U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#22-2017

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: July 21 – 27, 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
11	July 10 to 25	15 days	Annual maintenance.
5 & 6	July 17 to 21	4 days	Transformer 3 annual maintenance.
3 & 4	July 24 to 28	4 days	Transformer 2 annual maintenance.
6, 12 & 13	July 25	1.2 hours total	Extended-length submersible bar screens (ESBSs) camera inspections.
12	July 26 to 27	32 hours	Ground issue.

Adult Fish Passage Facilities

General Comments: McNary fisheries biologists performed measured inspections of the adult fishways on July 21, 23 and 27. Visual fish counts and video review of lamprey passage continue. Temperature data was collected on July 27. With fish pump 2 in service, the flows have increased where the Oregon ladder south entrance probe is located resulting in erosion of the anchor weight.

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 very light to minimal. No solution has been found for the count station passive integrated transponder (PIT) system interference. The regulating weir tripped an alarm twice and was reset on July 27.

At the Oregon exit, debris loads were light to moderate. Along the shoreline, debris loads were light to heavy. The regulating and tilting weirs set points were adjusted on July 23.

Heavy debris was removed from the Oregon exit traveling screens debris trough on July 27.

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: There were no ladder out of criterion points this week.

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 26 to 28 degrees.
☒	☐	Oregon Ladder Fish Pump 2: Blade angle was 9 to 11 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 24, from 0606 to 0610 hours, fish pump 2 was out of service for electrical switching.

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, 200 juvenile lamprey and 85,100 smolts were bypassed.

On July 21, there were issues with the powerhouse air compressors. These issues had no adverse effect on fisheries operations.

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 minimal 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 to very light. No trash racks were cleaned.

The emergency bulkhead in 11C slot was removed on July 25.

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 ESBS for 11C slot was reinstalled on July 25 before the unit returned to service. After reinstallation, the brush cycle remained in timer mode.

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, 12 and 13 on July 25. No problems were found.

VBS differential monitoring continued. No high differential measurements were recorded. A two VBSs were cleaned on July 24. No mortalities were observed.

From July 26 to 27, the VBS in 4A slot was replaced while the unit was out of service. Three subyearling Chinook mortalities were removed from behind the mesh on the VBS that was removed. The biologist reviewed VBS exchange procedures with the general maintenance staff. The exchange was delayed due to issues with the forebay deck crane.

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 and removal. On July 25, with 11C slot rewatered, the orifice was reopened and the makeup orifice in 11B slot was closed. From July 25 at 1701 hours to July 27 at 0500 hours, the orifice attraction light at 11C slot was off.

On July 26, at 1030 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.

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.

Algae removal from the flumes and tanks continued. On July 26, one of three shop garage doors was repaired.

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. 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 (kcfs)		Daily Average Spill (kcfs)		Water Temperature (°F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
187.3	142.4	93.8	71.6	70.5	67.9	6.5	5.7

Comments: The crane at spillbay 2 was tested on July 25. The hoist at spillbay 18 was repaired on July 26.

Anchor QEA continued daily temperature reports. No problems occurred this week. The data from the outfall probe was collected on July 27 instead of July 28. 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 July 23 revealed no problems. 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.

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

Date	Zone	Gull	Cormorant	Tern	Pelican
July 21	Spill	0	0	0	6
	Powerhouse	0	0	0	2
	Outfall	0	0	0	8
July 22	Spill	0	0	0	6
	Powerhouse	0	0	0	0
	Outfall	0	2	0	4
July 23	Spill	0	0	0	4
	Powerhouse	0	0	0	0
	Outfall	0	0	0	6
July 24	Spill	0	1	2	7
	Powerhouse	0	0	0	6
	Outfall	0	1	0	12
July 25	Spill	0	0	0	5
	Powerhouse	0	0	0	3
	Outfall	0	2	3	7
July 26	Spill	21	1	7	9
	Powerhouse	0	0	0	9
	Outfall	0	11	9	21
July 27	Spill	9	0	1	11
	Powerhouse	0	0	0	1
	Outfall	0	0	3	5

In the spill zone, the pelicans were along the navigation lock wing wall. The terns and cormorants were feeding in the spill flow. The gulls were roosting on the wing wall. In the powerhouse zone, the pelicans were feeding along

the Oregon shoreline below the separator observation building and terns were occasionally noted during the day. In the outfall zone, pelicans along with cormorants and terns have been observed feeding.

In the forebay zone, juvenile gulls, osprey, pelicans and cormorants were noted occasionally. The gulls appear to be scavenging. A few gulls and cormorants were observed on the rocks by the Washington shore boat dock.

This week, one pelican 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. On July 27, USDA–APHIS–WS personnel hazed the outfall from the Washington shore using CAPA shells, which were very effective. Hazing will conclude on July 29. The WS crew leader and the project biologists discussed next season on July 26.

On July 24, Pacific States Marine Fisheries Commission (PSMFC) personnel began to set up equipment at the juvenile facility in order to observe pelican behavior at the bypass outfall. Daily observations began on July 25 with project fisheries staff counting and recording adult shad fallbacks at the separator. Hazing the outfall was regulated during the observations. Observation protocols will be discussed with the Washington State Department of Fish and Wildlife on July 28.

The water hazing sprinkler pump intake was cleaned on July 26.

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. There were no fish exhibiting signs of GBT.

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Project: Ice Harbor
Biologist: Ken Fone
Dates: July 21 – July 27, 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 out of service from July 10 at 0615 hours to July 20 at 1556 hours for annual maintenance.

Adult Fish Passage Facilities

Fish facility personnel inspected the adult fishways on July 24, 25, and 26.

