Studying the health of the Megunticook

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By Daniel DunkleExecutive Editor February 2, 2023

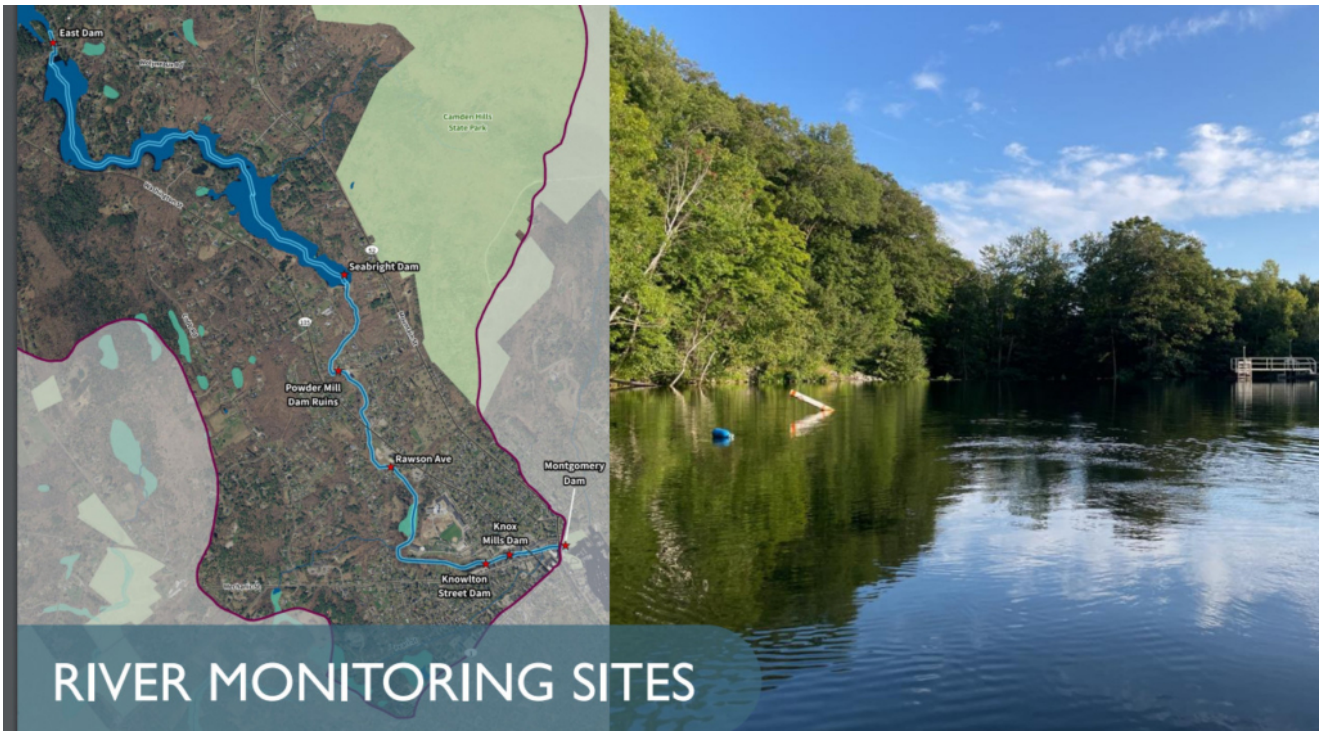
CAMDEN — On Jan. 17, experts from FB Environmental Associates updated the Megunticook River Citizens Advisory Committee on work done to monitor the health of the river, but a lot more will be known after another season of testing and study.

The committee has been working to evaluate all the options for a river restoration project since September, and town officials say that work is likely to continue until at least 2025.

Select Board member Sophie Romana, who has been working with the group, said the nine-member committee represents a cross-section of Camden and the various interests involved.

Added to that is help from consultant Forrest Bell and his team of environmental scientists. His crew placed “data loggers” — devices that measure dissolved oxygen and temperature in the water — at seven sites along the river.

The sites are near the East Dam, Seabright Dam, the Powder Mill Dam Ruins, Rawson Ave., Knowlton Street, Knox Mills and Montgomery Dam. The goal was to establish a baseline condition of the river watershed. The data was collected at the tail end of the growing season, the presenters noted, in September and October. The plan is to study the area in more detail in the summer of 2023 during the peak growing season when there is more stress placed on the aquatic ecosystem.



FB Environmental Associates has tested the Megunticook by monitoring at seven sites.

“It’s much too soon to make judgments about the health of the river but we will know a lot more after the 2023 field season is over,” Bell said. “We need to see what the water quality of the river looks like over the course of the whole summer including those times of the year (July, Aug, early Sept) that we typically have the warmest temperatures and lowest dissolved oxygen levels.”

