

Finding of No Significant Impact

Final Supplemental Environmental Assessment

Maintenance and Rehabilitation of Spillway and Dam Structures at American Falls Dam – Third Construction Year

Minidoka Project, Power County, Idaho

U.S. Department of the Interior

Bureau of Reclamation

Columbia-Pacific Northwest Region

Snake River Area Office

CPN FONSI # 22-03

Introduction

The Bureau of Reclamation (Reclamation) has prepared this Finding of No Significant Impact (FONSI) to comply with the Council of Environmental Quality (CEQ) regulations for implementing procedural provisions of the National Environmental Policy Act (NEPA). This document briefly describes the proposed action, other alternatives considered, the scoping process, Reclamation's consultation and coordination activities, mitigation, and Reclamation's finding. This Final Supplemental Environmental Assessment (Supplemental EA) fully documents the analyses of the potential environmental effects of implementing the changes proposed.

Location and Background

The Minidoka Project (Project) was authorized by the Secretary of the Interior in 1904 and was the first Reclamation project constructed in Idaho. It is located in the Snake River basin in the southeastern part of the State. American Falls Dam, completed in 1927, is a 94-foot-high composite concrete and earth gravity-type dam on river mile 714.7 of the Snake River near American Falls, Idaho. With a storage capacity of 1,700,000 acre-feet, American Falls Reservoir is the largest reservoir of the Project. The dam itself is located in Power County, Idaho, but the reservoir stretches northeast into both Bingham and Bannock Counties. American Falls Dam and Reservoir comprise a multi-purpose facility from which principle benefits include irrigation, power generation (through a powerplant owned and operated by Idaho Power Company (IPC)), flood control, fish and wildlife resources, and recreation.

A core-drilling program in the early 1960s revealed that the concrete in portions of the dam was in a relatively advanced stage of deterioration due to a chemical reaction between alkalis in the cement and the aggregate. This type of reaction, unknown at the time of construction, resulted in a significant loss in strength and durability, threatening the competence of the dam and resulting in a fill restriction that reduced the storage capacity of the reservoir to about 66 percent of its maximum design capacity. By congressional act of December 28, 1973, the American Falls Reservoir District, acting as the constructing agency representing the storage spaceholders, was authorized to finance and contract for the replacement of American Falls Dam. Construction was completed in 1978 and the original structure was demolished. Reclamation repaid the District, acquired title, and assumed responsibility for operations and maintenance after completion of the dam.

In 1976, IPC built the current hydroelectric powerplant at the dam, which consists of three generators that are authorized by the Federal Energy Regulatory Commission (FERC) to produce 92.4 megawatts of hydroelectricity. IPC generates hydroelectricity at this American Falls Dam powerplant when sufficient head conditions allow, generally from the end of March through mid-October.

Purpose and Need

The purpose and need of the proposed action is unchanged from that of the original EA completed for this project in May 2019, and is incorporated from that document (Reclamation 2019). That original purpose was to improve the structural integrity of the American Falls Dam spillway to avoid further deterioration, which could lead to serious structural deficiencies.

The cracked and damaged state of concrete on the spillway, spillway gate operating decks, downstream dam face concrete, and stilling basin floor structures created the need for this action. These concrete components of the dam structure are exhibiting significant deterioration, cracking, and spalling and they require repair. Minor repairs have been completed to the spillway face throughout its lifetime, including an overlay of the stilling basin floor completed in 1978 to repair damaged concrete after the initial spill season. However, over the ensuing 44 years of service, these structures have undergone ongoing deterioration. A Value Engineering Study was completed in September 2015, which recommended the following corrective actions: removal and replacement of 6 inches of concrete on the spillway face and stilling basin floor; repair of concrete on the upper spillway gate operator decks (referred to as “pier decks” in these recommendations); and complete replacement of the spillway adits (access entryways).

The proposed action analyzed in this document—the expansion of the third year in-waterway construction window—is needed to facilitate the timely completion of in-progress construction activities documented in Reclamation 2019, which were initiated in 2020.

Alternatives Considered and Recommended Action

The range of alternatives developed for this proposed action is based on the purpose and need for the project. The alternatives developed also stem from the issues raised during internal, external, and tribal scoping, and meetings with representatives from the Idaho Department of Environmental

Quality (IDEQ) and Idaho Department of Fish and Game (IDFG). The alternatives analyzed include a no-action alternative and the recommended action. The recommended action consists of maintenance and rehabilitation construction activities to cut, remove, and replace existing damaged concrete and to reinforce the spillway, pier deck, and stilling basin structures. The no-action alternative does not meet the defined purpose and need for action, but was evaluated because it provides an appropriate basis by which the recommended action is compared.

Summary of Environmental Effects

The following summarizes the effects the proposed action (Alternative B) would have on each resource category analyzed in the Supplemental EA. For a full analysis and explanation of how each resource was evaluated, readers may reference Chapter 3 – Affected Environment and Environmental Consequences in the Supplemental EA.

Hydrology

Effects include the short-term, temporary operational limitation to water passage configurations at American Falls Dam due to dewatering of the stilling basin during construction periods. Overall seasonal drawdown to American Falls Reservoir would still be dependent upon climactic conditions. Overall water management approach and timing and magnitude of water deliveries would remain within the historic range of operations. In the unlikely event power generation is ceased due to low dissolved oxygen (DO) concerns, there would be limited flow that would not be sufficient to fulfill downstream irrigation demands. In the case of this scenario, any deficit in downstream water delivery needs would be provided by drafting Lake Walcott storage for up to 5 days as additional step-wise mitigation measures were implemented. If mitigation measures did not successfully raise DO to the minimum threshold quickly, the water supply in Lake Walcott could be significantly reduced over several days to levels that could make continued delivery of downstream water needs difficult. There would be no long-term effects to hydrology resulting from implementation of the proposed action.

Water Quality

Effects include potential wind deposition of construction debris in American Falls Reservoir and contaminant mobilization and transport into the Snake River below American Falls Dam due to construction activity in the waterway. These would be minimal due to implementation of construction industry best management practices (BMPs). Increased sediment mobilization could occur if American Falls Reservoir is drawn down below 100,000 acre-feet. If stochastic climactic conditions (e.g., hot, dry conditions, specific wind conditions, periods of cloud cover) cause reduced DO concentrations during the in-waterway construction period, lowered DO in the Snake River below the dam could be prolonged due to a delayed ability to initiate spill as a mitigative measure.

Preventative measures would be expected to mitigate potential effects to DO to an insignificant level. These preventative measures include the following:

- Operating American Falls Reservoir to target specific seasonal levels
- Ongoing water quality monitoring and real-time reporting by IDEQ to predict trends of decreasing DO
- Evacuating the stilling basin in order to pass water through the spillway

Risk of low DO events would be minimized through monitoring, real-time reporting, and adaptive management based on observed trends in water quality conditions. Effects to water quality would be temporary, and limited to the in-waterway construction period (mid-April to mid-October 2022). There would be no long-term effects to water quality resulting from implementation of the proposed action.

Aquatic Resources (Fisheries)

Effects include potential reductions in prey base, changes in the level of fish entrainment through American Falls Dam and Minidoka Dam, and seasonal migration barriers to adfluvial fish due to reservoir drawdowns. The likelihood of these effects rising to a significant level would be minimized via preventative early-season water level management in American Falls Reservoir to maintain target water storage levels above those at which measurable effects to fish populations would be likely to occur. There would be no long-term effects to aquatic resources resulting from implementation of the proposed action. Effects to aquatic resources from this proposed action are not expected to contribute to cumulative effects.

Transportation

Effects include minor general increases to local traffic in and around the City of American Falls due to construction traffic during the proposed project. Closures of westbound State Highway (SH)-39 could occur from mid-April through mid-October, with all traffic rerouted to the eastbound lanes and two-way traffic limited to one lane each for approximately 2 miles. Oversized vehicle travel would be limited to designated times during the construction periods. Effects to traffic configurations would be temporary. There would be no long-term effects to transportation resulting from implementation of the proposed action. Effects to transportation from this proposed action are not expected to contribute to cumulative effects.

Unaffected Resources

The proposed action would not cause any short- or long-term, direct, or indirect effects to the following resource categories:

- Threatened and Endangered (T&E) species
- Noise
- Socioeconomics

- Recreation
- Indian trust assets
- Indian sacred sites
- Cultural resources
- Environmental justice

Environmental Commitments and Mitigation

Mitigation measures for effects to water quality are detailed in the project's Water Quality Restoration Plan (Reclamation 2019, Appendix D).

Consultation, Coordination, and Public Involvement

In compliance with Section 106 of the National Historic Preservation Act of 1966 (as amended in 1992), Reclamation consulted with the Idaho State Historic Preservation Office to identify cultural and historic properties in the area of potential effect. Consultation was initiated in April 2017, and that same month the State Historic Preservation Office concurred with the finding of no adverse effect to historic properties (Reclamation 2019, Appendix F).

Prior to the initiation of this project, Reclamation mailed tribal and public recipients scoping letters with a project information package enclosed on November 16, 2018, and November 21, 2018, respectively (Reclamation 2019, Appendix F and H). A press release was also issued to local outlets on November 21, 2018, and information was made available online at the Reclamation website. Reclamation received no comments.

During planning and development of the proposed action in 2018, Reclamation conducted multiple interagency and affected stakeholder meetings and teleconferences for information sharing and coordination purposes. Those events included participants from the IDEQ, IDFG, and IPC. A draft of the original EA was provided to IDFG and IDEQ for comment on April 5, 2019, and agency comments were incorporated into the final original EA published in 2019.

Reclamation issued a press release in May 2019 to announce the pending publication of the final original EA on or about May 20, 2019.

Throughout the previous 2 years of project construction, Reclamation has facilitated regular information-sharing meetings with IDFG and IDEQ, as well as IPC representatives. At the time of public release of each of the updated environmental compliance documents related to this project (listed in the preface of the Supplemental EA), Reclamation issued press releases and published paid advertisements to share new information with the public in the local area.

Finding

Based on the analysis of the environmental effects presented in the Final Supplemental EA and consultation with potentially affected agencies, Tribes, organizations, and the general public, Reclamation concludes that implementation of the proposed action will not have a significant impact on the quality of the human environment or natural and cultural resources. The effects of the proposed action will be minor, temporary, and localized. Therefore, preparation of an Environmental Impact Statement (EIS) is not required.

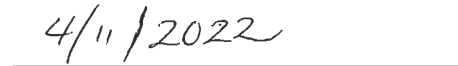
Decision

Based on the analysis in the Final Supplemental EA, it is my decision to select for implementation the Proposed Action (Alternative B). The Proposed Action will best meet the Purpose and Need identified in the Final Supplemental EA.

Recommended:



Amy Goodrich
Natural Resource Specialist
Snake River Area Office, Boise, Idaho




Date

Approved:



Melanie Paquin
Snake River Area Manager
Columbia-Pacific Northwest Region, Boise, Idaho



Date



— BUREAU OF —
RECLAMATION

Supplemental Environmental Assessment

**Maintenance and Rehabilitation of Spillway and Dam
Structures at American Falls Dam – Third Construction Year
Minidoka Project, Power County, Idaho**



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.

Cover Photograph: American Falls Dam, Power County, Idaho. Photograph by James Beitz.

Supplemental Environmental Assessment

Proposed Project/Action Title:

Maintenance and Rehabilitation of Spillway and Dam Structures at American Falls Dam – Third (Expanded) Construction Year – Minidoka Project, Power County, Idaho

Existing Environmental Documents:

- Maintenance and Rehabilitation of Spillway and Dam Structures at American Falls Dam, Minidoka Project, Power County, Idaho – Environmental Assessment and Finding of No Significant Impact. FONSI # PN-19-4. Signed May 20, 2019.
- Maintenance and Rehabilitation of Spillway and Dam Structures at American Falls Dam – Supplemental Information Report. Signed May 29, 2020.
- Maintenance and Rehabilitation of Spillway and Dam Structures at American Falls Dam – Supplemental Information Report No. 2. Signed July 12, 2021.

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Acronyms and Abbreviations

Acronym or Abbreviation	Definition
BMP	Best Management Practice
CAA	Clean Air Act
Census Bureau	United States Census Bureau
cfs	cubic feet per second
CWA	Clean Water Act
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
DO	Dissolved oxygen
EA	Environmental Assessment
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission
FONSI	Finding of No Significant Impacts
GVW	Gross vehicle weight
I-86	Interstate 86
IDEQ	Idaho Department of Environmental Quality
IDFG	Idaho Department of Fish and Game
IDL	Idaho Department of Labor
IPaC	Information for Planning and Conservation
IPC	Idaho Power Company
ITAs	Indian Trust Assets
ITD	Idaho Transportation Department
mg/L	milligrams/liter
MUTCD	U.S. Department of Transportation's Manual on Uniform Traffic Control Devices
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
O&M	Operations and Maintenance
OSHA	Occupational Safety and Health Administration

Acronym or Abbreviation	Definition
PCB	polychlorobiphenyl
Project	The Minidoka Project
Reclamation	Bureau of Reclamation
SH	State Highway
TMDL	Total Maximum Daily Load
TP	Total phosphorous
TSS	Total suspended solids

Chapter 1 Purpose and Need

1.1 Introduction and Background

The U.S. Department of the Interior, Bureau of Reclamation (Reclamation) has prepared this Supplemental Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA). The Supplemental EA analyzes the potential environmental effects that could result from the proposed construction activities described in Chapter 2 of this document.

1.1.1 Project History and Existing Environmental Documents

The original proposed construction activities for this project were documented and analyzed in an EA and associated Finding of No Significant Impact (FONSI) entitled “Maintenance and Rehabilitation of Spillway and Dam Structures at American Falls Dam, Minidoka Project, Power County, Idaho – Environmental Assessment and Finding of No Significant Impact”, which was signed on May 20, 2019 (Reclamation 2019). The appendices to that document are incorporated by reference. Reclamation 2019 analyzed the effects expected from a 2-year construction project, with in-waterway work occurring between August 1 and November 23 in both 2020 and 2021. The project was initiated according to the schedule identified in Reclamation 2019, but has not yet been completed.

At the conclusion of the 2020 construction period, a need for greater adaptive flexibility in construction starting and ending dates was identified as critical to project completion. Reclamation revisited the 2019 EA-FONSI (Reclamation 2019) at that time to evaluate the potential changed effects from expanding the in-waterway construction period to allow work to continue into December in 2020 and 2021, and for in-waterway work to resume as early as July 15 in 2021, if favorable water-year conditions allowed. This analysis was discussed in detail in a Supplemental Information Report published by Reclamation in June 2020 (Reclamation 2020).

