

MEMORANDUM FOR THE RECORD 18 LGS 24 Unit Priority Violation Due To 15kv Bus Ground Fault**SUBJECT: Little Goose Unit Priority Violation**Background

Little Goose Lock and Dam experienced a 15 kv bus ground fault on November 23 at 06:47, causing Unit 1 to trip and be forced out of service. Little Goose immediately commenced operation of the next priority turbine, Unit 2. However, at 10:08 on November 23, Little Goose decided to reconfigure unit priority and operate Unit 6 as the priority and Unit 3 and 4 as needed. This was a precautionary decision to ensure safety, station service reliability and also to prevent additional damage to bus work and potentially to the T1 transformer while electricians and engineers continued to troubleshoot. The configuration at Little Goose Dam is such that Units 1-4 are connected to the T1 transformer, and Units 5-6 are connected to the T2 transformer. Additionally, the bus work for units are in pairs, starting with Units 1 and 2, then 3 and 4, and finally 5 and 6. Little Goose Dam was unable to operate within unit priority as outlined in the Fish Passage Plan (Chapter 8-Little Goose Dam, Table LGS-5) from November 23 at 10:08 until November 29 at 16:40 after which we returned to normal unit priority operation with the exception of Unit 1 annual maintenance. Unit 1 annual maintenance commenced on November 26 (see Table 1).

Path Forward

Little Goose plans to take a line outage early in December to further investigate and repair the bus. The line outage will require the plant to spill during times of zero generation.

Relevance to Adult and Juvenile Fish Passage

Unit 1 is the priority unit for adult fish attraction flow. Peak passage at Little Goose Dam for both Fall Chinook salmon and steelhead typically occurs in September and October (Fish Passage Plan, Chapter 7-Little Goose, Table LGS-4). Adult fish counts at Little Goose Dam were relatively low during peak passage months compared to the 10-year average (Figure 1 & 2). Adult counts during the month of November have not been made since 2016 (Figure 3).

The Little Goose Dam juvenile fish facility was closed for the season and placed into primary bypass on November 01. Juvenile passage was very low during the month of October, consistent with the 10-year average smolt index (Figure 4) and consisted predominately of subyearling Chinook salmon. Summer spill at Little Goose Dam ended on August 31, routing all juvenile fish through the juvenile bypass system and/or turbine unit.

Estimated mortalities by species, and origin:

- A. Species – N/A
- B. Origin – N/A
- C. Length – N/A
- D. Marks and tags – N/A
- E. Marks and Injuries found on carcass – N/A
- F. Cause and Time of Death – N/A
- G. Future and Preventative Measures – N/A

Table 1: Little Goose Dam Unit Outages.

Unit	Out of Service	Time	Return to Service	Time	Description
5	4/14/2017	14:11	06/01/2019	17:00	Spider and Upper Guide Bearing Repair
1	11/23/2018	06:47	N/A	N/A	15 kv bus ground fault
1	11/26/2018	07:27	12/16/2018	00:01	Unit Annual Maintenance
2	11/23/2018	10:11	11/29/2018	16:40	15 kv bus ground fault

Figure 1: Adult Chinook salmon counts at Little Goose Dam; 2018 and 10-year average.

