U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#34-2015

Project: McNary
Biologist: Bobby Johnson
Dates: October 16 - 22, 2015

Turbine Operation

McNary had available 10 to 12 units (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.
6	Oct 14–20	About 6.4 days.	High pressure oil injection system (HPOIS) (thrust bearing oil pump) installed.
1	Oct 19–22	About 3.3 days	Annual maintenance.
9	Oct 19–20	22.2 hours.	Amperage metering failure.
5 & 6	Oct 20	37 minutes total.	Extended-length submersible bar screen (ESBS) camera inspections.
8	Oct 21–23	About 2.3 days.	HPOIS installation.
9 thru 12	Oct 21	8.0 hours.	Bonneville Power Administration (BPA) transmission line 5 outage.

Adult Fish Passage Facilities

The McNary fisheries biologist performed measured inspections of the adult fishways on October 18, 20 and 22. 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.

On October 18, operators adjusted the regulating weir set point at the Washington ladder exit. Aquatic vegetation quantities were minimal in the exit area.

At the Oregon ladder exit, debris loads remained very light in the exit area and along the shoreline. On October 20, operators adjusted the regulating weir set point.

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 1.6 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 and 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 to light and scattered across the powerhouse face and along the Oregon shore. The quanitity of new debris was very light. No high trash rack differentials were recorded and no trash racks were cleaned. No problems were observed in the gatewell slots.

ESBSs/VBSs: All turbine units have ESBSs installed. The screens in slots 1A, 3B, 11C and 12C remained in timer mode. On October 20, ESBS camera inspections at units 1, 5 and 6 revealed no problems. On October 22, the biologist noted the brush bar on the ESBS in slot 3C was short cycling (i.e.: cleaning brush reversing direction before reaching the end of desired travel). The operator recalibrated the brush mechanism.

On October 21, one high VBS (vertical barrier screen) differential was recorded in slot 7A. Six screens were cleaned that day. 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.

All systems functioned satisfactorily in automatic mode. This week, the rectangular screen cleaning brush was lubricated.

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

On October 16, a juvenile lamprey mortality was found on the perforated plated upstream of the separator. The flume barrier was adjusted to insure there were no gaps around it. System checks were reviewed with the staff.

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. Scheduled spillway hoist maintenance continued. On October 19, a slight amount of spill occurred during hoist testing.

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
99.7	80.4	0.2	0.0	63.0	62.0	6.0	6.0

Other

Inline Cooling Water Strainers: The next cooling water strainer examinations will occur on November 3.

Invasive Species: The next zebra mussel station examinations will occur on October 25.

Avian Activity: In the forebay observation zone, an occasional gull (or flock of gulls), cormorant or a 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 especially in the early morning and late evening.

Occasionally, gulls and cormorants were observed feeding near the juvenile bypass outfall. An occasional blue heron was noted on project along with a flock of pelicans. Birds appear to be migrating through the area.

Bird hazing distress calls remain deployed around the project and continued to function satisfactorily.

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

Project: Ice Harbor
Biologist: Ken Fone
Dates: October 16 - 22, 2015

Turbine Operation

Units 2 through 5 were removed from service one at a time for STS inspections on October 19 and 21. Unit 1 was out of service from 1403 hours on October 21 to 1048 hours on October 22 for STS inspections and to repair the STS in slot 1A. Units were operated within the 1% peak efficiency range (hard constraint).

Adult Fish Passage Facility

Fish facility personnel inspected the adult fishways on October 19, 20, and 22.

Fish Ladders: The north fish ladder inspection areas (head differentials at the fishway exit and picketed leads, and depth over weirs) were in criteria on all inspections. The south fish ladder inspection areas (head differentials at the 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 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 occurred on October 19 and 21. The mesh of the STS in gatewell 1A was starting to separate at the end of several seams due to missing screen clips. The missing clips were replaced with new ones.

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.

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

Fish Sampling: Fish sampling is done for the season.

Removable Spillway Weir (RSW): Mandated spill for fish passage began on April 3 and ended on August 31.

River Conditions

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
18.7	11.9	0.2	0	63	62	9.6	8.0

*Unit 1 scrollcase temperature.

Other

Inline Cooling Water Strainers: The turbine cooling water strainers were inspected on October 19 and 21. There were a total of 29 juvenile shad and 1 juvenile channel catfish found (all mortalities).

Invasive Species: No new exotic species have been found.

Avian Activity: A relatively low number of piscivorous birds were seen around the dam during the week.

Research: Field work for the turbine environment characterization study has been completed. The sensor fish release pipes are scheduled to be removed from the STS framework in gatewell slot 1B on November 4.

Project: Lower Monumental
Biologists: Bill Spurgeon and Raymond Addis
Dates: October 16 - 22, 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 date of October 29.

Adult Fish Passage Facility

The adult fishway was inspected by Corps biologists on October 19, 20 and 21.

