U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#05-2017

Project: McNary
Biologists: Bobby Johnson and Denise Griffith
Dates: March 24 - 30, 2017

Turbine Operation

General Comments: Hard 1% peak efficiency constraints begin 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 Apr 7	6 month	Thrust bearing issue.
2	Mar 21 to Apr 21	31 days	Thrust bearing issue.
1, 3 to 12 & 14	Mar 27 to 30	24.3 hours total	Trash rack cleaning.
12	Mar 28 & 29	9.1 hours total	Electrical issues.

Adult Fish Passage Facilities

General Comments: McNary fisheries biologists performed measured inspections of the adult fishways on March 27, 28 and 29. Video fish counts continue. Visual fish counts will begin April 1. Temperature probes will be deployed at the ladder exits on March 31.

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’): 1.4’ on March 28.
☒	☐	Washington Count Station Differential (Criteria – Differential 0.0’ to 0.5’)

Comments: Debris loads were variable at the Washington exit. Larger debris quantities were evident along the Washington shoreline. The trash rack and picketed leads were cleaned multiple times during the week and on the evening of March 27. Issues with weir 337 reported last week were resolved on March 27 and the weir was returned to automatic mode. Out of necessity, the exit weirs were placed in manual mode for about seven hours while the weir issue was addressed. The Washington ladder count station differential did not meet criteria on March 28. This was possibly due to debris loads or the regulating weir set point setting. Regulating weir and tilting weirs set points adjustments were noted during each inspection. This week, Pacific States Marine Fisheries Commission (PSMFC) staff reported that PIT (Passive Integrated Tag) transponder interference at the count station has been evident since March 17.

At the Oregon exit, debris loads were light. Weir 334 was observed lying flat on March 27. This weir is always up right under the normal forebay elevation range. The tilting weirs sequence was out of order. The operators adjusted the tilting weirs, which returned them to the proper sequence. The exit weirs were in manual mode for 1.5 hours

during control system examinations on March 28. Regulating weir and tilting weirs set points adjustments were noted on March 27 and 28.

The Oregon exit traveling screens debris trough was cleaned as needed all week.

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'): 0.9' on March 27.
☐	☒	SFEW1 Weir Depth (Criteria – ≥ 8.0'): 7.5 to 7.7' all week.
☐	☒	SFEW2 Weir Depth (Criteria – ≥ 8.0'): 7.6 to 7.8' all week.
☒	☐	Oregon Collection Channel Velocities (Criteria –1.5 to 4.0 fps): Averaged 1.6 fps.
☒	☐	Washington Entrance Head Differential (Criteria – 1.0' to 2.0')
☒	☐	WFE2 Weir Depth (Criteria – ≥ 8.0')
☒	☐	WFE3 Weir Depth (Criteria – ≥ 8.0')

Comments: Due to hydraulic gradients and high tailwater elevations, weir set points at the south powerhouse entrance (SFEW1 and SFEW2) remained at 7.6 feet to maintain pool differential criteria. The SFEW2 upper limit issue reported last week was resolved on March 27. The weir was returned to automatic operation at 1453 hours. Possibly due to hydraulic gradients, the south entrance head differential was out of criteria on March 27.

Auxiliary Water Supply System:

Yes	No	In Service?
☒	☐	Washington shore Wasco County PUD Turbine Unit: Unit was out of service for 24 hours.
☒	☐	Washington shore Wasco PUD Bypass: Operated satisfactorily on March 23 to 24.
☒	☐	Oregon Ladder Fish Pump 1: Blade angle was 24 degrees.
☐	☒	Oregon Ladder Fish Pump 2: Return to service date is June 15.
☒	☐	Oregon Ladder Fish Pump 3: Blade angle was 24 degrees.
☒	☐	Oregon North Powerhouse Pool supply from juvenile fishway: Returned to service on March 29.

Comments: The Wasco PUD turbine unit tripped multiple alarms on March 20, which were reset. The unit was out of service from March 23 at 0811 hours to March 24 at 0800 hours.

