

SYSTEM OPERATIONAL REQUEST: #2026-2
Walla Walla District

FROM: Trevor Conder, NOAA Fisheries

DATE: June 29, 2026

SUBJECT: Water Management proposal for the Lower Snake River during the first half of the 2026 Snake River sockeye migration

SPECIFICATIONS: From July 1 – 12, target a maximum Lower Granite Dam (LWG) tailrace temperature of 66 °F. Do not exceed 10 kcfs of Dworshak (DWR) outflow unless necessary to meet the original 68 °F in the LWG tailrace¹. From July 13-22, target a maximum LWG tailrace temperature of 68 °F. From July 23 – August 10, allow the LWG tailrace temperature to exceed 68°F up to 69.5°F if necessary to achieve the end of month DWR elevation threshold (1535 ft). From August 11-14, transition back to a maximum LWG tailrace temperature of 68 °F to facilitate adult passage and fall Chinook broodstock collection on August 18².

JUSTIFICATION: Available information suggests that releasing a higher volume of cooler water and targeting 66 °F during the peak of the sockeye migration can arguably improve conversion rates, improve egg quality, and potentially increase trapping success of Snake River sockeye adult migrants. Sockeye salmon have a relatively low temperature tolerance and survival declines dramatically when exposed to temperatures above 68 °F (Figure 2). The current strategy of targeting 68 °F at LWG during the summer migration period has resulted in conditions in the lower Snake River (below LWG) that are too warm and inconducive to sockeye passage in some years. While 68 °F at LWG is sufficient for project passage, this water warms as it moves it down the lower Snake River and, in some years, is too warm (>71°F) for effective passage in the lower Snake River. Providing cooler water during the beginning-to-peak of the migration is expected to improve survival and trapping success which is expected to occur in early July.

Ladder cooling structures are important in reducing ladder temperatures and ladder temperature differentials during the summer migration period. Currently, permanent ladder cooling has been installed at LWG and Little Goose Dam (LGS) and testing of a bubbler system is occurring at Lower Monumental Dam (LMN). Design phase of permanent systems is in development, and testing of bubbler systems at Ice Harbor Dam (IHR), and John Day Dam (JDA) are expected to

¹ Flows from DWR on July 1 to meet this target are currently expected to be 6-7 kcfs but may change as forecasts are updated (Figure 1).

² 2026 water supply forecast and Snake River basin stream flows are currently low, reducing the effective volume of DWR cooling releases and increasing risk of elevated water temperatures. Achieving target tailrace temperatures may not be possible with or without operations modified by this SOR. The effect of this SOR on water temperature exceedances, relative to base operations, may be modeled in-season and will be analyzed post-season.

begin by July 20th of this year (Tim Dykstra, pers comm. June 29, 2026). We expect a schedule for the implementation of permanent systems following bubbler testing.

Snowpack above DWR and flow into DWR are low in 2026. There is currently a moderate to high probability that 68 °F can't be maintained for the entire summer at LWG to meet the 1535 ft elevation on August 31. There is concern that going above 68 °F from July 23 – August 10 can have temperature related impacts to Snake River fall Chinook salmon and Snake River Basin steelhead. When 68 °F³ has been exceeded in July and August at LWG in the past, these impacts have not resulted in substantial observable reductions in conversion rates for these species. Since 2015, average conversion of Snake River fall Chinook from IHR to LWG has ranged from 96-99% and has averaged 97.2% (Figure 3). During the same period, Snake River steelhead conversion averaged 96.1% (range 94-98%). During the same period, the average conversion of Snake River sockeye salmon has ranged from 43-97% and averaged 78.7% (5 out of 20 years below 90%). The majority of fall Chinook and steelhead migrate outside of this period, and they are more resilient to high temperatures than sockeye salmon.

A similar SOR operation occurred in 2025 with 10 kcfs of DWR released in early July. Despite exceeding 68 °F for brief periods in late July, fall Chinook conversion was 97%. While it is difficult to disentangle the impacts from concurrent weather systems and flow operations, the Corps modelers reported in 2025 that the “SOR delayed tailwater temperature increases at IHR while supporting cooler stratification in the forebay. Temperature data show that IHR tailwater temperatures remained below the expected minimums”. In 2025, sockeye conversion in the lower Snake River was 88% and no PIT tagged sockeye were detected at Mid-C projects. The FPC analyzed conversion in 2025 and concluded “Conversion rates and travel times of PIT-tagged sockeye, summer and fall Chinook and summer steelhead between Ice Harbor and Lower Granite for 2025 were similar to previous years. Summer and fall Chinook and summer steelhead continue to convert at very high rates through the Lower Snake River, regardless of flows or operational conditions.” (FPC Summer Migration report 2025).

