U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#02-2013

Project: McNary
Biologists: Carl Dugger and Bobby Johnson
Dates: March 8 - 14, 2013

Turbine Operation

McNary had 12 units available for power generation this week. On March 14, project staff installed the draft tube bulkheads in unit 3 to allow unwatering in support of the rewind contractor. On April 1, the hard constraint one percent operational criteria will begin. Current turbine unit outages are recorded in Table 1.

Table 1. Unit Outages at McNary Dam.

Units	Outage Dates	Outage Length	Reason
3	Jun 4 – May 31	One year.	After rewind, thrust bearing.
14	Sep 18 – May 2	Seven months.	Turbine bearing issues continue.
10	Mar 13	3.7 hours.	Brake repair.

Adult Fish Passage Facilities

On March 8 10 and 14, the McNary fisheries biologist performed measured inspections of the adult fishways. This week, facility staff cleaned PIT tag station heat pumps in both ladders. One heat pump at the Washington PIT tag station is slated for replacement.

Fish Ladder Exits: Both ladder exits met all Fish Passage Plan criteria during inspections. As mentioned in last week's report, project personnel returned normal power feed service to the Oregon exit and the ladder PIT tag system on March 8. Two false north traveling screen alarms occurred which the operators reset without incident. Traveling screen differentials continued to be satisfactory. Traveling screens have been set to run 20 minutes, 6 times per day. These settings are the same as those utilized used during the 2012 season.

Fishway Entrances and Collection Channel: All Washington ladder entrance inspection points met criteria. By March 14, the electrical staff resolved the issue with entrance weir W3, which previously had been moving excessively.

On March 8 and 10, Oregon ladder weirs NFEW2 and NFEW3, respectively measured depths of 7.5 and 7.6 feet on each date. This is partly due to the juvenile system not supplying the usual 450 cfs to the north powerhouse pool at this time. However, the biologist noted on March 10, that sensors associated with the north powerhouse tailwater, the north powerhouse pool, the south tailwater, and south pool all required calibration. Project personnel calibrated the south

entrance sensors on March 14. This change appeared to have improved weirs depths at the north entrances. However, this improvement may have been also influenced by the recent rise in tailwater elevation. The north entrance sensors are to be calibrated next week. All other Oregon entrance weir inspection points met criteria.

On March 10, the biologist noted water flowing over the tops of powerhouse floating entrances W8 and W14. General maintenance crews adjusted these entrances and restored normal operation the next day. Collection channel velocities averaged 1.8 feet per second. Facility staff reviewed the velocity meter operating manual this week and was able to determine the meter is functioning well.

Auxiliary Water Supply System: Fish pumps 1 and 3 operated satisfactory this week with blade angles of 30 degrees. Pump 2 remains out of service for major overhaul which will require a contract. As mentioned above, the juvenile fish facility remains out of service for winter maintenance and is not providing the usual 450 cfs to the north powerhouse pool. The PUD turbine unit had no interruptions in service this week.

Juvenile Fish Passage Facility

The facility remains shut down for winter maintenance, which is nearing completion. Installation of 3 concrete bulkheads at the south end of the juvenile collection is in progress. These bulkheads will replace the steel bulkheads which face the forebay side of the collection channel. Work completion is now expected around March 18. The approximate collection channel "water-up" date is March 25.

Forebay Debris/Gatewell Debris/Oil: For the week, forebay debris accumulations ranged from light to moderate. These accumulations appear to be increasing. The fisheries staff continued to monitor trash rack differentials and no problems were seen. Project personnel plan to clean turbine unit trash racks next week. No problems were observed in the gatewell slots.

