BUREAU OF RECLAMATION

Water Year 2025: Annual Report

Monitoring and Implementation Activities Associated with the U.S. Fish and Wildlife Service 2005 Biological Opinion for Operation and Maintenance of the Bureau of Reclamation Projects in the Snake River Basin above Brownlee Reservoir

Columbia-Pacific Northwest Region

U.S. Department of the Interior

March 2026

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; honors its trust responsibilities or special commitments to American Indians, Alaska Natives, Native Hawaiians, 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 Image–Trap net in Deadwood River below Deadwood Dam (Rochelle Ochoa/Bureau of Reclamation).

Acronyms and Abbreviations

2005 Opinion	2005 Biological Opinion
2014 Opinion	2014 Biological Opinion
2015 Opinion	Biological Opinion for the Bureau of Reclamation, Operations and Maintenance above Brownlee Reservoir
BA	Biological Assessment
BID	Burley Irrigation District
BMP	Best Management Practices
cfs	cubic feet per second
CPN	Columbia-Pacific Northwest Region
CPUE	catch per unit effort
Deadwood Flex Study	Deadwood Reservoir Operations Flexibility Evaluation
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission
FRM	flood risk management
IDEQ	Idaho Department of Environmental Quality
IDFG	Idaho Department of Fish and Game
ITS	Incidental Take Statement
MID	Minidoka Irrigation District
NAA	Native American Affairs
NEPA	National Environmental Policy Act
NOAA	National Oceanic Atmospheric Administration
O&M	operation and maintenance
physa	*Physa (Haitia) natricina*
Reclamation	Bureau of Reclamation
RPM	reasonable and prudent measures
SSC	suspended sediment concentration
T&Cs	Terms and Conditions
TDS	total dissolved solids
TMDL	total maximum daily load
TSS	total suspended solids
USFWS	U.S. Fish and Wildlife Service

USGS	U.S. Geological Survey
WCFS	Water Conservation Field Services
WY	water year

Symbols

°C	degree Celsius
=	equals
<	less then
+	plus

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1.0 Introduction

The Bureau of Reclamation (Reclamation) consulted with the U.S. Fish and Wildlife Service (USFWS) pursuant to Section 7 of the Endangered Species Act (ESA) on 12 proposed actions involving the effects of future operations and routine maintenance at 12 Federal projects in the Upper Snake River Basin on 6 different listed species known to occur in the area at that time (Reclamation 2004). In March 2005, USFWS completed a non-jeopardy Biological Opinion (2005 Opinion) for Reclamation's operations and maintenance (O&M) activities in the Snake River Basin above Brownlee Reservoir (USFWS 2005). The 2005 Opinion contained a 30-year Incidental Take Statement (ITS) for bull trout and corresponding reasonable and prudent measures (RPMs) that outlined nondiscretionary actions to minimize take of species listed under the ESA that may be impacted by Reclamation's operations (USFWS 2005). USFWS determined incidental take by correlating frequencies and magnitudes of streamflow and reservoir conditions at specific facilities with an estimate of population effects during critical seasonal time periods in the bull trout's life history. USFWS then described the amount or extent of incidental take at each facility based on operational thresholds.

At the time of the 2005 Opinion, bull trout (*Salvelinus confluentus*) were not known to exist in Phillips Reservoir[1] on the Powder River. Therefore, bull trout were not included in the 2005 Opinion or associated documents. In 2011, two bull trout were documented in Phillips Reservoir; accordingly, Reclamation consulted with USFWS for bull trout in this area (Reclamation 2013). USFWS completed a non-jeopardy Biological Opinion in June 2014 (2014 Opinion) for Reclamation's O&M activities in the Powder River Basin (USFWS 2014) as a companion document to the 2005 Opinion. The 2014 Opinion contains a 21-year ITS corresponding to the 2005 ITS and RPMs that outline nondiscretionary actions to minimize take of bull trout in Phillips Reservoir.

The 2014 Opinion also included consultation on bull trout critical habitat for the same area analyzed in the 2005 Opinion, as well as the Powder River Basin in Oregon, added to the Upper Snake River projects consultation after detection of Bull Trout in Phillips Reservoir in 2011. USFWS concluded that Reclamation's O&M of the Upper Snake River projects is not likely to destroy or adversely modify designated critical habitat for bull trout.

In addition to bull trout, the 2005 Opinion also included consultation on the Snake River physa (*Physa [Haitia] natricina*, hereafter physa). Monitoring for physa was reinitiated in 2012 in anticipation of re-consultation related to the Minidoka Dam spillway replacement project. Project construction for the new spillway was completed during the summer of 2015. The consultation addressed the effects to physa located in the Snake River above Brownlee Reservoir, focusing on the known occupied range of the species which occurs in the Minidoka Dam spillway and in the Snake River just downstream from the dam. Reclamation received a Biological Opinion (2015 Opinion) on May 8, 2015, finding that Reclamation's proposed operations are likely to adversely affect physa in the Minidoka Dam spillway. An ITS with associated Terms and

[1] Phillips Reservoir was referred to as Phillips Lake in the 2004 Assessment.

Conditions (T&Cs) and RPMs was provided. The consultation was aligned with ongoing actions associated with the long-term O&M under the existing 2005 Opinion (USFWS 2005) and is considered a supplement to the 2005 Opinion.

The ITS in the 2005 Opinion has two main components: 1) T&Cs that incorporate a monitoring component to ensure the action agency does not exceed the amount or extent of incidental take described in the ITS, and 2) RPMs to minimize the amount or extent of take without altering the basic design, location, scope, duration, or timing of the action. The 2005 Opinion requires Reclamation to provide an annual report to USFWS by December 31 of each year that documents efforts to monitor incidental take and implementation status of all T&Cs and RPMs. At Reclamation's request (a letter dated November 13, 2007), USFWS agreed to permanently change the submittal date from December 31 to March 31 of the following year.

This document is submitted as Reclamation's annual report for water year (WY) 2025 (October 1, 2024, to September 30, 2025).

1.1 Bull Trout

This section summarizes annual water operations at projects that support bull trout or bull trout critical habitat and describes population monitoring and other relevant work associated with specific RPMs. In addition, this report may discuss other bull trout work that is not managed by Reclamation but is directly relevant to bull trout or bull trout critical habitat within Reclamation's projects.

In its Monitoring and Implementation Plan (Reclamation 2006), Reclamation identified methods to monitor bull trout throughout the duration of the 2005 Opinion. Monitoring elements include evaluating RPMs through operational indicators and tracking population trends. These monitoring methods are continually reassessed and adjusted, as appropriate, to incorporate study findings and new technologies and methodologies as they are developed. To monitor compliance with the operational thresholds defined in the ITS, Reclamation monitored, evaluated, and summarized operations for WY25 in Reclamation's Hydromet system.[2] Operational thresholds affecting the amount or extent of anticipated take are described in section 3.

Bull trout have been documented in five of Reclamation's facilities in the Upper Snake River Basin. This report covers the four facilities assessed in Reclamation's 2004 Biological Assessment (BA) and 2005 Opinion (Anderson Ranch Dam and Reservoir; Arrowrock Dam and Reservoir; Deadwood Dam and Reservoir; and Agency Valley Dam and Beulah Reservoir), as well as Mason Dam and Phillips Reservoir, which were assessed in the 2013 BA and 2014 Opinion. These facilities are shown in figure 1.

[2] See Reclamation's Hydromet website at: http://www.usbr.gov/pn/hydromet/select.html

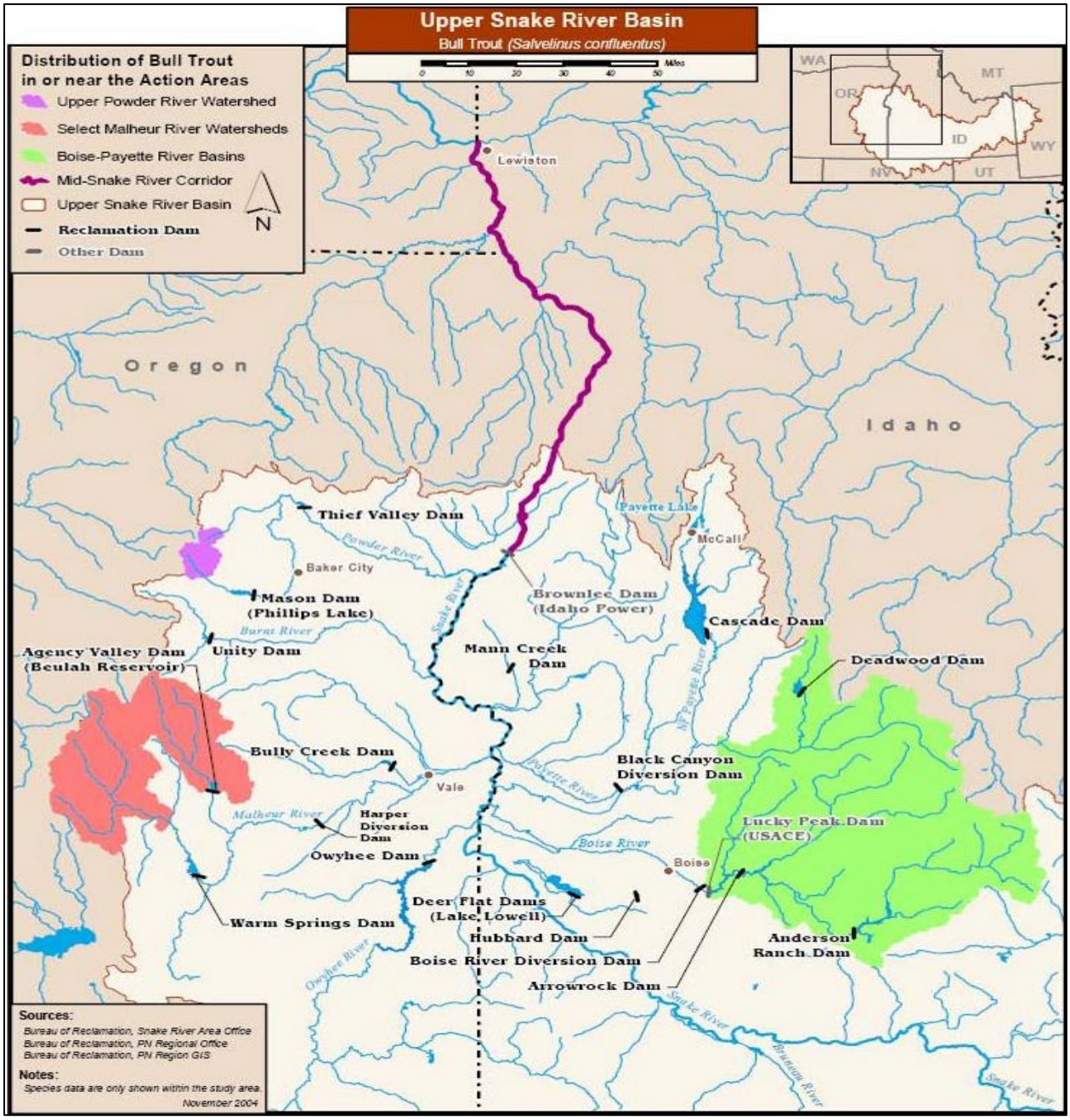

Figure 1.—Known distribution of bull trout populations (shaded areas on map) associated with Reclamation facilities in the Upper Snake River Basin (Reclamation 2004).

1.2 Snake River Snails

Previous annual reports to USFWS documented two species of snails in the Snake River Basin: Utah valvata (*Valvata utahensis*) and Snake River physa (*Physa natricina*). In 2010, the Utah valvata was removed from the ESA list, thereby removing all protections and subsequent monitoring and reporting requirements provided by the ESA (75 FR 52272). Accordingly, 2010 was the last year Reclamation monitored the Utah valvata.

The Snake River physa remains an ESA-listed species; however, the 2005 Opinion did not provide ITS, monitoring requirements, or T&Cs for physa due to the uncertainty of their presence in the action area. After the 2005 Opinion, physa were confirmed in the action area. A supplemental consultation with USFWS was completed in 2015 to address possible effects to physa from long-term operation of the re-constructed spillway at Minidoka Dam. This supplemental consultation was initiated during construction of the spillway, which began in 2011 and was completed in the spring of 2015. The current take coverage for operations is covered under the *Biological Opinion for the Bureau of Reclamation, Operations and Maintenance above Brownlee Reservoir* (2015 Opinion) issued by USFWS in May 2015 (USFWS 2015). Information reported in this document is related to the most recent requirements set forth in this 2015 Opinion.

While Reclamation's physa monitoring requirements under the 2015 Opinion ended in 2017, Reclamation has continued to assist USFWS with ongoing survey efforts as personnel and funding allow. During the 2024 reporting period, Reclamation participated in ongoing USFWS-led suction dredge surveys for physa in the Snake River below Minidoka Dam, near the old Jackson Bridge site. Reclamation has no immediate plans to independently perform surveys in the future.

