U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#32-2015

Project: McNary
Biologist: Bobby Johnson
Dates: October 2 - 8, 2015

Turbine Operation

McNary had 11 to 14 units available (out of 14 total units) for power generation this week. The hard 1 percent constraint continued. No turbine units ran outside the constraint. Turbine unit outages are recorded in Table 1 below.

Table 1. Unit Outages at McNary Project.

Units	Outage Dates	Outage Length	Reason
14	Oct 5–Nov 30	About 56 days.	9 year overhaul.
5	Oct 5–13	About 8.5 days.	High pressure oil injection system (HPOIS - thrust bearing oil pump) installed.
8	Oct 5–8	3.3 days.	Annual maintenance.
2	Oct 6–7	11.8 hours.	Exciter brush issue.
6	Oct 7	7.7 hours.	Hub tapped.

Adult Fish Passage Facilities

The McNary fisheries biologist performed measured inspections of the adult fishways on October 4, 6 and 8. Visual adult fish counts continued.

Fish Ladder Exits: Criteria at both exits are 1.0 to 1.3 feet for head over weir and 0.0 to 0.5 feet differential at the count stations. Both ladder exits met all criteria. Picketed leads were cleaned at both exits as required, including weekends.

At the Washington ladder exit on October 2, the general maintenance staff was called in to clean the picketed leads. Aquatic vegetation quantities were minimal in the exit area.

At the Oregon ladder exit, debris loads remained light in the exit area and along the shoreline.

Fishway Entrances and Collection Channel: Criteria for all entrances are pool differentials measuring between 1.0 and 2.0 feet, and weir depths measuring 8.0 feet or deeper.

At the Washington entrance, all entrance inspection points met criteria. At the Oregon ladder, all entrance inspection points met criteria.

Collection channel surface velocities averaged 1.5 feet per second.

Auxiliary Water Supply System: The Wasco County Public Utility District (PUD) turbine unit in the Washington ladder had no interruptions in service.

Two of the three Oregon ladder fish pumps operated satisfactorily with blade angles of 25 degrees with no interruptions in service. Fish pump 2 is currently under contract for major overhaul with completion scheduled for April, 2016.

The juvenile facility continued to supply 450 cubic feet per second to the north powerhouse pool.

Juvenile Fish Passage Facility

The fall primary bypass season continues.

Forebay Debris/Gatewell Debris/Oil: The forebay debris load was minimal and scattered across the powerhouse face and along the Oregon shore. New debris was minimal.

No high trash rack differentials were recorded and no trash racks were cleaned.

One problem was observed in the gatewell slots. On October 4 and 6, the extended-length submersible bar screen (ESBS) rope in slot 1B was removed from the orifice intake. On October 7, a rigger tightened all ESBS ropes from units 1 to 4.

ESBSs/VBSs: All turbine units have ESBSs installed. The screens in slots 1A, 3B, 11C and 12C remained in timer mode. ESBS camera inspections did not occur this week.

No high VBS (vertical barrier screen) differentials were recorded. On October 6 and 8, a total of four screens were cleaned in units 1 and 7. No fish mortalities were observed. VBS rehabilitations continued.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: Forty two orifices were in use. During VBS cleaning, orifices in the affected slots were closed, with makeup water coming from orifices in adjacent slots. As mentioned above in the Forebay Debris/Gatewell Debris/Oil section, the ESBS rope in slot 1B was removed from the orifice intake twice.

All systems functioned satisfactorily in automatic mode. The fisheries staff continued to monitor the north side dewatering valve and observed no new problems.

During the winter of 2013, three new concrete bulkheads were installed facing the forebay in the juvenile collection channel. The grating above these new bulkheads was also covered with Plexiglas. On October 4, we noted the Plexiglas was beginning to crack.

Bypass Facility: During the fall primary bypass season, passive integrated transponder (PIT) tag detection occurs only in the full flow pipe. Light maintenance and partial facility winterization continued.