ESBSs/VBSs: All ESBSs remain in their raised positions. Winter screen maintenance is nearly concluded. Screen rehabilitation is continuing with the installation of new motors, chains and brushes. Screen deployments are expected to take place from April 5 to 15, similar to the installation dates over last four seasons in support of juvenile lamprey passage. VBS rehabilitation also continued during the winter. VBS differential monitoring will resume when ESBS installations begin.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe: Orifices remain closed for winter maintenance which is nearing completion. Collection channel re-watering and the start of bypass operations are slated to begin in late March. The fisheries staff cleaned the orifice covers this week. On March 13 and 14, the electrical and mechanical staff and the fishery biologist resolved long standing issues with all three screen cleaning devices. The transition screen cleaner, which was out of service last year, had an o-ring issue in the latch pin's air line which the mechanic repaired. The side screen mechanism had an tripped breaker (due to excessive current) which the electrician reset. The rectangular screen cleaner which had been repaired this

winter was found rubbing the west wall and jamming at times. The mechanics will resolve this problem early next week.

On March 13 and 14, the Ice Harbor Project Biologist deployed a video crawler and examined the full flow transport pipe section constructed last winter (2012-2013). The new section was found in satisfactory condition. In the older section from the powerhouse to the primary bypass gate, some erosion was found in the two bends and at the mouth of the primary bypass gate. These problems areas will be addressed next winter.

Transportation Facility: The facility remains dewatered for winter maintenance which is nearing completion. The rebuilding of the porosity control unit perforated plate is nearly finished. The securing of the bird cannon water supply line fasteners continued.

Transport Summary: No transport operations are scheduled at the present time.

River Conditions

River conditions during this report period are outlined in Table 2. Reported data was provided by the control room. The data day is from 0000 to 2400 hours. Water temperature data continues to be taken from the turbine unit 1 scroll case.

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
132.5	101.1	0.0	0.0	41	41	6.0	6.0

Other

Inline Cooling Water Strainers: The next main unit cooling water strainer examinations are scheduled for early April.

Invasive Species: A zebra mussel trap examination is planned later this month.

Avian Activity: Bird counts will resume later in the month when technicians are on shifts. This week, we observed an occasional gull, grebe or cormorant near the project. The bypass system is not in operation so there are no birds to observe near the outfall.

Research: During the winter, Corps personnel assisted Oregon traveling screen study researchers with the installation of camera rails. The traveling screen bypass ports were also cleaned. This week, a dive meeting (pre-work planning meeting) occurred in support of the FGE (Fish Guidance Efficiency) study.

Project: Ice Harbor
Biologist: Mark Plummer
Dates: March 8 - 14, 2013

Turbine Operation

Turbine units 2, 3, and 5 were out of service this reporting period. Turbine units 2 and 3 are out of service due to exciter problems and turbine unit 5 is out of service due to blade cracking.

Adult Fish Passage Facilities

Fish facility personnel inspected the adult fishways March 11, 12, and 14.

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

Fishway Entrances and Collection Channel (inspection date order): The south shore entrance (SFE) was on sill with a depth of 7.6 feet, on sill with a depth of 8.3 feet, and off sill with a depth of 8.8 feet. The north powerhouse entrance (NFE) was on sill with a depth of 7.6 feet, on sill with a depth of 8.3 feet, and off sill with a depth of 8.8 feet. The north shore entrance (NSE) was on sill with a depth of 7.7 feet, on sill with a depth of 8.3 feet, and off sill with a depth of 8.9 feet. Fishway entrance criterion is 8 feet depth, greater than 8 feet depth, or on sill. All channel/tailwater differentials were in criteria. Channel/tailwater differential criteria are 1 – 2 feet.

Auxiliary Water Supply System: Two of the 3 north shore fish pumps operated without any problems. Six of 8 south fish pumps are in service. All south fish pumps are available for operation.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: No problems to report. Debris is accumulating in the forebay in front of the powerhouse. Fish ladder exits are clear of debris and the bubblers are operating satisfactorily. Turbine unit gate well cleaning and trash rack raking began this reporting period and is proceeding as time permits.

STSs/VBSs: STSs are raised for annual maintenance. STSs are tentatively scheduled to be lowered into operating position the week of March 19.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: The juvenile bypass is watered up with 6 open orifices. Orifices in units 1 and 2 are open. The others will be opened after trash raking is completed.

Juvenile Bypass Facility: The bypass system is “watered up”.

Fish Sampling: The first sample is scheduled for April 8. Sampling will take place every other week on Mondays and Wednesdays; and on Tuesdays and Thursdays during alternate weeks.

