



CENWP-OD

14 March 2013

MEMORANDUM FOR THE RECORD

Subject: FINAL minutes for the 14 March 2013 FPOM meeting.

The meeting was in the meeting room at JDA-N, John Day Lock and Dam. In attendance:

Last	First	Agency	Office/Mobile	Email
Baus	Doug	USACE-RCC	503-808-3995	Douglas.M.Baus@usace.army.mil
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Dugger	Carl	NWW-MCN		Carl.r.dugger@usace.army.mil
Fredricks	Gary	NOAA	503-231-6855	Gary.fredricks@noaa.gov
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Hausmann	Ben	USACE-BON	541-374-4598	Ben.j.hausmann@usace.army.mil
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Baus, Bettin, Hevlin, Hockersmith, Kiefer, Lut, Martinson, Meyer, and N. Richards, S. Scott called in.

March birthdays include- Clugston, Stephenson, and Traylor HAPPY BIRTHDAY!

1. Finalized results from this meeting.

- 1.1. January and February 2013 meeting minutes approved.
- 1.2. TDA spillbays. FPOM agreed that repairing bays 10 and 11 may be a higher priority over bay 9 at this time. FPOM says until Bay 9 is repaired, there should be a flat pattern for bays outside the wall.
- 1.3. IHR doble testing and 115Kv line 1 maintenance will need to move to the end of July. It was originally scheduled for the end of August. Conder asked if the outage will affect unit 1. Fone

said units 1 and 2 will be OOS. Wills asked if this schedule change will affect other schedules. Bettin said this is a perfect time to do it. **FPOM agreed this was a good time to do the work since there is a dip in passage.**

1.4. LWG gatewell dipping. Setter provided and update. The Project will try to collect 100 fish per slot in units 4, 5 and 6. Fryer requested no gatewell dip in 5A and 5B due to equipment installed in the gatewells. Setter recommends just looking at Unit4 and Unit 6 so all slots could be looked at. **Hevlin agreed.**

1.5. JDA Lamprey collection protocols. **FPOM said to wait on finalizing protocols until they can see the trap in operation and get a better idea of how the operation will impact the ladder passage.**

1.6. Coordination Forms

1.6.1. **13BON01 T11 and T12 outages.** (attached). Approved to go forward from September – November with one transformer in 2014 and the other in 2015.

1.6.2. **13BON05 B2CC hydrofoil PIT detector test.** (attached). Laughery provided a .ppt presentation. CRITFC is ok with the installation as long as it doesn't significantly impact B2CC operations. Hevlin thanks Fredricks for working out the bugs on this project in NWP rather than at LWG. Fredricks said he figured it would impact less fish at the B2CC than at a TSW at LWG. Fredricks also noted that this test is scheduled for a time when sub-yearlings pass and sub-yearlings do not use the B2CC as much as the spring fish. There will not be any additional fish tagged to pass through this system. **FPOM is in agreement with moving this test forward**

2. The following documents were provided or discussed. Documents may be found at <http://www.nwd-wc.usace.army.mil/tmt/documents/FPOM/2010/>

2.1. *Agenda, Fish Passage O&M Coordination Team.*

2.2. *Cooling Water Strainers Lamprey Counts.xls.*

2.3. *Coordination/Notification Forms (NWW/NWP)*

2.4. *Pending 2013 FPP change forms and Appendices.*

3. Action Items

3.1. NWW Action Items

3.1.1. [Feb 13] IHR trap construction. **ACTION:** Bailey will schedule a site visit. **STATUS:** *site visit occurred on March 8, with another visit scheduled for April 23. NOAA Fisheries will make a site visit on March 24. NWW FFDRWG will be March 25.*

3.1.2. [Feb 13] LWG Upwell. **ACTION:** Setter will ask about getting the rebar removed. **STATUS:** *repaired by covering eroded area with steel plates.*

3.1.3. [Feb 13] LGS PIT tag antenna. Conder asked about the LGS antenna. **ACTION:** Setter and Bailey will provide FPOM with an update. **STATUS:** *fiberglass housing not fabricated in time, so PIT tag antenna not installed for this season.*

3.1.4. [Mar 13] MCN unit priority as per the FPP. Setter reported NWW is looking at the data. NWW is ok with the priority as written in the text. **ACTION:** Setter will draft a FPP change form to delete the line from the table.

3.2. NWP Action Items

3.2.1. [Feb 13] BON AFF modifications. **ACTION:** Rerecich will send a Doodle Poll to schedule a meeting, at BON, with FPOM and the AFF users to discuss any protocol changes and researcher coordination. **STATUS:** *Doodle poll sent on 3/13 to AFF researchers U of I, CRITFC, and WDFW to meet at Bon on one of the days - 3/20, 3/21, 3/26, or 3/27. Once we have a research coordination meeting we should be able to identify operations and schedules for fish collection. Rerecich will send an*

AFF operations and Appendix G meeting invite to FPOM, likely scheduled in early April. Rerecich proposes no use of the recovery boxes if sampling begins and Appendix G language is not finalized. Cool water, low risk, etc... An alternative for FPOM to consider would be to let the researchers experiment with the recovery boxes for usability and recovery time etc... and report back to the COE and FPOM. NOAA Fisheries expressed concern about the inability to not check the flume joints. Fredricks wants to have FPOM determine how the facility will be operated prior to the start of sampling in the AFF. Fredricks explained he heard that the recovery box was needed to determine if a fish was having difficulty coming out of anesthesia before the fish goes into the brail pool. CRITFC and NOAA discussed restricting the use of the AFF if needed. First need to determine if the hydraulics have been improved, develop recovery box protocols and inspect the return flume joints.

- 3.2.2. [Feb 13] BON AFF PIT tag detector. **ACTION:** Fryer will have detailed drawings, an operating plan, and monitoring plan for FPOM review in October.
- 3.2.3. [Mar 13] BPA updates. **ACTION:** Need to develop MOCs for those outages that take the Projects out of criteria (TDA Unit 18 and MCN).
- 3.2.4. [Mar 13] JMF and SMF condition sub-sampling data. **ACTION:** Mackey will outline the data that will be lost by stopping sub-sampling information.

3.3. Action Items completed or to be discussed later in the agenda.

- 3.3.1. [Feb 13] LWG and JDA ESBSs. **ACTION:** Setter will send an email detailing the three main differences between the screens. **STATUS: completed. Document is posted to the FPOM website in the February 2013 meeting folder.**

4. Updates

4.1. NWP Updates

- 4.1.1. BON A-Branch/ FV3-7 excavation. Hausmann said the Project excavated above the domestic water pipe and found no leak. They reburied the domestic water pipe. Next step is to isolate the domestic water line, bleed out all the HVAC water and pressure test the line. The leak is less dramatic as far as fountain height, but it is wider. Chlorinated water is leaking into the fishway.
- 4.1.2. BON oil sheen. There is a problem with the Oil/Water Separator. The Project has spent the last month or so trying to figure out where and why it is leaking. It is about an ounce a day. It is “fish –friendly” oil. Fredricks said he has no issues.
- 4.1.3. BON new governor installation. (schedule available on the website). No issues raised by FPOM.
- 4.1.4. BON B2CC leak. (Photos available on the website). Hausmann reported the leak is pretty low, at an expansion joint. The Project is going to try to get in the B2CC on 14 March to make repairs; this will be during the B2CC outage until the kelt trigger is reached. The repair will be a two part foam/epoxy repair. Cordie said if the Project is not able to get the leak to seal, he has the name of a good contractor who sealed the expansion joints in TDA-E. The B2CC does not have to remain OOS for this repair.
- 4.1.5. TDA Unit 18 OOS for overhaul from 3 March – mid April. Cordie reported that the ITS gate is over Unit 17 while Unit 18 is OOS.
- 4.1.6. TDA spillbays. Bay 9 v Bays 10/11. Ebner provided the following on 14 February 2013: Talked with Kristie (Geotech) and Dave (Structural) and both of us would really prefer all of them be fixed. Bay 9 being fixed will really help the hydraulic performance at the downstream end of the wall. In particular it should minimize the undercut erosion of the rock at that end. But if Bay 9 is fixed and the adjacent bay is not we will increase the erosion under the apron at the 8/9 wall interface. If we get

wire ropes on 10 and 11 would recommend a near uniform pattern in bays 11 through 12. 10 to 4 feet, 11 to 4 feet 12 to 4 feet and then incrementally increase. I would also engage more bays to keep the gate opening small and hopefully the forebay attraction down. I would not open 10 to its full height then 11 and then 12. This creates too much undercutting/erosion. The ideal is not to spill south of the wall. If spill patterns can be more uniform between 10, 11, and 12 I would support 10 and 11 first. If not then I would fix bay 9. **FPOM agreed that repairing bays 10 and 11 may be a higher priority over bay 9 at this time. FPOM says until Bay 9 is repaired, there should be a flat pattern for bays outside the wall.** Cordie noted that the spillway crane needs to be repaired so the gates could more easily repaired. Klatte said this is a reprogramming action that would need to occur at NWD. Klatte said it may be possible to get done this year but he won't know until he sees a budget.

- 4.1.7. BON STS installation. Hausmann reported that while installing STSs in gatewell 16C, the crew couldn't get the beam to release due to the beam being off level. The crane contractor has been contacted and they are working on it but STSs will not be installed in units 16 or 17 until the issue is corrected.

4.2. NWW Updates

- 4.2.1. MCN unit priority as per the FPP. Setter reported NWW is looking at the data. NWW is ok with the priority as written in the text. **ACTION: Setter will draft a FPP change form to delete the line from the table.**
- 4.2.2. LGS AWS automated control system. Fone reported the controls are working in auto but the LGS control room cannot get a read out or change the parameters. LGS would like to update the antiquated system.
- 4.2.3. LGS AWS pump #3 repair. Fone reported that the rack and pinion on the wicket gates and the bearings have problems. The parts are on order but the pump will not return to service until 30 May. The fishway is on two pump operation; one entrance is closed. Hevlin said the entrance that will be closed is not used very much.
- 4.2.4. LGS navigation lock dewatering. Fone provided a fish sighting report from the navlock dewatering. No fish were removed, just pushed into a safety pool.
- 4.2.5. LGS spillway stop log testing – future FPOM pending further discussions. No update until contract details are available.
- 4.2.6. LGS erosion inspection. Fone reported that at the end of March there would be one unit operating at minimum generation to allow the survey crew access to the powerhouse tailrace. This will be detailed in a MOC and sent to FPOM.
- 4.2.7. LWG juvenile lamprey mortalities on ESBSs. Setter reported Bailey received a call from R. Kiefer reporting dead juvenile lamprey on the ESBSs. Fone contacted the projects to get more information; Halter reported he didn't do a walk around but he recalled few numbers of lamprey on the screens; Melanson reported about 35 juvenile lamprey mortalities on the ESBSs though he believes the lamprey are getting caught between the bars and the brush; Dugger rarely sees lamprey mortalities but the brushes are going all of the time, it's on the VBSs where they see lamprey and even then it is fairly rare. Kiefer said the biologists could go up to look at the screens when time allows since the mortalities are not going anywhere. He mainly wants the mortalities documented so hotspots may be identified. Conder asked about brushing. Fone said the brush starts at 5' from the bottom and brings the mortals up to the top. Setter said we get timing of passage when screens are pulled up and a biologist takes a look at them. Hevlin said if you wanted vertical distribution, we could go back to the data collected when the screens were developed. Lorz said the downfall of the fyke net is that it affects hydraulics which may affect lamprey behavior. Fredricks said if you really want the data you need to make it a research proposal.

