

**Dworshak Board
2021 Operational Plan
for the use of the
Nez Perce Tribe’s 200 KAF of Stored Water
in Dworshak Reservoir**

1. Background

This draft 2021 Operational Plan (2021 Plan) for the Nez Perce Tribe’s (Tribe) use of 200 thousand acre feet (KAF) of water stored in Dworshak Reservoir is based on the Agreement between the United States, through the Army Corps of Engineers (Corps), and the Tribe for water use in Dworshak Reservoir and that Agreement’s underlying Memorandum of Agreement (MOA) between the Tribe, Corps, National Oceanic and Atmospheric Administration National Marine Fisheries Service, Bonneville Power Administration and the State of Idaho (Parties)¹. The Parties have designated representatives to fulfill the purposes of the MOA, and the Board, through the consensus of its representatives, has developed this draft 2021 Plan to describe the pre-season intended operation under the assumption that pending environmental conditions and actual operations will be consistent with an August 31 pool elevation of 1,535 feet, or lower if mutually agreed to by the Tribe and Corps. The 2021 Plan will be finalized in August when actual in-season conditions are known. All recitals, terms and conditions of the Agreement and the MOA are understood as describing and applying to this 2021 Plan.

2. Considerations

Extreme low flows and high temperatures occurring in 2021 triggered an early start to Dworshak flow augmentation (June 22). In addition, multiple in-season changes to system operations (SORs 2021- 3,4, and 5) have been taken to maximize the efficiency of the Dworshak flow augmentation and to extend its availability. This 2021 Plan is based on consideration of the following factors.

a. Projected summer (July through September) water temperature and flow conditions for the Snake River at Lower Granite Dam.

According to the Corps most recent temperature monitoring and modeling information (August 17) forecasted water temperatures in the Snake River in the Lower Granite Dam tailwater will likely remain below 68.0°F though at least August 27, 2021. Between the dates of June 22 through August 17, water temperature in the Lower Granite Dam tailrace averaged 67.8°F and ranged from 64.5 to 72.0°F. Actions to extend the availability of Dworshak flow augmentation releases (SOR 2021-5) included a water temperature

¹ The Agreement stems from the document titled “Mediators Term Sheet” dated April 20, 2004 and included in the Snake River Water Rights Act of 2004 (Public Law 109-447 Title X)

criteria adjustment to allow elevated not to exceed 69.5°F during a portion of late July and early August.

The April through August flow conditions at Lower Granite Dam, based on the Northwest River Forecast Center's (NWRFC) water supply forecast dated July 28, are low. According to the forecast, the Lower Granite Dam water supply volume forecast was 14 MAF, which is 66% of the average 21 MAF. Forecasted runoff for August and September is predicted to remain below average.

Dworshak Dam summer operations through August 31, are described in greater detail in the Corps, U.S. Bureau of Reclamation (Reclamation), and Bonneville Power Administration (collectively referred to as the "Action Agencies"), January 2020, document titled, "Biological Assessment (BA) of Effects of the Operations and Maintenance of the Federal Columbia River System on ESA-Listed Species" (2020 BA) (Reference Page, 2-28). Additionally, Dworshak Dam summer operations are also discussed in the July 24, 2020, document titled, "Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion (BiOp) and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response Continued Operation and Maintenance of the Columbia River System" (2020 BiOp) (Reference Page, 52).

Dworshak Dam is operated in the summer for the gradual evacuation of water through a combination of temperature objectives to avoid Lower Granite Dam tailwater temperatures exceeding 68° F (with periods up to 69.5 per SOR 2021-5) and reach an elevation no lower than 1,535 feet (1,534 per SOR 2021-4) by August 31, and elevation 1,520 feet (1,518 per SOR 2021-4) by September 30, unless modified per the agreement between the United States and the Nez Perce Tribe for water use in the Dworshak Reservoir. Additionally, releases of cool water from Dworshak Dam reduce summer temperatures and drafting of the reservoir improves flows in the lower Snake River, improving conditions for migrating smolts, juveniles rearing in the reservoirs, and adult migrants (2020 BiOp, see pages 571, 574, and 636).

b. Juvenile fall Chinook and lamprey rearing in the Clearwater River.

Data indicate that Clearwater juvenile fall Chinook rear in the lower Clearwater River from February through September, and possibly later. These data indicate that considerable numbers of fall Chinook juveniles continue to rear in the lower Clearwater River on July 1, when Dworshak summer operations typically begin.

Data on lamprey ammocoete distribution and abundance in the mainstem Clearwater River is limited, but does confirm presence of juvenile lamprey during summer months. Ammocoete rearing occurs in sandy littoral habitat and could be impacted by abrupt flow reductions.

c. Migration status of juvenile fall Chinook in the Clearwater and Snake Rivers.