Juvenile Fish Passage Facility

General Comments: The winter maintenance season has concluded. The juvenile collection channel returned to service on March 29 at 1100 hours. The system will remain in primary bypass until April 6 at 0700 hours, when the first day of secondary bypass for smolt sampling will begin.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	Item
☒	☐	Forebay debris load acceptable? Although the debris load is acceptable, removal is 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: Heavy forebay debris loads near the powerhouse remain. The debris tug (or "log bronc") is currently out of service until repair parts arrive. Powerhouse debris removal will be attempted at a later date. Trash rack cleaning did remove some powerhouse floating debris. Debris loads at the spillway remained light. Most incoming debris is now along the Washington shoreline where debris loads were variable. The operators are flushing the debris down the navigation lock daily, and they are constantly monitoring the Washington ladder exit. All turbine unit trash racks were cleaned from March 27 to March 30. Sixteen ten-yard truckloads of woody debris and tumbleweeds were removed. No fish were observed in the debris. Cleaning was delayed four times due to issues with the crane auxiliary hoist. Following the completion of trash rack raking, differentials decreased to normal levels and met criteria.

Extended-length submersible bar screen (ESBSs)/Vertical barrier screen (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 maintenance continues. ESBS deployments are scheduled to begin April 5. VBS differential monitoring will begin at that time.

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

Yes	No	Item
☒	☐	Orifices operating satisfactory? 42 orifices were opened and entered service on March 29.
☒	☐	Dewaterer and cleaning systems operating satisfactory? Yes, since the channel came into service.

Comments: The south orifice valve in slot 8A would not function properly on March 30. Until repairs can be completed, the north orifice will be used. Minor orifice valve operator issues will be addressed as soon as possible. Orifices were adjusted as required during trash rack cleaning operations.

After checks and preparation, the channel systems were returned to automatic mode on March 29. The transition area side screens overflow drain that had been closed for an undetermined amount of time will be left open this year.

The breaker for units 1 and 2 orifice attraction lighting was reset on March 27. Orifice lighting will be replaced as required. The high/lower water alarm and the side dewatering screen brush alarm were modified on March 28. The two alarms are now on separate electrical circuits. Previously, one circuit served both components. This separation only applies to the collection channel. The control room itself remains unchanged.

Bypass Facility: The facility was rewatered on March 29. All systems were checked and remain off line. The fisheries staff repaired air leaks, painted inside the separator observation building, repaired valves and cleaned diffusers.

River Conditions

General Comments: River conditions were provided by the McNary control room and are outlined in Table 2 below. The data period runs from 0000 to 2400 hours each day. Flows and spill are recorded in one-thousand cubic feet per second. Temperatures are recorded in degrees Fahrenheit.

Table 2. River Conditions at McNary Dam.

Daily Average River Flow		Daily Average Spill		Water Temperature		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
460.3	410.2	262.4	216.2	44.0	42.0	1.6	1.2

Comments: Spill in excess of powerhouse capacity occurred all week.

Other

Inline Cooling Water Strainers: Strainer inspections are scheduled on April 4.

Invasive Species: Mussel stations examinations on March 27 revealed no problems.

Avian Activity: Gulls, cormorants and ospreys were noted this week. Avian counts will resume on April 1. A new pump and intake for the hazing water sprinklers are scheduled to be installed in two weeks. Due to high flows near the outfall, the water sprinklers remain off.

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

Research

Item: No onsite research is occurring at this time. Pacific Northwest National Laboratory (PNNL) staff may begin collecting juvenile lamprey at the McNary fish facility next week in support of a tagging study.

Project: Ice Harbor
Biologists: Ken Fone
Dates: March 24 - 30, 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 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. Units 6, 5, 3, and 1 were taken out of service one at a time on March 27, 28, and 29 to install STSs. Unit 3 was routinely operated a little above the 1% peak operating efficiency range during the reporting period, due to the GDACS (Generic Data Acquisition Control System) needing to be updated with the narrower operating efficiency range of unit 3 since it became a fixed-blade unit. Units 1 and 6 were operated above the 1% peak efficiency range during the week when requested by the BPA (Bonneville Power Administration).

