U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#35-2013

Project: McNary
Biologists: Carl Dugger and Bobby Johnson
Dates: October 25 - 31, 2013

Turbine Operation

McNary had 6 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 28 – 29	About 20 hours.	Testing and unit maintenance.
5 to 8	Oct 30 – Nov 1	About three days.	BPA transmission line outages.
10	Oct 30 – Nov 15	About 17 days.	Guide bearing failure and repair.

Adult Fish Passage Facilities

On October 25, 27 and 29, the McNary fisheries biologists performed measured inspections of the adult fishways. On October 31, visual fish counting concluded. 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. Brush repairs will be implemented when the ordered parts arrive.

At the Oregon exit, due to encoder issues, weir 340 remains in manual operation. Our differential monitoring of the traveling screens revealed no problems. A half a dozen wash pump and differential alarms occurred this week, which the operators reset without incident.

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.

At the Oregon ladder entrances, all points were in criteria. At the south powerhouse entrance, SFEW1 had one calibration drift. The average velocity for the Oregon ladder's collection channel was 1.2 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 consisting of Eurasian milfoil and wood. Changes in wind and project operations continue to redistribute the debris. A severe East wind moved most of the debris to the Oregon Shore on October 28. 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. This week, the fisheries staff built a protective shroud for the new camera and tested it. On November 5, we will install the camera in our truck canopy with help from the factory representative. The next camera inspection will occur on November 12.

VBS differential monitoring revealed 3 screens out of criteria. On October 28 and 29, the project cleaned these screens and 4 others as a precautionary measure. No fish mortalities 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 or adjusted as required.

All systems operated well in automatic mode. Fisheries staff continued to closely monitor 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. This week, we began to investigate the separator's previously rehabilitated perforated plate again as the welds performed last year did not hold.

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

However, on October 25, a cracked wheel hub cover forced the semi-truck and fish trailer from Lower Granite to the side of the road outside Waitsburg, Washington. The driver also noticed lubricant was leaking from the left rear trailer axle. The McNary resource manager was called. He immediately arranged for repairs. Following repairs, the driver arrived at the McNary Operating Project at 1500 hours. The fisheries and resources staffs helped to off load the fish from the trailer into the full flow bypass pipe near the junction box. By 1700 hours, the driver and the semi-truck and trailer combination left the fish facility to return to Lower Granite Dam.

If the McNary Juvenile Fish Facility is to become an emergency release site, we recommend some modifications for release and flush water be made to the full flow pipe so the driver could release fish without assistance.

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. Scheduled spill gate maintenance continued. On October 30 and 31, spill occurred in excess of powerhouse capacity.

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
117.7	90.6	23.7	0.0	59	57	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. The next zebra mussel station examination will occur in late November.

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 solitary gulls and cormorants. On the rocks by the Washington boat dock, we observed gulls and cormorants. One grebe passed into the gatewell slots and then the juvenile collection channel. Later, it passed out of the system.

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 winter with the full flow bypass clean up contract. The three gull distress calls remain deployed.

Research: It appears that the planned direct adult steelhead survival study at the turbine intake and TSW will be moved to the spring season as the researcher is having difficulty finding adult steelhead for the study. Next week, a dive contractor will be removing transducers from the trash racks left there from the emergency gate closure and FGE study.

Project: Ice Harbor
Biologist: Mark Plummer
Dates: October 25 - 31, 2013

No report was submitted from Ice Harbor Dam this week. This report will be sent out separately when it becomes available.

Project: Lower Monumental
Biologists: Bill Spurgeon and Elizabeth Holdren
Dates: October 25 - 31, 2013

Turbine Operation

The units are being operated in hard constraint of the 1% operation criteria. Unit 2 was out of service from 0800 hours on September 9 to 1530 hours on October 29 for annual maintenance. Unit 5 was removed from service at 1300 hours on October 29 for annual maintenance.