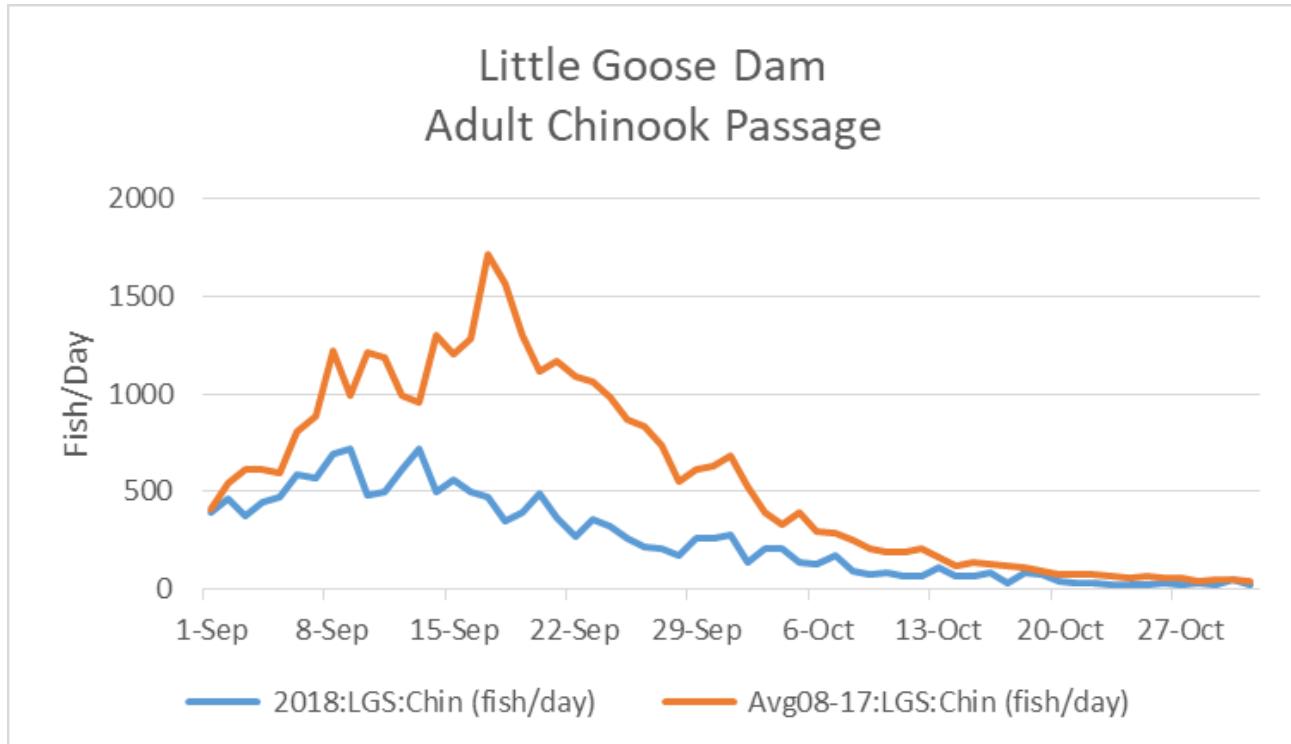


Figure 2: Adult steelhead counts at Little Goose Dam; 2018 and 10-year average.

