

**U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#33-2017**

Project: McNary

Biologist: Bobby Johnson and Denise Griffith

Dates: October 6 – 12, 2017

Turbine Operation

General Comments: The hard 1% peak efficiency constraint continues.

Yes No Turbine Unit Status

- All 14 turbine units available for service throughout the week (see Table 1 for outage details below).
 All turbine units operated within 1% peak efficiency constraint. Constraint in effect: Hard Soft.

Table 1. Unit Outages at McNary Project.

Units	Outage Dates	Outage Length	Reason
5	Aug 7 to Oct 6	60 days	9-year overhaul.
1	Oct 2 to 6	4.2 day	Annual maintenance.
3	Oct 10 to Dec 8	60 days	9-year overhaul.
12 to 14	Oct 11	9.0 hours	Stilling basin survey.

Adult Fish Passage Facilities

General Comments: McNary fisheries biologists performed measured inspections of the adult fishways on October 6, 8 and 11. Visual fish counts continue.

Fish Ladder Exits:

Criteria met?

Yes No Location, Criteria and Measurements

- Oregon Exit (Criteria – Head over weir 1.0’ to 1.3’)
 Oregon Count Station Differential (Criteria – Differential 0.0’ to 0.5’)
 Washington Exit (Criteria – Head over weir 1.0’ to 1.3’)
 Washington Count Station Differential (Criteria – Differential 0.0’ to 0.5’)

Comments: The trash racks and picketed leads were cleaned as needed, including weekends, at both exits. The count station backboards were cleaned on October 12.

Debris loads at the Washington exit and along the shoreline were minimal.

At the Oregon exit, debris loads were minimal to very light. Along the shoreline, debris loads were very light to light. The encoder for tilting weir 339 has not been replaced. This weir rarely moves and will be adjusted manually. On October 12, there was a brief power outage at the exit due to bus switching.

The exit traveling screens debris trough continued to be cleaned as needed.

Fishway Entrances and Collection Channel:

<u>Yes</u>	<u>No</u>	<u>Location, Criteria and Measurements</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	North Oregon Entrance Head Differential (Criteria – 1.0' to 2.0')
<input checked="" type="checkbox"/>	<input type="checkbox"/>	NFEW2 Weir Depth (Criteria – $\geq 8.0'$)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	NFEW3 Weir Depth (Criteria – $\geq 8.0'$)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	South Oregon Entrance Head Differential (Criteria – 1.0' to 2.0')
<input checked="" type="checkbox"/>	<input type="checkbox"/>	SFEW1 Weir Depth (Criteria – $\geq 8.0'$)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	SFEW2 Weir Depth (Criteria – $\geq 8.0'$)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Oregon Collection Channel Velocities (Criteria –1.5 to 4.0 fps): Averaged 2.0 fps.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Washington Entrance Head Differential (Criteria – 1.0' to 2.0')
<input checked="" type="checkbox"/>	<input type="checkbox"/>	WFE2 Weir Depth (Criteria – $\geq 8.0'$)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	WFE3 Weir Depth (Criteria – $\geq 8.0'$)

Comments: There are no problems to report.

Auxiliary Water Supply System:

<u>Yes</u>	<u>No</u>	<u>In Service?</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Washington shore Wasco County PUD Turbine Unit.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Washington shore Wasco PUD Bypass. Service was not required.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Oregon Ladder Fish Pump 1: Blade angle was 22 to 23 degrees.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Oregon Ladder Fish Pump 2: Blade angle was 22 degrees.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Oregon Ladder Fish Pump 3: Blade angle was 22 to 23 degrees.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Oregon North Powerhouse Pool supply from juvenile fishway.

Comments: On October 12, at 0605 to 0618 hours, all three fish pumps were out of service due a bus switch. From 0618 to 0808 hours, fish pump 3 was out of service due to a relay issue that occurred when attempting to restart the pump.

Juvenile Fish Passage Facility

General Comments: Fall primary bypass season continues. Light maintenance, cleaning and partial winterization has begun at the facility and in the collection channel.

Forebay Debris/Gatewell Debris/Oil:

<u>Yes</u>	<u>No</u>	<u>Item</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Forebay debris load acceptable?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Trash rack differentials measured? If so, were differentials acceptable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Any debris seen in gatewells?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Any oil seen in gatewells?

