U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#09-2017

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: April 21 – 27, 2017

Turbine Operation

General Comments: The hard constrains of 1% peak efficiency began on April 1.

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
13	Oct 3 to May 1	7 months	Thrust bearing issue.
2	Mar 21 to May 12	1.7 months	Thrust bearing issue.

Adult Fish Passage Facilities

General Comments: McNary fisheries biologists performed measured inspections of the adult fishways on April 21, 23 and 26. Visual fish counts continue. National Oceanic & Atmospheric Administration (NOAA) fisheries personnel performed their monthly inspection on April 26. Station service upgrades resulted in electrical switching, which caused a couple of brief power outages at both exits this week. There was no adverse effect.

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’): 0.8’ on April 23.

Comments: Debris loads at the Washington exit and along the shoreline were light to minimal. The trash rack and picketed leads were cleaned as needed, including nights and weekends. The high count station differential on April 23 was due to debris on the picketed leads, which were cleaned immediately. Also, that day, a large stick was noted across the first stationary weir’s south orifice. The general maintenance staff could not find the stick the next day and it was presumed to have been dislodged and flushed out of the ladder. No solution has been found for the interference issue at the count station passive integrated transponder (PIT) detection system.

At the Oregon exit and along the shoreline, debris loads were minimal to very light.

Fishway Entrances and Collection Channel:

Criteria Met?

Yes	No	Location, Criteria and Measurements
☒	☐	North Oregon Entrance Head Differential (Criteria – 1.0’ to 2.0’)
☒	☐	NFEW2 Weir Depth (Criteria – ≥ 8.0’)
☒	☐	NFEW3 Weir Depth (Criteria – ≥ 8.0’)
☒	☐	South Oregon Entrance Head Differential (Criteria – 1.0’ to 2.0’)
☒	☐	SFEW1 Weir Depth (Criteria – ≥ 8.0’)
☒	☐	SFEW2 Weir Depth (Criteria – ≥ 8.0’)
☒	☐	Oregon Collection Channel Velocities (Criteria –1.5 to 4.0 fps): Averaged 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: None.

Auxiliary Water Supply System:

Yes	No	In Service?
☒	☐	Washington shore Wasco County PUD Turbine Unit.
☐	☒	Washington shore Wasco PUD Bypass. Service not required.
☒	☐	Oregon Ladder Fish Pump 1: Blade angle was 27 degrees.
☐	☒	Oregon Ladder Fish Pump 2: Testing scheduled to begin May 16.
☒	☐	Oregon Ladder Fish Pump 3: Blade angle was 27 degrees.
☒	☐	Oregon North Powerhouse Pool supply from juvenile fishway.

Comments: Fish pumps 1 and 3 were out of service on April 27, from 1616 to 1644 hours, while the pumps were switched to another electrical bus. The contractor will turn over fish pump 2 to the project on May 15.

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. Two schedule deviations occurred. The first was on April 22, when the system was in primary bypass from 0716 to 0941 hours due to reduced flow over the dewatering system. The collection channel low water alarm did not trip, however, to avoid stressing fish, the system was switched to primary bypass so the collection channel and facility could be inspected. The low water alarms were tested and functioning as designed and no obvious issues found during the inspection.

After returning to secondary bypass, the flow over the dewatering perforated plate was still insufficient. The valves were checked and adjusted to standard settings, which returned the flow over the dewatering perforated plate to normal levels. It appears the dewatering valves had been opened by someone during the 24-hours resulting in no water reaching the separator. This resolved the flow issue coming out of the dewatering structure. No fish mortalities occurred during the collection channel dewatering problem.

The second deviation occurred on April 23, when the system remained in secondary bypass from 0700 to 0705 hours to determine if any undocumented events caused the low water event the previous day. No issues were observed. The channel elevation will be closely monitored.

This week, 159,652 smolts and 2,350 juvenile lamprey were bypassed.

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? Debris materials were removed as needed.
☐	☒	Any oil seen in gatewells?

Comments: Forebay debris loads near the powerhouse were light to very light. Debris loads at the spillway were minimal. Most incoming debris is now along the Washington shoreline and is light in abundance. Trash racks will be cleaned next week. While removing debris from the gatewell slots, one clipped steelhead smolt, which was entangled in fishing line, was released.

