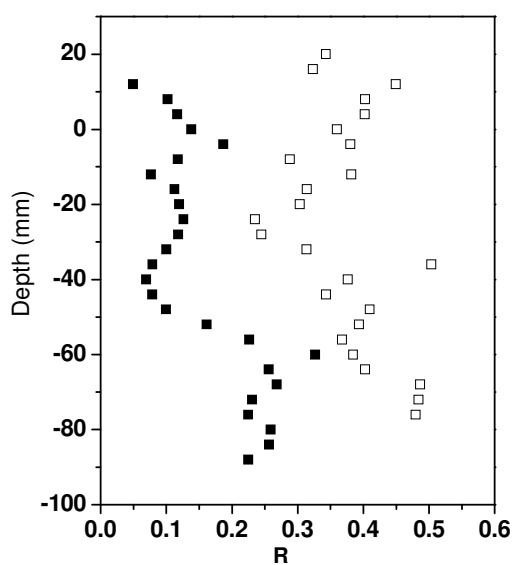


FIGURE S5. Variation of R with depth in the Meiliang Bay (filled square) and Gonghu Bay (open square), Lake Taihu. The R is the ratio of the DGT-measured to the true concentrations of DRP in the pore waters.

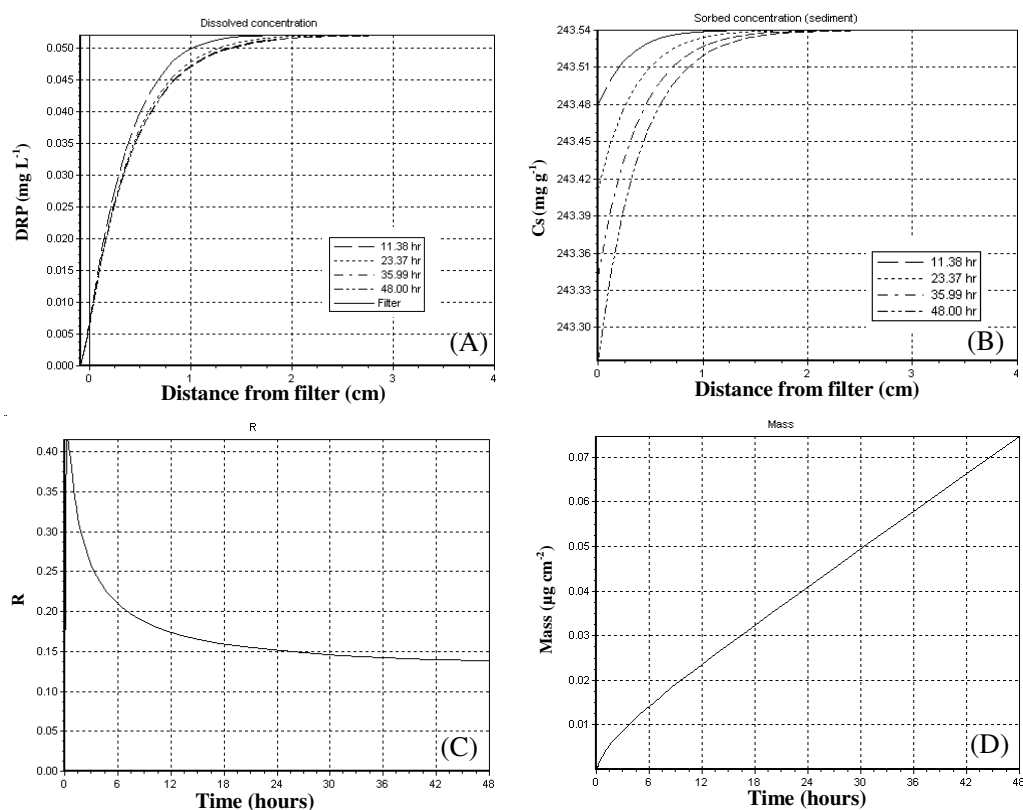


FIGURE S6. DIFS model output illustrating the resupply behavior (non-steady partially sustained) for surface sediment layer of Meiliang Bay in Lake Taihu, including the variation of the modeled concentrations of (A) dissolved reactive P (DRP) and (B) sediment exchangeable P (C_s) in the vicinity of the DGT, and the temporal variation of (C) the sediment reactivity coefficient, R , and (D) the accumulation mass of P.

