U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#27-2017

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: August 25 – 31, 2017

Turbine Operation

General Comments: The hard 1% peak efficiency constraint continues. The saw tooth unit priority for warm water temperature abatement concluded when the spill season ended. The overheating issue with unit 2 when restarting the unit was resolved during the unit outage. The unit can be returned to its normal priority order.

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.
2	Aug 14 to 31	17 days	Annual maintenance.
7	Aug 28 to 31	3.4 days	Annual maintenance.

Adult Fish Passage Facilities

General Comments: McNary fisheries biologists performed measured inspections of the adult fishways on August 25, 27 and 30. Visual fish counts and video review of lamprey passage continue. Temperature data was collected on August 30. The Oregon exit probe became lodged in the still well. With the probe out of the water, on August 31, a second probe was deployed at the exit as a replacement.

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’)
☒	☐	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.

Debris loads at the Washington exit and along the shoreline were minimal. Tilting weir 337 alarmed and was reset on August 27 and 30. The regulating and tilting weirs set points were adjusted on August 30. Installation of a new exit dewatering pump was completed this week.

At the Oregon exit and along the shoreline, debris loads were moderate. The encoder for tilting weir 339 has not been replaced. This weir rarely moves and will be adjusted manually. On August 30, the regulating weir set point was also adjusted.

Fishway Entrances and Collection Channel:

Criteria Met?

Yes	No	Location, Criteria and Measurements
☒	☐	North Oregon Entrance Head Differential (Criteria – 1.0’ to 2.0’)
☒	☐	NFEW2 Weir Depth (Criteria – ≥ 8.0’)
☒	☐	NFEW3 Weir Depth (Criteria – ≥ 8.0’)
☒	☐	South Oregon Entrance Head Differential (Criteria – 1.0’ to 2.0’)
☒	☐	SFEW1 Weir Depth (Criteria – ≥ 8.0’)
☒	☐	SFEW2 Weir Depth (Criteria – ≥ 8.0’)
☒	☐	Oregon Collection Channel Velocities (Criteria –1.5 to 4.0 fps): Averaged 1.7 fps.
☒	☐	Washington Entrance Head Differential (Criteria – 1.0’ to 2.0’)
☒	☐	WFE2 Weir Depth (Criteria – ≥ 8.0’)
☒	☐	WFE3 Weir Depth (Criteria – ≥ 8.0’)

Comments: There is nothing to report.

Auxiliary Water Supply System:

Yes	No	In Service?
☒	☐	Washington shore Wasco County PUD Turbine Unit.
☐	☒	Washington shore Wasco PUD Bypass. Service was not required.
☒	☐	Oregon Ladder Fish Pump 1: Blade angle was 20 to 24 degrees.
☒	☐	Oregon Ladder Fish Pump 2: Blade angle was 16 to 23 degrees.
☒	☐	Oregon Ladder Fish Pump 3: Blade angle was 23 to 25 degrees.
☒	☐	Oregon North Powerhouse Pool supply from juvenile fishway.

Comments: Brief fish pump outages are listed in Table 2 below. During these outages, the other pumps were operated at higher blade angles.

Table 2. Fish Outages.

Pump	Outage Dates	Outage Length	Reason
2	Aug 28	1233 to 1236	Bus switched.
1	Aug 28	1233 to 1505	Bus switched.
3	Aug 28	1233 to 1507	Bus switched.
2	Aug 31	2050 to 2110	Servo pump high oil temperature alarm.

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, 104 juvenile lamprey and 560 smolts were bypassed. Juvenile shad are now the predominate species observed in the samples.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	Item
☒	☐	Forebay debris load acceptable? Debris has dissipated.
☒	☐	Trash rack differentials measured? If so, were differentials acceptable? ☒ Yes ☐ No ☐ N/A.
☐	☒	Any debris seen in gatewells?
☐	☒	Any oil seen in gatewells?

Comments: Forebay debris loads near the powerhouse were minimal. Debris loads at the spillway were moderate until the debris was spilled on August 28, reducing the loads to minimal. New incoming debris loads were minimal. No trash racks were cleaned.

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

Yes	No	Item
☒	☐	ESBSs deployed in all slots?
☐	☒	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: The brush cycles for the screens in 1A, 3B, 7B, 8C, 12B, 14A slots and in unit 11 remained in timer mode. The electrical staff examined the screens in units 7, 11 and 12 on August 29.

VBS differential monitoring continued. No high differential measurements were recorded. The eight screens were cleaned on August 31. No mortalities were observed.

