U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#32-2017

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: September 29 – October 5, 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 6	60 days	9-year overhaul.
6	Sep 29 to Oct 3	3.9 days	Exciter issue.
1	Oct 2 to 6	4.2 day	Annual maintenance.
4, 7 & 8	Oct 3	1.7 hours total	Extended-length submersible bar screens (ESBSs) camera inspections.
6	Oct 4	9.0 hours	Hub tapped.

Adult Fish Passage Facilities

General Comments: McNary fisheries biologists performed measured inspections of the adult fishways on September 29, October 1 and 3. National Oceanic & Atmospheric Administration (NOAA) fisheries personnel performed their monthly inspection on October 5. Visual fish counts continue. Video review of lamprey passage concluded on September 30. Also, that day, temperature data collection was completed and all temperature probes were removed for the season.

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.

At the Oregon exit and along the shoreline, debris loads were light to moderate. 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 2.1 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 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 consisted of alternating days of primary and secondary bypass modes, with the switch occurring at 0700 hours each morning. The season concluded on September 30 at 0700 hours, when the last day of secondary bypass was completed. From the one sample collected this week, we estimate eight juvenile lamprey and 40 smolts were bypassed. Now that fall primary bypass season has commenced, light maintenance, cleaning and partial winterization has begun at the facility.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	Item
☒	☐	Forebay debris load acceptable?
☒	☐	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 moderate to heavy as debris from the Oregon shore line began to accumulate at the powerhouse. Debris loads at the spillway were minimal. New incoming debris loads were minimal. No trash racks were cleaned. On October 5, a very small amount of hydraulic fluid was removed from 5B slot with absorbent pads.

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, 13A slots, units 11 and 14 remained in timer mode. The ESBS brush short cycled and was recalibrated for the screen in 13A four times this week. On October 3, a fuse was replaced in the ESBS program logic controller (PLC) for unit 1. ESBS camera inspections occurred in units 4, 7 and 8. During the last inspection, the camera pan and tilt functions failed. The next day, the electrical staff removed rusty water from the camera and was able to partiality return the pan and tilt functions. However, for the inspections next week, we will use our back up camera.

VBS differential monitoring continued. No high differential measurements were recorded. Fourteen screens were cleaned on October 2, 3 and 5. No mortalities were observed. On October 3, a very slight edge tear was noted on the VBS in 2A slot. On October 4, the screen was inspected. The tear appeared to be no threat to fish. However, on October 5, the VBS was replaced.

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 replacement. During the week, scheduled maintenance began on the orifice operators. We continued to operate the transition screen cleaning brush manually to insure it completes a full cleaning cycle. On October 3, we lubricated the transition brush latch pin.

Bypass Facility:

Yes	No	Item
☒	☐	Sample gates on? Yes, during the last day of secondary bypass.
☐	☒	Passive integrated transponder (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 fall primary bypass season, PIT tag detection occurs in the full flow pipe.

On September 30, at 0700 hours, all systems were removed from service for the season.

River Conditions

General Comments: River conditions were provided by the control room and outlined in Table 2 below. The data period runs from 0000 to 2400 hours each day. The biological services contractor, Anchor QEA concluded data collection on September 30.

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
129.1	89.4	0.0	0.0	65.0	63.0	6.0	6.0

Comments: There are no problems to report. Scheduled spillbay hoist maintenance began this week.

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 October 8. Two Siberian prawns were sample on the last day of the season. We estimate 6 other prawns were bypassed that day. These are the only prawns observed this year.

Avian Activity: Avian counts concluded on September 30. Tailwater numbers are recorded in Table 3 below. Observations were made in the morning. After September 30, only casual observations were done while doing other inspections. 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 at the bypass outfall. Gulls were also feeding in the powerhouse flow. 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 29	Spill	188	15	0	0
	Powerhouse	15	0	0	0
	Outfall	5	5	0	0
Sep 30	Spill	190	7	0	0
	Powerhouse	2	0	0	0
	Outfall	117	9	0	0

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

The water hazing sprinkler system was winterized on October 2. The bird distress calls deployed on the outfall pipe walkway were also removed for the winter.

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

Research

Item: On September 30, Pacific Northwest National Laboratory (PNNL) removed 3,925 juvenile shad from the 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 29 – October 5, 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 1 was operated outside of the 1% peak operating efficiency range at 0210 hours on October 1 for approximately 1 hour to meet BPA load requirements. Unit 3 was noted to be operating slightly below the 1% peak operating efficiency range during the October 2 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 October 2, 3, and 5.

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 300 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 13%.
☐	☒	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: The light fixture for orifice 3CN was found to be hanging loose on Oct. 2. This orifice was closed and orifice 3CS was opened in its place until the light was fixed on Oct. 3.

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.

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
35.1	26.6	0	0	66	63	8.3	6.2

*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. Unit 5 strainer was cleaned on October 5 due to a water pressure buildup across the strainer. A moderate amount of woody debris and approximately 10 decomposing juvenile shad were removed.

