U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#31-2017

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: September 22 – 28, 2017

Turbine Operation

General Comments: The hard 1% peak efficiency constraint continues.

Yes	No	Turbine Unit Status
☐	☒	All 14 turbine units available for service throughout the week (see Table 1 for outage details below).
☒	☐	All turbine units operated within 1% peak efficiency constraint. Constraint in effect: ☒ Hard ☐Soft.

Table 1. Unit Outages at McNary Project.

Units	Outage Dates	Outage Length	Reason
5	Aug 7 to Oct 7	61 days	9-year overhaul.
10	Sep 25 to 28	3.4 days	Annual maintenance.
1, 2 & 3	Sep 26	1.4 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 September 22, 24 and 27. Visual fish counts continue. Video review of lamprey passage will conclude on September 30. Partial temperature data was collected on September 27, at which time, the shuttle failed. A shuttle from Anchor QEA will be borrowed on September 30 to complete the data collection and all temperature probes will be removed for the season. This week, the fish counting contractor had a port-a-pot installed on the Oregon ladder exit walkway exclusively for their use.

Fish Ladder Exits:

Criteria met?

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. Aquatic vegetation and large woody debris continues to be a problem.

Debris loads at the Washington exit and along the shoreline were minimal. Multiple exit alarms came in on September 22 and were reset. No problems were found.

At the Oregon exit and along the shoreline, debris loads were light to moderate. The general maintenance staff was cleaning the picketed leads twice a day at times. The encoder for tilting weir 339 has not been replaced. This weir rarely moves and will be adjusted manually.
Aquatic vegetation and woody material continues to be removed from the exit traveling screens debris trough as needed.

Fishway Entrances and Collection Channel:

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 are no problems to report.

Auxiliary Water Supply System:

Yes	No	In Service?
☒	☐	Washington shore Wasco County PUD Turbine Unit.
☐	☒	Washington shore Wasco PUD Bypass. Service was not required.
☒	☐	Oregon Ladder Fish Pump 1: Blade angle was 22 to 23 degrees.
☒	☐	Oregon Ladder Fish Pump 2: Blade angle was 21 to 22 degrees.
☒	☐	Oregon Ladder Fish Pump 3: Blade angle was 22 to 23 degrees.
☒	☐	Oregon North Powerhouse Pool supply from juvenile fishway.

Comments: There are no problems to report.

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. The passage season will concluded on September 30 at 0700 hours, when the last day of secondary bypass will be completed. This week, 48 juvenile lamprey and 208 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 continues to dissipate.
☒	☐	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 as variable winds moved the debris to and from the Oregon shore line. Debris loads at the spillway were minimal. New incoming debris loads were minimal. No trash racks were cleaned. On September 22 and 24, several pieces of woody debris was removed for the gatewell slots.

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, 1B, 3B, 7B, 8C, 12B slots, units 11 and 14 remained in timer mode. The ESBS brush short cycled and was recalibrated for the screen in 1B slot on September 23 and 24. The electrical staff examined the ESBS on September 25. The brush on the screen in 13A slot tripped multiple alarms on September 25. The operators reset the brush cycle and switched it from automatic to timer more. ESBS camera inspections occurred in units 1 through 3 on September 26. No problems were found. The brush cycles for the screens in 1B and 3B slots had to be returned to timer mode after the inspection. The cycle program appears to have changed after both screens brush were found short cycling as reported last week.

VBS differential monitoring continued. No high differential measurements were recorded. Five screens were cleaned on September 28. No mortalities were observed.

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

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

Comments: Orifices were adjusted as required for VBS cleaning. We continued to operate the transition screen cleaning brush manually to insure it completes a full cleaning cycle. On September 28, the brush stalled on the D beam. The biologist reset, parked and insured the brush functioned properly.

Bypass Facility:

Yes	No	Item
☒	☐	Sample gates on? Yes, during secondary bypass only.
☐	☒	PIT tag system on? The system remains off unless a study is occurring. The facility bypass lines provide a superior route for the fish over the PIT tag sample release lines downstream of the PIT tag sample gates.