The electricians replaced the light bulbs in the wet lab this week.

River Conditions

River conditions during the week are outlined in Table 2 below as provided by the McNary control room. The data period runs from 0000 to 2400 hours each day. Flows and spill are recorded in one-thousand cubic feet per second. Temperature is recorded in degrees Fahrenheit.

Table 2. River Conditions at McNary Dam.

Daily Average River Flow		Daily Average Spill		Water Temperature (Unit 1 scroll case)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
102.5	82.3	0.0	0.0	65.0	64.0	6.0	6.0

Other

Inline Cooling Water Strainers: The cooling water strainer examinations occurred on October 6. Only juvenile shad and catfish were observed.

Invasive Species: The next zebra mussel station examinations will occur in late October.

Avian Activity: In the forebay observation zone, an occasional gull, cormorant or small flock of grebes was noted. Gulls and cormorants were roosting on the rocks by the Washington shore boat dock, which is outside the forebay observation zone.

Gulls and cormorants were observed in the tailwater observation area, roosting on the navigation lock wing wall, in the spill basin or around the powerhouse. They appear to be feeding in the powerhouse flow on juvenile shad.

Occasionally, gulls and cormorants were observed near the juvenile bypass outfall.

Bird hazing distress calls remain deployed around the project and continued to function satisfactorily. The fisheries mechanic cleaned the bird hazing water cannon pump intake on October 5 and winterized the water cannon system on October 8.

Research: On October 5, the adult lamprey passage structure at SFEW2 was closed for the season.

Fish Salvage: On October 6, unit 14 was dewatered for overhaul. One crayfish was removed from the scroll case and one adult catfish was removed from the draft tube.

Project: Ice Harbor
Biologist: Ken Fone
Dates: October 2 - 8, 2015

Turbine Operation

All units were available for service. Units were operated within the 1% peak efficiency range (hard constraint), except when unit 1 was operated above the 1% range as needed on October 6 to accommodate the turbine environment characterization study.

Adult Fish Passage Facility

Fish facility personnel inspected the adult fishways on October 5, 6, and 7.

Fish Ladders: The north fish ladder inspection areas (head differentials at fishway exit and picketed leads, and depth over weirs) were in criteria on all inspections. The south fish ladder inspection areas (head differentials at fishway exit and picketed leads, and depth over weirs) were in criteria on all inspections. Criteria for head differentials at ladder exits and picketed leads, and depth over the weirs are 0.5 feet or less, 0.3 feet or less, and 1.0-1.3 feet, respectively. The water surfaces above the fish ladder exits were clear of debris and the bubblers were operating satisfactorily.

Fishway Entrances and Collection Channel: The south shore entrance (SFE-1) depth and channel/tailwater differential were in criteria on all inspections. The north powerhouse entrance (NFE-2) depth and channel/tailwater differential were in criteria on all inspections. The north shore entrance (NSE-1) depth and channel/tailwater differential were in criteria on all inspections. Fishway entrance criteria are 8 feet depth or greater, or on sill. Channel/tailwater differential criteria are 1 – 2 feet.

The south shore channel velocity was in criteria on all inspections. The channel velocity criterion is 1.5-4.0 feet/second.

Auxiliary Water Supply (AWS) System: Two of the three north shore AWS pumps were operated throughout the week. Six of the eight south shore AWS pumps were operated throughout the week.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: There was an average of approximately 10 square yards of surface debris observed in the forebay. There was little to no surface debris coverage in the gatewells.

STSs/VBSs: The STSs are being operated in cycle-run mode. STS inspections and unit 5 VBS inspections occurred on September 21 and 23. There were no screen problems observed. The next monthly inspections will occur the week of October 19.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: The juvenile fish bypass system is operating with 20 orifices open. Orifices were routinely cycled and back-flushed once per day. The bird abatement hydrocannon at the bypass pipe outfall was found to be non-functional on September 27, due to failed bearings in the pump. The pump was replaced and the hydrocannon was returned to service on October 7.