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, with most of them 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 29 – October 5, 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. Units 2 and Unit 6 were rotated out of service on October 3 for STS inspections. Unit 3 was taken out of service on October 4 for STS inspections. Unit 4 was removed from service on October 5 for STS inspections. Unit 6 was removed from service at 1545 on October 4 due to an issue with the STS hanging over gatewell 6A.

Adult Fish Passage Facility

The adult fishway was inspected by Corps and Anchor QEA biologists on September 29, 30, October 1 and 4.

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-1) reading was out of criteria on the September 29 inspection with a reading of 7.8 feet. The powerhouse operator was informed and corrected to bring readings back into criteria. North Shore Entrance (NSE-2) readings were out of criteria on the September 30 and October 1 inspections with readings of 7.7 and 7.8 feet. Readings at weir gauge did not match the digital readings. The Powerhouse operator

was informed and electrical crew members recalibrated the digital gauges. South Powerhouse Entrance weirs (SPE-1 and SPE-2) were on sill during all inspections. While on sill readings for both were 7.6, 7.6, 7.8 and 7.0 feet. South Shore Entrance weir (SSE-1) was out of criteria on the October 1 inspection with a reading of 7.5 feet. The powerhouse operator was informed and corrected to bring readings back into criteria. South Shore Entrance weir (SSE-1) was on sill during the October 4 inspection. While on sill reading was 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 98 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 32% 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? 18.
☒	☐	Dewaterer and cleaning systems operating satisfactory?

Comments: Orifice checks were conducted every six hours during this reporting period.

Collection Facility: Collection for transport ended at 0700 on October 1, at which time the facility was placed into primary bypass.

Transport Summary: Trucking ended with the October 1 transport. A total of 12 fish were collected and 16 fish were transported during this reporting time.

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
36.4	25.6	0	0	66.9	63.4	5.7	3.9

*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 October 1. During this reporting period, SMP personnel euthanized 31 Siberian prawns with a total weight of 55 grams.

Avian Activity: Gulls and cormorants were the predominant piscivorous bird species observed during fish ladder inspections this week. 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 29- October 06, 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

Comments: None

Adult Fish Passage Facility

The adult fishway was inspected by Corps biologists and Anchor QEA staff on September 29, October 01, 03 and 05.

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: NSE #2 was 5.9ft on October 5 inspection.

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 5,000 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?

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 536 fish were collected and 664 transported during this report period. The descaling and mortality rates were 2.0% and 1.3% respectively. This weekly report period saw 0 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
35.2	25.5	0	0	65.4	62.8	6.0+	4.2

*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
09-29	0800	44	3	0	0
09-30	13:30	58	14	0	0
10-01	12:30	59	17	0	0
10-02	12:30	54	30	0	0
10-03	13:30	18	1	0	0
10-04	08:00	34	20	0	0
10-05	13:30	24	29	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 1,425 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
09-29	264	264
09-30	173	173
10-01	95	95
10-02	41	41
10-03	2	2
10-04	32	32
10-05	128	128
Total	735	735

Project: Lower Granite
Biologists: Elizabeth Holdren and Stephen Hampton
Dates: September 29 – October 5, 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 was returned to service at 1045 hours October 4 after completion of annual maintenance. Unit 3 remains out of service for annual maintenance.

Adult Fish Passage Facility

General comments: Adult fish facilities were inspected by Corps or Anchor QEA biologists September 30, and October 02, 04, and 05.

Fish Ladder:

Yes	No	Location, Criteria, and Measurements
☒	☐	Fish Ladder Exit Differential (Criteria – Head ≤ 0.5')
☒	☐	Fish Ladder Picketed Lead Differential (Criteria – Head ≤ 0.3')
☒	☐	Fish Ladder Depth over Weirs (Criteria – Head over weir 1.0' to 1.3')
☐	☒	Ladder Temperature Pumps in Service.
☒	☐	Ladder Temperature Pumps Operating Satisfactorily.

Comments:

Fish Ladder 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. NSE-1 depth over weir was out of criteria on all inspections with readings of 6.7', 5.6', 5.9', and 6.5 feet. The fish ladder control system continues to be unable to maintain both depth over the weir and channel/tailwater head differential at the north shore during spill at current tailwater

elevation. 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: No transport is occurring.

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	62.0	5.0+	5.0+

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: N/A

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

Avian Activity: Piscivorous bird continue to be counted in the forebay and tailrace (Table 2).

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

Date	Time (hours)	Gulls	Cormorants	Caspian Terns	Pelicans
September 29	1334	17	46	0	1
September 30	0930	3	0	0	0
October 1	1530	24	13	0	0
October 2	1030	24	24	0	1
October 3	1515	14	24	0	0
October 4	0940	13	28	0	1
October 5	1400	19	7	0	0

Spill: Lower Granite extended spill operation for phase 1a Juvenile Bypass System upgrades continues through the RSW from 0600-1800 hours.

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

Research: N/A.