This system operation request is only intended for migration year 2026. NOAA commits to an off-season work group with the goal of a holistic review and exploration of robust long-term strategies and evaluations that address temperature related impacts to sockeye and to all other Snake River salmon and steelhead populations. It is important to manage the available water for all species given their ability to adjust to higher temperatures. If there is clear evidence that temperature related impacts to SR fall Chinook and SR steelhead occurred as a direct result of this operation, acknowledgment and future strategies to accommodate impacts will be considered.

³ A temperature upper bound of 69.5F tailrace target has been used in the past at Lower Granite Dam when water availability and/or dam operations would not support a 68F criteria. This elevated temperature criteria intends to balance available water with impacts to fall Chinook and steelhead.

Tentative SOR 66 deg F temperature target
Increase DWR outflow from ~3.2 kcfs to 7
kcfs starting Monday evening, June 29th

Water Temperature Analysis **Model from 06/15/26 to 07/05/26** **Observed Data to 06/25/26**

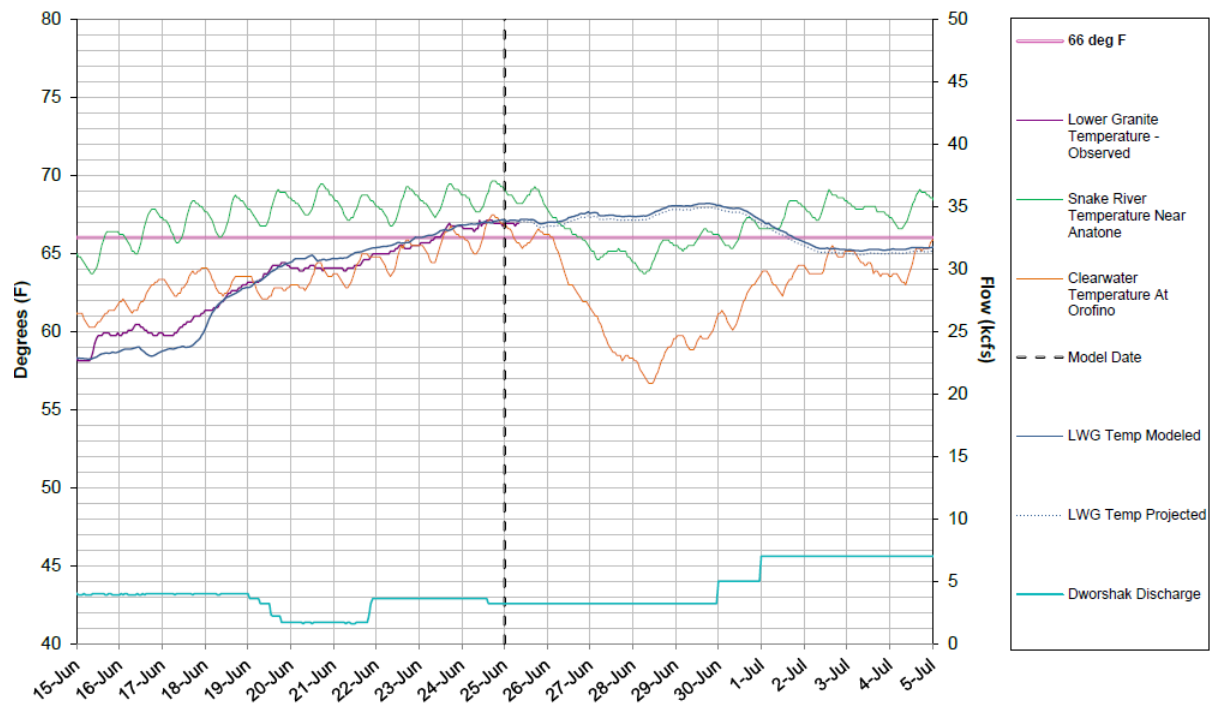


Figure 1. Current prediction of flows necessary to meet 66F at Lower Granite Dam.

