

**U.S. ARMY CORPS OF ENGINEERS  
WALLA WALLA DISTRICT  
FISH FACILITIES WEEKLY REPORT  
#34-2016**

**Project: McNary**

Biologists: Bobby Johnson and Denise Griffith

Dates: October 14 - 20, 2016

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**Turbine Operation**

All available turbine units were operated within the 1% peak efficiency criteria. McNary turbine unit outages are recorded in Table 1 below.

Table 1. Unit Outages at McNary Project.

Units	Outage Dates	Outage Length	Reason
13	Oct 3 to Dec 2	About 2 months.	Nine year over-haul.
9	Oct 17 to 20	3.4 days.	Annual maintenance.
8 to 10	Oct 18	41 minutes.	Extended-length submersible bar screen (ESBS) camera inspections.

**Adult Fish Passage Facilities**

McNary fisheries biologists performed measured inspections of the adult fishways on October 14, 16 and 19.

Fish Ladder Exits: The head over weir criteria at both exits are to be within 1.0 to 1.3 feet. The differential criteria at the count stations are to be within 0.0 to 0.5 feet. The picketed leads were cleaned as required including weekends. Debris loads were minimal at both exits. Along the Oregon shore, debris loads were very light to minimal.

The Washington exit met all criteria during measured inspections.

The Oregon exit also met all criteria. The regulating weir set point was adjusted on October 14, 16 and 19. The tilting weir set point was adjusted on October 19.

Weir 338 will remain out of service until the winter maintenance season. The soft forebay elevation constraint began October 16. The lower end of the constraint is 338.1 feet.

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 ladder, all inspection points met criteria.

At the Oregon ladder, south powerhouse entrances SFEW1 and SFEW2 measured 7.3 feet in depth on October 19. The pool elevation sensor appears to require calibration. All other inspection points remained in criteria.

The Oregon ladder collection channel surface velocities averaged 1.5 fps.

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 late October. Unit testing is scheduled to start on November 14. The bypass continues to function satisfactorily.

Two of the three Oregon ladder fish pumps operated satisfactorily with no interruptions in service this week. Both pumps operated with blade angles between 24 and 25 degrees. Fish pump 2 is currently under contract for major overhaul with completion expected in mid-November. Testing is scheduled for early March.

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

### **Juvenile Fish Passage Facility**

The fall primary bypass season continues. On October 20, from approximately 1320 to 1340 hours, the juvenile facility was in secondary bypass in order to demonstrate switching in and out of secondary bypass for Little Goose Project fisheries personnel. The passive integrated transponder (PIT) tag and sample systems remained off. No salmonids or lamprey were observed during the demonstration.

Forebay Debris/Gatewell Debris/Oil: Forebay debris loads at the powerhouse were light to minimal. Debris loads at the spillway were minimal.

No high trash rack differential measurements were recorded and no trash racks were cleaned.

No problems were observed in the gatewell slots.

ESBSs/Vertical barrier screen (VBSs): ESBSs are deployed in all units. ESBS camera inspections occurred in units 8 through 10 on October 18. No problems were found. The ESBSs in slots 1A, 6B, 6C, 12A and 12C remained in timer mode.

VBS differential monitoring revealed no screens out of criteria and none were cleaned. VBS rehabilitations continued with new mesh being installed on torn VBS sections.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: Forty-two orifices were in use. All dewatering and cleaning systems operated satisfactory in automatic mode.

Bypass Facility: Facility winterization and maintenance continues.

### **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 (kcfs). Temperature is recorded in degrees Fahrenheit.

Scheduled spillway hoist maintenance and testing began this week. The testing was not enough to influence the daily average spill recorded.

Table 2. River Conditions at McNary Dam.

Daily Average River Flow		Daily Average Spill		Water Temperature		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
114.7	105.0	0.0	0.0	62.0	59.0	6.0	6.0

### **Other**

Inline Cooling Water Strainers: The next cooling water strainer examinations will occur on November 1.

Invasive Species: The next mussel station examinations will occur on October 23.

