

**MEMORANDUM FOR THE RECORD 18 LGS 11 Vertical barrier screen damage****SUBJECT: Vertical barrier screen damage**Background

Little Goose Lock and Dam conducted routine vertical barrier screens (VBS) inspection and trash raking throughout the week of June 11. During video inspections of VBS on June 12, a small tear in the mesh was found in gatewell 4C and unit 4 was forced out of service. Preparation to repair the torn mesh was initiated immediately. Once the gatewell was dewatered, all 8 sections of VBS were removed from the gatewell. Little Goose JFF personnel were then able to conduct a thorough inspection on June 18 to determine if there was any fish mortality.

During the inspection, only 1 of 8 VBS panels were found to be damaged. The damage found included one small tear near the edge of the panel (Picture). No fish mortalities were seen behind the tear in the VBS.

Path Forward

A full maintenance crew will be working to replace all panels of VBS in gatewell slot 4C. The repair work is estimated to be complete no later than June 22.

Relevance to Juvenile Fish Outmigration Timing

Subyearling Chinook salmon are the predominant species seen in the collection at the juvenile fish facility during this time of year, however steelhead still make up a decent proportion of the collection. According to the smolt index, passage of both of these species was less than the 10 year average for most of June (Figure 1 and Figure 2). The smolt index indicated that 13,527 subyearling Chinook and 899 steelhead would've passed Little Goose on June 12, 2018 (Table 1).

Relevance to Adult Fish Passage

Forcing unit 4 out of service for VBS repair directly impacts unit priority during spring operations (Fish Passage Plan, Table LGS-5). Total outflow and power demand required at least two units in operation until June 16 when flows had subsided enough that only 1 unit was required during certain times of day.

Adult spring Chinook salmon are currently the predominant adult species migrating across Little Goose Dam. Peak passage for adult spring Chinook salmon typically occurs between April 20 and June 1 (Fish Passage Plan, Table LGS-4). The peak spring Chinook salmon passage at Little Goose occurred before unit priority was impacted due to the VBS damage (Figure 3).

## Other Actions

Little Goose maintenance crew plans to replace all VBS screens in B gatewell slots during each unit annual. During the 2017 season, all VBS screen was replaced in gatewell slot “A” for each turbine unit during unit annual.

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 – All VBS screens that were torn have been replaced or repaired. VBS camera inspections occur during unit outages associated with trash raking and also during unit annual maintenance.

Figure 1: Little Goose subyearling Chinook salmon smolt index; 2017, 2018 and 10-year average.

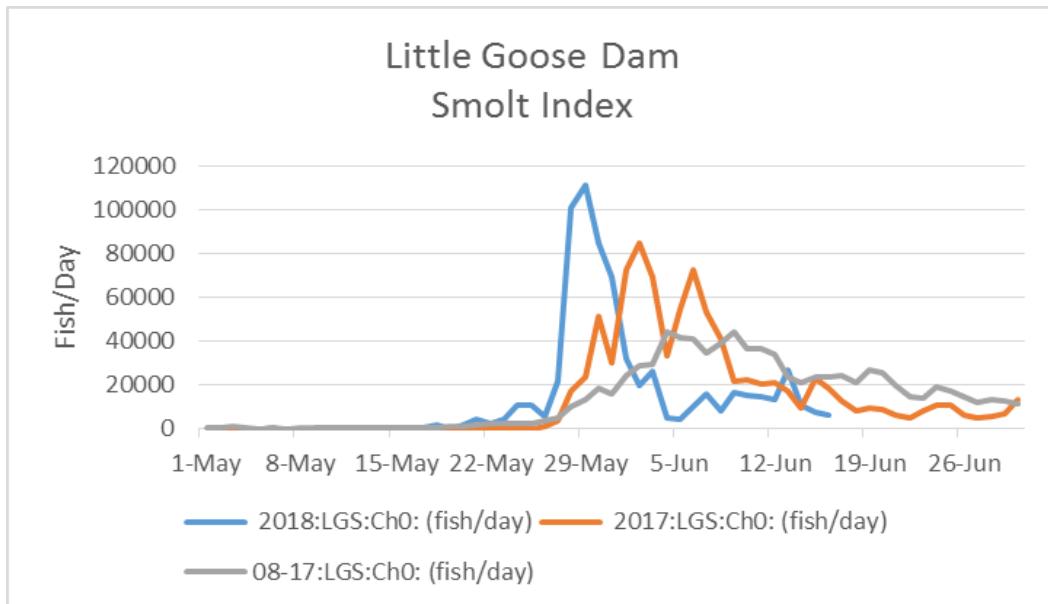


Figure 2: Little Goose steelhead smolt index; 2017, 2018 and 10-year average.

