

**Lake Champlain Basin Program
Technical Advisory Committee Meeting
Wednesday April 5th, 2017
10:00 AM – 3:00 PM**

Draft TAC Meeting Summary

Attendance:

Staff: Meg Modley, Matt Vaughan, Fred Dunlap, Ellen Kujawa, Bethany Sargent, Ryan Mitchell

Members: Mike Winslow, Angela Shambaugh, Jennifer Callahan, Neil Kamman, Jamie Shanley, Bernie Pientka, Mark Malchoff, Eric Perkins, Bob Brower, Kip Potter, Andrew Schroth, John Kanoza, Fred Dunlap, MaryJo Feuerbach, Martin Mimeault, Kevin Farrington, Curt Gervich, Laura DiPietro, Keven Behm. Phone: James Jutras, Ed Snizek, Bill Ardren, Eric Young

Guests: Samira Davis, Lori Fisher, Bridget O'Brian, Ann Bove, Jarlath O'Neil-Dunne and Sean MacFaden

I. 10:00 AM Updates and Announcements

Martin M. – National Assembly has adopted Bill 102 and amended to change permitting process.

MaryJo F – Geographic Response Planning has occurred on both sides of the lake, VT priority areas have been identified and site visits will be conducted in April to assess resources that need to be protected. VT is commended for implementing the TMDL – EPA is looking at milestone that the state set out and VT has made excellent progress.

Mark M. – The marina workshop last week (organized by LCBP) was a success. Oil spill cleanup was of particular interest, and a field afternoon session on spill cleanup may be organized later in the year.

Kip P. – NRCS \$15 million out the door, a \$3 million increase – quite an accomplishment given current financial climate.

Neil K. – There is a bill in front of the VT House today to allocate \$25 million in clean water funding over the next two years. List of potential project is available online; this represents a substantial increase in funding, plus projects ready to accept that funding. Clean water modeling update: contractors from LimnoTech in Michigan came to present, Blaine Hastings and Ethan Swift is deploying gear in the East Creek. Cumberland Head: removal and replacement of sub-lake power lines will take place this summer (PV 20 Powerline Replacement Project). Large scale containment operations will take place, so the LCBP will likely get calls with questions. Velco, the company in charge of the project, will prepare some materials we can circulate, and we can direct calls to them.

Bob B. – SWCD districts \$160k/apiece. Lots of new projects like culvert replacements, fish passage. \$14.1 million nonpoint program, \$800,000 project in the Lake Champlain Basin. \$2.1 billion from the governor's proposal (\$50 million for manure storage, CAFO farms with less than 9 months of storage). Governor's budget still has a way to go but will be routed through the NY Ag&Markets program.

Bernie P. – FWS has new fishing guidelines in progress. Mostly minor, but public hearings will go on for spear gun free-diving fishing.

Bill A. – A workshop was held on March 9th focused on prioritization of salmon habitat restoration in the LCB, 35 people from both sides of the lake. Speakers on how to combine water quality, flood resilience and fish habitat conservation and restoration. Bill is in the process of writing up notes, but there were lots of ideas on implementable salmon habitat restoration that will be multi-useful for water quality and flood resilience as well.

Jamie S. – At the NERC conference last week, Matt Vaughan won best student presentation. Congrats, Matt!

II. 10:15 AM Summary of Previous TAC meeting

a. Review and approve minutes from the March 1st TAC meeting

Angela S. moved to approve the March 1st meeting minutes, Jenn C. seconded, unanimous approval.

III. 10:30 AM LCBP updates, *Eric Howe, LCBP*

Updates on LCBP activities since the last meeting.

Matt V. – Ellen Kujawa joined the LCBP as the new Technical Associate. The IJC is contracting us to manage their new Lake Champlain & Richelieu River project over the next 18 months. The Executive Committee will meet on May 2nd, and will review next year's budget to come up with a contingency plan in the case of no federal funding. The Steering Committee will meet on May 9th. Conservation practices for P loss reduction from tile-drained fields RFP closed on May 3rd. The ROD should be ready by May TAC meeting. Workplans for pollution prevention projects and enhanced BMPs are coming in now.

