

OFFICIAL COORDINATION REQUEST FOR NON-ROUTINE OPERATIONS AND MAINTENANCE

COORDINATION TITLE- 21 JDA 08 SMF Condition Monitoring

COORDINATION DATE- 10 August 2021

PROJECT- John Day Dam

RESPONSE DATE- 24 August 2021

Description of the problem

Sampling at John Day Dam has gone through different iterations since the construction of the Smolt Monitoring Facility (SMF) in 1997. The original sampling strategy was 24-hour sampling every day and that continued until 2015. In 2015, NOAA Fisheries provided a memorandum about concerns of fish handling and holding at John Day Dam. The concern was the amount of fish being handled and held during the 24-hour sampling period and this led to the current 24-hour every-other-day sampling. John Day Fisheries proposes a new condition sampling strategy of 6-8 hours per day, Monday through Friday, to further reduce the number of fish being handled and held, provide information about the Juvenile Bypass System (JBS), reduce the number of staff required to operate the SMF, and continue the warm water sampling strategy that is currently outlined in the Fish Passage Plan (FPP). The new sampling strategy will not sample the run at large but does provide USACE personnel the ability to sample fish and determine if the JBS is passing fish without incident. Incidents would be descaling, or injury associated with passage through the JBS. John Day will continue to operate the facility starting March 1st, weather dependent, to help facilitate the collection of juvenile lamprey if needed.

The JBS is an important passage route at John Day Dam with high survival for juvenile migrants. Condition sampling is one of the tools used to monitor conditions within the JBS and monitor overall health of fish passing John Day dam. In 2016, the sampling strategy changed from 24-hour daily sampling to 24-hour every-other-day sampling to reduce the number of fish being held and handled daily. The numbers of fish passing through the JBS, over the wetted separator and into the holding tanks at the SMF is variable from year to year. Fish passage and collection numbers are estimated by Pacific States Marine Fisheries Commission personnel during each sampling day. Estimated JBS passage numbers from 2010 to 2019 varied by year and cover two different sampling strategies. The 24-hours daily sampling strategy from 2010 to 2015 averaged 3,560,484 juvenile fish annually passing through the JBS and over the wetted separator. In 2016, the sampling strategy was changed to every-other-day sampling and between 2016 and 2019, 1,905,274 juvenile fish annually passed through the JBS and over the wetted separator (Table 1). Based on the number of fish collected from 2016 to 2019 and assuming a 20% JBS passage rate, the new sampling strategy would reduce the number of fish collected to 801,842 fish annually. This would decrease the number of fish being held and handled but would give PSMFC and USACE personnel a look at JBS conditions for safe passage of juvenile fish. Data from PSMFC was used to estimate the number of fish collected and the number of days sampled. While past samples have been focused on

the run at large, this alternative sampling strategy won't sample the run at large but will focus on the JBS and the condition of the fish passing through the JBS.

Table 1. Historic collection numbers for the John Day SMF. These numbers are collected by PSMFC personnel.

24-Hour Every-Other-Day Sampling (current strategy)							
Year	Yearling Chinook	Subyearling Chinook	Steelhead	Coho	Sockeye	Total	Sample Days*
2016	976,324	610,040	335,612	38,828	197,850	2,158,654	75
2017	1,0646,680	676,379	824,423	58,580	71,485	2,695,547	73
2018	668,059	681,799	370,669	61,248	188,159	1,969,934	97
2019	369,374	332,139	413,089	36,540	43,145	1,194,287	81
Every Day 8 Hour Sampling (assuming 20% JBS passage)							
2016	390,529	244,016	134,244	15,531	79,140	863,462	120
2017	425,872	270,551	329,769	23,432	28,594	1,078,219	117
2018	267,223	272,719	148,267	24,449	75,263	787,974	146
2019	147,749	132,855	165,235	14,616	17,258	477,715	132

*Sample days are different depending on when warm water sampling occurs. The number of fish collected will also vary if fish are sampled five days per week.

A change in sampling strategy requires a new daily collection target to provide information on the JBS operation and fish health. John Day personnel, with the help from a USGS statistician, calculated a sample size needed to detect a 5% incident rate (descaling or injury). The sample size calculation is the number of fish passing over the separator and the number of fish sampled to calculate the sample size. The statistical statement is: $\Pr(|\hat{p}-p|<err)=1-\alpha$, which also reads as the probability that the absolute difference between estimated proportions (\hat{p}) and the true proportion (p) is less than err is $1-\alpha$ where α is the error rate. If $err = 0.01$ and $\alpha = 0.05$, then we'd say that we'd like to have a 95% probability that the estimated proportion is within 1 percentage point of the true proportion 95% of the time (Figure 1).