- 4.2.8. LWG roof repair. Fone reported the Powerhouse roof is leaking. They would like to repair the roof from August- September. It will require a powerhouse outage for safety. More details will be provided in a MOC. Bettin asked if double testing will be conducted at the same time. Fone said the double testing is scheduled for August 12-15. Bettin suggested if the roof work doesn't have to occur 24/7, then perhaps double testing could occur during this outage. Hevlin said adult passage needs to be looked at during this outage, especially since the river will need to be spilled. Bettin asked if transportation will be suspended as well. Hevlin suggested trucking whatever fish may show up. Fone said the project is looking at using a line guard so the clearance can be reduced to less than 25'.
- 4.2.9. LWG gatewell dipping. Setter provided an update. The Project will try to collect 100 fish per slot in units 4, 5 and 6. Fryer requested no gatewell dip in 5A and 5B due to equipment installed in the gatewells. Setter recommends just looking at Unit 4 and Unit 6 so all slots could be looked at. **Hevlin agreed.**
- 4.2.10. All fish ladders returned to service – MCN and IH delays. IHR delay was due to finding lead paint. The delay at MCN was due to a collapsed beam in the fishway. Dugger said the MCN gratings are getting old and scary. The Project wants to dewater the Powerhouse Collection Channel next winter. Even though the dive showed it looking good, there are concerns about how it will be when it's dewatered and people start walking on them. Fredricks asked if an extended outage may be necessary and if early December outage may be appropriate. Fone said IHR Bay 10 was open one stop and unit 6 was prioritized to try to move fish to the north ladder while the south ladder was out of service.
- 4.2.11. IHR double testing and 115Kv line 1 maintenance will need to move to the end of July. It was originally scheduled for the end of August. Conder asked if the outage will affect unit 1. Fone said units 1 and 2 will be OOS. Wills asked if this schedule change will affect other schedules. Bettin said this is a perfect time to do it. **FPOM agreed this was a good time to do the work since there is a dip in passage.**

4.3. Critical Spare parts lists. Fone will brief FPOM in April.

4.4. Research/FFDRWG updates. Approval letters, permits, etc located at www.nwd-wc.usace.army.mil/tmt/documents/FPOM/2010/NWP%20Research/Research.html

- 4.4.1. TDA-N PIT tag antennas. Done and watered up on 11 March. Tackley said the PDT working on the DDR for the permanent antennas had a kick-off meeting a couple of weeks ago. The PDT decided they would step back and see how the temporary antennas work and if there are any passage issues. Tackley asked FFU and Project Fisheries to make note of any occurrences of hesitation at the count windows. This will be discussed more at the next NWP FFDRWG.
- 4.4.2. BON TRD. Rerecich sent, via email, *Construction meeting on Wednesday 13 March. TRD contractor on schedule. Dogging beam will not be in the way of the VBS and VBS cleaning can occur with TRDs in place. The test fit by contractor in the dry is being coordinated for the end of this week or weekend. The expected 5/8 inch gap between the upstream (forebay) and downstream (VBS) side of the TRD and gatewell is about 1/4 inch. This may result in the need to remove the brushes that were installed along the edge to keep fish out of the cracks. If problems are identified with the brushes and binding during the test fit, the contractor will remove onsite at the time. They are bolted on and expected to take about 30 minutes to remove. No removal of top and bottom doubled up brushes and rubber is expected. Appendix A language for TRD (pronounced turd) testing has been circulated through FPOM and FFDRWG. Please note high end ops in Unit 14 during testing. Test fish releases will*

avoid Spring Creek NFH passage through BON. Conder added that NOAA Fisheries is in the process of approving the take for the study.

4.4.3. AFF modifications. Rerecich sent via email, *Mods continue on schedule. Rerecich, Traylor, Lorz, and Fredricks met at AFF on 3/6 to inspect the bypass pipes. They noted the welds were not smooth and there needed to be more sanding of the flanges to remove glue and round the edge. The contractor removed the new pipe at the uppermost connection and sanded the welds identified. Rerecich returned on 3/7 for inspection, felt the welds and they were smooth. Rerecich asked the contractor to fine grit sand the glue spots and edges on the flanges that we identified as too rough. They did it while he was there and they turned out very good, nearly as smooth as the pipe. The gasket will not be able to expand into the pipe once flanges are tightened. The material does not sit flush with the edge (larger diameter 15" than the flange 14"), is much too thin 1/8", and constructed of a material that will not compress or protrude into the pipe. Pictures taken of accessible end flange and end of pipe on 3/11 and posted on FPOM website in FFDRWG folder/AFF. All looked good with smooth alignment. Camera inspection for middle inaccessible flanges attempted on 3/12. PDT members, construction, and contractors present. Riggers video equipment did not provide the resolution needed to verify connection. Pre-connection inspection from 3/7 and end flange connection alignment are what we have to work with at present. Weir framework and timbers placed on 3/12. Extra timbers available for fine adjustment once watered up, likely next week. Steve Schlenker to measure velocity profile. CRITFC was scheduled to be onsite with COE and contractor on 3/13 for box placement. Box #2 near stairs may not be permanently anchored if deemed stable. This will allow flexibility for use until box can be permanently anchored. Recovery box inspection with transition and release hose was scheduled for afternoon of 3/13. Pictures will be taken and put on FPOM website and an update will be sent next week.*

4.5. RCC update.

Project	Previous day average (kcfs)	5 day forecast (kcfs)	10 day forecast (kcfs)
LWG	30	43	41
MCN	101	124	123
BON	128	143	141

4.5.1. Chum flow updates. Current operation is a BON 11.8 ft tw minimum with a rewetting up to 13.5 ft for 1 hour in a 24 hour period. AAs are managing to these criteria resulted in a March 13 BON day average outflow of 128 kcfs. The Corps will be coordinating with the region during the March 20 TMT meeting to discuss the remaining duration of this operation.

4.6. Pinniped update. Klatte reported 41 Stellars, 38 repeat visitors. 1 California below BON and 2 below TDA. Conder asked if we had the distribution of pinnipeds at the Willamette. Bettin asked if TDA and JDA have the protocol that if sea lions are in the lock, the Project flushes it out rather than lock it through. Stellar presence is lowest to date since 2009. Salmon take is lowest level since 2004 and sturgeon take is lowest since 2006.

4.7. Lamprey updates.

4.7.1. BON WS lamprey structure. Tackley reported on the rod that broke last week. The cause of the failure is believed to be unaccounted for hydraulic forces. Bracing improvements have been worked out but what isn't known is how much stressing has occurred to the unbroken rods. NUE and NDE should've open on 13 March, with everything back in criteria by 14 March. INCA did inspect all the rods last week and only rod 5 showed signs of damage or stress.

- 4.7.2. BON CI LPS mods. NMFS Pasco should finish up by the end of March. Tackley mentioned Conder brought up screening for all the LPS pumps. NWP will make sure the new pumps are screened with NOAA criteria screens. The old pumps will be updated during winter maintenance season. As the LPSs are transferred over to the Projects, a laundry list of items will be addressed so the systems conform to Project standards.
- 4.7.3. JDA Lamprey collection protocols. Still need to work out:
 - (1) All parties need to agree on time of day and frequency of operation. It is anticipated the tribes will be operating the trap daily from July – August and maybe into September. Fredricks asked if this will be a miniature AFF where tagging will occur on the deck. Tackley said if the trap works well, the duration may be decreased. Fredricks asked what these fish are going to be used for. They will be used for research and translocation. This trap would replace the old traps. Tackley said until we know the trapping success we won't know how long the trap will be operated. Lorz said this will be used for translocation and it should be expected this trap will be a long term operation and may be used as a prototype for traps installed elsewhere. Tackley described the process as a 10 minute operation where the trap is hoisted up and set on the tailrace deck. The lamprey will need to be manually removed from the trap and into a tank. Yakamas may want to transport to the SMF so they may PIT tag lamprey on-site. **FPOM said to wait on finalizing protocols until they can see the trap in operation and get a better idea of how the operation will impact the ladder passage.**
 - (2) Need to make sure that any and all operators of the jib crane/hoist are properly trained and that appropriate safety requirements are met.
 - (3) How and where should JDAS trap ops be included in the 2013 FPP?



Photo 1. JDA-S lamprey trap entrance.

- 4.7.4. MCN SFE2 stilt removed. Fone reported that the stilts have been removed and there were no issues. The entrance is back to normal operations.
- 4.7.5. LGS & LWG fish ladder lamprey improvements. Fone reported everything (diffuser plates and orifices) was completed except LWG didn't complete three of the lamprey orifices in the flow control section; they will be completed next winter maintenance season. Monitoring will occur at two orifices at each project.
- 4.8. Avian.
 - 4.8.1. LWG replacement of two bird wires. Fone reported LWG found there are two missing avian wires. The wires will be replaced on 26 March.
 - 4.8.2. Status update on lethal take of gulls at NWW dams. Fone reported NWW is scoping out the EA and developing a NWW FONSI. The permits would be through Wildlife

Services. The timeframe is still unknown but continuing to make progress. This will continue to be an FPOM update.

4.9. BPA updates. ACTION: BPA will need to develop MOCs for those outages that take the Projects out of criteria (TDA Unit 18 and MCN).

4.9.1. The Dalles {DC RAS TESTING}

- * PH 3 (units 5-8) 7/15/13
- * PH 4 (units 9-12) 7/16/13
- * PH 5 (units 13-16) 7/17/13
- * PH 6 (units 17-22) 7/18/13 & 7/22/13

4.9.2. John Day {Bi-Annual Testing}

- * PH 3 (units 9-12) 7/15/13 - 7/23/13
- * PH 2 (units 5-8) 8/12/13 - 8/22/13

4.9.3. McNary {DC RAS TESTING}

- * Units 1,2,3 One At A Time (O.A.T) 7/8/13
- * Units 4,5,6,7 O.A.T 7/9/13
- * Units 8,9,10,11 7/10/13
- * Units 12,13,14 7/11/13

5. Coordination/Notification forms (need concurrence).

5.1. 13BON01 T11 and T12 outages. (attached). Approved to go forward from September – November with one transformer in 2014 and the other in 2015.

5.2. 13BON05 B2CC hydrofoil PIT detector test. (attached). Laughery provided a .ppt presentation. Installation will require the B2CC be closed for two days. Laughery is looking at an ERDC trip in April to look at the TSW model. Sands submitted a request for access request letter to BON. NWW is waiting on approval from BON before going forward with the contracting to start fabrication and installation. Fredricks said there is the coordination that is occurring today and then further coordination regarding details about timing and deployment. Hausmann said the BON concerns are primarily debris and the impact to the slot filler. Currently there is not a good way to free debris since it is very rare that anything gets hung up at the B2CC. CRITFC is ok with the installation as long as it doesn't significantly impact B2CC operations. Hevlin thanks Fredricks for working out the bugs on this project in NWP rather than at LWG. Fredricks said he figured it would impact less fish at the B2CC than at a TSW at LWG. Fredricks also noted that this test is scheduled for a time when sub-yearlings pass and sub-yearlings do not use the B2CC as much as the spring fish. There will not be any additional fish tagged to pass through this system. **FPOM is in agreement with moving this test forward.**

6. FPOM coordination process. Klatte explained how the process works, as he understands it, when issues are elevated to Implementation Team (IT) or RIOG. FPOM members would take unresolved issues to their Hydro Chair (Team Ritchey). From there it may go to RIOG or it may get kicked back to FPOM for more discussion. It was noted that RIOG has not been used frequently nor does it work for issues needing a quick turnaround. Lorz said he was concerned that there was another meeting occurring and that FPOM members didn't have an opportunity to weigh in. Klatte acknowledged moving forward with the B2CC triggers before going back to FPOM for concurrence. Fredricks said once we hit one of those contentious issues, we will find out the process. Hevlin thanks Klatte for the discussion since SCT has found the process to be unclear.