Juvenile Fish Facility: Fish are being routed through the bypass pipe.

Fish Sampling: Fish sampling is done for the season.

Removable Spillway Weir (RSW): The RSW was not operated this week.

River Conditions

Mandated spill for fish passage began on April 3 and ended on August 31. River conditions during the week are outlined in Table 1 below.

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
19.9	11.4	0.0	0.0	64.0	63.0	9.2	7.4

*Unit 1 scrollcase temperature.

Other

Inline Cooling Water Strainers: The turbine cooling water strainers were inspected on August 31 (units 3 and 4 during their annual maintenance), September 21 (units 5 and 6), and September 23 (units 1 and 2). There were a total of 24 juvenile shad and 15 Siberian prawns found (all mortalities). The next monthly inspections will occur the week of October 19.

Invasive Species: No new exotic species have been found.

Avian Activity: Relatively low numbers of piscivorous birds were seen around the dam during the week.

Research: Between September 9 and September 18, and on October 6, sensor fish were released into the unit 1 turbine intake via pipes installed on the STS framework in gatewell slot 1B, for the turbine environment characterization study. The field work for the study has been completed.

Project: Lower Monumental
Biologists: Bill Spurgeon and Raymond Addis
Dates: October 2 - 8, 2015

Turbine Operation

The units are being operated within the hard constraint 1% peak efficiency criteria. Unit 1 was removed from service on December 10, 2014 for unit rehabilitation with an estimated return to service date of January 12, 2017. Unit 4 was removed from service at 0742 hours on September 28 for annual maintenance with an estimated return to service of October 15. Units 3, 5 and 6 were rotated out of service on October 6 for STS inspections. Unit 2 was also briefly taken out of service for STS inspections on October 7.

Adult Fish Passage Facility

The adult fishway was inspected by Corps and Blue Leaf Environmental biologists on October 3, 5, 6 and 7.

Fish Ladders: Fishway exit head differentials and depth 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 NSE2 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.

SPE1 and SPE2 weir gates were in sill criteria (criteria: ≥ 8' or on sill) on all inspections. While on sill, both gate depth readings ranged from 6.9 to 7.1 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, gate depth reading was 7.7 feet. SSE2 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, 2, and 3 were operated throughout this period.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: There was an average of 39 square yards of forebay debris observed during this period. Gatewell debris ranged from 0 - 5% surface coverage. No problems were observed in the gatewells.

STSs/VBSs: STS operations changed to cycle-run mode on August 7 as average sub-yearling Chinook length became greater than 120 mm. STS inspections were conducted October 6 and 7 with all screens found in good operating condition.

Orifices, Collection Channel, Dewatering Structure, Flume: The collection channel was operated with 19 orifices open.

Collection Facility: The sampling season ended at 0700 hours on October 1 at which time the facility went into primary bypass. The facility was dewatered for winter maintenance on October 6.

Transport Summary: Transport is not occurring.

River Conditions

No spill occurred during this report period. River conditions during the week are outlined in Table 1 below.

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
21.2	12.3	0.0	0.0	64	63	5.0	3.8

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on October 5. Live fish recovered included 27 Siberian prawn. Mortalities included 41 Siberian prawn.

Invasive Species: No zebra mussels were observed at the monitoring stations on October 5.

Avian Activity: Daily tailrace counts ceased at end of collection season on October 1. No additional action trigger points were met from the avian action plan through this time period.

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

Project: Little Goose
Biologist: Richard Weis
Dates: October 2 - 8, 2015

Turbine Operation

All turbine units were available for service throughout this report period except units 1, 3 and 5. Unit 3 was placed out of service on September 29 after wicket gate locks failed to disengage during a start up operation. Unit 3 subsequently returned to service on October 6. Unit 5 was removed from service for its annual maintenance on September 16. Hard constraint 1% peak efficiency criteria are in effect. No violations were seen.

Adult Fish Passage Facility

Adult fishway inspections were performed on October 04 and 08.