1.3 Yellow-Billed Cuckoo

Reclamation entered into informal ESA Section 7 consultation with USFWS in the fall of 2016 for the western Distinct Population Segment of the yellow-billed cuckoo (*Coccyzus americanus occidentalis*), following the USFWS determination to list this species as threatened in November 2014 (79 FR 67154). A BA comprehensively evaluating effects on the yellow-billed cuckoo and then-proposed critical habitat for the species from Reclamation's operations in the Snake River Basin above Brownlee Reservoir was submitted to USFWS in July 2017. In August 2017, USFWS issued a Letter of Concurrence with the BA's findings, stating that Reclamation's operations are not likely to adversely affect the species or its proposed critical habitat.

Critical habitat for yellow-billed cuckoo was finalized and designated in 2021. Since Reclamation received USFWS concurrence for a Not Likely to Adversely Affect determination of Reclamation's effects to the species and proposed critical habitat in 2017, and since the finalized critical habitat was not expanded beyond the units that were originally assessed in the 2017 BA, there are no plans for additional consultation on this species.

2.0 Summary of 2025 Operations

2.1 Idaho

The following information summarizing 2025 operations was included in Reclamation's 2025 annual progress report to the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service on Reclamation's Salmon Flow Augmentation Program (Reclamation 2025, https://www.usbr.gov/pn/fcrps/hydro/uppersnake/index.html).

Carryover storage on November 1, 2024 was 92 percent of the average in the Payette River Basin, 103 percent of average in the Boise River Basin, and 104 percent of average in the Upper Snake River Basin.

During the early winter months of November through January below-normal precipitation fell in all basins. The month of January was particularly dry with the Upper Snake River Basin experiencing less than 50 percent of normal precipitation. February through March brought much needed precipitation to the region and significantly increased snowpack so that by April 1 there was 131 percent of normal in the Payette River Basin, 124 percent of normal in the Boise River Basin, and 110 percent of normal in the Upper Snake River Basin. Average to warmer than average temperatures in April began the snowmelt season but with very little precipitation (less than 50 percent of normal in all basins) to augment this runoff, streamflow remained lower than predicted based on the above average snowpack. Dry and warm conditions in April and May resulted in dramatic reductions in the forecasted runoff for all basins which required quick adaptations to reservoir operations to capture runoff to refill the reservoir systems. Persistently dry and warmer than normal conditions extended into June with most of the snowpack having already been melted by early to mid-June. For the April–June period, many SNOTELs across the basins measured the driest period in the 1981–2025 record, illustrating how dramatic these dry conditions were. Wetter than normal conditions returned in July but without much if any snowpack still present in the basin this did not substantially translate into streamflow.

Due to these dry conditions, the April–July unregulated runoff ended up being 102 percent of normal in the Payette River Basin, 91 percent of normal in the Boise River Basin, and 77 percent of normal in the Upper Snake River Basin (as measured at Heise). Despite the resulting near average to below normal runoff, some flood risk management (FRM) operations were still required in all three basins due to the above average snowpack in early April and near normal carryover from the prior year.

The runoff was sufficient to completely fill the Boise and Payette River system reservoirs but was not adequate to completely fill all Upper Snake Basin reservoirs. The Payette River reservoir system reached a maximum storage content of 786,672 acre-feet, approximately 13,780 acre-feet below full capacity of 800,452 acre-feet and would have filled completely but for early flow augmentation releases. The Boise River reservoir system reached a maximum storage content of 922,526 acre-feet, approximately 27,174 acre-feet below its full capacity of 949,700 acre-feet and would have filled completely but for early flow augmentation releases. The Upper Snake

River reservoir system did not completely fill and reached a maximum combined physical storage content of 3,769,883 acre-feet, approximately 415,812 acre-feet below full capacity of 4,185,695 acre-feet.

Significantly above average snowpack and precipitation (prior to April) in central and eastern Oregon resulted in high runoff conditions in those basins. All the eastern Oregon reservoirs filled except for Phillips Lake.

With near average reservoir carryover and near average to below average runoff conditions, a flow augmentation volume of 476,872 acre-feet was secured and released.

2.1.1 Boise River Basin Operational Indicators

The term incidental take is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (50 FR 26832, May 11, 2015). Specific operations or conditions at Anderson Ranch and Arrowrock Dams and Reservoirs that are expected to result in the incidental take of bull trout were described in the USFWS 2005 Opinion. These operations or conditions are summarized as operational indicators for each dam in table 1 and table 2.

2.1.1.1 *Anderson Ranch Dam and Reservoir*

One operational indicator was exceeded during the 2025 reporting period for operations at Anderson Ranch Dam:

Anderson Ranch Reservoir stored and released water during the 2025 reporting period as shown in table 1, figure 2, and figure 3; however, the 2005 Opinion granted Reclamation an exemption for this action 30 out of 30 years for which the ITS issued in the 2005 Opinion is valid.

Table 1.—Summary of amount or extent of anticipated take of bull trout associated with Reclamation's Anderson Ranch Dam and Reservoir facility operations during the 2025 reporting period

Anticipated Take	Operational Indicators	Critical Season	Frequency of Exemptions	2025 Operations (October 2024–September 2025)	Quick Reference: Number of Times Threshold has been Exceeded
Up to 50 percent of the Middle and North Fork populations are affected by spillway discharges that disrupt timing of migration and spawning and that alter metabolic rates and up to 10 percent of bull trout in the reservoir are entrained into the South Fork Boise River	Water is discharged over the spillway	Spring	6 of 30 years	The spillway was not used during the reporting period	3 of 6 years; 2006: 9 days 2014: 3 days* 2017: 20 days 2018: 5 days* 2024: 8 days
Up to 50 percent of the Middle and North Fork populations are affected by the altered flow and temperature regime that disrupts migration and spawning and that increases metabolic rates	Water is stored and released at Anderson Ranch Dam	Spring through fall	30 of 30 years	Anderson Ranch Reservoir elevations for WY25 are shown in figure 2	19 of 30 years; Exceeds annually
Up to 4 percent of bull trout in the reservoir experience degraded water quality	Reservoir storage volume falls below 62,000 acre-feet (figure 3)	Summer	2 of 30 years	Reservoir storage volume was maintained above 62,000 acre–feet (figure 3)	0 of 2 years

*The spillway was used to facilitate scheduled maintenance in both 2014 and 2018. In both instances, a Section 7 consultation was completed, resulting in separate T&Cs and ITSs specific to each of those activities. Spill from these
2 years was previously erroneously reported as 2 of the 6 exempted years identified in the 2005 Opinion; the counts of exceedance exemptions from the 2005 Opinion are corrected in table 1 and supersede previous reporting.

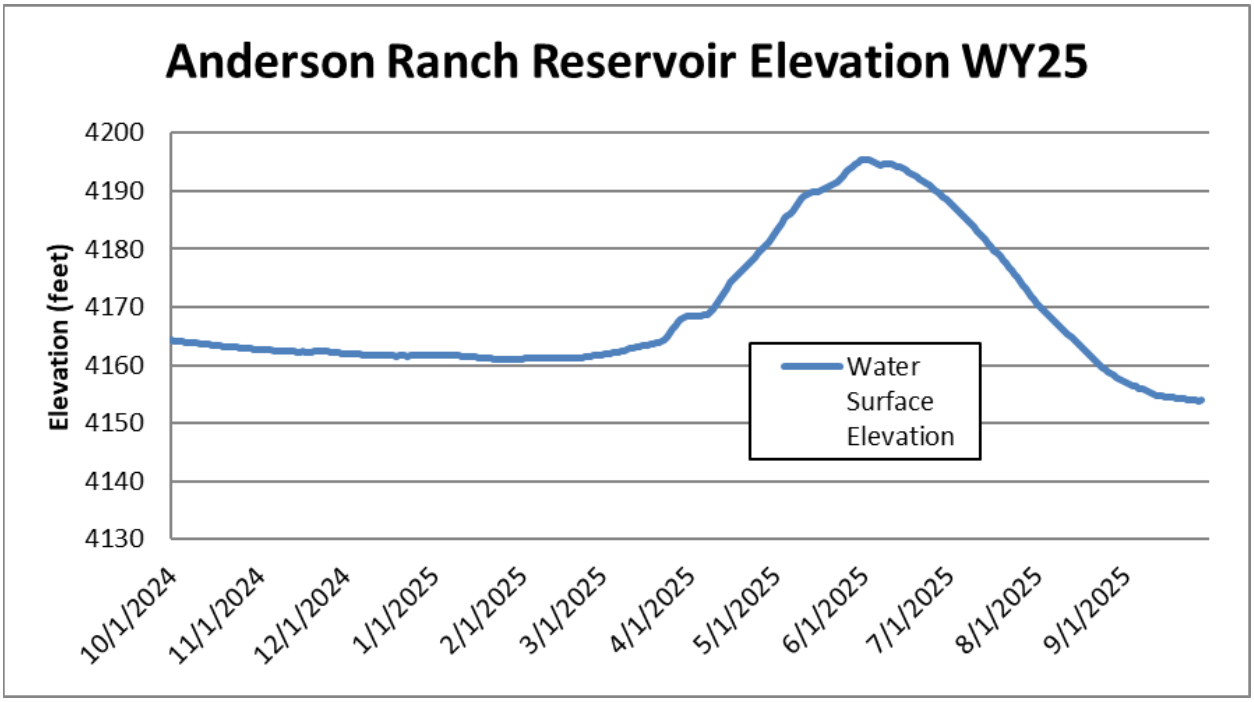

Figure 2.—Anderson Ranch Reservoir elevation (feet above sea level) for WY25.

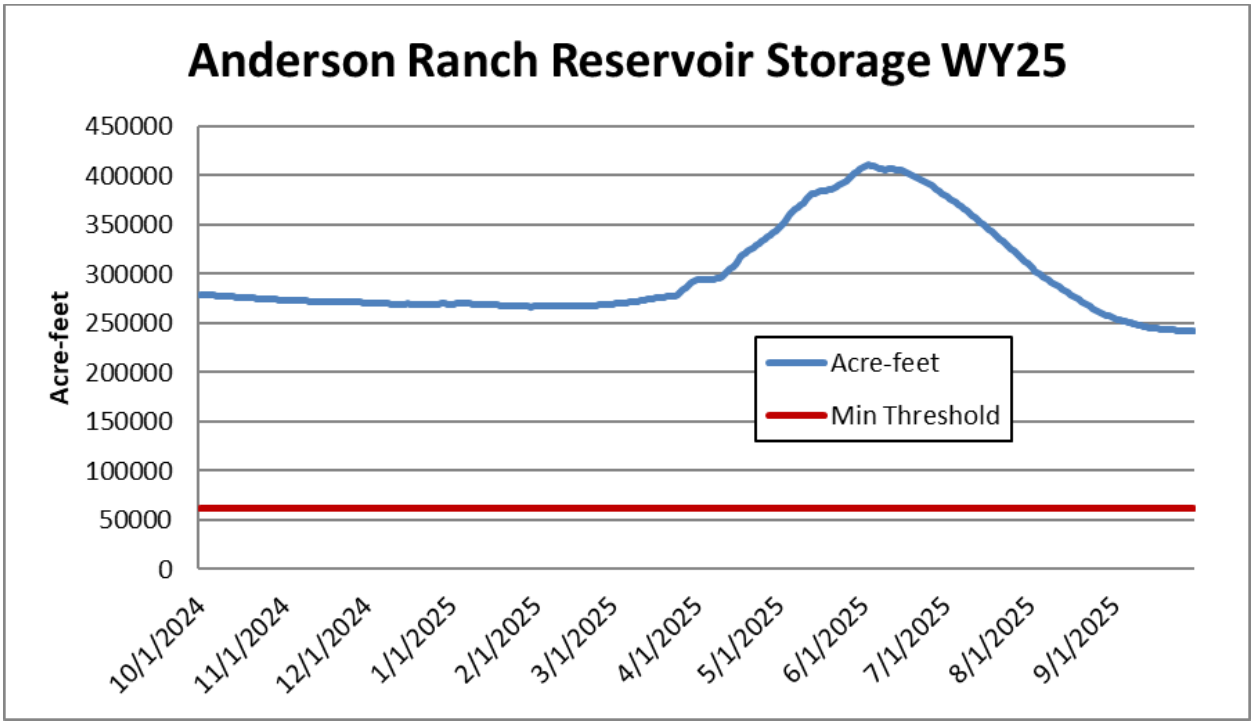

Figure 3.—Anderson Ranch Reservoir storage volume (acre-feet) for WY25. The straight line represents Reclamation's Operational Indicator minimum threshold of 62,000 acre-feet of storage.

2.1.1.2 *Arrowrock Dam and Reservoir*

No current operational indicators were exceeded during the 2025 reporting period.

Two operational indicators are based on discharge exceeding 695 cubic feet per second (cfs) while the reservoir water surface elevation was less than 3,111 feet (table 2); however, since the 2005 Opinion was issued, valve reconfigurations at Arrowrock Dam have resulted in updated operations and a discontinuation of use of the upper release conduits, making this operational indicator obsolete. This is described in further detail in a 2018 Reclamation memorandum (Reclamation 2018a). These indicators are still listed in annual reporting but are considered no longer applicable.

