

# **Annual Progress Report**

2024 Salmon Flow Augmentation Program and Other Activities Associated with NOAA Fisheries 2008 Biological Opinion and Incidental Take Statement for Operations and Maintenance of Bureau of Reclamation Projects in the Snake River Basin above Brownlee Reservoir

**Columbia-Pacific Northwest Region** 

### **Mission Statements**

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

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# **Acronyms and Abbreviations**

Acronym or Abbreviation	Definition					
ВіОр	Biological Opinion					
cfs	Cubic feet per second					
ESA	Endangered Species Act					
FRM	Flood risk management					
IWRB	Idaho Water Resources Board					
NOAA Fisheries	National Oceanic and Atmospheric Administration National Marine Fisheries Service					
Reclamation	Bureau of Reclamation					
RPM	Reasonable and Prudent Measure					
TMT	Technical Management Team					
WY	Water Year					

# Introduction

On May 5, 2008, the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries) released a biological opinion (2008 Upper Snake BiOp) for the continued operation and maintenance of Bureau of Reclamation (Reclamation) projects in the Snake River Basin above Brownlee Reservoir, replacing the previous 2005 Upper Snake BiOp. In the 2008 Upper Snake BiOp, Reclamation committed to shifting flow augmentation releases to earlier in the migration season, when Snake River flows are more beneficial to anadromous fish listed as threatened or endangered under the Endangered Species Act (ESA). The incidental take statement included Reasonable and Prudent Measures (RPMs) and associated terms and conditions to minimize incidental take to 13 stocks of listed salmon and steelhead, referred to as Evolutionarily Significant Units.

This document reports the status of activities related to the 2008 Incidental Take Statement, including Reclamation's salmon flow augmentation program (flow augmentation), status of new contracts, and coordination activities. This report meets Reclamation's responsibility to submit an annual progress report by December 31 of each year.

Flow augmentation releases in Water Year (WY) 2024 mark the 16<sup>th</sup> year of operations under the 2008 Upper Snake BiOp.

# Reclamation's 2024 Salmon Flow Augmentation Program

Reclamation was able to provide 487,000 acre-feet of water for flow augmentation in water year 2024. The water supply and operational conditions in 2024 are summarized below. The percent of average values used in this report have been calculated based on the 30-year average of the period from 1991 to 2020 period.

# **Basin Conditions**

Carryover storage on November 1, 2023, was 101 percent of average in the Payette River basin, 135 percent of average in the Boise River basin, and 115 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. This transitioned to near- to above-normal precipitation for the months of February and March, and by April 1, the snowpack was 90 percent of normal in the Payette River basin, 100 percent of normal in the Boise River basin, and 103 percent of normal in the Upper Snake River basin.

Runoff commenced in most basins in early April as the lower elevation snowpack melted off. In early May, cooler temperatures kept streamflow low, but a warming trend by the middle of May increased streamflow. This streamflow response slowed going into late May as temperatures cooled to more normal conditions. The first two weeks of June experienced warmer than average temperatures in all basins, followed by a precipitation event that caused streamflow to peak for the season. This weather sequence quickly melted off much of the snowpack in most basins and resulted in streamflow receding to below average conditions following the peak runoff.

The April-through-July unregulated runoff was 83 percent of normal in the Payette River basin, 81 percent of normal in the Boise River basin, and 95 percent of normal in the Upper Snake River basin (as measured at Heise). Despite below normal runoff, flood risk management (FRM) operations were required in all three basins due to the normal to above normal carryover from the prior year.

The runoff was sufficient to completely fill the Boise, Payette, and Upper Snake basin reservoirs. The Payette River reservoir system reached a maximum storage content of 786,053 acre-feet, approximately 14,399 acre-feet below its 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 938,879 acre-feet, approximately 10,821 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 reached a maximum combined physical storage content of 4,163,367 acre-feet, approximately 22,328 acre-feet below its full capacity of 4,185,695 acre-feet, and would have filled completely but for early flow augmentation releases and a small FRM release just prior to the reservoir system reaching maximum content.