A significant portion of the dam face repairs and demolition of the concrete on the spillway face were completed in 2020 and 2021; however, due to the remaining work to be completed on the project and to mitigate project risks, it was anticipated in the summer of 2021 that the addition of a third year of construction in 2022 would be necessary. Reclamation analyzed the effects of an expanded 3-year project timeframe, to include in-waterway construction from August 1 to October 16, 2022, in a second Supplemental Information Report published in July of 2021 (Reclamation 2021).

By the end of the 2021 construction period, Reclamation determined that the completion of all remaining work could necessitate a longer third-year in-waterway construction period than the 2.5-month window identified in the second Supplemental Information Report (Reclamation 2021). In order to meet the need for full completion of the ongoing project, Reclamation now proposes to expand the in-waterway construction period during the third and final year of construction to occur from mid-April 2022 through mid-October, 2022.

Reclamation has now prepared a complete Supplemental EA to document environmental analysis of the potential effects of expanding the in-waterway work window of the third year of this project. This Supplemental 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 project and alternatives are described in Chapter 2 of this document, and the effects of each alternative are evaluated for each of the affected resource areas in Chapter 3 of this document. Appendices referenced in this document were originally published with Reclamation 2019, and can be accessed online, along with all other existing environmental documents for this project, at <https://www.usbr.gov/pn/programs/ea/idaho/americanfalls/docs.html>.

The NEPA process requires analysis of any Federal action that may have an impact on the human environment. This document is intended to further supplement the existing environmental documents related to this project. This Supplemental EA is being prepared to create a record of the supporting information used in the decision to supplement, revise, or reissue a separate findings document for the effects of this project.

1.1.2 Monitoring and Mitigation Efforts and Effects of the Project, to Date

As part of a Water Quality Restoration Plan published in conjunction with Reclamation 2019, Reclamation facilitated ongoing water quality monitoring and reporting meetings with a panel of representatives from partner agencies including Idaho Power Company (IPC), Idaho Department of Fish and Game (IDFG), and Idaho Department of Environmental Quality (IDEQ). This panel served as a collaborative advisory “Water Quality Technical Team.” The team met weekly leading up to and throughout the in-waterway construction periods in 2020 and 2021, to share monitoring data, discuss adaptive operation strategies and real-time concerns as to the maintenance of acceptable water quality parameters under seasonally changing conditions, and to serve as an on-call advisory panel in the event of an imminent or actual water quality exceedance event. Neither year of construction resulted in any significant or unforeseen environmental effects to water quality that were not analyzed and disclosed in Reclamation 2019 or revisited and disclosed in the two subsequent Supplemental Information Reports (Reclamation 2020, Reclamation 2021).

1.2 Location and Action Area

The Minidoka Project (Project) was authorized by the Secretary of the Interior in 1904 and was the first Reclamation project constructed in Idaho. American Falls Dam, completed in 1927, is a 94-foot-high composite concrete and earth gravity-type dam on river mile 714.7 of the Snake River near American Falls, Idaho. With a storage capacity of 1,700,000 acre-feet, American Falls Reservoir is the largest reservoir of the Project. The dam itself is located in Power County, Idaho, but the reservoir stretches northeast into both Bingham and Bannock Counties (Figure 1). American Falls Dam and Reservoir comprise a multipurpose facility from which principle benefits include irrigation, power generation (through a powerplant owned and operated by IPC), flood control, fish and wildlife resources, and recreation (Reclamation 1995).

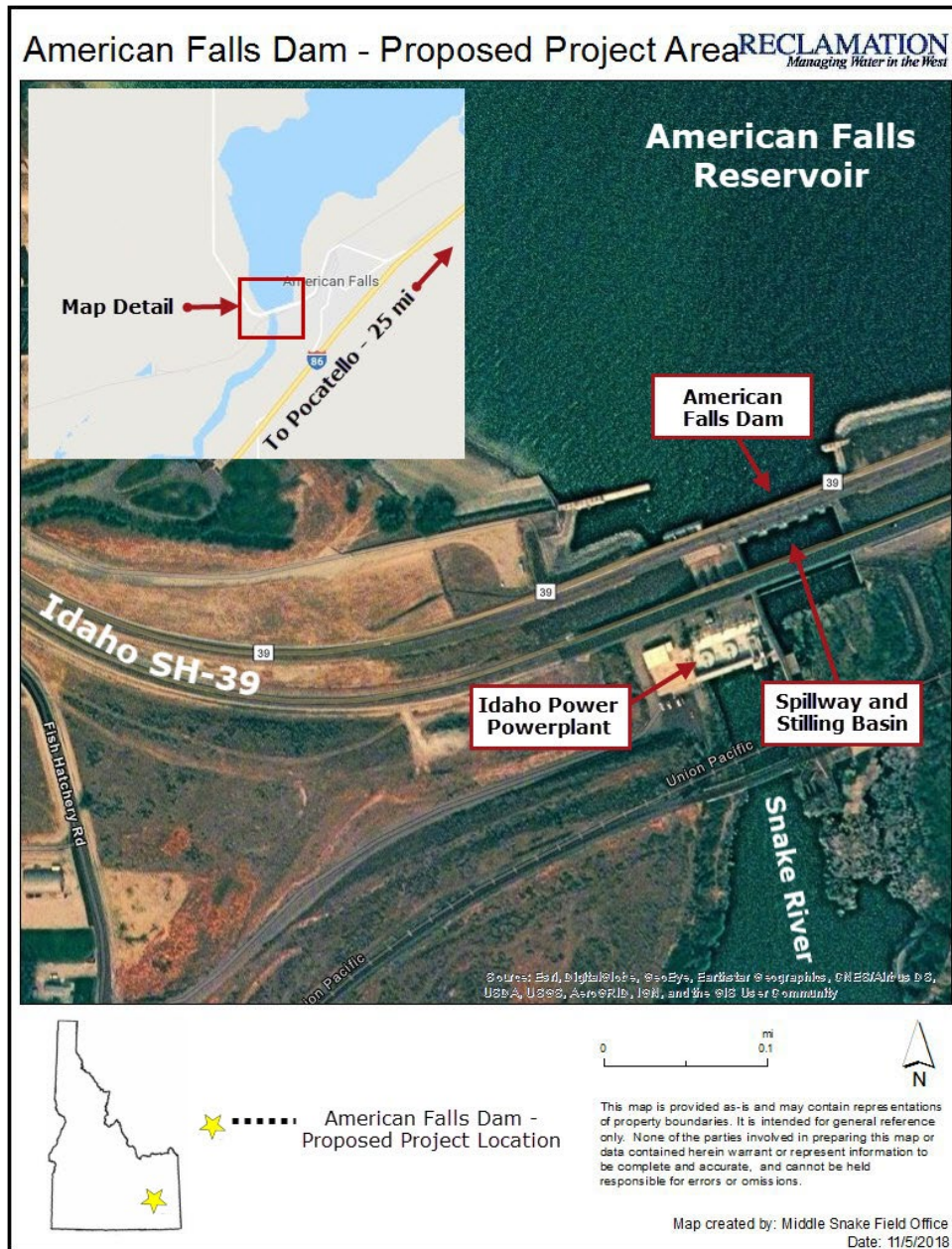


Figure 1. Map of proposed project location with project area detail.

A core-drilling program in the early 1960s revealed that the concrete in portions of the dam was in a relatively advanced stage of deterioration due to a chemical reaction between alkalis in the cement and the aggregate. This type of reaction, unknown at the time of construction, resulted in a significant loss in strength and durability, threatening the competence of the dam and resulting in a fill restriction that reduced the storage capacity of the reservoir to about 66 percent of its maximum design capacity. By a congressional act dated December 28, 1973, the American Falls Reservoir District (acting as the constructing agency representing the storage spaceholders) was authorized to finance and contract for the replacement of American Falls Dam. The dam

replacement was completed in 1978 and the original structure was demolished. After completion of the dam, Reclamation repaid the American Falls Reservoir District, acquired title, and assumed responsibility for operations and maintenance of the dam.

In 1976, IPC built the current dam's hydroelectric powerplant, which consists of three generators authorized by the Federal Energy Regulatory Commission (FERC) to produce 92.4 megawatts of hydroelectricity (FERC 2018). When sufficient head conditions allow, IPC generates hydroelectricity at this powerplant, generally from the end of March through mid-October.

American Falls Reservoir and associated Reclamation-administered lands are operated to accommodate a wide variety of resource needs in accordance with existing Federal laws and Reclamation policy. However, the primary operation strategy is storage of water for irrigation of lands. Cooperative agreements have been signed with other agencies and organizations for programs focused on control of erosion and enhancement of wetlands and other wildlife habitat. Local jurisdictions and organizations have leased Reclamation lands to develop and operate recreational facilities. Project operations are monitored and evaluated to provide resource management that provides the greatest benefit within statutory and policy guidelines (Reclamation 1995).

1.2.1 Facility Information

American Falls Dam Water Release Configurations

Water released from American Falls Dam flows into the Snake River by two routes (or a combination): (1) Through penstocks that pass through the dam structure and feed into the powerplant owned by IPC, which then discharges it directly into the river channel, or (2) Through spillway gates and/or the regulating gates on the dam that discharge into the stilling basin, which then overflows into the river channel once it is filled (identified in Figure 1).

The powerplant at American Falls Dam is capable of passing a maximum of 15,000 cubic feet per second (cfs). The minimum flow needed for hydropower generation is 1,000 cfs. IPC halts hydropower production when flows drop below 1,000 cfs, typically at the end of irrigation season (typically on or around October 15th). Although it is possible for the powerplant to pass up to 2,700 cfs at "speed no load"¹ (without generating power), standard dam operations are to cease all releases through the powerplant at the end of the irrigation season, and all water is then passed through the stilling basin until power generation resumes in the spring.

¹ "Speed no load," also referred to as "full speed no load" or FSNL, is a power generation configuration where one or more turbines are in operation (spinning), but no power generation load is applied. In hydrogeneration, speed no load operation generally occurs at startup, or at times when power demand is low, but continued water passage is desired. Due to the potential for equipment damage, it is generally undesirable to maintain a speed no load configuration for an extended timeframe.

Water passing through the stilling basin may come through the upper radial gates, or through lower-level gates on the dam structure (regulating gates), but is all broadly referred to as “spill.” Regardless of which gates are used, in order for spilled water to reach the river channel downstream, the stilling basin must first fill completely. Because the maximum powerplant discharge is 15,000 cfs, passage of flows above 15,000 cfs requires the use of spill. Flows from either of the two routes (powerplant or spill) converge approximately 1,000 feet downstream from the dam.

Water Operations Considerations

Under normal operations, water releases at American Falls Dam generally adhere to the following operational guidelines²:

Irrigation season (April through September): Irrigation releases are determined by the diversion demands at Minidoka and Milner Dams. All flows are passed through the powerplant, except in the rare events that the powerplant is offline, the capacities of the powerplant and outlet works are exceeded, or low dissolved oxygen (DO) downstream from the dam necessitates the use of spill to aerate the discharged water. River changes are formally called in to IPC and the powerplant operator makes the required changes. Normal flows are 12,000 to 13,000 cfs and are typically adjusted through the irrigation season to maintain Lake Walcott (above Minidoka Dam) at a constant elevation of 4,245 feet. In the late irrigation season, minor drawdown of Lake Walcott in preparation for winter can also be used to meet some downstream irrigation demand.

Winter (October through March): The IPC powerplant requires a minimum flow of 1,000 cfs to generate power. As a result, the powerplant typically stops power generation mid-October when releases from the dam are reduced to winter flows. All flows are then passed through the regulating gates and into the stilling basin. The water becomes aerated through turbulence in the stilling basin and then overflows into the Snake River downstream from the dam once it is filled. There is no official minimum winter release, but an unofficial minimum release of 300 cfs in the non-irrigation season is generally targeted in consideration of benefits to fish and wildlife. IDFG prefers that Reclamation maintain post-irrigation fall releases above 2,000 cfs until November 1st to prevent over-harvest of fish in the reach downstream from American Falls. In years when releases during this timeframe must be reduced to 1,000 cfs or less, IDFG may close fishing in this reach. In the spring, flows are generally increased as runoff increases inflows into the reservoir. Higher spring flows are passed as needed for flood control, with a target reservoir refill date of April 1. All flows are passed as spill until the powerplant resumes power generation in the spring, typically in March.

² Formal flood control rule curves have not been developed for American Falls Reservoir; therefore, there is no formally designated amount of minimum space that must be maintained for flood control. However, American Falls is generally operated with the goal of limiting discharge from Minidoka Dam to less than 20,000 cfs.

1.2.2 Activities Relevant for Context of Effects

Past, present, and reasonably foreseeable actions identified in the area (public or private) that could adversely affect the same resource areas evaluated in this Supplemental EA, could result in additive effects to those from the proposed project. The following activities in the action area provide relevant context to this document's analysis of the effects of this proposed project:

- **Upcoming Idaho Power Company Powerplant Overhaul (2022 to 2026)**

IPC is planning to perform a total control upgrade and refurbishment of all three generating units at the powerplant at American Falls Dam, beginning in October 2022, in coordination with the completion of spillway repairs (currently ongoing as of the time of this document). The control work will involve a full plant outage for the first 12 to 18 months, after which IPC plans to operate two generating units intermittently for the next 12 to 18 months while refurbishments are completed (Dobey 2018, pers. comm.). All releases from American Falls Dam will have to be passed via spill during these powerplant outages.

- **Federal Energy Regulatory Commission Relicensing (2025)**

IPC holds an active FERC license, which authorizes the generation of hydroelectricity at the American Falls powerplant through February of 2025 (FERC 2018). At least 5 years before a license expires, the licensee must file a notice of intent declaring whether or not it intends to seek a new license (relicense) for its project. At least 2 years before a license expires, the licensee must file an application for new license. The overhaul planned for the preceding years is intended to prepare the powerplant for relicensing. IPC has applied for and intends to complete the relicensing process.

- **Long-Term Planned Operations and Maintenance (O&M) (Ongoing)**

Reclamation plans and performs ongoing maintenance (e.g., inspections, cleaning, repair, repainting, etc.) on an ongoing basis, which has the potential to necessitate alterations to the configuration, timing, or amount of flows passing through American Falls Dam. Reclamation makes every effort to plan, schedule, and perform non-emergency O&M activities with minimal disruption to normal water deliveries throughout the year. Ongoing O&M generally falls under the normal range of operations for American Falls Dam; any specific activities that would fall outside this definition would be the subject of separate NEPA analysis, as needed.

1.3 Purpose and Need for Action

The purpose and need of the proposed action is unchanged, and is incorporated from Reclamation 2019. That original purpose was to improve the structural integrity of the American Falls Dam spillway to avoid further deterioration, which could lead to serious structural deficiencies.