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

Yes	No	Item
☒	☐	Orifices operating satisfactory? 42 orifices were open.
☒	☐	Dewatering and cleaning systems operating satisfactory?

Comments: Orifices were adjusted as required for VBS cleaning. We continued to operate the transition screen cleaning brush manually to insure it completes a full cleaning cycle.

On the night of August 31, from 2200 hours to September 1 at 0500 hours, the fisheries staff monitored the channel during and after the spill closure to insure debris would note become an issue. No problems were observed.

Bypass Facility:

Yes	No	Item
☒	☐	Sample gates on? Yes, during secondary bypass only.
☐	☒	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 August 28, from 1223 to 1238 hours, the sample gates were off for a power outage due to a bus switch that occurred at 1230 hours for 20 seconds. One sample was missed.

One adult lamprey was found attached to the B side flume downstream of the separator on August 29. The fish was gently nudged downstream.

River Conditions

General Comments: River conditions were provided by the biological services contractor, Anchor QEA and are outlined in Table 3 below. Water clarity was provided by the McNary control room. The data period runs from 0700 to 0700 hours each day. Routine summer spill in support of fish passage concluded on August 31 at 2359 hours when the spill gates began to be closed. The gates were on seal on September 1 at 0000 hours.

Table 3. 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
144.8	110.9	72.6	55.6	71.2	70.1	6.0	6.0

Comments: A moderate amount of surface debris had accumulated at spill bay 3. With the spillway about to close by the end of the week, the fisheries staff was concerned the spillway debris would migrate to the powerhouse where it could settle in on the trash racks. On August 28 from 0959 to 1021 hours, the spill gate in bay 2 was set to split leaf, bay 3 was closed and the debris was passed downstream (see 17 MCN 016 MFR). The spill pattern was restored by 1030 hours.

Anchor QEA concluded daily temperature reports on August 31. All probes were removed by September 1. Anchor will begin to prepare the annual temperature report.

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 September. No Siberian prawns have been observed at McNary so far this season.

Avian Activity: Overall, gull numbers remained high. Cormorant numbers were stable. Tern and pelican numbers have declined. The gulls and cormorants appear to be feeding on out-migrating juvenile shad. Avian migration patterns may also be influencing the counts. Avian counts continue and tailwater numbers are recorded in Table 4 below. Observations were made every morning. Juvenile osprey were occasionally noted in the tailwater area.

Table 4. McNary Project's Daily Tailwater Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican
Aug 25	Spill	192	16	47	3
	Powerhouse	0	0	0	0
	Outfall	0	0	1	0
Aug 26	Spill	30	3	0	2
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
Aug 27	Spill	10	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
Aug 28	Spill	359	2	0	2
	Powerhouse	0	0	0	0
	Outfall	5	0	0	0
Aug 29	Spill	266	9	0	0
	Powerhouse	0	0	0	0
	Outfall	1	0	0	0
Aug 30	Spill	140	9	0	2
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0

Aug 31	Spill	262	1	0	4
	Powerhouse	0	0	0	0
	Outfall	12	3	0	0

In the spill zone, the pelicans were along the navigation lock wing wall. The terns and gulls were feeding in the spill flow. The gulls and cormorants were roosting on the wing wall. In the powerhouse zone, no birds were observed. In the outfall zone, gulls with an occasional tern or cormorant were occasionally observed.
In the forebay zone, an occasional small gull flock, grebe, cormorant or osprey were observed. A few gulls were occasionally observed on the rocks by the Washington shore boat dock. Large flocks of gulls were occasionally noted on both shorelines.

No grebes entered the gatewell slots and no pelicans or cormorants were noted in the ladders this week.

The water hazing sprinklers at the outfall and bird distress calls deployed across the project functioned satisfactory.

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
Dates: August 25 – August 31, 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 5 was out of service from August 7 at 0715 hours to August 31 at 1546 hours for annual maintenance.

Adult Fish Passage Facilities

Fish facility personnel inspected the adult fishways on August 28, 29, and 31.

