# Nos. 13-1220 and 13-1750

## In the United States Court of Appeals for the First Circuit

FRIENDS OF MERRYMEETING BAY and ENVIRONMENT MAINE,
*Plaintiffs-Appellants*,

v.

HYDRO KENNEBEC, LLC, and BROOKFIELD POWER US ASSET MANAGEMENT, LLC,
*Defendants-Appellees*.

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FRIENDS OF MERRYMEETING BAY and ENVIRONMENT MAINE,
*Plaintiffs-Appellants*,

v.

THE MERIMIL LIMITED PARTNERSHIP, FPL ENERGY MAINE HYDRO, LLC, and BROOKFIELD RENEWABLE SERVICES MAINE, LLC,
*Defendants-Appellees*,

NEXTERA ENERGY RESOURCES, LLC and NEXTERA ENERGY MAINE OPERATING SERVICES, LLC,
*Defendants*.

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ON APPEAL FROM THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MAINE

**COMBINED BRIEF FOR APPELLEES**

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## CORPORATE DISCLOSURE STATEMENT

Defendant-Appellee Hydro Kennebec LLC is a wholly-owned subsidiary of Hydro Kennebec Holdings LLC. No publicly held corporation owns ten percent or more of its stock.

Defendant-Appellee Brookfield Power US Asset Management LLC is a wholly-owned subsidiary of Brookfield Power New York Holding Corp. No publicly held corporation owns ten percent or more of its stock.

Defendant-Appellee The Merimil Limited Partnership is owned 50% by Merimil Holdings, LLC and 50% by Kennebec Hydro Resources, Inc. an entity unrelated to Brookfield. No publicly held corporation owns ten percent or more of its stock.

Defendant-Appellee FPL Energy Maine Hydro, LLC (now known as Brookfield White Pine Hydro LLC) is a wholly-owned subsidiary of White Pine Hydro LLC. No publicly held corporation owns ten percent or more of its stock.

Defendant-Appellee Brookfield Renewable Services Maine LLC is a wholly-owned subsidiary of BIF II US Renewable LLC (now known as White Pine Financial LLC). No publicly held corporation owns ten percent or more of its stock.

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## REASONS WHY ORAL ARGUMENT SHOULD BE HEARD

Pursuant to Local Rule of Appellate Procedure 34.0(a), Appellees respectfully request oral argument on this matter. Although Appellees submit that it is clear from the record that the district court's grant of summary judgment was proper, oral argument will provide an opportunity to respond to any of the Court's inquiries with respect to the matters at issue.

## JURISDICTIONAL STATEMENT

Appellees agree with Appellants that this Court has jurisdiction pursuant to 28 U.S.C. § 1291, as this is an appeal of summary judgment orders which disposed of Appellants' claims in their entirety and are thus appealable final orders.

## PRELIMINARY STATEMENT

This case turns on the meaning of a specific provision in a 1998 agreement between, among others, Appellees (operators of four hydroelectric facilities on the Kennebec River) and various state and federal resource agencies. The provision involves the method dam operators choose to allow certain fish species migrating to the Atlantic Ocean to pass downstream. Operators can choose to utilize bypass facilities, by which fish are steered *around* the turbines, or operators can choose to pass fish directly *through* the turbines. If operators choose the latter course – in the agreement's terms, if they "desire to achieve interim downstream passage . . . by means of passage through turbine(s)" – they are required to conduct certain studies to demonstrate that the passage does not result in significant mortality to the protected species.

The district court granted summary judgment to Appellees because Appellants failed to identify any evidence that Appellees "desired to achieve" turbine passage as the method of downstream passage, and Appellees were therefore not required to conduct the specified studies. It is undisputed that

Appellees have constructed and used various bypass measures at each of the four projects, in consultation with resource agencies that are parties to the 1998 agreement. Appellants' only contention on appeal is that, because Appellees were allegedly aware that some fish – specifically adult salmon (or "kelts") – may have passed through the turbines despite these approved bypass measures, Appellees "desired to achieve" turbine passage.

Appellants' argument has no basis in the agreement. Read with even the slightest attention to context, the provision triggers the study requirement only if an operator chooses turbine passage as its method of downstream passage. Indeed, Appellants concede not only that "desire to achieve" means the operator's *subjective intent*, but also that Appellees chose to implement bypass measures rather than rely on turbine passage. There is no evidence that Appellees envisioned any other choice; the diversionary methods adopted by Appellees and approved by signatories to the agreement remain in place and remain Appellees' intended method of downstream passage. That does not change simply because those measures may be somewhat less than perfect (like virtually any device that attempts to steer fish). Appellees' choice – their subjective intent to use bypass, not turbine passage – remains unchanged.

At bottom, Appellants tried to import the strict-liability standards applicable under the Endangered Species Act ("ESA") into an agreement that Appellants

acknowledge turns on the operators' subjective intent. Appellants' primary focus below was on their ESA claim, but that claim was rendered moot (as Appellants ultimately conceded) when state and federal resource agencies reached agreement with Appellees on conservation measures and issued permits for the facilities' operation. Appellants thus seek to remake their strict-liability ESA evidence as relevant to the subjective standard adopted by the 1998 agreement, and undertook to use their Clean Water Act theory as a means to circumvent their defeat on the ESA issues. The district court correctly rejected that attempt below and enforced the agreement's plain meaning.

## ISSUE PRESENTED

Whether the district court correctly concluded that Appellants did not create a triable issue of fact that Appellees – after devising, constructing, adapting and maintaining numerous measures designed to *avoid* turbine passage at each of their hydroelectric facilities – subjectively "desire[d] to achieve interim downstream passage of out-migrating adult Atlantic salmon and/or adult shad by means of passage through turbine(s)."

## STATEMENT OF THE CASE[1]

This appeal relates to four hydroelectric dams on the Kennebec River – the Hydro Kennebec, Lockwood, Shawmut and Weston Projects[2] (collectively, the "Projects") – at issue in two actions consolidated on appeal to this Court.[3] The cases were brought in the United States District Court for the District of Maine by Plaintiffs/Appellants Friends of Merrymeeting Bay and Environment Maine (together, "Appellants") originally against two separate sets of owners and operators of those facilities.

In appeal No. 13-1220, the Defendants/Appellees are Hydro Kennebec, LLC and Brookfield Power US Asset Management, LLC (together, the "HKP

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[1] As described below, this appeal involves a consolidation of two separate cases which have distinct docket numbers, separate Joint Appendixes and separate Appellants' briefs. References to documents in Case No. 13-1220 will be referred to as "HKP" (short for Hydro Kennebec Project) and in Case No. 13-1750 as "LSW" (short for Lockwood, Shawmut and Weston Projects).

[2] Since the demolition of the Edwards Dam downriver of Augusta in 1999, the Lockwood Project is now the first hydroelectric project located on the Kennebec River upstream of Merrymeeting Bay. LSW Joint Stipulated Facts for Summary Judgment ("LSW SF") ¶3 (LSW Joint Appendix ("LSW JA") 75). HKP is the second, located roughly one mile upstream from the Lockwood Project. HKP Stipulations of Fact ¶3 ("HKP SF") (HKP Joint Appendix ("HKP JA") 83). The Shawmut Project is the third hydroelectric project upstream from Merrymeeting Bay, LSW SF ¶6 (LSW JA 75), and the Weston Project is the fourth. LSW SF ¶9 (LSW JA 76).

[3] On June 21, 2013, this Court granted the parties' joint motion to consolidate the two appeals. Accordingly, this is Appellees' combined brief in response to Appellants' two briefs.

Appellees"), and the case relates to the Hydro Kennebec Project ("HKP"). HKP SF ¶2 (HKP JA 82). In Appeal No. 13-1750, the Defendants/Appellees are Brookfield Renewable Services Maine, LLC; FPL Energy Maine Hydro, LLC ("FPL Hydro"); and The Merimil Limited Partnership ("Merimil") (collectively, the "LSW Appellees"),[4] and the case relates to the Lockwood, Weston and Shawmut Projects. LSW SF ¶¶17, 18, 21 (LSW JA 76-77). The HKP Appellees and the LSW Appellees together are the "Appellees."

In Complaints filed in 2011, Appellants asserted two theories of liability related to the operation of these hydroelectric projects. Count I asserted the "taking" of Atlantic salmon in violation of Section 9 of the Endangered Species Act ("ESA"). Atlantic salmon returning to the Kennebec River were first designated as endangered under the ESA in 2009, at which point the dam operators engaged with the National Marine Fisheries Service ("NMFS") and the United States Fish and Wildlife Service ("USFWS") to develop species protection plans and obtain permits under the ESA. While those efforts were ongoing, Appellants filed these lawsuits. Count II alleged violations of HKP Appellees' Clean Water Act ("CWA") water quality certifications, which incorporated the Kennebec Hydro Developers Group Settlement Agreement ("KHDG Settlement Agreement"). This

[4] Previously, the interests in these three projects were held by Defendants NextEra Energy Resources, LLC and NextEra Energy Maine Operating Services, LLC. Assented to Motion to Substitute Brookfield Renewable Services Maine, LLC, as a Defendant, April 4, 2013 (LSW JA 187).

Agreement was entered into in 1998 among the operators of these (and other) hydroelectric projects and various state and federal agencies. None of the signatories to the Agreement has ever alleged its breach.

In appeal No. 13-1220, the district court entered a January 14, 2013 Order dismissing the ESA claim. The court ruled that HKP Appellees' research and conservation efforts, resulting in NMFS's issuance of a favorable Biological Opinion ("HKP BO") and an Incidental Take Statement ("ITS"),[5] rendered Appellants' ESA claim moot, because they constituted valid federal permits for the actions put at issue in the Complaint. HKP JA 141. On the same date, the district court issued a separate order denying Appellants' motion for partial summary judgment and granting HKP Appellees' motion for summary judgment on the CWA claim ("HKP SJ Order"). HKP SJ Order 1, 7 (HKP JA 143, 149). The court held that Appellants had not identified evidence sufficient to support a breach of the KHDG Settlement Agreement.

In appeal No. 13-1750, the district court disposed of both claims on essentially identical grounds, although the ESA permitting process took longer to complete for the LSW projects. The court issued a January 14, 2013 Order

[5] On September 17, 2012, the ESA consultation process for the HKP license amendment – to incorporate provisions of an Interim Species Protection Plan ("ISPP") – concluded with NMFS' issuance of the HKP BO that included the ITS, HKP JA 807-885, authorizing a certain level of Atlantic salmon take under the ESA. HKP JA 870-873.

granting LSW Appellees' motion for summary judgment on the CWA claim ("LSW SJ Order"). LSW SJ Order 28 (LSW JA 182). On May 30, 2013, the parties stipulated to the dismissal, with prejudice, of all ESA claims (thus including those against all parties to these two cases).[6]

Accordingly, Appellants appeal only the district court's orders granting summary judgment to Appellees and denying summary judgment to Appellants on their CWA claims arising under the terms of the KHDG Settlement Agreement.

## STATEMENT OF THE FACTS

Atlantic Salmon

Atlantic salmon – as well as the species of shad, alewives, herring and eels covered by the KHDG Settlement Agreement – are diadromous; that is, they migrate between fresh and salt waters during their life cycles.[7] Alantic salmon,

[6] On July 19, 2013, NMFS issued a BO ("LSW BO") under the ESA concerning the effects of the Federal Energy Regulatory Commission's ("FERC") approval of applications to amend the licenses for the construction of new upstream fishways at the Lockwood, Shawmut and Weston Projects, as well as the incorporation into the license of an ISPP for Atlantic salmon at these three projects. *See* http://www.nero.noaa.gov/protected/section7/bo/actbiops/bf_fpl_ispp_biop_final_signed.pdf (last visited on Sept. 19, 2013). Relevant pages of the LSW BO are attached as the addendum of this brief. The LSW BO contains agreed-upon fish passage measures and activities as part of an adaptive management framework whereby the LSW Appellees will coordinate and consult with NMFS throughout a seven year period from 2013-2019. *Id.* at Addendum A-13.

[7] While the 1998 agreement also covers other species, including shad, this case concerns only Atlantic salmon. While Appellants occasionally mention the potential for shad to pass through a dam's turbines, they adduced no evidence relevant to shad.

shad, alewives and herring are anadromous fish, which are born in fresh water, migrate to the ocean to develop and then return to fresh water to spawn. HKP SF ¶41 (HKP JA 88).[8] Female Atlantic salmon deposit eggs in a stream or river bed upstream of the Projects. HKP SF ¶91 (HKP JA 59). The eggs are then fertilized by spawning adult male salmon. HKP SF ¶42 (HKP JA 88). The fertilized eggs hatch in March or April and develop from "sac fry" to "fry" to "parr." HKP SF ¶45 (HKP JA 88). They remain in their native streams, feeding and growing for one to three years, when they undergo a biologically adaptive process in which they become juvenile "smolts," ready to enter salt water. HKP SF ¶¶45-46 (HKP JA 88). On the Kennebec River, smolts migrate downstream to the Merrymeeting Bay estuary and then to the ocean; those few that survive the marine phase of the species life cycle over the next one to three years may return to their native streams to spawn. HKP SF ¶49 (HKP JA 89). After those mature adult salmon have migrated upstream and have spawned, they are known as post-spawning adults or "kelts." HKP SF ¶43 (HKP JA 88). Some Atlantic salmon kelts survive, and some may return to the ocean after spawning. HKP SF ¶64 (HKP JA 91). Although the litigation below primarily focused on estimates of station survival or turbine mortality for downstream migrating juvenile smolts – which Appellants

[8] Eels are catadromous fish, which are born in salt water, migrate up rivers (fresh water) to develop, but then return to salt water to spawn.

emphasized in their now-moot ESA claim – downstream migrating kelts (adults) are the *only* fish at issue in this appeal.

Runs of Atlantic salmon were abundant in the Kennebec River in pre-colonial times, but declined severely in the 19th and 20th centuries and were essentially wiped out by the 1990s. Efforts to restore salmon runs by stocking and by removing obstacles to migration have thus far achieved limited success. HKP SF ¶52 (HKP JA 89).

