

**U.S. ARMY CORPS OF ENGINEERS  
WALLA WALLA DISTRICT  
FISH FACILITIES WEEKLY REPORT  
#30-2017**

**Project: McNary**

Biologist: Bobby Johnson and Denise Griffith

Dates: September 15 – 21, 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 7	61 days	9-year overhaul.
9	Aug 18 to 21	3.3 days	Annual maintenance.
6	Aug 18 to 21	3.4 days	Support unit 5 outage.
1	Aug 19	32 minutes	Trash rack cleaning.

**Adult Fish Passage Facilities**

General Comments: McNary fisheries biologists performed measured inspections of the adult fishways on September 15, 17 and 20. National Oceanic & Atmospheric Administration (NOAA) fisheries personnel performed their monthly inspection on September 18. Visual fish counts and video review of lamprey passage continue. Temperature data was collected on September 20.

Fish Ladder Exits:

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’): 0.6’ on September 15.  
      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. Aquatic vegetation continues to be a problem.

Debris loads at the Washington exit and along the shoreline were minimal. The regulating and tilting weirs set points were adjusted on September 15. Woody material was removed from the first stationary weir downstream of the count station on September 18.

At the Oregon exit and along the shoreline, debris loads were light to moderate. On September 15, the general maintenance staff was called in to clean the picketed leads, which resolved the out of criterion point mentioned above. They also removed a two foot diameter log from the exit trash rack. The encoder for tilting weir 339 has not been replaced. This weir rarely moves and will be adjusted manually. The regulating weir set point was adjusted on September 15 and 17. A 55 gallon drum was removed from the regulating weir on September 18.

Aquatic vegetation and woody material were removed from the exit traveling screens debris trough on September 17.

Fishway Entrances and Collection Channel:

Criteria Met?

<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 1.9 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 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 degrees.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Oregon North Powerhouse Pool supply from juvenile fishway.

Comments: Due to relay issues, fish pumps 1 and 3 were out of service on September 21 from 1225 to 1321 hours.

**Juvenile Fish Passage Facility**

General Comments: The fish passage season consists of alternating days of primary and secondary bypass modes, with the switch occurring at 0700 hours each morning. No schedule deviations occurred. This week, 96 juvenile lamprey and 500 smolts were bypassed. Juvenile shad are now the predominate species observed in the samples.

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 continues to dissipate.
<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 moderate 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. Trash racks were cleaned in slot 1A, units 5 and 9 on September 19. About one yard of debris was removed. No fish were noted in the debris.

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 slots 1A, 1B, 3B, 7B, 8C, 12B, units 11 and 14 remained in timer mode. The ESBS brush short cycled and was recalibrated multiple times for the screen in slot 1B from September 15 to 19. The ESBS brush short cycled and was recalibrated once for the screen in slot 3B on September 18. The electrical staff examined the ESBS brush cycle program for the screens in unit 10 on September 18. No ESBS camera inspections occurred this week.

VBS differential monitoring continued. No high differential measurements were recorded. Nine screens total were cleaned on September 15, 16 and 21. 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 and trash rack cleaning. 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 checked="" type="checkbox"/> | <input type="checkbox"/>            | Sample gates on? Yes, during secondary bypass only.  |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | PIT tag system on? The system remains off unless a study is occurring. The facility bypass lines provide a superior route for the fish over the PIT tag sample release lines downstream of the PIT tag sample gates. |

Comments: During the bypass season, primary and secondary bypass modes return all fish are to the river. PIT tag detection occurs in the full flow pipe during primary bypass and throughout the facility during secondary bypass. Smolt monitoring occurs only on secondary bypass days.

On September 18, examination of the anesthesia system chiller delayed sampling by 30 minutes. No problems were found. On September 20, the drive gears which helps to raise and lower the B side sample tank crowding screen were reinstalled. The A side gears were also examined. Also, that day, repairs to the mast light were completed.

**River Conditions**

General Comments: River conditions were provided by the biological services contractor, Anchor QEA and are outlined in Table 2 below. Water clarity was provided by the McNary control room. The data period runs from 0700 to 0700 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
130.7	85.3	0.0	0.0	69.3	65.8	6.0	6.0

Comments: Scheduled maintenance occurred on the spill bay hoists at bays 16 through 19 and the spill way cranes, on September 20 and 21, respectively.

## 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 mid-October. No Siberian prawns have been observed at McNary so far this season.

