

**U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#23-2021**

Project: McNary

Biologist: Bobby Johnson and Denise Griffith

Dates: July 30-August 5, 2021

Turbine Operation

Yes	No	Turbine Unit Status
	X	All 14 turbine units available for service? (See table & comments below for details.)

*All available turbine units are operated in accordance with App. C of the Fish Passage Plan.

Table 1. McNary Unit Outages (OOS) and Return to Service (RTS).

Unit(s)	OOS		RTS		Outage Description
	Date	Time	Date	Time	
5	12/7	0643	8/19	N/A	Blade seals and hub oil replacement
2	6/7	0732	8/20	N/A	Nine-year overhaul/Transmission line 1
1	7/12	0720	8/20	N/A	Line 1 outage for BPA relays
4	8/2	1018	9/24	N/A	Nine-year overhaul
9, 11 & 12	8/3	1000	8/3	1130	ESBS camera inspections

Comments: The one percent peak efficiency constraint and unit priority are being followed per the 2021 Fish Passage Plan (FPP). The sawtooth unit priority pattern for temperature abatement continues. RTS dates are subject to change.

Adult Fish Passage Facilities

McNary fisheries biologists performed a measured inspection of the adult fishways on July 30, August 1 and 3. Fish counting, and video review of adult lamprey night passage continues.

One presumed heat stressed sockeye mortality was observed behind Washington ladder entrance weir W1 this week.

Fish Ladder Exits:

Yes	No	Location	Criteria	Measurements
X		Oregon Exit	Head over weir 1.0' to 1.3'	1.0' to 1.2'
X		Oregon Count Station Differential	0.0' to 0.5'	0.3' to 0.5'
X		Washington Exit	Head over weir 1.0' to 1.3'	1.1' to 1.2'
X		Washington Count Station Differential	0.0' to 0.5'	0.1' to 0.3'

Comments: Debris loads near the Oregon exit were minimal to moderate and minimal to light near the Washington exit. Picketed leads at both exits were cleaned repeatedly, including the weekend.

At the Oregon shore exit, tilting weir 335 tripped an alarm and was reset on August 1.

At the Washington exit, a regulating weir alarm came in and was reset on August 1.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0' – 2.0'	1.1' to 1.2'
	X		NFEW2 Weir Depth	≥ 8.0'	7.9' to 8.1'
	X		NFEW3 Weir Depth	≥ 8.0'	7.9' to 8.1'
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.2' to 1.4'
X			SFEW1 Weir Depth	≥ 8.0'	8.0' to 8.1'
X			SFEW2 Weir Depth	≥ 8.0'	8.0' to 8.1'
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.6 fps
X			Washington Entrance Head Differential	1.0' – 2.0'	1.4' to 1.6'
X			WFE2 Weir Depth	≥ 8.0'	8.2' to 9.4'
	X		WFE3 Weir Depth	≥ 8.0'	7.4' to 9.0'

Comments: Possibly due to calibration drifts, low fish pump blade angles and/or low tailwater elevation, NFEW2 and 3 were out of criteria on July 30. Due to the lower limit switch failing on July 30, W3 was out of criterion on July 30 and August 1. Both W2 and W3 were switched to manual mode until the limit switch was replaced and calibrated on July 2.

Stoplogs were removed from five floating orifice gates (FOG's) on July 30 from 0900 to 1127 hours. Fabrication of the six remaining FOG's is on hold until fish pump 3 repairs are completed.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Fish Pump Blade Angle	Auxiliary Water Supply System (AWS)
Yes				WA shore Wasco County PUD Turbine Unit
	Yes			WA shore Wasco PUD Bypass
Yes			18° to 24°	Oregon Ladder Fish Pump 1
Yes			21° to 24°	Oregon Ladder Fish Pump 2
		Yes		Oregon Ladder Fish Pump 3, RTS date is September 30
Yes				OR North Powerhouse Pool supply from juvenile fishway

Comments: Fish pump 3 remained out of service. Return to service dates are subject to change.

Juvenile Fish Passage Facility

Normal sampling season, consisting of alternating days of primary and secondary bypass, continues. There were no interruptions in the schedule this week. Sample tank mortality has remained below 3.0 percent. There appears to be very little heat stress occurring, though the B side sample tank water temperature remained over 70 degrees Fahrenheit all week. The situation will be monitored.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Minimal to moderate
X			Gatewell drawdown measured this week?	Daily
X			Gatewell drawdown acceptable?	
	X		Any debris seen in gatewells? (% coverage)	
	X		Any oil seen in gatewells?	

