



The Newsletter of Friends of Merrymeeting Bay • PO Box 233 • Richmond Maine 04357 • 207-666-1118 • www.fomb.org

Friends of Merrymeeting Bay (FOMB) is a 501(c)(3) non-profit organization. Our mission is to preserve, protect, and improve the unique ecosystems of the Bay through:

Education

Conservation & Stewardship

Research & Advocacy

Member Events

Support comes from members' tax-deductible donations and gifts.

Merrymeeting News is published seasonally and is sent to FOMB members and other friends of the Bay. Article hyperlinks and color images are available in our [online edition](http://www.fomb.org) at www.fomb.org

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Androscoggin Upgrade: The Saga Continues

The Law

On March 31, Governor Mills signed into law LD 1964, the surface waters reclassification bill which included upgrading the lower Androscoggin River (Pleasant Pt. to Worumbo dam) from Class C to Class B, a goal as many of you know, FOMB has worked towards for years. The upgrade was unanimously recommended by the Board of Environmental Protection (BEP) despite continued objections by the Department of Environmental Protection (DEP). BEP's recommendation was incorporated into LD 1964 which was unanimously passed by the legislative Joint Committee on the Environment and Natural Resources (where the DEP now spoke in favor of the Androscoggin upgrade) and then also unanimously by the full House and Senate before being signed by the Governor.

FERC

Virtually all of the Androscoggin watershed hydroelectric dams come up this decade for relicensing by the Federal Energy Regulatory Commission (FERC). FERC is the only place where an entity receives a license for 30-50 years, a holdover from the Roosevelt years of the Rural Electrification Administration (and 1936 Act) when builders of large dams were given years to amortize their project costs. These dams are all long since paid for but the extraordinary privilege of an exceptionally long license period still exists. Generally, only at relicensing are there opportunities to make changes or upgrades to dam operations for such things as fish passage, but extinction doesn't wait.

CWA

Under Section 401 of the Clean Water Act, states can issue Water Quality Certificates (WQC), also known as 401 Certificates, which can stipulate an almost infinite variety of state concerns the dam owner must comply with. The WQC gets incorporated into the new FERC license and runs for the full license period unless amended, which can only be done if the applicant (dam owner), state agencies and FERC agree. In Maine, the DEP issues the WQC.

Classification Changes

On June 3, FOMB found out the name of DEP's new hydropower coordinator and emailed him to be sure he was aware of the upgrade to Class B since Brunswick, Pejepscot and Worumbo dams would all be affected and in their relicensing would need to be compliant with the new classification which probably for the most part will be ensuring enough flows through the project areas to maintain the higher levels of dissolved oxygen Class B requires (minimum 7 parts per million vs. 5 ppm for Class C).

As the old popular ABC radio show host Paul Harvey used to say "and now for the rest of the story..."

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Androscoggin Upgrade: And Now for the Rest of the Story, continued from page 1

DEP

The DEP coordinator replied he was aware of the upgrade but was still issuing the Pejepscot WQC, due the following week, to be compliant with Class C. As it happens, Maine laws do not technically go into effect until 90 days after the end of session (May 9), which made the effective date August 8. So, we find ourselves in a very unusual position of having a WQC issued during the transition period between a pertinent law's passage and its effective date.

Because the DEP has unlimited discretion in WQC content, FOMB and others immediately urged them to amend the Certificate language, the draft of which was only issued a few days before the hard final federal deadline. The DEP refused. They could have changed all Class C references in the WQC to Class B or at the very least they could have added a paragraph requiring Class B compliance as of August 8. The DEP refused, instead creating a 40-year Class C carve-out in the middle of a Class B section, despite public opinion, the BEP, the legislature, and the Governor. Their action preserves the "room to pollute" condition existing when actual water quality is higher than the classification (the water quality can degrade while still meeting its classification).



Pejepscot dam,
Photo: Point of View Helicopter Services

The Appeal

FOMB, needless to say is outraged at this abuse of discretion on the part of DEP and has had no choice but to appeal the WQC to the BEP. [The appeal](#) stops most of the FERC process. Of course the effective date of August 8 will have long since come and gone by the time the BEP holds a public hearing and deliberates on the matter. At our request, we have been joined in the appeal by now co-appellants: Grow L+A, Downeast Salmon Federation, Native Fish Coalition-Maine Chapter, Friends of Sebago Lake, and Maine Council, Trout Unlimited. We are so grateful for their support! FOMB and co-appellants are represented by Portland attorney Scott Sells.