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

On September 23, a woody debris blockage was removed from one of two A side count tunnels. No mortality or fish injury was observed. On September 24, examination of the anesthesia system chiller delayed sampling by 45 minutes. No problems were found.

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.

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
117.2	71.2	0.0	0.0	65.3	63.9	6.0	5.6

Comments: There are no problems to report.

Other

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

Invasive Species: The next mussel station examinations will occur in mid-October. No Siberian prawns have been observed at McNary so far this season.

Avian Activity: Avian counts will conclude on September 30. Tailwater numbers are recorded in Table 3 below. Observations were made every morning. Overall, gull and cormorant numbers appear to be fluctuating with the juvenile shad outmigration. A large number of gulls were roosting on project outside of the counting zones. Terns and pelicans appear to be no longer on project. Gulls and cormorants were feeding in the powerhouse flow and at the bypass outfall. The birds in the spillway zone are roosting on the navigation lock wing wall and other structures.

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

Date	Zone	Gull	Cormorant	Tern	Pelican
Sep 22	Spill	133	24	0	0
	Powerhouse	0	1	0	0
	Outfall	0	7	0	0
Sep 23	Spill	2	23	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
Sep 24	Spill	37	26	0	0
	Powerhouse	2	0	0	0
	Outfall	0	0	0	0
Sep 25	Spill	235	23	0	0
	Powerhouse	5	0	0	0
	Outfall	7	5	0	0
Sep 26	Spill	135	23	0	2
	Powerhouse	35	0	0	0
	Outfall	9	11	0	0
Sep 27	Spill	142	9	0	0
	Powerhouse	3	0	0	0
	Outfall	3	2	0	0
Sep 28	Spill	127	13	0	0
	Powerhouse	11	2	0	0
	Outfall	8	5	0	0

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

The water hazing sprinklers at the outfall functioned satisfactory. The bird distress calls deployed along the navigation lock wing wall were removed on September 28 for winter maintenance.

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

Research

Item: On September 30, Pacific Northwest National Laboratory (PNNL) will remove juvenile shad for sample to use to develop a model to study the effects of barotrauma exposure. This model will be used to assess the environmental impact of hydropower turbine design.

Project: Ice Harbor
Biologist: Ken Fone
Dates: September 22 – September 28, 2017

Turbine Operation

Yes	No	Turbine Unit Status
☐	☒	All 6 turbine units available for service throughout the week (see comments below for outage details).
☐	☒	Available turbine units operated within 1% peak efficiency constraint. Constraint in effect: ☒ Hard ☐Soft.

Comments: Unit 2 was taken out of service on April 25, 2016, at 0606 hours for the runner replacement. Unit 4 was removed from service at 1218 hours on March 6, 2017, when it tripped off due to a problem in the 115 kv section 2 bus. That problem was fixed. The unit 4 hub oil drain valve was replaced to address an oil leak. Annual maintenance is now being performed on the unit. Unit 6 was taken out of service at 0950 hours on September 5 for annual maintenance.

Unit 3 was noted to be operating slightly below the 1% peak operating efficiency range during the September 26 fishway inspection. This was due to the GDACS program needing to be updated with the narrower operating efficiency range of unit 3 since it became a fixed-blade unit.

Adult Fish Passage Facilities

Fish facility personnel inspected the adult fishways on September 25, 26, and 28.

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: None.

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 367 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 7%.
☐	☒	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: Unit 6 orifices were closed for the dive-inspection of the removable spillway weir on September 26, to provide safe underwater conditions for divers.

Juvenile Fish Facility: The fish facility is in bypass operation.

Fish Sampling: Sampling is done for the year.

Removable Spillway Weir (RSW): Voluntary spill for fish passage is done for the season. The tri-annual dive-inspection of the RSW occurred on September 26. There were no significant problems found.

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* (ºF)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
29.2	17.8	0	0	65	64	6.2	5.8

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Turbine cooling water strainer inspections for lamprey are no longer required from July to November.

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

Avian Activity: There were low numbers of piscivorous birds around the project. Pelicans were observed roosting on Eagle Island.

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

Project: Lower Monumental
Biologists: Chuck Barnes and Raymond Addis
Dates: September 22 - 28, 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 and returned to service at 1400 on September 25, 2017.

