

APPLICATION REVIEW FOR
LOW IMPACT HYDROPOWER INSTITUTE CERTIFICATION
of the
BLACK BEAR HYDRO PARTNERS
STILLWATER POWERHOUSE B
HYDROELECTRIC PROJECT NO. 2712



October 15, 2013

Application Reviewer: Patricia McIlvaine

REVIEW OF APPLICATION FOR CERTIFICATION BY THE LOW IMPACT HYDROPOWER INSTITUTE OF THE STILLWATER POWERHOUSE B HYDROELECTRIC PROJECT

Prepared by:
Patricia McIlvaine
October 15, 2013

I. INTRODUCTION AND OVERVIEW

This report reviews the original application submitted Black Bear Hydro Partners (BBHP or Applicant) in December, 2012 to the Low Impact Hydropower Institute (LIHI) for Low Impact Hydropower Certification for the Stillwater Powerhouse B Hydroelectric Project (Stillwater Powerhouse B or Project). BBHP provided supplemental information for review in response to the Intake Review completed on February 12, 2013 and subsequent inquiries from the application Reviewer.

The Stillwater Project was originally licensed to Bangor Hydro Electric Company on April 20, 1978. Ownership of the facility changed in 2000 to Penobscot Hydro LLC, which later became PPL Maine, LLC, and was subsequently purchased by BBHP with the license transfer on September 17, 2009. The Project is licensed by the Federal Energy Regulatory Commission (FERC) as Project Number 2712. The current license expires on March 31, 2048.

Powerhouse B, the subject of this certification consideration, is scheduled to initiate operation on or about September 20, 2013, based on consultation with BBHP on September 17, 2013. While certification is usually based on compliance of a facility's operations with its regulatory requirements and resource agency recommendations, the LIHI Handbook does permit certification review of a project that is not yet operational:

“New” hydropower facilities that are not yet generating electricity at the time of application for certification are eligible for consideration, provided the FERC license or exemption, or similar authorization addressing environmental impacts has been issued, there are no pending appeals or litigation from that authorization, and the applicant specifically acknowledges that LIHI may suspend or revoke the certification should the impacts of the project once operational cause non-compliance with the certification criteria. For such pre-operations certification, the certification term will begin when certification is completed, not when operations start.”

Because Powerhouse B has no operating history, this review considered compliance with terms of the FERC license, Water Quality Certification and resource agency recommendations during construction. As compliance with such requirements at the original powerhouse can be considered an indicator of the BBHP's compliance philosophy and facility operational

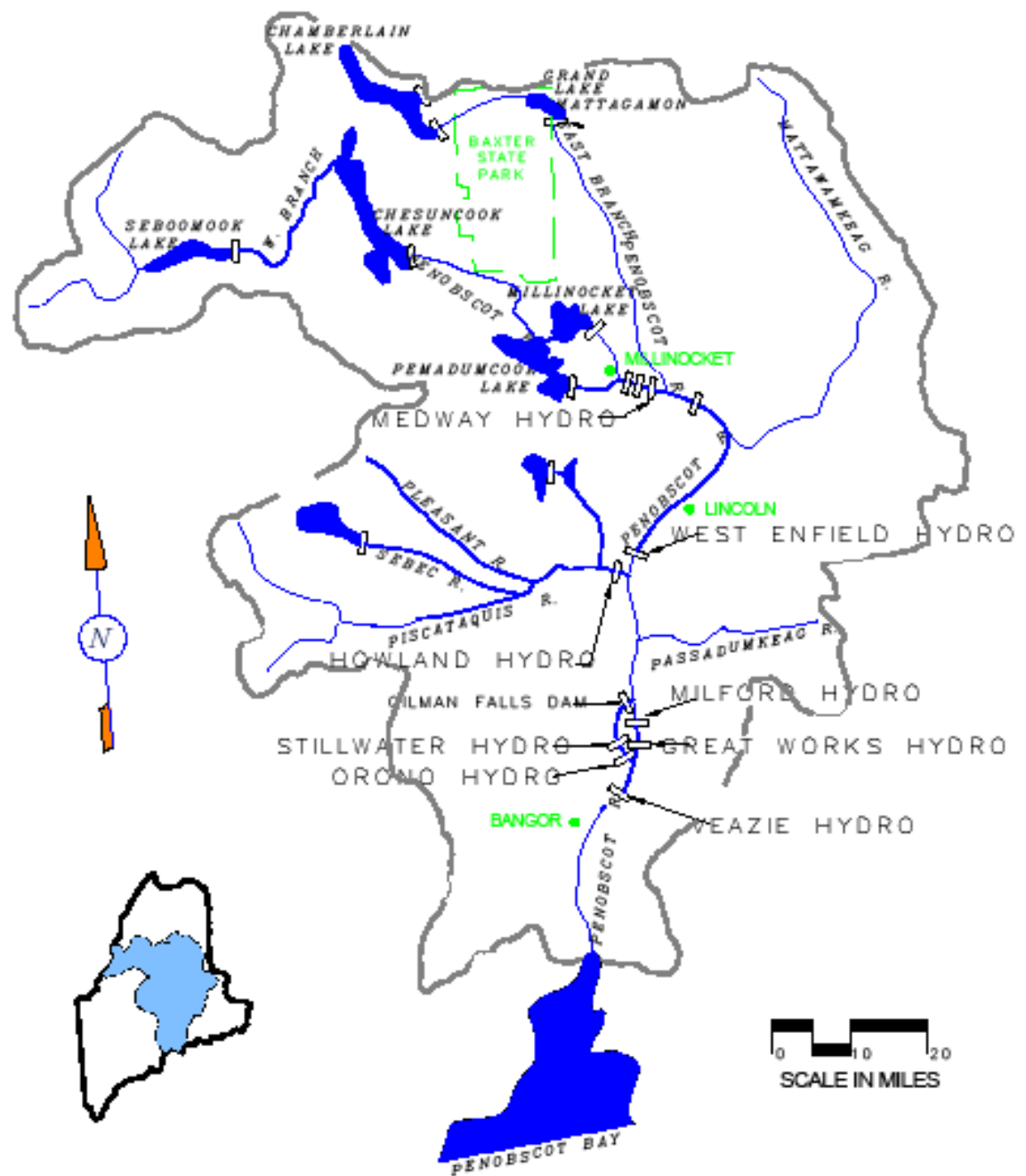
capabilities, review of such key compliance activities was also considered during this certification assessment.

The original Stillwater Project (including Powerhouse A) received certification from the LIHI in early 2011. As discussed below under ***Regulatory and Compliance Status***, the development of the Stillwater Powerhouse B is part of a 2004 Settlement Agreement involving five hydropower projects owned and operated by BBHP located within the Penobscot River Basin. The new Powerhouse B has an estimated annual production of 18,300 MWh.

II. PROJECT'S GEOGRAPHIC LOCATION

The Stillwater Project is located on the Stillwater Branch of the Penobscot River ("River") in Old Town, Penobscot County, Maine. The Penobscot River Basin ("Basin") is New England's second largest river system with a drainage area of 8,570 square miles. Upstream storage dams on both the West and East Branches control a large portion of flows within the drainage area. The Basin includes the East and West Branches of the Penobscot River, the Piscataquis River, the Sebec River, the Pleasant River, the Mattawamkeag River, the Passadumkeag River, the Stillwater Branch and the main stem of the Penobscot River, as illustrated on the following page. The Stillwater Project is located on Stillwater Branch of the Penobscot River, approximately three miles downstream of the Gilman Falls Dam (which is part of the Milford Hydro Project) and about one mile upstream of the Orono Dam. The Mattawamkeag River remains free-flowing, while there are a total of 20 run-of river dams located on the other Basin waterways.