Another operational indicator is being re-evaluated for operations at Arrowrock Dam. Reclamation identified an opportunity to align the modeling used to describe the end-of-June storage volume target with that of other operational indicators and more recent consultations. Reclamation is currently in discussions with USFWS to re-evaluate this operational indicator threshold (Vidergar personal communication 2025). After re-evaluation, the revised indicator and updated exceedances will be reported in subsequent reports.

Table 2.—Summary of amount or extent of incidental take of bull trout associated with Reclamation's Arrowrock Dam and Reservoir facility operations during the 2025 reporting period

Anticipated Take					
Up to 8 percent of bull trout in the reservoir are entrained into Lucky Peak Reservoir, as averaged over any consecutive 5-year period	Water is discharged over the spillway	March through June	15 of 30 years	The spillway was not used during the reporting period	2 of 15 years 2006: 9 days 2017: 49 days
Up to 20 percent of bull trout in the reservoir, as averaged over any 5 consecutive years, experience habitat degradation and predation	Mean daily reservoir elevation falls below 3,100 feet	September 15 through October 31	18 of 30 years	Reservoir surface elevation did not drop below 3,100 feet during the critical season in WY25 (figure 5)	0 of 18 years
Up to 50 percent of the Middle and North Fork populations are affected by low reservoir productivity and decreased prey	Reservoir volume of less than 200,000 acre–feet at the end of June	June 30	3 of 30 years	Re-evaluating	Re-evaluating
Up to 5 percent of bull trout in the reservoir are entrained into Lucky Peak Reservoir, as averaged over any consecutive 5-year period	Discharge exceeds 695 cfs while the reservoir water surface elevation is less than 3,111 feet	Winter	20 of 30 years	This operational indicator is no longer applicable due to valve reconfigurations	This operational indicator is no longer applicable due to valve reconfigurations
Up to 2 percent of bull trout in the reservoir are entrained into Lucky Peak Reservoir	Discharge exceeds 695 cfs while the reservoir water surface elevation is less than 3,111 feet	July through September	30 of 30 years	This operational indicator is no longer applicable due to valve reconfigurations	This operational indicator is no longer applicable due to valve reconfigurations

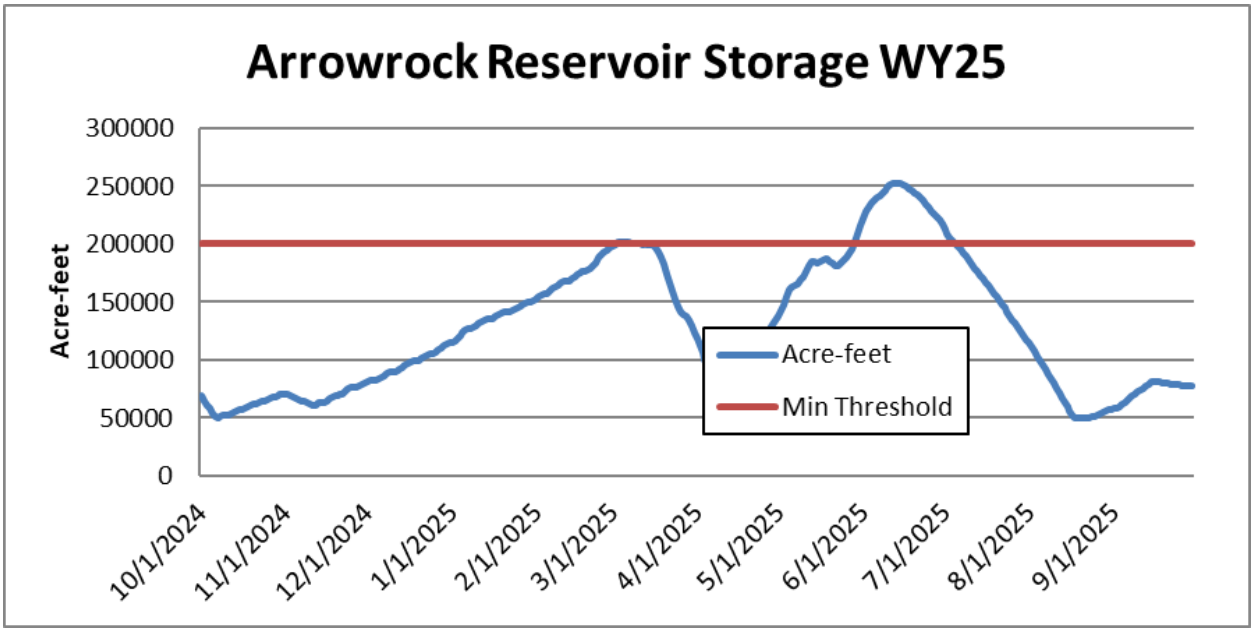

Figure 4.—Arrowrock Reservoir storage volume (acre-feet) for WY25. The straight red line represents Reclamation's Operational Indicator of reservoir volume of 200,000 acre-feet. Reservoir volume should exceed this minimum at the end of June, depicted by the dotted circle. On June 30, 2025, Arrowrock Reservoir storage volume was 216,949 acre-feet.

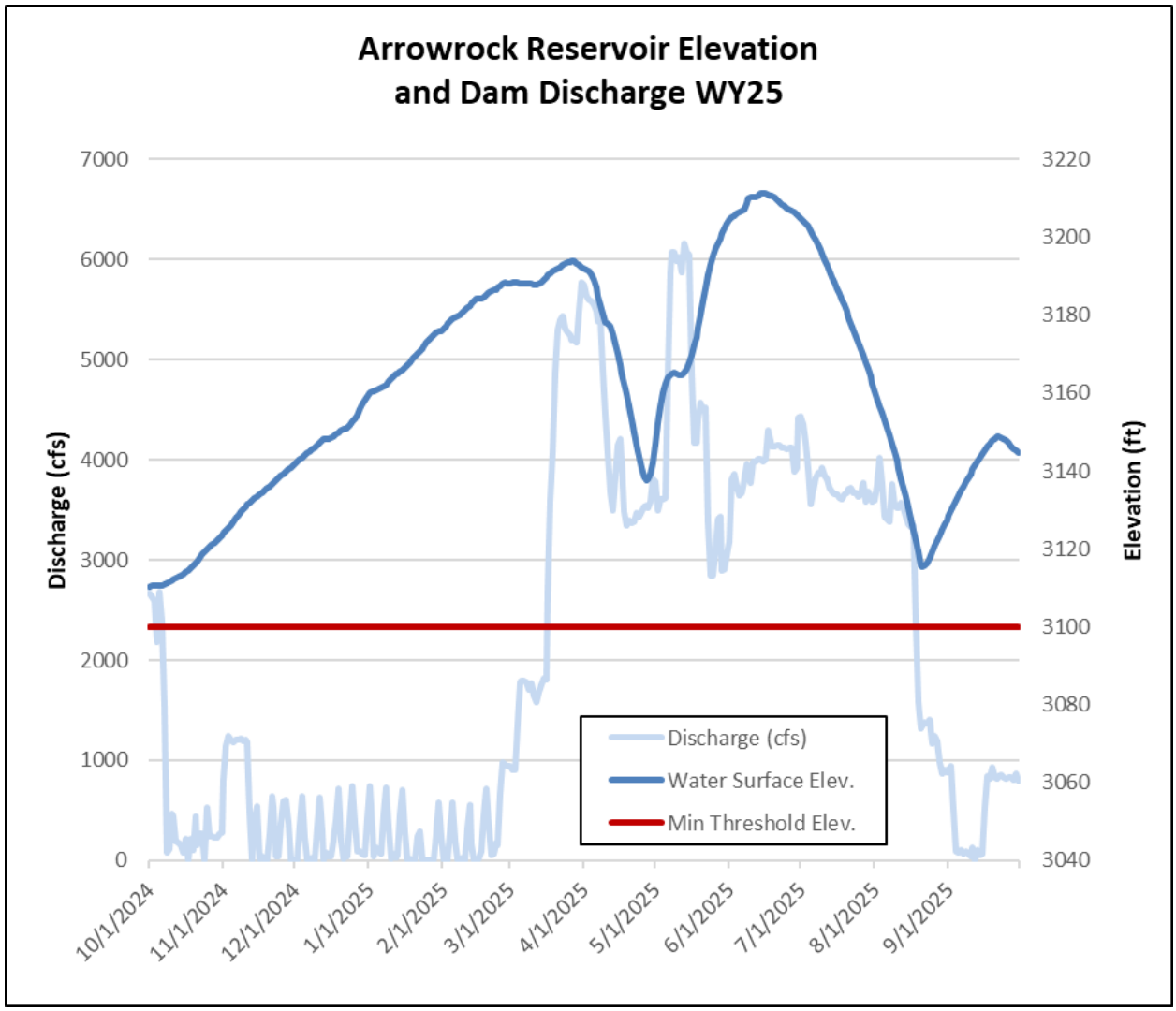

Figure 5.—Arrowrock Reservoir surface elevation (feet above sea level) for WY25 and discharge (cfs). The straight red line represents Reclamation's fall minimum elevation threshold (September 15–October 31) of 3,100 feet, highlighted in the dotted green circles.

2.1.2 Payette River Basin Operational Indicators

The term incidental take is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (50 FR 26832, May 11, 2015). Specific operations or conditions at Deadwood Dam and Reservoir that are expected to result in the incidental take of bull trout were described in the USFWS 2005 Opinion. These operations or conditions are summarized as operational indicators for Deadwood Dam and Reservoir in table 3. Figure 6 illustrates Deadwood Reservoir storage volumes in WY25.

2.1.2.1 *Deadwood Dam and Reservoir*

Pursuant to T&Cs 3a through 3d of the 2005 Opinion, Reclamation formulated operational recommendations to better use existing operational flexibility to maximize benefits to bull trout and minimize biological impacts system-wide, while still fulfilling Reclamation's non-discretionary flood control and water provision obligations. Section 7 consultation was completed on Reclamation's proposed changes to O&M at Deadwood Dam and Reservoir in September 2022, resulting in the issuance of a Biological Opinion with a modified ITS and RPMs applicable to O&M at Deadwood Dam and Reservoir (USFWS 2022). The Operational Indicators in table 3 have been altered as of the WY23 report to reflect the updated ITS; the former limitation of spillway discharge to a maximum exemption of 11 of 30 years has been superseded by USFWS 2022's exemption for spill in 12 of the 12 years remaining under the 2005 Opinion.

One operational indicator was exceeded during the 2025 reporting period in the Payette River Basin: deep water discharges were released. Trap and transport and handling activities were performed in the reporting period and are discussed in more detail in section 3.2.1 of this report.

Deep water releases occur throughout the year at Deadwood Dam; however, the 2005 Opinion granted Reclamation an exemption for this action for 30 of the 30 years for which the Opinion is valid. Spillway discharge did not occur during the reporting period; the 2022 Opinion granted Reclamation an exemption for this action for 12 of the 12 remaining years for which the 2005 Opinion is valid (table 3).

Table 3.—Summary of amount or extent of anticipated take of bull trout associated with Reclamation's Deadwood Dam and Reservoir facility operations during the 2025 reporting period

Anticipated Take	Operational Indicators	Critical Season	Frequency of Exemptions	2025 Operations (October 2024–September 2025)	Quick Reference: Number of Days of Spill by Year
Up to 2–4 percent of bull trout in Deadwood Reservoir are entrained into the Deadwood River below the dam All bull trout in the Deadwood River downstream from the dam are affected by spillway discharges that disrupt timing of migration and spawning and that alter metabolic rates	Water is discharged over the spillway (surface elevation exceeds 5,334 feet)	Spring	As of 2022 Biological Opinion, discretionary spill is exempted for 12 of the remaining 12 years under the 2005 Opinion	Water was not discharged over the spillway during the reporting period in WY25	7 of 11 years (pre-2022) 2006: 32 days 2007: 33 days 2008: 33 days 2010: 15 days 2014: 69 days 2015: 50 days 2022: 9 days
Up to 2–4 percent of bull trout in Deadwood Reservoir are affected by degraded water conditions	Reservoir storage volume falls below 50,000 acre-feet	August through October	2 of 30 years	Reservoir storage volumes did not drop below 50,000 acre-feet during the reporting period in WY24 (figure 6)	0 of 2 years
All bull trout in the Deadwood River downstream from the dam are affected by low winter stream flows and temperatures that affect bull trout movement and growth, and reproduction of bull trout and the prey base	Deep water releases at Deadwood Dam and low flows below the dam	Spring–temperature increases and flow decreases; Summer–temperature decreases and flow increases; Fall–temperature increases and flow reductions; Winter–temperature increases and flow reductions.	30 of 30 years	All releases are deep water releases except for water discharged over the spillway	21 of 30 years Exceeds annually