Meg M. – Boat Launch Stewards are being hired, and interviews are currently in process. The big NY update is that there will be 19 non-LCBP stewards on the NY shore. LCBP will continue to cover Plattsburgh, Wilcox, Peru. Probably 3 steward on NY side, a few more on the VT, and 2 in Quebec. Funding approved this year will support two additional wash stations for 2018. Brad Young has been appointed to rapid response task force. Water chestnut work group met last month. Planning two invasive species harvesting blitz days for the summer.

IV. 10:35 AM Long-term Monitoring Project workplan and interim report, *Angela Shambaugh, Pete Stangel, and Fred Dunlap*

Angela S. presented on the Lake Champlain Long-term Water Quality and Biological Monitoring Program. In 2016, 6646 samples, profiles and physical parameters. Working to improve efficiency somewhat for 2017. Sampled for spiny water flea and zebra mussel veligers. Veligers increased at most stations last year; no veligers were detected in 25 VT inland lakes. The website was updated recently, and phyto- and zooplankton data will be uploaded soon. Rock River BMP monitoring will continue (began sampling in 2008), though there is discussion about discontinuing data collection as no changes have been recorded yet (except DP, which has significantly increased).

Fred D. continued presentation. Main uses on data include informing audience, supporting the State of the Lake, fostering additional research needs, developing policy, evaluating TMDL progress, and targeting implementation efforts. Switched in program from 10 high flow events to 20, but sampling crews were not able to meet that goal so dropped back down to 13, based on physical ability to sample and number of events available to sample, rather than statistical evaluation of number of events needed. Later, a statistical analysis showed that there is little difference between 13 and 15 events, so will plan to keep 13 as a minimum for high flow events. Zebra mussel monitoring: surveying for both veliger and settled veliger to determine occurrence and density in both Lake Champlain and inland lakes. Spiny waterflea (and other invasive zooplankton) sampling occurs concurrent with routine lake monitoring. In the 2017 program review, adding several factors was discussed: total and dissolved carbon (lake and tribs), phycocyanin, microplastics. Considered costs, sampling and processing logistics, collection frequencies, and QAQC requirements, amending workplan/QAPP.

Bernie P. asks whether they are able to discern between juvenile zebra and quagga mussels. Angela: yes.

Jamie S. asks about the difference between FLUX and WRTDS models. Neil explains that the new method is most stable on each side of relationship, more variability at tails, so may not be the best for the variance-style analysis Fred is interested in.

Eric P. notes that it would be helpful to know more about what has been done in the Rock River project, in addition to what still needs to be done. Angela will be looking for guidance in linking practices versus future needs. Mike requests a report on the Rock River project.

Neil suggests that the Rock River trend analyses could use a “different look” – residual plots may not be the best way of displaying results. Angela agrees that now is the time to think about how we want to move forward with the project. Neil suggests a coordinated conversation to discuss results and future plans.

MaryJo F. asks how data is shared with Quebec partners. Angela and Fred explain that it is available via the website and is shared informally with Martin M.

Matt V. suggests a comment period for the TAC regarding the Rock River plan.

Kip P. moves to approve, with a provision for additional discussion about the development of a Rock River report. John K. seconds. Motion is carried. Abstentions: Angela S., Fred D., Neil K.

V. 11:15 AM Cyanobacteria Project Workplan and Interim Report, *Angela Shambaugh, Lori Fisher*

Angela S. and Lori F. presented on the cyanobacteria project. A summary report of the program is available. Routine monitoring stations have been place in Lake Champlain

and in inland lakes. Last year, there were 91 volunteers, 16 VT DEC staff, and 4 VDH staff. Volunteer monitors use a visual assessment protocol, and categorize water into one of three groups: “generally safe”, “low alert”, and “high alert”. They also provide photos of any alert sites. Data is uploaded to the website and approved by partners, then released to online map and shared with the public. The basic communication process: compile visual assessments and bloom reports from public with toxin samples and VDEC phytoplankton samples, then partners review and confirm and submit for general outreach (e.g. CyanoTracker, weekly emails) and/or direct contact and technical assistance to town health officers, beach managers, etc. 2016 summary data is available on CyanoTracker website. The website received 24,581 hits last year.

Drinking water testing has been conducted for the past two years. Facilities test both raw and finished water for 12 weeks (mid-July to September). There was one detection in 2016, but the immediate retesting showed no microcystin so a response was not required (may have been a false positive). Most reports indicated good conditions in 2016 – 91% of reports were of generally safe conditions.

Key information from the Champlain Dataset: hot spots haven’t changed, high nutrients don’t always translate to blooms, and low nutrients don’t necessarily mean a bloom-free location.