Comments: Current loads were minimal to moderate near the powerhouse and very light to light beside the spillway. Incoming debris was minimal to light and consisted of aquatic vegetation long with woody material. Wind direction and project operations effected the debris distribution. Much of the debris moved between the powerhouse and the Oregon shoreline.

No trash racks were cleaned this week.

The emergency bulkhead installed in 1C slot will be removed on August 7.

There are no problems to report. The algae bloom remains in unit 2's slots.

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

Yes	No	NA	Item
X			ESBSs deployed in all slots and in service?
X			ESBSs inspected this week?
X			ESBSs inspection results acceptable?
X			VBSs differentials checked this week?
X			VBSs differentials acceptable?

Comments: All screens are in place except in unit 5 and 1C slot, with both units being OOS. However, screens will be installed in these slots on July 9. Camera inspections in units 9, 11 and 12 revealed no issues on August 3.

Daily VBS differential monitoring revealed no differentials out of criteria and no screens were cleaned.

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

Yes	No	NA	Item	Number of orifices in service
X			Did orifices operate satisfactory?	42
X			Dewatering and cleaning systems operating satisfactory?	

Comments: The orifice in 1C slot remains closed and a makeup orifice is opened in 1B slot.

Early in the week, it was noted the brush on rectangular screen cleaning device had begun to slip down again. The brush lowering limit was adjusted on August 2. The brushes cycle sequence was reduced for six to four hours on August 1 to 2, which helped to verify that the brush was slipping.

The gatewell repair pit rehab contractor required the air supply line to the channel systems be removed from the pit this week. Project mechanics routed a temporary supply line from the north end of the powerhouse on August 5. The short interruption in air supply had not ill effect. With low debris loads, orifice cycle was reduced to once a day.

Bypass Facility:

Yes	No	NA	Item
X			Sample gates on?
		X	PIT-tag sampling system on?

Comments: All bypass facility systems operated satisfactorily. The sample gates were only on during secondary bypass. The PIT-tag system gates remained off as there is no need for that system.

This week, 86 juvenile lamprey and 4,162 smolts were bypassed during secondary bypass. The smolt monitoring staff reports fish data in a separate report.

Top Spillway Weir (TSW) Operations:

The TSW's remain out of service. Standard spillgates are in bays 19 and 20.

River Conditions

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
144.9	121.0	82.9	65.3	72.2	70.8	6.0	6.0

Comments: The above data is provided by the smolt monitoring staff except water clarity, which comes from the control room. The data day runs from 0700 to 0700 hours. Water temperature monitoring throughout the juvenile system continues. The smolt monitoring staff will report temperature data and monitoring issues in a separate report.

The summer spill program, with 57 percent of flow being spilled, continues. However, spill volume will be reduced to 20 kcfs on August 15 at 0001 hours.

The motor starter for Crane 6 has a delivery date of August 16. The electrical work will begin as soon as possible. Cranes 6's load limit indicator continues to be an issue.

Crane 7 remains serviceable. However, work on the main hoist gearbox will begin as soon as Crane 6 RTS. The crane's motor starter still needs to be replaced. A contract will be required. The current target date for replacement will be in October or November. Also, Crane 7's load limit indicator continues to be an issue.

Bay 2 remains closed and the gate in bay 19 remains dogged open at four feet, with is required by the FPP, Table MCN-9 with current flow volumes.

The step indication for bay 2 change from zero to four feet on July 28. The issue was discovered on July 30. Bay 2 was still on seal. For 53 hours, the total spill volume was less that what was indicated. The indication issue was resolved on August 2.

Other

Inline Cooling Water Strainers: The cooling water strainer inspections on August 3 revealed one juvenile lamprey mortality. The next inspections are scheduled for December 7.

Avian Activity: Avian counts continued. These counts are reflected in Table 3 below.

The lasers on the outfall pipe and navigation lock wing wall were turned off and reactivated on August 3 and 5, respectively, as part of the evaluation study plan, which concludes August 8. Testing the LRAD on the outfall pipe will begin soon.

Two large bird distress calls remain installed on the navigation lock wing wall.

No other hazing is currently occurring.

In the spillway zone, gulls, pelicans, cormorants, and terns were observed. The birds were mostly feeding in the spill flow along with roosting around the basin. Osprey were also noted roosting in the area. All species had fluctuating numbers. Gulls and terns can be hard to distinguish apart. Cormorants are difficult to observe in the water.