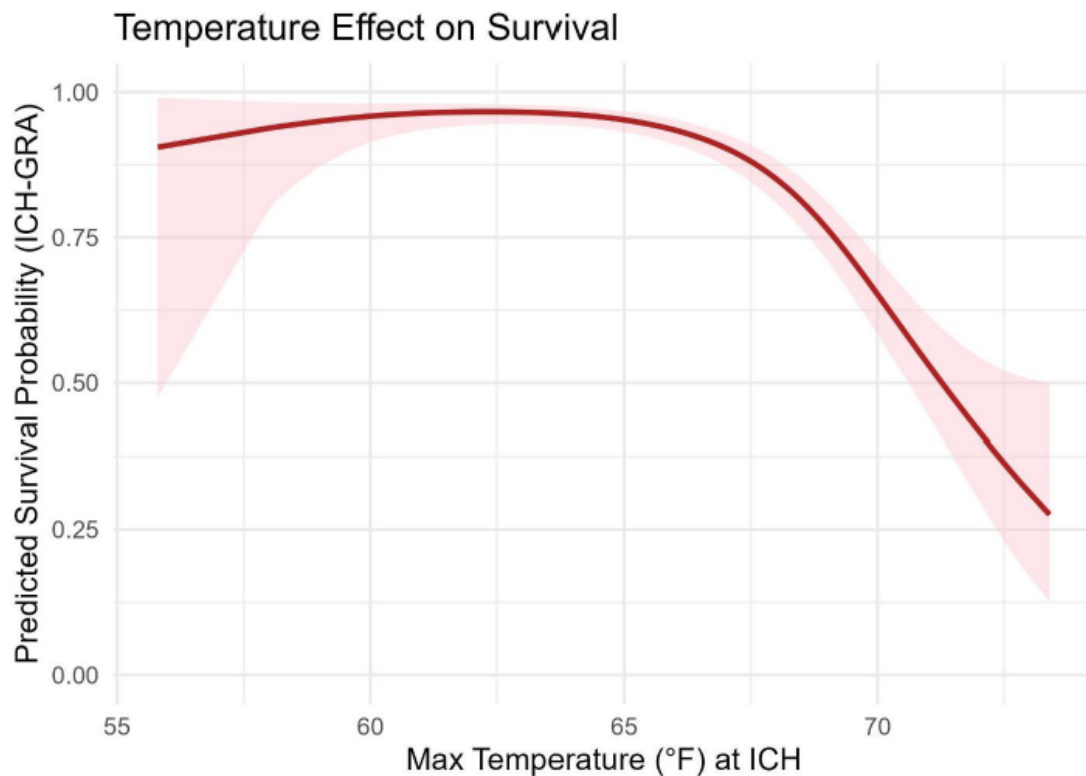


Figure 4. Relationship between survival probability from Ice Harbor and Lower Granite dam and Temperature when passing Bonneville dam

Figure 2. Modeled temperature response of Snake River Sockeye to temperature exposure in the Columbia and Snake Rivers (FPC 2025).

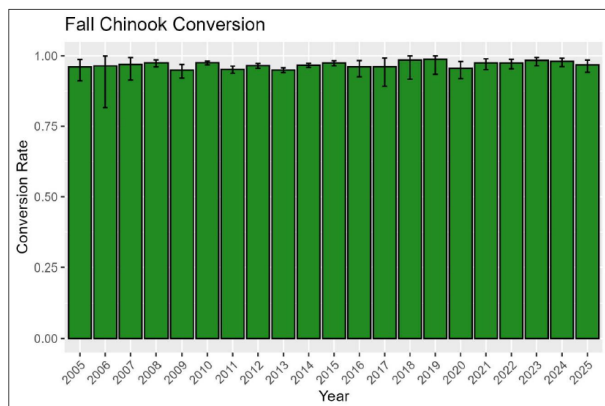


Figure 6.3. Fall Chinook adult PIT-tag conversion rates (IHR-LGR) and 95% confidence intervals, 2005-2025.

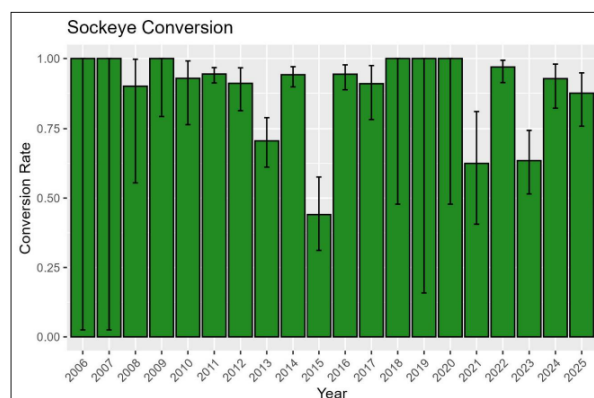


Figure 6.11. Sockeye PIT-tag conversion rates (IHR-LGR) and 95% confidence interval, 2006-2025.

Figure 3-4. Snake River fall Chinook and sockeye conversion from IHR to LWG dams. (FPC Summer Migration report 2025).