Ms. Laura Paye
Hydropower Coordinator
Maine Department of Environmental Protection
17 State House Station
Augusta, ME 04333-0017

June 13, 2025

Submitted via email to: DEP-Hydropower@maine.gov and in hard copy.

Re: Comments Regarding Water Quality Certification Applications for the Lockwood, Hydro-Kennebec, Shawmut, and Weston Hydroelectric Projects

Dear Ms. Paye:

Brookfield's fish passage proposals for the Lockwood, Hydro Kennebec, Shawmut, and Weston Dams fail to meet the legal water quality standard for Class B waters in Maine, which "must be of sufficient quality to support all aquatic species indigenous to those waters without detrimental changes in the resident biological community"[1]

Over the past 53 years[2] I have learned several lessons that shed light on why all FERC licensed east coast dams have been unable to operate effective fish passages for native sea-run fish.

Lesson #1: The Federal Energy Regulatory Commission's (FERC) mission is to: "Assist consumers in obtaining reliable, safe, secure, and economically efficient energy services at a reasonable cost through appropriate regulatory and market means, and collaborative efforts."[3] FERC has little interest and no record of enforcing fisheries-based terms of its hydropower licenses. The same is true of the National Marine Fisheries Service and the US Fish and Wildlife Service, despite their mandate to protect the fisheries resources of our rivers. Because of this, FERC licensee's have been enabled to destroy sea-run fisheries throughout the USA. Witness the loss of American shad in the Susquehanna, and the Merrimack Rivers. The same is true for the once vibrant Atlantic salmon runs in the Connecticut and Saco Rivers. At a meeting in Brookfield's Lewiston office, Kelly Maloney, Senior Compliance Manager for Brookfield White Pine Hydro is the only person from the hydropower industry I have known to speak the truth. She told the group of fisheries advocates at a meeting "***We don't have to pass fish. We only have to try to pass fish.***"

- An example of this happened during the negotiations to create the Kennebec Hydro-Developers Group (KHDG) 1998 Agreement. The first Kennebec dam that was required to build fish passage under the terms of the KHDG agreement was at the Lockwood dam in Waterville. During negotiations for the KHDG Agreement we discussed the type of fish passage needed and where it needed to be located. I raised the issue that a single fish passage was unlikely to pass the majority of alewife, blueback herring, American shad or Atlantic salmon run because

[1] Maine Title 38 M.R.S. §465
[2] See Attachment A - SUMMARY OF QUALIFICATIONS.
[3] https://www.ferc.gov/what-ferc

the greatest flows during the runs are on the east side of Kennebec. This comes from high water spilling over the dam during the spring fish migrating season. Migrating fish are attracted by high flows. Lockwood's owner was proposing a fish lift with a 5' wide entrance on the west side of the river. Sarah Verville, the attorney representing the KHDG group made it very clear that asking for anything other than the lowest cost fish lift, installed on the west side of the river as requested by Lockwood's owner, was a negotiations killer and she was prepared to walk away from the negotiations if we insisted on fish passage that could actually work. This is an example of licensee choosing not to pass fish because "**they only have to try to pass fish"**.

After the fish passage was operational at the west side of the Lockwood Dam, the dam's owners only agreed to make minor, low-cost adjustments to the attraction flows to the fish lift to "try to make it work". Over the next several years the American shad population below the Lockwood dam grew to the point that recreational anglers frequently catch more shad in a morning fishing Taconic Bay than the fish lift at the Lockwood captured in a full season of operation. The Lockwood fish lift is a perfect example of the FERC licensee "not having to pass fish; only having to try".

- As another example, in the spring of 2000 I attended a fluvial geomorphological conference at the Lake Morley Resort in Fairlee, Vermont, and was able to sit down at lunch with Ben Rizzo, the US Fish & Wildlife's lead fish passage engineer for 19 years. Ben Rizzo designed the 1980 fish passage at the Brunswick – Topsham dam, the first dam on the Androscoggin River, when the dam was built by Central Maine Power Company (CMP). At lunch I asked Ben if he knew why that fish passage never worked properly. He looked me directly in the eye and said "Yes" and went on to explain that he had designed the fish passage based on the out-flow from the generator that was immediately adjacent to the fish passage entrance. CMP provided all the flow specifics for the smallest generator in the powerhouse, which was to be located adjacent to the fish passage entrance.