Above average snowpack and precipitation in central and eastern Oregon resulted in high runoff conditions in those basins. All the eastern Oregon reservoirs filled except for Phillips Lake.

Due to above average reservoir carryover and near average runoff conditions (and including filling of Reclamation space), storage rentals were made available to reach the higher threshold flow augmentation volume of 487,000 acre-feet.

# In-Season Management Considerations for Meeting Flow Augmentation Targets

Reclamation manages in-season storage releases for flow augmentation, relying on the best data available at the time to set release rates. Reclamation uses preliminary water rights accounting provided by the State of Idaho to estimate volumes available in storage accounts and amounts delivered. This preliminary accounting is provisional and subject to change later, when data are finalized and after-the-fact accounting is completed. Therefore, while it is difficult to deliver the precise targeted volume on a real-time basis, Reclamation strives to come as close as possible, with a typical margin of error of less than 1 percent.

Reclamation was able to provide 487,000 acre-feet of water for flow augmentation in 2024. Table 1 summarizes the source, amount, and timing for Reclamation's 2024 salmon flow augmentation program.

Source	Amount (acre-feet)	Dates of Delivery					
Upper Snake above Milner Dam							
Reclamation Uncontracted Space	35,363 <sup>A</sup>	June 5-July 25					
Reclamation Powerhead Space	0						
Rentals – Attachment 1 Chart	150,000 <sup>в</sup>						
Rentals – Additional	4,349 <sup>c</sup>						
Subtotal	189,712						
Payette							
Reclamation Uncontracted Space	95,608	June 15-August 31					
Rentals	80,625						
Subtotal	176,233						
Boise							
Reclamation Uncontracted Space	40,932	June 9-July 6					
Reclamation Powerhead Space	0						
Rentals	2,474						
Subtotal	43,406						
Natural Flows							
IWRB Lease (Idaho)	60,000 <sup>D</sup>	April 3-August 31 <sup>E</sup>					
Skyline Farms (Oregon)	17,649						
Subtotal	77,649						
Total	487,000						

Table 1. Summary of Reclamation's 2024 salmon flow augmentation releases

<sup>A</sup> Includes 17,405 acre-feet released in early June. 12,871 acre-feet subsequently re-filled during June, and an additional release of 17,958 acre-feet was made in late June/early July. Pursuant to the Nez Perce Term Sheet C.III.9, the releases are treated as flow augmentation.

<sup>B</sup> The "Stipulated Augmentation Rental – Water District 01" Chart (see Attachment 1) specified Water District 01 would provide 150,000 acre-feet of flow augmentation rental.

<sup>c</sup> Additional rental of 4,349 acre-feet was made available by Water District 01 through the Rental Pool Extraordinary Circumstances provision in order to reach the 487,000 acre-foot flow augmentation volume.

<sup>D</sup> See section titled "Lease of Natural Flow Water Rights Below Milner Dam."

<sup>E</sup> The Idaho Water Resources Board (IWRB) Lease of 60,000 acre-feet comprises 49,500 acre-feet estimated to occur within the April 3 to August 31 period, and 10,500 acre-feet estimated to occur before and after the migration period. See section titled "Lease of Natural Flow Water Rights Below Milner Dam" for further explanation.

### Uncontracted Space and Space Reacquired for Flow Augmentation

Reclamation's 95,608 acre-feet of uncontracted space assigned to flow augmentation in the Payette River system fully refilled, as did the full 40,932 acre-feet in the Boise system. The entire accrual to these accounts was provided to the 2024 flow augmentation program. In the Upper Snake River above Milner Dam, Reclamation anticipated that its 22,896 acre-feet uncontracted space would fill, and released 17,405 acre-feet from that space in early June. Unexpected high inflows in June refilled 12,871 acre-feet of this space, allowing for an additional 17,958 acre-feet to be released from the uncontracted space in late June/early July.

