

MEMORANDUM FOR THE RECORD

Subject: FINAL Minutes for the 10 April 2008 FPOM meeting.

The meeting was held in the McNary Theatre, McNary Dam NWW. In attendance:

Last	First	Agency	Office	Email
Annamalai	Maler	RCC	503-808-3935	maler.v.annamalai@usace.army.mil
Bailey	John	USACE	509-527-7123	John.c.bailey@usace.army.mil
Benner	David	FPC	503-230-7564	dbenner@fpc.org
Bettin	Scott	BPA	503-230-4573	swbettin@bpa.gov
Cordie	Bob	USACE	541-298-7406	Robert.p.cordie@usace.army.mil
Dykstra	Tim	USACE	509-527-7125	Timothy.A.Dykstra@usace.army.mil
Eby	Brad	USACE	541-922- 2263	Brad.w.eby@usace.army.mil
Feil	Dan	RCC	503-808-3943	Dan.h.feil@usace.army.mil
Fredricks	Gary	NOAA	503-231-6855	Gary.fredricks@noaa.gov
Hausmann	Ben	USACE	541-374-4598	Ben.j.hausmann@usace.army.mil
Klatte	Bern	USACE	503-808-4318	Bernard.a.klatte@usace.army.mil
Lorz	Tom	CRITFC	503-238-3574	lort@critfc.org
Mackey	Tammy	USACE	503-808-4305	Tammy.m.mackey@usace.army.mil
Mensk	Fred	WDFW	509-843-3084	
Moody	Greg	USACE	509-527-7124	Gregory.p.moody@usace.army.mil
Schwartz	Dennis	USACE	503-808-4779	Dennis.e.schwartz@usace.army.mil
Scott	Shane		360-576-4830	Sscott06@earthlink.net
Spurgeon	Bill	USACE	509-282-7211	William.f.spurgeon@usace.army.mil
Stephenson	Ann	WDFW	360-906-6769	stephaes@dfw.wa.gov
Tudor	Rosanna	WDFW	541-925-3630	

Dennis Schwartz called in.

1. Introductions were made, the agenda was reviewed and the March minutes were approved.
2. Action Items
 - 2.1. [Mar 08] Switchgate seals at BON and JDA. **ACTION:** JDA will move forward with the airbladder seals. NOAA worries about fish being able to access areas under the gate. BON will continue moving forward with reducing leakage around and under the gate.
 - 2.2. [Jan 08] Late season counting ended around 20 December at Lower Granite. **ACTION:** WDFW will send counts to Moody and let FPOM know when the counts are posted. **STATUS:** counts received on 9 April. Moody gave Klatte the counts to give to FFU.
 - 2.3. [Feb 08] PIT tag detection needs at JDA. **ACTION:** B. Cordie will present info to FPOM and submit a FPP change form for JDA 1.1.3. **STATUS:** The Projects settled on 17 November for 2008. They will try to stay close to 15 November, depending on weather and staffing. FPP covers an outage in Nov.
 - 2.4. [Feb 08] BON B2CC closure. **ACTION:** Ops will put together a fact sheet for the March FPOM detailing the issues associated with closing the B2CC on 31 August as opposed to either 29 August or 2 September. **STATUS:** To be discussed in May.
 - 2.5. [Mar 08] FPP change forms. **ACTION:** FPOM will review the change forms and approve or disapprove at the April FPOM. **STATUS:** to be discussed under item #7.
 - 2.6. [Mar 08] PIT tag detection needs at JDA. **ACTION:** FPC will query PTAGIS to see how many fish might go undetected with if the system is shutdown prior to Nov. 30. **STATUS:** FPC completed the query. Benner will get a write-up to FPOM.

- 2.7. [Mar 08] FPP McNary 2.3.1.2.d language for drawdown over dewatering screens. **ACTION:** L. Swenson will meet with the Project to discuss options. **STATUS:** *Swenson was not present so Dykstra gave an update. The transducer currently in place doesn't work properly due to turbulence. Right now there is no quick fix. Fredricks is concerned not only about plugging but also differential on either side of the screen. Eby explained that the Project looks at bubble patterns to determine plugging. There are alarms in the control room that notify operators of a change in water elevation. Eby is confident the fish kill in the past will not be repeated again. Fredricks would like a write-up from Eby, sent to FPOM detailing the system in place and assuring FPOM the system will keep fish safe.*
- 2.8. [Apr 08] McNary dewatering screens write-up. **ACTION:** B. Eby and NWW bios will draft a letter to FPOM detailing the water elevation/dewatering screen monitoring system at McNary. They will provide a level of confidence in the existing system so FPOM will be assured there will not be another fish kill.
- 2.9. [Apr 08] BON sturgeon protocols. **ACTION:** Mackey and Hausmann will work with the Project to get unit start-up/dewatering protocols in writing and to FPOM for review.
- 2.10. [Apr 08] B2CC end of season closure date. **ACTION:** Mackey will talk with Kruger to get his input. Benner agreed to provide historical fish numbers passing Bonneville on 29, 31 August and 2 September
- 2.11. [Apr 08] LGO fish jumping. **ACTION:** Cordie will send photos of their netting to Bailey. The NWW net installer will contact Cordie to discuss methods used at JDA
- 2.12. [Apr 08] TDA grating replacement. **ACTION:** Klatte will contact N. Richards and Cordie to discuss options and what can be done within the next three years.
- 2.13. [Apr 08] TDA Shad Fishery Agreement. **ACTION:** Agreement edits still need to be discussed and agreed to. A conference call will be scheduled for 1430 on 14 April. Mackey to set up the conference line. **STATUS:** *Cordie, Dick Jr., Fredricks, Wills, Benner and Mackey called in. Changes were discussed and agreed to. Dick Jr. will make the edits and send the draft to the group for review.*

