U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#36-2015

Project: McNary
Biologist: Bobby Johnson
Dates: October 30 – November 5, 2015

Turbine Operation

McNary had available 11 to 12 units (out of 14 total units) for power generation this week. The hard 1 percent constraint concluded on October 31. No turbine units ran outside the constraint. On November 1, the soft 1 percent constraint began. 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.
2	Oct 29–Nov 2	About 4.5 days.	High pressure oil injection system (HPOIS - thrust bearing oil pump) installed.
13	Nov 2–24	About 22 days.	Transmission line outage.
3	Nov 3–5	About 2.3 days.	HPOIS installation.
6	Nov 4	7.0 hours.	Hub tapped.

Adult Fish Passage Facilities

The McNary fisheries biologist performed measured inspections of the adult fishways on November 1, 3 and 5. Visual adult fish counts concluded on October 31.

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 the weekend. The leads were raised and the count stations were winterized at both exits on November 2.

At the Washington ladder exit, aquatic vegetation quantities were minimal. On November 3, operators adjusted the regulating weir set points.

At the Oregon ladder exit, debris loads were minimal.

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.

All Oregon ladder entrance inspection points met criteria except on November 5, when SFEW1 measured 7.9 feet depth.

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 remains out of service for runner replacement, which is scheduled for completion in February, 2016. The bypass functioned satisfactorily.

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. The juvenile facility remains watered up to avoid freeze breakage.

Forebay Debris/Gatewell Debris/Oil: The forebay debris load was light. The amount of new debris was minimal.

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

No problems were observed in the gatewell slots.

Extended-length Submersible Bar Screen (ESBSs)/Vertical Barrier Screen (VBSs): All turbine units have ESBSs installed. The screens in slots 1A, 3B, 11C and 12C remained in timer mode. No camera inspections occurred this week. On November 4, after restarting unit 6, operators found that ESBS cleaning brushes in slots 6B and 6C would not cycle and complete a full cycle, respectively. Operators recalibrated both screens.

No high VBS differentials were recorded. On November 3, the screens in slots 1A and 5A were cleaned. 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.

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

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. Temperatures are recorded in degrees Fahrenheit. Scheduled spillway hoist maintenance continued.

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
116.0	84.8	0.0	0.0	59.0	58.0	6.0	6.0

Other

Inline Cooling Water Strainers: On November 3, cooling water strainer recoveries included only juvenile shad mortalities.

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

Avian Activity: In the forebay observation zone, a grebe flock was noted daily. Occasionally, gulls or cormorants were 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.

Gulls and cormorants were observed feeding near the juvenile bypass outfall.

An occasional blue heron or kingfisher was noted on project.

Bird hazing distress calls were removed on November 2.

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

Project: Ice Harbor
Biologist: Ken Fone
Dates: October 30 – November 5, 2015

Turbine Operation

Unit 1 was removed from service on November 2 at 0417 hours for annual maintenance. Unit 4 was operated out of priority (ahead of unit 6) on November 5 from 1653 hours to 1807 hours, due to unit 6 having a high-level alarm for turbine bearing oil. Units were operated within the 1% peak efficiency range (hard constraint through October 31, soft constraint beginning November 1).

Adult Fish Passage Facility

Fish facility personnel inspected the adult fishways on November 2, 3, and 5.

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. Adult fish counting ended for the season on October 31, so the south shore and north shore picketed leads were raised on November 2 and November 5, respectively.

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 1 square yard of surface debris observed in the forebay. Approximately 9% of the water surface in gatewell 1B was covered with debris. There was little to no surface debris coverage in the other 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. The bird abatement hydrocannon was out of service from November 2 to November 5 because of leaves plugging the intake screen of the pump.

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
25.7	16.3	0	0	61	60	8.9	7.1

*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 moderate number of cormorants and gulls were seen around the dam during the week, with the majority of cormorants roosting on Eagle Island. Approximately 10-15 cormorants were observed foraging below the end of the juvenile fish bypass pipe during the week. The cormorants were not deterred from their foraging activities when the hydrocannon was turned back on. Personnel will try a laser light to scare these birds off.

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

Project: Lower Monumental
Biologists: Bill Spurgeon and Raymond Addis
Dates: October 30 – November 5, 2015

Turbine Operation

The units were being operated within the hard constraint 1% peak efficiency criteria until November 1 when soft constraints began. 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 and returned to service at 1500 hours on November 5. Units 5 and 6 were rotated out of service on November 3 and Units 2 and 3 on November 4 for STS inspections. Unit 5 was coordinated to run out of priority from 0916 to 1320 hours on November 5 to accommodate repair work on the barge dock. Unit 6 was removed from service at 0940 hours on November 5 due to STS motor failure in slot 6B.

Adult Fish Passage Facility

The adult fishway was inspected by Corps biologists on November 2, 3, 4 and 5.

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 6.7 to 7.3 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 reading was 7.8 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 42 square yards of forebay debris observed during this period. Gatewell debris ranged from 0 - 30% surface coverage. No problems were observed in the gatewells.

STSs/VBSs: STS operations changed to cycle-run mode on August 7 as the average sub-yearling Chinook length became greater than 120 mm. STS inspections were conducted November 3 and 4 with all screens found in good operating condition.