A fish lift installed in 2006 at the Lockwood Project, LSW BO at 15 (Addendum at 15), currently the most downstream facility on the river, traps adult salmon returning to the Kennebec River after the marine phase of their existence. LSW SF ¶79 (LSW JA 85). In 2006, the Maine Department of Marine Resources ("MDMR") began trapping the returning adult salmon and trucking them upstream to spawn in the Sandy River. HKP SF ¶¶67, 69 (HKP JA 92). In 2010, the year before Appellants filed their complaints, a total of five adult salmon were trapped at Lockwood; in 2011, 64 adult salmon were trapped. HKP SF ¶69 (HKP JA 92). The average number of adults returning between 2006 and 2010 was 18. HKP SF ¶50 (HKP JA 89). It is unknown how many of those adults survived as kelts, how many of them might have attempted to migrate back downstream towards the ocean or when they might have attempted to do so.

The KHDG Settlement Agreement and Water Quality Certifications

The Projects operate subject to the terms and conditions of water-quality certifications issued by the State of Maine pursuant to Section 401 of the Clean Water Act ("CWA"), 33 U.S.C. § 1341.[9] LSW SF ¶193 (LSW JA 104).[10] Each Project's water-quality certification includes a provision incorporating the provisions of the KHDG Settlement Agreement, including: "INTERIM DOWNSTREAM FISH PASSAGE: The applicant shall continue and where needed improve existing operational measures to diminish entrainment, allow downstream passage, and eliminate significant injury to out-migrating anadromous fish in accordance with the terms of the KHDG Settlement Agreement." HKP JA 185; LSW SF ¶195 (LSW JA 104).

The KHDG Settlement Agreement was entered into in May 1998 between the owners of hydroelectric projects on the Kennebec River and various state and federal resource agencies, including: Maine Department of Inland Fisheries and Wildlife, Maine Department of Marine Resources, Maine Atlantic Salmon Authority, NMFS and USFWS. The purpose of the Agreement was to provide a

[9] The objective of the CWA is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a). The water quality certifications are issued in furtherance of that objective and, once issued, become a condition of the Projects' FERC licenses. *See id.* at § 1251(a).

[10] Where the facts contained in the LSW SF and the HKP SF are substantially similar, reference is made to only one of them.

"comprehensive settlement governing" fisheries restoration on the Kennebec River, and to provide interim and final resolution of "fish passage methodologies, timetables and funding." LSW JA 199.

To that end, the KHDG Settlement Agreement contemplates two basic methods of downstream fish passage – bypass or turbine passage[11] – and prescribes a review process between the licensees and resource agencies with respect to fish-passage facilities. More particularly, it requires that "[t]he functional and final design of any interim or permanent upstream or downstream fish passage or collection facility discussed herein must be approved in writing by the resource agencies prior to filing that design with the Federal Regulatory Commission and Maine Department of Environmental Protection." HKP JA 158.

With respect to the Lockwood, Shawmut and Weston Projects, the Agreement specifies that "fish passage by means of sluiceways and/or controlled spills are the first and preferred approach to interim downstream fish passage." LSW JA 207, 210, 212. It further provides, however, that "[c]onstruction of new diversionary structures to achieve success is not required by this Agreement." *Id.*[12]

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[11] The parties also understood that at periods of high river flow (often including the downstream spring migration period for juvenile salmon smolts) most fish would follow the dams' spillways rather than pass through the turbines. *See* HKP BO at 28, 53 (HKP JA 834, 859); LSW BO at 21 (Addendum at 21).

[12] These three dams were considering use of existing sluices and other diversionary structures to support their selection of non-turbine passage. Weston did opt to use its existing log sluice, adding a fish guidance boom. *See* LSW SF ¶¶113, 225

At the center of this appeal is a provision of the Agreement governing any dam operators that might intentionally choose turbine passage as their only method of downstream passage of adult salmon:[13]

> In the event that adult shad and/or adult Atlantic salmon begin to inhabit the impoundment above the . . . project, and to the extent that licensee ***desires to achieve interim downstream passage of out-migrating adult Atlantic salmon and/or adult shad by means of passage through turbine(s)***, licensee must first demonstrate, through site-specific quantitative studies designed and conducted in consultation with the resource agencies, that passage through turbine(s) will not result in significant injury and/or mortality (immediate or delayed). In no event shall licensee be required to make this quantitative demonstration for adult shad and adult Atlantic salmon before May 1, 2006.

HKP JA 164-165; LSW JA 206-208, 210-211, 211-213 (emphasis added). The question in this case is whether Appellees "desire[] to achieve interim downstream

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(LSW JA 89, 109). Shawmut opted to use its existing sluice, adding a plunge pool. *See* Richter Dep. 164:11-13, Mar. 27, 2012 (LSW JA 295).

[13] As Appellants acknowledge, only the portions of the KHDG Settlement Agreement regarding downstream interim passage of *adult salmon* (*i.e.*, kelts, not smolts) are "at issue in Appellants' appeal." *See* LSW Appellants' Br. 31; *see also* HKP Appellants' Br. 19. Although quoted at length in Appellants' briefs, the passages of the KHDG Settlement Agreement with regard to "*juvenile* salmon" and related "site-specific qualitative studies" (LSW Appellants' Br. 30; HKP Appellants' Br. 18; first full paragraph, HKP JA 163) are not at issue. In any event, those qualitative studies on smolts have, in fact, been performed by Appellees through the ESA consultation process that led to the HKP BO and LSW BO. The LSW Appellees conducted radio-telemetry downstream-passage studies on Atlantic salmon smolts in 2011 and 2012 (*see* LSW SF¶¶213-14 (LSW JA 107)), and HKP Appellees conducted a radio-telemetry study on Atlantic smolts at the Lockwood project in May and June 2011. *See* HKP SF¶¶143-45 (HKP JA 104)).

passage . . . by means of passage through turbines," thus triggering the study requirements for salmon kelts.

History of Conservation Measures and Appellees' Election to Utilize Diversionary Facilities

In the years following the KHDG Settlement Agreement, the operators of all four Projects opted to maintain or construct diversionary facilities to take fish *around* their turbines. None opted "to achieve interim downstream passage of out-migrating adult Atlantic salmon and/or adult shad by means of passage *through* turbine(s)." HKP JA 163 (emphasis added).[14]

In 2005, HKP Appellees consulted with federal and state agencies concerning development of a downstream passage system at HKP. HKP SF ¶24 (HKP JA 85). A downstream fish passageway was installed at HKP in April 2006. HKP SF ¶¶24, 137 (HKP JA 85, 103). The fish bypass at HKP was designed through consultation not only with FERC, but also with the resource agencies that were signatories to the KHDG Settlement Agreement. HKP SF ¶137 (HKP JA 103). In August 2006, HKP Appellees also installed a 160-foot-long guidance boom with a 10-foot-deep Kevlar curtain in the project's forebay upstream of the

[14] As described in this section, a downstream fish passageway was installed at HCP in 2006 and the Lockwood, Shawmut and Weston Projects "all operate with some form of downstream fish passage and protection for outmigrating smolts and kelts, including reduced spacing of trashracks and guidance booms for protection against turbine entrainment and sluice gates or other openings for downstream passage." LSW BO at 117.

turbines. HKP SF ¶138 (HKP JA 103).[15] In December 2011 and January 2012, HKP Appellees replaced the Kevlar boom with a more buoyant, sturdier guidance boom (called a "Tuffboom") with a curtain made of perforated metal plate. HKP SF ¶139 (HKP JA 104).

In a September 18, 2006 letter, the State of Maine Department of Environmental Protection ("DEP"), the state agency responsible for the CWA Section 401 water quality certification process, "commend[ed] Hydro-Kennebec L.P. for its commitment to providing improved downstream passage at the project for post-spawner adult anadromous fish." HKP JA 188. The letter further noted that it "is expected that significant numbers of adult Atlantic salmon and American shad will be trucked next year from the new Lockwood fish lift to spawning areas above the HKP and will take advantage of the new downstream passage facility." *Id.*

In the summer of 2009, a downstream bypass facility was installed at the Lockwood Project, including a 300-foot long floating guidance boom in the Project's forebay upstream of the turbines. LSW SF ¶200 (LSW JA 105).

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[15] Testimony below by the manager for environmental regulatory compliance at HKP, Kevin Bernier, established that one reason the fishway was installed in 2006 was to allow salmon to bypass the dam without passing through the turbines and "[t]o provide [the salmon] with a safe route downstream." Bernier Dep. 59:2-60:8, Feb. 17, 2010 (HKP JA 290-91). The bypass was installed as an alternative to conducting the requisite studies, showing that Appellees did not "desire" to pass fish – whether juvenile smolts or adult kelts – through the turbines. *See id.*

Shawmut, the third dam in the sequence, utilizes the surface sluice and trash racks that were installed when the dam was built prior to execution of the KHDG Settlement Agreement, with a plunge pool added in 2009. Richter Dep. 21:1-11, 164:11-13, 183:19-22, 550:18-551:10 (LSW JA 259, 295, 300, 392-93).

The last of the four dams, the Weston Project, also utilizes a pre-existing sluice as a downstream diversionary structure. Richter Dep. 143:2-145:13 (LSW JA 290); LSW SF ¶113 (LSW JA 89). In addition, in the summer of 2011, a Tuffboom guidance boom was added to the Weston Project's forebay upstream from the turbines to enhance the sluice's operation as a fish bypass. LSW SF ¶225 (LSW JA 109).

In March 2007, the Maine Board of Environmental Protection ("BEP") convened an administrative hearing to adjudicate a petition brought by Appellants here, Friends of Merrymeeting Bay and its leader Douglas Watts, to revoke, modify or suspend the water quality certifications for the Projects. The manager for environmental regulatory compliance at the LSW facilities, Robert Richter, testified that "[t]here are a number of existing downstream passages for eels and anadromous fish at the Kennebec River Projects and these include gates, spillways and turbine passage." LSW SF ¶198 (LSW JA 105). Mr. Richter also testified that Appellees' "desire is not to pass [fish] through the turbines," and that Appellees

therefore had not undertaken the quantitative studies referenced in the KHDG Settlement Agreement. Richter Dep. 259:18-260:8 (LSW JA 319).

In a letter dated July 23, 2010, Steve Hocking, FERC's Chief, Biological Resources Branch, Division of Hydropower Administration and Compliance, addressed a claim by Friends of Merrymeeting Bay, an appellant here, and Friends of Kennebec Salmon (together "Friends") that site-specific studies of downstream passage had not been conducted at the Lockwood, Weston and Shawmut Projects as required by the KHDG Settlement Agreement. Mr. Hocking noted that the operator had responded that this claim was moot because "downstream passage using turbines is not desired." Mr. Hocking then concluded that "after reviewing the May 11, 2010 annual fish passage report, including the responses to the issues raised by Friends, and taking into consideration NextEra's consultation under the ESA to protect Atlantic salmon . . . we have determined that NextEra is complying with the salmon protection requirements of the Lockwood, Weston and Shawmut Project licenses." LSW SF ¶197 (LSW JA 105); LSW JA 251-252. Mr. Hocking closed by commenting that the agency "appreciate[s] your work to comply with the ESA and to protect Atlantic salmon at these projects." *Id.*

In the 15 years since the KHDG Settlement Agreement was executed, the signatory federal and state agencies have not objected to the dams' diversionary facilities or otherwise claimed that the operators were in breach of the Agreement's

provisions governing passage of adult salmon. In fact, the resource agencies have worked closely with the Project operators during the entire period as the diversionary facilities were built, modified and operated. Richter Dep. 157:10-19 (LSW JA 293) ("the booms that NextEra has installed at both Lockwood and Weston . . . require[d] some sort of agency approval before they could be installed," which included all of the resources agencies); *see also* HKP SF ¶24 (HKP JA 85). The agencies were well aware that there would be episodes during the installation, testing or modification of the Projects' diversionary structures that required correction or improvements, and as they worked closely with the operators during the process of building and modification of diversionary facilities, those resource agencies never alleged any breach of the Agreement.

The 2009 ESA Listing

On June 19, 2009, NMFS and USFWS issued a final rule that, for the first time, included the Atlantic salmon population of the Kennebec River as part of the Gulf of Maine Distinct Population Segment ("GOM DPS").[16] That action formally designated these populations as "endangered" under the ESA, based on the

[16] In November 2000, NMFS and USFWS had issued a rule determining that Atlantic salmon should be listed as endangered, but specifically excluded wild and hatchery populations of salmon in the Kennebec and certain other rivers from the coverage of that determination. Endangered and Threatened Species, 65 Fed. Reg. 69459 (Nov. 17, 2000).

perceived need to utilize all suitable habitat throughout the river systems of the region.[17] LSW SF ¶29 (LSW JA 79); 74 Fed. Reg. 29344 (June 19, 2009).

Before this listing, fish-restoration efforts in the Kennebec had been governed solely by the provisions of the KHDG Settlement Agreement described above. When the putative Kennebec populations were added to the GOM DPS in 2009, the federal and state agencies essentially converged their programs pursuant to ESA and CWA for protection and recovery of the Atlantic salmon. Those programs culminated in the HKP and LSW Biological Opinions with their Incidental Take Statements and Interim Species Protections Plans, approving continued operation of the four facilities subject to specified reasonable and prudent measures for further research and conservation.

## SUMMARY OF THE ARGUMENT

I. The 1998 KHDG Settlement Agreement allows operators to choose whether to implement fish bypass measures or to pass fish through turbines. It is undisputed that Appellees installed or adapted existing bypass measures at each of the four projects. It is also undisputed that what matters under the 1998 Agreement is whether Appellees subjectively intended to choose bypass or turbine passage,

[17] The 2009 listing determination acknowledged that very few, if any, "wild" or naturally-reared salmon remain in the upper Kennebec, and took the unusual step of designating populations of all conservation hatchery stocks of eggs, fry, and smolts of non-specific Maine river origin that might later be introduced into the Kennebec subject to the protections of the laws. LSW SF ¶30 (LSW JA 79); Endangered and Threatened Species, 74 Fed. Reg. 29344 (June 19, 2009).

not whether bypass measures were 100% successful or whether some turbine passage would (foreseeably or otherwise) nonetheless occur. That is the essential meaning of the contract term: "desires to achieve interim downstream passage . . . by means of passage through turbine(s)." By choosing the alternative of bypass measures, Appellees did not "desire to achieve" turbine passage.