3. Updates.

3.1. Pinnipeds at Bonneville.

- 3.1.1. Stansell's pinniped report is attached to the minutes. There was a request for weekly reports so FFU will now be sending those reports out on a weekly basis instead of monthly.
- 3.1.2. BON FOGs- the four large ones are installed. The stab plates remain in the eight smaller FOGs due to the lifting beam breaking during installation. No known date for returning the lifting beam to service.
- 3.1.3. Klatte reported that Garth Griffin (NOAA Fisheries) will be accompanying NOAA attorneys around Bonneville Dam the week of 14 April.
- 3.1.4. The Humane Society injunction is against lethal take, not against removing animals so the trapping and removing of sea lions will continue as planned. Fredricks offered an update on the BiOp, indicating the pinniped predation numbers used are a bit fuzzy but also larger than what FFU had been reporting. Klatte also commented that FFU has discovered sea lions are feeding into the evening hours. Cordie asked how far downstream the area of concern might extend. Fredricks indicated that is still in flux, though he suggested down to the island may be appropriate. Someone asked about the known numbers of injured fish, not just those eaten. It was recognized that the number of injured fish is important, but not well known.

3.2.BON Sturgeon. A MFR was sent on 27 March. It is attached to the agenda. The Army ROV team was unable to get a camera into U13 draft tube on 28 March, will try to get an ROV up a unit during the winter maintenance. Unit 16 returned to service on 31 March. 13 sturgeon were removed from the bottom tail logs and one was seen with abnormal buoyancy after the unit was slow rolled before going online. The Project is looking at changes to the start-up process. **Language will be drafted for FPOM to comment on soon.**

3.3.BON B2CC.

3.3.1. The end of spill season closing date fact sheet is attached to this agenda. FPOM will review the fact sheet. **Mackey will talk with Kruger to get his input.** Any FPOM recommendation needs to go to TMT. **Benner agreed to provide historical fish numbers passing Bonneville on 29, 31 August and 2 September.**

3.3.2. Schwartz requested time to talk about the proposed B2CC outage on 16 April. TMT discussed the 12 hour outage of the B2CC on 16 April to accommodate the installation of the nodes on the BGS. TMT was supportive but also wanted FPOM's approval. **FPOM says ok and gives the flexibility to move the outage to the 17th if Spring Creek Fish have not yet passed.**

3.4.BON 100K spill patterns. Schwartz reported that operators had questions about how to keep 100K spill at the differing forebay elevations. He said a teletype will be sent stating that the 100K pattern is to be used; as forebay elevation changes so too will spill volume vary by a couple of kcfs; and it is ok to have that variation as long as the 100K pattern is used. **FPOM says it agrees.**

3.5.TDA fish unit testing. Fish unit exciter problem identified. Will be corrected the week of 14 April, when the contractor is in the area for JDA LDC work. Each unit will be down for about 15 minutes, midday. The other unit will be used to compensate for the outage. This work is necessary to maintain fish unit reliability.

3.6. JDA early April spill pattern. The 0/60 pattern has been approved for use starting 10 April. The 30/30 and 40/40 TSW patterns are to start 27 April. All of this is covered in Appendix A and will not be reflected in the main body of the FPP.

3.7.ICH RSW repair. The repairs were completed on 9 April. The RSW will be rotated to the operating position on 10 April and the bolts will be torqued on 11 April at 0800.

3.8.LGO jumping fish. Please refer to the MFR provided by J. Bailey and attached to the minutes. Over 12 years about five jumpers were found or noted on the north walkway at the lower end of the fish ladder counting pool. Bailey indicated the Corps is installing netting to keep fish in the ladder. He will provide photos at the May FPOM. Cordie recommended not using tie wraps and if they do, make sure they are UV protected. He stressed that every gap needs to be covered. **Cordie will send photos of their netting to Bailey. The NWW net and net frame installer will contact Cordie to discuss methods used at JDA.**

4. TDA grating decision. The zinc fact sheet is attached. Need decision timeline for scheduling install planning and associated budget. B. Spurgeon had a report with the no effect limits for salmonids. TDA needs to replace grates within three years so a decision needs to be made. There is a group evaluating other materials and stainless steel has risen as the top option to replace galvanized steel. Stainless will last a very long time and is very costly. At this time the O&M budgets are not ready to handle the increased costs. Looking at historical fish passage data to see if there was an avoidance behaviour when large sections of grates were replaced in the past was suggested. After further discussion people seemed to think that the data wouldn't be fine-tuned enough to show avoidance behaviour. Bettin suggested we look at Cor-ten steel. This is also known as weathering steel. Information can

be found at www.weathersteel.com/products.htm or en.wikipedia.org/wiki/Weathering_steel. There was some discussion about coating the steel grates with epoxy or paint. Due to maintenance time and costs, those were not preferred options. Lorz suggested Cordie review the paint job in MU5 since that paint is exposed to a harsh environment. **Klatte will contact N. Richards and Cordie to discuss options and what can be done within the next three years.**