The cracked and damaged state of concrete on the spillway, spillway gate operating decks, downstream dam face concrete, and stilling basin floor structures created the need for this action. These concrete components of the dam structure are exhibiting significant deterioration, cracking, and spalling and they require(d) repair. Minor repairs have been completed to the spillway face throughout its lifetime, including an overlay of the stilling basin floor completed in 1978 to repair damaged concrete after the initial spill season. However, over the ensuing 44 years of service, these structures have undergone ongoing deterioration. A Value Engineering Study was completed in September 2015, which recommended the following corrective actions: removal and replacement of 6 inches of concrete on the spillway face and stilling basin floor; repair of concrete on the upper spillway gate operator decks (referred to as “pier decks” in these recommendations); and complete replacement of the spillway adits (access entryways).

The proposed action analyzed in this document, the expansion of the third year in-waterway construction window, is needed to facilitate the timely completion of in-progress construction activities analyzed in Reclamation 2019, which were initiated in 2020.

1.4 Authorities

The Minidoka Project was authorized by the Secretary of the Interior under the Reclamation Act of 1902 on April 23, 1904. Specific to power production, the authority to accept funding from the Bonneville Power Administration for power provided is granted under Section 2406 of P.L. 102-486, the Energy Policy Act of 1992, which was signed on October 24, 1992.

1.5 Regulatory Compliance

The following major laws, executive orders, and secretarial orders apply to the proposed action and compliance with their requirements was documented in the preceding environmental documents referenced above:

- National Environmental Policy Act
- Endangered Species Act (ESA)
- National Historic Preservation Act (NHPA)
- Clean Water Act (CWA)
- Clean Air Act (CAA)
- 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 3355 Streamlining National Environmental Policy Act Reviews and Implementation of Executive Order 13807, “Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure Projects”

1.6 Summary of Public, Agency, and Tribal Outreach

The scoping process for Reclamation 2019 provided an opportunity for the public, governmental agencies, and Tribes to identify any issues they may have with the proposed project and to ensure a full range of potential alternatives were proposed to meet the purpose and need stated in this document. To accomplish this, Reclamation (1) provided information to the public through local media in the form of press releases, (2) mailed preliminary information to and solicited comments from potentially affected Tribes, and (3) met with local, State and Federal agencies prior to releasing Reclamation 2019.

Throughout the project to date, Reclamation has facilitated regular information sharing meetings with other State and Federal agencies, as well as IPC representatives. At the time of public release of each of the updated environmental compliance documents related to this project, Reclamation issued press releases and published paid advertisements to share new information with the public in the local area.

Chapter 2 Description of Alternatives

2.1 Introduction

This chapter describes the alternatives analyzed in this Supplemental EA—Alternative A: No Action Alternative and Alternative B: Proposed Action. The alternatives presented in this chapter were developed based on the purpose and need for the project, as described in Chapter 1 of Reclamation 2019, and the issues raised during internal, external and Tribal scoping at that time. The alternatives analyzed in this document include a no action alternative, and the currently proposed ongoing construction activities necessary to complete in-progress repairs and rehabilitation of existing damaged concrete on the spillway, pier deck, and stilling basin structures. A no action alternative is evaluated because it provides an appropriate basis by which the other alternative is compared.

2.2 Alternative A – No Action

Under the no action alternative, current operations and maintenance at American Falls Dam would resume as occurred prior to the initiation of this project, including spillway releases. This includes standard operations of the dam to generally pass an unofficial minimum release of 300 cfs in the non-irrigation season with a target reservoir refill date of April 1. It also includes releases through the irrigation season managed to meet downstream demands to Milner Dam. Flows are adjusted through the irrigation season to maintain Lake Walcott at a constant elevation of 4,245 feet.

2.3 Alternative B – Expanded Work Window for Completion of Maintenance and Rehabilitation of Spillway and Dam Structures (Proposed Action)

2.3.1 Current Status of Dam and Spillway Structures

The spillway construction is currently paused until water operations and other conditions allow construction to resume. Demolition of the existing spillway concrete is largely complete, minor demolition will be completed during the 2022 construction. As of the end of 2021, 49 of 89 spillway concrete placements were complete pending final acceptance; the remaining 40 spillway placements must be completed in the 2022 construction window.

Demolition of the eight dam face placements (work west of the spillway above IPC's penstocks) is largely complete. As of the end of 2021, five of those eight concrete placements have been completed. The remaining three placements will be completed in the 2022 construction period.

The project has experienced unexpected delays, necessitating the expanded 2022 work window to complete the remaining construction. However, the 2022 work window is limited by a hard stop date of October 15, 2022, in order to facilitate IPC's planned powerplant overhaul

(Section 1.2.2). IPC is scheduled to begin its powerplant overhaul on October 17, 2022, with an expected duration of several years. Therefore, construction on Reclamation's spillway must be completed by October 15, 2022, to enable flows to pass as spill while the powerplant is offline undergoing this work. In comparison to 2020 and 2021, when the construction window extended through December and November, respectively, this mid-October hard end date creates a need to allow the 2022 in-waterway construction window to begin as early as mid-April, 2022 if conditions allow.

2.3.2 Proposed Action

Reclamation proposes to modify the previously analyzed project, expanding the in-waterway construction period during the third and final year of construction, to occur from mid-April 2022 through mid-October, 2022. This would facilitate full timely completion of construction activities necessary for the maintenance and rehabilitation of the spillway and associated structures at American Falls Dam, as identified in Reclamation 2019, and further modified in Reclamation 2020 and Reclamation 2021. That construction project was undertaken to address the need for the replacement and repair of concrete on these dam structure components that have cracked, spalled, and otherwise deteriorated over their 44 years of service, and which now require completion of repairs before further deterioration compromises the integrity of the dam.

The remaining construction activities necessary are to complete the cutting, removal, and replacement of existing damaged concrete, and to reinforce the spillway, and downstream dam face concrete. As identified in Reclamation 2019, these maintenance and rehabilitation activities would include continued hydroblasting and saw cutting, removal, and offsite disposal of existing deteriorated concrete; repair or replacement of deteriorated concrete; removal and replacement of damaged reinforcing, where it is encountered; potential traffic control for periods of highway closure if necessary to facilitate this work; and implementation of monitoring and mitigation measures to ensure that all downstream water quality standards put forth by the IDEQ are not violated throughout the operation. In order to facilitate construction access at a time of year when the water level in American Falls Reservoir is high enough that the radial gates may experience seepage, it will be necessary for the gates to be sealed by a dive team prior to the commencement of in-waterway work. This gate sealing would involve placement of a caulking weather strip cord called mortile, in conjunction with a mix of bentonite, manure, and lava cinders at the edges of each radial gate experiencing seepage. Gate sealing of this nature is a known O&M procedure that is commonly used in various scenarios.

The major construction components of the proposed action were discussed in detail in Reclamation 2019. Some components have been removed from the scope of the project due to time constraints and unforeseen issues with timely completion. Specific construction methods used to accomplish each of these tasks would continue to be proposed by the contract awardee and subject to approval by Reclamation. Compliance with applicable industry best practices would continue to be required of the contract awardee.

This work would occur in three separate years, two of which have already occurred and the third and final (2022) having yet to occur. The portions of the proposed construction work taking

place within the waterway would require a lockout and complete dewatering of the spillway and stilling basin, during which time all flows would instead have to pass through the powerplant. Work in 2022 would occur within a proposed seasonal construction window of mid-April through mid-October. For all years this project would occur, an agreement between Reclamation and IPC would provide for the continued passage of flows through the powerplant throughout the in-waterway work period, which would enable uninterrupted water deliveries. Although expected to take significantly less time, work could occur in the waterway for up to an estimated maximum of 183 days in 2022, during which time all released water would pass through the IPC powerplant.

At points during the in-waterway construction period, westbound State Highway (SH)-39 (Aberdeen Highway) where it crosses the dam could require closure. If highway closure is required, all traffic would be rerouted to eastbound SH-39 under coordination with the Idaho Transportation Department (ITD), with periodic scheduled closures for the passage of oversized vehicles to accommodate the seasonal agricultural needs of the region. These traffic control restrictions were analyzed in Reclamation 2019, but were not necessary in prior construction years. Based on previous years' outcomes, the need for such closures is not anticipated in 2022; however, temporary closures may occur.

Chapter 3 Affected Environment and Environmental Consequences

3.1 Introduction

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

In its broadest hydrologic sense, the affected environment includes the Snake River from below Palisades Dam to American Falls Reservoir up to the high-water mark; American Falls Reservoir; and the Snake River downstream to Milner Dam, including the stilling basin immediately below American Falls Dam, and Lake Walcott up to the high-water mark, including parts of the Minidoka National Wildlife Refuge. However, each resource with the potential to be affected is analyzed on an applicable individual scale. For example, the noise effects of construction are analyzed only for the areas at and near the construction site that would be affected. Effects to transportation are analyzed in terms of users likely to experience effects from increased traffic and traffic controls during this project, including residents of American Falls and the surrounding area, as well as businesses and visitors that use Idaho SH-39.

3.1.1 Resources Analyzed

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

Reclamation 2019 concluded that there would be less-than-significant project effects to all resources analyzed, or that effects to specific resources could be mitigated to less-than-significant levels.

The changes to the proposed action described in this document are not expected to result in any changes to Reclamation 2019 findings for the following resources. Full analysis of effects to these resources as included in Reclamation 2019 remains adequate for NEPA compliance and decision-making purposes:

- Threatened and Endangered Species
- Noise
- Recreation
- Indian Trust Assets
- Indian Sacred Sites

- Cultural Resources
- Socioeconomics
- Environmental Justice

The changes to the proposed action described in this document have the potential to affect the following resources:

- Hydrology
- Water quality
- Fisheries
- Transportation

The affected environment for each resource was described in detail in the Reclamation 2019 and these analyses are hereby incorporated by reference. Analyses of effects of the described changes to the project description to each of these potentially affected resource areas are included below.

3.2 Hydrology

3.2.1 Affected Environment

Watershed Geography and Water Storage Facilities

The Snake River has a total drainage area of approximately 13,600 square miles at American Falls Dam. Major tributaries to the Snake River include the Henrys Fork and Willow Creek. American Falls Reservoir serves as a major water storage and power generating facility in southeastern Idaho. American Falls Dam provides water supply for approximately 1,150,000 acres of irrigated lands, limited flood control during springtime runoff, and power production during the summer and fall months. Water is stored in American Falls Reservoir within the operational framework of the other upper Snake River storage facilities upstream of Milner Dam in southern Idaho. Figure 2 shows the nine dams upstream of Milner Dam that store and regulate water in the upper Snake River watershed.

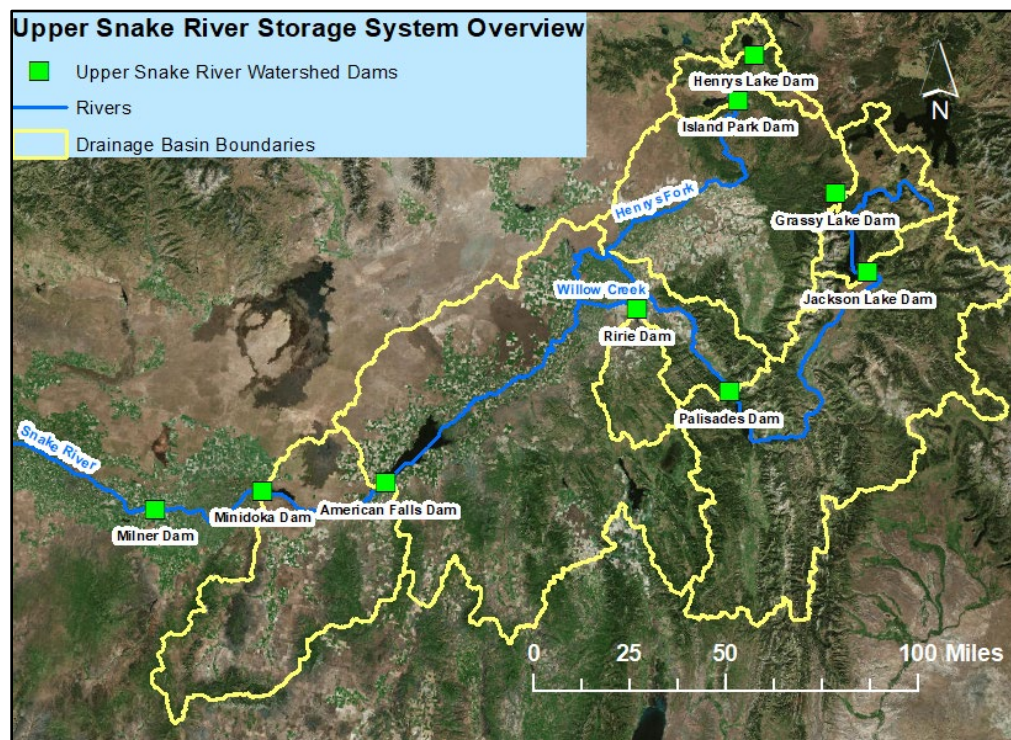


Figure 2. Overview of facilities in the upper Snake River watershed. Drainage basins are delineated in yellow.

Henry's Lake Dam and Milner Dam are privately owned. The other seven dams, all owned and operated by Reclamation, include: Jackson Lake Dam, Palisades Dam, Ririe Dam, Island Park Dam, Grassy Lake Dam, American Falls Dam, and Minidoka Dam. American Falls Reservoir contains the greatest amount of storage space of the nine reservoirs. The reservoir and dam serve as the primary water supply delivery point for downstream irrigation in the greater Magic Valley area, which includes the areas surrounding Burley, Rupert, Twin Falls, Jerome, and Gooding, Idaho.

The nine dams in the upper Snake River watershed are operated together as a system for overall water management, with the target of maximizing water supply storage for irrigation, power, and wildlife management demands. Water passing through the reservoir system that is not diverted for irrigation or other uses travels past Milner Dam to the lower Snake River, into the Columbia River, which flows to the Pacific Ocean.

Irrigation Use

Water delivered from American Falls Dam for irrigation use services the greater Magic Valley area. There are several irrigation diversions between American Falls Dam and Milner Dam. The majority of the volume of irrigation water diverted from the Snake River between American Falls Dam and Milner Dam is accounted for by seven canals (two at Minidoka Dam and five at Milner Dam). Figure 3 shows the daily combined irrigation diversions for these Snake River diversions throughout the year, for the 30-year period 1991 to 2020.