Avian Activity: Casual avian observations were performed during other inspections. A gull flock appears to be roosting at various locations near the project.

Gulls and cormorants numbers in the tailwater area increased this week. Over 100 gulls were observed. The birds were roosting on the navigation lock wing wall and other structures. They appeared to be feeding on juvenile shad in the powerhouse flow or at the juvenile bypass outfall.

In the forebay area, a large grebe flock nearing 100 birds and an occasional gull were noted. Gulls were also roosting on the rocks by the Washington shore boat dock.

One grebe passed into and out of the juvenile collection channel on October 19.

The fisheries mechanics repaired the water cannon pump oil drain and removed all bird distress calls from service this week.

Research: No on site research is occurring at this time.

**Project: Ice Harbor**

Biologists: Ken Fone

Dates: October 14 - 20, 2016

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**Turbine Operation**

Unit 5 was taken out of service on March 14 at 1117 hours, due to an oil leak from the blade packing. The packing was replaced and the blades will be welded in place to fix the leak. Unit 2 was taken out of service on April 25 at 0606 hours for runner replacement. Unit 4 was removed from service on October 3 at 0832 hours for annual maintenance.

Available units were operated within the 1% peak efficiency range (hard constraint), except for unit 3. Unit 3 was sometimes operated a few megawatts below the peak efficiency range, due to the GDACS (Generic Data Acquisition and Control System) needing to be updated with the narrower peak efficiency range of unit 3 since it became a fixed-blade unit.

**Adult Fish Passage Facilities**

Fish facility personnel inspected the adult fishways on October 17, 19, and 20.

Fish Ladders: The north fish ladder inspection areas (head differentials at the fishway exit and picketed leads, and depth over the 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 the 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 surface 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 head differential were in criteria on all inspections. The north powerhouse entrance (NFE-2) depth and channel/tailwater head differential were in criteria on all inspections. The north shore entrance (NSE-1) depth and channel/tailwater head differential met 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. The channel velocity criterion is 1.5-4.0 feet per second.

Auxiliary Water Supply (AWS) System: Two of the three north shore AWS pumps were in operation during the week. Five of the eight south shore AWS pumps were in operation throughout the week.

## Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: There was no debris observed in the forebay. The surface debris coverage in each gatewell slot ranged from 0% to 5%. Slot 2C was unwatered on July 6 to facilitate the unit 2 head gate sill plate repair.

STSs/VBSs: The STSs are in cycle-run mode. The STS in slot 5B remains uninstalled to facilitate the work on unit 5. Unit 2 STSs are raised and stored in their gatewell slots, since unit 2 will not be operated for the rest of the year. Units 1, 3, 4, and 6 STSs were inspected on October 18 and 19, with no problems found.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: The juvenile fish bypass operated with 20 opened orifices. Orifices were routinely cycled and back-flushed once per day. The light for orifice 3CN was found burnt out on October 5. Orifice 3CS was opened and orifice 3CN was closed, until the light was replaced on October 17.

Juvenile Fish Facility: The juvenile fish facility is operating in bypass mode.

Fish Sampling: Sampling is done for the season.

Removable Spillway Weir (RSW): Spill for fish passage began on April 3 at midnight and ended on September 1 at midnight.

## 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* (°F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
30.0	12.9	0.0	0.0	61.0	59.0	8.8	6.7

\*Unit 1 scroll case temperature.

## Other

Inline Cooling Water Strainers: Turbine cooling water strainer inspections occurred on October 18 and 19. A total of approximately 800 juvenile shad (all mortalities) were found.

Invasive Species: No new exotic species have been found.

Avian Activity: There were low numbers of piscivorous birds observed around the project.

Research: No on-site research is actively occurring at this time.

**Project: Lower Monumental**

Biologists: Bill Spurgeon and Raymond Addis

Dates: October 14 - 20, 2016

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**Turbine Operation**

All available 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 5 was removed from service at 0658 hours on September 19 for annual maintenance with an estimated return to service date of October 31, 2016. Unit 2 removed from service from 0838 to 1101 hours on October 19 and again from 1523 hours on October 19 to 0913 hours on October 20 because of a Nexxus meter failure.