5. TDA avian lines. Two drawings are attached. Cordie discussed the changes to the avian wires. He said they were unable to get all the bridge wires due to ODOT not wanting to close the bridge to accommodate the work, since the Biggs Junction/Maryhill bridge is already closed for maintenance work. Fisheries will attempt to get those wires in next year when there is a better chance of getting the bridge closure.
6. Task Group updates
 - 6.1. Fishway velocity (*Chair-Cordie, Fredricks, Lorz, Meyer, Mackey*). Cordie sent out an agenda. There will be a brief meeting following FPOM.
 - 6.2. Lamprey (*Chair-Cordie, Clugston, Dykstra, Lorz, Mackey, Meyer, Moody, Moser, Peery, Rerecich, Zyndol*). No update.
 - 6.3. Pinnipeds (*Chair-Stansell, Bettin, Benner, Brown, Fredricks, Hausmann, Kruger, Stephenson, Richards, Wills*). No update.
 - 6.4. Shad fishery (*Chair-Cordie, Benner, Fredricks, Lorz, Mackey, R. Dick Jr., Welch, Wills*). The Yakama Nation is getting potential markets in order. The NOAA edits have been reviewed and the Yakama Nation will provide their edits. A conference call will be scheduled for 1430 on 14 April. **Mackey to set up the conference line.**
 - 6.5. TIES (*Chair-Klatte, Bettin, Benner, Fredricks, Kruger, Mackey, Schwartz, Wills*). Klatte has CFD runs to show the task group at the next meeting, which will be after the BGS evaluation this spring/summer. Klatte said the TIE crane will be repaired by March 2009.
7. Water forecast. (RCC).
 - 7.1. Water forecast and FPOM handout needs. The information is available on the TMT website. **Feil will send the back page of the normal handout to Mackey for inclusion in the agenda packet.** This will remove the need for RCC to bring handouts to the meeting.
 - 7.2. <http://www.nwd-wc.usace.army.mil/tmt/> What is the status of the FPOM documents link? Feil said RCC is attempting to update the TMT website, increase the font and make it more user friendly. **FPOM will have a link on the website where agendas, minutes and various handouts will be available.** This should free up FPOM members' inboxes a wee bit. Benner requested Feil look into including unit outages and resulting capacities by powerhouse on the site. This would help those looking at TDG issues. Bettin suggested it may not be possible to get the unit outages on the site since that information isn't always publicly available.
8. FPP proposed changes. Approve/disapprove. With the understanding that some members need to look at patterns a bit closer, in general these changes were approved.
 - 8.1. LGO spill pattern
 - 8.2. LMO spill pattern
 - 8.3. MCN unit priority
 - 8.4. MCN spill pattern
 - 8.5. JDA U priority/spill patterns
 - 8.6. JDA SMF PIT tag shutdown
 - 8.7. TDA ITS closure
 - 8.8. BON 50K dates
9. FPP hard copies. Copies were picked up by those in attendance.

9.1. The FPP can be found at www.nwd-wc.usace.army.mil/tmt/documents/fpp/

10. Other

10.1. District Budgets. Fredricks would like FPOM to assist in the prioritization of the O&M budgets. Understanding that the Districts are currently working on 2010, it was suggested **FPOM review a five year plan every year at the January FPOM meeting.** FPOM would like to look at the budget, discuss how the money will be spent and what the expected outcomes will be.

10.2. BON AFF trap language. Lorz said CRITFC would like to use the small recovery tank for their sockeye. This language will not be added to the FPP, but it is a request that can be accommodated with the current FPP language. Fredricks expressed a dislike for the use of the small recovery tank. There was some questions about how fish could be partially revived in the small recovery tank then moved to the brail pool. The small recovery tank currently empties into the return pool, not the brail pool. A mod to allow it to empty into the brail pool would take time and money not currently in the budget.

10.3. MCN TSWs. There is an ongoing problem with the TSWs opening and closing with spill. This year the TSWs were opened half a day early since there wasn't a crew on site at 0001 to open it when spill started. This problem will be fixed by hooking the TSWs up to hoists. The hoists can be operated from the control room.

10.4. MCN collection channel orifice jet. The jet is impacting the channel wall. The collection channel is ten feet wide. The orifice jet enters the water prior to reaching the mid-way point but continues through the water and impacts the concrete wall. FPOM decided to take a tour of the collection channel to get a better idea of what the problem looked like.

11. Finalized results from this meeting.

11.1. FPOM says it is OK to close the B2CC for 12 hours and gives the flexibility to move the outage to the 17th if Spring Creek Fish have not yet passed.

11.2. FPOM says it agrees that the 100K pattern at BON is the pattern to be used even though spill volume may be a few kcfs more or less depending on forebay elevation.

11.3. FPOM says it is preferable to post RCC info to the website and to include the back page summary with the agenda packet.

11.4. FPOM will have a link on the TMT website where meeting agendas, minutes and handouts will be stored.

11.5. FPOM will review the annual and five year budgets every January.

12. The following information was distributed at, or emailed prior to, the FPOM meeting:

12.1. Agenda, Fish Passage O&M Coordination Team. Provided by B. Klatte.

12.2. FPOM Calendar. Emailed prior to the meeting.

12.3. NWW handout. Provided by J. Bailey

12.4. Pinniped Status report. Provided by R. Stansell (*photos were resized to better fit in the minutes. The original report is available on the TMT website or from R. Stansell*).

12.5. LGO jumping fish MFR. Provided by J. Bailey.

12.6. FPP change forms. Attached to the agenda.

12.7. RCC forecast. Provided by D. Feil.

13. Check out the TSWs and the fish facilities. BRING YOUR HARD HATS and steel toes.

14. Velocity task group meeting.

**STATUS REPORT – PINNIPED PREDATION AND HAZING
AT
BONNEVILLE DAM IN 2008**

Robert Stansell, Sean Tackley, and Karrie Gibbons

4/8/08

This is the fifth status report for 2008 on the pinniped predation and hazing activities being conducted at Bonneville Dam. Regular observations began on January 11, Mondays through Fridays, and switched to 7 days a week on February 4. Observations begin roughly an hour before sunrise and end an hour after sunset. **Please remember all data are preliminary and final figures are likely to change some after further analysis and proofing, so be careful about quoting these figures.** Boat based harassment has been conducted since December 12 for Steller sea lion preying on sturgeon, 2 to 5 days a week, and has continued for California sea lions to date. Boat hazing will now occur 7 days a week as the tribes will be filling in for days the states are not out. Dam based harassment by USDA WS agents began on March 3, and will be conducted 7 days a week, through the end of May. Data collection will end after May 31, as will harassment activities. Some additional observations will occur as long as sea lions are still present.

