Missisquoi Basin Research Workshop August 13, 2013 9:30 AM – 4:00 PM

*Missisquoi National Wildlife Refuge, 29 Tabor Road, Swanton, VT 05488*

***Meeting Summary***

**GOALS of the day:**

1. Review and update participants on current/recent research in Missisquoi Bay and Watershed
2. Identify opportunities for collaboration among participants
3. Articulate future priorities for research and funding

9:30 **Welcome & Introductions**, overview of goals of the day, why we are here (Bill Howland, LCBP)

**9:45 – 12:00 Morning Session: Information Sharing - Recent and Current Research in Missisquoi Basin**

9:45 – 9:55 Recent Lake Champlain Basin Program funded research (Eric Howe, LCBP)

* Watershed-focused projects
	+ [Tracking NPS Phosphorus Pollution](http://www.lcbp.org/wp-content/uploads/2013/04/60-P-Accounting-2010.pdf) (UVM – PI:Watzin)
	+ [IJC/Critical Source Area Identification](http://www.lcbp.org/techreportPDF/63B_Missisquoi_CSA.pdf) (Stone Environmental – PI:Winchell)
	+ [Sediment loadings from streambank erosion](http://www.lcbp.org/wp-content/uploads/2013/04/72_MissisquoiBSTEMreport_December2012.pdf) (USDA-ARS – PI:Simon)
	+ Ag BMP implementation in a Rock River subwatershed (UVM Extension – PI:Darby)
* Bay-focused projects
	+ [Phosphorus mass-balance](http://www.lcbp.org/wp-content/uploads/2013/03/65_PhosphorusMassBalanceModel_MissisquoiBay_2012.pdf) (LimnoTech)

10:00 Speed-round presentations (3 minutes per project)

*Facilitated by: Bill Howland, LCBP*

* See [List of presenters](5.%20MBB%20Research%20List%20of%20Presenters.pdf), project titles, and email addresses.

**1:00 - 4:00 PM Afternoon session – Relationship Building, Moving toward Problem Solving & Planning**

1:00 Morning session wrap-up and introduction of afternoon discussion

*Facilitated by: Martin Mimeault, Québec MDDEFP*

* The large group identified four focus areas they felt were important to discuss:
	+ Lake/Bay hydrodynamics and the need for an open-source model that can be built, used and updated within the Basin
	+ Drivers of cyanobacteria blooms and toxin production
	+ Phosphorus speciation and sourcing
	+ Lag time of responses from nutrient loading reductions from Best Management Practices
	+ One over-arching theme for everyone to consider was the need for improved data and technology sharing; each focus group was charged with discussing this aspect of their subject area, and ways to address this problem

1:30-2:30 Focus group discussions

*Each group should:*

1. Identify a note-taker
2. Identify spokesperson to report out later
3. Agree on or clarify the topic for discussion (if needed)
4. Explore questions generated during morning session
5. Outcome: Create “plus delta” to report out:
	* what is going well in this research topic – includes breadth and depth of coverage, utility of findings, extent to which findings are being applied in management
	* what can be improved – includes opportunities for further research, to increase application in management, for collaborative efforts/initiatives

2:30-3:15 Small group reports

*Facilitated by: Eric Howe, LCBP*

* **Lake/Bay hydrodynamics** and the need for an open-source model that can be built, used and updated within the Basin
	+ A hydrodynamic model of the lake would be extremely useful. There have been some models developed to-date, but have been created by contractors outside of Basin and are generally not accessible (e.g. need to re-hire contractor to update/access the model). A single model for all of Missisquoi Bay (ignores political boundaries), or lake-wide is needed. Ideally this model would be an open-source model, and there would be trained operators within the Basin who can maintain the model over the long-term to test different scenarios.
	+ The model would incorporate sediment transport and biogeochemistry
	+ The model could help link many aspects of Missisquoi Basin research – including cyanobacteria and watershed models
* **Drivers of cyanobacteria blooms and toxin production**
	+ There are many monitoring programs in place for Missisquoi Bay; need to find ways for these programs to better collaborate, including sharing of data, coordination of current and existing research and monitoring programs, including coordination of data collection during satellite fly-overs.
	+ Also a need for coordination of sampling methods among programs with similar objectives for apple to apple comparison of data
	+ Need to understand drivers and time lag for environmental conditions on BGA bloom events
	+ A secure website that would allow collaborators to share/access data would be useful
* **Lag time of responses from nutrient loading reductions from Best Management Practices**
	+ Lag times are related to not targeting P at the source (feeds, etc.), site specific issues, speciation, and distance to waterway
	+ Models needed to identify worst-case scenarios, including factoring in climate change and existing datasets
	+ Future research would include Bayesian features in models for CSA/SWAT modeling, better IRDA/VT collaboration
	+ NRCS BMP design standards need to incorporate updated climate data for the region
* **Phosphorus speciation and sourcing**
	+ Not enough people for this group; no specific discussion on this topic.
* **Full group discussion:**
	+ Opportunities for data sharing would be extremely useful – especially if organized by type (nutrient, biological, hydro). Could list contact person(s) for these data sources
	+ Initiation of a transboundary research project, as well as harmonization of methods and models
	+ Future meetings:
		- May/June better timing for academic calendars and summer vacation schedules
		- Scope of today’s meeting was good; might be worth broadening scope of next meeting to include more biology research

Adjourn