Orifices, Collection Channel, Dewatering Structure, Flume: The collection channel was operated with 19 orifices open. Primary dewatering structure (PDW) over head lights are turned off to encourage fish to exit the collection channel.

Collection Facility: The collection season ended at 0700 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 is not occurring at this time.

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
26.9	15.4	0.0	0.0	60	59	4.7	3.4

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on November 2. Live fish recovered included 1 yellow perch. Mortalities included 50 Siberian prawns and 74 American shad.

Invasive Species: No zebra mussels were observed at the monitoring stations on November 2.

Avian Activity: Daily tailrace counts ceased at end of collection season on October 1. The bird sprinklers at the outfall pipe exit are shut down for the winter.

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.

Barge Dock Repairs: Mark's Marine was on site from November 2 - 5 to conduct barge dock repairs. To accommodate access to lower timber attachment points during barge dock repairs, the lowering of the Lake Sacajawea pool was coordinated between Lower Monumental Dam (LMN), Ice Harbor Dam (IHR), BPA and RCC to have IHR operate with a soft maximum elevation of 438.5 feet and a hard maximum elevation of 439.0 feet from 0700 to 1700 hours on November 5. As mentioned above, Unit 5 became the first priority unit on November 05 from 0950 to 1415 hours as flows from Unit 2 was affecting the stability and positioning of the work barge on November 4.

Project: Little Goose
Biologist: Richard Weis
Dates: October 30 – November 5, 2015

Turbine Operation

All turbine units were available for service throughout this report period except units 1, 3 and 6. Unit 1 remained out of service for digital governor system installation until returning to service on October 31. Unit 3 was placed out of service on September 29 after wicket gate locks failed to disengage during a start-up operation. Unit 3 returned to service on November 3. Unit 6 was removed from service for digital governor replacement on November 3. Hard constraint 1% peak efficiency criteria remained in effect until soft constraints began November 1. No violations were seen.

Adult Fish Passage Facility

Adult fishway inspections were performed on November 02, 03 and 05.

Fish Ladder: The ladder exit head differentials ranged between 0.0 and 0.1 feet (criteria $\leq$ 0.5 ft.). Water depths over the ladder weirs ranged between 1.2 and 1.3 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 mostly in manual mode. North shore adult fish entrance weirs are on manual mode due to failure of the slack cable sensors. North power house weirs are also manual mode as the fishway computer is bringing weirs off sill and out of criteria. 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 8.3 and 8.6 feet (criteria $\geq$ 8.0 ft). NPE weir depths ranged between 5.7 and 6.1 feet (criteria $\geq$7.0 ft. or on sill). NSE weir depths ranged between 6.3 and 6.5 feet (criteria $\geq$ 6.0 ft.). Collection channel surface water velocity measured at the North powerhouse ranged between 2.1 and 2.9 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 3.5fps.

Auxiliary Water Supply System: Fish pumps 2 and 3 operated as designed. The 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 0 and 100 square feet for the week.

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

ESBS/VBS: ESBS screens are all deployed and the gatewells are clean. 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 until October 31 when fish transport concluded for the 2015 season. GBT (Gas Bubble Trauma) sampling previously ended for the season on July 20.

Transport Summary: The collection and transportation facility operated within criteria this report period. This week had just two days of collection, October 30-31. A total of 110 fish were collected for transport. The descaling and mortality rates were 1.1% 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.

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
26.0	15.6	0	0	60.6	59.3	6.0	5.0

*Ladder temperature.

Other

Inline Cooling Water Strainers: All cooling water strainers were checked on October 24. 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 30	1035	35	2	0	0
Oct 31	1430	80	23	0	0
Nov 1	None	0	0	0	0
Nov 2	1400	67	26	0	0
Nov 3	None	0	0	0	0
Nov 4	None	0	0	0	0
Nov 5	1230	54	21	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 59.0 and 60.5 degrees F.

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

Project: Lower Granite
Biologists: Elizabeth Holdren, Robert (JR) Horal
Dates: October 30 – November 5, 2015

Turbine Operation

All available units were operated within the hard constraint 1% peak efficiency criteria until November 1 when soft constraints began. Unit 3 was removed from service for annual maintenance at 0652 hours on October 13. Units were rotated out of service October 30 and 31 for VBS inspections.

Adult Fish Passage Facility

The adult fish ladder was inspected by Corps or Blue Leaf Environmental biologists on October 31, November 3 and 4.

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', 4.5', 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 inspection with the exception of a 0.9 feet differential reading October 31.

Collection channel velocity was out of criteria (criteria 1.5-4.0 fps) on all inspections with readings ranging from 0.9 – 0.7 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 in standby mode.

Juvenile Fish Passage Facility

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

ESBSs/VBSs: Video inspections were performed on October 30 and 31. No problems were reported.

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

Collection Facility: Facility operation was switched to secondary bypass mode at 0700 hours October 31.

Transport Summary: Truck transport ended with the last truck departing the Lower Granite fish facility on October 31.

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
25.9	16.2	0.0	0.0	58.1	58.0	5.0+	5.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Unit cooling water strainers were inspected October 29. No lamprey or other fish were found.

Invasive Species: No evidence of zebra/quagga mussel was observed November 3.

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 30	0815	1	1	0
October 31	0835	4	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 (Nex Perce Tribe continues.

Fish Rescue Operation: No fish rescues occurred.

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