The states will be attempting to trap and transport several animals after mid-April. The HSUS has filed for an injunction to halt any lethal take, and the courts will have a hearing on that on April 16. Trap and haul to Sea World or other locations was agreed to be allowed to continue. Three additional traps will be built by possibly next week, with a tagging barge to follow by early May.

PRELIMINARY RESULTS

Data presented here are up through April 6, 2008. A final report of the 2005-2007 evaluation is now available on the Corps website.

PINNIPED ABUNDANCE

Steller sea lion (*Eumetopias jubatus*) presence has continued daily through early April, while the number of California sea lions (*Zalophus californianus*) continues to grow (Figure 1). To date, we have seen as many as 12 Steller sea lions and 40 California sea lions at the dam on any given day (see Figure 1). The most number of pinnipeds total for one day so far was 46 on April 5. A preliminary look at individuals identified at Bonneville Dam so far suggests we have seen at least 45 different California sea lions, 12 Steller sea lions, and 2 Harbor seals. At least 35 of the California sea lions have been seen in previous years.

Of the 60 animals listed for potential lethal take, 28 have been seen at Bonneville Dam so far this year, with about 19 of those being seen on the single trap already, with several others hauled out nearby. An additional 4 branded animals and possibly 7 others that we can identify now qualify to be on the list, having been hazed, seen to eat at least one salmon, and having been here more than 5 days.

PREDATION FIGURES

Unexpanded numbers for fish observed taken between January 11 and April 6 are:

- 723 Chinook, 237 steelhead (see Figure 2)
- 598 sturgeon (21 larger than 5 feet)(see Figures 2, 3 and 4)

- 7 lamprey
- 460 unidentified (see Figure 2)

Steller sea lions are the primary predators of white sturgeon (*Acipenser transmontanus*) in the Bonneville Dam tailrace (Figure 5). Only six sturgeon were taken by California sea lions in past years; 9 this year and 2 by harbor seals (<2'). California sea lions had primarily been taking steelhead, but the past few weeks they have begun catching numerous Chinook (Figure 7). It is likely that most unknown fish observed caught by Steller sea lions are sturgeon, while those unknown fish observed caught by California sea lions are steelhead or Chinook. Just over a third (449 of 1,149 or 39%) of the prey taken by California sea lions has been attributed to specific individuals, or 45% (411 of 923) for salmonid prey specifically.

Most sturgeon have been caught at the spillway followed by PH2, while most steelhead and Chinook have been caught at PH1 and PH2 (Figure 6). Figure 3 shows that sturgeon take has far exceeded the take of last year as the presence of Steller sea lions continues. However, smaller sturgeon are being taken proportionally more this year than in previous years (Figure 4).

Observations from the area of Tanner Creek to Ives Island by PSU student volunteers has been collected also, and up through March 19, an additional 12 Chinook, 15 steelhead, and 4 sturgeon have been observed taken (plus 8 unknown). The area between our observers at the dam and Tanner Creek will be observed by WDFW/ODFW personnel as well from now until the end of the season, but this data will take more time to process and may not be available for updates.

HAZING IMPACTS

Full hazing from both boat and dam began on March 3rd. After March 15, the tailrace of PH2 will not be hazed with above water pyrotechnics to allow for animals to haul out more on the traps for capture and for other potential activities in the future. This may change if the situation warrants in the future. SLEDs were installed at PH2 entrances on January 28. Cascades Island SLEDs were installed the week of February 10, and PH1 and B-branch SLED's were installed the week of February 24. Acoustics were deployed at all major fishway entrances by January 10. Personnel, weather, and boat maintenance issues have reduced boat hazing during some weeks. Some animals have been observed to be successfully chased downstream while others have not responded to multiple crackershells or rubber bullets.

OTHER ITEMS OF INTEREST

Many California and Steller sea lions have been observed to use the one trap already. The states reported seeing up to **42 Steller sea lions** hauled out on Phoca Rock below Cape Horn.

Night predation - We have conducted some before dawn and after daylight observations (about 8 hours so far). I don't want anyone to panic and start calculating expanded catch estimates without more information, but we have noticed hunting activity and catch occurring during these periods, both by California sea lions and Steller sea lions. This may explain why we see many animals only hauled out during the day and not hunting. Whether this is a result of daytime hazing activities, less dominant animals being pushed from daytime predation by larger numbers of dominant animals, or if it extends throughout the night has yet to be determined. We will keep you posted.

SUMMARY

Pinniped numbers are now averaging between 30-40 a day, as more California sea lions are showing up. Predation on Chinook has greatly increased over the past week. Boat and dam based harassment continues. Some night-time predation has been observed.

Figure 1. Daily minimum pinniped abundance.

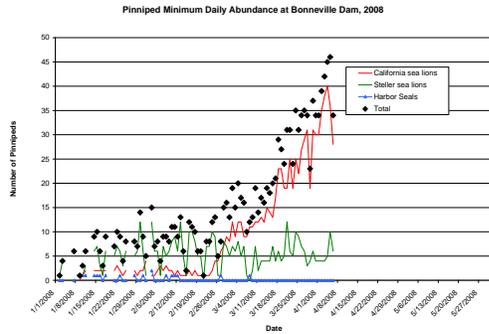


Figure 2. Daily salmonid, sturgeon, and unknown fish predation by pinnipeds, unexpanded observations.

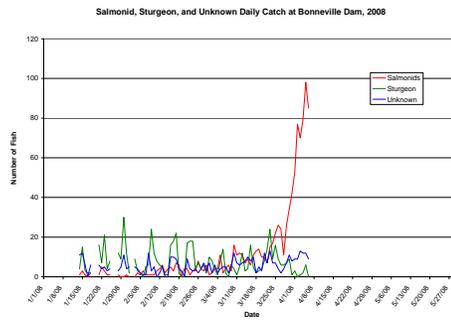


Figure 3. Cumulative estimated daily sturgeon catch by pinnipeds at Bonneville Dam, 2006-2008. 2008 are data not expanded and are preliminary.

