

**U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#30-2013**

Project: McNary

Biologists: Carl Dugger and Bobby Johnson

Dates: September 20 - 26, 2013

Turbine Operation

McNary had 10 units available for power generation this week. On April 1, the hard constraint one percent criteria began and no units ran outside the criterion this week. Unit outages are recorded in Table 1 below.

Table 1. Unit Outages at McNary Dam.

Units	Outage Dates	Outage Length	Reason
4	Jun 24 – Jan 30, 2014	About seven months.	Rewind contract.
11	Jun 28 – Jan 30, 2014	About seven months.	Rewind contract.
3	Jun 4 – Feb 4, 2014	About eight months.	Turbine bearing issue.
13	Sep 3 – Oct 3	One month.	Above water overhaul.
10	Sep 23	8.5 hours.	XJ breaker testing.
6, 7 & 8	Sep 24	48 minutes total.	ESBS camera inspections.

Adult Fish Passage Facilities

On September 21, 22 and 25, the McNary fisheries biologists performed measured inspections of the adult fishways. Visual fish counting continues. When the juvenile facility is in primary bypass, the fisheries staff helped to monitor the picketed leads.

On September 23, phone service lost last week returned to the Oregon count station. From September 20 to 23, the Oregon count station computer was not functional.

On September 30, video lamprey counting and temperature monitoring will conclude. Also, that day, lowering the Oregon ladder entrance weirs, SFEW1, SFEW2, NFEW2 and NFEW3, nightly for adult lamprey passage will conclude. Monitoring of the weirs has revealed no problems.

Fish Ladder Exits: The project cleaned the exits' picketed leads regularly including the weekends. Eurasian milfoil continues to be a problem though debris is decreasing.

During the inspections, all Fish Passage Plan criteria were met on both ladder exits.

At the Oregon exit, one set point adjustment was noted. Due to encoder issues, weir 340 remains in manual. Our differential monitoring of the traveling screens revealed no problems though the trash rack differential was approximately one foot.

Fishway Entrances and Collection Channel: At the Washington ladder entrance, all inspection points were in criteria. Weir W2 is operating well with the digital encoder. The LED remains unplugged. The project is moving forward with the concept of installing digital encoders on all entrance weirs.

At the Oregon ladder entrances, all points were in criteria with no issues to report. The Oregon ladder's collection channel velocity averaged 1.1 feet per second from surface readings.

Auxiliary Water Supply System: The Wasco county PUD in the Washington ladder had no interruptions in service.

For the Oregon ladder, the fish pumps had one interruption in service. On September 20, pump 1 was out of service for four minutes due to a grease pump alarm. When operational, the pumps had blade angles of 30 degrees. Fish pump 2 remains out of service for major overhaul which will require a contract.

The juvenile facility continues to supply the usual 450 cfs to the north powerhouse pool.

Juvenile Fish Passage Facility

The season continues with alternating days of primary and secondary bypass with the switch occurring every morning at 0700. No deviations from the schedule occurred. On September 30, at 0700, the last day of secondary bypass will conclude and fall primary bypass season will begin. This week, we bypassed 340 smolts and 20 juvenile lampreys.

Forebay Debris/Gatewell Debris/Oil: For the week, forebay debris along the powerhouse was light consisting of Eurasian milfoil and wood. Milfoil levels have begun to drop. Storms and wind direction affected the debris's distribution.

Trash rack differential measurements revealed no problems and no racks were cleaned.

We noted no problems in the gatewell slots. On September 25, the project refilled unit 13's slots. On September 26, we removed the bulkhead at 13A slot. On September 27, the project will remove the bulkheads at 13B and 13C slots.

ESBSs/VBSs: All ESBS's are installed in all units, except at unit 11 and 13, which are out of service. On October 1, the project will reinstall unit 13's ESBS's. The screens at 2A, 3A, 7B, 8C and 10C slots remain in timer mode. On September 24, camera inspections at units 6, 7 and 8 revealed no problems.