Clearwater River-origin juvenile fall Chinook, and to a lesser extent Snake River-origin juvenile fall Chinook, tend to over-winter in the lower Snake River reservoirs and migrate as yearlings the following spring. September releases from Dworshak Reservoir cool the lower Snake River and aid both actively migrating subyearlings and those that over-winter in the reservoirs.

d. Cultural resources in and around Dworshak Reservoir.

Numerous documented impacts occur to important cultural resources in and around Dworshak Reservoir as a result of summer project operations. Additionally, exposure of these sites can result in vandalism. Reserving up to 200 KAF for release during September contributes to a higher reservoir elevation during the peak recreational months of July and August.

e. Summer recreational uses of Dworshak Reservoir.

Reserving up to 200 KAF for release during September contributes to a higher reservoir elevation during the peak recreational month of July. A higher reservoir elevation in July is viewed by recreational users as desirable.

f. Thermal refuge for adult Snake River salmon and steelhead.

Adult salmon generally behave and function normally at water temperatures less than 20° C (68° F). The Snake River upstream of its confluence with the Clearwater River typically exceeds 20°C from early-July through mid-September, then declines to ~13° C (56° F) by mid-October. As such, the Clearwater River can function as thermal refugia for salmon and steelhead as they migrate to spawning areas in the Snake River basin upstream of Lewiston, Idaho.

g. Nez Perce Tribal Hatchery Water Supply.

Holding of adult spring and fall Chinook broodstock, reconditioned steelhead kelts, and adult lamprey at Nez Perce Tribal Hatchery utilizes river water. Rapid changes in river water temperature and/flows can impact hatchery production (including prespawn mortality). The gradual decrease in Dworshak discharges and temperatures minimizes adverse temperature impacts on fish in the hatchery.

3. Timing of Stored Water Releases.

The operational strategy, typically beginning on or about August 31, is to have gradually decreasing outflows with incremental steps of no less than 2 days duration to achieve an elevation of 1,520 feet no later than September 30. The gradual step-down of Dworshak discharges during September is intended to gradually adjust water temperatures in the lower Clearwater River. Routine Doble testing constrains flow ramp down two out of three years (Figure 1); full range of flexibility available in 2021. Additionally, a gradual ramp down of flows may decrease potential stranding of Pacific lamprey ammocoetes

(larvae) that rear by burrowing into shallow habitat near the river banks. Dworshak Dam discharges outlined in this plan are based on releasing the 200 KAF of water between elevation 1535 feet and 1520 feet. If actions are taken to draft pool elevation lower than 1,535 feet on September 1, recalculation of the ending flow augmentation elevation would occur to ensure the full 200 KAF is supplied (Table 1). During the release of the 200 KAF, upon approval of the Board, the release rates may be adjusted due to abnormal temperatures.

Table 1. Starting and ending Dworshak pool elevation ranges associated with 200 KAF release and associated probability of reaching full pool (refill; 1600 feet).

31 Aug Elevation [ft]	30 Sept Elevation [ft]	% Chance of Refill By 1 July	% Chance of Refill By 25 June	% Chance of Refill By 20 June
1,535	1,520	95.5%	95.5%	95.0%
1,534	1,519	95.0%	95.0%	95.0%
1,533	1,517	95.0%	95.0%	94.5%
1,532	1,516	95.0%	95.0%	94.5%
1,531	1,515	95.0%	94.5%	94.0%
1,530	1,514	94.5%	94.5%	94.0%
1,529	1,513	94.5%	94.0%	94.0%
1,528	1,512	94.0%	94.0%	93.5%
1,527	1,511	94.0%	94.0%	93.5%
1,526	1,510	94.0%	93.5%	93.0%
1,525	1,509	93.5%	93.5%	93.0%
1,524	1,508	93.5%	93.0%	92.5%
1,523	1,507	93.0%	93.0%	92.5%
1,522	1,506	93.0%	92.5%	92.0%
1,521	1,504	92.5%	92.5%	92.0%
1,520	1,503	92.5%	92.0%	91.5%
1,519	1,502	92.0%	91.5%	91.5%

- SRBA's 200 KAF is drafted between the end of August elevation and the end of September elevation.
- % Chance of refill is rounded down to the nearest 0.5%

The timing of stored water release will be based on the River Forecast Center’s mid-August Single Trace Procedure (STP) model run. If the actual inflows are different than those modeled, timing of stored releases in this document may have to be revised.

Based on the above considerations, the following is the Board’s 2021 operational plan (Figure 1 top graph).

- A. On or about August 31, Dworshak will be drafted to approximately elevation 1,535 feet and discharge is expected to be about 8 kcfs.
- B. Starting September 1 reduce discharge to approximately 7 kcfs, then gradually reducing discharges down to ~1.6kcfs by September ~30. Discharges will be adjusted to achieve objectives C, D, E, and F below. All units will operate in undershot mode to achieve water temperature near 46° F.
- C. Target Lower Granite Dam tailwater temperatures not to exceed 68° F. The discharge water temperature from Dworshak is expected to be in the range of 46 to 48° F.

