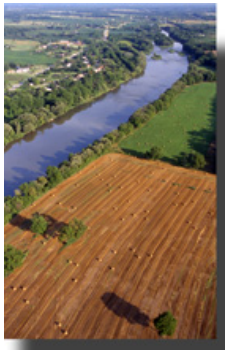
Aquatic Cumulative Effects Assessment in the Grand River Watershed – G. Tetreault

Collaboration between the Grand River Conservation Authority and researchers (UW, Western, UoG, WLU) and municipal, provincial and federal partners.

Goals:

1)To improve the scientific understanding of the relationships among the biological, physical, and chemical processes in the river.

2)Develop predictive tools to describe how biotic indicators will respond to changes or stressors in the watershed (e.g. population growth or climate change.

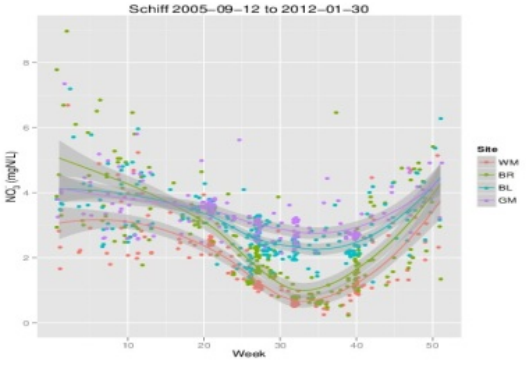


Project Outcomes :

1) Response of biotic indicators to changes in stressor across the watershed and determination of biotic endpoints that change across natural and anthropogenic stressor gradients.

- Nutrients/river metabolism: Linking nutrient inputs to measures of river metabolism of nutrients (lead-S. Schiff).
- Macroinvertebrates: Linking macroinvertebrate communities to key watershed pressures (landscape) and stressors (lead – A. Yates)
- Fish responses: Linking biological responses in fish to key stressors e.g. WWTP, agriculture, urbanization (lead – G. Tetreault and M. Servos)
- Identify mechanisms of action for key stressors e.g. PPCPs, ammonia, nitrate, hypoxia (lead G. Van Der Kraak).

2) Advance the ability to differentiate between natural and anthropogenic stressor gradients (All).



Long-term Consortium Goal

Develop predictive tools to describe how biotic indicators will respond to changes or stressors in the watershed (e.g. population growth) or climate variability.

- Ability to differentiate between natural and anthropogenic stressor gradients;
- Linking water chemistry, nutrients , benthos and fish responses to key stressors (WWTP, agriculture, urbanization)
- Identify mechanisms of action for key stressors (PPCPs, NH_4^+a, NO_3^-, O_2, T^o)
- Development of a regional biomonitoring framework