



— BUREAU OF —  
RECLAMATION

# **Final Environmental Assessment**

## **Anderson Ranch Dam Turbine Modernization Project**

**Elmore County, Idaho**

**Columbia-Pacific Northwest Region**

## **Mission Statements**

The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated Island Communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

## Acronyms and Abbreviations

Acronym or Abbreviation	Definition
BLM	Bureau of Land Management
BMPs	Best Management Practices
B.P.	Before Present
° C	Degrees Celsius
CCE	Cat Creek Energy
cfs	Cubic feet per second
CFR	Code of Federal Regulations
DOI	Department of the Interior
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
° F	Degrees Fahrenheit
FERC	Federal Energy Regulatory Community
FONSI	Finding of No Significant Impact
HD	Highway District
IDEQ	Idaho Department of Environmental Quality
IDFG	Idaho Department of Fish and Game
IPaC	Information for Planning and Conservation
ITAs	Indian Trust Assets
LOPP	Lease of Power Privilege
MBTA	Migratory Bird Treaty Act
NEPA	National Environmental Policy Act
Reclamation	Bureau of Reclamation
SGCN	Species of Greatest Conservation Need
SHPO	State Historic Preservation Office
SWAP	State Wildlife Action Plan
TSS	Total Suspended Solids
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service

Acronym or Abbreviation	Definition
USGS	United States Geologic Survey

# Table of Contents

<b>Chapter 1</b>	<b>Purpose and Need .....</b>	<b>1</b>
1.1	Introduction .....	1
1.2	Location, Background, and Action Areas .....	1
1.2.1	Location and Background .....	1
1.2.2	Additional Actions in the Area .....	3
1.3	Purpose and Need.....	4
1.4	Regulatory Compliance .....	4
1.5	Scoping Summary .....	5
<b>Chapter 2</b>	<b>Description of Alternatives .....</b>	<b>6</b>
2.1	Introduction .....	6
2.2	Alternative Development.....	6
2.3	Alternative A – No Action.....	6
2.4	Alternative B – Turbine Overhaul and Modernization (Proposed Action) .....	6
2.4.1	Alternative B1 – Turbine Overhaul and Modernization Funded for Unit No. 2	7
2.4.2	Alternative B2 – Turbine Overhaul and Modernization Funding Unit No. 1	8
2.5	Alternatives Considered but Eliminated from Further Study.....	9
<b>Chapter 3</b>	<b>Affected Environment and Environmental Consequences .....</b>	<b>10</b>
3.1	Introduction .....	10
3.2	Biota – Vegetation, Wetlands, Fish and Wildlife .....	10
3.2.1	Affected Environment .....	10
3.2.2	Environmental Consequences .....	13
3.3	Threatened and Endangered Species.....	14
3.3.1	Introduction and Analysis Area.....	14
3.3.2	Affected Environment .....	14
3.3.3	Environmental Consequences .....	16
3.4	Hydrology .....	17
3.4.1	Affected Environment .....	17
3.4.2	Environmental Consequences .....	18
3.5	Water Quality .....	19
3.5.1	Affected Environment .....	19

3.5.2	Environmental Consequences .....	20
3.6	Cultural Resources.....	21
3.6.1	Affected Environment .....	21
3.6.2	Environmental Consequences .....	23
3.7	Indian Sacred Sites .....	25
3.7.1	Affected Environment .....	25
3.7.2	Environmental Consequences .....	26
3.8	Tribal Interests.....	26
3.8.1	Indian Trust Assets .....	26
3.8.2	Treaty Rights.....	28
3.9	Transportation.....	30
3.9.1	Affected Environment .....	30
3.10	Environmental Justice .....	33
3.10.1	Affected Environment .....	33
3.10.2	Environmental Consequences .....	34
3.11	Recreation.....	35
3.11.1	Affected Environment .....	35
3.11.2	Environmental Consequences .....	35
<b>Chapter 4</b>	<b>Consultation and Coordination .....</b>	<b>37</b>
4.1	Agency Consultation and Coordination .....	37
4.1.1	National Historic Preservation Act.....	37
4.1.2	Endangered Species Act .....	37
4.2	Tribal Consultation and Coordination.....	38
<b>Chapter 5</b>	<b>References .....</b>	<b>39</b>

## List of Figures

Figure 1. Project locations.....	2
Figure 2. Staging areas .....	8
Figure 3. HD-131 Detour for Alternative B2 .....	9
Figure 4. South Fork Boise River Anderson Ranch Dam operations from 2000 to 2020...	17
Figure 5. Anderson Ranch Dam Spillway water release point and volumes.....	18

## List of Tables

Table 1. Total dissolved solids and turbidity concentration average, median, maximum, minimum, and sample numbers for Anderson Ranch Reservoir and the South Fork Boise River from 2001 through 2017.....	20
Table 2. Construction traffic expected from mid-August to May 1 .....	31
Table 3. Truck/trailer traffic expected from mid-August to May 1.....	32
Table 4. 2019 Summary of Racial and Ethnic Minority Distribution in Idaho and Elmore County.....	33
Table 5. 2019 Income and Poverty Status & 2020 Unemployment Status for Elmore County and the State of Idaho.....	34

## Appendices

Appendix A - Information for Planning and Conservation Report	
Appendix B - Cultural Resources and Sacred Sites Consultation with State Historic Preservation Office and Shoshone-Bannock Tribes	
Appendix C - Scoping Documents, Mailing List, and Scoping Comments Received	

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# **Chapter 1 Purpose and Need**

## **1.1 Introduction**

The Bureau of Reclamation (Reclamation) prepared this Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA). This EA analyzes the potential environmental effects that could result from the proposed construction activities associated with the Anderson Ranch Dam Turbine Modernization Project.

This EA serves as a tool to aid the authorized official in making an informed decision that is in conformance with applicable Federal laws and regulations. The proposed action and additional alternatives are described in Chapter 2 of this document, and the effects (short-term and long-term, adverse and beneficial, and public health and safety and effects that would violate Federal, State, Tribal, or local laws protecting the environment) of each alternative are evaluated for each of the affected resource areas in Chapter 3 of this document.

The NEPA process requires analysis of any Federal action that may have an impact on the human environment. This EA is being prepared to assist Reclamation in finalizing a decision on the proposed action, and to determine whether to issue a Finding of No Significant Impact (FONSI) or a notice of intent to prepare an Environmental Impact Statement (EIS).

## **1.2 Location, Background, and Action Areas**

### **1.2.1 Location and Background**

The proposed project is located 28 miles northeast of the City of Mountain Home in Elmore County, Idaho. The dam, constructed in 1954, is situated on the South Fork Boise River and is a major feature of the Boise Project (Figure 1). Anderson Ranch Dam is a zoned earthfill embankment that impounds Anderson Ranch Reservoir, with a crest length of 1,350 feet. Anderson Ranch Reservoir is formed in a natural depression along the South Fork Boise River. The reservoir has an active storage capacity of 413,074 acre-feet at reservoir water surface elevation 4196 feet above sea level. The authorized purposes for Anderson Ranch Dam are irrigation water supply, power development, and flood control, with dead storage space providing for silt control, conservation of fish, and recreation. Anderson Ranch Reservoir stores water from the 980-square-mile drainage area above the dam.

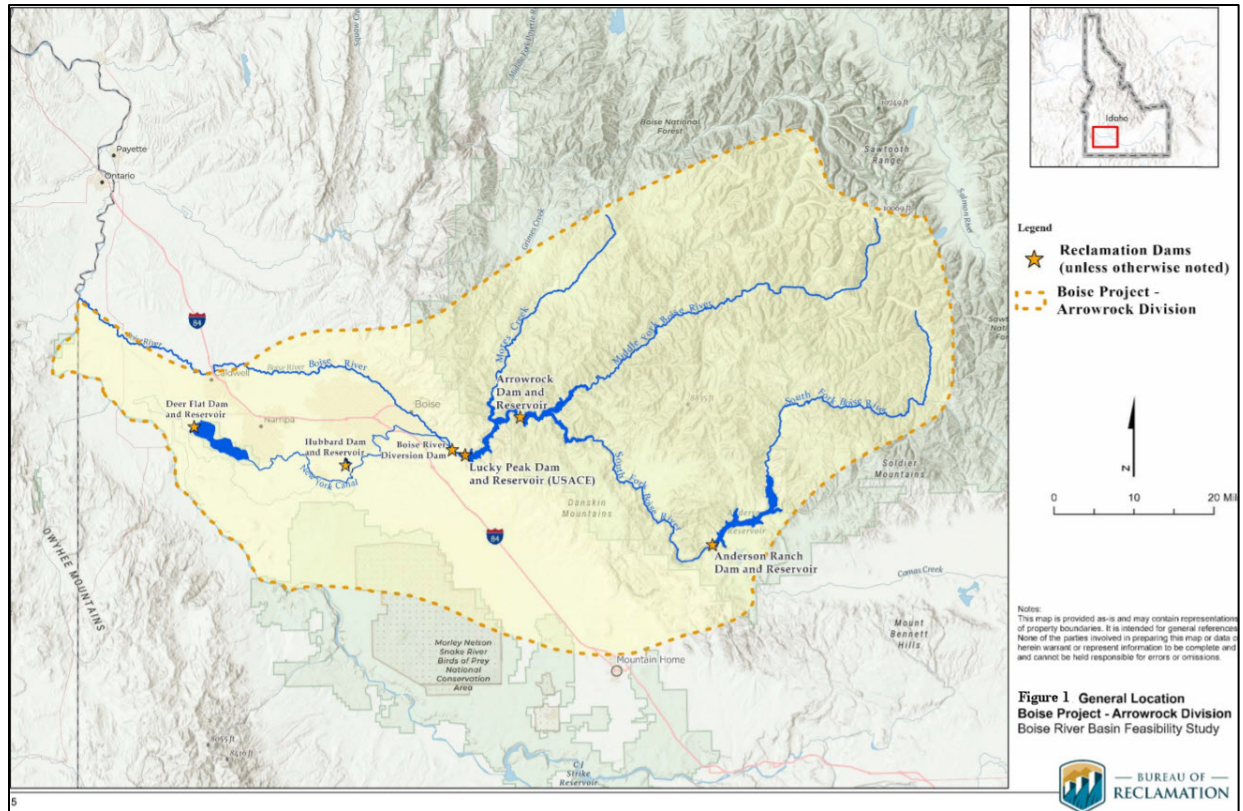


Figure 1. Project locations

Anderson Ranch Powerplant consists of two Francis turbine generating units installed in 1950 and 1951. While both generating units were uprated from 13 to 20 megawatts in 1986, the existing turbine runners remain original. Cracking on the runner buckets was first identified in 1993. In 2017, due to the increase in crack propagation, Reclamation voluntarily imposed an operational limitation of no less than 50 percent gate opening in an effort to prevent additional damage, with the intent of replacing unit No. 2 runners in 2018 and replacing unit No. 1 runners in 2019. The replacement has not been completed due to funding limitations.

During the annual inspection of the units in October 2019, extensive crack propagation was found. Reclamation engineers determined the unit to be unsafe to operate until a proper repair or replacement could occur. In early 2020, Reclamation established an interagency agreement with Tennessee Valley Authority to perform welding repairs of the runner blades on unit No. 2. This repair work was performed on bucket Nos. 3, 10, 11, 12, and 13. Unit No. 2 was placed back into operational status and Reclamation maintained the 50 percent restriction in which the unit had been previously operated, with additional monitoring for vibration. Unit No. 2 buckets were re-inspected during the 2020 annual inspection, and crack propagation was evident again on bucket No. 12. The inspection team also noted a crack on unit No. 1, bucket No. 4 on the high-pressure side; however, the crack does not appear to have developed through the blade to the low-pressure side.

The 2021 annual inspection revealed that unit no. 1, bucket no. 4 crack has propagated through the blade thickness. Reclamation determined the crack does not require weld repairs at this time. Inspection on unit no. 2 indicated no noticeable changes from those previously noted in 2020. The

limitation set on the plant's operation configuration has led to an increase wear on unit no. 1 and is verified by the decrease in damage to unit no. 2. Reclamation plans to continue annual crack inspections and monitoring of each unit runner.

### **1.2.2 Additional Actions in the Area**

The following actions would occur within the proximity of the proposed action described in Section 2.4. Any overlapping effects and their consequences are presented and analyzed within Chapter 3 by specific resource.

#### ***Anderson Ranch Dam Raise***

The project action consists of Reclamation raising Anderson Ranch Dam by 6 feet, adding 29,000-acre feet of additional potential water storage. The following structural modifications at the dam would accommodate the increased full pool elevation:

- Demolish the existing spillway crest structure and bridge and construct in place.
- Construct a new dam crest structure in place.
- Remove, rehabilitate, and re-install existing radial gates.
- Restore the two-lane road across the dam.
- Widen the right abutment (northern side) to improve the turning radius for traffic.
- Elevate the fixed-wheel gate house electronic controls.

Additionally, the project would inundate an estimated 146 acres of land around the reservoir above the current full pool elevation. This inundation would necessitate the resources within this boundary to be moved above the new high-water mark. The closure of the dam crest during construction would cause Anderson Dam Road (HD-134) to be temporarily inaccessible to the public. An alternative route along Cow Creek Road (HD-131) would be used during this time. The construction of this project is currently planned to begin in fall 2025 and last for approximately 4 years.

#### ***South Fork Boise River Diversion Project***

The project, proposed by Elmore County, would consist of pumping up to 200 cubic feet per second (cfs) of excess natural flow from the South Fork Boise River within Anderson Ranch Reservoir to Little Camas Reservoir by way of a pump station. From Little Camas Reservoir, this water would be conveyed through the existing Mountain Home Irrigation District canal to the divide between the South Fork Boise River drainage and the Long Tom Creek drainage, to be used to support groundwater recharge lower in the Long Tom Creek drainage basin. Idaho Department of Water Resources issued a 10,000-acre-foot water right permit to the Elmore County Board of Commissioners with the intent of pumping excess water out of Anderson Ranch Reservoir, as previously described, into Little Camas Reservoir for storage. Pumping would occur in late spring. The project would be located at Anderson Ranch Reservoir at the northwest quarter section of Section 7 of Township 1S, Range 8E of U.S. Forest Service property. The above-ground pump station would be equipped with 12 2,000 horsepower pump/motors and is proposed by Elmore County Board of Commissioners. The timing for construction of this project is currently less certain but could overlap with the construction timing of additional Anderson Ranch Dam projects and therefore will be evaluated for impacts.

### ***Cat Creek Energy Lease of Power Privilege***

Cat Creek Energy LLC (CCE) has proposed an energy and water storage renewable power station to be constructed on land to the south, and elevated above, Anderson Ranch Reservoir on Cat Creek. CCE envisions to build a 100,000 AF storage reservoir to be filled by pumping from Anderson Ranch Reservoir during high runoff. All the storage is intended to be available for power production and an 80,000 AF portion of the total 100,000 AF to be available for irrigation, municipal and other uses downstream. The project proponent intends to obtain a license from the Federal Energy Regulatory Commission (FERC) and a Lease of Power Privilege (LOPP) from Reclamation to create the pumped hydroelectric energy storage project. The timing for construction of this project is currently less certain but could overlap with the construction timing of additional Anderson Ranch Dam projects and therefore will be evaluated for impacts.

## **1.3 Purpose and Need**

Reclamation's purpose and need for the proposed action is to modernize Anderson Ranch Dam Turbine unit Nos. 1 and 2 by undergoing a baseline mechanical overhaul of both units. This would help avoid the risk of an unplanned unit outage due to degradation over their 70 years in service and ensure continued use for power generation for an additional 50 years. . Reclamation repaired multiple cracks in 2020 and continues to observe new crack propagation in new and different locations within both units. Annual inspections have shown increased wear and crack propagation in multiple parts of both units.