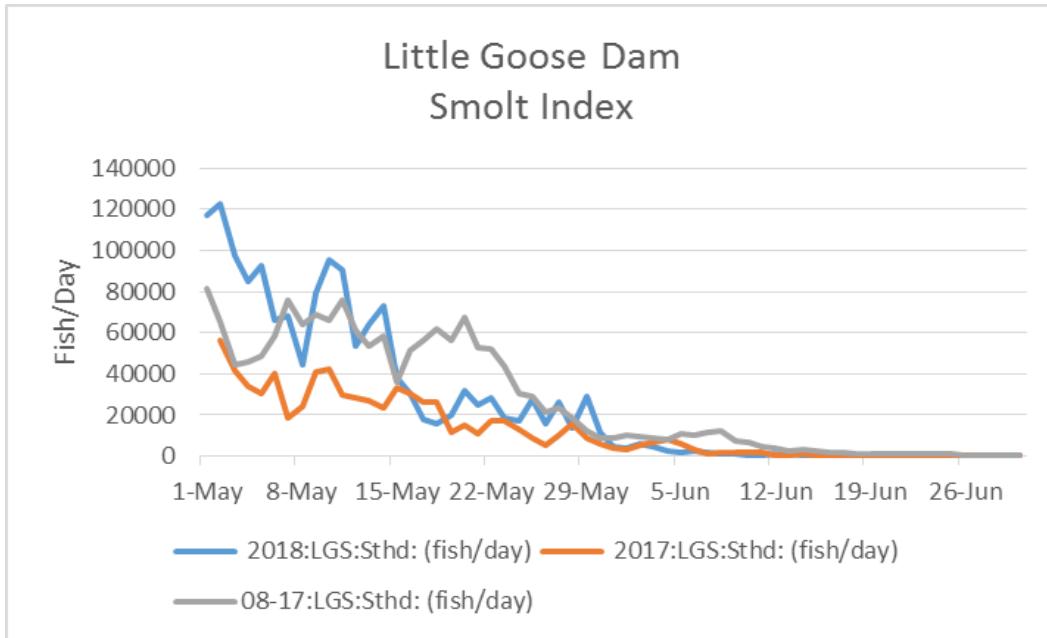
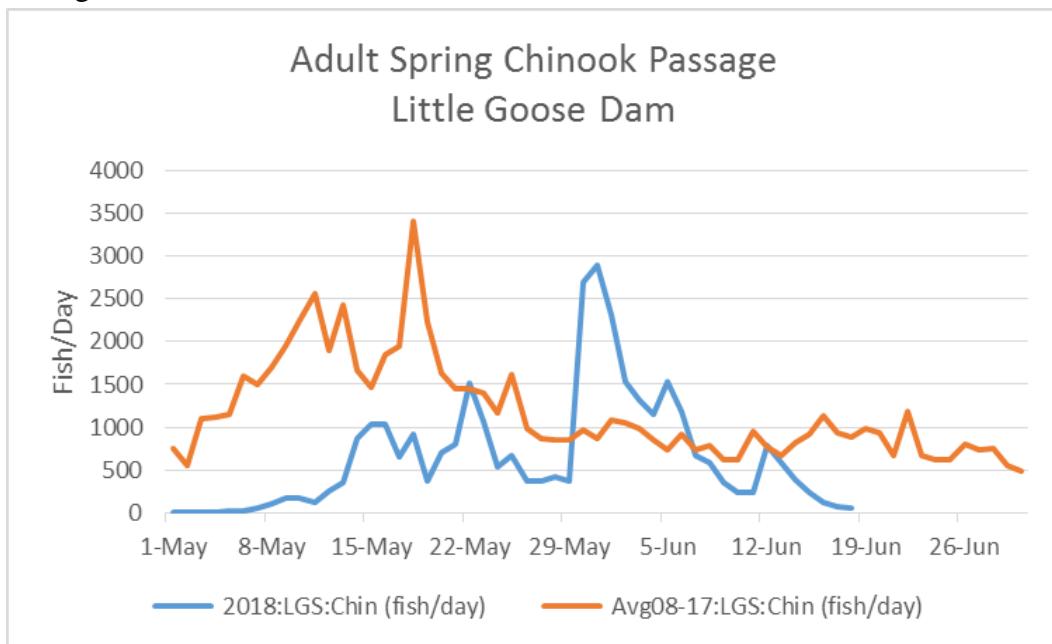


Table 1: Smolt index passage at Little Goose on June 12; 2017, 2018 and 10-year average

Year	Subyearling Chinook	Steelhead
2018	13527	899
2017	20890	689
10-year average (2008-2017)	33831	3605

Figure 3: Adult spring Chinook salmon counts at Little Goose Dam; 2018 and 10-year average.



Sincerely,  
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