

**Supplement Analysis**  
for the  
**Columbia River Basin Tributary Habitat Restoration**  
**Programmatic Environmental Assessment**  
(DOE/EA 2126/SA-17)

**Upper Big Springs Pond Habitat Improvement Project**  
Bonneville project number 2010-072-00  
Bonneville contract number 76913 rel 26

Bonneville Power Administration  
Department of Energy



**Introduction**

In December 2020, Bonneville Power Administration (Bonneville) and the Bureau of Reclamation completed the *Columbia River Basin Tributary Habitat Restoration Programmatic Environmental Assessment* (DOE/EA 2126) (Programmatic EA). The Programmatic EA analyzed the potential environmental impacts of implementing habitat restoration actions in the Columbia River Basin and its tributaries.

Consistent with the Programmatic EA, this Supplement Analysis (SA) analyzes the effects of the *Upper Big Springs Habitat Improvement Project* (project) that would implement many of the specific restoration actions assessed in the Programmatic EA in the Lemhi River valley in Lemhi County, Idaho. The objectives are to increase in-stream habitat diversity; reduce water temperatures; and improve riparian and floodplain vegetative diversity for the benefit of Endangered Species Act-listed salmonids. This SA analyzes the site-specific impacts of the *Upper Big Springs Habitat Improvement Project* to determine if the project is within the scope of the analysis considered in the Programmatic EA. It also evaluates whether the proposed project presents significant new circumstances or information relevant to environmental concerns that were not addressed by the EA. The findings of this SA determine whether additional National Environmental Policy Act (NEPA) analysis is needed pursuant to 40 Code of Federal Regulations (CFR) § 1502.9(d).

**Proposed Action**

Bonneville would fund the Lemhi Regional Land Trust to implement the *Upper Big Springs Habitat Improvement Project*. The project would extend for approximately 0.6 miles along Big Springs Creek near the town of Leadore approximately 5 miles upstream from the creek's confluence with the Lemhi River, at Lemhi river mile 52.7. Big Springs Creek is a spring-fed channel collecting groundwater and minor amounts of surface runoff from the south, and has been heavily impacted by historical grazing and agricultural practices that have eliminated most of the riparian vegetation (no woody vegetation along the stream banks), increased channel width, and decreased channel depth. Project objectives are to increase instream hydraulic diversity and velocity gradients; increase pool size and frequency; increase instream cover and interstitial space along the stream banks; reduce width-to-depth ratio where over widened; and create a vegetatively-dense riparian corridor with associated shading of the stream.

The project would occur on private lands and would excavate 95 pools (average 1-2 feet deep, 25 feet long, 3 feet wide), about 4,850 feet of channels, and approximately 3.26 acres of adjacent floodplain to create meanders and establish a desired width-to-depth ratio. Wetland sod would be transplanted from areas to be excavated and placed along newly established streambanks. The project would install post-line willow-weave fences (PLWWF) that would perform like beaver dams that fully or partially span the creek. Willow banks (a section of streambank with transplanted willows placed horizontally and continuously along that section of bank) would be constructed, and willow clumps would be transplanted to the anchor points of the PLWWFs. The project area would be seeded to native grasses and forbs. Fencing to protect the riparian area from over-grazing by livestock would be constructed

around the project area. The project would be implemented in the fall of 2021 and require approximately 12 weeks to construct. The environmental effects of these types of restoration actions were evaluated in the Programmatic EA as discussed below.

This Proposed Action fulfills commitments under the 2020 National Marine Fisheries Service (NMFS) Columbia River System Biological Opinion and would support conservation of Endangered Species Act-listed species considered in the 2020 Endangered Species Act consultation with the US Fish and Wildlife Service on the operation and maintenance of the Columbia River System.

### **Environmental Effects**

The implementation of this project would require the use of a track-mounted excavator for excavating ponds and channels, and salvaging and transplanting of wetland sod and willow clumps; and for constructing the willow banks. The construction of PLWWFs, final fence reconstruction, and seeding would all be conducted by hand. To protect aquatic species and provide fish passage during these construction activities, a bypass channel would be constructed and the creek temporarily rerouted into it. Fish and aquatic species would be salvaged from the original channel (following NMFS guidelines<sup>1</sup>) and translocated downstream of the in-stream work area.

All of these restoration actions during construction would disturb and displace soil in and along the stream; damage vegetation; create noise and vehicle emissions; stress handled fish, and temporarily increase vehicle traffic and human activity in the project area. The typical effects associated with the environmental disturbances created by these actions are described in Chapter 3 of the Programmatic EA, and are incorporated by reference and summarized in this document.