## **1.4 Regulatory Compliance**

The following major laws, executive orders, and secretarial orders apply to the proposed project, and compliance with their requirements is documented in this EA:

- NEPA
- Endangered Species Act (ESA)
- National Historic Preservation Act
- Clean Water Act
- Executive Order 13007 Indian Sacred Sites
- Executive Order 12898 Environmental Justice
- Executive Order 13175 Consultation and Coordination with Tribal Governments
- Secretarial Order 3175 Department Responsibilities for Indian Trust Assets (ITAs)
- Secretarial Order 3398 Revocation of Secretary's Orders Inconsistent with Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis

## **1.5 Scoping Summary**

The scoping process provides an opportunity for the public, governmental agencies, and tribes to identify their concerns or other issues and aids in developing a full range of potential alternatives that address meeting the project's purpose and need as stated in this document. To accomplish this, Reclamation provided information to the public by mailing an information package and soliciting comments from the public, governmental agencies, and potentially affected tribes. Details regarding the public and agency scoping are presented in Chapter 4.

# **Chapter 2 Description of Alternatives**

## **2.1 Introduction**

This chapter describes the two alternatives analyzed in this EA: Alternative A, the No Action alternative; and Alternative B, the Proposed Action alternative.

## **2.2 Alternative Development**

The alternatives presented in this chapter were developed based on the purpose and need for the project, as described in Chapter 1, and the issues raised during internal, external, and tribal scoping. The alternatives analyzed in this document include the No Action alternative and the Proposed Action alternatives B1 and B2 that would involve the baseline mechanical overhaul of both units, with an alternative transportation route for Proposed Action B2 dependent on securing funding. A no-action alternative is evaluated because it provides an appropriate baseline to which the other alternative is compared. No new alternatives were identified during the scoping process. A summary of alternatives considered but not carried forward can be found in Section 2.5.

## **2.3 Alternative A – No Action**

Under the No Action alternative, Reclamation would not perform the baseline mechanical overhaul of both units. There would be no new stainless-steel runners, new stainless-steel wicket gates, new greaseless bushings, inspection and refurbishment of all major components, or replacement of worn parts. Therefore, the current Anderson Ranch Dam Turbine unit Nos. 1 and 2 would remain in operational status and maintained with the 50 percent restriction in which the unit had been previously operated, with additional monitoring for vibration. For the purposes of this analysis, the assumption is that the project would not go forward, so the environmental effects associated with taking no action can be compared to the other alternatives, as required under NEPA.

## **2.4 Alternative B – Turbine Overhaul and Modernization (Proposed Action)**

Proposed Action Alternatives B1 and B2 would both include new stainless-steel runners, new stainless-steel wicket gates, new greaseless bushings, inspection and refurbishment of all major components, and replacement of worn parts. Alternative B1 would fund the modernization of just turbine unit No. 2; the timing of the unit No. 2 modernization would not overlap with the Anderson

Ranch Dam raise project<sup>1</sup> and thus would not be affected by road closures associated with the dam raise project.

In December 2021, Reclamation requested Federal Columbia River Power System (FCRPS) Phase 2 funding to cover the overhaul and modernization of turbine unit No. 1. If the FCRPS funding request is approved, Reclamation can modernize unit Nos. 1 and 2 under Alternative B2. The timing of the unit No. 1 modernization could overlap with road closures associated with the Anderson Ranch Dam raise, so this EA also analyzes the effects of using a detour route during the work on unit No. 1 under Alternative B2.

#### **2.4.1 Alternative B1 – Turbine Overhaul and Modernization Funding Unit No. 2**

The Proposed Action Alternative B1 involves the baseline mechanical overhaul of unit No. 2 only. This would include new stainless-steel runners, new stainless-steel wicket gates, new greaseless bushings, inspection and refurbishment of all major components, and replacement of worn parts. The turbine overhaul and modernization would require dewatering the units and placing protective clearances on the units to safeguard all personnel. Next, the units would be disassembled and shipped to refurbishment facilities. At the refurbishment facility, the components would be inspected, and a disposition report provided. The components would be refreshed to an as-new condition and a final refurbishment report would be furnished. The refurbished equipment, as well as new equipment, would be shipped back to site and reassembled. The contractor would travel to and from the powerhouse below the dam on Anderson Dam Road (HD-134) from Highway 21.

During the time between delivery and installation, the refurbished equipment would be held in the staging areas (Figure 2). The staging areas would be below the dam, near the powerhouse behind a secured gate system. Haul-away and delivery of refurbished equipment would be transported on (HD-134) off of Highway 21 (Figure 3). The current project schedule estimates construction for unit No. 2 would take place from September 2024 to May 2025.

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<sup>1</sup> The Anderson Ranch Dam Raise project is expected to begin fall 2025 and last for 4 years.



Figure 2. Staging areas

## 2.4.2 Alternative B2 – Turbine Overhaul and Modernization Funding Unit No. 1 and 2

As noted above, Reclamation has requested FCRPS Phase 2 funding to cover the unit No. 1 modernization, which would take place from September 2025 to May 2026. If the funding is approved and Reclamation moves forward with the unit No. 1 modernization, the timing of this work may overlap with construction and road closures over Anderson Ranch Dam during the dam raise project, which may require the contractor to use Cow Creek Road (HD-131) improved detour route (Figure 3). The improved detour route along HD-131 would be part of the Anderson Ranch Dam raise project and effects associated are analyzed in the Boise River Basin Feasibility Study Environmental Impact Statement. Other than the change in the route used to access Anderson Ranch Dam, the haul-away, staging, and delivery in the proposed action for Alternative B2 would be the same as the actions associated with the unit No. 2 modernization in Alternative B1. If the Anderson Ranch Dam raise construction were delayed and the overlap in construction schedule does not occur, then this alternative would use the same road (HD-134) as in Alternative B1.



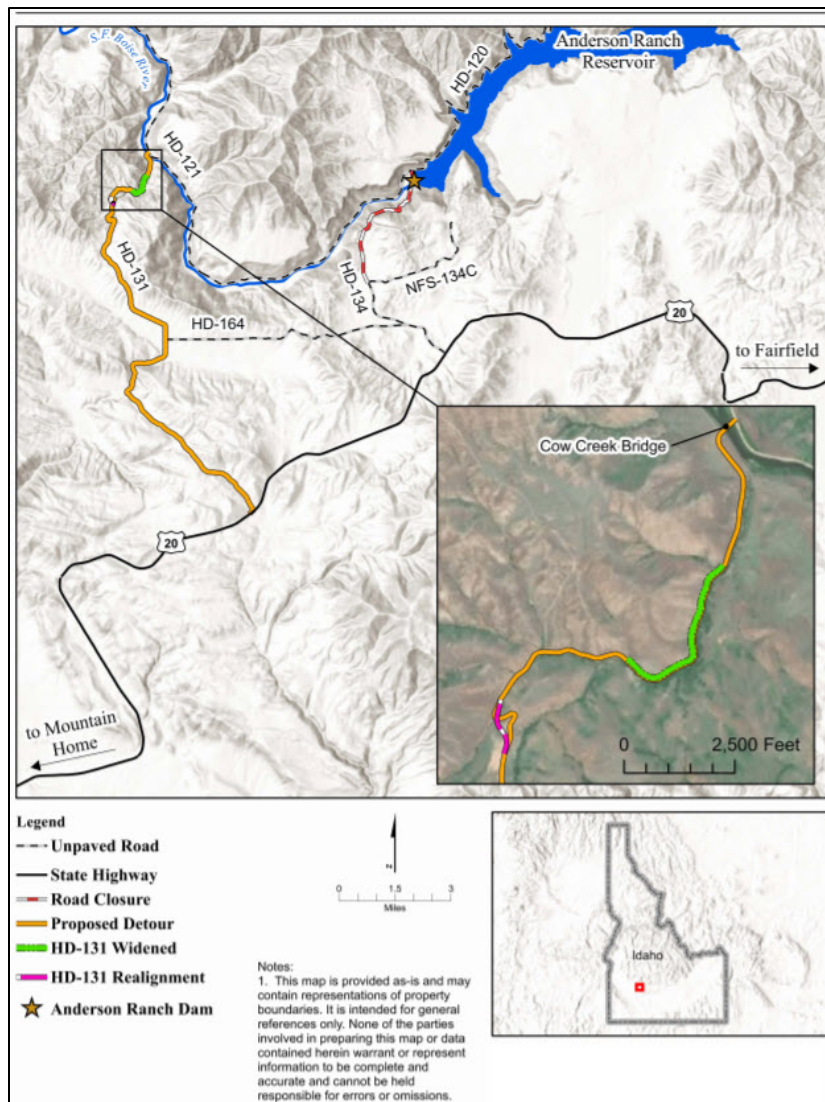


Figure 3. HD-131 Detour for Alternative B2

## 2.5 Alternatives Considered but Eliminated from Further Study

NEPA encourages the consideration of alternatives developed through public scoping. However, only those alternatives that are within the agency’s authority that are reasonable and meet the purpose and need of the proposed action must be analyzed as per the Council on Environmental Quality’s 2021 Proposed Rule titled “National Environmental Policy Act Implementing Regulations” (40 CFR Parts 1502, 1507, and 1508). There were no alternatives presented through the public and agency scoping process.

# **Chapter 3 Affected Environment and Environmental Consequences**

## **3.1 Introduction**

This chapter evaluates the environmental consequences of implementing each of the alternatives described in Chapter 2. The level and depth of the environmental analysis corresponds to the potentially affected environment and the degree of the effects of the action anticipated for each environmental component (resource). The affected environment (proposed action area) addressed in this EA is defined in varying contexts, depending on the affected resource being analyzed.

Resources evaluated in this document and analyzed in this chapter were selected based on Reclamation requirements; compliance with laws, statutes, and executive orders; public and internal scoping; and the potential for resources to be affected by the proposed project.

## **3.2 Biota – Vegetation, Wetlands, Fish and Wildlife**

### **3.2.1 Affected Environment**

#### ***Introduction***

Wildlife resources in Idaho are protected and/or regulated by a variety of Federal and state laws and policies. Key regulatory and conservation planning measures applicable to the project include the Endangered Species Act, the Migratory Bird Treaty Act (MBTA); Bald and Golden Eagle Protection Act; U.S. Forest Service Threatened, Endangered, and Sensitive Species Program; the Idaho State Wildlife Action Plan (SWAP); and Idaho Administrative Code.

The Idaho State Wildlife Action Plan is a statewide plan for conserving and managing Idaho's diverse fish and wildlife and the habitats they depend on. The plan describes key conservation targets for the State of Idaho, threats to those targets, and recommendations for addressing those threats (Idaho Department of Fish and Game [IDFG] 2017). Under this plan, IDFG has identified species that have the most critical conservation needs and categorized them as Idaho Species of Greatest Conservation Need (SGCN), ranked in Tier 1, Tier 2, or Tier 3, with Tier 1 representing the highest-priority species.

#### ***Analysis Area***

The analysis area includes the general vicinity in and around Anderson Ranch Dam, including areas immediately downstream of Anderson Ranch Reservoir both in and along the South Fork Boise River downstream to the Cow Creek bridge, and areas adjacent to proposed transportation routes and staging areas that could be affected by increases in human activity and vehicular traffic, airborne dust, increased sedimentation, compaction, vehicle exhaust, or the introduction or spread of non-native and/or noxious weeds from transportation activities associated with the proposed project.

## **Habitat – Terrestrial Vegetation**

Natural areas are a mix of coniferous forest, mixed coniferous-deciduous forests, shrublands, bare disturbed sites, agricultural fields, and open fields. The South Fork Boise River has a well-developed riparian zone interspersed with upland grassland and sagebrush. The natural areas experience considerable human activity due to the popularity of both Anderson Ranch Reservoir and the South Fork Boise River with recreationists. Roads, vehicular road travel, and grazing are common through the terrestrial area.

Common vegetation found within the project area include shrubs and grasses like bluebunch wheatgrass (*Pseudoroegneria spicata*), mountain big sagebrush (*Artemisia tridentata*), Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*), bluegrass species, Idaho fescue (*Festuca idahoensis*), bitterbrush (*Purshia* DC. ex Poir.), and mountain snowberry (*Symphoricarpos oreophilus*) (United States Geologic Survey [USGS] 2002). In lower elevations, vegetation includes grasslands, shrublands, ponderosa pine (*Pinus ponderosa*), and Douglas fir (*Pseudotsuga menziesii*).

None of the plant species identified as sensitive species by United States Forest Service (USFS) that occur in the Boise National Forest are anticipated to occur in the project area, because they are not known to occur in Elmore County or because suitable habitat is not present within the project area.

In some areas, noxious weeds and introduced grasses and forbs are replacing native shrubs and grasses. There are 67 known species of noxious weeds in Idaho. Elmore County is home to 29 state-designated noxious weeds, including two species of aquatic noxious plant species. Nine noxious weed species are known to occur within or near the project area (Hampton 2019). Leafy spurge (*Euphorbia esula*) is the highest priority for control by USFS.

## **Wildlife – Terrestrial**

The surrounding environment in the project area is characterized at a landscape scale by dry montane forest and grassland, riparian corridors, and sagebrush steppe (IDFG 2017). The range of vegetation types in the project area provides a variety of wildlife habitats, including wintering and nesting habitat for bald eagles and peregrine falcons. Much of the lower-elevation grasslands and shrublands are important winter range for elk and deer, as well as foraging habitat for mountain quail, sage-grouse, and introduced turkey and chukar. Mid-elevation forests provide habitat for several sensitive species, including northern goshawk, flammulated owl, and white-headed woodpecker. Higher-elevation forests provide nesting and foraging habitat for many migratory birds, as well as summer range for mammals such as elk, black bear, and mountain lion.

Under the SWAP, IDFG has identified species that have the most critical conservation needs and categorized them as Idaho SGCN, ranked in Tier 1 (highest priority), Tier 2, or Tier 3. Idaho SWAP-identified target SGCN observed in or near the project area include:

- Tier 1: greater sage-grouse
- Tier 2: mountain quail, golden eagle, Lewis's woodpecker, American white pelican, common loon, long-billed curlew, sage thrasher, sharp-tailed grouse, and western grebe
- Tier 3: common nighthawk, olive-sided flycatcher, ring-billed gull, Townshend's big-eared bat, little brown bat, and sandhill crane

The South Fork Boise River corridor provides good habitat for several notable wildlife species protected as game animals by IDFG under State of Idaho conservation measures, including elk, mule deer, moose, pronghorn antelope, gray wolves, American black bears, and various game birds.

Additional non-SGCN native species of protected game birds found in the project area include dusky grouse and ruffed grouse, which are designated as upland game birds and are found year-round throughout the basin. Migratory game birds include American coot, Canada goose, common merganser, mallard, mourning dove, and ring-necked duck (IDFG 2019b).

### **Wildlife – Aquatic**

The analysis area for fish and aquatic habitat is limited to the South Fork Boise River downstream from Anderson Ranch Dam to the Cow Creek bridge crossing, where the designated alternative transportation route would cross the South Fork Boise River and climb out of the river corridor.

The South Fork Boise River is a complex riverine habitat that supports abundant cold-water aquatic biota, including aquatic macroinvertebrates and both native and introduced fishes. IDFG exclusively manages the fishery, including stocking and regulations, in a manner that favors the presence of individual species (Idaho State Statute 33).

The reach of the South Fork Boise River downstream from Anderson Ranch Dam is a nationally renowned trout fishery and was the first river section in the IDFG Southwest Region to be managed under trophy trout regulations. This fishery remains a prime wild trout fishery and supports populations of wild rainbow trout and mountain whitefish. Migratory bull trout are present at very low densities; native non-game fish including largescale sucker, bridgelip sucker, northern pikeminnow, and sculpin are also present.

Interior redband trout are an Idaho species of concern and a Bureau of Land Management (BLM) and USFS sensitive species (Western Native Trout Initiative 2018). Redband populations exhibiting fluvial (stream dwelling) and resident life histories occur in the South Fork Boise River and its tributaries (Western Native Trout Initiative 2018).