In the powerhouse zone, pelicans were observed twice.

In the bypass outfall zone, gull, cormorant, and tern numbers fluctuated. Mostly the birds were roosting on the pipe with light feeding at the outfall. An osprey was observed roosting on the navigation light. The overall lack of feeding may be due bird activity and/or laser use.

In the forebay zone, grebes, terns, and pelicans were noted in low numbers. One cormorant was observed. Most birds were either feeding or roosting on the water. Outside the zone, terns, gulls, pelicans, ospreys, and cormorants were observed in low numbers. Many of the gulls were juveniles.

No grebes or pelicans were noted elsewhere.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican	Grebe
July 30	Spill	5	0	13	6	0
	Powerhouse	0	0	0	0	0
	Outfall	10	7	1	0	0
	Forebay	2	0	1	1	0
July 31	Spill	30	1	23	13	0
	Powerhouse	0	0	0	0	0
	Outfall	0	10	0	0	0
	Forebay	5	0	0	0	2
August 1	Spill	60	1	14	12	0
	Powerhouse	0	0	0	0	0
	Outfall	3	6	4	0	0
	Forebay	0	0	0	0	0
August 2	Spill	3	0	4	1	0
	Powerhouse	0	0	0	0	0
	Outfall	6	8	0	0	0
	Forebay	0	0	0	2	6
August 3	Spill	17	2	25	9	0
	Powerhouse	0	0	0	1	0
	Outfall	4	6	18	0	0
	Forebay	0	0	0	0	9
August 4	Spill	13	1	2	27	0
	Powerhouse	0	0	0	0	0
	Outfall	2	12	5	0	0
	Forebay	0	0	0	1	12
August 5	Spill	16	1	11	10	0
	Powerhouse	0	0	0	2	0
	Outfall	4	8	11	0	0
	Forebay	2	1	3	0	21

Invasive Species: The next mussel station examinations will occur in early August.

Siberian Prawn: Three Siberian prawns was removed from the sample and euthanized this week. This brings the yearly total to seven prawns.

Fish Rescue/Salvage: Two adult channel catfish were removed from unit 4's draft tube on August 4. No fish were observed in the scroll case.

Research: The one GBT examination reported for the week occurred on August 4. No smolts showed signs of trauma. However, there were only 16 fish examined. There were three mortalities removed from the recovery raceway. These results lead to the conclusion of GBT monitoring for the season.

Project: Ice Harbor

Fisheries Tech: Tim DeKoster

Fisheries Biologist: Ken Fone

Turbine Operation

Yes	No	Turbine Unit Status
	X	All 6 turbine units available for service (see table & comments below for details).

*All available turbine units are operated in accordance with App. C of the Fish Passage Plan.

Ice Harbor Unit Outages (OOS) and Return to Service (RTS)

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
3	5/3/19	0641	---	---	Turbine runner replacement and stator rewind
6	7/19/21	0720	---	---	Annual maintenance and new oil
1	7/31/21	1352	8/3/21	1502	Tripped off due to wicket gate response problem

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on August 2, 3, and 4.

Fish Ladders:

Yes	No	Location	Criteria	Measurements
x		North Ladder Exit Differential	Head \leq 0.3'	
x		North Ladder Picketed Lead Differential	Head \leq 0.3'	
x		North Ladder Depth over Weirs	Head over weir 1.0' to 1.3'	
x		South Ladder Exit Differential	Head \leq 0.3'	
x		South Ladder Picketed Lead Differential	Head \leq 0.3'	
x		South Ladder Depth over Weirs	Head over weir 1.0' to 1.3'	

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
x			South Shore Entrance (SFE-1) Weir Depth	\geq 8.0' or on sill	
x			South Shore Channel/Tailwater Differential	1.0' – 2.0'	
x			South Shore Channel Velocity	1.5 – 4.0 fps	
x			North Powerhouse Entrance (NFE-2) Weir Depth	\geq 8.0' or on sill	
x			North Powerhouse Entrance Channel/Tailwater Differential	1.0' – 2.0'	
		x	North Shore Entrance (NEW-1) Weir Depth	\geq 8.0' or on sill	
	x		North Shore Channel/Tailwater Differential	1.0' – 2.0'	2.2', 2.2'

Comments: The north shore entrance channel/tailwater differential was above criteria on the fishway inspections conducted on August 2 and 3. If this continues to be a problem when the tailwater elevation is low, another auxiliary water supply pump could be temporarily turned off at the north shore while the fishway is closely monitored to see if the entrance criteria will be met.