Adult Fish Passage Facilities

Fish facility personnel inspected the adult fishways on March 27, 28, and 30.

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 fish ladder exits were clear of debris and the bubblers were operating satisfactorily. The picketed leads were installed on March 30 in preparation for the start of adult fish counts on April 1.

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 NSE-1 weir gate depth was out of criteria on March 27, with a reading of 7.2’. The north shore channel/tailwater differential was out of criteria on March 28, with a reading of 0.6’. The operating weir gates are in manual control to reduce the wear and tear on the gate machinery from trying to auto-adjust to the widely fluctuating

tailwater levels from spill, and to prevent the gates from raising too far and becoming jammed from water pressure against the gates. With the gates in manual control, the operator must monitor the electronic readouts to detect any out of criteria readings and operate the gates as needed to maintain criteria. The electronic readouts may differ from the staff gauge readings due to the difficulty in obtaining accurate readings during widely fluctuating tailwater levels. The sensor selections for the automated control system readouts were switched to the sensor closest to each staff gauge for each inspection point.

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.
☒	☐	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? Approximately 2 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: Initial, baseline trash rack differential measurements were taken on March 30.
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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)? Yes.
☐	☒	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: The STSs were deployed on March 27, 28, and 29, except for unit 2 STSs, since unit 2 will not be returned to service this year.

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 mechanical screen cleaner was not functioning properly in automatic mode from March 26 to March 29, due to problems with the limit switches. During that period, the cleaner was operated in manual mode.

Juvenile Fish Facility: The fish facility was watered up on March 27.

Fish Sampling: Sampling operations are scheduled to begin on April 3.

Removable Spillway Weir (RSW): Involuntary spill continued, including spill through the RSW this week, due to high river flows. Routine spill for fish passage is scheduled to begin April 3.

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
184.5	157.9	129.1	106.6	46.0	44.0	1.6	1.4

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Turbine cooling water strainer inspections occurred on March 16. Motality recoveries included 1 Chinook fry and 80 juvenile lamprey. Four live juvenile lamprey were also recovered and released to the river.

Invasive Species: No new exotic species have been found.

Avian Activity: There were very few piscivorous birds seen around the project.

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

Project: Lower Monumental
Biologists: Chuck Barnes and Raymond Addis
Dates: March 24 - 30, 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 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 date of July 30, 2017. Unit 6 was removed from service from 1238 to 1608 hours on March 30 to clean trash racks.

Adult Fish Passage Facility

The adult fishway was inspected by Corps and Anchor QEA biologists on March 27, 28, 29 and 30.

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 channel/tailwater differentials were out of criteria on three inspections this week due to the high tailrace levels caused by elevated river flows. The differentials for March 27, 28 and 30 were 0.8, 0.4 and 0.9 feet, respectively.

South powerhouse entrance weir (SPE2) head was out of criteria on the criteria on March 29 and 30 inspection with a reading of 4.1 and 7.8 feet respectively. The March 29 reading was due to maintenance on SPE2, while the March 30 reading was due to the automated system not working well due to high water levels in combination with wave action from high spill.

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? average of 951 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? Debris was removed from gatewells on March 27, 28 and 30.
☐	☒	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)?
☐	☒	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: STSs were deployed from March 21 to 23 and are now in service in all available units. STSs were placed in continuous-run mode on March 30 due to heavy debris loads.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	Item
☒	☐	Orifices operating satisfactory? How many are open and in service? 14 - 18.
☒	☐	Dewaterer and cleaning systems operating satisfactory?

Comments: The collection channel was watered up on March 21 at 1000 hours. The number of opened orifices was limited due to gatewell debris removal.

Collection Facility: The facility was "watered up" on March 21 at 1200 hours.

Transport Summary: Fish transport is not occurring at this time.

River Conditions

General Comments: None.