Fish Ladders:

Yes	No	Location, Criteria and Measurements
☒	☐	North Fish Ladder Exit Differential (Criteria – Head ≤ 0.5’)
☒	☐	North Fish Ladder Picketed Lead Differential (Criteria – Head ≤ 0.3’)
☒	☐	North Fish Ladder Depth over Weirs (Criteria – Head over weir 1.0’ to 1.3’)
☒	☐	South Fish Ladder Exit Differential (Criteria – Head ≤ 0.5’)
☒	☐	South Fish Ladder Picketed Lead Differential (Criteria – Head ≤ 0.3’)
☒	☐	South Fish Ladder Depth over Weirs (Criteria – Head over weir 1.0’ to 1.3’)

Comments: A few sticks are visible at the water surface above the north fish ladder exit, against the bulkhead. The debris may extend down into the ladder exit trash rack, as it could not be pulled free by hand. Repairs are currently being made to the lifting beam so that the bulkheads and trash rack can be removed for cleaning. The bubblers are operating satisfactorily.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location, Criteria and Measurements
☐	☐	☒	South Shore Entrance (SFE-1) Weir Depth (Criteria: ≥ 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: ≥ 8.0’ or on sill)
☒	☐		North Powerhouse Channel/Tailwater Differential (Criteria: 1.0’ – 2.0’)
☐	☐	☒	North Shore Entrance (NSE-1) Weir Depth (Criteria: ≥ 8.0’ or on sill)
☐	☒		North Shore Channel/Tailwater Differential (Criteria: 1.0’ – 2.0’)

Comments: The north shore entrance was out of criteria on August 31 with a channel/tailwater head differential of 3.5’. This was partly due to the difficulty in obtaining accurate tailwater elevation readings while spill is occurring, and the effect of certain spill patterns on drawing down the north shore tailwater level where the reading is taken.

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 67 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 10%.
☐	☒	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: Unit 2 STSs are not installed since the unit will not be returned to service this year. STSs 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): The RSW (spill gate #2) was closed on August 17 at 1345 hours, due to decreasing river flows (see Ice Harbor section 2.3.2.7.v. of the Fish Passage Plan). Voluntary spill for fish passage ended at 0001 hours on September 1.

River Conditions

River conditions during the week are outlined in Table 1 below.

Table 1. River conditions at Ice Harbor Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (˚F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
30.7	27.9	21.0	18.2	71	69	8.4	7.6

*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 moderate numbers of piscivorous birds observed around the project. Most of the gulls and pelicans were observed foraging in the areas of the spillway downstream of the navigation lock.

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

Project: Lower Monumental
Biologists: Chuck Barnes and Raymond Addis
Dates: August 25 - 31, 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 January 1 2018. Unit 4 was removed from service at 0700 on August 21 for the installation of a digital governor with an estimated return to service of September 30, 2017. Unit 3 was removed from service at 1305 on August 21 and returned to service at 0700 on August 31 for an oil leak investigation.

Adult Fish Passage Facility

The adult fishway was inspected by Corps and Anchor QEA biologists on August 25, 26, 27 and 30.

Fish Ladders:

Yes	No	Location, Criteria and Measurements
☒	☐	North Fish Ladder Exit Differential (Criteria – Head ≤ 0.5’)
☒	☐	North Fish Ladder Picketed Lead Differential (Criteria – Head ≤ 0.4’)
☒	☐	North Fish Ladder Depth over Weirs (Criteria – Head over weir 1.0’ to 1.3’)
☒	☐	South Fish Ladder Exit Differential (Criteria – Head ≤ 0.5’)
☒	☐	South Fish Ladder Picketed Lead Differential (Criteria – Head ≤ 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: ≥ 8.0’ or on sill)
☐	☒	☐	North Shore Entrance (NSE-2) Weir Depth (Criteria: ≥ 8.0’ or on sill)
☒	☐		North Shore Channel/Tailwater Differential (Criteria: 1.0’ – 2.0’)
☒	☐	☒	South Powerhouse Entrance (SPE-1) Weir Depth (Criteria: ≥ 8.0’ or on sill)
☒	☐	☒	South Powerhouse Entrance (SPE-2) Weir Depth (Criteria: ≥ 8.0’ or on sill)
☒	☐		South Powerhouse Entrance Channel/Tailwater Differential (Criteria: 1.0’ – 2.0’)
☐	☒	☒	South Shore Entrance (SSE-1) Weir Depth (Criteria: ≥ 8.0’ or on sill)
☒	☐	☐	South Shore Entrance (SSE-2) Weir Depth (Criteria: ≥ 6.0’ or on sill)
☐	☒		South Shore Channel/Tailwater Differential (Criteria: 1.0’ – 2.0’)

Comments: North Shore Entrance weir (NSE-2) was out of criteria on the August 27 inspection with a reading of 7.9 feet. The powerhouse operator was informed.
South Powerhouse Entrance weirs (SPE-1 and SPE-2) were on sill during all inspections. While on sill SPE-1 had readings were 6.7, 6.6, 6.8 and 6.5 feet and SPE-2 had readings of 6.7, 6.7, 6.9 and 6.5 feet.
South Shore Entrance weir (SSE-1) was out of criteria on the August 27 inspection with a reading of 7.4 feet. The weir had moved off of the sill position. The operator returned the weir to the sill position upon notification. While on sill, SSE-1 readings were 7.5, 7.7 and 7.1 feet.

