

Lake Champlain Basin Program
Technical Advisory Committee meeting
Held remotely due to COVID-19
Wednesday, September 1, 2021, 8:45 AM – 3:00 PM

Approved TAC meeting summary

TAC Members: Jennifer Callahan, Ryan Davies, Dennis Deweese, Bryan Dore, Curt Gervich, Neil Kamman, Steve Kramer, Margaret Murphy, Mario Paula, Ryan Patch, Oliver Pierson, Andrew Schroth, Jamie Shanley, Leigh Walrath, Ryan Waldron, Julie Berlinski for Lauren Townley, David Minkoff for Bill Ardren

LCBP Staff: Mae Kate Campbell, Eric Howe, Lauren Jenness, Meg Modley, Matthew Vaughan, Sarah Coleman, Erin Vennie-Vollrath, Peter Isles

Guests: Les Carver, Carianne Pershyn, Brenda Gail Bergman, Brendan Wiltse, Jody Stryker, Lori Fisher

1. Updates, announcements, public comments

- Neil: Welcomed participants to the new TAC season, outlined upcoming work.
- Ryan D.: Clinton County received septic system replacement grants for properties along Lake Champlain. ~18 systems have been approved so far, 40 can be funded in the next year. Anyone within 250 feet of Lake Champlain is eligible.
- Neil: Clean Water Service Providers (CWSPs) are being established to receive funding for non-regulatory water quality projects. Rulemaking is done, start-up grants are being moved out. Over time, the State will want to align their work with LCBP's local implementation in order to create clarity for applicants as to the most appropriate funding sources. The state has been working hard to develop projects under the American Rescue Plan Act (ARPA). 2 key pieces of work are: funding for 3-acre stormwater permitting (\$5.5 million appropriated for the first year, complemented by \$3.5 million in approved ARPA funds). We are actively hiring staff to help run that program. 2nd is combined sewer overflow (CSO) abatement; we are developing that program now. We are also working on a 3rd program, \$2 million to help municipalities with pre-treatment needs for businesses. Keep an eye on the infrastructure investment and jobs act – that's a potential massive source of funding for the states and LCBP. VT water quality standards are being proposed to be amended.
- Brenda: We are starting a discussion process around the 30 x 30 program: how to conserve 30% of our land by 2030. Discussions center around what that means for us and if Vermont can be a leader in this state. There is a lack of clarity in terms of what it means to conserve waters. If you are interested in joining the discussion, I can pass on the information.
- Oliver: The monitoring buoy for the Lamoille that VTDEC is purchasing should be delivered by the end of the month. There were supply and distribution delays due to COVID. It will be deployed in the 2022 field season. The Lakes and Ponds division put

out technical guidance for lake watershed action plans (available on the VTDEC website) to help with consistency in development.

Lake Champlain Basin Program Updates

- Meg: The LCBP summit meeting helped set 1- and 5-year goals for next fiscal year and for *Opportunities for Action* (OFA). These goals are being refined and incorporated – there will be more from Eric on that as we move forward. The boat launch stewards have been hard at work this season, and we deployed a decontamination station at Mallets Bay for the first time. It worked well, we are hoping to refine the operations and see how we can incorporate another decontamination station next year. Stewards did collect suspicious looking elodea samples, which are under analysis currently. The round goby has been detected in the Hudson River, making it a closer threat to Lake Champlain. There is a possibility of sampling for it in the Champlain Canal, and renewed interest in the barrier study. The St. Alban's 542 project is moving forwards. The Corps is looking to get the Vergennes project off the ground soon, while the Whitehall project is still facing delays.
- Lauren: The Lake Champlain Research Conference will be held in January 2022. Abstract submission is open, see our webpage and please feel free to share widely. The ESI mapping project is moving forward – we are in the middle of a series of 3 meetings with contributors. We are working with the Federal Partners working group to create a budget outline.
- Mae Kate: The Lake Champlain – Richelieu River flood study released a report on possible structural alternatives. An addendum to the report outlining a new option, a submerged weir that would have benefits during high and low water levels, is forthcoming.
- Matt: LCBP reorganized some of our requests for proposals (RFPs). The local implementation grants are now incorporated into a larger technical RFP that includes the enhanced best management practices (BMP) category. The RFP was released on 8/20, and there are different due dates in October depending on the category. For next year, we are considering creating a small and large grant category for habitat conservation. Up to \$1.4 million is available – that represents the largest pool of funds we've ever had.
- Meg: The *State of the Lake 2021* report was released!
- Eric: Our EPA, GLFC, and NPS FY21 funding agreements are now in place. For FY22, LCBP's is in Biden's budget for \$20 million, which is \$5 greater than FY21. This level is mirrored in the House bill, the Senate will be taking up bill in a couple of weeks. In addition, the infrastructure bill has tagged Lake Champlain for a \$40 million appropriation over the next 5 years. Details on that funding are unclear at this time. We will be discussing with the Steering Committee ways to move those dollars forward – some funds will likely go directly to the States, but the States will also be receiving separate funding.
 - Bryan: EPA hasn't seen the specific language; our understanding is what Eric laid out. We are not sure if the funding will be directed in the same way we've seen like TMDL funding, or added to EPA's budget for Lake Champlain.
 - Neil: We will need to be a conversation about matching funds.

