Maine Department of Environmental Protection
c/o Laura Paye, via email to DEP-Hydropower@maine.gov
Hydropower Coordinator
Bureau of Land Resources

August 15, 2025

Comments requesting conditions for the Ellsworth Hydroelectric Project (FERC P-2727) to meet Water Quality Certification

Coordinator Paye,

For thousands of years the water and fish of the Union River—under different names but always loved and cared for—sustained human and natural communities in the forested interior reaches of the watershed and far out into Blue Hill Bay and the gulf beyond. For the last twenty years, I have lived by waters fed by the Union River. I have worked as a fisheries biologist, farmer, and Maine guide. I have hunted, fished, camped, paddled, and guided along miles of the river's headwaters and tidal reaches. I own and care for riverfront property in the river's upper branches. The operation of the Ellsworth and Graham Lake dams harm the river and it directly impacts professional and personal parts of my life. I am thankful for the opportunity to provide comments to the Department to assure that if the dams continue to exist on the Union River, they only do so in strict compliance with Maine laws.

Overview of my comments:

- Description of the connectivity of the Union River in 2025
- Discussion of how the proposed operations of the Ellsworth and Graham Lake dams will impair the Union River
- Need for immediate safe downstream fish passage
- Need for immediate upstream passage improvements for American Shad and sturgeon species
- Concerns around Brookfield's proposed improvements to the management of the Graham and Ellsworth impoundments
- The State's public trust responsibilities

1—The Union River watershed is connected (almost)

The Union River starts near Passadumkeag Mountain, 50 miles upstream of the ocean. There the river's headwaters come together into Little Buffalo Stream. It's over the Little Buffalo, about 14 miles east of Costagan, where the first road crosses the river. Here the road builders spanned the small stream with a bridge, leaving the start of the Union free flowing beneath it.

^Road crossing on Little Buffalo Stream

Following the Little Buffalo downstream it joins the Buffalo and Brandy Streams, becoming the Main Stream. The Main meanders for miles through forestlands, riparian wetlands, and over falls before reaching Great Pond. From there the river flows south through clear cool waters, passes over gravel bars, is shaded by tall hemlocks, fed by springs, and tumbled into whitewater by bedrock that forms the backbone of the Union River's West Branch.

^The West Branch

Together, the Little Buffalo, the Main Stream, and the West Branch flow for 31 miles crossing under logging roads and state highways and free flowing through lake outlets and falls carved by glaciers.

After those first 31 miles, the West Branch slows as it mixes with the backwater created by the Graham dam and its impoundment, Graham Lake. This impoundment stretches downstream for the next 15 miles. Then, about 46 miles downstream of the Little Buffalo, the Graham dam blocks the river and is the first barrier the river faces on its journey towards salt water. Four miles further downstream the Ellsworth dam impounds the river at the head of tide. The other major branches of the Union River—the Middle and East Branch—are similarly free flowing and connected. Each branch travels through forested townships and clear cool waters until they reach Brookfield's dams.

2—All dams hurt rivers, but in Maine, Brookfield's are the best at it

The Department has outlined and defended the Union River from water quality impairments caused by the proposed operation of these dams by Brookfield Renewable since its denial of the Water Quality Certificate in March 2020. The impacts noted then—the ecologically destructive drawdowns on Graham Lake and the Union River downstream of the Graham dam, as well as the violations of dissolved oxygen standards in the Ellsworth Dam's impoundment—are well documented and undisputed (even by Brookfield). Those same problems persist today.

Additionally, other issues remained unaddressed in Brookfield's new Water Quality Certification application. These include:

- the unabated impacts to the river caused by the barring from and killing of indigenous fish species by the impassable 69' tall dam at the head of tide
- the lack of proposed measures to protect and restore American Shad and sturgeon species to the river above the Ellsworth dam
- no data supported measures to protect aquatic life in Graham Lake and the Union River
- violations to the Public Trust.

3—Where fish go to die; fish kills at the Ellsworth dam

Brookfield's Ellsworth dam is the site of consistent and predictable fish kills of native aquatic species. Each year countless adult and juvenile American eels and river herring, sturgeon (see section 4), and an assortment of other native species die at the base or side of the dam during upstream movements (in the case of young eels and sturgeon) or while trying to pass downstream (adult eels, river herring, and other unlucky resident species) over the spillway and onto rocks at the toe of the dam or through its penstocks and turbines.

