

Lake Carmi Coordination Team Meeting
Thursday June 2, 2022 @ 4:00 PM
Meeting Minutes

Attendees

- Kim, Jon
- Bates, Karen
- Stangel, Pete
- Ana Morales
- Dave Bennion
- Maria Alfaro
- Edwin Romanowicz
- Rob Evans
- Pierson, Oliver
- John Costa
- Julia Crocker
- David Larose
- Dean Pierce
- Northwest RPC
- Ashton Kirol
- Dynarski, Katherine
- Bruce McGurk
- John Tucci
- O'Brien, Bridget
- Andrew Schroth
- Ernest Englehardt
- Angela Shambaugh
- Wayne Laroche
- Tom Gates
- Freyer, Brock
- Lauren
- DiPietro, Laura
- Albert (Guest)
- Quinn, Connor

0. Introductions of First Time Attendees

- Kate Dynarski – Projects coordinator FCNRDC
- Edwin Romanowicz –Professor, SUNY Plattsburgh
- Maria Alfaro –UVM Masters program

1. Introduction, Oliver Pierson (VTDEC), Rob Evans & Pete Benevento (FWC & CCA)

- Off to a typical and good June start to lake water quality with deep secchi readings and generally good D/O readings (above 2.5 mg/L at 8.5 meters).
- Last season with DEC funding for EverBlue Lakes system maintenance and for the UVM platform to perform high frequency monitoring of water quality parameters

2. Aeration System Update, John Tucci (Everblue Lakes)

- Aeration system is now working at 80% and we can expect that will be able to perform at 100% once the control boards are upgrade during the week of June 13.
- Controller failures; problem being identified (engineering change) and solved (upsized the controllers) but the system is on track to have full uptime year
- John recommends that there be DEC funding available for system maintenance & equipment
- UVM Epscor Site: <https://epscore.uvm.edu/LakeCarmi/>

3. How does aeration change phytoplankton - Mindi Morales (UVM)

- Phytoplankton Monitoring; How does aeration change blue green algae?
- Increase in total algae and cyanobacteria biomass in 2021
- Stability (length of blooms) of blooms increased in 2021
- Diversity of cyanobacteria increased after aerator deployment (2019)
- Cyanobacteria blooms may displace other algal blooms

Questions and Answers:

- 2021 fall bloom - would it be better to extend aeration into fall? Could fall turnover have been the cause?
 - Morales - Correct that fall turnover can result in bloom, as a pulse of P from lake sediments. And in 2021 there was an early fall turnover.
 - Andrew - If system functioning for sustained period of time, then may not see this.

Conclusions

Significant increase in cyanobacteria biomass in 2021

Stability of phytoplankton biomass increased post-aeration

Shifts in cyanobacteria community composition

High biomass cyanobacteria blooms may displace diatom bloom

- Does that high level of microcystis in fall 2021 put lake residents at risk because toxin releasing species?
 - Morales - she didn't measure toxin level only biomass. The Dept of Health does measure this. It would be good to avoid swimming during a bloom.
 - Bridget O'brien, DVH - a few hits of toxins, but none above recreational level. She can pull data for Lake Carmi area and send out to group.
- If lake turned over, than lake was stratified. Have you been able to prove that aeration can break down stratification?
 - Ashton Kirol- Aeration does break down stratification, but when breaks down stops, so not continuous mixing happening