6.1. Tackley noted that it would be useful to have the Bull Trout coordination process spelled out. Wills said that process is getting worked out in the new BA. Since 2000, the entire Columbia River and the Snake River has been listed as Critical Habitat so a new BiOp is needed. Wills

noted that the crux of the problem is that the NOAA BiOp is structured in such a way as to allow interaction and coordination of impacts; USFWS did not. Wills has suggested USFWS consider a more flexible route.

7. **FPC data collection and BON separator bar monitoring.** Mackey explained that 2013 is the last year we may issue a task order on the Cooperative Agreement with PSMFC. The Cooperative Agreement covers the condition sub-sampling (100 fish/species) at BON and JDA and 16 hour separator bar monitoring at BON. In 2014, this Cooperative Agreement may become a contract and may likely go out for bid.
 - 7.1. NWP has discussed the need for the sub-sampling and feel that the information collected during normal Smolt Monitoring activities should suffice for determining if the bypass is impacting fish moving through the system.
 - 7.2. NWP believes the separator bar monitoring is a critical component to operating the system in sample mode. Debris and adult fish may get stuck on the separator bars and need to be manually removed. In addition to the separator bar monitoring, PSMFC handles the kelt counting in March. Currently PSMFC, through the Smolt Monitoring Program (SMP), covers the day shift for separator bar monitoring and kelt observations. PSMFC, through the Cooperative Agreement with NWP, is tasked with covering the swing and graveyard shifts for separator bar monitoring and kelt observations. If possible, NWP would prefer to see all 24 hours covered by PSMFC through the SMP.
 - 7.3. Fredricks asked if there has been any discussion with BPA to include it in the FPC contract. Bettin said the BPA contract folks did not want to engage in any discussion with FPC regarding changing the contract. Fredricks asked what the deliverable difference is between collecting sub-sampling data and just the regular SMP data. **ACTION: Mackey will outline the data that will be lost by stopping sub-sampling information.** Martinson asked if BPA didn't want to pay for the separator bar monitoring or if they didn't want to negotiate with FPC. Bettin said BPA doesn't have the funds nor do they want to negotiate with FPC. Fredricks said the AA are responsible for smolt monitoring, TDG, condition sampling. Setter said NWW is about a year out before having to worry about needing to go to a contract.

 8. **2013 FPP:** Final 2013 FPP has been posted to the website: <http://www.nwd-wc.usace.army.mil/tmt/documents/fpp/2013/index.html>. The 2013 FOP is still in development and will be filed with the court around March 25, and will be posted to the website at that time. There will be no significant changes from the previous year's FOP.
 - 8.1. Outstanding change forms. Find the most current change forms and their status: <http://www.nwd-wc.usace.army.mil/tmt/documents/fpp/2013/changes/index.html>

 - ♣13MCN003 Warm Water Ops – *pending*. Fredricks said he wants a separate discussion. NWW is ok with the form. Plan on the May FPOM at MCN.
 - ♣13AppB003 MCN Warm Water Ops – *pending* (see 13MCN003)
 - ♣13AppD draft new Appendix – revised 2/11/13 w/ Fone's edits. Pending.
 - ♣13AppE001 IHR Spring Spill – *Pending*. *RIOG review resulted in no significant changes to the FOP from last year.* Kiefer said IDFG is planning on going the normal route of submitting a SOR instead of taking it directly to RIOG.
 - ♣13AppG001 IHR Sampling Protocols – FPOM needed more time to review. Conder said he is concerned about using ice to reduce temperatures. Approved if temps can be kept within 1°F with no ice. Ice may not be used to keep anesthetic water within 1° of river temperature. Feb. 21 – NWW (Bailey and Trachtenbarg) provided edits as per Conder's recommendation. **Approved.**
9. **Task Group Updates.**
 - 9.1. AFF mods (Rerecich). Rerecich reported that the project is on schedule.

- 9.1.1. Near-term projects:
 - A. Install a new floor in the recovery pool area to hold up a new two stage recovery tank. Extend the exit section of this new tank well upstream of the drain grizzly.
 - B. Evaluate potential to improve drain grizzly hydraulics to even out flow distribution.
 - C. Extend the return to ladder flume pipes out of the existing building (perhaps with another 90 degree bend around corner of the building).
 - 9.2. BON unit operating range (Lorz). Team members include Baus, Benner, Bettin, Chockley, Conder, Cooper, Fredricks, Hausmann, Hevlin, Lorz, Mackey, Meyer, Tackley, Rerecich, Wills. Next meeting is scheduled for 1430 on 19 March 2013.
 - 9.2.1. **29 January Task Group meeting at 1330 in CRITFC.** Attendees included Kruger, Baus, Wills, Wright, Chockley, Lorz, McCann, Fredricks, and Mackey.
 - ♣**ACTION:** USACE needs to confirm they can operate at the mid-point in local for the season and if this is operationally possible then additional coordination will occur prior to this operation being implemented. . This may be established via teletype or by modifying the GDACS settings to target the mid-range.
 - ♣**ACTION:** Need mid-point table for PH2. Update on PNNL data mining. Understand the juvenile number used in the ratios. Look at day/night operation.
 - 9.2.2. **12 February 2013 Task Group meeting at 0930 in the CRITFC Sockeye Rm.** In attendance: Baus, Bettin, Conder, Ford, Fredricks, Hausmann, Kruger, Lorz, Mackey, Rerecich, Wills.
 - ♣**ACTION:** Ford will find out how much the governors drift. Mackey will draft a mid-range table for PH2 and draft a change form with the Task Group's proposed operation. Rerecich recommends a specific flow range at all heads rather than having it change as head changes.
 - 9.3. BON VBS task group. (Hausmann). Team members include Baus, Bettin, Fredricks, Hausmann, Lorz, Mackey, Rerecich, and Wills. Fredricks said the main purpose it to better clarify the FPP criteria for re-installing screens and how to keep screens in throughout the year.
 - 9.3.1. Next meeting after the April FPOM.
 - 9.3.2. Hausmann said he has taken a closer look at the reinstallation criteria. In the field, the actually reinstallation was close to the recommended installation criteria.
 - 9.4. Sturgeon task group (Van der Leeuw or Hausmann).
 - 9.5. Fish counting task group (Setter). Team members include Fredricks, Klatt, Mackey, Setter, Tackley, and Wills.
- 10. Calendar items/ next FPOM agenda items. (Check the CY13 on the website)
 - 11. Other

Memorandums of Coordination



COORDINATION TITLE- 13BON01 T11 and T12 outages.

COORDINATION DATE- 17 December 2012

PROJECT- Bonneville Lock and Dam

RESPONSE DATE- 10 January 2013 (FPOM)

Description of the problem- BON will need to upgrade the T11 and T12 transformers. Each transformer will be out of service for two months. Each outage will take out four PH2 units. Contractors need the driest and warmest work windows possible.

Type of outage required- T11 (units 11-14) and T12 (units 15-18) need to be upgraded during the summer/fall of 2014.

Impact on facility operation- For 16 weeks, there will be four units out of service at PH2.

Dates of impacts/repairs- Proposed outage dates are

T12: 7 July 2014 through 4 September 2014

T11: 8 September 2014 through 6 November 2014

Length of time for repairs- Each transformer will require an eight week outage.

Expected impacts on fish passage-

Bull Trout- Occurrence in Action Area. Of the five distinct population segments (DPS) of bull trout listed as threatened by the USFWS, the Columbia River DPS is the only one that is likely to occur in the vicinity of the proposed project. Historically, bull trout of the Columbia River DPS likely ranged through much of the Columbia River Basin with spawning and rearing occurring in the coldest creeks, often at higher elevations. Presently, bull trout of the Columbia River DPS are distributed in a more fragmented pattern throughout the Columbia River Basin with fewer adult migratory fish and fewer, more compressed spawning reaches than historically occurred.

WDFW and Corps personnel provided a list of anecdotal sightings/captures of bull trout in the mainstem Columbia River. From 2000 through 2012 there were eleven bull trout reported. Three were downstream of Bonneville Dam, with two at the mouth of Hamilton Creek (RM 143) and one in 2005 at the Bonneville Dam Smolt Monitoring Facility (RM 144). Upstream of the dam, one bull trout was found at Cascade Locks (RM 149), two at Drano Lake (RM 162), two at the mouth of the Klickitat River (RM 180.5), one in 2002 at the John Day Dam Smolt Monitoring Facility (RM 215), and one sighting at Dog Creek Falls by a reputable WDFW creel sampler who observed 18- to 24-inch cuts or dollies working old redds below the splash pool over the course of two weeks.

Fish passage data from the Bonneville Dam fish ladders (Corps, unpublished) show only three sightings of bull trout moving through the fish ladders for 2000 through 2011 during the fish counting season (April 1 through October 31). These sightings occurred between May 30, 2009 and June 2, 2009 and were reported as '12-inch bull trout moving upstream' through the count window on each occasion.

Downstream passage- T12 would be taken out of service in July, keeping south units in operation to maximize attraction to the B2CC. T11 would be in service for the duration of spill season and B2CC operation. This keeps the south PH2 units in service to assist in attracting fish to the B2CC. PH1 units would remain in service and in FPP criteria.

Upstream passage- Below are two tables showing the five year average adult fish passage (by species) for each transformer outage. Also noted are the high passage years and the low passage years.

Table 1. Bonneville Bradford Island 5-year average Fish Passage Numbers for 2008 – 2012 During T11 and T12 Proposed Outages.								
Date		All Chinook	Clipped Steelhead	Unclipped Steelhead	All Coho	Sockeye	Chum	Pink
7 Jul - 4 Sep	Average	85244.4	81888.6	39928.4	10183	9574.2	0.8	20.4
T12 outage (U15-18)	High/year	107273 2009	151302 2009	58586 2009	16885 2009	18193 2011	2 2008	90 2011
	Low/year	67910 2010	38965 2012	22004 2012	4670 2010	1722 2008	0 2009-10	0 2009-10, 12
8 Sep - 6 Nov	Average	76617.2	16310	5573.2	30326.4	2	11	128
T11 outage (U11-14)	High/year	133852 2011	20212 2011	7345 2011	47832 2011	7 2008	16 2010	632 2011
	Low/year	32759 2009	12985 2010	4634 2010	14651 2012	0 2010-12	3 2012	0 2008,12

Table 2. Bonneville Washington Shore 5-year average Fish Passage Numbers for 2008 – 2012 During T11 and T12 Proposed Outages.								
Date		All Chinook	Clipped Steelhead	Unclipped Steelhead	All Coho	Sockeye	Chum	Pink
7 Jul - 4 Sep	Average	102788.6	110710.8	60557.6	19851.4	18676.8	2	107
T12 outage (U15-18)	High/year	124502 2010	193402 2009	84136 2009	42389 2009	27770 2012	4 2011	463 2011
	Low/year	84257 2012	61899 2012	41696 2012	7275 2012	5555 2008	1 2008,10,12	0 2012
8 Sep - 6 Nov	Average	160070.2	31501.4	9949.4	69763.4	2.6	32.4	475.8
T11 outage (U11-14)	High/year	233320 2010	45314 2009	14110 2009	124658 2009	5 2008,10	52 2010	2326 2011
	Low/year	93585 2008	33164 2010	7505 2012	24083 2012	0 2009,11	4 2011	0 2008,10

Comments from agencies-

130214 FPOM. 13BON01 T11 and T12 outages. Pending. Fredricks expressed concern about the July outage. Running PH1 and half of PH2 doesn't provide good tailrace conditions for juveniles. FPOM asked how often this type of outage may need to occur, could T11 and T12 be worked on concurrently, and could the contract be broken up into two consecutive years.