Extended-length submersible bar screens (ESBSs)/Vertical barrier screen (VBSs):

Yes	No	Item
☒	☐	ESBSs deployed in all slots except unit 2 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: The ESBS screens in unit 2 will be deployed before the unit returns to service. The cleaning brush cycles for the screens in 1A and 12B slots remained in timer mode. The screen in 3B slot was switched to timer mode on April 21 after multiple cleaning brush alarms

No VBS differential problems were found and no screens were cleaned this week. The next VBS camera inspections begin May 16.

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

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

Comments: Minor orifice valve operator issues continued to be addressed. The north orifice valve cylinder in slot 8A was replaced on April 25 due to failing seals. Orifice valve cylinder rehab may be needed next winter.

Project staff are operating the dewatering facility cleaning brush manually due to inconsistent operations during automatic operating mode. Work orders to address the issues have been submitted to both mechanical and electrical support.

Bypass Facility:

Yes	No	Item
☒	☐	Sample gates on? Yes, during secondary bypass only.
☐	☒	Passive integrated transponder (PIT) tag system on? The Pit-tag sort-by-code system remains off unless a study is occurring because the facility bypass lines provide a superior passage route for the fish over the PIT-tag sample release lines downstream of the PIT-tag sample gates.

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

On April 25, while releasing the sample fish from the recovery raceway, the crowding net broke and covered the raceway release drain resulting in one yearling Chinook salmon. The crowding net was recovered and repaired.

Lighting improvements concluded this week. The barrier screen upstream of the perforated plate when the facility is in primary bypass was rebuilt this week. A new thermometer was installed in the sample recovery raceway on April 27. Pacific States Marine Fisheries Commission (PSMFC) personnel reported a power outage false alarm at the facility PIT tag room on April 27 because no power outages occurred.

Sample water temperature is being monitored constantly and operations adjusted as needed until the sample chiller issues are resolved.

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.

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
366.6	336.9	217.5	195.3	49.4	48.3	3.2	2.7

Comments: Spill in excess of powerhouse capacity occurred all week. Routine spring spill in support of fish passage continues. Target spill during the spring passage season is 40%. This week, 57% to 61% of the flow was spilled.

Other

Inline Cooling Water Strainers: The next cooling water strainer examinations is scheduled for May 2nd.

Invasive Species: No invasive mussels were observed on the mussel monitoring stations during the April 23 inspection.

Avian Activity: See Table 3 below for piscivorous bird counts in the McNary Dam tailrace during this reporting period. On April 27, four gulls were observed roosting on the outfall pipe or walkway hand rail. The outfall pipe has been walkway has been inspected now that flows have decreased and no safety issues were found. The bird wires associated with the outfall have been repaired and the one of the large sprinklers turned on. The bird distress calls along the outfall walkway will need to be replaced because they were damaged or lost during the high flows in April.

Forebay piscivorous bird activity included an occasional observation of osprey, cormorant, gull, tern, pelican and loon during this reporting period.

United States Department of Agriculture – Animal and Plant Health Inspection Service – Wildlife Services (USDA–APHIS–WS) personnel began bird hazing on April 16 with one day shift of one person seven days per week. A second shift will be added beginning April 30th and boat hazing begins May 1.

Table 3. McNary tailrace daily piscivorous bird counts.

Date	Zone	Gull	Cormorant	Tern	Pelican
Apr 21	Spill	3	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
Apr 22	Spill	19	0	0	0
	Powerhouse	0	0	0	0
	Outfall	2	0	0	0
Apr 23	Spill	11	0	0	1
	Powerhouse	0	0	0	0
	Outfall	10	0	0	0
Apr 24	Spill	8	0	0	0
	Powerhouse	0	0	0	0
	Outfall	3	0	0	0
Apr 25	Spill	20	0	0	0
	Powerhouse	0	0	0	0
	Outfall	20	0	0	0
Apr 26	Spill	10	0	0	0
	Powerhouse	0	0	0	0
	Outfall	5	0	0	0
Apr 27	Spill	78	0	0	0
	Powerhouse	0	0	0	0
	Outfall	22	1	0	0

Fish Salvage/Rescue**:** No fish salvage was performed during this reporting period.

Research: No onsite research is occurring at this time. Pacific Northwest National Laboratory collected eight juvenile lamprey from the sample for an offsite tagging study during this reporting period.

Gas bubble trauma (GBT) monitoring: GBT continues and occurs twice a week during the spill season. There were 200 juvenile salmonids examined for GBT this week. No fish exhibited signs of GBT.