Removable Spillway Weir: The RSW is currently not in operation. Spill in support of fish passage is expected to begin April 3, 2013.

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
43.6	25.1	1.0	0.0	41	40	7.2	7.0

*Unit 1 scrollcase temperature.

Other

Inline Cooling Water Strainers: Main turbine cooling water inspections are scheduled for March 26.

Invasive Species: Although no trap examinations took place this week, a juvenile collection channel inspection took place during the winter maintenance period. No invasive species were detected.

Avian Activity: Formal bird counts and hazing are not occurring at this time.

Research: There is no research is in progress at this time.

Project: Lower Monumental
Biologists: Bill Spurgeon and Elizabeth Lindsey
Dates: March 8 - 14, 2013

Turbine Operation

The units are being operated within the 1% soft constraint operation criteria. Unit 5 was out of service from 1418 hours on March 12 through 1511 hours on March 14 due to a faulty voltage regulator.

Adult Fish Passage Facility

The adult fishway was inspected by Corps biologists on March 11, 12, 13, and 14.

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 7.7', 7.5', 7.2', and 7.5. South powerhouse channel/tailwater head was in criteria (1'-2') on all inspections.

SSE1 weir gate was in depth criteria (criteria: ≥ 8' or on sill) on all inspections. SSE 2 was in criteria (6' above sill) on all inspections. South shore channel/tailwater head was in criteria (1'-2') this week.

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 July 15.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: There was an average of 737.5 square yards of forebay debris observed during this period. Debris will be removed from the gatewells and trash racks during the week of March 18.

STSs/VBSs: STSs are scheduled to be installed during the week of March 18.

Orifices, Collection Channel, Dewatering Structure, and Flume: The bypass is scheduled to be watered up during the week of March 18.

Collection Facility: Winter maintenance is being finished up. The facility is scheduled to be watered up for testing either during the week of March 18 or March 25.

Transport Summary: No fish transport 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
36.2	23.3	0	0	42.0	41.0	4.2	3.4

*Scrollcase temperatures.

Other

The RSW is ready for year 2013 spill operations.

Inline Cooling Water Strainers: Cooling water strainers were inspected on March 11. Two live lampreys were recovered. Mortalities included 5 juvenile lamprey.

Invasive Species: There were no zebra mussels observed at the monitoring stations on March 4.

Avian Activity: Formal bird counts and hazing are not occurring at this time.

Research: There is no research is in progress at this time.

Project: Little Goose
Biologist: George Melanson
Dates: March 8 - 14, 2013

Turbine Operation

Turbine units 1, 2, 4 and 6 were available for service throughout most of this report period. Turbine unit 1 was returned to service on March 8 at 0922 hours following a forced outage due to regulator control errors. Turbine unit 3 is removed from service for installation of new exciters. Turbine unit 4 returned to service on March 8 at 1223 hours following a forced outage due to thrust bearing high temperatures. Turbine unit 5 is forced out of service due to governor problems. Turbine units were operated in soft constraint of the 1% efficiency criteria.

Adult Fish Passage Facility

USACE fisheries biologists performed measured inspections of the adult fishway March 9, 12 and 14.

Fish Ladder: The ladder exit head differentials held steady at 0.1 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 was 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 1.1 and 1.8 feet (criteria 1.0 to 2.0 ft.). SSE weir depths held steady at 8.3 feet (criteria $\geq$8.0 ft). As a result of 2 pump operations and decreased channel to head differentials, NPE2 remained closed. NPE1 weir depths held steady at 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 7.1 and 7.2 feet (criteria $\geq$ 6.0 ft.). Collection channel surface water velocities (criteria 1.5 fps) ranged from 1.3 to 1.5 fps near the SSE and 2.1 to 2.7 fps near the NSE.

Auxiliary Water Supply System: Fish pumps 1 and 2 operated within criteria ranging between 81 and 82 rpm. Fish pump 3 remains out of service and is undergoing repairs.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: Woody debris observed this week ranged from 5,000 to 10,000 square feet inside the trash shear boom and up to 10,000 square feet outside the trash shear boom.

Spillway Weir: The spillway weir was not in service during this report period.

