Bear River Project - LIHI Mid-Term Review
Conducted by Maryalice Fischer
June 18, 2025

I. Introduction

On February 20, 2025, PacifiCorp submitted an application to the Low Impact Hydropower Institute (LIHI) for a mid-term review of the Bear River Project (FERC No. P-20, LIHI #53). The 77.45-MW project includes three developments – Soda, Grace, and Oneida. It was last recertified by LIHI in 2023 for a 13-year term that expires on December 30, 2035. The certification includes a PLUS standard award under the shoreline and watershed criterion. There are no conditions attached to the current certification.

The current FERC license for the Project was issued in 2003 and was most recently amended on August 27, 2024 with FERC's issuance of an order "Modifying and Approving Surrender of Paris Project Conduit Exemption and Amendment of Bear River License". In accordance with Section 5.3.4 of the 2nd Edition LIHI Handbook, issuance of a material amendment to a FERC license or license exemption constitutes a "material change" and triggers a mid-term LIHI Certification review. Continued certification, with a new certification term, is contingent upon the facility remaining in compliance and continuing to satisfy the LIHI criteria in effect at the time of review.

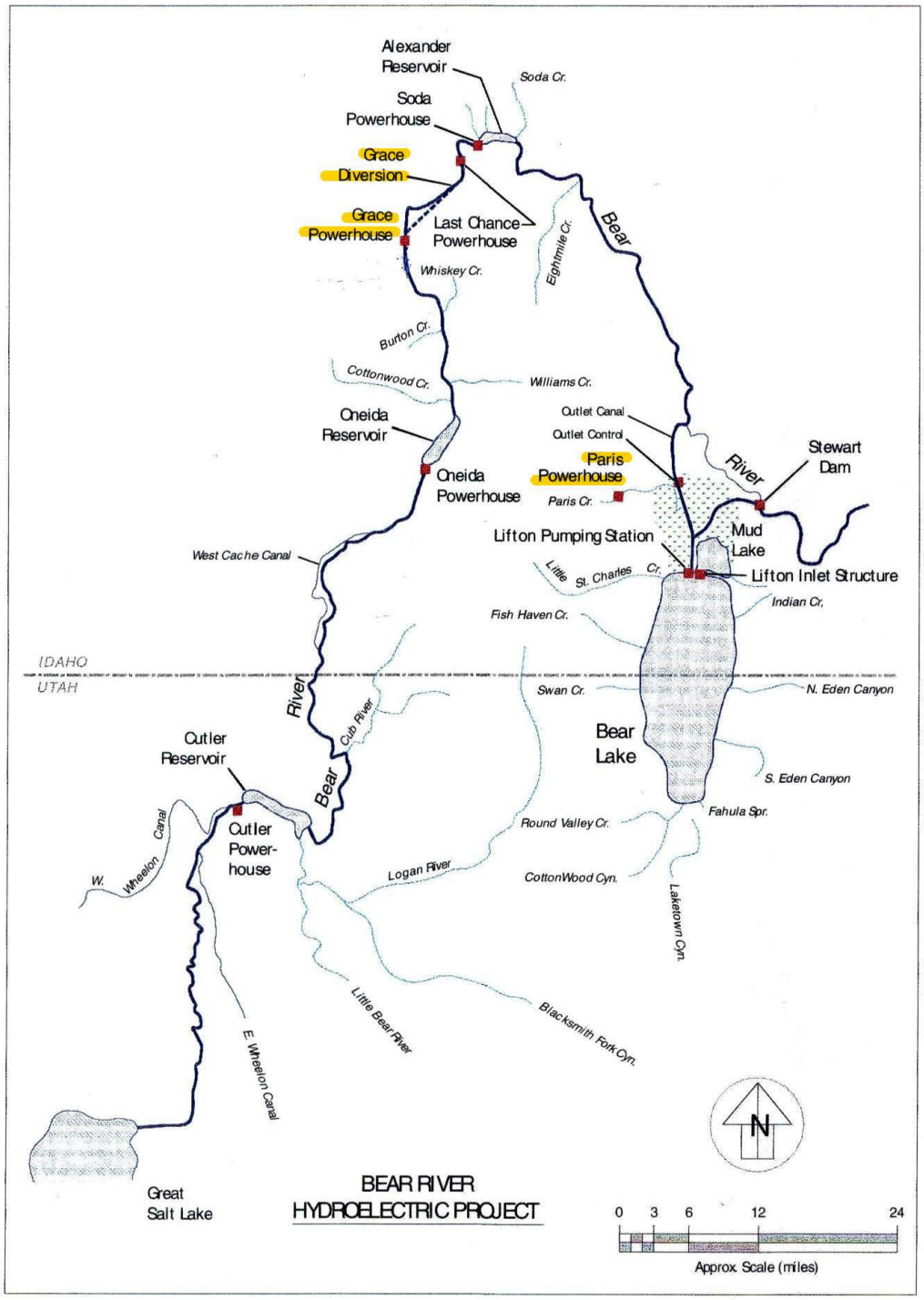
The amendment application was submitted to FERC after negotiations with resource agencies, tribes, and NGOs to surrender the Paris Project's conduit exemption (FERC No. P-703), decommission the project, and amend the Bear River Project license to reduce the minimum bypass flow in the Grace development's bypass reach. PacifiCorp and the parties to the 2002 relicensing settlement agreement[1] for the Bear River Project established a collaborative habitat restoration project within a broad "action area" around the Project that includes Paris Creek, a tributary to the Bear River in Bear Lake County, Idaho and located about 30 miles southeast of the Grace development (Figure 1). The purpose of the restoration project related to Paris Creek is to return natural flows to the creek, which had been substantially dewatered below the Paris diversion structure for much of the year, in order to enhance and restore approximately 3.5 miles of high quality, cold-water habitat for Bonneville cutthroat trout (BCT), a state Species of Greatest Conservation Need.