The personnel required to operate the SMF during the 24-hour every-other-day sampling strategy is six. The six staff members are responsible for the daily operations of the SMF, daily inspections of all fish passage (adult and juvenile) as it relates to the Fish Passage Plan, weekly reports, annual reports, coordinating maintenance needs (both in-season and annual winter maintenance) with project personnel, and monitoring the separator. The annual operating cost of personnel for the SMF is \$825,931 for the six-person crew. The proposed sampling strategy of everyday condition sampling (6-8 hours) would reduce the number of personnel required to operate the SMF and complete daily inspections from six to four. The cost of reducing personnel from six to four is \$599,474 (based on full burden rates). The PSMFC staff would remain at current levels and funding would continue to be provided under the current BPA funding.

John Day Fisheries recommends changing the sampling strategy from 24-hours every-other-day to everyday sampling for six to eight hours, Monday through Friday, for condition monitoring. This recommendation would reduce the number of fish being held and handled and reduce the USACE personnel needed to operate the SMF and complete daily activities associated with fish passage. If 24-hour, every-other-day sampling is desired, John Day Fisheries recommends that PSMFC's scope of work be adjusted to include PSMFC staff monitoring the separator during the sampling period.

Type of outage required

Impact on facility operation (FPP deviations) The Smolt Monitoring Facility would change from 24 hour sampling every-other-day to 6-8 hour sampling every day. No impacts to facility operations and USACE and PSMFC personnel would be on-site daily to sample fish.

Impact on unit priority No impacts to unit priority. The FPP will be followed for unit priorities.

Impact on forebay/tailwater operation No impacts to forebay/tailwater operations. This alternative sampling strategy isn't expected to impact forebay/tailrace operations.

Impact on spill No impacts to spill. This alternative sampling strategy isn't expected to impact spill operations during spring or summer spill seasons.

Dates of impacts/repairs No impacts to dates as the new sampling strategy would be from 1 April to 15 September.

Length of time for repairs NA

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; Adult passage season is from March 1st to November 30th and the proposed action will not impact adult passage. Juvenile passage is operated from April 1st through September 15th. Changing the sampling strategy could decrease the number of adult fallbacks passing over the wetted separator during SMF operations and reduce the number of juvenile fish passing over the wetted separator. This sampling strategy will decrease the number of juvenile fish being held prior to sampling conducted by PSMFC personnel. The average holding time for juvenile fish in the collection tanks at John Day is approximately 9.5 hours. Reducing this holding time will not impact juvenile fish collected in the SMF.
2. Statement about the current year's run (e.g., higher or lower than 10-year average); No impact to current year's run.

3. Estimated exposure to impact by species and age class (i.e., number or percentage of run exposed to an impact by the action); The new sampling strategy would decrease the exposure to all age classes since we will be reducing the overall sampling time from 96 hours (4 samples per week) to 56 hours (everyday sampling) per week. The reduction in sampling hours reduces the impact of fish crossing the wetted separator, reduces holding times, and handling times.
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.); No significant impacts are anticipated with changing the sampling strategy from 24-hour every-other-day sampling to everyday sampling for 6-8 hours.

Summary statement - expected impacts on:

Downstream migrants No impacts to downstream migrants. The alternative sampling strategy will benefit juvenile migrants since fewer juvenile fish will be handled or held. The John Day JBS does have full flow PIT tag detection which will allow fisheries managers to analyze the number of PIT tagged fish passing through the JBS during non-sampling hours.

Upstream migrants (including Bull Trout) No impacts to adult bull trout and no evidence that adult bull trout are falling back through the JD JBS.

Lamprey No impacts to adult and juvenile lamprey with the alternative sampling strategy. Analysis of juvenile lamprey collection at the SMF from 2011 to 2019 showed from 2011 to 2015, the SMF averaged 250,119 juvenile lamprey yearly and 118,762 between 2016 and 2019. The new sampling strategy would reduce the number of lamprey collected daily but could see an average of 50,024 annually. These numbers are calculated by taking the average number of fish collected annually during 24-hour daily sampling (2011-2015) and estimating that the alternative sampling strategy would collect 20% of lamprey passing John Day Dam. The earlier start date of sampling at John Day (1 March, weather dependent) could potentially increase the number of juvenile lamprey collected at the SMF. When needed, USACE personnel will work with researchers to collect lamprey when needed.

Comments from agencies

Final coordination results

After Action update (After action statement stating what the effect of the action was on listed species. This statement could simply state that the MOC analysis was correct and the action went as expected, or it could explain how the actual action changed the expected effect (e.g., you didn't need to close that AWS valve after all, so there was no impact of the action). List any actual mortality noted as a result of the action)

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

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Figure 1. Probability of detecting a 5% incident in the sample at John Day Dam.