In 2017: program will continue to use the visual assessment protocol, in combination with lab testing. Act 86 requires VDH to coordinate cyanobacteria monitoring with DEC, maintain public website, and begin public outreach within one hour of determining that the presence of cyanobacteria is a public health hazard.

Kevin F. – can you comment on microcystin concentration? Angela: no microcystin detected last year, possible because it was a low-flow year (link between amount of nitrogen in system and amount of microcystin).

Martin M. – the University of Montreal will be doing more research on what triggers cyanobacterial toxin response in the next five years.

Lori F. – Eco-Americorps member will enable program to follow up on reports more quickly and comprehensively than previously. Also looking at recreational sites that are too busy to report alerts immediately.

Bernie P. – Fig. 3 and 5 in final report use different labels for supplemental figures. Figures may need a look over for cleaning and consistency.

Bob B. moves to approve, with a provision for the completing recommended revisions, and John K. seconds. Unanimous approval. Abstentions: Mike W., Angela S. and Neil K.

VI. 11:45 AM Water Chestnut Project workplan and interim report, Anne Bove

Anne Bove presented on the water chestnut workplan. The 2017 plan mirrors 2016, and funds for all elements have been secured for hand, mechanical, and composition. 2017 is

a new contract year, and there is a new RFP in progress. The 2017 change is that they have broken up the hand harvest contract between Lake Champlain and inland waterbodies: it did not work.

The 2016 report covers the hand harvesting program because that is what LCBP funds covered, and it does not cover the mechanical harvesting, etc. – that is in another VTDEC report. The cost rose a bit because of a new WC find in 2015. An award was also given to Friends of the Missisquoi National Wildlife Refuge and USFWS grant also helped to cover VTDEC staff time. Management was impacted by low water levels, which limited access. New populations were confirmed in LC in Bulwagga Bay, Black Bay Marsh in the St. Albans Bay area. 2016 total number of sites were 81 up from 77 in 2015, in the span from Red Rock Bay in Highgate, VT to Whitehall, NY.

Page 16, Appendix B (indicators table) is not complete, and we need data compiled and included in this chart. NY and QC have provided the data and LCBP will work with VT DEC to update the chart.

TAC comments: there are some duplicates on station numbers (p. 4), and map numbers don't match. Area numbers don't match Missisquoi Bay map. On p. 16, Map 2, in Black Creek Marsh, there is poor resolution, if that can be addressed.

Mark M. moves to approve the 2016 final report, pending recommended revisions and the 2017 workplan, seconded by Bernie. Abstentions: Fred D., Neil K., Angela S.

VII. 12:00 PM Lunch

VIII. 1:00 PM Land Use / Land Cover Project workplan, *Jarlath O'Neil-Dunne and Sean MacFaden*

Jarlath O'Neil-Dunne and SeanMacFaden presented on the High-Res Land Cover workplan. They are heading toward a high-resolution land cover dataset, which will have diverse applications (and new challenge). RFP called to adhere to NLCD standards; Jarlath and Sean would like to use even more spatial resolution (1 meter), though could potentially aggregate to broader pixel resolution. This is will probably be the most robust, high resolution land cover dataset in the nation upon completion. Producing and releasing LiDAR-derived topographic data and normalized digital surface model (height above group) – communities will be able to produce 3D maps for development. Also releasing a web browser version, which will allow for use feedback (encouraging stakeholder buy-in and involvement). Putting together this large dataset now is expensive (~\$150,000), but updates will hopefully be cheaper (~\$30,000), as they will only need to update pixels that have changed.

Questions to the Committee: how much stakeholder involvement is appreciated? They would like to expand outreach to NY and also make this a statewide program in VT by identifying potential partners.

Neil K. – New regulatory programs under VT clean water will benefit enormously from this (particularly a consistent, unbiased estimate). Data will be super helpful and widely applicable; encourages Jarlath and Sean to reach out to potential partners.

MaryJo: Does outreach come out of the LCBP budget? Jarlath: actually, would use budgeted faculty engagement time at UVM instead of LCBP time.

Neil suggests reaching out to MS4 stakeholders.

Mike: TAC doesn't recognize any problem in expanding the project, but will hold you responsible in further reporting. Jarlath clarifies that any potential partners would pay their own way and not draw down LCBP funds.