^River herring killed at the Ellsworth dam, June 2025

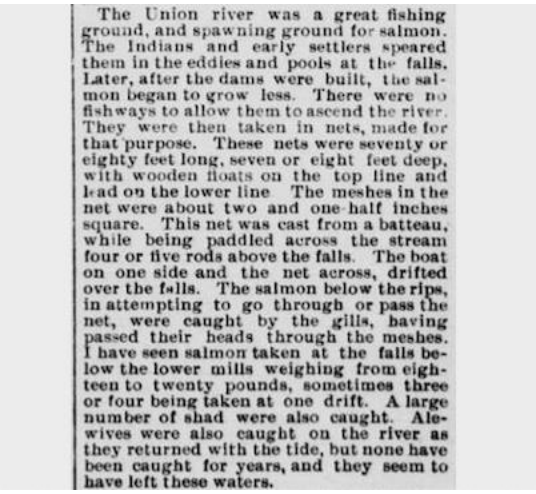
These events are well documented with FERC, state and federal agencies, and reported on by local media. In June 2025, I observed and documented another fish kill at the Ellsworth dam. Brookfield's response to this kill demonstrated that their efforts to monitor and contain fish kills are inadequate. Filings related to the June 2025 event have been provided to the Department to include in the record for this application.

^Toe of the Ellsworth dam, showing exposed rocks and ledge

To address these kills, I ask the Department to require immediate upgrades to downstream passage for fish in the Union River as a condition of Water Quality Certification for this project. This should include a downstream plunge pool for fish that fall over the dam, screening over the

penstock intakes from April to November, the installation of a deep gate to provide safe downstream passage for American eels, and funding for Maine DMR staff to provide 3rd party monitoring of the river below the dam to assure that fish kills are stopped by these measures.

4—"Poor shad! where is thy redress? When Nature gave thee instinct, gave she thee the heart to bear thy fate? Still wandering the sea in thy scaly armor to inquire humbly at the mouths of rivers if man has perchance left them free for thee to enter."—Henry David Thoreau



The Union river was a great fishing ground, and spawning ground for salmon. The Indians and early settlers speared them in the eddies and pools at the falls. Later, after the dams were built, the salmon began to grow less. There were no fishways to allow them to ascend the river. They were then taken in nets, made for that purpose. These nets were seventy or eighty feet long, seven or eight feet deep, with wooden floats on the top line and lead on the lower line. The meshes in the net were about two and one-half inches square. This net was cast from a batteau, while being paddled across the stream four or five rods above the falls. The boat on one side and the net across, drifted over the falls. The salmon below the rips, in attempting to go through or pass the net, were caught by the gills, having passed their heads through the meshes. I have seen salmon taken at the falls below the lower mills weighing from eighteen to twenty pounds, sometimes three or four being taken at one drift. A large number of shad were also caught. Alewives were also caught on the river as they returned with the tide, but none have been caught for years, and they seem to have left these waters.

^Henry L. Moor, in the *Ellsworth American,* 12/26/1900

UNION.

All the dams in Ellsworth were examined. There are none that present unusual obstacles; the average height is ten feet.

The fishery on this river was formerly excellent, producing salmon, shad and alewives; But it has shared the common fate, and these species are now nearly extinct here. The expense of constructing fishways and restocking the river would be comparatively small.

^Charles Atkins*, Report of the Commissioner of Fisheries State of Maine,* 1868

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port it falls to thirty each. The breeding grounds of alewives are in the ponds on Eastern river, Walker's pond in Brooksville, and Patten's ponds in Surry. Formerly Union river was a favorite haunt of salmon, shad and alewives.

Upon the presence of the anadromous fishes in our rivers and ponds, depends the existence of cod, haddock and pollock in our bays. The relationships are those of cause and effect.

^Samuel Wasson*, Survey of Hancock County, Maine,* 1878

The references above concerning the Union River (all submitted in full to the Department's record) come from prominent Hancock County residents on the 19th Century, each clearly stating that shad were present in the river. However, they are hardly the only written references to American shad in the Union River. I have provided extensive references to the Department and Maine DMR that supports this conclusion. Those have already been included in the record for this matter.

The Department came to similar conclusions in its certification of the Green Lake Hydroelectric project where on May 9, 2024 it stated "*All of Maine's native diadromous species are found in the Union River Basin. Reeds Brook is designated as critical habitat for the federally endangered Atlantic salmon. Although anadromous species are not currently able to migrate upstream past the Ellsworth and Graham Lake dams, Green Lake and Reeds Brook are understood to be historic habitat for Atlantic salmon, alewife, blueback herring, American shad, American eel, and sea lamprey, based on the lack of natural barriers downstream of Green Lake.*" Green Lake and Reeds Brook are upstream of both the Ellsworth and Graham Lake dams.