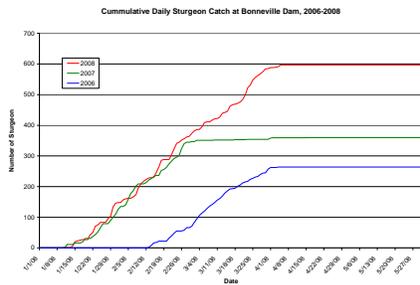


Figure 4. Size distribution of sturgeon caught at Bonneville Dam, 2002-2008.

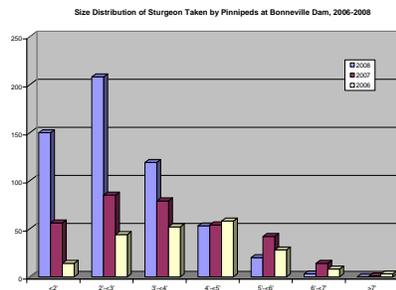


Figure 5. Prey taken by species of Pinniped at Bonneville Dam, 2008.

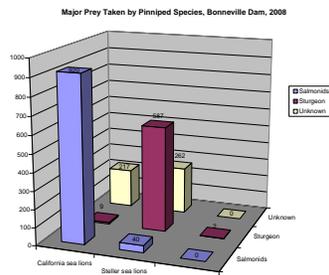


Figure 6. Location of prey taken at Bonneville Dam, 2008.

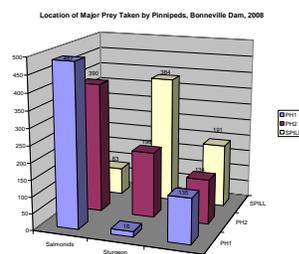
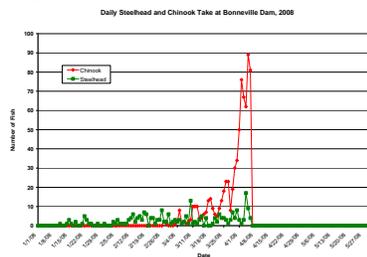


Figure 7. Daily Steelhead and Chinook take at Bonneville Dam, 2008.



MEMORANDUM FOR THE RECORD

SUBJECT: Sturgeon impacted during Bonneville's Unit 17 water-up.

Unit 17 was returned to service on the afternoon of 26 March. The unit had been down for several months to accommodate VBS sensor installation. Tail logs were not installed as the work performed could be done above tailwater elevation.

Project Fisheries was notified by the Control Room about the dead sturgeon later in the afternoon, so this report is based on observations by others.

Upon water-up on 26 March, sea lion observers noted one 2' sturgeon with ventral hemorrhaging between 1200-1300 in the PH2 tailrace. Between 1300-1400 they saw a large discharge of water and counted 42 sturgeon floating belly up. At 1357 there was another discharge with 37 additional belly up sturgeon. Observers by the Hamilton Island boat ramp reported five floating sturgeon between 1400-1500, plus two more they couldn't confirm as sturgeon floating on the Oregon side of the river. All of those observed fish were less than three feet long. Between 1500-1600, one more floating sturgeon was observed. At 1900 one four foot sturgeon was seen floating by the sea lion trap.

Riggers reported seeing a floating sturgeon that looked as if the back half had been sliced off.

On 27 March, Project Fisheries received information from Tech Staff that the sea lion hazers had collected 11 dead sturgeon and had them in the hazing boat at the boat dock by the navlock. Project Fisheries contacted Robert Stansell to take a look at the fish. There appeared to be evidence of blade strike as well as hemorrhaging in the fins and bellies of many of the sturgeon. Stansell contacted the WDFW hazers about the sturgeon. They reported that enforcement requested they corral the floaters to prevent the public from "poaching" them. A couple of would-be poachers were required to put the sturgeon back in the water. WDFW will take tissue samples and the carcasses will be returned to the river, downstream of the dam.

On 27 March, Unit 13 was taken out of service for exciter work. Tail logs were not installed as the work to be performed is all above tailwater. It will remain out of service for up to four weeks. On 28 March, the Project will utilize the Army ROV team to inspect U13 draft tube to see how many sturgeon enter the draft tube after 24 hours.

Project Fisheries is working with Operations, FFU, and Maintenance to draft FPP language to help minimize impacts to sturgeon during unit outages. The proposed language will be presented at FPOM for regional discussion.

Bonneville Fisheries

MEMORANDUM FOR THE RECORD

Subject: B2CC closure fact sheet for 10 April 2008 FPOM meeting.

Date	29 August	31 August	2 September
Spill (Y/N)	Y	Closes within 12 hours of spill	N
Volunteers needed (Y/N)	Y	Y	N
Volunteers available (Y/N)	Maybe No Guarantee	No	Yes
Overtime (Y/N) additional labor \$	Y \$700-1000	Y \$700-1000	N \$0
Crane costs			
Transport restrictions	Maybe	Absolutely Yes Holiday Restrictions	No
Crane rental lead time	1-2 months	1-2 months	1-2 months

In summary, the cheapest and least impacting date to close the B2CC would be 2 September. The next preferred date would be 29 August, if volunteers are available.