The 17,649 acre-feet of natural flow rights Reclamation has acquired in Oregon (Skyline Farms) were fully available again in 2024.

#### **Annual Rentals**

Reclamation relies heavily each year on annual rentals from water users to acquire water for its flow augmentation program. Storage rentals in the Payette and Boise River basins are made available by willing sellers. With full reservoirs in the Payette River basin, a volume of 80,625 acre-feet of rental water was made available. The Boise River basin provided 2,474 acre-feet of rental water.

Water availability from the Water District 01 Rental Pool (Upper Snake above Milner Dam) is determined by a chart (Attachment 1) that considers carryover storage on November 1 and the April 1 runoff forecast for the Snake River at Heise (for the April-through-September period) to determine contributions to the rental pool for the flow augmentation program. Use of this chart was enacted after negotiation of the 2004 Nez Perce Water Rights Settlement and is fully consistent with Reclamation's description of its flow augmentation program in its 2004 and 2007 Upper Snake Biological Assessments.

In 2024, the Stipulated Augmentation Chart (Attachment 1) specified that Water District 01 would provide 150,000 acre-feet of rental water. Carryover from the 2023 water year on November 1, 2023, for purposes of the chart was 1,971,321 acre-feet (114 percent of average), and the April 1 runoff forecast was 3,924,715 acre-feet (102 percent of average) for the April-through-September period. The 2024 April-through-September observed runoff was 3,620,205 acre-feet (94 percent of average).

An additional rental of 4,349 acre-feet was made available by Water District 01 through the Rental Pool Extraordinary Circumstances provision in order to reach the 487,000 acre-foot flow augmentation volume.

### Lease of Natural Flow Water Rights below Milner Dam

The Nez Perce Water Rights Settlement authorized the use of up to 60,000 acre-feet of Idaho natural flow rights downstream of Milner Dam for the purpose of flow augmentation. In better water years, this will increase the volume of water available for flow augmentation. In 2005, the Idaho Water Resources Board (IWRB) purchased approximately 98,000 acre-feet of water rights from the Bell Rapids Mutual Irrigation Company; this is water that served roughly 25,000 acres via high-lift pumps. Reclamation then entered into a 30-year lease with the State of Idaho for 60,000 acre-feet of this water for flow augmentation (IWRB Lease in Table 1).

Flow augmentation from natural flow rights downstream of Milner Dam occurs during the entire irrigation season, roughly April 1 to October 31. The IWRB Lease of 60,000 acre-feet comprises 49,500 acre-feet estimated to occur within the April 3 to August 31 period, and 10,500 acre-feet estimated to occur before and after the migration period. Even though these 10,500 acre-feet are delivered outside the April 3 to August 31 period, it provides an instream benefit and continued flow augmentation.

#### **Powerhead Space**

As part of the 2004 Nez Perce Water Rights Settlement, Reclamation may use powerhead space in Anderson Ranch and Palisades Reservoirs for flow augmentation. In order for powerhead space to be used, the sum from all other flow augmentation sources must be less than 427,000 acre-feet, and powerhead space cannot be used to exceed a flow augmentation total of 427,000 acre-feet. In addition, Palisades Reservoir powerhead space may only be used after all other flow augmentation sources have been exhausted, including Anderson Ranch Reservoir powerhead space. Anderson and Palisades powerhead accounts completely filled in water year 2024. Due to the flow augmentation volume from all other sources being greater than 427,000 acre-feet, powerhead space was not used in 2024.

### Timing Considerations for Flow Augmentation Releases

The timing of flow augmentation releases depends on the individual basin and source of water. In the 2008 Upper Snake BiOp, Reclamation committed to shifting flow augmentation releases to earlier in the migration season when Snake River flows are more beneficial to federally listed fish. The primary goals of the earlier flow augmentation releases are to minimize the amount of warmer water provided in August and to shift it into July or earlier. The opportunity and ability to shift flow augmentation will vary depending on the water year type, the total flow augmentation volume available, and from which basin the

flow augmentation originates. Consistent with the 2008 Upper Snake BiOp, not all flow augmentation can be shifted from August, particularly in the Payette River basin due to water quality concerns in Cascade Reservoir. The changes in flow augmentation release patterns for 2024 will be highlighted in the following discussion for each basin.