To partially mitigate for the loss of hydroelectric generation from the Paris Project and the cost of its decommissioning, the parties agreed in the 2021 Paris Creek Restoration Agreement (Attachment A of the FERC amendment application) that PacifiCorp could apply, with their support, to amend the Bear River Project license to reduce the minimum instream flow requirement in the Grace Development's bypass reach in order to increase generation at that

[1] The Agreement was executed on August 28, 2002, by PacifiCorp, U.S. Fish and Wildlife Service (FWS); U.S. Bureau of Land Management (BLM); the National Park Service (NPS); the Forest Service (FS); Shoshone-Bannock Tribes (Tribes); Idaho Department of Environmental Quality (IDEQ); Idaho Department of Fish and Game (IDFG); Idaho Department of Parks and Recreation (IDPR); Idaho Council of Trout Unlimited (ITU); Idaho Rivers United (IRU); Greater Yellowstone Coalition (GYC); American Whitewater (AW), and other individuals. These parties also comprise the Bear River Hydroelectric Project Environmental Coordination Committee (ECC).

facility. The parties agreed that the minimum flow reduction would not result in long-term adverse effects. FERC issued an Environmental Assessment (EA) on April 22, 2024 for both the Paris decommissioning and the Grace development minimum flow adjustment.

Figure 1 – Project Location



II. Facility and Operations

The Bear River originates at Bear Lake in Idaho and ultimately discharges to the Great Salt Lake in Utah. The Grace development is the 2nd of three developments in the Bear River Project which also includes the Soda and Oneida developments. Farther downstream is PacifiCorp's Cutler Project (LIHI #62). The Paris Project is located on Paris Creek, a small tributary of the Bear River located just downstream of Bear Lake (Figure 1).

Inflow to the Bear River Project is largely influenced by regulated releases from Bear Lake (not part of the Bear River FERC license) which is located approximately 45 river miles upstream of the Soda development, as well as releases from the Soda development's Alexander Reservoir, minus the irrigation diversions between Soda and Grace. The three developments operate in coordinated modified run-of-river mode to meet irrigation demands in addition to generating power. River flows are generally higher than natural conditions during the irrigation season (April through October) due to irrigation releases from Bear Lake. During the non-irrigation season, flow releases from Bear Lake are generally lower than natural conditions, and the river is regulated primarily to maintain downstream reservoir levels and minimum instream flows. Some releases may be made from Bear Lake during this season to meet spring flood control target elevations in Bear Lake reservoir. The three Project developments continue to generate power during the non-irrigation season, using available flows.

Grace dam is a rock-filled, timber-crib structure with a concrete core at the base of the structure. It is approximately 51 feet high with 8-foot-high flashboards. The dam creates a 320-acre-foot impoundment. A 5-mile-long flowline, made partly of steel and partly of wood stave pipe conveys water from the intake structure at the dam to two surge tanks. Three steel penstocks carry water from the surge tanks to the powerhouse. The powerhouse has three vertical Francis turbine generators rated at 11 MW each for a total plant capacity of 33 MW.

Approximately 0.5 miles downstream of Grace Dam, in the 6.8-mile-long bypassed reach, the Bear River cuts through a basalt bedrock layer into the Black Canyon, leading into a steep-walled section that alternates between steep cascades, plunge pools, riffles, and runs. Flows in the upper and middle reaches are similar to each other and controlled by flow regulation at Grace dam. Flows in the lower portion of the reach are 30-60 cfs higher due to inflow from five natural springs. Substrates in the bypass reach are variable and include fines to boulders, as well as bedrock, with quality spawning gravels present in the middle reach.