BON Tech Staff (J. Thomas)-

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

From: Thomas, Jon B NWP

Sent: Thursday, February 14, 2013 4:10 PM

To: Mackey, Tammy M NWP; Hausmann, Ben J NWP

Cc: Yeadon, Bruce F NWP; Fortuny, William B NWP; Watkins, Maggie I NWP

Subject: RE: T11 and T12 outage for 2014 (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

(1) The outages could be concurrent if it would be acceptable to BPA--and if our Project Electricians are able to get the new T11/T12 transformer digital relays and attached circuitry tested and commissioned in that approx. time window of 8 weeks. I would assume that the contractor would simply double the size of his crews for doing both transformers at the same time. Will try to get Bruce Yeadon's feedback in terms of how much time the Project Electricians need to do their related digital relay work.

(2) Breaking the contract up into two actions during two consecutive years would, of course, be more expensive because of the contractor de-mob'ing and re-mob'ing. The biggest disadvantage for this, though, is that you most likely would be bringing in a new crew for the 2nd transformer who would not have the lessons learned knowledge that the first transformer crew obtained during their work.

(3) As stated in my previous e-mail, this type of outage for T11/T12 should not be needed for another 20-30 years--or until one of the two transformers fails. I am assuming that the transformers will have a life span of at least 50 yrs.... They have been operating for the last 30 years. The PH1 main transformers were replaced after approx. 55 years of use. We'll see what kind of feedback that Bruce can provide on the #1 question. Thanks, --Jon (541) 374-4574

Bruce just told me that it would not be a problem for Project Electricians to get the new T11/T12 digital relays tested/commissioned in an 8 week time span. I believe a 6 week time span per transformer has been discussed--but Bruce is of the opinion given the scope of the work and the re-paint job, that 8 weeks per transformer is more realistic. If you did both transformers concurrently, obviously that would be the same 8 week time span. Thanks!--Jon (541) 374-4574

BON Maintenance and Operations-

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

From: Kirk, Tony R NWP

Sent: Thursday, February 28, 2013 4:04 PM

To: Schwartz, Dennis E NWP; Mackey, Tammy M NWP

Cc: Thomas, Jon B NWP; Yeadon, Bruce F NWP

Subject: RE: FPOM: Official coordination 13BON01 2014 T11 and T12 outages (UNCLASSIFIED)

Construction in consecutive years has other impacts that will need to be vetted:

We complete transformer maintenance bi-annually with opposite powerhouses in off years. Will BPA be ok with doing half of PH2 in one year as well as taking PH1 down one transformer bank at a time? Or, is the recommendation to defer PH1 transformer bank for that year (Which I do not agree with).

From a maintenance point of view, we need to do both xfms in the 16 weeks mentioned.

Dennis,

What kind of a contingency are you looking at?

Tony R. Kirk

Maintenance Manager

Bonneville Lock and Dam

Cascade Locks, OR 97014

(541)374-8307: Office

(541)399-3921: Blackberry
Tony.R.Kirk@usace.army.mil

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

From: Schwartz, Dennis E NWP
Sent: Thursday, February 28, 2013 12:08 PM
To: Mackey, Tammy M NWP
Cc: Thomas, Jon B NWP; Yeadon, Bruce F NWP; Kirk, Tony R NWP
Subject: RE: FPOM: Official coordination 13BON01 2014 T11 and T12 outages (UNCLASSIFIED)

I think we need to also put forth a contingency plan if for some unforeseen reason T-11 or T-12 do not come back in 8 Weeks.

Thoughts?

Dennis E. Schwartz
Hydro Electric Power Operations Manager
Bonneville Lock & Dam
(541) 374-4567 office (541) 490-3921 Cell Dennis.E.Schwartz@usace.army.mil

NOAA Fisheries (Fredricks)- -----Original Message-----

From: Gary Fredricks - NOAA Federal [mailto:gary.fredricks@noaa.gov]
Sent: Friday, March 01, 2013 11:18 AM
To: Mackey, Tammy M NWP
Cc: Trevor Conder - NOAA Federal; Lorz, Tom
Subject: Re: FPOM: Official coordination 13BON01 2014 T11 and T12 outages (UNCLASSIFIED)

Tammy, I've given this some thought and the only option that I've heard that would be best for fish passage would be to do each transformer in different years. I understand the higher cost but the lessons learned seems a bit weak given you trust the work on the first transformer will be done correctly and I would expect that any lessons learned could be written down for the next crew. There might be mixes of options that you guys could come up with. The main issues are:
maintaining some dual powerhouse operation for splitting adult passage in September (reduces ladder crowding), minimizing low flow split powerhouse operation for juveniles (reduces predation potential) and optimizing best powerhouse usage for juvenile passage (PH2 appears to be a bit better than PH1 for best summer subyearling Chinook survival). Some additional discussion of this one seems appropriate. Thanks, Gary

CRITFC- -----Original Message-----

From: Tom Lorz [mailto:lort@critfc.org]
Sent: Friday, March 01, 2013 12:25 PM
To: Mackey, Tammy M NWP
Subject: Re: FPOM: Official coordination 13BON01 2014 T11 and T12 outages(UNCLASSIFIED)

I would suggest we put this on the next agenda. Need to see what level of cost increases there are. It would need to be relatively large like 1.2 million or so, otherwise I will push for splitting it into 2 seasons. It seems that any value less than 1.2 million is not important to the COE giving recent contract awards. Also the lessons learned, if they have forgotten how to do in one year, then I am nervous about them doing the work in the first place. They also should be able to document any important findings. Thanks
tom

Final results- This action will go forward with the transformer work occurring September – November in 2014 and 2015.

COORDINATION TITLE: 13BON B2CC hydrofoil PIT detector test

COORDINATION DATE-14 March 2013

PROJECT- Bonneville Dam

RESPONSE DATE- 14 March (FPOM)

Description of the problem: The corner collector at the 2nd Powerhouse of Bonneville Dam (B2CC) is an ideal location to field test the proof of concept for a full size hydrofoil PIT-tag system due to existing infrastructure, ease of installation, and cost savings. The B2CC provides existing PIT-tag detection that would enable assessment of the PIT-tag detection efficiency of a hydrofoil PIT-tag detection system. Other surface passage facilities in the Federal Columbia River Power System (FCRPS) lack PIT-tag detection that could be used to assess the detection efficiency a hydrofoil PIT-tag detection system. Furthermore, the entrance width of the B2CC is 15 feet wide and the entrance to other surface passage structures is 50 feet wide. A smaller width surface passage test environment simplifies the approach and reduces the cost of evaluating the proof of concept prototype. A system that provides coverage for the of the B2CC would only require approximately 4 hydrofoil antennas where as a system for other surface passage structures such as a Removable Spillway Weir (RSW) would require 18 hydrofoil antennas to provide a similar level of coverage because the width of the entrance is larger. Significant cost savings would result in developing and testing the hydrofoil PIT-tag system concept at B2CC compared to other surface passage structures. If the prototype performs well, the concept may be used to develop PIT-tag detection for surface passage structures or the The Dalles Dam ice and trash sluice way.

Type of outage required: Three periods of change in operation of the B2CC are requested, two 8-hour outages and one 8-hour operation in September.

Closure of the B2CC would be required for installation of monitoring equipment (DIDSON camera or hydroacoustic) to evaluate passage distribution into B2CC (Figure 1). It is expected that the install of monitoring equipment will require 4 to 8 hours and occur in July, 2013.

A second closure of the B2CC would be required for installation of the prototype forebay PIT-tag monitoring system. It is expected that the install of monitoring equipment will require up to 8 hours and occur approximately 1 week after the earlier outage in July, 2013.

Run B2CC during the 1st week of September to test debris response of hydrofoil antennas.

Table 1. Tentative changes in the Fish Passage Plan required for the project.

Dates	Outage	Activity
early July	8 hours outage	Install monitoring equipment (i.e. DIDSON camera or hydroacoustic equipment)
July 22-26	8 hours outage	Install a prototype forebay PIT-tag detection system for detection of PIT-tagged fish entering the B2CC.
Sept. 1-7	8 hour operation	Test debris response of hydrofoil antennas.

Impact on facility operation: The installation of monitoring equipment and closure of the B2CC will require operational support from the project. Project crane assistance for the installation and removal of monitoring equipment and the prototype forebay PIT-tag detection system will be coordinated with the project. Access to the intake area of the B2CC will be needed by the contractor on a regular basis

between June and September 2013. Outages during equipment install will be required. Table 2 is a tentative schedule for the study.

Table 2. Tentative project schedule.

Dates	Activity
June-July	Install monitoring equipment (DIDSON camera or hydroacoustic equipment)
July 16-22	Evaluate the B2CC passage distribution before installation of the prototype forebay PIT-tag detection system.
July 22-26	Install a prototype forebay PIT-tag detection system B2CC entrance.
July 27-Aug. 31	Evaluate the physical performance of the prototype forebay PIT-tag detection system.
July 27-Aug. 31	Evaluate the B2CC passage distribution with prototype forebay PIT-tag detection system installed.
Sept. 1-7	Test debris response of hydrofoil antennas.
Sept. 7-15	Remove monitoring equipment and prototype forebay PIT-tag detection system.

Length of time for repairs: N/A

Expected impacts on fish passage: Installing equipment will occur during the fish passage season. Removal of equipment will occur at the end of the season and should not affect fish passage.

B2CC outages will temporarily increase the number of fish passing through turbines and the juvenile bypass system and may affect smolt survival. Estimates of the potential impact to migrating yearling Chinook salmon, coho salmon, sockeye salmon and steelhead smolts have been generated (See Tables 3 and 4).

The additional operation of the B2CC for debris testing (not more than 1 week) in September is not anticipated to negatively impact fish passage.

There is no anticipated impact to other studies at Bonneville Dam in July and August 2013.