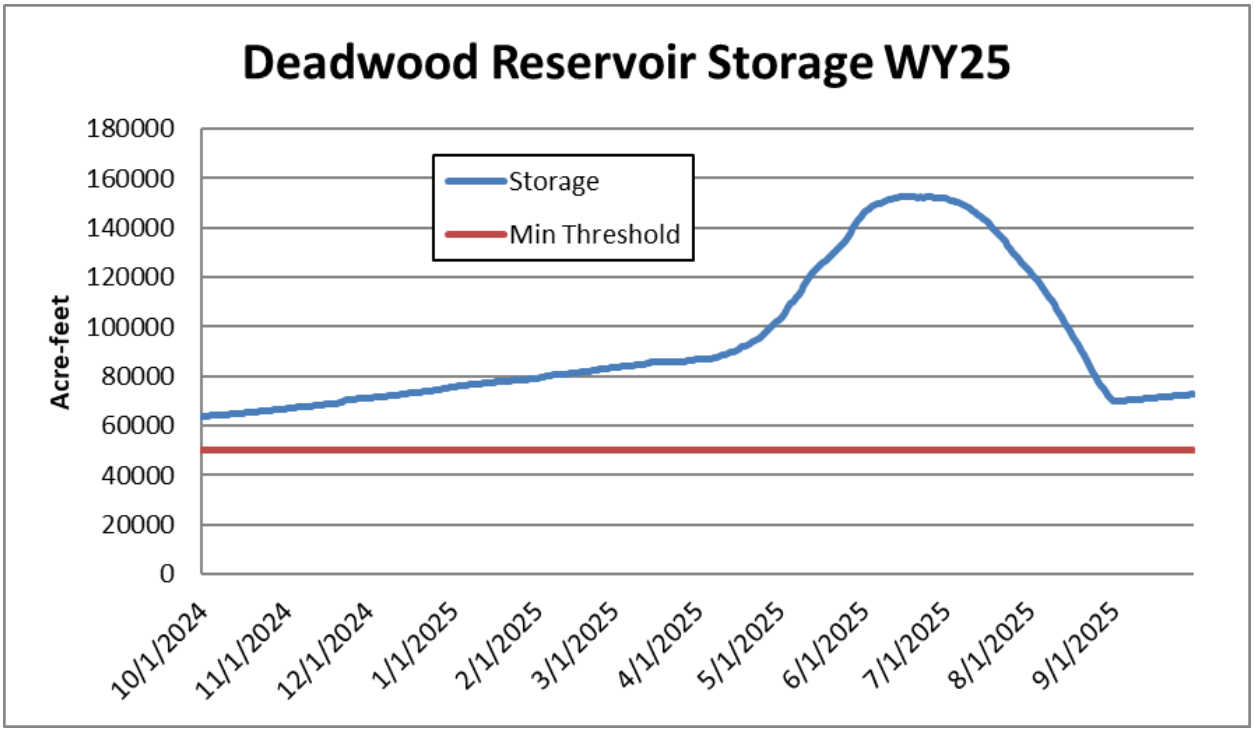

Figure 6.—Deadwood Reservoir storage volume (acre-feet) for WY25. The straight red line represents Reclamation's Operational Indicator minimum threshold of 50,000 acre-feet of storage.

2.2 Oregon

Carryover storage volume in Beulah Reservoir starting WY25 was 10,961 acre-feet on October 1, 2024. Beulah Reservoir filled to a peak WY25 level of 58,582 acre-feet (98.9 percent of full capacity) by May 13, 2025, and subsequently drafted to a low of 19,613 acre-feet (33.1 percent of full capacity) by the end of the reporting period.

Carryover storage volume in Phillips Reservoir starting WY25 was 16,760 acre-feet on October 1, 2024. Phillips Reservoir filled to a peak WY25 level of 60,690 acre-feet (83.1 percent of full capacity) by June 9, 2025, and subsequently drafted to a low of 19,343 acre-feet (26.5 percent of full capacity) by the end of the reporting period.

Information on flows discharged from the dams during WY25 (October 1, 2024 to September 30, 2025) can be found on Reclamation's Hydromet website[3]. Reservoir water operations, including daily average reservoir elevations, contents in acre-feet, storage, and outflow for Reclamation facilities, are discussed in detail later in this report.

[3] https://www.usbr.gov/pn/hydromet/

2.2.1 Malheur River Basin Operational Indicators

The term incidental take is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (50 FR 26832, May 11, 2015). Specific operations or conditions at Agency Valley Dam and Beulah Reservoir that are expected to result in the incidental take of bull trout were described in the USFWS 2005 Opinion. Conditions described in the T&Cs from the USFWS 2005 Opinion were described by Reclamation (2018d) and the USFWS agreed with Reclamation's findings that the ITS is still valid (USFWS 2019). These operations or conditions are summarized as operational indicators in table 4.

2.2.1.1 *Agency Valley Dam/Beulah Reservoir*

No operational indicators were exceeded during the 2025 reporting period in the Malheur River Basin. The reservoir reached a minimum volume of 10,961 acre-feet on October 1, 2024.

Table 4.—Summary of amount or extent of anticipated take of bull trout associated with Reclamation's Agency Valley Dam and Beulah Reservoir facility operations during the 2025 reporting period

Anticipated Take	Operational Indicators	Critical Season	Frequency of Exemptions	2025 Operations (October 2024–September 2025)	Quick Reference: Number of Times Threshold has been Exceeded
Up to 10 percent of bull trout in Beulah Reservoir are entrained into the North Fork Malheur River below Agency Valley Dam	Water is discharged over the spillway	May through June	3 of 30 years	The spillway was not used during the WY25 reporting period	1 of 3 years 2006 2011* 2017*
All bull trout returning to Beulah Reservoir to overwinter are affected by a reduced prey base	Reservoir storage falls below 2,000 acre-feet (+/–80 acre-feet)	August through October	10 of 30 years	The conservation pool was maintained in the WY25 reporting period (figure 7)	8 of 10 years 2007: 60 days 2008: 34 days 2009: 53 days 2010: 28 days 2013: 45 days 2014: 56 days 2015: 35 days 2016: 15 days 2021*: 45 days
Reduced prey based caused by competition from non-native fish	Run-of-river operations triggered by fish sampling	October through May	3 of 15 years (2019–2034)	Following conditions identified in Reclamation 2018b, run-of-river operations were not used in WY25	1 of 3 years 2021

*Only discretionary spillway use is applicable to the number of excepted years for this operational indicator. Spill in 2011 and 2017 was necessary under flood control operations and, therefore, was non-discretionary. In past reports, the spill in 2011 was erroneously reported as one of the three excepted years. This has been corrected and the number in this report has been adjusted.

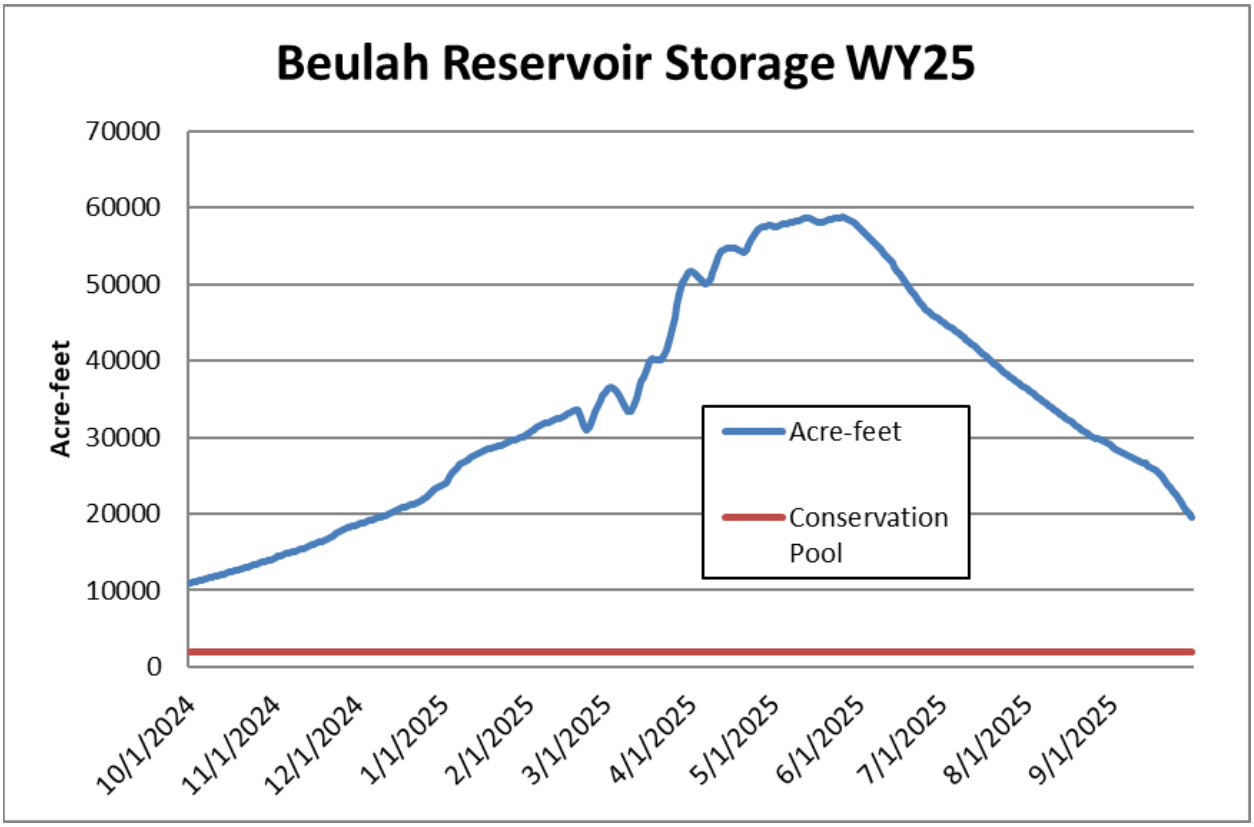

Figure 7.—Beulah Reservoir storage volume (acre-feet) for WY25. The straight red line represents Reclamation's Operational Indicator minimum threshold of 2,000 acre-feet +/- 80 acre-feet of storage. The lowest reservoir volume during the reporting period occurred on September 30, 2025, when carryover storage measured 10,961 acre-feet. Storage increased thereafter until drafting began at the end of May 2025.

2.2.2 Malheur River Basin Operational Indicators

Reclamation consulted with USFWS for bull trout and bull trout critical habitat in the Powder watershed (Reclamation 2013) and in June 2014 USFWS completed a non-jeopardy Biological Opinion (USFWS 2014) as a companion document to the 2005 Opinion. The 2014 Opinion contains a 21-year ITS and corresponding RPMs that outline non-discretionary actions for bull trout in Phillips Reservoir. Specific operations or conditions at Mason Dam and Phillips Reservoir that are expected to result in the take of bull trout (i.e., "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct") were identified in Reclamation's *Bull Trout Monitoring and Reporting Plan for Phillips Reservoir* (Reclamation 2016), which was finalized with USFWS in WY16.

The operational indicators developed in that document are intended to minimize incidental take of bull trout resulting from operations of Phillips Reservoir. Low reservoir elevations increase the likelihood of elevated water temperatures (i.e., degraded habitat) in the reservoir and contribute to impaired migratory corridors (e.g., shallow varial zone habitat). As a result, low

reservoir elevations limit the ability of fish to leave the reservoir to seek improved habitat in tributaries above Phillips Reservoir. These operational indicators are shown in table 5. A summary of operations for WY25 is included in this report. Figure 8 and figure 9 illustrate the water storage volume in acre-feet and reservoir elevation, respectively, and figure 10 shows Powder River inflows into Phillips Reservoir during WY25.

2.2.2.1 *Mason Dam/Phillips Reservoir*

One operational indicator exceeded during the 2024 reporting period in the Powder River Basin, i.e., the mean daily reservoir elevation fell below 4,048 feet.

The mean daily reservoir storage elevations at Phillips Reservoir were below 4,048 feet for 319 days during the reporting period (figure 9); however, the 2014 Opinion granted Reclamation an exemption for this action for 21 of the 21 years for which the Opinion is valid.

