

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

**COORDINATION TITLE** -17 LWG 05 Unit 2 Return to Service Index Testing, Update

**COORDINATION DATE** - 14 April 2017

**PROJECT**- CENWW-ODL - Lower Granite Dam

**RESPONSE DATE** - 28 April 2017

**Description of the problem-** Unit 2 was removed from service due to failed blades packing sleeve 21 December 2016. The magnitude of failure required unit 2 blade position to be fixed for operation. Modified blade seals in the failed blade packing box and hydraulically lock of the unit at a 29 degree angle (See MOC 17LWG01) has been completed. Unit 2 was returned to service at 1455 hours 13 April 17 and is operating under the same restrictions as unit 1 due to the fixed runner blades. Testing of unit 2 hydraulically locked fixed blades still needs to be performed. ~~The soonest available date for testing with both BPA/Peak RC and HDC on site is 10 May~~ have requested 20 June 17 for this testing from 0730-1700 hours. The process is expected to take about three hours with the unit out of service for equipment setup and removal and about three hours of actual testing with the unit operated periodically outside 1% peak efficiency operation. We are requesting they schedule testing for afternoon hours on 20 June.

**Type of outage required-** Unit 2 will be out of service for about 2 hours for testing equipment setup and about 1 hours following testing for equipment removal. In the unlikely event testing indicates the blades need to be adjusted and re-fixed a second day of testing may be required.

**Impact on facility operation** (FPP deviations)- Unit 2 will be operated outside the 1% peak efficiency operating range for about 3 hours to test the unit at the high end of its operating range.

**Impact on unit priority-** Unit 2 returning to service with fixed blades will require modification of Lower Granite unit priority order. Unit 2 will be restricted to operate at the upper 1% range at about 17.8-18.4 kcfs (125-129 MW) at 100 ft. of head as described in FPP LWG Table-6. Following unit 1 return to service 14 July 2017, unit priority order starts will need to be changed to unit 1, unit 3, then units 4-6 any order, and then unit 2. Stops will need to be changed to units 4-6 any order, then unit 3, unit 2, and unit 1 (see FPP Change Request Form).

**Impact on forebay/tailwater operation-** Changes in tailwater conditions are expected with the change in unit operating priority. However, with spring flows the impacts are expected to minimal.

**Impact on spill-** The Lower Granite five-year weekly average (2012-2016) of inflow ~~May 8-14 June 18-24~~ is about ~~828.7~~ kcfs. Based on this average the spring spill operation of 20 kcfs 24 hours is not expected to be impacted.

**Dates of impacts/repairs-** 10 May 2017.

**Length of time for repairs-** About 9 hours.

**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; the 10 year average adult passage for 20 June the week of 8-14 May is 8912,033 Chinook, 137236 Chinook jacks, and 210 steelhead and less than one sockeye salmon. 20 June is past typical dates for passage of juvenile yearling Chinook salmon, steelhead and sockeye salmon and past the peak for sub-yearling Chinook salmon at Lower Granite Dam. The work will be done during the day to reduce potential impacts on nighttime passage of juveniles.
2. Statement about the current year's run (e.g., higher or lower than 10-year average); The 2017 Chinook salmon and steelhead adult runs are projected to be below average.N/A
3. Estimated exposure to impact by species and age class (i.e., number or percentage of run exposed to an impact by the action); N/A
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.); Based on available information impacts to adults and juvenile passage will be minimal.

**Summary statement - expected impacts on:**

**Downstream migrants:** Unit 2 operating outside of the 1% peak efficiency operating range periodically during the 3 hours index testing is expected to have minimal impact on juvenile migration.

**Upstream migrants (including Bull Trout):** N/A

**Lamprey:** N/A

**Comments from agencies**

*Bill Hevlin, NOAA;* I don't think May 10 is a good day to be working on unit 2. It may be the top of the juvenile sockeye and steelhead migration at Lower Granite and could turn out to be many spring chinook adults trying to get upstream of Granite. Please see if you can select a later date for this work, maybe after unit one is back in service, then unit two will not be so critical to keep it operating.

*Chris Peery, NWW;* I pulled together the smolt index data for Granite to see when there might be a potential window for this work. See

attached. On average, most smolts have passed the dam by 1 June, except subyearling Chinook, which are just ramping up. To avoid the subyearlings, the work would need to be pushed off until mid-July. Unless we try to squeeze it in right at the end of May when passage (on average) is minimal for all groups. Thoughts?

Hevlin; Any possibility that testing unit 2 could be delayed until we have unit 1 back on line? Guidance of adults to the south shore powerhouse entrance would support this.