Affects of two 8-h outages of B2CC in July:

Each outage would be up to 8 hours. A contract is in process for this study so the actual timing for the outage of B2CC to install equipment has not been determined, however, the outage and equipment installation would be sometime in July 2013. The overall impact to ESA listed stocks was estimated by applying the passage proportions and survival estimates from the Compass Model to the daily 5-year average smolt passage index (from Fish Passage Center). The impact to the percent and number of ESA listed fish from two 8-hour outage of the B2CC was estimated using the NOAA Fisheries 2012 “Estimation of Percentages for Listed Pacific Salmon and Steelhead Smolts Arriving at Various Locations in the Columbia River Basin”. Assumptions used for assessing the impact included: 1) passage distribution is similar across the day and the 16-hour outage represented 2/3 of the daily passage numbers, and 2) Compass Model passage distribution and survival for Coho and sockeye salmon was assumed to be the same as yearling Chinook salmon. Compass Model estimates and calculated assumptions are presented in Table 1. Numbers of additional mortality (overall and ESA listed fish) from a two 8-hour closures of the B2CC in July is presented in Table 2.

Table 3. Compass Model and calculated assumptions by species of closing the B2CC for up to 16-hours (two 8-hour periods) in July.

	subyearling Chinook	Yearling Chinook	Coho	Sockeye	Steelhead
Compass B2CC passage	22.4%	18.7%	18.7%	18.7%	42.0%
Compass % change in survival/24 hours	-4.7%	-1.3%	-1.3%	-1.3%	-0.9%
% ESA listed	37.7%	15.5%	1.5%	0.9%	72.4%
Change in ESA listed survival/24 hours	-1.78%	-0.21%	-0.02%	-0.01%	-0.64%

Table 4. Estimated additional mortality resulting from closing the B2CC for 16-hours (two 8-hour periods) in July.

	subyearling Chinook	Yearling Chinook	Coho	Sockeye	Steelhead
B2CC passage/day in July (5-year average)	3,368 to 22,942	0 to 88	0 to 98	0 to 135	40 to 272
Estimated additional mortality	106 to 722	0 to 1	0 to 1	0 to 1	0 to 1
Estimated additional mortality (ESA listed)	40 to 272	0	0	0	0 to 1

Comments from agencies
14 March 2013 FPOM-
Final results:

Figure 1. Equipment barge for monitoring B2CC passage using DIDSON camera or hydroacoustic.

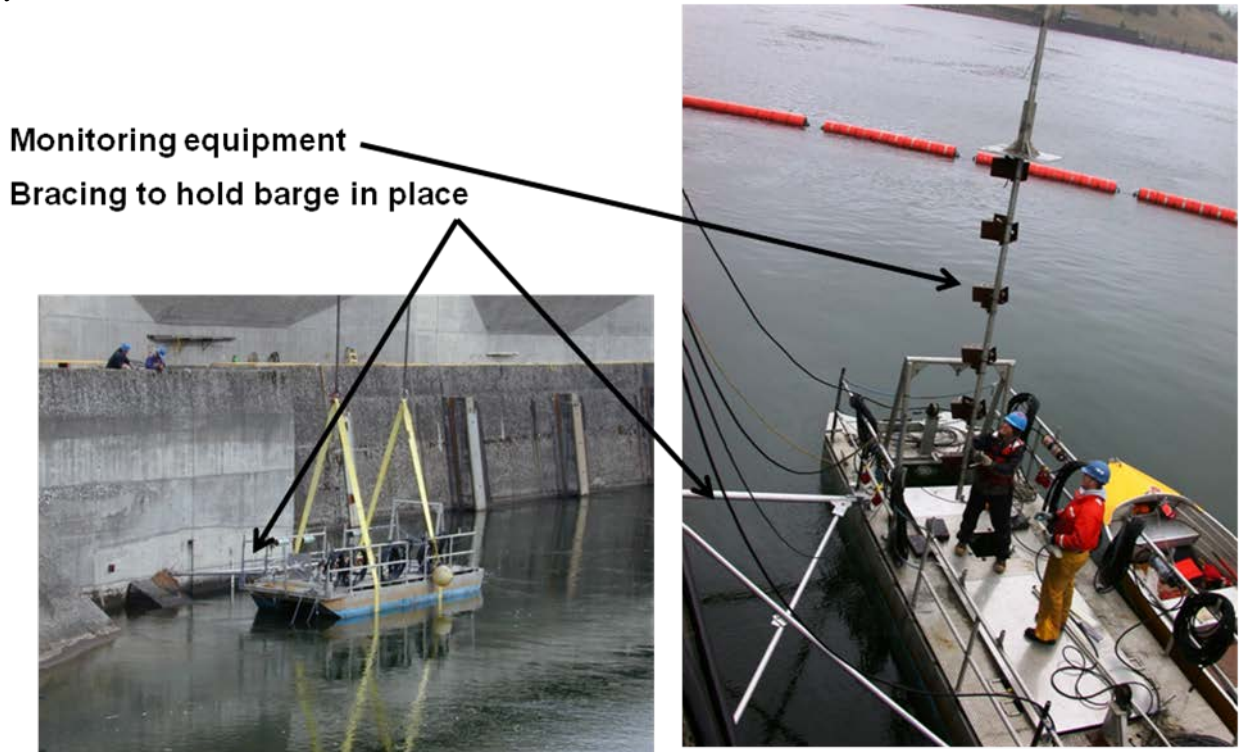


Figure 2. Plan view of hydrofoils and frame mounted to B2CC slot filler.

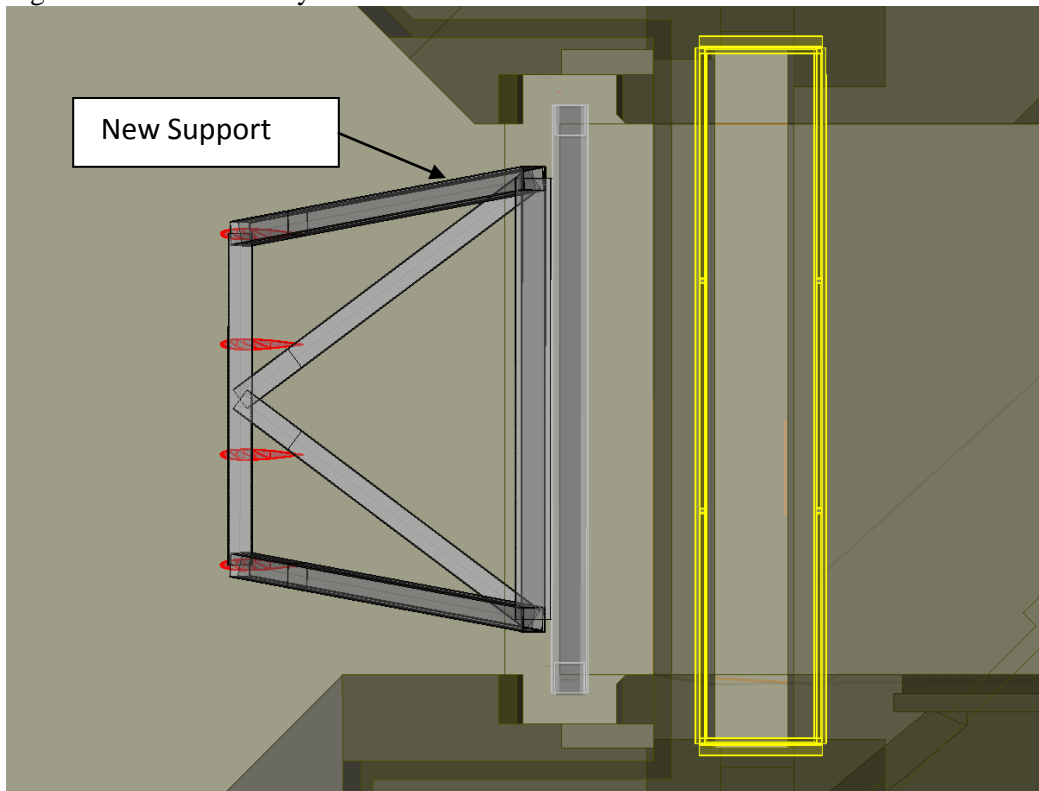
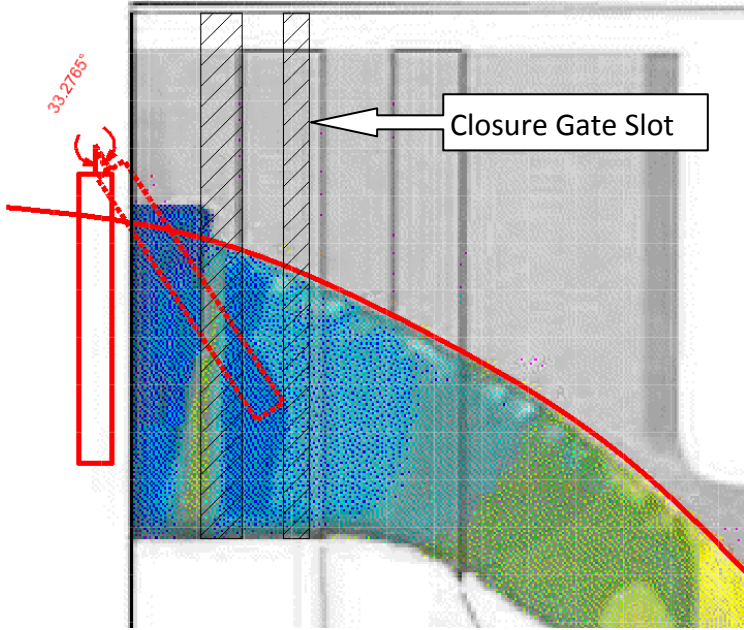


Figure 3. Section view of hydrofoils rotated to B2CC closure gate.



FPP Change Forms



Change Request Number & Title: 13MCN003 4.1. Turbine Warm Weather Ops

Date Submitted: 10/24/2012

Project: MCN

Requester Name, Agency: Carl Dugger, MCN Project Fisheries

Location of Change - FPP Project and Section:

MCN Section 4.1 (Turbine Operations)

Proposed Changes (in track changes to existing section):

4.1. Turbine Units Operation

When in operation, turbine units will be operated to enhance adult and juvenile fish passage and juvenile bypass from March 1 through November 30 as in Table MCN -5. During this time period turbine units will be operated as needed to meet generation requirements in the following order: 1, then 14 through 2 in descending order when units are available for operation.

~~Unit [DB1] operating priority may be coordinated differently to allow for fish research, construction, or project maintenance activities. During the summer, (when all collected fish are transported) turbine operating priority will change to north powerhouse loading to improve juvenile egress conditions, when recorded forebay temperatures reach 70 degrees Fahrenheit (F). Under north powerhouse loading, turbine units shall be loaded consecutively from unit 14 back towards unit 1. Turbine unit 1 may also be taken off line during parts of the summer to avoid adding warmer water to the juvenile fish collection channel. Refer to Appendix B section 4.g.(3) for warm water operations.~~ Starting and stopping of units, two or more at a time, should be avoided if possible during periods of warm water, especially between 1000 and 2400 hours. During times of elevated forebay temperatures (>70°F measured in the forebay) the project biologist may coordinate through CENWW OD T to designate up to 5 turbine units to a higher priority of operation to even out water temperature differences within the juvenile collection channel and to spread out the tailrace flow to reduce back eddies for safer smolt egress and safer fish barge docking conditions.

