

**Lake Champlain Basin Program  
Technical Advisory Committee meeting  
April 2, 2025, 9:00 AM – 12:30 PM**

**Held remotely via Microsoft Teams**

**Approved TAC meeting summary**

**TAC Members:** Jennifer Callahan, Ryan Cunningham, Bryan Dore, Laurie Earley, Michele Fafette, Peter Isles, Neil Kamman, Steve Kramer, Margaret Murphy, Andrew Schroth, Jamie Shanley, Daniel Tremblay

**LCBP + Lake Champlain Staff:** Mae Kate Campbell, Eric Howe, Corrie Miller, Ryan Mitchell Meg Modley, Matthew Vaughan, Sonya Vogel, Sarah Coleman, Sarita Croce, Erin Vennie-Vollrath, Colette Ward, Theresa Vander Woode

**Guests:** Carol Adair, Luke Briccetti, Todd Chaudry, Liz Doran, Megan Duffy, Brian Greene, Alice Halloran, Tim Mihuc, Noah Weber, Lauren Weston, Maddie Winer

**1. Updates, announcements, public comments**

- Erin (NYSDEC): We've had a few staffing changes at the New York State Department of Environmental Conservation (NYSDEC). We welcomed a new acting commissioner, Amanda Lefton. Helen Polanco, who was the NYSDEC appointed TAC representative has left, so we will be looking to appoint a new representative soon.
- Laurie (USFWS): For the US Fish and Wildlife Service (USFWS), our sea lamprey control team is preparing for a treatment the 2<sup>nd</sup> week of May. We were unable to complete this last fall; we still have time on the permit so we are planning to move forward. On the funding front, we have 3 Bipartisan Infrastructure Law (BIL) projects that are still under review and are not moving forward at this time.
  - Neil: I understood from a couple of stakeholders they have grants that are still not open.
  - Laurie: Fish passage funds under BIL have been improved in some states where there has been litigation, but not in others.
  - Corrie: Is the NY Essex County project still on hold?
  - Laurie: The 3 BIL projects our office has are still under review.
- Bryan (EPA): The Environmental Protection Agency (EPA) Region 1 has announced a new regional administrator, whose first day was yesterday. Mark Sandborn from NH, most recently a senior administrator for the New Hampshire Department of Energy. He has served in the federal sector previously at U.S. Department of Housing and Urban Development, U.S. Department of Agriculture-Rural Development, and at the U.S. Department of Transportation.
- Neil (VTDEC): There is a bill that continues to move through the Vermont statehouse that would make some minor modifications to the 3 Acre Rule, allowing for more time for implementation and for the Agency to develop programs for funding assistance while still

meeting the goals and timeframe of the Lake Champlain Total Maximum Daily Load (TMDL). I was privileged to visit Washington and attend the environmental council of states meeting -- one of the speakers was Sen. Shelley Moore Capito, who is serving as the chair on Environmental and Public Works. Important voice for our work. She was asked her committee's perspective on BIL/Infrastructure Investment and Jobs Act (IIJA) and asked if she perceived those funds were in danger and her answer was no, but she was less certain on Inflation Reduction Act (IRA) funds.

- Matt (LCBP): The Lake Champlain Steering Committee will meet on April 15th-16th to approve the LCBP budget for the upcoming fiscal year. We will be presenting the TAC's recommendations on research projects that you formed last month. Our next 2 TAC meeting will be June 4<sup>th</sup>. We will cover some final reports but also have space on the agenda for informational presentations - let us know if you have suggestions. Mark your calendars for the Lake Champlain Research Conference for January 26th and 27th, 2026 at the UVM Davis Center.

*Review and approve summary of previous TAC meeting*

Motion: To approve the summary from the March 2025 TAC meeting

By: Margaret

Second: Laurie

Vote: All in favor

## 2. **Final report review: Assessing the management and impact of private road crossings in the Lake Champlain Basin** (Luke Briccetti, University of Vermont)

- Corrie introduced Luke and the project, which included collaborators Tim Mihuc, Liz Doran, and Alice Halloran.
- Luke shared a presentation. This project was motivated by previous investigations into road-stream crossings on private land and the general lack of data on private crossings.
- The research questions were:
  - What are the attitudes and perceptions of private landowners towards road-crossing management practices?
  - How are environmental and social factors influencing road-crossing management practices?
  - Overall project goal - Identify and inventory private road crossing structures in the Lake Champlain Basin.
- These questions were explored in the Ausable and Missisquoi basins on private, forested parcels over 500 ft in elevation.
- Methods:
  - GIS analyses to identify crossings: 1,130 crossings identified
  - Send research surveys assessing general attitudes towards management to 800+ landowners -- received 156 responses. 19 interviews conducted.
  - Outreach – including 4 focus groups
  - Field assessments - 56 culvert assessments recruited from people who responded to the survey, 12 fish community assessments

- Results
  - Landowners actively involved in managing their own land (logging, sugaring, other forest products) felt more agency to follow crossing best management practices (BMPs).

