



## UFZ-Seminar "Water and Environment"



26. September 2018, 11 a.m.

Seminar Room 1, Brückstr. 3a, Magdeburg

### Prof. George B. Arhonditsis

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will give a talk on:

#### **Development of an integrated modelling framework to guide adaptive management implementation in lake Erie: castles built on sand or predictive limnology in action?**

Adaptive implementation (or "learning while doing") is often considered the only defensible environmental management strategy, as it promotes an iterative implementation process to deal with the uncertainty of ecological forecasts and to mitigate the impact of inefficient management plans. Environmental models are one of the pillars of the adaptive management process, whereby the initial forecasts of management actions are augmented with post-implementation monitoring and the resulting integration of monitoring and modelling provides the basis for revised management actions. In Lake Erie, a unique combination of data-driven and process-based models have been developed to evaluate the relationships among watershed physiography, land use patterns, and phosphorus loading, to elucidate ecological interactions, to understand the mechanisms underlying specific facets of the ecosystem functioning (cyanobacteria dominance, re-engineering of the nearshore zone induced by dreissenid mussels, Cladophora proliferation), and to predict the response of the lake to external nutrient loading reductions. Consistent with the scientific process of progressive learning, my talk offers a technical analysis to assist with the design of the next iteration of the modelling framework by identifying strengths and weaknesses of the existing work and pinpointing essential structural augmentations and research/monitoring priorities in order to integrate watershed and aquatic ecosystem processes.