VBS differential monitoring revealed no screens out of criteria and the project cleaned none this week. With the units out of service, 3C slot remains without a VBS and we will use the slots at unit 11 to cycle in rehabilitated VBS's

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: For the week, we had 42 orifices open with no problems observed. On September 28, we will open the orifices at unit 13 and close the spares at unit 12. The fisheries staff continues to monitor the channel during primary bypass and we checked the channel at midnight on secondary bypass days.

All systems operated well in automatic mode. However, on September 20, at 0815, the side screen cleaning device stalled while the biologist was observing it. The biologist used the device's controls to return it to the parked position after which the mechanism functioned well. The biologist asked the mechanics to examine the device. On September 25, at 1038, the device stalled while the mechanic was running it. By 1622, the mechanic could find no problems and returned the mechanism to service. At this point, we will assume the problem with the side screen brush is below water and will continue to monitor it.

Transportation Facility: With the bypass season, both primary and secondary bypass modes return all fish to the river. PIT tag detection occurs in the full flow pipe during primary bypass and throughout the facility during secondary bypass. Smolt monitoring occurs on secondary bypass days.

We turned the sample gates on and off every other day, to be on with secondary.

The primary PIT tag system remains off as the bypass lines provide a better route for the fish than the PIT lines. Also, PSMFC preformed the weekly test of the PIT system. The secondary PIT/bypass gates remain off and open for bypass season.

On September 24, the fisheries mechanics replaced an anesthesia system's pump which was leaking water. Later in the week, a new computer and printer was installed for the technicians and mechanics to use. The fisheries staff continues to rehabilitate the gateway trap.

Transport Summary: Transport will not occur at McNary this year.

River Conditions

River conditions during the week are outlined in Table 2 as provide the smolt monitoring staff, PSMFC. The data day runs from 0700 to 0700.

Table 2. River conditions at McNary Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature (°F)		Water Clarity* (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
113.0	75.9	0.0	0.0	69.3	65.6	6.0	6.0

*Control room data.

Other

Inline Cooling Water Strainers: The next cooling water strainer examination will occur on October 1.

Invasive Species: The zebra mussel station examination on September 22 revealed no problems. The next day, the fisheries staff installed a new station at the Oregon ladder exit.

Avian Activity: On September 30, bird counts will conclude. We count birds in each zone once a day usually in the morning. In the forebay area, we observed an occasional gull. We noted cormorants and gulls on the rocks by the Washington boat dock. We observed no grebes on project.

In the tailwater area, we had high counts of 85 gulls and 77 cormorants with an occasional pelican or blue heron observed. Most of the feeding birds were in powerhouse area with others roosting on the navigation lock wing wall. Bird numbers maybe fluctuating with juvenile shad numbers. Also, the birds may have begun outmigration themselves.

We observed high counts of 15 gulls, three mergansers and 14 cormorants by the bypass outfall.

The hazing sprinkler system remains out of service. A new system will be installed this fall. On September 25, the fisheries staff removed the propane cannons for the season and redeployed the three gull distress calls instead.

Research: This week, WDFW sampled the tailwater area for pike minnow removal. On September 30, the adult lamprey passage study will conclude. In October, a researcher will begin preparations for the direct adult steelhead survival study at a turbine intake and a TSW.

Project: Ice Harbor

Biologist: Mark Plummer

Dates: September 20 - 26, 2013

Turbine Operation

Main turbine units 1, 4, and 5 were available for operation. Turbine unit 1 was out of service from September 25 at 1433 hours to September 26 at 1112 hours due to excessive packing leakage. Turbine unit 2, 3, and 6 remained out of service. Turbine units 1, 4, and 5 were out of service for short independent periods September 25 to complete STS and cooling water strainer inspections.

Adult Fish Passage Facilities

Fish facility personnel inspected the adult fish ways September 24, 25, and 26.