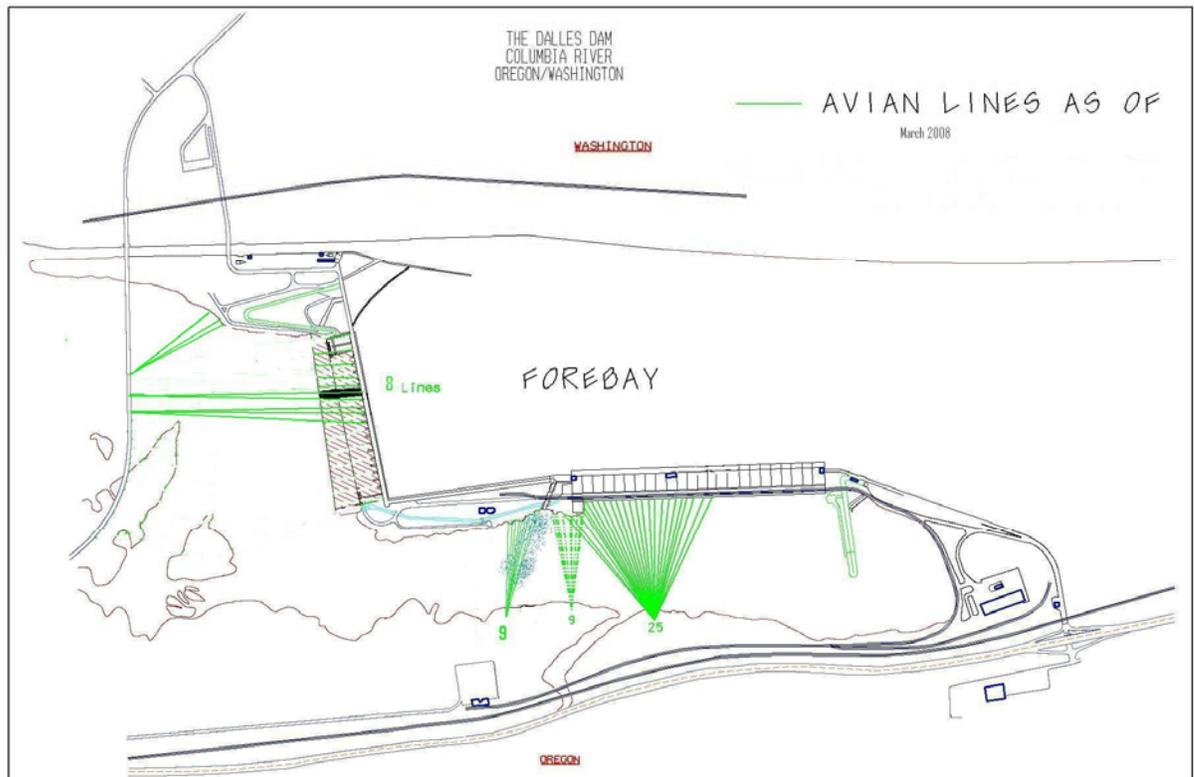
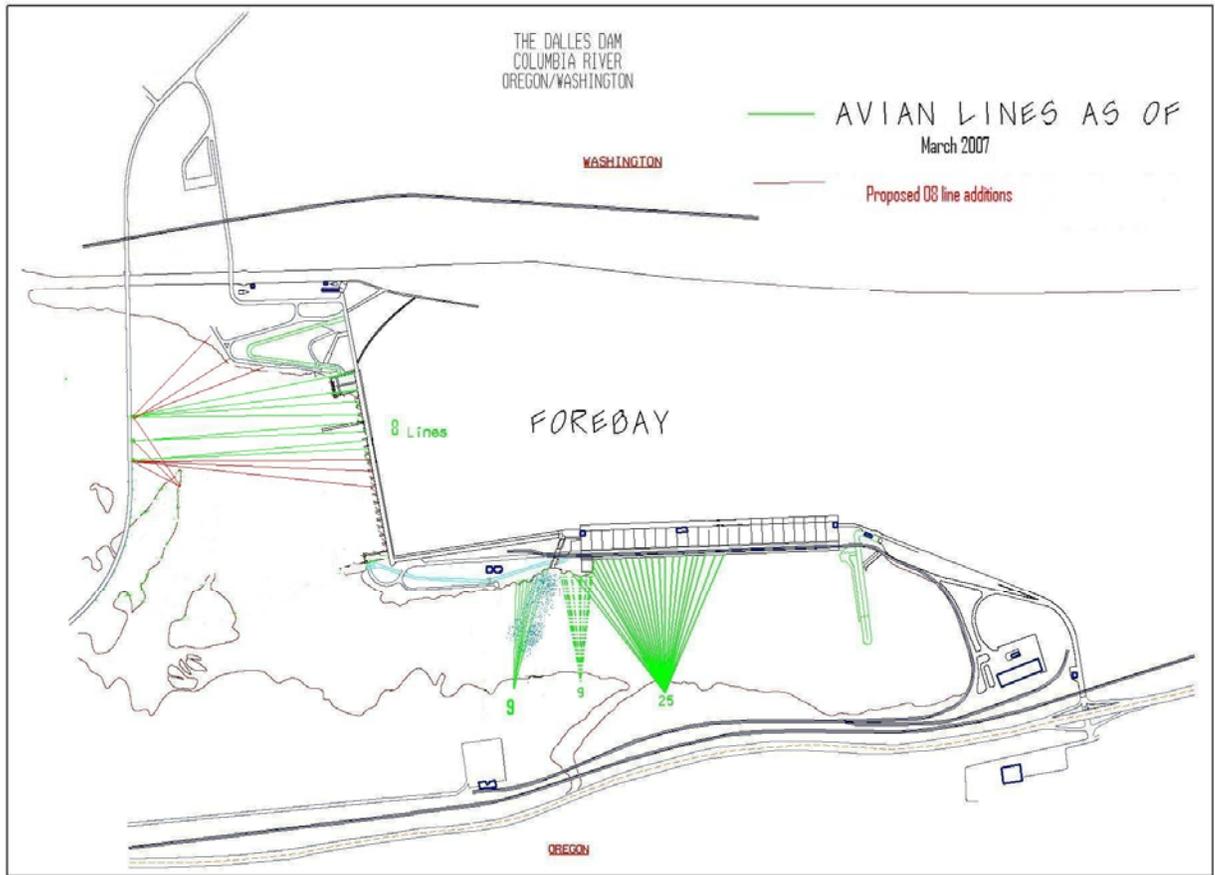
ZINC GALVANIZATION vs FISH PASSAGE

