U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#34-2013

Project: McNary
Biologists: Carl Dugger and Bobby Johnson
Dates: October 18 - 24, 2013

Turbine Operation

McNary had 9 to 11 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. On November 1, the soft constraint will begin. Unit outages are recorded in Table 1.

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.
5	Oct 15 – 28	About 13 days.	Transformer 3 and unit maintenance.
6	Oct 15 – 24	About nine days.	Transformer 3 and unit maintenance.
9	Oct 22	36 minutes.	ESBS camera inspections.

Adult Fish Passage Facilities

On October 18, 20 and 22, the McNary fisheries biologists performed measured inspections of the adult fishways. On October 31, visual fish counting will conclude. On November 1, the picketed leads will be raised to reduce the need for cleaning. Until then, the fisheries staff will help monitor the leads.

Fish Ladder Exits: Both ladder exits met all Fish Passage Plan during the inspections. Though the quantity of debris is decreasing, project personnel continued to regularly clean the picketed leads by the ladder exits. The Washington count station window cleaning brush has not yet been repaired. The brush moves up and down as usual, but does not rotate or spin. At the Oregon exit, due to encoder issues, weir 340 remains in manual operation. Our differential monitoring of the traveling screens revealed no problems.

Fishway Entrances and Collection Channel: At the Washington ladder entrance, all inspection points were in criteria. W2 is operating well with the digital encoder. The LED remains unplugged. W3 is still occasionally experiencing calibration drifts. On October 18, the weir was still moving excessively. Operators were able to resolve this issue the same day.

At the Oregon ladder entrances, all points were in criteria. At the north powerhouse entrance, NFEW2's south cable occasionally has a slight amount of slack. The average velocity for the Oregon ladder's collection channel was 1.4 feet per second from surface readings.

Auxiliary Water Supply System: The Wasco County PUD turbine unit in the Washington ladder had no interruptions in service. The 2 operating Oregon ladder fish pumps also had no interruptions in service. Both pumps performed satisfactorily with 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 juvenile system remains in primary bypass for the fall season. The facility also remains "watered up" to avoid freeze breakage. Light maintenance and partial winterization continues. The fisheries staff will monitor the juvenile channel around the clock.

Forebay Debris/Gatewell Debris/Oil: For the week, forebay debris along the powerhouse was light to moderate consisting of Eurasian milfoil and wood. Changes in wind and project operations continue to redistribute the debris. Trash rack differential measurements revealed no problems and no racks were cleaned. We noted no problems in the gatewell slots.

ESBSs/VBSs: ESBSs are deployed in all units except in slots associated with unit 11. The screens stored at unit 11 will be used as spares. The ESBSs in slots 2A, 3A, 7B, 8C, 10C and 13A remain in timer mode. On October 22, we began camera inspections at unit 9; but before we could start, the camera's cable failed. Fortunately, that day, our new camera arrived. However, we will not be able to install the camera in our truck until November 5. The next camera inspection will occur on November 12.

VBS differential monitoring revealed one screen out of criteria. On October 23 and 24, the project cleaned this screen and six others. Also, on October 21, the project performed scheduled inspections of 10 other screens, which also included screen cleaning.

VBS differential monitoring revealed one screen out of criteria. On October 23 and 24, project staff cleaned this screen plus 12 others as a preventative measure. In addition, scheduled inspections were conducted on 10 other screens which included cleaning them. Two lost smolts were found this week during VBS inspection and cleaning operations.

Since units 3 and 11 are out of service, slot 3C and slots associated with unit 11 are being used to cycle in rehabilitated VBSs. The replacement of the VBS in slot 6B has been again delayed to next week.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: For the week, we had 40 orifices in service (instead of the 42 typically in use). Two orifices in unit 4 are closed as this unit is out of service. This reduced the opening of the side dewatering valves, which in turn will reduce the likelihood of the side screen becoming obstructed with debris. Since technicians are

monitoring the collection channel around the clock, orifice adjustments and screen cleaning equipment can be operated as required.

All systems operated well in automatic mode. On October 18, we increased the cycle times for the side and rectangular screen cleaning devices from 180 to 240 and 120 to 180 minutes, respectively. This will reduce the mechanical wear on the devices. Fisheries staff continued to closely monitored the channel during VBS cleaning operations.

