U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#05-2013

Project: McNary
Biologists: Carl Dugger and Bobby Johnson
Dates: March 29 – April 4, 2013

Turbine Operation

McNary had 11 to 12 units available for power generation this week. The hard constraint one percent operational criteria began April 1. Turbine unit 10 underwent tests from April 3 to 4, but remains out of service. 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 31 - Unknown	Unknown.	Turbine bearing issue.
12 & 13	Apr 1	10 hours each.	Dive for installation of FGE study equipment.
12 & 13	Apr 2	8.5 hours each.	Trash rack cleaning & dive for installation of study equipment.
11, 12 & 13	Apr 3	9 hours each.	Dive for installation of FGE study equipment.
7	Apr 4	2.7 hours.	Trash rack cleaning.
11, 12 & 13	Apr 4	2.7 hours each.	Dive for installation of FGE study equipment.
6, 7 & 8	Apr 4	7.2 hours each.	Dive for installation of FGE study equipment.

Adult Fish Passage Facilities

On March 29, 31 and April 3, the McNary fisheries biologist performed measured inspections of the adult fishways. On March 29, project personnel lowered the picketed leads in both ladders. Fisheries staff will help monitor the picketed leads while the juvenile fish facility is in primary bypass mode. Visual fish counts resumed April 1 with a new contractor.

Fish Ladder Exits: During inspections, both ladder exits met all Fish Passage Plan criteria except on March 31. On March 31, the Washington count station differential measured 0.6 feet due to tumbleweeds on the picketed leads. This criterion was met when the general maintenance crew cleaned the leads the next working day. One low water alarm occurred this week on April 3 at the Washington exit. Normal operation resumed after operators reset the alarm. Project

personnel continued to monitor the Washington exit regularly as tumbleweeds were coming in along the Washington shore.

The Oregon ladder exit experienced 17 false traveling screen differential alarms and two wash pump alarms. In all cases, normal operations resumed, after the alarms were reset. On March 31, the operators briefly placed the regulating weir in manual mode in support of a power outage. The weir was immediate reset after the outage. The Oregon traveling screen differentials continued to be satisfactory.

Fishway Entrances and Collection Channel: All Washington and Oregon fishway inspection points met criteria. Due to spill turbulence and hydraulic gradients, some entrance weir calibration drift is occurring. Collection channel velocities averaged 2.3 feet per second. The velocity meter continues to function 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. The juvenile fish facility continues to supply the the usual 450 cfs to the north powerhouse pool. The Wasco County PUD turbine unit had no interruptions in service this week.

Juvenile Fish Passage Facility

The system will be in primary bypass until April 6 at 0700 hours when the first day of secondary bypass will begin. Alternating days of primary and secondary bypass will begin with the start of ESBS installations on April 5.

Forebay Debris/Gatewell Debris/Oil: For the week, forebay debris was moderate to heavy with large tumbleweed accumulations arriving at the powerhouse. Despite these accumulations, trash rack differentials were satisfactory. In order to improve conditions for the (Fish Guidence Efficiency (FGE) study dives, on April 2 and 4; project personnel cleaned the trash racks at units 13, 12 and 7, which also removed some of the floating debris. Approximately 12 ten-yard truck loads of debris were removed. This indicates additional trash racks may need cleaning in the near future. On April 3, project personnel also removed floating debris from unit 7 with the trash rack hoist. Again, this work was conducted in support of upcoming dives. The amount of floating debris removed from the forebay in front of unit 7 was not recorded. No salmonids or lamprey were found in any of the debris.

A small amount of fish screen oil was found in slot 11B this week. Oil absorbent booms successfully removed this material. No other 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. This week, technicians checked the screen Programable Logic Circuits (PLCs). 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. VBS differential monitoring will resume when ESBS installations begin.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe: Forty-two orifices were in service this week and no obstructions were observed. Orifices associated with unit 7 were closed April 4 during trash rack cleaning operations. Additional orifices were opened in unit 8 during this time to maintain proper channel elevation. The fisheries staff repaired air leaks in the orifice valve actuators and adjusted the rectangular screen air burst system. Monitoring efforts indicate that the air burst system is cycling and operating satisfactorily. All screen cleaning systems operated well in automatic mode. As a precaution, the transition screen cleaner is being operated only during day shift.