- Bryan: We have heard that infrastructure funding will not require a match.
- Meg: LCBP released an RFP for a diversity, equity, and inclusion (DEI) consultant, which is open currently.
 - Eric: LCBP is looking for assistance with organizational assessment, and on the process of recruiting members to our advisory committees.
- Eric: An OFA update is to be published next year. Staff are beginning the process of organizing that update process, we will be building off of the input we received at the June Summit.
- Meg: Sea Grant, USFWS, and LCBP held a workshop for fishing education for New American community members. We covered the need for fishing licenses, and which fish are not able to be caught. Fishing poles and personal flotation devices were distributed to participants. We hope to hold additional workshops in the future.

Review and approve summary of previous TAC meeting

Motion: to approve the May 2021 TAC meeting summary

By: Jenn Callahan

Second: Margaret Murphy

Discussion: Neil Kamman suggested a minor edit to a comment on page 10, which was accepted.

Vote: all in favor

Abstentions: Leigh Walrath, Jamie Shanley (weren't present at the meeting)

2. LCBP real-time data website demo

- Matt Vaughan provided an overview of the new LCBP real-time data website. The Lake Champlain Research Institute (LCRI) buoy at Valcour Island has been deployed and is collecting data. Matt developed a live beta website (data.lcbp.org) to share these data and eventually to provide data from the Mallets and Lamoille buoys. Matt reviewed data available on the website so far, which includes USGS lake and tributary data.
- Neil: This is a fantastic resource; it will be really useful to the angling community as well.

3. Review TAC 2021-2022 schedule

- Matt provided an overview of the TAC season schedule.

4. FY22 technical budget priority discussion

- Matt: The Steering Committee met in June for their Summit meeting. The goal was to bring folks together from partner organizations and other committees to brainstorm ideas to support in the FY22 budget cycle and to develop themes for funding priorities. Matt reviewed the technical request for pre-proposals (RFPP) process and Themes approved by the Steering Committee. TAC's task is to distill Clean Water (CW) and Healthy Ecosystems (HE) themes to develop into priorities for the RFPP process.
- Neil: Consider the likelihood of budget forecasts.
- David: Under HE, priority watersheds for restoration and conservation opportunities. Wondering if in addition to identifying there's the possibility for implementation, of if that's covered elsewhere.