Project: Ice Harbor
Biologist: Ken Fone
Dates: April 21 – April 27, 2017

Turbine Operation

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

Comments: Unit 2 was taken out of service on April 25, 2016, at 0606 hours for the runner replacement. Unit 4 was removed from service at 1218 hours on March 6, when it tripped off due to a problem in the 115 kv section 2 bus. That problem was fixed, but personnel are also investigating the source of a possible oil leak from unit 4. Unit 3 was routinely operated slightly above the 1% peak operating efficiency range during the reporting period, 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 April 24, 25, and 26.

Fish Ladders:

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

Comments: The water surface above the south fish ladder exit was clear of debris. Debris was cleaned from the trash rack at the north fish ladder exit on April 23. The bubblers were 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 Entrance 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 south shore channel velocity was out of criteria on April 24, 25, and 26 with readings of 1.4, 1.4, and 1.2 fps, respectively. These readings can most likely be attributed to the high channel water backing up into the fish ladder.

Auxiliary Water Supply (AWS) System:

Yes	No	In Service and Operating Satisfactory?
☒	☐	South Shore AWS Pumps. Seven of the eight south shore AWS pumps were in service until April 27, when a second pump was turned off and only six pumps were needed to meet fish ladder criteria.
☒	☐	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 5 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: None.

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. The 1 mortality from the April 27 sample was found on the floor under the sample trough after sampling was completed for the day. The fish may have splashed out of the sample trough when flushed into the lab from the sample tank, although this is uncertain. Personnel will be vigilant when performing sampling procedures so that this does not happen again.

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

April 24:

Species	Sampled	#Descaled	Morts	Avian Marks
C-CH	41	2	0	4
UC-CH	45	3	0	2
C-CH-O	0	---	---	---
UC-CH-O	0	---	---	---
C-SH	55	1	0	2
UC-SH	8	0	0	0
C-SOCK	0	---	---	---
UC-SOCK	0	---	---	---
C-COHO	0	---	---	---
UC-COHO	0	---	---	---
TOTAL	149	6	0	8

April 27:

Species	Sampled	#Descaled	Morts	Avian Marks
C-CH	52	3	1	0
UC-CH	20	0	0	0
C-CH-O	0	---	---	---
UC-CH-O	0	---	---	---
C-SH	89	2	0	1
UC-SH	15	0	0	0
C-SOCK	0	---	---	---
UC-SOCK	1	0	0	0
C-COHO	0	---	---	---
UC-COHO	0	---	---	---
TOTAL	177	5	1	1

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
137.3	122.5	91.5	81.2	51.0	49.0	2.7	2.6

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Turbine cooling water strainer were not inspected during this reporting period.

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

Avian Activity: Overall, there were moderate numbers of piscivorous birds counted around the project, but numbers varied from day to day (Table 3 below). Contracted land-based hazing of piscivorous birds is occurring for 16 hours per day. Boat-based hazing of piscivorous birds is occurring for 8 hours per day, three days per week. Hazing has

generally been effective at keeping birds out of the zones immediately adjacent to the dam. Hazing was periodically necessary to keep a few cormorants out of the forebay area adjacent to the south fish ladder exit.

Up to several hundred foraging pelicans have been seen in the evening and early morning hours, in the riverine section of the river between the outfall pipe and the second island downstream of the dam.

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

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
April 21	19	20	0	0	27
April 22	9	18	0	0	32
April 23	26	20	0	0	60
April 24	29	13	0	0	3
April 25	6	3	0	0	0
April 26	6	14	0	0	5
April 27	51	10	0	0	24

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

Project: Lower Monumental
Biologists: Chuck Barnes and Raymond Addis
Dates: April 21 - 27, 2017

Turbine Operation

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

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 October 3, 2017. Unit 5 was removed from service on January 17, 2017 due to a turbine oil leak with an estimated return to service of July 30, 2017. Unit 3 was removed from service at 1049 on April 27 and returned to service at 1119 on April 27 to repair a generator brush issue.