Kevin would like to see complete list of classifications added to workplan.

Jenn C. moves to approve, with three days for the TAC to review, plus the addition of a complete list of land classifications. Kevin F. seconds. Motion is unanimous.

Abstentions: Neil K.

IX. 2:00 PM Tile-drain project discussion

Matt V. – The tile drainage 1-pager made its way to the Steering Committee. They did not want to fund the comparison project (too small-scale, perhaps not widely applicable, and fell by the wayside in budget trimming), instead elected to fund a \$200,000 project on tile drainage. TAC should determine what kind of project that should fund: only constraints are that it must focus on tile drainage in the LCB. End goal (assuming funding is secure) is an RFP for tile drains in the fall. What can be done for that amount of money, and what questions do we want answered?

Eric Y. – USDA Edge of Field study will complete 2-year baseline monitoring period in October. Assuming that everyone is onboard, it will implement controlled drainage and keep monitoring for four more years (pre- and post-treatment study). Another small study compares naturally- and tile-drained fields, will hopefully be up and running in the next few months and will continue several years. A third NRCS Edge of Field study will look at the effects of tillage and will begin later this summer. It will run for six years.

Neil K. – UVM has done a 34-field synoptic study of tiles. AGO sites are offline now but are continuing to run – Shelburne Farms, Williston.

Martin M. – Workshop in Quebec presented research conducted in Ontario and Quebec on phosphorus outflow.

Bob B. – Lots of tile research is going on and is being presented (e.g. Western Lake Erie), perhaps we don't need to fund more.

Laura D. – Agency of Ag. Held a meeting on March 21st to determine priorities, current knowledge, and questions to be answered (including how to monitor). Main conclusion is that there's too much variability in this project to get a single answer. Modeling is another option – modelers got super excited about this, others not so much. UVM's synoptic sampling may be useful, depending on what information they're actually gathering. Here's the plan for the group: try to get more synoptic sampling in place (teach more groups methodology and get more spatial scope), meet again after data have been collected and preliminarily analyzed. Showing actual data may help the case for modeling for non-modelers. In VT, there's a need to put in one surface vs. subsurface station. Hydrology: VT and QC are teasing out variables in preliminary analysis. Structure is being studied by Miner Ins. and LCBP RFP. Whole group will meet again in September, and field money is not available for this year.

Mike W. would like more detail on UVM Ext./Farmers' Watershed Alliance project. What's the actual research question? They appear to be doing just phosphorus, no flow, and no systematic effort to look at soil types or other variables. This represents a wide but not particularly detailed dataset. Farmers pay for it, and the data are not public (though theoretically, they could be released with permission).

Matt V. suggests that we don't get too invested in previous data, and instead think about how the methodology, expanded, may be useful to us.

Laura D. mentions that farmers are sensitive about this issue, and that government/farmers/environmentalists have very different opinions. Must be careful in how we act.

Fred D. – Between the Miner Ins. research, Quebec, three additional LCBP projects, and the research that Bob B. mentioned in Lake Erie – do we really need to spend \$200,000 on another, similar project?

Laura D. – There's too much variability still, and we don't have enough answers. Synoptic sampling will give us more useful information.

Kip P. – It's almost irrelevant whether drainage is increasing or decreasing phosphorus; what matters is if phosphorus is coming out of drains. More sampling is justified. It may be valuable to host a tile drainage conference to compile the information that's already out there – maybe some of the \$200,000 could go toward that. Regardless of what the research says on tiles, mapping of where they are is needed – Jarlath mentions that he may be able to provide drone support on this.

Angela S. – Is part of the synoptic sampling about the age of the tile system? No, but they may be one of the state's new priorities.

Laura D. – The priority is removing phosphorus. Mike doubts that this is actually possible. Laura suggests that this may be easier given a prioritization system of phosphorus runoff.

MaryJo wonders how likely it is that a good synoptic sampling method could be developed. Laura says that good minds can put together a data collection system, and that farmers will say yes if the government is separated from the on-the-ground component of any project.

Timeline of future discussion: TAC meetings in May and June, RFP by September for spring projects.

Five actionable suggestions developing a research program to identify and solve the problem: mapping, workshop, synoptic sampling, modeling, and long term monitoring at one site. This will be an agenda item for the next TAC meeting. Martin suggests adding the tile drain symposium to the Lake Champlain Research Conference this winter.

X. 3:00 PM Adjourn