This plain understanding of the Agreement is confirmed by a decade and a half of the parties' course of performance. Appellees have developed and approved fish-bypass measures in consultation with federal and state resource agencies that are parties to the Agreement. No party to the Agreement has ever alleged that Appellees were in breach simply because of the well-known fact that some fish would nevertheless pass through the turbines. And it is the parties' intent that controls the meaning of this contract term, not Appellants' preference for a zero-tolerance standard.

II. The district court correctly rejected Appellants' claim that "knowledge" or "awareness" of some turbine passage was evidence of Appellees' "desire[] to achieve interim downstream passage . . . by means of passage through turbine(s)." Contract terms must be read as a whole. It is improper to isolate the word "desire" from its context, and worse still to assume it is synonymous with other terms and other standards.

The hodge-podge of cases Appellants cite as proof that courts sometimes infer intent from results misses the point entirely. These cases arise in profoundly different contexts and implicate profoundly different subjective standards. None bears even the slightest resemblance to the contract term at issue here. Indeed, certain of these cases show, if anything, that both this Court and the Supreme Court have rejected the "foreseeable consequence" rationale that Appellants urge here as evidence of Appellees' intent.

What Appellants really seek to do is replace the bargained-for provision in the Agreement with a strict-liability standard, in which every turbine injury to every migrating fish encountering a dam is said to evidence a violation of environmental law. That claim belongs, if anywhere, under the Endangered Species Act, and it is undisputed that Appellants' ESA claim was rendered moot when Appellees completed the relevant permitting processes in 2013. It would be odd, indeed, to base a violation of the Agreement on conduct that is now affirmatively permitted under the much more stringent ESA. That result would be even more peculiar in view of the fact that in 2014 Appellees will – pursuant to the 2013 ESA permits – begin survival studies of the same sort contemplated by the 1998 Agreement.

## ARGUMENT

### I. STANDARD OF REVIEW

This Court reviews the trial court's grant or denial of summary judgment *de novo*. *One Beacon Am. Ins. Co. v. Commercial Union Assurance Co. of Canada,* 684 F.3d 237, 241 (1st Cir. 2012). The Court may affirm the trial court on "any independently sufficient ground made manifest by the record." *Id.* (quoting *Cahoon v. Shelton,* 647 F.3d 18, 22 (1st Cir. 2011)). The Court need not credit "conclusory allegations, improbable inferences, and unsupported speculation." *McDonough v. Donahoe*, 673 F.3d 41, 46 (1st Cir. 2012) (quoting *Prescott v. Higgins*, 538 F.3d 32, 39 (1st Cir. 2008)). The trial court's grant of summary judgment will be affirmed where the party that moved for summary judgment below can show that there is "no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law." Fed. R. Civ. P. 56(a).

### II. THERE WAS NO EVIDENCE THAT APPELLEES "DESIRE[] TO ACHIEVE INTERIM DOWNSTREAM PASSAGE . . . BY MEANS OF PASSAGE THROUGH TURBINE(S)"

The KHDG Settlement Agreement provides that if Appellees "desire[] to achieve interim downstream passage" for outmigrating kelts "by means of turbine passage" rather than diversionary structures, they must first conduct the specified quantitative studies. HKP JA 164-65. It is undisputed that Appellees erected or utilized existing diversionary structures at each of the four hydroelectric projects at

issue in this appeal. And Appellants concede – as they must – that "desire to achieve interim downstream passage" refers to Appellees' subjective intent to rely on turbine passage. That is, Appellants "do not argue that 'desire' is an ambiguous term. . . . [They] agree that what [Appellees] *want* – how they *actually intend* to achieve interim downstream passage of adult salmon and shad – is the issue to be resolved." LSW Appellants' Br. 39 (emphasis in original). Accordingly, Appellants were required to show that, notwithstanding Appellees' use and construction of diversionary structures, Appellees subjectively intended "to achieve interim downstream passage" through turbine passage. The district court correctly held that Appellants had failed to identify plausible evidence of such intent.

The KHDG Settlement Agreement contemplates that, with respect to interim downstream passage of adult salmon, dam operators had two basic ways by which they could achieve such passage – steering fish *around* the turbines by various bypass devices, or steering fish *through* the turbines. The Agreement also specified that bypass was the favored method: "[F]ish passage by means of sluiceways and/or controlled spills [is] the first and preferred approach to interim downstream fish passage," although "[c]onstruction of new diversionary structures to achieve success is not *required* by this Agreement." LSW JA 207, 210, 212 (emphasis added).

Appellees chose to utilize bypasses. As set forth in detail above (*see supra* pp. 13-15), at each hydroelectric project at issue, Appellees both installed measures and adapted preexisting infrastructure to divert fish away from the turbines. At HKP and Lockwood, downstream fish passageways were constructed with guidance booms. At Weston, the existing sluice is used with an added guidance boom. At Shawmut, the existing sluice and trashracks are used as diversionary structures, supplemented by a plunge pool added in 2009.

Appellees thus conclusively demonstrated that, by choosing diversionary structures, they did not subjectively "desire[] to achieve interim downstream passage . . . by means of passage through turbine(s)." Because the plain terms of the Agreement establish these two basic methodologies (bypass or turbine passage) – and because subjective intent is the critical element – a signatory that has chosen to install diversionary structures does not "desire to achieve" interim turbine passage. All four licensees elected to utilize interim diversionary structures specifically because they wanted to guide fish around the turbines.[18] Put simply,

[18] *See, e.g.*, Bernier Dep. 59:2-60:8 (HKP JA 290-91) (testimony of the HKP manager for environmental regulatory compliance, that one reason the fishway was installed in 2006 was to allow salmon to bypass the dam without passing through the turbines and "[t]o provide [the salmon] with a safe route downstream."); Richter Dep. 259:18-260:8 (LSW JA 319) (testimony of Robert Richter, manager for environmental regulatory compliance at the LSW facilities, that the quantitative studies referenced in the KHDG Settlement Agreement had not been conducted because Appellees' "desire is not to pass [fish] through the turbines").

operators that utilize diversionary structures "desire[] to achieve interim downstream passage" by steering fish around the turbines, not through them.

If any doubt as to the meaning of this provision remains, the parties' conduct over the past 15 years would eliminate it. The federal and state resource agencies that are signatories to the Agreement share Appellees' understanding of what it means to "desire to achieve" downstream passage. The resource agencies have worked closely with the licensees in designing and implementing the bypass facilities at all four Projects without ever challenging the actions of any of the licensees under the Agreement. The BO/ISPPs recently issued in connection with the ESA proceedings do not state – or even imply – that Appellees have violated their obligations under the Agreement by choosing and relying on the bypass measures in place at each project. To the contrary, these permits expressly authorize the Projects' operation under specified conditions. Appellants' insistence (HKP Appellants' Br. 1 n. 1) that post-complaint events do not moot a CWA citizen suit is wide of the mark, as the interagency process and the issuance of BO/ISPPs actually underscore the fact that there was no valid allegation of any breach of the Agreement in the first place.

As this Court has recognized, "[t]he parties to an agreement know best what they meant." *Reed & Reed, Inc. v. Weeks Marine, Inc.*, 431 F.3d 384, 388 (1st Cir. 2005) (quoting Restatement (Second) of Contracts § 202 cmt. g (1981)). In a

similar situation involving the interpretation of an interstate Compact, the Supreme Court unanimously reaffirmed that "[a] 'part[y's] course of performance under the Compact is highly significant' evidence of its understanding of the compact's terms." *Tarrant Reg'l Water Dist. v. Herrmann,* --- U.S. ---, 133 S. Ct. 2120, 2135 (2013)(quoting *Alabama v. North Carolina*, 560 U.S. 330, --- (2010)). Thus, the history between the licensees and agencies is instructive in interpreting the Agreement. And here, that course of performance shows that no government agency ever found that Appellees desired to pass kelts through their turbines.

It is undisputed that every signatory to the KHDG Settlement Agreement – operators and regulators alike – understood "desire[] to achieve interim downstream passage . . . by means of passage through turbine(s)" to mean a choice to adopt turbine passage rather than diversionary measures. More to the point, no signatory has ever contended that an operator that has already implemented diversionary measures nonetheless "desires to achieve" turbine passage simply because some fish may find their way through turbines.

It is important to bear in mind that these appeals turn on the meaning of the KHDG Settlement Agreement, which is determined by the *parties*' intent, not by *Appellants'* preferences. The parties have long understood that Appellees' choice and implementation of diversionary measures satisfied the Agreement, even if some fish nonetheless managed to enter the turbines. Only Appellants have

pressed their untenable, strict-liability reading of the Agreement, which belongs, if anywhere, in their now-moot (and dismissed) ESA claim. See *infra* pp. 35-37. The Agreement means what it says and says what it means: An operator that chooses to implement diversionary measures does not "desire[] to achieve interim downstream passage . . . by means of passage through turbines."

## III. THE DISTRICT COURT CORRECTLY REJECTED APPELLANTS' ATTEMPTS TO EQUATE AWARENESS THAT SOME FISH PASS THROUGH TURBINES WITH A "DESIRE[] TO ACHIEVE INTERIM DOWNSTREAM PASSAGE . . . BY MEANS OF PASSAGE THROUGH TURBINE(S)"

Appellants contend that Appellees' (alleged) awareness that some fish pass through their turbines is evidence of their subjective "desire[] to achieve interim downstream passage . . . by means of passage through turbine(s)." *See* HKP Appellants' Br. 21-22. That contention ignores the plain meaning of the Agreement. It is well-established that contracts must be considered as a whole. *See Farmers Ins. Exch. v. RNK, Inc.*, 632 F.3d 777, 785 (1st Cir. 2011). No part of the contract is to be ignored, and a contract's meaning "cannot be delineated by isolating words and interpreting them as though they stood alone." *Id.* (quoting *Nicolaci v. Anapol*, 387 F.3d 21, 26 (1st. Cir. 2004).

The Agreement – when taken as a whole – clearly contemplates a choice between diversionary methods or turbine passage, and it is undisputed that Appellees chose and implemented the former. Indeed, Appellants would rewrite

the essential terms of the Agreement to give them a fundamentally different meaning. The relevant question is not whether Appellees "know" that fish pass through turbines, it is whether they "desire[] to achieve interim downstream passage . . . by means of passage through turbine(s)." The Agreement thus refers to an operator's chosen program for handling downstream migration and imposes certain requirements if – and only if – an operator intentionally selects turbine passage as the "means" by which it subjectively wishes "to achieve" this particular goal.

Appellants pay little heed to these contract terms and their surrounding context. Rather, Appellants focus entirely on their allegations that Appellees' diversionary measures did not keep every fish out of every turbine. *See, e.g.*, LSW Appellants' Br. 15-19, 21-25, 48-49, 52-54; HKP Appellants' Br. 6, 11-14, 21-22, 28, 30-31. But the Agreement does not impose a particular effectiveness requirement on diversionary measures. Nor does it trigger study requirements if dam operators "know" that some fish pass through turbines in spite of diversionary measures, or if operators are "aware" that other measures are available (such as, Appellants repeatedly suggest, shutting down turbines entirely during migratory periods). The question is whether operators "desire to achieve" downstream passage by means of passage through turbines – that is, whether operators subjectively want to adopt turbine passage as their chosen "means" of downstream

passage. The effectiveness of diversionary measures is an answer to a different question.

For the same reason, the cases relied upon by Appellants to support the use of such evidence are inapposite. Most significantly, none of these cases involves anything remotely similar to the contract provision at issue here. As explained above, a contract must be read in its entirety; words cannot be read in "isola[tion]." *Farmers Ins. Exch.*, 632 F.3d at 785. Accordingly, Appellants' claims that certain evidence was held to show "intent" in contexts having absolutely no resemblance to this one (*e.g.*, crimes, civil accounting fraud, insurance coverage, jurisdictional pleading) (*see* LSW Appellants' Br. 40-42) says nothing about the kind of evidence that would show whether Appellees "desire[] to achieve interim downstream passage . . . by means of passage through turbine(s)." The very notion that an inquiry into, say, a prison official's state of mind is instructive in ascertaining Appellees' "desire to achieve" turbine passage for migrating salmon, *see* LSW Appellants' Br. 42 (citing *Leavitt v. Corr. Med. Servs., Inc.*, 645 F.3d 484, 497 (1st Cir. 2011)), illustrates precisely why courts require contract terms to be read in context. Appellants would simply isolate the word "desire" from any of its contractual surroundings and assume that it is interchangeable with any inquiry into any litigant's state of mind on any topic.

Given the disparate contexts in which those cases arise, it should come as no surprise that they involve fundamentally different standards. For example, *Leavitt*, 645 F.3d at 497, involved an Eighth Amendment claim that turned on the official's "deliberate indifference" toward a prisoner's "serious medical needs." Likewise, *AUSA Life Ins. Co. v. Ernst & Young*, 206 F.3d 202, 220-21 (2d Cir. 2000), involved a *scienter*-based claim under Section 10(b) of the Securities and Exchange Act. And the CERCLA cases on which Appellees heavily rely, *United States v. Gen. Elec. Co.*, 670 F.3d 377, 382 (1st Cir. 2012), and *Burlington N. & Santa Fe Ry. Co. v. United States*, 556 U.S. 599, 605 (2009), asked whether the defendant "had 'arranged for' the disposal of hazardous substances" within the meaning of 42 U.S.C. § 9607(a)(3), *Burlington N.*, 556 U.S. at 605. Those are highly specialized standards that have no application to whether hydroelectric dam operators "desire to achieve" a certain form of fish passage under the terms of the KHDG Settlement Agreement.

If anything, the CERCLA cases illustrate the flaws in Appellants' reasoning. In *General Electric*, 670 F.3d at 383, this Court first recognized the Supreme Court's holding in *Burlington Northern* that the defendant's "knowledge of the routine spillage" of hazardous substances "did *not* trigger arranger liability" (emphasis added). This Court upheld liability in *General Electric* only because there was evidence that, after learning that the recipient of the hazardous

substances had no use for them, the defendant "took at least three well-documented steps the collective effect of which, rather than prevent or reduce the likelihood of disposal, was to *ensure* it." *Id.* at 389 (emphasis added). Even if that logic could be imported here, it would require evidence that Appellees, upon learning that some fish were passing through the turbines, *removed or disabled* the diversionary measures to "ensure" that they did so. Appellants did not – and could not – point to any such evidence.

