U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#26-2017

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: August 18 – 24, 2017

Turbine Operation

General Comments: The hard 1% peak efficiency constraint and the saw tooth unit priority for warm water temperature abatement continue.

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 30	16 days	Annual maintenance.
6, 7 & 8	Aug 22	51 minutes	Extended-length submersible bar screens (ESBSs) camera inspections.

Adult Fish Passage Facilities

General Comments: McNary fisheries biologists performed measured inspections of the adult fishways on August 18, 20 and 23. Visual fish counts and video review of lamprey passage continue. Temperature data was collected on August 23.

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.

At the Oregon exit and along the shoreline, debris loads were moderate and slowly dissipating. The encoder for tilting weir 339 has not been replaced. This weir rarely moves and will be adjusted manually. On August 18, a log was removed from weir 338. The regulating weir set point was also adjusted that day.

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’): 7.8’ on August 18 and 7.7 on August 20.
☐	☒	NFEW3 Weir Depth (Criteria – ≥ 8.0’): 7.7’ on August 20.
☒	☐	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: With low tailwater elevations and minor sensor calibration drifts, NFEW2 andNFEW3 were slightly out of criteria this week. On August 20, the biologist asked the chief operator to adjust the weirs set points so they would operate slightly deeper yet maintain pool differential. After the fish pump 2 outage on August 24, SFEW1 and SFEW2 tripped lower limit alarms. Both weirs were reset.

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 22 to 24 degrees.
☒	☐	Oregon Ladder Fish Pump 2: Blade angle was 17 to 18 degrees.
☒	☐	Oregon Ladder Fish Pump 3: Blade angle was 22 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 two pumps were operated at higher blade angles.

Table 2. Fish Outages.

Pump	Outage Dates	Outage Length	Reason
2	Aug 21	1350 to 1406 1417 to 1424	Testing pump at higher blade angles.
3	Aug 22	1300 to 1346 1356 to 1402	Testing related to fish pump 2.
2	Aug 22	1413 to 1432 1445 to 1517 1542 to 1545	Testing pump.
2	Aug 23	0416 to 0448	Oil pump tripped due to high temperature alarm.
2	Aug 24	1340 to 1600	Bus switched.

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, 47 juvenile lamprey and 1,425 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 to very light. Debris loads at the spillway were moderate. New incoming debris loads were minimal. The debris continues to slowly dissipate. No trash racks were cleaned.

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. ESBS camera inspections occurred in units 6, 7 and 8 on August 22. No problems were found.

VBS differential monitoring continued. No high differential measurements were recorded. The three screens in unit 14 were cleaned on August 21. 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.

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.

One three foot sturgeon was released from the separator on August 18. The fisheries staff collected aquatic vegetation from the separator for examination by the wildlife biologist for flowering rush on August 22. No report of what was found was given to us.

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 continues. Fifty percent of river flow is spilled in the summer season, which concludes on September 1 at 0001 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
133.7	116.8	67.1	58.6	70.9	70.5	6.0	5.8

Comments: Maintenance was performed on the crane attached to the spillgate in bay 2 on August 24.

Anchor QEA continued daily temperature reports, which concludes August 31. From August 17 to 23, the anemometer at the facility was not functioning properly. The anemometer was cleaned on August 24. National Oceanic & Atmospheric Administration (NOAA) data for the Hermiston airport was used for wind velocity this week. Weekly data will be reported separately from the smolt monitoring report.

Other

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

Invasive Species: The mussel station examinations on August 20 revealed no problems. No Siberian prawns have been observed at McNary so far this season.

Avian Activity: Overall, bird numbers have increased as the juvenile shad outmigration has been. Avian migration patterns may also be involved. Avian counts continued and tailwater numbers are recorded in Table 4 below. Observations were made every morning.

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

Date	Zone	Gull	Cormorant	Tern	Pelican
Aug 18	Spill	272	5	25	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
Aug 19	Spill	35*	0*	0	10
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
Aug 20	Spill	200	9	2	2
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
Aug 21	Spill	72	13	7	4
	Powerhouse	0	0	0	0
	Outfall	0	0	0	2
Aug 22	Spill	158	8	35	7
	Powerhouse	0	0	0	0
	Outfall	0	0	0	3
Aug 23	Spill	248	4	57	0
	Powerhouse	0	0	0	0
	Outfall	2	0	0	0
Aug 24	Spill	33	2	45	4
	Powerhouse	0	0	0	0
	Outfall	0	1	0	0

*Wing wall was not observed.

In the spill zone, the pelicans were along the navigation lock wing wall. Their numbers appear to have declined. The terns and gulls were feeding in the spill flow. Their numbers appear to have increased. The gulls and cormorants were roosting on the wing wall. In the powerhouse zone, no birds were observed. In the outfall zone, pelicans, gulls and cormorants were occasionally observed.

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

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 18 – August 24, 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 taken out of service on August 7 at 0715 hours for annual maintenance. Unit 3 was out of service from August 14 at 1651 hours to August 24 at 1554 hours to investigate the source of oil found in the governor sump. The seals on the Kaplan head were replaced to address the oil leak.