Westslope cutthroat trout are listed as a State of Idaho and Federal species of concern by both BLM and USFS and have been proposed for Federal ESA listing in some areas of its range (USFS 2016). They are known to have occurred in streams in the Boise National Forest and have been documented in recent surveys (IDFG 2019a and IDFG 2019b) in the South Fork Boise River.

Many water bodies in Idaho contain aquatic invasive species that can adversely affect aquatic ecosystems, such as the New Zealand mudsnail (*Potamopyrgus antipodarum*) and parasites causing whirling disease. Equipment used to draft, dip, store, or deploy water can be exposed to aquatic invasive organisms. Many of these species are practically invisible to the naked eye and impossible to detect if attached to heavy equipment, vessels, or even the boots of anglers entering Idaho waters. A variety of aquatic invasive species are already identified as occurring in state waters. Some examples include Asian clam (*Corbicula fluminea*), bull frog (*Lithobates catesbeianus*), oriental weather loach (*Misgurnus anguillicandatus*), and multiple crayfish species (*Pacifastacus* spp.) (Carlson 2019).

### ***Wetlands/Riparian Corridors***

Riparian corridors are areas between a stream or other waterbody and adjacent upland areas with a unique vegetative community influenced by the presence of water. Wetland and riparian area functions include groundwater recharge/discharge, flood/flow alteration, sediment stabilization, sediment and toxicant retention, nutrient removal and transformation, aquatic and terrestrial diversity and abundance, and uniqueness. The analysis area for wetlands/riparian corridors includes the riparian corridor adjacent to the South Fork Boise River below Anderson Ranch Dam to the Cow Creek Bridge crossing where the designated alternative transportation route would cross the South Fork Boise River and climb out of the river corridor.

### **3.2.2 Environmental Consequences**

#### ***Alternative A – No Action***

Under the No Action Alternative, reservoir operations would remain unchanged and pressures on habitats and wildlife due to recreational uses and vehicular traffic would continue to follow their current trends. No additional effects to biota would be anticipated.

#### ***Alternative B – Turbine Overhaul and Modernization (Proposed Action)***

The proposed work would occur inside the Anderson Ranch Dam facility and would not directly affect water releases or have direct effects to aquatic habitat or the riparian corridor. Because the use of established staging areas and transportation routes is incorporated, no new ground disturbance would occur as part of the proposed alternative. The increase in vehicular traffic for the transportation of equipment and personnel, as identified in Table 2 and Table 3, could be expected to result in increased levels of airborne and deposited dust in areas adjacent to unpaved transportation routes (i.e., on the unpaved road along the South Fork Boise River and along HD-131, if that alternative transportation route is used). These effects would not be anticipated to result in measurable increases in dust or sediment deposition on vegetation and into the South Fork Boise River beyond an area limited to approximately 600 feet from transportation routes (Reclamation 2020), and such effects would be expected to be mitigated to insignificant levels via the implementation of industry Best Management Practices (BMPs) for the reduction of fugitive dust. Dust deposition on roadway-adjacent vegetation would only temporarily affect this habitat, until cleared via seasonal leaf senescence (i.e., vegetation deterioration in the fall) and winter precipitation. Therefore, this effect would be limited to the short term.

The risk of wildlife collision with vehicles would be increased due to the increased traffic load on transportation routes. However, as this risk is greatest at times of low light (dawn, dusk, and nighttime), terrestrial wildlife would be expected to adopt avoidant behavior toward busy roadways during peak traffic hours, and nighttime transportation of equipment and personnel would be minimal if it occurs, such an effect would be insignificant. Adaptive avoidant behavior could temporarily disrupt movement patterns in the short term as wildlife avoid busy roadways but would not be expected to persist beyond the completion of the project. No long-term effects to biota would occur.

Potential introduction or spread of noxious weeds would be mitigated to an insignificant level through implementation of industry BMPs such as vehicle checks/cleaning designed to minimize the introduction and spread of invasive vegetation. As no new soil disturbance would occur, there would be limited opportunity for new noxious weed establishment. No in-waterway work would occur under the Proposed Alternative; therefore, no new risk of introduction of aquatic invasive species would be created.

If the Proposed Alternative were to occur concurrent with other proposed activities, such as the Anderson Ranch Dam raise, the effects of the proposed action would temporarily, and minimally, incrementally increase the much larger similar impacts to biota identified in the dam raise draft EIS (Reclamation 2020).

In the absence of hydrologic alterations or ground disturbance, no effects to wetlands or riparian corridors are anticipated.

### **3.3 Threatened and Endangered Species**

#### **3.3.1 Introduction and Analysis Area**

Based on the description(s) and/or map(s) of the project action area provided, the attached Information for Planning and Conservation (IPaC) report (Appendix A) was generated using the online tool provided by the U.S. Fish and Wildlife Service. The analysis area includes the general vicinity in and around Anderson Ranch Dam, including areas immediately downstream of Anderson Ranch Reservoir both in and along the South Fork Boise River downstream to the Cow Creek bridge, and areas adjacent to proposed transportation routes and staging areas, which could be affected by increases in human activity and vehicular traffic and the effects thereof. The IPaC findings are used to guide evaluation of this project's potential for significant impacts to species listed or proposed to be listed for protection under Section 7 of the Endangered Species Act, or to have critical impacts on designated Critical Habitat for these species.

The IPaC report indicates that one listed species and one candidate species may occur in this project's action area: bull trout (*Salvelinus confluentus*) and monarch butterfly (*Danaus plexippus*). The project area also intersects with designated critical habitat for bull trout. The effects of this project on individual listed species are discussed below.

#### **3.3.2 Affected Environment**

##### ***Bull Trout***

The bull trout (*Salvelinus confluentus*) is a char, a member of the Salmonidae family of fishes, native to streams and other water bodies in portions of the Cascade and northern Rocky Mountain ranges. Compared to other salmonids, bull trout have more specific habitat requirements that appear to influence their distribution and abundance. They require cold water and are rarely found in waters that exceed 59° F (16° C). They also require stable stream channels, clean gravel for spawning and rearing, complex and diverse cover, and unblocked migratory corridors. Bull trout exhibit two distinct life histories: resident, which spent their entire lives in the same stream or tributary creek,

and migratory, which seasonally overwinter in larger bodies of water (i.e., lakes, reservoirs, or large rivers) but migrate into streams and tributary creeks to spawn. In this geographic area, no bull trout populations exhibiting an anadromous life history exist. Critical habitat has been designated for this species and includes the South Fork Boise River between Anderson Ranch Dam and downstream Arrowrock Reservoir, which is occupied year-round by bull trout as feeding, migration, and overwintering habitat. The bull trout is currently listed as Threatened.

Bull trout present in the South Fork Boise River below Anderson Ranch Dam are part of the Arrowrock Core Area population. In 2005, IDFG assessed the abundance of bull trout (larger than 70 millimeters) across Idaho and estimated there were over 53,000 bull trout in the Arrowrock Core Area (High et al. 2005). Abundance and densities of bull trout in Idaho have been found to vary over time, correlating with large-scale climatic conditions such as stream flow during the preceding 3 to 4 years (Copeland and Meyer 2011). In the analysis area, the bull trout population is thought to be stable and may be growing. Studies in the upper South Fork Boise River indicate that the status and trend of bull trout in this area are increasing, and the risk of extirpation in the foreseeable future is low (Meyer et al. 2014).

### **Monarch Butterfly**

The monarch butterfly (*Danaus plexippus*) is a butterfly species that is globally distributed, with the North American populations being well-known for long-distance migration. They are obligate to their larval host plant, milkweed (primarily *Asclepias* spp.), on which they lay eggs and larvae emerge in 2 to 5 days. Multiple generations of monarchs are produced in a breeding season; most individuals live approximately 2 to 5 weeks, but overwintering adults enter reproductive diapause (suspended reproduction) and may live 6 to 9 months. Migratory individuals in western North America generally fly shorter distances south and west to overwintering groves along the California coast into northern Baja California. In the spring in western North America, monarchs migrate north and east over multiple generations from coastal California toward the Rockies and to the Pacific Northwest. Adult monarch butterflies during breeding and migration require a diversity of blooming nectar resources, which they feed on throughout their migration routes and breeding grounds (spring through fall). Monarchs also need milkweed (for both oviposition and larval feeding) embedded within this diverse nectaring habitat. The correct phenology, or timing, of both monarchs and nectar plants and milkweed is important for monarch survival. In western North America, nectar and milkweed resources are often associated with riparian corridors, and milkweed may function as the principal nectar source for monarchs in more arid regions (USFWS 2020).

In 2020, the USFWS completed a Species Status Assessment Report (USFWS 2020) that found that the Western North American Population of monarch butterflies has been generally declining for the last 23 years, with the risk of extinction over the next 60 years reaching 99 percent under current conditions. The primary drivers affecting the health of North American populations are changes in breeding, migratory, and overwintering habitat (due to conversion of grasslands to agriculture and urban development, widespread herbicide use, adverse management practices at overwintering sites, and drought); monarchs are also affected by the effects of climate change, including rising maximum daily temperatures and an increase in unpredictable climatic events, such as severe precipitation events and widespread drought.

Individual monarchs in temperate climates, such as those that may be present in Idaho, undergo long-distance migration and live for an extended period of time. In the fall in both eastern and western North America, monarchs begin migrating to their respective overwintering sites. This migration can take monarchs distances of more than 3,000 km and last for more than 2 months. In early spring (February-March), surviving monarchs break diapause and mate at the overwintering sites before dispersing. The same individuals that undertook the initial southward migration begin flying back through the breeding grounds and their offspring start the cycle of generational migration over again.

Although there exists very little high-resolution occurrence data on monarchs in Idaho, some survey and habitat suitability monitoring efforts have been conducted that indicate the potential for milkweed and monarch distribution in or near the analysis area (Waterbury et al. 2019).

The monarch butterfly, as a candidate species, has not yet been proposed for listing. There are no Section 7 requirements for candidate species, but agencies are encouraged to take advantage of opportunities for conservation. No critical habitat has been designated for this species.

### **3.3.3 Environmental Consequences**

#### ***Alternative A – No Action***

Under the No Action alternative, reservoir operations remain unchanged and pressures on listed and candidate species, particularly the insignificant effects to bull trout of recreational fishing, would continue to follow their current trends. The effects of ongoing operation of the Anderson Ranch Dam and Reservoir complex to designated critical habitat for the species would continue to occur. No new effects to riparian vegetation that would implicate any indirect effect to monarch butterflies would be anticipated.

#### ***Alternative B – Turbine Overhaul and Modernization (Proposed Action)***

Under Proposed Alternative B2, the potential for slight increases in sediment deposition into the South Fork Boise River below Anderson Ranch Dam due to the increased traffic load on non-paved roadways near the river exists; however, the effects to water quality are not anticipated to be measurable or persistent (see Section 3.5) and would therefore not result in short-term or long-term effects to bull trout present in this habitat. No changes to water releases or in-waterway work are incorporated into the proposed action; therefore, no direct effects to the species or its critical habitat are anticipated.

Potential short-term effects to the riparian corridor from increased dust from transportation activity can be used as a proxy for potential effects to monarch butterflies, as this could affect milkweed present along the river. However, these effects are anticipated to be mitigated by the incorporation of industry BMPs to an insignificant level, as described in the discussion of effects to vegetation and wetlands/riparian areas in Section 3.2.2 above. No long-term effects to listed species are anticipated.



## 3.4 Hydrology

### 3.4.1 Affected Environment

Anderson Ranch Dam has approximately 475,000 acre-feet of storage in the reservoir behind the dam. The reservoir is used for irrigation, recreation, flood control, and wildlife purposes. During the spring, the dam is operated to reduce flood impacts while attempting to capture and store as much runoff for irrigation use in the summer and early fall. During the summer and early fall, water is released to meet downstream demands. In mid-September, flows are reduced to winter minimum target flows of 300 cfs and held at that rate until spring runoff occurs and flood operations begin, normally in the March-April time period. Figure 4 depicts the average outflow from the last 20 years (2000 to 2020).

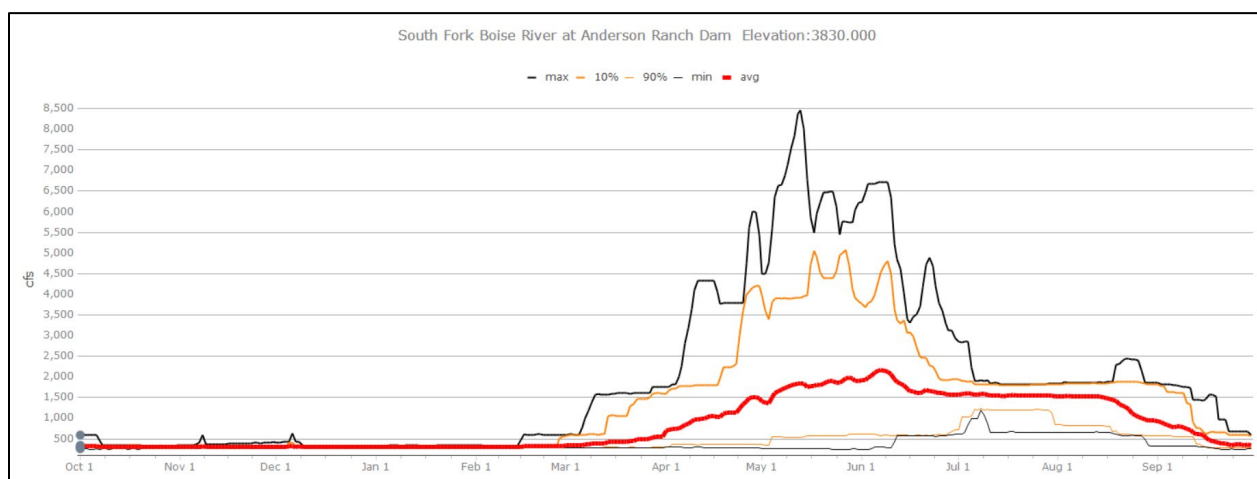


Figure 4. South Fork Boise River Anderson Ranch Dam operations average outflow (red line), 90/10% (orange line), and max and min (black lines) from 2000 to 2020

There are three methods of delivering water to meet downstream needs. First, water can be released through the powerplant, which consists of two generating units, each with a capacity of approximately 800 cfs per unit. Second, water can be released through the five hollow jet valves, which have a capacity of 2,000 cfs per valve, for a total capacity of 10,000 cfs. Lastly, water can be released over the spillway, which consists of two radial gates with a crest elevation of 4174.0 feet. The total capacity of the spillway is approximately 20,000 cfs at forebay elevation of 4198.0 feet. Figure 5 depicts the location and volume of the release points.