Under the Clean Water Act section 401, Congress provides states, territories, and Tribes with a tool to protect their waters from adverse impacts that federally licensed or permitted projects may cause. Under section 401, a project proponent for a federal license or permit that may result in a discharge into waters of the United States must obtain a water quality certification from the certifying authority.

Federal licenses and permits that may require section 401 water quality certification include: CWA section 404 dredge and fill permits from the Army Corps of Engineers (Corps), hydroelectric licenses from the Federal Energy Regulatory Commission (FERC), and CWA section 402 pollutant discharge permits from EPA. A broad range of individuals and entities including corporations and other businesses, federal and state agencies, contractors, and individual citizens seek 401 certification for a wide range of projects. Thousands of water quality certifications are granted each year.

EPA first promulgated implementing regulations for water quality certification in 1971, which remained in effect until the 2020 CWA Section 401 Certification Rule (2020 Rule). After reviewing the 2020 Rule pursuant to Executive Order 13990, the Agency announced its intention to revise the 2020 Rule to better uphold the role of states, territories, and Tribes under section 401 as an essential component of the Act's system of cooperative federalism. The Agency's actions will be grounded in robust stakeholder input (code for major industry influence).

Ed Friedman

Shad Say No to Brunswick Dam

On May 30th we began another spring season of recording frustrated shad below the Brunswick dam. Using an Aris side scan underwater sonar/video camera we record shad counts at several points spanning the length of run. It is well known shad are very skittish and it is problematic getting them into even a well-designed fishway which the Brunswick ladder is not.

As we wrote in our [Summer, 2021](#) newsletter:

In 1980 the U.S. Fish and Wildlife Service developed conceptual drawings for a vertical slot fishway for the Brunswick Project, which is located at the head-of-tide on the Androscoggin River. The fishway was designed to pass 85,000 American shad and 1,000,000 alewives annually. The upstream passage facility was one of the first vertical slot fishways designed to pass American shad on the east coast, and was a scaled-down version of a fishway located on the Columbia River. Redevelopment of the Brunswick Project and construction of the fishway was completed in 1983. The completed fishway was 570 feet long, and consisted of 42 individual pools with a one-foot drop

between each. Downstream passage consisted of a 12-inch pipe located between two turbine intakes. When the Federal Energy Regulatory Commission issued a license for the Brunswick Project in 1979, it did not require efficiency studies for the upstream and downstream passage facilities. (From: [Maine Department of Marine Resources American Shad Habitat Plan, 1983](#))



Not a shad!
Photo: John Lichter



John Lichter adjusts Aris depth
Photo: Ed Friedman

Unfortunately, after USFWS approval of Brunswick's upstream fishway design, Central Maine Power, dam owner at the time, shifted positioning of the turbines so they became close to the fishway entrance. There were no subsequent design revisions and a major problem with the site is that attraction flows for the fishway entrance are obscured by flows from Turbine #1 confusing the already skittish shad.

This year we recorded a total of about 7550 shad on four successful monitoring dates-5/20, 6/24, 6/30 and 7/11. Only about 240 (3.2%) made it up through the vertical slot fishway confirming its inefficiency. We believe multiple years of data like these will support major fish passage changes when the Brunswick Topsham dam comes up for relicensing in 2029.

Of special note this season was the 5/30 recording session when we counted about 80 sturgeon leaping (this is a known spawning area for shortnose sturgeon) during our 5 hours or so on site and the almost solid mass of spawning and finning blueback herring in the area that filled the Aris scope screen nearly the entire time.

Special thanks to John Lichter, Bowdoin College summer intern Renske Kerhofs and Dave Mention for continued use of his skiff.