BBHP owns and operates the Stillwater, West Enfield, Milford, Medway and Orono Projects. Under the June 2004 Settlement Agreement, the ownership of the Veazie, Great Works and Howland Projects were sold to the Penobscot River Restoration Trust (PRRT). The PRRT has surrendered each Project license, has removed the Great Works Dam. Removal of the Veazie Dam is currently in process. PRRT will either be constructing a fish bypass at the Howland Dam, or will remove the dam.



PENOBSCOT RIVER BASIN

III. PROJECT AND IMMEDIATE SITE CHARACTERISTICS

The existing Stillwater Project works consist of a main concrete gravity dam, totaling about 1,720 feet long, with a maximum height of 22 feet at crest elevation 91.65 feet; a concrete and wooden powerhouse; four horizontal hydroelectric generating units, all totaling a rated capacity of 1,950 kilowatts (kW); an impoundment about 3.1 miles long, having a surface area of about 300 acre, a gross storage capacity of 3,040 acre-feet, a negligible useable storage capacity, a normal headwater surface elevation of about 94.65 feet; a downstream fishway bypass; and appurtenant facilities. The dam consists of 13 different sections, having varying lengths, heights and configurations. The walls and foundation of an old, abandoned powerhouse forms part of the dam's non-overflow section. The dam ranges in height from a few inches to 22 feet.

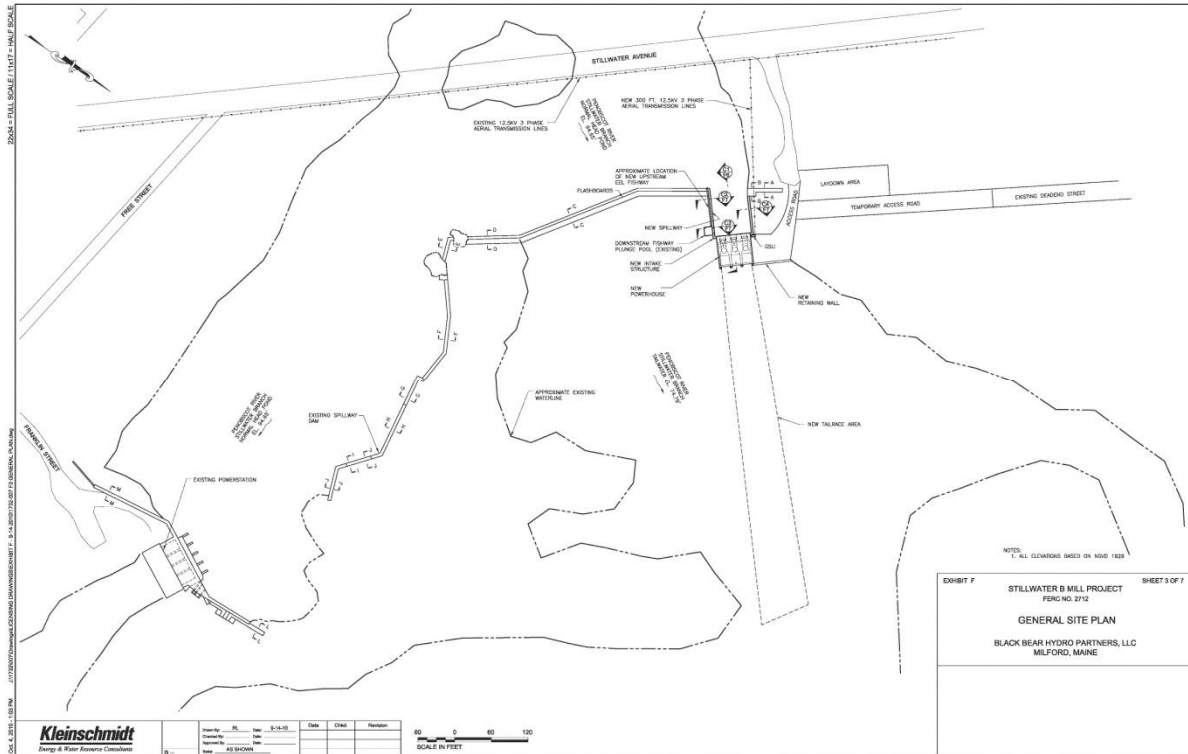
The Stillwater Project is operated as a run-of-river development with discharge from the project turbines and spillway equivalent to inflow. Flows will be reallocated between the main stem of the Penobscot River and the Stillwater Branch through operation of its Milford Project (No. 2534). More water will flow through the Stillwater Branch in order to increase the power generation that would be realized by the proposed amendments at the Stillwater and Orono Projects. The flow reallocation is within the range of operations allowed by the current licenses for these Projects. The Stillwater Project includes a downstream bypass that discharges to the tailrace. The Stillwater Project also includes two upstream fishways for juvenile American eel that are located at the east and west abutments of the spillway. The Project provides a minimum flow to the bypass reach of 195 cfs through weirs located near the west abutment (70 cfs) and near the center of the spillway (125 cfs).

The maximum hydraulic capacity of the Stillwater Project is 1,700 cubic feet per second (cfs). Flows in the Stillwater Branch exceed the maximum hydraulic capacity of the project 60 percent of the time. Land area occupied by the features described above is estimated at 0.8 acres. Approximately 145.4 acres of land, of which only a small portion is owned by BBHP, is contained in a 200-foot zone extending around the impoundment.

A site plan and aerial photograph showing the location of the new Powerhouse in relationship to the dam and existing powerhouse are on the next page.

The modifications at the Stillwater Project consist of a new intake structure replacing the east abutment of the spillway and supplying water to a second powerhouse located integral to the dam. This powerhouse is situated upon ledges located immediately downstream of the existing spillway abutment. The tailrace will discharge to the existing pool in the bypass reach.

New construction and alteration of the Stillwater Project will include the construction of a second powerhouse containing three turbine-generating units having a nameplate capacity of 803 kW per unit. The new powerhouse will have a total rated capacity of approximately 2,229 kW and a total hydraulic capacity of approximately 1,758 cfs. The powerhouse will be located adjacent to the existing left buttress of the dam. A new 60-foot-wide forebay intake will supply the powerhouse. The new powerhouse intake will include a 60-foot-wide by 22-foot-high trashracks with angled 1-in clear spacing.



Site Plan Showing the Stillwater Powerhouse B Location



Overview Aerial of the Stillwater Project



Powerhouse B with existing dam to the left rear

A new upstream eel passage facility will be installed at the top of the forebay, adjacent to the new forebay retaining wall. The Stillwater Project currently includes a downstream eel bypass that includes one inch clear spacing of the trashracks and a bypass flume that discharges into the tailrace. As part of the redevelopment, Black Bear will install a new downstream bypass. This will include a downstream fishway at the new powerhouse, refurbishing of the existing downstream fishway and adding 1-inch trashracks for the full depth of the new and existing powerhouse intakes.

Based on preliminary designs, the downstream fish passage facility will be a combination of an opening in the flashboards in the forebay at the trashracks under normal pond conditions and a three foot wide and four foot deep opening in the forebay wall at invert elevation 87.65 feet controlled by stoplogs when the headpond elevation is generally at or below the permanent crest elevation of the dam. A two foot diameter downstream eel passage facility will be installed at the base of the trashrack with an invert at 79.0 feet extending to a weir controlled box structure which outlets to the tailrace of the powerhouse. The downstream fish passage facility will be designed to pass a combined flow of 70 cfs.

