

## **FOR IMMEDIATE RELEASE**

### **Wright Pierce Engineering Presents Dam Condition Information to the Bristol Mills Dam Advisory Committee**

*Bristol, Maine – April 29, 2017* – On April 25<sup>th</sup>, Joe McLean of Wright-Pierce Engineering presented to the Bristol Mills Dam Committee information about the condition of the Bristol Mills dam, flow conditions at the site, and infrastructure in the dam impoundment. This material will inform the Committee's report to the Town that presents options for improvements to fish passage, water level control, and other factors under consideration as part of an ongoing feasibility study.

McLean discussed the dam's role in controlling upstream water levels, explaining that bedrock ledge near the old stone arch bridge on the Benner Road provides most of the water level control upstream of the dam. As a result, in the absence of the dam, the water levels in the upstream marsh and Biscay Pond would be lower by 13 inches. The feasibility study will only consider alternatives to the dam that maintain water levels at present elevations.

Hydrologic studies conducted by Wright-Pierce modeled the amount of rainfall and flow expected at the dam site based on past data, while the hydraulic assessment focused on water elevation at the dam during different flood stages. McLean reviewed flow estimates for normal conditions and during higher rainfall events. When talking about hydraulic conditions of the dam the term freeboard is often used. Freeboard is the vertical distance between the top of the dam and the full supply level of the reservoir. McLean commented that during extreme conditions it is ideal to have one foot of freeboard. The studies showed that there is less than one foot of freeboard during all storms greater than the 2-year event at the Bristol Mills Dam (50% probability of occurring annually), and without the boards in place, there is less than one foot of freeboard in all events greater than the 10-year event (10% annual probability).

In 2015, Wright-Pierce inspected the Bristol Dam at the request of the Bristol selectmen and determined the dam was in fair to poor condition. Four major problems were found: cracks along the downstream abutment; voids at the bottom of the downstream dam face; vegetation growing on the upstream embankment; and chunks of concrete falling out near the old intake and the sluiceway.

In addition to repairs, two suggested improvements are proposed for the dam by Wright Pierce, the concepts of which were requested by the Bristol selectmen. One of those suggested improvements is to install a stainless steel water control gate to address safety concerns about the current method of placing and removing the gate's wooden boards by hand, especially under high flow conditions. A stainless steel water level control gate operated by electric or manual actuators would improve the situation, but the manual gate approach would still require someone to be on the dam during adjustments. McLean also discussed the potential for erosion on the east side of the dam under extreme storm conditions. Wright Pierce has recommended that the town reinforce this side of the dam to limit erosion in the event of a major flood.

In fall 2016, the first phase of repairs was made to the dam, which involved injecting grout into the dam to fill cracks. Two rounds of grouting were performed, and McLean indicated that leaking observed after the repairs indicates more grouting is likely needed as well as an inspection. Other needed dam repairs, like re-facing the dam on the upstream and downstream sides, and filling voids at the bottom and sides of the dam, would be conducted during fishway construction if that is the alternative selected by the Town after the feasibility study.

Despite the grouting this fall, the dam's condition is still rated in the fair to poor range, but McLean said that the recent repairs have most likely brought it closer to "fair" than "poor". Dam conditions are broken into five categories: Good, satisfactory, fair, poor, and unsafe. McLean said that dams as old as Bristol's can rarely be rehabilitated to achieve a "good" rating, and so the goal of repair work would be to bring the Bristol Mills Dam into "satisfactory" condition.

In 2013 Wright-Pierce, National Ocean and Atmospheric Administration, and US Fish and Wildlife Service began working with state agencies and the Bristol Fish Committee to identify problems with the existing fishway. Their observations indicated that the location and height of the fishway entrance, lack of resting pools, and inadequate flow control all severely limited the number of alewives passing over the dam.

A tracking study of electronically tagged alewives performed by DMR later validated these conclusions. Out of 22 alewives tagged and released at the entrance of the fishway, six fish entered the fishway, five swam halfway up, and two made it over the dam. Development of a new and improved fishway design by these organizations was completed in 2015 with funding and coordination from the Maine Coastal Program.

Upcoming meetings of the Bristol Mills Dam Advisory Committee will include presentations from Dr. Joseph Zydlewski from the University of Maine about how mainstem dams effect fish communities and movement (May 9), and Scott Williams from the Maine Volunteer Lake Monitoring Program about water quality in the ponds and lakes of the Pemaquid Watershed (May 23).

The Committee meets the 2<sup>nd</sup> and 4<sup>th</sup> Tuesday of every month from 6-8pm at the Bristol Town Office. All meetings are open to the public and all Committee materials, including supplementary reports and background information, are available at the Town Office. We hope to share this process with as many town residents and interested people as possible. Please join us to learn more about this valuable resource.

The Dam Committee welcomes Public Comments.