

**Lake Champlain Basin Program  
Technical Advisory Committee meeting  
Wednesday, April 3, 2019, 10:00 AM – 2:00 PM**

**TAC meeting summary**

**Attendees:** Neil Kamman, Leigh Walrath, Fred Dunlap, Andrew Schroth, Mark Malchoff, Breck Bowden, Jennifer Callahan, Angela Shambaugh, Bernie Pientka, Eric Smeltzer, Jamie Shanley, Bridget O'Brien, Mindy Morales-Williams, Stefanos Bitzikidis, Bryan Dore (phone), Ryan Cunningham (phone), Dennis DeWeese (phone), James Jutras (phone)

**Guests:** Mike Kelley (IBM research), Amanda Holland (CCRPC, phone), Dan Albrecht (CCRPC, phone)

**Staff:** Meg Modley, Lauren Jenness, Matthew Vaughan, Ellen Kujawa

**Updates, announcements, and public comments**

- Andrew: Asim Zia sent out a draft manuscript to members of the BREE PTAC on Missisquoi Bay water quality; we would appreciate any feedback on this paper.
- Dennis DeWeese: NY NRCS anticipates holding an edge-of-field monitoring signup in the near future.
- Neil Kamman: VT Senate Bill 96 would essentially front-load the implementation of non-regulatory work (non-required practices will be prioritized for funding) and require states to develop modeling estimates for nutrient reduction from BMPs. Funds would move to regional entities who would be responsible for implementing high priority projects in the region. The state will be assigning reduction requirements to regional entities, with the intention of meeting Act 64 goals.

**Review and approve summary of previous TAC meeting**

- Leigh moves to approve the March meeting summary with minor discussed changes, Angela Shambaugh seconds. All in favor; motion is carried.

**LCBP updates, LCBP staff**

- LCBP FY19 budget will be finalized at the Lake Champlain Steering Committee meeting on April 9-10 in QC.
- IJC LCRR project continues to progress; the Study Board is meeting next month and the Public Advisory Group in May. The study co-managers will present an update to the LCBP Steering Committee in June.
- IJC WQ is beginning to wrap up: a draft report is nearly complete, and the IJC will be co-hosting a science and policy workshop with the BREE project to review the report and craft recommendations on May 8<sup>th</sup>. TAC members are welcome; please let Ellen know if you are interested in attending.
- NALMS meeting will be held in Burlington in November; the call for abstracts is currently open.
- New York and Vermont have collaborated to develop a new offload point for water chestnut harvest spoils in the South Lake.
- The 2018 Boat Launch Steward program summary is now available: 12 stewards (including two in QC) surveyed nearly 13,000 boats and 27,000 people, and intercepted over 600 invasive species. Now gearing up for the 2019 season, and looking for approval to implement more high-pressure hot water decontamination stations.
  - Fred: AWI at Paul Smith's College is still searching for stewards; if you're aware of qualified individuals, please let them know.

- Neil: The LCBP E&O committee has been discussing another economic study of Lake Champlain's importance in the region; this will likely be in collaborating with TAC.

### **Boat Launch Steward Program update**

Meg Modley provided a brief program update for the Boat Launch Steward Program. During the 2018 season, 12,964 boats were surveyed, including 26,808 boaters. 609 invasive species specimens were intercepted. Survey results show that 89.3% of boaters took invasive species spread prevention measures.

### **Discussion: FY19 budget development process**

- Matthew Vaughan provided a brief overview of the FY19 technical budget development process. The goal of this discussion is to gather feedback from the TAC and to see how this process can be improved in the future.
- Bernie: The bonus points in our scoring are difficult. There are differences between reviewers and this inconsistency may make total scores difficult. I suggest limiting the amount that a bonus point can change a project's score – there should be an aspect of scoring based on those priorities, but not as big an effect. Perhaps if any priorities are covered, one point is allowed, rather than a point per priority.
- Jamie: The priorities were also too similar. Fewer might help, or Bernie's idea of one point if any priorities are addressed.
- Neil: One intention of mine as TAC chair is to develop and harmonize the relationship between the TAC and the Steering Committee; discussion of these priorities may be a good starting point for discussion.
- Leigh: I didn't understand when I was scoring that there would be a multiplier – clearer information here would be useful.
- Bridget: Addressing priorities should be a binary option – either you are addressing the priority, or not. Perhaps Matt can assign these bonus points.
- Bernie: It seems to me that the strength of proposals has increased in recent years.