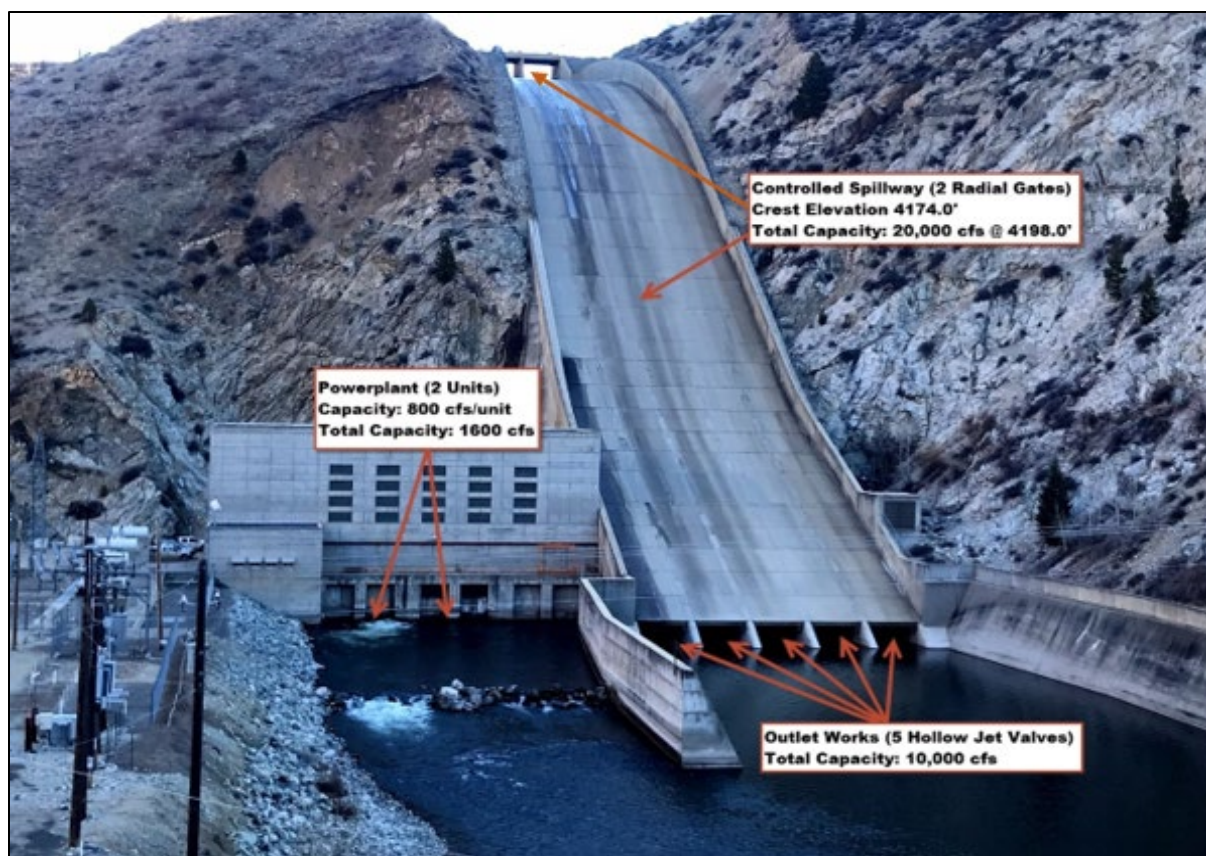


Figure 5. Anderson Ranch Dam Spillway water release point and volumes

The total volume of the three outlets is approximately 31,600 cfs. The historical maximum discharge is 9,770 cfs, which occurred in May 1956. More recently, the maximum discharge was 8,460 cfs, which occurred in May 2017. During the spring runoff and during higher flows (above 1,600 cfs), the powerplant is run at full capacity and the remaining flow is released out of the hollow jet valves. During flows below 1,600 cfs, flows all run through the powerplant. The late-fall and winter flows of 300 cfs are released through a single unit in the powerplant. There are no expected operational limitations during the project work given the facility ability to pass flows through various outlets

### 3.4.2 Environmental Consequences

#### ***Alternative A – No Action***

Under the No Action alternative, water operations would continue as status quo. In the spring, the dam would be operated to reduce flooding events and store water for summer and early-fall delivery needs. In mid-September, flows would be reduced to the target minimum flows of 300 cfs until the following spring runoff.

#### ***Alternative B –Turbine Overhaul and Modernization (Proposed Action)***

Under the proposed action, if flows higher than 800 cfs and lower than 10,800 cfs were needed during the proposed action's time period (September through May), flows up to 800 cfs would be released out of one of the powerplant units and the remaining volume would be released out of the

hollow jet valves. If flows above 10,800 cfs needed to be released, the powerplant and hollow jet valves would run at full capacity and the remaining volume would be released over the spillway. If Anderson Ranch Dam Raise spillway construction occurred at the same time, which would render the spillway inaccessible for releases, as in Alternative B2, there would be a greater restriction on the volume of water allowed to fill in the reservoir. The only direct effect to the hydrology would be the reduction of the total maximum volume of water that could be released from 31,600 cfs to 30,800 cfs.

An effect from the loss of power generation would occur if flows above approximately 1,200 cfs were needed during the September-to-May time period. From 1980 to 2020, flows above 1,200 cfs during the September-to-May time period occurred 71 percent of the time, which results in less power production.

## **3.5 Water Quality**

### **3.5.1 Affected Environment**

The water quality analysis area is focused on Anderson Ranch Reservoir and South Fork Boise River between Anderson Ranch Dam and Arrowrock Reservoir.

Water quality standards and designated beneficial uses for Anderson Ranch Reservoir and the South Fork Boise River are identified in the Idaho Water Quality Standards (Idaho Administrative Code 58.01.02), and the status of attaining water quality standards and supporting designated beneficial uses are reported in *Idaho's 2018/2020 Integrated Report* biannual report (Idaho Department of Environmental Quality [IDEQ] 2020). The Integrated Report identifies that Anderson Ranch Reservoir does not support cold-water aquatic life, salmonid spawning, or primary-contact recreation use due to water quality impairment from mercury (IDEQ 2020). The South Fork Boise River fully supports cold-water aquatic life, salmonid spawning, and primary-contact recreation beneficial uses. Both Anderson Ranch Reservoir and the South Fork Boise River also have designated beneficial uses for aesthetics, agricultural water supply, domestic water supply, industrial water supply, and wildlife habitat (IDEQ 2020). None of these beneficial uses have been assessed.

Reclamation's Water Quality Laboratory staff, in Boise, monitor water quality parameters every 3 to 5 years at Anderson Ranch Reservoir and the South Fork Boise River. Common water quality constituents such as nutrients (nitrate/nitrite, total phosphate, orthophosphate, etc.), major anions and cations (calcium, magnesium, sodium, sulfate, etc.), alkalinity, and other water quality parameters are measured. These data and more are publicly available through the United States Environmental Protection Agency (EPA) at the website <https://www.epa.gov/waterdata/water-quality-data-download>. Monitoring locations are located approximately 100 yards above the dam, ½-mile below Curlew Creek on Anderson Ranch Reservoir, and approximately 500 yards below the dam on the South Fork Boise River.

In general, water quality constituents are in low concentrations in both water bodies. Other than the mercury impairment in Anderson Ranch Reservoir, the water quality is relatively good. The most likely hazard to water quality for this proposed project would be from the increase in sediment due

to associated construction activities. Surrogate measurements for sediment that Reclamation monitors includes total suspended solids (TSS) and turbidity. Table 1 identifies TSS and turbidity concentrations from 2001 through 2017 in Anderson Ranch Reservoir and the South Fork Boise River. The TSS and turbidity data indicate that both water bodies tend to be clear and have low sediment amounts in the water column. This can change due to precipitation and runoff events, fires, and anthropogenic activities (timber harvest, mining, etc.).

Table 1. Total dissolved solids and turbidity concentration average, median, maximum, minimum, and sample numbers for Anderson Ranch Reservoir and the South Fork Boise River from 2001 through 2017

Location	Average	Median	Maximum	Minimum	Number of Samples
<b>Total Suspended Solids (in milligrams per liter)</b>					
Anderson Ranch Reservoir	2.9	2.0	7.0	<1.0	39
South Fork Boise River	3.0	2.0	5.0	<1.0	11
<b>Turbidity (in nephelometric turbidity units)</b>					
Anderson Ranch Reservoir	2.1	2.0	8.0	<1.0	73
South Fork Boise River	1.6	1.5	5.0	<1.0	28

### 3.5.2 Environmental Consequences

#### ***Alternative A – No Action***

Reservoir and river water quality would continue to change based on anthropogenic and natural upstream watershed inputs, snowpack/precipitation events, reservoir drawdowns/drought, and cyclic changes in reservoir biology. Mercury would likely persist in the reservoir sediments and be a water quality issue in the short and long terms for Anderson Ranch Reservoir. South Fork Boise River would continue to receive cold, clean water from the reservoir and would continue to meet all of its designated beneficial uses.

#### ***Alternative B – Turbine Overhaul and Modernization (Proposed Action)***

The replacement of the turbine runners would not directly affect water quality of the reservoir or the South Fork Boise River because all work would be internal to Anderson Ranch Dam. However, transporting the equipment, supplies, and personnel could cause increased sediment into the South Fork Boise River due to fugitive dust from increased road traffic depending on the route used for these deliveries. Project construction traffic (Table 2 and Table 3) is estimated at 24 truck/tractor loads and 380 crew transport trips from mid-August to May 1 for each turbine replacement activity. Also, the staging areas, due to their proximity to the spillway and the South Fork Boise River, could introduce sediment into the river. A more detailed description of effects is identified below by construction route.

#### **Alternative B1 – Turbine Overhaul and Modernization Funded for Unit No. 2**

No increased sediment in the South Fork Boise River or Anderson Ranch Reservoir is expected from construction traffic via HD-121 because of its distance from the river (approximately 880 feet at the closest spot). Construction traffic would have to cross Anderson Ranch Dam, which is a hardened surface that would not create sediment.

Staging areas could be sediment sources due to their proximity (less than 50 feet) to the river. BMPs such as watering down the staging areas to reduce dust would mitigate most of the sediment issues. Additionally, construction would occur in the fall through spring, which is typically less dusty than during a dry, hot summer. Use of the staging areas is not expected to affect water quality standards in the short (1 to 5 years) or long term (more than 10 years).

### **Alternative B2 – Turbine Overhaul and Modernization funded for Unit No. 1 and 2**

Similar water quality effects are expected for Anderson Ranch Reservoir and the staging areas, as described in the previous section. However, use of HD-131 for construction activities on unit No. 1 could increase the sediment load in the South Fork Boise River. This route is adjacent to the river for about 1.75 miles from the Cow Creek bridge to the staging areas. The increase in construction traffic would increase fugitive dust and release sediment downslope that could be transported into the river.

Additionally, because work associated with the Anderson Ranch Dam raise, as identified in the 2020 Boise River Basin Feasibility Study Draft Environmental Impact Statement (Reclamation 2020), could potentially be occurring at the same time as the unit No. 1 overhaul construction, there could be combined effects from increased vehicle traffic on HD-131. The draft EIS identifies that, “...road construction, maintenance, and/or increased road activity adjacent to South Fork Boise River is also likely to contribute to fugitive dust and release sediment downslope that could be transferred into live water. Effects to water quality as a result of construction activity along the South Fork Boise River would not be anticipated to occur greater than 600 feet downstream of construction footprints and no effects would extend to Arrowrock Reservoir downstream” (Reclamation 2020). Similar effects would be expected from unit No. 1 construction traffic, although to a much lesser degree.

The Water Recourses section of the draft EIS states, “Through a combination of adherence to state and Federal regulations, and project design features, direct and indirect impacts to water quality from construction activities would not be significant” (Reclamation 2020). The incremental increase of sediment due to unit No. 1 construction traffic added to the sedimentation effects from Anderson Ranch Dam raise could increase the overall sediment load in the South Fork Boise River. Although the increased sediment input with just the unit No. 1 construction traffic is minor compared to sediment released from the Anderson Ranch Dam raise, it would be additive to the sediment from the dam raise. However, project design features identified in the draft EIS would mitigate effects from both construction activities in the short and long terms; thus, the projects would continue to meet state water quality standards in the South Fork Boise River.

## **3.6 Cultural Resources**

### **3.6.1 Affected Environment**

This section includes an evaluation of the potential impacts to cultural resources that could result from project implementation. Cultural resources may include archaeological traces, such as Native

American occupation sites and artifacts; historic-era buildings and structures; and places used for traditional Native American observances or places with special cultural significance.

Cultural resources were investigated within the project area, which is equivalent to the area of potential effects defined by the Section 106 process of the National Historic Preservation Act. The Section 106 process is required only for the preferred alternative, Alternative B. Section 106 does not deal with impacts on all types of cultural resources, or all cultural aspects of the environment; it deals only with impacts on properties included in or eligible for the National Register of Historic Places. This section addresses all cultural resources in the project area, regardless of eligibility, as required by NEPA.

Evidence of Native American occupation in southwestern Idaho dates as early as 14,500 years B.P. (before present). Archaeologists have defined three prehistoric cultural periods in southwest Idaho. These are the Paleo-Indian period (14,500 to 7,000 B.P.), the Archaic period (7,000 to 300 B.P.), and the Protohistoric period (300 B.P. to European contact). Archaeological investigations in the area indicate a prolonged seasonal use through the Early, Middle, and Late Archaic periods (7,000 to 250 B.P.) (Plew and Osgood 2017).

Shoshone and Bannock peoples and Northern Paiute groups occupied the Boise River and Payette River basins at the time of European movement into the area that is now Idaho. Early explorers reported the Boise River and vicinity was an important seasonal meeting and trading location for nonresident groups from the Columbia River, northern Idaho, the Oregon deserts, and Wyoming. The subsistence strategy observed by the early 1800s included use of plant, animal, and raw material resources obtained by traveling seasonally. Multiple family groups spent winters in small villages along the lower and middle areas of the Payette and Boise Rivers.

The discovery of commercially profitable amounts of gold in Grimes Creek in 1862 spurred permanent American settlement in southwest Idaho. The boom was instant but short-lived, as the easily mined placers were soon exhausted. However, it stimulated development of agricultural communities that flourished along the rivers in the Boise, Payette, and Weiser Valleys. Boise City was established in 1863, and other smaller towns soon sprang up. A second agricultural boom occurred with the completion of the Oregon Short Line Railroad through southern Idaho in 1883; access to regional markets caused an influx of new settlers who wished to farm the fertile bench lands below Boise and Emmett.

The rapid settlement of southwest Idaho after 1863 had impacts upon resident Indian populations. Lands in the lower valleys, where the native populations were densest, were settled and closed to the Indians, and miners and grazers penetrated upland areas. Friction rapidly developed between the resident Indians and newly arrived settlers, leading to raids from both sides. The native culture suffered under the agricultural developments that destroyed their lowland plant food base, denial of access to areas essential in the food collecting seasonal round, and the need to congregate for protection. In 1863, the Federal Government began to negotiate treaties to place the Shoshone and Paiute on reservations removed from their Boise and Payette Valley homelands. Ultimately, most of the southwest Idaho Indian populations were moved to the Fort Hall or the Duck Valley Indian Reservations.

After 1863, settlers flocked to the Boise Valley to establish farms and businesses. In arid Idaho, irrigation was essential for successful agriculture. By 1880, the seasonal water supply was insufficient to meet existing needs and prohibited expansion. After 1883, out-of-state investors attempted to build water systems that were only partially successful. Not until 1905, when the U.S. Reclamation Service was authorized to build the Payette-Boise Project, could the agricultural potential of the Boise and Payette drainages be fully realized.

The current project area is located within the construction zone of Anderson Ranch Dam and Powerplant, authorized by Congress for purposes of irrigation, power creation, sedimentation control and flood control. Construction began in 1941, was either slowed or put on hold during World War II, and was completed in 1951.

### **Cultural Resource Investigations**

Cultural resource investigations for the project consisted of a phased approach that included a pre-field records research and development of a cultural resources report used for consultation with the Idaho State Historic Preservation Office (SHPO) and associated Tribes. All aspects of the cultural resource study were conducted in accordance with the *Secretary of the Interior's Guidelines for Identification of Cultural Resources* (48 CFR 44720-44723).

Reclamation identified two Federally recognized tribes with which to consult for this project—the Shoshone-Bannock Tribes of the Fort Hall Reservation and the Shoshone-Paiute Tribes of the Duck Valley Reservation. Several forms of outreach to both tribes resulted in no specific cultural resources being identified to the agency, although concerns have been raised by the Shoshone-Bannock Tribes regarding certain use of the area for fishing pre-reservoir and potential burial sites on Federal lands.