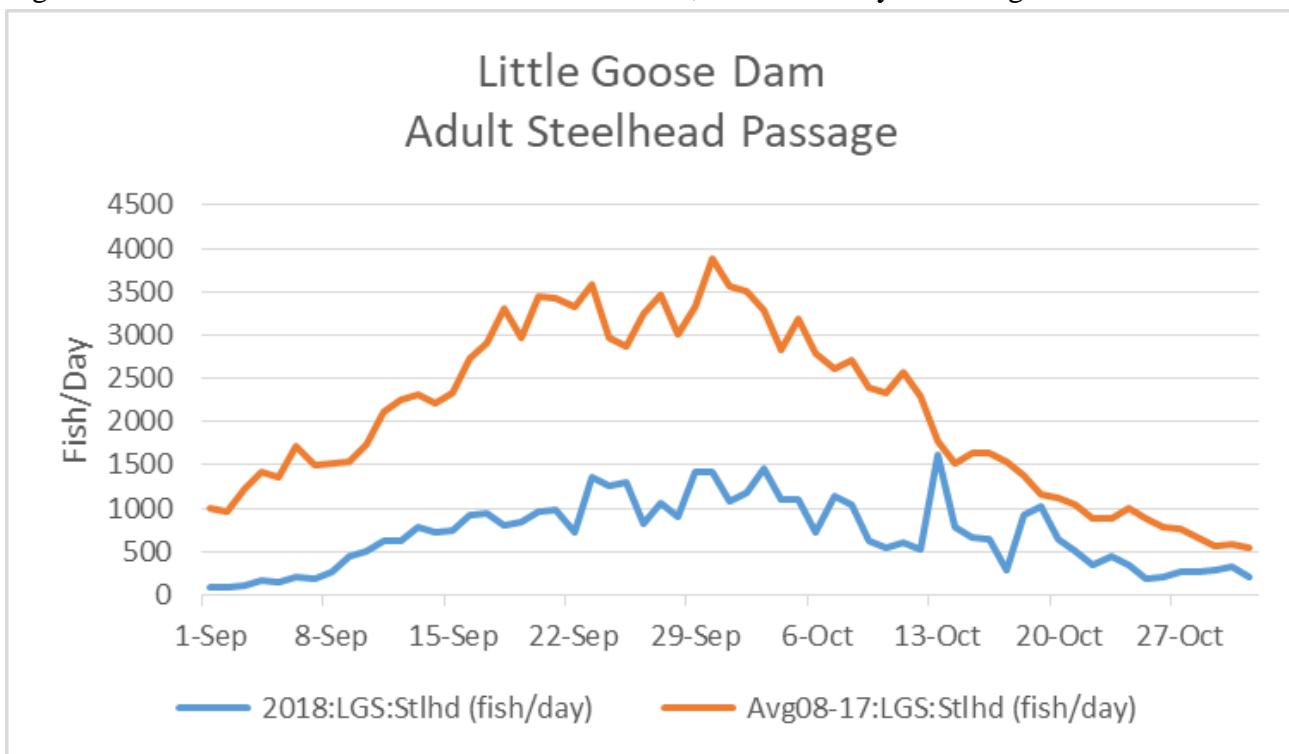


Figure 3: Adult Chinook and steelhead counts at Little Goose Dam, November 2016.