Comments: Forebay debris loads near the powerhouse were moderate to heavy as debris from the Oregon shore line began to accumulate at the powerhouse. Debris loads at the spillway were minimal. New incoming debris loads were minimal. No trash racks were cleaned.

Extended-length submersible bar screens (ESBSs)/Vertical barrier screen (VBSs):

- | <u>Yes</u> | <u>No</u> | <u>Item</u> |
|-------------------------------------|-------------------------------------|--|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | ESBSs deployed in all slots? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | ESBSs inspected this week? If so, were results acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | VBSs differentials checked this week? If so, were results acceptable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |

Comments: The brush cycles for the screens in 1A, 1B, 3B, 7B, 8C, 12B, 13A slots, units 11 and 14 remained in timer mode. The ESBS brush short cycled and was recalibrated for the screen in slot 13A four times this week. On October 10, an electrician examined the brush control program and found no issues. ESBS camera inspections did not occur this week. The backup camera failed due to a faulty O-ring. We will attempt to use our main camera, which has limited pan and tilt functions, next week.

VBS differential monitoring continued. No high differential measurements were recorded. Five screens total were cleaned on October 10 and 11. No mortalities were observed.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe:

- | <u>Yes</u> | <u>No</u> | <u>Item</u> |
|-------------------------------------|--------------------------|---|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Orifices operating satisfactory? 42 orifices were open. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Dewatering and cleaning systems operating satisfactory? |

Comments: Orifices were adjusted as required for VBS cleaning. During the week, scheduled maintenance continued on the orifice operators. To improve maintenance in the channel, Chicago air fittings were replaced with quick disconnect fittings. We continued to operate the transition screen cleaning brush manually to insure it completes a full cleaning cycle.

On October 10, from 1305 to 1515 hours, as part of the station service upgrades, the collection channel was without power. The biologist monitored the channel before, during and after the outage. No adverse effects were noted. The channel systems were returned to automatic mode with no issues. To maintain channel elevation during the outage, one orifice at unit 1 was opened and closed as needed.

Bypass Facility:

- | <u>Yes</u> | <u>No</u> | <u>Item</u> |
|--------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Sample gates on? Fall bypass season continues. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Passive integrated transponder (PIT) tag system on? Fall bypass season continues. |

Comments: During the fall primary bypass season, PIT tag detection occurs in the full flow pipe. All systems remain out of service. Light maintenance, cleaning and partial winterization continues.

River Conditions

General Comments: River conditions were provided by the control room and outlined in Table 2 below. The data period runs from 0000 to 2400 hours each day.

Table 2. River Conditions at McNary 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
108.5	76.6	0.0	0.0	63.0	60.0	6.0	6.0

Comments: There are no problems to report. Scheduled spillbay hoist maintenance continues.

Other

Inline Cooling Water Strainers: Regional discussion and agreement have moved the next cooling water strainer examinations to December.

Invasive Species: The mussel station examinations on October 8 revealed no problems.

Avian Activity: Avian counts concluded on September 30. Casual observations continue while doing other inspections. Overall, gull and cormorant numbers appear to be fluctuating with the juvenile shad outmigration. A large number of gulls were roosting on project outside of the counting zones. Gulls and cormorants were feeding at the bypass outfall. Gulls were also feeding in the powerhouse flow. The birds in the spillway zone are roosting on the navigation lock wing wall and other structures. One pelican was observed in the tailwater area this week. Terns appear to be no longer on project.

In the forebay zone, an occasional gull, gull flock, cormorant, egret or blue heron was observed. A few gulls and cormorants were occasionally observed on the rocks by the Washington shore boat dock.

Fish Salvage/Rescue: On October 11, fish were salvaged from unit 3. We removed three live crayfish and two juvenile shad mortalities for the scrollcase. Two live channel catfish and three channel catfish mortalities were removed from the draft tube.

Research

Item: No onsite research is occurring at this time.

Project: Ice Harbor

Biologist: Ken Fone

Dates: October 6 – October 12, 2017

Turbine Operation

Yes No Turbine Unit Status

- All 6 turbine units available for service throughout the week (see comments below for outage details).
 Available turbine units operated within 1% peak efficiency constraint. Constraint in effect: Hard Soft.