Literature Information

- Rainbow trout avoidance limit 0.0001mg/l Fish do eventually acclimate and lose avoidance behavior. (Acta Zoologica Lituanica Hydrobiologia '99 Vol 9).
- Leaching rate 5mg/cm²/day. (WES tech note ZMR-2-15, Crump) Zebra mussel anti-fouling.
- Galvanized grating likely results in concentration above rainbow trout avoidance threshold (Clugston)
- 1mg/l can impact aquatic biota (Krenkel '79)
- Zn runoff possible cause of Coho mortalities in Seattle
- The Dalles new grating has approx 2.7mm galvanize coating (per contractor spec)
- 3mm coating provides approx 20yr corrosion protection (www.gtiengr.com)
- Zinc concentration in sea water = 0.6ppb (www.lenntech.com)
- Zinc concentration in rivers = 5-10ppb (www.lenntech.com)
- Zinc solubility depends on pH. More soluble with increased acidity (www.lenntech.com)
- Zebra Mussel fouling: galvanized steel is not susceptible to fouling. This material should be considered for retrofit, maintenance, and construction.
<http://el.erdc.usace.army.mil/zebra/zmis/>
- No EPA limitations found for Zinc application in the mainstem Columbia river. (TMDL EPA website)
- Painted steel should be avoided in the water because paint flakes can be toxic to aquatic organisms such as fish and other species. Unpainted steel can rust and detract from the appearance of your shoreline, it has little effect on water quality. Stainless steel, galvanized steel or bronze fittings are often more expensive than steel, but last longer.
http://www.dfo-mpo.gc.ca/regions/CENTRAL/pub/fact-fait-on/c3_e.htm

Questions that need to be answered

- What do salmon and steelhead avoid?
- What is Columbia river pH?
- What is the concentration in a flowing fish ladder with new grating?
- Does aging the grating on the deck reduce leaching rate when installed?
- What is background concentration in the river?
- What is the acclimation rate?
- What are alternatives to galvanized grating?
- Do alternatives leach detrimental compounds? (fiberglass resins, aluminum)
- What is the cost difference for alternatives?
- Is there a simple test (lab or field) we can conduct to determine if we have a galvanization avoidance problem?
- Two sections of galvanized grating were installed last winter. Can we determine avoidance from UofI radiotelemetry?
- If galvanization prevents zebra mussel colonization, should we take this into account?
- Can we conduct a water quality test immediately downstream of installed galvanized grating to confirm concentration levels?



FPP Change Forms

Change Request Number:

Date: March 31, 2008

**Proposed by: Fred Higginbotham, Fishery Biologist, Environmental Assessment
Section, Walla Walla District**

Proposed Change: Spill pattern schedule to be used for the adult passage and behavior study at Little Goose Dam during the 2008 spill season.

Reason for Change: The research spill pattern changes are necessary in order to help determine the affects of different tailrace conditions and spill patterns on passage and behavior of adult salmon and steelhead.

Change Request Number: 3 – LMO 2008 Spill Pattern

Date: 14 March 2008

Proposed by: Ann Setter. Ken Hansen, John Bailey

Proposed Change:

A new spill plan is being proposed for 2008 to provide 2nd uniform flat pattern.

Reason for Change:

The additional uniform pattern is being provided as a means of improving juvenile egress out of the tailrace, and to reduce levels total dissolved gas (TDG) during higher river flows.

Change Request Number:

Date: 3/14/2008

Proposed by: NWW - District Hydrology (K. Hansen)

Proposed Change:

Concerns over egress developed with last years TSW's operation and lower steelhead survival at McN spillbay 22. Observation at the physical model concluded that the powerhouse priority change would be beneficial. The following the existing and the proposed change:

Proposed change to:

1,2,3,14,13,12,11,10,9,8,7,6,5,4 units 1 thru 3 then switch to northern units.

Reason for Change:

The proposed change would attempt to mitigate egress issues from the TSW's while maintaining water velocities at the juvenile bypass outfall.

Comments from others:

FPOM members on March 13, 2008, unanimously agreed to the MCN priority changes discussed at ERDC in February.

Change Request Number: 4 – MCN 2008 Spill Pattern

Date: 14 March 2008
Proposed by: Ann Setter, Ken Hansen

Proposed Change:
New spill pattern being submitted for use at McNary during the 2008 season.

Reason for Change:
A new pattern is necessary to accommodate the movement of a TSW from spill bay 22 to spill bay 19. The TSW in spill bay 20 remains in the same location. This spill pattern chart has also been tested at ERDC - appears to be compatible with towboats and barges entering and exiting the navigation lock. Interruption of TSW operations for navigation safety reasons will be minimized under this spill pattern.

Change Request Number:
Date:4/1/08
Proposed by: Robert Wertheimer

Location of Change
JDA Table 5

Proposed Change:
JDA Main Units prioritized: 5, 1, 3, 16, 14, 12, 10, 8, 15, 2, 11, 7, 4, 13, 9, 6.

Reason for Change:
Such a pattern provides the best attraction flow near the PH, while first maintaining support flow for the JBS. Russell Johnson from the project favorably reviewed this prioritization schedule during our project meeting.

Change Request Number:
Date: 3/27/2008
Proposed by: John Day Project

Location of Change
JDA 1.1.3

Proposed Change:
Change November 30 to mid November.