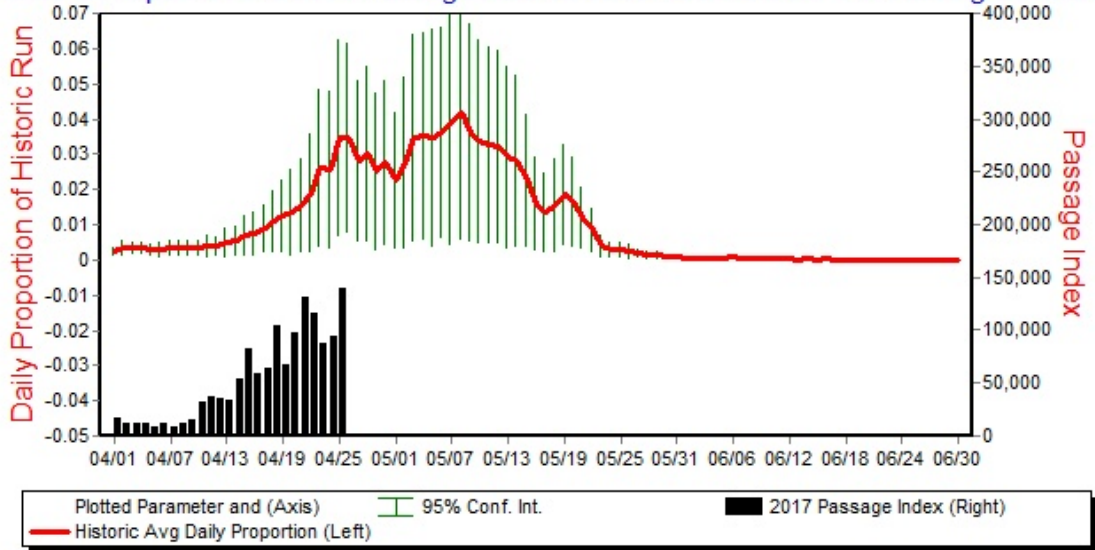
Peery; The engineers requested an alternate date of 20 June. We can discuss at FPOM next week.

Hevlin; If there is no hope for unit one completion until August then June 20 sounds okay for a short day long alternative operation of unit 2, I think there is a reduction in adult passage around then and the subyearling downstream run is underway.

Peery; Sounds good. I will try and firm up the Unit 1 dates by next week.

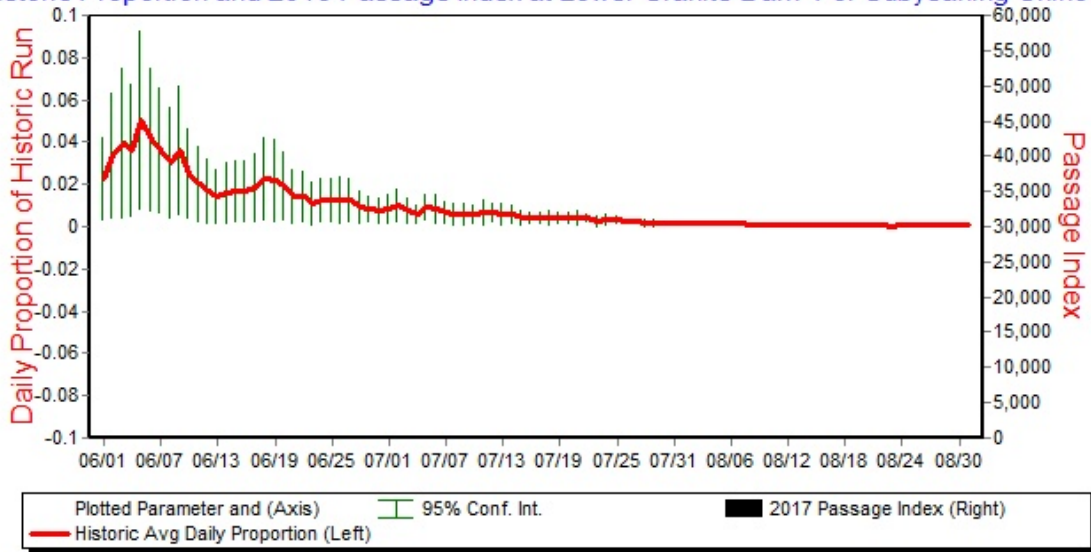
Hevlin; Chris, also see if they can start the tests no earlier than mid morning to give the adults a little more time with unit 2 operating consistently through the morning hours.