The Supreme Court's reversal of the Ninth Circuit in *Burlington Northern* is even more damaging to Appellants' theory. The Ninth Circuit had affirmed "arranger liability" on the ground that disposal of the waste "was a foreseeable byproduct of, but not the purpose of, the transaction." *Burlington N.*, 556 U.S. at 606-07 (alterations and internal quotation marks omitted); *see also id.* at 612 (government arguing that spills were "a result [the defendant] anticipated"). That is precisely what Appellants claim here: They say that turbine passage was a foreseeable or anticipated consequence of supposed deficiencies in Appellees' bypass facilities. *The Supreme Court definitively rejected that logic* and reversed the Ninth Circuit's decision. Even though the defendant's "efforts were less than wholly successful" – and even though the defendant had "knowledge that spills and leaks continued to occur" – that did not show that the defendant "arranged for" disposal of hazardous waste. *Id.* at 613; *see also id.* at 612 ("knowledge alone is

insufficient to prove that an entity 'planned for' the disposal, particularly when the disposal occurs as a peripheral result of the legitimate sale" of the product).

Appellants cite just two cases that actually deal with contracts. One is more than a century old, and neither involved terms remotely similar to those at issue here. In *Stone v. Perry*, 60 Me. 48, 50-51 (1872), the court relied on vendor custom and the law of the state in which a contract for the sale of goods was entered to conclude that delivery of goods was intended to be conditional upon payment. In *Scott Elliot Smith, LPA v. Travelers Cas. Ins. Co.*, No. 2:12-cv-00065, 2012 WL 1758398, at *2 (S.D. Ohio, May 16, 2012), the court discussed "desire" only (in passing) to determine whether a party was "motivated by a desire to defeat diversity jurisdiction." Indeed, the court there equated "desire" with "specific purpose" or "primary motive." *Id.* Even leaving aside the absence of contractual context, those definitions contradict Appellants' argument here – Appellants say only that their evidence tends to show that turbine passage is one possible objective, not a "specific" or "primary" one. *See, e.g.*, LSW Appellants' Br. 34 ("Plaintiffs raised a genuine issue of material fact as to whether Defendants 'desire' turbine passage to be *one of* the means by which migrating salmon and shad are passed downstream . . . .") (emphasis added).

Appellants claim that the district court "refused to consider the types of objective evidence routinely held to be relevant in determining the party's

subjective desire." *Id.* at 33. Repackaging that same basic complaint, Appellants contend that the district court "did not consider the totality of the circumstances." *Id.* But these protests again miss the point. The district court correctly held that the standard under the Agreement is Appellees' subjective "desire to achieve" interim downstream passage via turbines, not Appellees' "knowledge" of whether some fish are passing through turbines. The district court thus "refused to consider" Appellants' evidence only in the sense that it was "not germane" to the actual question under the Agreement. LSW SJ Order at 28 (LSW JA 182). Appellants would skip the threshold question of determining what the contract actually requires. The district court, however, correctly gave the contract's language full effect. *See* HKP SJ Order at 5-6 (HKP JA 147-148) (citing *OfficeMax, Inc. v. Levesque*, 658 F.3d 94, 99 (1st Cir. 2011) ("[A]n interpretation which gives a reasonable, lawful, and effective meaning to all the terms is preferred to an interpretation which leaves a part unreasonable, unlawful, or of no effect." (quoting the Restatement (Second) of Contracts § 203(a)))).

The bottom line is that Appellants identified no evidence that Appellees "desired to achieve" turbine passage. To the contrary, the evidence showed conclusively that Appellees' "desired to achieve" bypass by means of the very diversionary measures they put in place. Appellees utilize these bypass facilities in recognition of the Agreement's statement that "fish passage by means of

sluiceways and/or controlled spills are the first and preferred approach to interim downstream fish passage," HKP JA 163, and have done so in consultation with the resource agency signatories to the KHDG Settlement Agreement. The district court correctly understood this to be the intent of the parties to the Agreement.[19] It would be odd indeed to conclude that the very measures that all parties to the Agreement understood fully satisfied Appellees' obligations somehow was also evidence that Appellees were *breaching* the Agreement. In fact, Appellants complain that state and federal agencies "informed" Appellees about supposed imperfections in certain bypass facilities, LSW Appellants' Br. 24-25, but Appellants ignore the logical import of this allegation: The resource agency signatories to the Agreement were themselves aware of the very evidence Appellants rely on here, and yet no signatory to the Agreement has ever alleged its breach.

All that Appellants' "evidence" could possibly show is that Appellees were aware that some fish managed to find their way through the turbines despite Appellees' construction and utilization of bypass facilities. Appellants have not

[19] As the district court found, "[t]he evidence before the Court on summary judgment reveals that Defendants do not desire to pass Atlantic salmon and/or shad through the turbines. Instead, the Defendants' desire is that the fish bypass the turbines." HKP SJ Order at 6 (HKP JA 148). This is because "the [fish boom and turbine bypass route] was installed as an alternative to conducting the requisite studies, showing that Defendants did not 'desire' to pass fish through the turbines." *Id.*

identified a single document or deposition in which Appellees' personnel indicated a desire to rely on (or even encourage) turbine passage. And overwhelming and uncontradicted evidence showed that Appellees put diversionary measures in place precisely to avoid turbine passage. HKP SF ¶¶24, 137-39 (HKP JA 85, 103, 104); LSW SF ¶¶113, 200, 225 (LSW JA 89, 105, 109); Richter Dep. 21, 143, 175, 550 (LSW JA 259, 290, 298, 392). At the very most, evidence that fish nonetheless passed through turbines shows only that Appellees' singularly intended bypass measures were not 100% effective.

Appellants believe that their "evidence" ought to be enough to allege a breach of the Agreement. But as explained above, accepting Appellants' theory would fundamentally change the terms of the Agreement. What Appellants really want is to import a zero-tolerance standard into the Agreement. That was the main thrust of Appellants' efforts before the district court, which they pressed in dozens of pleadings, expert depositions and oral arguments for two years. Those efforts culminated in their belated motion to preliminarily enjoin hydroelectric operations during the 2013 spring migration. That April 2013 preliminary injunction motion claimed that Appellees' operations would lead to the extinction of Atlantic salmon, because the speculative turbine mortality of some small number of downstream migratory *smolts* (even one, they claimed) would be fatal to the recovery of the species. Tellingly, for present purposes, *this was a claim under the ESA*, which the

district court correctly rejected and which Appellants now acknowledge is moot (or at least have not appealed) in light of the resource agencies' permitting decisions.

It would be incongruous to base a CWA violation on conduct that is now affirmatively permitted under the ESA. The Agreement incorporated by the CWA imposes a subjective and far less restrictive standard than the essentially zero-tolerance standard under the ESA for unpermitted take of endangered species. If Appellants' theory here was correct, however, evidence that would tend to show only a violation of the strict-liability ESA regime could satisfy the fundamentally different standard implicated by the Agreement. Appellants would, in short, accomplish a simple end-run around the failure of their ESA claim.

That fact is highlighted by the remedy they really seek, which is not even remotely contemplated by the Agreement. Appellants repeatedly complain that Appellees have "never shut down the turbines . . . to keep adult salmon or shad from passing through them." LSW Appellants' Br. 25; *see also* LSW Appellants' Br. 3, 7, 17, 19, 25, 35, 49-51; HKP Appellants' Br. 3, 6; HKP SJ Order at 5. But they point to no evidence – none – that the Agreement imposes such an absolute standard or requires such a drastic remedy. Again, Appellants' demands for

shutdowns of these energy facilities are better suited to the ESA, which may be the reason that Count I was their primary focus in the district court.[20]

What is more, if Appellants genuinely sought to enforce the study requirements they claim have been triggered here (as opposed to trying to block the dams' operations entirely), these gyrations are unnecessary. Appellees have already committed to *prospective* site-specific quantitative studies of adult salmon downstream passage to be conducted in continuing implementation of the HKP and LWS Biological Opinions and Incidental Take Statements. LSW BO at 11-12 (Addendum at 11-12). Thus, the very remedy that Appellants supposedly seek under the Agreement has already been secured under the ESA. This is a telling comment on the objective of this litigation and, ultimately, on the flawed reading of the Agreement upon which this appeal rests: Appellants do not seek to *enforce* the parties' intent under the Agreement to establish a plan for operating these hydroelectric projects while requiring certain studies conducive to species protections. Rather, they seek to *prevent* operation of the dams, and their

[20] In the HKP case, this ESA count remained Appellants' primary focus until it was rendered moot by the HKP Appellees' agreement with the resource agencies. Likewise, in the LSW case, the ESA count remained Appellants' primary focus until the district court denied Appellants' ESA-based motion for preliminary injunction against operation of the LSW dams during the spring of 2013 smolt migration period, which was the last gasp of that litigation below. Appellants' shutdown theories are even more draconian, and more attenuated, as applied to the unpredictable and diverse passage times of those small number of kelts trapped and trucked from the Lockwood lift that survive overwintering and that might subsequently attempt to migrate downstream at various points in following years.

"evidence" regarding Appellees' "desire to achieve interim downstream passage . . . by means of passage through turbine(s)" serves only this objective. The district court was therefore correct to conclude that Appellants' "evidence" was beside the point regarding the contractual interpretation at issue and did not create a triable issue of fact regarding an alleged breach of the KHDG Settlement Agreement.

## CONCLUSION

The decisions of the district court granting summary judgment in favor of Appellees should be affirmed.

Dated: October 9, 2013

Respectfully submitted,

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**CERTIFICATE OF COMPLIANCE WITH RULE 32(a)**

This brief complies with the type volume limitation of Rule 32(a)(7)(B) of the Federal Rules of Appellate Procedure. Excepting the portions described in Circuit Rule 32(a)(1), the brief contains 8,800 words, excluding those parts of the brief exempted by Fed. R. App. P. 32(a)(7(B)(iii).

This brief complies with the typeface requirements of Rule 32(a)(5) and the type style requirements of Rule 32(a)(6)of the Federal Rules of Appellate Procedure. The brief has been prepared in a proportionally spaced typeface in Fourteen Point Times New Roman.

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## CERTIFICATE OF SERVICE

On October 9, 2013, I served copies of the foregoing *Combined Brief for Appellees* on the following counsel of record persons through the Court's ECF system:

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# ADDENDUM

NATIONAL MARINE FISHERIES SERVICE

**ENDANGERED SPECIES ACT**
**BIOLOGICAL OPINION**

| | |
|---|---|
| **Agency:** | Federal Energy Regulatory Commission (FERC)<br>US Army Corps of Engineers, New England District |
| **Activity Considered:** | **Amendment of the Licenses for the Lockwood (2574), Shawmut (2322), Weston (2325), Brunswick (2284), and Lewiston Falls (2302) Projects**<br><br>NER/2013/9613 |
| **Conducted by:** | National Marine Fisheries Service<br>Northeast Region |
| **Date Issued:** | 7/19/2013 |
| **Approved by:** | |

## Table of Contents

## 1. INTRODUCTION AND BACKGROUND

This constitutes the biological opinion (Opinion) of NOAA's National Marine Fisheries Service (NMFS) under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543) concerning the effects of the Federal Energy Regulatory Commission's (FERC) approval of applications to amend the licenses for the construction of new upstream fishways at the Lockwood (P-2574), Shawmut (P-2322), and Weston (P-2325) Projects, as well as the incorporation of an Interim Species Protection Plan (ISPP) for Atlantic salmon at the Lockwood, Shawmut Weston, Brunswick (P-2284), and Lewiston Falls (P-2302) Projects. Additionally, this consultation will address the effects of a proposed Atlantic and Shortnose Sturgeon Handling and Protection Plan at the Lockwood and Brunswick Projects.

By an application filed with FERC on February 21, 2013, FPL Energy Maine Hydro LLC (FPL Energy), representing Merimil Limited Partnership (Merimil) and itself (licensee), requested that the licenses for the Lockwood, Shawmut, Weston, Brunswick, and Lewiston Falls Projects be amended to incorporate provisions from a proposed seven year ISPP for Atlantic salmon (2013-2019). This Opinion only considers the effects of these Projects on salmon for the duration of this interim period; therefore, take authorization for Atlantic salmon expires in 2019. In addition, the licensee filed an application on March 29, 2013 to implement an Atlantic and Shortnose Sturgeon Handling and Protection Plan at the Lockwood and Brunswick Projects. The Sturgeon Handling and Protection Plans would become part of the project licenses and, therefore, this Opinion considers the effects to sturgeon between 2013 and the license expiration dates (2029 at Brunswick and 2036 at Lockwood). In letters dated February 7, 2013 and March 25, 2013, the FERC designated the licensee as their non-federal representative to conduct informal ESA consultation with us.

This Opinion is based on information provided in the FERC's March 14, 2013 (Atlantic salmon) and May 1, 2013 (shortnose and Atlantic sturgeon) Biological Assessments, as well as the ISPP and Sturgeon Handling and Protection Plan. A complete administrative record of this consultation will be maintained at our Maine Field Office in Orono, Maine. Formal consultation was initiated on March 14, 2013.

In addition to FERC, another federal agency, the U.S. Army Corps of Engineers (ACOE), may take action to authorize the construction of the new fishways at the Lockwood, Shawmut, and Weston Projects. The ACOE would authorize the proposed actions pursuant to section 404 of the Clean Water Act and section 10 of the Rivers and Harbors Act for wetlands impacts and fill associated with the projects. Pursuant to the section 7 regulations (50 CFR §402.07), when a particular action involves more than one Federal agency, the consultation responsibilities may be fulfilled through a lead agency. FERC is the lead Federal agency for the proposed actions under consideration in this consultation.

### 1.1. Consultation History

- July 30, 2009 – FPL Energy submitted a letter to us stating their intention to take measures to protect Atlantic salmon.

- May 21, 2010 – FPL Energy submitted a letter to us indicating their intent to obtain an Incidental Take Permit through a Habitat Conservation Plan under section 10 of the ESA.

- September 23, 2010 – FPL Energy met with us to discuss the section 10 process and to review the content requirements of a Habitat Conservation Plan.
- October 2010 – FPL Energy initiated the section 10 process and formed technical advisory and steering committees that met several times in 2011 and 2012.

- February 2012 – FPL Energy submitted a draft Habitat Conservation Plan to us for review.

- November 2012 – FPL Energy met with us to discuss the section 7 process and the species protection plan process.