Table 5.—Summary of amount or extent of anticipated take of bull trout associated with Mason Dam and Phillips Reservoir facility operations during the 2025 reporting period, as included in the monitoring and reporting plan finalized in 2016

Anticipated Take	Operational Indicators	Critical Season	Frequency of Exemptions	2025 Operations (October 2024 – September 2025)	Quick Reference: Number of Times Threshold has been Exceeded
Up to 12 bull trout from resident headwater populations may be displaced during high flow events and be present in the reservoir	Powder River natural inflows exceeding 856 cfs daily mean (from 2014 Opinion)	Spring through summer	27 percent (6 of 21 years)	Powder River inflows did not exceed this threshold in the WY25 reporting period (figure 10)	0 of 6 years
Up to 12 bull trout from resident headwater populations may be displaced during high flow events and be present in the reservoir	Mean daily reservoir elevation falls below 4,048 feet above sea level (Reclamation 2016)	Spring through summer	100 percent (21 of 21 years; monitoring occurring 2017–2034)	Reservoir surface elevation was below 4,048 feet for 271 days during the WY25 reporting period (figure 9)	8 of 21 years Occurs annually

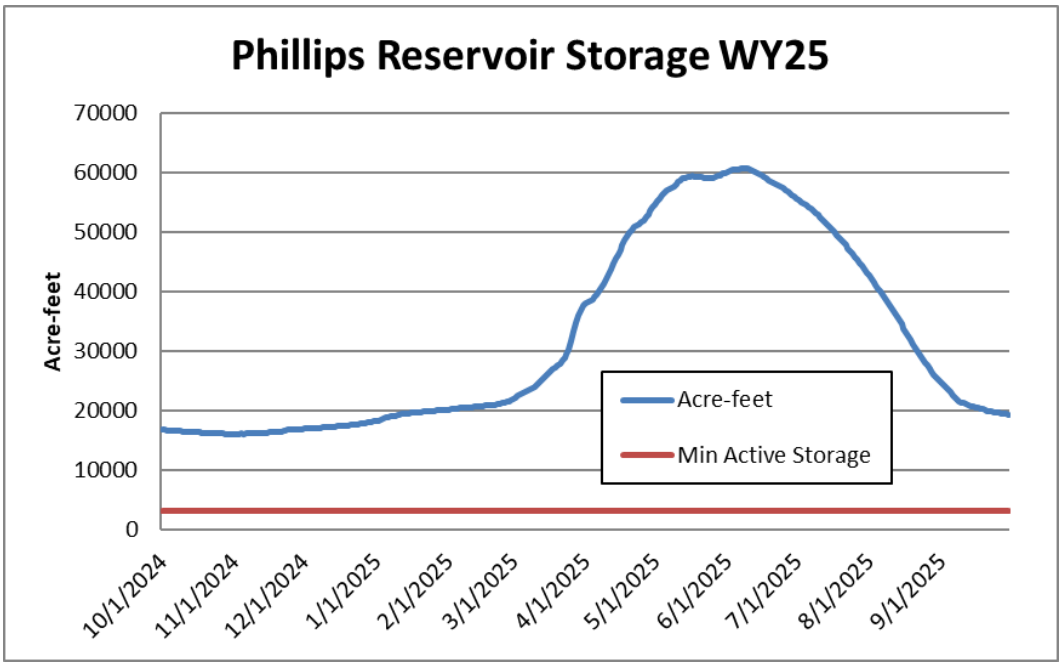

Figure 8.—Phillips Reservoir storage volumes (acre-feet) for WY25. Minimum active storage occurs when pool elevation reaches 4,009 feet above sea level (3,100 acre-feet of storage), corresponding to the point of inactive storage indicated by the red line.

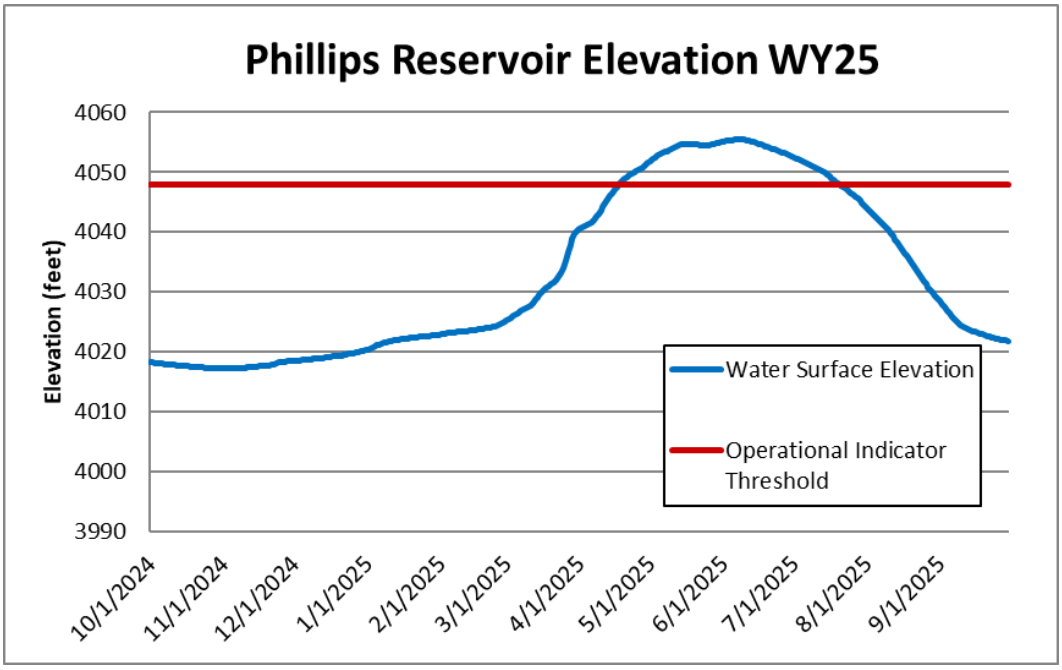

Figure 9.—Phillips Reservoir surface elevation (feet above sea level) for WY25. The operational indicator spring/summer minimum for mean daily reservoir elevation of 4,048 is indicated by the red line.

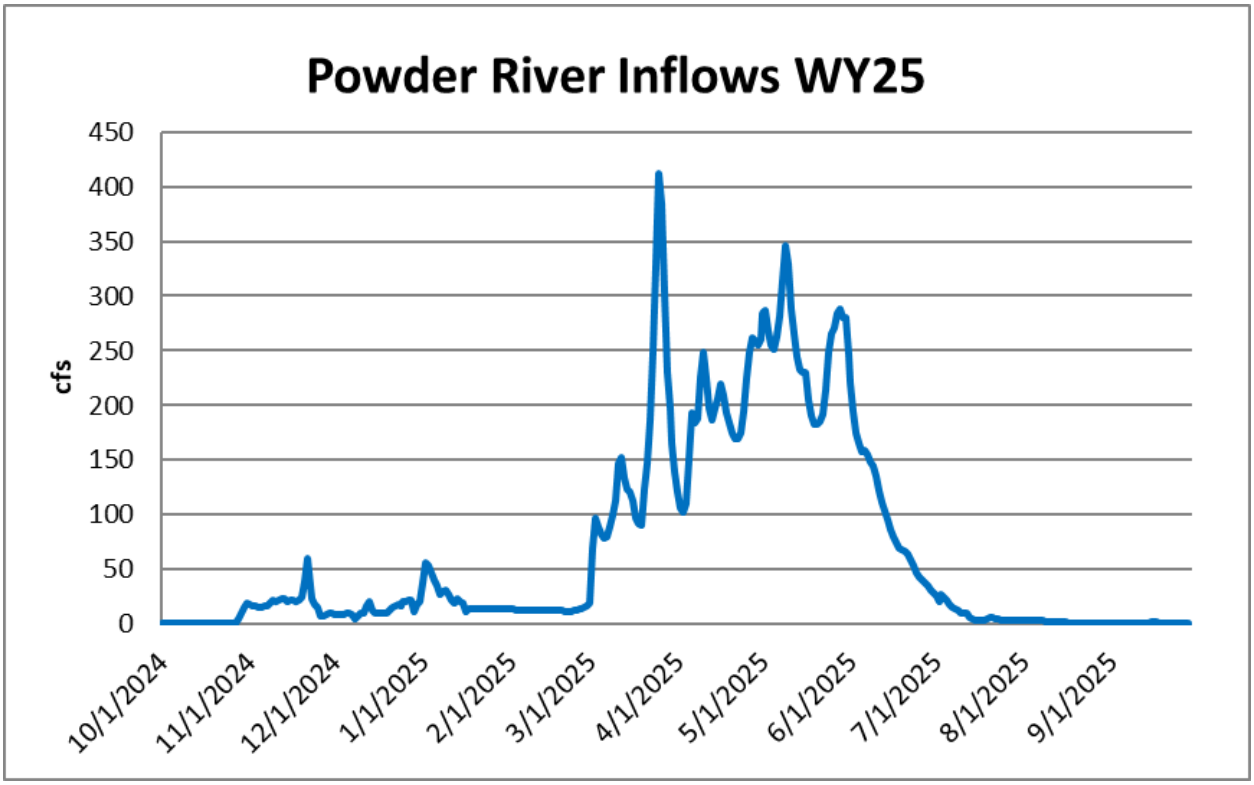

Figure 10.—Powder River inflows to Phillips Reservoir in WY25 measured in cfs and recorded at USGS Gage No. 13275105, Powder River at Hudspeth Lane near Sumpter, Oregon.

3.0 Bull Trout

This chapter describes the bull trout ITS and RPMs, including monitoring efforts during WY25. The ITS includes five RPMs and their associated T&Cs to minimize incidental take of bull trout related to O&M at Reclamation's facilities in the identified action areas where bull trout are present. Collected data may be used to satisfy the T&Cs and/or monitoring requirements. For example, data collected during a fish sampling activity may be used to monitor population trends and to identify data trends that could be used in the future to address T&Cs or revise existing operational indicators and monitoring.

3.1 Boise River Basin

For this report, the Boise River Basin study area includes Arrowrock Reservoir, Anderson Ranch Reservoir, the South Fork Boise River below Anderson Ranch Dam, portions of the Middle and North Fork Boise Rivers, and Lucky Peak Reservoir.

The 2005 Opinion identified five T&Cs for Arrowrock Dam and two T&Cs for Anderson Ranch Dam for minimizing the effect and/or amount of take associated with each dam's operation. Each of the T&Cs addresses a different aspect of the effects of operations on bull trout or bull trout critical habitat. Most data collection efforts described in the following sections will be used to address T&Cs for both Arrowrock and Anderson Ranch reservoirs because of the influence of both facilities overlapping.

Summary reports for the Arrowrock Hydroelectric Project (Federal License No. 4656) can be referenced at https://www.ferc.gov and fish stocking performed by the Idaho Department of Fish and Game (IDFG) can be referenced at https://idfg.idaho.gov/fish/stocking. An overview of both activities is also included in this report.

3.1.1 Boise River Basin Data Collection

To address T&C 2b (minimize disruption to biological processes), streamflow and water temperatures were monitored on the South Fork Boise River. In 2020, Reclamation continued funding the U.S. Geological Survey (USGS) to maintain a temperature stream gage at Neal Bridge (USGS Gage No. 13192200) on the South Fork Boise River for the purpose of monitoring tributary flow below Anderson Ranch Dam. A new Interagency Agreement (R23PG00139) was established in fiscal year 2023, providing continued funding for this effort through fiscal year 2027.

3.1.2 Fish Sampling

Fish sampling to address T&C 1c (entrainment) is integrated into trap-and-transport efforts to move potentially displaced (entrained) bull trout from Lucky Peak Reservoir back upstream into Arrowrock Reservoir. Trap-and-transport efforts have historically been scheduled to occur in even-numbered years, and in any year (even or odd numbered) in which the spillway is used. The spillway at Arrowrock Dam was not used during the reporting period, and because it was an odd-numbered year, no trap-and-transport was conducted in Lucky Peak Reservoir during this reporting period. No other trap-and-transport efforts occurred in the Boise River Basin during the reporting period.

3.1.3 Other Activities

3.1.3.1 *Arrowrock Dam Hydroelectric Project– Boise Project Board of Control*

The Arrowrock Dam Hydroelectric Project, Federal Energy Regulatory Commission (FERC) license No.4656–020, started operations in 2010. Among the requirements of the FERC license, the licensee (Boise Project Board of Control) was obligated to perform water temperature and dissolved oxygen monitoring in the Arrowrock stilling basin for 5 years, culminating in 2015. Future monitoring recommendations may be prepared by the Boise Project Board of Control and presented to FERC after review by the Arrowrock Hydro Team.

Annual meetings of the Arrowrock Hydro Team (IDFG, Reclamation, U.S. Army Corps of Engineers, and USFWS) are expected to continue. The 2025 Meeting occurred on May 16 and the water temperature and dissolved oxygen monitoring reports for WY25 were distributed.

3.1.3.2 *South Fork Boise River–Salmonid Population Monitoring*

The IDFG trout population monitoring on the South Fork Boise River are presented in annual reports and referenced on the IDFG website: Technical Reports | Idaho Fish and Game.

3.1.3.3 *South Fork Boise Watershed Collaborative*

Reclamation provided funding to Trout Unlimited to develop a working group to collaboratively provide insight to the management agencies for the conservation of the South Fork Boise River. Subcommittee meetings, including site visits, were conducted during the reporting period. Reclamation staff are active participants in each of the subcommittees. Trout Unlimited posts meeting announcements, meeting notes, presentation files, meeting recordings/transcripts, and other files to: Watershed Collaborative | (southforkboise.org).

3.1.3.4 *Fish Stocking within Reclamation Projects–Boise River Basin IDFG*

IDFG annually stocks fish in the Boise River Basin for recreational angling. Stocking practices are determined solely by IDFG following their most current 5-year Fisheries Management Plan. Stocking is not performed to meet Reclamation objectives. A summary of fish stocking[4] for all fish species that occurred at Arrowrock and Anderson Ranch Reservoirs and in the South Fork Boise River in WY25 is shown in table 6.