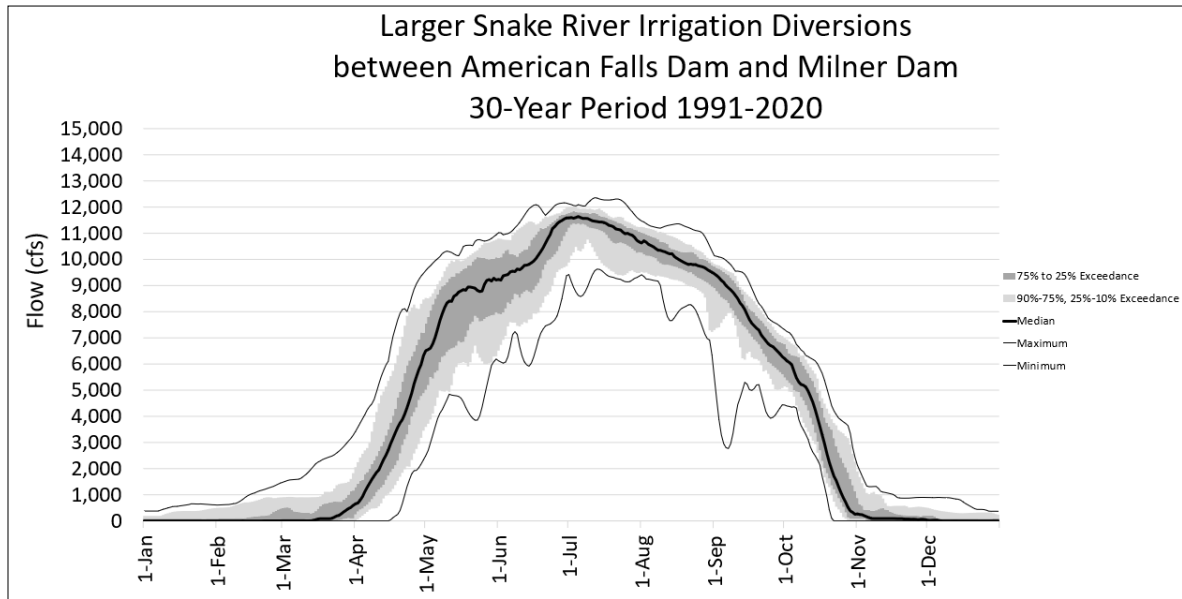


Figure 3. Daily historic diversion data for the larger irrigation diversions from the Snake River between American Falls Dam and Milner Dam for the 30-year period 1991 to 2020. Flow data can be retrieved from Reclamation's historical database: <https://www.usbr.gov/pn/hydromet/arcread.html> (last accessed January 10, 2022).

The configuration of outlet points of delivery from American Falls Dam provides two locations for water to be released. The primary delivery point for flows from American Falls Dam is the IPC powerplant, which is comprised of three turbines with a combined release capacity of 15,000 cfs. The secondary water delivery location from American Falls Dam are the low level outlet slide gates at the bottom of the stilling basin. Five radial gates, situated above the low level slide gates, can be used to release water into the stilling basin, but are only actively used during very high runoff conditions.

Flood Control

Flood control operations enable reservoir space to be used to manage and buffer peak flows that would otherwise be too high for safe channel capacity, generally during the April through July springtime runoff period. Snowpack accumulation is monitored through the winter and spring months every year to determine the likelihood of whether creating or maintaining any unfilled reservoir space will be necessary. If flood control space is required, then an appropriate amount of water storage space is vacated by releasing water from the respective reservoirs. If no need for flood control space is anticipated, then little to no storage space is reserved for the high spring inflows. Flood control operations are managed by Reclamation, in coordination with the U.S. Army Corps of Engineers.

System Management in a Typical Water Year

During the winter months when demand on the water supply is low, minimum flows are typically released from the dams, and the amount of water stored in the reservoir system

increases. During the spring months when snowmelt occurs in the headwaters of the Snake River and Henrys Fork, flows into the reservoir system increase to levels which are greater than early irrigation system demand. Since much of this water is retained, overall water storage in the reservoir system continues to increase until the spring runoff decreases and is surpassed in amount by rising summer irrigation demand, at which time the total stored water in the reservoir system reaches its yearly maximum. From that time on, the system water storage content decreases as water is released to meet downstream water demands. In the late summer or early fall when irrigation demand seasonally reduces to levels lower than the base flows into the reservoir system, the system storage content begins to increase again.

American Falls Reservoir

During typical water years, American Falls Reservoir reaches a yearly maximum storage level during the April through May timeframe, and then storage decreases as discharges for downstream water use surpass inflows from upstream water supply sources. During the summer months, the amount of water released from the reservoirs upstream of American Falls Reservoir is targeted to meet, but not to exceed, water supply demand downstream of each reservoir. Releases from Palisades Dam are managed to maintain approximately 2,000 cfs in the Blackfoot, Idaho reach of the Snake River (just upstream of American Falls Reservoir). It is common each year for American Falls Reservoir to be over 90 percent full in the April through May timeframe, with a storage content decrease to approximately 15 percent full by the end of September.

In years when precipitation in the headwaters of the Snake River is well below average (“dry” water years), American Falls Reservoir may only refill to a peak of 70 percent of full water storage capacity by the late March timeframe, after which reservoir levels may decrease to below 10 percent capacity by the September timeframe. In years when precipitation in the headwaters of the Snake River is well above average (“wet” water years), American Falls Reservoir may refill completely and remain full through the July timeframe.

Figure 4 shows a representation of the daily storage levels for American Falls Reservoir over a 30-year period from 1981 to 2010, demonstrating the seasonal storage level patterns described above. The darker gray band illustrates the range into which daily reservoir storage levels fell in 50 percent of years, called the 75 percent to 25 percent exceedance range. The light gray bands above and below the 75 percent to 25 percent exceedance range illustrate the range into which daily reservoir storage levels fell in the next 15 percent of the years on either side of the 75 percent to 25 percent exceedance range (meaning that reservoir storage levels fell within the range illustrated by both gray bands combined in 80 percent of all years). The white bands between the maximum and minimum lines and the edge of the light gray bands represent the top 10 percent and bottom 10 percent of years in terms of range of reservoir storage.

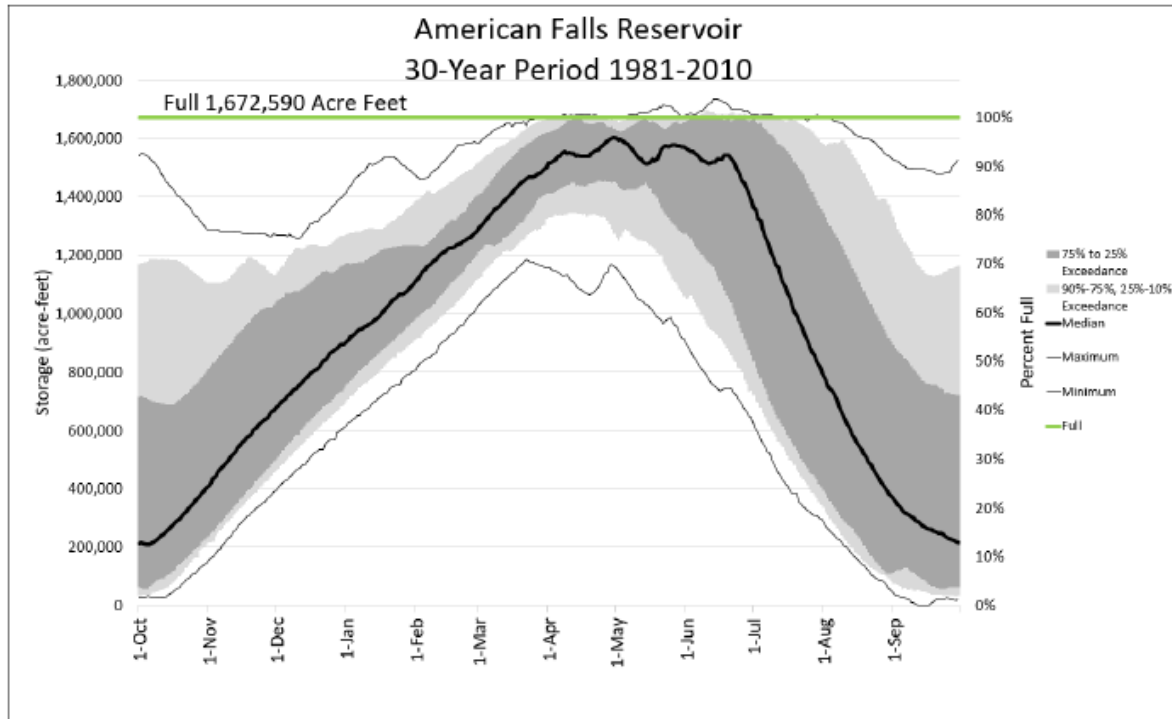


Figure 4. Daily historic storage data for American Falls Reservoir for a 30-year period from 1981 to 2010. Storage data can be retrieved from Reclamation’s historical database: <https://www.usbr.gov/pn/hydromet/arcread.html> (last accessed May 2, 2019).

Snake River Below American Falls Dam

Snake River flows (measured at the United States Geological Survey gage at Neeley, Idaho, approximately 1 mile downstream from American Falls Dam) vary widely depending on the time of year, irrigation demand, and water supply (Figure 5). Figure 5 shows a representation of the daily discharge from American Falls Dam for the 30-year period from 1981 to 2010 that demonstrates the seasonal flows during winter, spring, and summer. The maximum, minimum, median, 90 percent to 75 percent exceedance range, 75 percent to 25 percent exceedance range, and 25 percent to 10 percent exceedance range are shown and defined as in Figure 5.

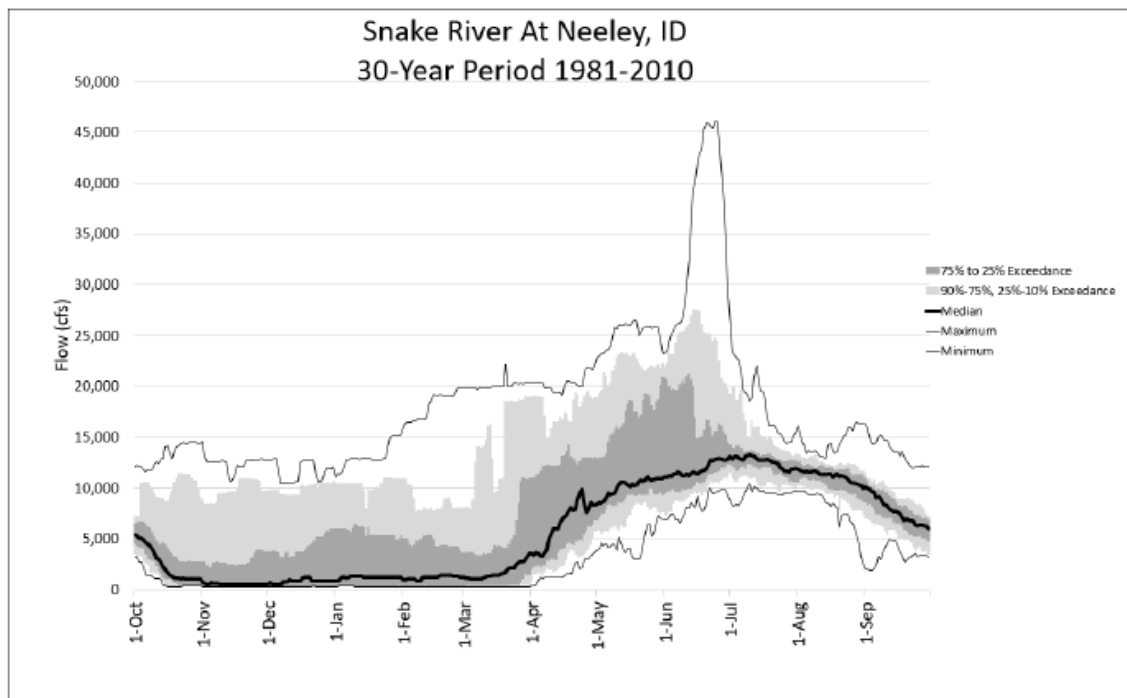


Figure 5. Daily historic flow data for the Snake River at Neeley, ID (below American Falls Dam) for the 30 year period 1981-2010. Flow data can be retrieved from Reclamation’s historical database: <https://www.usbr.gov/pn/hydromet/arcread.html> (last accessed May 2, 2019).

Discharges from American Falls Dam above 15,000 cfs (requiring the availability of the spillway and stilling basin to pass flows for downstream water use) occasionally occur during the proposed work window (mid-April to mid-October). Table 1 contains the number of years since 1981 that outflow from American Falls Dam has been higher than 15,000 cfs during the April through October timeframe. In these occurrences, high spring and summer runoff necessitated the passage of greater than 15,000 cfs through American Falls Dam; these instances essentially represent the passage of inflow.

Table 1. Number of times American Falls Dam outflow has exceeded 15,000 cfs during the April to October timeframe, for the period of record 1981 to 2021 (41 years).

Month	Occurrences of Outflow Greater Than 15,000 cfs	Frequency of Years
April	12	29%
May	18	44%
June	20	49%
July	16	39%
August	3	7%
September	1	2%
October	0	0%

Summer releases from American Falls Dam are dictated by downstream irrigation demands and downstream water rental pool leases below Milner Dam. Discharges from American Falls Dam also supply a varying amount of flow augmentation storage water that Reclamation is required to deliver out of the upper Snake River watershed for the benefit of ocean migrating fish (salmon) in the Columbia River. Typically, flow augmentation is released as early as possible each year after any flood control operations are complete. Volumes released are dependent on the system storage remaining at the end of the previous year (carryover), and spring runoff forecasts. In-depth information related to flow augmentation from the upper Snake River watershed may be found in the May 5, 2008, National Oceanic Atmospheric Administration (NOAA) National Marine Fisheries Service's (NMFS) biological opinion (NMFS 2008).

In general, a minimum flow of 300 cfs is maintained during the winter months. The magnitude of winter flows depends principally on the amount of stored water remaining in American Falls Reservoir and the reservoir system upstream at the end of the preceding irrigation season, known as "carryover storage." If carryover storage is high, estimates are made of the amount of un-storable flow expected prior to the following irrigation season. If the carryover storage is substantial, winter releases may range from 5,000 to 10,000 cfs. However, typically winter releases between late October and late February are between 300 and 1,000 cfs.

Lake Walcott and Milner Pool

During typical water years, Lake Walcott is maintained close to full to optimize power generation at the Minidoka Dam powerplant, and Milner Pool (created by backwater effect from Milner Dam) is maintained close to full to maintain adequate head for diversions just upstream of Milner Dam. During the summer months, the amount of water released from American Falls Reservoir (which enters Lake Walcott) and from Lake Walcott (which enters the Milner Pool) are set to maintain fairly constant pool levels downstream. There are two canals that divert water directly from Lake Walcott. Their headworks are included in the Minidoka Dam superstructure. There are five canals that divert water directly from the Milner Pool. Their headworks are separate from Milner Dam's structure. During the winter months, Lake Walcott and Milner Pool are maintained at a constant level that is slightly below full.

