

OFFICIAL COORDINATION REQUEST FOR NON-ROUTINE OPERATIONS AND MAINTENANCE

COORDINATION TITLE- 22 IHR 15 – Unit 2 special generator testing

COORDINATION DATE- December 2, 2021

PROJECT- Ice Harbor Dam

RESPONSE DATE- December 16, 2021

Description of the problem – Special generator testing was attempted on unit 2 after the runner replacement was completed in 2018. However, the testing could not be completed because the exciter relays could not support the testing. The relays are currently being replaced and testing for unit 2 is scheduled to occur after unit 3 is returned to service, June 2022. The testing will require unit 1 to be run at 5-10 megawatts to power unit 2. Unit 2 will usually be run at speed-no-load during the tests. Both units will technically be out of service for three weeks, to include 1 week for the equipment setup, one week to conduct the testing, and one week for equipment breakdown. The duration of the tests will range from 15 minute to several-hour increments per day, up to 22 hours of continuous testing per day. Units 1 and 2 will be idle between test periods and unit 3 will become the priority unit. Due to contractor availability, test must occur July 18 to August 5. Testing will occur six or seven days during the testing week.

Type of outage required

Impact on facility operation (FPP deviations)

Unit 1 and 2 will be out of service with priority shifting to unit 3. During the tests, units 1 and 2 will be run below the 1% operating efficiency range.

Impact on unit priority

Unit 3 will be the priority unit, followed by unit 6, 4, then 5.

Impact on forebay/tailwater operation

There should be no impact on forebay/tailwater elevations.

Impact on spill

There is not expected to be any increase in spill resulting from units 1 and 2 being out of service unless river flows are higher than normal for that time of year.

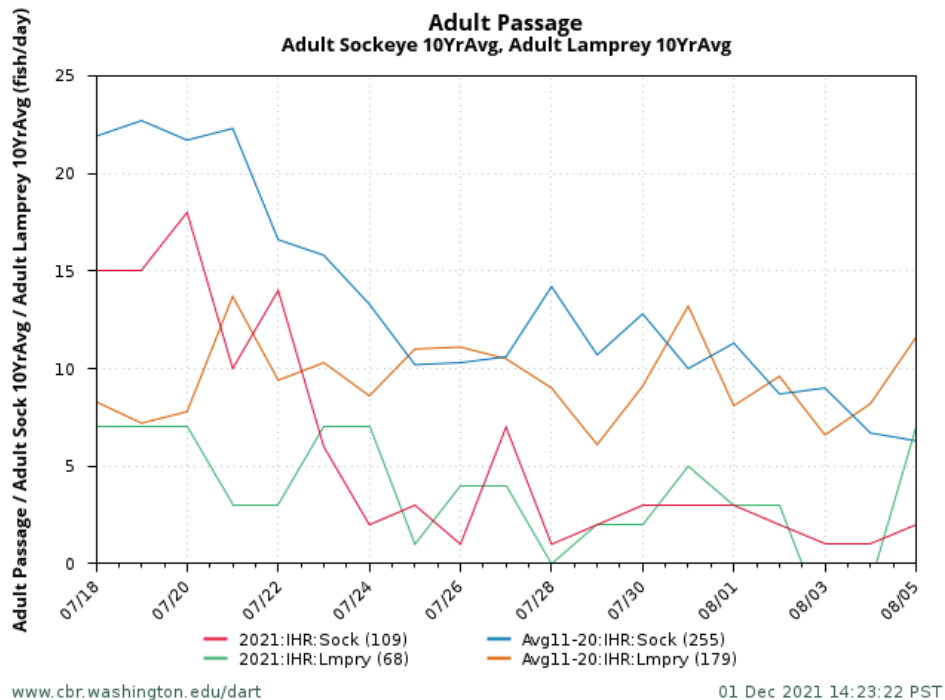
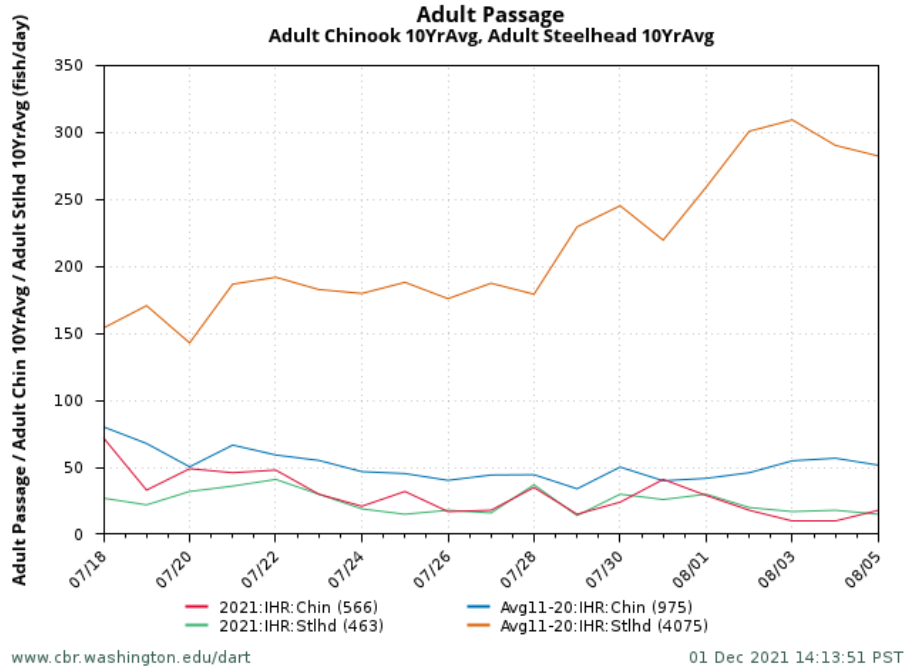
Dates of impacts/repairs

