

**U.S. ARMY CORPS OF ENGINEERS  
WALLA WALLA DISTRICT  
FISH FACILITIES WEEKLY REPORT  
#36-2017**

**Project: McNary**

Biologist: Bobby Johnson and Denise Griffith

Dates: October 27 – November 2, 2017

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**Turbine Operation**

General Comments: The hard 1% peak efficiency constraint concluded on November 1.

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 constraints. Constraint in effect:  Hard  Soft.

Table 1. Unit Outages at McNary Project.

Units	Outage Dates	Outage Length	Reason
3	Oct 10 to Dec 8	60 days	9-year overhaul.
14	Oct 23 to 27	4.1 days	Annual maintenance.
12	Oct 30 to Nov 2	3.4 day	Annual maintenance.
11 & 12	Oct 31	26 minutes total	Extended-length submersible bar screens (ESBSs) camera inspections.
1	Nov 2	2.5 hours	ESBS failure.

**Adult Fish Passage Facilities**

General Comments: McNary fisheries biologists performed measured inspections of the adult fishways on October 27, 29 and 31. Visual fish counts concluded on October 31, at which time, video review of adult passage began and will continue to February 28, 2018.

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 Saturdays, at both exits.

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

At the Oregon exit, debris loads were minimal. Along the shoreline, debris loads were minimal to moderate. Tilting weir 339 remains in manual mode. On October 27, the electrical staff examined all tilting weirs, including weir 339. On October 27, 29 and 31, the regulating weir set point was adjusted. On October 29 and 31, tilting weirs set point was adjusted.

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 1.8 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 approximately 23 degrees.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Oregon Ladder Fish Pump 2: Blade angle was approximately 20 to 21 degrees.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Oregon Ladder Fish Pump 3: Blade angle was approximately 23 degrees.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Oregon North Powerhouse Pool supply from juvenile fishway.

Comments: There are no problems to report.

**Juvenile Fish Passage Facility**

General Comments: Fall primary bypass season continues. Light maintenance, preparations for the winter work list, 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 light to heavy as variable winds moved the debris to and from the Oregon shore line. Debris loads at the spillway were minimal. New incoming debris loads were minimal to light. No trash racks were cleaned.

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 checked="" type="checkbox"/>	<input type="checkbox"/>	ESBSs inspected this week? If so, were results acceptable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input 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, units 11 and 14 remained in timer mode. On November 1, the ESBS brush on the screen in 1B slot tripped off line resulting in an over current alarm. The operator could not restart the brush cycle so the unit was removed from service. An electrician examined the brush control system and was able to return the ESBS to service. The fisheries staff will continue to monitor this screen. ESBS camera inspections occurred in units 11 and 12 on October 31. No problems were found. Due to the camera having limited pan and tilt functions, we have limited the inspections to two units per week.

VBS differential monitoring continued. No high differential measurements were recorded. Ten screens total were cleaned on October 30 and November 2. 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. With colder air temperatures, moisture was again noted in the orifices air supply line. This moisture will be bleed off daily. We continued to operate the transition screen cleaning brush manually to insure it completes a full cleaning cycle.

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 remained out of service. Light maintenance, cleaning and partial winterization continues.

On October 28, the heating/cooling system in the facility PIT tag room began to produce loud noises. By November 2, the mechanics had resolved the issue, which was not serious.

**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
93.3	68.9	0.0	0.0	57.0	55.0	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 next mussel station examinations will occur in early November.

Avian Activity: Casual avian 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 inside and outside of the counting zones in multiple locations. 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.

In the forebay zone, an occasional gull, gull flock, pelican, bald eagle, great blue heron or grebe was observed. Gulls were occasionally observed on the rocks by the Washington shore boat dock.

Fish Salvage/Rescue: None occurred.

### **Research**

Item: No onsite research is occurring at this time.

**Project: Ice Harbor**

Biologist: Ken Fone

Dates: October 27 – November 2, 2017

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**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 3 was noted to be operating a few megawatts below the 1% peak operating efficiency range on the October 31 and November 2 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 30, 31, and November 2.

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: Adult fish counting ended for the season on October 31. The south and north fish ladder picketed leads were raised out of the water on November 1 and 2, respectively.

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 30, with a depth of 7.5' while the weir gate was not on sill. This was partly due to the electronic readout of the north shore tailwater elevation being out of calibration. This has been 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 80 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 40%.  
      Any oil seen in gatewells?

Comments: None.

STSS/VBSs:

Yes   No   Item

- STSS deployed in all slots and in service?  
      STSS in continuous-run mode (If not, then STSS are in cycle-run mode)?  
      STSS 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: STSS are in cycle-run mode. Unit 2 STSS are not installed since the unit will not be returned to service this year.

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: None.

Juvenile Fish Facility: The fish facility is in bypass operation.

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
24.1	15.3	0	0	55	55	7.2	5.8

\*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. Unit 6 strainer was cleaned on October 30 due to a pressure differential across the strainer. Approximately 1,500 juvenile shad mortalities were removed.

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 27 – November 2, 2017

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**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. Soft constraint began at 0000 hours on November 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 3 was removed from service at 0845 on October 20 for a digital governor installation with an estimated return to service of December 7, 2017. Unit 4 was removed from service at 1530 hours on November 2, 2017 for an oil leak investigation.

**Adult Fish Passage Facility**

The adult fishway was inspected by Corps biologists on October 30, 31 and November 2.

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: None.

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 6.5, 7.3 and 7.4 feet.

North Fish Ladder picketed lead differential was out of criteria (reading of 0.5') on 30 October. The biologist cleaned the picketed leads and corrected the problem.