Adult Fish Passage Facilities

Fish facility personnel inspected the adult fishways on August 21, 22, and 23.

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: 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 192 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 15%.
☐	☒	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): Voluntary spill for fish passage is occurring. The RSW (spillbay #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).

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
31.0	26.1	21.3	16.0	71	71	8.3	7.9

*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 18 - 24, 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 for an oil leak investigation with an estimated return to service of September 8, 2017.

Adult Fish Passage Facility

The adult fishway was inspected by Corps and Anchor QEA biologists on August 18, 19, 20 and 23.

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: 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, 6.4 and 6.7 feet and SPE-2 had readings of 6.7, 6.7, 6.5 and 6.7 feet.
South Shore Entrance weir (SSE-1) was on sill during all inspections. While on sill, SSE-1 readings were 7.4, 7.8, 7.8 and 7.5 feet.
The South Shore Channel/Tailgate differentials were out of criteria on the August 19 and 20 inspections with readings of 0.6 and 0.7 feet respectively. The powerhouse operator was informed.

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 subyearling Chinook salmon lengths being over the 120 mm criteria point. Unit 6 operated from 1301 on August 21 until 0730 on August 23 with the STS's not operating. This condition was found by a powerhouse operator. The operator switched them to continuous run mode at that time. A pick-up on the unit's run circuit was found not to have been reconnected during the digital governor upgrade. This issue noted to be double checked during additional digital governor upgrades. The STS's were returned to cycle mode after the repairs had been made.

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 137 fish were collected and 146 were transported. Number of fish transported includes fish collected on August 17.

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
28.8	23.8	13.5	11.1	71.0	69.5	6.8	4.6

*Scrollcase temperatures.

Spill: The RSW spill was closed at 1238 on August 18 due to decreasing river flows (see Lower Monumental section 2.3.2.7.v. of the Fish Passage Plan).

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 172 Siberian prawns with a total weight of 226 grams.

Avian Activity: Gulls were the predominant piscivorous bird species observed during fish ladder inspections this week. Tailrace counts for 2017 ended July 13.

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

Project: Little Goose
Biologists: Scott St. John & Richard Weis
Dates: August 18 – August 24, 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: None.

Adult Fish Passage Facility

The adult fishway was inspected by Corps biologists and Anchor QEA staff August 19, 20, 23, and 24.

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. Trash rack differentials on unit 1 and 2 were measured on August 24 and were in criteria.

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 419 fish were collected and 548 were transported during this report period. Number of fish transported includes fish collected on August 17. Truck transportation commenced on August 16 and occurred every other day. The descaling and mortality rates were 0.9% and 2.2% respectively. This weekly report period saw 11 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
30.4	24.2	10.7	8.7	70.4	69.3	5.0	6.0

*Ladder temperature.

Comment: None.

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
08-18	12:30	13	7	0	0
08-19	11:00	28	6	0	0
08-20	12:00	30	4	0	0
08-21	12:30	10	1	0	0
08-22	13:00	12	8	0	0
08-23	07:30	23	1	0	0
08-24	13:00	13	7	0	0

Gas Bubble Trauma: Final GBT sampling was conducted on August 21. There were 18 fish examined, none of which showed signs of GBT.

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 4058 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
08-18	310	310
08-19	506	506
08-20	332	332
08-21	456	456
08-22	419	419
08-23	445	445
08-24	1,590	1,590
Total	4,058	4,058

Project: Lower Granite
Biologists: Elizabeth Holdren and Stephen Hampton
Dates: August 18 – August 24, 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.

Adult Fish Passage Facility

General comments: Adult fish facilities were inspected by Corps or Anchor QEA biologists August 18, 19, 21, and 23.

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: The 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 NPE 2 remain out of service in the sill position until in water work repairs are coordinated. Dive operations to retrieve NPE cables and make repairs is scheduled for 28 August. Cotter pins on all gates are scheduled to be replaced during the 2017-2018 winter adult fishway outage.

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 25 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 juvenile bypass system 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: Truck transport started on August 16 from Little Goose and Lower Monumental.

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
31.1	26.0	17.3	14.7	70.0	67.5	5.0	4.5

*Cooling water intake temperature.

Other

Adult Fish Trap Operations: August 17 at the end of the sample day, the adult trap changed operation to 7 days a week with a 20% sample rate for the fall Chinook season.

Inline Cooling Water Strainers: Unit cooling water strainers were inspected August 23. Mortalities included 1 subyealing unidentifiable chinook, 3 prawns, 1 sand roller, and 1 channel catfish.

Invasive Species: The Zebra mussel trap was inspected August 23, 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 18	13:10	4	19	0	0
August 19	11:05	3	22	0	0
August 20	11:49	4	14	0	0
August 21	13:25	0	17	0	0
August 22	14:40	2	24	0	0
August 23	16:09	2	27	0	0
August 24	14:15	1	28	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.

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

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