[4] Comprehensive stocking data for the state is provided by IDFG and is available at https://idfg.idaho.gov/ifwis/fishingPlanner/stocking/

Table 6.—Fish stocking by IDFG in WY25 in the Boise River Basin for all fish types

Location	Date Stocked	Species Type	Size (inches)	Number Stocked
Anderson Ranch Reservoir	5/14/2025	Kokanee	Less than 6	70,263
Arrowrock Reservoir	10/21/2024	Rainbow trout	Catchable (12–14)	9,030
	3/20/2025	Rainbow trout	Catchable (6+)	12,546
	4/1/2025	Rainbow trout	Catchable (12–14)	9,010
	5/15/2025	Kokanee	Less than 6	303,030
	5/30/2025	Rainbow trout	Less than 6	50,180
	5/30/2025	Rainbow trout	Less than 6	45,518
	5/30/2025	Rainbow trout	Less than 6	41,440
	9/18/2025	Rainbow trout	Catchable (6+)	9,000
South Fork Boise River (above Anderson Ranch Reservoir)	5/20/2025	Rainbow trout	Catchable (12–14)	473
	5/28/2025	Rainbow trout	Catchable (12–14)	473
	6/5/2025	Rainbow trout	Catchable (12–14)	955
	6/10/2025	Rainbow trout	Catchable (12–14)	480
	6/24/2025	Rainbow trout	Catchable (12–14)	953
	7/1/2025	Rainbow trout	Catchable (12–14)	484
	7/8/2025	Rainbow trout	Catchable (12–14)	952
	7/9/2025	Rainbow trout	Catchable (12–14)	952
	7/14/2025	Rainbow trout	Catchable (12–14)	1,503
	7/15/2025	Rainbow trout	Catchable (12–14)	401
	8/1/2025	Rainbow trout	Catchable (12–14)	487
	8/6/2025	Rainbow trout	Catchable (12–14)	950
	8/6/2025	Rainbow trout	Catchable (12–14)	950
	8/7/2025	Rainbow trout	Catchable (12–14)	1,000

3.2 Payette River Basin – Deadwood River System

The 2005 Opinion identified five T&Cs for minimizing the effects to bull trout and the amount of take associated with the operation of Deadwood Dam and Reservoir. Each T&C addresses a different aspect of the effects of operations on bull trout and makes assumptions regarding the effects to bull trout from reservoir operations. Examining the system holistically allows Reclamation to understand the systemic impacts of individual operational changes. Consequently, Reclamation engaged in the multi-year Deadwood Reservoir Operations Flexibility Evaluation (Deadwood Flex Study) to address T&Cs 3a–3d jointly, which was provided to USFWS in 2018.

Evaluating the flexibility of operations and the effects of varied operational scenarios for Deadwood Dam on water quality conditions and aquatic fauna in both Deadwood Reservoir and the Deadwood River below Deadwood Dam requires an understanding of the potential overall

ecosystem response to operational changes over time. Using modeling of physical and biological parameters measured over the course of this project allowed for an ecosystem-level analysis of the T&Cs for Deadwood Reservoir operations and their influence on bull trout populations. These efforts involved collaboration among multiple agencies and included annual activities not detailed in this report.

Conclusions from the Deadwood Flex Study were used to develop Implementation Measures for Deadwood Dam that address T&Cs 3a–3d. These operational recommendations seek to better use existing operational flexibility to maximize benefits to bull trout and minimize biological impacts system-wide, while still fulfilling Reclamation's non-discretionary flood control and water provision obligations. The final report, Reclamation's *Implementation Measures for Operating Deadwood Dam–Addressing Terms and Conditions from U.S. Fish and Wildlife Service 2005 Biological Opinion for Operations and Maintenance of the Bureau of Reclamation Projects in the Snake River Basin above Brownlee Reservoir*, was completed in July 2019. In 2022, formal Section 7 consultation for the implementation of actions identified in the 2019 recommendations document was completed, resulting in a modified ITS and RPMs applicable to O&M at Deadwood Dam and Reservoir.

3.2.1 Deadwood River Basin Data Collection

Operational indicators were monitored in WY25 and reported in section 2.1.2 of this document. As part of the action identified in the 2022 consultation, Reclamation's O&M at Deadwood facilities includes an annual fish sampling and a bull trout trap and transport effort, detailed below.

3.2.2 Fish Sampling

3.2.2.1 *Trap-and-Transport*

Reclamation conducted sampling for bull trout in the tailrace of Deadwood Dam. The effort occurred between September 2–17, 2025 and totaled 223 sampling hours. This work targets bull trout because entrainment through the outlet works is suspected to occur (Reclamation 2018d) and other upstream passage methods or fish entrainment exclusion methods are not economically feasible. The seasonal timing was chosen due to safety and access concerns, particularly targeting the cessation of irrigation releases when discharge could be limited to < 10 cfs for safety of the staff working in the area.

Sampling occurred between September 2–17, 2025. Fyke nets were used with a 4-foot square trap panel frame reduced to 5 fykes with 50-foot-long by 4-foot-wide leads and quarter-inch mesh. Traps were placed in the stilling basin below Deadwood Dam in two locations: one on the spillway apron and one under the bridge with wings stretched from bank to bank to target the capture of all out-migrating fish.

Five bull trout were captured and relocated during the 2025 effort. Bull trout were measured, weighed, and scales and DNA samples were collected from each. Bull trout were then transferred to a 120-quart transport cooler fitted with an oxygen supplementation system and driven to a release site in Trail Creek approximately 3 kilometers above its inflow into Deadwood Reservoir. Care was taken to handle bull trout minimally following established methods. Water temperature in the transport cooler ranged from 10–14 degrees Celsius (°C) and matched water temperature in the stilling basin; water temperatures at the release location ranged from 7–8 °C. Water temperatures in the transport cooler and release location were within the 5 °C IDFG fish transport standard. Water temperature at the release site was measured prior to each release and fish were acclimatized as necessary to ensure gradual temperature change between capture/transport and release site water temperatures.

All other fish were released downstream near the confluence of Wilson Creek each day until the final day of sampling fish were released within the stilling basin where they were caught. The most common species encountered (relative abundance) included dace species (61.3 percent), rainbow trout (19.4 percent), and kokanee (15.5 percent). Other species included bull trout, westslope cutthroat trout, sculpin (*Cottus spp.*), mountain whitefish, and redside shiner (table 7). Handling methods were like those used in previous efforts. Each fish was identified to the lowest practical taxonomic level.

Table 7.—Summary statistics for the Deadwood Dam stilling basin bull trout trap-and-transport. Sampling occurred in September 2025. Summary includes total catch, catch per unit effort (CPUE), and relative abundance (percent of total). Total sampling hours = 223.

Species	Total Catch (Number of fish)	CPUE (fish/hour)	Percent of Total
Bull trout (*Salvelinus confluentus*)	5	0.02	0.17
Cutthroat trout (*Oncorhynchus clarki lewisi*)	2	0.01	0.07
Rainbow trout* (*Oncorhynchus mykiss*)	574	2.57	19.43
Redside shiner (*Richardsonius balteatus*)	51	0.23	1.73
Sculpin (*Cottus* spp)	2	0.01	0.07
Dace (*Rhinichthys* spp)	1,811	8.12	61.31
Mountain whitefish (*Prosopium williamsoni*)	50	0.22	1.70
Kokanee salmon (*Oncorhynchus nerka*)	459	2.06	15.54
Totals	**2,954**	**13.25**	**100.00**

Other Activities

In 2025, IDFG stocked rainbow trout in Deadwood Reservoir as a measure to supplement a sport fishery (table 8).

Table 8.—Fish stocking by IDFG in 2025 in Deadwood Reservoir for all fish types

Date Stocked	Species Type	Size	Number Stocked
6/11/2025	Kokanee	Less than 6 inches	103,408

3.3 Malheur River Basin–Beulah Reservoir and the North Fork Malheur River

The 2005 Opinion identifies four T&Cs for minimizing the effect and amount of take associated with the operation of Agency Valley Dam and Beulah Reservoir. Each of the T&Cs addresses a different aspect of the effects of operations on bull trout and critical habitat. In cooperation with USFWS, Reclamation developed and finalized seven implementation measures in 2018 that target the maintenance of a prey base for bull trout that overwinter in the reservoir. These seven implementation measures help maintain ESA compliance at Beulah Reservoir (Reclamation 2018e). Implementation of these measures began in WY19 and will maintain incidental take coverage through the duration of the 2005 Opinion. Additionally, Reclamation engages in ongoing collaborative efforts with USFWS and the Bureau of Land Management to minimize effects of grazing around the reservoir (Jackson, personal communication 2017–2024).

3.3.1 Temporary Water Lease

Reclamation worked collaboratively with the Vale Irrigation District to update contracting to maintain the Beulah Reservoir conservation pool volume. In 2025, the water lease was not used to maintain the conservation pool within the required range. The lowest storage volume in the reporting period occurred on October 1, 2024, at 10,961 acre-feet. Carryover into WY26 was 19,613 acre-feet on September 30, 2025, with drafting of the reservoir continuing until refill began on October 25, 2025.

3.3.2 Trap-and-Transport Efforts

3.3.2.1 *Spring*

The spillway was not used at Agency Valley Dam in 2025; therefore, spring trap-and-transport was not required.

3.3.2.2 *Fall*

Reclamation and the Vale Irrigation District operated Beulah Reservoir within the designated range of the conservation pool; therefore, fall trap-and-transport was not required.

3.3.3 Other Activities

Reclamation has identified that the riparian vegetation, predominantly willow stands, present in the upper varial zone area of Beulah Reservoir provides important habitat for the aquatic prey base that bull trout feed upon (Reclamation 2013). Grazing permits on Reclamation lands surrounding the reservoir were curtailed in 2016, with the intent of determining whether grazing land use is compatible with the persistence of adequate habitat to support a prey base for bull trout that overwinter in the reservoir.

Reclamation generally performs an annual range use evaluation survey of the upper varial zone at Beulah Reservoir in the fall to assess the general distribution, density, and vigor of existing willow stands, and to assess the level of ongoing domestic grazing use (e.g., trespassing non–permitted cattle) and wildlife browsing impacts. However, in WY25, staffing availability precluded surveying during this timeframe. Surveys are expected to resume in WY26.

3.3.4 Malheur River – Redd Counts

Reclamation routinely participates as a partnering agency in annual survey counts of bull trout redds in the North Fork Malheur River Basin to satisfy coordination and basin monitoring requirements set forth in the 2005 Opinion (Reporting Requirements and Conservation Recommendations 2 and 3).

Three weeks of surveys were performed during the weeks of: August 26, Sept 8, and Sept 22. Surveys focused on habitat with the highest potential for spawning and totaled approximately 27.6 miles but also included an additional 17.1 miles in rotating reaches. In total, 149 redds were observed throughout the North Fork Malheur River and tributaries[5] (ODFW 2026).

Carryover storage in Beulah Reservoir can affect the bull trout prey base (Rose and Mesa 2009) and appears somewhat correlated to subsequent years' redd counts; however, a direct link between carryover pool elevations and bull trout redd counts remains speculative. Figure 11 shows the number of redds observed in the North Fork Malheur River Basin and the carryover of reservoir storage in Beulah Reservoir.

[5] Redd count numbers from 2013 and 2016 were misrepresented in previous annual reports. Data shown in those reports erroneously included redd counts for both the Upper Malheur and the North Fork Malheur. The correct counts for the North Fork Malheur were 38 in 2013 and 50 in 2016. This figure reflects those adjustments. The alignment of this figure has also been adjusted to display carryover data by water year rather than calendar year. This was done to simplify interpretation so that the carryover numbers shown correspond to the redd counts observed the following summer.