4.1.2 Warm Water Operations

a. General. ~~At the request of McNary Fisheries, [DB2] the McNary Project will implement the following protocols during warm water operations when water temperatures at the McNary Juvenile Fish Facility (JFF) exceed 68° Fahrenheit [DB3], in order to minimize thermal stress on salmonid species. The project and CENWW will coordinate these protocols with fish agencies and tribes through the Fish Passage Operation and Maintenance (FPOM) Coordination Team and other entities as necessary. The purpose of these protocols is to provide precautionary measures to avoid or minimize any direct or delayed mortality resulting from additional thermal stress when handling juvenile salmonid fishes.~~

b. Operation in Secondary Bypass or Transport & Sample Mode. ~~When any of the following occur, the project will begin to operate turbine units in a staggered priority fashion, operating every other unit starting with Unit 2, and ascending as necessary to avoid temperature shocks within the juvenile channel (i.e., shutting down Units 2, 4, 6, 8, 10, 12 and 14 as necessary), when any of the following occur:~~

~~**i.** Water temperatures in the McNary JFF laboratory > 68°F; or~~

~~**ii.** Water temperatures elsewhere at the project (e.g., gatewells) are likely to induce thermal stress in juvenile salmonids; or~~

iii. Temperature gradients are > 5°F; or

iv. Sample mortality is > 3%; or

v. System mortality is > 6%.

If possible, Unit 1 shall be left in operation in order to provide attraction flow to the two entrances of the Oregon shore fish ladder. The Project Biologist, after coordinating with CENWW, may modify this sequence as necessary to provide equal or better levels of protection to salmonid fishes. Starting and stopping of units, two or more at a time, should be avoided if possible during periods of warm water, especially between 1000 and 2400 hours. [DB4]

c. Continued Mortality. If juvenile salmonid populations continue to experience high mortality after implementing the above procedures, fish collection for transport shall cease, but collection for fish condition sampling by smolt monitoring staff should continue for up to 8 hours a day. The project shall switch to primary bypass, routing fish past the JFF and through the outfall bypass line, except for such daily monitoring, for the duration of the event.

Table MCN- 1. Turbine Unit Operation Priority for McNary Dam.

Season	Operation	Unit Priority
March 1 to November 30	Fish Passage Season and Fish Bypass	1 then 14 through 2 in descending order*
	<u>Fish Passage Season and Fish Bypass - Special Warm Water Operation</u>	<u>2, 4, 6, 8, 10, 12, 14, 1, 3, 5, 7, 9, 11, 13</u> [DB5]
	Fish Collection and Transport and no spill	14 to 1 in descending order
	Fish Bypass or Fish Collection and Transport at forebay temperatures \geq 70°F with spill	14 to 1 Priority with modifications at the southern end of the powerhouse to be determined by Project Biologist to minimize temperature differentials in gatewells and juvenile collection channel

* Provides positive downstream flows at the outfall and based on unit availability.

Justification for Change:

See also change form 13AppB003. The existing pattern risks shocking fish by creating sudden temperature changes as fish travel down the juvenile channel. Staggering the input flow evens out the temperature within the channel, thereby reducing the risk of temperature shock. In 2009, McNary successfully used this method and ended a temperature-related fish kill, even though temperatures continued to climb over the next week. The McNary temperature model, developed by Mike Schneider, USACE, also suggests this pattern.

Generally a serious condition that induces noticeable fish mortality only occurs when weather patterns, with no wind, occur for several days consecutively. The “no wind” condition does not allow for mixing of the stratified temperature layers within the forebay, and, depending on project

operation, can selectively withdraw extremely different temperatures up the gatewells into the collection channel.

The shortened, daily sampling would also still let the project know when to stop primary bypass and resume secondary bypass or transportation. Without sampling, the project would not be able to detect mortality resulting from unrelated factors, such as a sharp piece of metal stuck in the intake pipe to the JFF.

Comments from others:

FPOM 01/24/13: This needs further discussion at next NWW FFDRWG.

01/28/13 Baus: “ I vote for leaving discussion regarding warm water turbine unit operation in section 4.1 Turbine Units Operation for the following reasons: 1) there is a high probability to Corps will discontinue summer transport and MCN and section appendix 4.g. Summer Transport will likely be omitted in the near future, and 2) Table MCN-5 will need to be revised to reflect this change therefore the discussion should be included in section 4.1 with the discussion of Table MCN-5 Turbine Unit Operating Priorities.

Regarding JFF protocols it would seem reasonable to have an independent appendix with MCN JFF protocols similar to other appendices for JFF protocols (Appendix J – BON and Appendix K – JDA). I am hoping to avoid all the confusion that occurred in 2012 regarding temperatures at MCN and operations and was assuming an additional appendix would accomplish this goal. Section c. Continued Mortality does speak to JFF criteria but it is brief.”

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

From: Baus, Douglas M NWD
Sent: Monday, January 28, 2013 10:49 AM
To: Dugger, Carl R NWW
Cc: Wright, Lisa NWD; Setter, Ann L NWW; Johnson, Bobby NWW
Subject: 12MCN003 Turbine Warm Weather Ops Revisions (UNCLASSIFIED)

Carl,

I made some changes. Generally speaking I tried to: 1) Keep all "warm water" special operations in section 4.1., 2) update table MCN-5 to include the special unit operation, and 3) deleted some language in 4.1 that seemed outdated.

Thank you!

Doug

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

From: Johnson, Bobby NWW
Sent: Monday, January 28, 2013 11:42 AM
To: Baus, Douglas M NWD; Dugger, Carl R NWW
Cc: Wright, Lisa NWD; Setter, Ann L NWW
Subject: RE: 12MCN003 Turbine Warm Weather Ops Revisions

Thanks, for the updates. Two thoughts:

1. Unit order with depend on unit outages for maintenance. We may want to do 2, 4, 6... but due to unit outages it might not be exactly that order.
2. If we are transporting or not, we still need this criteria. The last "big kill" started in bypass season. Also, bypass season is every other day primary and secondary bypass.

Thanks,

Bobby

Record of Final Action:

FPOM 01/24/13: Not approved at this time. Requires more discussion at NWW FFDRWG.

FPOM 02/14/13: Not approved at this time. Fredricks wants a more robust discussion on this.



Change Request Number & Title: 13AppB003 MCN Warm Weather Ops

Date Submitted: 10/24/2012

Project: MCN

Requester Name, Agency: Carl Dugger, MCN Project Fisheries

Location of Change - FPP Project and Section:

Appendix B Section 4.g. (Operating Criteria – Summer Transport Operations)

See also change form 13MCN003

Proposed Changes (in track changes to existing section):

Appendix B

4.g. Summer Transport Operations

(3) During summer months at McNary Dam, from June 15 through August 31, water temperatures will be measured along the face of the powerhouse, in B-slot gatewells, and within the collection channel on a daily basis. These temperature measurements will be used for management of project operations per criteria contained in the Fish Passage Plan. During warm water periods, collected fish may be transported by truck or barge on a daily basis to minimize stress and mortality from warm water conditions. Other special operations may be required at McNary Dam during summer months to minimize impacts of project operations on juvenile fish collection during warm water temperature periods (see Fish Passage Plan, section 4.1., Turbine Unit Loading).

a. General. The McNary Project will implement the following protocols during warm water operations, in order to minimize loss of sensitive salmonid species. The project and CENWW will coordinate these protocols with fish agencies and tribes through the Fish Passage Operation and Maintenance Coordination Team (FPOM) and other entities as necessary. The purpose of these protocols is to provide precautionary measures to limit delayed mortality resulting from stress when managing juvenile salmonid fishes.

b. Operation in Secondary Bypass or Transport & Sample Mode. When any of the following occur, the project will begin to operate turbine units in a staggered priority fashion, operating every other unit starting with Unit 2, and ascending as necessary to avoid temperature shocks within the juvenile channel (i.e., shutting down Units 2, 4, 6, 8, 10, 12 and 14 as necessary), when any of the following occur:

- i.** Water temperatures in the McNary Juvenile Fish Facility (JFF) laboratory exceed 68° Fahrenheit (F), or
- ii.** Water temperatures elsewhere at the project (e.g., gatewells) are believed to be high enough to threaten juvenile salmonid fishes, or
- iii.** Temperature gradients > 5°F, or
- iv.** Sample mortality is > 3%, or
- v.** System mortality > 6%.

If possible, Unit 1 shall be left in operation in order to provide attraction flow to the two entrances of the Oregon shore fish ladder. The Project Biologist, after coordinating with CENWW, may modify this sequence as necessary to provide equal or better levels of protection to salmonid fishes.

c. Continued Mortality. If juvenile salmonid populations continue to experience high mortality after implementing the above procedures, fish collection for transport shall cease, but collection for fish condition sampling by smolt monitoring staff should continue for up to 8 hours a day. The project shall switch to primary bypass, routing fish past the JFF and through the outfall bypass line, except for such daily monitoring, for the duration of the event.

Justification for Change: *See also change form 13MCN003.* The existing pattern risks shocking fish by creating sudden temperature changes as fish travel down the juvenile channel. Staggering the input flow evens out the temperature within the channel, thereby reducing the risk of temperature shock. In 2009, McNary successfully used this method and ended a temperature-related fish kill, even though temperatures continued to climb over the next week. The McNary temperature model, developed by Mike Schneider, USACE, also suggests this pattern.

Generally a serious condition that induces noticeable fish mortality only occurs when weather patterns, with no wind, occur for several days consecutively. The “no wind” condition does not allow for mixing of the stratified temperature layers within the forebay, and, depending on project operation, can selectively withdraw extremely different temperatures up the gatewells into the collection channel.

The shortened, daily sampling would also still let the project know when to stop primary bypass and resume secondary bypass or transportation. Without sampling, the project would not be able to detect mortality resulting from unrelated factors, such as a sharp piece of metal stuck in the intake pipe to the JFF.

Comments from others:

FPOM 01/24/13: NOAA would like to have an FPOM discussion regarding this. Fredricks would like to use the model to understand it a little more. He noted there were inconsistencies in the language that need to be corrected. He has issues with the eight hour sampling and the potential additional stress. Fredricks said he doesn't see Project monitoring as daily monitoring but something that could be done every other or every three days.

Setter said there was concern about not having any sampling. B. Johnson felt some sampling is needed to make sure there are not debris issues.

Baus said the issue is trifurcated. 1. Fish condition sampling. 2. Holding and transport. 3. Unit operations. He wants everyone to remember the pain we all went through in 2012 and the conversations about discontinuing transport and 68°F, what it really means and where it is taken.

Bettin and Fredricks suggested the language regarding the warm water should be in the main body of the text. Bettin said the model is great but he needs the operations in the body. He would like it explicitly spelled out.

Fredricks said he wants to look at the model and he would like the FFDRWG next week to include this topic as well.

Baus 01/28/13: “I vote for leaving discussion regarding warm water turbine operations in the main FPP as a new sub-paragraph in section 4.1 Turbine Units Operation for the following reasons: 1) there is a high probability the Corps will discontinue summer transport at MCN which will omit this section 4.g. in Appendix B regarding Summer Transport in the near future, and 2) Table MCN-5 will need to be revised to reflect this change, therefore the discussion should be included in the FPP section 4.1 with the discussion of Table MCN-5 Turbine Unit Operating Priorities.

Regarding JFF protocols it would seem reasonable to have an independent appendix with MCN JFF protocols similar to other appendices for JFF protocols (Appendix J – BON and Appendix K – JDA). I am hoping to avoid all the confusion that occurred in 2012 regarding temperatures at MCN and operations and was assuming an additional appendix would accomplish this goal. Section “c. Continued Mortality” does speak to JFF criteria but it is brief.”

Record of Final Action:

FPOM 01/24/13: the group agreed to more time for discussion. This change form will be on the NWW FFDRWG for discussion. It may also be added to the February FPOM agenda.