**Adult Fish Passage Facility**

The adult fishway was inspected by Corps biologists on October 17, 18 and 19.

Fish Ladders: Fishway exit head differentials and depths over the weirs were within criteria ( $\leq 0.5'$  and  $1.0'$ - $1.3'$ , respectively) on all inspections.

Picketed lead head differentials were in criteria ( $\leq 0.4'$  and  $\leq 0.3'$  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:  $\geq 8'$  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:  $\geq 8'$  or on sill) on all inspections. While on sill, readings were 6.0, 6.4 and 6.2 feet. South powerhouse channel/tailwater head was in criteria ( $1'$ - $2'$ ) on all inspections.

SSE1 weir gate was in sill criteria (criteria:  $\geq 8'$  or on sill) on all inspections. While on sill, readings were 7.1, 7.4 and 7.3 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 2 and 3 were operated throughout this period. Pump 1 was out of service throughout this period due to a bushing problem. This pump will be replaced with the spare pump as time permits.

## Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: There was an average of 0 square yards of forebay debris observed during this report period. Gatewell debris ranged from 0 - 15% surface coverage. No oil problems were observed in the gatewells.

STSS/VBSs: STSSs were operated in cycle-run mode throughout this report period. STS inspections were conducted October 4 and 5 with all screens found in good operating condition.

Orifices, Collection Channel, Dewatering Structure, and Flume: The collection channel was operated with 18 opened orifices.

Collection Facility: The facility was dewatered for winter maintenance on October 1.

Transport Summary: Fish transport is not occurring at this time.

## River Conditions

Summer spill in support of fish passage ended at 2400 hours on August 31. 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
27.4	13.2	0.0	0.0	61.4	60.0	4.3	3.8

\*Scrollcase temperatures.

## Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on October 3. No live fish were recovered. Mortalities included 5 Siberian prawns.

Invasive Species: No zebra or quagga mussels were observed during monitoring station inspections on October 1.

Avian Activity: Daily tailrace counts of feeding piscivorous birds are summarized in Table 2 below. Daily tailrace counts ceased at end of collection season on September 30. No action trigger points from the avian action plan occurred this period.

Table 2. Tailrace counts of foraging piscivorous birds at Lower Monumental Dam.

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
October 14	---	---	---	---	---	---
October 15	---	---	---	---	---	---
October 16	---	---	---	---	---	---
October 17	---	---	---	---	---	---
October 18	---	---	---	---	---	---
October 19	---	---	---	---	---	---
October 20	---	---	---	---	---	---

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



**Project: Little Goose**

Biologists: Scott St. John and Richard Weis

Dates: October 14 - 20, 2016

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**Turbine Operation**

All turbine units were available for service except unit 3. Unit 3 was placed out of service for an extended annual on September 26. No 1% violations to report.

**Adult Fish Passage Facility**

The Fishway Control System software was updated by RJS construction and returned to automatic operation on August 9. All weirs were manually adjusted and returned to automatic mode to determine functionality of the new software. The system was not operating sufficiently and was returned to manual mode on September 19. Future calibration and maintenance still need to be performed.

Adult fishway inspections were performed on October 16, 17 and 20.

Fish Ladder: The ladder exit head differentials and water depth at Diffuser 13 maintained criteria ( $\leq 0.5$  ft. and 1.1-1.2 ft., respectively) and picketed lead differentials ranged from 0.0 to 0.1 feet (criteria  $\leq 0.3$  ft.). The air bubbler used to prevent debris from collecting near the ladder exit operated satisfactorily. The emergency cooling pumps for the adult fish ladder were removed from service on September 09.

Fishway Entrances and Collection Channel: SSE1 and SSE2 weir gates met depth criteria (criteria  $\geq 8.0$  ft. or on sill) on all inspections and depths ranged between 8.2 and 8.5 feet. South shore channel/tailwater head differential was in criteria (criteria 1.0-2.0 ft.) on all inspections.