- Matt: The RFP we just released covered implementation. A recommendation might be to add the large HE implementation to that RFP. The RFPP could be more for research, planning, implementation. Timeline may be tricky.
 - Neil: I wonder if specific conservation could be emphasized in these as well.
- Oliver: It's great to see LCBP pursuing recreation planning and approaches to increase access in Thriving Communities (TC), hopefully that can contribute to the overarching DEI goal. In some parts of Lake Champlain, we've heard from the public and towns about challenges for public access due to increased proliferation of private facilities (marinas, etc.), and challenges for people without access to vehicles. The Town of Colchester is struggling with access in inner Mallets Bay, and reached out for help updating their recreation plan.
 - Matt: I'm wondering if you think these should be included in technical priorities, or just sharing thoughts with the Heritage Area Program Advisory Committee (HAPAC)?
 - Oliver: If there's a way to provide verbiage around TC point #3, I think that'd be a good idea. We can at least have TAC weigh in.
 - Matt: We want to take these themes and think about how they can be incorporated into the overall budget; they don't all have to be RFPP priorities. They could be included in the implementation RFP as a new category instead, for an example.
 - Neil: There's a technical aspect to what Oliver just said – the carrying capacity of an access area before there becomes loss of use. That doesn't feel like the purview of the HAPAC; it may be interesting to put on the priority list for pre-proposals.
- Andrew: The idea of developing a basin-wide hydrogeologic model was pitched earlier. It had support at meetings, but I don't see it in the priorities.
 - Matt: It had support and was among the themes considered. Many themes had to be combined, these were the ones that were approved. That said, proposals like that can be considered in the RFPP and don't need to be priorities.
 - Andrew: There is the concern that it would need to come from a national consulting firm and wouldn't be considered if not advertised.
- Margaret: Aquatic invasive species (AIS) spread prevention/early detection is critical. Putting time and effort into understanding spread prevention and also how to prepare for potential impacts would be great.
- Leigh: Thinking of round goby, I wonder if there should be research focused on prevention of that species in particular? Developing a strategy to prevent it from entering that goes beyond a barrier, and understanding funding that would be required.
- Matt reviewed the LCBP technical team's thoughts on possible priorities for the RFPP or other ways of incorporating the Steering Committee themes through the technical budget process.
- Ryan P.: The soil health focus came from some planning work. We've identified entities working in soil health across the state – some are looking at soil health inventory baselines, some are investigating economic valuations, there's a climate change nexus too. Since there are many actors in this space, I don't think it would be discordant to

have a broader framing. Soil health is broad enough that we could solicit good projects that would advance soil health and how to make improvements in that area. Keeping it broad wouldn't exclude groups. I think keeping it broader would be advantageous for the group.

5. Workplan review: Adirondack Watershed Institute (AWI) - Lake assessment and watershed action planning for New York lakes (Dr. Brendan Wiltse, AWI)

- Dr. Brendan Wiltse presented an overview of the workplan. The project advisory committee (PAC) will help prioritize 50 lakes to focus assessments on. An assessment report will be created from monitored data and three lakes will be selected for action plan development.
- Steve: This is a great workplan, and will be a big step forward. Do you perceive problems with private landowners that you may encounter?
 - Brendan: We have not had issues with working on private waterbodies in the past. I wouldn't be shocked if there was a privately owned waterbody identified, where landowners said no, but I don't anticipate that would exclude a large number of waterbodies. AWI has strong relationships in the region.
- Margaret: It's great to see this expand. It would be great for NYSDEC to start using these data. Would you consider doing bottom samples on the lakes?
 - Brendan: In terms of coordinating with DEC, we have had conversations with staff in division of water about what AWI needs to do for them to use the data. We've committed to the extent that we are able. Our impression is that DEC would like more data and lakes assessed. For bottom water sampling, we could consider that within budget constraints. I think that if a lake has problems with anoxia, and is higher ranked for monitoring by staff, it could make sense.
- Leigh: This is a well thought out workplan. For tasks 4-5 have you had discussions with the Adirondack Park Invasive Plant Program (APIPP) about incorporating your findings into their annual reports?
 - Brendan: We haven't gotten to detailed conversations with APIPP, they will probably be member of the PAC. We are looking for folks with the landscape lens that can help guide lake selection. We also want to coordinate with them to not do duplicate AIS surveys. We certainly will share findings with APA.
- Neil: This is a great workplan, and is extremely helpful. There's a couple of parameters that, from a cost perspective, could be scaled back. Ammonium, for example, it's pretty uncommon to get a detection and if you do already have a signal, it's an intensive parameter.
 - Brendan: Ammonium could get dropped if AWI's lab certification does not come through.
- Matt: Since some of these details about analytes remain to be finalized, including an adaptive plan in the QAPP (like decision trees) could be helpful.
 - Brendan: We have the protocols for year 1 locked down, in year 2 flexibility is needed. Any feedback as we develop the QAPP is appreciated.
- Neil: Oliver Pierson has published methodology for lake watershed action plans in VT, might be a useful guide. Oliver is a great resource.