III. Scope of the Mid-Term Review

This targeted mid-term review evaluation included a review of the application to LIHI, documents found on the FERC eLibrary, annual LIHI compliance statements submitted during the current LIHI term, and responses to reviewer questions provided by the Owner. The review evaluated the Project's continued compliance with the current LIHI criteria affected by the FERC

license amendment. The LIHI application was submitted under Revision 2.05 of the 2nd Edition LIHI Handbook. The application indicated that only the Ecological Flow Regimes criterion is affected by the amendment; however, this review also considered the Water Quality and Downstream Fish Passage and Protection criteria within the Grace bypassed reach.

Public notice of the LIHI application was issued on March 24, 2025 and the 60-day public comment period closed on May 23, 2025 and no comments were received. However, the Project's Environmental Coordination Committee members (see footnote 2 for member list) voted unanimously to approve the final application to FERC at their January 18, 2023 meeting (see FERC amendment application Attachment C for meeting minutes and Attachment D for letters of support).

IV. Zones of Effect

The only Zone of Effect (ZoE) affected by the FERC amendment is ZoE 4 as defined in the Project's 2023 recertification application and review report. ZoE 4 is the Grace bypassed reach also known as the Black Canyon, which extends approximately 6.8 miles from Grace dam to the powerhouse.

V. Detailed Criteria Review

A. Ecological Flow Regimes

Goal: *The flow regimes in riverine reaches that are affected by the facility support habitat and other conditions suitable for healthy fish and wildlife resources.*

Assessment of Criterion: Pacificorp indicates, and I agree that Standard A-2, Agency Recommendation, is appropriate for the Grace Bypassed Reach.

Article 408(b) of the Bear River license as amended in 2006, required PacifiCorp to release a year-round minimum flow of 63 cubic feet per second (cfs) or inflow, whichever is less, plus 2 cfs of leakage. The 2024 amendment reduced the minimum flow further from 63 cfs to 48 cfs plus 2 cfs of leakage, or inflow if less.

Flows into the Grace bypass reach are a combination of the minimum flow requirement, irrigation deliveries that exceed the irrigation flowline capacity, 2 cfs from leakage at Grace dam, and inflow from five major natural springs located in the lower part of Black Canyon which adds 30 to 60 cfs of flow in that reach. Existing irrigation contracts and water rights that withdraw from the Grace Reservoir must be met prior to making minimum flow releases from the dam. Flow records in the bypass reach indicate that, on average, the lowest flows occur December through February. Higher flows occur in spring and early summer, when spring

runoff or irrigation demand exceed the maximum hydraulic capacity of the Grace development. Infrequently, higher flows also occur during scheduled whitewater flow releases.

The Grace development has two available methods to provide minimum flows and to monitor compliance with the flow requirements in the bypass reach - through a low-level bypass valve or by using one or more of the slide gates on the dam.

Flows in the bypass reach are junior to upstream irrigation water rights. During drought years or during short term seasonal transitions between irrigation and non-irrigation operations, the discharge into the Grace bypass reach could fall below 48 cfs for short periods of time if inflow is below 48 cfs. In that case, the Project would operate in a run-of-river mode with no generation and all flows would enter the bypassed reach (see Section V.C below). PacifiCorp voluntarily provides additional water from the upstream Soda Development to protect aquatic resources in the bypassed reach if inflows fall below 40 cfs such that 40 cfs continues to be released, if possible, given senior water rights and other constraints. This voluntary operation is specified in the Project's existing Operations and Compliance Plan.

Pacificorp indicates that they can more consistently provide minimum flows in the bypass reach during the winter low flow period, based on data in the FERC application[2] that shows monthly average and minimum flows discharged from Grace dam into the bypass reach exceed the new minimum flow of 48 cfs in all months. No new studies were needed as the results of prior studies and the data on discharged flows were sufficient to assess the impact of the reduced flows.

Based on the mid-term review, the Project as modified by the FERC amendment does not adversely impact river flows or aquatic habitat in the bypass reach even with the reduction of 15 cfs into the upper portion of the bypass, and therefore the Project continues to satisfy the ecological flows criterion.

B. Water Quality

Goal: *Water quality is protected in waterbodies directly affected by the facility, including downstream reaches, bypassed reaches, and impoundments above dams and diversions.*

Assessment of Criterion: This review finds that Standard B-2, Agency Recommendation, is appropriate for the Grace Bypassed Reach.

Idaho Department of Environmental Quality (DEQ) has designated beneficial uses for the Bear River in the Project area that include cold-water aquatic life, salmonid spawning, and primary contact recreation. The Project area is listed on the state's 2024 draft 303d list for impaired

[2] Table 3, although the LIHI submittal incorrectly calls it Table 2.

waters.[3] Impairments include flow modification (category 4c), total suspended solids (TSS) and total phosphorus (Total P), (category 4a), and temperature (category 5). TMDLs are in place for TSS and Total P.

