

Lake Carmi TMDL Implementation Team
November 16, 2017
Public Presentation

Common Questions on Mill Pond Dam

Who owns and maintains Mill Pond Dam?

Mill Pond Dam is owned and maintained by the Vermont Department of Environmental Conservation. The dam is regulated by the Department's Dam Safety Program pursuant to Vermont statute (10 V.S.A. Chapter 43).

What policies and regulations guide the state's approach to dam management?

The State's approach to dam management is guided by a framework of state law, environmental protection rules, and policy. At the broadest level are the authorities and responsibilities bestowed on the Department by the legislature and codified in state law, specifically statutes on the regulation of streamflow and dams (10 V.S.A. Chapters 41 & 43 respectively). This statutory authority may be implemented through Rulemaking, which is subject to public comment, as well as legislative and administrative oversight.

Two rules that guide the Department's approach to dam management are the Vermont Water Quality Standards and the Vermont Wetland Rules. Policies, which are usually crafted at the Agency or Department level, reflect emerging science or strategic objectives and are often subsequently incorporated into rule. Such is the case with the hydrology policy, which recognizes the importance of the natural flow regime of waters and has been incorporated into the Vermont Water Quality Standards. This framework allows the state to make sound public policy decisions guided by science.

How has the management of Mill Pond dam changed over time and how should the dam currently be managed?

Mill Pond Dam has a history of water level management dating back to 1970, but water level management is not currently authorized. When the dam was reconstructed in 1970, a Surface Level Rule was established directing the water level to be lowered 1.3 feet below the crest from September 15 to June 1. In 1990, policy began to change with the adoption of the Vermont Wetland Rules, which protects Vermont's significant wetlands. In 1991, due to a potential for conflict between drawdowns directed by the Surface Level Rules and adverse effects on significant wetlands, the Water Resources issued a declaratory order establishing that the Vermont Wetland Rules control over any Surface Level Rules *if* there is a conflict. This ruling had implications for many waterbodies with both Surface Level Rules and significant wetlands, including Lake Carmi. As a result of this ruling, water level management in these waterbodies would require a wetlands permit. The Lake Carmi Association subsequently applied for a permit from the Department's Wetlands Program to draw the pond down one foot in the winter. In 1992, the Department determined a one foot draw down would adversely affect significant wetlands, but approved a six-inch drawdown on a temporary basis. This permit expired in 1995.

Despite the expiration, the Department's direction for management of the dam did not change until 2015. At that time, the Department received an inquiry regarding what water level management activities were authorized by DEC. Upon this request, technical staff conducted a review and in consultation with legal counsel determined that with the expiration of the wetlands permit, no authorization exists to manage the water level at Mill Pond Dam.

Will dredging the outlet channel improve flow through the channel and over the dam?

While dredging could improve the navigability of the outlet channel, doing so would not improve the way in which water moves through the channel. The amount of water, or flow, through the channel is largely driven by inflow from the surrounding watershed. The way in which this amount of water moves through a particular reach is a function of the space (area) available for the water to move through and the speed (velocity) at which it moves. Dredging would increase the depth of the outlet channel, dispersing the water over a larger space (area), which it would do at a correspondingly slower speed (velocity). In essence, dredging the channel would create an environment more like a lake system and less like the stream/wetland system that exists above Mill Pond.

Would pulling the boards improve conditions in Lake Carmi?

The process of pulling boards stresses wetland, lake, and downstream ecosystems. An extensive wetland complex at the south end of Lake Carmi is sensitive to artificial manipulation of the lake level, as is the shallow water community of the main lake. Below the dam, stream organisms are adapted to natural, seasonal fluctuations in flow rate.

In terms of cyanobacteria, there are several drawbacks to flushing the surface scum downstream. Doing so sends a pulse of cyanotoxins and organic material downstream. While the toxins may dissipate, the organic material causes an increase in biological oxygen demand that can cause fish die offs in receiving water bodies. Meanwhile, in the lake, removal of the surface scum can accelerate cyanobacteria growth by creating more optimal conditions for continued cyanobacteria growth, including mobilization of additional phosphorus. The Department would recommend solutions that it believes will be more effective in limiting algal blooms with less adverse environmental impact, such as aeration

What are the future plans for the dam?

The Department is committed to evaluating whether there may be options (alternatives) with the dam infrastructure that would provide water quality benefits. The Dam Safety Program has secured funding to conduct an alternatives analysis. This analysis will be used to determine the cost of various alternatives and evaluate tradeoffs among possible scenarios. Alternatives considered will range from no action to dam removal, with multiple intermediate options (including repair/modification). This analysis will ensure the path pursued is a responsible use of public funds, consistent with existing statutes and rules, with defined benefits to the ecosystem and community and consistent with existing statutes and rules.