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
182.9	153.3	100	71.7	47.0	47.0	2.1	1.5

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on March 7. Live fish included 10 juvenile lamprey. Mortalities included approximately 1100 juvenile lamprey and 1 banded killifish.

Invasive Species: No zebra or quagga mussels were observed during monitoring station inspections on March 1.

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

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

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans

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

Project: Little Goose
Biologists: Scott St. John and Richard Weis
Dates: March 24 - 30, 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. Soft 1% peak efficiency constraint criteria are in effect. Hard constraints commence on April 01.

Adult Fish Passage Facility

The adult fishway was inspected by Corps biologists on March 27, 28, 29 and 30.

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: On March 29, SSE-1 and SSE-2 weir depths read 7.7 and 7.8 feet, respectively. On March 28, the channel to tailwater differential at the NPE was 2.3 feet. On March 29, weir depths at NSE-1 and NSE-2 both read 5.7 feet.

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. An estimated 30,000 sq. ft. of floating woody debris is in the forebay.
☐	☒	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: ESBSs were lowered in all units. There is an estimated 30,000 square feet of floating woody debris currently in the forebay. Trash raking was last completed on February 13 and is scheduled again for May 8 and 9.

Spillway Weir: The spillway weir was opened in the low crest configuration 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: None.

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: None.

Collection Facility: The Juvenile Fish Facility was “watered up” for operation on March 28.

Transport Summary: No fish transport is taking place at this time.

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
172.0	146.5	58.0	24.1	47.6	47.0	2.0	1.3

*Ladder temperature.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on March 30. Strainer mortalities included 99 juvenile lamprey and one juvenile salmonid mortality.

Invasive Species: No invasive species have been observed on the mussel station or during winter maintenance.

Avian Activity: N/A.

Gas Bubble Trauma: N/A.

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

Project: Lower Granite
Biologist: Elizabeth Holdren and Suzette Frazier
Dates: March 24 - 30, 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 is delayed due to time needed to procure studs for replacement in the Kaplan. Unit 2 is out of service for blade seal repair with an expected return to service date of April 7. Units were rotated out of service March 29 and 30 to for trashrack raking.

Adult Fish Passage Facility

Adult fish facilities were inspected by Corps or Anchor QEA biologists on March 24, 25, 26, 28 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.

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.

Collection Channel Velocity: Channel velocity met 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).

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 of 117.0 square yards of debris was observed in the powerhouse forebay this week. Unit trash racks were raked March 29 and 30 due to excessive gatewell drawdown measurements ranging from 1.0 feet to 1.6 feet on March 28. About 23.4 cubic yards of debris was removed from the trashracks.

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: None.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe:

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

Comments: Debris continues to block orifices. Orifices are being checked as often as hourly, and continue to be cycled a minimum of every three hours.

Collection Facility: The collection facility is in secondary bypass mode.

Transport Summary: No fish transport is in progress at this time.

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^o)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
178.9	152.9	91.1	75.1	44.5	43.4	1.5	1.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: N/A.

Invasive Species: Comments. N/A.

Avian Activity: Comments. N/A.

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

Date	Time (hours)	Gulls	Cormorants	Caspian Terns	Pelicans
Month XX					
Month XX					
Month XX					
Month XX					
Month XX					
Month XX					
Month XX					

GBT: GBT (Gas Bubble Trauma) sampling occurred March 30 with 100 fish being sampled from the juvenile separator. Of the 100 fish examined, 3 fish had minimal symptoms of GBT. Two of the three fish had a single bubble in the caudal fin and one of the three fish had a single bubble in the dorsal fin.

Adult Fish Trap Operations: The adult trap is operating at a 26% sample rate.

Fish Rescue Operation: N/A.

Research

Idaho Fish and Game (IDFG) Genetic Stock Identification: IDFG began working up fish collected as part of Lower Granite condition sample March 27. 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" on March 27. This research project investigates steelhead kelt physiology and endocrinology to evaluate the feasibility and success of rehabilitation strategies. Selected kelts collected at Granite are transported by NPT to Dworshak National Fish Hatchery for reconditioning as part of this study.