- January 30, 2013 – FPL Energy met with us and indicated their intention to proceed with developing a interim species protection plan, and that they would request that FERC modify the project licenses to incorporate the proposed provisions.

- January 31, 2013 – FPL Energy submitted a letter to FERC requesting designation as a non-federal representative for the purposes of informal consultation on Atlantic salmon.

- February 7, 2013 – FERC designated FPL Energy to act as its non-federal representative in conducting informal consultation under section 7 of the ESA regarding federally listed Atlantic salmon at the Lockwood, Shawmut, Weston, Brunswick, and Lewiston Falls Projects.

- February 21, 2013 - FPL Energy submitted a draft BA to FERC.

- March 14, 2013 – FERC adopted the BA and submitted a letter to NMFS requesting the initiation of formal consultation.

- March 25, 2013 - FERC designated FPL Energy to act as its non-federal representative in conducting informal consultation under section 7 of the ESA regarding federally listed shortnose and Atlantic sturgeon at the Lockwood and Brunswick Projects.

- March 29, 2013 – FPL Energy submitted a draft BA for Atlantic and shortnose sturgeon to FERC as an addendum.

- May 1, 2013 - FERC adopted the BA and submitted a letter to NMFS requesting the initiation of formal consultation for Atlantic and shortnose sturgeon at the Lockwood and Brunswick Projects.

- May 10, 2013 – NMFS submitted a letter to FERC indicating that all of the information required to initiate a formal consultation for Atlantic salmon, shortnose sturgeon, and Atlantic sturgeon had been received. In this letter NMFS noted that the date that the

original initiation request was received (March 14, 2013) will serve as the commencement of the formal consultation process.

**1.2.** Relevant Documents

The analysis in this Opinion is based on a review of the best available scientific and commercial information. Specific sources are listed in Section 13 and are cited directly throughout the body of the document. Primary sources of information include: 1) information provided in FERC's March 14, 2013 initiation letter and attached BA and ISPP in support of formal consultation under the ESA; 2) information provided in the draft BA submitted to FERC by the licensees describing the effects of the sturgeon handling and protection plan; 3) Determination of Endangered Status for the Gulf of Maine Distinct Population Segment of Atlantic salmon; Final Rule (74 FR 29345; June 19, 2009); 4) Status Review for Anadromous Atlantic Salmon (*Salmo salar*) in the United States (Fay *et al.* 2006); 5) Designation of Critical Habitat for Atlantic salmon Gulf of Maine Distinct Population Segment (74 FR 29300; June 19, 2009); 6) Final Recovery Plan for Shortnose Sturgeon (December, 1998); and 7) Final listing determinations for the five distinct population segments of Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*). On February 6, 2012, we published notice in the *Federal Register* listing the Atlantic sturgeon as endangered in the New York Bight, Chesapeake Bay, Carolina, and South Atlantic DPSs, and as threatened in the Gulf of Maine DPS (77 FR 5880 and 77 FR 5914).

**1.3.** Application of ESA Section 7(a)(2) Standards – Analytical Approach

This section reviews the approach used in this Opinion in order to apply the standards for determining jeopardy and destruction or adverse modification of critical habitat as set forth in section 7(a)(2) of the ESA and as defined by 50 CFR §402.02 (the consultation regulations). Additional guidance for this analysis is provided by the Endangered Species Consultation Handbook, March 1998, issued jointly by NMFS and the USFWS. In conducting analyses of actions under section 7 of the ESA, we take the following steps, as directed by the consultation regulations:

- Identifies the action area based on the action agency's description of the proposed action (Section 2);
- Evaluates the current status of the species with respect to biological requirements indicative of survival and recovery and the essential features of any designated critical habitat (Section 3);
- Evaluates the relevance of the environmental baseline in the action area to biological requirements and the species' current status, as well as the status of any designated critical habitat (Section 4);
- Evaluates the relevance of climate change on environmental baseline and status of the species (Section 5);
- Determines whether the proposed action affects the abundance, reproduction, or distribution of the species, or alters any physical or biological features of designated critical habitat (Section 6);
- Determines and evaluates any cumulative effects within the action area (Section 7); and,
- Evaluates whether the effects of the proposed action, taken together with any cumulative effects and the environmental baseline, can be expected, directly or indirectly, to reduce

appreciably the likelihood of both the survival and recovery of the affected species, or is likely to destroy or adversely modify their designated critical habitat (Section 8).

In completing the last step, we determine whether the action under consultation is likely to jeopardize the ESA-listed species or result in the destruction or adverse modification of designated critical habitat. If so, we must identify a reasonable and prudent alternative(s) (RPA) to the action as proposed that avoids jeopardy or adverse modification of critical habitat and meets the other regulatory requirements for an RPA (see 50 CFR §402.02). In making these determinations, we must rely on the best available scientific and commercial data.

The critical habitat analysis determines whether the proposed action will destroy or adversely modify designated or proposed critical habitat for ESA-listed species by examining any change in the conservation value of the primary constituent elements of that critical habitat. This analysis focuses on statutory provisions of the ESA, including those in section 3 that define "critical habitat" and "conservation", in section 4 that describe the designation process, and in section 7 that set forth the substantive protections and procedural aspects of consultation. Although some "properly functioning" habitat parameters are generally well known in the fisheries literature (e.g., thermal tolerances), for others, the effects of any adverse impacts are considered in more qualitative terms. The analysis presented in this Opinion does not rely on the regulatory definition of "adverse modification or destruction" of critical habitat at issue in the 9th Circuit Court of Appeals (Gifford Pinchot Task Force *et al.* v. U.S. Fish and Wildlife Service, No. 03-35279, August 6, 2004).

## **2.** PROJECT DESCRIPTION AND PROPOSED ACTION

FERC is proposing to amend the licenses held by the licensee for the Lockwood, Shawmut, Weston, Brunswick, and Lewiston Falls Projects to incorporate the provisions of an ISPP for Atlantic salmon. The Lockwood, Shawmut, and Weston Projects are, respectively, the first, third, and fourth dams on the Kennebec River; while the Brunswick and Lewiston Falls Projects are the first and fourth dams on the Androscoggin River (Figure 1). The provisions of the ISPP include the installation of new upstream fishways at the Lockwood, Shawmut, and Weston Projects in the Kennebec River, and the implementation of upstream and downstream passage and survival studies for Atlantic salmon. These studies are to be conducted as part of an adaptive management strategy designed to achieve high passage and survival rates for Atlantic salmon through the Lockwood, Shawmut, Weston, and Brunswick Projects. Although no new measures or structures are being proposed for the Lewiston Falls Project, FERC is proposing to amend the license to require the licensee to meet with us every five years to ensure that operation of the Project is consistent with the recovery objectives for Atlantic salmon and other listed fish species. The licensee will also cooperate with NMFS, USFWS, and MDMR on the installation and operation of a rotary screw trap (RST) in the Sandy River, for a period of up to three years (2013-2015). The purpose of the RST is to improve knowledge and to identify the period of downstream migration of Atlantic salmon smolts on the Kennebec River. In addition, the licensee proposes to implement a Sturgeon Handling and Protection Plan at the Brunswick and Lockwood Projects.

This Opinion considers effects of the operation of Lockwood, Shawmut, Weston, Brunswick, and Lewiston Falls Projects by the licensees between 2013 and 2019 under the terms of the revised operating licenses as proposed by FERC (Table 1).

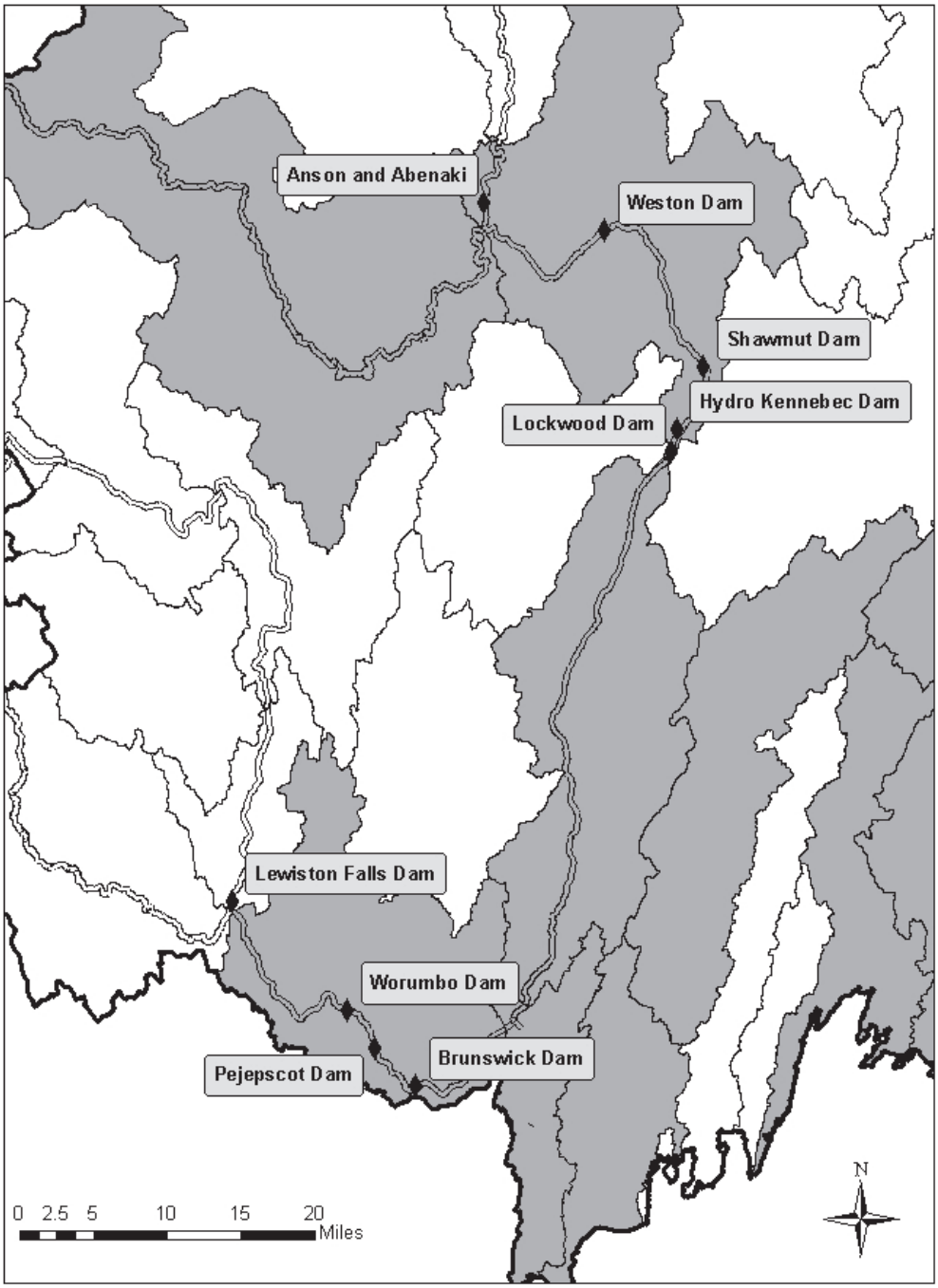


**Figure 1.** The lower Kennebec and Androscoggin River watersheds with mainstem dams and Atlantic salmon critical habitat (in gray) indicated.

**Table 1.** The licensee's proposed schedule for the implementation of the interim species protection plan for Atlantic salmon and the Atlantic and shortnose sturgeon handling and protection plan.

| Year | Activity |
|---|---|
| **2013** | • Licensee develops Atlantic salmon ISPP and draft BA and file them with FERC<br>• Licensee files a Sturgeon Handling and Protection Plan for Atlantic sturgeon and shortnose sturgeon as an addendum<br>• FERC issues BA<br>• Assuming the proposed action does not jeopardize the continued existence of any listed species or destroy/adversely modify designated critical habitat, NMFS will issue a BO and ITS covering Lockwood, Shawmut, Weston, Brunswick, and Lewiston Falls projects for the period 2013 – 2019<br>• FERC issues license amendments for the Lockwood, Shawmut, Weston, Brunswick and Lewiston Falls projects<br>• Licensee conducts Atlantic salmon smolt downstream passage survival studies (paired release) at Lockwood, Shawmut, Weston, and Brunswick projects (year 1)*<br>• Licensee extends period that upstream and downstream bypass facilities are operated at Brunswick Project<br>• Licensee conducts Atlantic salmon adult upstream passage effectiveness monitoring studies at Brunswick Project, in cooperation with licensees for the Pejepscot and Worumbo projects (year 1)<br>• Licensee operates rotary screw trap in cooperation with NMFS and MDMR to collect smolt out-migration data in Sandy River (year 1)*<br>• Licensees implement the provisions of the Sturgeon Handling Protection Plan at the Lockwood and Brunswick Projects. These plans will be implemented throughout the terms of the existing licenses. |
| **2014** | • Licensee conducts Atlantic salmon smolt downstream passage survival studies (paired release) at Lockwood, Shawmut, Weston and Brunswick projects (year 2)<br>• Licensee conducts Atlantic salmon kelt downstream passage survival studies at Lockwood, Shawmut, Weston and Brunswick projects, in cooperation with upstream projects (year 1)<br>• Licensee operates rotary screw trap to collect smolt out-migration data in Sandy River (year 2)<br>• Licensee designs new upstream volitional fish passage component for the existing Lockwood fishway and investigates upstream passage improvement opportunities at the development<br>• Licensee conducts Atlantic salmon adult upstream passage effectiveness monitoring studies at Brunswick Project, in cooperation with licensees for the Pejepscot and Worumbo projects (year 2) |

| Year | Activity |
|---|---|
| **2015** | • Licensee conducts Atlantic salmon smolt downstream passage survival studies (paired release) at Lockwood, Shawmut, Weston and Brunswick projects (year 3)<br>• Licensee conducts Atlantic salmon kelt downstream passage survival studies at Lockwood, Shawmut, Weston and Brunswick projects, in cooperation with upstream projects (year 2)<br>• Licensee operates rotary screw trap to collect smolt out-migration data in Sandy River (year 3)<br>• Licensee constructs new upstream volitional fish passage component for existing Lockwood fishway<br>• Licensee conducts Atlantic salmon adult upstream passage effectiveness monitoring studies at Brunswick Project, in cooperation with licensees for the Pejepscot and Worumbo projects (year 3) |
| **2016** | • Licensee operates new volitional upstream fishway at Lockwood**<br>• Licensee conducts Atlantic salmon adult upstream passage effectiveness monitoring studies at Lockwood (year 1)<br>• Licensee conducts Atlantic salmon kelt downstream passage survival studies at Lockwood, Shawmut, Weston and Brunswick, in cooperation with upstream projects (year 3)<br>• Licensee designs new upstream fish passage facility for Shawmut Project<br>• Licensee initiates FERC relicensing process for Shawmut Project |
| **2017** | • Licensee constructs new upstream fish passage facility at Shawmut<br>• Licensee conducts Atlantic salmon adult upstream passage effectiveness monitoring studies at Lockwood (year 2) |
| **2018** | • Licensee operates new upstream fish passage facility at Shawmut**<br>• Licensee conducts Atlantic salmon adult upstream passage effectiveness monitoring studies at Lockwood (year 3)<br>• Licensee designs new upstream fish passage facility for Weston Project<br>• Licensee and FERC reinitiate Section 7 consultation |
| **2019** | • Licensee constructs new upstream fish passage facility at Weston Project<br>• Licensee develops final SPP covering the period from 2020 to issuance of new FERC project licenses, including additional Atlantic salmon enhancement/protection measures, if determined necessary, based on interim SPP monitoring results<br>• Licensee files final SPP with FERC in 2019<br>• NMFS issues a BO and ITS to cover period of subsequent SPP (through FERC license expiration date), assuming the proposed action does not jeopardize the continued existence of any listed species or destroy/adversely modify designated critical habitat |

* Take from these activities will be authorized under a section 10 research and recovery permit with USFWS
** In accordance with the KHDG Agreement and license requirements, the licensee will begin operating permanent downstream fish passage facilities at the time that upstream passage facilities become operational.

