

Stream Team:

Please find below an illustrative description of the Amherst Millpond Local Needs Project. West District discussed the project and thought that some photographs would help explain the project more succinctly.

Amherst Millpond is a 48-acre impoundment on the Tomorrow River (a well-known trout stream) with a mean depth of five feet. Prior to the 2016 drawdown, the Millpond was mostly a very shallow open water lake with low diversity of submerged aquatic vegetation (SAV) and without a defined stream channel. The leaf-on aerial photograph below shows only a few islands of reed canary grass surrounded by open water, void of emergent vegetation (EV).

The millpond was drained in 2016 to repair the dam. The lake was in a drawdown for the growing season. During the drawdown, the river incised a deep channel along the east side of the pond, and emergent plants quickly recolonized the exposed sediments creating a very dense stand of emergent wetland species and some tree saplings (aspen and willow). As the water levels returned, the millpond reacted like most drawdowns where some plants were drowned out, leaving hydrophilic EV and a greater diversity of SAV. What is unique about this particular drawdown is that the borders of the new channel remained densely vegetated that maintain the main flow of the river to the new channel.

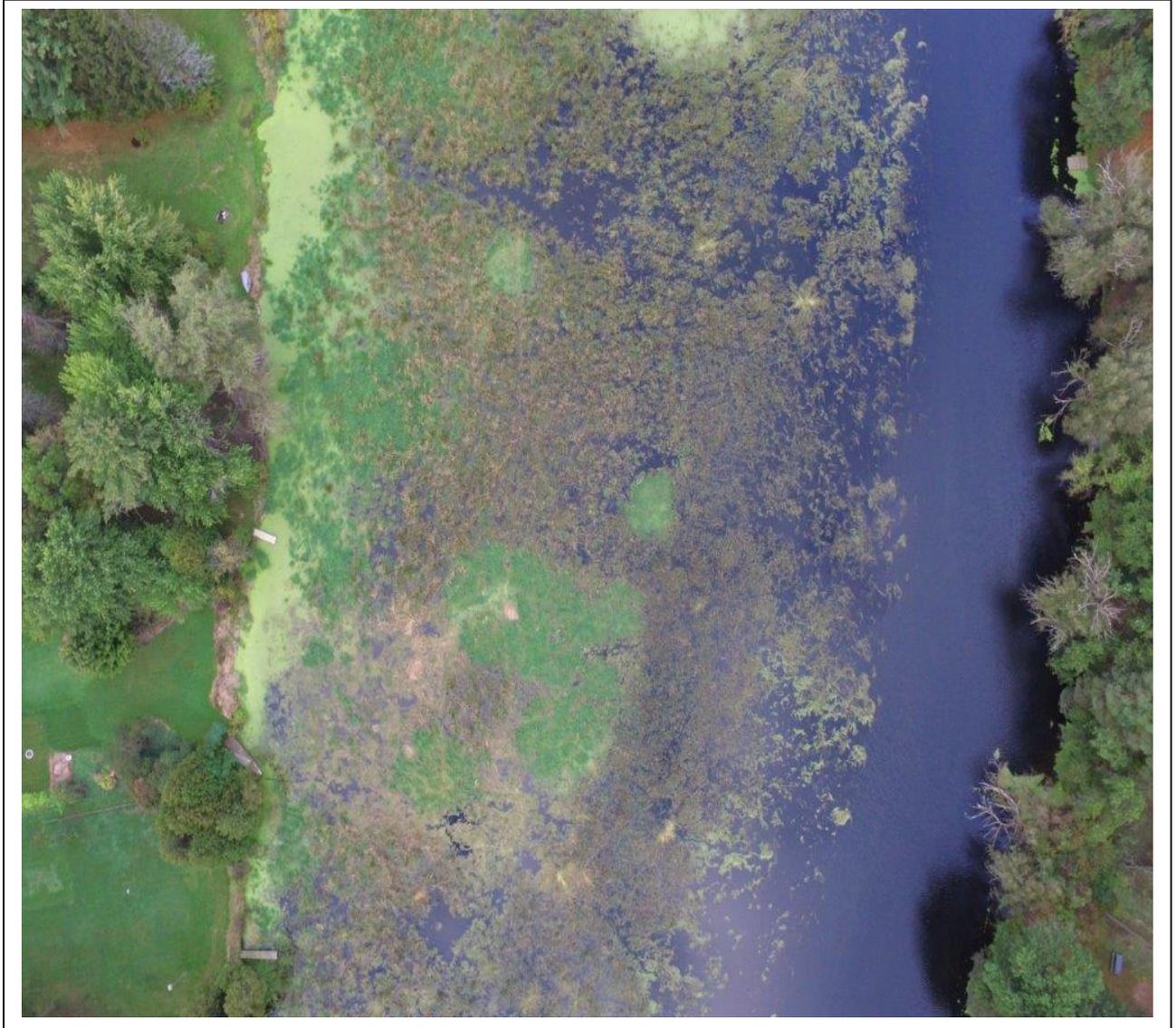


During the 2017 growing season, there were reports of trout species being found within the impoundment during the summer. This led to a great deal of local interest from the local Trout Unlimited chapter, UWSP and the Friends of Tomorrow River (citizen group). It also sparked interest with DNR Fish Management staff and the local Water Resources Specialist who has designed and monitored many drawdowns. Fish Management and Water Resources staff asked several questions:

- 1) To what extent did the river incise a new channel (i.e. depth, width, etc.)?
- 2) Is the river channelization and the dense EV along the edges, interacting with flow dynamics the point that communication between the channels and flooded wetlands is limited?
- 3) Does water temperature support this?

4) Do Fish Management fish surveys support this?

The new channel and dense vegetation along the stream corridor appear to be creating a riverine system with a flooded stream corridor instead of lacustrine system. The aerial photo attached in late-September still shows dense vegetation even after senescence.



The previously reed canary grass islands are visible in each photo. The surrounding EV appears to be dense enough to divert flow to the main channel, ultimately maintaining a riverine system.

Water Resources staff will assist local volunteers to grab samples upstream, downstream and mid-lake to document any changes in water chemistry that might indicate separate or mixed systems. We will also help FM install temperature probes at the same locations. The schematic below shows how the temp probes will be deployed at the mid-lake location. These temperature data will be a good indicator of daily movement of water and determine if there are in fact, two separate temperature regimes.

Fish Management will supply the temperature probes and share data with Water Resources Staff for 2018 and compare it to a much larger temperature study conducted around 2000. Fish Management will also conduct the necessary fish survey work and share the results with Water resources and local citizens.