Fish Ladder: The ladder exit head differentials held steady at 0.1 feet (criteria $\leq$ 0.5 ft.). Water depths over the ladder weirs held steady at 1.2 feet (criteria 1.0-1.3 ft.) and picketed lead head differentials held steady at 0.1 feet (criteria $\leq$ 0.3 ft.). The air bubbler used to prevent debris from collecting near the ladder exit operated satisfactorily.

Fishway Entrances and Collection Channel: The adult fishway system is in automatic mode. Channel to tailwater head differentials ranged between 0.8 and 1.4 feet (criteria 1.0 to 2.0 ft.). SSE weir depths ranged between 8.8 and 9.3 feet (criteria $\geq$ 8.0 ft). NPE weir depths ranged between 5.7 and 6.5 feet and were on sill (criteria $\geq$7.0 ft. or on sill). NSE weir depths ranged between 6.4 and 6.6 feet (criteria $\geq$ 6.0 ft.). Collection channel surface water velocity measured at the North powerhouse ranged between 1.6 and 1.8 fps (criteria 1.5 to 4.0 fps). The monthly water velocity measured at the north powerhouse using the Rickly velocity equipment measured 1 foot from bottom, mid depth and surface averaged 3.8 fps.

Auxiliary Water Supply System: Fish pumps 2 and 3 operated as designed. The fish pump 1 gear box was rebuilt and is waiting on return to service.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: The trash/shear boom is currently still on shore. Efforts are underway to have it repaired. Woody debris in the immediate forebay held steady at 2,200 square feet for the week. Fish screen 3A was pulled on September 17 to evaluate source of an oil leak. Oil is still being seen in gatewell slot 3A.

Spillway Weir: The spillway weir was removed for the season on June 18.

ESBS/VBS: ESBSs are all deployed and gatewells are clean except for slot 3A which has a light sheen of oil. Drawdowns were not performed this week.

Orifices, Collection Channel, Dewatering Structure, and Flume: The juvenile bypass system is running with 18 open orifices.

Transportation Facility: The JFF (Juvenile Fish Facility) transported fish every other day by truck. GBT (Gas Bubble Trauma) sampling ended for the season.

Transport Summary: The collection and transportation facility operated within criteria this report period. A total of 36 fish were collected for transport. The descaling and mortality rates were 0% and 0% respectively. This weekly report period saw no adult lamprey removed from sample and released upstream at Little Goose Landing.

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
18.9	13.6	0	0	64.1	63.9	6.0	5.9

*Ladder temperature.

Other

Invasive Species: The zebra mussel substrate monitor was inspected on September 13. No zebra mussels were detected.

Inline Cooling Water Strainers: All cooling water strainers were checked on September 19. No fish were seen.

Avian Activity: Bird hazing ended on June 16. See chart below for the numbers observed.

Table 2. Daily maximum tailrace piscivorous bird counts at Little Goose Dam*.

Date	Time (hours)	Gulls	Cormorants	Caspian Terns	Pelicans
Oct 2	1100	10	10	0	0
Oct 3	0935	15	12	0	0
Oct 4	1300	17	16	0	0
Oct 5	1230	31	18	0	0
Oct 6	1115	27	13	0	0
Oct 7	1010	28	14	0	0
Oct 8	1000	42	19	0	0

*Bird counts are taken from a single observation, Forebay and Tailrace.

Scroll Case Temperature: Little Goose Dam has only one temperature probe on the scroll case in unit 1 only. The temperature ranged between 70.0 and 72.0 degrees Fahrenheit. Unit 1 is out of service in support of digital governor installation and water is not moving through the strainer system.

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

Project: Lower Granite
Biologists: Elizabeth Holdren, Robert (JR) Horal
Dates: October 2 - 8, 2015

Turbine Operation

Units are operating within the hard constraint 1% peak efficiency criteria. Unit 5 was removed from service at 0630 hours September 14 for annual maintenance and fish screen slot closures.