3.2.2 Environmental Consequences

Alternative A – No Action

Direct and Indirect Effects

Under the no action alternative, water management operations would continue as they have in the past. Without maintenance and repair work, the downstream concrete face of American Falls Dam would continue to deteriorate in the short- and long-term, which would allow the material being dislodged from the stilling basin to be transported and deposited in the downstream river reach. However, this minor deposition of material would not be expected to measurably affect channel hydraulics. Therefore, basin hydrology at American Falls Dam, the Snake River between American Falls Dam and Lake Walcott, Lake Walcott, and the Snake River below Minidoka Dam would be unaffected under the no action alternative.

**Alternative B – Maintenance and Rehabilitation of Spillway and Dam Structures
(Proposed Action)****Direct and Indirect Effects***American Falls Reservoir and Lake Walcott*

Under the proposed action, due to construction activities, the spillway and stilling basin would be unavailable for a period between mid-April 2022 and mid-October 2022. All flows would have to be passed through the IPC powerplant during this timeframe.

Water Delivery and the Snake River Below American Falls Dam

A high water year scenario is not predicted for 2022; however, in that unlikely scenario, upstream storage would be managed so that the outflow from American Falls Reservoir could be limited to 15,000 cfs, and could be passed through the powerplant without necessitating the use of spill.

The proposed action could potentially create an unlikely, but possible, scenario in which flow through IPC's powerplant could be insufficient to meet downstream water demands during the in-waterway work window.

From June through July, downstream irrigation demand could be as high as 12,000 cfs. If water quality monitoring below the dam shows DO concentrations falling below the instantaneous minimum of 3.5 milligrams/liter (mg/L), IPC would cease power production and pass water at speed no load until DO concentrations were brought back into compliance with State standards through implementation of the mitigation measures outlined in Section 3.3, and detailed in Appendix D of Reclamation 2019. The maximum discharge through the powerplant while at speed no load configuration is limited to 1,500 cfs. Therefore, if the powerplant stopped power generation due to low DO concerns, the limited flow would not be sufficient to fulfill downstream irrigation demands. In the case of this scenario, any deficit in downstream water delivery needs would be provided by drafting Lake Walcott storage as additional step-wise mitigation measures were implemented. If mitigation measures did not successfully raise DO to the minimum threshold quickly, the water supply in Lake Walcott could be significantly reduced over several days to levels that could make continued delivery of downstream water needs difficult. Under this scenario, the available water stored in Lake Walcott could be nearly depleted in approximately 5 days.

Were this scenario to occur, Reclamation would need to evaluate evacuation and use of the stilling basin in order to pass sufficient water to meet downstream water delivery demands. Demobilizing and clearing heavy machinery out of the stilling basin would require a minimum of 2 days after any decision is made before delivery of flows sufficient to meet the demands of downstream water users could be resumed.

However, these potential effects of river and reservoir management would not be considered significant, as the historic data record (Reclamation 2019, Appendix C) shows this scenario is highly unlikely to occur, would likely be very short in duration if it did, and, if needed, spill could be used to restore sufficient water supply to the Snake River in a timely manner to minimize

hydrologic effects, as outlined in the project's Water Quality Restoration Plan (Reclamation 2019, Appendix D).

3.2.3 Effects of Related Actions

The work under the proposed action alternative is scheduled to occur between mid-April 2022 and mid-October 2022. The IPC powerplant is scheduled to undergo an overhaul from 2023 to 2024, which will include outages for all three units at the powerplant in an alternating schedule. If the proposed action were to be delayed or pushed into 2023 or 2024, there is a potential that releases from American Falls Dam could be limited over a longer continuous period than the in-waterway work window for the proposed project alone. This could cause Lake Walcott to decrease in storage content to a level that would make delivery of flows sufficient to meet the demands of downstream water users difficult.

3.2.4 Mitigation

To ensure adequate downstream water deliveries are maintained throughout the proposed project, the overall water operations management strategy outlined in Section 3.2.2, developed in conjunction with a Water Quality Restoration Plan, would be targeted throughout the duration of the proposed project. With these plans, Reclamation would be adequately prepared to manage potential scenarios of temporarily limited water delivery from American Falls Dam without interrupting overall downstream water supply, or exceeding State water quality standards. The full Water Quality Restoration Plan was published with Reclamation 2019.

3.3 Water Quality

3.3.1 Affected Environment

American Falls subbasin covers approximately 2,869 square miles (IDEQ 2014). Towns within the subbasin include the Fort Hall Reservation and American Falls, Aberdeen, Blackfoot, Firth, and Shelley, Idaho. Major land uses in the subbasin include dryland and irrigated agriculture and livestock grazing. Located in the American Falls subbasin, American Falls Reservoir is the largest reservoir in the Minidoka Project and supplies irrigation water to over 1,150,000 acres (Reclamation 1995). Major reservoir tributaries include the Snake River, Spring Creek, McTucker Creek, Danielson Creek, Bannock Creek, and Ross Fork (IDEQ 2014). In addition to supplying water for irrigation, American Falls Reservoir is also used for flood control, power generation by IPC, fish and wildlife habitat enhancement, and recreation (Reclamation 1995).

Water Quality Standards

IDEQ has designated the following beneficial uses for American Falls Reservoir: aesthetics, agricultural and domestic water supply, industrial water supply, cold water aquatic life, primary and secondary recreation, and wildlife habitat (IDEQ 2017). American Falls Reservoir currently does not support the cold water aquatic life beneficial use due to nutrient/eutrophication, DO, sediment/siltation, and chlorophyll-a (IDEQ 2019a). Of these deficiencies, only DO and

chlorophyll-a have numeric standards—DO is to be at or greater than 6 mg/L and chlorophyll-a is to be 0.015 mg/L or less. However, as identified in the American Falls Subbasin Total Maximum Daily Load (TMDL) Plan: Subbasin Assessment and Loading Analysis, “. . .it is recommended that for future 303(d) lists, American Falls Reservoir be delisted for sediment, nutrients and DO as load reductions from tributaries and meeting chlorophyll-a targets is expected to achieve water quality standards and beneficial uses (IDEQ 2012a).”

The Snake River downstream of American Falls Reservoir is in the Lake Walcott subbasin. Beneficial uses for this 13.36-mile river segment are the same as those designated for American Falls Reservoir, and IDEQ has identified this river segment as supporting these beneficial uses (IDEQ 2017). This Snake River segment is not water quality limited. However, the Lake Walcott TMDL does include an informational sediment TMDL in the river segment from American Falls Dam to Massacre Rocks and from Massacre Rocks to Lake Walcott due to effects of erosional sediments along the river corridor during high-flow events (IDEQ 2012b).

Contaminants – American Falls Reservoir

In the American Falls Subbasin TMDL Plan: Subbasin Assessment and Loading Analysis (IDEQ 2012a), the main water quality issues identified at American Falls Reservoir were periodic high water temperatures and low DO concentrations that restrict trout habitat to a small portion of the reservoir. IDEQ determined the likely limiting nutrient to be total phosphorus (TP), which has been addressed in the tributaries through the TMDL process. To address low DO concentrations, IDEQ recommended a target concentration of 0.015 mg/L of chlorophyll for American Falls Reservoir (IDEQ 2019a).

The American Falls Subbasin TMDL Plan: Subbasin Assessment and Loading Analysis (IDEQ 2012a) identified that American Falls Reservoir DO concentrations are generally higher than 7 mg/L, except in the summer when the DO concentrations can decrease to as low as 5.5 mg/L. Low DO concentrations may be attributed to the algae population collapse that tends to occur in the late summer. The report speculates that cloud cover or late summer rainstorms reduce the available sunlight and phytoplankton respire more, consuming oxygen rather than producing it via photosynthesis, which decreases DO concentrations in the reservoir. The report also identified that water temperature for usable trout habitat is typically less than 19°C. Water temperatures in American Falls Reservoir typically have ranged from 5 to 12.5°C, but temperatures measured at the surface have been as high as 22°C in the summer (IDEQ 2012a).

Sediment and siltation can become an issue at American Falls Reservoir during low water years in which the reservoir is drawn down to low levels to meet water delivery demands. Natural channels are created that cut through the reservoir bottom sediment, causing the water to become sediment-laden and murky before passing through the dam. This is discussed in greater detail in the following Contaminants – Snake River below American Falls Reservoir subsection below.

Other contaminants surveyed in American Falls Reservoir were found at relatively low levels in water and sediment (IDEQ 2012a). Biological samples had mercury, selenium, DDE (dichlorodiphenyldichloroethylene, a break down product of the insecticide

dichlorodiphenyltrichloroethane, commonly known as DDT), and PCB (polychlorobiphenyl) levels, which were at or near recommended maximums (IDEQ 2012a). IDEQ has not fully identified or evaluated the contaminant sources, effects of fluctuating reservoir level, and long-term trends.

Contaminants – Snake River below American Falls Reservoir

Although the Snake River segment below American Falls Reservoir has been identified as supporting all its beneficial uses, there are still some water quality issues that arise. Sediment/siltation and low DO concentrations in water received from American Falls Reservoir are common water quality issues.

IPC monitors DO concentration and water temperature per its FERC hydropower license. Minimum DO concentration standards to be met below American Falls Dam from May 15th through October 15th are (IDEQ 2019b):

- 30-day mean of 5.5 mg/L
- 7-day mean minimum of 4.7 mg/L
- Instantaneous minimum of 3.5 mg/L

IPC uses up to two aerators just downstream from the dam to infuse oxygen into the river water to ensure the minimum DO concentration standards are met. If DO concentration minimums cannot be met, IPC passes water through American Falls Dam as spill, increasing DO concentrations through turbulent, aerated water. The Lake Walcott Subbasin Assessment and Total Maximum Daily Loads Five Year Review stated that DO levels are generally being maintained at or above required concentrations (IDEQ 2012b).

During drought and low water years, American Falls Reservoir can be drawn down to low levels to meet water delivery demands. This drawdown can create natural channels through the reservoir bottom sediment, causing the water to become sediment-laden and murky before passing through the dam. The entrained sediment is discharged into the Snake River and can cause instream total suspended solids (TSS) and turbidity to increase, which may impact recreational fishing and boating and the cold water aquatic life beneficial use.

IDEQ documented these occurrences in the 2012 Lake Walcott Subbasin Assessment and Total Maximum Daily Loads Five Year Review document. IDEQ stated:

“This situation occurred during a 45-day period from August 31–October 14, 2007, during which the BOR’s [Reclamation’s] management actions caused the water in American Falls Reservoir and the Snake River downstream to have elevated sediment and turbidity levels such that water quality violations and a fish kill occurred. In 1994 and 2001, similar water quality violations occurred due to similar BOR [Reclamation] management actions. However, this most recent event occurred for a much longer duration than in past years” (IDEQ 2012b).

In 2010, IDEQ and Reclamation finalized and implemented a Water Quality Management Action Plan (Reclamation 2019, Appendix B) for American Falls Reservoir and the Snake River

below American Falls Dam during periods of drought or low flow. The action plan was designed to outline water quality monitoring commitments, implementation of best management practices (BMPs), and operational considerations that Reclamation would undertake to address water quality issues, including excess sediment and increased turbidity, in the Snake River below American Falls Dam.

Water Quality Data

Water quality data for both American Falls Reservoir and the Snake River below American Falls Dam are available to the public and can be found at <https://www.waterqualitydata.us/portal/> (last accessed March 31, 2022). This database is a cooperative service sponsored by the United States Geological Survey, the Environmental Protection Agency (EPA), and the National Water Quality Monitoring Council.

3.3.2 Environmental Consequences

Water quality data and graphs used in this section are found in Reclamation 2019, Appendix C.

Methods and Criteria

Idaho State Water Quality Standards identified in IDEQ 2019b are used as a baseline to identify if, and to what magnitude, Reclamation actions could potentially affect water quality. The State of Idaho's 2018/2020 Integrated Report is used to compare and contrast Reclamation's effects in combination with known water quality issues. The specific area of potential effect is American Falls Reservoir and the Snake River immediately below American Falls Dam.

Alternative A – No Action

American Falls Reservoir

Reservoir water quality would continue to change based on anthropogenic and natural upstream watershed inputs, snow pack/precipitation events, reservoir drawdowns/drought, and cyclic changes in reservoir biology. Nutrients, mostly dissolved phosphate concentrations, would decrease slowly in the reservoir water column because of TMDLs administered to the contributing tributaries that limit the concentrations of nutrients identified in Section 3.3.1. Additionally, the reservoir sediments likely serve as a phosphate sink, where phosphates are buried under depositing sediments and continually removed from the water column as long as the sediments are not disturbed. If sediments are disturbed, the buried phosphate could become bioavailable and reintroduced into the water column.

Biological and weather processes that contribute to algae population collapse in late summer would likely continue to some extent and directly and indirectly affect reservoir DO, as described in IDEQ 2012a. When these conditions occur (typically in the late summer), DO concentration could decrease to as low as 5.5 mg/L until wind and wave action reintroduces oxygen into the water column, raising DO concentrations.

Sediment, siltation, and increased turbidity would continue to directly and indirectly affect the reservoir as described in Section 3.3.1. This is most apparent during low water years in which the

reservoir is drawn down to low levels to meet water delivery demands and during drought. To minimize these water quality effects to the reservoir and the Snake River immediately below the reservoir, Reclamation created an Action Plan in 2010 (Reclamation 2019, Appendix B). This Action Plan is used to:

“... minimize the frequency, extent and duration of American Falls Reservoir drawdown below 50,000 acre-feet....[In] drier years when system storage above the project is nearing depletion, Lake Walcott drafting may begin as early as mid-August, in order to retain a minimum volume target of 100,000 acre-feet in American Falls Reservoir in an attempt to meet water quality compliance standards and ESA requirements below American Falls Dam.”

When the water level in American Falls Reservoir drops below 100,000 acre-feet, Reclamation has committed to collecting water quality samples above and below American Falls Reservoir on a weekly basis. The samples are collected above the reservoir at Tilden Bridge and immediately below the dam. The samples are analyzed at Reclamation’s water quality laboratory for total suspended solids, suspended sediment concentration, volatile solids, and turbidity (Reclamation 2019, Appendix B). This extensive water quality monitoring is used to aid in reservoir management and to help predict if or when sediment issues may occur. Reclamation recognizes that in some years, if hydrologic conditions (typically drought) and irrigation demand on reservoir storage preclude retaining the target volume of 100,000 acre-feet, discharges below American Falls may not be in compliance with TSS targets (Reclamation 2019, Appendix B).