Below is a description of the potential site-specific effects of the *Upper Big Springs Habitat Improvement Project*, and an assessment of whether these effects are consistent with those described in the Programmatic EA. This project is designed to improve both aquatic and riparian habitats for the long term, so the adverse effects from soil and vegetation disturbance, and from human and mechanical activity, as detailed below, would be short-term only.

#### ***1. Fish and Aquatic Species***

The effects of using mechanized equipment and manually working in and along Big Springs Creek are consistent with the analysis in the Programmatic EA, Section 3.3.1, "*Fish and Aquatic Species*". The Programmatic EA, Section 3.3.1.3, "*Effects Conclusion for the Proposed Action on Fish and Aquatic Species*", describes overall low impacts to fish and aquatic species after considering moderate short-term adverse effects and beneficial long-term effects.

Three species listed under the Endangered Species Act are present in the project area: Snake River spring/summer Chinook salmon (part of the Upper Salmon Major Population Group), Snake River steelhead (part of the Salmon River Major Population Group), and bull trout. Consultation on the effects of this project on these species was completed under Bonneville's programmatic Fish and Wildlife Habitat Improvement Program (HIP4) consultation with the conclusion that the project would likely adversely affect these species and their critical habitat in the short term but would not likely result in jeopardy to the species or result in destruction or adverse modification of their critical habitat.

The short-term adverse effects of the Proposed Action would expose, displace, reconfigure, or compact earth through the use of mechanized equipment within and along Big Springs Creek, and likely create conditions where sediment would be released for a short period of time following construction activities. The amount of sediment anticipated by the Proposed Action would be moderate because there would be instream excavation, dewatering, and reintroduction of flows over newly exposed soils and gravels. However, mitigation measures as detailed in the Programmatic EA, Appendix B for work area isolation and fish salvage would be applied, minimizing these impacts. The sediment inputs would be consistent with the amounts evaluated in the Programmatic EA at Section 3.3.1.2.1, "*Short-Term Effects to Fish and Aquatic Species from Construction Activities*".

The work area isolation, fish salvage, dewatering, and instream construction activity would displace fish from the work area until the work area is re-watered. Small aquatic organisms that could not be practically salvaged would

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<sup>1</sup> NMFS. 2011. Anadromous salmonid passage facility design. Northwest Region. Available online at: [http://www.habitat.noaa.gov/pdf/salmon\\_passage\\_facility\\_design.pdf](http://www.habitat.noaa.gov/pdf/salmon_passage_facility_design.pdf)

likely be destroyed. The newly constructed in-stream environment would be re-colonized by fish and other aquatic organisms with near-full recovery likely in a matter of weeks, and full recovery likely following the first seasonal flushing flows. The anticipated amount of activity and the level of aquatic species disturbance, however, is consistent with the analysis in the Programmatic EA found at Section 3.1.3.1, “*Dewatering for Instream Work*” and 3.3.1.2.1, “*Short-Term Effects to Fish and Aquatic Species from Construction Activities*”, where direct, harmful, and sometimes fatal impacts to aquatic species are disclosed; and that movement, sounds, and vibrations of human and mechanical activity are discussed as likely to disturb fish and displace them from their preferred habitat for as long as that movement, sound, and vibration are present.

The project’s long-term beneficial effects include creation of more complex habitats through the addition of meanders, pools, and woody streamside vegetation to the stream and adjacent riparian areas (where none currently exists); reduction of long-term sediment inputs by streamside stabilization and streamside plantings (where only grasses and sedges now dominate); and the enhancement of in-stream habitat complexity over time by providing PLWWFs, and overhanging vegetation (willow transplants) and undercut streambanks (willow banks) enabled by in-channel root systems (where none now exist). These beneficial effects are consistent with the analysis in the Programmatic EA found at Section 3.3.1.2.2.2, “*River, Stream, Floodplain, and Wetland Restoration and Channel Reconstruction (Category 2) Effects on Aquatic Species*”.

## **2. Water Resources**

The effects of using mechanized equipment and manually working in and along Big Springs are consistent with the analysis in the Programmatic EA in Section 3.3.2, “*Water Resources*”. The Programmatic EA, Section 3.3.2.3, “*Effects Conclusion for the Proposed Action on Water Resources*”, describes overall low impacts to water quality after considering moderate short-term adverse effects and beneficial long-term effects.