The licensee is committed to an adaptive management approach to implementing this ISPP. The agreed upon fish passage measures and activities are laid out within an adaptive management framework, with integration of management and research in order to provide feedback and the ability to adapt measures, as necessary, for further protection and enhancement of Atlantic salmon. As the proposed interim process is intended to be adaptive, the licensees will be coordinating and consulting with us throughout the seven year period (2013-2019). If early downstream passage study results indicate that the study design is not adequately measuring survival, the licensee will work with us to correct it. Likewise, if the early study results indicate that the downstream fishway is not highly efficient at passing Atlantic salmon, they will coordinate with us and modify operations at the Projects as appropriate to avoid and minimize effects to Atlantic salmon to the extent practicable. To that end, we will meet with the licensee annually to discuss study results, potential modifications to the study design and/or potential changes to the operation of the facility that may be necessary to reduce adverse effects to the species.

In 2020, the new upstream fishway at Weston will be operational. At that time, we expect that Atlantic salmon will be passed volitionally upstream of the Lockwood, Shawmut, Hydro-Kennebec, and Weston Projects. Although not proposed as part of the ISPP, the licensee is committed to meeting their obligations under the 1998 Kennebec Hydro Developers Group (KHDG) Agreement and the terms of their licenses, which require them to have permanent downstream passage facilities operating no later than the date when the new upstream fishways become operational. The proposed studies will be conducted prior to the installation of permanent facilities as required by the KHDG Agreement "to determine the effectiveness of various downstream passage techniques in preparation for the design and installation of permanent downstream facilities" (KHDG 1998). The design of the downstream facilities will be based on the results of the proposed survival studies and will be conducted in consultation with state and federal resource agencies.

Data to inform downstream passage survival standards for Atlantic salmon smolts and kelts in the Kennebec and Androscoggin Rivers are very limited. However, given the best available information, it is anticipated that downstream survival standards that will be incorporated in the final SPP will likely need to be between 96% and 100% at each Project. These standards will be refined using information from passage studies that will be undertaken as part of the ISPP. It is possible that the proposed studies will indicate that the interim downstream passage facilities currently in place are not sufficient to meet the standard and that significant structural and/or operational changes may be necessary to achieve such a high level of survival. The interim period will be used to determine how best to operate or modify the Projects to achieve sufficiently high survival rates. In addition, over the term of the interim period we and/or the licensee will develop a model for the Androscoggin and Kennebec Rivers to provide data that will be used to inform the development of upstream and downstream performance standards.

## **2.1.** Lockwood Project - FERC No. 2574

### **2.1.1.** Existing Hydroelectric Facilities and Operations

The Lockwood Project, owned by the Merimil Limited Partnership (Merimil), is a 6.8 MW

hydroelectric project located at river mile 63 and is the first dam on the mainstem Kennebec River (Figure 1). The Lockwood Project includes an 81.5-acre reservoir, an 875 foot long and 17 foot high dam with two spillway sections and a 160 foot long forebay headworks section, a 450 foot long forebay canal, and two powerhouses. The dam and forebay headworks span the Kennebec River at or near the U.S. Route 201 bridge along a site known as Ticonic Falls. The east spillway section begins at the east abutment of the dam and extends about 225 feet in a westerly direction to a small island. The west spillway extends about 650 feet from the small island in a southwesterly direction to the forebay canal headworks, which extend to the west bank of the river. Each spillway is equipped with 15 inch high flashboards.

From the headworks, the forebay canal directs water to two powerhouses located on the west bank of the Kennebec River. The original powerhouse contains six generating units, each with a hydraulic capacity of 660 cfs, and the second powerhouse contains one generating unit with a hydraulic capacity of 1,700 cfs (Table 2). At maximum flow efficiencies for these turbines range from 82 to 86 percent, and at minimum flow efficiencies range from 10 to 51 percent.

**Table 2.** Lockwood Project Generating Unit Summary

| Unit | Turbine Design/Type | Capacity (cfs) | RPM | Max Flow | | Peak Efficiency | | Min Flow | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | CFS | Effic. (%) | CFS | Effic. (%) | CFS | Effic. (%) |
| 1 | Francis/vertical | 660 cfs | 133 | 721 | 86 | 600 | 90 | 266 | 25 |
| 2 | Francis/vertical | 660 cfs | 133 | 679 | 85 | 607 | 90 | 297 | 10 |
| 3 | Francis/vertical | 660 cfs | 133 | 710 | 84 | 597 | 90 | 266 | 26 |
| 4 | Francis/vertical | 660 cfs | 133 | 666 | 82 | 607 | 90 | 239 | 32 |
| 5 | Francis/vertical | 660 cfs | 133 | 676 | 86 | 578 | 90 | 289 | 51 |
| 6 | Francis/vertical | 660 cfs | 133 | 670 | 82 | 599 | 90 | 314 | 51 |
| 7 | Kaplan/horizontal | 1,700 cfs | 144 | 1,689 | 86 | 775 | 90 | 111 | 35 |

The Lockwood Project impoundment is 1.2 miles long encompassing a surface area of 81.5 acres and a gross storage volume of only 250 acre-feet. The Lockwood impoundment is riverine in nature and has no significant embayments or shoal areas. The impoundment width is nearly uniform throughout. The substrate of the impoundment consists of a mixture of bedrock, cobble, and rubble with gradual accumulations of silt deposits moving from upstream to downstream. A few shallow littoral areas with gravel or finer substrate and scattered submerged aquatic vegetation beds exist, but much of the shoreline is steep, with depths of five feet only a few feet from the shoreline (FERC 2005).

The Lockwood Project operates as run-of-river. Impoundment drawdowns are generally limited to no more than six inches below the top of the spillway flashboards when the flashboards are in place, and no more than one foot below the spillway crest when the flashboards are being replaced.

The Lockwood Project is operated to provide a minimum flow of 2,114 cfs, or inflow, whichever is less. In addition, three orifices, each three feet long by eight inches high, are annually placed along the spillway. The purpose of the orifices is to pass a 50 cfs minimum flow into the bypass

reach. The orifices also provide downstream passage routes along the spillway even when the project is not spilling over the top of the flashboards. During periods of no spillage (approximately 30 percent of the time on an annual basis), the bypassed reach receives leakage plus orifice flows, which range from approximately 50 cfs at full headpond level to approximately 30 cfs at a drawdown of six inches below the top of the flashboards. During flashboard installation, the reach receives only leakage flows.

**2.1.1.1.**Upstream Fish Passage

In accordance with the FERC license and the 1998 KHDG Agreement, the licensee completed construction of a fish lift, trap, sort, and transport system in 2006. The system was completed and became operational in May 2006. In consultation with resource agencies, the licensee developed operational and effectiveness study plans for the new fish lift. These plans were filed with FERC on January 30, 2006, and approved on April 26, 2006.

The Lockwood fish lift facility is located on the west side of the powerhouse adjacent to Unit 7. The lift operates with an attraction flow of up to150 cfs, and entrance water velocities are four to six feet per second (fps). The lift has an approximate ten minute cycle time.

The attraction flow attracts the fish through the fish lift entrance gate into the lower flume of the fish lift. The fish then swim through a vee-gate crowder and remain in the lower flume of the lift. During the cycling process, the vee-gate crowder closes to hold the fish in the hopper area. The 1,800 gallon water-filled hopper lifts the fish to the holding tank elevation and the fish are sluiced into the 2,500 gallon round discharge tank. Liquid oxygen is introduced into all tanks via carbon micro porous stones to reduce stress and mortality. Two auxiliary water pumps provide a constant flow of ambient river water to all the tanks, and they provide ambient river water to the stocking trucks. The fish lift operates to accommodate all target species, and attraction flows are passed continuously during lift operation. The fish lift is designed to pass up to 164,640 alewives, 228,470 American shad and 4,750 Atlantic salmon per year.

The sorting and trucking portion of the facility includes: one 2,500 gallon, 12 foot diameter, round discharge tank, which collects fish discharged from the 1,800 gallon fish lift hopper; two 1,250 gallon, ten foot diameter, round holding tanks that sluice fish into MDMR stocking trucks; and one 250 gallon, rectangular holding tank for Atlantic salmon. The 2,500 gallon discharge tank is also equipped with piping that can discharge fish back into the tailrace.

The Lockwood upstream fish passage facility operates between May 1 and October 31 to pass anadromous fish. Under a cooperative agreement, the Project owner is responsible for capturing shad, river herring and Atlantic salmon, and the Maine Department of Marine Resources (MDMR) is responsible for collecting biological data and trucking fish to upstream spawning locations. MDMR's role in handling fish at the Lockwood Project is expected to continue through the term of this ISPP, and authorization for that handling will be covered under a section 10 research permit issued by USFWS to MDMR.

During the fish lift operation season, the licensee coordinates daily with the MDMR regarding sorting, counting and trucking operations. During the river herring, American shad and Atlantic

salmon migration season (approximately May through mid-July), the fish lift is generally staffed seven days per week, as necessary, to meet resource agency trap and truck requirements. During the run, the fish lift is generally operated from early morning to late afternoon. During other times of the year, the fish lift is generally operated three to five times per day, seven days per week for Atlantic salmon capture. The licensee determines the precise timing of the fish lift operation, in consultation with the MDMR, based on factors such as the number of migrating fish, water temperature, time of year, and river flow. As outlined in the ISPP, the licensee proposes to increase the fish lift cycle to five to eight times per day from approximately mid-July to October 31.

During periods of fish lift operation, personnel routinely monitor four underwater cameras that are connected to a monitor and DVD recorder. The monitor and DVD recorder are located in the control room of the fish lift and typically record from dawn until dusk. The cameras are also used in real time to help determine the presence of fish in the lift and maximize fishing effectiveness. Camera 1 is located just downstream of the vee-gates and provides a good view of fish moving through the vee-gates into the hopper area. Camera 2 is located just upstream of the entrance gate and provides a good view of fish swimming towards and into the fish lift. Camera 3 is located in the river just downstream of the fish lift entrance gate. This location provides a view of the tailrace area below the entrance gate. Camera 4 is positioned between the entrance gate and the sorting tank sluice pipe on the edge of the river. This camera offers another good view of the fish lift entrance gate vicinity. Since all four cameras show good detail, fishway personnel are able to identify species, obtain an approximate number of fish, and initiate the lift cycle manually, when appropriate.

**2.1.1.2.**Downstream Fish Passage

In accordance with the KHDG Agreement, the licensee is also providing interim measures for downstream Atlantic salmon passage at Lockwood. In addition to the adult salmon trucked to the Sandy River, the MDMR has been stocking Atlantic salmon eggs in the Sandy River above the Weston Project since 2003. Therefore, Atlantic salmon smolts and kelts migrate past the Project every spring.

In 2009, the licensee installed a downstream fish passage facility in the Lockwood power canal. This facility consisted of a ten foot deep floating boom leading to a new seven foot wide by nine foot deep fish sluice and associated mechanical over-flow gate. Maximum flow through the gate is 6% of station capacity or 340 cfs. The sluice is located on the river side of the power canal just upstream of the Unit 1 trash rack and discharges directly into the river. To enhance use of the sluice gate, a guidance boom is seasonally installed in the power canal. The boom is approximately 300 feet long, is secured on the land side of the canal, and angles downstream to the new sluice gate. The boom has flotation, and is suspended in the water column.

The 2009 shakedown period and associated evaluation of the new floating guidance boom and surface sluice gate indicated that the boom was not buoyant and strong enough to handle existing unit flows. In the winter of 2009/2010, the licensee reviewed the available floating boom products on the market and subsequently selected a product manufactured by "Tuffboom."

In early April 2010, the licensee developed a new guidance boom design and consulted with resource agency personnel. The new design consists of two ten foot long plastic cylindrical "Tuffboom" brand floats per section (i.e., 30 sections which equate to 300 feet long) with a four foot deep section of 5/16-inch metal punch plate located in between the floats. Attached to the punch plate is six feet of the 5/16-inch dynema netting used in the 2009 system. All gaps between the panels are covered by rubber flanges. The new boom was installed in May of 2010 and then evaluated using Atlantic salmon smolts and PIT tags. The results of the PIT tag tests were suspect due to issues associated with PIT tag antenna interference, limited PIT tag antenna range, and non-detection of fish.

