05/14/2020 Lake Carmi Coordination Team Meeting Minutes

Microsoft Teams teleconferencing meeting

For background information, please see the [Vt Department of Environmental Conservation’s Restoring Vermont’s Waters - Lake Carmi](https://dec.vermont.gov/watershed/restoring/carmi)

Attendees (partial list) - ANR: Oliver Pierson, Karen Bates, Jon Kim, Marli Rupe. Everblue Lake Solutions: John Tucci. UVM: Andrew Schroth, Franklin Watershed Committee: Rob Evan, Pete Benevento. Community Members: Ernie and Andrea Englehardt;

* Aeration System Plans for 2020
	+ John Tucci, Everblue Lake Solutions and Oliver Pierson, DEC
	+ John's Plan: next week or week after to reinstall reconditioned compressors and upgrade ventilation system for both units for improved cooling and exhaust to better handle 90 degree temps. This week or two before turn on date. Will wait for fisheries group says lake has reached agreed upon surface water temps and dissolved oxygen concentrations. Town or they will turn on switch. Then they come up to pull out diffusers and clean.
	+ Oliver - thanks to town to pay up to $10,000, and DEC paying other half to pay for electricity costs. Will also arrange for tree planting around compressors to provide shade help reduce temps. Gov's order requires a 2 week quarantine period for out of state contractors now, but change may happen, also if not, if deemed essential  can be skipped and that designation will be requested. Report on last summer’s performance is [here](https://dec.vermont.gov/sites/dec/files/wsm/lakes/docs/2019-12-02_DecemberLakeCarmiAerationSystemUpdate.pdf)
* Update on In-Lake Monitoring for summer 2020
	+ Andrew Schroth, UVM with presentation. Last here in Feb, see those meeting notes for presentation. At UVM, water quality and nutrient dynamics, paid by DEC to supplement their wq monitoring with high frequency sensors to understand how all systems interact and what is controlling the response to aeration system. Collect data every 15 minutes in lake profile (02 and temperatures) as well as collecting sample above lake sediment daily. Need to figure out COVID logistics relating to systems deployments, including platforms where water samples will be taken. First system is deployed. Platform will allow data to be uploaded to UVM every few hours, otherwise needs to be manual uploaded at lake.
	+ And introduce Ashton, a Master's student who will be in field.
	+ Question: what is goal for dissolved Oxygen? Answer: want to avoid stratification of system, so oxygen levels similar and not reduced at sediment/water interface (when P can be released). Oliver - hoping for 2.5 mg/L
	+ Question: Meeting Oxygen goals will prevent algal blooms? Answer: John - if can keep dissolved oxygen levels higher, that’s point where research suggests that risk of releasing P from sediment is lower, so suppress P loading from lake. It is key driver, but won't address p loading from watershed. Can’t guarantee no algal bloom, but can say that its not due to bottom sediment. First of two prongs for addressing P loading. Watershed effort will also be on going to reduce P loading.
	+ Andrew - results will be able to model these questions: how will system change if internal lake dynamics and/or watershed conditions change.
	+ John - Aeration is Unique process - exceptional for whole country, only other is in Lake George
* Update on UVM Extension work with Local Farmers and summer 2020 plans
	+ Jeff Sanders, UVM was unable to join the call so Marli Rupe from DEC provided the following update: DEC is continuing to support the manure injector work in watershed. Other work includes nutrient management planning and use of a model that can be used to determine potential phosphorus loss from individual fields in watershed and management options for decreasing the loss. UVM has gathered all the data from each farm’s individual nutrient management plan and will be reviewing results with farmers. UVM extension also helping with non-agricultural issues as well like natural resource restoration.
	+ Rob Evans- talked about visit to legislature. In visit to agric committee, heard from them that they appreciated the collaboration across all disciplines at Lake Carmi. Marli agreed that it was a unique collaboration that should be shared.

