

**OFFICIAL COORDINATION REQUEST FOR
NON-ROUTINE OPERATIONS AND MAINTENANCE**

COORDINATION TITLE- 21BON010 ITS gate pre-installation inspection

COORDINATION DATE- 08JUN21

PROJECT- Bonneville Lock and Dam Powerhouse 1

RESPONSE DATE-

Description of the problem

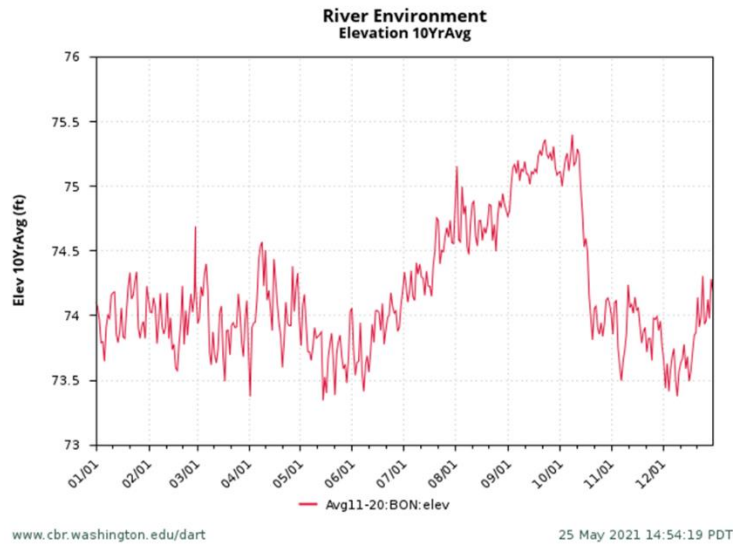
The ice and trash sluiceway (ITS) at Bonneville's Powerhouse (PH) 1 experienced a south end gate failure on 30 December 2018. The gate cables were frayed, and the guide wheels were either sheared off or damaged. The gate was removed for repairs, the gate guide slot was plated over, and the ITS returned to service until repairs could be completed and the gate reinstalled. The end gate allows the project to close the sluiceway in the event of an emergency and to float large woody debris free of the channel when it becomes a fish passage obstacle. The pre-installation inspection of the gate will require the ITS to be closed for a three-week period to dewater and provide access for the engineers to inspect the slot prior to gate installation.

Bon would like to conduct this work during August instead of the winter maintenance period. There are several reasons for this.

-Staffing ability: This work will take 5-6 mechanical crew personnel for the duration of the work. Those staff would then not be available for critical winter maintenance work. Bon is rarely able to keep up with winter maintenance work even with a full staff. The duration of the work would be significantly extended if done in winter.

-Weather: several days will be spent in the wet shoring up leaking bulkheads, then building a cofferdam and installing pumps to move the remaining water around the work area. Icy and wet conditions will pose a serious safety hazard to Bon crews doing the work.

-Forebay levels: Forebay levels are significantly more stable in August than in winter. The bulkheads holding back the forebay will be partly sealed off using cinders. This gravel can be dislodged by forebay fluctuations as small as 6 inches. Please see the attached graph.



Type of outage required-The ITS will be out of service (OOS).

Impact on facility-The outage will not hinder powerhouse or spillway operations.

Dates of impacts – From 09-26 August 2021. If the inspection finishes earlier than the three-week predicted window, then the ITS will be restored sooner.

Analysis of potential impacts to fish

Expected impacts on fish passage – PH1 units are rarely operating this time of year due to spill and PH2 serving as the priority powerhouse. There would be no downstream surface passage route at PH1 for the duration of the work and reduced attraction flow in the tailrace. Without pull from the ITS, fewer juveniles than normal are expected to make their way into the PH1 forebay. Juvenile fish that do make their way into the PH1 forebay could be delayed in passage and thus exposed to higher predation levels. Adult fish that use routes other than PH1 fishway entrances (spillway and PH2) are not expected to experience higher levels of sea lion predation (per personal communication with Dr. Kyle Tidwell).

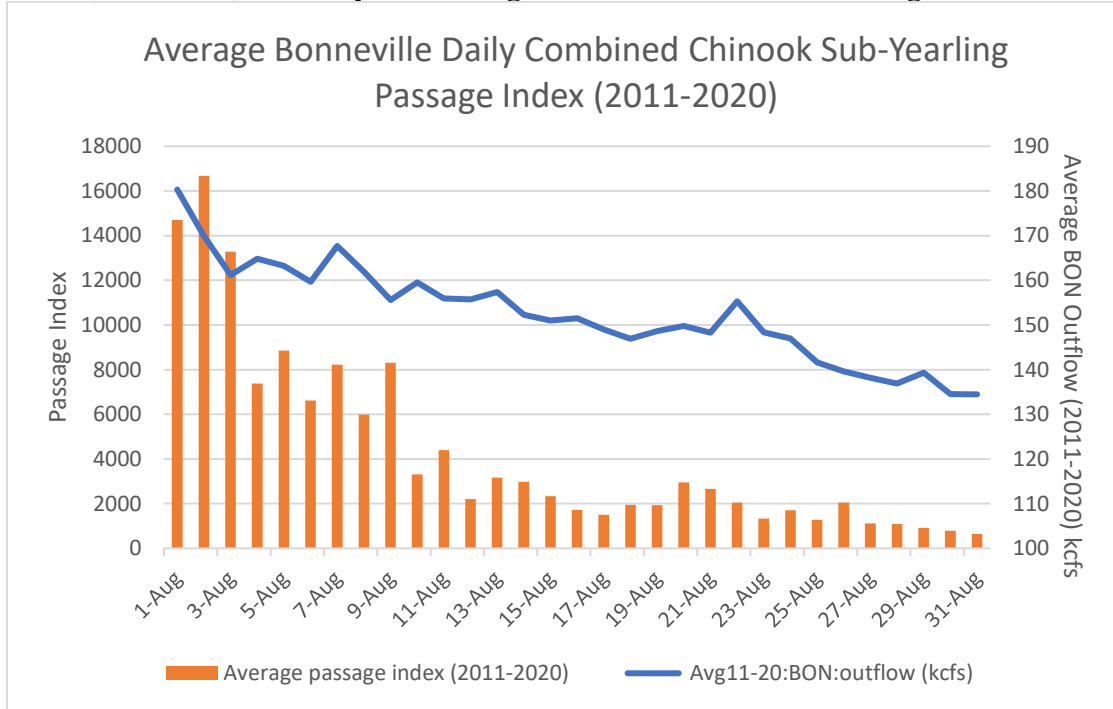
Summary statement - expected impacts on:

Downstream migrants (including Lamprey) -- Downstream passage through the ITS will not be available from 09-26 August. Scheduling the outage during August will ensure that summer spill, the DSM2, and the B2CC will all be operating for juveniles and downstream migrating adults. Downstream migrants that are in the PH 1 forebay may experience an increase in predation and risk of injury if passed through a turbine. The number of fish exposed is expected to be minimal, as most downstream migrants have already passed before this outage period.

According to the historic 10-year average passage indexes for sub-yearling Chinook at Bonneville Dam (2011-2020), 95% of the run has passed by 21 July (DART). With the

outage occurring in mid-August, the proportion of the run impacted is 1.2 % of the total 10-year average passage. See **Table 1** for 2011-2020 sub-yearling Chinook passage indexes and average outflow at Bonneville Dam for August 1-31.

Table 1. 10-Year Average Daily Combined Sub-Yearling Chinook Passage Index at BON (2011-2020) and 10-year Average Bonneville Outflow for August



Data obtained from FPC.org

The amount of adult downstream migration during the outage in August is in the single digits (D. Ballinger, personal communication, June 7, 2021). The DSM2, B2CC, and spillway will provide alternative routes for the fallbacks that would have otherwise passed through the ITS.

Upstream migrants (including Bull Trout) – The upstream and downstream entrances of the PH 1 CC will remain open during the ITS closure. With the loss of attraction flow, some of the fish that would normally be attracted to PH1 passage routes will instead be attracted to spillway and PH2 routes. The WA Shore ladder has lower fallback rates than the Bradford Island ladder, so fallback may be slightly reduced. Predation rate from sea lions are not thought to be significantly different between tailraces, so upstream migrants that use alternative passage routes should not experience an increased predation rate. Refer to **Table 2** for 10-year average (2011-2020) total passage at Bonneville for 1-31 August.

Lamprey This outage will occur toward the end of the adult lamprey migration period. All ladder entrances and LPS systems should be operating at the time of the ITS outage. The loss of attraction flow provided by the ITS exit will impact lamprey that would use this flow to find PH1 collection channel entrances. However, this impact to

lamprey is small, as most adults have already passed Bonneville at this time. Based on the 10-year average between 2011-2020, 90% of the adult lamprey run has passed by 8/16 (retrieved from DART, 2021).

Table 2. 10-Year Average (2011-2020) of Total Daily BON Passage for August.

Date	Chinook Adult	Chinook Jack	Coho Adult	Coho Jack	Steelhead	Sockeye	Lamprey	Unclipped Steelhead	Shad
1-Aug	521	118	0	0	3552	86	375	1498	523
2-Aug	478	112	0	0	3191	66	421	1280	580
3-Aug	444	96	0	0	2994	56	304	1206	516
4-Aug	438	98	1	1	2813	52	337	1150	385
5-Aug	503	95	0	0	2856	53	359	1190	395
6-Aug	650	121	1	1	3154	43	282	1323	257
7-Aug	675	125	3	1	3505	36	234	1401	298
8-Aug	649	118	6	1	3368	28	246	1276	229
9-Aug	601	97	6	1	3075	27	306	1120	187
10-Aug	726	114	6	2	2966	20	200	1059	176
11-Aug	794	130	8	3	3068	15	242	1074	145
12-Aug	946	144	12	4	2948	14	206	1067	112
13-Aug	1023	167	19	6	3333	10	319	1212	122
14-Aug	1074	177	25	8	3009	8	211	1033	99
15-Aug	1206	184	31	7	2849	9	226	940	154
16-Aug	1253	186	53	14	2397	5	187	787	86
17-Aug	1830	250	85	17	2283	6	192	749	97
18-Aug	2364	300	137	19	2265	5	165	756	101
19-Aug	2849	375	147	26	2457	8	155	798	93
20-Aug	2353	326	147	24	2825	4	164	837	90
21-Aug	2611	352	196	19	2384	5	132	658	99
22-Aug	2838	409	224	22	2096	4	109	570	53
23-Aug	2871	466	216	25	1896	3	126	534	38
24-Aug	4045	555	292	32	1871	2	119	528	44
25-Aug	5172	721	326	53	1827	4	104	529	37
26-Aug	5944	844	407	75	1974	3	101	551	37
27-Aug	6993	979	512	86	1927	2	116	547	47
28-Aug	8758	1092	535	85	1925	2	129	540	47
29-Aug	10394	1180	692	97	1863	2	82	530	48
30-Aug	11004	1193	1029	106	1757	4	78	489	29
31-Aug	12486	1436	1226	126	1842	1	69	543	24

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,

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