On July 31 and August 2, the channel/tailwater differential at the south fish ladder entrances was below criteria during the partial AWS pump outages described in the next section. There was also no significant fish attraction flow at the north shore entrance when power was lost to the north shore pumps on July 31 and August 2.

Auxiliary Water Supply (AWS) System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
4-5 pumps	3-4 pumps		Status of the 8 south shore AWS pumps
2 pumps	1 pump		Status of the 3 north shore AWS pumps

Comments: Station service was loss when unit 1 tripped off on July 31 at 1352 hours, causing two of the five operating south shore AWS pumps and both operating north shore pumps to shut down. The south shore pumps and north shore pumps were restarted on July 31 at 1436 hours and 1452 hours, respectively. A similar pump outage occurred again when unit 2 tripped off for a short time on July 31 at 1817 hours. The south shore pumps and north shore pumps were restarted on July 31 at 1858 hours and 1938 hours, respectively. Unit 2 tripped off for a short time again on August 2 at 1715 hours. The south shore pumps and north shore pumps were restarted on August 2 at 1738 hours and 1759 hours, respectively.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
x			Forebay debris load acceptable? (amount)	Average of 1 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-1%
	x		Any oil seen in gatewells?	

Comments: None.

Submersible Traveling Screens (STSs) / Vertical Barrier Screens (VBSs):

Yes	No	NA	Item
x			STSs deployed in all slots that are in service?
	x		STSs in continuous-run mode (Note: if not, then STSs are in cycle-run mode)?
	x		STSs/VBSs inspected this week?
		x	STS/VBS inspection results acceptable?
		x	VBS differentials checked this week?
		x	VBS differentials acceptable?

Comments: None.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
x			Orifices operating satisfactory?	20
	x		Dewaterer and cleaning systems operating satisfactory?	

Comments: Orifices were backflushed three times per day through July 31. Beginning August 1, orifices are being backflushed once per day. There were no debris obstructions observed at the orifices, as indicated by a reduced flow through the orifices.

Orifice 3BN light was found to be burned out on August 3. Orifice 3BS was opened in place of 3BN until the light was replaced on August 4.

The replacement actuator for the water regulating weirs in the collection channel is being operated in manual control. An analog controller input was added to the actuator and needs to be programmed to function automatically. Currently, the water level in the collection channel is being visually monitored once per day. The actuator is operated electronically in “local” control to manually adjust the weirs as needed.

Juvenile Fish Facility: The Juvenile Fish Facility is operating in primary bypass mode.

Fish Sampling: Sampling at Ice Harbor Dam has concluded for the season.

Removable Spillway Weir (RSW): Thirty percent spill for fish passage is occurring. The RSW was closed, until further notice, on July 9 at 1513 hours as coordinated through the Technical Management Team to reduce tailrace temperatures.

River Conditions

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
28.4	19.3	8.3	5.7	71	71	9.0	9.0

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Turbine cooling water strainer inspections for lamprey are done for the season.

Avian Activity: There was a low level of piscivorous bird activity observed around the project.

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

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by the fish sampling contractor, frozen and properly disposed of in a landfill.

Fish Rescue/Salvage: Unwatering activities that involved fish rescue did not occur this week.

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

Project: Lower Monumental

Biologists: Raymond Addis

Turbine Operation

Yes	No	Turbine Unit Status
	X	All 6 turbine units available for service (see table & comments below for details).

*All available turbine units are operated in accordance with App. C of the Fish Passage Plan.

Lower Monumental Unit Outages (OOS) and Return to Service (RTS)

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
Unit 1	08/03/2021	0656	08/03/2021	0901	STS Inspection
Unit 2	07/15/2019	0720	11/18/2021	ERTS	Annual, Draft Tube Liner
Unit 3	08/03/2021	0915	08/03/2021	1020	STS Inspection
Unit 4	07/06/2021	0700	09/23/2021	ERTS	Annual, Scroll Case Repair
Unit 5	08/03/2021	1105	08/03/2021	1230	STS Inspection
Unit 6	08/03/2021	1245	08/03/2021	1425	STS Inspection

Comments: None.

Adult Fish Passage Facility

The adult fishways were inspected by Corps and EAS biologists on July 30, 31, August 1, and 4.