ESBS/VBS: All ESBSs remained raised and in their winter storage positions. Maintenance is ongoing.

Orifices, Collection Channel, Dewatering Structure, Flume: The juvenile collection system is out of service for winter maintenance.

Transportation Facility: The facility is out of service for winter maintenance.

Transport Summary: Transport operations are expected to begin in late April or early May.

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
33.7	21.7	0	0	41.1	40.8	5.1	4.6

*Ladder temperature.

Other

Invasive Species: The zebra mussel substrate monitor is scheduled for inspection on April 1.

Cooling Water Strainers: On March 13, cooling water strainers were inspected. Three juvenile lamprey mortalities were removed. The next inspection is scheduled for March 21.

Avian Activity: Four cormorants and several gulls were observed this week.

Research: There is no research activity is in progress at this time.

Project: Lower Granite
Biologist(s): Mike Halter and Ches Brooks
Dates: March 8 - 14, 2013

Turbine Operation

Lower Granite had all turbine units except for unit 5 available for power generation during the report period. Turbine unit 5 is out of service for cavitation repair. The tentative return to service date for this unit is April 12.

Adult Fish Passage Facility

On March 12 - 14 the Lower Granite fisheries biologists performed measured inspections of the adult fishway system.

Fish Ladder: All criteria were met.

Fishway Entrances and Collection Channel: Head differential readings remained within criteria at all fishway entrances during the period inspections.

Weir depths at the south shore fishway entrances and north powerhouse entrances met criteria during the period inspections. Weir depths at the north shore entrances ranged from 4.8 to 6.7 feet (criterion $\geq$ 7.0 feet). Only north shore entrance 1 can adjust its weir depth relative to the tailwater elevation. North shore entrance 2 is manually dogged off 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 0.97 to 1.09 feet per second and averaged 1.04 feet per second.

Auxiliary Water Supply System: Fish pumps 2 and 3 were operated during the week. Fish pump 1 is out of service in support of motor re-wedge service. The tentative return to service date for this pump is March 22.

Juvenile Fish Passage Facility

The juvenile collection/bypass system has been shut down for the winter outage since December 21, 2012. The date for water up of the collection gallery and initiation of secondary bypass at the separator is tentatively scheduled for March 18. Sampling activities are scheduled to begin on March 25.

Forebay Debris/Gatewell Debris/Oil: A debris spill was authorized and conducted on March 12. Forebay debris removal and trash rack raking was completed by February 28.

ESBSs/VBSs: The ESBSs were dogged-off for maintenance work during the week. Deployment of ESBSs is tentatively scheduled to begin during the third week of March.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe: Work to install a prototype overflow weir and a 14" orifice was completed and a 'wet' test of these systems was conducted on March 11. Methods of biological evaluation to test these systems are in the final stages of refinement.

Transportation Facility: General barge transport operations are uncertain at this time but will probably begin in early May. Research barging operations are tentatively scheduled to begin on April 18. Juvenile fish sampling (only) activities are tentatively scheduled to begin on March 25.

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

Removable Spillway Weir: The RSW is not in operation at this time.

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* (^{o}F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
35.4	23.8	3.8	0.0	44.0	43.1	3.8	3.1

*Scrollcase temperature.

Other

Video counts in the adult fish ladder counting room began on March 1. The recording hours are from 0600 to 1600 hours.

Invasive Species: The zebra mussel trap near the adult fishway exit was last examined for zebra mussels on March 4. No evidence of zebra mussels was found. The next inspection is scheduled for early April.

Inline Cooling Water Strainers: Cooling water strainers were last inspected for lamprey entrainment on February 26. A total of 29 lamprey were found in the strainers over a combined run time of 1,293.6 unit hours. The next cooling water strainer inspections are scheduled for late April.

Research: The adult fish trap was watered up and sampling began on March 4. The initial sample rate will be set at 21%. Since in 2013 adult trapping will only be conducted Monday thru Friday, the 21% sample rate represents an overall weekly sample rate of 15%. Genetic samples will be taken from one out of every 10 hatchery steelhead. All wild steelhead captured will be PIT-tagged and have 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.