

**Lake Champlain Basin Program
Technical Advisory Committee meeting
Wednesday, October 3, 2018, 10 AM – 3:00 PM**

TAC meeting summary

Attendees: Neil Kamman, Jamie Shanley, Bernie Pientka, Curt Gervich, James Jutras, Bryan Dore, Mindy Morales-Williams, Jennifer Callahan, Angela Shambaugh, Bridget O'Brien, Fred Dunlap, Breck Bowden, Steven Kramer, Ryan Davies, Eric Perkins, Laura DiPietro (phone), Andrew Schroth (phone), Bill Ardren (phone)

Staff: Matthew Vaughan (LCBP), Bethany Sargent (VTDEC), Ellen Kujawa (LCBP)

Updates, announcements, and public comments

- Jamie Shanley: Happy new water year. No issues with tributary gage funding and logistics as a new year of study starts.
- Steve Kramer: We are now operating three gages upstream of the Little Chazy gage.
- Curt Gervich: IJC Lake Champlain – Richelieu River project has three days of technical meetings next week. Much of the time of these meetings will be for planning for the study's public meetings in November. Before these public meetings, the study will be hosting some targeted meetings for planners and elected officials in the Basin. Public forums will be held on November 7, 8, and 9.
- Breck: Matt Vaughan will be defending his PhD dissertation on October 19th at 1 PM. Matt will send out an abstract and announcement.
- Bill Ardren: We are beginning to see salmon return to the Winooski River this year. There's a new radio component to this project that will track 32 fish with radio tagging to better understand spawning patterns.
- Fred Dunlap: Fishhook waterflea has been confirmed as a new invasive species in Lake Champlain. The fishhook waterflea are currently following a similar pattern to the spiny waterflea invasion with initial high densities.
- Angela: Lakes and Ponds Program will be participating in a national ITRC team project focused on management of cyanobacteria. Angela will be one of 2 co-leads. The final products are intended to assist states and other managers identify appropriate cyanobacteria management strategies.
https://www.itrcweb.org/Documents/TeamResources_OutreachMaterials/2018-Team-Descriptions-6-25-2018.pdf This project will get underway in January.
- Neil: the Winooski River Tactical Basin Plan is currently in progress – this will scale down the VT TMDL to a more manageable and actionable scale. The TMDL requires that this effort be completed by the end of the year. A draft plan and public meeting schedule is linked on the VTDEC Basin 8 webpage.

Review and approve summary of September TAC meeting

- Bill Ardren: suggest more emphasis on the TAC working group to discuss the funding process and relationship with Steering Committee.
 - Matt sent out an email asking for TAC participation to this committee – several TAC members volunteered and any are welcome. Bethany would like to be added to this list.
- Jamie Shanley: I was not in attendance and should be removed from the minutes.

- Breck moves to approve the meeting summary with suggested revisions. Ryan Davies seconds. Motion is carried.

LCBP updates, LCBP staff

- LCBP issued a press release on the fishhook waterflea invasion. The press release focused on aquatic invasive species spread prevention. Meg activated Rapid Response Task Force. No in-lake management steps were taken.
- LCBP hosted semi-annual USACE Invasive species leadership team meeting. The attendees reviewed the water chestnut management program, boat inspection and decontamination program, and the Champlain Canal barrier feasibility study.
- A coordinated effort is scheduled to conduct hydrilla survey in Connecticut river between NH, Vermont, Massachusetts, Connecticut. The survey has been postponed to next week.
- IJC flood study Technical Working Group meetings coming up next week on October 10-12
- State of the Lake meetings public meetings and presentations will be held in Rutland, St. Albans, and Burlington (tonight)
- Status of current RFPs:
 - Local Implementation Grants (currently open)
 - Request for technical pre-proposals to implement Opportunities for Action (currently open)
 - Enhanced BMP grants (going out soon)
 - Rock River geomorphic assessment project (closed, ROD will be on November agenda)
- LCBP will co-host NALMS in Burlington on November 11-15, 2019. LCBP team members are serving on host committee.
- Long-term Monitoring Program workshop will be held at the LCBP office on October 9, 1pm - 4pm.
- LCBP technical team has drafted a TAC feedback form to standardize comments from TAC and provide useful feedback to workplan and final report presenters. TAC will be testing this today.