Motion: To accept the workplan as written

By: Margaret Murphy

Second: Jenn Callahan

Vote: all in favor

6. Workplan review: Dartmouth College - *Going deep: evaluating deep and shallow water drivers of mercury in Lake Champlain fish* (Dr. Vivien Taylor, Dartmouth College; Dr. Kris Stepenuck and Dr. Andrew Schroth, UVM)

- Dr. Vivien Taylor provided an overview of the motivations for the project and previous research that has been conducted on mercury in fish tissue in Lake Champlain. This project will assess mercury concentrations in fish tissue in Lake Champlain, explore the drivers of mercury concentrations, and also gather information about stakeholders who consume fish from the Lake. This information could inform possible updates to fish consumption advisories across the Basin.
- Margaret: It would be great if you could coordinate with me at VT FWS. For outreach, one of our main messages is that fish are a healthy option, we want to avoid scaring people. We want to have a balance as we work with anglers to educate the public on which species are safer. In terms of reaching out to New Americans, think about which species they consume because they eat a wider variety than other communities. Small mouth bass is mostly catch and release, so that's a little bit of a disconnect in your workplan. I liked the graphic shared from VT. A few questions on tissues: you said tissue plugs, but isotopes will need more tissue than a plug, correct?
 - Vivien: For stable isotopes we need a homogenous sample, but it's small. Fish concentration is so high, we only need 0.5 g for mercury. For subsampling we might composite, similar to what's been done for Great Lakes studies.
- Jamie: Nice job, I look forward to this project. Do you feel like you'll have a way to sort out with sport fish whether they're high in Hg because they are high on the food chain or that they spend more time in deeper water?
 - Vivien: C/N stable isotopes will give us more insight on what they are feeding on.
- Matt: I remember a comment from Bernie when reviewing the previous study that there was an issue where folks were catching fish from one place but driving them elsewhere for the competition. Not sure if that's true, but I am also wondering if you'd considered it or can control for it in some way?
 - Vivien: In the past, we've given anglers materials to mark on a map where they caught the fish. We need to be clear on where the fish is from.
 - Matt: That's something we'll need to think about in the QAPP – what are you handing to anglers to make sure we are getting the right information.
- Neil: When you're opportunistically pulling derby fish, they are large fish. Have you thought about methods to control for representativeness of size?
 - Vivien: We'll be correcting for length. For some of the more common species we'd hope to get, I'm not sure how we'd definitely get a good distribution of lengths. There's generally a linear correlation between length and Hg concentration that we can use.

- Neil: If the bottom end of length is a pretty big length, it will artificially skew that relationship. That's something to think about when deciding how many derby fish to use vs. how many to catch. You can also look to prior studies.
- Margaret: With size, when I've sampled before we've set a max size. If composition, make sure it's within a size range. There are other ways to standardize, we can discuss further.
- Margaret: It would be great to get data from the South Lake. Thinking about hypolimnion sampling, if you are sampling over a protracted period of time, Hg concentrations can change. Sampling post turnover can cause a mercury pulse. Just some thoughts on methylation that can affect sampling.
 - Vivien: For fish, Hg accumulates over a long time, and they are moving around. There's a temporal pattern in zooplankton concentrations. Cycling we can only get at from the base of the food web in a meaningful way. Extending into the fall is an interesting idea.
- Neil: We've sponsored this fish assessment every 5 years, it's been great for the feed of data that State's otherwise wouldn't have. When we built its structure, it was based on knowledge of the time. This isn't necessarily part of your team's work, but to the degree that you all can make recommendations in the final report about how to improve on the survey in the future would be helpful. This is a great team doing this work, I'm excited to see it take place.
 - Vivien: We can definitely provide recommendations based on our results on groups consuming fish and types of fish being consumed.