Temperatures in the Bear River often exceed state water quality thresholds for cold water aquatic life and salmonid spawning. In 2009, Idaho DEQ determined that the Grace development did not contribute to these impairments based on water quality monitoring that had been conducted under the Project's Water Quality Certification (WQC). Furthermore, the DEQ confirmed via email in 2023 (see Appendix A) that the reduction in minimum flows in the Grace bypass reach as part of the new FERC amendment did not require modification of the 2003 WQC or a new WQC to be issued for the Bear River Project, thus the 2003 WQC remains valid and in effect.

The FERC Environmental Assessment (EA) for the amendment determined the reduced minimum flow would not adversely affect the water quality conditions in the Grace bypass reach or the Grace tailrace and could slightly improve temperature conditions at the downstream end of the bypass reach due to the greater influence of the natural springs that occur in that section. FERC also determined that the reduced minimum flows would not affect TSS and Total P conditions in the Grace bypass reach or tailrace since there would be no additional disturbance of the channel and no addition of nutrients as a result of the change. The flow fluctuations in the Bear River would remain within the current range.

Based on the mid-term review, the Project as modified by the FERC amendment remains in compliance with water quality requirements, does not contribute to existing water quality impairments, and therefore continues to satisfy the water quality criterion.

C. Downstream Fish Passage and Protection

Goal: *The facility allows for the safe, timely, and effective downstream passage of migratory fish. For riverine (resident) fish, the facility minimizes loss of fish from reservoirs and upstream river reaches affected by facility operations. Migratory species can successfully complete their life cycles and maintain healthy populations in the areas affected by the facility.*

Assessment of Criterion: This review finds that Standard D-1, Not Applicable/De Minimis Effect, is appropriate for the Grace Bypassed Reach.

There are no migratory species in the Project area. Relicensing studies indicated that most of the sportfish species in the Grace bypass (e.g., the salmonids, smallmouth bass, walleye, and yellow perch) are located in the lower half of the reach in the vicinity of the springs. BCT could

[3] Segment D16010202BR009_06 from Alexander reservoir at Soda to Densmore Creek downstream of Grace. See https://mapcase.deq.idaho.gov/wq2024/scripts/adb2024.aspx?WBIDSEGID=ID16010202BR009_06

seasonally inhabit the Grace bypass and downstream reach. Due to restoration efforts enacted since relicensing, populations of BCT are currently found in Bear River tributaries downstream of the Grace bypass and tailrace area.

Pacificorp reported that they consulted with the resource agencies about the potential environmental impacts associated with the minimum flow reduction and the parties to the amendment settlement agreed that reducing minimum flows from 63 cfs to 48 cfs will not significantly impact aquatic resources. The parties also agreed that the benefits expected from decommissioning the Paris Project and enhancing or restoring cold-water habitat at Paris Creek substantially exceed any insignificant impact that the proposed reduction of minimum flows at the Grace bypassed reach might have on aquatic resources.

This mid-term review finds that with reduced minimum flows into the bypass reach the Project still has little to no impact on downstream fish passage and protection. Pacificorp's ongoing mitigation measures meet or exceed the benefits that could be provided by fish passage measures and are unchanged by the FERC amendment. Therefore, the Project continues to satisfy this criterion

VI. Conclusions and Recommendation

The FERC amendment and Paris Creek Restoration Agreement prioritized providing high quality aquatic habitat for Bonneville Cutthroat Trout and other species at Paris Creek over the bypass minimum flows onsite at the Grace development. While the agreement constitutes a tradeoff in resource values, the resulting impact from reduced minimum flows is minimal.

Therefore, this review determined that the Bear River Project continues to satisfy the LIHI criteria affected by the FERC amendment, and the Project should be recertified for a new 13-year term which includes the current PLUS standard for the shorelines and watershed criterion.

There are no conditions attached to the current LIHI Certificate and no new conditions are recommended.

APPENDIX A

From: Jennifer Cornell <Jennifer.Cornell@deq.idaho.gov>
Sent: Wednesday, August 9, 2023 3:58 PM
To: Stenberg, Mark (PacifiCorp) <Mark.Stenberg@pacificorp.com>
Subject: [INTERNET] RE: Bear 401 Cert. Verification

THIS MESSAGE IS FROM AN EXTERNAL SENDER.
Look closely at the **SENDER** address. Do not open **ATTACHMENTS** unless expected. Check for **INDICATORS** of phishing. Hover over **LINKS** before clicking. Learn to spot a phishing message
Hi, Mark,

IDEQ confirms the 401 Certification issued in 2003 for PacifiCorp's Bear River Hydroelectric Projects is still valid and all terms and conditions therein remain valid.

Thank you,

Jen

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