There would be no effect to water quantity, as this project would have no water withdrawals.

Overall, this project would create short-term, localized, sediment inputs from reintroducing stream flows onto exposed soils in the newly created channels, meanders, and excavated pools that were constructed while the stream was dewatered. This is a temporary impact that may last a few hours. As described in the Programmatic EA, this impact would be lessened by the application of mitigation measures such as slow, or staged, re-watering and close monitoring to keep sediment below 50 NTU<sup>2</sup> as much as possible. The long-term effects of this project, however, would be a decreased potential for unnatural sediment inputs, an increased potential for the floodplain to effectively manage its sediment loads, and a reduction of stream temperatures from improved stream form, instream habitat structure, and increased riparian vegetative cover. The short-term adverse effects and long-term beneficial effects are consistent with those described in the Programmatic EA.

## **3. Vegetation**

The effects of using mechanized equipment and manually working in and along Big Springs are consistent with the analysis in the Programmatic EA Section 3.3.3, “*Vegetation*”. The Programmatic EA, Section 3.3.3.3, “*Effects Conclusion for the Proposed Action on Vegetation*”, describes overall moderate impacts to vegetation after considering moderate short-term adverse effects and beneficial long-term effects. No plant species listed under the Endangered Species Act are present within this project area.

This project is anticipated to have impacts consistent with that described in the Programmatic EA. Constructing bypass channels, new channels, and new meanders would remove vegetation from those sites, though all impacted sites would be planted or seeded. Wetland sod would be salvaged and transplanted, as would willows from the few patches nearby. The Programmatic EA in Section 3.3.3.2, “*Environmental Consequences for Vegetation*”, evaluated constructed features that could disturb over 50 acres, but the area impacted by this action would likely be only about 15 acres. Impacts to vegetation would also include trampling of herbaceous vegetation by mechanized equipment and human foot traffic (from which the vegetation would be anticipated to recover well); by the cutting of willow branches to construct PLWWFs and willow banks (from which the willows are anticipated to recover fully); and by the transplanting of entire willow clumps from existing large willow patches not providing instream habitat benefit

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<sup>2</sup> Nephelometric Turbidity Units, abbreviated as “NTU”, is a measure of light reflectivity in water caused by turbidity. The higher the number, the greater the turbidity.

to streamside areas where they would. The completed project area would be hydroseeded and planted with native riparian shrubs. This level of effect would be moderate, consistent with those described in the Programmatic EA.

#### **4. Wetlands and Floodplains**

The effects of using mechanized equipment and manually working in and along Big Springs Creek are consistent with the analysis in the Programmatic EA, “*Wetlands and Floodplains*”, Section 3.3.4. The Programmatic EA, Section 3.3.4.3, “*Effects Conclusion for the Proposed Action on Wetlands and Floodplains*”, describes overall low impacts to wetlands and floodplains after considering short-term adverse effects and beneficial long-term effects.

This project is anticipated to have impacts similar to that that described in the Programmatic EA. With this project, there would be short-term (weeks) adverse effects to floodplains and wetlands, as there would be acres of earth-moving in riparian and floodplain wetlands (for which Clean Water Act Section 401 and 404 permits have been issued to the Lemhi Regional Land Trust), and temporary dewatering of the stream channel. Consistent with the Programmatic EA, there would be long-term beneficial effects from implementation of this project. It would create conditions in this stream reach with greater meander, increased connectivity to the floodplain, improved ground water exchange, and more diverse wetland vegetative conditions. These would increase the amount and quality of wetlands in the project area. This level of effect would be low after considering short-term adverse effects and beneficial long-term effects, as is stated in the Programmatic EA.

#### **5. Wildlife**

The effects of using mechanized equipment and manually working in and along Big Springs are consistent with the analysis in the Programmatic EA Section 3.3.5, “*Wildlife*”. The Programmatic EA, Section 3.3.5.3, “*Effects Conclusion for the Proposed Action on Wildlife*”, describes overall low impacts to wildlife after considering short-term adverse effects and beneficial long-term effects. No wildlife species listed under the Endangered Species Act are present within this project area.

