U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#19-2017

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: June 30 – July 6, 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
11 thru 14	July 5	1.7 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 June 30, July 2 and 4. Visual fish counts and video review of lamprey passage continue. Temperature data was collected on July 4. With river flows decreased, a temperature probe was installed downstream of each Oregon ladder powerhouse entrance on July 6, fully completing probe deployment for the season. Electrical issues with the access badge card reader on the Washington shore over the long holiday weekend resulted in the fish counters having to drive across the project.

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: Debris loads at the Washington exit and along the shoreline were minimal. The trash rack and picketed leads were cleaned as needed, including weekends. No solution has been found for the count station passive integrated transponder (PIT) system interference. The regulating weir set point was adjusted July 4.

At the Oregon exit, debris loads were minimal to light. Along the Oregon shoreline, debris loads were minimal to heavy as northeast winds moved much of the powerhouse debris to the shoreline. The regulating weir set point was adjusted on July 4. Scheduled maintenance was performed on the Oregon exit traveling screens on July 5.

Fishway Entrances and Collection Channel:

Criteria Met?

Yes	No	Location, Criteria and Measurements
☒	☐	North Oregon Entrance Head Differential (Criteria – 1.0' to 2.0')
☐	☒	NFEW2 Weir Depth (Criteria – ≥ 8.0'): 7.8' on June 30 and 7.9' on July 2.
☐	☒	NFEW3 Weir Depth (Criteria – ≥ 8.0'): 7.8' on June 30 and 7.9' on July 2.
☒	☐	South Oregon Entrance Head Differential (Criteria – 1.0' to 2.0')
☐	☒	SFEW1 Weir Depth (Criteria – ≥ 8.0'): 7.8' on July 2 and 7.6' on July 4.
☐	☒	SFEW2 Weir Depth (Criteria – ≥ 8.0'): 7.7' on July 2 and 7.2' on July 4.
☒	☐	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: The Oregon ladder out of criteria points this week could possibly due to one of six discharge logs having been removed from fish pump 2 and lower tailwater elevations creating unfavorable hydraulic gradients. There are six total discharge logs per fish pump not the eight logs previously reported.

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 30 degrees.
☐	☒	Oregon Ladder Fish Pump 2: Testing occurred on July 6 with the blades at 24 to 28 degrees.
☒	☐	Oregon Ladder Fish Pump 3: Blade angle was 27 to 30 degrees.
☒	☐	Oregon North Powerhouse Pool supply from juvenile fishway.

Comments: At fish pump 2, the five remaining discharge logs were removed from 1200 to 1345 hours on July 6. The pump was tested from 1400 to 1736 hours with the blade angle ranging from 24 to 28 degrees. At 28 degrees, wobble and increased temperatures were noted. The pump was shut down. On July 10, vibration testing is scheduled. During the discharge log removal and fish pump 2 testing, pumps 1 and 3 remained on and fully functional.

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, 2,000 juvenile lamprey and 277,402 smolts were bypassed.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	Item
☒	☐	Forebay debris load acceptable? Removal would be prudent.
☒	☐	Trash rack differentials measured? If so, were differentials acceptable? ☒ Yes ☐ No ☐ N/A.
☐	☒	Any debris seen in gatewells?
☐	☒	Any oil seen in gatewells?

Comments: Forebay debris loads near the powerhouse were heavy to light as northeast winds pushed the debris to the Oregon shoreline. New incoming debris loads were light to minimal. Debris loads at the spillway remained moderate. No trash racks were cleaned.

ESBSs/Vertical barrier screen (VBSs):

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

Comments: The brush cycles for the screens in 1A, 3B, 7B, 8C, 12B, 14A slots and in unit 11 remained in timer mode. ESBS camera inspections occurred in units 11 through 14 on July 5. The brush cycle for the screen in 11C slot was reversed with the brush parked at the top of the screen instead of the bottom. Also, the upper four feet of screen was not clean. The electrical staff immediately rewired the ESBS.

VBS differential monitoring continued. No high differential measurements were recorded. A total of four VBSs were cleaned on July 5 and 6. VBS inspections were performed on all screens in unit 1, 5 and 7. A total of five smolt mortalities were observed during VBS cleaning and inspection.

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

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

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. No issues have occurred recently. The new solenoid has not yet arrived.

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.

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 with the spill target of 50% 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
273.2	228.2	136.9	114.5	66.8	63.9	6.0	4.7

Comments: The spillgate in bay 20 is raised and lowered by crane. On July 6, at approximately 1630 hours, electrical issues with the crane developed, which would not allow the crane to be operated remotely. The spillgate was manually set at 2.1 feet open, an average setting for the current spill volume. The gate will remain at this setting until July 10, at which time the electrical staff will be able to examine and resolve the crane issue on the next scheduled work day.