Pre-field research included a previous cultural resource record search (Record Search #18326) from the SHPO, in-house documents and maps reviews, and archival research. Much of the information found regarding Anderson Ranch Dam and Powerplant was gleaned from the Boise Project Histories on file at the Snake River Area Office. The only cultural resource within the project area is the Anderson Ranch Dam and Powerplant (IHSI# 1202). It has a consensus determination as an historic property, eligible under Criterion A for its association with the Boise Project and its contribution to local agricultural development, and under Criterion C for its design and construction as the world's highest embankment dam at the time of its completion. No archaeological resources have been documented in the project area.

Anderson Ranch Dam and Powerplant is a two-unit Francis turbine facility originally installed in 1950 and 1951. The major components of the original equipment remain in place and have been operating for more than 70 years. The turbines have been maintained regularly since installation and consumables (such as wicket gate stem packing) are changed out or replaced almost annually to ensure continued performance.

### **3.6.2 Environmental Consequences**

Impacts from potential project activities to cultural resources were measured according to their potential to reduce or eliminate the property's historical significance. Documentation of the cultural



resources included identification of significance criteria. These criteria comprise the historical importance and integrity of the resource; a reduction or loss of these criteria would be considered adverse to the cultural resource. For this analysis, the evaluation performed during the Section 106 process to identify adverse effects were used as an equivalent method for evaluating adverse impacts. These impacts are evaluated in terms of their short- and long-term, adverse and beneficial, public health and safety, and effects that would violate Federal, State, Tribal, or local law protecting the environment of their effects to the cultural resource.

The following indicators, consistent with Federal regulations for the protection of historic properties (36 CFR 800) and treatment of historic properties (36 CFR 68) were used to assess impacts to cultural resources for this analysis.

- Physical destruction of or damage to all or part of the resource
- Alteration of a resource, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary of the Interior's standards for the treatment of historic properties (36 CFR 68) and applicable guidelines
- Removal of the property from its historic location
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features.

### ***Alternative A – No Action***

Under the No Action alternative, Reclamation would not perform the baseline mechanical overhaul of both units. There would be no new stainless-steel runners, new stainless-steel wicket gates, new greaseless bushings, inspection and refurbishment of all major components, or replacement of worn parts. Therefore, the current Anderson Ranch Dam turbine unit Nos. 1 and 2 would remain in operational status and maintained at the 50 percent restriction in which the unit had been previously operated, with additional monitoring for vibration. As the existing equipment continued to be used, an increase in maintenance efforts would be necessary, potentially directly impacting more frequently accessed areas of the dam and powerplant through increased wear and tear. However, the historic integrity of the National Register-eligible dam would be unchanged.

### ***Alternative B – Turbine Overhaul and Modernization (Proposed Action)***

Under the Proposed Action alternative, with either Alternative B1 (funding unit No. 2 modernization) or Alternative B2 (funding unit Nos. 1 and 2 modernization), Anderson Ranch Dam (IHSI# 39-1202) would see two direct effects, both beneficial. First, completion of the modernization of the turbines would ensure the continued function of the generation units and the fulfillment of an authorized purpose of power generation, a beneficial result of overhauling the equipment. Second, the replacement of the equipment with the same or similar parts would not significantly reduce the historic integrity of the facility. The direct effects of the actions involved with Alternative B (including both B1 and B2), when assessed in their short- and long-term, adverse



and beneficial, public health and safety, and effects that would violate Federal, State, Tribal, or local law protecting the environment, would not adversely impact Anderson Ranch Dam and Powerplant's historic integrity.

A possible indirect effect of the modernization of the turbines is a reduction in the need to perform extensive regular maintenance, thus having a lesser physical impact to the cultural resource over the next several decades. Less frequent and smaller interactions with the equipment could result in less wear and tear within the powerplant itself, thus prolonging the condition and integrity of that historically significant space. The indirect effect of the actions involved with Alternative B, when assessed in their context and intensity, could beneficially impact the sustained good condition of the powerplant and its historic integrity.

Combined impacts from the ongoing and upcoming projects in the vicinity of Anderson Ranch Dam and Powerplant could result in a combined loss of historic integrity that might threaten the characteristics of the cultural resource from meeting the criteria necessary to qualify for listing on the National Register of Historic Places. The Anderson Ranch Dam raise project, especially, would have significant adverse effects to the cultural resource (Reclamation 2020). Raising the dam, even if following original design and engineering outlines, would physically alter the cultural resource to such a degree that it would effectively become a different structure. However, consultation with the SHPO had determined that the adverse effects caused by the dam raise project can be mitigated with specific tasks that have been formally outlined in a Memorandum of Agreement (MOA #R20MA11742).

## **3.7 Indian Sacred Sites**

A sacred site, as defined in Executive Order 13007, means any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian tribe or Indian individual determined to be an appropriately authoritative representative of an Indian religion as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site. During consultation efforts, no sacred sites were identified, discussed, or delineated within the defined project area by the associated tribes. If such sites exist near the project area but were not divulged specifically, it is assumed that project activities as described during scoping would not be sufficient to deny or limit access for Native American religious practitioners.

### **3.7.1 Affected Environment**

The project area of the Anderson Ranch Dam and Powerplant has been significantly altered from its natural state by large-scale construction activities. Where once there was a free-flowing river with steep slopes and tall mesas, a large earthen dam now restricts the river's flow and produces electricity through hydropower generation. There is no record of this location having served as a sacred site prior to the dam's construction, although such records would most likely not exist in any written form. The modifications of the riverbanks, slopes, and hillsides in the project area because of

construction activities in the mid-20<sup>th</sup> century may have obliterated evidence of sacred sites if any existed in the area or may have served to hasten the loss of communal memory of such places.

### **3.7.2 Environmental Consequences**

#### ***Alternative A – No Action***

Reclamation has no information of any sacred sites within or near the project area, and no sacred sites were identified by Tribes during the scoping process. Under the No Action alternative, the existing generators and turbines would not be modernized and the proposed actions would not occur. There would be no effects to sacred sites.

#### ***Alternative B – Turbine Overhaul and Modernization (Proposed Action)***

Reclamation has no information of any sacred sites within or near the project area, and no sacred sites were identified by Tribes during the scoping process. Under the Proposed Action alternative, the existing generators and turbines would be modernized and the proposed actions would occur. However, there would be no effects to sacred sites.

## **3.8 Tribal Interests**

### **3.8.1 Indian Trust Assets**

Indian Trust Assets (ITAs) are legal interests in property held in trust by the United States for Indian tribes or individual Indian trust landowners. ITAs include trust lands, natural resources, trust funds, or other assets held by the federal government in trust. An Indian trust asset has three components: (1) the trustee, (2) the beneficiary, and (3) the trust asset. Treaty-reserved rights (e.g., fishing, hunting, and gathering rights on and off reservation) are usufructuary<sup>2</sup> rights that do not meet the Department of the Interior's (DOI) definition of an ITA. The United States does not own or otherwise hold these resources in trust. ITAs do not normally include usufructuary rights alone (i.e., rights to access for hunting or fishing). Rather, they require first a possessory interest; that is, the asset must be held or owned by the Federal Government as trustee.

The DOI requires that all impacts to trust assets, even those considered nonsignificant, must be discussed in a trust analysis in NEPA documents and appropriate compensation and/or mitigation implemented. Additionally, Reclamation's NEPA Handbook (2012) recommends a separate ITA section in all NEPA documents, including a Record of Decision. These sections should be prepared in consultation with potentially affected tribal and other trust beneficiaries.

#### ***Affected Environment***

No Indian trust land assets were identified in the Proposed Action area or staging areas during the scoping process, such as those held in trust by the Bureau of Indian Affairs for the benefit of tribes

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<sup>2</sup> A usufruct is the legal right to use and derive profit or benefit from property that belongs to another person.

or individual Indian trust landowners. As part of the scoping process, Reclamation researched Tessel, a Federal Geographic Information System land database that includes Federal lands held in trust for tribes and Individual Indian trust landowners. This research indicated there are no Indian trust land assets in the Proposed Action area or staging areas. The Proposed Action area, including staging areas, is contained wholly within a Federally owned project.

ITAs in the closest proximity to the Proposed Action area are the Shoshone-Paiute Tribes of the Duck Valley Reservation, which is situated approximately 122 miles south of the Proposed Action area. The Shoshone-Paiute Tribes have a water right in the East Fork of the Owyhee River, a tributary of the Snake River (Public Law 111-11 §10801; 123 Stat. 1411 (2009)).

ITAs in the second closet proximity to the Proposed Action area are the Shoshone-Bannock Tribes of the Fort Hall Reservation, which is situated approximately 201 miles east of the Proposed Action area. The Shoshone-Bannock Tribes have a water right in that portion of the Snake River basin upstream from Hells Canyon Dam, the lowest of the three dams authorized as Federal Energy Regulatory Commission Project No. 1971 (Fort Hall Indian Water Rights Act of 1990; 104 Stat 3059 (1990)). The Shoshone-Bannock have water storage rights in Palisades Reservoir and American Falls Reservoir, which are reserved under the Michaud Flats project for irrigation in the State of Idaho (68 Stat. 741 at 1027 (1954)).

The Nez Perce Tribe, situated approximately 325 miles north of the Proposed Action area, have a water right in the Snake River basin, as described in the Snake River Basin Adjudication, Case No. 39576, paragraph 3 of the Commencement Order issued by the Snake River Basin Adjudication Court on November 19, 1987 (118 Stat. 3433 (2004)).

## ***Environmental Consequences***

### **Alternative A – No Action**

Under the No Action alternative, refurbishment and replacement of the existing runners on turbine unit Nos. 1 and 2 would not occur. Existing short-term or long-term effects, either beneficial or adverse, or effects on public health and safety in relationship to nearby ITAs would remain unchanged.

### **Alternative B – Turbine Overhaul and Modernization (Proposed Action)**

Under Alternative B, the Proposed Action is expected to increase megawatt production, with no known adverse impact to the hydrology, water quality, or aquatic biota. If the Proposed Action occurs, there would be no known beneficial or adverse effects to ITAs by way of increases to megawatt production. There are no known or anticipated short-term or long-term effects to ITAs by way of increases to megawatt production.

Reclamation requested information from the Shoshone-Paiute Tribes of the Duck Valley Reservation and the Shoshone-Bannock Tribes of the Fort Hall Reservation, who traditionally or currently use the area under their reserved treaty rights; however, no responses were received. The lack of specific information about the area is not indicative of a lack of importance to Tribes. With no specific responses, Reclamation assumes that there would be no adverse effects to Indian Trust Assets, such as adverse impacts to water, water rights, or land held in trust for the Tribes.

### 3.8.2 Treaty Rights

#### ***Affected Environment***

The United States has a fiduciary responsibility to protect and maintain rights reserved by Indian tribes or Indian individuals by treaties, statutes, executive orders, and allotments. These rights are sometimes further interpreted through court decisions and regulations.

The Proposed Action area is surrounded by areas historically used by many tribes. Treaty rights at issue here are access and impacts to off-reservation hunting, fishing, gathering rights, livestock grazing rights, and cultural or ceremonial use rights. Although the Proposed Action area is wholly situated within a Federally owned project, courts have ruled that members of Federally recognized tribes with reserved treaty rights have the right to cross private or state lands in order to gain access to treaty areas (*United States v. Winans* 1905).

The Shoshone-Bannock Tribes of the Fort Hall Reservation are Federally recognized Tribes in southeast Idaho; the reservation is situated approximately 201 miles east of the Proposed Action area.

On July 3, 1868, the Fort Bridger Treaty was signed and agreed to by the Eastern and Western Bands of the Northern Shoshone and the Bannock (or Northern Paiute Bands). Article IV of the treaty states that members of the Shoshone-Bannock Tribes, "...shall have the right to hunt on the unoccupied lands of the United States..." Courts interpreted this to mean "unoccupied federal lands."

In the case of *State of Idaho v. Timmo*, an off-reservation fishing case in Idaho, the Idaho Supreme Court interpreted the Fort Bridger Treaty of the Shoshone-Bannock Tribes. The Court determined that the Shoshone word for *hunt* also included to *fish*. Under *Timmo*, the Court affirmed the Tribal members' right to take fish off-reservation pursuant to the Fort Bridger Treaty. The Court also recognizes, "that treaty Indians have subsistence and cultural interests in hunting and fishing..." and, "The Fort Bridger Treaty ... contains a unified hunting and fishing right, which...is unequivocal." The treaty did not grant a hunting, fishing, or gathering right; it reserved a right the Shoshone-Bannock Tribes have always exercised.

The Shoshone-Paiute Tribes of the Duck Valley Reservation are Federally recognized Tribes in southern Idaho and northern Nevada; the reservation is situated approximately 122 miles south of the Proposed Action area. The reservation was established by Executive Orders dated April 16, 1877; May 4, 1886; and July 1, 1910. The Shoshone-Paiute sometimes claim the interests of the tribes that are reflected in the Bruneau, Boise, Fort Bridger, Box Elder, Ruby Valley, and other treaties and executive orders that the tribes' ancestors agreed to with the United States. The Tribes continue to observe these treaties and executive orders in good faith; however, the Federal government did not ratify treaties that reserved off-reservation hunting and fishing rights. The Tribes assert they have aboriginal title and rights to those areas. All such treaties and executive orders recognize the need for the Tribes to continue to have access to off-reservation resources because most of the reservations established were and continue to be incapable of sustaining tribal populations. This need continues and has not diminished from the time of the first treaties and

executive orders that established the Duck Valley Reservation (*Cherokee Nation of Oklahoma and Shoshone-Paiute Tribes of the Duck Valley Reservation v. Leavitt* 2005).

The Northwestern Band of the Shoshone Indians, a Federally recognized Tribe located near Washakie, Utah, is situated approximately 266 miles southeast of the Proposed Action area. The Tribe maintains reserved treaty-protected hunting, fishing, and gathering rights, also pursuant to the 1868 Treaty of Fort Bridger. As noted above, these reserved rights may be exercised on unoccupied lands within the area acquired by the United States.

The Nez Perce Tribe of the Nez Perce Reservation are a Federally recognized Tribe in northern Idaho; the reservation is situated approximately 325 miles north of the Proposed Action area. The United States and the Tribe entered into three treaties (Treaty of 1855, Treaty of 1863, and Treaty of 1868) and one agreement (Agreement of 1893). The rights of the Nez Perce Tribe include the right to hunt, gather, and graze livestock on open and unclaimed lands, and fish in all usual and accustomed places.

The Northern Arapaho of the Wind River Reservation are a Federally recognized Tribe located in central Wyoming; the reservation is situated approximately 427 miles east of the Proposed Action area. The United States and the Northern Arapaho entered into the Fort Laramie Treaty of 1851 (Horse Creek Treaty), which reserves the right of the Northern Arapaho “to roam and hunt while game shall be found in sufficient quantities to justify the chase.”

### ***Environmental Consequences***

United States Supreme Court has ruled that treaties with Indian tribes are to be construed liberally in favor of tribes, as the tribes would have understood the language of the treaty at the time the treaty was signed. It is likely that the ratified or unratified treaties listed above include areas surrounding Anderson Ranch Dam, the Proposed Action area, particularly areas surrounding the proposed HD-131 and HD-121 ingress and egress routes.

#### **Alternative A – No Action**

Under the No Action alternative, the existing turbines would not be replaced. There would be no short-term or long-term effects, either beneficial or adverse to existing reserved treaty rights for tribal hunting, fishing, or gathering in traditional or customary places or for livestock grazing in the area.

#### **Alternative B – Turbine Overhaul and Modernization (Proposed Action)**

Under Alternative B, there are no known or anticipated long-term effects, either beneficial or adverse, to reserved treaty rights such as access to or impacts to traditional or customary places for hunting, fishing, or gathering, or for livestock grazing in the area.

Alternative B would not adversely impact hydrology, water quality, or aquatic biota at or near the Proposed Action area in ways that would have a short-term or long-term sustainability effect on fish in the Anderson Ranch Reservoir, the Snake River, or its tributaries.