### **Review: Lake Champlain tributary nutrient, chloride, and sediment loading report, Matthew Vaughan (LCBP)**

- Matt presented the results of the tributary loading and trends analysis. This covers Long-term Monitoring Program data from 1990 – 2017.
- Steve Kramer: I noted that you included winter in your analysis. This is critical, particularly in the late spring in tile drain systems. The Little Chazy river seems to be a good case study of "what did you do right"? Something is going right there. Does your model account for sub-surface loss of water?
  - Matt: This model does not account for sub-surface water specifically. All we're really able to look at is what is "passing through the gate" near the mouth of the river. In response to the winter and tile drains aspect of your question, I agree that these data are critical. We're able to take the best data we have available, from shoulder seasons, and apply it to data we are missing.
- Eric Perkins: Does the break point have to be at the halfway mark? If we were able to pick a handful of sub-watersheds and look at a point in time when management agencies put in significant resources, and we assigned that time as the "break point", would we see any differences?
  - Matt: We could do that, though there needs to be enough data in each data half (at least 10 years).
  - Breck: And the break point could be different for different rivers?

- Matt: Yes, and you'll see in the report that certain rivers differ somewhat based on data availability and management.
- Andrew: Is there enough data for this analysis in St. Albans?
  - Matt: Unfortunately, not yet. The record simply isn't long enough. We can estimate loads, but we can't examine trends or accurately produce flow-normalized data.
- Eric Perkins: I was looking at the recent Lake Erie tributary trends report. They note that 1/3 of the increase was due to increased discharge, and 2/3 due to concentration. Could we do this analysis for Lake Champlain?
  - Matt: This is a planned next step. The assumption in this version of our model is that discharge is stationary, but this is not necessarily true. A recent update to this model and method allows you to look at trends in both water and water quality.
- Neil: Much of this report suggested to me the importance of roads, and I have another possible future analysis: by watershed, compute the net ratio of total road length to total stream length, multiplied by the length of roads that are hydrologically connected, and explore differences between sub-watersheds. Perhaps the roads and their condition are not the problem, rather that there is more water.
- Mark: It seems to me that there's an acid rain decline component to the decreases in nitrogen, possibly also wastewater. What else is happening here?
  - Angela: Atmospheric nitrogen deposition has decreased.
  - Neil: Wastewater removal of nitrogen has improved. This is because facilities that have generally upgraded their treatment systems to more modern technology, supporting better treatment capacity in addition to P removal. Also, winter is shorter, so the period of high nitrogen release from wastewater is shorter as well.
- Neil: I suggest a closer look at the Lewis Creek tributary. It's surprising to me that there's an increase in Lewis Creek, given all the conservation work in that area.
  - Bernie: There has been significant development in that region.
- Jamie: Did you look at trends in discharge?
  - Matt: I estimated mean annual discharge and determined non-parametric trend probabilities. I did not include them because the focus of the report is on water quality, though discharge may be a reasonable thing to add to this report.
- Jamie: Have you summed everything up to look at a total input to the Lake?
  - Matt: These 18 tributaries do not include all inputs to the Lake, so I did not report aggregate loads.
- Angela: This is a really powerful analysis and represents opportunity to work on our communication to stakeholders.
- Breck: Could you add some information about the discharge trends?
  - Matt: I could include plots of the mean annual discharge, and could include simple time-series analysis of discharge.
- Breck: Motion to approve the report with additional work on mean discharge data. Angela seconds. Bernie amends that if this additional work becomes a significant challenge, the TAC would suggest adding it to next year's work. All in favor; motion is carried.