The fish will be passed into a plunge pool that discharges to the tailrace of the new powerhouse. If, during construction of the fish passage facility, the natural depth of the pool is discovered not to consistently be a minimum of six feet in depth, the naturally occurring perched plunge pool will be extended up with concrete walls. The double-regulated unit nearest the downstream fish passage facility at the new powerhouse will be first on and last off to provide attraction to the downstream fish passage facility. Appendix B contains photographs of some of these features.

IV. REGULATORY AND COMPLIANCE STATUS

FERC License

The original FERC license was issued to Bangor Hydro Electric Company (Bangor Hydro) in 1978, which expired in 1993. The project was operated under an annual license until license renewal was approved on April 20, 1998. A 40-year term was approved by FERC to coordinate expiration dates for projects on the same river basin, in support of their policy to consider cumulative impacts of projects in the same river basin collectively at relicensing. Thus, the Stillwater license was issued with the same expiration date as for the Milford and Veazie Projects. The Stillwater license was transferred to Penobscot Hydro LLC, which later became PPL Maine, LLC, (PPL Maine) in October 2000. The Stillwater Project was subsequently purchased by BBHP and the license transferred on September 17, 2009.

Relicensing and pending appeals for several hydropower projects in the Penobscot River Basin, including the Stillwater Project, occurred over the period from license issuance until 2004. After extensive studies, consultations and legal challenges, the re-licensing process culminated in the signing of the Lower Penobscot River Basin Comprehensive Settlement Accord, which included a number of agreements, including the Lower Penobscot River Multiparty Settlement Agreement.. The Settlement Agreement was jointly entered into and signed on June 25, 2004, by: PPL Maine, PPL Great Works, PPL Generation (the owners of Stillwater at this time), the Penobscot River Restoration Trust (PRRT), Penobscot Indian Nation (PIN), United States Department of Interior, acting through the Fish and Wildlife Service (USFWS), Bureau of Indian Affairs (BIA) and the National Park Service (NPS), Maine State Planning Office, Maine Atlantic Salmon Commission (MASC), Maine Department of Inland Fish and Wildlife (MIF&W), Maine Department of Marine Resources (MDMR), American Rivers, Inc, Atlantic Salmon Federation, Maine Audubon Society, Natural Resources Council of Maine (NRCM), and Trout Unlimited (TU). The Nature Conservancy joined the partnership in 2006. BBHP assumed applicable responsibilities from PPL in 2009 with the FERC license transfer of the Project.

The National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS) was not a party to the settlement, although they were involved in the earlier licensing proceedings of the Stillwater Project, and had issued a mandatory fish passage prescription under Section 18 of the Federal Power Act (FPA) on February 16, 1995. This prescription is discussed further under ***Section VIII, Criterion C - Fish Passage and Protection.***

The Settlement Agreement provided the PRRT, a non-profit organization, a 5-year option to acquire the Veazie, Howland and Great Works Projects, which was exercised on January 6, 2009. The PPRT has decommissioned and removed the Great Works Dam, and is in the process of decommissioning and removing the Veazie Dam. The Howland dam will either be altered by constructing a state-of-the-art fish bypass that would substantially or entirely maintain existing dam structure and impoundment, if this option is found feasible by the USFWS, or the dam will be removed. As the Penobscot River is home to about 99% of the federally endangered Gulf of Maine Distinct Population Segment (GOM-DPS) of Atlantic salmon in the country, restoration of passage to the river was a key focus of the Settlement Agreement. Incorporated into the Settlement Agreement is maintenance of approximately 90% of the current power production

owned by BHHP in the river basin through enhancements at other hydropower facilities in the basin, including the development of Powerhouse B at the Stillwater Project.

A revised FERC license was issued on April 18, 2005 incorporating the conditions of the Settlement Agreement, including authorization to raise the elevation of the reservoir by one foot through the use of flashboards. The license was again amended on September 14, 2012 which authorized the development of Powerhouse B. The development of Powerhouse B, including downstream eel and fish passage and upstream eel passage, were based on the terms of the Settlement Agreement.

Water Quality Certification (WQC)

On January 13, 2005, the Maine Department of Environmental Protection (MEDEP) issued a revised WQC adopting the applicable provisions of the Settlement Agreement, including water levels and minimum flows, upstream and downstream fish passage, a Contingent Mitigation Fund, recreation facilities limits of approval, and compliance with all applicable laws, and approving the one-foot headpond level increase. The 2005 WQC was made part of the FERC Order. In response to a May 12, 2005 letter from NMFS, FERC issued an Order dated May 16, 2005 correcting Article 409, noting that that NMFS' prescription is consistent only with Attachment A of the Settlement Agreement (see *Section VIII, Criterion C - Fish Passage and Protection for further discussion.*)

The MEDEP issued an amended Section 401 WQC for the added generation on August 23, 2011. This amended certification was adopted in its entirety in the September FERC 2012 license.

The applicant reports that the current Project (not including Powerhouse B) has been in continuous compliance with its operating requirements since the license issuance in January 2005. A review of the FERC database from January 2011 (when the original Project received LIHI certification) through September 18, 2013 found no reported compliance issues either at the existing operating powerhouse nor during construction of Powerhouse B and the new fish passage facilities. As evidenced by the conversations held with several fisheries agencies, the PIN and BBHP, there were reports of kills of juvenile alewife during both July 2012 and 2013. One suspected cause of the 2013 fish kill was that a school of alewife was passed simultaneously with a large amount of debris that was being sluiced downstream of the existing powerhouse, possible resulting with injury/death of the fish. BBHP and DMR discussed this concern and methods to reduce the possibility of reoccurrence of this situation. In 2013, a smaller number of juvenile alewife were reported found dead downstream of the existing Stillwater powerhouse when flows were stopped at the old downstream bypass and re-directed to the new bypass. In response, BBHP installed an additional temporary downstream bypass.

Construction reports filed by BBHP during construction did not report any environmentally related concerns, nor were any reported by the resource agencies consulted as part of this certification review. Based on this review, BBHP appears to have demonstrated conscientious attention to the environmentally-related issues associated with the Stillwater Powerhouse B Project's current FERC License.

V. PUBLIC COMMENT RECEIVED BY LIHI

The deadline for submission of comments on the certification application was October 7, 2013. No public comments letters, and only one email, was received by LIHI. The email from the Massachusetts Division of Fisheries and Wildlife, Anadromous Fish Project Leader Dr. Caleb Slator stated that he had no comment on the application.

VI. SUMMARY OF COMPLIANCE WITH CRITERIA AND ISSUES IDENTIFIED

Criterion A - Flows - The existing Stillwater Powerhouse appears to be operated in compliance with the established minimum flow requirements and deviation reporting. The resource agencies had no comments on the draft Operation and Flow Monitoring Plan for Powerhouse B, which subsequently received FERC approval.

Criterion B - Water Quality - The construction activities associated with Powerhouse B appears to have been in compliance with all requirements of the 2012 amended WQC, which addresses both construction and operation. Based on review of the draft MEDEP 2012 Integrated Water Quality Monitoring and Assessment Report, the project waters are not listed as impaired.

Criterion C - Fish Passage and Protection. Both specific fish passage facilities have been mandated, and a Section 18 reservation of authority to prescribe fish passage, are provided by/for USFWS and NMFS. It appears that all required plans and associated resource agency consultations have been developed and conducted. The downstream anadromous fish passage and upstream and downstream passage structures for American eel have been constructed under the required timeline. Fish passage effectiveness studies, including the need to meet specific numerical performance standards for Atlantic salmon are scheduled for the next three years to confirm adequacy of the new passages installed. A condition is recommended to ensure compliance with LIHI's requirement for adoption of the latest resource agency recommendations in the design and construction of the passage measures. A second condition has also been incorporated to request that any reports of fish kills that may be attributable to the operation of the Stillwater project be reported to LIHI in the annual certification compliance statement.