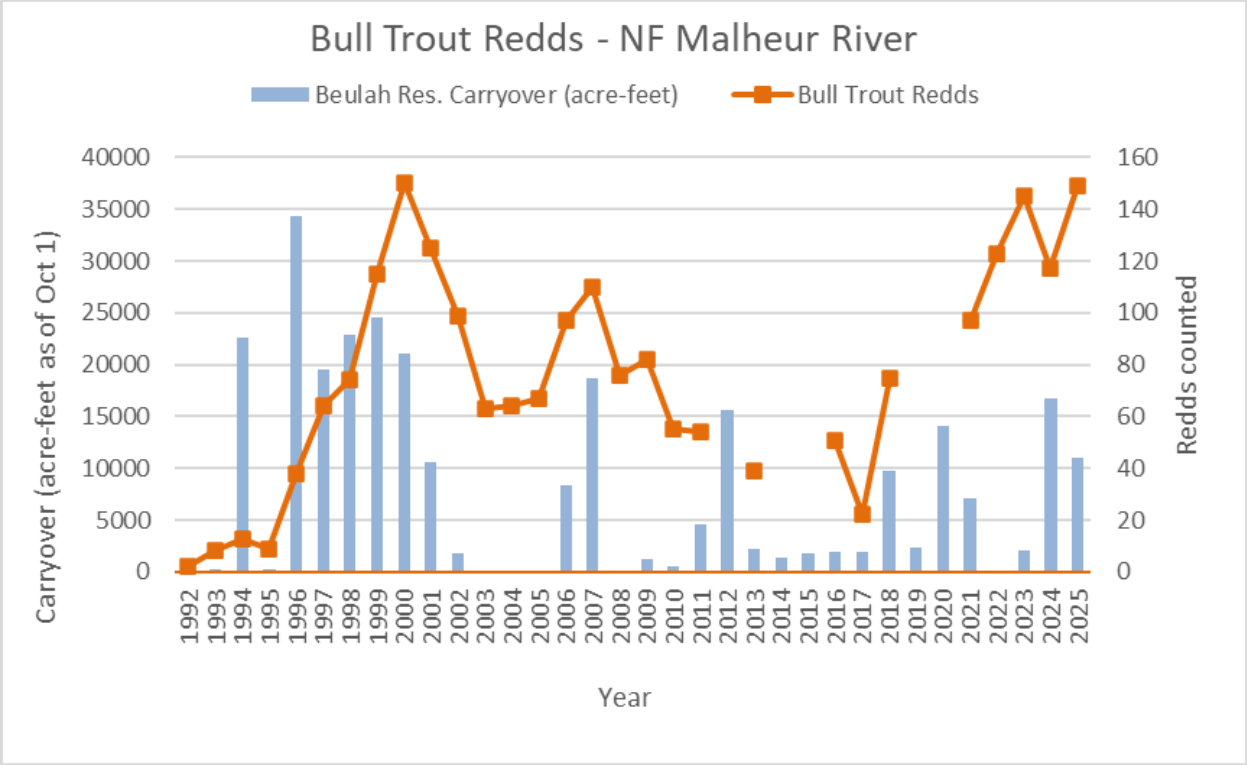

Figure 11.—Data on bull trout redd trends observed in the North Fork Malheur River watershed (North Fork Malheur River) and carryover storage at the start of the water year in Beulah Reservoir for water years 1992–2025. The number of redds observed after 2007 has been adjusted by one to reflect the reduced size of the area surveyed. No redd count data exist for 2012, 2014, 2015, 2019, or 2020. See footnote 5 for notes about how this graph has been modified and corrected for previous years.

3.4 Powder River Basin–Phillips Reservoir

3.4.1 Bull Trout Monitoring

The 2014 Opinion identifies one T&C associated with minimizing incidental take of bull trout resulting from operations of Phillips Reservoir (decreased water levels and increased temperatures) and from impaired fish migration above Phillips Reservoir. Reclamation accordingly finalized the 5-year *Bull Trout Monitoring and Reporting Plan for Phillips Reservoir, Oregon* with USFWS in 2016 (Reclamation 2016). This plan was developed in collaboration with ODFW to fulfill this T&C. From 2015 through 2019, Reclamation conducted spring fish sampling at targeted reservoir locations to enhance knowledge of project impacts to bull trout and to better determine bull trout use of Phillips Reservoir.

In accordance with this monitoring and reporting plan, Reclamation continues to monitor and report the Powder River gage (USGS Gage No. 13275105 – Powder River at Hudspeth Lane near Sumpter, Oregon). This effort records the frequency of high-inflow events that are expected to lead to bull trout migration into/through the reservoir. Also, Reclamation has continued to

monitor pool elevation to record the frequency of drawdown that seasonally affects access through tributary varial zones. In the 2025 reporting period, inflow measured at the Powder River gage did not exceed 856 cfs daily average, the operational indicator identified in the monitoring plan.

3.4.2 Other Activities

Pursuant to RPMs and T&Cs in USFWS 2014, Reclamation developed a 5-year bull trout sampling and monitoring plan, a draft of which was first provided to USFWS for comment in March of 2015, and implementation of which began later that spring, in coordination with ongoing ODFW activities related to sampling for and control of invasive yellow perch in Phillips Reservoir. Reclamation's final 5-year sampling plan, *Bull Trout Monitoring Plan for Phillips Reservoir, Oregon* (Reclamation 2016), was formally submitted to USFWS in 2016 in partial fulfillment of the Term and Condition set forth in the 2014 Opinion. In accordance with that document, fish sampling and monitoring of environmental conditions took place from 2015 to 2019. In 2024, Reclamation finalized a report synthesizing results from this effort; this report is the *Five–Year Bull Trout Monitoring Plan Report: 2014 Biological Opinion for Phillips Reservoir (Mason Dam), Oregon* (Reclamation 2024b).

3.5 Agency Coordination and Conservation Recommendations

The 2005 Opinion directs Reclamation to use its authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of ESA protected species. Conservation Recommendations are discretionary agency activities that minimize or avoid adverse effects of a proposed action on listed species or critical habit, help implement recovery programs, or develop information (USFWS 2005). A list of posted projects and project partners is publicly available on Reclamation's Environmental Documents site: Snake River Area Office | Bureau of Reclamation

Reclamation participated in the following Conservation Recommendations during the 2025 reporting period.

- USFWS Quarterly Coordination Meetings
- Boise and Payette Watersheds
    - Reclamation's 2025 Bull Trout Annual Meeting
    - Annual Deadwood coordination meeting
    - Boise Area Bull Trout Work Group
    - McCall Area Bull Trout Work Group
    - Arrowrock Hydro Annual Meeting

- Malheur Watershed
    - Malheur River Technical Advisory Team quarterly coordination meetings
    - Malheur fish passage grant reviews
- Powder Watershed
    - Phillips watershed coordination meetings
    - Powder River Bull Trout working group
    - Powder River Watershed Council collaborative meetings
- Upper Snake River
    - Palisades/Upper Basin water management working groups
    - American Falls Resource Management Working Group
    - Salt River, Wyoming Watershed Working Group
    - White Sturgeon Technical Advisory Committee
    - Yellowstone Cutthroat Advisory meetings
    - Reclamation/IDFG annual water operation meeting
    - Coordination with A&B Irrigation for better understanding of water delivery
    - Site visit to Upper Snake River facilities and coordination
- Other Activities
    - Idaho Chapter American Fisheries Society meeting
    - Idaho Department of Environmental Quality (IDEQ) Water Quality Workshop
    - AIS Columbia River Basin Team Meeting
    - NEPA/ESA regional training/monthly working groups
- Water Quality–Various efforts conducted by Reclamation's Columbia-Pacific Northwest (CPN) Regional Water Quality Laboratory

Reclamation participated in several water quality-related projects in the Upper Snake River Basin during the reporting period. As part of Idaho and Oregon's ongoing total maximum daily load (TMDL) development and implementation activities, Reclamation staff from the Snake River Area Office and CPN Regional Office participated in all appropriate watershed advisory groups and watershed council meetings in the Upper Snake River Basin, including activities listed below. Reclamation also provided technical assistance and analytical laboratory services to irrigation system operators and other appropriate entities throughout its project areas in the Upper Snake River Basin, including activities listed below.

A&B Irrigation District Water Quality Monitoring – A&B Irrigation District staff sample nitrate + nitrite and bacteria from 180–156 groundwater wells to measure groundwater depletion and nutrient infiltration associated with withdrawals in irrigated units A and B near Rupert, ID. These data are utilized by the district to comply with good agricultural practices as well as to evaluate the extent of nitrate infiltration in the Snake River aquifer.

American Falls Reservoir Water Quality Monitoring – Idaho Department of Environmental Quality (IDEQ) routinely collects water samples from American Falls year-round for analysis of nutrients, bacteria, and sediment. The analytical portion of this project is funded by Reclamation, while sample collection is performed by IDEQ staff. The data are used to review TMDL implementation for American Falls Reservoir as water years differ greatly and reservoir conditions vary with volume and climatic conditions.

Boise Reservoirs Monitoring Program – The Boise Reservoirs Monitoring program is part of the CPN Water Quality Laboratory's region-wide reservoir monitoring program. Almost all Reclamation reservoirs are routinely monitored for nutrients, bacteria, sediment, cations/anions, metals, and other physical parameters, with frequency being decided by a project's importance and sensitivity. During the irrigation season, CPN Laboratory staff travel to reservoirs and collect thalweg (surface/bottom), and outflow water samples. Data are used for TMDL development, National Environmental Policy Act (NEPA) compliance, Biological Opinion compliance, and long-term trend monitoring. The reservoirs monitored under this program include Anderson Ranch, Arrowrock, Beulah, Black Canyon, Bully Creek, Cascade, Deadwood, Lake Lowell, Mann Creek, Owyhee, Phillips, Thief Valley, Unity, and Warm Springs.

Boise Watershed Watch – Once annually, usually in September, the Boise Watershed Watch program performs community outreach sampling with local Boise schools and tests Boise River water samples for nutrients and bacteria. Reclamation's Water Conservation Field Services program frequently funds this community program as it is low-cost and a valuable piece of public engagement in watershed health.

Burley Irrigation District Water Quality Monitoring – The Burley Irrigation District (BID) Water Quality Monitoring Program is a partnership between Reclamation and BID to assess the water quality of irrigation canals and drains associated with BID. BID samples for nutrients, sediment, and bacteria during the irrigation season. Data are provided to farmers and irrigators for good agricultural practices reporting.

Invasive Species Monitoring – The Invasive Species Monitoring program is part of the CPN Laboratory's region–wide reservoir monitoring program. Almost all Reclamation reservoirs are routinely monitored for nutrients, bacteria, sediment, cations/anions, metals, and other physical parameters with two water samples being taken at the thalweg (surface/bottom). In addition to chemical constituents, historically the CPN Laboratory has performed plankton tows near boat launch sites and other locations within Reclamation reservoirs to evaluate the presence/absence of quagga and zebra mussel veligers. Almost every Reclamation reservoir in the region is sampled at least once every 3 years, with multiple being sampled more often dependent on a project's importance and sensitivity, particularly if invasive species veliger or eDNA positive

results have been previously observed. With the first positive sample and discovery of an adult quagga mussel in the Snake River near Twin Falls ID in 2023, eDNA sampling has also increased significantly. This project has a dedicated CPN Laboratory field crew in years when budget and staffing allow.

Lake Lowell Inflows and Lower Payette Water Quality Monitoring – The monitoring programs are a long-term trend monitoring effort that has been continuously conducted for more than 10 years. The data collected through this program has been used for Operations, Biological Assessments, and NEPA documents. In addition, this data is used by a variety of outside entities for TMDL development, Best Management Practices (BMP) effectiveness monitoring, TMDL implementation monitoring, and assessment of water quality changes through time.

Minidoka Irrigation District Water Quality Monitoring – The Minidoka Irrigation District (MID) Water Quality Monitoring Program is a partnership between Reclamation and MID to assess the water quality of irrigation canals and drains associated with MID. MID samples for nutrients, sediment, and bacteria during the irrigation season. Data is provided to farmers and irrigators for good agricultural practices reporting.

Minidoka Reservoirs Monitoring Program – The Minidoka Reservoirs Monitoring program is part of the CPN Laboratory's region-wide reservoir monitoring program. The Minidoka reservoirs monitored under this program are Little Wood River, Island Park, American Falls, Ririe, Lake Walcott, Grassy Lake, Palisades, and Jackson Lake.

Regional Algal Toxin Monitoring – In coordination with IDEQ and local health districts, some of the harmful algal bloom cyanotoxin samples collected on Reclamation reservoirs are analyzed at the CPN Laboratory. This partnership has positioned the CPN Laboratory to be IDEQ's primary cyanotoxin analysis lab in the state while also providing Reclamation with advance notice of upcoming advisories. It also provides a monitoring program to better scope the emerging problem of harmful algal blooms in the CPN Region. This agreement covers both samples collected by the CPN Laboratory and samples collected by the IDEQ or public.

Rock Creek Water Quality – Rock Creek is a major tributary to the Snake River and has been identified as impaired by E. coli, total phosphorus, total suspended solids, and flow alterations. Using Reclamation funding, IDEQ samples this project for nutrients, bacteria, and sediment. Data analysis and the resulting reports help IDEQ to work toward TMDL implementation efforts as well as to identify areas of concern where future water quality improvement work can be directed.

Upper Payette River Water Quality Monitoring Program – To assess the quality of water traveling into and out of Cascade reservoir, the CPN Laboratory samples the north fork of the Payette River for nutrients and bacteria monthly. These data are utilized to calibrate water quality models and to measure long-term water quality trends in the Boise Project.

NAA and WCFS Support for Native American Tribes – Both the Native American Affairs (NAA) and the Water Conservation Field Services (WCFS) programs provide analytical cost-sharing support for tribes in the CPN Region. The Confederated Tribes of the Umatilla Reservation, the Nez Perce Tribe, and the Shoshone Paiute Tribes of the Duck Valley Indian Reservation are among the tribes that submit samples to the CPN Laboratory under these agreements.

4.0 Snake River Physa

Following the USFWS 2015 Consultation, Reclamation implemented three measures to satisfy requirements in the ITS: a long-term flow strategy to protect snail habitat in the Physa pool below the dam (2020); a Water Quality Monitoring Plan (2016) to monitor sediment in low flow years (minimum non-irrigation season (November–March) flows past Minidoka Dam ranging between 425 and 525 cfs); and annual coordination/reporting on these activities with USFWS.