Comments: Unit 2 was taken out of service on April 25, 2016, at 0606 hours for the runner replacement. Unit 4 was removed from service at 1218 hours on March 6, 2017, when it tripped off due to a problem in the 115 kv section 2 bus. That problem was fixed. The unit 4 hub oil drain valve was replaced to address an oil leak. Annual maintenance is now being performed on the unit. Unit 6 was taken out of service at 0950 hours on September 5 for annual maintenance. An oil leak from unit 6 governor is also being fixed.

Unit 3 was noted to be operating a few megawatts below the 1% peak operating efficiency range during the October 10 and 11 fishway inspections. This was due to the GDACS program needing to be updated with the narrower operating 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 10, 11, and 12.

Fish Ladders:

Yes No Location, Criteria and Measurements

- North Fish Ladder Exit Differential (Criteria – Head \leq 0.5')
 North Fish Ladder Picketed Lead Differential (Criteria – Head \leq 0.3')
 North Fish Ladder Depth over Weirs (Criteria – Head over weir 1.0' to 1.3')
 South Fish Ladder Exit Differential (Criteria – Head \leq 0.5')
 South Fish Ladder Picketed Lead Differential (Criteria – Head \leq 0.3')
 South Fish Ladder Depth over Weirs (Criteria – Head over weir 1.0' to 1.3')

Comments: None.

Fishway Entrances and Collection Channel:

Yes No Sill Location, Criteria and Measurements

- South Shore Entrance (SFE-1) Weir Depth (Criteria: \geq 8.0' or on sill)
 South Shore Channel/Tailwater Differential (Criteria: 1.0' – 2.0')
 South Shore Channel Velocity (Criteria: 1.5 – 4.0 fps)
 North Powerhouse Entrance (NFE-2) Weir Depth (Criteria: \geq 8.0' or on sill)
 North Powerhouse Channel/Tailwater Differential (Criteria: 1.0' – 2.0')
 North Shore Entrance (NSE-1) Weir Depth (Criteria: \geq 8.0' or on sill)
 North Shore Channel/Tailwater Differential (Criteria: 1.0' – 2.0')

Comments: NSE-1 weir depth was out of criteria on October 10, 11, and 12, with depths of 7.1', 7.1', and 6.9', respectively. This was partly due to the electronic readout of the north shore tailwater elevation being out of calibration. This was reported to the electricians for calibration.

Auxiliary Water Supply (AWS) System:

Yes No In Service and Operating Satisfactory?

- South Shore AWS Pumps. Six of the eight south shore AWS pumps were in service.
 North Shore AWS Pumps. Two of the three north shore AWS pumps were in service.

Comments: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes No Item

- Forebay debris load acceptable? An average of 100 square yards of debris was observed.
 Trash rack differentials measured this week? If so, were differentials acceptable? Yes No N/A
 Any debris seen in gatewells (i.e: over 10% coverage)? Surface coverage ranged from 0% to 20%.
 Any oil seen in gatewells?

Comments: None.

STSS/VBSs:

Yes No Item

- STSSs deployed in all slots and in service?
 STSSs in continuous-run mode (If not, then STSSs are in cycle-run mode)?
 STSSs inspected this week? If so, were results acceptable? Yes No N/A
 VBSs differentials checked this week? If so, were results acceptable? Yes No N/A

Comments: Unit 2 STSSs are not installed since the unit will not be returned to service this year. STSSs are in cycle-run mode.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe:

Yes No Item

- Orifices operating satisfactory? How many are open and in service? 20.
 Dewaterer and cleaning systems operating satisfactory?

Comments: Orifice 3BN was found to have reduced flow on October 10. The orifice was cycled and backflushed to clear the obstruction.

Juvenile Fish Facility: The fish facility is in bypass operation. The raw water supply to the facility was shut off and the pipes were winterized on October 12.

Fish Sampling: Sampling is done for the year.

Removable Spillway Weir (RSW): Voluntary spill for fish passage is done for the season.

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
32.3	12.2	0	0	63	62	8.3	7.5

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Turbine cooling water strainer inspections for lamprey are no longer required from July to November.

