U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#21-2017

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: July 14 – 20, 2017

Turbine Operation

General Comments: The hard 1% peak efficiency constraint and the saw tooth unit priority for warm water temperature abatement continue. On July 17, unit 6 ran outside the 1% constraint for six minutes during testing.

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
11	July 10 to 26	16 days	Annual maintenance.
5 & 6	July 17 to 21	4 days	Transformer 3 annual maintenance.
7, 8 & 9	July 18	1.2 hours total	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 July 14, 16 and 19. National Oceanic & Atmospheric Administration (NOAA) fisheries personnel performed their monthly inspection on July 17. Visual fish counts and video review of lamprey passage continue. Temperature data was collected on July 19. The tailwater probe near the Oregon ladder north powerhouse entrance was moved slightly to avoid potential issues with the cable.

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 requires, including weekends, at both exits.

Debris loads at the Washington exit and along the shoreline were minimal. No solution has been found for the count station passive integrated transponder (PIT) system interference. The regulating weir set point was adjusted July 14. Scheduled maintenance was performed on all exit weirs on July 20.

At the Oregon exit, debris loads were minimal to moderate. Along the Oregon shoreline, debris loads were light to moderate. The regulating weir tripped an alarm and was reset on July 14. The lack of mobility in the count station back board has made cleaning the back board difficult.

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 1.9 fps.
☒	☐	Washington Entrance Head Differential (Criteria – 1.0' to 2.0')
☒	☐	WFE2 Weir Depth (Criteria – ≥ 8.0')
☒	☐	WFE3 Weir Depth (Criteria – ≥ 8.0')

Comments: No fishways were out of criteria this week.

At the Washington ladder entrance, the Wasco County Public Utility District (PUD) pool differential reading was 0.3 feet off from the control room reading. The PUD turbine unit operates more efficiently when the actual pool differential is approximately 1.2 feet. On July 16, , the control room changed the pool differential set point from 1.2 feet to 1.4 feet to improve the pool differential for the PUD.

At the Oregon ladder, with fish pump 2 returned to service, criteria was maintained. Near NEFW1, an adult lamprey mortality was noted just outside the closed weir on July 19.

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 25 to 28 degrees.
☒	☐	Oregon Ladder Fish Pump 2: Blade angle was 9 to 12 degrees.
☒	☐	Oregon Ladder Fish Pump 3: Blade angle was 26 to 28 degrees.
☒	☐	Oregon North Powerhouse Pool supply from juvenile fishway.

Comments: Fish pump 2 continues to have an over excitation issue. The pump remains restricted to a blade angle of about 10 degrees. On July 14, the pump blade governor tripped a high oil temperature alarm that was examined and reset.

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, 400 juvenile lamprey and 102,400 smolts were bypassed.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	Item
☒	☐	Forebay debris load acceptable? Removal would be prudent.
☒	☐	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 light to moderate. Debris loads at the spillway were moderate to heavy. Variable winds moved the debris back and forth from the Oregon shore all the way to the spillway. New incoming debris loads were minimal. 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: Maintenance was performed on the ESBS for 11C slot this week. The ESBS will be reinstalled on July 25 before the unit returns to service.

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 7, 8 and 9 on July 18. No problems were found. On July 14, the operator noted the brush on the ESBS in 9A slot was not fully completing a cycle. The operator immediately recalibrated the brush cycle, which resolved the issue.

VBS differential monitoring continued. No high differential measurements were recorded. A total of eleven VBSs were cleaned on July 18, 19 and 20. Two smolt 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: Orifice operators at 2B, 3C and 8B slots were repaired this week. Orifices were adjusted as required for VBS cleaning. On July 25, 11C slot will be rewatered, the orifice will be reopened, and the makeup orifice in 11B slot will be closed.

On July 17, at 1700 hours, a ten second power outage for electrical switching occurred. No problems were observed in the channel.

We continued to operate the transition screen cleaning brush manually to insure it completes a full cleaning cycle. On July 18, at 1200 hours, the latch pin did not insert when the brush completed its cycle. An alarm was tripped at the control panel and in the control room but was not recorded on the program logic control (PLC) panel view. This issue will be examined. The biologist on duty used the operational controls to insert the latch pin and clear the alarm. The biologist also lubricated the latch pin. The new solenoid was not ordered due to funding issues.