The proposed HD-131 and HD-121 construction ingress and egress routes may cause a temporary, short-term adverse effect on access to traditional or customary hunting, fishing, or gathering sites, or for livestock grazing areas during the construction periods.

Reclamation requested information from the Shoshone-Bannock Tribes, who traditionally and currently use the area for hunting, fishing, and gathering of plants; however, no responses were received. The lack of specific information about the area is not indicative of a lack of importance to Tribes. With no specific response, Reclamation assumes that there would be no adverse effects to reserved treaty rights such as access or impacts to areas for hunting, fishing, or gathering or for livestock grazing.

### **Mitigation Summary**

Mitigation efforts may be required to reduce the effects of construction ingress and egress on Tribal access to hunting, fishing, or gathering along HD-121 and HD-131 should construction ingress and egress activity take place in the same location and at the same time of year as traditional or customary hunting, fishing, and gathering of plants, or for livestock grazing.

## **3.9 Transportation**

### **3.9.1 Affected Environment**

The transportation analysis area includes a portion of the road system to access residential or recreation sites, Anderson Ranch Dam, along the South Fork Boise River, and proposed road closures and detours.

Four major roads provide vehicle access around Anderson Ranch Reservoir. However, HD-134 is the only main road that falls within the analysis area. HD-134 extends north from its junction with U.S. 20 to Anderson Ranch Dam, providing the most direct access to the dam and alternate access to the northwest reservoir shore. HD-134 also allows access to surrounding towns for residence, emergency services, mail delivery, and commerce. There are three bridges in the surrounding area of Anderson Ranch Reservoir, but only Spillway Bridge is included in the analysis area. Spillway Bridge, over Anderson Ranch Dam crest on HD-134, is currently a single lane 65 feet long. Current traffic for HD-134 varies by season due to accessibility and the remote nature of the location. The base level of road use for the area is highest in summer and fall for recreating and hunting.

HD-131 and HD-121 fall within the analysis area and would make up the detour route used by the public during the closure of HD-134 and Spillway Bridge for construction on the Anderson Ranch Dam raise. HD-131, is an all-dirt road west of Anderson Ranch Dam that connects U.S. 20 to HD-121 over Cow Creek Bridge. HD-121 is also an all-dirt road that follows along the South Fork Boise River to Anderson Ranch Dam. Improvements to HD-131 would be necessary to supplement the closure of HD-134 to the public during the construction on Spillway Bridge for the Anderson Ranch Dam raise to ensure access to surrounding towns for residence, emergency services, mail delivery, and commerce. This detour would involve some new alignments, road improvements, and winter snow removal, resulting in brief traffic delays during the approximately 43 days of construction along HD-131. These improvements would be part of the Anderson Ranch Dam raise project.

### **3.9.2 Environmental Consequences**

#### ***Alternative A – No Action***

Under Alternative A, current transportation conditions and access would continue. Population growth in the surrounding area would continue trends for increased vehicle traffic levels near and around the project area. Alternative A would not increase vehicle levels, disrupt traffic flow, or deteriorate roadway conditions above existing conditions in the short term. In the mid- to long term, effects would come from increased road use due to the construction of the additive actions of the Anderson Ranch Dam raise, South Fork Boise River Diversion Project and CCE LOPP.

#### **Effects from the Anderson Ranch Dam Raise**

During construction of the dam raise, the additional traffic on HD-131 and HD-121 would likely adversely affect fisherman, campers, and others recreating in various sites along the South Fork Boise River, particularly during busy summer periods, due to slight delays merging into traffic and increased dust and noise. The overall increase in vehicle traffic from the Anderson Ranch Dam raise would cause minor deterioration of local roads, and Reclamation would require contractors to repair damage and restore roadways to conditions similar to those before construction. Increased traffic delays are not expected to impact the ability of emergency personnel to respond to an incident because delays would be short-term and intermittent. Reference the Transportation Specialist Report's affected environment and environmental consequences in Appendix B-17 in the Boise River Basin Feasibility Study Report Draft EIS for more information (Reclamation 2020).

#### **Effects from the South Fork Boise River Diversion Project**

This project construction would last multiple years and could correspond with the construction timing of the Anderson Ranch Dam raise. The overall increase in vehicle traffic along HD-134 from the construction related to the South Fork Boise River Diversion Project would have a minor additive effect on the deterioration of local roads. There would be no additive delays due to this project using only HD-134 for their construction transportation.

#### **Effects from the Cat Creek Energy Lease of Power Privilege**

This project construction would last multiple years and could correspond with the construction timing of the Anderson Ranch Dam raise. During construction of the project, additional construction traffic on HD 134 would have an additive but minor effect on the deterioration of local roads. There would be no additive delays due to this project using only HD-134 for their construction transportation.

#### ***Alternative B – Turbine Overhaul and Modernization (Proposed Action)***

##### **Effects to Transportation**

Transportation traffic would be the same for Alternative B1 and B2 in terms of total number of trips, workdays, and contractor pick-up trucks per workday. Table 2 and Table 3 show these trips for the entire length of the project and split into unit Nos. 1 and 2. These estimates were provided by Reclamation's Technical Service Center to be followed by the selected contractor.

Table 2. Construction traffic expected from mid-August to May 1

Activity (Crew Transport)	Total # of Trips- Both Units No. 1 and No. 2	Total # of Trips Per Unit	Work Days Per Unit	Contractor Trucks* per Work Day
Mobilization / Prep	80	40	10	4
Unit Measurement Data Gathering	80	40	10	4
Haul Away	160	80	20	4
Shop Work (off site)	NA	NA	0	NA
On-site Machining	80	40	20	2
Delivery (10 deliveries)	40	20	60	2 per delivery
Installation	320	160	40	4
<b>Total</b>	<b>760</b>	<b>380</b>	<b>160</b>	

\*Semi-trucks included.

Table 3. Truck/trailer traffic expected from mid-August to May 1

Activity (Truck/Trailer)	Total # of Trips, Unit Nos. 1 and 2	Total # of Trips Per Unit
Mobilization / Prep	4	2
Haul Away	20	10
On-site Machining	4	2
Delivery (10 deliveries)	20	10
<b>Total</b>	<b>48</b>	<b>24</b>

### ***Alternative B1 – Turbine Overhaul and Modernization Funded for Unit No. 2***

HD-134 and Spillway Bridge would be the identified transportation route for Alternative B1. Construction traffic along HD-134 from U.S. 20 to Anderson Ranch Dam for the Anderson Ranch Dam raise would not occur during this time frame. Additional travel described in Table 2 and Table 3 for the proposed action would be incremental when spread over the 9-month construction duration and insignificant when compared to the amount of traffic already using this transportation route.

### ***Alternative B2 – Turbine Overhaul and Modernization Funded for Unit No. 1 and 2***

Use of the detour route along HD-121 and HD-131 for Alternative B2 would depend on the approval of funding for the modernization of turbine unit No. 1. If funding is approved, workers who would need to access the powerhouse and the turbines would experience road closures on HD-134 if the timing of this project overlaps with the construction for the Anderson Ranch Dam raise. Implementation of the detour route along HD-121 and HD-131 would increase travel time compared to the use of HD-134 to access the powerhouse. However, the detour includes snow removal, moderate road improvements, and new alignment construction on HD-121 and HD-131, which would improve travel time to areas north of the reservoir in summer compared to its current state and make the route passable in winter. Considering the number of trips per unit within Table 2 and Table 3 on HD-131 and HD-121, there would be a slight increase in the amount of traffic using this route, which would cause minor road deterioration. When added to the effects caused by the number of trips using the detour route for the Anderson Ranch Dam raise, these additional trips



would not cause a significant effect due to the incremental increase. Additionally, repairs would be performed to roadways after the Anderson Ranch Dam raise is completed, which would occur well after the completion of this action.

## 3.10 Environmental Justice

Executive Order 12898 (59 FR 7629) requires each Federal agency to achieve environmental justice by addressing disproportionately high and adverse human health and environmental effects on minority and low-income populations. The demographics of the action area are examined to determine whether minority populations, low-income populations, and/or Native American tribes are present in the area impacted by a Preferred Alternative. If present, the agency must determine if implementation of the Preferred Alternative would cause disproportionately high and adverse human health or environmental effects on the populations.

### 3.10.1 Affected Environment

#### ***Racial Minorities***

The project construction area is located in Elmore County, a remote and sparsely populated area, where much of the land is owned by the Federal government. The general proportions of race and ethnicity in Elmore County are similar to Idaho as a whole, with a white population of more than 87 percent according to the Census Bureau's 2015-2019 American Community Survey (Table 4).

Table 4. 2019 Summary of Racial and Ethnic Minority Distribution in Idaho and Elmore County

Race or Ethnicity	Idaho	Elmore County
White	93.0%	87.8%
Black or African American	0.9%	3.1%
Asian	1.6%	3.1%
Native Hawaiian and Other Pacific Islander	0.2%	0.4%
American Indian and Alaska Native	1.7%	1.7%
<b><i>Two or More Races</i></b>	2.6%	3.9%
<b><i>Hispanic or Latino (any race)<sup>1</sup></i></b>	12.8%	17.8%

Source: U.S. Census Bureau 2019

<sup>1</sup>By definition from the Federal Office of Management and Budget, race and Hispanic or Latino origin are two separate categories. People who report themselves as Hispanic or Latino can be of any race.

### **Low-Income Populations**

Low-income populations are identified by several socioeconomic characteristics. As categorized by the 2000 Census, specific characteristics include income (median family and per capita), percentage of population below poverty (individuals), and unemployment rates. The Census Bureau's 2015-2019 American Community Survey shows a slightly lower median household income of \$46,855 for Elmore County than \$55,785 for Idaho (U.S. Census Bureau 2019). The Census Bureau reported that about 14.1 percent of the population of Elmore County and 11.2 percent of the state of Idaho's population were living in poverty in 2019 (U.S. Census Bureau 2019).

Table 5. 2019 Income and Poverty Status & 2020 Unemployment Status for Elmore County and the State of Idaho

Income/Poverty Status	Idaho	Elmore County
Median household income (in 2019 dollars), 2015-2019	\$55,785	\$46,855
Per capita income in past 12 months (in 2019 dollars), 2015-2019	\$27,970	\$23,028
Persons in poverty, percent	11.2%	14.1%
Persons unemployed (2020), percent	3.3%	3.5%

Other measures of low income, such as unemployment, characterize demographic data in relation to environmental justice. The 3.5 percent unemployed in Elmore county is only slightly higher than the state of Idaho's 3.3 percent of unemployed (Idaho Dept. of Labor 2020).

### **3.10.2 Environmental Consequences**

#### **Alternative A – No Action**

The No Action alternative would not alter the current regional environmental justice status based on the lack of action occurring and the information presented above, and therefore would have no environmental justice effects.

#### **Alternative B – Turbine Overhaul and Modernization (Proposed Action)**

Under Alternatives B1 and B2, no minority or low-income groups, as identified for further analysis by Executive Order 12898, were identified that would be disproportionately affected by health or environmental effects as the result of the implementation of the Proposed Action. Because the Proposed Action is a small, localized action with a relatively unpopulated area of effect, there would be no significant effect to the greater area's low-income or minority populations.

## **3.11 Recreation**

### **3.11.1 Affected Environment**

Anderson Ranch Reservoir is popular year-round for fishing, boating, and camping. However, most of the recreational use occurs from Memorial Day (last weekend of May) through Labor Day (first weekend of September) as the warmer/drier weather encourages overnight camping.

One developed campground exists within the project vicinity, from Anderson Ranch Dam downstream to Cow Creek Bridge. The spillway campground is located near the spillway of Anderson Ranch Dam and is a small three-site campground with a vault toilet.

The South Fork Boise River is known for its renowned blue ribbon trout fishery. It is popular for shoreline fishing, wading, and float boat fishing as well. The river is also popular for whitewater rafting and is accessed by three formal boat launches: Tailwaters, Village, and Danskin. Vault toilets and a parking area are provided at each of these access points. Additional vault toilets are available at Indian Point and Cow Creek. There are nine undeveloped camping areas identified along the approximate 7.5-mile stretch of river from the Tailwaters boat launch to the Cow Creek Bridge.

General access to the South Fork Boise River from the dam to the general area of Cow Creek Bridge is provided by HD-121 and includes a system of short road/trail spurs that typically reach the river and offer fishing and dispersed camping opportunities. Most of these roads/trails lack a gravel surface and drainage. In many areas, these road/trails are only a few feet vertically above the river's high-water line. Past flood events have damaged these roads and facilities have been exposed to flood waters.

Additional information regarding the fisheries of the South Fork Boise River and Anderson Ranch Reservoir are included in Section 3.2. More information regarding water use authorizations and operating water levels is included in Section 3.4.

### **3.11.2 Environmental Consequences**

#### ***Alternative A – No Action***

Under the No Action alternative, the Anderson Ranch turbines would not be replaced. Recreational amenities and activities would remain consistent with current access, opportunity, and experience on and around the reservoir and South Fork Boise River due to the existing current operations.

#### ***Alternative B – Turbine Overhaul and Modernization (Proposed Action)***

##### **Alternative B1 – Turbine Overhaul and Modernization Funded for Unit No. 2**

The location of construction activities for Alternative B1 is limited to the power plant, staging areas near the spillway, and construction traffic along HD-134. The maximum increase in average daily traffic is estimated to be five vehicles per day, including one haul truck and four crew transports. Construction traffic along HD-134 is not expected to affect those recreating near the spillway or on the South Fork Boise River along HD-121. No closures of any developed recreation sites or closure to access routes are proposed, so no loss of access to or reduction in recreational opportunity is expected. Construction activities would take place during the off-season, from September to March,

thus minimizing the effect of noise on the recreational experience for those recreating near the spillway or along the South Fork Boise River.

### **Alternative B2 – Turbine Overhaul and Modernization Funded for Unit No. 1 and 2**

The location of construction activities for Alternative B2 is limited to the powerplant, staging areas near the spillway, and construction traffic along HD-131 and HD-121 from Cow Creek Bridge to the spillway. No closures of any developed recreation sites or closure to access routes are proposed, so no loss of access to or reduction in recreational opportunity is expected. Construction traffic related to the turbine modernization project is minimal, with an estimated maximum increase in average daily traffic of five vehicles per day from September to May. Construction activities will take place during the off-season, from September to May, thus minimizing the effect of both traffic and noise on the recreational experience for those recreating near the spillway or along the South Fork Boise River.

This project would take place concurrently with the Anderson Ranch Dam raise. The spillway campground is anticipated to be closed throughout the duration of construction for the Anderson Ranch Dam raise. Construction noise and traffic are expected from activities related to the Anderson Ranch Dam raise. Construction activities and traffic related to the turbine modernization project are not expected to cause any noticeable increase in noise or traffic.

# Chapter 4 Consultation and Coordination

On July 23, 2021, Reclamation mailed a scoping document, including a letter, project information, and a map, to agencies, Indian tribes, members of Congress, organizations, and individuals, soliciting their help in identifying any issues and concerns related to the proposed action. Reclamation received two comments during the scoping period. The first comment from United States Forest Service acknowledged the transportation routes identified in the scoping document and identified them as being under easement to Mountain Home Highway District. A request was made for Reclamation to coordinate with the Highway District to ensure all roads and bridges can accommodate the loads required to complete the project. On May 3, 2021, Reclamation began outreach and coordination pertaining to the potential use of the alternative route along HD-131 and HD-121 with Mountain Home Highway District and Forest Service and was completed by September 2021. Mountain Home Highway District has been identified as the authority having jurisdiction over Cow Creek Bridge, HD-131, and HD-121 roadways. The second comment from Dylan Lawrence with Varin Wardewell, LLC was on behalf of the Board of Commissioners of Elmore County, Idaho. The comment included identifying a clerical error which was corrected and stated ‘concern regarding the effect that closing the road across Anderson Dam will have on the ability to provide emergency services to the community of Smith Prairie.’ Reclamation is committed to public safety and will provide road conditions to ensure year-round access via HD 134. Anderson Ranch Dam Raise Project will identify required road improvements and determine specifications using Idaho Transportation Department and Mountain Home Highway District standards. The mailing list, scoping letters, and comments received are presented in Appendix C.