* Update on State Route 236 Culvert Replacement Project (presentation to Selectboard [here](https://dec.vermont.gov/sites/dec/files/wsm/lakes/images/Carmi%20Culverts%20Project%20March%202%20Presentation.pdf))
	+ Town of Franklin Representative if possible and Oliver Pierson, DEC
	+ Included in Lake response plan, one of last ones - replace failing culverts that are contributing nutrients/sediment to Dewing Brook and then the lake. Important for wq but not structural priority, so town needed to do work. Funded: Clean Water state revolving fund loan to town that will then be forgiven at 100%. Town successfully voted to approve project during town meeting. VTrans provided permit for town to complete work. Town starting process - Hire consulting engineer, use VTrans study to develop Design and bid document development with support from DEC Engineer and finance staff. Expect that installation next year. Much thanks to selectboard.
* Upcoming Lake Carmi Clean Water Report
	+ Karen Bates, DEC - report that tracks work completed towards meeting wq goals identified in [2018 Lake Carmi Crisis Response Plan](https://dec.vermont.gov/sites/dec/files/wsm/lakes/docs/2018_08_22_Lake_Carmi_Crisis_Response_Plan_2.0.pdf) as well as Lake Carmi P TMDL, including financial investment, project output and P reduction. Will be completed June.
* LCBP Grant: Private & Park Roads Assessment and Improvement in the Lake Carmi Watershed (presentation [here](https://dec.vermont.gov/sites/dec/files/wsm/lakes/docs/Carmi_May14_Meeting%20update%20NRPC.pdf))
	+ Representatives from Northwest Regional Planning and/or Friends of Northern Lake Champlain
	+ NRPC Contacts for project -  is Linda Blasch and Amanda Holland. Received contract last week. Starting with developing the plan for data collection and its approval. Followed by inventory and data processing ,( July/August to September) workshops outreach (summer), construction.  Process: look at hydrologically connected roads (greater risk to water quality). Maybe up to 350 segments that will be looked at. Will prioritize based on ability to reduce P loading from project. Outreach will include mailing and advertise workshops this summer and fall and opt out if people don’t want inventory conducted on their property. Outreach will include talking about benefits of work. Will work with Friends of Northern Lake Champlain and FWC to help with outreach. Thinking that workshop could be recorded for later viewing. Will outreach to property owners for areas where roads contribute P, and their interest in participating in stormwater remediation projects.  Prioritization: land willingness, costs, ability to address more than one segment at time, ability for landowner to provide cost share, commitment to long term maintenance.  For projects: will have mini grants to provide towards project constructions, work with landowners to feel comfortable. 2 - 5 segments on private and park roads will be completed through June 2022. Budget breakdown - 75% towards design and construction of projects. Would like help with outreach - as percent live outside of Lake. In addition to direct mailings - other ideas?  And also what it best time to reach people.
	+ Rob - LCCA has email list; Facebook from FWC, LCCA. Right after Memorial Day weekend and September. FWC - Once a month have meetings where outreach could happen. Town of Franklin has newsletter. LCCA end of year meeting (second Saturday in August). Very supportive
	+ Pete B. - very appreciative of effort. Willing to help. Let him know. Can provide packet of information delivered to each camp. Has already begun some outreach last year and will add someone
	+ For State Park, contact Rob Peterson
	+ Kris Stepenuk, UVM Sea Grant - Webinars have been a very successful communication tool
* Update on the Shallow & Deep Groundwater Analysis Project (project presentation)
	+ Jon Kim, DEC - In February presented on study. Update tonight. He has flyer that he will send tomorrow morning, which explains all the proposed field tasks, see [here](https://dec.vermont.gov/sites/dec/files/wsm/lakes/docs/Lake%20Carmi%20GW-SW%20Study%20Brochure%205-5-20%20v5.0.pdf)). Purpose: how ground water and streams feeding it effects P and nitrate loading in Lake Carmi. Allowed to start field work now, so by July would start.
	+ Starts with identification and characterization and of bedrock formation to see where fractures are, as these and beds control how ground water flows. They look for bedrock outcrops, break off a small piece to identify rock type with a lens, and take compass measurements, so need permission to get on to private property. The larger the parcel the better.
	+ Also will map the surficial deposits and determine where they more porous and permeable to find out where surface runoff enters ground water. They will make auger, or small shovels holes. Landowner permission is also needed. In addition, also looking at existing information that is provided in well drillers reports.
	+ Also will look at chemistry of 25 surface water and 25 ground water sites by sampling streams and existing wells, included herbicide analysis. Need to permission from landowner to sample from outdoor faucet or pressure tank if outdoor source is filtered.
	+ Also shallow surface aquifer study: use 12 sites to drill small well. Have about 3/4s of sites, and need additional sites. Will test for herbicide as well as other chemical parameters.
	+ Question: herbicides? Patty Casey (AAFM) - will test for several herbicides including Atrazine and Metolachlor, as well as break down products. Will also sample for glyphosate (round up)
* Carmi Tributary Monitoring
	+ DEC - Analytical work has been supported by DEC, but due to financial impacts from pandemic, this funding is not available. Lakes and Ponds and Karen are putting together a reduced sampling effort funded through other sources. Look at 5 main tributaries that are usually sampled and are problematic. 10 x over summer with some precipitation events. We are still figuring out who will sample, collect, and get them to lab. Support for the other water quality monitoring efforts by Lakes and Ponds, UVM and the lay monitoring program will continue. Rob and Pete agreed that will help. Pete will be back in two weeks and then need to quarantine.
	+ Question: sampling in spring? When manure is spread. Oliver answer: stay at home order has restricted DEC work until recently.
	+ Do we have comparison of last year’s data with previous years? Karen - FNRCD is writing up report and it will be on DEC Lake Carmi website. A summary is found in the Lake Carmi Communicator #3. For 2018 report, see [here](file:///C%3A%5CUsers%5Ckaren.bates%5CAppData%5CLocal%5CMicrosoft%5CWindows%5CINetCache%5CContent.Outlook%5CLH5BJ10X%5CFor%20previous%20reports%2C%20see%20Fritz%20Gerhardt%202018%20study)
* Any Other Business & Next Meeting
* Andrew would like to find place to look at water level data for development of physical model of lake. They need to put in a foot-long monitoring tool, and is requesting a dock owner's permission to put in where a couple feet of water. Rob volunteered, as well as Andrea E.
* Jon Kim will provide flyer. He will provide short narrative to Pete B. to get to Larry Myott to add to LCCA newsletter for June.

Next meeting: August 12, 2020 4:45 pm via Microsoft Teams teleconferencing.