The short-term effects from this project would be consistent with, though less than, those analyzed in the Programmatic EA. There would be approximately 15 acres of vegetative (wildlife habitat) disturbance, whereas the Programmatic EA evaluated disturbances of 50 acres or more. The actions of humans and machines in this area would temporarily displace wildlife from their preferred haunts and prevent them from reoccupying the site until construction activity has ceased; and the habitat to which they returned would be more diverse hydrologically, but likely much as they left it vegetatively. It would take a couple of years for the transplanted and newly planted vegetation to provide the increased wildlife habitat value intended. Over time, however, the habitat values along Big Springs Creek would be improving over its pre-project condition, with increasing woody vegetation diversity and abundance, with the capability to support more wildlife and higher species diversity. This level of effect would be low after considering short-term adverse effects and beneficial long-term effects, as is stated in the Programmatic EA.

#### **Geology and Soils**

The effects of using mechanized equipment and manually working in and along Big Springs are consistent with the analysis in the Programmatic EA, Section 3.3.6, “*Geology and Soils*”. The Programmatic EA, Section 3.3.6.3, “*Effects Conclusion for the Proposed Action on Geology and Soils*”, describes moderate impacts to geology and soils.

This project is anticipated to have impacts consistent with that described in the Programmatic EA. Constructing bypass channels, new channels, and new meanders would require excavation and thus would cause soil displacement, compaction, and the mixing of soil horizons. The Programmatic EA in Section 3.3.3.2, “*Environmental Consequences for Vegetation*”, evaluated construction actions that could disturb “generally less than 20 acres at any one site”<sup>3</sup>, but with some “exceeding 50 acres”<sup>2</sup>. The area impacted by this action would likely be only about 15 acres. Design criteria, mitigation measures, and best management practices would all be applied as described in the Programmatic EA Section 2.4, “*Mitigation Measures and Design Criteria*” to minimize impacts and maintain long-term productivity of soils.

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<sup>3</sup> Programmatic EA section 3.3.2.2, “*Environmental Consequences for Vegetation*”, page 99.

The project does not specifically target soils for restoration or enhancement (as it does fish habitat and hydrologic functions), but it does have the capacity to maintain and improve soil properties and functions as it restores hydrologic function and vegetative conditions within the floodplain. The level of effect would be moderate, consistent with the effect level described in the Programmatic EA.

## **6. Transportation**

The effects of this project in and along Big Springs Creek are consistent with the analysis in the Programmatic EA Section 3.3.7, “*Transportation*”. The Programmatic EA, Section 3.3.7.3, “*Effects Conclusion for the Proposed Action on Transportation*”, describes low impacts to transportation.

This project, though adjacent to Idaho State Highway 28 in the Lemhi Valley, would not impact any roads, neither open or closed, nor public or private. No roads would be closed; none would be temporarily blocked; none would be relocated. No work would be conducted from the highway or its shoulders. The most effect the project would have on transportation would be that vehicles transporting workers and equipment to project sites would be sharing local roads with other traffic during construction. This level of impact would be low, as is stated in the Programmatic EA.

## **7. Land Use and Recreation**

There would be no effect on land use or recreation from this proposed project. Land uses would not change; and public recreational opportunity on this private land (of which there is none because the lands are not open to public use) would not change. This level of effect is consistent with that described in the Programmatic EA at Section 3.3.8.3, “*Effects Conclusion for the Proposed Action on Land Use and Recreation*”, which states that land use practices underlying project sites would not be changed for most projects.

## **8. Visual Resources**

The effects of the proposed project in and along Big Springs Creek are consistent with the analysis in the Programmatic EA Section 3.3.9, “*Visual Resources*”. The Programmatic EA, Section 3.3.9.3, “*Effects Conclusion for the Proposed Action on Visual Resources*”, describes low impacts to visual resources.

The proposed restoration actions are immediately adjacent to Idaho State Highway 28, and all activities would be readily visible to travelers along this route. As described in the Programmatic EA Section 3.3.9.2, “*Environmental Consequences for Visual Resources*”, there would be short-term visual impacts. The construction actions that produce bare soils would be highly visible and likely detract from the otherwise pastoral scenery elsewhere along this highway until the newly planted grasses, forbs, and shrubs begin to visually restore the setting. This visible effect would last for only a few weeks between mid-July and late August, in only one year. When construction is complete, the river would appear natural and the project site would look like a plowed or mowed field for the remainder of the construction year, or until the seeded grasses and forbs sprout. Full green up would be likely in the following year, and the entire area would again provide the pastoral scenery as seen elsewhere along this highway. This level of impact would be low, as is stated in the Programmatic EA.

