

Salient Findings, Status, and Ongoing Activities

Steve Effler

Upstate Freshwater Institute,
Syracuse

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Salient Findings

1. External P loading

- importance of the bioavailability concept ($BAP_L = 0.25TP_L$)
- dominance of non-point inputs
- importance of interannual variations in runoff
- low bioavailability of PP, confounds application of TP guidance value on the shelf after runoff events



Salient Findings (Cont.)

2. Quagga Mussels

- dense population established by survey
- implications with respect to SRP cycling are substantial
 - a) hypothesis that high hypolimnetic SRP levels are attributable to mussels supported – multiple lines of evidence
 - b) major uncertainties in magnitude of excretion, system- specific insights forthcoming
 - c) noteworthy flux to phytoplankton community of epilimnion (mixing critical)
 - i. exchange with benthic areas – epilimnetic populations
 - ii. exchange across thermocline – hypolimnetic populations
- effects of metabolism will need to be represented in the water quality model
- other metabolic functions will need to be considered (e.g., filtration)



Quagga Mussels
(*Dreissena
rostriformis bugensis*)

Salient Findings

3. Two-Dimensional Hydrodynamic Transport Model
 - model set-up, including development of model inputs, is mostly completed
 - extensive testing has been successful to date, more underway
 - application to the mussel excretion issue, as a diagnostic tool to yield insights on processes, vertical transport to epilimnion supported
 - will serve as the transport sub-model of water quality model



Project Elements Status

- see Table 2 of QAPP

<u>Tasks</u>	<u>Timing</u>
QAPP	late 2012 – early 2013
monitoring program	spring 2013 – fall 2013
tributaries	
lake	
bioavailability bioassays (MTU)	fall 2013 – summer 2014
loading calculations	2014
limnological analyses	2014
2-D transport model	2014
testing	
applications	
phase I report	starting in fall 2014

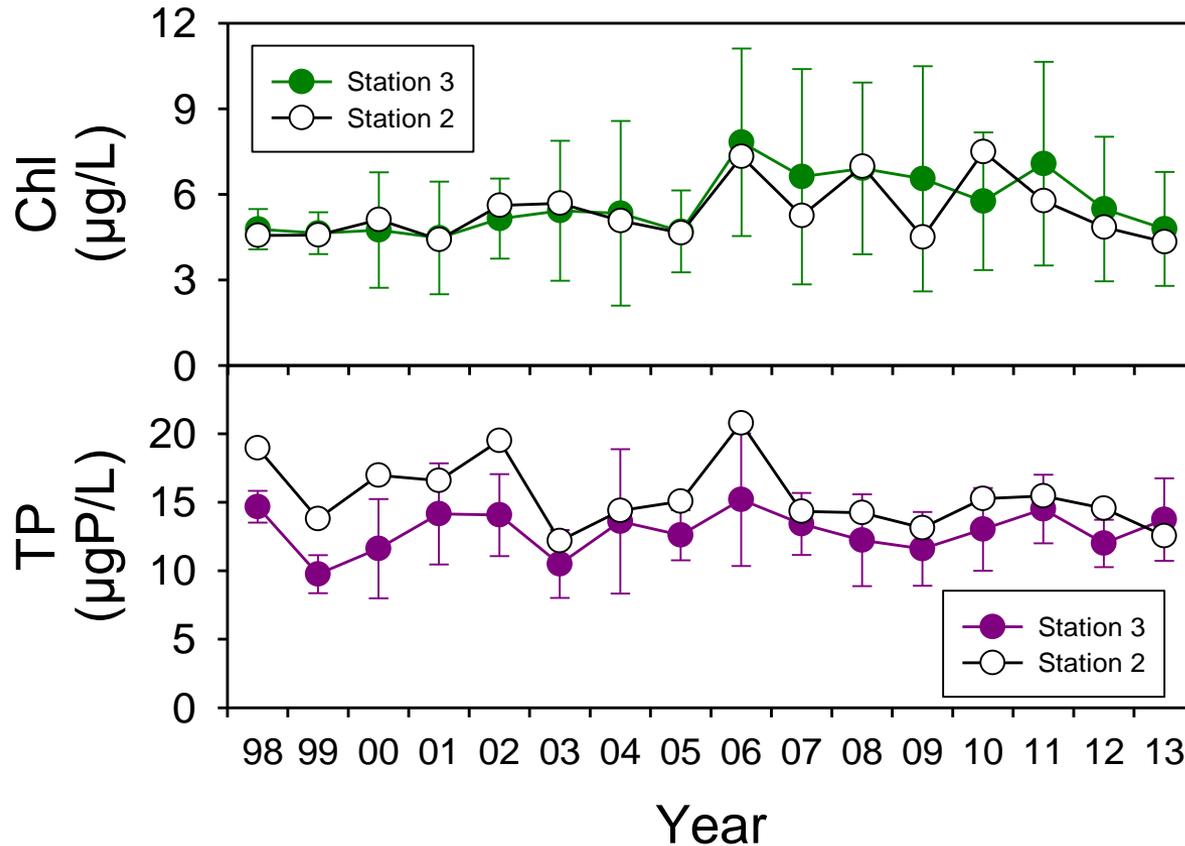
status: all work elements have proceeded according to the schedule, up to this point of the project

On-going Activities

1. completion of bioassays (~85%)
2. external loading calculations
 - P near-completion
 - other constituents (N, Si, SPM, etc.)
3. limnological analyses (underway)
 - particles
 - optical characteristics
 - nutrients
 - stoichiometry
 - metrics of phytoplankton biomass
4. 2-D transport model
 - additional testing
 - additional applications



Ongoing Data Analyses: An Example



- summer average values in upper waters, 1998-2013