Fish Ladders: The north and south shore adult fish ladder inspection areas (picketed leads, head differentials, fish way exits, and depth over weirs) were within criteria.

Adult Fish way performance: The center fish way weir 2 remains out of service. The south adult fish pumps will need to be shut down to remove the bulkhead in front of the weir. This will be accomplished during the winter maintenance period. Currently, center fish way weir 1 is being operated. Fish way entrance criterion is 8 feet depth, greater than 8 feet depth, or on sill. All fish way entrances were within criteria on sill or greater than 8 feet of depth. All channel/tail water differentials were in criteria. Channel/tail water differential criteria are 1 – 2 feet.

Auxiliary Water Supply System: 2 of the 3 north shore fish pumps were operated without problems. 6 of 8 south fish pumps were operated without problems. All are available for operation.

Juvenile Fish Passage Facility

Fore bay Debris/Gate well Debris/Oil: No problems to report. Fish ladder exits are clear of debris and the bubblers are operating.

STSs/VBSs: STSs are in cycle run operation. The STS/VBS inspection were performed September 23 and 25. No problems to report. Turbine strainer inspections were done at this time, results are listed below. October inspections are scheduled for 21 and 23.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: The juvenile bypass is watered up with 20 open orifices.

Juvenile Bypass Facility: No problems to report.

Fish Sampling: The first sample was April 8 and the last sample was performed July 15.

Removable Spillway Weir: The RSW is not in operation. Spill for fish began April 3, 2013 and ended August 31 at 2359 hours.

Fish Sampling: Juvenile fish sampling concluded July 15.

River Conditions

River conditions during the week are outlined in Table 1.

Table 1. River conditions at Ice Harbor Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (°F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
28.9	10.6	0.0	0.0	69	66	7.6	6.8

*Unit 1 scrollcase temperature.

Other

Inline Cooling Water Strainers: Results of the main turbine cooling water inspections are listed in Table 2 below.

Table 2. Inline Cooling Water Strainer Inspections at Ice Harbor Dam, September, 2013.

Date	Unit	Lamprey
23-Sept	6	zero
25-Sept	5	zero
25-Sept	4	zero
23-Sept	3	zero
23-Sept	2	zero
25-Sept	1	zero

Invasive Species: No new invasive species were detected this week.

Avian Activity: The fish facility is conducting bird observations when possible. Observable predation has decreased as juvenile fish numbers decline.

Research: No on-site researchers are present at this time.

Project: Lower Monumental

Biologists: Bill Spurgeon and Elizabeth Holdren

Dates: September 20 - 26, 2013

Turbine Operation

The units are being operated in hard constraint of the 1% operation criteria. Unit 2 was taken out of service for annual maintenance at 0800 hours on September 9.

Adult Fish Passage Facility

The adult fishway was inspected by Corps and PSMFC/State biologists on September 21, 22, 25, and 26.

Fish Ladders: Fishway exit head differentials and depths over the weirs were within criteria ($\leq 0.5'$ and $1.0'-1.3'$, respectively) on all inspections. Picketed lead head differentials were in criteria ($\leq 0.4'$ and $\leq 0.3'$ for north and south shore fishways, respectively) on all inspections.

Fishway Entrances and Collection Channel: NSE1 and NSE 2 weir gates were in depth criteria (criteria: $\geq 8'$ or on sill) on all inspections with the exception of a 7.9 feet reading on September 21. The gate was in criteria when checked later that day. North shore channel/tailwater head was in criteria ($1'-2'$) on all inspections.

SPE 1 and SPE 2 weir gates were in sill criteria (criteria: $\geq 8'$ or on sill) on all inspections. While on sill the gate depth readings were 6.1', 6.7', 7.2', and 7.0 feet. South powerhouse channel/tailwater head was in criteria ($1'-2'$) on all inspections.

SSE1 weir gate was in depth or sill criteria (criteria: $\geq 8'$ or on sill) on all inspections. While on sill the gate depth readings were 7.1' and 7.5 feet. SSE 2 was in criteria (6' above sill) on all inspections. South shore channel/tailwater head was in criteria ($1'-2'$) on all inspections.