Criterion D - Watershed Protection - There are no requirements for a buffer zone, shoreline protection fund or shoreline management plan for the Facility. Thus, this Facility passes for this criterion. No additional term for certification is appropriate.

Criterion E - Threatened and Endangered Species Protection -The GOM-DPS Atlantic salmon is in the project area. A The Biological Opinion developed by NMFS found that the proposed actions may adversely affect but are not likely to jeopardize the continued existence of the Atlantic salmon. This opinion is based on the assumption that the downstream passage facilities at the Stillwater Project will provide safe passage for the species, which are defined by numerical standards. Testing will be conducted over a three year period, so proof of safe passage will not be confirmed until this testing is completed and the results assessed. A condition is recommended to ensure compliance with LIHI's requirement for adoption of the latest resource agency recommendations in the design/construction of the downstream fish passage.

Criterion F - Cultural Resources –The Project was found to be in compliance with the existing Cultural Resources Management Plan. No new cultural features were discovered during construction activities.

Criterion G - Recreation - The Project was found to be in compliance with all recreational requirements. No new recreational facilities were required

Criterion G - Facilities Recommended for Removal - No resource agencies have recommended dam removal.

VII. GENERAL CONCLUSIONS AND REVIEWER RECOMMENDATION

Based on my review of information submitted by the applicant, the additional documentation noted herein, the public comments submitted in writing or through my consultations with various resource agencies and other entities, I believe that the Project would be compliance with the LIHI criteria, provided the information identified in the recommended conditions, are provided, as summarized below and discussed in more detail later in this report.

Some controversy appears to exist as to whether all of the fisheries agencies' latest recommendations have been incorporated into the design and subsequent construction of the passage facilities. It is unclear to the Reviewer whether this controversy is due to agencies reflecting recommendations made early in the consultation process and which may have been superseded by later discussions, or if in fact these are the most recent recommendations which have not been adopted. Because LIHI's criteria require that a project be developed and/or operated in compliance with the latest resource agency recommendations pursuant to a legal proceeding, the first condition is recommended.

To ensure that full disclosure continues between the Applicant and LIHI about the environmental impacts of the operation of the Stillwater Project, the second condition is recommended.

I recommend that the Stillwater Powerhouse B Project be certified to be in compliance with LIHI's criteria with a certification term of five years with the following conditions:

1. BBHP shall convene discussions/meetings with the involved fisheries resource agencies and PIN to confirm that the designs that have been implemented at the new downstream fish and eel passages and upstream eel passage are consistent with the Settlement Agreement, and are sufficiently satisfactory designs such that the agencies are in agreement that final acceptance of the fish passages developed will be contingent upon the effectiveness testing to be conducted. Documentation of such agreement by each agency, jointly or individually, shall be provided in writing to LIHI within 60 days of LIHI certification.
2. Reports of any future fish kills that may occur may be, or are suspected to be, in whole or part, the result of operations of the Project, shall be reported to LIHI in the annual compliance statement submitted to LIHI. Documentation of discussions with applicable resource fisheries agencies about the event and actions that may be taken by BBHP, shall be included with the annual compliance statement.

THE STILLWATER POWERHOUSE B PROJECT CONDITIONALLY MEETS THE LIHI CRITERIA FOR CERTIFICATION

VIII. DETAILED CRITERIA REVIEW

A. FLOWS

Goal: The Flows Criterion is designed to ensure that the river has healthy flows for fish, wildlife and water quality, including seasonal flow fluctuations where appropriate.

Standard: For instream flows, a certified facility must comply with recent resource agency recommendations for flows. If there were no qualifying resource agency recommendations, the applicant can meet one of two alternative standards: (1) meet the flow levels required using the Aquatic Base Flow methodology or the “good” habitat flow level under the Montana-Tennant methodology; or (2) present a letter from a resource agency prepared for the application confirming the flows at the facility are adequately protective of fish, wildlife, and water quality.

Criterion:

- 1) Is the facility in Compliance with Resource Agency Recommendations issued after December 31, 1986 regarding flow conditions for fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking conditions, and seasonal and episodic instream flow variations) for both the reach below the tailrace and all bypassed reaches?**

YES. As discussed below, the project appears to meet these criteria thresholds.

The licensee would reallocate flows between the main stem of the Penobscot River and the Stillwater Branch through operation of its Milford Project (No. 2534), resulting in more water flowing through the Stillwater Branch in order to increase the power generation that would be realized by the proposed amendments at the Stillwater and Orono Projects. The flow reallocation is within the range of operations allowed by the current licenses for the Milford, Stillwater, and Orono Projects.

Article 401 of the amended license requires BBHP to file for FERC approval, a plan for providing and monitoring run-of-river operation, water levels, and minimum flows. Article 401 requires the Plan to include:

- A detailed description of how the impoundment level, minimum flows, generation flows, and inflows will be measured or calculated in order to comply with the requirements of the license.
- A maintenance plan to ensure that the methods remain accurate over time.
- A provision to make flow and impoundment elevation data publicly available.

- A provision to provide minimum flows at all times and impoundment elevations.
- A description of how fish passage flows will be provided during the passage seasons and at all impoundment elevations.
- A description of how the licensee will minimize the level of impoundment fluctuation.
- A list and description of the “approved maintenance activities” mentioned in Article 401 (which allow for the temporary modification of run-of-river operation) including estimates for the frequency and duration that these activities occur.
- A provision to notify the FERC, resource agencies, and PIN when deviations from license requirements occur.
- A provision to provide reports and data to the resource agencies and the PIN, the level of detail and timing/frequency of reporting to be determined in consultation with these entities.

Condition 7 of the 2011 Section 401 WQC amendment requires that the minimum flow release stipulated in the MDEP’s Section 401 WQCs for the Project (#L-16773-33-A-N dated December 29, 1992, as modified by #L-16773-33-F-M dated January 13, 2005) be maintained whenever possible, except as modified by approved maintenance activities, extreme hydrologic conditions, emergency electrical system conditions, or agreement with appropriate state and/or federal agencies. Minimum flows of 20 cubic feet per second (cfs) to the western channel of the bypass reach and 50 cfs to the eastern channel of the bypass reach are specified under Condition 1.A of the 1992, 2005 and 2011 Section 401 WQC amendments.

BBHP’s Operations and Flow Monitoring Plan indicates that monitoring will be achieved by using headpond transducers to monitor the elevation of the head pond and staff gauges immediately adjacent to the trashrack structures located at the dam that are tied to the licensed normal full pool elevation of 94.65 ft NGVD. Such data will direct adjustment of the units and fish passage gates accordingly to meet the flow requirements. Flows are maintained at the various locations pursuant to the specified settings calibrated to provide the required flow. In addition to making these records available to applicable agencies, before the end of 2013, BBHP will implement a publically available website where it will provide a daily flow report for the Project. This is in part in response to a request made by the NMFS in their comments to the Environmental Analysis as to the importance of making the flow data publically available.

The draft Operations and Flow Monitoring Plan was reviewed by the resource agencies; however no comments were received. It was approved by the FERC on August 27, 2013. Review of the 2010 through 2012 flow monitoring reports for the existing powerhouse found that no deviations were reported.