China Lake Syndrome

Every spring is different. The spring of 2021 was early and dry. Streams and rivers were experiencing August flows as spring fish migrations began. The alewives returned up Outlet Stream to China Lake in early April. Previously I might have expected the alewives to show up in May on Outlet Stream. After all, the alewives show up at Webber Pond in early May. Webber Pond is connected to the Kennebec via Seven Mile Stream. Outlet Stream is another 17 miles upriver. Why did the alewives show up so much earlier on Outlet Stream in 2021? Not just earlier but three weeks earlier and they had to swim another 17 miles. I spent a fair bit of time in 2021 watching the alewives linger below Outlet dam to China Lake. We had already hand-bailed 25,000 fish into China Lake, but there had to be between 150 and 250,000 alewives below the dam waiting to get in. The final fishway was yet to be installed. The alewives finally got tired of hanging below the dam and returned down stream to try and spawn again in 2022. Our stocking permit only allowed for 25,000 fish to be stocked.

In October of 2021 the final fish passage was installed in Outlet dam to China Lake. This marked the culmination of seven years of hard work. Marine Resources partnered with Maine Rivers to see this complex project complete. The project consisted of three dam removals and three fish passage installations to connect 4,000 acres of prime historical habitat in the Kennebec-Sebasticook lower river complex. The Sebasticook already had a huge run of river herring (alewives and bluebacks), and China Lake access increased the habitat in the Sebasticook River system by 38%!



**Masse Dam below
China Lake**

**Masse dam removed below China Lake.
Photo: Point of View Helicopter Services**

An estimate of annual returns for alewives to China Lake are one million fish per year. It has been 238 years since a run of this magnitude has come to China Lake—since 1783, the last known run of alewives before Outlet Stream succumbed to the damming that occurred along its seven meandering miles. Outlet Stream went from hundreds of thousand of alewives per year for millennia to thirteen dams and no fish in 30 years. Which brings us to 2022.

The spring of 2022 was a lot wetter and a lot cooler than 2021. I was in the process of reconfiguring an electronic fish counter to fit in the new fishway at China Lake's Outlet dam. The objective is to count the returning alewives. For the first time in 238 years, free swimming herring from the Gulf of Maine could enter China Lake.

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China Lake Syndrome, continued from page 4

Alewives exit Benton Falls fish counter
Photo: Ed Friedman

April 10— even earlier than they had in 2021. The fish rapidly ascended through Box Mill and made it to the Ladd dam fishway (built in 2019) where I kept them below until I could get the counting tube array properly fitted at Outlet dam. We opened Ladd dam fishway on April 25th. Alewives ascended the stream past Lombard dam site (removed 2018), the Morneau dam site (removed 2021) and the Masse dam site (removed 2017) to reach the Outlet dam Denil fishway into China Lake.

A May 31 helicopter flush count of eagles counted 132 on the 7 miles of Outlet Stream. The dinner bell rang and fresh fish was served!

putting all her eggs in one basket. All of the river herring swimming past Outlet Stream to Benton Falls could smell those fish up Outlet Stream. And it smelled good. So they took a right hand turn into Outlet Stream, where waters were also warmer than on the main stem.

At Benton Falls the fish lift there passed only 2.8 million river herring in 2022. Was that because the Sebasticook didn't smell as much like a spawning event waiting to happen after Outlet Stream got a two week jump start? Would the Benton Falls fish lift pass an additional 600,000 fish had Outlet Stream not been restored? (In 2017 Benton passed 3.5 million herring, in 2018, 5.6 million). I just love a good mystery.

We will be counting again in 2023 at Outlet Stream. You should come see it in May. Old habits die hard. Maybe come in April. You should definitely come and see.

The fish counter consists of twelve 20-in. schedule 40 PVC pipes, each with a 4 in. inside diameter. Each tube has three stainless steel bands on the inside spaced 5 inches apart. Each band has a wire that leads to a Smith-Root model 1601 digital fish counter. Fish swim through the tube, break the invisible electric field between stainless bands, and get counted. Simple as that. Building the array takes time. I had a sneaking suspicion in March those fish just might show up earlier than expected. Better get cracking on this counting tube array. Only a few weeks left to build this thing out.

I was really close to completing the array in April's early days. River and stream flows were high and water temps were cool. Surely the alewives would behave "normally," showing up in early May as they do at Webber and even further up the Sebasticook River where we monitor them at Benton Falls.

Nope. They showed up at Outlet Stream's first obstruction, Box Mill dam fishway (built in 2020), on

Here is where it gets real interesting. Based on stocking rates, we calculated a return of up to 250,000 fish. By the end of the 2022 alewife run I had counted over 835,000 fish. The run was enormous. I didn't expect those numbers until 2026. Was the counter wrong? Nope. I proofed it at least a dozen times with timed visual counts. The counter was doing great. At the peak of the run 100,000 fish passed through the counting array in 24 hours.