Motion: to approve the workplan as written

By: Margaret Murphy

Second: Leigh Walrath

Vote: All in favor

Abstentions: Andrew Schroth

7. FY22 core project review

Matt provided an overview of the core projects: flagship projects that the Steering Committee has decided should be funded each year. TAC will review changes to these projects. We are seeking TAC's endorsement of these projects.

The Lake Champlain Long-Term Monitoring Program (LTMP)

- Peter: No major changes envisioned on the VT side apart from adding the buoys, which will be covered under a different QAPP.
- Erin: No major technical changes on the NY side either. One change is that the funds would no longer go through DEC, they would go through NEIWPCC. This will reduce the funding needed.

Buoys

- Matt: We planned for buoy maintenance in FY22 but weren't able to deploy the buoys in the 2021 field season. We budgeted the same amount; we are interested in if TAC thinks the buoy monitoring program should be expanded.
- Neil: Has the buoy group discussed this?
 - Matt: Lots of effort has just been on getting the buoys purchased. Not much discussion on expanding so far. We did get an opportunity because the buoys used for turbidity monitoring for power lines are available for sale. We are going to ask the Steering Committee for support to instrument those buoys if they are interested in buying them.
- Andrew: The Established Program to Stimulate Competitive Research (EPSCoR) program is ending, their buoys that are currently deployed in Missisquoi and St. Albans Bays could be available. I could provide TAC with an estimate of how much funding that would require.
- Erin: I wonder where this program hopes to go, how many buoys would be optimal?
 - Matt: I don't think there was a total number envisioned, but more than 2 would be ideal. We are hoping to expand and complement traditional sampling.
 - Erin: The public likes access to data on buoys, it will be interesting to decide where to place them, where the public wants them to be.
- Neil: The Steering Committee has voiced support for the move forward into automation. I don't think there will be pushback in asking for funds for reasonable maintenance.
- from SC, big action to move forward into automation. Now don't think there will be pushback for reasonable maintenance. May be difficult to stage new equipment because current equip isn't out yet, though data website could help.
- Matt: We will go forward with this maintenance item, get information from Andrew on the UVM buoys, and talk with the Steering Committee to see what they want. We will update TAC.

NY Agronomist

- Erin: The funding amount and description of work is unchanged from last year.

AIS Rapid Response

- Meg: We are recommending changing this to early detection and rapid response and adding funding for early detection. We are uncertain if there will be a vessel incidental discharge act (VIDA) appropriation this year or not. An incoming graduate student will populate a Great Lakes Aquatic Nonindigenous Species Information System (GLANSIS)-style database for Lake Champlain by early next year; that work could be complemented with resources to start doing a detection program that's more comprehensive. This would be initial scoping funding to identify priority areas. This would add \$100K to start scoping out an early detection monitoring program. Funding for this category will roll into the boat launch steward program if it's not utilized.
- Meg: We are unsure how best to include round goby monitoring in this budget. We could use Rapid response funds, or discuss internally about making changes to the LTMP to

monitor for round goby. Exploring partnerships outside of the Basin to monitor its approach could be useful.

- Neil: if you are sufficiently concerned this year that you want to spend rapid response dollars, maybe we should do that and consider a slightly higher sum to replenish what you think you'll use.
- Margaret: I'm wondering if we can get USGS involved, in the Mohawk and Erie. Having them look at eDNA is the way to go now. If you can get locations upstream of Troy dam, that would be the best route because it will give us best insight for how far upstream they are.
 - Meg: I spoke to their team; they did recommend internally to sample in the southern end of the Champlain Canal and complementing that monitoring with electrofishing work.
- Margaret: Can we reup the discussion about the barrier on the Champlain Canal? The key to stopping the round goby is to get that barrier.
 - Meg: Three alternatives have been identified and shared with Congressional staff.
- Leigh: I support surveillance and pushing forward with the barrier, but we also need to address the interim. We need to consider the pathway from the north as well.
 - Meg: We have started to consider the resources that would be necessary to do an assessment of the Chambly Canal.
- Erin: Will there be a task force to begin addressing the round goby threat?
 - Meg: Yes. That group would be comprised of technical experts who will advise on how best to use these rapid response funds.
- Neil: It sounds like we should bump up the funds allocated for rapid response in this budget. I'm happy to indicate TAC support.