Fish Ladder:

Yes	No	Location	Criteria	Measurements
X		North Ladder Exit Differential	Head \leq 0.5'	
X		North Ladder Picketed Lead Differential	Head \leq 0.4'	
X		North Ladder Depth over Weirs	Head over weir 1.0' to 1.3'	
X		South Ladder Exit Differential	Head \leq 0.5'	
X		South Ladder Picketed Lead Differential	Head \leq 0.3'	
X		South Ladder Depth over Weirs	Head over weir 1.0' to 1.3'	

Comments: None.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Shore Entrance (NSE-1) Weir Depth	\geq 8.0' or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	\geq 8.0' or on sill	
X			North Shore Channel/Tailwater Differential	1.0'–2.0'	
		X	South Powerhouse Entrance (SPE-1) Weir Depth	\geq 8.0' or on sill	
		X	South Powerhouse Entrance (SPE-2) Weir Depth	\geq 8.0' or on sill	
X			South Powerhouse Entrance Channel/Tailwater Differential	1.0'–2.0'	
		X	South Shore Entrance (SSE-1) Weir Depth	\geq 8.0'	
X			South Shore Entrance (SSE-2) Weir Depth	\geq 6.0'	
X			South Shore Channel/Tailwater Differential	1.0' – 2.0'	

Comments: The south powerhouse entrance weir (SPE-1) was on sill during all inspections with readings of 5.4, 5.7, 6.0 and 5.8 feet respectively. The south powerhouse entrance weir (SPE-2) was on sill during all inspections

with readings of 5.4, 5.7, 6.0 and 5.8 feet respectively. The south shore entrance weir (SSE-1) was on sill during all inspections with readings of 6.3, 6.6, 6.8 and 6.7 feet respectively.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
Yes			AWS Fish Pump 1
Yes			AWS Fish Pump 2
Yes			AWS Fish Pump 3

Comments: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	20 yds ²
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 - 5%
	X		Any oil seen in gatewells?	

Comments: None.

STSs/VBSs:

Yes	No	NA	Item
	X		STSs deployed in all slots and in service?
	X		STSs in continuous-run mode (Note: if not, then STSs are in cycle-run mode)?
X			STSs inspected this week?
X			STSs inspection results acceptable?
	X		VBSs differentials checked this week?
		X	VBSs differentials acceptable?

Comments: STS's were operating on cycle mode during the reporting period due to average sub-yearling Chinook and sockeye lengths being greater than 120 mm.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	18-19
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: None.

Collection Facility: Collection into the raceways for transport ended June 20 at 1500. Secondary Bypass began June 20 at 1500. Sampling for condition on alternating days began July 9. The facility was placed into Primary Bypass on non-sample days. A total of 194 fish were collected with 194 fish bypassed back to the river during this reporting period.

Transport Summary: Transport at Lower Monumental ended June 20.

Spillway Weir: Summer Spill began at 00:00:00 on June 21. The RSW went into service at 0001 on April 3 and was closed on July 9 due to high river temperatures with low river flows.

River Conditions

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
27.1	20.3	15.0	8.0	70	69.5	6.8	5.0

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected June 14.

Avian Activity: Highest counts of foraging piscivorous birds in the tailrace (SWT1+PH1+PH2) during adult ladder inspections at Lower Monumental Dam are listed in the table below.

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
07/30/2021	0845	5	0	0	0	2
07/31/2021	1000	4	0	0	0	2
08/01/2021	0745	5	0	0	0	3
08/04/2021	1200	4	1	0	0	6

Comments: Bird hazing efforts by USDA personnel ended on June 2.

Invasive Species: No zebra or quagga mussels were observed during monitoring station inspections on June 6.

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by PSMFC and EAS, frozen and properly disposed of in a landfill. Total Siberian prawn counts at Lower Monumental Dam for this reporting period are reported in the table below.

Date	Sample (euthanized)	Collection*
07/30/2021	---	---
07/31/2021	138	276
08/01/2021	---	---
08/02/2021	68	136
08/03/2021	---	---
08/04/2021	65	130
08/05/2021	---	---
Total	271	542

*Collection and sample numbers are the same as the facility when sampling at 100%

Fish Rescue/Salvage: No fish rescue or salvage occurred.

Research: No research is occurring currently.

Project: Little Goose
 Biologists: Chuck Barnes

Turbine Operation

Yes	No	Turbine Unit Status
	X	All 6 turbine units available for service (see table & comments below for details).

*All available turbine units are operated in accordance with App. C of the Fish Passage Plan.