Invasive Species: No exotic species that are new to the area have been found.

Avian Activity: There were low numbers of piscivorous birds around the project, with most of them observed roosting on Eagle Island.

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

Project: Lower Monumental

Biologists: Chuck Barnes and Raymond Addis

Dates: October 6 - 12, 2017

Turbine Operation

Yes No Turbine Unit Status

All 6 turbine units available for service throughout the week (see comments below for outage details).

Available turbine units operated within 1% peak efficiency constraint.

Constraint in effect: Hard Soft. Hard constraint began at 0000 hour on April 1.

Comments: Unit 1 was removed from service on December 10, 2014 for Unit Rehabilitation with an estimated return to service date of May 31, 2018. Unit 5 was removed from service on January 17, 2017 due to a turbine oil leak with an estimated return to service of June 30, 2018. Unit 6 was removed from service at 1545 on October 4 due to an issue with the STS hanging over gateway 6A. Estimated return to service for Unit 6 is October 24, 2017.

Adult Fish Passage Facility

The adult fishway was inspected by Corps and Anchor QEA biologists on October 7, 11 and 12.

Fish Ladders:

Yes No Location, Criteria and Measurements

North Fish Ladder Exit Differential (Criteria – Head \leq 0.5')

North Fish Ladder Picketed Lead Differential (Criteria – Head \leq 0.4')

North Fish Ladder Depth over Weirs (Criteria – Head over weir 1.0' to 1.3')

South Fish Ladder Exit Differential (Criteria – Head \leq 0.5')

South Fish Ladder Picketed Lead Differential (Criteria – Head \leq 0.3')

South Fish Ladder Depth over Weirs (Criteria – Head over weir 1.0' to 1.3')

Comments: North Fish Ladder picketed lead differential was out of criteria on the October 11 inspection with a reading of 0.6 feet. A powerhouse crew had been removing debris from the ladder exit's trash rack earlier in the day and small debris had made its way to the picketed leads. Fish personnel cleaned the picketed leads.

Fishway Entrances and Collection Channel:

Yes No Sill Location, Criteria and Measurements

North Shore Entrance (NSE-1) Weir Depth (Criteria: \geq 8.0' or on sill)

North Shore Entrance (NSE-2) Weir Depth (Criteria: \geq 8.0' or on sill)

North Shore Channel/Tailwater Differential (Criteria: 1.0' – 2.0')

South Powerhouse Entrance (SPE-1) Weir Depth (Criteria: \geq 8.0' or on sill)

South Powerhouse Entrance (SPE-2) Weir Depth (Criteria: \geq 8.0' or on sill)

South Powerhouse Entrance Channel/Tailwater Differential (Criteria: 1.0' – 2.0')

South Shore Entrance (SSE-1) Weir Depth (Criteria: \geq 8.0' or on sill)

South Shore Entrance (SSE-2) Weir Depth (Criteria: \geq 6.0' or on sill)

South Shore Channel/Tailwater Differential (Criteria: 1.0' – 2.0')

Comments: South Powerhouse Entrance weirs (SPE-1 and SPE-2) were on sill during all inspections. While on sill readings for both were 7.3, 7.2 and 6.6 feet.

Auxiliary Water Supply System:

- | <u>Yes</u> | <u>No</u> | <u>In Service and Operating Satisfactory?</u> |
|-------------------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | AWS Fish Pump 1. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | AWS Fish Pump 2. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | AWS Fish Pump 3. |

Comments: Pump 1 will be out of service throughout this season unless an emergency occurs.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

- | <u>Yes</u> | <u>No</u> | <u>Item</u> |
|-------------------------------------|-------------------------------------|--|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Forebay debris load acceptable? An average of 28 square yards of debris observed in forebay. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Trash rack differentials measured this week? If so, were differentials acceptable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Any debris seen in gatewells? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Any oil seen in gatewells? |

Comments: Gatewell debris ranged from 0 to 30% during inspections.

STSs/VBSs:

- | <u>Yes</u> | <u>No</u> | <u>Item</u> |
|-------------------------------------|-------------------------------------|--|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | STSs deployed in all slots and in service? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | STSs in continuous-run mode (Note: if not, then STSs are in cycle-run mode)? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | STSs inspected this week? If so, were results acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | VBSs differentials checked this week? If so, were results acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A |

Comments: STS's were operating on cycle mode due to CH0 lengths being over the 120 mm criteria point.