Auxiliary Water Supply System:

Yes	No	In Service and Operating Satisfactory?
☐	☒	AWS Fish Pump 1.
☒	☐	AWS Fish Pump 2.
☒	☐	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:

Yes	No	Item
☒	☐	Forebay debris load acceptable? An average of 0 square yards of debris observed in forebay.
☒	☐	Trash rack differentials measured this week? If so, were differentials acceptable? ☒ Yes ☐ No ☐ N/A.
☒	☐	Any debris seen in gatewells?
☐	☒	Any oil seen in gatewells?

Comments: Gatewell debris ranged from 0 to 10% during inspections.

STSs/VBSs:

Yes	No	Item
☒	☐	STSs deployed in all slots and in service?
☐	☒	STSs in continuous-run mode (Note: 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: 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:

Yes	No	Item
☒	☐	Orifices operating satisfactory? How many are open and in service? 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 began collecting all fish into holding tanks for truck transport.

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. Trucking is scheduled to continue through 0700 on October 1. A total of 68 fish were collected and 60 were transported during this reporting period.

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
27.9	25.3	13.6	10.1	71.5	68.6	6.5	4.4

*Scrollcase temperatures.

Spill: The RSW spill was closed on August 18.

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 August 3. During this reporting period, SMP personnel euthanized 138 Siberian prawns with a total weight of 202 grams.

Avian Activity: Gulls 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.

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

Project: Little Goose
Biologists: Scott St. John & Richard Weis
Dates: August 25- 31, 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	Forced: Excessive Vibration
4	14-Aug	07:50	09-Sep	17:00	Unit Annual

Comments: Unit #2 was down for ROV inspection between 0900 and 1730 on August 28.

Adult Fish Passage Facility

The adult fishway was inspected by Corps biologists and Anchor QEA staff August 25, 27, 28, and 31.

Fish Ladder:

Yes	No	Location, Criteria and Measurements
☒	☐	Fish Ladder Exit Differential (Criteria – Head ≤ 0.5')
☒	☐	Fish Ladder Picketed Lead Differential (Criteria – Head ≤ 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: ≥ 8.0')
☐	☐	☒	South Shore Entrance (SSE-2) Weir Depth (Criteria: ≥ 8.0')
☒	☐		South Shore Channel/Tailwater Differential (Criteria: 1.0' – 2.0')
☐	☐	☒	North Powerhouse Entrance (NPE-1) Weir Depth (Criteria: ≥ 7.0' or on sill)
☐	☐	☒	North Powerhouse Entrance (NPE-2) Weir Depth (Criteria: ≥ 7.0' or on sill)
☒	☐		North Powerhouse Entrance Channel/Tailwater Differential (Criteria: 1.0' – 2.0')
☒	☐	☐	North Shore Entrance (NSE-1) Weir Depth (Criteria: ≥ 6.0' or on sill)
☒	☐	☐	North Shore Entrance (NSE-2) Weir Depth (Criteria: ≥ 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:

Yes	No	In Service and Operating Satisfactory?
☒	☐	AWS Fish Pump 1 (operating).
☒	☐	AWS Fish Pump 2 (operating).
☒	☐	AWS Fish Pump 3 (operating).

Comments: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	Item
☒	☐	Forebay debris load acceptable.
☐	☒	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)?
☐	☒	Any oil seen in gatewells?

Comments: There is no floating woody debris currently in the forebay.

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

ESBS/VBS:

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: VBS differentials were measured on units 1 and 2 on August 24 and were in criteria.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	Item
☒	☐	Orifices operating satisfactory? How many are open and in service? 21 open.
☒	☐	Dewaterer and cleaning systems operating satisfactory? N/A

Comment: Orifices and primary dewatering structure are being backflushed and cleaned 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 273 fish were collected and 237 were transported during this report period. Truck transportation commenced on August 16 and occurred every other day. The descaling and mortality rates were 2.1% and 1.4% respectively. This weekly report period saw 14 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
29.1	26.7	10.7	9.0	70.7	68.6	6.0	4.8

*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
08-25	1330	19	7	0	0
08-26	1030	23	2	0	0
08-27	1330	13	4	0	0
08-28	1130	18	5	0	0
08-29	1200	9	0	0	0
08-30	1330	15	1	0	0
08-31	1330	11	0	0	0

Gas Bubble Trauma: Ended for season.

