

**OFFICIAL COORDINATION REQUEST FOR
NON-ROUTINE OPERATIONS AND MAINTENANCE**

COORDINATION TITLE- 21 LGS 10 Spill Pattern Adjustments for Low Flow

COORDINATION DATE- July 22, 2021

PROJECT- Lower Granite Dam

RESPONSE DATE- July 26, 2021

Description of the problem

Snake River flow at Lower Granite Dam have averaged 58% of the 10-year average in 2021. With anticipated closure of the removable spillway weir (RSW) over the weekend of 24-25 July, spill (anticipated to be ≤ 10 kcfs) will revert to a uniform pattern with mostly single stops across spill bays. A uniform pattern is preferred because it reduces formation of eddys in the tailrace that could affect adult fish passage. But spill through bays with one-stop openings increase risk of injury to juvenile fish passing the dam through the spillway. This MOC is to consider consolidating spill to reduce the number of bays with one-stop opening while still retaining the intent of uniform spill. See original and modified Table LWG-8 below.

Original:

Table LWG-8. Lower Granite Dam Spill Patterns with No RSW (Bay 1 Closed).^{a, b}

LWG Spill Patterns with No RSW - # Gate Stops per Spillbay								Total Stops (#)	Spill (kcfs)
Bay 1	Bay 2	Bay 3	Bay 4	Bay 5	Bay 6	Bay 7	Bay 8		
CLOSE							1	1	1.7
CLOSE	1						1	2	3.4
CLOSE	1			1			1	3	5.1
CLOSE	1			1		1	1	4	6.8
CLOSE	1	1		1		1	1	5	8.5
CLOSE	1	1		1		1	2	6	10.3
CLOSE	2	1		1		1	2	7	12.1
CLOSE	2	1		1	1	1	2	8	13.7
CLOSE	2	1	1	1	1	1	2	9	15.4
CLOSE	2	1	1	2	1	1	2	10	17.2
CLOSE	2	1	1	2	1	2	2	11	19.0
CLOSE	2	2	1	2	1	2	2	12	20.8
CLOSE	2	2	1	2	2	2	2	13	22.6
CLOSE	2	2	2	2	2	2	2	14	24.5

Modified pattern:

Bay 1	Bay 2	Bay 3	Bay 4	Bay 5	Bay 6	Bay 7	Bay 8	Total Stops	Spill (kcfs)
Close							1	1	1.7
Close	1						1	2	3.4
Close	1						2	3	5.1
Close	2						2	4	6.8
Close	2			1			2	5	8.5
Close	2			2			2	6	10.3
Close	2			2		1	2	7	12.1

Type of outage required- No outage required

Impact on facility operation- Modify spill pattern as above

Impact on unit priority- None

Impact on forebay/tailwater operation- None

Impact on spill- Modification of spill pattern with no change to spill volume.

Dates of impacts/repairs- July 26 to August 31

Length of time for repairs- NA

Analysis of potential impacts to fish

1. Ten-year average adult fish counts at lower Granite Dam for July 26-August 31 are 3,147 (3.2% of annual total) Chinook salmon, 5,001 (4.8%) steelhead, 133 (16.6%) sockeye salmon and <1 coho salmon.

Smolt index values for Lower Granite Dam in 2020 for July 26-August 31 were 27,570 sub-yearling Chinook salmon (4.7% of annual total), 3 yearling Chinook salmon, 21 steelhead, 2 sockeye salmon and 12 coho salmon. Combined, these values represent 0.8% of annual total for smolt index at Lower Granite Dam.

2. Chinook salmon counts at Lower Granite Dam for 2021 have been 56% of the 10-year average. Steelhead so far have been 18% of the 10-year average. Sockeye salmon counts are 93% of the 10-year average. Coho salmon are expected to be below the 10-year average.
3. Modifying the spill pattern is expected to benefit juvenile smolt passage by reducing risk of injury by passing through spill bays with larger openings. Maintaining uniform spill pattern should minimize formation of eddy currents that may negatively impact adult fish, including bull trout and lamprey, passage. However, if we observe count and PIT conversion rates between Little Goose and Lower Granite dams drop noticeably (e.g. 10% lower on three consecutive days) compared to the 10-year average conversions, spill will be returned to original pattern in Table LWG-8.

Summary statement - expected impacts on:

Downstream migrants- No impact

Upstream migrants (including Bull Trout)- Minimal impact is expected.

Lamprey- Minimal impact.

Comments from agencies

Final coordination results

After Action update (After action statement stating what the effect of the action was on listed species. This statement could simply state that the MOC analysis was correct and the action went as expected, or it could explain how the actual action changed the expected effect (e.g., you didn't need to close that AWS valve after all, so there was no impact of the action). List any actual mortality noted as a result of the action)

Please email or call with questions or concerns.

Thank you,

Chris

Chris Peery

NWW Operations Division

Christopher.a.peery@usace.army.mil