Historic Proportion and 2016 Passage Index at Lower Granite Dam For Yearling Chinook



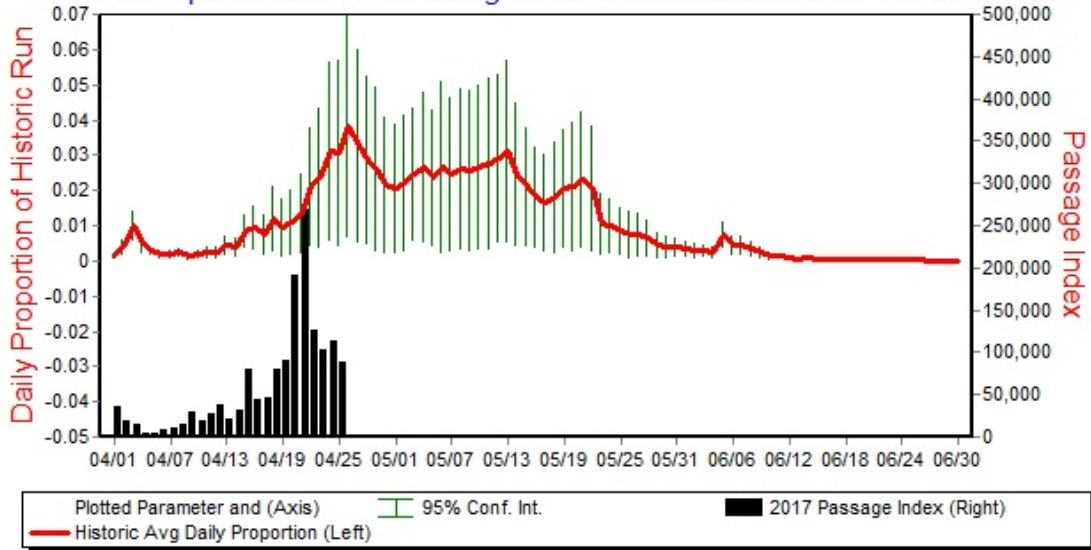
Historic daily proportions average of 2007-2016.

### Historic Proportion and 2016 Passage Index at Lower Granite Dam For Subyearling Chinook

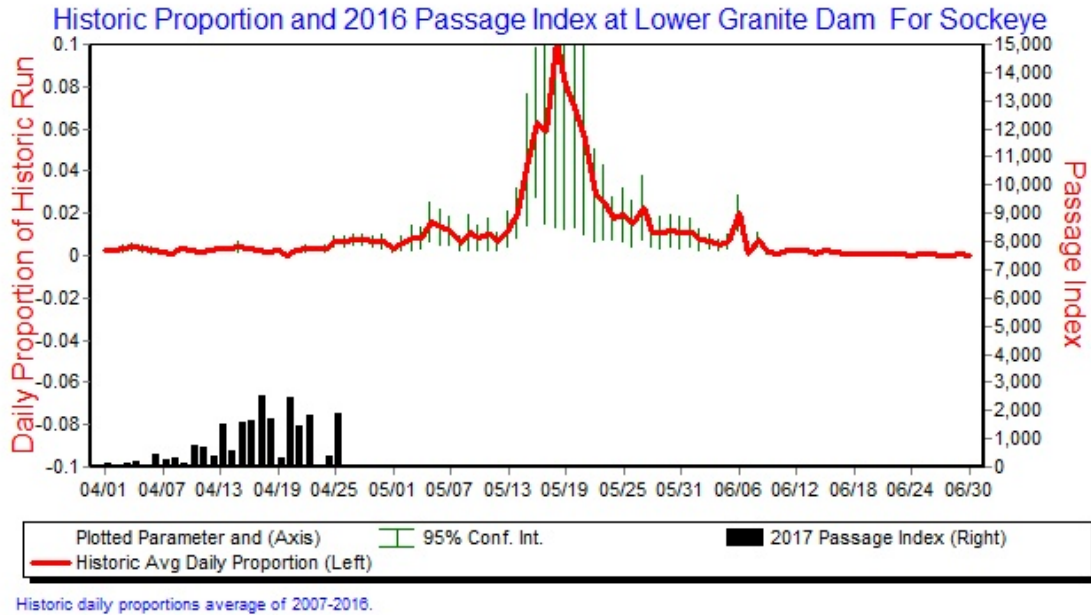


Historic daily proportions average of 2007-2016.

### Historic Proportion and 2016 Passage Index at Lower Granite Dam For Steelhead



Historic daily proportions average of 2007-2016.



## Final coordination results

### After Action update

Please email or call with questions or concerns.  
Thank you,

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