This Project passes Criterion A - Flows- Go to B

B. WATER QUALITY

Goal: The Water Quality Criterion is designed to ensure that water quality in the river is protected.

Standard: The Water Quality Criterion has two parts. First, an Applicant must demonstrate that the facility is in compliance with state water quality standards, either through producing a recent Clean Water Act Section 401 certification or providing other demonstration of compliance. Second, an applicant must demonstrate that the facility has not contributed to a state finding that the river has impaired water quality under Clean Water Act Section 303(d).

Criterion:

1) Is the Facility either:

- a) In compliance with all conditions issued pursuant to a Clean Water Act Section 401 water quality certification issued for the facility after December 31, 1986? Or in compliance with the quantitative water quality standards established by the state that support designated uses pursuant to the federal Clean Water Act in the Facility area and in the downstream reach?**

Yes. On January 13, 2005, the MDEP issued a revised WQC adopting the applicable provisions of the Settlement Agreement. The 2005 WQC was made part of the FERC Order. The MEDEP issued an amended section 401 water quality certification for the added generation on August 23, 2011. This amended certification was adopted in its entirety in the September FERC 2012 license.

Special Condition 3A of the WQC required submission of an Erosion and Sediment Control Plan which was submitted in August 2012. MEDEP found the Plan satisfactory. This Plan was implemented during all construction activities. Based on review of Construction Reports submitted to FERC by BBHP, no erosion problems were reported. Consultation with resource agencies by the Reviewer did not identify erosion as a concern during construction.

In the EA, FERC concluded that increasing the hydraulic capacity of the generating facilities at the Stillwater Project would reduce spill volumes, even with increased flow in the Stillwater Branch. Reduced spill volumes could contribute to dissolved oxygen (DO) concentrations downstream of the project being below the state water quality standards during the summer and early fall. To address this issue, Article 415 of the licensee required development and implementation of a plan to conduct dissolved oxygen (DO) monitoring downstream of the Stillwater Project for at least the first year of project operation under the amended license.

The DO monitoring Plan was reviewed by the resource agencies with only an editorial comment provided by the USFWS. BBHP is committed to implement this Plan during facility operations.

Go to B2

- 2) Is the Facility area or the downstream reach currently identified by the state as not meeting water quality standards (including narrative and numeric criteria and designated uses) pursuant to Section 303(d) of the Clean Water Act?**

NO. Based on review of the draft MEDEP 2012 Integrated Water Quality Monitoring and Assessment Report, the project waters are not listed as impaired.

The existing water quality at the Stillwater Powerhouse B project is classified by the MDEP as a Class B. Class B waters are general-purpose waters and are managed to attain good physical, chemical and biological water quality; aquatic life use goal approximately Tier 3 on the Biological Condition Gradient. Well-treated discharges with ample dilution are allowed.

Go to B3

3) If the answer to question B.2. is yes, has there been a determination that the Facility is not a cause of that violation?

NOT APPLICABLE

The Project Passes Criterion B - Water Quality - Go to C

C. FISH PASSAGE AND PROTECTION

Goal: The Fish Passage and Protection Criterion is designed to ensure that, where necessary, the facility provides effective fish passage for riverine, anadromous and catadromous fish, and protects fish from entrainment.

Standard: For riverine, anadromous and catadromous fish, a certified facility must be in compliance with both recent mandatory prescriptions regarding fish passage and recent resource agency recommendations regarding fish protection. If anadromous or catadromous fish historically passed through the facility area but are no longer present, the facility will pass this criterion if the Applicant can show both that the fish are not extirpated or extinct in the area due in part to the facility and that the facility has made a legally binding commitment to provide any future fish passage recommended by a resource agency. When no recent fish passage prescription exists for anadromous or catadromous fish, and the fish are still present in the area, the facility must demonstrate either that there was a recent decision that fish passage is not necessary for a valid environmental reason, that existing fish passage survival rates at the facility are greater than 95% over 80% of the run, or provide a letter prepared for the application from the U.S. Fish and Wildlife Service or the National Marine Fisheries Service confirming the existing passage is appropriately protective.

Criterion:

1) Is the facility in compliance with Mandatory Fish Passage Prescriptions for upstream and downstream passage of anadromous and catadromous fish issued by Resource Agencies after December 31, 1986?

CONDITIONALLY, YES. As a signatory to the Settlement Agreement, the USFWS 1997 Mandatory Fish Passage requirements were incorporated into the Agreement, and as such, were

incorporated into the amended FERC license issued on April 18, 2005. In a letter dated March 21, 2005 NMFS confirmed that its fishway prescription (issued pursuant to the 2005 license) is consistent with the intent of the USFWS's prescription. This letter also states that the need to monitor and evaluate the effectiveness of the fishways, and possible structural, or operational changes to improve their effectiveness, an integral part of the NMFS' prescription, was agreed to by both the USFWS and PP&L Maine LLC (the owner of Stillwater at that time). FERC adopted this position in its April 18, 2005 Order, thus the license has both mandatory fish passage requirements (under Articles 406 through 408) and reservation of authority for both the USFWS and NMFS (under Article 409).

On May 23 and 29, 2012 respectively both NMFS and USFWS issued letters to FERC requesting reservation of their authority to order fish passage prescriptions for the modifications to the Stillwater Project (i.e. Powerhouse B), which was incorporated into the 2012 FERC license. The 2012 license however maintained the requirements from the 2005 license for downstream passage for American Shad, alewife, blueback herring, and the federally endangered Atlantic salmon, and both downstream and upstream passage for American eel. These requirements are included in Articles 406 and the amended 407 and 408. Article 409 was amended to include the new requests for reservation of authority for USFWS and NMFS.

It appears that all required plans and associated resource agency consultations have been developed and conducted over a several year period through a series of meetings and draft plan reviews. This is supported by data provided by the applicant, review of FERC's eLibrary, review of the plans and agency consultation records. These facilities have also been constructed under the required timeline.

It also appears that based on agency discussions in 2012 which identified that juvenile alewives would likely be passing through the river during the 2013 construction period (which involved removal of the existing downstream passage to install the new larger facility), BBHP installed a temporary downstream bypass to provide an opportunity for any fish that ended up near the powerhouse intake area to be bypassed downstream. While this was not requested, nor a requirement, BBHP proactively installed this facility to provide an additional passage route for migrating fish. A photo of this bypass is included in Appendix B.

Some controversy appears to exist as to whether all of the fisheries agencies' latest recommendations have been incorporated into the design and subsequent construction of the passage facilities. BBHP suggests that all but two recommendations have been incorporated (discussed below); however, direct communications with several of the fisheries agencies disagree with this statement. It is unclear to the Reviewer whether this controversy is due to agencies reflecting recommendations made early in the consultation process and which may have been superseded by later discussions, or if in fact these are the most recent recommendations which have not been adopted. Unfortunately letters from the resource agencies were not requested by BBHP as recommended in LIHI's Handbook. Because LIHI's criteria require that a project be developed and/or operated in compliance with the latest resource agency recommendations pursuant to a legal proceeding, a condition has been recommended to resolve this possible conflict.

The two recommendations not adopted include year-round downstream eel passage (requested by PIN) and incorporation of slots for PIT tag antennae in the passage structure. Reviewer consultation with Steve Shepard of USFWS suggested that downstream eel passage is not likely in winter in Maine due to the cold temperatures, thus he did not think year round passage is needed, unless otherwise proven, during the effectiveness testing to be conducted. BBHP recommended, and FERC agreed, that sufficient options exist such that the location for the tag antennae can be identified just prior to implementation of the effectiveness testing.