Transportation Facility: Since we are in fall primary bypass season, we have removed all systems from service. PIT tag detection will only occur in the full flow pipe. Light maintenance continues and the facility will remain watered to avoid freeze breakage.

Transport Summary: Transport did not occur at McNary this year. After regional discussion, transport will no longer occur at McNary in the future.

River Conditions

River conditions during the week are outlined in Table 2 as provide by the COE. Our data day runs from 0000 to 2400 hours. A slight amount of spill occurred on October 22 for tests following scheduled spill gate maintenance

Table 2. River conditions at McNary Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature (^{o}F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
108.8	92.0	0.1	0.0	59	58	6.0	6.0

Other

Inline Cooling Water Strainers: The next cooling water strainer examination will occur in early November.

Invasive Species: On October 20, the zebra mussel station examination revealed no problems.

Avian Activity: On September 30, formal bird counts concluded. Casual observations continued, especially while conducting other inspections. In the forebay area, we observed an occasional group of grebes as well as gulls and cormorants. On the rocks by the Washington boat dock, we observed gulls and cormorants.

In the tailwater area, we noted gulls, cormorants and mergansers. Most of the feeding birds were in powerhouse area. The roosting birds were on the navigation lock wing wall. This week, we noted grebes in the calm water of the lower spill basin. Bird numbers maybe fluctuating with their seasonal movements and juvenile shad out migration.

We observed an occasional gull, merganser or cormorant by the bypass outfall.

The hazing sprinkler system remains out of service. A new system will be installed this fall. The three gull distress calls remain deployed.

Research: Preparations for the direct adult steelhead survival study at the turbine intake and TSW have been delayed. The researcher is having difficulty finding adult steelhead for the study.

Project: Ice Harbor
Biologist: Mark Plummer
Dates: October 18 - 24, 2013

Turbine Operation

Main turbine units 1, 2, 3, 4, and 5 were available for operation. Turbine units were out of service for short periods while STS/VBS inspections were performed October 21 (units 4, 5, and 2) and 23 (units 1 and 2). Turbine unit 4 went out of service October 15 at 0831 hours for governor installation and remained out of service. Turbine unit 6 remained out of service.

Adult Fish Passage Facilities

Fish facility personnel inspected the adult fish ways October 22, 23, and 24.

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.

Fishway Entrances and Collection Channel: The center fish way weir 2 remains out of service. 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: Two of the 3 north shore fish pumps were operated without problems. Six of 8 south fish pumps were operated without problems. All are available for operation.

Juvenile Fish Passage Facility

Forebay Debris/Gate well Debris/Oil: Fish ladder exits are clear of debris and the bubblers are operating satisfactorily. Turbine unit 5, B slot, had a small sheen of oil in it on October 22. Fish Facility personnel placed oil absorbent pads in the slot and notified the control room.

STSs/VBSs: STSs are in cycle run mode operation. The STS/VBS inspection were performed October 21 and 23. No problems to report. Turbine strainer inspections were done at this time, results are listed below. November inspections are scheduled for 18 and 20.

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 took place 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.

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* (^{o}F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
23.3	15.2	0.0	0.0	61	59	7.4	7.4

*Unit 1 scrollcase temperature.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on October 21 (units 2, 4 & 5) and October 23 (units 1 and 3). Unit 6 was not inspected as it remains out of service. No lamprey were seen or recovered during these inspections.

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 research is in progress at this time.

Project: Lower Monumental
Biologists: Bill Spurgeon and Elizabeth Holdren
Dates: October 18 - 24, 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 and remains out of service.

Adult Fish Passage Facility

The adult fishway was inspected by Corps and PSMFC/State biologists on October 21, 22, 23, and 24.

Fish Ladders: Fishway exit head differentials and depths over the weirs were within criteria (≤ 0.5' and 1.0'-1.3', respectively) on all inspections. Picketed lead head differentials were in criteria (≤ 0.4' and ≤ 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: ≥ 8' or on sill) on all inspections. 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: ≥ 8' or on sill) on all inspections. While on sill the gate depth readings were 6.3', 6.0', 6.8', and 6.5 feet. South powerhouse channel/tailwater head was in criteria (1'-2') on all inspections.