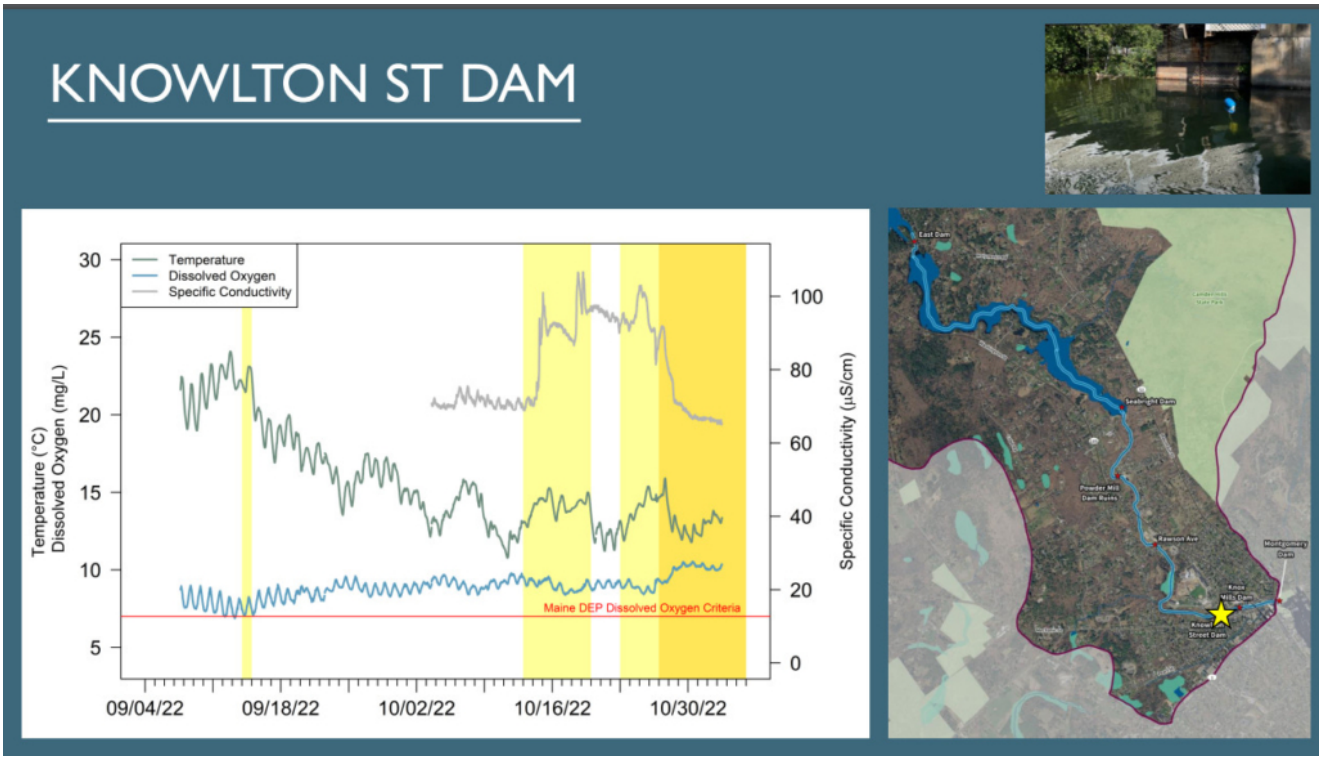
Project Managers Laura Diemer and Luke Frankel of FB Environmental made the presentation to the committee.

During the presentation, the project managers noted that at the Knowlton Street Dam the dissolved oxygen levels were just above — and at times right on the line — the Maine Department of Environmental Protection’s minimum threshold of 7 milligrams per liter.

“Dissolved oxygen is important to aquatic life,” Diemer explained in an email. “…When there isn’t enough oxygen, basic functions and reproductive capacity are diminished. When oxygen is severely reduced (e.g., <2-3 mg/L), that is when we see fish kills or larger-scale die-offs of aquatic species. The Maine DEP, like other state agencies, set water quality criteria for dissolved oxygen to protect aquatic life. In Maine Class B waters, that number is 7 mg/L. If a river supports coldwater fish spawning, then that number rises to 8.0 mg/L (1-day min) and 9.5 mg/L (7-day mean) between October 1 and May 14 each year.”