Excess sediment can also enter the reservoir via the shoreline. To reduce sedimentation from the shoreline, Reclamation initiated a shoreline protection program in the 1980s to address ongoing bank erosion and the subsequent potential loss of farmland. Reclamation purchased land around the reservoir to ensure that no further loss of private property would occur. Stabilization efforts included placing over 110,000 linear feet of bank rip rap on the shoreline to approximately 8 feet below full pool. These measures are effective for preventing erosion of the shoreline during higher pool elevations by minimizing re-suspension of sediments from seiches and waves. Shoreline erosion and sedimentation would continue to directly and indirectly affect reservoir water quality during higher pool elevations on the majority of the reservoir’s shoreline that is not protected with rip rap. The shoreline protection program would continue to add rip rap as funding and time is available, reducing the potential for shoreline sediments to enter the reservoir.

Snake River below American Falls Dam

The Snake River immediately below American Falls Dam is directly affected by the water released from the reservoir. This river segment is expected to continue to support its beneficial uses, as identified in IDEQ 2017. Low DO concentrations and sediment, siltation, and increased turbidity from reservoir discharge water would continue to have the potential for periodic effects on this river segment.

IPC continually monitors DO concentrations from May 15 to October 15, and if DO concentration readings fall below established minimums, IPC uses up to two aerators just

downstream from the dam to infuse oxygen into the river water. If that fails to improve DO concentrations, IPC then passes water through the dam as spill, increasing DO concentrations through turbulent, aerated water. These actions would continue to occur and maintain acceptable DO levels below the dam. There have been isolated instances where DO concentrations could not be increased to the minimum level for compliance with IDEQ standards. This most recently occurred in late summer of 2018, and was likely caused by the combination of conditions including algae population collapse, a series of overcast days, and high winds pushing low oxygenated water toward the dam intake (Grossarth 2018).

Sediment, siltation and turbidity from reservoir water would directly and indirectly affect water quality below the dam. As described above in the American Falls Reservoir section of Section 3.3.2 and in the Water Quality Management Action Plan (Reclamation 2019, Appendix B), Reclamation would continue to target water management throughout the water delivery season to maintain a minimum content of 100,000 acre-feet in American Falls Reservoir at the end of the storage delivery season. These efforts would avoid increased sediment discharged below the dam. This and the shoreline protection would continue to decrease, to some extent, sediment discharged below the dam. However, in some years, if hydrologic conditions (typically drought) and irrigation demand on reservoir storage preclude retaining the target volume of 100,000 acre-feet, discharges below American Falls may not be in compliance with TSS targets (Reclamation 2019, Appendix B) and water quality in the Snake River below the dam would be affected. Effects from the excess sediment would be similar to those identified in IDEQ 2012b.

Alternative B – Maintenance and Rehabilitation of Spillway and Dam Structures (Proposed Action)

Construction Effects

Construction activity in the spillway (mid-April to mid-October 2022) could result in contaminant mobilization and transport. Direct and indirect effects to water quality would be minimal and likely be similar to those expected under the no action alternative, due to mitigation and BMPs implemented by the contractor. However, complete elimination of sediment and turbidity increases due to construction activities is not possible. These effects from increased sediment (both in the reservoir and below the dam) would be of short-term duration (limited to the in-waterway construction timeframe) and would not contribute to any long-term effects.

The most likely potential contaminant sources from the proposed project include debris or debris-contaminated water from the hydroblasting and removal of the deteriorated concrete, and construction debris from concrete removal. The construction debris would be removed to an appropriate off-site disposal area to reduce potential water contamination, limiting any potential effects to water quality.

The reservoir would indirectly be exposed to construction debris through wind deposition. This effect would be minor and minimized through the construction BMPs, such as dust abatement in the construction site. The Snake River below the dam is most at risk for construction debris contamination. When water initially re-enters the formerly dewatered spillway and stilling basin

area, any remaining contaminants from the construction debris would be flushed downstream and could create a sediment plume before being dispersed downstream.

To mitigate for this possibility, the contractor would be required to clean the dewatered area in a manner similar to the cleanup mitigation performed above the Snail Pool Area after the Minidoka Dam spillway construction in 2015 (Reclamation 2010). Turbidity and sediment would likely marginally increase temporarily at the first use of the spillway and stilling basin, but with contractor cleanup of the dewatered area, it is unlikely that State water quality standards for turbidity and sediment would be exceeded.

The proposed project requires a Section 404 permit issued by the U.S. Army Corps of Engineers to outline requirements to minimize the effects to water quality associated with the construction activities. A 404 permit was granted in 2019 and is still valid for 2022.

The heavy equipment used in construction could present potential contaminant sources (e.g., fuels and lubricants) when working in the dewatered area. To mitigate these possible effects, the contractor would be required to create and follow a spill prevention plan that would detail specific BMPs to prevent and minimize these risks. The contractor would also be required to implement additional BMPs to minimize stormwater runoff and other erosional hazards that could affect water quality.

American Falls Reservoir

The period of in-waterway construction activity during which the spillway and stilling basin must be dewatered (mid-April to mid-October, 2022) would include the critical late-summer timeframe for DO mitigation below the dam. As identified in Section 3.3.1, low DO concentrations periodically occur in the reservoir that directly affect the DO concentrations below the dam. A Water Quality Restoration Plan (Reclamation 2019, Appendix D) would be used to identify a series of step-wise actions that would mitigate potential low DO issues that could occur when water is passed through the dam to the Snake River.

The first step in mitigating potentially low DO concentrations is to operate American Falls Reservoir at elevations similar to past years in which periods of low DO concentration either did not occur or were successfully raised to acceptable State DO concentrations through use of one or both of IPC's aerators. Examples of successful DO mitigation via use of IPC aerators, without use of spill, are shown in Appendix C of Reclamation 2019. The direct and indirect effects of this action would be minimal, because the DO concentrations in the water below the dam would meet State DO standards.

Other water quality parameters would continue to change based on anthropogenic and natural upstream watershed inputs, snow pack/precipitation events, reservoir drawdowns/drought, and cyclic changes in reservoir biology. Following the prescribed actions identified in the American Falls Action Plan (Reclamation 2019, Appendix B), Reclamation would continue to target water management throughout the water delivery season to maintain a minimum content of 100,000 acre-feet in American Falls Reservoir at the end of the storage delivery season. These efforts would avoid increased sediment discharged below the dam. Direct and indirect effects to other water quality parameters would be the same as those identified in the no action alternative.

Snake River below American Falls Dam

Direct and indirect effects of this project could include periods of low DO concentrations in the Snake River below the dam that cannot be mitigated by IPC's two aerators. Continuous reservoir water quality data collected by IDEQ personnel would be used to predict or identify any low DO occurrence. The data would be relayed to an identified Water Quality Action Team composed of Reclamation, IPC, IDEQ, and IDFG personnel with relevant expertise. The Water Quality Action Team members would then advise Reclamation management as to potential mitigative measures. This process has been successful for 2020 and 2021.

The final option to mitigate low DO concentrations below the dam would be emergency spill, which would be held as a last resort. If DO concentration could not be increased to a level that meets the State minimum instantaneous standards (3.5mg/L) using the mitigation efforts previously listed, and under the advisement of the Water Quality Action Team, Reclamation could elect to order the contractor to demobilize so that water could be passed through the regulating gates and stilling basin.

A 48-hour notice would be necessary to accomplish demobilization, including clearing heavy equipment and substantial debris out of the stilling basin. Spill following demobilization would likely effectively mitigate any low DO concentrations below the dam, but construction contaminants such as loose concrete and concrete that had not fully cured would be washed into the stilling basin and downstream. Water quality effects from this use of spill would be minor because of the short duration of the action, and because the volume of water released would quickly dilute much of the chemical and physical effects from the construction debris. However, exercise of this mitigative option could significantly delay project completion.

To ensure legal compliance with State of Idaho water quality standard obligations, Reclamation has applied for an IDEQ Short-Term Activity Exemption for work in 2022, identified in the Idaho State Water Quality Standards Section 080.02.b.vi: Maintenance of Existing Structures, (IDEQ 2019b). If granted, this would establish temporary legal compliance with State water quality standards for DO by exempting non-compliant low DO concentrations that would be attributable to the proposed action and its mitigative measures. Reclamation has previously received a Short-Term Activity Exemption for 2020 and 2021 construction.

3.3.3 Effects of Related Actions

When the effects to water quality of the proposed action are considered in the context of the IPC powerplant overall scheduled to take place from 2022 to 2024, they would contribute to a cumulative effect. The IPC powerplant overhaul would include outages for all three units at the powerplant, in an alternating schedule. If the proposed action were to be delayed or prolonged into 2023 or 2024, it is unlikely that the measures identified in the Draft Water Quality Restoration Plan to mitigate low DO (American Falls Reservoir operation and IPC's aerator use to increase low DO concentrations) would be feasible in conjunction with the IPC powerplant overhaul.

3.3.4 Mitigation

Mitigating low DO concentrations below the dam during the construction window would be Reclamation's priority water quality concern. The Water Quality Restoration Plan (Reclamation 2019, Appendix D) identifies the specific actions that would be taken to prevent or alleviate low DO conditions below the dam. The primary method of mitigating potentially low DO concentrations is prevention through operating American Falls Reservoir at elevations similar to past years in which periods of low DO concentration either did not occur or were successfully raised to acceptable State DO concentrations through use of one or both of IPC's aerators.

If a low DO concentration issue persists despite implementation of the above mitigation measures, the Water Quality Action Team would advise Reclamation management if discharge through the spillway and stilling basin is warranted. If deemed necessary, Reclamation management could elect to issue a 48-hour vacate notice to the contractor, and then discharge water as spill to increase DO concentrations below the dam.

Beginning one week before and continuing throughout the in-waterway construction period, as deemed necessary, IDEQ would monitor reservoir water quality in an effort to predict decreasing reservoir DO concentrations. This monitoring information is critical for decision making and would be reported to key Reclamation personnel to be analyzed and transmitted to the Water Quality Technical Team and Reclamation management on a daily basis. See Reclamation 2019, Appendix D for specific details on the Water Quality Restoration Plan.

3.4 Aquatic Resources (Fisheries)

3.4.1 Affected Environment

Fish and wildlife in the State of Idaho are managed exclusively by IDFG per State Statute Title 36 (IDFG 2019b), and IDFG staff are considered the subject matter experts for fish populations in the affected environment for this project. The potential affected environment overlaps the jurisdiction of three IDFG regions—Regions 4, 5 and 6.

Three geographically-distinct, but interconnected, fish communities exist within the area potentially impacted by the proposed action as follows:

1. Fish in the Snake River above American Falls Reservoir upstream to Palisades Dam
2. Fish in American Falls Reservoir
3. Fish in the Snake River below American Falls Dam downstream to Lake Walcott

There are no federally listed fish species in the area of potential effect; however, these three fish communities include species of interest, such as the native Yellowstone cutthroat (cutthroat) trout, introduced white sturgeon, and warm- and cool-water recreational sport fisheries. They are maintained in large part through operations at American Falls Reservoir that incidentally support fisheries by allowing optimal rates of entrainment (fish being passed through the dam), and limiting instances of low DO concentration and/or high concentrations of Total Dissolved Gas in the river downstream of the dam. Conditions that allow a beneficial amount of entrainment

occur when reservoir volume is at 15 to 30 percent of full pool (Teuscher 2019, pers. comm.). The key components of the affected environment for each distinct fish community include a sufficient prey base, water quality (Section 3.3), access to seasonally important habitat, and the effects of entrainment through American Falls Dam. Each of these are described below.

Work under the proposed action alternative is scheduled to occur between mid-April 2022 and mid-October 2022. The potential extended work period identified in the proposed action alternative will not have additional direct effects on the fisheries resources beyond those identified in Reclamation 2019. Indirect effects resulting from the proposed action alternative as a result of water quality are described in Section 3.3. Effects as described in Reclamation 2019 are included below for reference.

Snake River Above American Falls Reservoir Upstream to Palisades Dam

Prey Base

This section of the Snake River supports the nation's largest population of native cutthroat trout, as well as healthy populations of rainbow and brown trout, portions of which seasonally migrate within the river upstream of American Falls Reservoir (a fluvial life history), and between the river and the reservoir (an adfluvial life history). Adfluvial migratory fish overwinter and rely on the abundant prey base that generally exists in the reservoir. In addition to natural spawning, IDFG has stocked 608,546 game fish in the last 3 years, of which 34,008 are less than 6 inches and could be prey for larger fishes (IDFG 2019c; IDFG 2022).

Water Quality

Water quality in this section of the Snake River supports a blue ribbon fishery of extremely high quality (Section 3.3). Favorable water quality parameters, such as seasonal flows, water temperatures, and low sediment contribute to the maintenance of a high quality recreational fishery with greater fish abundance and larger-sized fish than in other areas. This area is managed by IDFG as a Special Rule area.

Access to Habitat

Releases from Palisades Reservoir regulate water levels in American Falls Reservoir, and influence the water temperature and accessibility of shallow shoreline habitat along the Snake River corridor between the two facilities (Moller and Van Kirk 2003; Hauer et al. 2004; Oldemeyer and Van Kirk 2018). Brown trout spawn during October and November in the Snake River between Palisades Dam and American Falls Reservoir and use select shallow shoreline areas, which makes them and their nests susceptible to the effects of fluctuating water levels. Reservoir drawdowns can create seasonal migration barriers at the point where a river enters a reservoir (Prisciandaro 2015) because of the deposition of fine material that accumulates at this point. When American Falls Reservoir is drawn down, this fish population may experience this type of temporary migration barrier between the river and American Falls Reservoir.

American Falls Reservoir

Prey Base

The reservoir supports populations of both warm- and cool-water fish species, but is most notable for its sport fishing (also discussed in Section 3.4.1 above) of several species of trout (IDFG 2019a). An abundant and self-sustaining prey base for trout and the other game fish exists in the reservoir, which allows these populations of popular sport fish to live longer and grow larger than fish that live strictly in a river environment. The prey base is mainly composed of small sized fish of all species, and includes native and introduced fish species, aquatic insects, and zooplankton. Current operations of American Falls Dam and Reservoir support the present diversity and abundance of the prey base in the reservoir.

In addition to natural spawning, the IDFG has stocked 1,996,883 game fish in the last 3 years of which 1,772,263 are less than 6 inches and could be prey for larger fishes (IDFG 2019c; IDFG 2022).