  After the fish passage design had been completed and fully approved by CMP and USFWS, CMP re-arranged the generators in the powerhouse and relocated the largest capacity generator adjacent to the entrance to the fish passage without consulting with USFWS' fish passage engineer. That generator created higher velocity and significantly more flow so that access to the fishway has been severely limited for the entire term of the current (and about to be renewed) FERC license.

  This is yet another example of FERC licensed hydropower operators **only having to "try" to pass fish**.

Lesson #2: If a FERC licensee can avoid operating a fish passage that works at the first dam in a large watershed, it creates an extra benefit by avoiding the construction fish passage at dams

further upstream. This has been the case for both the Kennebec and Androscoggin rivers for the past forty years. By preventing fish passage at the lowermost dam on the Androscoggin River, all upstream dams were able to operate without fish passages for most of the 40-year term of the Brunswick – Topsham dam. This created significant financial savings for CMP and the subsequent dam owners. The same situation was the case on Kennebec for many decades before the creation of the Kennebec Hydro Developers Group (KHDG) agreement and Federal Energy Regulatory Commission (FERC) license terms.

Lesson #3: For many years I have asked the same, simple question at meetings attended by professional fishery biologists who specialize in the federally listed, Endangered Atlantic salmon. ***"Can anyone provide an example, from anywhere in the world, where Atlantic salmon populations have been restored when Atlantic salmon have to navigate over two or more fish ladders at consecutive hydropower dams?"*** This question was usually met with stunned silence followed by questions instead of an answer. "Maybe the Danube River?" or "What about the Columbia River?

At the FERC Public Hearing on NOAA's Draft Biological Opinion for the Kennebec's Atlantic Salmon, someone else in the audience asked this same question and FERC Staff responded that the Columbia River was successfully passing Pacific salmon upstream at several dams. In the summer 2024 I visited the Bonneville Dam, the lowermost dam on the Columbia River in the town of Cascade, Oregon, to see what was being done to effectively pass Pacific salmon. On that trip I found that:

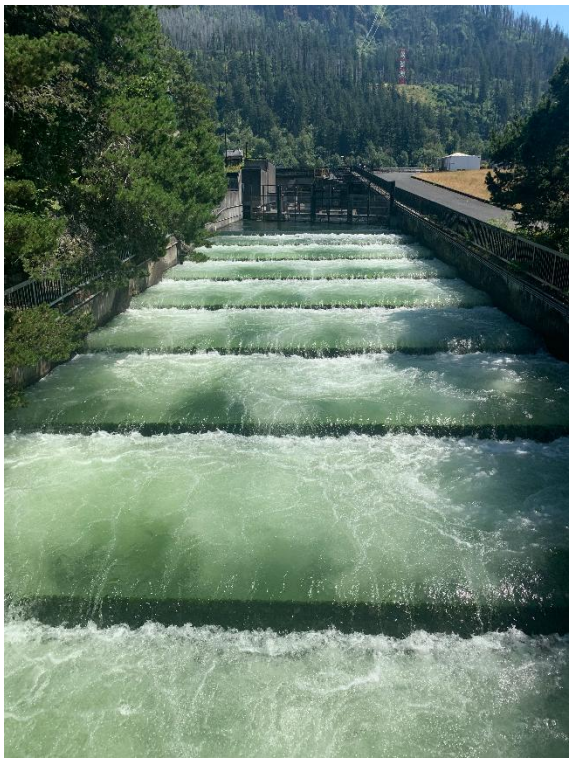
- The Columbia River is very different from Kennebec.
    - Columbia's average annual flow is 419,000 CFS while Kennebec's average annual flow is 12,300 CFS
        - That makes Columbia's flow 34 time larger than Kennebec's
        - Columbia's watershed is 258,000 square miles (about the same as the Nation of France) while Kennebec's watershed is 5,896 square miles. That makes Columbia's watershed 43.9 times larger than Kennebec (a little more than 4 times the size of Long Island, NY).

- The Bonneville Dam in Cascade, OR is actually a series of three dams plus two sets of locks that were built and owned are by United States Government.