Adult Fish Passage Facility

The adult fish ladder was inspected by Corps or Blue Leaf Environmental biologists on October 3, 7, and 8.

Fish Ladder: Fish ladder exit head differential and depth over the weirs were in criteria (≤0.5' and 1.0-1.3', respectively) on all inspections. Picketed lead head differential was in criteria (≤ 0.3') on all inspections.

Fishway Entrances and Collection Channel: SSE1 and SSE2 weir gates were in depth criteria (criteria ≥8' or on sill) on all inspections. South shore channel/tailwater head differential was in criteria (criteria 1'-2') on all inspections.

NPE1 and NPE2 weir gates were in depth criteria (criteria ≥8' or on sill) on all inspections. North powerhouse channel/tailwater head differential was in criteria (criteria 1'-2') on all inspections.

NSE1 was out of criteria (criteria ≥7' or on sill) on all inspections with gate depth reading of 5.1', 5.0', and 5.0 feet. NSE2 remains set with a chain fall hoist in the closed position to improve channel/tailwater head differentials. North shore channel/tailwater head differential was in criteria (criteria 1'-2') on all inspections.

Collection channel velocity was out of criteria (criteria 1.5-4.0 fps) on all inspections with readings ranging from 0.9 – 0.8 fps and a weekly average of 0.8 fps. Alternative methods of measuring collection channel velocity are being investigated.

Auxiliary Water Supply System: The fish ladder is in two pump operation with AWS pumps 1 and 2 operating and pump 3 is in standby mode.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: Forebay debris was minimal. Daily gatewell surfaces inspections continue. Floating debris is being removed daily to prevent orifice blockages. No oil was reported in gatewell slots.

ESBSs/VBSs: Video inspections are scheduled for late October.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe: Orifices are being backflushed every three hours.

Collection Facility: Collection for juvenile transport and condition sampling continues. October 2 – 8 descaling rates respectively were 12.3% (14 descaled/114 sampled), 5.9% (6 descaled/101 sampled), 6.1% (3 descaled/49 sampled), 7.1% (3 descaled/43 sampled), 7.8% (4 descaled/51 sampled), 10.2% (6 descaled/59 sampled) and 4.3% (6 descaled/141 sampled). The collection facility was inspected and no obstructions were found in orifices, pipes, or flumes. Fine debris has increased with forebay elevation over the last couple weeks. A total of three adult Coho have been collected from the juvenile separator and transported to Dworshak Hatchery for NPT (Nez Perce Tribe) broodstock.

Transport Summary: Truck transport continues with truck departing Lower Granite on odd numbered days.

River Conditions

No spill is occurring at this time. River conditions during the week are outlined in Table 1 below.

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
18.1	13.8	0.0	0.0	64.5	63.8	5.0+	5.0+

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Unit cooling water strainers will be inspected in late October.

Invasive Species: No evidence of zebra/quagga mussel was observed October 8.

Avian Activity: Piscivorous bird observation counts are taken from the juvenile fish separator platform one hour after sunrise and one hour before sunset. Maximum piscivorous bird counts are summarized in Table 2 below.

Table 2. Daily maximum tailrace piscivorous bird counts at Lower Granite Dam.

Date	Time (hours)	Gulls	Cormorants	Terns
October 2	0745	4	3	0
October 3	1725	2	19	0
October 4	1725	0	2	0
October 5	1725	2	10	0
October 6	0745	1	0	0
October 7	1725	1	10	0
October 8	0745	1	10	0

Fish Ladder Temperature Mitigation: Temporary emergency fish ladder cooling pumps are scheduled to be removed October 12.

Adult Fish Trap Operations: The adult trap is in 24 hour operation with a 12% sample rate. Collection of adult fall Chinook for truck transportation to Lyons Ferry Hatchery and for the Nez Perce Hatchery continued this week. Collection of adult Coho from the adult trap for NPT continues.

Fish Rescue Operation: No fish rescues occurred this week.