Boat Launch Steward (BLS) Program

- Meg: There's been a recommendation to add a decontamination station on the VT side. We are asking for more funding for that, and also funding to find better storage units for the decontamination stations at launches. We are also scoping additional BLS staffing and increasing coverage hours.
- Erin: Is there money built in for education and outreach on decontamination stations at entries?
 - Meg: I think we are a few years away from that. We need to start the discussion process with VTRANS. We did include dollars for signage to put on decontamination units to educate people on the clean, drain, dry approach.
- Neil: Have you considered the small signs like businesses use that would say "boat wash station this way"?
 - Meg: Great opportunity to explore, we haven't gone down that pathway yet.
- Neil: Does this funding include money for Québec, and if so, how many ramps?
 - Meg: This includes funding for 2 stewards in Québec. They will be stationed primarily in Venice-en- Québec, as weren't seeing a lot of traffic in Phillipsburg. They are looking into purchasing a decontamination station with other resources.

- Neil: In the education and outreach (E&O) committee, they developed that AIS sail. I would love to see a similar competition for clean, drain, dry messaging on decontamination stations.

Water Chestnut Management Program

- Meg: The project scope and funding amount has not changed. NY is doing a lot of work right now to transfer the mechanical harvester. We still face challenges including water level changes.

Cyanobacteria Monitoring Program

- Matt: This funding is to recruit, train, and support monitors to provide weekly water quality observations at 150 locations across the lake. The amount is unchanged from last year; the Lake Champlain Committee (LCC) plans to expand education and outreach to underserved communities with non-LCBP funds.
- Lori: I want to emphasize that we'll be initiating that work with underserved communities in the FY22 field season, and we expect that will influence our 2023 field season.

Motion: To accept all core projects as discussed including buoys and increase in funding for round goby monitoring.

By: Margaret Murphy

Second: Jenn Callahan

Vote: all in favor

8. Continued FY22 technical budget priority discussion

Clean Water Priorities

- Matt: For the economic value of clean water - Andrew made the point that the study we were discussing focused on Missisquoi bay, which is a limitation. If this is something that TAC wants to see more work in, we can modify it, or we can leave it as is for now.
 - Neil: I appreciate Andrew's remarks. A lot of times, we see larger scale conclusions. I know that this topic remains of interest to the E&O committee, maybe it can roll into other priorities?
 - Margaret: It seems like a wide-open objective, are there parts we can home in on for potential projects? The economic value of clean water is all inclusive.
 - Matt: It could be wide open, for folks to propose what would be most useful. If there was a particular type of project TAC would like to see, we could write that in.
 - Lauren: We are in the midst of a planning process to conduct a comprehensive economic valuation assessment on the value clean water and healthy ecosystems have to the basin's regional economy. Lauren Jenness and Katie Darr are coordinating this project on behalf of the LCBP, and we are also working with Jillian Kara, a graduate student at SUNY Plattsburgh, and a planning

committee. At this time it is believed that the project will build from and expand the 2015 LCBP-funded study: An Assessment of the Economic Value of Clean Water in Lake Champlain and we are currently reaching out to the potential end-users the planning committee identified (regional planning commissions (VT), county governments (NY), and MRCs (QC) and/or community economic and land use development boards) to get their perspectives on how we could best structure the assessment to meet their needs and answer the questions of the communities they serve.