Reason for Change:
The Project is concerned about freezing temperatures and staffing. They will attempt to keep the facility operating for PIT tag interrogation for as long as possible but feel anything beyond 15 November is risky.

Change Request Number:
Date:3/12/08
Proposed by: Bonneville Power Administration

Location of Change

The Dalles section 2.5.1.2e. 2007 Fish passage plan page TDA-12

Proposed Change:

Modify the paragraph to read from December 1 through the end of **March**, put the ITS on seal (do not operate).

Reason for Change:

True up language to match the FPP language contained in section 1.1.1 of The Dalles.

Change Request Number:

Date:3/12/08

Proposed by: Bonneville Power Administration

Location of Change

BON 2.2.2.

JDA 2.2

Proposed Change:

The NMFS 2004 BiOp sets a minimum spill level of 50 kcfs for BON and 30% for JDA **from April 10 through August 31.**

Reason for Change:

Clarification of the Biological Opinion requirement. Is not intended to be applied year round.

NWW FPOM UPDATES 10 APRIL 2008

Construction

McNary: U3 returned from 9-year overhaul on March 12.

Ice Harbor: U6 remains out of service due to transformer gas problem.

Lower Monumental: RSW work completed, in operation.

Little Goose: U6 has been out of service due to water in stator since December 11.

Lower Granite: U2 OOS for rewind and 6-year O/H, with completion expected September 2008.

Operations and Maintenance - Juvenile Fish Facilities

Note: out of service turbine units do not necessarily have fish screens deployed.

McNary: Transport Facility/Bypass System: emergency bypass began March 12, all screens lowered by March 27, switched to primary bypass March 31, first every-other-day sample completed April 3. Bypass outfall water cannon in service.

Ice Harbor: Sample Facility/Bypass System: bypass began March 17, all screens lowered by March 27, first sample took place April 4.

Lower Monumental: Transport system/Bypass System: primary bypass began March 19, all screens lowered by March 20, start of secondary bypass and first sample took place April 1.

Little Goose: Primary Dewaterer: Support I beam replaced March 11-12. Transport system/Bypass System: primary bypass began March 24, all screens lowered by March 26, secondary bypass began April 1, first sample took place April 3.

Lower Granite: Transport system/Bypass System: bypass began March 17, all screens lowered by March 21, initial fish condition sample completed March 25, first 24-hour sample was completed April 1. RSW: 2 logs removed on April 3 with two separate closures (20 min and 1 min) required.

Operations and Maintenance - Adult Fish Facilities

Adult Fish Counts: McNary and lower Snake River projects - visual fish counts began April 1.

McNary: Oregon Ladder: Fish pump #1 is OOS due to the oil leak reported last month being worst than originally thought. Repairs are expected to be completed in a month. Washington Ladder – tailwater elevation sensor failed March 9 causing entrances W2 & W3 to bottom out on sill. Sensor was rewired by March 12 and weirs resumed normal operation.

Ice Harbor: North Shore ladder in service. North Shore Fish pump #2 gearbox is currently undergoing manufacturer warranty repairs. South Ladder is in service.

Lower Monumental: North ladder in service. Pump #3 out of service and “bulk-headed off” to reduce leakage and improve efficiency of pumps. #1 and #2 currently in service. Pump #3 has a problem with the diffuser assembly and bearing housing. The south ladder is in service.

Little Goose: Ladder in service, fish pumps operating satisfactorily. SSE2 weir controls tripped breaker due to problem with electrical feed cables. Repairs completed March 13.

Lower Granite: The ladder is service. April 3 - Pump 1 speed reduced due to low tailwater elevations, pump 2 was shut off, and pump 3 placed in operation. Video counts ended with the start of visual fish counts on April 1. NSE-2 motor replaced March 20.

Research

McNary: USGS antennas installed March 25.

Ice Harbor: RSW: Radio tracking equipment is to be reinstalled March 5.

Lower Monumental: Oregon State University collecting steelhead daily in support of avian predation research. NOAA Fisheries STS antennas installed March 13. NOAA Fisheries researchers installed spillway antennas March 20. RSW direct injury study completed April 2.

Little Goose: Two research bulk patterns were tested April 3.

Lower Granite: Adult fish trap resumed operations March 7 with 10% sample rate to monitor steelhead. Limited radio tagging of steelhead taking place. First fish research barge departs Lower Granite April 10. Research barges will depart Lower Granite every Thursday, and on Mondays starting April 21. Six Monday departures planned.

April 2008

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 FPAC Adult Fish Counting Starts all Dams. Juvenile Bypass Season Begins	2	3 Juvenile Spill Starts Snake River Dams – Pools to MOP	4	5
6	7	8 FPAC	9 TMT	10 FPOM Meeting- McNary	11	12
13	14	15 FPAC	16 B2CC closed- BGS TDA Fish unit OOS NHC MCN Surface Bypass Agency Visit	17 TDA Fish unit OOS	18 TDA Fish unit OOS	19 Happy Birthday
20	21 Snake River Juvenile Transport Begins TSP PDT at ERDC ICH COP 1300	22 FPAC TSP PDT at ERDC ICH COP 0930	23 TMT TSP PDT at ERDC NWW SRWG- passage	24 NWP FFDRWG TSP PDT at ERDC	25 TSP PDT at ERDC	26
27 Happy Birthday	28	29 FPAC NWW FFDRWG LMN, ICH	30 NWW field trip- ICH, MCN			

May 2008

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1 SCT@ MCN	2	3
4	5	6 FPAC	7 TMT	8 FPOM Meeting- RDP Shad Fishery Task Group Meeting	9	10
11	12	13 FPAC	14	15	16	17
18	19	20 FPAC	21 TMT	22	23	24
25	26	27 FPAC	28	29	30	31