Adult Fish Passage Facility

The adult fishway was inspected by Corps and Anchor QEA biologists on September 22, 23, 24 and 27.

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 (NSE-2) readings were out of criteria on the September 23 and 24 inspections with readings of 7.9 and 7.8 feet. Readings at weir gauge did not match the digital readings. The Powerhouse operator was informed.

South Powerhouse Entrance weirs (SPE-1 and SPE-2) were on sill during all inspections. While on sill readings for both were 6.8, 6.9, 7.0 and 7.3 feet.

South Shore Entrance weir (SSE-1) was on sill during the September 22 and 23 inspections. While on sill readings were 7.5 and 7.9 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 151 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 six hours during this reporting period.

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

Transport Summary: Barging ended with the last barge departing on August 14. Alternate day trucking began on August 14 with the first truck departing on August 16. Trucking is scheduled to continue through 0700 on October 1. A total of 31 fish were collected and 25 fish were transported.

River Conditions

General Comments.

Table 1. River conditions at Lower Monumental Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature (°F)*		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
32.2	21.4	0	0	67.8	65.5	6.1	3.7

*Scrollcase temperatures.

Spill: The RSW spill was closed on August 18. Summer spill ended at 0000 on September 1.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on August 16. There were zero live fish. Mortalities included 14 Siberian prawns and 13 YOY American shad.

Invasive Species: No zebra or quagga mussels were observed during monitoring station inspections on September 3. During this reporting period, SMP personnel euthanized 43 Siberian prawns with a total weight of 61 grams.

Avian Activity: Gulls and cormorants 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

Tailrace counts ended on July 13.

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

Project: Little Goose
Biologists: Scott St. John & Richard Weis
Dates: September 22-28, 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	Excessive Vibration
3	11-Sep	08:13	29-Sep	17:00	Unit Annual

Comments:

Adult Fish Passage Facility

The adult fishway was inspected by Corps biologists and Anchor QEA staff on September 24, 27 and 28.

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 7,500 square feet of floating woody debris in the immediate forebay. Trash rack differentials were measured on September 23 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 September 23 and were in criteria.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	Item
☒	☐	Orifices operating satisfactory? How many are open and in service? 19 open.
☒	☐	Dewaterer and cleaning systems operating satisfactory? N/A

Comment: Orifices and primary dewatering structure are being back flushed every 8 hours.

Collection Facility: Juvenile Fish Facility is currently operating.

Transport Summary: The collection and transportation facility operated in criteria this report period. A total of 630 fish were collected and 486 transported during this report period. The descaling and mortality rates were 3.0% and 1.8% respectively. This weekly report period saw 1 adult lamprey removed from the raceways or sample and released one mile above the Dam at Little Goose Landing.

River Conditions

River conditions during the week are outlined in Table 2 below.

Table 2. River conditions at Little Goose Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (°F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
33.4	20.1	0	0	66.0	65.1	6.0	4.9

*Ladder temperature.

Comment: Spill ended at midnight August 31.

Other

Inline Cooling Water Strainers: Cooling water strainers will be inspected again starting in December.

Invasive Species: No invasive species have been observed on the mussel station.

Avian Activity: USDA bird hazing ended on June 25. See table 3 for USACE counts.

Table 3. Daily Piscivorous bird counts at Little Goose Dam.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
09-22	14:00	79	32	0	0
09-23	13:00	70	28	0	0
09-24	13:00	89	30	0	0
09-25	14:00	53	28	0	0
09-26	14:00	94	24	0	0
09-27	08:30	49	12	0	0
09-28	13:30	33	23	0	0

Gas Bubble Trauma: Final GBT sampling for the season was conducted on August 21.

Research: No research is currently being conducted at this time.

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by Oregon Department of Fish and Wildlife and Anchor, frozen and properly disposed of in a landfill. There were 1425 prawns collected in the sample and euthanized during this report period. Prawn numbers are outlined in Table 4 below.

Table 4. Daily Siberian prawn sample.