With river flows decreased, Anchor QEA deployed a temperature probe at the bypass outfall on July 3. The probe was down loaded on July 6 and found to have failed on July 4. The probe was replaced on July 7. Daily temperature data reports continue. Weekly data will be reported separately from the smolt monitoring report.

Other

Inline Cooling Water Strainers: The next cooling water strainer examinations will occur on July 11.

Invasive Species: The next mussel station examinations will occur in late July. 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 were made every morning (see Table 3 below). Currently, pelicans and terns are the predominant species in the tailwater area. In the spill zone, the pelicans were along the navigation lock wing wall. The terns, cormorants and gulls were feeding in the spill flow. In the powerhouse zone, the pelicans were feeding along the Oregon shoreline below the separator observation building. Pelicans and cormorants have been observed feeding in the outfall zone.

In the forebay zone, juvenile gulls, which were scavenging, along with an occasional grebe, osprey, cormorant, pelican, blue heron and tern were observed. A fair numbers of pelicans along with a few terns, gulls and cormorants were observed on the rocks by the Washington shore boat dock. One cormorant was observed inside the Oregon ladder by the count station on July 4.

No grebes entered the gatewell slots this week.

Table 3. McNary Project's Daily Avian Count in the tailwater by zone.

Date	Zone	Gull	Cormorant	Tern	Pelican
June 30	Spill	0	3	1	45
	Powerhouse	0	0	0	3
	Outfall	0	4	0	3
July 1	Spill	0	0	24	15
	Powerhouse	0	0	0	3
	Outfall	0	0	0	0
July 2	Spill	0	1	15	17
	Powerhouse	0	0	0	5
	Outfall	0	0	0	7
July 3	Spill	0	0	3	31
	Powerhouse	0	0	0	5
	Outfall	0	2	0	4
July 4	Spill	8	0	10	10
	Powerhouse	0	0	0	5
	Outfall	0	3	0	3
July 5	Spill	2	0	4	18
	Powerhouse	1	0	0	8
	Outfall	0	0	0	6
July 6	Spill	3	0	2	15
	Powerhouse	0	0	0	4
	Outfall	0	1	0	0

United States Department of Agriculture – Animal and Plant Health Inspection Service – Wildlife Services (USDA–APHIS–WS) personnel continued working two shifts seven days a week. Hazing from a boat was scheduled to occur four days a week this season. Due to low bird numbers in the tailwater area, the boat crew continues to assist with hazing from the shore. Both boat hazing and the second shift will conclude on July 8. We will examine hazing from the outfall walkway in the near future.

On July 3, all hazing sprinklers were converted to the inverted pattern. The missing walkway grating clips were replaced by July 6. The sprinkler supply line clamps and the supply line section that were reported cracked will be replaced in the coming fall or winter.

Fish Salvage/Rescue**:** When removing fish pump 2 discharge logs, two juvenile walleye, one sculpin, a couple of crayfish and one adult lamprey were rescued and returned to the river. One subyearling Chinook mortality was observed.

Gas Bubble Trauma (GBT) monitoring: GBT monitoring continues and will occur twice a week during the spill season. There were no fish exhibiting signs of GBT during this reporting period.

Research

Item: No onsite research is occurring at this time.

Project: Ice Harbor
Biologist: Ken Fone
Dates: June 30 – July 6, 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 6 was out of service on July 6 from 0630 hours to 1545 hours to replace the stator air cooler.

Adult Fish Passage Facilities

Fish facility personnel inspected the adult fishways on July 3, 5, and 6.

Fish Ladders:

Yes	No	Location, Criteria and Measurements
☒	☐	North Fish Ladder Exit Differential (Criteria – Head ≤ 0.5’)
☒	☐	North Fish Ladder Picketed Lead Differential (Criteria – Head ≤ 0.3’)
☒	☐	North Fish Ladder Depth over Weirs (Criteria – Head over weir 1.0’ to 1.3’)
☒	☐	South Fish Ladder Exit Differential (Criteria – Head ≤ 0.5’)
☒	☐	South Fish Ladder Picketed Lead Differential (Criteria – Head ≤ 0.3’)
☒	☐	South Fish Ladder Depth over Weirs (Criteria – Head over weir 1.0’ to 1.3’)