#### **Presentation: The Jefferson Project at Lake George: Advancing science and technology for ecosystem protection, *Mike Kelly (IBM)***

- Mike Kelly presented on the Jefferson Project at Lake George, a high-frequency data collection scheme in place on the Lake. Their equipment measures and stores several parameters at a frequency of 4 measurements per second, and aims to determine the

cause of water quality challenges such as cyanobacteria blooms. This technology has recently been deployed on Skaneateles Lake in NY to inform cyanobacteria management there.

- Matt: You mentioned modeling for future scenarios for climate change, management changes, etc. Do you have results on this effort?
  - Mike – We are almost there and people are working on it. The Fund for Lake George is extremely interested in this.
- Neil: How much does this project cost?
  - Mike- Although this is not my department, the project costs tens of millions of dollars. This is why the Skaneateles Lake project was important as a pilot program that costs the partnership a few hundred thousand dollars for half a season. If you were to go somewhere else where there was significant trained manpower it would be less.

#### **Update and presentation: Agriculture BMP multi-partner database, Judson Peck (VAAFM)**

- Judson Peck presented on the Agriculture BMP multi-partner database. This is an online geospatial database for the planning, tracking, and reporting of agriculture BMPs. This allows for central tracking of implementation across Vermont and differing organizations.
- Neil: I understand why NRCS cannot log their installations into the system. However, I don't think that precludes them from being noted as a farmer's partner on a project. Have you discussed this with the NRCS team?
  - Judson: The issue is with NRCS's privacy policy – they are not allowed to share who they are working with, unless the farmer has signed a waiver. This limits our information availability significantly.
  - Eric: We had previously discussed sharing this waiver with farmers when they are entered into the program, if they'd like to be publicly recognized.
- Neil: Is there a plan to retroactively load in what has been accomplished in the last few years?
  - Judson: Yes, currently we're going back three years to include BMP and FAP projects. We have good records of these projects so they're relatively easy to include. We're not accepting retroactive farmer information because there's no way to spot-check these past reports.
- Matt: What has the initial reception been to this program?
  - Judson: We've done three trainings, and partners seem to be excited to use it – particularly UVM Extension and district partners. Many of these partners are funded or co-funded through NRCS, so they will be limited somewhat in what they can include, and there's some frustration there.
- Eric Perkins: Part of this project is the export to the DEC's tracking system to calculate phosphorus reduction. NRCS BMPs are a big part of that effort – NRCS has figured out how to enter these data into the tracking system, which is a major strength.

#### **Presentation: Lake Carmi modeling and aeration project, Perry Thomas (VTDEC)**

- Perry Thomas presented on the Lake Carmi aeration project, including the multi-year process of identifying the problem, determining BMP feasibility, and selecting a contractor to install an in-lake aeration system.
- Mike Kelly: Is the expectation that mitigating internal loading will lead to reduced in-lake phosphorus concentration?

- Perry: I should be clear – we see this as a stop-gap measure to temporarily repair water quality in the Lake for stakeholders. Presumably, we'll eventually have to do another sort of intervention – likely alum.
- Bernie: I'd make sure when you go to the installation site that the surrounding camp owners are on board for the installation. Camps are quite close together and installation will likely impact many seasonal residents.
  - Perry: My understanding is that the resident owns his property, but I will double check that.
- Neil: Will the installations require a shoreline permit?
  - Perry: Yes, shoreline and lake encroachment. The Select Board plans to sign off on the lake encroachment permit.
- Leigh: How was the diffusion area calculated? How big is it?
  - Perry: The whole lake is around 1400 acres, and the diffuser will cover about 500 acres. The original design was to aerate the deep hole, though now that plan has changed to also include shallower diffusion.
- Andrew: Are you confident that this system will be turned on this year?
  - Perry: Yes – June 15<sup>th</sup>, give or take a few days.
- Leigh: Is there a no-anchoring zone planned near the diffusion?
  - Bernie: Possibly. There will be signs posted to inform boaters of the diffuser locations; probably we will cover lines with some natural stones to slightly insulate.
- Jamie: Am I correct in understanding that if the oxygen is above 2.5, the system will not be operating?
  - Perry: No, we plan to have the system operating more than that. Carmi stratifies quickly so constant operation will be important.