4. Assessing Internal Phosphorus Loading in Lake Carmi in Response to Whole Lake Aeration - Ashton Kirol (UVM)

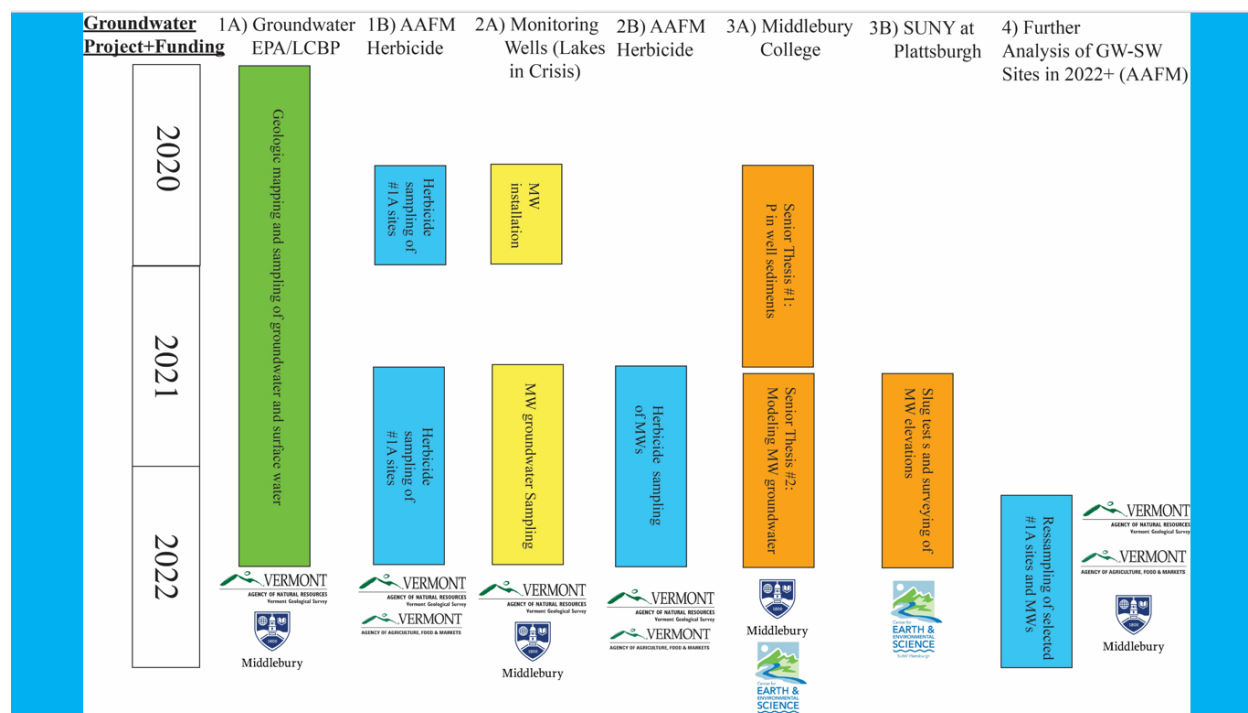
- Assessing internal phosphorus loading in Lake Carmi
- Lake has been well mixed with increasing surface temperatures as air temperatures increase
- Stability has decreased since 2018; easier to mix system
- Decrease in mixing of dissolved oxygen; periodic mixing still occurred
- Surface phosphorus levels have increased since 2018 due to increased mixing
- Sediment phosphorus is relatively stable except for increased mixing
- Phosphorus coming from internal sources
- 2022 - May through June1 - showing that during aeration, P levels and oxygen responding as expecting. In last year, when aeration stopped, and then restarted, P levels actually increased.

Questions and Answers:

- Seasonal variation of P concentration - could it be due to internal or external loading?
 - It can be both. In summer, see increase P in bottom water, and then mixing to increase P levels. This P does cycle from sediment to surface, to cyanobacteria and then they die and fall to sediment

5. Short update on Various Lake Carmi Groundwater Nutrient Cycling Assessment Projects - Jon Kim (DEC)

Here's overview of studies that are supporting effort:



Questions and Answers:

- Where are monitoring wells and what are conclusions so far?
 - Jon - 9 on private property - They are in surficial sediments. The sampled water does include P, and ground water shows flow direction towards lake. 50 ppb is common value. He has found that bedrock wells are 10 ppb, shallow wells are 20 ppb. Jon will be looking at whether or not they can take these numbers and add to loading calculations.

