

# ASLO

Association for the  
Sciences of Limnology  
and Oceanography



[Home](#) [Members](#) [Libraries](#) [Publications](#) [Meetings](#) [Employment](#)

## Linking allochthonous dissolved organic matter and boreal lake sediment carbon sequestration: The role of light-mediated flocculation

von Wachenfeldt, Eddie, Sebastian Sobek, David Bastviken, Lars J. Tranvik

Limnol. Oceanogr., 53(6), 2008, 2416-2426 | DOI: 10.4319/lo.2008.53.6.2416

**ABSTRACT:** We measured flocculation of dissolved organic carbon (DOC) in the water from a hum lake (DOC = 14.9 mg C L<sup>-1</sup>) and from an adjacent mire (DOC = 25.7 mg C L<sup>-1</sup>), in in situ enclosure experiments with different light regimes. Light stimulated the formation of organic particles in both waters, and organic particle formation was observed at all incubation depths, even in the dark controls. Production of phytoplankton biomass was negligible, and allochthonous DOC was the most important precursor of the sinking particles. 8-22% and 25- 60% of the loss of DOC in lak and mire water, respectively, could be accounted for by flocculation. Depthintegrated flocculation based on the enclosure experiments was 14.7 mg C m<sup>-2</sup> d<sup>-1</sup>. Lake-water DOC concentration and water color has been increasing during the last decade, and sediment trap studies show that gross sedimentation of organic carbon also increased. Thus flocculation of allochthonous DOC, stimulated by light, constitutes a pathway for the sequestration of carbon in lake sediments.

### Article Links

[Download Full-text PDF](#)

[Return to Table of Contents](#)

### Please Note

Articles in L&O appear in PDF format. Open access articles may be freely downloaded by anyone. Other articles are available for download to subscribers only, or may be purchased for \$10 per article. All L&O articles