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 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.

Algae removal from the flumes and tanks continued.

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. Flows and spill are recorded in one-thousand cubic feet per second (kcfs). Temperatures are recorded in degrees F. Routine summer spill in support of fish passage continues. Fifty percent of river flow is spilled in the summer season.

Table 2. River Conditions at McNary Dam.

Daily Average River Flow		Daily Average Spill		Water Temperature		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
227.5	176.4	114.1	88.5	69.3	68.0	5.8	4.9

Comments: After the spillbay 2 issue reported last week, the spill volume will be examined daily and the report will be posted in the control room.

Anchor QEA continued daily temperature reports. No problems occurred 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 next mussel station examinations will occur on July 23. No Siberian prawns have been observed at McNary so far this season.

Avian Activity: Overall, bird numbers appear greatly reduced so far this season. Avian counts continued and tailwater numbers are recorded in Table 3 below. Observations were made every morning. Currently, pelicans are the predominant species in the tailwater area.

In the spill zone, the pelicans were along the navigation lock wing wall. The terns, cormorants and gulls were feeding in the spill flow. In the powerhouse zone, the pelicans were feeding along the Oregon shoreline below the separator observation building and terns were occasionally noted. In the outfall zone, pelicans along with cormorants, gulls and terns have been observed feeding.

In the forebay zone, juvenile gulls and grebes were noted almost daily. Each had a high count of eleven. An occasional osprey, pelican, and merganser were observed. A few pelicans, terns, gulls and cormorants were observed on the rocks by the Washington shore boat dock. From July 14 to 16, about 100 gulls were observed roosting at various locations on project.

This week, one cormorant was noted outside the Oregon ladder exit.

No grebes entered the gatewell slots this week.

United States Department of Agriculture – Animal and Plant Health Inspection Service – Wildlife Services (USDA–APHIS–WS) personnel continued working one shift seven days a week. We escorted one of the hazers out on the outfall walkway on July 14. Hazing will concluded on July 29.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican
July 14	Spill	0	0	9	21
	Powerhouse	0	0	0	4
	Outfall	0	0	0	7
July 15	Spill	0	0	4	6
	Powerhouse	0	0	0	1
	Outfall	0	0	0	10
July 16	Spill	29	8	11	47
	Powerhouse	0	0	0	9
	Outfall	8	4	0	22
July 17	Spill	0	0	1	5
	Powerhouse	0	0	0	0
	Outfall	0	0	0	10
July 18	Spill	1	0	1	11
	Powerhouse	0	0	0	7
	Outfall	1	0	2	13
July 19	Spill	0	0	0	20
	Powerhouse	0	0	0	0
	Outfall	0	3	0	7

July 20	Spill	0	0	1	11
	Powerhouse	0	0	0	7
	Outfall	0	0	1	13

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

Research

Item: No onsite research is occurring at this time. Gas bubble trauma (GBT) monitoring continues and will occur twice a week during the spill season.

Project: Ice Harbor
Biologist: Ken Fone
Dates: July 14 – July 20, 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, but personnel are also investigating the source of a possible oil leak from unit 4. Unit 3 was taken out of service at 0615 hours on July 10 for annual maintenance. Units 6, 5, 3, and 1 were removed from service one at a time for STS inspections on July 18 and 19.

Adult Fish Passage Facilities

Fish facility personnel inspected the adult fishways on July 17, 18, and 20.

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 powerhouse entrance weir depth was out of criteria on July 17, with a reading of 7.3'. The control room operator was notified, and the entrance weir was lowered down in manual control to bring the depth into criteria.

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

Comments: None.

STSs/VBSs:

Yes	No	Item
☐	☒	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 have been in continuous run mode since April 4. On July 18, STSs were switched to cycle-run mode due to the average fork length of subyearling chinook in the Lower Monumental and Ice Harbor juvenile fish samples being over 120 mm. Unit 6, 5, 3, and 1 STSs and unit 3 VBSs were inspected on July 18 and 19. There were no problems found.