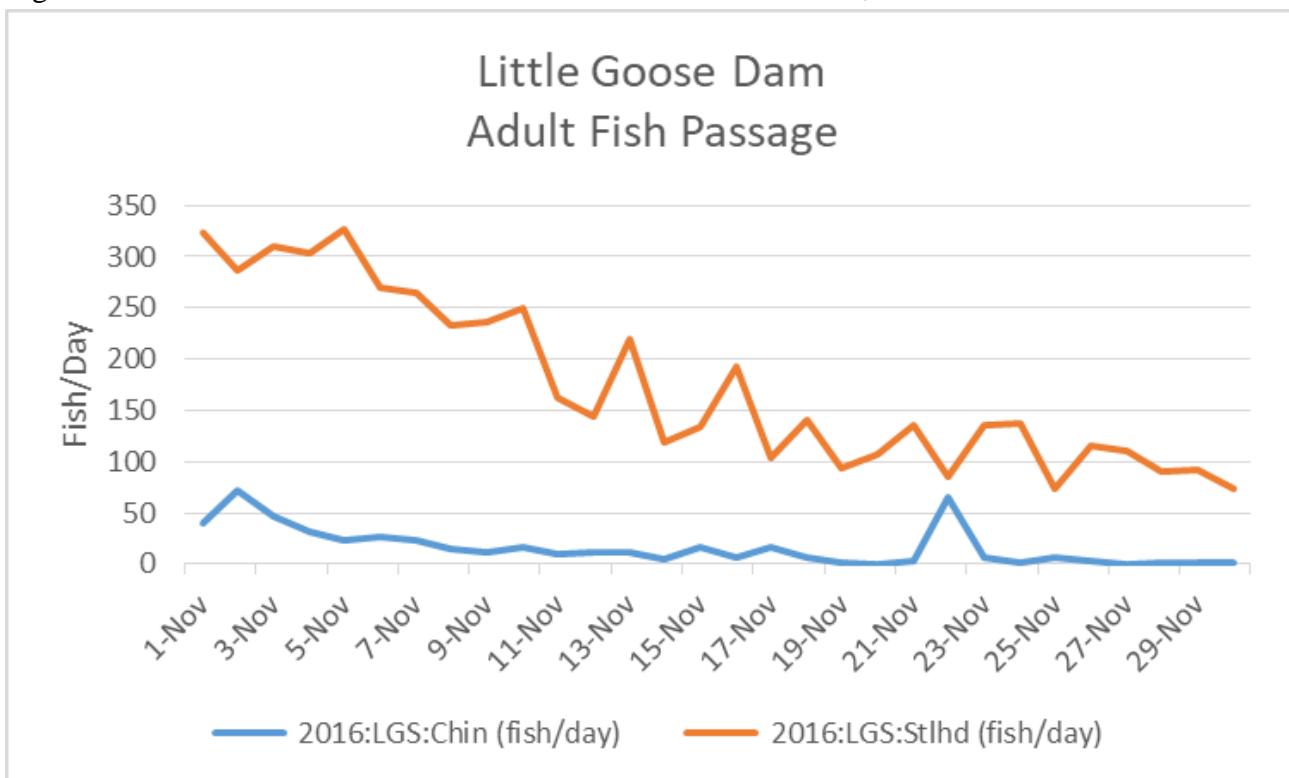
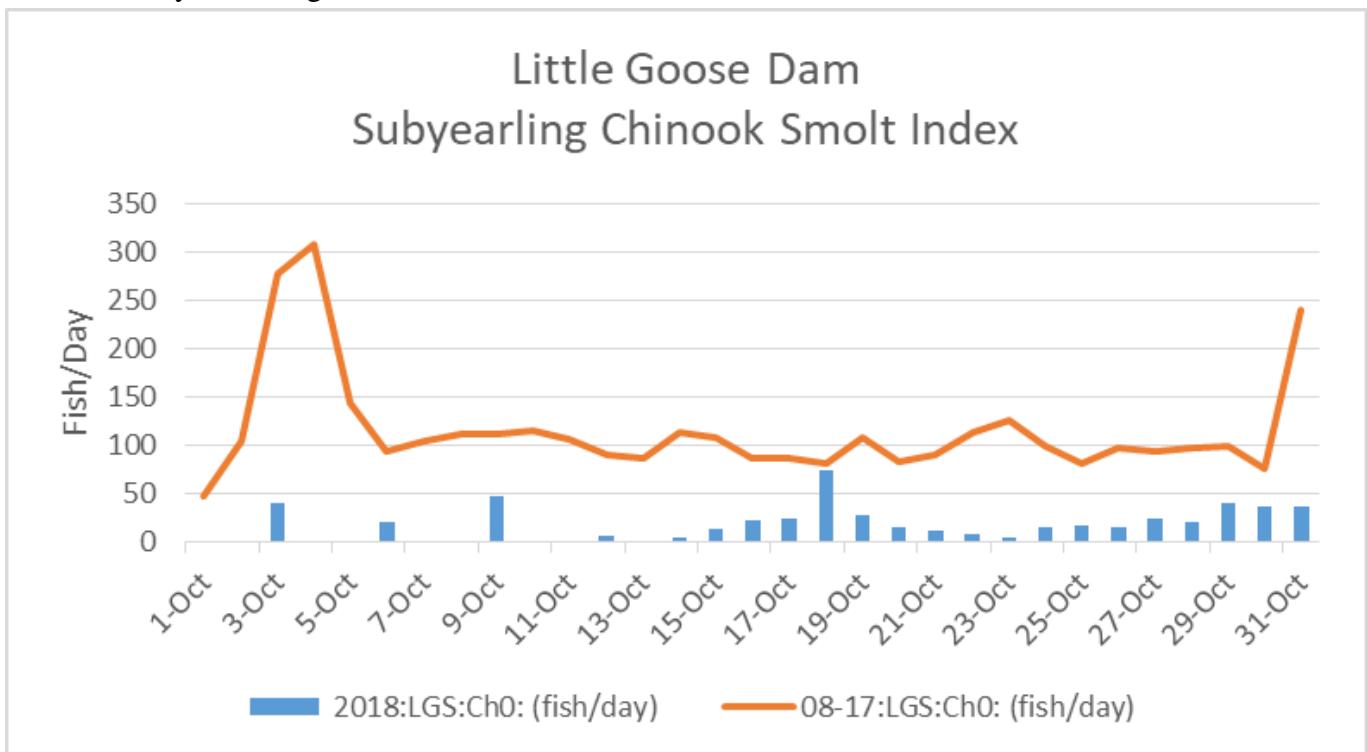


Figure 4: Subyearling Chinook salmon smolt index for October at Little Goose Lock and Dam; 2018 and 10-year average.



Sincerely,
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