Reclamation made a concerted effort to provide early timing flow augmentation, including forgoing peak reservoir fill in the Payette and Boise River systems and releasing flow augmentation at high rates. In addition, extensive coordination was conducted with the Technical Management Team (TMT) members (NOAA Fisheries, State of Idaho, and Nez Perce Tribe representatives) during the flow augmentation period.

As discussed in the previous sections, the 60,000 acre-feet of Idaho natural flow rights from the IWRB was provided for flow augmentation during the irrigation season, which ends on October 31.

To the extent possible, Reclamation will strive to benefit local resources when implementing its proposed actions while also meeting its obligations under the 2008 Upper Snake and 2005 U.S. Fish and Wildlife Service Biological Opinions and corresponding incidental take statements.

#### **Boise River Basin**

Delivering water in the Boise basin for flow augmentation relies on a combination of two strategies. First, in years with FRM operations when the system is assured to fill, some portion of the flow augmentation volume will be delivered by reserving an equivalent amount of system space that is not allowed to refill. In other words, as FRM operations near their end, releases are not reduced in order to fill the last remaining space; that vacant space is considered to have been delivered as flow augmentation instead.

The second strategy for shifting flow augmentation timing from the Boise River basin is to increase the rate of releases. This relies on the opportunity to make higher releases before the recreational floating season begins on the river. Floating season typically begins once stream flows through the City of Boise drop below 1,500 cubic feet per second (cfs), the weather warms up, the river is inspected and hazards removed, and Ada County officially opens the boat launch facilities. Once floating season begins, flows are limited to approximately 500 cfs above irrigation demand due to public safety concerns. Reclamation will look for opportunities to make higher releases; in years with FRM operations, this can be accomplished by maintaining higher releases rather than immediately ramping down at the end of FRM. In non-FRM years, it can likely be accomplished by releasing flow augmentation in May (or early June) before the floating season begins.

In 2024, FRM releases on the Boise River system began in late-March. After the risk of flooding had ended, releases for flow augmentation began on June 9 and lasted until July 6. Inflows were sufficient to fill the reservoir system, but refill was deliberately missed to shift the timing of flow augmentation earlier into the spring. Releases of flow augmentation averaged approximately 1,200 cfs above irrigation demand for the first 7 days until the Day of Allocation occurred on June 15. After this, flow augmentation releases averaged 1,300 cfs

until June 24, after which flows were reduced for public safety as people began to float the river in inner tubes and rafts due to warmer weather. Close coordination between Reclamation, Ada County, and the Boise Fire Department in June helped to deliver as much of the flow augmentation as early as possible before the public began recreating on the river. The early release of flow augmentation in the Boise is consistent with Reclamation's 2007 biological assessment. Flow augmentation was completed on July 6 after a total of 43,406 acre-feet was delivered.

#### **Payette River Basin**

Due to water quality concerns in Lake Cascade, some amount of flow augmentation water will continue to be released in August. Strategies for shifting the timing of flow augmentation from the Payette River basin include a combination of deliberately foregoing an amount of refill during years when the reservoirs would otherwise fill (similar to the Boise River basin strategy), and by increasing the initial rate of release in order to front-load a portion of the flow augmentation volume, primarily by holding higher releases following FRM operations.

Both strategies were employed in 2024. FRM releases at Cascade Reservoir began in early April and in mid-May at Deadwood Reservoir. After the risk of flooding had ended, releases for flow augmentation began on June 15 and lasted until August 31. Inflows were sufficient to fill the reservoir system, but refill was deliberately missed to shift the timing of flow augmentation earlier into the spring. Releases at Cascade Reservoir were held higher initially to front-load the flow augmentation volume. The flow rate credited toward flow augmentation water was variable depending upon unregulated tributary runoff and irrigation demands but averaged approximately 1,280 cfs in July and 840 cfs in August. Discharge from Lake Cascade averaged around 1,690 cfs during the flow augmentation period in the Payette River basin, less than the maximum powerhouse capacity of approximately 2,200 cfs.