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

Yes	No	Item
☒	☐	Orifices operating satisfactory? How many are open and in service? 19 to 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, including spill through the RSW.

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
54.50	45.70	43.90	35.70	69	69	6.4	4.8

*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 moderate to low numbers of piscivorous birds counted around the project (Table 2 below). Most of the gulls were observed roosting on the buoys in the forebay.

Table 2. Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
July 14	---	---	---	---	---
July 15	---	---	---	---	---
July 16	---	---	---	---	---
July 17	23	2	2	0	14
July 18	15	2	5	0	12
July 19	9	1	5	0	12
July 20	1	6	3	0	10

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

Project: Lower Monumental
Biologists: Chuck Barnes and Raymond Addis
Dates: July 14 - 20, 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 February 28, 2018. Unit 5 was removed from service on January 17, 2017 due to a turbine oil leak with an estimated return to service of March 31, 2018. Unit 6 was removed from service at 0710 on July 5 for annual maintenance and to install a digital governor with an estimated return to service of August 19, 2017. Unit 3 was removed from service at 1554 on July 14 due to a CO2 heat/fire sensor alarm and returned to service at 1400 on July 17.

Adult Fish Passage Facility

The adult fishway was inspected by Corps and Anchor QEA biologists on July 14, 15, 16 and 19.

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 July 14 inspection with a differential reading of 7.8 feet. Elevation gauge on the weir did not match the digital reading. Operator was informed. South Powerhouse Entrance weirs (SPE-1 and SPE-2) were on sill during all inspections. While on sill readings were 5.9, 6.0, 6.3 and 5.8 feet. South Shore Entrance weir (SSE-1) was on sill during all inspections. While on sill, SSE-1 readings were 6.1, 6.6, 6.4 and 6.2 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: None

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)? STS's were placed in continuous-run mode on March 30 due to heavy debris loads. STS operation changed to cycle mode at 1730 on July 18 due to a consecutive 3 day period with CH0 lengths over the 120 mm criteria point.
☐	☒	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:

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 for this reporting period were conducted every four hours. Primary dewatering incline screen brush has been observed stopping during its return cycle. The system has to be reset or manually returned to the stored position. Trouble shooting by maintenance personnel found that the brush arm was not raising high enough. Power house electricians adjusted limit switches. The brush returned to service at approximately 1430 on July 20. Separator techs are watching for more malfunctions. The air bubbler system operated with an interval 10 minutes to make up for the brush not functioning.

Collection Facility: Collection into raceways for transport began at 0700 on May 1. The collection facility was switched to secondary bypass at 1800 on July 20. The train bridge lift near Burbank WA is out of service and barge transport on July 21 was questionable.

Transport Summary: Every-day barging changed to alternate day barging on May 26. A total of 21,440 fish were collected, of which 19,124 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
51.2	43.0	16.9	16.5	70.8	70.5	6.8	4.6

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainer inspections have been suspended until December.

Invasive Species: No zebra or quagga mussels were observed during monitoring station inspections on July 1.
During this reporting period, SMP personnel euthanized 102 Siberian prawns with a total weight of 132 grams.

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

Table 2. Tailrace counts of foraging piscivorous birds at Lower Monumental Dam.

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans

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

Project: Little Goose
Biologists: Scott St. John & Richard Weis
Dates: July 14 – July 20, 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
6	10-Jul	7:32	28-Jul	17:00	Scheduled: Unit Annual

Adult Fish Passage Facility

The adult fishway was inspected by Corps biologists and Anchor QEA staff on July 16, 18 and 20.

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 an estimated 200 square feet of 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 screens in gatewell slot 6A were replaced during unit annual maintenance.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	Item
☒	☐	Orifices operating satisfactory? How many are open and in service? 20 open.
☒	☐	Dewaterer and cleaning systems operating satisfactory? N/A

Comment: Orifices and primary dewatering structure are being backflushed and cleaned every 4 hours.

Collection Facility: Juvenile Fish Facility is currently operating.