So why did so many fish show up? We have a theory and I think it's a good one. Alewives on the spawning run will stray to novel waters. This is a well-documented behavior. It's Mother Nature's way of not



Nate Gray counts eagles
Photo: Ed Friedman

Nate Gray

The Wild West of PFAS Testing

Last summer/fall, FOMB in cooperation with [Military Poisons](#) and the [Women's International League for Peace and Freedom \(WILPF\)](#) conducted preliminary area sampling for PFAS chemicals. These are often referred to as “forever chemicals” because of their persistence in the environment.

PFAS are widely used, long lasting per- and polyfluoroalkyl synthetic organofluorine chemical compounds that have multiple fluorine atoms attached to an alkyl chain. They break down very slowly over time and many of them have been linked to harmful health effects in humans and animals. There are thousands of PFAS chemicals, and they are found in many different consumer, commercial, and industrial products. Because of their widespread use and their persistence in the environment, many PFAS compounds are found in the blood of people and animals all over the world and are present at low levels in a variety of food products and in the environment. Due to their prevalence, PFAS chemicals might also be termed “everywhere” chemicals.



Martha and Ed processing samples.

Photo: Jason Prout

product (a corn-based medium) is used by the Department of Defense and other agencies and entities to clean up PFAS-polluted waters. As sort of a sideline, Cyclopure also makes water test kits consisting of a plastic container with a DEXSORB filter in it. The suspect water is poured into the container and allowed to drain through the filter and then the empty container with filter is returned to Cyclopure for analysis. No ice or overnight delivery is needed, further reducing shipping weight and cost. The Cyclopure test costs about \$80 and screens for more PFAS compounds (about 55) than many of the certified labs. *The high cost of certified lab testing surely acts as a testing deterrent for the average homeowner.* Cyclopure kits are not certified, although they use the highest quality equipment and follow EPA protocols.

FOMB, Military Poisons, and WILPF used Cyclopure kits last year in our [initial probe](#). Results compared favorably to past contaminant levels detected by DEP and Brunswick Naval Air Station (BNAS) testing. Last fall our Research & Advocacy Committee recommended a Bay-wide screening for PFAS, using the affordable Cyclopure kits, if we could formally validate them in a side-by-side comparison with certified labs using split samples all coming from the same source.

We asked the DEP to cooperate with us on this, and they would not, since Cyclopure was not certified, even though there could be a great deal of taxpayer savings using Cyclopure as a screening test and participation would likely be far greater.

Instead we partnered with the Brunswick Sewage District (BSD), who understood the value of what we were doing and could appreciate the potential cost saving for screening, even if not able to use the results for regulatory purposes.

Virtually all PFAS sampling through EPA-certified labs is done by sending an actual water sample, on ice, back to the lab via overnight delivery. For each sample taken, a field blank is also collected. This is a supplied sample of PFAS-free water poured on site from its original container into another container to ensure contamination has not occurred in the sampling process.

PFAS tests are generally very expensive, ranging from about \$400 to \$700. The same fee applies to a field blank as it does to the actual sample, since both are analyzed. If high levels of PFAS are found in home drinking water, the Maine Department of Environmental Protection (DEP) will reimburse the homeowner up to a certain amount, providing the sample was sent to a DEP-approved lab.

Enter [Cyclopure](#). This Illinois-based company is in the primary business of making a PFAS-filtering media they call DEXSORB®. The DEXSORB

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The Wild West of PFAS Testing, continued from page 6

On April 22, 2022, BSD hosted and assisted us in gathering sewage water samples for each lab, all from the same stainless steel bucket. Samples went to Cyclopure and certified labs Alpha Analytical, Eurofins (the leader in PFAS testing), and Battelle (a lab often used by the military, industry, and universities). Replicate samples were included for Cyclopure and Alpha Analytical.

Results were telling: with Cyclopure, Alpha Analytical, and Eurofins all being similar in compounds and concentrations found. Reports on findings were delivered in 1–2 weeks by these labs. Battelle, on the other hand, promised delivery in 28 days and took twice that. More importantly, they only detected one PFAS compound, whereas the other three companies found 10–12 each.

