U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#01-2013

Project: McNary
Biologists: Carl Dugger and Bobby Johnson
Dates: March 1 - 7, 2013

Turbine Operation

McNary had 12 units available for power generation this week. Unit outages are recorded in Table 1. On April 1, the hard constraint one percent criteria will begin.

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.
4	March 2	1.5 hours.	Replace turbine bearing flow meter.
6	March 6	3.5 hours.	Tap hub.

Adult Fish Passage Facilities

This winter, a contractor installed new cranes at both ladder exits. In addition, a criterion for weir depth at all fishway entrances was set at 8.0 feet or higher. NFEW2, NFEW3, SFEW1 and SFEW2 were previously set at 9.0 feet or higher.

During January, the project conducted inspection and maintenance on the Washington ladder. The ladder was dewatered to tailwater elevations and fisheries staff performed diffuser camera inspections. Maintenance staff filled in leaking ladder joints with various types of material.

During February, project personnel performed maintenance and inspections in the Oregon ladder. The ladder was dewatered to the south junction pool. A dive contractor inspected all the diffuser gratings. Other work included the installation of a new lifting chain on the supply valve to the 1000 cfs conduit. The new chain and the new exit crane will allow the project to shut down the ladder in future years. Project personnel repaired diffuser 11 and removed the stilts from entrance weir, SFEW2.

On March 1, 3, 6 and 7, McNary fisheries biologists performed measured inspections of the Washington adult fishways. Due to diffuser 11 repairs, Oregon ladder re-watering was delayed until March 4 at 1145 hours. Ladder exit controls were set in automatic mode as multiple bulkheads needed to be pulled. As a result, routine Oregon Ladder inspections took place only on March 6 and 7.

On March 5, at 1620 hours, the power feed to the Oregon exit failed, triggering an exit alarm. By 2125 hours, project personnel installed a generator, restoring normal operation and power to the exit weirs. On March 6, at 1437 hours, count station power was restored concurrently with power to the PIT tag detectors and the ladder exit traveling screens. Only the Oregon ladder PIT tag station remained without power. On March 8, from 0813 to 0958 hours, the generator was shut down, allowing the restoration of service through the main electrical feed to all ladder equipment. During these power outages, there was very little change in forebay elevation and for the most part the ladder remained in criteria.

Fish Ladder Exits: During measured inspections, both ladder exits met all Fish Passage Plan criteria. On March 6, the biologist asked the operators to adjust the Oregon ladder set points. During the winter, when the Oregon exit was operational, traveling screens differentials were satisfactory.

Fishway Entrances and Collection Channel: Washington ladder entrances met criteria except on March 1, 3 and 6 when weir, W3, measured depths ranging from 6.4 to 7.5 feet. On March 6, the biologist noted that both W2 and W3 reached their lowest limit settings and asked the technical staff to adjust the limit. This change was completed on March 7. However, that day, the biologist noted W3 moving excessively and asked the technical staff to return to the weir to the previous setting.

On March 8, the Oregon ladder north powerhouse entrance pool differential measured 0.8 feet. The biologist asked for an entrance weir adjustment to raise the pool differential to meet criteria. On March 7, NFEW2 and NFEW3 measured depths of 7.5 feet. This is probably due to the juvenile system not supplying the usual 450 cfs to the north powerhouse pool at this time. Project personnel will look into other possible causes for this condition. All Oregon entrance weirs were serviced this week. All other Oregon entrance inspection points met criteria.

Collection channel velocities averaged 1.3 feet per second. All readings were surface observations as the meter appeared to be without power. A new velocity meter cable was installed this winter.

Auxiliary Water Supply System: Fish pumps 1 and 3 were returned to service on March 4 at 1612 hours following winter maintenance. The main supply valve to the 1000 cfs auxiliary water conduit was also opened the same day at 1139 hours. Pumps 1 and 3 subsequently operated with blade angles of 30 degrees with no interruptions in service. Pump 2 remains out of service for major overhaul which will require a contract. 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 Wasco County PUD turbine unit underwent winter maintenance in January. During this period, project staff raked the associated trash racks. For this report week, the PUD turbine unit had no interruptions in service.