Adult Fish Passage Facility

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

Fish Ladders:

Yes	No	Location, Criteria and Measurements
☒	☐	North Fish Ladder Exit Differential (Criteria – Head ≤ 0.5’)
☒	☐	North Fish Ladder Picketed Lead Differential (Criteria – Head ≤ 0.4’)
☒	☐	North Fish Ladder Depth over Weirs (Criteria – Head over weir 1.0’ to 1.3’)
☒	☐	South Fish Ladder Exit Differential (Criteria – Head ≤ 0.5’)
☒	☐	South Fish Ladder Picketed Lead Differential (Criteria – Head ≤ 0.3’)
☒	☐	South Fish Ladder Depth over Weirs (Criteria – Head over weir 1.0’ to 1.3’)

Comments: None

Fishway Entrances and Collection Channel:

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

Comments: None

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 481 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? Gatewells for units 2, 3 and 6 had woody debris removed on April 21.
☐	☒	Any oil seen in gatewells?

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: None

Collection Facility: Sampling for condition took place over 24 hour periods starting at 0700 on April 21, 23, 25 and 27.

Transport Summary: Transport is not occurring at this 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
133.3	120.5	69.1	54.8	51.8	50.0	2.7	2.3

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were not inspected during this reporting period.

Invasive Species: The invasive species monitoring station was not inspected during this reporting period.

Avian Activity: Gulls 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
4/21/2017	1100	11	0	0	0	2
4/22/2017	1300	10	1	0	0	1
4/23/2017	1130	9	0	0	0	0
4/24/2017	1120	0	0	0	0	0
4/25/2017	1240	0	0	0	0	0
4/26/2017	1114	0	0	0	0	0
4/27/2017	1220	2	0	0	0	0

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

Project: Little Goose
Biologists: Scott St. John & Richard Weis
Dates: April 21 – April 27, 2017

Turbine Operation

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

Comments: All turbine units were available for service throughout this report period, except for units 2 and 5. Unit 5 remains Out of Service (OOS) due to excessive vibration. Unit 2 was taken OOS April 20 at 1700 hours due to cleaning brush motor failure. Unit 2 was returned to service (RTS) April 21 at 1635 hours after the cleaning brush motor was replaced. 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 April 23, 26 and 27.

Fish Ladder:

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

Comments: No comments.

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: No comments.

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: No comments.

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 10,000 square feet of floating woody debris currently in the forebay. Trash raking was completed on units 1, 2 and 5 on April 20. Trash raking is scheduled again for May 01. Trash rack differential was measured for units 1 and 2 and was in criteria. Differentials will be measured again for next report period.

Spillway Weir: The Spillway Weir was opened in the low crest position on March 22.

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: ESBSs and VBSs were inspected on April 03 and 04 for units 3 and 4, respectively. All VBSs were in satisfactory condition. The next camera inspection is scheduled for May 01. VBS differentials were conducted on April 21 and 22 for units 1 and 2. Differentials on VBS 1B were out of criteria. VBS differentials will be conducted again for the next report period. The ESBS in slot 2B was pulled and the cleaning brush motor was replaced on April 21.

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: Due to large amounts of debris, orifices are being backflushed and rotated every two hours. The dewatering structure is being cleaned on the same schedule.

Collection Facility: Juvenile Fish Facility is currently operating. Collection began on April 01 and is taking place every other day. During non-collection days, the facility is operating in primary bypass.

Transport Summary: No fish transportation is currently taking place.

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* (ºF)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
134.2	117.1	48.0	35.6	51.9	51.1	2.5	2.0

*Ladder temperature.

Comment: Spill in excess of powerhouse capacity occurred all week

Spillbay 5 was returned to service on April 25 at 1120 hours. The project performed commissioning test to verify gear box motors and brakes were operating within specifications. During commissioning the gate was cycled 3 times, between closed and opened, up to 5 stops, to verify the gear box motors and brakes were engaging and functioning within operating criteria.

Other

Inline Cooling Water Strainers: Cooling water strainers were not inspected during this reporting period and were last inspected on April 19.

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

Avian Activity: USDA bird hazing began on April 03. See Table 2 for piscivorous bird counts during this reporting period.

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

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
04-21	1030	102	24	0	0
04-22	1230	79	22	0	0
04-23	0730	68	13	0	0
04-24	1345	17	12	0	0
04-25	1300	56	13	0	0
04-26	1300	50	6	0	1
04-27	1230	68	3	0	1

Gas Bubble Trauma (GBT): GBT sampling was conducted on April 23. No signs of GBT were seen in the 100 fish examined.

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

Project: Lower Granite
Biologists: Elizabeth Holdren
Dates: April 21- April 27, 2017

Turbine Operation

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

Comments: Unit 1 remains out of service for blade/runner repair with an expected return to service date of July 14. Unit 1 return to service was delayed due to time needed to procure studs for replacement in the Kaplan.