Orifices, Collection Channel, Dewatering Structure, and Flume:

- | <u>Yes</u> | <u>No</u> | <u>Item</u> |
|-------------------------------------|--------------------------|--|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Orifices operating satisfactory? How many are open and in service? 18. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Dewaterer and cleaning systems operating satisfactory? |

Comments: Orifice checks were conducted every six hours during this reporting period.

Collection Facility: Collection for transport ended at 0700 on October 1, at which time the facility was placed into primary bypass. The collection facility was dewatered on October 11.

Transport Summary: Transport season ended on October 1.

River Conditions

General Comments.

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
31.7	12.4	0	0	64.1	60.0	6.1	3.7

*Scrollcase temperatures.

Spill: The RSW spill was closed on August 18. Summer spill ended at 0000 on September 1.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on August 16. There were zero live fish. Mortalities included 14 Siberian prawns and 13 YOY American shad.

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

Avian Activity: Gulls and cormorants were the predominant piscivorous bird species observed during fish ladder inspections this week.

Tailrace counts of foraging piscivorous birds at Lower Monumental Dam ended July 13.

Outfall pipe bird water cannons were shut down and dewatered on October 12.

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

Project: Little Goose

Biologists: Scott St. John & Richard Weis

Dates: October 6-12, 2017

Turbine Operation

Yes No Turbine Unit Status

- All 6 turbine units available for service throughout the week (see Table 1 for outage details).
- Available turbine units operated within 1% peak efficiency constraint. Constraint in effect: Hard Soft.

Table 1. Little Goose Unit Outages

Unit	OOS Date	OOS Time	RTS Date	RTS Time	Outage Description
5	14-Apr	14:11	ERTS Feb 2018	17:00	Excessive Vibration
2	10-Oct				Unit Annual

Comments: On October 04, 2017 unit 1 experienced a 1% violation at the lower end of the RPM range for 17 minutes.

Adult Fish Passage Facility

The adult fishway was inspected by Corps biologists and Anchor QEA staff on October 8, 11, and 12.

Fish Ladder:

Yes No Location, Criteria and Measurements

- Fish Ladder Exit Differential (Criteria – Head \leq 0.5')
- Fish Ladder Picketed Lead Differential (Criteria – Head \leq 0.3')
- Fish Ladder Depth over Weirs (Criteria – Head over weir 1.0' to 1.3')
- Emergency Ladder Exit Cooling Water Pumps in Service
- Emergency Ladder Exit Cooling Water Pumps Operating Satisfactorily.

Comments: Emergency cooling pump permanent power is scheduled to be installed during the winter maintenance outage.

Fishway Entrances and Collection Channel:

Yes No Sill Location, Criteria and Measurements

- South Shore Entrance (SSE-1) Weir Depth (Criteria: \geq 8.0')
- South Shore Entrance (SSE-2) Weir Depth (Criteria: \geq 8.0')
- South Shore Channel/Tailwater Differential (Criteria: 1.0' – 2.0')
- North Powerhouse Entrance (NPE-1) Weir Depth (Criteria: \geq 7.0' or on sill)
- North Powerhouse Entrance (NPE-2) Weir Depth (Criteria: \geq 7.0' or on sill)
- North Powerhouse Entrance Channel/Tailwater Differential (Criteria: 1.0' – 2.0')
- North Shore Entrance (NSE-1) Weir Depth (Criteria: \geq 6.0' or on sill)
- North Shore Entrance (NSE-2) Weir Depth (Criteria: \geq 6.0' or on sill)
- North Shore Channel/Tailwater Differential (Criteria: 1.0' – 2.0')
- Collection Channel Surface Velocity (Criteria: 1.5 – 4.0 fps)

Comments: None.