Avian Activity: Avian counts continue and tailwater numbers are recorded in Table 3 below. Observations were made every morning. Overall, gull and cormorant numbers were stable. A large number of gulls were roosting on project outside of the counting zones. Terns appear to be no longer on project. An occasional pelican was observed. Gulls and cormorants were feeding in the powerhouse flow and at the bypass outfall on out-migrating juvenile shad. The birds in the spillway zone are roosting on the navigation lock wing wall and other structures.

Table 3. McNary Project's Daily Tailwater Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican
Sep 15	Spill	135	47	0	0
	Powerhouse	16	0	0	0
	Outfall	7	0	0	0
Sep 16	Spill	105	34	0	0
	Powerhouse	5	0	0	0
	Outfall	18	7	0	0
Sep 17	Spill	56	37	0	0
	Powerhouse	8	1	0	0
	Outfall	3	0	0	0
Sep 18	Spill	39	3	0	0
	Powerhouse	2	2	0	0
	Outfall	53	11	0	0
Sep 19	Spill	89	57	0	2
	Powerhouse	1	0	0	0
	Outfall	4	7	0	0
Sep 20	Spill	85	13	0	0
	Powerhouse	2	0	0	0
	Outfall	10	7	0	0
Sep 21	Spill	43	17	0	0
	Powerhouse	0	0	0	0
	Outfall	0	4	0	0

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

The water hazing sprinklers at the outfall and bird distress calls deployed across the project functioned satisfactory. A small number of gulls were noted roosting on the outfall pipe this week. On September 20, the fisheries staff repaired the bird deterrents.

Fish Salvage/Rescue: No fish rescue occurred this week.

## Research

Item: No onsite research is occurring at this time.

**Project: Ice Harbor**

Biologist: Ken Fone/Charlie Dennis

Dates: September 15 – September 21, 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.

**Adult Fish Passage Facilities**

Fish facility personnel inspected the adult fishways on September 18, 19, and 20.

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: None.

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 500 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 5%.  
      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 due to the average fork length of subyearling chinook in the Lower Monumental juvenile fish sample being over 120 mm.

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
33.4	26.8	0	0	69	67	5.8	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.

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

Avian Activity: There were low numbers of piscivorous birds observed around the project. There has been less gull activity since the spill was shut off. Some pelicans and cormorants were observed foraging in the areas downstream of the powerhouse. Three of the avian deterrent wires, which broke off during high flows earlier in the year, were replaced by APHIS Wildlife Services on September 13.

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

**Project: Lower Monumental**

Biologists: Chuck Barnes and Raymond Addis

Dates: September 15 - 21, 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 2 was removed from service on August 2 to investigate a leaking blade seal with an estimated return to service of September 24, 2017. Unit 6 was removed from service from 0720 to 1130 on September 19 for a scheduled STS inspection.

**Adult Fish Passage Facility**

The adult fishway was inspected by Corps and Anchor QEA biologists on September 15, 16, 17 and 20.

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 7.7, 7.3, 7.1 and 7.8 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 380 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"/>
<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 14% 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 checked="" type="checkbox"/>	<input type="checkbox"/>	STSs 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: STS's were operating on cycle mode due to CH0 lengths being over the 120 mm criteria point. Unit 6 STS's was inspected on September 19. No issues were found.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes No Item

- Orifices operating satisfactory? How many are open and in service? 18 or 19.  
  Dewaterer and cleaning systems operating satisfactory?

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

Collection Facility: Collection into raceways for barge transport ended at 1500 on August 14 and collection of all fish into holding tanks for truck transport began.

Transport Summary: Barging ended with the last barge departing on August 14. Alternate day trucking began on August 14 with the first truck departing on August 16. The truck transportation runs were cancelled on September 15, 17 and 19 because wild fires in the Columbia Gorge area closed I-84. The fish were returned to the river via the JFF bypass pipe. Truck transport resumed on September 21. Trucking is scheduled to continue through 0700 on October 1. A total of 90 fish were collected, 74 fish were bypassed and 32 fish were transported.

**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
36.0	28.4	0	0	70.3	66.5	6.1	4.1

\*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 September 3. During this reporting period, SMP personnel euthanized 34 Siberian prawns with a total weight of 65 grams.

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

Tailrace counts ended on July 13.

