


**Proposed Special Issue of *Limnology & Oceanography* on
"Cross-Margin Transport of Biogeochemically Important Materials in the Great Lakes"**

The NSF-Coastal Ocean Processes Program (<http://www.skiio.peachnet.edu/coop/coop.html>) and NOAAs-Coastal Ocean Program (<http://www.cop.noaa.gov/>) are conducting a jointly funded program to examine cross-margin transport. Both programs were funded through an NSF call for proposals in 1996 for approximately three years of fieldwork followed by two years of synthesis. The fieldwork efforts were completed last fall. We request consideration for a special issue of L&O with manuscripts to be submitted for review coincident with the 2002 Ocean Sciences Meeting, next February, when most of the PIs plan to report their results.

Reasons to support our request include:

- These are the only foreseeable NSF-CoOP programs in limnology. The other ongoing and planned programs are in coastal oceans. We feel that this special L&O issue will be a wonderful opportunity for large-lake limnologists to communicate with coastal oceanographers on common issues.
- We plan to dedicate the issue to Dr. Clifford Mortimer, Distinguished Emeritus Professor of Zoology, University of Wisconsin who has contributed deeply to our understanding of the Great Lakes, and whose L&O paper (Mortimer, 1988) was a major contribution to the planning for the EEGLE program. He will be 90 years old (Feb 27, 2001) and is still active in science.
- NSF-CoOP has agreed to financially support the special issue as the first from any CoOP program, and an example for other ongoing and future CoOP programs.

Mortimer, C.H. (1988). Discoveries and testible hypotheses arising from Coastal Zone Color Scanner imagery of southern Lake Michigan. *Limnol. Oceanogr.* 33(2) 203-226.



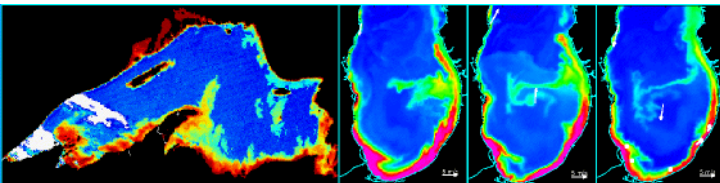
EEGLE The Impact of Episodic Events on the Nearshore-Offshore Transport and Transformation of Biogeochemically Important Materials in the Great Lakes
<http://www.glerl.noaa.gov/eeGLE/>

This program, also partially supported by NOAA-Great Lakes Environmental Research Lab and EPA-Great Lakes National Program Office, is examining the impacts of massive storm events in late winter-early spring on sediment resuspension and transport of particles and associated materials and on subsequent spring ecology in Lake Michigan.



KITES Keweenaw Interdisciplinary Transport Experiment in Superior <http://chmac2.chem.mtu.edu/KITES/kites.html>

The KITES project, partially supported by Michigan Technological Univ. and the Univ. of Minnesota, was designed to examine the transport of sediments, chemicals, water, and heat along and across the Keweenaw Current, a persistent coastal jet in Lake Superior.



The goal of these joint programs is to obtain a new level of quantitative understanding of the processes that dominate the transports, transformations and fates of biologically, chemically and geologically important matter on the continental margins.

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Potential Editors:

Keith Bedford (OSU) - sediment transport
Marie H. Bundy (PAS) - ecological
James Churchill (WHOI) – physical
James Cotner (U MN) – ecological
David Edgington (U WI)- biogeochemical
W. Charles Kerfoot (MTU) - ecological
Changsheng Chen (U GA) – physical
Henry Vanderploeg (GLERL) – ecological
Sarah A. Green (MTU) – biogeochemical

We will, of course, abide by all L&O editorial and review suggestions.

Potential submissions:

Physical

- Murthy R., M. McCormick, G. Miller and J. Saylor. "Circulation and coastal exchange characteristics during winter and northerly storm episodes in Southern Lake Michigan."
- Ralph E.A., H. J. Niebauer, J. Churchill, and K. Aagaard. "The climatology of the Keweenaw current."
- Schwab, D., P. Roebber, D. Beletsky and B.J. Eadie. "Climatology of resuspension events in Lake Michigan."
- Chen, C., K. Kang, E.A. Ralph, and J.W. Budd. "Seasonal Variation of Circulation and Transport in Lake Superior: A Lagrangian Model Exploration."
- Meadows, L.A., J.F. Vesecky, C.C. Teague and Y. Fernandez. "HF radar measurements of surface currents during episodic resuspension events in Lake Michigan."
- Schwab D. and D. Beletsky. "The physical mechanisms for offshore transport of bottom sediments during episodic resuspension events in Lake Michigan."