Little Goose Unit Outages (OOS) and Return to Service (RTS)

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
5	04/14/17	14:11	03/31/2022	17:00	Spider and upper guide bearing repair.
6	03/18/21	14:17	03/31/2022	17:00	T2 ground
3	07/26/21	07:20	09/03/21	17:00	Unit annual and controls upgrade
1	08/02/21	14:36	08/02/21	16:00	Exciter Trip
1	08/02/21	16:07	08/03/21	16:15	Exciter Trip
All Units	07/31/21	08:31	07/31/21	10:18	T2 Replacement
All Units	08/03/21	10:05	08/03/21	12:16	T2 Replacement

Comments: Little Goose experienced a T2 transformer ground on March 18 at 14:17. T2 transformer and Units 5 and 6 will be out of service until repairs/replacement can be performed. Unit 1 outages were covered by Units 2 and 4 according to unit priority protocol.

Adult Fish Passage Facility

Little Goose fish facility, Environmental Assessment Services (EAS) and Oregon Department of Fish and Wildlife (ODFW) staff inspected the adult fishway on July 31, August 2, and August 5. All inspections took place during emergency modified summer spill operations.

Fish Ladder:

Yes	No	NA	Location	Criteria	Measurements
X			Fish Ladder Exit Differential	Head \leq 0.5'	
X			Fish Ladder Picketed Lead Differential	Head \leq 0.3'	
X			Fish Ladder Depth over Weirs	Head over weir 1.0' to 1.3'	
X			Fish Ladder Cooling Water Pumps in Service		
X			Fish Ladder Exit Cooling Water Pumps Operating Satisfactorily		

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			South Shore Entrance (SSE-1) Weir Depth	\geq 8.0'	
X			South Shore Entrance (SSE-2) Weir Depth	\geq 8.0'	
X			South Shore Channel/Tailwater Differential	1.0' – 2.0'	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	\geq 7.0' or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	\geq 7.0' or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0'–2.0'	
X			North Shore Entrance (NSE-1) Weir Depth	\geq 6.0' or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	\geq 6.0' or on sill	
X			North Shore Channel/Tailwater Differential	1.0'–2.0'	

X		Collection Channel Surface Velocity	1.5 – 4.0 fps
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Comments: The adult fishway continues to operate in manual mode. The fish control system still has a faulty hydroranger for the NSE1 weir and is currently awaiting parts.

Ladder exit cooling pumps were placed into service at 2052 hrs on 12 June when 0.5m forebay temperatures exceeded 64°F.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
X			AWS Fish Pump 1
X			AWS Fish Pump 2
X			AWS Fish Pump 3

Comments: Fish pumps 1 and 2 were returned to service on February 23. Fish pump 3 returned to service April 7.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comment
X			Forebay debris load acceptable? (amount)	0ft ²
	X		Gatewell drawdown measured this week?	
		X	Gatewell drawdown acceptable	
	X		Any debris seen in gatewells (% coverage)	
	X		Any oil seen in gatewells?	

Comments: There is currently minimal floating woody debris inside the trash shear boom. Gatewell drawdowns for Unit 1 were conducted on July 29 and were in criteria.

ESBS/VBS:

Yes	No	NA	Item
X			ESBSs deployed in all slots and in service?
	X		ESBSs inspected this week?
		X	ESBSs inspection results acceptable?
	X		VBSs differentials checked this week?
		X	VBSs differentials acceptable?
	X		VBSs inspected this week?

Comments: ESBS's were installed in Units 2, 3 and 4 on March 22 and 23. VBS differentials for Unit 1 were conducted on July 29 and were in criteria. ESBS/VBS camera inspections took place June 8-10.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	18-19
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: The juvenile bypass system was watered up on March 22 and began daily collection for transportation on April 23.

Collection Facility: Collection for condition monitoring in conjunction with secondary bypass commenced on April 1 with the first sample being conducted on April 2. Every other day collection and sampling occurred through April 22. Daily collection for transportation began on April 23 with the first daily barge departing on April 24. The collection and transport facility operated within criteria this report period. A total of 16,045 fish were collected, 17,694 were transported via truck, 0 were bypassed, and there were 43 sample or facility mortalities. The descaling and mortality rates were 0.2% and 0.29%, respectively. Three adult lamprey were removed from the separator during this report period.

Transport Summary: Daily fish transportation via barge began on April 24. Every other day barge transportation began May 18 and ended June 21. Collection for transport resumed at 0700 hrs July 5 and every other day truck transportation began July 6.

Spillway Weir: Spring spill operations began on April 3 with the ASW in high crest. ASW day surface spill emergency procedure began July 3 at 0900 hours and ceased July 9 at 1600 hours.

