

Maine

Alewife Restoration: Lake Outlet Fishway Initiative

Pushaw Lake Fishway, Penobscot County

A variety of federal, state, private organizations and individuals are increasing the landscape benefits of the Penobscot River Restoration Project by working together to restore sea-run fish to the larger watershed. Prior to European settlement, sea-run fish were likely widely distributed in Maine, except when blocked by natural barriers like waterfalls.

Alewife, a type of herring, is one of the focus species for restoration in the drainage. Sea-run alewives depend on migration to grow and reproduce, and their decline across Maine is linked to dams and other factors inhibiting their life cycle. Each spring, adult alewives migrate from the ocean to freshwater to spawn and then migrate back to the ocean. Juvenile alewives spend two to five months in ponds and lakes and then migrate to the ocean for about four years to become adults.

Why is a fishway needed?

Alewives have had limited or no access to Pushaw and Little Pushaw lakes because of the dam at the outlet. These lakes provide more than 5,000 acres of spawning and rearing habitat – a significant contribution to efforts to restore alewife in the watershed.

Who is involved?

The dam is owned by the Kukunsook Camp Owners Association, and it is through their cooperation that the fishway will be installed at the dam.

Many others have joined to support the project, including the Atlantic Salmon Federation, Maine Department of Marine Resources, NOAA-Fisheries, the Greater Pushaw Lake Association, U.S. Fish and Wildlife Service, and several grantor organizations (The Nature Conservancy, Davis Conservation Fund, Maine Outdoor Heritage Foundation, Corporate Wetland Restoration Partnership,



The existing dam at Pushaw provides little to no access for alewives.

Benefits of Alewife

- Alewife provide opportunities for commercial harvest to support Maine fishing industry.
- Alewife floaters, a type of freshwater mussel, use alewife as a host as part of their life cycle.
- Bald eagle, osprey and other birds congregate to feed on alewives in the spring and fall.

- Large alewife runs attract sport fish, such as striped bass, and other wildlife.



National Fish and Wildlife Foundation and Maine Natural Resource Conservation Program). These groups together raised more than \$190,000 to construct the fishway.

What is the process?

The most important aspect of planning is to involve the local community and engage them in a discussion about the need for fish passage. This project included many meetings with residents

and the lake associations culminating in a vote by the Kukunsook Camp Owners Association on whether to move forward with the project. Other steps involved collecting information to address questions raised by the community and information needed for the fishway design; developing a conceptual and final fishway design; and working out operational agreements with the dam owner.



Lake association members helping collect data.

What information did we collect?

Partners surveyed the area around the dam to obtain the relative heights of the dam crest and river and lake bottoms and location of the current gate. Instruments were also installed to continually record the lake and stream water levels during the low flow (summer and fall) and high flow (spring) period. This data was used to determine the low and high water operating levels for the fishways and to estimate seasonal stream flow from existing U.S. Geological Survey gauging stations.

What was the primary public concern?

Most lake associations are concerned about how the fishway operation will affect the lake level. This was a concern at Pushaw Lake, but the partnership was able to show that fishways (upstream and downstream) use water very efficiently, and the amount of water they need to operate was relatively small compared to the size of the lake.

Is it a win-win approach?

As part of the fishway design, the dam was inspected and its repair included in the construction. A new gate was also included to allow the lake association to more safely and efficiently manage the lake level. Lake associations often have limited resources delaying or indefinitely postponing major repairs that will result in safer and more efficient operations.

Where will the fishway be located, and how much space will it take up?

The upstream fishway will be located on the right bank (looking downstream) of the dam. It will be roughly 33 feet

long and from 4-6 feet wide.

Will the fishway be safe?

Grates over the fishway, railings and other safety features will be considered during the final design. There is nothing inherently dangerous about the fishway, such as swift currents, undertow or moving parts. It will have similar safety conditions as the current dam, but it will improve the safety of the dam operation by relocating the gate closer to the bank.

Once the fishway is constructed, who is responsible for its maintenance and operation?

A memorandum of agreement was developed between the Kukunsook Camp Owners Association and the Maine Department of Marine Resources to spell out responsibilities. The fishway will be owned by lake association.

What if repairs are needed to the fishway?

An operation and maintenance fund will be set aside to cover routine

maintenance or minor repairs. If major repairs are needed, then the partners will work with the lake association to assess the issue and determine the best path forward. They will not be responsible for a major repair.

Who can I contact for more information?

For more information about this initiative, please contact Laury Zicari, field supervisor for the U.S. Fish and Wildlife Service (207/866 3344 ext. 111 or laury_zicari@fws.gov), Richard Dill at the Maine Department of Marine Resources (207/941 4465) or Andy Goode with the Atlantic Salmon Federation (207/725 2833).



U.S. Fish & Wildlife Service
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September 2012

Right image: The fishway is on the left, and the new gate is on the right.

Below image: An example of the water-use calculation for the Pushaw Lake fishway.