Update: VTDEC/LCBP RFPs, Bethany Sargent (VTDEC, LCBP)

- Bethany: The BMP Challenge RFP will be released today and will close November 29th. The municipal stormwater RFP will be released on October 5th and will close at the end of October. The wastewater treatment facility optimization project RFP will be released on October 8th and will close at the end of the month. Two more upcoming RFPs are in draft form and will be released in the next few weeks.
 - Neil: Next month, TAC will review another wastewater treatment optimization project. Bob Fischer for the City of South Burlington and Jessica Bulova from VTDEC will be present to provide additional information and answer any questions from TAC.

Update and brief discussion: Vermont ANR FY19 Lake Champlain phosphorus TMDL initiatives, Bethany Sargent (VTDEC, LCBP)

- This list has not yet been finalized by the state and may be available to TAC in November.

Final report presentation: Technical assistance in wastewater treatment facility asset management final report, Carrie Dooley (MJ Engineering)

- Carrie Dooley presented the final report for MJ Engineering's *Technical Assistance in Wastewater Treatment Facility Asset Management* project. This final report was approved by a TAC subcommittee. This project provided asset management resources such as maintenance and replacement schedules and specialized software to track equipment upkeep. MJ Engineering worked with 13 facilities in New York and Vermont.
- James: Did you get substantial buy-in for maintenance from the WWTFs involved?
 - Yes, probably. Operators seemed motivated to continue using this system. Implementation may be more difficult in small, one or two employee operations. Additionally, MJ Engineering plans to be on call for continued help and troubleshooting.
- Fred: We heard very positive feedback from one of the facilities in New York. They would also have liked to see collection systems and pump systems included in the optimization process. There are also additional facilities who would be interested in being part of any future optimization efforts.
- Steve: Is there any backup of these records and data?
 - Original tools are backed up on Chromebook and flash drive and are available at MJ Engineering's office.
- Breck: When this project was first awarded, I assumed that a similar program already existed. The reports you provided are very impressive and I can imagine very useful to WWTF operators. How did the operators feel about the maintenance timelines you provided?
 - The biggest challenge that operators conveyed to us was convincing town and village boards to appropriate funds to WWTF updates and upgrades. The maintenance schedules we provided may actually be helpful in convincing municipal boards that funds for maintenance are necessary.

Phase 1 final report and phase 2 workplan review: Tool to optimize farm-scale phosphorus management and achieve watershed-scale loading targets, Mike Winchell (Stone Environmental)

- Mike Winchell and Barb Patterson presented an update to Stone Environmental's *Tool to optimize farm-scale phosphorus management and achieve watershed-scale loading targets* project. This included the presentation of the phase 1 final report and the phase 2 workplan. The project aims to provide an online tool for farmers and technicians to model on-farm BMPs and relate these improvements to watershed phosphorus TMDL goals. Phase 1 was a pilot and proof-of-concept project, and phase 2 improves and expands the tool to the entire Vermont portion of the Lake Champlain Basin.
- Breck: How do you approach the issue of additional phosphorus reduction strategies that may be more effective than the ones proposed by the model?
 - Mike: You can change the reduction percentage from 35% to other parameters – for example, a 50% proposed reduction may cause the model to put forth different, more effective strategies.
- Laura DiPietro: If possible, allowing the tool to recommend buffer strips and grassed waterways even in the third or fourth iteration would be very helpful.
 - Mike: Agreed. Our plan for the next phase of the project will allow farmers to exclude or include individual measures.
 - Laura: I also recommend coordinating work on this project with Quebec, as farms on either side of the border use very different P loading rates. If possible, the TAC should have a further discussion on this topic at some point. In addition, I'd

suggest including a note in the final report and workplan on confidentiality. Farmers and other tool users will find privacy to be an important issue.