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 expected around March 12. Re-watering of the collection channel is scheduled for March 25 or shortly afterwards. A brief power outage occurred March 7. The outage did not adversely affect the facility or the collection channel.

Forebay Debris/Gatewell Debris/Oil: For the week, forebay debris accumulations were light to moderate. These accumulations are increasing as woody debris and tumbleweeds continue to arrive with increased river flows. During the winter, the fisheries staff monitored trash rack differentials and no problems were seen. On January 9 and 10, project personnel cleaned trash racks at units 1, 2, 4 to 9 (A slot only) and 13, removing 22 ten-yard truck loads of debris.

This week, a slight amount of fish screen oil was observed in eight slots and removed with absorbent pads. Maintenance staff also removed hydraulic fluid from slot 8C this winter.

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: The orifices remain closed for winter maintenance. Collection channel re-watering and the start of bypass operations are expected to begin in late March. A section of channel hoist track and associated track structural support is in need of replacement and repair. This hoist track is used to place stoplogs in the collection channel, a necessary step for initiating bypass operations. Because the section of track is not in the area where actual stoplog placement takes place, the start of bypass operations will not be affected. Recent inspections determined an air supply line also needs replacement.

Transportation Facility: The facility remains dewatered for winter maintenance which is nearing completion. Winter maintenance included the replacement of gaskets and water add-in valves, the installation of 2 new truck flume drain actuators and 2 new raceway supply valve actuators. PIT tag detection and sample systems also underwent maintenance this winter.

The separator porosity control unit is currently being refurbished. This work included the rebuilding of the perforated plate and repainting of the control unit. Fasteners holding the water supply line to the bird hazing water cannon in place are being reinforced or replaced. Facility staff believed the original fasteners provided were not adequate to withstand high river flows.

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 was 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
129.6	89.3	0.0	0.0	41	39	6.0	6.0

Other

Inline Cooling Water Strainers: Cooling water strainer inspection results are reflected in Table 3.

Table 3. Inline Cooling Water Strainer Results.

Month	Lost Lamprey	Live Lamprey	Lost Smolts	Live Smolts
January	1	0	0	0
February	8	3	0	0
March	26	6	0	0

The fisheries staff observed juvenile shad in January. The next main unit cooling water strainers inspections are scheduled in early April.

Invasive Species: No invasive species were observed during the winter maintenance period. The next zebra mussel station examination will take place later this month.

Avian Activity: Bird counts will resume later in the month when technicians start their shifts. Gulls, cormorants, grebes, pelicans and bald eagles appeared to over winter in the general vicinity. Informal on site observations this week included an occasional gull, grebe or cormorant. None were seen by the outfall as the bypass system is not yet functional.

Research: Researchers have not yet begun on site preparations for their studies.

Project: Ice Harbor
Biologist: Mark Plummer
Dates: March 1 - 7, 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 unit 5 is out of service due to blade cracking. Turbine unit 1 was out of service March 1 from 0642 hours to 2030 hours due to SQ-1 breaker replacement.

Adult Fish Passage Facilities

Fish facility personnel inspected the adult fishways March 4, 5, and 6.

Fish Ladders: The north shore adult fish ladder inspection areas (picketed leads, head differentials, fishway exits, and depth over weirs) were within criteria beginning March 1. The south shore adult fish ladder was out of service until March 5. Beginning March 5, all north and south adult fish ladder inspection areas (picketed leads, head differentials, fishway exits, and depth over weirs) were within criteria. The north adult fish ladder was out of service January 2 – January 10 for annual maintenance. This ladder was unwatered to tailwater elevation and a ROV (remotely operated vehicle) video inspection performed on the lower diffusers, no problems were found. The south adult fish ladder was out of service January 12 – March 5 for annual maintenance and installation of a new adult fish trap. The ladder was unwatered to tailwater elevation and a ROV video inspection of the lower diffusers performed, no problems were found. They north and south shore picketed leads are in counting position to facilitate video counting which began March 1.