In addition, study plans to test the effectiveness of these passage facilities is also required. Plans by which this testing will be conducted have been developed and reviewed by the resource agencies, and changes to address the agency recommendations have been developed. It appears that all agency recommendations for this testing have been incorporated into the plans. Downstream passage effective testing for American Shad, alewife, blueback herring and American eel will initially involve visual observations through use of cameras to identify species and counts. Once sufficient numbers of target species and life stages are identified more quantitative effectiveness studies will be designed through fisheries agency consultation.

The testing for the Atlantic salmon is governed by the Biological Opinion issued on August 31, 2012. Numerical performance standards have been established for Atlantic salmon as noted below to be measured during a three year testing period. Specific action plans have also been established if these standards are not met each consecutive year, which are also noted below.

Performance standards for Atlantic salmon:

“The performance standard for downstream migrating smolts and kelts at the Stillwater Project is a minimum of 96% survival, based on a 75% confidence interval. That is, no fewer than 96% of downstream migrating smolts and kelts approaching the dam structure will survive passing the dam structure, which would include from 200 meters upstream of the trashracks and continuing downstream to a point where delayed effects of passage can be quantified. Fish that stop moving prior to reaching the most downstream telemetry array or take longer than 24 hours to pass the project will be considered to have failed in their passage attempt.”

In the event that the performance standard is not met, the following sequence of enhancements will be implemented sequentially each year:

- 1. Increase bypass flow up to the limit of the facility;*
- 2. Increase spill to between 20% and 50% of river flow at station at night during the two week smolt out migration period; and*
- 3. Two weeks of 100% spill of river flow at night (except for one unit, which will be operated at its lowest possible setting as required for powerhouse startup), followed by two weeks of spill of 25% of river flow during day and night.*

Renewed agency consultation will be established if the standard is not met at the end of the third years' enhancement implementation.

Consultation with Donald Dow of NMFS indicated that although not all fish passage design recommendations were adopted, NMFS's position is that "If they meet the performance standard and the fishway "is deemed safe, timely and effective for other species, we will be satisfied regardless of the design." Discussion with Sean McDermott of NMFS echoed this philosophy.

Thus, given that all study plan requirements, agency consultation requirements and construction deadlines have been met, assuming that this philosophy is agreed to by the other fisheries agencies and PIN as identified in the recommended condition for this criterion, than it appears that this criterion will be met.

Two fish kill reports, one each in 2012 and 2013, potentially associated with the operation of the existing Stillwater powerhouse, creates some potential concern that some additional measures may be appropriate to ensure the safe passage of downstream migrating fish. From agency and BBHP consultations on this issue, it appears that BBHP has responded to both past events. To ensure full disclosure of such issues and to confirm compliance with LIHI goal of ensuring safe fish passage, a second condition has been added.

Go to C5

- 2) Are there historic records of anadromous and/or catadromous fish movement through the facility area, but anadromous and/or catadromous fish do not presently move through the Facility area (e.g., because passage is blocked at a downstream dam or the fish run is extinct)?**

NOT APPLICABLE

- a) If the fish are extinct or extirpated from the Facility area or downstream reach, has the Applicant demonstrated that the extinction or extirpation was not due in whole or part to the Facility?**

NOT APPLICABLE

- b) If a Resource Agency recommended adoption of upstream and/or downstream fish passage measures at a specific future date, or when a triggering event occurs (such as completion of passage through a downstream obstruction or the completion of a specified process), has the Facility owner/operator made a legally enforceable commitment to provide such passage?**

NOT APPLICABLE

- 5) Is the Facility in Compliance with Mandatory Fish Passage Prescriptions for upstream or downstream passage of riverine fish?**

NOT APPLICABLE. No fish passage requirements have been issued for riverine fish. *Go to C6*

6) Is the facility in Compliance with Resource Agency Recommendations for Riverine, anadromous and catadromous fish entrainment protection, such as tailrace barriers?

YES. One-inch clear spacing angled trashracks for the full length of the new intake at Powerhouse B have been installed. Consultation with Donald Dow of NMFS did express a preference for installation of screens as smelts could pass through the one-inch screens, but felt the adopted measures were generally satisfactory. Sean McDermott again stated the same opinion. Steve Shepard of USFWS stated a preference for further distance between the trashracks and improved downstream passage at the existing powerhouse, but he recognized that such an option would have been prohibitively expensive. He stated that was negotiated was the best option that did not require extensive structure relocation.

The Project Conditionally Passes Criterion C - Fish Passage and Protection - Go to D

D. WATERSHED PROTECTION

Goal: The Watershed Protection criterion is designed to ensure that sufficient action has been taken to protect, mitigate and enhance environmental conditions in the watershed.

Standard: A certified facility must be in compliance with resource agency and Federal Energy Regulatory Commission (“FERC”) recommendations regarding watershed protection, mitigation or enhancement. In addition, the criterion rewards projects with an extra three years of certification that have a buffer zone extending 200 feet from the high water mark or an approved watershed enhancement fund that could achieve within the project’s watershed the ecological and recreational equivalent to the buffer zone and has the agreement of appropriate stakeholders and state and federal resource agencies. A Facility can pass this criterion, but not receive extra years of certification, if it is in compliance with both state and federal resource agencies recommendations in a license-approved shoreland management plan regarding protection, mitigation or enhancement of shorelands surrounding the project.

Criterion:

1) Is there a buffer zone dedicated for conservation purposes (to protect fish and wildlife habitat, water quality, aesthetics and/or low-impact recreation) extending 200 feet from the average annual high water line for at least 50% of the shoreline, including all of the undeveloped shoreline?

NO, go to D2

2) Has the facility owner/operator established an approved watershed enhancement fund that: 1) could achieve within the project’s watershed the ecological and recreational equivalent of land protection in D.1), and 2) has the agreement of appropriate stakeholders and state and federal resource agencies?

NO, go to D3

3) Has the facility owner/operator established through a settlement agreement with appropriate stakeholders, with state and federal resource agencies' agreement, an appropriate shoreland buffer or equivalent watershed land protection plan for conservation purposes (to protect fish and wildlife habitat, water quality, aesthetics and/or low impact recreation)

NO, Go to D4

4) Is the facility in compliance with both state and federal resource agencies recommendations in a license approved shoreland management plan regarding protection, mitigation or enhancement of shorelands surrounding the project.

NOT APPLICABLE. No Shoreland Management Plan, buffer zone or enhancement fund was required for the Stillwater Powerhouse B Project.

The Project Passes Criterion D - Watershed Protection - Go to E

E. THREATENED AND ENDANGERED SPECIES PROTECTION

Goal: The Threatened and Endangered Species Protection Criterion is designed to ensure that the facility does not negatively impact state or federal threatened or endangered species.

Standard: For threatened and endangered species present in the facility area, the Applicant must either demonstrate that the facility does not negatively affect the species, or demonstrate compliance with the species recovery plan and receive long term authority for a "take" (damage) of the species under federal or state laws.

Criterion:

1) Are threatened or endangered species listed under state or federal Endangered Species Acts present in the Facility area and/or downstream reach?

YES. The endangered GOM-DPS Atlantic Salmon is a federally endangered species found in the Stillwater Project area. Two other federally listed species, Shortnose Sturgeon and Atlantic Sturgeon are located in the lower reaches of the Penobscot River, but are blocked from reaching the Stillwater Project by the Veazie dam, which is in the process of being removed, and the Orono Project, located approximately one mile downstream on the Stillwater River.

Go to E2

2) If a recovery plan has been adopted for the threatened or endangered species pursuant to Section 4(f) of the Endangered Species Act or similar state provision, is the Facility in Compliance with all recommendations in the plan relevant to the Facility?