Date	Sample	Collection
09-22	484	484
09-23	217	217
09-24	299	299
09-25	91	91
09-26	97	97
09-27	48	48
09-28	189	189
Total	1425	1425

Project: Lower Granite
Biologists: Elizabeth Holdren and Stephen Hampton
Dates: September 22-28, 2017

Turbine Operation

Yes	No	Turbine Unit Status
☐	☒	All 6 turbine units available for service throughout the week (see comments below for outage details).
☒	☐	Available turbine units operated within 1% peak efficiency constraint. Constraint in effect: ☒ Hard ☐Soft.

Comments: Unit 1 remains out of service for blade/runner repair. Unit 2 currently has hydraulically locked blades that limit operation to the upper end of 1% peak efficiency constraint. Unit 6 remains out of service for annual maintenance. Unit 3 was removed from service at 0600 hours September 25 for annual maintenance.

Adult Fish Passage Facility

General comments: Adult fish facilities were inspected by Corps or Anchor QEA biologists September 23, 25, 26, 27, and 28.

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: Water temperature at the fish ladder exit pool dropped below 68 degrees beginning September 19 and remained below 68 degrees for three consecutive days. Fish ladder temperature control system pumps were removed from service at 0741 hours September 25.

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 depth over the weir was out of criteria on September 25, 26, and 27 with readings of 7.1', 6.9', and 7.5' respectively. NPE-2 depth over weir was out of criteria September 28 with a reading of 7.5'.NSE-1 depth over weir was out of criteria September 23 and 28 with readings of 6.5' and 6.4'

respectively. SSE channel/tailwater differential was out of criteria September 26 with a reading of 0.8 feet. NSE channel/tailwater differential was out of criteria September 27 with a reading of 0.8 feet. A trouble report was submitted and electricians worked on gate calibrations September 26. While working on gate calibrations it was determined that the breaking system for NSE 1 failed. NSE 1 breaking system was replaced/rebuilt and the gate was recalibrated September 27. The fish ladder control system continues to be unable to maintain channel/tailwater head differential at the north shore with current tailwater elevation during spill operations. NSE depth over the weir criteria is being sacrificed to achieve channel/tailwater head differentials. Electricians and operations continue to troubleshoot the fish ladder control system.

Collection Channel Velocity: Collection channel velocities were in criteria on all inspections.

Auxiliary Water Supply System:

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

Comments: AWS pump 2 is in standby mode. AWS pump 1 was changed to fast operation at 1000 hours September 27 to try to achieve channel/tailwater differentials. North powerhouse differentials were met but north shore differentials remain out of criteria during spill operation.

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 48.4 square yards this week.

ESBSs/VBSs:

Yes	No	Item
☐	☒	ESBSs deployed in all slots and in service?
☐	☒	ESBSs inspected this week? If so, were results acceptable? ☐ Yes ☐ No ☒ N/A
☐	☒	VBSs differentials checked this week? If so, were results acceptable? ☐ Yes ☐ No ☒ N/A

Comments: ESBS are dogged off in gatewell slots.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe:

Yes	No	Item
☐	☒	Orifices operating satisfactory? There are 18 orifices operating.
☐	☒	Dewaterer and cleaning systems operating satisfactory?

Comments: Dewatered.

Collection Facility: Dewatered.

Transport Summary: The transport season at LWG ended August 2.

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
31.14	23.53	3.50	3.40	64.0	62.8	5.0+	4.8

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

Other

Adult Fish Trap Operations: The adult trap is in twenty-four hour operation seven days a week at a 20% sample rate. Fall Chinook are being collected for transport to Lyons Ferry and Nez Perce hatcheries.

Inline Cooling Water Strainers: Unit cooling water strainers were inspected September 25. Mortalities included 20 prawns.

Invasive Species: No signs of mussels were present during the September 25 inspection.

Avian Activity: N/A

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

Date	Time (hours)	Gulls	Cormorants	Caspian Terns	Pelicans
September 22	1400	2	4	0	0
September 23	1430	2	3	0	0
September 24	1010	5	22	0	0
September 25	1415	5	35	0	0
September 26	1500	25	4	0	0
September 27	1410	1	35	0	0
September 28	1238	1	9	0	1

Spill: Lower Granite extended spill operation for phase 1a continues through the RSW.

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

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