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

**Project: Little Goose**

Biologists: Scott St. John & Richard Weis

Dates: September 15-21, 2017

---

**Turbine Operation**

Yes No Turbine Unit Status

- All 6 turbine units available for service throughout the week (see Table 1 for outage details).
- All 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
4	14-Aug	07:50	15-Sep	14:30	Unit Annual & Vacuum Breaker Failure
3	11-Sep	08:13	29-Sep	17:00	Unit Annual

Comments: None

**Adult Fish Passage Facility**

The adult fishway was inspected by Corps biologists and Anchor QEA staff on September 17, 19 and 21.

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: Weir depths at the north shore measured 5.3' and 5.5' on September 21, but were immediately adjusted and the fishway is currently operating within criteria.

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 type="checkbox"/>            | <input checked="" type="checkbox"/> | Trash rack differentials measured this week? If so, were differentials acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" 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 2,250 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 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: 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>20 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 572 fish were collected during this report period and fish transportation resumed normal operation on September 21. A total of 69 fish were transported via truck and 491 fish were bypassed due to Columbia River gorge fires (MFR 17 JFT 03). The descaling and mortality rates were 2.3% and 2.6% respectively. This weekly report period saw 3 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
33.1	28.6	0	0	68.8	66.2	6.0	4.4

\*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
09-15	13:30	9	14	0	0
09-16	11:30	34	15	0	0
09-17	14:00	23	13	0	0
09-18	13:00	23	9	0	0
09-19	13:30	32	0	0	0
09-20	13:30	44	5	0	0
09-21	13:00	59	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 2,384 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
09-15	455	455
09-16	191	191
09-17	372	372
09-18	162	162
09-19	91	91
09-20	108	108
09-21	1005	1005
Total	2384	2384

**Project: Lower Granite**

Biologists: Elizabeth Holdren and Stephen Hampton

Dates: September 15-21, 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 6 remains out of service for annual maintenance.

**Adult Fish Passage Facility**

General comments: Adult fish facilities were inspected by Corps or Anchor QEA biologists September 16, 19, 20, and 21.

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: Fish ladder temperature control system pumps remain in operation.

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: NSE2 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. NPEs depth elevation over the weir remain at 628.0 feet (sill) until the gates are returned to automated service. NPE1 repairs were completed August 30 and will be returned to service following operational checks. NPE2 repairs were completed September 19. Automated operation of NPEs will be returned following calibration. SSE1 and SSE2 weir depths were out of criteria with readings of 7.9' and 7.9 feet September 16. NSE1 channel/tailwater differential was out of criteria September 16, 20, and 21 with readings of

0.6', 0.8', and 0.5 feet respectively. NSE1 was raised by operations to bring gate into depth criteria. Out of criteria readings were likely due to NSE1 automated system being unable to maintain criteria with spill occurring.

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.

### **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 33.8 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?
- Dewaterer and cleaning systems operating satisfactory?

Comments: Dewatered.

Collection Facility: Dewatered.

Transport Summary: No transport from Granite.

### **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
32.1	23.2	3.5	3.2	69.0	65.0	5.0+	4.5

\*Fish ladder collection channel were taken in place of cooling water intake temperature.

### Other

Adult Fish Trap Operations: The sample rate was raised from 20% to 33% September 13 for broodstock needs. From 0845-1144 hours September 21 the trap was shut down due to an increase of fish collected in the trap. Operations resumed at 1145 hours with a 33% sample rate. At 1400 hours the sample rate was lowered to 20%. Fall Chinook are being collected for transport to Lyons Ferry and Nez Perce Tribe hatcheries.

Inline Cooling Water Strainers: N/A.

Invasive Species: No signs of mussels were present during the September 18 inspection.

Avian Activity: N/A

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

Date	Time (hours)	Gulls	Cormorants	Caspian Terns	Pelicans
September 15	1400	4	21	0	0
September 16	1345	3	26	0	0
September 17	1041	16	26	0	1
September 18	1512	0	4	0	0
September 19	1536	1	28	0	0
September 20	1600	8	26	0	0
September 21	1415	1	24	0	1

Spill: Lower Granite extended spill operation for juvenile bypass system phase 1a upgrades continues. Spillways 2 and 3 were open 2 stops each for a combined spill of 6.8-7.0 kcfs from 0600-1800 hours September 15-20. Spill was shifted to the RSW at 0600 hours September 21. Spill through RSW will continue daily from 0600-1800 hours through December 15. Spillway 1 gate seal was inspected from 1200-1352 hours September 19. During the inspection it was determined that about 20 feet of the seal was damaged during the debris spill on June 19 leaving a gap of about an inch wide between the south side of the gate and the spillway concrete. Damage to the seal does not impact fish passage through the RSW.

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

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