NPE1 and NPE2 weir gates were in depth criteria on all inspections and were on sill. Weir depths ranged between 6.9 and 7.3 feet (criteria  $\geq 7.0$  ft. or on sill). The North powerhouse channel/tailwater head differential was in criteria (criteria 1.0-2.0 ft.) on all inspections.

NSE1 and NSE2 weir gate depths ranged between 6.1 to 6.9 feet (criteria  $\geq 6.0$  ft or on sill.) and were in depth criteria on all inspections. North shore channel/tailwater head differential was in criteria (criteria 1.0-2.0 ft.) on all inspections.

Collection Channel Velocity: Average surface water velocity measurements met criteria on all inspections and ranged between 1.7 and 2.3 fps (criteria 1.5 to 4.0 fps). The average water velocity (bottom, middle, top) of the adult channel at the NPE was 3.1 fps on September 28.

Auxiliary Water Supply System: The fish ladder is now operating on three pumps.

## 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 2,000 sq.ft.

Spillway Weir: The TSW was removed on July 11.

ESBS/VBS: Electrical ESBS brush tests were performed on September 13. Units 5 and 6 were found with electrical faults and repaired. Limits switches were reset on both units.

Orifices, Collection Channel, Dewatering Structure, and Flume: The gear box for the weirs in the primary dewatering structure was removed from service after an oil leak was discovered. The leak was subsequently contained and cleaned. The weirs will remain turned off until repairs are completed. The juvenile bypass system is presently running with 19 open orifices. Orifices are cycled every 24 hours.

Collection Facility: Fish collection and sampling is occurring every day at the JFF. Fish transportation by truck occurs on even numbered days this month.

Transport Summary: The collection and transportation facility operated within criteria this report period. A total of 1,239 fish were collected. The descaling and mortality rates were 9.5% and 0.5% respectively. There were no adult lamprey removed from the raceways or sample this report period.

## 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* (°F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
24.9	17.4	0.0	0.0	61.8	60.9	6.0	4.8

\*Ladder temperature.

## Other

Inline Cooling Water Strainers: Cooling water strainers on all units were inspected September 28. No fish were seen.

Invasive Species: The zebra mussel substrate monitor was inspection on October 4. No mussels were seen.

Avian Activity: USDA Bird hazing ended on June 25. See Table 2 below for USACE counts.

Table 2. Daily Avian Counts at Little Goose Dam, October 14 - 20, 2016.

Date	Time (hours)	Gulls	Cormorants	Caspian Terns	Pelicans
October 14	0730	20	0	0	0
October 15	1245	22	11	0	0
October 16	1345	25	36	0	0
October 17	1315	80	29	0	0
October 18	1000	56	0	0	0
October 19	1115	45	5	0	0
October 20	1112	75	114	0	24 Grebes

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

Siberian Prawn: Siberian prawns continue to be collected at the Juvenile Fish Facility. Prawns are humanely euthanized by Oregon Department of Fish and Wildlife and Anchor QEA, frozen and properly disposed of in a landfill. There were 949 prawns collected in the sample and euthanized during this report period. Prawn numbers are outlined in Table 3 below.

Table 3. Daily Siberian Prawn Counts at Little Goose Dam, October 14 - 20, 2016.

Date	Sample	Collection*
October 14	24	
October 15	164	
October 16	61	
October 17	68	
October 18	63	
October 19	219	
October 20	350	
Totals	949	

\*Collection and sample numbers are the same as the facility is currently sampling at 100%

Gas Bubble Trauma: GBT inspections ended for the season with the July 19 report. No signs of GBT were seen this season.

Research: The Fish Guidance Efficiency (FGE) emergency gate closure study ended on July 22 and equipment was removed from unit 2 on August 30.

**Project: Lower Granite**

Biologists: Elizabeth Holdren and Robert Horal

Dates: October 14 - 20, 2016

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**Turbine Operation**

Units are being operated within the hard constraint 1% peak efficiency criteria. Unit 1 remains out of service for Kaplan blade linkage repair. Unit 3 was removed from service at 0630 hours on October 17 for annual maintenance.

