

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

**COORDINATION TITLE- 22BON004 MOC T12 Outage**

**COORDINATION DATE- 9 March 2022**

**PROJECT- Bonneville Lock & Dam**

**RESPONSE DATE- 23 March 2022**

**Description of the problem:**

Bonneville Lock & Dam's Powerhouse Two (PH2) requires regularly planned T12 (U15-18) transformer maintenance. This work will be started on 29 August and continue through 15 September 2022. This work will require Units 15, 16, 17, and 18 to remain Out of Service (OOS) for the duration of work.

This outage has been coordinated for the timeframe of 29 August to 15 September with the intention of minimizing impacts on fish (**Tables 1, 2, and 3**), unit priority order, and spill. (**Figures 1 and 2**).

**Type of outage required:** The T12 outage will take four units (U15-18) OOS.

**Impact on facility operation (FPP deviations):** This operation requires the outage of Units 15-18. During the specified dates, the Washington Shore Fishway ladder will remain within FPP operation criteria. Unit priority will shift from FPP guidance. Spill may be used if the remaining PH2 units and PH1 units reach max capacity. The spillway and Powerhouse Two Corner Collector (B2CC) will remain in service according to FPP guidance for summer spill through 31 August. After 31 August, spill may be implemented for excess flow, in which case the B2CC will be opened in accordance with the FPP (BON 2.2.2).

**Impact on unit priority:** Starting 29 August, unit priority will be impacted due to the T12 outage:

Current FPP Unit Priority Order Criteria (BON 4.1, Table BON-13):

PH2: 11, 18, 12, 17, 13, 14, 15, 16

PH1: 1, 10, 3, 6, 9, 4, 5, 8, 7, 2

During T12 Outage:

PH2: 11, 12, 13, 14

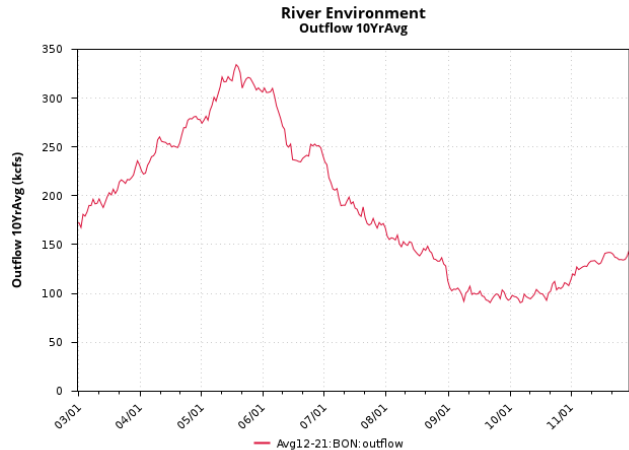
PH1: 1, 10, 3, 6, 9, 4, 5, 8, 7, 2

**Impact on forebay/tailwater operation:** None

**Impact on spill:** The spillway will remain in service through 31 August, per FPP summer spill criteria. Beginning 01 September, the spillway will remain available for use. If a high flow event occurs, Units 11-14 and 1-10 will be available for use. If these units do not accommodate the flow volume, spill may be initiated, at which time the B2CC will also be opened.

**Dates of impacts/repairs:** 29 August to 15 September

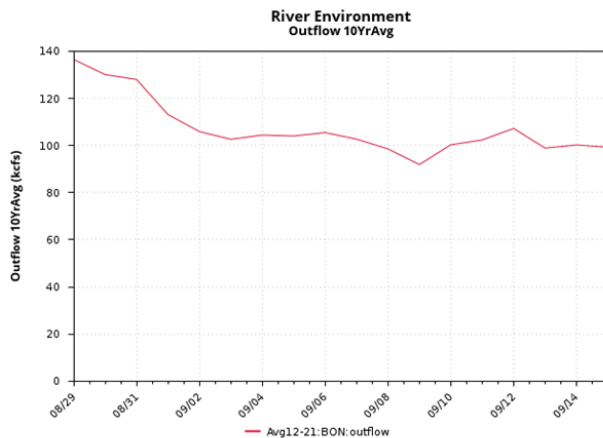
**Length of time for repairs:** 17 days



www.cbr.washington.edu/dart

08 Mar 2022 07:30:46 PST

**Figure 1.** 10-year average outflow data during fish passage season at Bonneville. (Obtained from Columbia Basin Research, DART)