YES. A recovery plan for the GOM DPS Atlantic salmon was developed in 2005. NMFS and USFWS are writing a new recovery plan that will include the expanded GOM DPS designated critical habitat and will update the list of significant threats affecting this species.

The Biological Opinion issued August 31, 2012 incorporated the requirements of the recovery plan. The fish passage effectiveness testing requirements for downstream passage of Atlantic salmon incorporates specific numerical standards that must be achieved to ensure the safety of the species. This is discussed further below.

Go to E3

3) If the Facility has received authority to Incidentally Take a listed species through: (i) Having a relevant agency complete consultation pursuant to ESA Section 7 resulting in a biological opinion, a habitat recovery plan, and/or (if needed) an incidental take statement; (ii) Obtaining an incidental take permit pursuant to ESA Section 10; or (iii) For species listed by a state and not by the federal government, obtaining authority pursuant to similar state procedures; is the Facility in Compliance with conditions pursuant to that authorization?

YES. A The Biological Opinion developed by NMFS was issued August 31, 2012. The Biological Opinion was issued to address issues at Milford, Orono, Stillwater, Medway and West Enfield Projects. The NMFS found that the proposed actions may adversely affect but are not likely to jeopardize the continued existence of the GOM DPS of Atlantic salmon.

Specific to Stillwater, the Biological Opinion includes an Incidental Take Statement (ITS). The ITS exempts the incidental taking of Atlantic salmon adults, smolts, and kelts from activities associated with the construction of the new powerhouse, ongoing operations of the Stillwater facilities, and downstream passage and survival studies. The ITS also specifies Reasonable and Prudent Measures (RPMs) and implementing Terms and Conditions necessary to minimize and monitor the impact of these activities on Atlantic salmon. The ITS specifies five RPMs necessary to minimize and monitor take of listed species. The RPMs and implementing Terms and Conditions outlined in the ITS are non-discretionary.

This opinion is based on the assumption that the downstream passage facilities at the Stillwater Project will provide safe passage for the species, which are defined as:

“The performance standard for downstream migrating smolts and kelts at the Stillwater Project is a minimum of 96% survival, based on a 75% confidence interval.

As previously described under **Section VIII Criteria C, Fish Passage and Protection**, this testing will be conducted over a three year period, so proof of safe passage will not be confirmed until this testing is completed and the results assessed. Also as previously noted, certification is recommended to be conditional regarding the fish passage facilities. As the Biological Opinion depends on the safe passage of Atlantic salmon, a satisfaction of this criterion has been conditioned to ensure that the latest agency recommended design features have been incorporated until the testing can be completed.

Go to E5

5) If E2 and E3 are not applicable, has the Applicant demonstrated that the Facility and Facility operations do not negatively affect listed species?

YES. Several plant and freshwater mussel species of concern and Bald Eagle, none of which are listed as endangered or threatened, are found in the area. Plans to address protection of these plants and Bald Eagle from construction disturbance and removal of stranded mussels were developed and implemented. Consultation with Keel Kemper of ME Inland Fish and Wildlife did not indicate any concerns with the construction of the project in relationship to these species.

The Project Conditionally Passes Criterion E - Threatened and Endangered Species Protection - Go to F

F. CULTURAL RESOURCE PROTECTION

Goal: The Cultural Resource Protection Criterion is designed to ensure that the facility does not inappropriately impact cultural resources.

Standard: Cultural resources must be protected either through compliance with FERC license provisions, or through development of a plan approved by the relevant state or federal agency.

Criterion:

1) If FERC-regulated, is the Facility in compliance with all requirements regarding Cultural Resource protection, mitigation or enhancement included in the FERC license or exemption?

YES. The Facility is in compliance with all requirements regarding cultural resource protection, mitigation or enhancement included in its 2005 FERC license. No new issues or requirements were identified by the State Historic Preservation Office nor the PIN during consultation for licensing of Powerhouse B. Thus the amended 2012 license has no additional requirements.

A Cultural Resources Management Plan (CRMP) exists for the Project, as required by the 1998 license. Requirements include filing of an annual report of activities conducted under the Stillwater CRMP with FERC, the SHPO, PIN and the US Department of Interior. Such reports are appropriately filed. As the potential existed for discovery of cultural resources not previously known, the CRMP required construction to stop and implementation of the applicable provisions of the CRMP. No such resources were discovered during facility construction.

The Project Passes Criterion F - Cultural Resource Protection - Go to G

G. RECREATION

Goal: The Recreation Criterion is designed to ensure that the facility provides access to the water without fee or charge, and accommodates recreational activities on the public's river.

Standard. A certified facility must be in compliance with terms of its FERC license or exemption related to recreational access, accommodation and facilities. If not FERC-regulated, a certified facility must be in compliance with similar requirements as recommended by resource agencies. A certified facility must also provide the public access to water without fee or charge.

Criterion:

1) If FERC-regulated, is the Facility in Compliance with the recreational access, accommodation (including recreational flow releases) and facilities conditions in its FERC license or exemption?

YES.

Article 410 of the 1998 FERC license required the construction, operation and maintenance, of a number of recreational facilities, all of which were constructed in 1999. A Recreational Use and Facility Report is prepared according to license obligations. The most recent report, dated May 7, 2010, did not identify a need for additional facilities, in part based on filed Form 80 Reports. The 2012 amended license did not mandate any additional recreational facilities.

BBHP provided a copy of the latest FERC environmental inspection report held on file, which was dated September 8, 2005. It did not identify any deficiencies at the Project. BBHP reported that such full reports now are only provided if specifically requested; and that only a deficiency letter is issued by FERC if one is needed. BBHP has not received such a letter since the 2005 inspection report was received.

Go to G3

3) Does the Facility allow access to the reservoir and downstream reaches without fees or charges?

YES. The application denotes that such access is provided free of charge to the reservoir and downstream reaches of the river.

The Project Passes Criterion G - Recreation - Go to G

H. FACILITIES RECOMMENDED FOR REMOVAL

Goal: The Facilities Recommended for Removal Criterion is designed to ensure that a facility is not certified if a natural resource agency concludes it should be removed.

Standard: If a resource agency has recommended removal of a dam associated with the facility, the facility will not be certified.

Criterion:

1) Is there a Resource Agency recommendation for removal of the dam associated with the Facility?

NO. No resource agency has recommended removal of this dam.

The Project Passes Criterion H -Facilities Recommended for Removal

APPENDIX A

INDEX OF PRIMARY CONTACT INFORMATION FOR LIHI CRITERIA

The following lists direct consultation initiated by the Reviewer. Extensive consultation with other resource agencies was initiated by the Applicant's representative and provided in the application or as follow-up to questions raised by the Reviewer.

LIHI CRITERION	PRIMARY CONTACT INFORMATION
Flows	None contacted
Water Quality	Kathy Howatt, MEDEP
Fish Passage & Protection	Sean McDermott and Donald Dow of NMFS; Shephen Shepard of USFWS; Gail Wipplehouser and Richard Dill of MDMR; John Banks of PIN
Watershed Protection	None conducted
Threatened & Endangered Species	Jan Perry and Keel Kemper of MIF&WS and contacts listed under Fish Passage & Protection regarding Atlantic salmon
Cultural Resources Protection	Arthur Speiss of ME SHPO; John Banks of PIN
Recreation	None conducted
Facilities Recommended for Removal	None conducted

RECORD OF CONTACTS

NOTE: The information presented below was gathered primarily by telephone communication between the Reviewer and agency representative listed below.

