Free Press 5/11/21

https://freepressonline.com/Content/Download-the-current-issue-as-a-pdf/Features/Article/Looking-Out-for-Maine-s-Sea-Run-Fish/93/78/73248

# Looking Out for Maine’s Sea-Run Fish

## The alewives are here, some places—

Alewives at Damariscotta Mills on May 8 (Photo: Ethan Andrews)
By Ethan Andrews, 5/11/2021

A “nature-like fishway” in Saco (photo courtesy U.S. Fish & Wildlife Service)

A notice posted in March to the Damariscotta Mills Fish Ladder Restoration website announced the cancelation of this year's alewife festival, with the possibility of a make-up event in the fall: "BUT, the fish do not care about Covid and you can make plans to see them return!"

Other things fish don't care about: electricity, money, politics. All of which has put them at a grave disadvantage for most of Maine's history.

The fish ladder at Damariscotta Mills is somewhat of an exception. The 500-foot-long course of pools and weirs around the former site of a sawmill on the Damariscotta River was built in 1807 and given a million-dollar restoration that was completed in 2017.

Every May, alewives, also known as river herring, flood the mouth of the river and shoot up the obstacle course of tiny waterfalls to the spawning grounds of Damariscotta Lake. The site is open to visitors and frequented by birds of prey. Thousands of the fish are "harvested" from the foot of the natural falls in a joint effort by the towns of Nobleboro and Newcastle and sold for lobster bait. It's not an ignoble end. In a video for Maine Coast Heritage Trust about fish ladders on the Bagaduce River in Castine, Bailey Bowden, a fish activist, said the importance of alewives is in their ecological impact: "From egg to adult, an alewife is always something's lunch," he said.

In 2018, more than a million fish evaded capture at Damariscotta Mills and made it to the freshwater spawning grounds, where, apart from several decades around the turn of the 18th century, they've always gone.

Most rivers haven't been so friendly to diadromous fish — those that go between fresh and saltwater.

When the first dam on the Penobscot River was built in Bangor, Atlantic salmon, alewives and other sea-run fishes, following the freshwater and headcurrents as their forebears had done, piled up at the foot of it. "They just came to these concrete barriers and died eventually by lack of dissolved oxygen," John Banks, director of natural resources for the Penobscot Nation, said. "They said that the stench was so bad you could smell rotten fish throughout half of Penobscot County."

The tribes had been living with unimpeded rivers for 10,000 years and knew it was a bad idea to stop them up. In the 1750s Abenaki leader Chief Polin is said to have walked twice to Boston in an unsuccessful attempt to convince the Massachusetts Bay Colony to restore fish passage on the Presumpscot River. "The first dams in Maine," Banks said. "Yeah, we've been at it for a while.

So have the dam builders. The U.S. Army Corps of Engineers' national inventory of dams lists 584 dams in Maine today. Most are less than 25 feet tall. About half are privately owned.

The Penobscot Nation was part of a coalition of environmental groups that got two major dams removed from the Penobscot River and another bypassed. The deal cost the groups $65 million and led to the removal of Veazie and Great Works dams in 2012 and 2013, respectively. A "nature-like fishway" was built in Howland to bypass the dam there, and fish passage was improved at four other dam sites. In total, 2,000 miles of historical spawning grounds were reopened to diadromous fish.

The restoration, Banks said, became possible with the breakup of Bangor Hydro and the sale of its generating facilities to Pennsylvania Power and Light in the late 1990s. "All of their assets

were tied up in this one system, pretty much," he said. "Pennsylvania Power and Light's portfolio is quite large. It took me about a half an hour to find their main division on their organizational chart. So they had a lot more wiggle room to negotiate with us."

Governor Janet Mills made a similar argument recently about Brookfield Renewable U.S., owner of 38 hydropower dams in Maine, including four on the Kennebec River. The company sued the state in March over an amendment to the state's 1993 Kennebec River Management Plan that the company believed would force it to remove at least two of its dams.

Brookfield's dams on the Kennebec block roughly 30% of the historic habitat of Atlantic salmon in Maine. They also affect the migrations of alewives, blueback herring, American shad, American eel and sea lamprey.

The Bangor Daily News reported that Mills, after a ceremonial maple tree tapping at the Blaine House, dismissed the complaint "saying Brookfield's size — she specifically mentioned the company's parent being partially owned by the nation of Qatar — should allow it to comply with the rules."

Ed Friedman, chair of the environmental group Friends of Merrymeeting Bay, said the comment didn't hold. "Mills backed off, like, right away on that. Yeah, that was like, three weeks ago, and I don't know what they're doing about it."

Despite this, the Kennebec River has been a qualified success story. For more than 150 years, fish never made it to the head of tide on account of Edwards Dam in Augusta, but the removal of two dams and construction of fish passage on others have reopened about 20% of historical spawning grounds.

Edwards Dam was the lowest, which, as fish passage goes, was all it took. Built in Augusta in 1834 to power textile mills, it included a fish ladder that was washed away in spring flood the next year, according to a timeline by the Natural Resources Council of Maine. The owner refused to rebuild it and the dam blocked sea-run fish traffic until 1999, when it was decommissioned and removed. The destruction of the dam was a watershed moment for a growing movement to restore the state's waterways, but the fish gained only about 16 miles of ancestral habitat before they hit the fork of the Kennebec and Sebasticook rivers, with Lockwood Dam in Waterville to the left and Fort Halifax Dam to the right. Fort Halifax dam was fitted with a fish pump briefly, then removed in 2008. Lockwood Dam, owned by Brookfield Renewables, remains and is slated for some kind of fish passage this year.