FPOM 02/14/13: Not approved at this time. Fredricks would like a more robust discussion on this topic. See also change form [13MCN003](#).



Appendix D Project Operations for Non-ESA Listed Fish Species (Lamprey, etc.)

This appendix is intended to define FPOM-recommended special operations for species other than salmonids (e.g., lamprey) that may pass a project via the juvenile or adult passage facilities.

1. Lamprey

Below are project-specific changes to support improving lamprey survival that have been implemented annually since approved regionally through FPOM or FFDRWG.

1.1. Bonneville Dam

When adult lamprey are recovered during dewaterings, they will be transported and released into the BON forebay whenever possible. No fish, including lamprey, will be held for other uses when recovered during dewaterings.

Several adult lamprey passage improvements have been made to fish ladders at BON. In 2004, a Lamprey Passage System (LPS) was added at the Bradford Island ladder to the FV 3-9 AWS channel, and received an expansion and PIT-tag detection in 2006. Counting improvements, including video verification at the exit flume, were added in 2001. Also in 2011, one-inch picket lead spacers were added, and in 2012 these spacers were upgraded and improved to insure sufficient lamprey passage while not interfering with adult salmonid passage.

At Cascades Island, half-duplex PIT-tag detectors were installed along the picket leads to help track lamprey in 2006. A LPS, complete with a bollard floor guidance path and a variable width entrance weir, were installed in 2009. This LPS is currently being expanded to allow fully volitional passage to the forebay.

The Washington Shore fish ladder received guidance plates installed over the diffuser grates in 2001. A lamprey ramp and trap box were installed at the North Downstream Entrance (NDE) in 2005. In 2008, a LPS was added to the FV 6-9 AWS channel, similar to the LPS at the Bradford Island FV 3-9 AWS. One-inch picket lead spacers were installed in 2010 for passage under leads, and in 2011, NOAA Fisheries installed a picket lead sill ramp. NOAA Fisheries also installed ¾-inch crowder picket leads at the count station. Improvements to the picket lead spacers are planned for 2013. Additionally, the NDE lamprey trap will be removed and replaced with a complete LPS and entrance guidance system in 2013. During nighttime spill hours, Fish Unit output is reduced to operate the Washington Shore fish ladder entrances at 0.5 feet of head to encourage lamprey to enter the fish ladder. This operation occurs from June 01 –August 31.

1.1.1. Adult Lamprey Passage - Facilities Description:

1.1.1.1. Powerhouse One: At the Bradford Island ladder, the FV 3-9 AWS channel is equipped with a LPS that allows lamprey to bypass the serpentine section of the fish ladder and exit directly into the forebay, adjacent to the fish ladder exit. The picket leads that block passage of adult salmonids into the AWS channel are raised off the floor of the ladder 1", allowing lamprey to pass under the leads and into the AWS channel.

1.1.1.2. Spillway. The Cascades Island fish ladder entrance is equipped with a variable width weir entrance gate. This entrance is coupled with a bollard field on the floor of the ladder, leading to a LPS located in the entrance bay. This LPS bypasses the overflow weirs and provides a direct route to the forebay. This LPS is currently being converted into a fully volitional passage route with an exit directly into the forebay, adjacent to the Cascades Island fish ladder exit.

1.1.1.3. Powerhouse Two. At the Washington Shore ladder, the FV 6-9 AWS channel is equipped with a LPS that allows lamprey to bypass the serpentine section of the fish ladder and exit directly into the exit channel of the fish ladder. The picket leads that block passage of adult salmonids into the AWS channel are raised off the floor of the ladder 1.5", allowing lamprey to pass under the leads and into the AWS channel.

1.1.2. Adult Migration Timing and Counting

1.1.2.1. Adult lamprey migration season occurs from March 1 through November 30 with the majority of the run passing BON in June and July. Maintenance of the LPSs is scheduled for December 1 through the end of February.

1.1.2.2. Adult lamprey counting is conducted in conjunction with other adult fish counting. Counting hours and visual/video counting periods are shown in **Table BON-1**. In addition to count window operations, each volitional passage LPS is equipped with a mechanical counting system and video verification in the exit sections.

1.1.3. Lamprey Passage System (LPS) Operation & Maintenance

1.1.3.1. General. Maintain adequate water depth for lamprey passage in all LPS flumes.

1.1.3.2. Cleaning criteria. When water levels in an LPS flume drop below the required level, the water supply pump intakes must be cleaned and debris removed.

1.1.3.3. Trapping. All LPSs are designed for volitional passage; however while new potential locations are tested for usage by fish, LPSs may be temporarily set-up with a trap box at the terminus. These trap boxes are operated solely by research groups who are responsible for monitoring, handling, and transportation of lamprey from the boxes.

1.1.3.4. Water temperature. Temperatures will be measured in each LPS. When water temperature reaches 70° F, all fish handling activities will be coordinated through FPOM prior to any action to verify protocols that will be followed. Fish handling activities in the Adult Fish Facility (AFF) will implement protocols in **Appendix G**.

1.1.3.5. Winter maintenance season. The water supply pumps should be removed and winterized. The pumps should be inspected for damage and replaced if necessary. The flumes and rest boxes should be power sprayed to remove excessive algal growth and any debris should be removed. All joints should be inspected and re-caulked if necessary.

1.2. The Dalles Dam

1.2.1. Adult lamprey. Passage improvements were made in the east fish ladder by installing 4 orifice ramps to eliminate 90° edges. Additional ramps are under planning. Several concrete 90°s were also rounded with 2" radius. Picket leads were raised 1.5" for both north and east count stations.

1.2.2. Juvenile lamprey. Data are being collected in the powerhouse turbine cooling water strainers for informational purposes. These data will not be available as the strainers are now being replaced with self-cleaning mechanisms.

1.2.3. Dewatering collections. Lamprey are collected and returned to the forebay during fishway dewaterings. Tribal restocking efforts collect lamprey from some dewaterings. These lamprey are held for no more than 12 hours.

1.3. NWW Projects

1.3.1. Raceway tailscreens. By 2012, all of the juvenile fish facilities that are collector projects for transportation had implemented lamprey-friendly raceway tailscreens to allow collected lamprey to be returned to the river rather than transported. The new tailscreen has wire mesh with .063" diameter and 0.337" open width/height. The open diagonal dimension of the wire mesh is 0.477" with an overall screen open area of 71.0%. Lower Monumental tested a perforated plate tailscreen that can be cleaned with brushes without entangling lamprey. The perforated plate is 0.25" thick, with 0.312" x 1.0" slots oriented vertically, with a side-staggered slot pattern, and the slots spaced 0.25" apart. With the approval from regional partners, the replacement of the remaining mesh screens at Lower Monumental with the perforated plate screens is scheduled for the 2012-2013 winter maintenance season.

1.3.2. McNary Dam. Unit trash racks are raked prior to January 15 to minimize the potential for lamprey entanglement in built-up debris when river flows increase. ESBS screens are placed into operation prior to April 16 (two weeks later than other NWW projects) to allow for juvenile lamprey passage directly through turbines without any bypass system collection. Since 2010, nighttime (2100-0400 hours) velocities are reduced at adult fishway entrances SFE and NFE by lowering the entrance weir depth to sill to encourage lamprey entrance into the fish ladder. This operation occurs to coincide with lamprey passage season, June 15–September 30. During the 2009-2010 winter maintenance period, horizontal slots were cut at the bottom of the stem walls in

the upper section of the Oregon fish ladder to allow adult lamprey attachment through a level pathway through the weir. Plating was also attached on the diffuser gratings near the walls in the fish ladder to create a continuous path of attachment for lamprey.

1.3.3. Other Improvements for Adult lamprey. Adult lamprey passage improvements were made to upper fish ladder weirs at Ice Harbor Dam and Lower Monumental Dam during the winter of 2011-2012. These included cutting horizontal slots in weirs at the floor to allow adult lamprey attachment through a level pathway through the weir. Additionally, ramps were installed from the fish ladder floor to the bottom of elevated salmon orifices in the upper ladder weirs to assist lamprey in maintaining attachment as they maneuver through these areas. Plates were installed on diffuser grating adjacent to orifices in the Ice Harbor north fish ladder to provide attachment surfaces for lamprey in higher-velocity areas. Similar lamprey orifices and plating are being installed in the Little Goose and Lower Granite Fish Ladders during the 2012-2013 winter maintenance period. In 2011, picketed leads were raised and secured 1.5” off of the floor of the adult fish ladder at the count stations at all projects. This was done to enable adult lamprey passage under the picketed leads, thereby providing a low-velocity passage route around the adult fish count slot for lamprey. Fallback adult lamprey collected off of the fish separators and other areas of the juvenile fish facilities at Lower Monumental, Little Goose and Lower Granite are released into the forebay above the dams rather than being bypassed back into the tailrace or transported downstream.



FPP Change Request Form

Change Request Number & Title: 13AppE001 Ice Harbor Spring Spill (FOP)

Date Submitted: 1/23/13

Project: Ice Harbor

Requester Name, Agency: Russ Kiefer, IDFG

Location of Change - FPP Project and Section:

Appendix E – Fish Operations Plan (FOP) - Ice Harbor Spring Spill Operations (page 14)

Proposed Changes (in track changes to existing section):

Spring Spill Operations April 3 through June 20: Spill will begin at 45 kcfs day/spill cap night on April 3 and continue until April 28. On April 28, the US Army Corps of Engineers Walla Walla District (COE) will use the ESP flow forecast for Ice Harbor Dam to estimate a forecasted weekly average flow. The COE will use the weekly average flow forecasts to estimate an average daily spill volume that would occur under both the 45 Kcfs day/gas cap night and then the 30% per day operations. The COE will then calculate the weekly constant spill volume to be provided at Ice Harbor Dam by averaging these two estimated spill volumes. If the actual flow or flow forecast changes significantly during the week, the COE would notify the Technical Management Team Members of the change, and recalculate and provide a constant spill volume intended to provide the same overall spill volume as would occur on average with the alternating spill operations.

~~spill will alternate between 45 kcfs day/spill cap night and 30% /30% with the SW operating and continue through the spring season. Nighttime spill hours are 1800-0500.~~

Summer Spill Operations June 21 through August 31: ~~Spill operations will continue from spring at 30% 24 hours per day vs. 45 kcfs day/Gas Cap night~~ This spill operation will continue until July 13 at 0500 hours, then 45 kcfs day/Gas Cap night through August 31.