Date: 9/16/13

Contact Person: Steve Shepard; USFWS

Contact Information: 207-866-3344 x 116

Area of Expertise: Fisheries

Steve reported that construction activities were non-eventful from an environmental perspective. BBHP acted proactively to ensure no problems arose. He noted that the schedule of blasting activities needed to remove ledge for the powerhouse was aligned with the schedule for removal of the Great Works Dam removal to help ensure no Atlantic salmon would be in the area. A Bald Eagle nest located about 600 feet away was a blasting concern but no impacts resulted. In his opinion there were some design items that had been discussed in 2010 – 2011 that were not fully incorporated into the fish passage structures. However what was constructed was reasonable. He noted that he would have preferred that the trashracks would have been positioned differently to further minimize entrainment potential at the exist powerhouse. However such a plan would have been prohibitively expensive. Effectiveness testing will be done simultaneously at Stillwater, West Enfield and Milford.

Date: 9/16/13

Contact Person: Gail Wipplehouser; MDMR

Contact Information: 207-624-6349

Area of Expertise: Fisheries restoration for anadromous species

Gail reported that there were a few features planned to be installed at the downstream eel fish passage but that it could not be confirmed if they were (e.g. bell-mouth weir at the passage entrance, proper size of the plunge pool; etc.). She acknowledged however that what was constructed was generally acceptable. She was not aware of any fish standings to have occurred during construction. However she did discuss a fish kill involving juvenile alewife that she was made aware of in 2013, during construction of the new downstream eel passage. She stated apparently opening of the log sluice gate caused the kill. She suggested calling Donald Dow of NMFS as Don has been conducting regular site inspections during construction.

Date: 9/17/13

Contact Person: Donald Dow; NMFS

Contact Information: 207-866-8563 office; 207-416-7510 cell; Donald.dow@noaa.gov

Area of Expertise: Fisheries / site inspections

Don has been responsible for conducting regular inspections of the construction of the Powerhouse and specifically the eel and fish passage structures. He stated in general, all

construction has progressed fine. He stated that some passage features that were discussed were not adopted, such as installation of manually adjusted stoplogs in lieu of water level transducer controlled gate at the downstream passage structures. He stated that a larger plunge pool and screening in lieu of the angled 1-inch clear spacing trashracks were recommended. He also stated that he could not confirm that the bell-mouth weir, or the orifice plate in the “eel tower” entrance were installed, as the area was watered before he reached the site. However, BBHP reported they were installed.

Date: 9/17/13

Contact Person: John Banks, PIN

Contact Information: 207-817-7330

Area of Expertise: Fisheries & Cultural Resources

John initiated his response by stating he does not believe that a project that has not yet started operating should be eligible for LIHI certification. As a result he was hesitant to answer specific questions about satisfaction of LIHI criteria. Instead he reported that there was a kill of juvenile alewife in 2013 when the shift to the new permanent eel passage at the existing Stillwater facility was occurring. He suggested that the kill was caused by either the lack of flow to the bypass or that the new bypass was not working properly. He stated he reported the event to Richard Dill of DMR and that BBHP responded promptly to alleviate the problem. He also stated that a larger kill of juvenile alewife occurred in 2012 as evidence by dead fish in the impoundment between the Stillwater and Orono dams, which he also reported to DMR. He could not share any other details but said that he believes the cause of the kill was operation at the Stillwater facility.

Date: 9/17/13 and 9/24/13

Contact Person: Scott Hall

Contact Information: 207-827-5364; shall@blackbearhydro.com

Area of Expertise: VP President – Environmental & Business Services

I asked Scott for his insight into the reported fish kills. He stated that although he was aware of both reported events through discussions with Richard Dill of DMR, although in neither case, did BBHP received any formal notice from any fisheries agency identifying the operation of the Stillwater Project as the primary cause for the kills. He stated that BBHP will undertake the measures recommended by DMR to prevent simultaneous release of large debris when schools of juvenile alewife are present, thus hopefully preventing reoccurrence of the 2013 event. In response to the 2012 event, a second temporary downstream bypass was installed at an unused gate. (See photo in Appendix B.)

Date: 9/24/13

Contact Person: Richard Dill

Contact Information: 207-941-4465

Area of Expertise: Alewife restoration for the Penobscot River

After several earlier attempts I was able to discuss the two kills of juvenile alewife during both July 2012 and 2013 reported by other agency staff interviewed. Richard was fully knowledgeable about both events. One suspected cause of the 2013 fish kill was that a school of alewife was passed simultaneously with a large amount of debris that was being sluiced downstream of the existing powerhouse, possibly resulting with injury/death of the fish. BBHP and DMR discussed this concern and methods to reduce the possibility of reoccurrence of this situation. In 2013, a smaller number of juvenile alewife were reported found dead downstream of the existing Stillwater powerhouse when flows were stopped at the old downstream bypass and re-directed to the new bypass. In response, BBHP installed an additional temporary downstream bypass.

Date: 9/17/13 and 10/8/13

Contact Person: Kathy Howatt; MEDEP

Contact Information: 207-446-2642; Kathy.howatt@maine.gov

Area of Expertise: Dam compliance

I spoke with Kathy on 9/17 briefly explaining the purpose of my call and to gain her insight into compliance issues associated with the WQC issued to the Stillwater Powerhouse B project. She stated she needed to review the files and discuss the project with others and would get back to me. I received an email on 10/8/13 in which she reported that the Stillwater project was found to be in compliance with the terms and conditions of the WQC, both operationally and during construction of the expanded generating facility at Powerhouse B.

Date: 9/17/13

Contact Person: John Perry MIF&W

Contact Information: 207-287-5252

Area of Expertise: Regional Biologist

John reported that there were no issues reported from MIF&W field staff associated with stranded mussels during construction. An appropriate Plan for relocation was developed. He suggested calling Keel Kemper for further details.

Date: 9/17/13

Contact Person: Keel Kemper

Contact Information: 207-547-5319

Area of Expertise: Wildlife biologist

Similar to John Perry, Keel reported no issues associated with stranded mussels or impacts to the plant species that are "species of concern" known to exist in the Stillwater construction site area.

Date: 9/19/13

Contact Person: Dr. Arthur Spiess; ME Historic Preservation Commission

Contact Information: 207-287-2789

Area of Expertise: Senior archaeologist

Dr. Speiss stated BBHP has always been good to work with.. He stated no archaeological resources were uncovered during the construction of Powerhouse B. Therefore he does not see any impact from the project on cultural resources.

Date: 9/19/13

Contact Person: Sean McDermott; NMFS

Contact Information: 978-281-9113

Area of Expertise: Fisheries

Sean reported that from his perspective, that the design of the various passage structures that were constructed was “concurred with” through a series of negotiations and was “approvable” by the NMFS. His only concern is that the plunge pool for the eels passage may not be large enough. He is comfortable with the trashracks installed.

APPENDIX B

PROJECT PHOTOS



Fish passage measures include 1"-clear trashrack spacing, downstream fish passage surface bypass (top of forebay wall adjacent to trashracks) and downstream passage entrance for eels (opening adjacent to bottom of trashracks).



Upwell chambers and stoplogs are in place for downstream bypass for eels. Downstream fish passage surface bypass stoplogs are also in place. New forebay wall and existing dam spillway shown in the background.



Looking upstream from tailrace with existing dam spillway in background (note: date stamp not reset – photo taken 9-18-13).



Temporary downstream eel passage installed at existing powerhouse while permanent downstream passage was being installed.



New eel passage weir on left



Plunge pool below eel and fish weirs.