River Conditions

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
27.4	20.2	8.9	7.1	70.3	69.3	6.0	6.0

*Ladder temperature.

Other

Inline Cooling Water Strainers: Inline cooling strainer inspections commenced on January 13. Inspections will continue in accordance to the Fish Passage Plan (FPP) and results will be submitted to the District.

Avian Activity: Daily piscivorous bird counts at Little Goose Dam began on April 1. USDA hazing actives began on March 29 and ended June 19.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
7-30	0800	36	0	0	2
7-31	1600	40	10	0	4
8-01	0830	20	1	0	4
8-02	0830	23	0	0	0
8-03	0900	25	5	0	0
8-04	0830	24	0	0	2
8-05	0800	49	3	0	0

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

Siberian Prawn: Juvenile fish collection began on April 1. Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by Oregon Department of Fish and Wildlife and Anchor, frozen and properly disposed of in a landfill. Daily and total Siberian prawn counts at Little Goose Dam for this reporting period are reported below.

Date	Sample	Collection*
7-30	594	2376
7-31	527	2108
8-01	232	1856

8-02	166	1328
8-03	225	1800
8-04	84	672
8-05	112	896
Totals	1940	11036

Gas Bubble Trauma (GBT): GBT monitoring for the 2021 season concluded July 26.

Fish Rescue/Salvage: Fish rescue / salvage activities were performed in Gatewell 3C on August 5 with no fish present.

Research: The Nez Perce Tribe (NPT) began adult steelhead kelt collection on May 3 and ended June 30.

Project: Lower Granite

Biologists: Elizabeth Holdren and David Miller

Turbine Operation

Yes	No	Turbine Unit Status
	X	All 6 turbine units available for service (see table & comments below for details).

*All available turbine units are operated in accordance with App. C of the Fish Passage Plan.

Lower Granite Unit Outages (OOS) and Return to Service (RTS)

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
6	07/26	0727			Six Year Overhaul
1-5	08/05	1009	08/05	1024	XJ6 Capacitive Trip Testing rolled 86L line lockout relay due to programming

Comments: None.

Adult Fish Passage Facility

Lower Granite Biologists and Anchor QEA staff inspected the adult fishway July 30 & 31, August 2 & 5.

Fish Ladder:

Yes	No	NA	Location	Criteria	Comments
X			Fish Ladder Exit Differential	Head \leq 0.5'	
X			Fish Ladder Picketed Lead Differential	Head \leq 0.3'	
X			Fish Ladder Depth over Weirs	Head over weir 1.0' to 1.3'	
X			Fish Ladder Cooling Water Pumps in Service		
X			Fish Ladder Cooling Water Pumps Operating Satisfactorily		

Comments: The fish ladder exit temperature control pumps were offline from 1009-1250 hours August 5 due to programming issue tripping the powerhouse out of service while electricians were performing scheduled maintenance.

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
	X		South Shore Entrance (SSE-1) Weir Depth	\geq 8.0'	7.8', 7.9'
	X		South Shore Entrance (SSE-2) Weir Depth	\geq 8.0'	7.7', 7.8'
X			South Shore Channel/Tailwater Differential	1.0' – 2.0'	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	\geq 8.0' or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	\geq 8.0' or on sill	
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0'–2.0'	0.9', 0.9', 0.9', 0.9'
	X		North Shore Entrance (NSE-1) Weir Depth	\geq 7.0' or on sill	6.9'
	X		North Shore Entrance (NSE-2) Weir Depth	\geq 7.0' or on sill	6.9'
	X		North Shore Channel/Tailwater Differential	1.0'–2.0'	0.8', 0.8'
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: Ladder collection channel operation and configuration are being evaluated to resolve ongoing issues. FOGs 1, 4, 7, and 10 are in operation. North shore and north powerhouse channel/tailrace head differentials ability to maintain criteria range is dependent of tailrace conditions. Lower Granite electrical crew continue to work on the ladder control system issues.

Auxiliary Water Supply System:

Operating Satisfactorily	Standby	Out of Service	Auxiliary Water Supply (AWS)
Yes			AWS Fish Pump 1
Yes			AWS Fish Pump 2
	Yes		AWS Fish Pump 3

Comments: The AWS pumps were offline from 1009-1024 hours due to the powerhouse line outage

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Weekly average 17.9 yds ²
X			Trash rack differentials measured this week?	
X			Trash rack differentials acceptable	
	X		Any debris seen in gatewells (% coverage)	
	X		Any oil seen in gatewells?	