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07 Mar 2022 12:44:46 PST

**Figure 2.** Detailed 10-year average outflow data for Bonneville during the planned dates of the T12 outage. (Obtained from Columbia Basin Research, DART)

### 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:

2021 fish passage and 10-year average fish passage data (Obtained from Columbia Basin Research, DART):

**Table 1.** Chinook, Jack Chinook, and Steelhead 2021 passage and 10-year average passage data.

Date	Chinook 2021	Chinook 10 Yr Avg	Jack Chinook 2021	Jack Chinook 10 Yr Avg	Steelhead 2021	Steelhead 10 Yr Avg
29-Aug	11587	10395	2010	1180	1319	1863
30-Aug	16835	11005	1321	1193	1200	1757
31-Aug	18848	12486	1352	1436	1346	1842
1-Sep	13650	11354	2874	1483	1477	2134
2-Sep	9731	12785	1603	1575	1254	1911
3-Sep	9719	13923	1611	1664	1206	2152
4-Sep	10044	13638	1391	1608	1104	2144
5-Sep	12860	14399	2279	1625	1447	1895
6-Sep	9928	17563	1924	1930	1081	2025
7-Sep	11380	21820	2319	2197	1524	1901
8-Sep	10470	22037	1841	2372	1302	2091
9-Sep	7757	22685	1263	2483	1088	2224
10-Sep	7620	21139	1119	2380	945	2108
11-Sep	8314	20635	1120	2350	728	2127
12-Sep	9561	17280	1254	2281	908	1999
13-Sep	8462	16798	1025	2292	763	1923
14-Sep	9044	16316	1151	2489	1117	1929
15-Sep	7397	15466	355	2429	925	2078

**Table 2.** Sockeye, Coho, and Jack Coho 2021 passage and 10-year passage data.

Date	Sockeye 2021	Sockeye 10 Yr Avg	Coho 2021	Coho 10 Yr Avg	Jack Coho 2021	Jack Coho 10 Yr Avg
29-Aug	2	2	5898	692	234	97
30-Aug	3	4	6938	1030	319	107
31-Aug	3	1	10028	1226	385	126
1-Sep	3	2	6825	1283	505	145
2-Sep	2	1	4006	1367	353	138
3-Sep	1	1	3853	1946	233	160
4-Sep	4	1	5167	2023	258	191
5-Sep	3	1	8898	2289	430	221
6-Sep	4	1	7927	2285	322	229
7-Sep	0	0	7498	2417	479	198
8-Sep	2	1	7109	2444	446	248
9-Sep	0	1	4646	2527	273	268
10-Sep	1	0	4196	2423	311	214
11-Sep	3	0	4756	2684	337	187
12-Sep	0	0	4624	3117	349	174
13-Sep	0	0	4324	2978	367	185
14-Sep	0	0	5616	3174	435	158
15-Sep	0	0	6602	2849	134	165

**Table 3.** Sub-yearling Chinook 2021 passage and 10-year passage data. *Note: This is a passage index dataset derived by the Smolt Monitoring program.*

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

**Table 4.** Forecasted run predictions obtained from WDFW.

Fall Chinook	Similar to last year
Sockeye	Below 10-year average
Coho	Above 10-year average
Steelhead	Below 10-year average

3. Estimated exposure to impact by species and age class (i.e., number or percentage of run exposed to an impact by the action):

**Table 5.** 10-year average totals for the timeframe of outage vs 10-year average run totals. (Obtained from Columbia Basin Research, DART)