## 4.1 Agency Consultation and Coordination

### 4.1.1 National Historic Preservation Act

Reclamation initiated consultation with the Idaho SHPO on September 9, 2021. SHPO concurrence with Reclamation’s finding on No Adverse Effects to Historic Properties for the action area was received on October 1, 2021.

### 4.1.2 Endangered Species Act

Reclamation generated a preliminary endangered species report through the USFWS IPaC site (Appendix A). The report indicated that two species are expected to be present in the action area for the proposed project, bull trout (*Salvelinus confluentus*) and monarch butterfly (*Danaus plexippus*). The project area also intersects with designated critical habitat for bull trout. Since the proposed action would not adversely affect any listed species, no need exists for formal Section 7 consultation under the ESA.

## **4.2 Tribal Consultation and Coordination**

Reclamation mailed scoping letters to the Shoshone-Bannock Tribes and the Shoshone-Paiute Tribes on July 15, 2021 (Appendix C). No responses or concerns from the Tribes were brought forward during or after the scoping period.

## Chapter 5 References

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USGS 2002	U.S. Geological Survey (USGS). 2002. <i>Ecoregions of Idaho</i> . Available [online]: <a href="https://www.nrc.gov/docs/ML1018/ML101800248.pdf">https://www.nrc.gov/docs/ML1018/ML101800248.pdf</a> . Accessed: September 15, 2019.
<i>U.S. v. Winans</i> 1905	United States v. Winans, 198 U.S. 371 (1905)
Waterbury et al. 2019	Waterbury B, Potter A and Svancara LK (2019) Monarch Butterfly Distribution and Breeding Ecology in Idaho and Washington. <i>Front. Ecol. Evol.</i> 7:172. Available at <a href="https://www.frontiersin.org/articles/10.3389/fevo.2019.00172/full">https://www.frontiersin.org/articles/10.3389/fevo.2019.00172/full</a> . Accessed October 2021.
Western Native Trout Initiative 2018	Western Native Trout Status Report. 2018. Western Native Trout Initiative. Available at <a href="https://westernnativetrout.org/wp-">https://westernnativetrout.org/wp-</a>



Text Citation	Bibliographic Reference
	<a href="#">content/uploads/2018/08/InteriorRedband_WesternNativeTroutStatusReport_UpdatedAugust2018.pdf</a> . Accessed: 9/26/2019.

# **Appendices**

## **Appendix A – Information for Planning and Conservation (IPaC) Report**

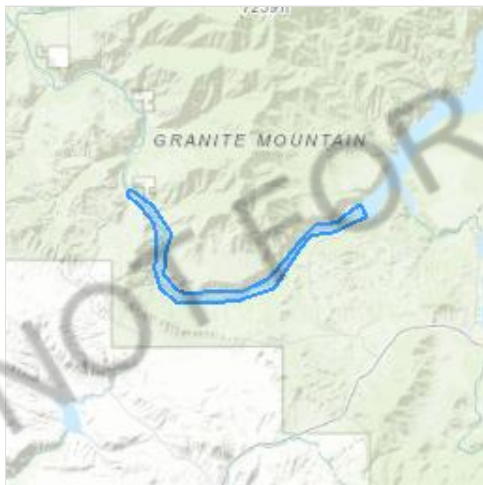
# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

## Location

Elmore County, Idaho



## Local office

Idaho Fish And Wildlife Office

☎ (208) 378-5243

📠 (208) 378-5262

1387 South Vinnell Way, Suite 368

Boise, ID 83709-1657

# Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species<sup>1</sup> and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries<sup>2</sup>).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

- 
1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
  2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

## Fishes

NAME	STATUS
<b>Bull Trout</b> <i>Salvelinus confluentus</i> There is <b>final</b> critical habitat for this species. Your location overlaps the critical habitat. <a href="https://ecos.fws.gov/ecp/species/8212">https://ecos.fws.gov/ecp/species/8212</a>	Threatened

## Insects

NAME	STATUS
<b>Monarch Butterfly</b> <i>Danaus plexippus</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a>	Candidate

## Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE
<b>Bull Trout</b> <i>Salvelinus confluentus</i> <a href="https://ecos.fws.gov/ecp/species/8212#crithab">https://ecos.fws.gov/ecp/species/8212#crithab</a>	Final

## Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>

- Nationwide conservation measures for birds

<http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

**Bald Eagle** *Haliaeetus leucocephalus*

Breeds Dec 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

**Lewis's Woodpecker** *Melanerpes lewis*

Breeds Apr 20 to Sep 30

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9408>

## Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

### Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

### Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

### Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

### No Data (—)

A week is marked as having no data if there were no survey events for that week.

### Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



**Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.**

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

**What does IPaC use to generate the migratory birds potentially occurring in my specified location?**

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).



## What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

## How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

## What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

## Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

## What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

### Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

## Facilities

### National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

### Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

## Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

### Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

### Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

### Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

**Appendix B – Cultural Resources and Sacred Sites  
Consultation with State Historic Preservation Office and  
Shoshone-Bannock Tribes**

1 October 2021



**Brad Little**  
Governor of Idaho

**Janet Gallimore**  
Executive Director  
State Historic  
Preservation Officer

**Administration:**  
2205 Old Penitentiary Rd.  
Boise, Idaho 83712  
208.334.2682  
Fax: 208.334.2774

**Idaho State Museum:**  
610 Julia Davis Dr.  
Boise, Idaho 83702  
208.334.2120

**Idaho State Archives  
and State Records  
Center:**  
2205 Old Penitentiary Rd.  
Boise, Idaho 83712  
208.334.2620

**State Historic  
Preservation Office:**  
210 Main St.  
Boise, Idaho 83702  
208.334.3861

**Old Idaho Penitentiary  
and Historic Sites:**  
2445 Old Penitentiary Rd.  
Boise, Idaho 83712  
208.334.2844

HISTORY.IDAHO.GOV

Melanie Paquin  
Bureau of Reclamation  
Snake River Area Office  
230 Collins Road  
Boise, ID 83702-4520  
jrilk@usbr.gov

Via Email

**RE: Invitation to Consult on the Anderson Ranch Dam Turbine  
Modernization Project-Arrowrock Diversion, Boise Project,  
Elmore County, Idaho / SRA-1218 / 2.1.1.04 / SHPO Rev. No.  
2021-978**

Dear Ms. Paquin:

Thank you for consulting with our office on the above-referenced project. The State Historic Preservation Office is providing comments to the Bureau of Reclamation pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR § 800. Consultation with the SHPO is not a substitution for consultation with Tribal Historic Preservation Offices, other Native American tribes, local governments, or the public.

It is our understanding that the scope of the undertaking will include the replacement of the runner and mechanical overhaul of Unit No. 2 with an option to overhaul and replace the runner on Unit No. 2 of Anderson Ranch Dam (IHSI No. 39-1202). The baseline mechanical overhaul will include new stainless-steel runners, new stainless-steel wicket gates, replace bushings, inspection, and refurbishment of all major components, and replacement of all consumable or single-use items.

Pursuant to 36 CFR § 800.5, we have applied the criteria of effect to the proposed undertaking. Based on the information received on 9 September 2021 and after careful consideration, we do not concur with the finding of adverse effect to historic properties. We have determined the proposed project actions will result in a finding of **no adverse effect to historic properties** as the replacement of materials and components will be largely in-kind.

In the event that cultural material is inadvertently encountered during implementation of this project, work shall be halted in the vicinity of the finds until they can be inspected and assessed by the appropriate consulting parties.

Thank you for the opportunity to comment. Please note that our response does not affect the review timelines afforded to other consulting parties. Additionally, the information provided by other consulting parties may cause us to revise our comments. If you have any questions or the scope of work changes, please contact me via phone or email at 208.488.7463 or [ashley.molloy@ishs.idaho.gov](mailto:ashley.molloy@ishs.idaho.gov).

Sincerely,

A handwritten signature in blue ink, appearing to read "Ashley Molloy". The signature is fluid and cursive, with the first name "Ashley" and last name "Molloy" clearly distinguishable.

**Ashley Molloy, M.A.**  
**Historical Review Officer**  
**Idaho State Historic Preservation Office**

## **Appendix C – Scoping Documents, Mailing List, and Scoping Comments Received**

# **Scoping Information Package**

## **Proposal to Replace Runners on Turbine Units Number 1 and 2 and Perform Modernization Upgrades at Anderson Ranch Dam, Elmore County, Idaho**

This information package summarizes the proposal from the Bureau of Reclamation to perform construction activities necessary for the maintenance and rehabilitation of the turbine units number (no.) 1 and 2 at Anderson Ranch Dam. This project would include a baseline mechanical overhaul of new stainless-steel runners, new stainless-steel wicket gates, replacement of bushings, an inspection and refurbishment of all major components, and replacement of worn parts. This project would refurbish and replace equipment that has deteriorated over the last 70 years in service. These turbine unit components require replacement or repair before further deterioration compromises the integrity of the turbines. This would allow for operation of the units for another 50 or more years before the next major mechanical overhaul.

Federal actions must be analyzed in accordance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations to determine potential environmental consequences. Reclamation is asking for comment to better identify issues and concerns associated with this proposal, further detailed below.

### **Background**

Anderson Ranch Dam is a two-unit Francis turbine facility originally installed in 1950 and 1951. The existing runners are original to the facility and have been in service for over 70 years. In 1986, both units no. 1 and no. 2 were upgraded to 20 Megawatts (MW) from the original 13 MW. Cracking on the runner buckets was first identified in 1993. In 2017, due to the increase in crack propagation, Reclamation voluntarily imposed an operational limitation of no less than 50 percent gate opening in efforts to ward off additional propagation with the intent of replacing the runners in 2018 for unit no. 2 and in 2019 for unit no. 1. The original timeline for replacement had been stalled due to funding limitations.

### **Existing Condition and Need for Action**

During the annual inspection of the units in October 2019, extensive crack propagation was found. It was determined that with the exponential rate of growth, the operational window could be as short as 1 month. Reclamation engineers determined the unit to be unsafe to operate until a proper repair or replacement could occur. In early 2020, an interagency agreement with Tennessee Valley Authority was set forth to perform welding repairs of the runner blades on unit no. 2. This repair work on unit no. 2 was performed on buckets no. 3, 10, 11, 12, and 13. The unit was placed back into operational status and maintained the 50 percent restriction in which the unit had been previously operated with additional monitoring for vibration. Reclamation operation and maintenance technical services authored the *Anderson Ranch Unit Annuals Runner Cracks Report*. Within this report, unit no. 2 buckets were re-inspected during the 2020 Unit Annuals, crack propagation was evident again on bucket no. 12. The inspection team also noted a crack on unit no. 1, bucket no. 3 on the high-pressure side and does not appear to have developed through the blade to the low-pressure side.



Overall, increased wear is becoming more evident during each unit annual inspection. Welding repairs performed do not appear to support a sustainable solution. The runners should be replaced as soon as possible to avoid further damage and maintain unit availability. Several components have exceeded their intended service life and need replaced to avoid the risk of an unplanned unit outage due to runner failure. Failure of the runner and an unplanned unit outage could result in loss generation for multiple years.

***Decision to be made*** – Through the process of an environmental assessment, Reclamation will determine whether the proposed project would significantly affect the quality of the human environment and thereby require the preparation of an Environmental Impact Statement, and if not, whether the project qualifies for a Finding of No Significant Impact. Reclamation will then determine whether to do one of the following:

- Approve the proposed project
- Deny the proposed project
- Accept the proposed project with minor changes

### **Proposed Action**

The Proposed Action Alternative involves the baseline mechanical overhaul of both units. This would include new stainless-steel runners, new stainless-steel wicket gates, new greaseless bushings, inspection and refurbishment of all major components, and replacement of worn parts.

Completion of the turbine overhaul and modernization would require dewatering the units and placing protective clearances on the units to safeguard all personnel. Initial measurements would be taken to compare with the refurbished measurements after the overhaul is complete. Next, the units would be disassembled and shipped to refurbishment facilities. At the refurbishment facility, the components would be inspected, and a disposition report provided. The components would be refreshed to an as-new condition and a final refurbishment report would be furnished. The refurbished equipment, as well as new equipment, would be shipped back to site and reassembled. Measurements would be taken to compare to the initial measurements and the units would be commissioned by the Government.

Construction on both units would take place from September through May of any given year. The contractor would utilize Anderson Dam Road from Highway 21 to access the powerhouse below the dam. The current project schedule estimates construction would take place September 2024 to May 2025 for unit no. 2. The overhaul of unit no. 2 would not occur during any other Reclamation projects currently planned in the nearby vicinity. Overhauling unit no. 1 would take place from September 2025 to May 2026. The overhaul of unit no. 1 may require the contractor to utilize Highway District 131 (Cow Creek Road) *improved* detour route (Figure 3) as proposed by the Boise Feasibility Study Anderson Ranch Dam Raise due to restricting travel across Anderson Ranch Dam during overlapping construction work. Construction execution for the unit overhauls is contingent upon receiving Federal Columbia River Power System (FCRPS), Phase 2 funding approval, which will be submitted for approval in August 2021.

## **Preliminary Alternative Development**

The environmental assessment would include consideration of the Proposed Action Alternative and the No Action Alternative. The No Action Alternative would include Reclamation's continued operation of the Anderson Ranch Dam turbine units no. 1 and no. 2 in its present condition. The proposed maintenance and rehabilitation construction activities would not occur, and the Anderson Ranch Dam turbine units no. 1 and no. 2 would continue operation with the original, deteriorated components. Additional alternatives would be developed commensurate with the issues identified throughout the NEPA process.