Comments: None.

ESBSs/VBSs:

Yes	No	NA	Item
X			ESBSs deployed in all slots and in service?
	X		ESBSs inspected this week?
		X	ESBSs inspection results acceptable?
X			VBSs differentials checked this week?
X			VBSs differentials acceptable?

Comments: None.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	18
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: Orifices on 6A are closed due to a bulkhead being installed for the 6-year overhaul.

Collection Facility: The facility is in collection mode for condition sample and emergency juvenile truck transport due to high regional temperatures and declining river conditions.

Transport Summary: A total of 15,686 smolts were transported this reporting period. There have been 97,882 smolts transported by truck since July 2. Prior to loading trucks for transport biologist remove 2-3 five-gallon buckets with Siberian prawns from the raceway to prevent clogging of recirculating systems during transport and overflow systems while loading.

Spillway Weir: The RSW was closed July 29 at 1402 hours due to river flow being too low to maintain both the RSW and minimum generation. A total of 250,368 PIT tagged smolts have been detected over the RSW this season compared to a total of 23,410 smolts detected in the juvenile system. A total of 663 adult PIT tagged steelhead, 41

Chinook, and 1 Sockeye have been detected at the RSW this season compared to 73 adult steelhead and 11 Chinook detected at the juvenile facility.

River Conditions

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
28.8	23.3	16.3	10.6	68.1	64.1	5.0	5.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: N/A

Invasive Species: No zebra/quagga mussels were detected on the trap substrate. There were 37,405 Siberian prawns collected in sample and euthanized this week. There were 2-3 five-gallon buckets of Siberian prawns removed from raceways on transport days this week.

Avian Activity:

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
July 30	1038	3	12	0	0
July 31	0730	2	14	0	0
Aug 1	1407	1	16	0	0
Aug 2	1105	2	18	0	0
Aug 3	1500	4	13	0	0
Aug 4	1220	1	10	0	0
Aug 5	1135	2	12	0	0

Gas Bubble Trauma (GBT) Monitoring: N/A

Adult Fish Trap Operations: Collection of incidentally trapped fall Chinook for early transport to NPT hatcheries began July 26. The adult trap was taken out of service on July 30 at 1600 hours due to a broken supply pipe. Maintenance staff repaired the pipe August 2 and the trap was returned to service at 0910 hours. Sampling was shut down on August 3 at 0730 due to high water temperatures (70.5°F) recorded within the sampling area. The trap remained closed through the end of this reporting week.

American shad mortalities have declined with the trap being flushed as needed.

Fish Rescue/Salvage: The adult trap was flushed on July 30 and August 2 to clear the screens of incidental species mortalities. No salmonid mortality was observed.

Research:

National Marine Fisheries Service (NMFS) PIT tagging of Adult Wild Chinook and Adult Steelhead for ISEMP-Related Dispersal Monitoring:

The goal of this project is to PIT tag up to 4000 unclipped adult Chinook and 4000 unclipped adult steelhead collected in the adult trap daily sample for dispersal monitoring.

Sampling of Steelhead, Chinook salmon, and Sockeye salmon by the Idaho Department of Fish and Game (IDFG) and NOAA Fisheries for Biological data collection.

Upriver migrating steelhead, spring/summer Chinook salmon, and sockeye salmon are collected from the adult trap beginning April 4 through December 15. The goal is to collect 5-20% of adult steelhead, spring/summer Chinook salmon, and sockeye salmon ascending the ladder April 4-December 15. Data collection includes fish scales, genetics tissue, sex and length, wild/hatchery composition, and non-adipose clipped hatchery fish assessment. Natural origin adult steelhead and spring/summer Chinook salmon trapped will be PIT tagged to estimate headwater tributary escapement. Sockeye salmon may be PIT tagged in the future to estimate metrics regarding conversion rates. Some steelhead and spring/summer Chinook salmon may be radio-tagged or spaghetti-tagged. This information on adult fish forms the basis for status information used in several forums including BiOp-RPA identified needs.

PIT Tagging and Genetic Sample Collection from Bull Trout for USFWS:

Bull trout will be collected as part of the normal adult trap daily sample and using the adult SbyC system to recapture previously PIT tagged fish. Untagged bull trout will be PIT tagged, fin clipped for genetic analysis, and have morphometric data collected including weight and length etc. Fin clips will be sent to USFWS to determine the fish's origin. Previously PIT tagged bull trout will only have morphometric data collected. All fish will be released back into the adult fish ladder.