Transport Summary: The collection and transportation facility operated within criteria through July 21 at 07:00 when the facility was switched to secondary bypass (MFR 17JFT01 and 17JFT02). A total of 15,743 fish were collected and 12,506 were transported during this report period. Barge transportation occurred every other day. The descaling and mortality rates were 1.3% and 0.8% respectively.

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
60.2	46.8	18.0	13.9	71.3	70.6	4.9	4.1

*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
07-14	11:30	23	3	0	0
07-15	12:30	14	2	0	0
07-16	12:30	71	10	0	2
07-17	12:30	34	11	0	0
07-18	07:30	24	1	0	2
07-19	07:30	27	0	0	0
07-20	12:30	27	5	0	0

Gas Bubble Trauma: GBT sampling was conducted on July 17. There were 56 fish examined, no signs of GBT were seen.

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 168 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
07-14	15	150
07-15	13	104
07-16	48	250
07-17	10	100
07-18	11	110
07-19	30	240
07-20	41	328
Total	168	1282

Project: Lower Granite
Biologists: Elizabeth Holdren and Stephen Hampton
Dates: July 14 – July 20, 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 5 was returned to service at 1600 hours July 19 after completion of annual maintenance. Unit 2 was forced out of service at 1430 hours July 14 due to a turbine thrust bearing temperature trip. The request for megawatt load outside of powerhouse capabilities with Unit 2 having fixed blades lead to confusion on unit priority order resulting in operation outside turbine unit priority order from 1809 hours July 15 to 1253 hours July 17. Unit 2 was in standby and unit 3 was in operation during this time.

Adult Fish Passage Facility

General comments: Adult fish facilities were inspected by Corps or Anchor QEA biologists July 14, 15, 16, and 19.

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 were brought online at 1520 hours July 6.

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: NSE 2 has been out of service since 2011 and remains set with a chain fall hoist in the closed position to improve channel/tailwater head differential. NPE 1 and NPE 2 remain out of service in the sill position until in water work repairs are coordinated. An ROV inspection is needed to determine requirements for repairing the gates. Cotter pins on all gates are scheduled to be replaced during the 2017-2018 winter adult fishway outage. July 19 NSE1 weir depth was out of criteria with a depth reading of 6.8 feet.

Collection Channel Velocity: July 19 channel velocity was out of criteria with a reading of 1.4 fps.

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 101.3 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: N/A.

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: Orifices are being back flushed every three hours depending on debris load.

Collection Facility: Facility operation was changed to secondary bypass mode at 1815 hours July 20 due to a railroad bridge failure blocking navigation on the Columbia River. Fish collected from 0700 hours July 19 to 1815 hours July 20 were returned to the river. Collection for transport will resume when the bridge is returned to service.

Transport Summary: July 19 at 2305 hours a total of 21,466 fish were released at river mile 324 above McNary Dam due to the railroad bridge outage. Fish included 10,861 from Lower Granite, 4,783 from Little Goose, and 5,822 from Lower Monumental. Barge transport operations will resume when the bridge is repaired.

River Conditions

General Comments.

Table 1: River conditions at Lower Granite Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (F^o)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
50.5	42.3	28.7	18.1	69.0	68.0	4.7	4.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: N/A.

Invasive Species: The Zebra mussel trap was inspected July 16. No signs of mussels were present.

Avian Activity: Avian hazing ended on June 30th.

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

Date	Time (hours)	Gulls	Cormorants	Caspian Terns	Pelicans
July 14	15:40	0	7	0	0
July 15	13:30	0	0	0	0
July 16	14:25	1	0	0	0
July 17	15:20	0	0	0	0
July 18	N/A	N/A	N/A	N/A	N/A
July 19	13:50	10	0	0	2
July 20	14:17	2	0	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: Fish collected from the separator continue to be examined for GBT Thursdays. No symptoms of GBT were observed this week.

Research

USGS Describing PIT-tag Efficiency and Stable Isotopes of Migrating Juvenile Fall Chinook Salmon: A target of 50 subyearling mortalities per week will be collected May 22 through August 1 from Lower Granite raceways and holding tanks, placed in plastic bags, labeled, and frozen for later analysis. Stable isotope signatures from mortalities will be used to explore the possibility of using stable isotopes to distinguish hatchery from natural-origin subyearlings.