Transportation Facility: All systems remain off as the facility is in primary bypass mode. On April 1, a video camera was used to inspect the hydraulic jump located on the return to river line just downstream of the barge line dewatering unit (mentioned in last week's report). A hammer and some light debris were recovered. The hammer was lost during the winter maintenance season. Despite these efforts, the hydraulic jump continues to persist in this location. Facility staff will continue to examine this issue. The air conditioning unit in the PIT tag room was recharged April 4, restoring normal air temperatures. Facility staff will continue to monitor this equipment.

Transport Summary: There is nothing to report.

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. Spill in excess of powerhouse capacity occurred from April 1 to 4. On April 2, the TSW in bay 20 was examined and found fit for operation.

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
171.2	139.2	46.0	0.0	47	43	6.0	5.0

Other

Inline Cooling Water Strainers: The next cooling water strainer inspections are slated to take place on April 9.

Invasive Species: The next zebra mussel station examination will occur in late April.

Avian Activity: Bird count continued with each zone being observed once a day usually in the morning. Only an occasional gull, grebe osprey or cormorant has been observed near the project. No birds were seen by the bypass outfall. On April 4, 11 cormorants were seen on the navigation

lock wing wall. Hazing personnel began work, seven days a week on April 1. On April 3, the water cannon spray pattern was adjusted.

Research: From April 1 to 5, the dive contractor installed FGE study equipment at units 13, 12 and 7. Next week, dive work will be conducted at unit 6.

Project: Ice Harbor
Biologist: Mark Plummer
Dates: March 29 – April 4, 2013

Turbine Operation

Turbine units 1- 4 and 6 are in service. Turbine unit 3 returned to service March 29. Turbine unit 5 remained out of service due to blade cracking.

Adult Fish Passage Facilities

Fish facility personnel inspected the adult fishways April 1, 2, and 4.

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 off sill with a depth of 8.7 feet, off sill with a depth of 8.7 feet, and off sill with a depth of 8.6 feet. The north powerhouse entrance (NFE) was off sill with a depth of 8.7 feet, off sill with a depth of 8.7 feet, and on sill with a depth of 9.4 feet. The north shore entrance (NSE) was off sill with a depth of 9.3 feet, off sill with a depth of 9.3 feet, and on sill with a depth of 7.2 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 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.

STSs/VBSs: STSs were deployed for service on March 25 and 26.

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

Juvenile Bypass Facility: The bypass is watered up.

Fish Sampling: The first sample is scheduled for April 8. Sampling days will alternate from Monday and Wednesday to Tuesday and Thursday each week.

Removable Spillway Weir: The RSW is in operation. Routine spill in support of fish passage began 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
61.7	38.7	50.8	47.3	44	46	6.0	5.6

*Unit 1 scrollcase temperature.

Other

Inline Cooling Water Strainers: Main turbine cooling water inspections are scheduled for April 23 and 24.

Invasive Species: No invasive species were detected this week.

Avian Activity: Formal bird counts are not occurring at this time. Hazing activities began April 1.

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

Project: Lower Monumental
Biologists: Bill Spurgeon and Elizabeth Lindsey
Dates: March 29 – April 4, 2013

Turbine Operation

The units are being operated within the 1% operational hard constraint criteria. Unit 6 was out of service on April 2 from 0714-1430 hours for headgate removal and brake solenoid repair.

Adult Fish Passage Facility

The adult fishway was inspected by Corps biologists on March 30, 31, and April 1, 3, and 4.

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 7.3', 7.0', 7.6', 6.1', and 6.4 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 6.7' and 6.4 feet. 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 1218 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: STS are operating in cycle-run mode.