	08/29 - 09/15 10-Year Average	10-Year Total Run Average	Percentage of Run Affected
<b>Fall Chinook</b>	291724	508512	57.4%
<b>Fall Jack Chinook</b>	34967	73768	47.4%
<b>Steelhead</b>	36103	173872	20.8%
<b>Sockeye</b>	16	300662	0%

<b>Coho</b>	38754	103212	37.5%
<b>Jack Coho</b>	3211	10209	31.4%
<b>Lamprey</b>	1142	35458	3.2%
<b>Shad</b>	102	4041273	0%
<b>Sub-Yearling Chinook</b>	7625	3923838	0%

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.):  
 With Unit 18 OOS, there will be no unit attraction flow for the north entrances of the Washington Shore Fishway, increasing the difficulty for fish to locate the north entrances. However, Fish Unit 1 and Fish Unit 2 will remain in service during this outage and will create appropriate fish ladder entrance differentials according to FPP criteria (BON 2.4.2.4) at each Washington Shore Fishway entrance.

Upstream migrating fish may be more attracted to the south entrances of the Washington Shore Fishway as well as the Cascades Island Fishway and Bradford Island Fishway. Fish that are delayed in finding the north monolith entrances may be at an increased risk of sea lion predation. USDA Hazers are on project hazing during this outage and will be actively hazing pinnipeds in the tailraces during the daylight hours as per FPP 2022 Appendix L.

With Units 15-18 OOS, the submersible traveling screens (STSs) will be also non-operational during this outage, possibly delaying downstream migration. This delay could leave juvenile fish more vulnerable to avian predators in the PH2 forebay. However, the Ice and Trash Sluiceway (ITS) at PH1 will still be operational during this period for downstream passage.

**Summary statement - expected impacts on:**

**Downstream migrants:** Very minimal. Only sub-yearling Chinook were included in the data analysis tables for this operation because all other species and age-classes for downstream migration daily totals were near or at 0 fish per day. This operation is expected to impact near 0% of the downstream sub-yearling Chinook migration. (Table 5)

**Upstream migrants (including Bull Trout):** The impact is expected to be greatest on the upstream migration of fall Chinook and fall jack-Chinook. However, all Bonneville Lock & Dam fishway ladders are scheduled to be fully operational during this time. (Table 5)

**Lamprey:** Minimal. Only about 3% of lamprey migration traditionally occurs during the timeframe of this outage (Table 5). Therefore, we expect minimal effect on their migration. All Lamprey Passage Structures (LPS) systems will be fully functional at this time, supporting the majority of lamprey passage.

**Comments from agencies**

**CTUIR –**

-----Original Message-----

From: Tom Lorz <lort@critfc.org>

Sent: Thursday, March 10, 2022 8:38 AM

To: Mackey, Tammy M CIV USARMY CENWP (USA) <Tammy.M.Mackey@usace.army.mil>

Subject: [URL Verdict: Neutral][Non-DoD Source] Re: FPOM: Official Coordination  
22BON004 MOC T12 OOS

lets talk about at FPOM. Are they going to do the other line (t11) for the other units after this is done, if so maybe flip flop, I like having 18 on rather than 11 when we have the large push of fall chinook coming through. IF they only doing one line push back about a week to miss the peak of the fall chinook runs would seem like a good idea unless we think we are going to go into split flows which is why they are doing it this way I assume since they think we will be in split flows anyways?

thanks  
tom

**10 March FPOM** – 22BON004 MOC T12 OOS. Bettin mentioned there may be a need for a T11 outage in June/July. FPOM will look at the MOC and provide written comments. Conder, Lorz, and Bettin discussed the timing and risks with the proposed schedule. In the end, NOAA, Lorz, and BPA concurred with the MOC. The State's will provide comments later. **ACTION:** FPOM will need to re-examine the language in the FPP that would require T12 outages to occur during the spring freshet. This increases the risk of PH1 operation and increased fallback with the levels of spill typically seen during the spring.

### **Final coordination results**

#### **After Action update**

Please email or call with questions or concerns.

Thank you,  
Tammy Mackey  
Columbia River Coordinator - Acting  
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