## Discussion

- Margaret (VTFWD): It was helpful to see the graphics you presented, like with the fish data. That would be helpful information to include in the report. I have a question about the prioritization - under 1C they are prioritized according to crossings obstructing stream reaches, but many were reported as unknown structure types. Were they not further evaluated? Is there a way we can find out?
  - Luke: The prioritization piece from 1C is the order we contacted individuals who responded to the survey and were willing to do field assessments in, based off of stream network and elevation. We ranked individuals/properties according to that data then contacted them in that order. We ended up contacting almost everyone who gave us permission to contact them. We were only able to field assess locations for landowners who gave us permission. We were not certain we'd be able to preliminarily identify crossing type through remote analyses, so it's exciting we were able to do that for 60-70% of the crossings. All of these crossing type data would need to be further field validated to improve certainty.
- Margaret: You stated in the report that contractors wouldn't always be following BMPs or some standard. What data do you have?
  - Luke: I meant that in a general context to say that there are opportunities from increased reliance on contractors and issues as well. I believe I meant that more generally. I can revisit that statement.
  - Margaret: Goes against training and work NY has been doing to ensure there's a standard for culvert replacements.
  - Luke: I think what I was trying to say is that with an increase in reliance on contractors, BMPs will be followed more regularly.
- Neil: Nice report, and you've done a great job of assembling some unique datasets. It could be helpful to provide more description around the inclusion of the Lamoille as well. One big methodological concern I flagged – you kind of made the statement that you were operating above 500 ft elevation due to presence of cold water fish; that's generally true, but I know of places in the Basin where cold water species are prevalent at lower elevations. I'd ask that you consider what it would take to evaluate those types of waterbodies as you wrap the report. I also note that non-cold water species are still important fisheries that still merit management for passage.
  - Luke: Great point. The impediment for that to me was a workload piece, and the amount of structures that would add, especially in the Missisquoi. I needed to prioritize road-crossing digitizing. I also noted that steeper areas were more likely to have crossing and erosion issues.
- Neil: I agree with Margaret, there were a couple of graphs and figures in this presentation that weren't in the report. It would be useful to have those in the report. The data presentation approach comparing upstream and downstream was helpful, but the

regression could be useful too. See my written comments. I appreciated reading this report – this is a valuable tool.

- Sarah (VTDEC): Often we treat residential and working landowner groups as separate populations and operate on the assumption that they are very different. I'm wondering if the surveys you collected would lend themselves to that type of analysis – the residential, second home group that you identified vs. respondents doing active management of their forest. Could you look for differences in those two groups? Our funding and education initiatives are targeted differently at those groups, so that insight could be useful.
  - Luke: We did look at the data across those two groups. My big takeaway on that was working vs. non-working lands in VT had a big difference in management. I can share a data summary of the analyses we conducted.
- Corrie (LCBP): Can you share more about the articles, book chapter, and other ways you've worked to share this information?
  - Luke: The book chapter focuses on survey data and discusses the difference between active and passive management. Another takeaway was age - older landowners felt less agency to be able to complete management. We present state-level differences as well.

Motion: To approve the final report subject to incorporating recommended edits from TAC

By: Margaret

Second: Jenn

Vote: All in favor

**3. Informational presentation: Developing skills of technical assistance providers (TAPs) to assist farmers with soil health strategies - Final report** (Lauren Weston, Franklin County Natural Resources Conservation District)