- Breck: There's no mention of the cost of implementation of the measures the model proposes. Why did you choose not to include this, and how did farmers react?
 - Mike: We received the feedback that farmers would likely already be aware of these costs for their individual farms.
- Angela: If farmers determine that all ten proposed options are not cost effective, will the model be able to propose additional measures?
 - Mike: We hope that by adding the option for farmers to exclude certain types of measures, they'll be able to look only at the measures that will be cost effective.
- Jenn: When we looked at stormwater optimization, we found that this sort of tool worked well at a broad scale worked well, but at a small-scale, individuals wanted more customization. That would be helpful in a further iteration of this P optimization tool.
- Eric: In the optimization process, you describe the different rounds of BMP installations that could be used to reduce phosphorus to a certain threshold. In VT, riparian buffers are required already. Was that the type of buffer used? When a certain BMP is required, could it be moved up the list of options?
 - Mike: These were vegetated buffer strips, not necessarily riparian buffers. But it may be an important integration to include state-required measures.
- Curt: How frequently does the model return results that are unexpected?
 - Mike: Typically, the model returns reasonable practices, but the unexpected aspect is typically in "how much is enough". This varies depending on many individual factors and can cause unexpected outputs.
- Motion to approve the phase 1 final report by Breck Bowden, second by Bernie Pientka. Motion is carried. Bridget O'Brien abstains.
- Motion to approve the phase 2 workplan by Jen Callahan, second by James Jutras. Motion is carried. Bridget O'Brien abstains.

Workplan review: Evaluating floodplain potential for sediment and nutrient retention: Development of a framework to assist in Lake Champlain Basin planning, Rebecca Diehl and Beverley Wemple (UVM)

- Rebecca Diehl presented the workplan for the *Evaluating floodplain potential for sediment and nutrient retention* project. This project aims to quantify the current function of floodplains in the Lake Champlain Basin to retain sediment and phosphorus, and to assess their potential to do so following restoration and reconnection. The difference between these two metrics will guide prioritization and planning for floodplain restoration.
- Eric: Would the collected data allow for analysis of retention by floodplains that are not currently connected, but could be?
 - Rebecca: Yes, that's the plan, particularly as we'll be analyzing major flood events, such as 100-year floods.
- Matt: What's the spatial resolution of the modeling?
 - Rebecca: At the moment, planning to analyze at NHD+ reaches. The approach we're using does not use channel cross-sections and therefore the modeling we'll use will have some built-in uncertainty. We expect about 5% "fudge factor" and will plan to test whether this is a significant cause of change.
- Breck: I am concerned about the connection of environmental control variables with retention rates. What is the backup plan if you are not able to find relationships as neat and significant as you hope?
 - Rebecca: Even if we're unable to come up with statistically significant relationships, the information we collect will still be important and useful.

- Jamie: Are there opportunities in urban areas in this type of study?
 - Rebecca: Ideally, we'll get land cover data that will span all land uses, including urban areas.
- Neil: How will you be conducting the phosphorus extraction aspects?
 - Rebecca: Don Ross's lab will be in charge of the phosphorus extraction.
- Angela: It seems to me that the single developed retention rate will vary depending on the flood event.
 - Rebecca: That's right. Each flood event can have very different characteristics and we hope to include some of these characteristics within the model.
- Motion to approve workplan by Jenn, seconded by Angela. All in favor, motion is carried. Bridget O'Brien, Breck Bowden, and Mindy Morales-Williams abstain.

Update and presentation: ACAP update and Flower Brook project, Hilary Solomon
(Poultney-Mettowee NRCDC)

- Hilary Solomon presented on PMNRCDC's ACAP5 and Flower Brook projects.
- The ACAP5 project has successfully implemented several on-farm practices, such as cover crops, low/no-till, livestock exclusions, forested riparian buffers, and manure storage improvements. Between 2011 and 2018, 350 practices were implemented on 118 farms.
- The Flower Brook Landscape Assessment project aimed to reduce phosphorus loading to Lake Champlain by mapping phosphorus sinks and sources in the Flower Brook catchment, prioritizing potential projects, and implementing one of the prioritized projects. Several GIS databases were compiled and mapped in useful ways to better understand how phosphorus losses could be reduced.