

Evaluation of the potential release risk of internal N and P from sediments – a preliminary study in two freshwater reservoirs in south China

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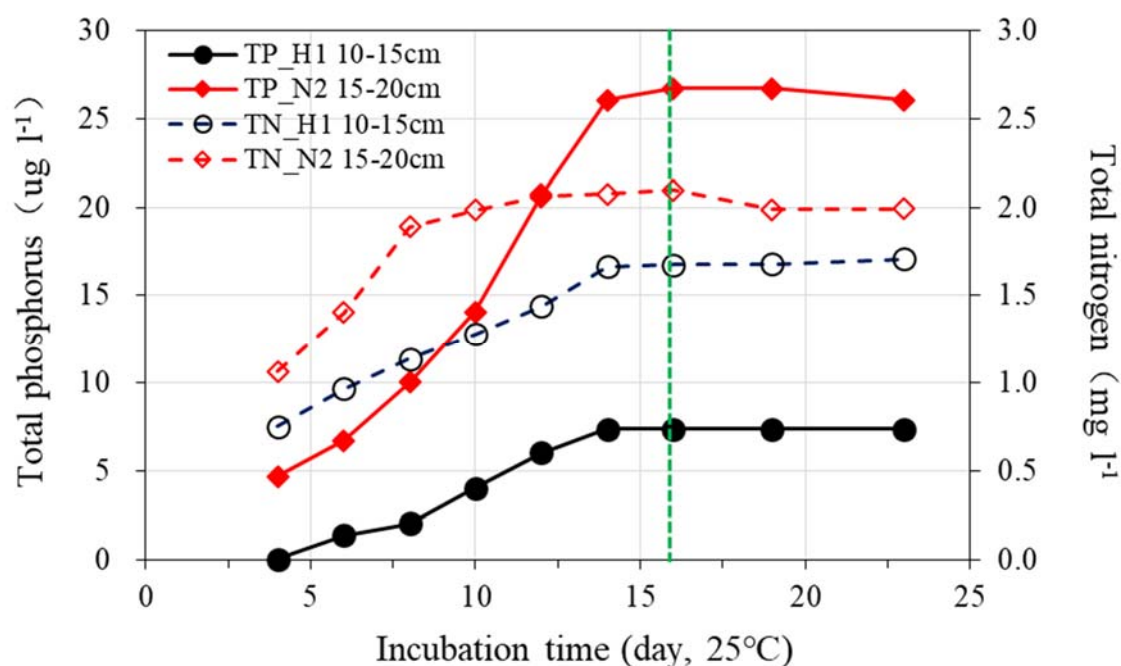


Figure S1. Releases dynamics of dissolved total phosphorus (TP) and total nitrogen (TN) during static incubation of sediments at 25°C. The two sediments used were randomly selected and were at 10-15 cm depth from site H1 in Hongchaojiang Reservoir and at 15-20 cm depth from site N2 in Niuweiling Reservoir, respectively. The detailed procedures were: (i) transfer 20.0g (dry weight) fresh sediment into a 1.5 L conical flask and add 1000 ml deionized water, then shake to homogeneous and place in dark at 25°C; (2) at intervals of 2 or 3 days, sample 8ml supernatant at 10 cm above the sediment surface and analyze for TN and TP concentrations after filtrated through 0.45 µm pre-rinsed filters. The releases of TP and TN were found equilibrated after 16 days of incubation (vertical dashed green line).