Fishway Entrances and Collection Channel (inspection date order): The south shore entrance (SFE) was off sill with a depth of 8.8 feet and off sill with a depth of 8.4 feet. The north powerhouse entrance (NFE) was off sill with a depth of 7.8 feet and off sill with a depth of 8.6 feet. The north shore entrance (NSE) was on sill with a depth of 9.6 feet, on sill with a depth of 9.0 feet, and on sill with a depth of 8.4 feet. Fishway entrance criterion is 8 feet depth, greater than 8 feet depth, or on sill. The NFE was reported out of criteria to the shift operator. Adjustments were made with the adult fishway controls to lower the NFE back into criteria. 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 were operated without 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. Turbine unit trash rack raking is tentatively scheduled for the week of March 25.

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 fish bypass is not in operation. All orifices are closed. Start up date is tentatively scheduled for March 11. Repairs to caulking, juvenile collection channel netting, damaged Plexiglas orifice covers, and screen cleaner brush replacement were accomplished during the winter outage. The primary dewatering screen was inspected along with the supporting structure underneath. All diffuser boards under the primary dewatering screen were replaced. An "in-channel" zebra mussel inspection was performed, none were found. The concrete in the juvenile collection channel concrete is continuing to deteriorate in places.

Juvenile Bypass Facility: The bypass is scheduled to be put into operation March 19.

Fish Sampling: The first sample is scheduled for April 2. Sampling days will alternate.

Removable Spillway Weir: The RSW is currently not in operation. Spill for fish is expected to begin April 3, 2012.

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	40	39	7.2	7.2

*Unit 1 scrollcase temperature.

Other

The Project spilled water for adult fish attraction water at the north shore fish ladder entrance area while the south fish ladder was out of service March 1 – 5.

Inline Cooling Water Strainers: Main unit cooling water strainer examinations took place on February 26. A total of 135 lamprey were recovered from turbine units 1, 4 and 6. Run times totaled 1,395.8 hours. Turbine units 2, 3 and 5 were not operated this month.

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 1 - 7, 2013

Turbine Operation

The units are being operated within the soft constraint of the 1% efficiency criteria. Unit 4 was removed from service for exciter inspection from 1037-1442 hours on March 4. On March 5, units 5 and 6 were out of service for slip ring cleaning and PNNL hydrophone installation from 0813-1726 hours and 0841-1726 hours, respectively.

Adult Fish Passage Facility

The adult fishway was inspected by Corps biologists on March 4, 5, 6, and 7.

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 met 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 7.3', 7.2', 7.5', and 7.0 feet. SPE 1 and 2 were removed from service for re-calibration on March 7. 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 in service and operating throughout this period. Two pump operations will continue until bearing repair and shaft alignment work is completed on pump 2, approximately April 15.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: There was an average of 516.7 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, Flume: The bypass is scheduled to be watered up during the week of March 18.

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

Transport Summary: No transport is taking place 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
42.2	25.4	0	0	40.5	40.0	4.8	3.7

*Scrollcase temperatures.

Other

The RSW is ready for year 2013 spill operations.

Inline Cooling Water Strainers: Main unit cooling water strainer examinations took place on February 26. A total of 135 lamprey were recovered from turbine units 1, 4 and 6. Run times totaled 1,395.8 hours. Turbine units 2, 3 and 5 were not operated in February.

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 1 - 7, 2013

Turbine Operation

Turbine unit 6 was available for service throughout this report period. Turbine unit 1 was returned to service on March 4 following repairs to regulator voltage controls. Turbine unit 1 was again forced out of services on March 6 at 1702 through the remainder of the report period due to regulator controls. Turbine unit 2 was forced out of service on March 7, from 0642 to 1515 hours due to generator voltage control problems. Turbine unit 3 remains out of service for installation of new exciters. Turbine unit 4 remained forced out of service through the report period due to thrust bearing high temperatures. Trubine unit 5 is forced out of service due to governor problems. All available turbine units were operated within the soft constraint of the 1% efficiency criteria.