Auxiliary Water Supply System:

- | <u>Yes</u> | <u>No</u> | <u>In Service and Operating Satisfactory?</u> |
|-------------------------------------|--------------------------|---|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | AWS Fish Pump 1 (operating). |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | AWS Fish Pump 2 (operating). |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | AWS Fish Pump 3 (operating). |

Comments: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

- | <u>Yes</u> | <u>No</u> | <u>Item</u> |
|-------------------------------------|-------------------------------------|--|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Forebay debris load acceptable. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Trash rack differentials measured this week? If so, were differentials acceptable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Any debris seen in gatewells (i.e: over 10% coverage)? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Any oil seen in gatewells? |

Comments: There is an estimated 1,500 square feet of floating woody debris in the immediate forebay. Trash rack differentials were measured on October 06 and were in criteria.

Spillway Weir: Temporary spillway weir was closed for the season on July 19 at 09:00.

ESBS/VBS:

- | <u>Yes</u> | <u>No</u> | <u>Item</u> |
|-------------------------------------|-------------------------------------|--|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | ESBSs deployed in all slots and in service? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | ESBSs inspected this week? If so, were results acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | VBSs differentials checked this week? If so, were results acceptable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |

Comments: None.

Orifices, Collection Channel, Dewatering Structure, and Flume:

- | <u>Yes</u> | <u>No</u> | <u>Item</u> |
|-------------------------------------|--------------------------|--|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Orifices operating satisfactory? How many are open and in service? <u>19 open.</u> |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Dewaterer and cleaning systems operating satisfactory? N/A |

Comment: Orifices and primary dewatering structure are being back flushed every 8 hours.

Collection Facility: Juvenile Fish Facility is currently operating.

Transport Summary: The collection and transportation facility operated in criteria this report period. A total of 1086 fish were collected and 869 were transported during this report period. The descaling and mortality rates were 2.1% and 0.8% respectively. This weekly report period saw 0 adult lamprey removed from the raceways or sample and released one mile above the Dam at Little Goose Landing.

River Conditions

River conditions during the week are outlined in Table 2 below.

Table 2. 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
32.6	13.9	0	0	61.4	60.7	5.6	5.1

*Ladder temperature.

Comment: Spill ended at midnight August 31.

Other

Inline Cooling Water Strainers: Cooling water strainers will be inspected again starting in December.

Invasive Species: No invasive species have been observed on the mussel station.

Avian Activity: USDA bird hazing ended on June 25. See table 3 for USACE counts.

Table 3. Daily Piscivorous bird counts at Little Goose Dam.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
10-06	0800	32	16	0	0
10-07	1245	49	20	0	0
10-08	1345	47	36	0	0
10-09	1330	22	31	0	0
10-10	1330	10	7	0	0
10-11	1330	73	10	0	0
10-12	0830	62	11	0	0

Gas Bubble Trauma: Final GBT sampling for the season was conducted on August 21.

Research: No research is currently being conducted at this time.

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by Oregon Department of Fish and Wildlife and Anchor, frozen and properly disposed of in a landfill. There were 217 prawns collected in the sample and euthanized during this report period. Prawn numbers are outlined in Table 4 below.

Table 4. Daily Siberian prawn sample.

Date	Sample	Collection
10-06	30	30
10-07	40	40
10-08	62	62
10-09	13	13
10-10	12	12
10-11	27	27
10-12	33	33
Total	217	217

Project: Lower Granite

Biologists: Elizabeth Holdren and Stephen Hampton

Dates: October 6-12, 2017

Turbine Operation

Yes No Turbine Unit Status

- All 6 turbine units available for service throughout the week (see comments below for outage details).
 Available turbine units operated within 1% peak efficiency constraint. Constraint in effect: Hard Soft.

Comments: Unit 1 remains out of service for blade/runner repair. Unit 2 currently has hydraulically locked blades that limit operation to the upper end of 1% peak efficiency constraint. Unit 3 remains out of service for annual maintenance.

Adult Fish Passage Facility

General comments: Adult fish facilities were inspected by Corps or Anchor QEA biologists October 07, 10, 11, and 12.

Fish Ladder:

Yes No Location, Criteria, and Measurements

- Fish Ladder Exit Differential (Criteria – Head \leq 0.5’)
 Fish Ladder Picketed Lead Differential (Criteria – Head \leq 0.3’)
 Fish Ladder Depth over Weirs (Criteria – Head over weir 1.0’ to 1.3’)
 Ladder Temperature Pumps in Service.
 Ladder Temperature Pumps Operating Satisfactorily.

