

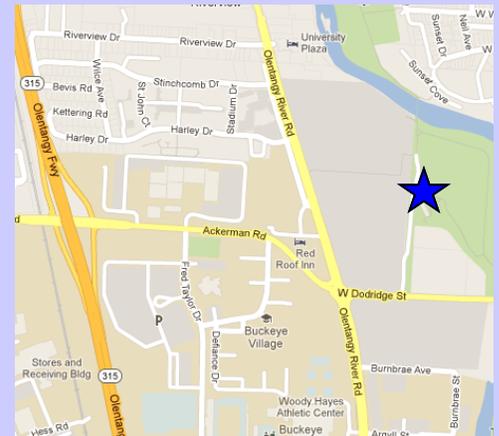
# A Water Luncheon Seminar



Presented by:  
The Water Management Association of Ohio  
and  
The Ohio Water Resources Center

**October 15, 2013; 11:30 a.m. - 1:00 p.m.**

Wilma H. Schiermeier Olentangy River Wetland  
Research Park, The Heffner Building  
352 Dodridge St. Columbus, OH 43202



## **Anthropogenic Unintended Consequences: Phosphorus and Alum in Grand Lake St. Marys, Ohio**

**Chad Hammerschmidt**, Department of Earth & Environmental Sciences,  
Wright State University; <http://www.wright.edu/ees/hammerschmidt/>

Grand Lake St. Marys was constructed in the 1840s to serve as a reservoir for the Miami and Erie Canal. Since then, but particularly during the past three decades, water quality in the lake has been deteriorated by inputs of phosphorus, which have resulted in toxic blooms of cyanobacteria. Our research shows that over 80% of the current-day phosphorus loadings to the lake are in watershed runoff that can be attributed mostly to agricultural operations. The remedy to eutrophication of Grand Lake is cessation of watershed inputs of phosphorus. In addition to watershed initiatives focused on reduction of agricultural nutrient inputs, the State applied about 2 million pounds of alum (aluminum sulfate) to the lake in 2011 in an attempt to remove phosphorus from the water column and mitigate fluxes from sediments. We found that the alum had little effect on phosphorus levels in lake water and that the aluminum and sulfate may negatively alter benthic communities.

**Please register by October 9, 2013.** Late or on-site registrations cost \$5 extra and are not guaranteed a meal. For registered engineers who need Professional Development Hours (PDHs), this presentation offers 1 PDH.

WMAO Member (\$10)  Nonmember (\$15)  Student (\$7) Special meal? \_\_\_\_\_

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Please send form and check to: WMAO-Luncheon, 8440 E. Washington St. #206, Chagrin Falls OH 44023.

OR, register online, with MasterCard, Visa, or Discover, at: [www.wmao.org](http://www.wmao.org).