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

COORDINATION TITLE- 18 LGS 01 Adult Cooling Pump Commissioning
COORDINATION DATE- March 28, 2018
PROJECT- Little Goose Lock and Dam
RESPONSE DATE- COB 3-30-18

1. Description of problem: Little Goose permanent ladder cooling pump needs to be properly commissioned and adjusted outside of the winter maintenance period. This work needs to be completed prior to peak passage of adult fish species and warm summer months when operation of this system is necessary.

2. Type of outage required: No outage is required, however commissioning will occur directly above the fish ladder exit (FPP LGS 2.1.2.). Commissioning will include starting and stopping of the cooling pump to test functionality and make nozzle adjustments and a 72 hour continuous run endurance test.

3. Dates of impacts/repairs:

a. April 2: Functional on/off test.

b. April 3: Potential for up to 5 on/off events for nozzle adjustments.

c. April 3 – April 8: Continuous operation of pump for 72 hour endurance test.

4. Length of time for repairs: N/A

5. Impact on fish facility operation: None.

6. Impact on project operations: None.

7. Analysis of potential impacts to fish.

a. 10-year average passage of adults and juveniles of each affected listed species during dates of impact.

i. Adult counts: http://www.cbr.washington.edu/dart/query/adult_graph_text.

Table 1. Adult salmon estimates.

Little Goose Dam	10 yr ave 2008-2017	early count year 2004	early count year 2003	early count year 2016
Total Chinook passed JAN-DEC	121276.5	89984	97622	109365
MAR Chinook passed	2	0	2	2
APR Chinook passed	4126.9	21911	31914	1174
2-8 APR Chinook	8.1	62	299	19
ave 2-8 APR	1.2	8.9	42.7	2.7
Total Steelhead passed JAN-DEC	153541.7	150924	176169	95404
MAR Steelhead passed	2077	2702	6744	2077
APR Steelhead passed	2563.8	1814	2001	1151
2-8 APR Steelhead	678.2	785	881	290
ave 2-8 APR	96.9	112.1	125.9	41.4
Total Wild Steelhead passed JAN-DEC	39567.8	35266	46870	21977
MAR Wild Steelhead passed	1042	590	1814	1042
APR Wild Steelhead passed	1286.6	1008	1231	814
2-8 APR Wild Steelhead	294.8	385	446	166
ave 2-8 APR	42.1	55	63.7	23.7

ii. Smolt index: http://www.cbr.washington.edu/dart/query/smolt_graph_text.

Table 2. Juvenile salmon and lamprey estimates.

Little Goose Dam	Juvenile Spring Chinook SMP Index	Juvenile Steelhead SMP Index	Juvenile Sockeye SMP Index	Juvenile Coho SMP Index	Juvenile Lamprey SMP Index
10 yr (2008-2017) ave JAN-DEC	2260368	2126951	37585.9	86962.5	15547
MAR 1-25 2018 early start total index count	187	155	92	1	5
MAR 1-25 2018 early start daily ave index count	7.8	6.5	3.8	0	0.2
2-8 APR 2008-2017 range total index count*	0 (2016) to 13532 (2017)	0 (2016 only) to 182498 (single day est in 2011?)	0 (4 yrs) to 2347 (2011)	0 (all yrs but 2016) to 160 (2016)	0 (2016, 2017) to 3030 (2015)
2-8 APR 2008-2017 daily ave index count *	0 (2016) to 1933.1 (2017)	0 (2016) to 26071 (2011?)	0 (4 yrs) to 335.3 (2011)	0 to 22.9 (2016)	0 (2 yrs above) to 432.9 (2015)
highest daily ave is x% of annual index	0.1	1.2	0.9	0	2.8
* not sampled yet in 2018					

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

i. Mid-season - current counts to-date vs. 10-year average (see links in section **a.**).

No current counts to date at Little Goose Dam since 2018 is not an early count rotation year. Current counts to date at Lower Granite Dam indicate that 2018 up to 24 MAR is 40.2% for steelhead and 25.7% for wild steelhead of the 10 yr average for the same 7 day time period.

Table 3. Adult salmon year-to-date estimates.

Lower Granite Dam			
	Steelhead	Wild Steelhead	All others
1 - 24 MAR 2018	1458	313	0
1 - 24 MAR 10 yr ave	3628	1218	0
Little Goose Dam - for early counting years			
	Steelhead	Wild Steelhead	All others
1 - 24 MAR 2018	no count yet	no count yet	no count yet
1 - 24 MAR 10 yr ave based on 3 early count yrs 2003, 2004, 2016	1609	820	0
1 - 24 MAR 2003	8402	2081	0
1 - 24 MAR 2004	3006	800	0
1 - 24 MAR 2016	1609	820	0
Lower Monumental Dam			
	Steelhead	Wild Steelhead	All others
1 - 24 MAR 2018	no count yet	no count yet	no count yet
1 - 24 MAR 10 yr ave based on 3 early count yrs 2003, 2004, 2016			0
1 - 24 MAR 2015	Only counted JAN&FEB not MAR (range 0-127 daily count)	Only counted JAN&FEB not MAR (range 0-53 daily count)	0
1 - 24 MAR 2014	2857	366	0

c. Estimated exposure to impact of adults and/or juveniles, as appropriate, by species (number or percentage of 10-year average that occurs during dates of impact).

No other stocks or population aside from steelhead have been shown to pass Little Goose Dam when the ladder opens in late February following the winter maintenance period. Adult steelhead run timing and daily passage numbers or counts (not adjusted for fallback) within that timing are highly variable between years and spring months for the predominantly overwintering steelhead in the tailwater of Little Goose Dam. The overwintering population appears to be about 25-40% of the 10 year average so far for early 2018. It is possible that about 300-700 adult steelhead could be exposed to the 7 day commissioning of ON/OFF and continuous run (3 days = 72 hours) testing of the ladder exit cooling water pump between 2-8 April 2018.

Little Goose SMP is sampling every other day during the early start period of 1 MAR 2018. About daily average samples of 4-8 juvenile sockeye, steelhead, and/or yearling chinook could be passing through the juvenile bypass system during the pump commissioning testing period. The locations and routes of juvenile passage should result in no to very minimal possible exposure to juvenile salmonids.

d. Type of impact to adults and/or juveniles, as appropriate, by species (e.g., increased delay, exposure to predation, exposure to a route of higher injury/mortality rate, exposure to higher TDG, etc.).

Previous experience, including the study of several years of similar pump and spray bar operation and pre-construction configurations at Lower Granite ladder exit, provide high confidence that that operation of the new cooling pump at the adult ladder exit for 7 days will cause minimal delay, predation exposure, or injury effects on adult salmon exiting the adult fishway ladder.

8. Final judgement on scale of expected impacts (negligible, minor, significant) on:

a. Downstream migrants.

Negligible to none.

b. Upstream migrants (including Bull Trout).

Negligible. No Bull trout recorded passing during spring.

c. Lamprey.

Negligible.

9. Comments from agencies.

10. Final coordination results.

11. After Action update: Adult ladder cooling commissioning was conducted beginning on April 02 at 11:46 and completed on April 05 at 13:10. The pump was turned on to ensure proper rotation on April 02, nozzle/teeth adjustments were made on April 03 and the 72 hour endurance test was completed on April 05. The pump is currently off and will be operated in accordance to the Fish Passage Plan.

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

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