Justification for Change:

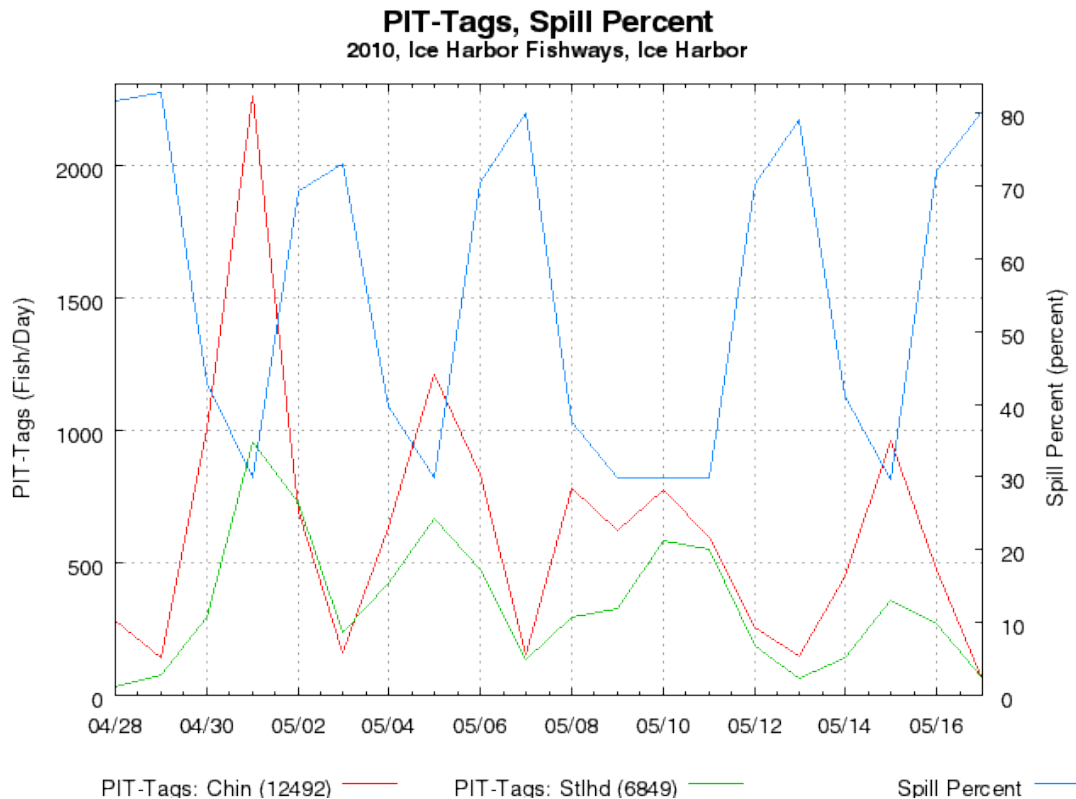
The current operation is a rollover of previous test conditions that compared the 2004 BiOp spill

levels versus a flat 30% spill level. There is no significant need or plan to gather more information comparing these two spill treatments. After four years of research at Ice Harbor Dam, NWFSC Biologists concluded that for yearling Chinook salmon and steelhead trout, spill percentages less than 37% and 39% (respectively) appear to not effectively shift fish away from the powerhouse, while spill levels higher than 48% and 53% (respectively) appeared to have decreasing effectiveness in shifting fish away from the powerhouse. Recent years PIT tag detections at Ice Harbor support this conclusion as dramatically more Chinook and steelhead smolts have been detected during the 30% spill blocks (Figure 1 & 2). Providing a weekly constant spill volume that averages what would have occurred under these two spill operations is anticipated to: 1) increase the proportion of Chinook and steelhead smolts that pass Ice Harbor Dam via the spillway, 2) reduce COE manpower needs and wear on spillgates and hoist, and 3) provide more stable power production from this project.

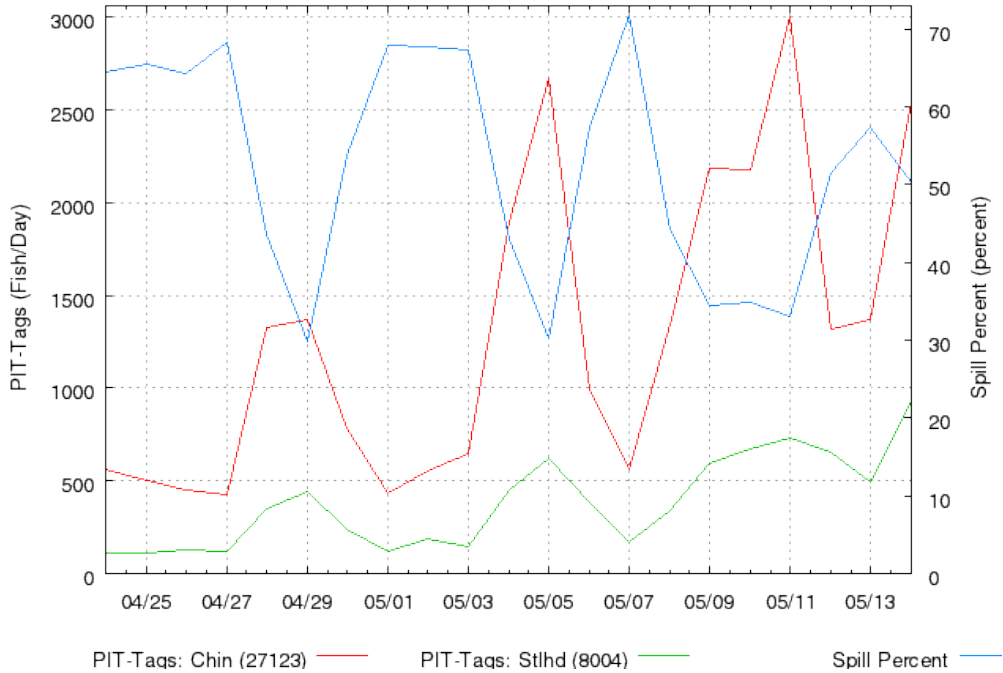
This request is only for migration year 2013. It is not intended to set long term operations.

References

Axel, G. A., E. E. Hockersmith, B. J. Burke, K. Frick, B. P. Sandford, and W. D. Muir.
 R. F. Absolon, N. Dumdei, J. J. Lamb, and M. G. Nesbit 2010. Passage behavior and survival of radio-tagged yearling and subyearling Chinook salmon and steelhead at Ice Harbor Dam, 2009. Draft Report of the National Marine Fisheries Service to the U.S. Army Corps of Engineers, Walla Walla, Washington.



PIT-Tags, Spill Percent
2011, Ice Harbor Fishways, Ice Harbor



Comments from others:

FPOM 02/14/13: Kiefer utilized the flip chart to explain the rationale for the proposed change to the FOP. This is for April operations. The benefit would be a more constant level of flow through IHR. There is a clear fish benefit, a small benefit to O&M, and an unknown power benefit. Would be a 24 hour operation, may obstruct adults during the day with not as much juvenile flow at night.

BPA understands, sees the logic, but they haven't run costs. Bettin said he cannot approve at this time.

Lorz said he imagines an SOR will need to be submitted and maybe adaptive in-season management could be used.

Bettin suggested this should go to the RIOG Hydro work group.

Lorz said please check, otherwise we will do in-season management.

Pending.

Record of Final Action:

FPOM 02/14/13: Pending RIOG decision. Changes to the FOP are not approved through FPOM at this time, and will be coordinated through RIOG.



Change Request Number & Title: 13AppG001 – IHR Protocols

Date Submitted: 12/19/12

Project: Appendix G - IHR

Requester Name, Agency: David Trachtenbarg, NWW

Location of Change - FPP Project and Section:

Appendix G (Adult Trapping Protocols) – IHR

Proposed Changes (in track changes to existing section):

3. Trapping Protocols during Fish Passage Season (March 1 - December 15) when Fish Ladder Water Temperatures are < 70°F.

Since the trap is operated manually, personnel conducting research are required to be present at the facility to divert desired fish.

- A. The trap will be tested for proper operation before trapping begins. After each day's use the trap will be promptly removed from the water by completely removing it from the fish ladder.
- B. Trapping operations can take place between 0600 and 1200 hours, for up to 4 hours per day or until the designated number of desired fish are obtained, whichever occurs first. During the summer months, the period from 0600 to 1000 hours is preferred. The trap shall not be in the water for more than 4 hours. Trapping operations shall limit the number fish lifted from the trap to the powerhouse deck to two per lifting cycle.
- C. Netting of fish is not recommended. If transfer of fish is necessary, fish should stay in water at all times through the use of a water-filled bag, sanctuary net, or other means. The device used should be large enough to safely handle the largest fish.
- D. Non-target fish will be released to the ladder.
- E. Oxygen levels in fish handling tanks will be maintained at saturation by replacing the water and providing aeration as necessary.
- F. Water temperatures in all fish handling tanks will be maintained within 1°F of the fish ladder water temperature. Ice will not be used to regulate water temperature of the anesthetic tank.
- G. Personnel shall sample fish as quickly as possible. It should require no longer than 25 minutes to transition the fish from entry into the anesthetic tank to release back into the ladder or transportation tank. River water shall be cycled through recovery and/or transportation tanks while holding fish at the dam until transported to the river for release or returned to the ladder.
- H. Fish must be adequately recovered from anesthetization prior to the next step in the handling process, whether placed in the ladder or transported.

4. Trapping Protocols during Fish Passage Season (March 1 - December 15) when Fish Ladder Water Temperatures are ≥70°F and ≤ 72°F.

The trap may be operated when water temperatures are within the range of 70°F to 72°F, provided that researchers closely adhere to the restrictions below. Trapping operations will not be allowed, and trapping must cease immediately, if fish ladder water temperatures exceed 72°F. Due to the narrow temperature range involved, researchers must use reliable digital thermometers.

- A. Researchers must notify the Corps project biologist in advance when trapping is to occur in this temperature range. The project biologist will occasionally monitor trapping operations.

- B.** The trap will be tested for proper operation before trapping begins. After each day's use, the trap will be promptly removed from the fish ladder.
- C.** Trapping operations can take place between 0600 and 1200 hours, for up to 4 hours per day or until the designated number of desired fish are obtained, whichever occurs first. During the summer months, the period from 0600 to 1000 hours is preferred. The trap shall not be in the water for more than 4 hours. Trapping operations shall limit the number fish lifted from the trap to the powerhouse deck to two per lifting cycle.
- D.** Trapping operations may take place up to 4 days per week.
- E.** Netting of fish is not recommended. If transfer of fish is necessary, fish should stay in water at all times through the use of a water-filled bag, sanctuary net, or other means. The device used should be large enough to safely handle the largest fish.
- F.** Non-target fish will be released to ladder.
- G.** Oxygen levels in fish handling tanks will be maintained at saturation by replacing the water and providing aeration as necessary.
- H.** Water temperature in the anesthetic tank will be maintained within 1°F of the ladder water temperature (not to exceed 72°F). Ice will not be used to regulate water temperature in the anesthetic tank. If practical, water temperature in the recovery tank should be maintained within 1°F of the ladder water temperature or flow-through water should be running continuously. Water in the anesthetic and transport tanks shall not exceed 72°F at any time.
- I.** Personnel shall sample fish as quickly as possible. It should require no longer than 25 minutes to transition the fish from entry into the anesthetic tank to release back into the ladder or transportation tank.
- J.** Fish must be adequately recovered from anesthetization prior to the next step in the handling process, whether placed in the ladder or transported.

Justification for Change:

Changes to the Ice Harbor Dam adult trapping protocols are necessary as part of rehabilitating the existing trap.

Comments from others:

FPOM 01/24/13: Need more time to review and provide comments. Add to Feb FPOM agenda.

FPOM 02/14/13: Conder said he is concerned about using ice to reduce temperatures. Approved if temps can be kept within 1°F with no ice. Ice may not be used to keep anesthetic water within 1°F of river temperature.

02/21/13: NWW (Bailey and Trachtenburg) modified the change form to reflect FPOM's concerns (track changes in blue).

Record of Final Action:

FPOM 02/14/13: Approved w/ edits, if temperatures are maintained within 1°F without using ice.