- Lauren shared a presentation. The goal of this work was to create a curriculum and training program focused on soil health for agricultural technical assistance providers. The project enhanced collaboration between assistance providers who work with farmers, and provided resources specific to Vermont and New England.
- Methods/Approaches:
  - Train the trainer model: going out one on one with assistance providers and farmers, providing trainings and courses with stipends for participants/employees for participation
  - In-person events, social mycelium: connecting soil health experts with all those who work in this sphere.
  - Project structure was made with feedback from a project advisory committee
  - Program structure: One fall in-field intensive (Fall 2023), twelve two-hour webinars throughout the winter on region-specific soil management strategies and initiatives, four in-field intensives in the spring/summer
- Results:
  - 99 participants signed up for the training program - coming from diverse backgrounds and knowledge bases

- Introductory workshop occurred in November 2023 at the farm at Vermont Youth Conservation Corps.
- Online curriculum included topics on soil structure, soil chemistry, cover crops, etc. and were presented over 12 two-hour online winter classes. Broken up into two parts; first, what is soil health and how do we know if soils are healthy? Second, how do we manage soil health?
- Four on-farm summer workshops focused on vegetable and livestock farming and soil health were held. Farms were spread throughout Vermont.
- On average 100 people attended each event, a maximum of 208 people attended one webinar. Approximately 72 people submitted 262 evaluations of the training program components. Respondents were very happy with the organization of the program, collaboration opportunities, and hands-on training provided.

#### Discussion

- Steve: I really like your tiered approach, do you think you could go to a third level, like an advanced person or someone who did this first year and would like to continue?
  - Lauren: Yes, we tried to catch a lot of folks who had no background. That was true for the webinar, but once we had the field days the questions changed pretty substantially. We want to have additional workshops that really target more advanced folks and get into the nitty-gritty.

#### 4. **Final report review: Consequences of Winter Perturbations on nutrient export to Lake Champlain, Phase 1** (Drs. Carol Adair and Andrew Schroth, University of Vermont)

- Carol introduced the project and shared a presentation. This project aims to characterize nutrient movement over the winter months, a traditionally understudied time.
- Objectives:
  - Determine how winter events impact soil conditions and nutrient availability for transport.
  - Identify the consequences of winter runoff events for both the timing and magnitude of watershed nutrient export and loading to Lake Champlain
  - Identify how antecedent conditions and winter events alter critical source areas...
- Methods
  - 2 watersheds – Hungerford Brook (agricultural) and Wade Brook (forested) with 2 sites in each watershed (one dry and one wet), outfitted with watershed sensors and a weather station
  - ISCO data at long-term monitoring program tributary sites during winter events
- Results
  - Winter events accounted for 30-65% of yearly nitrate export
  - Large winter event water yields drive efficient export
  - Nitrogen concentrations decreased over time over winter events (source limited)
  - Phosphorus tends to track with discharge (transport limited)
- Conclusions
  - Winter sampling can be difficult and presents a diverse array of challenges and pitfalls

- Winter is a hot moment for N export across land-use, particularly early in the winter
- Phosphorus transport is comparable to other seasons and driven by discharge

### Discussion

- Neil – So there's some source of nitrogen (N) that's getting depleted? Is know the way N acts in groundwater but in snowpack? N laid down in snow as it was deposited from the sky being depleted before accessing soil? [on log scale P and N graph]
  - Andrew: Not sure if it's that or N that was deposited on the ground in the fall.
  - Carol: One thing we are going to investigate further is what's happening in the snowpack vs. what's happening in the ground.
  - Neil: Log scale both accentuates and blurs those data.
  - Jamie: Most N is probably coming from the soil.
- Margaret: Curious how the changing discharge over winter factors in, if it changes overall loading?
  - Andrew: Haven't looked closely at that trend. Done a little of that with Matt's Weighted Regressions on Time, Discharge, and Season (WRTS) data.
  - Sonya: Like some of our other data suggests with high frequency work, there probably is more nutrient export occurring year-round, so it would be overall higher, and a lot of that is coming from these isolated winter events.
  - Andrew: When we provide these data to Matthew and he runs the WRTS analyses again, we will be curious to see the results.
- Peter (VTDEC): Did you notice in these winter events any difference in the ratio of dissolved to particulate P?
  - Andrew: The analyses we just did showed some evidence of that. In Hungerford we saw that the stream at high flows in winter had a steeper slope for particulate P than it did during the growing season.
- Jamie (USGS): A question I've always had - is the nitrate you see during winter events newly formed, or N that was deposited in the prior fall? You mentioned further work, any insights now?
  - Carol: We have a new student on the research team who is collecting cores throughout the winter. We are focused on feasibility this winter and will do more comprehensive data collection next winter.
- Jamie: Some of the graphics could have better labeling.
- Neil: When phase 2 comes out, would love to have the TAC discussion in-person with more time.