Reclamation has historically assisted USFWS annually with their trend monitoring of the snail population in the Snake River Between Minidoka Dam and Milner Reservoir. However, due to staffing and fund availability within both Reclamation and the USFWS, no surveys were conducted during the WY25 reporting period. Population trend data suggest that Reclamation's long-term flow strategy continues to protect snail habitat downstream of Minidoka Dam.

American Falls Reservoir was drafted below 100,000 acre-feet from September 11 through October 11, 2025, triggering a requirement to monitor sediment at locations below American Falls Dam due to the potential for mobilized sediment to affect Snake River physa habitat. Accordingly, water samples were taken periodically from the Snake River at the following four locations, listed in upstream to downstream order:

- Massacre Rocks
- Lake Walcott
- The snail pool below Minidoka Dam
- The Jackson Bridge site

Water samples were analyzed for total suspended solids (TSS), total dissolved solids (TDS), turbidity and suspended sediment concentration (SSC). Water sampling was initiated on September 10 (providing a pre-threshold baseline prior to American Falls Reservoir's drafting below 100,000 acre-feet), and was repeated nine times from September 10–October 8, after which American Falls Reservoir had refilled above the 100,000 acre-feet threshold below which water quality monitoring is required. Sampling results are shown in figures 12–15 below.

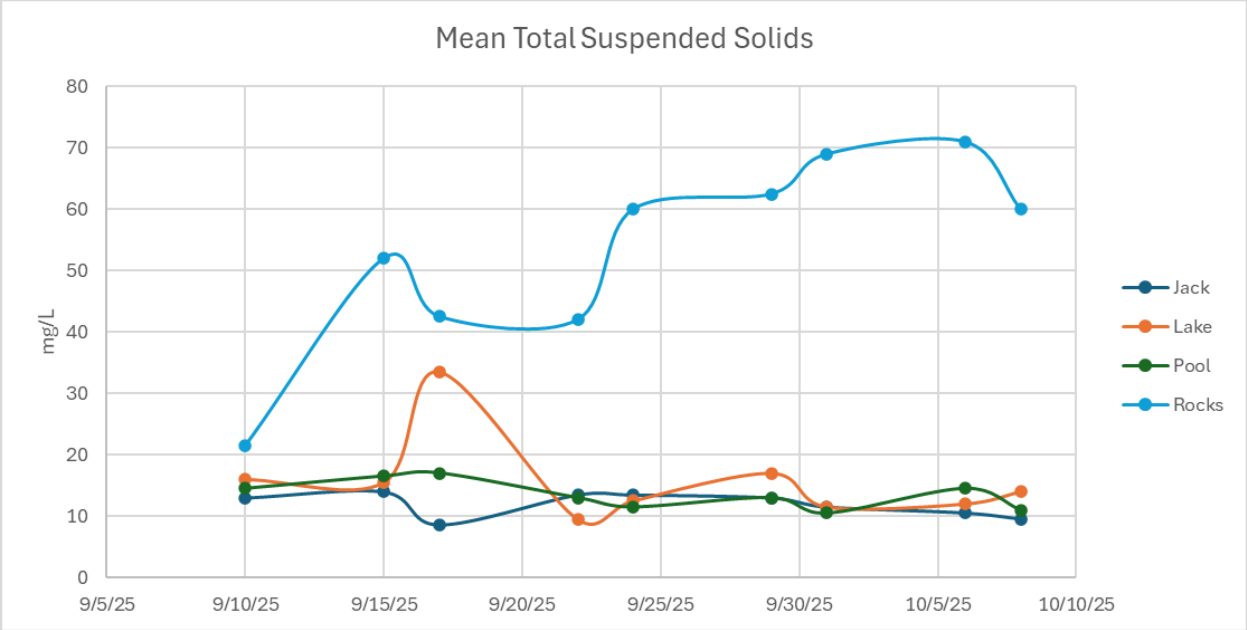

Figure 12.—Mean total suspended solids measured at Massacre Rocks (Rocks), Lake Walcott (Lake), the Snail Pool (Pool), and Jackson Bridge (Jack) sites immediately prior and during the time period when American Falls Reservoir was drawn down < 100,000 acre-feet.

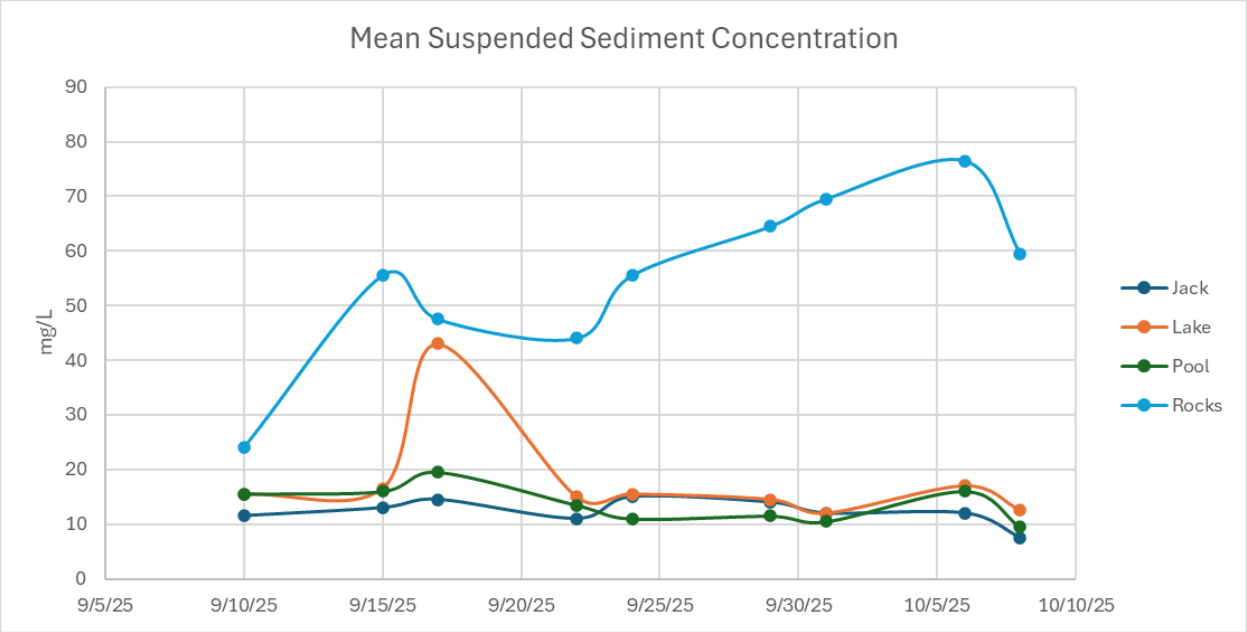

Figure 13.—Mean suspended sediment concentration measured at Massacre Rocks (Rocks), Lake Walcott (Lake), the Snail Pool (Pool), and Jackson Bridge (Jack) sites immediately prior and during the time period when American Falls Reservoir was drawn down < 100,000 acre-feet.

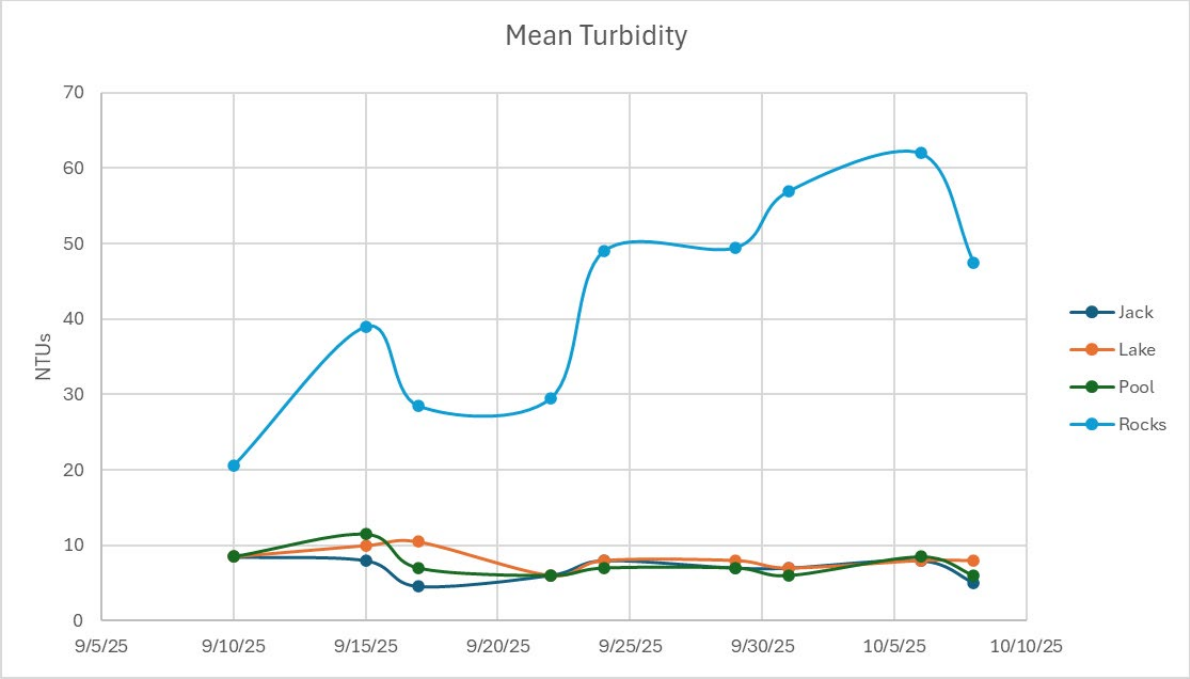

Figure 14.—Mean turbidity measured at Massacre Rocks (Rocks), Lake Walcott (Lake), the Snail Pool (Pool), and Jackson Bridge (Jack) sites immediately prior and during the period when American Falls Reservoir was drawn down < 100,000 acre-feet.

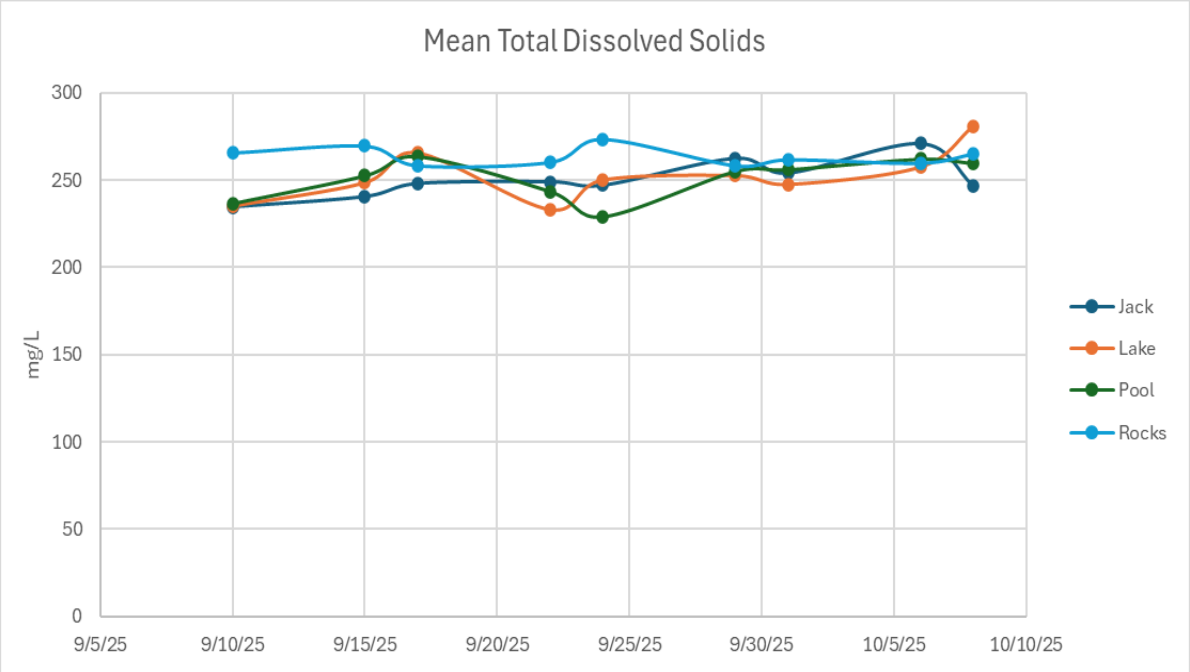

Figure 15.—Mean total dissolved solids measured at Massacre Rocks (Rocks), Lake Walcott (Lake), the Snail Pool (Pool), and Jackson Bridge (Jack) sites immediately prior and during the time period when American Falls Reservoir was drawn down < 100,000 acre-feet.

Locations with known physa populations (in the snail pool below Minidoka Dam and at the Jackson Bridge site) did not exhibit any trend toward increased sediment mobilization-related parameters correlated to the drawdown of American Falls Reservoir below the 100,000 acre-feet threshold. The Massacre Rocks location, which is the closest sampling site downstream from American Falls Dam, did exhibit fluctuations with increases in measured sediment mobilization-related parameters during the period of lowest reservoir pool.

Reclamation and USFWS staff also met quarterly to discuss activities relevant to requirements from the 2005 and 2015 Opinions.

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