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 3181 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
08-25		227
08-26		244
08-27		271
08-28		638
08-29		638
08-30		650
08-31		513
Total		3181

Project: Lower Granite
Biologists: Elizabeth Holdren and Stephen Hampton
Dates: August 25 – August 31, 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. Units 5 and 6 were removed from service from 0600-1615 hours August 28 to support dive operation for repair of NPEs. Unit 6 was removed from service at 0600 hours August 28 for annual maintenance. Unit 4 was out of service from 0600-1521 hours August 29 for caisson installation.

Adult Fish Passage Facility

General comments: Adult fish facilities were inspected by Corps or Anchor QEA biologists August 26, 28, 30, and 31.

Fish Ladder:

Yes	No	Location, Criteria, and Measurements
☒	☐	Fish Ladder Exit Differential (Criteria – Head ≤ 0.5')
☒	☐	Fish Ladder Picketed Lead Differential (Criteria – Head ≤ 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: ≥ 8.0' or on sill)
☒	☐	☐	South Shore Entrance (SSE-2) Weir Depth (Criteria: ≥ 8.0' or on sill)
☐	☒		South Shore Channel/Tailwater Differential (Criteria: 1.0' – 2.0')
☒	☐	☒	North Powerhouse Entrance (NPE-1) Weir Depth (Criteria: ≥ 8.0' or on sill)
☒	☐	☒	North Powerhouse Entrance (NPE-2) Weir Depth (Criteria: ≥ 8.0' or on sill)
☐	☒		North Powerhouse Entrance Channel/Tailwater Differential (Criteria: 1.0' – 2.0')
☒	☐	☐	North Shore Entrance (NSE-1) Weir Depth (Criteria: ≥ 7.0' or on sill)
☐	☒	☐	North Shore Entrance (NSE-2) Weir Depth (Criteria: ≥ 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. NPE1 and NPE2 dive operation to retrieve cables was coordinated for August 28 (see 17 LWG 21 MOC). The dive team successfully retrieved the cables for both NPEs and the gates were raised to a position that enables repairs to be made August 28. NPEs depth elevation over the weir remain at

628.0 feet (sill) until the gates are returned to service. NPE1 repairs were completed August 30 and will be returned to service following operational checks. NPE2 repairs are ongoing. Deviation in fish passage criteria occurred outside the coordinated time due to a misinterpretation of the MOC.

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 pumps were removed from service for NPE bulkhead placement from 1051-1121 hours and again from 1548-1608 hours August 28 for bulkhead removal. Deviation in fish passage criteria occurred outside the coordinated time due to a misinterpretation of the MOC.

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 19.5 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 were removed August 1-3 as part of early dewatering for Phase 1a bypass upgrades. Screens were inspected for fish following removal. No fish were observed.

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: Fish transport from Granite is not occurring because the bypass system is dewatered for Phase 1a bypass upgrades.

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
30.3	27.3	18.3	14.7	67.7	66.0	5.0+	5.0

*Cooling water intake temperature.

Other

Adult Fish Trap Operations: The adult trap is in 24h/d operation with a 20% sample rate.

Inline Cooling Water Strainers: N/A.

Invasive Species: The Zebra mussel trap was inspected August 28. No signs of mussels were present.

Avian Activity: N/A

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

Date	Time (hours)	Gulls	Cormorants	Caspian Terns	Pelicans
August 25	13:30	0	22	0	0
August 26	13:30	0	5	0	0
August 27	12:23	4	20	0	0
August 28	15:17	3	28	0	0
August 29	14:25	2	35	0	0
August 30	14:26	2	24	0	0
August 31	15:28	3	16	0	0

Spill: The RSW remains closed due to forebay surface water temperature. Lower Granite is operating in according to Fish Passage Plan Table LWG-9. From 0951-1548 hours spill was increased to 18 kcfs and spill was shifted to spillbays 5-8 to support NPE dive operation. Deviation in fish passage criteria occurred outside the coordinated time due to a misinterpretation of the MOC.

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

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