Motion: To approve the final report

By: Jenn

Second: Jamie

Vote: All in favor

Abstentions: Andrew

5. **Informational presentation: Port Henry stream study - Final report** (Alice Halloran, Daniel Berheide, and Noah Weber, Essex County Soil and Water Conservation District)

- Alice shared a presentation. This project aimed to study harmful algal bloom (HAB)s concerns, water quality, and sources of problems and potential solutions in the Port Henry area (McKenzie Brook, Stony Brook, Mill Brook, Bartlett Brook).
- Methods:
  - Phase 1: Utilizing existing data (GIS, Aerial photographs, maps, windshield surveys, etc.) to get a wide lens overview of the sites. Stream reach analysis, watershed land cover, corridor land use, bridges and culverts, etc. were parameters studied.
  - Phase 2: In-person stream assessment of the reaches. Using the ArcGIS collector app, stream assessment was completed using Vermont State protocols.
- Results:
  - Port Henry watershed, water quality analysis of 3 tributaries (Mill, Stony, McKenzie). 24/27 collection days occurred within 72 hours of a rain event. Monitoring locations were upstream and downstream, with downstream sites chosen closest to outlet to Lake Champlain, upstream chosen to help distinguish sources of nutrients.
  - Post rain sedimentation is affected by land use, riparian buffers, and marsh filtration.
  - Stony Brook had most of the highest concentrations of the measured parameters, while Mill Brook and McKenzie Brook were relatively equally spread between the intermediate and low concentrations measured for the studied parameters.
  - Some assessment was also done for aquatic crossings (prioritizing crossing replacements), determining how municipalities could be supported to improve steam ecosystem health, and identifying potential projects.

#### Discussion

- Neil requested more detailed information from the LaBella Associates data report.
- Neil: There is a lot of really rich data here, looks like a lot of implementation could come out of this work. Also, I found the contracted water quality analysis! Thanks for that.

#### 6. **Informational presentation: Preventing aquatic invasive species spread through targeted removal – Final report** (Brian Greene, The Nature Conservancy)

- Brian introduced the project and shared a presentation. The project motivation is responding to data suggesting 5 boat launches on Lake Champlain represented the highest regional risk for new aquatic invasive species (AIS) introductions to waterbodies in the Adirondacks. This project aimed to control aquatic invasive species populations at boat launches to reduce the risk of retrieving boats picking up AIS that could be spread to other waterbodies – with a focus on Eurasian watermilfoil as it represents a large management cost across the region. Diver-assisted suction was used to remove primarily Eurasian watermilfoil populations in the areas surrounding five boat launches. Point-intercept monitoring was used to evaluate the effectiveness of AIS removal. Data from boat launch steward inspections on retrieving boats was also used to assess management effectiveness. Results after 2023 management were mixed, so additional techniques were deployed for 2024 management. Results suggest that consistent

management keeps populations steady or decreasing, but populations at sites managed only one year increased after management concluded.

- Conclusions:
  - Each boat launch is unique
  - Invasive management is long-term
  - Management strategies implemented in this project showed some indications of reducing spread risk, but not conclusively
  - Boat launch steward data is variable, but critical to informing management

### Discussion

- Andrew: Interesting and valuable work. To what extent when you're looking at particular launches as agents of spreading invasives, is that driven by the number of boats coming in and out or the extent to which that boat launch environment is proximal to AIS populations?
  - Brian: It's not just proximal to the number of boats. There's something about these 5 sites that seems to make them more likely to have boats pick up AIS on retrieval. We still aren't certain what the mechanism is. This data highlights the uniqueness of each launch and the importance of understanding those differences to inform management actions.
  - Andrew: I'd wonder if access points for good, warm water fisheries would be conducive to spreading, since boats may be more likely to go into shallow water and pick things up?
  - Brian: Interesting. Unsure why these 5 sites are disproportionate overperformers for spreading AIS. They are popular. We will be continuing management and monitoring for another year, so will continue to work to tease these questions out. We know from data from other launches that these management interventions worked in other places.
- Neil: Busy ramp, people are coming in, I wonder if boats needed to circle and chop while waiting to use the ramp contributes?
  - Brian: Could be. We saw some sites that had fewer rooted plants, but saw many fragments. Could be the wind pattern or other factors.