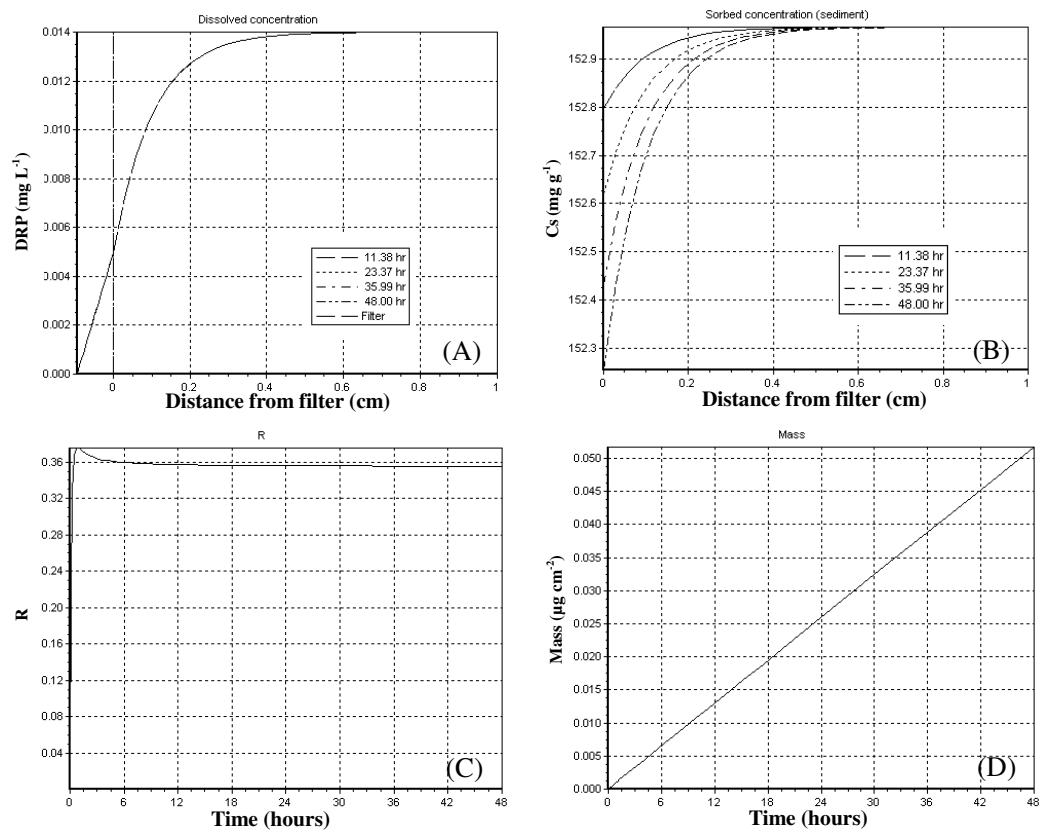


FIGURE S7. DIFS model output illustrating the resupply behavior (steady partially sustained) for surface sediment layer of Gonghu Bay in Lake Taihu, including the variation of the modeled concentrations of (A) dissolved reactive P (DRP) and (B) sediment exchangeable P (Cs) in the vicinity of the DGT, and the temporal variation of (C) the sediment reactivity coefficient, R , and (D) the accumulation mass of P.

TABEL S1 Input parameters for DIFS modeling ^a

Parameter	Meiliang Bay	Gonghu Bay
R	0.14	0.36
DRP (mg L ⁻¹)	0.052	0.014
K _d (cm ³ g ⁻¹)	4.68e03	1.09e04
P _c (g cm ⁻³)	0.59	0.80
D ₀ (cm ² s ⁻¹)	5.89e-06	5.89e-06
D _s (cm ² s ⁻¹)	4.18e-06	3.83e-06
φ	0.82	0.76
T (h)	48	48
Δg (cm)	0.093	0.093

^a Detail descriptions of each parameter in the reference (6).