The licensee subsequently conducted another evaluation using radio telemetry techniques in the spring of 2011. Based upon the 2011 study results, a number of recommendations for enhancing the downstream bypass for Atlantic salmon smolts at Lockwood were developed. These modifications, which were implemented in the spring of 2012, included the replacement of 32 feet of the downstream section of the boom with ten foot deep metal punch plate panels (to replace the vulnerable portion of the existing netting). The modification also included a new flexible attachment point and new larger floats. Finally, the existing trash rack exclusion bars at the entrance of the bypass, which were causing noise and vibration, were removed.

The licensee completed a second Atlantic salmon smolt radio telemetry downstream passage study at Lockwood in the spring of 2012 in order to evaluate the effectiveness of the guidance boom modification completed earlier that spring. During the study, five groups of radio-tagged smolts were released upstream of the Weston Project and their passage routes and bypass usage were recorded at Weston, Shawmut and Lockwood. Two groups of radio-tagged smolts were released upstream of Lockwood, and their passage routes and bypass usage were recorded. Additional data on smolt passage routes and bypass usage at Lockwood were collected from four groups of smolts radio-tagged and released upstream of the Hydro-Kennebec Project, located about one mile upstream from Lockwood. Kennebec River flow conditions during the 2012 study did not allow for all turbine units to run at a 100% gate setting; however, river conditions did allow for the evaluation of passage routes under limited to no spill conditions at Weston, Shawmut and Lockwood, as well as the assessment of downstream passage effectiveness at the Weston and Lockwood Projects. Kennebec River flows during smolt releases were low (exceeded 94% of the time based on the May flow duration curve for the Lockwood Project).

Results of the 2012 study at Lockwood indicate that when smolts from all releases are combined, the bypass effectiveness rate of radio-tagged individuals entering the Lockwood forebay canal (n =128) was 66.4%. This was a significant improvement over the 2011 bypass effectiveness (20.9% at 6% of powerhouse flow), which indicates that the modifications completed during spring 2012 improved downstream passage conditions for smolts. Data was also collected on how many smolts passed through all available passage routes. Individual smolts detected passing Lockwood were originally released upstream of the Weston (n =42), Hydro-Kennebec (n = 72) and Lockwood (n = 39) Projects. Of the 153 smolts that passed the Lockwood Project, 55.6% (85 of 153) passed through the downstream bypass, 13.7% (21 of 153) passed through the Kaplan turbine, 14.4% (22 of 153) passed through the Francis turbines, and 15.7% (24 of 153) passed on spill.

In addition to the new surface sluice gate and associated guidance boom, downstream passage is also provided through the three orifices (three foot long by eight inches high) cut into the flashboards along the spillway. The orifices pass approximately 50 cfs, and provide downstream passage routes along the spillway even when the Project is not spilling over the top of the flashboards. In addition, river flows exceed the turbine capacity for much of the time period that downstream fish migrations occur; thus, providing passage capability via spill over the dam.

### **2.1.2.** Proposed Action

#### **2.1.2.1.** Interim Species Protection Plan

The ISPP is valid for a seven-year period (2013- 2019) to allow the licensee to study existing and proposed measures to protect migrating Atlantic salmon. Provisions of the ISPP require the licensee to undertake the following activities:

- Upstream Passage
  - Increase the number of lifts per day from three to five to five to eight between mid-July and the end of October;
  - Construct a volitional upstream fishway (operational in 2016);
  - Continue to use underwater cameras in and around the fish lift to observe Atlantic salmon behavior and identify any issues with Atlantic salmon movement into the fish lift;
  - Monitor areas of the tailrace that can be visually observed for the presence of holding Atlantic salmon and collect information on numbers and time periods;
  - Monitor angler activity near the fish lift and collect available information on numbers of Atlantic salmon accidentally captured or observed;
  - Monitor the bypass reach ledge area during flashboard replacement. With MDMR assistance, collect adult Atlantic salmon for transfer to Sandy River or release back into the Kennebec depending on fish condition and water temperature;
  - Collaborate with Hydro Kennebec Project personnel to gather visual observation data on Atlantic salmon that may migrate to the Hydro Kennebec Project via the Lockwood spillway section; and
  - Conduct Atlantic salmon adult upstream passage effectiveness monitoring studies (2016-2018).

- Downstream Passage
  - Extend period that downstream bypass facilities operate from April 1 to June 15 and November 1 to December 15 to April 1 to December 31, as river and ice conditions allow;
  - Ensure that the bypass gate is open and operating to pass the maximum flow through the gate, which is 6% of station unit flow;
  - Undertake measures necessary to keep the guidance boom in place and in good operating condition. If the guidance boom becomes dislodged or

damaged, repair or replacements to the guidance boom will be made as soon as can be safely and reasonably done; and

- Conduct downstream survival studies for outmigrating smolts (2013-2015) and kelts (2014-2016).

At the end of the seven year period (2019), the licensee will file a final SPP for Atlantic salmon in consultation with FERC. The final SPP will reinitiate formal section 7 consultation under the ESA.

The licensee has proposed to conduct upstream passage studies at the Lockwood Project using pre-spawn Atlantic salmon between 2016 and 2018 as part of the ISPP. Given that few salmon return to the Kennebec River every year, the licensee will need to conduct the studies in such a way that salmon would not be released upriver of the Lockwood Project. If released, they would face a dead end in their migration to suitable spawning and rearing habitat in the Sandy River due to barriers at the Shawmut and Weston Projects.

The ISPP indicates that the new volitional upstream fishway at Lockwood will be designed in 2014, constructed in 2015, and operational in 2016. Although the fishway has yet to be designed, the licensee has indicated that the construction of the fishway will involve a modification to the existing fishway and that the project will not involve any in-water work (R. Richter, Brookfield Renewable Power, pers. comm., 2013).

**2.1.2.2.** Sturgeon Handling and Protection Plan

Atlantic and shortnose sturgeon have been documented using the habitat downstream of the Lockwood Project. The Lockwood Project has an existing FERC-approved handling plan for shortnose sturgeon, which was updated in March, 2013 (BWPH 2013). On January 12, 2005, we issued an Opinion that considered the effects of the handling plan on shortnose sturgeon. In the Incidental Take Statement (ITS), we exempted the take of up to two shortnose sturgeon annually at the Lockwood Project. The handling plan outlines the procedures that the Project licensees use for handling sturgeon and documenting such interactions at the Lockwood Project. The existing handling plan envisions possible interaction between sturgeon and the project under two scenarios: 1) sturgeon that may find their way into the upstream fish lift, and 2) sturgeon that may become stranded in pools below the Lockwood Dam. The plan outlines measures to be undertaken by the licensee in the event of these two occurrences. The current handling plan is approved for shortnose sturgeon, but identical procedures and measures are appropriate for Atlantic sturgeon, as well. As part of the proposed Sturgeon Handling and Protection Plan amendment, the licensee has updated the Lockwood handling plan for both shortnose and Atlantic sturgeon.

*Fish Lift Operations*

Atlantic and shortnose sturgeon will not be passed upstream of the Lockwood Project as the dam location is thought to be the historical limit of upstream migration for sturgeon on the Kennebec River (Houston *et al.* 2007), and because of concerns regarding the safety of downstream

passage for shortnose and Atlantic sturgeon. The handling plan requires that if sturgeon are found in the fish lift, the following procedures will be implemented:

- For each sturgeon detected, the licensees shall record the weight, length, and condition of the fish. Fish will also be scanned for PIT tags. River flow, bypass reach minimum flow, and water temperature will be recorded.
- If alive and uninjured, the sturgeon will be immediately returned downstream. A long handled net outfitted with non-abrasive knotless mesh will be used to place the sturgeon back into the river downstream of the dam. The fish should be properly supported during transport in the net to ensure that it is not injured. The licensees will report to us within 24 hours any live, uninjured sturgeon that are removed and relocated back to the river.
- If any injured sturgeon are found, the licensees shall report it to us immediately. Injured fish must be photographed and measured, if possible, and the reporting sheet must be submitted to us within 24 hours. If the fish is badly injured, the fish should be retained by the licensees until notified by NMFS with instructions regarding potential rehabilitation.
- If any dead sturgeon are found, the licensees will report it to us within 24 hours. Any dead specimens or body parts should be photographed, measured, scanned for tags and all relevant information should be recorded. Specimens should be stored in a refrigerator by the licensees until we can obtain them for analysis.

*Sturgeon Stranding*

Annually, the impoundment of the Lockwood Project is lowered to a point where the flashboards can safely be replaced, resulting in a short period (a few hours) of receded flows downstream. During this time, fish could become stranded in isolated pools in the bypass reach. In May 2003, an adult sturgeon, believed to be a shortnose sturgeon, was rescued from a pool at the base of Lockwood Dam during the annual flashboard replacement. The handling plan includes measures to ensure safe handling of any sturgeon stranded during this period. If shortnose or Atlantic sturgeon become stranded, the licensees will return them to the river downstream. The handling plan requires that they follow this protocol:

- Designated employees and fish lift operation staff must monitor the pools below the dam while the flashboards at the project are replaced.
- For each fish removed from the pool, the licensees will record the weight, length, and condition. Fish should also be scanned for PIT tags. River flow, bypass reach minimum flow and water temperature will be recorded.
- If stranded but alive and uninjured, the sturgeon will be moved to the river below the Ticonic Falls that will provide egress out of the area. The licensees shall report to us within 24 hours any live, uninjured sturgeon that are removed and relocated back to the river.
- If any injured sturgeon are found, the licensees will report it to us immediately. Injured fish must be photographed and measured, if possible, and a reporting sheet must be submitted to us within 24 hours. If the fish is badly injured, the fish should be retained by the licensees, if possible, until obtained by a NMFS recommended facility for potential rehabilitation.

- If any dead sturgeon are found, the licensees will report it to us within 24 hours. Any dead specimens or body parts should be photographed, measured, scanned for tags and all relevant information should be recorded. Specimens should be stored in a freezer by the licensees until we can obtain them for analysis.

**2.2.** Shawmut Project - FERC No. 2322

**2.2.1.** Existing Hydroelectric Facilities and Operations

The Shawmut Project is located at river mile 66 and is the third dam on the mainstem of the Kennebec River (Figure 1). The Shawmut Project includes a 1,310-acre reservoir, a 1,135 foot long dam with an average height of about 24 feet, headworks and intake structure, enclosed forebay, and two powerhouses. The crest of the dam has a 380 foot section of four foot high hinged flashboards serviced by a steel bridge with a gantry crane; a 730 foot long section of dam topped with an inflatable bladder composed of three sections, each 4.46 feet high when inflated; a 25 foot wide by eight foot deep log sluice equipped with a timber and steel gate; and a surface sluice (four feet wide by 22 inches deep), next to Unit # 7, which discharges into a three foot deep man-made plunge pool.

The headworks and intake structure are integral to the dam and the powerhouse. The forebay intake section contains 11 headgates and two filler gates. A non-overflow concrete gravity section of dam connects the west end of the forebay gate openings with a concrete cut-off wall, which serves as a core wall for an earth dike. The forebay is located immediately downstream of the headgate structure and is enclosed by two powerhouse structures, the 1912 powerhouse located to the east, and the 1982 powerhouse located to the south. Located at the south end of the forebay between the two powerhouses is a ten foot wide by seven foot deep Taintor gate and a six foot wide by six foot deep gate. The 1912 powerhouse contains six generating units, and the 1982 powerhouse contains two generating units (Table 3).

**Table 3.** Shawmut Project Generating Unit Summary

| Unit | Turbine Design/Type | Capacity (cfs) | RPM | Max Flow | | Peak Efficiency | | Min Flow | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | CFS | Effic. (%) | CFS | Effic. (%) | CFS | Effic. (%) |
| 1 | Francis/ horizontal | 650 | 200 | 648 | 78 | 581 | 83 | 400 | 52 |
| 2 | Francis/ horizontal | 650 | 200 | 645 | 80 | 583 | 84 | 438 | 41 |
| 3 | Francis/ horizontal | 650 | 200 | 641 | 82 | 581 | 84 | 453 | 40 |
| 4 | Francis/ horizontal | 650 | 200 | 672 | 71 | 539 | 81 | 367 | 67 |
| 5 | Francis/ horizontal | 650 | 200 | 742 | 71 | 520 | 84 | 326 | 55 |
| 6 | Francis/ horizontal | 650 | 200 | 667 | 78 | 575 | 83 | 264 | 37 |
| 7 | Propeller/horizontal | 1,200 | 160 | N/A | N/A | 1,312 | 82 | N/A | N/A |
| 8 | Propeller/horizontal | 1,200 | 160 | N/A | N/A | 1,347 | 85 | N/A | N/A |

The Shawmut Project typically operates as run-of river, with a target reservoir elevation near the full pond elevation of 112.0 feet during normal conditions. The maximum hydraulic capacity of the turbines is 6,755 cfs. After maximum flow to the turbines has been achieved, excess water is

spilled through the existing log sluice. When flows exceed the capacity of the log sluice, sections of the rubber dam are deflated to pass additional water.

**2.2.1.1.**Upstream Fish Passage

The Shawmut Project has used the Lockwood fish lift and transport system as its means of interim upstream fish passage since 2006. The MDMR capture Atlantic salmon (and other anadromous species) at the Lockwood lift and transport the fish in trucks to areas of suitable habitat, primarily the Sandy River, which is upstream of the Shawmut Project.

**2.2.1.2.**Downstream Fish Passage

Interim downstream passage for Atlantic salmon at Shawmut is provided through a sluice located on the right-hand side of the intake structure next to Unit 6. The sluice, which is manually adjusted and contains three stoplogs, is four feet wide by 22 inches deep. With all stoplogs removed, this sluice passes flows between 30 and 35 cfs. Flows from this sluice discharge over the face of the dam and drain into a man-made three feet deep plunge pool connected to the river. In addition, there is a Taintor gate located next to this sluice that measures seven feet high by ten feet wide and can pass 600 cfs. This gate is used to pass debris and excess flows, which also discharge over the face of the dam into a shallow plunge pool connected to the river.

In 2009, FPL Energy engineers, operations personnel, and biologists investigated options to resolve both ongoing debris issues and downstream anadromous and catadromous fish passage needs at Shawmut. It was agreed that options for debris resolution could be designed to also address downstream fish passage needs. In 2010, the licensee subsequently hired a team of consultants, including Wright Pierce Engineers, Alden Research Labs and Blue Hill Hydraulics, to design a new facility at the Shawmut Project that would address both the debris and fish passage needs.