Adult Fish Passage Facility

The fish ladder and the collection channel were returned to service on February 28. Both NSE1 and 2 weirs are inoperable and positioned at 532.0 ft. Both weirs are positioned at best elevation for fish passage for the entire adult fish passage season. The fishway control system is operating the adult fishway in accordance with FPP criteria.

USACE fisheries biologists performed measured inspections of the adult fishway March 1, 5 and 7.

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 (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 1.0 and 1.6 feet (criteria 1.0 to 2.0 ft.). SSE weir depths ranged between 8.0 and 8.4 feet (criteria $\geq$8.0 ft). As a result of 2 pump operations and decreased channel to head differentials, NPE2 was closed on February 28. NPE1 weir depths ranged between 6.66 (sill) and 7.2 (criteria $\geq$7.0 ft or on sill). NSE weirs are at fixed elevations of 532.0 feet and depths ranged between 6.6 and 7.8 feet (criteria $\geq$ 6.0 ft.). Collection channel surface water velocities (criteria 1.5 fps) ranged from 1.0 to 1.2 fps near the SSE and 1.9 to 2.3 fps near the NSE.

Auxiliary Water Supply System: Fish pumps 1 and 2 operated within criteria this report period. Fish pump 3 remains out of service and is undergoing repairs.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: Woody debris increased this week from 300 to 15,000 square feet inside the trash shear boom and up to 20,000 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
36.2	23.9	0	0	40.0	39.6	6.0	5.5

*Ladder temperature.

Other

Inline Cooling Water Strainers: On March 7, cooling water strainers were inspected. No fish were observed. The next inspection is scheduled for March 14.

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

Avian Activity: Three cormorants and the occasional seagull were observed this week.

Research: No fish research is in progress at this time.

Project: Lower Granite
Biologist(s): Mike Halter and Ches Brooks
Dates: March 1 - 7, 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 4 - 6 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 entrance 1 ranged from 4.9 to 5.1 feet (criterion $\geq$ 7.0 feet). North shore entrance 2 will be manually dogged off at a compromise depth of 630.0 feet during the next report week; this gate is currently dogged off at 641.3 feet (closed). This condition has been reported to the operators. Normal weir depth readings at the north shore entrances are being 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 0.91 to 1.11 feet per second and averaged 1.01 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 order to perform a motor re-wedge. 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 uncertain at this point in time. Sampling activities are scheduled to begin on March 25.

Forebay Debris/Gatewell Debris/Oil: 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: Inspection by submersible camera during the winter maintenance period revealed some rebar and metal material in an area of concrete erosion in the separator upwell. Crews utilized 3 pumps to empty most of the water in the 42" pipe and upwell structure. A maintenance person entered through an access hole and managed to free the 10" drain valve, allowing the system to completely unwater without the use of pumps. This step was necessary as the area needed to be dry before the eroded area could be repaired. Loose material and some of the exposed rebar was then removed. Two half inch steel plates were then laid on top of the eroded area and welded into place. Metal strips were installed and welded into corners and other places where the steel plates met the side walls of the upwell structure. All remaining crevasses and gaps were grouted to a smooth finish. These repairs eliminated sources of potential fish injuries and will allow the structure to operate normally through the 2013 fish passage season. Since the 10" drained valve has been repaired, complete unwatering of the bypass system will be possible prior to the 2013/2014 winter maintenance season.

Work to install a prototype overflow weir and a 14” orifice was completed and a ‘dry’ test of the system was conducted this week. A wet test of the system will be performed on March 11.

Transportation Facility: The scheduled start of general barge transport operations are uncertain at this time but will probably begin in early May. Research barge operations will probably begin sometime in April (April 18 is tentative). Juvenile fish sampling (only) activities are tentatively scheduled to begin on March 25.

Transport Summary: No fish transport is taking place at this time.

Removable Spillway Weir: The RSW is not in service 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
36.2	26.4	0.0	0.0	42.1	42.4	3.9	3.7

*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 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.

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

Research: The general preseason research meeting was held at the Lower Granite Visitor Center on March 4.

Adult Fish Trap: The adult fish trap was watered up and sampling began on March 4. The initial sample rate was 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.