Comments: A few sticks are visible at the water surface above the north fish ladder exit, against the bulkhead. The debris may extend down into the ladder exit trash rack, as it could not be pulled free by hand. Repairs are currently being made to the lifting beam so that the bulkheads and trash rack can be removed for cleaning. The bubblers are operating satisfactorily.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location, Criteria and Measurements
☒	☐	☐	South Shore Entrance (SFE-1) Weir Depth (Criteria: ≥ 8.0’ or on sill)
☒	☐		South Shore Channel/Tailwater Differential (Criteria: 1.0’ – 2.0’)
☒	☐		South Shore Channel Velocity (Criteria: 1.5 – 4.0 fps)
☒	☐	☐	North Powerhouse Entrance (NFE-2) Weir Depth (Criteria: ≥ 8.0’ or on sill)
☒	☐		North Powerhouse Channel/Tailwater Differential (Criteria: 1.0’ – 2.0’)
☐	☒	☐	North Shore Entrance (NSE-1) Weir Depth (Criteria: ≥ 8.0’ or on sill)
☐	☒		North Shore Channel/Tailwater Differential (Criteria: 1.0’ – 2.0’)

Comments: The north shore entrance weir depth was out of criteria on the July 5 and 6 visual inspections, with readings of 4.8’ and 7.2’. The north shore channel/tailwater differential was out of criteria on July 5, with a reading of 3.7’. The control room operator was notified. The automated control system readings in the control room showed these locations to be in criteria. The discrepancies were partly due to the difficulty in obtaining accurate tailwater elevation readings while spill is occurring. The settings of the automated control system parameters may

also have contributed to the magnitude of the discrepancies. These readings will checked on future inspections to see if this continues to be a problem.

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

Comments: None.

STSs/VBSs:

Yes	No	Item
☐	☒	STSs deployed in all slots and in service?
☒	☐	STSs in continuous-run mode (If not, then STSs are in cycle-run mode)?
☐	☒	STSs inspected this week? If so, were results acceptable? ☐ Yes ☐ No ☒ N/A
☐	☒	VBSs differentials checked this week? If so, were results acceptable? ☐ Yes ☐ No ☒ N/A

Comments: Unit 2 STSs are not installed since the unit will not be returned to service this year. STSs have been in continuous run mode since April 4 due to the presence of subyearling Chinook and\or sockeye with average fork lengths of less than 120 mm in the Lower Monumental and/or Ice Harbor juvenile fish samples.

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: Orifice 1BN light was found to be burned out on July 5. Orifice 1BS was opened in place of 1BN until the light can be replaced

Juvenile Fish Facility: The fish facility is operated in bypass, except when fish sampling operations are occurring.

Fish Sampling: Sampling operations occur on Monday and Thursday each week. See Table 1 below for a summary of the sampling results.

Table 1. Fish condition sampling results at Ice Harbor Dam.

July 3:

Species	Sampled	#Descaled	Morts	Avian Marks
C-CH	0	---	---	---
UC-CH	0	---	---	---
C-CH-O	11	0	0	0
UC-CH-O	24	1	0	0
C-SH	0	---	---	---
UC-SH	0	---	---	---
C-SOCK	0	---	---	---
UC-SOCK	0	---	---	---
C-COHO	0	---	---	---
UC-COHO	0	---	---	---
TOTAL	35	1	0	0

July 6:

Species	Sampled	#Descaled	Morts	Avian Marks
C-CH	0	---	---	---
UC-CH	0	---	---	---
C-CH-O	3	0	0	0
UC-CH-O	7	0	0	0
C-SH	0	---	---	---
UC-SH	0	---	---	---
C-SOCK	0	---	---	---
UC-SOCK	0	---	---	---
C-COHO	0	---	---	---
UC-COHO	0	---	---	---
TOTAL	10	0	0	0

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 2 below.

Table 2. 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
77.9	60.9	53.5	19.0	67	63	3.3	2.9

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Turbine cooling water strainer inspections last occurred on June 20 and 21. A total of 1 juvenile lamprey and 1 Siberian prawn mortalities were found.

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

Avian Activity: There were moderate to low numbers of piscivorous birds counted around the project (see Table 3 below). There were almost no gulls observed, and cormorant numbers remained low this week. There were up to

12 pelicans observed foraging just downstream of the outfall of the juvenile fish bypass pipe. Contracted land-based hazing of piscivorous birds (but not pelicans) for 8 hours per day ended on June 30.