Unit 3 will provide station service for the dam while units 1 and 2 are out of service. Unit 3 runner replacement is scheduled to be completed in June of 2022, so the special generator testing and equipment setup/breakdown would occur from July 18 to August 5, 2022. The contractor's test engineers are already booked up for later in the month of August. Unit 1 is being used to power unit 2 before unit 1 is upgraded, in case there is any electrical damage sustained by unit 1 during the testing.

Length of time for equipment setup/breakdown and testing
 Three weeks; July 18 to August 5, 2022.

Analysis of potential impacts to fish

1. 10-year average passage by run during the period of impact for adults and juvenile listed species, as appropriate for the proposed action and time of year;



As shown in the graphs above, total adult fish passage at the dam (past the count windows) is relatively low during the proposed work period. Steelhead numbers usually slowly start to rise in August. Sockeye numbers usually start declining in the middle of July. Lamprey are passing during the proposed period, with an average of 13 or fewer lamprey counted per day. The 10-year average total of bull trout counted during that period is 0 fish.

Juvenile fish passage is low in July and August, with subyearling fall chinook being the predominate species group present.

2. Statement about the current year's run (e.g., higher or lower than 10-year average);

Official fish run size forecasts for 2022 have not been released yet by Washington Department of Fish and Wildlife.

3. Estimated exposure to impact by species and age class (i.e., number or percentage of run exposed to an impact by the action);

The percentage of the 10-year average of adult fish passing (April 1 to October 31) exposed to the action would be 0.9% of chinook, 4.2% of steelhead, 24.9% of sockeye, and 28.3% of lamprey.

The percentages of the juvenile fish runs exposed will be small. Most juvenile fish are diverted away from the turbines by the submersible traveling screens, and go into the juvenile fish bypass, so they would not be subjected to the turbine environment of units 1 and 2 operating below the 1% operating efficiency range during the testing.

4. Type of impact by species and age class (increased delay, exposure to predation, exposure to a route of higher injury/mortality rate, exposure to higher TDG, etc.);

Adult fish may be delayed at finding the south shore entrance into the south fish ladder with no attraction flow or reduced attraction flow coming from unit 1. However, analysis of adult steelhead and chinook passage data from 2005 to 2013 indicates that there is no significant difference in their passage at the south fish ladder with either unit 1 or unit 3 operating singly (Trumbo et al, 2014¹). If unit 6 is also operating, there will be additional attraction flow at the north powerhouse entrance into the south fish ladder.

Summary statement - expected impacts on:

Downstream migrants

There will be negligible impacts on downstream migrants.

Upstream migrants (including Bull Trout)

¹ Trumbo, B. 2014. Ice Harbor test turbine fixed blade runner installation considerations for adult salmonid passage. USACE, Walla Walla District, Walla Walla, WA.

Adult fish may be delayed at finding the south shore entrance although analysis indicates no significant impact is expected on migrating adult steelhead and Chinook salmon.

Lamprey

Adult lamprey may be delayed in finding the south shore entrance.

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,

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