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**Dynamics of phosphorus-iron-sulfur at the sediment-water interface
influenced by algae blooms decomposition**

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Highlights

- *In-situ*, high resolution DGT techniques were employed to characterize the dynamics of P, Fe, and S at the sediment-water interface during algal decomposition;
 - A simultaneous release of P and S occurred from degraded algal, resulting in bidirectional diffusion fluxes to sediment and overlying water;
 - The sediment remained to be a major source of labile Fe to the overlying water.
 - The sources of Fe and S in formation of the black waters in eutrophic lakes were the sediment and the degraded algal, respectively
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