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 7.0 to 7.2 feet. 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. 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 54 square yards of forebay debris observed during this period. Gatewell debris ranged from 0 - 20% surface coverage. No problems were observed in gatewells.

STSs/VBSs: STS's operation 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 collection season ended at 0700 hours on October 1 at which time the facility went into primary bypass. The JFF facility was dewatered for winter maintenance on October 6.

Transport Summary: Fish transport operations have ended for the season.

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 (°F)*		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
18.9	12.2	0.0	0.0	63	63	4.2	3.6

*Scrollcase temperatures.

Other

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

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. The bird sprinklers at the outfall pipe exit were shut down for winterization at 1510 hours on October 21.

Table 2. Lower Monumental Tailrace Counts of Foraging Piscivorous Birds.

Date	Time (hours)	Gulls	Cormorants	Caspian Terns	Pelicans
N/A					

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

Project: Little Goose
Biologist: Richard Weis
Dates: October 16 - 22, 2015

Turbine Operation

All turbine units were available for service throughout this report period except units 1, 3 and 5. Unit 1 is out of service in support of the new digital Governor system. Unit 3 was placed out of service on September 29 after wicket gate locks failed to disengage during a start-up operation. Unit 5 was removed from service for its annual maintenance on September 16. Hard constraint 1% peak efficiency criteria remain in effect. No violations were seen.

Adult Fish Passage Facility

Adult fishway inspections were performed on October 18 and 22.

Fish Ladder: The ladder exit head differentials ranged between 0.1 and 0.2 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 ranged between 0.0 and 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. North shore adult fish entrance weirs are in manual mode due to failure of the slack cable sensors. Channel to tailwater head differentials ranged between 0.9 and 1.5 feet (criteria 1.0 to 2.0 ft.). SSE weir depths ranged between 8.9 and 9.2 feet (criteria $\geq$ 8.0 ft). NPE weir depths ranged between 5.6 and 5.9 feet (criteria $\geq$7.0 ft. or on sill). NSE weir depths ranged between 6.5 and 6.7 feet (criteria $\geq$ 6.0 ft.). Collection channel surface water velocity measured at the North powerhouse ranged between 2.1 and 2.2 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 3.5f ps.

Auxiliary Water Supply System: Fish pumps 2 and 3 operated as designed. Fish pump 1 gear box was rebuilt and is still 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 ranged between 900 and 2,500 square feet for the week. Oil is still being seen in gatewell 3A.

Spillway Weir: 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 has ended for the season.

Transport Summary: The collection and transportation facility operated within criteria this report period. A total of 107 fish were collected for transport. The descaling and mortality rates were 2.9% and 0% respectively. This weekly report period saw 0 adult lamprey removed from sample and released upstream at Little Goose Landing.

River Conditions

River conditions during the week are outlined in Table 1 below.

Table 1. River conditions at Little Goose Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (°F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
17.7	12.5	0	0	63.7	63.3	6.0	5.9

*Ladder temperature.

Other

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

Invasive Species: The zebra mussel substrate monitor was inspected on October 10. No zebra mussels were detected.

Avian Activity: Bird hazing ended on June 16. See the 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 16	1015	38	13	0	0
Oct 17	0945	31	11	0	0
Oct 18	1245	52	28	0	0
Oct 19	1020	28	21	0	0
Oct 20	1000	26	13	0	0
Oct 21	1000	18	14	0	0
Oct 22	1220	22	25	0	0

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

Scroll Case Temperature: Little Goose Dam has only one scroll case temperature probe, in unit 1 only. The temperature held steady at 68.5. Unit 1 is out of service in support of the digital governor installation and water is not moving thru strainer system.

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

Project: Lower Granite
Biologists: Elizabeth Holdren, Robert (JR) Horal
Dates: October 16 - 22, 2015

Turbine Operation

Units are operating within the hard constraint 1% peak efficiency criteria. Unit 5 was removed from service at 0630 hours on September 14 for annual maintenance and fish screen slot closures. Unit 3 was removed from service for annual maintenance at 0652 hours on October 13.

Adult Fish Passage Facility

The adult fish ladder was inspected by Corps or Blue Leaf Environmental biologists on October 17, 20, and 21.

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. The 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', 4.7', and 5.1' 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 with the exception of a 0.9 feet differential reading on October 17.

The 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. No adult Coho were collected during this report week. Three adult Coho have been collected from the juvenile separator and transported to Dworshak Hatchery for NPT (Nez Perce Tribe) broodstock this season.

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

River Conditions

A forebay debris removal spill occurred on October 22 from 1005 to 1025 hours. Otherwise, there was no spill this week. 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
18.3	12.8	0.1	0.0	64.0	62.0	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	Pelicans
October 16	1700	0	12	0	0
October 17	0815	11	17	0	0
October 18	1650	0	14	0	0
October 19	0815	2	11	0	0
October 20	0815	0	17	0	0
October 21	1650	1	2	0	0
October 22	0815	4	24	0	0

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.

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