- David: Lauren already talked about, reaching out to end users, covers it, interpretation and communication of results, maybe the most important part.
- Neil: as Eric suggests in chat, I think we should allow Katie and Lauren to continue coordination. The RFP could be stood up through E&O instead of TAC, if technical advisement is requested, we could do that.
- Matt: We will leave this priority as written; TAC can review it after it's further developed.
- Matt: For non-nutrient contaminant monitoring, the priority drafted draws from the theme.
 - Neil: I wonder if we want to focus this priority on agrichemicals or pesticides, more explicitly, so we get the project that's responsive to what the citizen advisory committees (CACs) have asked for.
 - Matt: The priority last year listed several types of contaminants. We can phrase it as 'agrichemicals', which would not preclude partners from including other non-nutrient contaminants.
 - Ryan P.: As you mentioned, there are many contaminants of emerging concern that do not originate from farms. Other contaminants should be considered. I feel it should be broader than agrichemicals. Are we saying pesticides, herbicides, leaching from agricultural fields from biosolid application?
 - Neil: The agriculture sector isn't the only sector where pesticides are used.
 - Matt: We can phrase it as 'non-nutrient contaminants'.
 - Ryan: 'Contaminants of emerging concern' was the phrase used last year.
 - Eric: Looking back through meeting summaries, the intent from the CACs was agricultural pesticides, not sure what got lost in communications. In their guidance to TAC to move forward, the guidance was particularly pesticides derived from pesticide applications.
 - Matt: Not sure it was a miscommunication, but the theme that was discussed and approved at the Summit was non-nutrient contaminants (including agrochemicals)
 - Ryan: We do have a monitoring program in the state for agrochemicals, not others. I prefer bullet B.
 - David: I like that the term "non-nutrient contaminants" is broad enough to potentially include not only chemicals, but perhaps even something like microplastics or other emerging contaminants.

Neil: There is a monitoring program in VT, but not basin wide. It would be good to add 'basin wide effort' in bullet A.

- Matt: The way this priority is phrased is asking to develop plan for a monitoring program to hand to LCBP. I want to make sure that is the TAC wants, versus what a 3-year project could do.
- Neil: That is what we've been asked to do. If we don't have the technical capacity within TAC, this is the way to get it done.
- Ryan: I think we should say 'pesticides.
- Neil: are we wanting to include other topics? E.g., road salt?
- Ryan: A lot of data already exist, and data are published and available. A technical feasibility/analysis should be done first before a monitoring program is suggested. My memory of the TAC discussion was how to fill in gaps.

Healthy Ecosystems Priorities

- Matt: Priority #1 is covered by one of the core projects discussed earlier. For priority #2 on AIS spread prevention, we had a discussion about bumping up the funding for rapid response funds. Is TAC recommending additional funding?
 - Neil: Leigh brought up that we are a few years before a canal barrier could be implemented. If we expressed this topic as a priority, beyond consideration of canal barriers, it could net us something interesting.
 - Margaret: I think \$50K is a drop in the bucket. I Would support maintaining this, making sure it's not just round goby specific. It should include the Richelieu River. It's important to think about other solutions – how do we prevent AIS from coming in, what tools do we need to maintain the integrity of the entire basin?
 - Meg: Having this as a separate priority would be to see if we can concurrently address round goby and other species.
 - Margaret: What's lacking is prevention efforts, so maybe that should be the focus.
- Matt: Priority #3 is "Support programs to create opportunities to conserve and restore critical lands for habitat of vulnerable species". We could keep this as is, or make it just research with the understanding we'd add large habitat implementation projects to the other technical RFP. Is it useful to have habitat implementation projects as part of the RFPP process?
 - Neil: This category of funding is up to \$300K, implementation is \$1.25.
 - Matt: Habitat could be more.
 - Neil: If we're going to be flushed with implementation funds, then moving implementation for habitat into the other RFP, boosting funds, and keeping technical programs research-focused makes sense to me. If we remove implementation, we'd lose the ability to give extra points to the dam removal community. It doesn't mean they won't get them anyway.
 - Matt: TAC supports implementation either way, staff and SC can discuss where it makes sense for that funding to go.

HE #4 - priority watersheds

- Matt: Priority #4 is "Identify priority watersheds to target restoration over a larger landscape". Is this covered by previous priority?

- Neil: I think this is different. More like coordinated assessment.
- Margaret: This is watershed, not basin. Trying to stitch things together better, instead of just having projects here or there throughout a watershed.
- Neil: I suggest that we could wrap this into 3a (conservation or restoration *assessment*).
- Jamie: I don't think we need to specify the scale.
- Margaret: I agree, it will depend on the species. They should all be at least at a subwatershed scale
- David: I liked prioritization – there's a need for that in restoration projects.