Since this test validated Cyclopure testing, FOMB purchased 30 test kits and is currently in the process of sampling all the Bay tributaries and the Bay itself. The results of our comparison testing are or will be posted in the [Chemical](#) section of our web Cybrary by the time you read this. When our spatial screening of Bay waters is complete, those results will also be posted and released to the press. Thanks to Jason Prout, Jennifer Nicholson, and Rob Pontau of BSD, Katie and Frank Cassou of Cyclopure, and FOMB volunteer Martha Spiess.



Jason readies another sample pour for Ed.
Photo: Martha Spiess

Ed Friedman

WE NEED YOU! PLEASE SUPPORT OUR IMPORTANT WORK

FOMB Leadership

Our accomplishments are due to the hard work of dedicated volunteers, especially those who serve on our committees. If you want to get involved and serve, please contact the committee chair or Ed Friedman. We always welcome member input and we'd love for you to join us!

Steering Committee

- Ed Friedman, Chair (Bowdoinham)
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\$7 Enclosed (optional) for a copy of Conservation Options: A Guide for Maine Land Owners [\$5 for book, \$2 for postage].

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Thanks to Rebecca Bowes for newsletter layout.



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Own a Unique Piece of Maine's Environmental History!

This beautiful table made from a live-edge redwood slab has been donated to FOMB to support our research, advocacy, education, and land-protection work. It was bequeathed to our donor in 2016 by one of Maine's premier environmental writers, Phyllis Austin.

At this table Phyllis wrote a wide array of articles and her landmark books, *Wilderness Partners: Buzz Caverly and Baxter State Park* and *Queen Bee: Roxanne Quimby, Burt's Bees and Her Quest for a New National Park*, as well as her coedited volume of essays, *On Wilderness: Voices from Maine*.

The table has been valued at \$8,000–\$12,000 just to re-create. We are open to offers beginning at \$5,000. Dimensions: 76"L x 29-32.5"W x 29"H x 3" thick. The table is on view in the [Harraseeket Inn](#) lobby. Stop by for a look and a meal at their [Broad Arrow Tavern](#).

Please contact Ed Friedman at 207-666-3372 or edfomb@comcast.net to make an offer. Find details on our home page at friendsofmerrymeetingbay.org.

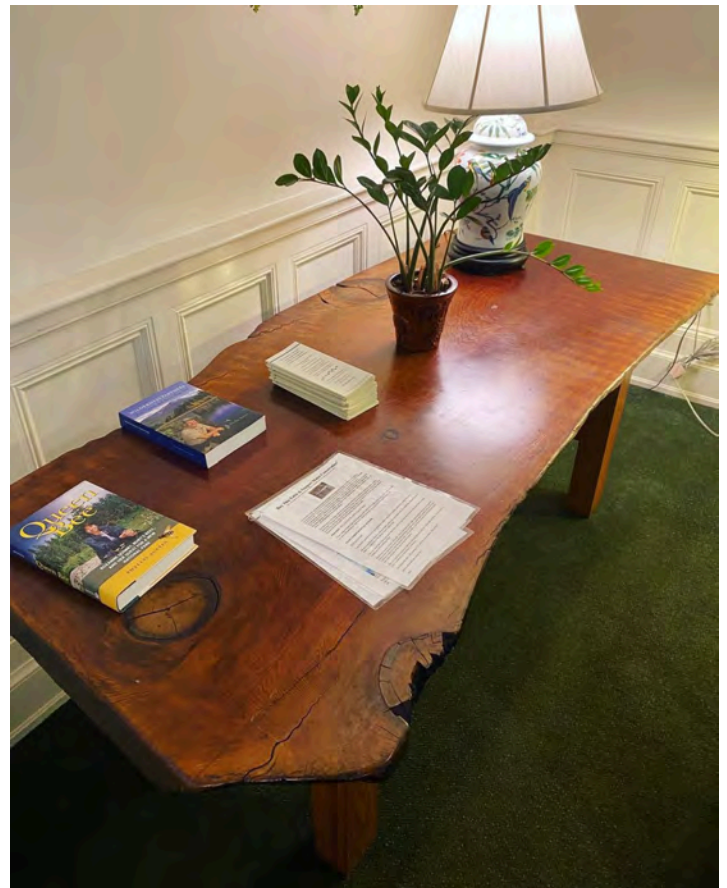


Photo: Harraseeket Inn