Orifices, Collection Channel, Dewatering Structure, Flume: The collection channel is operating with 19 orifices open. The bypass outfall bird sprinklers are currently under repair due to freeze damage.

Collection Facility: Collection for fish condition sampling began on April 1. Subsequent collection for fish condition monitoring will occur every third day.

Transport Summary: No fish transport is 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
60.9	37.2	28.0	0	46.5	45.0	4.1	3.1

*Scrollcase temperatures.

Other

Spring spill operations were initiated at 0010 hours on April 3.

Inline Cooling Water Strainers: Cooling water strainers were inspected on April 2. No live lamprey were recovered. Mortalities included 13 juvenile lamprey, 1 juvenile salmon, 1 juvenile channel catfish, and 26 Siberian prawns.

Invasive Species: There were no zebra mussels observed at the monitoring stations on April 1.

Avian Activity: Formal bird counts are not occurring at this time. Bird hazing activities began April 1.

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

Project: Little Goose
Biologists: George Melanson and Richard Weis
Dates: March 29 – April 4, 2013

Turbine Operation

Turbine units 1, 2, 3, 4 were available for service throughout most of this report period. Unit 5 remained out of service due to governor errors. Unit 4 was forced out of service on April 1 at 0001 to 1633 hours for repairs to screen 4C. Unit 6 was forced out of service on March 31 at1910 hours due to governor errors and from April 1 at 0001 hours through April 3 because fish screens were not lowered. Turbine units were operated within the 1% criteria with one exception, unit 1 recorded an incursion lasting 40 minutes on March 30.

Adult Fish Passage Facility

USACE and ODFW fisheries biologists performed measured inspections of the adult fishway on March 29, 31 and April 4.

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 1.0 and 1.1 feet (criteria 1.0-1.3 ft.). Picketed lead head differentials held steady at 0.0 feet (criteria $\leq$ 0.3 ft.). No debris was observed at the picketed leads or the ladder exit. The air bubbler used to prevent debris from collecting near the ladder exit operated satisfactorily.

Fishway Entrances and Collection Channel: Channel to tailwater head differentials ranged between 1.6 and 2.0 feet (criteria 1.0 to 2.0 ft.). SSE weir depths ranged between 8.1 and 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 rested on sill and depths ranged between 6.0 and 6.9 feet (criteria $\geq$7.0 ft or on sill). NSE weirs are at fixed elevations of 532.0 feet and depths ranged between 5.8 and 6.7 feet (criteria $\geq$ 6.0 ft.). Collection channel surface water velocities (criteria 1.5 fps) ranged from 1.2 to 1.8 fps near the SSE. The velocity near the NSE ranged between 2.3 and 2.5fps.

Auxiliary Water Supply System: Fish pumps 1 and 2 operated within criteria ranging between 77 and 78 rpm. Fish pump 3 remains out of service and is undergoing repairs.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: Woody debris accumulations observed this week ranged from 2,500 to 4,800 square feet inside the trash shear boom and up to 13,500 square feet outside the trash shear boom. Emergency spill occurred on April 2 from 0732 to 0812 hours to clear debris from spill bay 1 that interfered with the installation of the TSW. Minute traces of oil were observed in gatewells 4C, 5B, 5C, 6B and 6C after ESBS were lowered. The oil is suspected to

be residue from ESBS maintenance after lowering. Approximately 2 yards of debris were removed from gatewells 6A and 6B.

Spillway Weir: The spillway weir was placed into service on April 3 at 0720 hours in the high crest configuration.

ESBS/VBS: ESBSs 5A through 5C were lowered into operating position on April 2 and 6A – 6C on April 3. ESBS 4C was removed and repaired and placed back into service.

Orifices, Collection Channel, Dewatering Structure, Flume: The juvenile collection system was watered-up and placed into service on March 19. In response to MOP elevations, the number of opened orifices was increased from 18 to 22.