Comments: None.

Fish Ladder Entrances and Collection Channel:

Yes No Sill Location, Criteria and Measurements

- South Shore Entrance (SSE-1) Weir Depth (Criteria: \geq 8.0’ or on sill)
 South Shore Entrance (SSE-2) Weir Depth (Criteria: \geq 8.0’ or on sill)
 South Shore Channel/Tailwater Differential (Criteria: 1.0’ – 2.0’)
 North Powerhouse Entrance (NPE-1) Weir Depth (Criteria: \geq 8.0’ or on sill)
 North Powerhouse Entrance (NPE-2) Weir Depth (Criteria: \geq 8.0’ or on sill)
 North Powerhouse Entrance Channel/Tailwater Differential (Criteria: 1.0’ – 2.0’)
 North Shore Entrance (NSE-1) Weir Depth (Criteria: \geq 7.0’ or on sill)
 North Shore Entrance (NSE-2) Weir Depth (Criteria: \geq 7.0’ or on sill)
 North Shore Channel/Tailwater Differential (Criteria: 1.0’ – 2.0’)
 Collection Channel Velocity (Criteria: 1.5 – 4.0 fps)

Comments: NSE-2 has been out of service since 2011 and remains set with a chain fall hoist in the closed position to improve channel/tailwater head differential. NSE-1 depth over weir was out of criteria on Oct. 07, 10, and 11 with readings of 6.3’, 5.8’, and 7.0’ respectively. The fish ladder control system continues to be unable to maintain both depth over the weir and channel/tailwater head differential at the north shore during spill at current tailwater elevation. NSE depth over the weir criteria is being sacrificed to achieve channel/tailwater head differentials. Electricians and operations continue to troubleshoot the fish ladder control system.

Collection Channel Velocity: Collection channel velocities were in criteria on all inspections.

Auxiliary Water Supply System:

Yes No In Service and Operating Satisfactory?

- AWS Fish Pump 1 (operating).
- AWS Fish Pump 2 (operating).
- AWS Fish Pump 3 (operating).

Comments: AWS pump 2 is in standby mode. AWS pump 1 remains in fast operation.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes No Item

- Forebay debris load acceptable? Debris was observed in the powerhouse forebay this week.
- Trash rack differentials measured this week? If so, were differentials acceptable? Yes No N/A.
- Debris in gatewells (i.e.: over 10% coverage)?
- Oil in gatewells?

Comments: Forebay debris in front of the powerhouse averaged about 60 square yards this week.

ESBSs/VBSs:

Yes No Item

- ESBSs deployed in all slots and in service?
- ESBSs inspected this week? If so, were results acceptable? Yes No N/A
- VBSs differentials checked this week? If so, were results acceptable? Yes No N/A

Comments: ESBS are dogged off in gatewell slots.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe:

Yes No Item

- Orifices operating satisfactory? There are 18 orifices operating.
- Dewaterer and cleaning systems operating satisfactory?

Comments: Dewatered.

Collection Facility: Dewatered.

Transport Summary: No transport is occurring.

River Conditions

General Comments.

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
28.30	17.80	6.90	0.00	62.90	59.50	5.0	4.6

Other

Adult Fish Trap Operations: The adult trap is in twenty-four hour operation seven days a week at a 20% sample rate. Fall Chinook are being collected for transport to Lyons Ferry and Nez Perce hatcheries.

Inline Cooling Water Strainers: N/A

Invasive Species: No signs of mussels were present during the September 25 inspection.

Avian Activity: Piscivorous bird continue to be counted in the forebay and tailrace (Table 2).

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

Date	Time (hours)	Gulls	Cormorants	Caspian Terns	Pelicans
October 6	1600	6	4	0	0
October 7	0745	0	9	0	0
October 8	0754	4	13	0	0
October 9	0927	16	20	0	0
October 10	1300	2	11	0	0
October 11	1030	8	20	0	0
October 12	1300	0	15	0	0

Spill: The RSW was closed at 1249 hours October 10 per FPOM coordination (16 LWG 010, 15 LWG 23, and 13 LWG 17) due to river flows below the level required to operate the RSW and Unit 2.

Gas Bubble Trauma (GBT) Monitoring: N/A.

Research: N/A.