In 2011, the licensee, in consultation with resource agencies, developed designs for a new combined intake structure and downstream fish bypass facility at the Project. At that time, the proposed facility included the use of new full depth one inch angled trashracks and a new surface sluice and flume leading to the river. The proposed location and design of this facility, which resulted from significant efforts in hydraulic modeling and evaluation of alternatives by both the licensee and resource agencies, was just upstream of the existing intake structure. However, the need for this proposed facility is being re-evaluated in light of results from a 2012 downstream smolt study conducted at Shawmut. This study indicated that the majority of study smolts (over 80%) used the existing forebay Taintor gate for downstream passage. The licensee will continue evaluations of downstream smolt passage at Shawmut and discussions with the resource agencies regarding how to provide safe and efficient passage to downstream migrants at the Shawmut Project.

The licensee completed an Atlantic salmon smolt radio telemetry downstream passage study involving the Shawmut Project in the spring of 2012. The primary focus of the study was on the Lockwood and Weston projects, but the study also provided information on bypass effectiveness at Shawmut. Five groups of radio-tagged smolts were released upstream of the Weston Project

and their passage routes and bypass usage were recorded at Weston, Shawmut and Lockwood. The Shawmut Taintor gate, which was fully opened to simulate a surface sluice, passed approximately 600 cfs for the duration of the study. Relative to the total flows observed during 2012, 600 cfs represented from 9-17% of actual powerhouse flow. When all smolts entering the Shawmut forebay canal are considered (n = 64), 82.8% of smolts passing Shawmut used the downstream bypass. When examined by setting, 100% (15 of 15) of smolts passed Shawmut with the bypass releasing 9-11% of powerhouse flow, 80.0% (24 of 30) of smolts passed Shawmut with the bypass releasing 12-13% of powerhouse flow, and 73.7% (14 of 19) of smolts passed Shawmut with the bypass releasing 15-17% of powerhouse flow. Of the 65 smolts which passed the Shawmut Project, 81.5% (53 of 65) passed through the Taintor gate, 16.9% (11 of 65) passed through the propeller turbines, and 1.5% (1 of 65) passed on spill.

### **2.2.2.** Proposed Action

#### **2.2.2.1.** Interim Species Protection Plan

The ISPP is valid for a seven-year period (2013- 2019) to allow the licensee time to implement species protection measures and to study their ability to protect migrating Atlantic salmon. Provisions of the ISPP will require the licensee to undertake the following activities at the Shawmut Project:

- Upstream Passage
  - Construct an upstream fishway facility (operational in 2018).

- Downstream passage
  - Extend period that downstream bypass facilities operate from April 1 to June 15 and November 1 to December 15 to the current period of April 1 to December 31, as river and ice conditions allow;
  - The bypass gate will be operated to maintain an interim flow of 6% of station unit flow through the gate during evening passage hours. Modifications to the bypass flow will be considered as part of the adaptive management approach to the ISPP, based on results of radio telemetry studies and consultation with the agencies; and
  - Conduct downstream survival studies for outmigrating smolts (2013-2015) and kelts (2014-2016).

At the end of the seven year period (2019), the licensee will file a final SPP for Atlantic salmon in consultation with FERC. The final SPP will reinitiate formal section 7 consultation under the ESA.

The ISPP indicates that the new volitional upstream fishway at Shawmut will be designed in 2016, constructed in 2017, and operational in 2018. Although the project has yet to be designed, the licensee has indicated that the construction of the fishway will likely involve a small amount of permanent impact associated with ledge removal and the placement of fill (R. Richter, Brookfield Renewable Power, pers. comm.). It is anticipated that less than 500 square feet of riverine habitat will be temporarily or permanently affected by the construction of cofferdams

and the placement of fill. In-water work will occur outside of the smolt and kelt outmigration periods and within the confines of a dewatered cofferdam.

**2.3.** Weston Project - FERC No. 2534

**2.3.1.** Existing Hydroelectric Facilities and Operations

The Weston Project is located at river mile 82 in the Town of Skowhegan and is the fourth dam on the mainstem of the Kennebec River (Figure 1). The Weston Project includes a 930-acre reservoir, two dams, and one powerhouse. The two dams are constructed on the north and south channels of the Kennebec River where the river is divided by Weston Island. U.S. Route 2 crosses the island, spanning the South Channel impoundment above South Channel Dam and the North Channel bypass section located below the North Channel Dam.

The North Channel Dam is a concrete gravity and buttress dam 38 feet high, with a crest elevation of 156.0 feet. The dam extends about 529.5 feet from the north bank of the Kennebec River to Weston Island, in a broad V-shape, following the high ledge of a natural falls. The North Channel Dam consists of four sections: a 22.5 foot long concrete non-overflow section; a 244 foot long stanchion section with five bays; a 160.5 foot long pneumatic gate section with 7.5 feet high steel panels; and a 93 foot long gated section (located next to the island) containing two steel Taintor gates. The normal full pond elevation of the impoundment is 156.0 feet.

The South Channel Dam is a concrete gravity and buttress dam 51 feet high, with a crest elevation of 156.0 feet. The dam extends about 391.5 feet between abutment walls from the island to the south riverbank and consists of five sections: a 125 foot long powerhouse/intake section; a 33 foot long concrete spillway section; a 24 foot long sluice section; a 188 foot long stanchion section with five bays; and a 21.5 foot long concrete non-overflow section. The powerhouse/intake section of the dam, located adjacent to the north abutment and integral to the project dam, includes the headworks and four intake bays, one for each of the four turbine generator units. Each bay houses three reinforced concrete gates that can isolate flow to the individual turbines; the hydraulic capacity for each turbine is 1,450 cfs (Table 4). The trashracks, which are situated in front of the gate slots, are cleaned using a motor-operated trash rake. The concrete spillway section has a permanent crest elevation of 154.0 foot and is topped by two foot high stoplogs. A 14 foot high Taintor gate controls flows through the sluice section, which extends 69.5 feet downstream.

**Table 4.** Weston Project Generating Unit Summary

| Unit | Turbine Design/Type | Hydraulic Capacity (cfs) | RPM | Max Flow | | Peak Efficiency | | Min Flow | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | CFS | Effic. (%) | CFS | Effic. (%) | CFS | Effic. (%) |
| 1 | Francis/vertical | 1750 | 100 | 1,750 | 82 | 1,614 | 90 | 434 | 49 |
| 2 | Francis/vertical | 1500 | 100 | 1,498 | 83 | 1,207 | 88 | 426 | 73 |
| 3 | Francis/vertical | 1750 | 100 | 1,750 | 84 | 1,614 | 90 | 434 | 49 |
| 4 | Francis/vertical | 1700 | 100 | 1,710 | 81 | 1,428 | 87 | 634 | 63 |
| 4 planned | Francis/vertical | 1900 | 100 | 1,900 | 87 | 1,688 | 90 | TBD | |

The Weston Project operates as run-of-river by maintaining the impoundment water surface elevation within one foot of the full pond elevation of 156.0 foot msl, during normal operations. The existing FERC license requires the project to provide an instantaneous minimum flow of 1,947 cfs or inflow, whichever is less.

The hydraulic capacity of the Weston Project is currently 6,075 cfs. When river flow exceeds the hydraulic capacity of the turbines, excess water is passed downstream through the South Channel sluice, and/or Taintor gates. The south channel sluice gate is capable of passing up to 2,500 cfs, and each of the Taintor gates are capable of passing up to 5,000 cfs. If after opening the south channel sluice and Taintor gates the elevation of the impoundment is 156.0 feet and still rising, then additional water is released via hinged flashboards, top boards, and north and south channel stanchions.

**2.3.1.1.**Upstream Fish Passage

The Weston Project has used the Lockwood fish lift and transport system as its means of interim upstream fish passage since 2006. Atlantic salmon (and other anadromous species) are captured at the Lockwood lift and transported in trucks by the MDMR to areas of suitable habitat, primarily the Sandy River, which is upstream of the Weston Project.

**2.3.1.2.**Downstream Fish Passage

Interim downstream passage at the Weston Project is provided through a sluice gate and associated concrete flume located on the South Channel Dam. The gate and flume were formerly used as a log sluice during river log drives and both are located near the Unit 4 intake. The sluice is 18 feet wide by 14 feet high and discharges into a deep plunge pool. Maximum flow through the gate at full pond is 2,250 cfs.

In 2011, the licensees enhanced the existing downstream passage facility by installing a guidance boom consisting of a 300 foot long floating boom with suspended ten feet deep sections of 5/16 inch metal punch plate screens. The boom leads to the existing log sluice gate, which in turn discharges via an existing concrete flume to a deep pool in the river. The licensees had previously (in 2010) made some major structural repairs to the existing sluice gate structure, which included resurfacing of the concrete flume.

During the downstream migration period, the gate is opened to pass 6% of station unit flow. The sluice has been opened for smolt and kelt passage generally from April 1 through June 15 and between November 1 and December 31, if river and ice conditions allow. As part of the proposed action, the licensee initially proposed to expand the operation of downstream passage facilities to April 1 to December 31. This was proposed for all four of the Projects to account for the downstream migration of juvenile river herring. As river herring are not stocked upstream of the Weston Project, the licensee has requested to maintain the existing schedule of operation. As detailed in the ISPP, studies to evaluate the effectiveness of the bypass with the new guidance boom will be undertaken after resource agency consultation and approval of a study plan.

On the North Channel side of the Weston Project, there are two Taintor gates, an inflatable rubber dam section, and stanchion gate sections. Interim passage is provided on the North Channel side via spillage.

The licensee completed an Atlantic salmon smolt radio telemetry downstream passage study at the Weston Project in the spring of 2012. During the study, five groups of radio-tagged smolts were released upstream of the Weston Project and their passage routes and bypass usage were recorded at Weston, Shawmut and Lockwood. Downstream bypass usage data were collected for smolts at the Weston Project at 6%, 4% and 2% of actual powerhouse flows during 2012. When examined by setting, 68.4% (26 of 38) of smolts used the downstream bypass with the bypass set at 6%, 45.5% (15 of 33) of smolts used it with the bypass set at 4%, and 43.8% (7 of 16) of the smolts used the downstream bypass with the bypass set at 2%. Of the 89 smolts that passed the Weston Project with known routes, 54.0% (48 of 89) passed through the downstream bypass, 43.8% (39 of 89) passed through the turbines, and 2.2% (2 of 89) passed on spill.

### **2.3.2.** Proposed Action

#### **2.3.2.1.** Interim Species Protection Plan

The ISPP is valid for a seven-year period (2013- 2019) to allow the licensee time to implement species protection measures and to study their ability to protect migrating Atlantic salmon. Provisions of the ISPP will require the licensee to undertake the following activities at the Weston Project:

- Upstream Passage
  - Construct upstream fishway facility (operational in 2020).

- Downstream Passage
  - The passage facility will be operated to maintain an interim flow of 6% of station unit flow through the sluice gate during evening passage hours. Modifications to the bypass flow will be considered as part of the adaptive management approach to the ISPP, based on results of radio telemetry studies and consultation with the agencies;
  - The Licensee will undertake measures necessary to keep the guidance boom in place and in good operating condition. If the guidance boom becomes dislodged or damaged, the licensee will repair or replace the guidance boom as soon as can be safely and reasonably done; and
  - Conduct downstream survival studies for outmigrating smolts (2013-2015) and kelts (2014-2016).

At the end of the seven year period (2019), the licensee will file a final SPP for Atlantic salmon in consultation with FERC. With the submission of the final SPP, FERC will reinitiate formal section 7 consultation under the ESA.

The ISPP indicates that the new volitional upstream fishway at Weston will be designed in 2018, constructed in 2019, and operational in 2020. Although the project has yet to be designed, the

licensee has indicated that the construction of the fishway will likely involve a small amount of permanent impact associated with ledge removal and the placement of fill (R. Richter, Brookfield Renewable Power, pers. comm., 2013). It is anticipated that less than 500 square feet of riverine habitat will be temporarily or permanently affected by the construction of cofferdams and the placement of fill. In-water work will occur outside of the smolt and kelt outmigration periods and within the confines of a dewatered cofferdam.

**2.4.** Brunswick Project - FERC No. 2600

**2.4.1.** Existing Hydroelectric Facilities and Operations

The Brunswick Project is located at river mile 6 at the head of tide, and is the first dam on the mainstem of the Androscoggin River. The dam and powerhouse span the Androscoggin River immediately above the U.S. Route 201 bridge connecting Topsham and Brunswick, at a site originally known as Brunswick Falls. The Brunswick Project includes a 300-acre reservoir; a 605 foot long and 40 foot high concrete gravity dam; a gate section containing two Taintor gates and an emergency spillway; and a powerhouse and intake. The Project also has vertical slot fishway, a 21 foot high fish barrier wall between the dam and Shad Island, and a three foot high by 20 foot long concrete fish barrier weir across Granney Hole Stream in Topsham.

The concrete gravity dam consists of two ogee overflow spillway sections separated by a pier and barrier wall. The right spillway section, about 128 foot long, is topped with wooden flashboards that are 2.6 feet high. The left section does not have flashboards. The intake structure and powerhouse are integral with the dam and located adjacent to the Brunswick shoreline. The powerhouse contains three vertical propeller turbine generators. Unit 1 has a hydraulic capacity of 4,400 cfs, and units 2 and 3 have a hydraulic capacity of 1,200 cfs (Table 5).

**Table 5.** Brunswick Project Generating Unit Summary

| Unit | Turbine Design/Type | Hydraulic Capacity (cfs) | RPM | Max Flow | | Peak Efficiency | | Min Flow | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | CFS | Effic. (%) | CFS | Effic. (%) | CFS | Effic. (%) |
| 1 | Propeller/ vertical | 4,400 | 90 | 5,075 | 83 | 4,519 | 93 | 2,741 | 57 |
| 2 | Propeller/ horizontal | 1,200 | 211.8 | N/A | N/A | 1,336 | 88 | N/A | N/A |
| 3 | Propeller/ Horizontal | 1,200 | 211.8 | N/A | N/A | 1,336 | 88 | N/A | N/A |

The Brunswick Project normally operates as run-of-river. Due to the on/off nature of the units and the small pond available, the pond fluctuates to allow the units to operate efficiently; however, the pond is too small to store water for any significant amount of peaking. Thus, the station is considered run of river. Impoundment drawdowns are generally limited to less than two feet below the top of the spillway.