

Hells Canyon Operations Recap - 2024



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November 2024

The Snake River and Idaho Power's Hydroelectric System



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Temp/Precip – Seasonally



WestWide Drought Tracker - U Idaho/WRCC Data Source - PRISM (Prelim), created 16 OCT 2024

WestWide Drought Tracker - U Idaho/WRCC Data Source - PRISM (Prelim), created 16 JUL 2024



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Temp/Precip – WY2024





- Temperatures in WY2024 were above normal, across the entire western United States
- +2.1°F for the Snake River above Hells Canyon

- Precipitation in WY2024 was above normal in Southern Idaho and below normal in Central and Northern Idaho
- 101% of normal for the Snake River above Hells Canyon

End of 2023 Irrigation Season Reservoir Storage

- Above normal carryover at the end of the 2023 irrigation season (Nov. 1, 2023)
 - Upper Snake = 113% of normal
 - Boise = 135% of normal
 - Payette = 101% of normal
 - 11 major reservoirs above Brownlee = 118% of normal



Snowpack Distribution

- Typical peak snowpack around April 1
- Above normal snowpack south of the Snake River, and normal to below normal snowpack north of the Snake River



Winter 2024 Snowpack



Aggregated above Brownlee, the 2024 snowpack was not nearly as strong as the 2023 snowpack

Snowpack in 2024 was below normal until March, and melted earlier than 2023 as the weather turned dry

Spring Runoff and Flood Control



Star Falls/Cauldron Linn – 12,000 cfs – 5/5/2024

Reservoir Storage

- High reservoir storage through the winter and spring
- Near maximum levels of storage from mid-March through late June, resulting in flood control releases
- Warm and dry conditions resulted in above normal summer draft to meet irrigation demands

Daily Hells Canyon Upstream Storage



Managed Aquifer Recharge

- Typical winter recharge diversions November 2023 through early March 2024
- Flood control releases made additional water available for recharge beginning in mid-March
- Recharge diversions peaked at approximately 4,000 cfs in early April
- Recharge diversions declined as irrigation deliveries began, and ceased late May
- Total 2024 IWRB recharge volume = 370,000 acre-feet natural flow and 91,000 acre-feet storage
- 10-year average is 250,000 acre-feet, matching the goal set in CAMP

IWRB Natural Flow Recharge - 2023/2024 Season



Brownlee Inflow - WY2024

Daily Hells Canyon Brownlee Average Inflow



- Inflows to Brownlee were near record minimums through the winter (November – mid-January)
- Inflows increased through early April, and peaked at nearly 40,000 cfs
- Inflows dropped off quicker than in 2023 due to the weaker snowpack and dry spring
- Flow Augmentation releases improved inflows in July
- Inflows reached a minimum in mid-August at approximately 7,800 cfs
- Generally, inflows in the fall were lower than in 2023 due to strong irrigation demand

Brownlee Reservoir Inflow Volume

In Thousands of Acre-Feet



2024 HCC Operations



Brownlee Headwater

- Brownlee Inflow

- Hells Canyon Outflow

WY 2024 Max/Min Outflows





WY 2024 Recap

- Good reservoir carryover combined with near-normal snowpack created conditions for flood control releases from the Upper Snake, Boise, and Payette systems.
- Outside of the spring runoff/flood-control season, baseflows into Brownlee Reservoir continued to exhibit below normal conditions
 - These flows make up the bulk of Brownlee inflows in the summer months
 - Brownlee inflows were below normal in the summer, necessitating the flexibility to reduce minimum flows to 6,500 cfs below Hells Canyon Dam
- Delayed delivery of flow augmentation helped boost flows through the Snake River, from Milner through Hells Canyon, into the hotter summer months
- Normal fall Chinook operations underway (8,500 cfs)

Nov 1 Reservoir Carryover



Reservoir Carryover



- 45 % 2024-11-03 00:00:00 (UTC-0-7:00) Percent of Average 107 % 2024-11-03 00:00:00 (UTC-0-7:00)
 - storage than this time last year, but still higher than average.

Soil Moisture

AVG. SOIL MOISTURE (8",20") IN UPPER SNAKE



CPC 3 Month





La Niña Watch

- Recent La Niña Winters
 - 2012, 2018,2021, 2022



WY2025 Outlook

- Normal operations for Fall Chinook currently underway (8,500 cfs)
- Winter flows at Milner December to mid-February (200 cfs)
 - Still a lower volume passing Milner than historically occurred prior to large scale aquifer recharge
- Normal reservoir carryover going into WY 2025
 - Could provide earlier and higher flood risk management releases, and Brownlee inflow, as compared to prior years, but highly snowpack dependent
- Very dry soils across the basin
 - Looking for fall rain to boost soil moisture ahead of freezing winter conditions.
- Possible La Niña conditions this winter
- Summer inflows still rely primarily on the aquifer hoping for more improvement



WY 2024 Idaho Collaborative Cloud Seeding Program

Central Mountains

- 32 IPC Remote Ground Generators
- 7 IPC Liquid Propane Generators
- 2 Aircraft

Upper Snake

- 25 IPC Remote Ground Generators
- 1 Aircraft
- 25 Let It Snow Manual Ground Generators

Across the Program

- High Resolution WRF
 Weather Model
- WRF-WxMod Module
- High Resolution weather instrumentation





Cloud Seeding at IPC

Program Modeled Average Additional Runoff (Natural flow)

- Payette 223 KAF
- Boise 273 KAF
- Wood 112 KAF
- Upper Snake 632 KAF
 - Abv Palisades 464 KAF
 - Henry's Fork 168 KAF

• Total – 1,240 KAF

2024 CJ Strike Operations

- Strategically optimized CJ Strike
 - Helps keep power costs down
 - Helps maintain system reliability
 - Response to variable energy resources
- Headwater fluctuated up to 1.5 ft for short periods (hours)
- Dependent on water conditions



Contact Information



An IDACORP Company



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