**Adult Fish Passage Facility**

Adult fish facilities were inspected by Corps or Anchor QEA biologists October 14, 15, 16, and 19. The October 19 inspection results are not included as they do not accurately represent ladder conditions due to the inspection being performed during spill gate operation for annual maintenance.

Fish Ladder: Fish ladder exit head differential and depth over the weirs were in criteria ( $\leq 0.5'$  and  $1.0-1.3'$ , respectively) on all inspections. Picketed lead head differential was in criteria ( $\leq 0.3'$ ). An average of about 3.5 square yards of debris was observed near the ladder exit.

Fish Ladder Entrances and Collection Channel: SSE1 and SSE2 weir gates were in depth criteria (criteria  $\geq 8'$  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 or sill criteria (criteria  $\geq 8'$  or on sill) on all inspections with the exception of NPE2 reading 7.0 feet October 14. NPE2 was returned to the sill position immediately following inspection and maintained sill criteria while in automatic mode for the remainder of the report week. While on sill, the gate depth readings were 7.6', 7.4', 7.1', and 7.0 feet. North powerhouse channel/tailwater head differentials met criteria (criteria  $1'-2'$ ) on all inspections.

NSE1 was out of criteria (criteria  $\geq 7'$  or on sill) on three inspections with depth reading of 6.9', 6.5', and 6.3 feet. NSE2 has been out of service since 2011 and remains set with a chain fall hoist in the closed position. North shore channel/tailwater head differential was in criteria (criteria  $1'-2'$ ) on all inspections.

Collection Channel Velocity: The collection channel average velocity was in criteria (criteria  $1.5-4.0$  fps) on all inspections.

Auxiliary Water Supply System: The fish ladder is in two pump operation with AWS pumps 1 and 3 in service. Pump 2 is in standby mode. Pump 1 was changed to fast speed operation at 0732 hours October 17 in response to NSE1, collection channel, and channel velocity out of criteria readings. The ladder maintained criteria following the change in pump 1 operation.

Fish Ladder Temperature Control System: This system is not in service at this time.

### **Juvenile Fish Passage Facility**

Forebay Debris/Gatewell Debris/Oil: An average of about 117.0 square yards of debris was observed in the forebay this week.

ESBSs/VBSs: ESBS/VBS inspections are scheduled for late October.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: The collection channel is operating with 18-19 opened orifices. Orifices are being cycled every three hours.

Collection Facility: The facility is in collection for transport mode. Sampling is occurring every other day.

Transport Summary: Truck transport is occurring on even numbered days this month.

### **River Conditions**

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°)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
25.5	18.5	0.1	0.0	61.5	58.2	5.0	5.0

\*Cooling water intake temperature.

### **Other**

Inline Cooling Water Strainers: Unit cooling water strainers were inspected October 20. No lamprey or fish were found.

Invasive Species: Zebra/quagga mussel substrate was inspected October 16. No zebra/quagga mussel were found. Smolt monitoring biologists euthanized 33 Siberian prawns from the collection sample this week.

Spill: Spill gates operational testing for annual maintenance occurred from 1010-1120 hours on October 19.

Avian Activity: Daily piscivorous bird counts are summarized in Table 2 below.

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

Date	Time (hours)	Gulls	Cormorants	Caspian Terns	Pelicans
October 14	1024	7	25	0	0
October 15	1200	2	33	0	0
October 16	1050	7	56	0	0
October 17	1106	12	4	0	0
October 18	1328	1	42	0	0
October 19	1548	1	46	0	0
October 20	1515	1	23	0	0

GBT: Gas Bubble Trauma examinations have ended for the season.

Adult Fish Trap Operations: The trap is being operated seven day a week with a sample rate of 19%. Fall Chinook collection for transport to the Lyons Ferry hatchery and the Nez Perce Tribal hatchery has ended for the season. Coho collection for the Nez Perce Tribe brood stock program continues.

Fish Rescue Operation: No fish rescues occurred this week.

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