Adult Fish Passage Facility

The adult fishway was inspected by Corps biologists on October 28, 29, 30, and 31.

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 with the exception of a north shore reading of 0.9 feet on October 28. This discrepancy was due to high winds and wave action pushing forebay debris to the north shore ladder exit. Debris was removed from the picketed leads when the problem was reported.

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. NSE 2 was raised to the upper limit (447.0 feet) on October 30 due to a faulty transducer. The gate was manually lowered to depth criteria and remains in local mode until electricians complete repairs early next week.

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 6.7', 7.1', 6.9', 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: ≥ 8' or on sill) on all inspections. While on sill the gate depth readings were 7.9', 7.8', and 7.8 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 8.8 square yards of forebay debris observed during this period. Gatewell debris ranged from 0-25% surface coverage. No oil was observed in gatewells.

STSs/VBSs: STSs are operating in cycle run 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 occurring 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
19.8	14.0	0.0	0.0	56.0	54.0	4.6	3.8

*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 25 - 31, 2013

Turbine Operation

Turbine units 2- 6 were available for most of this report period. Turbine unit 1 is removed from service for scheduled exciter replacement. Turbine unit 3 was removed from service on October 28 at 0700 hours for its 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 27, 28 and 30.

Fish Ladder: The ladder exit head differentials ranged between 0 and 0.1 feet (criteria $\leq$ 0.5 ft.). Water depths over the weirs remained steady at 1.1 feet (criteria 1.0-1.3 ft.) and picketed lead head differentials remained steady at 0.0 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 1.5 and 1.9 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 6.9 and 7.3 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 7.3 feet (criteria $\geq$ 6.0 ft.). Collection channel surface water velocities ranged between 1.5 and 2.7 (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 70 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.

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. ESBS 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 23 and 138 and totaled 412. The descaling and mortality rate was 4.5% and <1.0% respectively. No juvenile Chinook were bypassed with Columnaris infection this week. No problems with the facility were encountered.

Transport Summary: Every other day trucking operations ended with the last truck for the season leaving the facility on October 31. All trucked fish were transported below Bonneville Dam to Dalton Point and released to the river. A total of 434 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
17.7	13.3	0	0	56.6	55.3	6.0	5.8

*Ladder temperature.

Other

Inline Cooling Water Strainers Cooling water strainers on all units were checked on October 30. No fish were found.

Invasive Species: The zebra mussel substrate monitor was last inspected on October 25; no mussels were observed. The next inspection is scheduled for November 25.

Avian Activity: A maximum of 45 gulls, 42 cormorants and 4 grebes 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 25 - 31, 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. On October 25 and 26 the turbine units were rotated out of service to allow for VBS/ESBS video inspections and ROV inspections of the sealed upstream fish screen slots. On October 29 at 0706 hours, turbine unit 1 was removed from service in order to repair a VBS screen tear in slot 1B that was detected during the afore mentioned video inspections. Turbine unit 1 is expected to return to service by November 1.

Adult Fish Passage Facility

On October 25, 26 and 29 COE fish biologists conducted inspections of the adult fishway system. The October 31 inspection was conducted with the ODFW biologist from Little Goose Dam.

Fish Ladder: All criteria were met.

Fishway Entrances and Collection Channel: Head differential readings remained within criteria at the south shore during the weekly inspections. The head differential at the north powerhouse fishway entrances was out of criteria on the October 31 inspection with a reading of 0.8 feet (criterion 1.0' – 2.0'). The head differential reading at the north shore fishway entrances was out of criteria on the October 29 and 31 inspections with readings of 0.8 and 0.5 feet respectively (criterion 1.0' – 2.0'). In order to address this issue the Project Biologist informed the Powerhouse Operator and the operating speed of fish pump 1 was changed from slow to fast. The head differential between the channel and the tailwater has improved.