Table 3. Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
June 30	0	4	0	0	48
July 1	---	---	---	---	---
July 2	---	---	---	---	---
July 3	0	3	0	0	40
July 4	---	---	---	---	---
July 5	1	6	0	0	19
July 6	0	2	0	0	21

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

Project: Lower Monumental
Biologists: Chuck Barnes and Raymond Addis
Dates: June 30 – July 6, 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 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 June 30, July 1, 2 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 ≤ 0.4’)
☒	☐	North Fish Ladder Depth over Weirs (Criteria – Head over weir 1.0’ to 1.3’)
☒	☐	South Fish Ladder Exit Differential (Criteria – Head ≤ 0.5’)
☒	☐	South Fish Ladder Picketed Lead Differential (Criteria – Head ≤ 0.3’)
☒	☐	South Fish Ladder Depth over Weirs (Criteria – Head over weir 1.0’ to 1.3’)

Comments: None

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location, Criteria and Measurements
☒	☐	☐	North Shore Entrance (NSE-1) Weir Depth (Criteria: ≥ 8.0’ or on sill)
☒	☐	☐	North Shore Entrance (NSE-2) Weir Depth (Criteria: ≥ 8.0’ or on sill)
☒	☐		North Shore Channel/Tailwater Differential (Criteria: 1.0’ – 2.0’)
☒	☐	☒	South Powerhouse Entrance (SPE-1) Weir Depth (Criteria: ≥ 8.0’ or on sill)
☒	☐	☒	South Powerhouse Entrance (SPE-2) Weir Depth (Criteria: ≥ 8.0’ or on sill)
☒	☐		South Powerhouse Entrance Channel/Tailwater Differential (Criteria: 1.0’ – 2.0’)
☐	☒	☒	South Shore Entrance (SSE-1) Weir Depth (Criteria: ≥ 8.0’ or on sill)
☒	☐	☐	South Shore Entrance (SSE-2) Weir Depth (Criteria: ≥ 6.0’ or on sill)
☒	☐		South Shore Channel/Tailwater Differential (Criteria: 1.0’ – 2.0’)

Comments: South Powerhouse Entrance weirs (SPE-1 and SPE-2) were on sill during all inspections. While on sill SPE-1 readings were 7.0, 7.4, 6.9 and 6.7 feet. While on sill SPE-2 readings were 7.0, 7.4, 6.9 and 6.8 feet. South Shore Entrance weir (SSE-1) was out of criteria on the July 5 inspection with a reading of 6.4 feet. SSE-1 was set to

remain on sill during these decreased flows and was on sill for all other inspections. While on sill SSE-1 readings were 7.4, 7.7, 7.3 and 6.4 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 625 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: Removal of gatewell woody debris was not required during this reporting period.

STSs/VBSs:

Yes	No	Item
☒	☐	STSs deployed in all slots and in service?
☒	☐	STSs in continuous-run mode (Note: if not, then STSs are in cycle-run mode)? STS's were placed in continuous-run mode on March 30 due to heavy debris loads.
☐	☒	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: None

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: Due to high debris in the forebay, the orifices were checked every two hours during this reporting period. The primary dewatering incline screen brush has been observed stopping during its return cycle. The system has to be reset or manually returned to the stored position. The cause is being investigated but is believed to be heat related.

Collection Facility: Collection into raceways for transport began at 0700 on May 1.

Transport Summary: Every-day barging changed to alternate day barging on May 26. A total of 45,640 fish were collected, of which 38,022 were transported during this reporting period.

River Conditions

General Comments.

Table 1. River conditions at Lower Monumental Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature (°F)*		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
82.3	59.3	17.1	16.5	67.9	65.2	3.3	2.4

*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.

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

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

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
6/30/2017	1130	1	1	0	0	1
7/1/2017	1100	0	2	0	0	0
7/2/2017	1230	0	0	0	0	0
7/3/2017	1155	2	0	0	0	1
7/4/2017	1205	0	0	0	0	0
7/5/2017	1200	0	0	0	0	2
7/6/2017	1145	0	1	0	0	1

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

Project: Little Goose
Biologists: Scott St. John & Richard Weis
Dates: June 30 – July 06, 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: All turbine units were available for service throughout this report period, except unit 1 and 5. Unit 1 was OOS from 0800 until 1100 for trash raking and VBS camera inspection on July 06. Unit 5 remains OOS due to excessive vibration. Hard constraints of 1% peak efficiency criteria took effect on April 01.

Adult Fish Passage Facility

The adult fishway was inspected by Corps biologists and Anchor QEA staff on June 23, 25 and 29.

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: None.

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 6,000 square feet of floating woody debris currently in the forebay. Trash raking was completed on July 6 for unit 1. Trash raking is scheduled again for July 10 on all units.

Spillway Weir: The spillway weir has been operating at the high crest position since June 29.