SSE1 weir gate was in sill criteria (criteria: ≥ 8' or on sill) on all inspections. While on sill the gate depth readings were 7.2', 7.6', 7.8', 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 November 15.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: There was an average of 21.3 square yards of forebay debris observed during this period. Gatewell debris ranged from 0-30% surface coverage. No oil was observed in gatewells. Units 3 and 4 gatewell slots were dipped on October 23.

STSs/VBSs: STSs are operating in cycle mode.

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

Collection Facility: The facility is in winter maintenance mode.

Transport Summary: Fish transport is not in progress at this time.

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 (^{o}F)*		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
23.0	13.7	0.0	0.0	58.0	57.0	4.6	4.2

*Scrollcase temperatures.

Other

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

Inline Cooling Water Strainers: Cooling water strainers were inspected on October 7. No live lamprey were recovered. Seven live Siberian prawns were recovered. Mortalities included 33 juvenile shad, 2 juvenile suckers, and 31 Siberian prawns.

Invasive Species: No zebra mussels were observed at the monitoring stations on October 7.

Avian Activity: Bird hazing has ceased for the season.

Research: No on site research is in progress at this time.

Project: Little Goose
Biologists: Richard Weis
Dates: October 18 - 24, 2013

Turbine Operation

Turbine units 2, 3, 5 and 6 were available for all of this report period. Turbine unit 1 has been removed from service for scheduled exciter replacement. Turbine unit 4 was returned to service on October 24 at 1419 hours following completion of annual inspection and maintenance. All available 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 October 20, 21 and 24.

Fish Ladder: The ladder exit head differentials ranged between 0.1 and 0.2 feet (criteria $\leq$ 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 remained steady at 0 feet (criteria $\leq$ 0.3 ft.). No debris was observed at the picketed leads or at 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 1.4 and 2.0 feet (criteria 1.3 to 2.0 ft.). SSE weir depths ranged between 8.3 and 8.4 feet (criteria $\geq$8.0 ft). NPE weirs ranged between 7.1 and 7.2 feet (criteria $\geq$7.0 ft or on sill). NSE weirs are at fixed elevations of 532.0 feet and depths ranged between 6.8 and 6.9 feet (criteria $\geq$ 6.0 ft.). Collection channel surface water velocities ranged between 1.7 and 2.9 feet (criteria $\geq$1.5 fps). Collection channel subsurface water velocity was measured on October 14 using the hydrologic current meter. The velocity averaged 2.7 fps with 3 fish pumps operating and all weirs in open positions.

Auxiliary Water Supply System: All fish pumps operated within criteria ranging between 71 and 75 rpm.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: Woody debris was minimal. Gatewells for the most part, remained clear of debris. Drawdowns were performed on Unit 2 on October 23.

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

ESBS/VBS: All ESBSs operated within criteria this report period. ESBSs screens were tested for proper operation on October 16. All ESBSs operated as designed.

Orifices, Collection Channel, Dewatering Structure, and Flume: The juvenile collection system was operated throughout this period with 19 open orifices.

Transportation Facility: The facility continued collection for transport. Daily fish collection for the week ranged between 27 and 130 and totaled 559. The descaling and mortality rate was 3.8% and 1.6% respectively. Two Juvenile Chinook were bypassed with severe Columnaris infection. No problems with the facility were encountered.

Transport Summary: Every other day trucking continues. Fish continued to be transported below Bonneville Dam to Dalton Point and released to the river. A total of 521 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* (^{o}F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
22.0	12.9	0	0	60.1	56.8	6.0	4.5

*Ladder temperature.

Other

Inline Cooling Water Strainers: Cooling water strainers on all units were checked on October 23; one juvenile lamprey mortality was collected.

Invasive Species: The zebra mussel substrate monitor was inspected October 25 (after the close of the current report period); no mussels were observed. The next inspection is scheduled for November 25.

Avian Activity: A maximum of 40 gulls, 27 cormorants, 5 grebes, 6 terns were counted during bird surveys.

Research: University of Idaho is performing Adult Salmon Passage Studies using radio telemetry.

Project: Lower Granite
Biologists: Mike Halter and Ches Brooks
Dates: October 18 - 24, 2013

Turbine Operation

Lower Granite had turbine units 1, 2, 3, and 4 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 31. Turbine unit 5 was removed from service on October 7 for annual maintenance. The expected return to service date is November 1.