#### **Upper Snake River Basin**

The strategy for flow augmentation releases in the Upper Snake River basin is to increase flows past Milner Dam advantageous to downstream salmon and steelhead. The 2008 Upper Snake BiOp anticipated that flow augmentation releases can be provided in May or June in most average or lower water years, and by the end of July in most wet years. Flow augmentation releases in 2024 at Milner Dam commenced on June 5 as the forecast indicated FRM releases past Milner Dam had ceased for the season. Flows were ramped up to approximately 3,000 cfs. Shortly after, the forecast changed with significantly higher inflows than anticipated (due to extremely hot temperatures), and FRM releases past Milner became possible again. With that potential, flow augmentation releases were ceased on June 9 after 17,405 acre-feet of flow augmentation had been released. Eventually, from June 14 to June 16, 1,294 acre-feet of FRM spilled past Milner. On June 25, the final threat of Milner spill had passed and releases for flow augmentation resumed. Flows were once again ramped up to approximately 3,000 cfs and remained at that level through July 25, at which point releases transitioned into Idaho Power Company storage releases. A total flow augmentation volume of 189,712 acre-feet was released past Milner during 2024.

Water leased or owned by Idaho Power Company started past Milner Dam on July 25 and ended on August 8, with an average flow rate of 1,460 cfs. The total volume of this water was approximately 43,360 acre-feet and was not counted toward Reclamation's flow augmentation volumes.

#### Mean Monthly Inflows to Brownlee Reservoir

The mean monthly inflows to Brownlee Reservoir from April to August are:1

- April: 33,462 cfs (132 percent of average)
- May: 24,829 cfs (95 percent of average)
- June: 15,528 cfs (71 percent of average)
- July: 11,123 cfs (97 percent of average)
- August: 9,052 cfs (91 percent of average)

#### **November 1 Carryover**

At the end of the 2024 irrigation season (November 1, 2024), the carryover storage into the 2025 season was as follows:

- Upper Snake above Milner Dam: 1,795,464 acre-feet (104 percent of average)
- Boise River system: 369,046 acre-feet (103 percent of average)
- Payette River system: 435,131 acre-feet (92 percent of average)

# **Other Reasonable and Prudent Measures**

In addition to submitting an annual report documenting salmon flow augmentation releases, NOAA Fisheries' incidental take statement contains two other RPMs and associated terms and conditions to ensure that Reclamation implements its salmon flow augmentation program, as described in its Upper Snake Biological Assessment and supporting documents.

<sup>&</sup>lt;sup>1</sup>Information about these data can be found at the website <u>https://www.nwrfc.noaa.gov/runoff/runoff summary.php?date=10/01/2024</u>

### New Contracts for Water Stored in Reclamation Projects

RPM 13.3.1 states:"... Reclamation's salmon flow augmentation program is heavily dependent on annual water rentals from Idaho's water rental pools, which are variable and insecure sources. Due to this variability Reclamation must consult with NOAA Fisheries prior to issuing a new contract that would reduce streamflows or reduce Reclamation's ability to meet salmon flow augmentation commitments, as described in its proposed actions, or whenever Reclamation otherwise determines that listed salmon or steelhead species or critical habitat may be affected."

NOAA Fisheries' intent is to ensure that any contract actions taken by Reclamation result in "an improvement or 'zero net impact' on Snake River flows and on Reclamation's ability to provide up to 487,000 acre-feet for salmon flow augmentation."

Reclamation committed in its March 2009 Decision Document to consult with NOAA Fisheries before entering into new, renewed, or supplemental contracts for storage water, if Reclamation determined that it would affect its ability to provide salmon flow augmentation water as described in the Upper Snake Biological Assessment, or if it determined that listed species or critical habitat (under the jurisdiction of NOAA Fisheries) may be adversely affected.