Water Quality

American Falls Reservoir seasonally stratifies through the spring and summer, and then re-mixes in the fall. When stratified, the epilimnion (upper water layer) tends to be well-oxygenated, while the hypolimnion (lowest level water) generally contains low to no DO at the end of the summer until the stratified layers naturally turn over and become mixed again in the fall. High storage levels leading into the late-summer to fall period can inhibit full fall mixing of the seasonally-stratified water layers, which prolongs poor water quality conditions in parts of the water column.

Water quality conditions in American Falls Reservoir are primarily tied to storage volume and weather conditions, as described in Section 3.3. Current operations, as described in Section 3.2, typically maintain American Falls Reservoir at levels that provide suitable water quality conditions that support the current fisheries. In hot, dry years when American Falls Reservoir is seasonally at its lowest pool level, direct fish mortality can occur due to increased water temperatures, increased sediment mobilization, low DO, or compounding effects resulting from a combination of these water quality parameters (Section 3.3).

Reservoir pool volumes of less than 100,000 acre-feet (approximately 6 percent of full pool) most recently occurred in 2013 when American Falls Reservoir was drafted to just over 50,000 acre-feet, resulting in reduced water quality and limited access to habitat.

Access to Habitat

The reservoir provides important over-wintering habitat for migratory trout that use the Snake River upstream of the reservoir for spawning and rearing habitat during the spring and summer. Without the reservoir to provide prey for overwintering fishes and a migration corridor to critical spawning and summer habitat, neither fish community would sustain their current populations or recreational interest. Reservoir drawdowns can create seasonal migration barriers at the point where a river enters a reservoir (Prisciandaro 2015) because of the deposition of fine material that accumulates at this point. Temporary migration impediments through the river

delta at the top of the reservoir, where the Snake River enters American Falls Reservoir, occur when the reservoir is seasonally at its lowest pool level.

Reservoir drawdowns reduce the quantity of habitat available for the fish community in the reservoir. Reduced habitat increases predation and competition for available resources, and can stress fish causing prolonged effects.

Entrainment

Entrainment occurs at some level in all operating scenarios, and results in losses to the populations of all fish species present in the reservoir. Too high a level of entrainment loss at any trophic level can cause effects that cascade through each level of the food chain. The loss of too many mature fish could lead to a longer recovery time for the population since fewer mature fish would be present to reproduce. However, entrainment generally serves an important role for the reservoir fish community. Fish losses through entrainment help to balance the reservoir fish community and maintain a healthy prey base in the reservoir.

An optimal entrainment level that maintains a predator/prey balance in the reservoir occurs when reservoir volumes are between 15 percent and 30 percent of full pool (Teuscher 2019, pers. comm.). When reservoir pool elevations do not drop below 30 percent annually, entrainment is decreased. A decrease in entrainment can cause fish populations to become overcrowded. In dry years when the reservoir volume drops below 15 percent of full pool, entrainment losses have increased beyond a level that sustains balance in the reservoir fish community. Entrainment resulting from normal operations maintains a fish community that is balanced and appropriately sized for the quantity of habitat typically available.

Snake River Below American Falls Dam Downstream to Milner Dam

This section of the Snake River supports popular fisheries of the same species as found in American Falls Reservoir, as well as an introduced population of white sturgeon (also discussed in Section 3.4.1 above). Due to very little spawning habitat for all species in this reach, these fisheries are not maintained through natural reproduction. Therefore, these fisheries are reliant on the high survival of fish entrained from American Falls Reservoir and stocking by the IDFG to maintain the populations of sport fish and their prey. Similar to the migratory behavior of fish in the Snake River above American Falls Reservoir, fish in this section also exhibit fluvial and adfluvial migratory behavior, including seasonal use of Lake Walcott.

Prey Base

The prey base that exists in this stretch of the Snake River is composed similarly to that found in American Falls Reservoir, and is enhanced by entrainment.

In addition to natural spawning and entrainment, the IDFG has stocked 108,955 game fish in the last 3 years, of which 60,800 are less than 6 inches and could be prey for larger fishes (IDFG 2019c; IDFG 2022).

Water Quality

Releases from American Falls Reservoir directly influence water quality and quantity in the river downstream of the dam. This section of the Snake River is not typically water quality limited. Instances of reduced water quality that have measurable effects to the fish populations in this reach are uncommon, and are mostly avoided through preventative operations. However, in hot, dry years when American Falls Reservoir is seasonally at its lowest pool level, receiving water may be affected by conditions in the reservoir, including increased water temperatures, increased sediment, low DO, or compounding effects resulting from a combination of these water quality parameters (Section 3.3).

Seasonal occurrence of lowered DO concentrations is an infrequently occurring, but known water quality concern below the dam (Section 3.3). The amount of DO that a given volume of water can hold is a function of atmospheric pressure, water temperature, and the amount of other substances dissolved in the water. Temperature can strongly influence DO levels because temperature establishes a maximum oxygen holding capacity of water. High water temperatures (86°F or higher) reduce the holding capacity of water. In hot, dry years, receiving waters from American Falls Reservoir are warmer and have lowered DO concentrations, which can result in low DO concentrations in the Snake River immediately below the dam.

As DO levels in water drop below 5.0 mg/L, aquatic life is put under stress. The lower the concentration, the greater the stress, up to and including mortality. Reduced water quality conditions such as DO concentrations that remain below 1 to 2 mg/L for a few hours can result in large fish kills. Mitigative measures implemented by IPC, such as the use of aerators below the dam and use of spill to introduce aerated water, have historically been largely successful at preventing sustained drops in DO concentrations and their related effects to fish in this area of potential effect. Most recently, this type of direct fish mortality from low DO concentrations occurred in the summer of 2018 (O'Connell 2018).

Access to Habitat

Migration barriers in this reach of the Snake River do not typically exist. Seasonal barriers to migration in and out of Lake Walcott may occur, but are not known to be limiting.

Entrainment

The current fish community in this section is reliant on the high survival of fish entrained from American Falls Reservoir to replenish and maintain populations of sport fish and their prey. Entrainment loss from these populations also occurs from Lake Walcott (through Minidoka Dam). Current operations at Lake Walcott minimize this entrainment.

3.4.2 Environmental Consequences

Methods and Criteria

Effects were evaluated by a combination of the following:

1. Contacting IDFG fish biologists and/or managers from each region for advisement

2. Querying publicly available information on the characteristics and value of all three fisheries
3. Performing a literature search of scientific peer reviewed information for the affected area
4. Assessing the likelihood and magnitude of potential effects to determine their level of significance

Alternative A – No Action

Direct and Indirect Effects

Effects to prey base, water quality, access to habitat, and entrainment throughout the area of potential effect would remain similar to conditions present under normal operations, as described in the preceding Affected Environment section (Section 3.4.1).

Fish in the Snake River above American Falls and in American Falls Reservoir would continue to experience partial seasonal barriers to migration when American Falls Reservoir is at its lowest seasonal volume. Fish in American Falls Reservoir and in the Snake River below American Falls Dam would generally continue to be supported by a prey base that is balanced by entrainment. Fish in the Snake River below American Falls Dam would continue to experience minimized entrainment losses through Minidoka Dam. Fish in all three communities would continue to experience suitable water quality conditions, except when hot dry climate conditions result in low water levels and degraded water quality in the reservoir and downstream.

Under the no action alternative, hot, dry conditions could cause direct negative effects to the reservoir fish community due to increased turbidity created by low water volumes, increased entrainment, and the compounding effect of seasonal migration barriers due to low water levels (fish seeking more favorable habitat are unable to move out of the reservoir). This could result in increased mortality of fish in the reservoir, increased entrainment, or stress that could lead to indirect effects such as reduced fitness, overcrowding, and reduced reproductive success. These types of effects to the reservoir fish population from normal operations under hot, dry conditions occurred most recently in 2013 when American Falls Reservoir was drafted to just over 50,000 acre-feet. At this time, a period of degraded water quality conditions combined with increased entrainment in American Falls Reservoir led to measurable reductions to the reservoir fish community (Teuscher 2019, pers. comm.). These conditions, when they occur, also affect the fish community downstream of the dam due to the degraded quality of water being released from American Falls Reservoir.

Under the no action alternative, hot, dry conditions could also cause direct negative effects to the fish community in the Snake River below American Falls Dam. In these climactic conditions, receiving waters from American Falls Reservoir are warmer and have lowered DO concentrations, which can result in low DO concentrations in the Snake River immediately below the dam.

The interaction of effects from reduced water quality coupled with low reservoir volume can be observed for many years depending on the severity and duration of periods of elevated mortality

to the reservoir fish community. An analysis of age and growth data for the reservoir fish community indicates it takes as long as 8 years for smaller fishes to achieve maturity, at which point the population exhibits a balanced age structure allowing for annual recruitment at a level that replaces losses (Kohler and Hubert 1993). Based on this information, as well as historical data, recovery of the fish communities both in the reservoir and in the Snake River below the dam to pre-event levels following a measurable loss under normal operations would be expected to take up to 8 years.

If the proposed maintenance is not performed and the spillway and dam structures continue to experience degradation, the spillway could become unusable at some point in the future. This would limit Reclamation's operational flexibility to use spill to counter the effects of degraded water quality that can occur under normal operations due to hot, dry conditions (i.e., low DO concentrations downstream from the dam).

Alternative B – Maintenance and Rehabilitation of Spillway and Dam Structures (Proposed Action)

Direct and Indirect Effects

The proposed action would maintain overall operations within their normal historic range (Section 3.2), with the exception of limiting operational flexibility to use spill as a means of water passage during construction. This limited flexibility could affect the fish populations throughout the area of potential effect in the following ways:

Snake River Above American Falls Reservoir Upstream to Palisades Dam

The proposed action would potentially cause minor alterations to the magnitude or timing of releases from Palisades Reservoir, as the upper Snake River storage facilities upstream of Milner Dam are operated as a system for overall water management. However, these changes would not fall outside the historic range of operations. Therefore, the proposed action would have no measurable effect to the condition of the prey base, water quality, or habitat present in the Snake River above American Falls Reservoir. Since the adfluvial portion of this fish population is seasonally dependent upon the prey base in American Falls Reservoir and could also be subject to entrainment while in the reservoir, effects to this population have been included in discussion of effects to fish in American Falls Reservoir.

American Falls Reservoir

As discussed in the Affected Environment section (Section 3.4.1), when hot, dry conditions occur, this could cause a reduction in the prey base, and affect all fish in the reservoir through the effects of low water levels (degraded water quality, increased turbidity, increased entrainment, and temporary migration barriers). The limited operational flexibility during spillway construction could contribute to these effects, if the necessary additional late-season water releases were to lower the reservoir volume below 15 percent. These effects would be compounded if similar climatic conditions occurred during both years of the proposed project. This scenario has been considered when formulating planned system operations of the upper Snake River storage facilities upstream of Milner Dam and would be unlikely to occur due to the

operations described in Section 3.2. These operations would specifically target maintenance of American Falls Reservoir at or above 15 percent full at the end of each construction period. Therefore, the degree to which overall potential effects of operations on prey base could be attributed to the proposed action is minimal.

During periods of low water levels, fine sediment from the reservoir bottom may become mobilized causing increased turbidity as described in Section 3.3.1. When this occurs, contaminants that were buried in sediment can be spread throughout the water column. Organisms that ingest the contaminant or other biota like fish that prey on insects that have previously ingested contaminants can accumulate those contaminants in their flesh making them unsafe for human consumption.

Snake River Below American Falls Dam Downstream to Milner Dam

Effects to prey base and access to habitat in this part of the area of potential effect would be the same as those under the no action alternative. The proposed project would not cause any additional significant effects.

In a hot, dry year, the proposed project could have effects to water quality. As discussed in Section 3.4.1, when hot, dry conditions occur, this could lead to low water levels in American Falls Reservoir, which results in increased sediment mobilization and turbidity in water that is then discharged into the Snake River below the dam. These effects are known to become significant when the reservoir is drafted below 100,000 acre-feet (approximately 6 percent of full volume) (Reclamation 2019, Appendix B). However, this would be unlikely to occur during the proposed action due to the operations described in Section 3.2, which would specifically target maintenance of American Falls Reservoir at or above 15 percent of full pool (250,000 acre-feet) at the end of each construction period. Therefore, there would be no expected project effects to turbidity in the Snake River below the dam.

There have been isolated instances where DO concentrations could not be maintained at the IDEQ minimum level for compliance without using mitigative spill. This most recently occurred in late summer of 2018 and was likely caused by the combination of conditions including algae population collapse, a series of overcast days, and high winds pushing low oxygenated water toward the dam intake (Grossarth 2018). Both blowers were unable to raise DO concentrations, requiring spill. Spill was not initiated until 2 hours after the incident occurred. If similar conditions were to occur during the proposed action, the limited operational flexibility during in-waterway construction could contribute to an increase in the duration of low DO concentrations, which would have direct effects to fish in the Snake River below the dam.

However, the mitigative measures to be implemented as a part of the proposed action—preventative early-season water level management in American Falls Reservoir; ongoing predictive water quality monitoring above and below American Falls Dam; and the ability upon a 48-hour clearance notification to initiate spill if warranted by extreme conditions, as discussed in Section 3.3 and detailed in Appendix D of Reclamation 2019—are expected to minimize any additional effects to DO concentrations potentially attributable to the proposed action. The effects of low DO generally do not rise to the level of measurable fish kills until DO

concentrations remain below identified State standards for a sustained period, unless water temperatures are very warm, and there is not a migration corridor for fish to access more suitable habitat. During the proposed project, a series of mitigative measures would be implemented when monitoring data indicates a lowering trend approaching State instantaneous minimum standard of 3.5 mg/L, initiated well before DO concentrations have violated State standards. Therefore, because the type, magnitude, and probability of effects to fish from periods of low DO concentrations would be expected to be similar to those under the no action alternative, the proposed project would not be expected to cause measurable effects to the fisheries downstream of American Falls Dam. Entrainment of this fish population could be slightly affected by the proposed project; however, overall effects to year-round entrainment levels at this dam would be minimal.

3.4.3 Effects of Related Actions

None of the actions considered for relevant context of effects (Section 1.2.2) have had or are expected to have direct or indirect effect to fisheries in the area of potential effect. Therefore, no additive effects are expected.