D. Target Lower Granite Dam adult trap temperature not to exceed 70° F. Water for the adult trap is pulled from ~20 m depth in the Lower Granite forebay.

E. Target Clearwater River at Spalding daily average water temperatures not to exceed 56° F. The discharge water temperature is expected to be in the range of 46 to 48° F.

F. Target Clearwater River at Peck and Spalding daily average water temperature change of no more than 1° F. The discharge water temperature is expected to be in the range of 46 to 48° F.

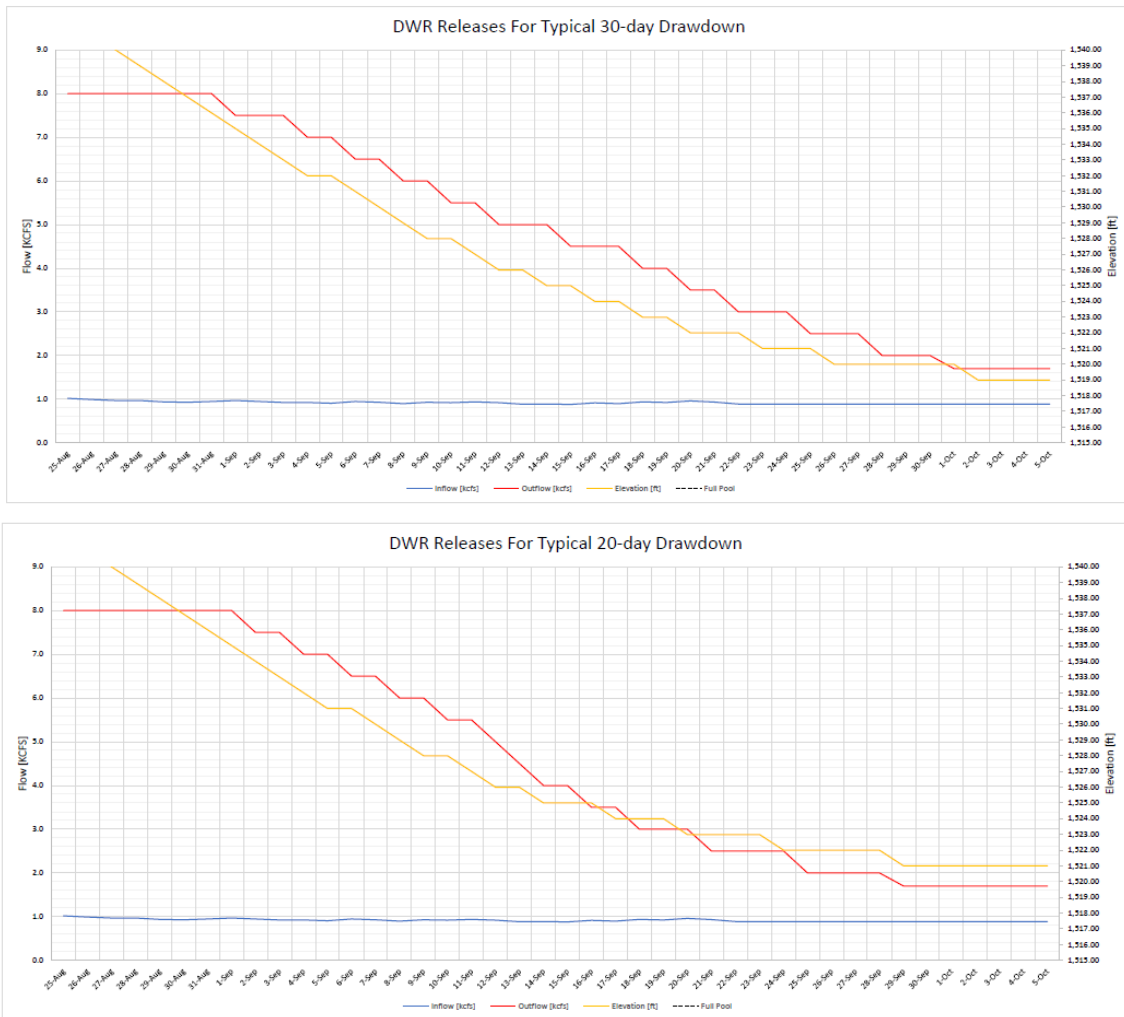


Figure 1. Dworshak Dam operations for years without Doble testing constraints (top graph), and for years with Doble testing constraints (bottom graph).

4. Implementation

The Board directs that this 2021 Plan be implemented consistent with the Agreement and the MOA. The Tribe will call on the Corps pursuant to the Agreement to provide water releases as set forth in this 2021 Plan. The Tribe's representative to the Board, as the Board's chairman, will also notify other Columbia River Basin salmon managers of the 2021 Plan pursuant to the MOA. Any Party may call for the Board to reconvene after the adoption of the Plan for the purpose of amending the Plan due to substantially changed conditions. The Board may only amend the Plan by the unanimous written consent of the Parties.