In the past year, Reclamation has not entered into any new contracts for uncontracted space in any of the reservoirs covered in the Upper Snake BiOp. Further, Reclamation has not entered into any renewed or supplemental contracts for storage water that would result in reduced streamflows or affect Reclamation's ability to meet its salmon flow augmentation commitments.

Reclamation, in partnership with the IWRB, proposes to raise Anderson Ranch Dam 6 feet. This raise would capture and store additional water when it is available. The proposal would create up to an additional 29,145 acre-feet of storage; an analysis of the additional storage and operations to fill this space indicate that Reclamation's flow augmentation deliveries would not be impacted. Formal ESA Section 7 consultation with NOAA Fisheries on the proposed action began November 9, 2020, was stopped to update project designs in March 2021, and will be restarted when updates have been completed.

# Annual Coordination of the Salmon Flow Augmentation Program

RPM 13.3.2 states: "Reclamation must continue to coordinate annually with the Technical Management Team (TMT) and Regional Forum when planning and implementing its annual salmon flow augmentation program" (NOAA Fisheries Service Upper Snake BiOp, page 13-4).

As a member of the TMT, Reclamation continued to coordinate with the TMT and Regional Forum when planning and implementing its 2024 annual salmon flow augmentation program. Reclamation staff regularly attended scheduled meetings and provided estimates and updates of the salmon flow augmentation program acquisitions and delivery.

# Attachment 1: Stipulated Augmentation Rental for Water District 01

November	1		-			n <b>Rental V</b> Forecast 1	Vater Dist 0	)1	
Carryover 1000s af	< 2,450	< 2,920	×911 1 - 5 < 3,450		4,208	< 5,042	< 5,670	> 5,670	
0			0	0	0			185000	
100			0	0	0				
200			0	0	0	150000		185000	
300		)	0	0	0	150000			
400	0	)	0	0	0	150000			
500	0	)	0	0	0	150000	185000	185000	
600	0	)	0	0	60000	150000	185000	185000	
700	0	)	0	0	60000	150000	185000	185000	
800	0	)	0	0	60000	150000	185000	185000	
900	0	)	<mark>0</mark> 600	00	60000	150000	185000	185000	
1,000	0	)	<mark>0</mark> 600	00	60000	150000	185000	185000	
1,100	0	)	<mark>0</mark> 600	00	60000	150000	185000	185000	
1,200	0	)	<mark>0</mark> 600	00	60000	150000	185000	185000	
1,300			<mark>0</mark> 600	00	60000	150000	185000	185000	
1,400			<mark>0</mark> 600	00	60000	150000	185000	185000	
1,500			<mark>0</mark> 1000	00	150000	185000	185000	185000	
1,600	0		<mark>0</mark> 1000	00	150000	185000	185000	185000	
1,700			<mark>0</mark> 1000	00	150000	185000	185000	185000	
1,800			<mark>0</mark> 1000	00	150000	185000	185000	185000	
1,900			<mark>0</mark> 1000		150000				
2,000			<mark>0</mark> 1000		150000	185000		185000	
2,100			<mark>0</mark> 1000		150000				
2,200			<mark>0</mark> 1000		150000				
2,300			<mark>0</mark> 1000		150000				
2,400			<mark>0</mark> 1000		150000				
2,500			<mark>0</mark> 1000		150000				
2,600			<mark>0</mark> 1850		185000				
2,700			<mark>0</mark> 1850		185000	205000			
2,800			0 1850		185000	205000			
2,900			<mark>0</mark> 1850		185000	205000			
3,000					185000				
3,100			-		185000				
3,200					185000				
3,300					185000				
3,400					185000				
3,500					185000			205000	
3,600	100000	10000	<mark>0</mark> 1850	00	185000	205000	205000	205000	

Figure 1. Stipulated Augmentation Rental – Water District 01