HE #5 - Advancements in technology

- Matt: Priority #5 is “Support advancements in technological water quality/quantity monitoring to improve understanding of ecosystem health, provide insight into existing resource areas of concern such as critical habitat, improvements to modeling of flooding or spill plumes or HABs “. I am thinking that flooding might be covered by the IJC work, spill plumes in ESI work. TAC discussed predictive capability on cyanobacteria blooms.
 - Neil: It feels like we have a lot covered in complementary work in LCBP. Drones for cyanobacteria bloom detection gets into the automation piece.
 - Matt: We currently have 4 priorities; we can communicate this one to the Steering Committee and they can make it a priority if interested.
- Matt: Priority #6 is “Support work to quantify ecosystem benefits of water quality improvements to incentivize funding and implementation of total maximum daily loads (TMDLs)”. I felt that this is also covered by lots of partner work, what are TAC's thoughts on making it a priority?
 - Margaret: TMDL gains can be wiped out by heavy rains. There may be a need to look into climate change research, to find ways to adapt the TMDL work. Looking at ecosystem benefits and TMDLs in light of climate change, there could be new ways to reduce P loading. Might be time to re-think how we're doing it.
 - Neil: Basin Resilience to Extreme Events (BREE) covered a lot of that, they have some interesting publications coming out. Not sure we could best it.
 - Andrew: I agree that BREE did a lot of good work in that space, but it needs to be built upon in the particulars that Margaret talked about. The BREE model doesn't simulate particular management practices that are going to hold up under rain events better than others.
 - Neil: I struggle to turn this broad statement into a research priority. It's fine to keep it as a larger budget item.
 - Matt: A priority could be “projects that quantify ecosystem benefits of water quality improvements”. We can present this as an option to the Steering Committee or just take it off and say that it's covered by partner work.
 - David: I noticed there seems to be a dearth of support for post-implementation monitoring. Could that be covered by this?
 - Margaret: I like this point, something like that could get there. It should be highlighted – what are we doing, is it working? I think we should find a way to incorporate this and see if anyone submits something.

- David: We could broaden it to habitat as well as clean water.
- Matt: I am not sure it hits the theme exactly as written, but I heard requests from many organizations for this kind of work.
- Ryan: I think there is a gap that exists in the framework for building an ecosystem service program that meets state water quality and climate goals. Watershed-scale changes that result from individual landowner choices – what is the scale of implementation that needs to happen before you start seeing these changes? Research can help define, quantify, and value an ecosystem service and then assign value to a management practice. 6a is a laudable thing, but I think this misses the broader priority. I’m not suggesting we don’t put this one forward, I just think it’s different.
 - Matt: Are you suggesting an additional priority?
 - Ryan: I will let my comment stand. I do think there’s need for LCBP funding for landscape-scale assessments. This is under species, so maybe the soil health priority covers it. I wouldn’t suggest the change here.
- Margaret: Do we want to put a scale on 6a? We want to see potentially what the larger benefits might be – I don’t think we want this on one small project.
 - Matt: Projects can range from \$25-300k, we might want to keep it broad. If we only want larger projects, we can specify that. We can constrict the scale of the research.
 - Margaret: No need to change. I would like to see trying to string together projects over a watershed.
 - Matt: That could be something we provide feedback about at the pre-proposal stage.

Thriving Communities

- Matt: The priority we were asked to consider is “Pursue recreation planning and strategic, integrated approaches to funding initiatives that restore and protect natural assets and increase public access and recreational co-benefits “. That could be added to the implementation RFP, be a technical priority, or we could let the Steering Committee know TAC is interested in working on this too.
 - Neil: Good point, maybe we want HAPAC to take the first crack. Oliver was getting at the technical aspect. We could bold this entire one, maybe try some offline discussion, bring to the Steering Committee as one final piece we didn’t have time to walk through. The RFPP will go out as soon as the Steering Committee decides.
 - Andrew: What would a proposal under this bullet point that TAC would review look like?
 - Neil: Density of mooring fields, access considerations. Technical, but more like social science.
 - Margaret: I don’t see the technical end of it.
- Matt: I will unhighlight this one, but we can represent TAC’s interest in it at the Steering Committee level.