For now, fish are captured at the base and trucked to the upriver side. The efficacy of this "trap and truck" method is not great, as shown in a comparison of tallies of sea-run fishes on the Kennebec with those on the Sebasticook, where dams at Benton Falls and Burnham were retrofitted with fish elevators.

Last week, the waters below Benton Falls were filled with alewives, the surface made choppy in places with triangular dorsal fins flashing at the surface. The waterway narrows naturally near the foot of the dam, guiding the fish in the general direction of the elevator, which periodically lifts a great cube of fishes and water and spills it sideways into a sluiceway leading to the upstream side of the dam. En route, the fish pass through a stockade of metal bars meant to block larger invasive species and slip through a bank of PVC tubes fitted with sensors that count the fish as they pass. On a recent day, 100,000 fish clocked through. The single-day high last year was around 250,000, according to a worker there. In 2018, according to NRCM, more than 5 million alewives passed Benton Falls in what was the largest alewife run in the United States. The same year, the number of alewives trap-and-trucked past Lockwood Dam on the Kennebec

was 307,035.

The future of fish passage might be in something called “nature-like fishways,” which attempt to imitate natural waterways so companies like Brookfield Renewables can continue to use nature’s fishways to generate electricity.

At a recent online presentation by e2Tech, representatives of Brookfield Renewables described one of these they built in 2019 on the Androscoggin River in Saco.

Nature-like fishways are pretty much what they sound like. Engineers attempt to build a passage with the qualities of a natural river. Construction standards, now condensed in a guide published by the U.S. Fish and Wildlife Service, include the maximum slope of the channel, minimum length and width of the pools and weir openings, and the maximum velocity of water flowing between the stones for various types of fish.

Matt LeBlanc, a fish biologist and compliance specialist for Brookfield Renewables, showed photos of the fishway under construction at Springs Dam — rows of boulders, each large enough to carve a statue of a seated person, protruding from the dry river bed in 13 rows, with gaps between the stones and troughs between the rows.

“It’s not anywhere near as simple as dropping rocks in a row,” he said. “All of these rocks are specifically placed. They’ve got someone on-site, marking them how deep they go, the elevation that they’re at.” In its first year, the fishway collected a beaver dam of fallen trees and branches that threatened to make it impassable. “They got in there last week and cleaned it out,” LeBlanc said, “but it’s supposed to be, we were told, time and time again, that it’s nature-like, it’s nature-like, it will work its way out. Well you know what, it doesn’t always do that. So we’re trying to figure out a way to solve that problem whether it be with the trash broom or whatever.”

LeBlanc went on to describe other problem solving — eels commando crawling up ramps of artificial turf–like material under cover of night, dropping into a bucket — “It’s a garbage pail, actually,” he clarified, “but at which point we’ll collect those fish, take all the biological data on them and release them upstream.”

With some exceptions, including the Veazie and Great Works dams, fish passage involves anything but removing the dam. In Cle Elum, Washington, the U.S. Bureau of Reclamation built a massive helical tunnel — picture a spiral parking garage buried in the ground — to convey fingerlings from the lake above the massive Cle Elum Dam to the river below. Adults looking to spawn are rocketed to the top in a soft plastic tube designed by Whooshh Innovations, popularly known as the “salmon cannon.”

It remains to be seen whether humans can reverse engineer complex natural systems well enough to keep them functioning on the margins of human ambition. Friedman said the fish passage initiatives, for all their apparent success at moving fish, leave many problems that are fundamental to dams.

“Typically, dam owners will try and hold back water in the spring for a dry summer, so they can provide power on these hot days, right?” he said. “But the whole ocean system is based on spring freshets, spring floods, and then again in the fall, and all of those offshore fish are waiting for these nutrient blasts of diatoms — little guys from the inland areas. And when that doesn’t happen, they’re hurting for food out there. And then fisheries start to collapse.”

The Mills administration has sent a mixed message about fish passage and dams, seeming to encourage decommissioning dams on Maine rivers, while pushing for the New England Clean

Energy Connect transmission line project, which will increase demand for electricity generated by Hydro-Quebec's dam empire to the north.

Environmental bargaining has also muted the victories of the river restoration. The removal of Edwards Dam was funded in part by Bath Iron Works in trade for its expansion into the Kennebec River. With the removal of the dams on the Penobscot, hydroelectric generation was increased at six other sites on tributaries of the Penobscot, resulting in a net increase.

Banks was somewhat optimistic about engineering fish back into the picture, if that's what has to happen.

"You know, they've studied them and they understand how fish move and how they need to make resting places, the volume of water, current, cubic feet per second. In this day and age of artificial intelligence, landing on Mars, I think I'm okay with engineers attempting to design a nature-like fish passage. I may have felt different 20 years ago.

What would he have thought about it 20 years ago?

"I would have thought about where's the dynamite?" he said.

2021 Maine Alewife Trail Map