North Fish Ladder exit differential was out of criteria during inspections on 30 and 31 October with a reading of 0.7 feet. Powerhouse maintenance crews were immediately notified but due to unsafe debris/wind conditions in the forebay, the boat could not reach the exit to remove the debris until morning of 1 November. The woody debris and tumbleweeds were then effectively removed and differential was back in criteria during the 2 November inspection. The ladder was closely monitored while out of criteria and no fish delays or injuries were observed.

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 307 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 ranged from 0 to 20% 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: None.

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
23.7	18.2	0	0	56.0	55.0	4.9	4.4

\*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 ended on 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 27-November 2, 2017

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**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	31-July	17:00	Upper Guide Bearing Repair (ERTS July 31, 2018)

Comments: For details regarding unit priority violation (FPP Table LGS-5), see memorandum of coordination 17LGS18 stilling basin survey.

**Adult Fish Passage Facility**

The adult fishway was inspected by Corps biologists and Anchor QEA staff on October 29, 31 and 02.

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: Rickly velocity measurement was conducted on October 23 and averaged 3.0 fps.

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 2,000 square feet of floating woody debris in the immediate forebay.

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: Tested ESBS screens on October 26, all functioned satisfactorily.

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, and switched to primary bypass on November 1 at 07:00. A total of 355 fish were collected and 415 were transported during this report period. The descaling and mortality rates were 4.9% and 1.6% respectively. This weekly report period saw 2 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
22.4	18.6	0	0	56.4	54.8	6.0+	6.0

\*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
10-27	13:00	123	17	0	0
10-28	13:00	71	42	0	0
10-29	12:50	105	47	0	0
10-30	14:30	28	24	0	0
10-31	14:00	116	33	0	0
11-01	16:00	167	31	0	0
11-02	12:00	199	35	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 172 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
10-27	12	12
10-28	11	11
10-29	13	13
10-30	25	25
10-31	18	18
11-01	93	93
Total	172	172

**Project: Lower Granite**

Biologists: Elizabeth Holdren and Stephen Hampton

Dates: October 27 - November 2, 2017

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**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 was returned to service at 0652 hours October 31 following completion of annual maintenance. Unit 2 was removed from service at 0825 hours October 31 at 0825 for annual maintenance. Unit 3 was removed from service from 0609-1236 hours November 2 for caisson movement.

**Adult Fish Passage Facility**

General comments: Adult fish facilities were inspected by Corps or Anchor QEA biologists October 28-30 and November 1-2.

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. SSE-1&2 depth over weir were out depth of criteria October 28 with a gate depth readings of 7.7 feet. NPEs were in sill criteria October 28 with a gate depth readings of 7.5' and 7.4 feet. NPE 2 depth over weir was out of criteria October 28 with a gate depth reading of 7.4 feet. NSE 1 depth over weir was out of criteria on all inspections with gate depth readings of 6.5, 6.4, 6.8, and 6.5 feet. 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.

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

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 type="checkbox"/>	<input checked="" type="checkbox"/>	AWS Fish Pump 2 (operating).
<input checked="" type="checkbox"/>	<input type="checkbox"/>	AWS Fish Pump 3 (operating).

Comments: AWS pump 2 is in standby mode. AWS pump 1 remains in fast operation. AWS pumps 1 and 3 were removed from service from 1400-1430 hours October 30 for AWS bulkhead swap in preparation for the 5kv line work as part of Phase 1a. The rigging for the bulkhead was found tangled below the water level in AWS pump 2 slot. AWS pumps were removed from service from 1404-1530 hours October 31 for ROV inspection of the bulkhead rigging. The problem could not be identified during the underwater ROV inspection and the 5kv line work scheduled for November 4 was postponed. An additional AWS outage is needed to complete that 5kv line work. The current estimated time to tie the 5kv line is ~10 hours rather than the 20+ hours originally estimated. Two outages of ~ 3 hours each are needed to move the bulkhead as coordinated. This work is scheduled with the contractor electricians for November 20 however it is unknown if the bulkhead rigging issue will be resolved by this date.

### **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? Debris was observed in the powerhouse forebay this week.
<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"/>	Debris in gatewells (i.e.: over 10% coverage)?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Oil in gatewells?

Comments: Forebay debris in front of the powerhouse averaged about 34.5 square yards this week.

ESBSs/VBSs:

<u>Yes</u>	<u>No</u>	<u>Item</u>
<input type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input 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: ESBS are dogged off in gatewell slots.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe:

<u>Yes</u>	<u>No</u>	<u>Item</u>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Orifices operating satisfactory? There are 18 orifices operating.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	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
19.2	17.6	3.6	3.6	53.6	51.9	5.0	4.9

### 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 collection for Lyons Ferry and Nez Perce hatcheries concluded October 17.

Inline Cooling Water Strainers: N/A

Invasive Species: No signs of mussels were present during the October 23 inspection.

Avian Activity: Piscivorous bird continue to be counted in the forebay and tailrace (Table 2). Seasonal bird counts ended October 31.

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

Date	Time (hours)	Gulls	Cormorants	Caspian Terns	Pelicans
October 27	1400	0	13	0	0
October 28	1400	21	19	0	0
October 29	1000	7	13	0	0
October 30	1405	1	14	0	0
October 31	1350	2	14	0	0

Spill: Spill is being managed based on river flow with unit 4 in operation. If river flows fall below the minimum required to operate both unit 4 and the RSW spill will shift to spillbay 2 open two stops (3.5 kcfs). When possible water will be pooled to provide spill for fish and minimum generation. The RSW was closed from 1410-1555 hours October 30 for construction barge relocation in the tailrace BRZ.

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

Research: N/A.