3.4.4 Mitigation

Mitigative measures are incorporated into the proposed action that would help to reduce the severity or eliminate potential effects to fish communities. These mitigation measures are discussed in detail in Section 3.2 of this document, and include:

1. System operations planning that would target maintaining reservoir storage in American Falls Reservoir above 15 percent of full pool in order to minimize the potential for degraded water quality and excessive entrainment
2. Monitoring of DO concentrations in the reservoir and below the dam to predict low DO events, and/or use of spill to maintain DO levels in compliance with State standards

3.5 Transportation

3.5.1 Affected Environment

American Falls Dam is in Power County, Idaho directly west of the City of American Falls with a population of 4,457 (Census Bureau 2010). Idaho SH-39 westbound lanes are located on top of the dam structure, SH-39 eastbound lanes are located on the lower road (bridge) downstream of the dam. SH-39 is located in Power and Bingham counties in Idaho. SH-39 is 52.924 miles (85.173 km) long and runs from its southern terminus at Interstate 86 (I-86) in American Falls to its northern terminus at U.S. Route 26 in Blackfoot. Between the two cities, it passes through the city of Aberdeen and the communities of Springfield and Pingree.

SH-39 is used by daily commuters from the cities of American Falls, Aberdeen, Springfield and Pingree. This highway is one of the main corridors from I-86 used by transportation trucks to access businesses west of the City of American Falls for loading and delivery. This includes

Lamb Weston, Con-Agra, Trans System and the Amalgamated Sugar Company. In addition, this is the main thoroughfare for agricultural deliveries and equipment throughout the year, connecting areas west and east of American Falls Reservoir and the Snake River. Agricultural deliveries and equipment transportation typically increase from July to November annually to support harvest of local crops. This area of SH-39 is also used as one of the main routes to access recreational areas west of the City of American Falls and the American Falls Reservoir, including American Falls West Boat Ramp, recreational areas on the west side of American Falls reservoir, an area known by local recreators as Lake Channel, and recreational areas on the Snake River downstream of the dam. The average daily traffic volume ranges from 2,800 to just under 4,000 vehicles. Traffic data from 1994 to 2019 for this stretch of SH-39 are shown in Table 2.

Table 2. Average daily traffic volume by month 1994 to 2019. Showing results from 1-86B at milepost 101.275, 0.4 miles southeast of Marina Road, Segment Code 002332 (ITD 2019).

#078 - American Falls - ATR														Average Daily Traffic	Published Reports
Automatic Counter Volumes															
Report Types															
Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	24-Hour	Annual	Avg.
1994					2144	2424	2358	2178	2347	2298	1894	1666			
1995	1514	1706	1846	1960	2104	2293	2446	2272	2280	2434	2105	1665	2052		
1996	1482	1711	2017	2183	2237	2646	2665	2624	2582	2638	2166	1719	2223		
1997	1633	1822	2031	2345	2607	2839	2699	2610	2435	2401	2298	2007	2317		
1998	1822	1837	2180	2487	2624	2749	2962	2858	2681	2734	2279	2074	2441		
1999	1948	1862	2265	2475	2761	2962	2950	2681	2817	2959	2411	2112	2517		
2000	2038	2196	2309	2584	2702	3005	3034	2878	2890	3079	2424	2149	2607		
2001	2091	2078	2326	2627	2710	2934	2767	2685	2783	2847	2736	1945	2544		
2002	1810	2085	2200	2603	2682	2781	2726	2710	2731	3118	2552	2279	2523		
2003	2465	2312	2522	2812	2827	3170	3091	2962	3069	3075	2660	1900	2739		
2004	2028	2226	2557	2857	2737	3001	2982	2800	3121	3012	2560	2380	2688		
2005	2233	2492	2534	2799	2854	2977	3053	3017	2548						
2006					2789	3026	2999	3024	2971	3097	2879	2528			
2007	2532	2892	2758	2858	2980	3166	3144	3152	3155	3207	2922	2424	2933		
2008	2360	2578	2494	2865	2854	2992	3052	2918	2929	2957		2206			
2009	2641	2504	2487	2926	2986	3075	3197	3080	3383	3380	2813	2539	2918		
2010	2532	2866	2727	2927	2927	3258	3281	3096	3244	3388	2624	2527	2950		
2011	2719	2751	2635	2962	1956	934	1806	2942	3420	3451	2947	2794	2610		
2012	2833	2898	2852	3029	3018	3126	3063	3095	3335	3295	2969	2607	3010		
2013	2507	2843	3097	3078	3055	3183	3812	3715	3782	3892	3218	2689	3239		
2014	2939	2861	3192	3111	3117	3222	3220	3283	3609	3598	2951	2680	3149		
2015	2746	3085	3215	3141	3156	3348	3227	3398	3542	3503	3202	2815	3198		
2016	2894	3234	3178	3425	3442	3594	3479	3506	3833	3925	3570	2786	3405		
2017	2513	2852	3497	3565	3601	3768	3662	3671	3751	3835	3442	2947	3425		
2018	3031	2848	3223	3376	3382	3599	3349	3507	3612	3622	3426	2866	3320		
2019	3066														

During April through November, traffic generally increases on SH-39 in support of the agricultural season as crops are planted, harvested, and transported. In this area, potatoes, sugar beets, grain, barely, hay, and straw are transported from various locations near American Falls Dam on this section of SH-39. There are multiple large processing plants located west of the American Falls Dam including Lamb Weston and Con-Agra Food, both located within 3 miles of the dam structure and construction site. There is a large sugar beet storage area located nearby from which Trans System, Inc. and other local delivery trucks operate. Their transportation route from this site travels across the dam structure on SH-39.

It is not uncommon for traffic restrictions to be in place on SH-39 on or near the dam for maintenance and repairs completed by Reclamation or ITD. In the recent past, ITD completed maintenance on the SH-39 eastbound bridge directly downstream of the dam structure, which resulted in its closure for an extended period. All traffic was rerouted on SH-39 westbound lanes (across the dam) restricting eastbound and westbound traffic to one lane for approximately 1 mile.

3.5.2 Environmental Consequences

Alternative A – No Action

Direct and Indirect Effects

Under the no action alternative, no maintenance and rehabilitation of the spillway and dam structures would occur; therefore, no traffic restrictions would be put into place. Transportation of all vehicles would continue under current conditions. No construction vehicles, equipment, or workers would be at the project sites and no construction activities would occur. Consequently, there would be no effects to transportation.

Alternative B – Maintenance and Rehabilitation of Spillway and Dam Structures (Proposed Action)

The proposed traffic plan for this project was adopted from ITD’s Traffic Control Plan for Bridge Closure on SH-39. Routine maintenance and inspections by both Reclamation and ITD occur annually resulting in temporary road closures and/or traffic restrictions on SH-39 on or near the dam.

Based on the Value Engineering Study completed by Reclamation in 2016, a Traffic Control Plan that includes control restrictions on SH-39 and access routes, haul routes, and staging areas would eliminate the need to build an access road through the discharge channel downstream of the stilling basin. This would also allow the contract awardee to use two cranes, as needed, staged on westbound SH-39. This was determined to be the safest, most efficient, and cost-effective option to both the government and responsible stakeholders, and would be a necessary component of the proposed project. In consideration of this recommendation, in 2018 Reclamation met with ITD, Power County Transportation Coalition, and Bingham County Transportation Coalition to identify the proposed project and solicit input for the development

of an appropriate Traffic Control Plan that would minimize the potential effects of the proposed project.

The resulting proposed Traffic Control Plan was developed in cooperation with ITD and is incorporated in the construction specification. This Traffic Control Plan follows applicable guidance set forth by both the U.S. Department of Transportation's Manual on Uniform Traffic Control Devices (MUTCD) and current ITD traffic manuals. Previous projects completed by ITD at or near American Falls Dam have used similar traffic control plans. The section of SH-39 where it crosses the dam, as well as proposed access routes, haul routes, and staging areas where transportation could be affected by the proposed project are identified on a map in Reclamation 2019, Appendix E.

Direct and Indirect Effects

During the construction activities for implementation of the proposed action, traffic on SH-39, adjacent roadways, and within the City of American Falls on and near the identified haul routes would be affected. The proposed project would result in a general increase in traffic locally due to construction traffic related to the proposed action, including construction vehicles, heavy equipment, and employees traveling to and from the construction site daily. The Traffic Control Plan that would be in effect during this project would affect transportation in the local area by limiting access for oversized vehicles and implements, decreasing traffic speeds, and increasing travel times along access and hauling routes and on SH-39 at and near the point where it passes the proposed construction site.

Due to the project's relatively short overall duration and the mitigation efforts that have been developed in working with ITD, Power County Highway District and Power County Transportation Coalition, no significant effects to local commuters, recreators, agricultural entities, or business entities are expected to occur as a result of the proposed action. Specific direct and indirect effects would include the following:

SH-39

The proposed action may require temporary closure of SH-39 westbound lanes from mid-April through October 2022; however, such closures were not necessary during construction in 2020 or 2021. At these times, all traffic would be rerouted to the eastbound lanes of SH-39 with both westbound and eastbound travel restricted to one lane each for approximately 2 miles. This traffic configuration would allow the contract awardee(s) to stage and access the dam spillway from the upper roadway (westbound lanes) of SH-39 while still facilitating two-way travel in the eastbound lanes of SH-39.

American Falls Designated Truck Route

Construction disposal materials (concrete) from the project would be transported from the construction site through the City of American Falls on the city's designated truck route, located on Falls Avenue to McKinley Street. This would result in increased traffic, specifically heavy gross vehicle weight (GVW) traffic on this roadway and other identified haul routes during the construction periods. The designated truck route does not have any weight restrictions and is

considered the main thoroughfare for GVW over 26,000 lbs. All other roadways within the City of American Falls have a 26,000 GVW limit. It is anticipated the contractor would only use the designated truck route for transportation of vehicles 26,000 GVW and over to and from the site. Demolition of existing concrete would continue in the 2022 construction period, necessitating the transportation of waste material off site. Concrete delivery trucks would travel to the site delivering concrete throughout the 2022 construction period. Additional materials would be transported to site on the designated truck route or from I-86 to SH-39.

Restrictions to Oversized Equipment/ Vehicle Movement

In the event traffic restrictions are implemented, oversized vehicles (for example, agricultural tractors, implements, harvesters, and other agricultural vehicles) would be permitted to move through the traffic restriction area on SH-39 only twice daily, from 9 to 10 a.m. and again from 5 to 6 p.m. During those timeframes, all traffic would be restricted to only westbound or eastbound directional flow in alternating intervals. Additional general traffic delays to all travelers would be expected during periods designated for oversized vehicle movement.

Emergency Response (police, fire, Emergency Medical Services)

Local emergency response agencies including police, fire and emergency medical services could be affected by SH-39 road closures and traffic restrictions, especially during the oversized vehicle movement periods since oversized vehicles in transit during those times could temporarily block SH-39 eastbound (bridge) and potentially delay emergency response times. Any potential emergency response delays would be expected to be fully mitigated through advanced coordination between emergency medical services and the traffic control company used by the contract awardee.

3.5.3 Effects of Related Actions

The work completed thus far on this project occurred June to November in 2020 and late July to November 2021. The work included in the proposed expanded third construction year would take place from mid-April through October, 2022. Traffic would not be affected outside of these construction periods. During the construction periods, traffic would be affected during daily travel on SH-39 and the proposed transportation routes, and traffic delays would be expected. Communication with highway users would occur throughout the construction periods via press releases and staged reader boards throughout the American Falls area advising commuters of the traffic restrictions scheduled or in place. Also, future scheduled projects at American Falls Dam could require other traffic restrictions. Cumulatively, the effects of the proposed traffic restrictions and volumes would have some effect during the construction period. However, because the overall effect is minimal due to the planning and mitigation measures incorporated into the proposed action, these effects would be considered insignificant.

3.5.4 Mitigation

If traffic control is implemented, the Traffic Control Plan developed in cooperation with ITD and local transportation coalitions and included as an appendix to Reclamation 2019 would be

followed. Coordination with ITD, Power County Highway District, the City of American Falls, Power County Transportation Coalition, and Bingham County Transportation Coalition would be ongoing throughout the project.

The timing of oversized vehicle movements would be targeted to avoid affecting timeframes during which a large volume of traffic from local entities (e.g., rush hour due to shift changes) would be expected, and to allow oversized equipment to be moved during daylight hours. Contract awardee(s) would be required to be flexible in accommodating the movement needs of various oversized vehicles during the harvest season.

Electronic reader boards informing drivers of upcoming restrictions would be placed at multiple locations beginning a minimum of 21 days prior to the road restrictions being imposed. Portable Dynamic Message Boards would be put in place during construction to give drivers advanced and ongoing notice of the hours and dates of additional restrictions for designated oversized vehicle movement periods. Barricades, flaggers, and other necessary precautions for safety of the public would be provided where haul routes cross public highways or roads.

Chapter 4 Consultation and Coordination

On November 21, 2018, at the initiation of this project, Reclamation mailed a scoping document including a letter, preliminary project information, and a map to agencies, organizations, and individuals to solicit their help in identifying any issues and concerns related to the proposed action. A press release was also issued to local outlets on that date, and information was made available online at the Reclamation website. Reclamation received no comments. The complete mailing list of scoping and Draft EA recipients, scoping letters and informational document, and comments received are presented in Reclamation 2019, Appendix H.

4.1 Agency Consultation and Coordination

Reclamation conducted multiple interagency meetings and teleconferences for information sharing and coordination purposes throughout 2018 and up until the finalization of a Draft EA in March of 2019. Agencies represented at these meetings included Reclamation, IDEQ, IDFG, and IPC. A Draft EA and the Draft Water Quality Restoration Plan were provided to IDFG and IDEQ for comment on April 5, 2019. Reclamation received a response letter from IDFG on April 12, 2019, stating that there were no suggested revisions prior to finalization of the EA (Reclamation 2019, Appendix I).

In 2020, Reclamation finalized a short-term activity exemption for water quality standards for the duration of the project, issued by IDEQ. Throughout the two previous construction years (2020 and 2021) that have already taken place, Reclamation has engaged in ongoing monitoring and coordination with IDFG, IDEQ, and IPC.

4.1.1 National Historic Preservation Act

Reclamation initiated and completed consultation with the Idaho State Historic Preservation Office in April 2017. The State Historic Preservation Office concurred with Reclamation's finding of no impact on Historic Properties for the project area (Reclamation 2019, Appendix F).

4.1.2 Endangered Species Act

Reclamation generated a preliminary Endangered Species report through the U.S. Fish and Wildlife Service's Information for Planning and Conservation (IPaC) site (Reclamation 2019, Appendix G). The report indicated no listed species are expected to be present in the action area for this proposed project, and no proposed or designated critical habitats associated with any listed species overlap with the project's area of influence. No change to listed species in the project area has occurred since the original 2019 analysis was completed. Since the proposed action would not reasonably be expected to adversely affect any listed species, no need exists for formal Section 7 consultation under the ESA.

4.1.3 Clean Water Act

The proposed project requires a Section 404 permit from the U.S. Army Corps of Engineers, which was obtained in 2019. These permits and certifications outline requirements to minimize the effects to water quality associated with the construction activities.

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