Adult Fish Passage Facility

General comments: Adult fish facilities were inspected by Corps or Anchor QEA biologists April 21, 22, 23, and 26.

Fish Ladder:

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

Comments: Ladder cooling pumps are not in operation at this time due to river temperatures currently below 68°F.

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. NPE 2 north operating cable was found broken April 17. NPE 2 is currently in sill position at 628.0 feet as it would be while Little Goose is operating at MOP or a maximum elevation of 636.0 feet. The Project plans on scheduling repairs to the gate operating cables later in the season. This will be coordinated in an MOC.

Collection Channel Velocity: Channel velocity was in criteria this week.

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 pumps 2 and 3 were removed from service April 27 from 1220 to 1457 hours for the bulkhead swapping and pump 1 commissioning testing. AWS pumps 1 and 3 are operating.

Fish Ladder Temperature Control System: See above.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	Item
☒	☐	Forebay debris load acceptable? Debris was observed in the 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: An average 51.8 square yards of debris was observed in the powerhouse forebay 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: Unit 1 ESBSs will be installed prior to returning the unit to service.

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: Debris continues to be a problem plugging orifices. Orifices are being checked every one to three hours and cycled every three hour.

Collection Facility: The collection facility is in secondary bypass mode with 24 hours collection for condition sampling occurring daily. Fish were collected April 23 and 24 for NMFS In-River Survival study.

Transport Summary: Lower Granite barge departed April 27 with 30,880 smolts transported as part of NMFS In-River Survival study.

River Conditions

General Comments: None.

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
134.0	120.5	61.2	54.0	51.0	50.0	2.6	2.2

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Turbine Unit Cooling Water Strainers were inspected April 23. Mortalities included: 24 juvenile Lamprey and about 23 decomposed fish that were unidentified.

Invasive Species: Zebra/quagga mussel substrate was inspected March 26. No organisms were found.

Avian Activity: Comments. Daily hazing is occurring.

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

Date	Time (hours)	Gulls	Cormorants	Caspian Terns	Pelicans
April 21	1300	0	0	0	0
April 22	1330	0	0	0	0
April 23	1415	4	0	0	0
April 24	1400	2	0	0	0
April 25	1455	2	0	0	0
April 26	1302	0	0	0	0
April 27	1430	5	0	0	0

Gas bubble trauma (GBT): GBT monitoring is being conducted every Thursday and was last performed on April 27. This week, 31 clipped and 12 unclipped yearling Chinook salmon and 48 clipped and nine unclipped steelhead were examined for GBT with four fish with minor symptoms observed.

Research:

Idaho Fish and Game (IDFG) Genetic Stock Identification
IDFG continue working up fish collected as part of Lower Granite condition sample. This study aims to enumerate and characterize natural production of yearling chinook and juvenile steelhead above LWG with regards to age composition and genetic stock profiles. IDFG will sample Monday through Friday through mid-June with a goal of collecting 2,000-5,000 genetic samples from yearling chinook and juvenile steelhead.

Nez Perce Tribe (NPT)/U. of Idaho (UI)/Columbia River Intertribal Fisheries Commission (CRITFC) – Kelt Study
Collection of steelhead from Lower Granite juvenile separator for NPT began March 26 with the first sample being worked up March 27. This research project investigates steelhead kelt physiology and endocrinology to evaluate the feasibility and success of rehabilitating strategies. Selected kelts collected at Granite are transported by NPT to Dworshak National Fish Hatchery for reconditioning as part of this study.

National Marine Fisheries Service (NMFS)-Monitoring the Migrations of Wild Snake River Spring/Summer Chinook: This study is monitoring the migration behavior and survival of wild spring/summer Chinook salmon. The goals are to characterize migration timing and estimate parr-to-smolt survival to LGR of wild Chinook populations as they migrate from their natal rearing areas and determine migration patterns and what environmental factors influence those patterns. Fish were PIT-tagged during the summer of 2016 in natal streams and are diverted to the Sort-By-Code tanks at LGR.

National Marine Fisheries Service (NMFS) In-River Survival: NMFS PIT-tag Chinook and steelhead smolts for their Survival Study April through early June to compare smolt to adult returns of in-river migrating smolts to the smolt to adult returns of transported smolts. PIT-tagged fish are held for 24 hours before being bypassed to the LGR tailrace.