“Dissolved oxygen levels are regulated by a number of factors — temperature, flow, and biological activity are the big ones,” she explained. “Warm water holds less oxygen than cold water. Slower moving water, such as impoundments or lakes, can thermally stratify,

preventing oxygen diffusing into the water… Faster moving water in rivers (think riffles) are actively exchanging and absorbing oxygen with the atmosphere and are generally higher in oxygen."



The red line shows that dissolved oxygen levels are on or barely above the DEP minimum threshold in parts of the Megunticook. Screenshot from FB Environmental Associates

It was noted during the talk that people in developing land along waterways do things that negatively impact the river ecosystem. Straightening out the path of the river rather than letting it naturally meander can impact oxygen levels and temperature. Creating impervious surfaces such as driveways allows stormwater to flow directly into the water whereas it would otherwise sink into the soil and be naturally filtered as it makes its way into the watershed.

When rivers meander it can help their health, but straightening them to help development can damage the ecosystem. Screenshot from a presentation by FB Environmental Associates

Still, Bell is not jumping to any conclusions. “It’s a bit tough to make too much of those readings at this point but we will know much more when we see what levels look like after July and August of this year.”

Included in the information packet for the presentation were questions and answers, including those dealing with the former tannery site.

Someone asked, “Did the logger near the Rawson Avenue Bridge show any pollutants from the nearby Tannery site?”

The answer: “From the parameters that we’ve measured so far, the Rawson Avenue site showed similar patterns in specific conductivity, oxygen and temperature as the upstream Powder Mills Dam Ruins site, suggesting that there aren’t any major localized pollutants impacting the Rawson Avenue site specifically. The monitoring that we performed in 2022 was fairly limited, however, measuring only three parameters over the course of two months. To better investigate any impacts from potential pollution sources such as the tannery site, monitoring this upcoming year will be performed over a longer time period and will include additional parameters such as nutrients.”

Another question was, “How can we minimize impervious surfaces? Are there examples of communities that have taken actions to reduce impervious surfaces?”

“A: Yes there are plenty of examples of low impact development and green infrastructure projects that are aimed at reducing impervious surfaces. The guidelines for these types of efforts are often put into planning documents that can eventually be adopted into ordinances at the town level. These ordinances can change the criteria that planning boards use to evaluate site development plans so that impervious surfaces are minimized on new development. New technologies are also being employed to reduce impervious surfaces including pervious walkways and natural vegetation in urban areas. Although it is often more difficult to retrofit existing stormwater infrastructure, there are some creative engineers in Maine who have done some impressive projects that have reduced stormwater runoff from existing infrastructure.”

All of this work so far is only a fraction of what the committee is doing and what it will do.

Romana said the group’s motto is “No stone unturned.”

The river is a massive asset for the town, and it must be looked at from a number of perspectives. It contributes to quality of life; attracts tourists and business, supports wildlife and fish, and it represents a piece of the town’s history.

The members of the committee come from a variety of perspectives and stakeholder groups. There are members of Save the Dam Falls Committee, which opposes removing the Montgomery Dam. There are businesspeople and environmentalists, teachers, an attorney and sportspeople.

Romana said they are passionate and work well together. “It’s a good, dedicated group of people,” she said.

Asked about misconceptions about the committee’s work, member Deborah Chapman said, “There is a lack of understanding of why there is a committee and what it is doing. The only misunderstanding I’m aware of construes the committee as already having made decisions about the Montgomery Dam, which it absolutely has not.”

The town has received a $1.6 million grant from the National Fish and Wildlife Foundation and the National Oceanic and Atmospheric Administration to study the river.

Romana said the group welcomes questions from every perspective. This is the time, during the study of the project, to seek out answers from every angle and in every direction.

“I hope, and I’m sure the rest of the committee hopes, that Camden’s citizens will be curious about the river and watershed, will be willing to share their views and questions about both and will be patient with the committee as we continue our work,” Chapman said.

The mission of the committee is to eventually provide recommendations to the Camden Select Board, and in the process to engage with the community. The free presentations open to the public are part of that.

The group is hosting several virtual presentations from expert speakers. The next speaker will be fish biologist Nate Gray, Feb. 21, from 4:30 to 5:30 p.m. Everyone is welcome to sign up on the town website calendar.

The committee has also started a newsletter on its work. To sign up, contact megunticookriver@fbenvironmental.com.

Romana said the committee welcomes suggestions for speakers.

While residents in Camden debate possible changes to the dams and the river system, the committee is settling in to continue a long road of research and discussion before making its recommendations.

“It will also be important to monitor the river for many years to come,” Bell said.

The Megunticook River Citizen’s Advisory Committee begins its mission upstairs at the Opera House in Camden on Sept. 20, 2022. Photo by Daniel Dunkle

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