Biogeochemical

- Eadie, B.J., M.B. Lansing, A. Winkelman, and T. Johengen. "The importance of episodic events to mass and nutrient fluxes in the southern basin of Lake Michigan."
- Klump J.V., J.T. Waples, K. Orlandini and D. Edgington. "Short lived Th isotopes as tracers for alongshore and cross margin transport during episodic resuspension of coastal sediments."
- Harting, S., W.C. Kerfoot, and E. Brown. "Mercury from metal ores: Sediment profiles and inventories introduce a concern with global implications."
- Brown, E., Musielewicz, Agnich and D. Edgington. "Copper-rich mine tailings as a tracer of sediment transport in the Keweenaw Current of Lake Superior."
- Smith, G., B.J. Eadie, M.B. Lansing and K. Hornbuckle. "Persistent organic pollutants as tracers of resuspension of contaminated sediment and eroded coastal material."

Ecological

- Chen, C., X. Wang, R. Ji, D. Schwab, D. Beletsky, J.W. Budd, G. Fahnenstiel, H.A. Vanderploeg, B.J. Eadie, W.S. Gardner, J.B. Cotner, M.H. Bundy "Lower Trophic Level Food Dynamics in Lake Michigan: A Comparison between the 1998 and 1999 Plume Events."
- Lavrentyev P, P. Kovalcik, D. Hersha, W. S. Gardner. "The microbial food web during a major re-suspension event in Lake Michigan."
- Bundy, M.H., H.A. Vanderploeg, P.V. Lavrentyev, and P. Kovalcik. "The potential impacts of food web changes on mesozooplankton populations during late winter/early spring resuspension events in Lake Michigan."
- Chen, C., X. Wang, R. Ji: "Roles of the Light Inhibition in the growth of phytoplankton in Lake Michigan."

- Fahnenstiel, G., S.E. Lohrenz, O. Schofield and D.F. Millie. "The effect of the recurrent coastal plume on phytoplankton photosynthesis, growth and light absorption"
- Schofield, O., T. Bergmann, S.E. Lohrenz, G. Fahnenstiel, and D.F. Millie "Modeling the inherent optical properties in a coastal sediment plume: Impact of abiotic particles on ocean color remote sensing."
- Green, S.A., A. Vodacek, J.W. Budd. "Photon budgets in coastal Lake Superior."
- Julius M.L. and L.M. Goad. "Impact of episodic resuspension events on restructuring spring phytoplankton species composition."
- Kerfoot, W.C., X. Ma, and L. Weider. "Coastal corridor in southern Lake Superior: rapid zooplankton species replacements and evolution."
- Kerfoot, W.C., X. Ma, B.J. Eadie, and H. Vanderploeg. "Ecological importance of winter storms: *Daphnia* resting egg production, resuspension, and formation of "egg banks."
- Cotner, J.B., B.A. Biddanda, and T.H. Johengen. "Microbially mediated P-fluxes in Lake Michigan."
- Biddanda, B.A., T.H. Johengen and J.B. Cotner "Experimental evidence for intense heterotrophic production stimulated by riverine inputs and resuspended sediments: implications for Lake Michigan biogeochemistry."
- Gardner, W.S., J.F. Cavaletto, M. McCarthy, P.J. Lavrentyev, and B.J. Eadie. "Heterotrophic vs. autotrophic cycling of nitrogen in southern Lake Michigan during winter-spring, 1999-2000."
- Millie, D. F., Fahnenstiel, G. L., Lohrenz, S. E., & Schofield, O. Relating phytoplankton photosynthetic parameters and production to episodic sediment resuspension in southeastern Lake Michigan.
- H.A. Vanderploeg, T.H. Johengen, C. Chen, G.A. Lang, M.A. Agy, P. Lavrentyev, J.R. Liebig, S.A. Ruberg, and others. "Fronts and plumes as organizers of spatial distribution of nutrients and plankton in southern Lake Michigan"

Sediment Transport

- Churchill, J.H., A.J. Williams and E.A. Ralph. "What controls sediment resuspension and transport off Lake Superior's Keweenaw Peninsula."
- Bedford, K., V. Velissariou, and D. Welsh. "Age, Route and Fate of Sediments Transported Along- and Offshore During Episodic Events in Lake Michigan."
- Hawley, N. and B. Lesht "Field observations of episodic sediment resuspension in southern Lake Michigan."
- Robbins, J.A., B.J. Eadie, D. Edgington, N.R. Morehead and V. Klump. "Time scales for sediment focusing within the high depositional area of southern Lake Michigan: Insights from radionuclide studies."
- Budd, J.W., D.S. Warrington, A. Vodacek, and S. A. Green. "Material transport by the Keweenaw Current as viewed by remote sensing imagery."
- Kerfoot, W.C., S. Beske-Diehl, and E. Brown. "Episodic sloughing of shelf sediments: A simple hypothesis for the origin of paleo-redox zones."
- Budd, J.W., D.S. Warrington, W.C. Kerfoot, and R.P. Stumpf. "Ecosystem mosaics: Winter storms and spring trophic pulses."