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 $\geq$ 8.0 feet). The north powerhouse fishway entrances were on sill during the October 26 and 29 inspections this week with depths ranging from 4.8 to 7.6 feet due to tailwater elevations below 636.0 feet (these gates bottom out at elevations below 636.0 feet). These weirs met depth criteria on the October 25 and 31 inspections with depths ranging from 8.0 to 8.3 feet (criterion $\geq$ 8.0 feet). Weir depths at the north shore entrances ranged from 4.8 to 6.3 feet (criterion $\geq$ 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 1.04 to 0.85 feet per second and averaged 0.94 feet per second.

Auxiliary Water Supply System: Fish pumps 1 and 3 were operated during the week. On October 31, fish pump one's speed was changed from slow to fast. Fish pump 2 is in standby.

Juvenile Fish Passage Facility

The sample rate increased from 25% to 50% at 0700 hours on October 26. The sample rate remained at the 50% level until 0700 hours on October 31 when the system was switched to secondary bypass (all juvenile fish routed out the pipe to mid-river release). This mode of operation provides continued PIT-tag interrogation and weather permitting, will continue until December 15.

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 took place on October 25-26. During the inspections a significant tear was found in VBS slot 1B about 50 feet down. Repairs quickly took place and the unit is now available for service. The next inspections are planned for late November.

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 slightly during the report week. Descaling was 2.3% for the week compared to 2.7% last week and 2.6% in 2012 and 1.8% for the 2007 - 2011 average.

Transportation Facility: The JFF operated smoothly during the week. There were no operational problems of any kind with fish collection, or fish sampling equipment. Fish collection numbers at Lower Granite decreased during the week with a total smolt collection of 3,260 compared to 13,268 last week and a total weekly collection of 4,946 in 2012 and 2,226 for the 2007 - 2011 average. 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 have been taken down river for painting. Fish trucking operations began on August 18. On the October 25 fish transport trip while performing a temperature check, the semi tractor-trailer driver noticed that the left rear wheel hub on the trailer was leaking bearing oil; he determined that the bolt securing the hub had failed, damaging the bearing housing. After contacting the LGR Fish Facility and the Transport Coordinator, the Coordinator arranged for a contracted mechanic to conduct repairs. Although it turned out that

the onsite repair was not adequate – it did allow the driver, at the direction of the Coordinator and with the assistance of the McNary Fish Facility to safely release the fish into the McNary bypass outfall and make it back to Lower Granite the same day. The trailer was repaired completely by a crew dispatched from McNary and was utilized again on the October 31 trip. The transport trip on October 29 was a combined effort using the pickup midi-tankers of both Little Goose and Lower Granite in order to have enough capacity to truck these fish. The team here at Lower Granite Fish Facility expresses our gratitude to the teams at the Little Goose and McNary Fish Facilities for their much needed assistance this week. Smolt transport concluded on 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
19.6	13.5	0.0	0.0	56.3	55.2	4.5	4.0

*Scrollcase temperature.

Other

Visual counts in the adult fish ladder counting room between the hours of 0400 and 2000 began on April 1 and concluded on October 31. Video counts during the same hours began on November 1 and will continue through December 31.

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.

Inline Cooling Water Strainers: Cooling water strainers were last 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.

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 are conducting a study to monitor the effectiveness of adult 'B' run steelhead hatchery (supplementation) in the Clearwater sub-basin. Utilizing sort-by-code; fifty 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. Due to falling adult numbers, trucking is now being conducted on an as needed basis. Trucking operations will continue into November (or until hatchery needs are met).

Dworshak Fish Salvage: Lower Granite Fish Facility personnel led a fish rescue operation on October 28 for the draft tube of Turbine Unit #1 at Dworshak Dam. By afternoon the draft tube was successfully dewatered. Lower Granite personnel (and a member of the Dworshak mechanical crew) entered the draft tube and after sweeping this area with nets, the draft tube was deemed clear of fish. The lighting and water clarity was excellent. Again our thanks go to the Dworshak team for this well-coordinated operation.