  - There are two sets of upstream fish passage entrances on Bradford Island, (one on each side of the island) plus more fish passages on Cascade Island.
  - There are multiple downstream fish passages on Bradford Island.

- The Bradford Island upstream fish passage on the south side of the river has an initial entrance that is 40’ wide and 670’ long. This joins the 40’ wide and 460 long north side entrance before the two combine into a 40’ wide and 300’ long combined passage where the passage divides into multiple upstream passages for smaller and larger fish as well as a viewing area connected to the Bradford Island Visitor Center.

- Just the middle section alone of the Bradford Island fish passage is ~ 300’ long and ~40’ wide![4]



The flows required to operate this fish passage would render most east coast dams uneconomic to operate by diverting water from power generation.

[4] All the above and following measurements were made using Google Earth Pro software.

Lesson #4: There is no way to compare a west coast, government owned fish passage to fish passages at privately owned east coast dams that are all on much smaller rivers.

For example, the fish lift at the first dam on Kennebec, Lockwood Dam in Waterville ME, has a single entrance that is ~5' wide located on the west side of the Kennebec, away from the primary flows during the fish migration season (April 1– June 1). This fish lift has never worked well.

The same is true for the Brunswick Dam on the Androscoggin, where the small entrance for the fish passage is on the south side of the river while there are attraction flows on the north side.

Both of these dams need multiple fish passages that would be costly to install and to operate. The additional expense of costly fish passages also divert water that private dam owners rely on for generation and reduces their return on investment. With FERC's statement of purpose that promotes "economically efficient energy services at a reasonable cost," dam owners for many years have successfully avoided providing fish passage that actually work.

- The most important differfence is that Kennebec has one of the last remaing populations of Endangered Atlantic salmon in the United States. Atlantic salmon are repeat spawners. They grow larger with each winter they spend at sea and with that growth each female carries more eggs. This means that fish passages on Kennebec must be able to pass an enormous range and sizes of different species of fish tht each require different flow characteristics. From the very small glass American eels that are from 2" – 3" in length, all the way up to multi-sea winter Atlantic salmon that can grow to over 6' in length. This range of species creates issues for both up and downstream fish passages and is part of the reason no one has been able to answer the question: **"Can anyone provide an example from anywhere in the world, where Atlantic salmon have been able to navigate over fish ladders at consecutive dams?"**
- Also, the four lower Kennebec dams in question do not generate enough electricity to pay the cost of building, operating, and maintaining multiple fish passages at each dam that actually work. The only reason why owners of these dams still operate these facilities is because FERC and the federal fisheries agencies **do not require hydropower owners to pass fish; they only have to try to pass fish.** And if you think this is hyperbolie, read a couple of recent FERC licecses with the eye of a hydropower dam owner and think through the loopholes and opportunities in the license to delay and defer costs relating to fish passage.

In summary;

- For more than 40 years the owners of the lower four dams on the Kennebec have relied on their experience that FERC only requires them "**to try to"** pass fish upstream and downstrem around dams. FERC's stated mission is to: *"Assist consumers in obtaining reliable, safe, secure, and economically efficient energy services **at a reasonable cost** through appropriate regulatory and market means, and collaborative efforts*." FERC is not in the fish protection business and neither of the two federal agencies (US Fish and Wildlife Service and the National Marine Fisheries Service) with jurisdiction have capacity or the political courage to enforce FERC license conditions.

- This has led to the loss of most east coast sea-run fisheries.
    - River Herring populations (American shad, alewife, blueback herring) east-coast wide have declined to less than 10% of their pre-colonial runs primarily because as a species they can no longer access their spawning habitat.
    - American eel, European eel, and Pacific eel populations are all in steep decline, primarily because eels they can no longer access their nursery and freshwater habitat.
    - The Gulf of Maine's Atlantic salmon population is the only remaining designated population segment of this once plentiful species and it is listed as Endangered under the federal Endangered Species Act.

- East coast rivers are mostly privately owned dams and many are located at old mill sites that were built before there was any consideration or requirements for fish passage.

