OFFICIAL MEMO of COORDINATION (MOC) FOR NON-ROUTINE OPERATIONS & MAINTENANCE

COORDINATION TITLE- 21 LGS 01 Adjust Unit Priority to Facilitate Debris Removal
COORDINATION DATE- March 10, 2021
PROJECT- Little Goose
RESPONSE DATE- ASAP

1. **Description of problem.** Historically, Little Goose has experienced numerous fish mortality events related to debris. The trash shear boom and boat barrier were installed during the winter maintenance period early in 2018. The boat barrier was partially opened in 2018 to facilitate debris passage over the adjustable spillway weir (ASW) and has remained open.

   Currently, Little Goose as approximately 1 acre of floating debris in the immediate forebay, inside the trash shear boom (Image 1). Floating debris typically remains directly in front of operating Units (Image 2). During Unit priority, debris generally remains at the southerly end of the powerhouse, opposite of the ASW. If it persists into April, debris can plug orifices and cause fish injury and mortality.

   Little Goose would like to operate out of Unit priority, beginning 2 hours before spill, in conjunction with the dates for adult steelhead overshoot spill in order to move debris through the ASW. Operating Units prior to spill would assist moving debris toward the ASW. Units would shift to back to normal priority at the same time overshoot spill ended.

2. **Type of outage required.** Operate Units in opposite order of priority (6, 4, 3, 2, 1) beginning 2 hours before spill begins in conjunction with adult steelhead overshoot spill dates (FPP, Chapter 8, Table LGS-5).

3. **Dates of impacts/repairs.** Operate out of Unit priority beginning two hours before spill in conjunction with the currently scheduled dates for adult steelhead overshoot spill. This operation would occur three days per week on non-consecutive days, for 6 hours each day. Dates could include March 14, 16, 18, 21, 23, 25, 28 and 30, or until the majority of debris has been removed.

4. **Length of time for repairs.** Requesting to conduct the operation listed above until all of or the majority of debris inside the trash shear boom has been removed through the ASW.

5. **Impact on fish facility operation.** The juvenile bypass system (JBS) and juvenile fish facility (JFF) are currently dewatered for winter maintenance. Extended submersible bar screens (ESBS) will be installed the week of March 22 and the JBS will be watered up and operated in primary bypass. Once the JBS is operating, debris could plug orifices and cause fish injury and mortality.

6. **Impact on project operations.** Operate Units out of priority for 6 hours on days that adult steelhead overshoot spill is conducted.

7. **Analysis of potential impacts to fish.** The 10-year daily average adult fish counts are not available at Little Goose for the month of March. March counts last occurred in 2016 with counts also occurring in 2021. The 2016 average daily count in March included 31 adult steelhead and <1 adult Chinook salmon. The 2021 daily average count from March 1 through March 8 were 41 adult steelhead, slightly lower than the average of 56 fish on the same days in 2016.

   The 10-year average smolt index is also not available as collection typically does not commence until April 1. Early startup occurred at Little Goose in 2018, with condition sampling occurring every other day. Additionally, spring spill does not begin until April 3, therefore expanded daily collection estimates and smolt index numbers are similar. Average every-other-day expanded collection estimates for March 2018 were 6 clipped yearling Chinook salmon, 20 unclipped yearling Chinook salmon, 8 clipped steelhead, <1 clipped sockeye salmon, 10 unclipped sockeye salmon and <1 coho salmon.

   Upriver migrants including Chinook salmon and steelhead may be delayed due to the lack of attraction water from Unit priority, however passage is low during the month of March. Spring Chinook salmon passage typically peaks in April with other adult species peak passage occurring later in the summer and fall months.

   Juvenile salmon and steelhead should benefit from the operations. Operating Units nearest to the ASW should promote surface spill of the floating debris in the forebay and reduce the probability of orifice clogs.

   Impacts to lamprey or other species is unknown, but operation does not change the number of Units running or spill pattern.

8. **Comments from agencies.**

   From: Swank, David R <david_swank@fws.gov>
   Sent: Wednesday, March 10, 2021 3:22 PM
   To: Peery, Christopher A CIV USARMY CENWW (USA) <Christopher.A.Peery@usace.army.mil>
   Cc: McClain, Nathan A CIV USARMY CENWP (USA) <Nathan.A.McClain@usace.army.mil>
   Subject: [Non-DoD Source] Re: [EXTERNAL] 21 LGS 01 MOC Unit Priority to Remove Debris

   Chris,

   Just wanted to give you a heads up that I won't be at FPOM tomorrow. I haven't seen any recent MOC's that cause me any great concern (other than being disappointed that MCN won't be able to meet early start-up)

   Dave

Discussed during FPOM meeting 11 March 2021.

No objections to the proposed operation was voiced from FPOM members other than for the short suspense on this MOC.

NOAA and CRITFC reps suggested start change in priority to north side of powerhouse as much as 4 hours prior to spill to help move debris towards spillway.

NOAA reminded FPOM that developing debris management solutions at Little Goose Dam is in the Biological Opinion and discussions on how to do this needs to begin.

9. **Final coordination results.** Approved

10. **After Action update.**

Image 1: Debris inside the trash-shear-boom at Little Goose; March 9, 2021.

Image 2: Debris inside the trash-shear-boom at Little Goose; March 9, 2021.

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

Scott St. John
Little Goose Lock and Dam
Supervisory Fish Biologist
Scott.J.StJohn@usace.army.mil