Transportation Facility: The facility was watered-up on March 27. The facility switched from primary to secondary bypass operations on April 2 at 0700 hours to April 3 at 0700 hours to sample fish for condition. A total of 233 juvenile fish were collected and bypassed. The descaling rate was 5.9% and mortality rate was 0.9%.

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
58.2	35.8	17.4	16.9	48.0	45.8	4.8	3.8

*Ladder temperature.

Other

Inline Cooling Water Strainers: On April 4, the cooling water strainers were inspected. Five juvenile lamprey mortalities were recovered.

Invasive Species: The zebra mussel substrate monitor is scheduled for inspection on April 5.

Avian Activity: Up to 16 cormorants and 15 gulls were observed. USDA-APHIS bird hazing activities started on April 1.

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

Project: Lower Granite
Biologist(s): Mike Halter and Ches Brooks
Dates: March 29 – April 4, 2013

Turbine Operation

Except for unit 5, Lower Granite had all turbine units 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. Turbine unit 3 was taken out of service for 6 minutes at 1237 hours on April 3 in order to evacuate the oil sump. At 1702 hours on April 3 turbine unit 3 was forced out of service due to a fish screen transducer failure in slot 3B. This unit was returned to service at 1656 hours the following day. As scheduled, turbine unit 1 was removed from service at 0707 hours on April 4 in support of slip ring cleaning. This unit was returned to service at 1444 hours the same day.

Adult Fish Passage Facility

On March 29-30 and April 1 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 inspections.

Weir depths at the south shore fishway entrances also met criteria during all weekly inspections. The north powerhouse fishway entrances met criteria on the March 29 and March 30 inspections. On the April 1 inspection both gates were on sill with depths of 6.2 feet due to tailwater elevations below 636.0 feet (these gates bottom out at elevations below 636.0 feet). Weir depths at the north shore entrances ranged from 4.3 to 6.9 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 0.95 to 1.14 feet per second and averaged 1.03 feet per second.

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

Juvenile Fish Passage Facility

Formal fish sampling activities began on March 25 with a startup sample rate of 10%. The sample rate was reduced from 10% down to 5% on the morning of April 1 due to an increase in fish numbers. All fish other than those sampled are being diverted back to mid-river through the secondary bypass.

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 are scheduled for April 15.

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.

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.

Transport Summary: No fish transport took place this week.

Removable Spillway Weir: Mandatory spill operations began at 0000 hours on April 3. The RSW was operated in support of general spill operations.

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
57.5	36.8	20.3	0.0	48.3	47.1	4.4	4.1

*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 last inspected for lamprey entrainment on March 27. A total of 44 lamprey were found in the strainers over a combined run time of 1,389.3 unit hours. The next cooling water strainer inspections are scheduled for late April.

Invasive Species: The zebra mussel substrate near the adult fishway exit was examined for zebra mussels on April 1. No evidence of zebra mussels was found. The next inspection is scheduled for early May.

Avian Activity: Formal bird counts and hazing started on April 1.

Adult Trap: The adult fish trap was watered up and sampling began on March 4. The initial sample rate is 21%. Since 2013 adult trapping is being conducted Monday thru Friday, the 21% sample rate represents an overall weekly sample rate of 15%. Genetic samples are being taken from one out of every 10 hatchery steelhead. All wild steelhead captured are being PIT-tagged and are having 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.

Research

Idaho Fish and Game (IDFG) Genetic Stock Identification: The goal of this study is to develop fine-scale genetic profiles for natural origin salmon and steelhead; develop genetic stock identification (GSI) techniques to estimate stock-specific escapement over LGR, monitor abundance, productivity and distribution of naturally produced adult and juvenile steelhead and salmon; research and monitor stock-specific life history characteristics. At LGR the goal of the study will be to enumerate and characterize the natural production of spring/summer Chinook salmon and steelhead above LGR with regards to age composition and genetic stock profiles. IDFG will sample Monday through Friday until the first part of July with the goal to collect between 2,000-5,000 genetic samples each from yearling spring/summer Chinook and steelhead and 500-3,000 genetic samples from subyearling fall Chinook.