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 3 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, 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
42.7	34.9	32.8	25.0	71	70	7.9	7.4

*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 counted around the project (Table 2 below). Gull numbers increased from last week. The gulls were observed roosting on Eagle Island and 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 21	---	---	---	---	---
July 22	---	---	---	---	---
July 23	---	---	---	---	---
July 24	54	0	2	0	23
July 25	29	10	1	0	23
July 26	66	5	2	0	16
July 27	---	---	---	---	---

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

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Project: Lower Monumental
Biologists: Chuck Barnes and Raymond Addis
Dates: July 21 - 27, 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.

Adult Fish Passage Facility

The adult fishway was inspected by Corps and Anchor QEA biologists on July 21, 22, 23 and 26.

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 readings were 5.8, 6.1, 5.2 and 5.4 feet. South Shore Entrance weir (SSE-1) was on sill during all inspections. While on sill, SSE-1 readings were 5.9, 6.6, 5.4 and 5.9 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 20% 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 four hours until 1546 on July 25 at which time it was changed to every 6 hours. This change was due to reduced debris in the river.
Primary dewatering incline screen brush has been observed stopping during its return cycle. It has been worked on by powerhouse electricians, but there are still intermittent stoppages. Resetting the system has been correcting these stoppages. Separator techs are watching for more malfunctions. The air bubbler system operated with an interval of 10 minutes to make up for any brush malfunctions.

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 due to the railroad lift bridge near Burbank, WA being out of service and blocking navigation (MFR 17JFT01 and 17JFT02). Collection for transport resumed at 0700 on July 24.

Transport Summary: Every-day barging changed to alternate day barging on May 26. There was no transport on July 21 and 23 due to the railroad lift bridge being out of service near Burbank WA (MFR 17JFT01 and 17JFT02). River traffic resumed during the evening of July 23 and transport resumed with the scheduled July 25 barge. A total of 4,270 fish were collected, of which 1,529 were transported and 4,985 were bypassed 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
41.4	34.6	17.1	16.7	71.4	70.8	6.3	4.2

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on July 3. Live fish included 1 juvenile lamprey. Mortalities included 1 juvenile lamprey.

Invasive Species: No zebra or quagga mussels were observed during monitoring station inspections on July 1. During this reporting period, SMP personnel euthanized 166 Siberian prawns with a total weight of 197 grams.

Avian Activity: Gulls, cormorants and pelicans were the predominant piscivorous bird species observed during fish ladder inspections this week. Tailrace counts of foraging piscivorous birds at Lower Monumental Dam ended on July 13.

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

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#22-2017

Project: Little Goose
Biologists: Scott St. John & Richard Weis
Dates: July 21 – July 27, 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 (Out of Service (OOS); Return to Service (RTS); Estimated Return to Service (ERST)).

Unit	OOS Date	OOS Time	RTS Date	RTS Time	Outage Description
1	21-Jul	20:43	22-Jul	15:16	Forced: Govenor Oil Pump
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 23, 26 and 27.

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 100 square feet of floating woody debris currently in the forebay. Track rack differentials on units 1 and 2 were measured on July 27 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 screens in gatewell slot 6A were replaced during unit annual maintenance. VBS differentials were measured on units 1 and 2 on July 27 and were in criteria.

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 in secondary bypass from July 21 at 07:00 through July 24 at 08:00 (MFR 17JFT01 and 17JFT02) due disruption in navigation on the Columbia River near Burbank, WA. A total of 28,603 fish were collected and 14,772 were transported during this report period. Barge transportation occurred every other day. The descaling and mortality rates were 2.5% and 0.5% respectively. This

weekly report period saw 23 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
40.8	36.0	12.3	10.7	72.6	70.4	6.0	5.0

*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
07-21	14:00	24	13	1	0
07-22	09:00	34	4	1	0
07-23	08:30	38	4	2	4
07-24	07:30	28	7	0	1
07-25	08:15	36	0	0	2
07-26	13:30	25	7	0	2
07-27	13:30	26	3	0	1

Gas Bubble Trauma: GBT sampling was conducted on July 24. There were 100 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 269 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
07-21	35	280
07-22	34	272
07-23	92	736
07-24	47	470
07-25	24	240
07-26	25	250
07-27	12	240
Total	269	2,488

U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#22-2017

Project: Lower Granite
Biologists: Elizabeth Holdren and Stephen Hampton
Dates: July 21 – July 27, 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 July 21, 22, 23, and 26.

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: 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. 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.

Collection Channel Velocity: July 26 channel velocity was out of criteria with a reading of 1.41 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 26.25 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: 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: Collection for transport resumed following rail road bridge repair at 0800 hours July 24.

Transport Summary: Barge transport operations resumed with the barge departing Lower Granite July 25.

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
43.1	38.1	18.2	18.1	69.0	68.0	5.0	4.1

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Unit cooling water strainers were inspected July 24. Mortalities included 1 crayfish and 26 juvenile lamprey.

Invasive Species: The Zebra mussel trap was inspected July 23. No signs of mussels were present. This week 6 being Siberian Prawns collected in the sample were euthanized by SMP.

Avian Activity: N/A

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

Date	Time (hours)	Gulls	Cormorants	Caspian Terns	Pelicans
July 21	13:00	5	2	0	0
July 22	14:30	4	10	1	0
July 23	10:11	5	15	0	4
July 24	07:30	9	16	0	0
July 25	N/A	N/A	N/A	N/A	N/A
July 26	14:20	1	7	0	0
July 27	11:00	5	12	0	0

Spill: The RSW remains closed due to forebay surface water temperature. Lower Granite is operating 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.