## **9. Air Quality, Noise, and Public Health and Safety**

The effects of the proposed project in and along Big Springs are consistent with the analysis in the Programmatic EA, Section 3.3.10 “*Air Quality, Noise, and Public Health and Safety*”. The Programmatic EA, Section 3.3.10.3, “*Effects Conclusion for the Proposed Action on Air Quality, Noise, and Public Health and Safety*”, describes low impacts to air quality, noise, and public health and safety.

This project is about 1.75 miles from the small town of Leadore, Idaho, which is too far for noise, dust, or exhaust from construction activities to affect the residents during the few weeks of construction activities; and no long-term source of emissions or noise would be created. Impacts to safety would come from workers sharing the roads when travelling to and from work sites; and the visual distraction that construction work so close to the highway might pose to passing motorists. This project has no potential to impact public safety infrastructure (e.g. roads, telecommunications) or place a burden on emergency services (police, fire, ambulance). This level of impact would be low, as is stated in the Programmatic EA.

## ***10. Cultural Resources***

The effects of this project is consistent with the analysis in the Programmatic EA Section 3.3.11, “*Cultural Resources*”. The Programmatic EA, Section 3.3.11.3, “*Effects Conclusion for the Proposed Action on Cultural Resources*”, describes low impacts to cultural resources potential effects would be appropriately resolved through the Section 106 consultation process.

A cultural resource survey was conducted, and consultations with the Idaho State Historic Preservation office, the Shoshone-Bannock Tribes, and the Nez Perce Tribe were completed for the area potentially affected by the project. The results of that survey and consultation with the Idaho State Historic Preservation Office were that State Highway 28 (eligible for the National Register of Historic Places) is in the project area, but the project would have no adverse effect to it. The remains of an early modern home site with refuse scatter were also identified in the survey, but it was determined to be ineligible for the National Register of Historic Places. The Idaho State Historic Preservation Office concurred on September 21, 2021 that the project would have no adverse effect to historic properties. The Nez Perce Tribe notified Bonneville on August 27, 2021 that they had no comment, and no response was received from the Shoshone-Bannock Tribes.

## ***11. Socioeconomics and Environmental Justice***

The effects of this restoration project along Big Springs Creek are consistent with the analysis in the Programmatic EA, “*Socioeconomics and Environmental Justice*”, Section 3.3.10. The Programmatic EA, Section 3.3.10.3, “*Effects Conclusion for the Proposed Action on Socioeconomics and Environmental Justice*”, describes low impacts to socioeconomics and environmental justice.

As described in the Programmatic EA, the Proposed Action would not generate a requirement for additional permanent employees nor would it require individuals to leave the local area, or relocate to it. There would be no effect on housing available for local populations. This project would not displace people or eliminate residential suitability of lands being restored, or from lands near it. The project would generate short-term employment for those directly implementing the restoration actions and would provide small short-term cash inputs to local businesses for fuel, equipment, and meals. This degree of effect would be low.

There are no environmental justice populations present that could be affected, as this project and their impacts are limited to the private lands on which they are located, and no offsite effects are anticipated that could impact such populations elsewhere.

## ***12. Climate Change***

The effects of this project in and along Big Springs are consistent with the analysis in the Programmatic EA Section 3.3.10, “*Climate Change*”. The Programmatic EA, Section 3.3.10.3, “*Effects Conclusion for the Proposed Action on Climate Change*”, describes low impacts to climate change.

Due to the short duration of construction (approximately twelve weeks) and the relatively small number of construction vehicles, temporary emissions associated with project construction are anticipated to be well below the Environmental Protection Act’s reporting threshold of 25,000 metric tons of carbon and, therefore, the project would have a low level of effect on climate change from short-term emissions from motorized equipment operations during implementation of the restoration actions. Further, these would be offset to some degree by the ameliorating effects of restored floodplain function such as increased water table inputs, increased carbon sequestration in expanded and improved riparian wetlands, and decreased water temperatures from improved instream and riparian habitat conditions. The overall effects on climate change would be low, which is consistent with the Programmatic EA.

## **Findings**

Bonneville finds that the types of actions and the potential impacts related to the proposed *Big Springs Habitat Project* were examined, reviewed, and consulted upon and are similar to those analyzed in the *Columbia River Basin Tributary Habitat Restoration Programmatic Environmental Assessment* (DOE/EA 2126) and Finding of No Significant Impact. There are no substantial changes in the Proposed Action and no significant new circumstances or information relevant to environmental concerns bearing on the Proposed Action or its impacts within the meaning of 10 CFR § 1021.314(c)(1) and 40 CFR §1502.9(d). Therefore, no further NEPA analysis or documentation is required.

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