Auxiliary Water Supply System: AWS pumps 1 and 3 were operated throughout this period. Two pump operation will continue until bearing repair and shaft alignment work is completed on pump 2, approximately October 11.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: There was an average of 2.0 square yards of forebay debris observed during this period. Gatewell debris ranged from 0-11% surface coverage. No oil was observed in gatewells.

STSS/VBSs: STSSs are operating in cycle run mode.

Orifices, Collection Channel, Dewatering Structure, Flume: The collection channel is operating with 18 orifices open.

Collection Facility: Daily collection for transport is occurring. Facility mortality exceeded 6% on September 23, 24, 25, and 26. Percent mortality was 6.52, 15.0, 12.0, and 40.0, respectively. Sampled sub-yearling Chinook had columnaris rates of 50.0% (21 infected out of 42 sampled) on September 23, 37.5% (6 infected out of 16 sampled) on September 24, 59.1% (13 infected out of 22 sampled) on September 25, and 50.0% (3 infected out of 6 sampled) September 26.

Transport Summary: Alternate day midi-tank transport is occurring with trucks departing on odd numbered days. Fish collection and trucking is scheduled to continue with the final load going out on October 1.

River Conditions

River conditions during the week are outlined in Table 1.

Table 1. River conditions at Lower Monumental Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature (°F)*		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
25.5	12.4	0.0	0.0	67.5	66.0	5.0+	4.5

*Scrollcase temperatures.

Other

Spill for fish passage ended at 0000 hours on September 1.

Inline Cooling Water Strainers: Cooling water strainers were inspected on September 11. One live lamprey was recovered. Mortalities included 5 juvenile lamprey, 1 juvenile salmon, 2 juvenile catfish, 16 Siberian prawns, and 1 unknown juvenile species.

Invasive Species: No zebra mussels were observed at the monitoring stations on September 1.

Avian Activity: Bird hazing has ceased for the season.

Research: No researchers are present on site at this time.

Project: Little Goose
Biologist: Richard Weis
Dates: September 20 - 26, 2013

Turbine Operation

Turbine units 1, 2, 3, 4 and 6 were available for all of this report period. Unit 5 was removed from service on September 17 for annual maintenance. Turbine units were operated within the 1% criteria.

Adult Fish Passage Facility

USACE and ODFW fisheries biologists performed measured inspections of the adult fishway on September 23, 25 and 26.

Fish Ladder: The ladder exit head differentials ranged between 0.1 and 0.2 feet (criteria ≤ 0.5 ft.). Water depths over the weirs ranged between 1.1 and 1.2 feet (criteria 1.0-1.3 ft.) and picketed lead head differentials ranged between 0 and 0.1 feet (criteria ≤ 0.3 ft.). No debris was observed at the picketed leads or the ladder exit. The air bubbler used to prevent debris from collecting near the ladder exit operated satisfactorily.

Fishway Entrances and Collection Channel: Channel to tailwater head differentials ranged between 1.3 and 2.0 feet (criteria 1.3 to 2.0 ft.). SSE weir depths ranged between 8.3 and 8.4 feet (criteria ≥ 8.0 ft). NPE weirs ranged between 6.6 and 7.3 feet (criteria ≥ 7.0 ft or on sill). NSE weirs are at fixed elevations of 532.0 feet and depths ranged between 6.5 and 7.1 feet (criteria ≥ 6.0 ft.). Collection channel surface water velocity measured near NPE ranged between 1.8 and 2.4 (criteria ≥ 1.5 fps). Collection channel subsurface water velocity was measured on September 10 using the Rickly Hydrologic Current Meter. Three measurements were conducted from near surface, mid depth and near bottom. The subsurface velocity average was 3.2 fps with 3 fish pumps operating and all weirs in open positions.