6. Update on DEC supported BMP work across land uses - joint effort between FCNRCD, FWC, and Fitzgerald Environmental Ass. EA - by Katherine Dynarski

Project Goals:

- Inventory existing best management practices in agricultural (non-RAP), Lake Wise, and natural resources (streams) sectors
- Identify efficacy of current BMPs
- Identify and prioritize opportunities for new BMPs
- Conceptual/30% designs for prioritized BMPs
- Involve landowners and stakeholders throughout process

Team:

- Franklin County Natural Resources Conservation District
- Franklin Watershed Committee
- Fitzgerald Environmental Associates

Project Teams + Scope of Work

- Team members may include town representatives, lake associations, lake users, farmers, water resources professionals, and more – we want YOU!
- Agriculture Team
 - Identify agricultural lands with existing or potential restoration projects (wetlands, riparian buffers, and streams/ditches)
 - Field visits with relevant landowners/farmers
- Lake Wise Team
 - Boat tour around Lake
 - Field visits with Lake Wise Certified property owners
- Natural Resources Team
 - Stream and ditch walks
 - Conversations with landowners

- Project is starting soon - goal is to encourage BMP adoption across landscape
- Agric, lake shorelands and natural resources are focus. Agric work will focus on riparian buffer, natural resource restoration.
- The team is looking for interested people to join the project.

- To get involved: katherine.dynarski@usda.gov
- Subsequent implementation of projects would be done through grants from the Clean Water Service Provider (NWRPC)
- Schedule:
 - Early summer: Form sector teams and Host kickoff meeting
 - Summer/fall: Identify & inventory BMPs and then Evaluate efficacy

7. Private Road Update - By Karen Bates, VT DEC

- Northwest Regional Planning Commission has identified projects for implementation based on outcome of road erosion inventory completed last year. Expect one of the projects to be completed next fall.
- Would be good to provide some outreach to lake community about how projects chosen and the types of road practices that can help reduce overall costs by better managing stormwater.
- Other projects will be identified; if you have ideas, contact Karen Bates
- Sandy Bay & Blackwood work to start next fall
- Seeking landowner agreement for projects
- Funding for additional roadwork - next year from other sources

8. Critical Path Projects - Oliver Pierson

- Lake Carmi Crisis Response Plan Update is complete and available on the DEC Carmi Webpage
- In report can see the list of projects. Final, but living document. Would be good to hear how each project is going from project lead.
 - Perhaps updates natural resource and agric. sector projects could be a topic of focus at the next meeting.
- Pete B: Patten Shore Road has issues, has seen sediment plumes into lake. He collects funding from association every year to fill potholes, and cover road, but need to have an engineered design. How can we get Patton Shore Rd. assessed/engineered, as it significantly impacts lake and public safety ?
 - Karen - will talk to Linda B. from NWRPC to see if they have resources to address.

9. UVM extension funding for Lake Carmi - Oliver Pierson

- DEC funding to UVM extension is ending but UVM extension finding a way to continue work in watershed
- Manure injection for agriculture BMP implementation, but is funding adequate?
- Ensure continued funding for watershed BMPs in Ag Sector particularly
- Message from Jeff Sanders: manure injector is ready to go as soon as soil dries out. He will continue to work with farmers on BMP
- Lauren Weston: Franklin County NRCD has funding to work with ag producers on bmp work separate from the new DEC BMP project too. We will connect with UVM extension to see if they need additional capacity. Also have money to support soil health education to technical staff
- Laura Dipietro, AAFM will look to see what resources are available and report at next meeting

10. Other

- Rob Evans - There's an interest in revising the Lake Carmi TMDL
- Also would like to see VTrans, DFPR and others attending meetings
 - Oliver - they are invited, and encouraged as it's a Lake In Crisis. If seeing absences, he will strategize with Rob. It might be good to make sure that these organizations see relevant issues on agenda to encourage them to attend.
- Also Lake in Crisis funding - how to present case at Clean Water Board

11. Next meeting: Thursday September 22 at 4 PM