## **Exhibits**



Figure 1. Project Vicinity and Staging Areas Map

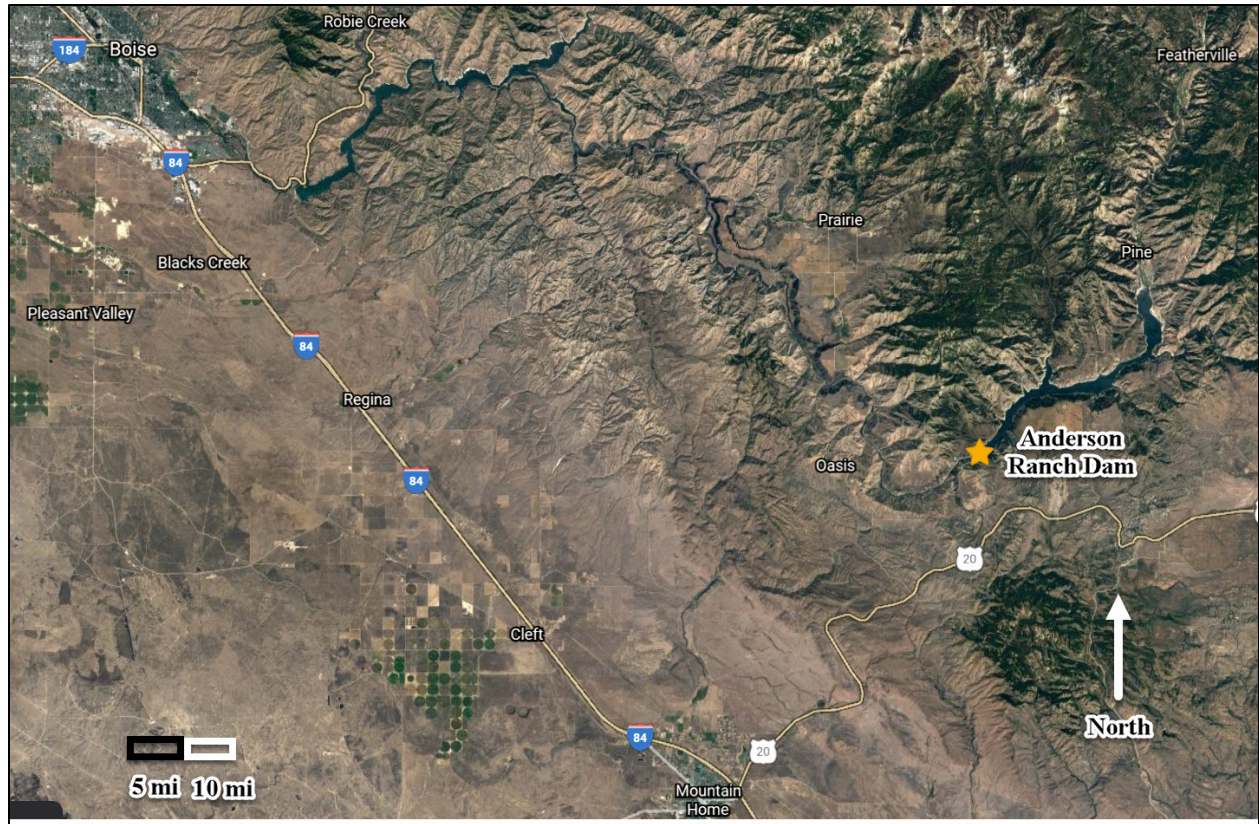


Figure 2. Project Location in Southwest Idaho Map



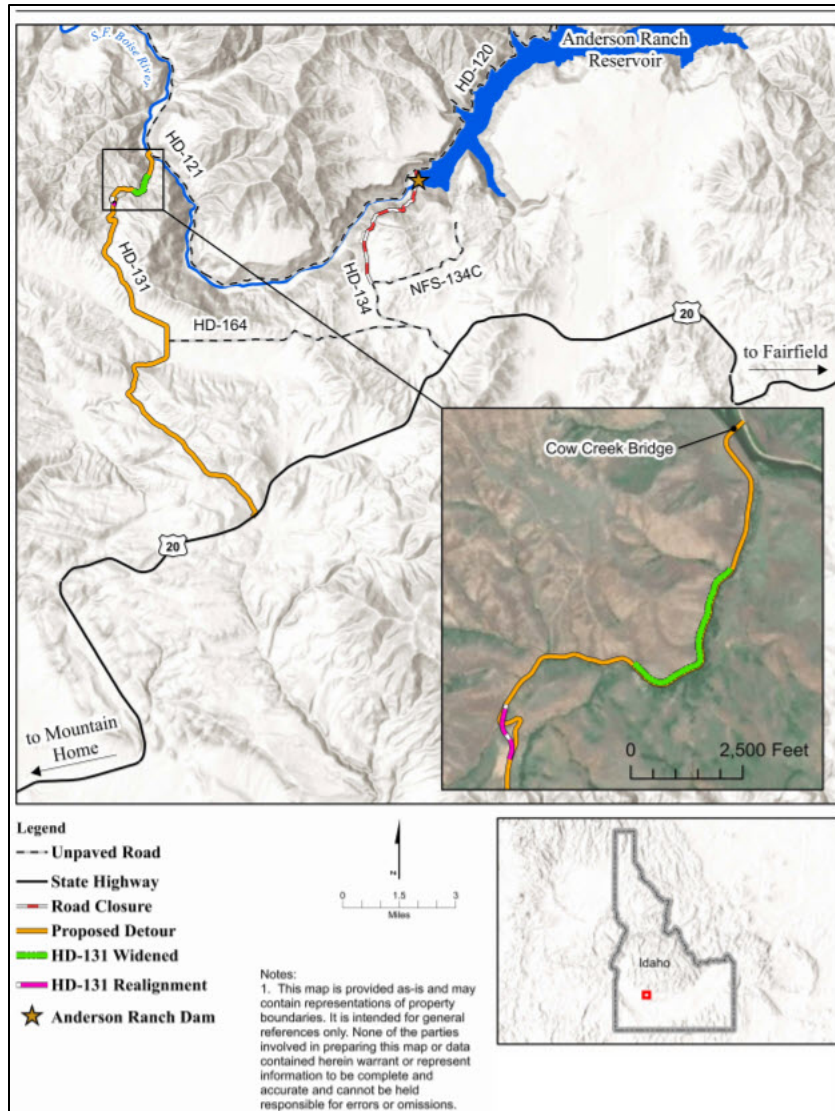


Figure 3. Highway District 131 (Cow Creek Road) Improved Detour Route Map

<i><b>First Name</b></i>	<i><b>Last Name</b></i>	<i><b>Position</b></i>	<i><b>Organization</b></i>	<i><b>Address1</b></i>	<i><b>Address2</b></i>	<i><b>City</b></i>	<i><b>State</b></i>	<i><b>Zip</b></i>
Ryan	Davidson	County Commissioner	Ada County	200 West Front Street, 3rd Floor		Boise	ID	83702
Rod	Beck	County Commissioner	Ada County	200 West Front Street, 3rd Floor		Boise	ID	83702
Kendra	Kenyon	County Commissioner	Ada County	200 West Front Street, 3rd Floor		Boise	ID	83702
		Commissioner	Boise County	PO Box 1300		Idaho City	ID	83631
			Boise River Enhancement Network (BREN)	P.O. Box 9402		Boise	ID	83707
John	Williams	Constituent Account Executive	Bonneville Power Administration	950 W. Bannock Street, Suite 805		Boise	ID	83702
Jim	Fincher	District Manager	Bureau of Land Management	3948 Development Avenue		Boise	ID	83705
Leslie	Van Beek	Canyon County Commissioner	Canyon County	1115 Albany Street Room 101		Caldwell	ID	83605
Keri	Smith	Canyon County Commissioner	Canyon County	1115 Albany Street Room 101		Caldwell	ID	83605
Pam	White	Canyon County Commissioner	Canyon County	1115 Albany Street Room 101		Caldwell	ID	83605
			Cat Creek Energy, LLC	1989 S 1875 E		Gooding	ID	83330
Lauren	McLean	Mayor	City of Boise	150 North Capitol Boulevard		Boise	ID	83702
John	Roldan	Strategic Water Resources Manager	City of Boise	150 North Capitol Boulevard		Boise	ID	83702
Rich	Sykes	Mayor	City of Mountain Home	160 South 3rd E Street		Mountain Home	ID	83647
			Community Planning Association of Southwest Idaho (COMPASS)	700 NE 2nd Street, Suite 200		Meridian	ID	83642
Liisa	Itkonen	Planning Team Lead, Transportation	COMPASS	700 NE 2nd Street, Suite 200		Meridian	ID	83642
Dirk	Mendive		Congressman Fulcher's Office	33 E. Broadway Avenue, Suite 251		Meridian	ID	83642
Craig	Quarterman		Congressman Simpson's Office	802 W. Bannock, Suite 600		Boise	ID	83702-5820
Kala	Golden	Project Manager	IDWR	322 E. Front Street		Boise	ID	83702
Barbara	Steele	County Clerk	Elmore County	150 South 4th East	Suite 3	Mountain Home	ID	83647
Franklin L.	Corbus	Commissioner	Elmore County Board of County Commissioners	Elmore County Courthouse	150 South 4th East Street Suite #3	Mountain Home	ID	83647
Albert	Hofer	Commissioner	Elmore County Board of County Commissioners	Elmore County Courthouse	150 South 4th East Street Suite #3	Mountain Home	ID	83647
Crystal	Rodgers	Chair	Elmore County Board of County Commissioners	Elmore County Courthouse	150 South 4th East Street Suite #3	Mountain Home	ID	83647
James H.	Werntz	Director	Environmental Protection Agency	Idaho Operations Office	950 West Bannock Suite 900	Boise	ID	83702
			Fort Hall Agency-BIA	PO Box 220		Fort Hall	ID	83202
Marie	Kellner	Conservation Programs Director	Idaho Conservation League	PO Box 844		Boise	ID	83701
Jess	Byrne	Director	Idaho Department of Environmental Quality	1410 N. Hilton		Boise	ID	83706
			Idaho Department of Fish and Game	4279 Commerce Circle		Idaho Falls	ID	83401
Dustin	Miller	Director	Idaho Department of Lands	300 N 6th Street #103		Boise	ID	83702
Susan	Buxton	Director	Idaho Department of Parks and Recreation	PO Box 83720		Boise	ID	83720-0065

Gary	Spackman	Director	Idaho Department of Water Resources	322 East Front Street		Boise	ID	83720
Ken	Lewis	Executive Director	Idaho Rivers United	3380 W Americana Ter Ste 140		Boise	ID	83706
Dave	Jones	District Engineer	Idaho Transportation Department	3311 W. State Street	P.O. Box 7129	Boise	ID	83707
Roger	Chase	Chairman	Idaho Water Resource Board	322 East Front Street, Box 83720		Boise	ID	83720
Paul	Arrington	Executive Director and General Counsel	Idaho Water Users Association	1010 West Jefferson Suite 101		Boise	ID	83701
Brian	Brooks	Executive Director	Idaho Wildlife Federation	1020 W Main Street Suite 450		Boise	ID	83702
Tom	Nelson	Generation Supervisor	Lucky Peak Power Plant	9731 East Highway 21		Boise	ID	83716
Will	Whelan	Director of Government Relations	Nature Conservancy	950 Bannock Street Suite 210		Boise	ID	83702
Kenneth	Troyer	Branch Chief	NOAA Fisheries	800 E. Park Blvd, PLAZA IV Suite 220		Boise	ID	83712-7768
Katrine	Franks		Office of the Governor	PO Box 83720		Boise	ID	83720-0001
Casey	Attebery		Senator Crapo's Office	251 East Front Street, Suite 205		Boise	ID	83702
Mitch	Silvers		Senator Crapo's Office	251 East Front Street, Suite 205		Boise	ID	83702
Rachel	Burkett		Senator Risch's Office	350 North 9th Street Suite 302		Boise	ID	83702-5470
Mike	Roach		Senator Risch's Office	350 North 9th Street Suite 302		Boise	ID	83702-5470
Devon	Boyer	Chairman	Shoshone- Bannock Tribal Council	PO Box 306		Fort Hall	ID	83203
Brian	Thomas	Chairman	Shoshone-Paiute Tribal Council	PO Box 219		Owyhee	NV	89832
Lisa	Young	Chapter Director	Idaho Chapter Sierra Club	503 W. Franklin		Boise	ID	83702
Brad	Little	Governor	State of Idaho	PO Box 83720		Boise	ID	83720-0001
Christopher	Swanson	State Supervisor	U.S. Fish and Wildlife Service	Idaho Fish and Wildlife Office	1387 S. Vinnell Way, Suite 368	Boise	ID	83709
Jeff	Alexander	Operations Staff Officer	U.S. Forest Service	1249 South Vinnell Way	Suite 200	Boise	ID	83709
Kyle	Blasch	Director	U.S. Geological Survey	230 Collins Road		Boise	ID	83702
Morgan	Brummund	Policy Analyst	Governor's Office of Energy & Mineral Resources	PO Box 83720		Boise	ID	83720
Scott	Pugrud	Administrator	Office of Species Conservation	PO Box 83720		Boise	ID	83720-0195
Aaron	Scheff	Regional Administrator	Idaho Department of Environmental Quality	1445 N. Orchard Street		Boise	ID	83706-2239
Alain	Isaac	President Board of Directors	Mountain Home Chamber of Commerce	205 North 3rd East		Mountain Home	ID	83647
Julie	Davis	Executive Director	Mountain Home Chamber of Commerce	205 North 3rd East		Mountain Home	ID	83647
Shelley	Essl	Elmore County Clerk	Elmore County	150 South 4th East	Suite 3	Mountain Home	ID	83647
Luis	Lasuen	Managing Director	Mountain Home Highway District	PO BOX 756		Mountain Home	ID	83647



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August 23, 2021

**VIA EMAIL**

Ms. Rochelle Ochoa  
Natural Resources Specialist  
Bureau of Reclamation  
Snake River Area Office  
230 Collins Road  
Boise, ID 83702  
sra-nepa-comments@usbr.gov

Re: Response to Request for Public Comments Regarding the Proposed Anderson Dam Ranch Turbine Modernization Project at Anderson Ranch Dam, Elmore County, Idaho (SRA-1214 2.1.4.17)

Dear Ms. Ochoa:

I am writing on behalf of my firm's client, the Board of Commissioners of Elmore County, Idaho. These written comments are in response to the Bureau of Reclamation's request for public comments regarding the proposed project to repair, refurbish, and modernize the existing turbines at Anderson Dam. Because the project is within Elmore County, the County has significant interest in it and appreciates the opportunity to provide these comments.

At the outset, I will note these comments largely mirror comments Elmore County submitted in response to the Draft Environmental Impact Statement (EIS) for the Boise River Feasibility Study. Because the Final EIS has not yet been issued, the County is providing similar comments here.

First, there is a clerical error on page 2 of the Scoping Information Packet. Towards the bottom, it states that, "[t]he contractor would utilize Anderson Dam Road from Highway 21 to access the powerhouse below the dam." That should be revised to read "Highway 20," as reflected in Figures 2 and 3 subsequently.

Second, that same paragraph states that construction work would take place from September through May of each year and that "[t]he overhaul of unit no. 1 may require the contractor to utilize Highway District 131 (Cow Creek Road) improved detour route (Figure 3) as proposed by the Boise

Ms. Rochelle Ochoa  
August 23, 2021  
Page 2

Feasibility Study Anderson Ranch Dam Raise due to restricting travel across Anderson Ranch Dam during overlapping construction work.” As Elmore County commented in response to the Draft EIS, the Commissioners have significant concern regarding the effect that closing the road across Anderson Dam will have on the ability to provide emergency services to the community of Smith Prairie, which has year-round residents but lacks its own emergency services. Cow Creek Road is typically completely impassable in the winter. This fact is reflected on page 207 of the Draft EIS, which states that the road “is impassable in winter due to soft road conditions, not just snow cover.” Most of the discussions of improving Cow Creek Road in the Draft EIS relate to straightening hairpin curves and reducing steep grades at discrete locations, not how to make the entirety of the road passable in winter. If the road across Anderson Dam will be closed in connection with either of these proposed projects, the Bureau needs to address how emergency services will be provided to Smith Prairie.

Again, thank you for the opportunity to provide these written comments. If you need anything else from Elmore County, please do not hesitate to contact me.

Sincerely,

VARIN WARDWELL, LLC



Dylan B. Lawrence

cc: Board of Commissioners, Elmore County (*via email to Vicky Trevathan*)





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**File Code:** 1950  
**Date:** August 5, 2021

Ms. Rochelle Ochoa  
Natural Resources Specialist  
Bureau of Reclamation  
Snake River Area Office  
230 Collins Road  
Boise, ID 83702

Dear Ms. Ochoa,

Thank you for notifying the Boise National Forest about the public comment opportunity for the proposed Anderson Ranch Turbine Modernization Project at Anderson Ranch Dam in Elmore County, Idaho.

According to the proposal and the attached maps, it seems work would be done in areas of pre-existing heavy use, some parts would be repaired, and other parts replaced in-kind. Transportation of equipment would occur on either currently-existing transportation networks, or the improved Cow Creek Road, assuming it is improved as part of the Boise River Feasibility Study Project. I agree that project activities would be unlikely to cause significant effects, therefore an EA and FONSI would fulfill NEPA requirements.

Be aware the proposed access roads for your project are under easement to Mountain Home Highway District. Please coordinate this proposed use with the Highway District and ensure all roads, including the bridge across the South Fork of the Boise River at Cow Creek, can accommodate the loads required for your project.

Sincerely,

**STEPHANEY KERLEY** Digitally signed by STEPHANEY KERLEY  
Date: 2021.08.05 09:27:55 -06'00'

STEPHANEY M. KERLEY  
District Ranger

cc: Jeff Alexander, Catherine Blackwell, Brian Lawatch