Auxiliary Water Supply System: All Fish pumps operated within criteria ranging between 72 and 77 rpm.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: Woody debris ranged between 5 and 100 square feet in the immediate forebay area. Gatewells for the most part, remained clear of debris.

Spillway Weir: The spillway weir was removed from service on August 1. Spill for summer fish season ended on September 1.

ESBS/VBS: All ESBS operated within criteria this report period. ESBS screens were tested for proper operation on September 15. All brushes operated as designed.

Orifices, Collection Channel, Dewatering Structure, and Flume: The juvenile collection system was operated throughout this period with 20 to 21 open orifices.

Transportation Facility: The facility continued collection for transport. Daily fish collection for the week ranged between 4 and 114 and totaled 250. The descaling and mortality rate was 1.5% and 5.6% respectively. Fish with Columnaris disease are decreasing with just 6 juvenile Chinook being bypassed this report period with severe infection. No problems with the facility were encountered.

Transport Summary: Every other day trucking continues. Fish continued to be transported below Bonneville Dam to the Smolt Monitoring Facility and released to the river via the outfall flume. A total of 226 fish were transported. All loading and transport operations were completed satisfactorily.

River Conditions

River conditions during the week are outlined in Table 1.

Table 1. River conditions at Little Goose Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (°F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
20.2	12.4	0	0	67.7	66.6	6.0+	5.0

*Ladder temperature.

Other

Inline Cooling Water Strainers: Cooling water strainers on all units were checked on September 25. No fish were found.

Invasive Species: The zebra mussel substrate monitor was last inspected on September 2. No mussels were observed. The next inspection is scheduled for October 2.

Avian Activity: Maximum bird counted from single survey included 34 cormorants and 50 gulls.

Research: UC Davis is performing underwater video monitoring of the new lamprey orifices in the adult fish ladder. University of Idaho is performing Adult Salmon Passage Studies using radio telemetry.

Project: Lower Granite

Biologists: Mike Halter and Ches Brooks

Dates: September 20 - 26, 2013

Turbine Operation

Lower Granite had turbine units #1, 2, 3, 4 and 5 available for power generation at the beginning of the report period. Turbine unit #6 was removed from service on June 24 for cavitation repair, followed by annual maintenance. The expected return to service date is December 7. Turbine unit #1 was forced out of service on September 26 at 0659 hours due to an 87GX relay lockout. The unit returned to service at 1102 hours the same day.

Special unit operations to improve adult passage continued with the project directed on September 19 at 1700 hours to operate unit priority as follows: 1, 2, 3, and then 4 – 6 in any order thru October 2. The purpose of this operation is to operate turbine unit #1 as the priority continuously during all hours with minimal starts and stops - to provide improved ladder attraction flow.

Adult Fish Passage Facility

On September 21 - 23 COE fish biologists conducted inspections of the adult fishway system.

Fish Ladder: All criteria were met.

Fishway Entrances and Collection Channel: Head differential readings were within criteria at all adult fishway entrances during the weekly inspections.

Weir depths at the south shore fishway entrances met criteria during all weekly inspections with depths ranging from 8.0 to 8.1 feet (criterion ≥ 8.0 feet). The north powerhouse fishway entrances were on sill during the first two inspections this week with depths ranging from 7.2 to 7.8 feet due to tailwater elevations below 636.0 feet (these gates bottom out at elevations below 636.0 feet), but was in depth criteria on the September 23 inspection with depths of 8.2 feet (criterion ≥ 8.0 feet). Weir depths at the north shore entrances ranged from 4.4 to 6.9 feet (criterion ≥ 7.0 feet). Only north shore entrance 1 can adjust its' depth relative to the tailwater elevation. North shore entrance 2 is manually set at a compromise depth of 630.0 feet. Normally weir depth readings at the north shore entrances are sacrificed in order to maintain the requisite 1.0 foot of head differential.

Velocity readings in the adult fishway collection channel transition pool area ranged from 0.83 to 1.05 feet per second and averaged 0.93 feet per second.

