**Session**

Mitigating Western Lake Erie Harmful Algal Blooms

**Title**

Using Linked Watershed-Lake Models to Evaluate the Environmental Benefits associated with 4R Nutrient Stewardship in the Western Lake Erie Basin

**Authors**

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**Abstract**

The Western Basin of Lake Erie (WLEB) is subject to high loadings of nutrients derived from tributary watersheds that are dominated by agricultural land uses. Over the past decade, harmful algal blooms (HABs) have become increasingly common in the WLEB as a result of excessive bioavailable phosphorus loadings delivered via spring and early summer storm runoff events in these watersheds. A multidisciplinary project team was formed to evaluate the impacts of the adoption of practices associated with 4R Nutrient Stewardship, an approach that can reduce nutrient losses from farm fields by using the “right” agricultural fertilizer application techniques. One objective of the project was to model the environmental benefits related to various levels of implementation of a 4R Certification Program. This presentation will describe the application of linked watershed-lake models to connect land management practices to WLEB nutrient loading and HABs. Activities consisted of: 1) use of edge-of-field monitoring to support the development and calibration of field scale SWAT models, 2) upscaling parameterization and 4R representation from field scale to watershed scale, and 3) linking SWAT watershed models to a linked hydrodynamic-sediment transport-eutrophication model for the WLEB, called Western Lake Erie Ecosystem Model (WLEEM).