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: None.

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: Due to large amounts of debris, orifices have been backflushed and/or rotated every two hours, 24 hours a day. The dewatering structure is being cleaned every two hours during daytime operating hours.

Collection Facility: Juvenile Fish Facility is currently operating.

Transport Summary: The collection and transportation facility operated within criteria this reporting period. A total of 41,995 fish were collected and 35,658 were transported. Barge transportation occurred every other day. The descaling and mortality rates were 1.1% and 0.4% respectively.

River Conditions

River conditions during the week are outlined in Table 1 below.

Table 1. 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
74.8	59.7	22.6	18.0	69.3	66.7	3.4	3.0

*Ladder temperature.

Comment: None.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on July 02. One juvenile lamprey mortality was observed.

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

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

Table 2. Daily Piscivorous bird counts at Little Goose Dam.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
06-30	14:30	0	0	0	0
07-01	09:30	4	4	0	0
07-02	08:30	0	0	0	0
07-03	07:30	2	0	0	0
07-04	12:00	2	0	0	0
07-05	12:30	2	0	0	0
07-06	08:00	2	0	0	0

Gas Bubble Trauma (GBT): GBT sampling was conducted on July 03. There were 78 fish examined, no signs of GBT were seen.

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

Project: Lower Granite
Biologists: Elizabeth Holdren and Stephen Hampton
Dates: June 30 – July 6, 2017

Turbine Operation

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

Comments: Unit 1 remains out of service for blade/runner repair. Unit 5 was removed from service at 0715 hours July 3 for annual maintenance.

Adult Fish Passage Facility

General comments: Adult fish facilities were inspected by Corps or Anchor QEA biologists July 1, 2, 3, and 5.

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 Temperature Control System: The fish ladder temperature control system was brought online for the season 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. Cotter pins on all gates are scheduled to be replaced during the 2017-2018 winter

adult fishway outage. SSE1 and SSE2 weir depth was out of criteria July 1 with gate depth reading of 7.8' and 7.8 feet, respectively.

Collection Channel Velocity: July 1 and July 2 channel velocity was out of criteria with readings of 1.3 and 1.4 fps, respectively.

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 300 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 continue to be checked and back flushed for debris every one to three hours depending on debris load.

Collection Facility: The facility is in collection for transport mode. The B-side separator exit PIT-tag system gate failed in the open position at 0414 hours July 5. The problem was identified during barge loading due to high flows through the PIT tag bypass system at about 0800 hours July 5. The B-side separator exit was closed to prevent additional fish from being bypassed through the PIT system until maintenance personnel arrived for repairs. The gate was returned to service at about 1800 hours July 5. At about 0300 hours July 6 the gate failed again due to an issues with the air cylinder shaft. The shaft was replaced the morning of July 6 with no further issues reported.

Transport Summary: Every other day transport is occurring with barges departing on odd numbered days.

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
78.1	62.3	18.6	18.2	66.2	65.5	4.0	2.9

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: N/A.

Invasive Species: The Zebra mussel trap was inspected June 25. No signs of mussels were present.

Avian Activity: Daily hazing is occurring.

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

Date	Time (hours)	Gulls	Cormorants	Caspian Terns	Pelicans
June 30	13:25	0	1	0	0
July 1	13:45	5	0	0	0
July 2	13:30	1	0	0	0
July 3	15:30	4	0	0	0
July 4	11:45	0	4	0	0
July 5	15:20	0	0	0	0
July 6	13:50	2	0	0	0

Spill: Summer spill is occurring.

Gas Bubble Trauma (GBT) Monitoring: Fish are being collected from the separator for GBT monitoring on Thursdays. Among the 100 fish sampled during this reporting period one fish with GBT symptoms was observed.

Research

Idaho Fish and Game (IDFG) Genetic Stock Identification
IDFG Genetic Stock Identification sampling concluded June 30.

Nez Perce Tribe (NPT)/U. of Idaho (UI)/Columbia River Intertribal Fisheries Commission (CRITFC) – Kelt Study
NPT kelt collection concluded June 30.

USGS Describing PIT-tag Efficiency and Stable Isotopes of Migrating Juvenile Fall Chinook Salmon: To estimate 8-mm PIT detection efficiency at LWG bypass system a target of 322 subyearling fall Chinook were collected from facility sample June 12. USGS PIT tagged 319 subyearling Chinook June 13 and released 310 into the upwell area to volitionally pass through LWG PIT-tag detection system June 14. There were 3 mortalities prior to tagging and 6 mortalities after tagging. Subsequent detection data will be queried from PTAGIS. 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.