Auxiliary Water Supply System: Fish pumps one and three were run during the week. A replacement coil and circuit board for fish pump #2's starter have been ordered. Fish pump two is out of service awaiting these parts.

Juvenile Fish Passage Facility

The sample rate remained at 100% during the report week.

Forebay Debris/Gatewell Debris/Oil: The amount of forebay debris varied during the week due to wind strength and direction; none was removed.

ESBSs/VBSs: VBS/ESBS video inspections last took place on August 23. No issues of note were reported. The next inspections are planned for late October.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe: Orifices are being backflushed every three hours around the clock in an attempt to keep them free of materials that might impact fish passage. Debris levels decreased somewhat (mostly fine material) during the report week.

The project continues to be concerned with elevated descaling of smolts. The water has been lowered in the separator several times (for various purposes) enabling close inspection of the conditions under the bars – a few sticks were removed each time. The separator exits are monitored regularly, as are the gatewells and orifices. All operating units' associated trash racks have been raked within the last month. Descaling was 6.8% for the week compared to 5.8% in 2012 and 4.6% for the 2007-2011 average. Historically, descaling rates increase during September and October to their highest levels of the season.

Transportation Facility: The JFF operated smoothly during the week. There were no operational problems of any kind with fish collection, fish sampling, or fish transportation equipment. Fish collection numbers at Lower Granite again decreased substantially during the week with an average daily collection of smolts of 83 (versus a daily average of 204 last week). Due to increasing numbers of jack Chinook making it through the separator bars and ending up in the lab sample, the facility installed a smaller series of separator bars to screen the jacks out of the sample. These bars have proven quite effective in previous years.

Transport Summary: Every other day fish barging operations concluded on August 16. All fish barges have been returned to Lower Granite and are docked for maintenance work and winter storage. Fish trucking operations began on August 18 using the pickup midi-tanker. During the report week collected fish numbers have been relatively low and well within the capacity of this transport vehicle and each project transported their own fish.

Removable Spillway Weir: The RSW was operated in support of general spill operations during the season. Mandatory spill operations in support of fish passage ended at 0001 hours on September 1.

River Conditions

River conditions during the week are outlined in Table 1 below.

Table 1: River conditions at Lower Granite Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (°F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
21.7	16.1	0.0	0.0	68.4	68.1	4.6	3.9

*Scrollcase temperature.

Other

Video counts in the adult fish ladder counting room began on March 1 and concluded on March 31. Visual counting between the hours of 0400 and 2000 began on April 1.

Inline Cooling Water Strainers: Cooling water strainers were inspected for lamprey entrainment on September 24. A total of 0 lamprey were found in the strainers over a combined run time of 675.1 unit hours. The next cooling water strainer inspections are scheduled for late October.

Invasive Species: The zebra mussel substrate near the adult fishway exit was last examined for zebra mussels on September 6. No evidence of zebra mussels was found. The next inspection will take place in early October.

Avian Activity: Formal bird counts and hazing started on April 1. Avian hazing activities concluded for the season on June 30.

Adult Fish Trap: The two auxiliary fish pumps being run in order to supply the ladder with cooler water were shut off on September 18 at 1115 hours and Diffuser 14 placed in remote, returning the fish ladder to normal service. This was done to prepare for the reopening of the adult fish trap. The NOAA adult ladder fish trap reopened at 0900 hours on September 23 with an initial sample rate of 12%, the trap will now be operated seven days a week. *Details of the various studies/projects going forward at the trap will be updated in the next report.*

Fall Chinook Transport: Collection of adult fall Chinook for transport to Lyons Ferry Hatchery and the Nez Perce Hatchery at Cherry Lane resumed during the week. The Nez Perce are trucking fish on Sunday and Monday and Lyon's Ferry Hatchery is trucking fish Tuesday – Saturday. Trucking operations will continue into November (or until hatchery needs are met).