In 2019, the Downeast Salmon Federation filed extensive comments to the Department's eventual Water Quality Certification denial in 2020. At that time the department noted that MDMR had not "*yet had the opportunity to offer its assessment*" on the findings of the Downeast Salmon Federation related to fisheries and the impacts from Brookfield's application. I hope by providing those comments (shared with DEP and DMR staff) and reference material early in this process (as well as their appearance before MDMR in November 2019) there will be ample time for both Departments to review this information and provide thoughtful conditions that will restore American shad to their historic river.

We need not only look to the past for support of the presence of shad in the river, they are already inquiring at the mouth of the river, as documented by Maine DMR in their annual fish count data. Brookfield has reported shad in their fish trap at the Ellsworth dam in 2021, 2022, and 2023.

Since American shad are indigenous to habitat throughout the Union River it is the responsibility of the Department to require measures that assure their passage over and around the Ellsworth and Graham Dams. This should include a fish lift at the Ellsworth dam that will pass shad (constructed within two years of license issuance) and appropriate fish passage facilities (either technical or nature-like) at the Graham Lake dam one year later.

Another species that is part of the Union River's aquatic community so far missing from both agency and Brookfield consideration in this relicensing are our native, threatened and endangered sturgeon species—shortnose and Atlantic. Their historic presence in the river is documented in the Ellsworth city paper of record (*Ellsworth American*) on June 29, 1855. Then a mature sturgeon, present during spawning season, was observed in the reach below the modern-day Ellsworth dam. "*A week ago last Sunday some men discovered a sturgeon floundering about just below the bridge in this village, his sturgeonship having failed to go out with the tide, and then unable to get out. He was captured and found to measure seven and half feet…*"

Though today there is limited habitat available for spawning sturgeon—the Ellsworth dam, built on the head of tide creates a barrier and directly inundates this habitat—sturgeon still frequent the Union River as evidenced by the following:

On September 9, 2021 I visited the Union River just below the Ellsworth dam after a tip about a potential fish kill. Swimming upstream towards the dam and fish trap I found the tail of what would be confirmed by the USFWS as portion of a shortnose sturgeon.

^Sturgeon tail section found below the Ellsworth dam, 2021

Historical references, my modern observation, and the fact the Ellsworth dam sits on top of the transitionary salt/fresh water habitat needed by sturgeon for spawning requires that the Department take measures that protect this species and find ways to restore their habitat taken by the Ellsworth Dam. This could be addressed by appropriately sizing all up and downstream fish passage infrastructure at the Ellsworth dam to include design parameters for sturgeon species.

5—A mile wide and an inch deep; Brookfield's proposals lack data

Brookfield may believe they are to be commended for offering an abundance of water through a new, reduced drawdown regime for Graham lake during summer vacation months, but their proposal is rife with caveats that make it hard to understand how they will deliver this new and improved lake level and flow regime. Throughout their tenure as dam owner, they have claimed that it is the fault of droughts and low inflows that lead to the drawdowns that strand countless mussels and boaters far from the impoundments edge. The Department should require climatic and seasonal models that demonstrate exactly how Brookfield proposes to deliver their new flow curve for Graham Lake. Brookfield should also provide data and a multiyear monitoring plan that assures new levels and flow regimes cause the Union River to attain and maintain its appropriate water quality classifications within Graham Lake and in the river reaches downstream of the dam.

Regarding the noncompliant dissolved oxygen levels in the impaired impoundment above the Ellsworth dam, it appears that Brookfield has provided no new data or modeling on how they will address this violation. The Department should require state of the art aeration systems accompanied by weekly monitoring that assures these systems are bringing the river into attainment with Class B water quality standards. If issues remain after the first two years, additional measures—including more aeration systems—should be required.

6—Protecting the Public Trust

The Department, acting as the State's reviewing agency, has an obligation to the people of Maine to protect the public's rights to our rivers and waterways and the fish and fishes that depend on them. Without providing the conditions outlined above—conditions that protect fish and the river's water quality—to the certification of Brookfield's dams on the Union River the State would fail in its responsibility to assure the rights of the public are protected under the Public Trust Doctrine.

"A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise."—Aldo Leopold

The Department has a unique and profoundly important opportunity to assure that the right things are done on the Union River if Brookfield chooses to continue operating its hydroelectric project. I believe that Brookfield's proposal as written does not provide such protections and only by the application of thoughtful conditions from the Department can this project meet water quality standards. Without these conditions, the Department will have sentenced the river to another human generation of exploitation and harm.

Thank you for your consideration.

To the rivers,

Brett Ciccotelli
Hancock, Maine