Adult Fish Passage Facility

From October 18 to 20, COE fish biologists conducted inspections of the adult fishway system.

Fish Ladder: All criteria were met.

Fishway Entrances and Collection Channel: Head differential readings remained within criteria at the south shore and north powerhouse fishway entrances during the weekly inspections. The head differential reading at the north shore fishway entrances was out of criteria on the October 18 inspection with a reading of 0.9 feet (criterion 1.0' – 2.0').

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). Weir depths at the north powerhouse fishway entrances also met criteria during all weekly inspections with depths ranging from 8.0 to 8.1 feet (criterion ≥ 8.0 feet). Weir depths at the north shore entrances ranged from 4.7 to 6.8 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 0.85 to 0.97 feet per second and averaged 0.91 feet per second.

Auxiliary Water Supply System: Fish pumps 1 and 3 were run during the week without any problems. Fish pump 2 is now in standby.

Juvenile Fish Passage Facility

The sample rate remained at 100% until 0700 hours on October 17 when it was reduced to 50% due to excessive fish in the sample. The sample rate was reduced down to 25% on October 19 due to high fish numbers. As detailed below, fish collection numbers are unusually high for this time of year at Lower Granite.

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 October 25-26.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe: Orifices are being backflushed every 3 hours around the clock in an attempt to keep them free of materials that might impact fish passage. Debris levels were light during the report week.

The percentage of smolts that were more than 20% descaled improved during the report week. Descaling was 2.7% for the week compared to 4.0% last week and 2.5% in 2012 and 1.7% for the 2007-2011 average. The project continues to monitor all areas and structures associated with juvenile fish passage closely.

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 increased rather dramatically during the week with a total smolt collection of 13,268 compared to 4,636 last week and a total weekly collection of 1,230 in 2012 and 1,954 for the 2007-2011 average. *This is the highest ever collection for this week.* Due to the continued presence of jack Chinook in the juvenile bypass system, the facility has continued to employ a smaller gap series of separator bars to screen the jacks out of the sample. These bars have proven quite effective.

Transport Summary: Every other day fish barging operations concluded on August 16. All fish barges have been returned to Lower Granite and were docked for maintenance work and winter storage. The two 4000 series barges were transported downstream last week for a much needed paint job. Fish trucking operations began on August 18 using the pickup midi-tanker. Due to the substantial increase in smolt collection it was necessary to use the semi tractor-trailer to transport smolts this week. Every other day truck transport is scheduled to continue thru October 31.

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 on September 1.

River Conditions

River conditions during the week are outlined in Table 1.

Table 1: River conditions at Lower Granite Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (F^o)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
23.5	15.1	0.0	0.0	57.6	57.1	3.8	3.2

*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 October 21. No lamprey were found in the strainers over a combined run time of 1,005 unit hours. The next cooling water strainer inspections are scheduled for late November.

Invasive Species: The zebra mussel substrate near the adult fishway exit was last examined for zebra mussels on October 4. No evidence of zebra mussels was found. The next inspection will take place in early November.

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

Adult Fish Trap Operations: Adult fish trap operations continued with a sample rate of 20%. Scale samples will be taken from 1 out of every 10 hatchery steelhead. All wild steelhead captured will be PIT-tagged and scale and genetic samples taken. Any previously PIT-tagged steelhead (either hatchery or wild) will have both scale and genetic samples taken for verification purposes.

IDFG is radio tagging adult 'B' run wild and hatchery steelhead to examine the difference in movement, staging and if the fish are straying from predicted/natural areas.

WDFW is radio tagging fall Chinook that were PIT-tagged as juveniles by Tiffani Marsh over the last 4 years.

The Nez Perce is conducting a study to monitor the effectiveness of adult 'B' run steelhead hatchery (supplementation) in the Clearwater sub-basin. Utilizing sort-by-code; 50 each of known South Fork Clearwater adults – comprised of: Clearwater natural, supplementation and conventional steelhead will be radio tagged. The 2 main goals of this study are: 1. Compare the relative performance of these three groups. 2. Determine spatial overlap in the spawning distribution of these groups

Fall Chinook Transport: Collection of adult fall Chinook for transport to Lyons Ferry Hatchery and the Nez Perce Hatchery at Cherry Lane continued 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).