- While the Columbia River is not directly comparable to the Kennebec River, the Bonneville Dam, a US Government owned and operated facility, has demonstrated it is possible to pass multiple species of Pacific salmon and other sea-run species by creating multiple fish passages at each dam that are large enough for the fish to find the entrances and the fish passages have adequate water flow to attract the in-migrating fish. The differences include:
  - The Columbia River at the Bonneville Dam, in Cascade Oregon, carries 34 times more water than Maine's Kennebec River.
  - The Bonneville dam is US Government owned and operated while Maine's hydropower dams are are almost all owned by private entities.
  - The other major difference is Kennebec has one of the last remaining United States populations of the Endangered Atlantic salmon. Atlantic salmon are repeat spawners. They grow larger with each winter they spend at sea (off of Greenland) and with that yearly growth each female carries more eggs. This means that fish passages on Kennebec must be able to pass an enormous range of different species and sizes of fish that all require different flow characteristics. From the very small glass American eels (that are typically from 2" – 3"long) all the way up to multi-sea-winter female Atlantic salmon that can grow to over 6 feet in length. This is part of the reason why no one has ever been able to answer the question **"Can anyone provide an example from anywhere in the world, where Atlantic salmon have been able to navigate over fish ladders at consecutive dams?"**
  - Another reason is that the four Kennebec Dams in question do not generate enough electricity to pay for the cost of multiple fish passages that actually work and still provide the revenue needed to attract investors. The only reason the owners of these four dams still operate these facilities is because FERC and the federal fisheries agencies **do not require hydropower operators to pass fish. They only have to try to pass fish.**

Therefore: It falls upon the State of Maine's water quality certification process as the only agency responsible for the protection of the Kennebec River's sea-run fisheries the Clean Water Act. Protection of the Kennebec River's sea-run fisheries is covered by the definition of Class B waters in Maine, which "must be of sufficient quality to support all aquatic species indigenous to those waters without detrimental changes in the resident biological community"

This is why I respectfully ask Maine DEP to deny Brookfield's application for Water Quality Certification for the Weston Project, the Shawmut Project, The Hydro Kennebec Project, and the Lockwood Project.

Thank you for the opportunity to comment on the ongoing Lower Kennebec Dam's Water Quality Certification.

Respectfully submitted,

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ATTACHMENT A – SUMMARY OF QUALIFICATIONS to SUBMIT THESE COMMENTS

I came to Maine in the fall of 1973, to work for Maine State Government and I retired as a Senior Planner at the Maine Stater Planning Office in 2011. I lived in Hallowell where I became fascinated with the Kennebec River, its history and its sea-run fisheries that have survived since the glaciers departed and the land beneath the glaciers rebounded to form the landscape we have today.

Over the next 53 years I have spent a lot of personal time attending conferences, public meetings (including state and federal hearings), reading technical fisheries papers, and talking with fishery biologists trying to understand how and why Kennebec's native sea-run fisheries have survived into the 21st century.

During these years I represented the Kennebec Coalition in negotiations with the 1998 Kennebec Hydro Developers Group (KHDG) and Maine Department of Marine Resources that created the KHDG Agreement. This agreement is written into the current FERC licenses for the Weston Project, the Shawmut Project, the Hydro Kennebec Project, the Lockwood DaProject, and the Edwards Project, before it was removed.

I served as the Project Coordinator for the Kennebec Coalition from its founding in the mid 1980's, during the KHDG agreement negotiations, through the settlement with the Edwards Dam's owner, and the removal of the Edwards Dam during the summer of 1999. I have also lived to witness and participate in the revival of Kennebec's sea-run fisheries following the removal of Edwards Dam.

I have closely followed the federal Endangered Species Act listing of the Gulf of Maine's Designated Population Segment of Atlantic salmon, along with the development of the 2019 Recovery Plan for the Gulf of Maine Distinct Population Segment of Atlantic Salmon, and the creation and progress of implementation plans for the three Salmon Habitat Recovery Units (SHRU). I have participated at quarterly meetings of the Merrymeeting Bay SHRU working group as well as the annual Collaborative Management Strategy Meetings of the National Marine Fisheries Service, US Fish and Wildlife Service, Maine Department of Marine Resources, and the Penobscot Nation.

Over these years I have spent many hours in small boats and on foot observing the Kennebec River and its native sea-run fisheries, serving as a volunteer for Maine's Department of Marine Resources, the US Fish & Wildlife Service, the National Marine Fisheries Service, and the Kennebec Valley Chapter of Trout Unlimited.