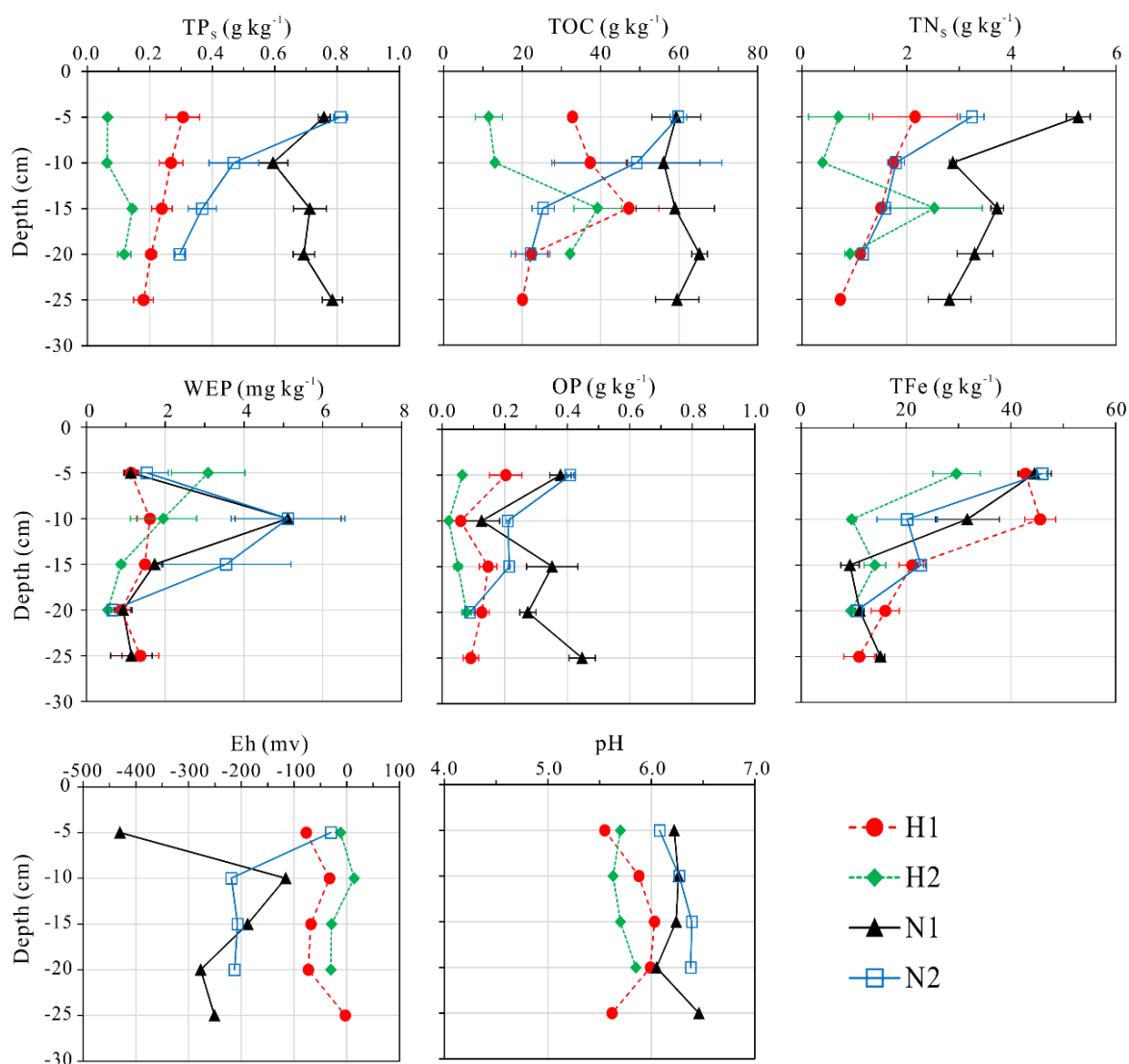


Figure S2. Physiochemical properties of sediment by depth at each sampling site (H1, H2, N1, and N2). Error bars are the standard deviation of triplicate analyses. TP_s: sediment total phosphorus; TOC: total organic carbon; TN_s: sediment total nitrogen; WEP: water-extractable phosphorus; OP: organic phosphorus; TFe: total iron; Eh: redox potential.

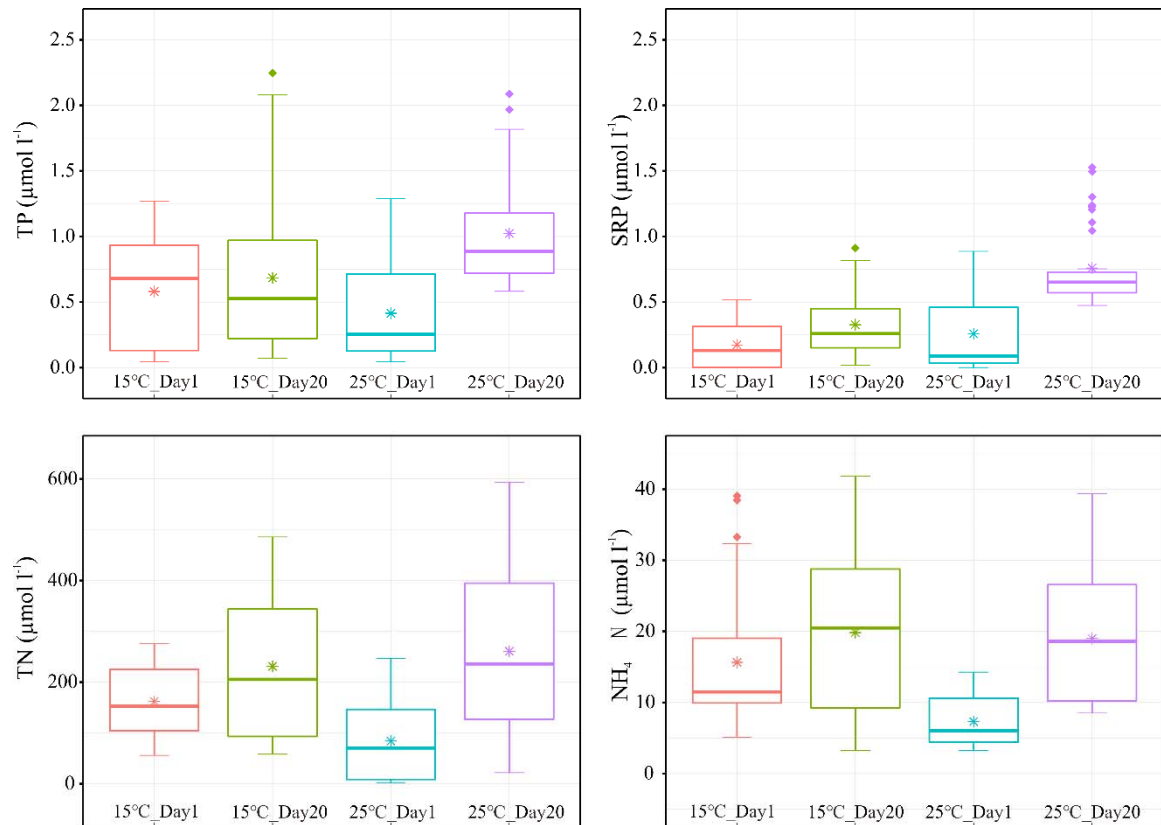


Figure S3. Concentrations of dissolved total P (TP), soluble reactive P (SRP), total N (TN), and ammonium (NH₄-N) in the overlying water from sediments incubated at 15°C and 25°C for 1 (Day1) and 20 days (Day20). The middle bar represents the median, while the asterisk in the box represents the mean. The lower and upper bars limit the 1st quartile (q0.25) and the 3rd quartile (q0.75), respectively. The lower and upper whiskers are, respectively, the 1st quartile minus 1.5 times the interquartile range and the 3rd quartile plus 1.5 times the interquartile range. Diamonds outside the box represent outliers that exceed the lower and upper whiskers of the box.