U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#25-2021

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: August 13 – August 19, 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).

	OOS		RTS		
Unit(s)	Date	Time	Date	Time	Outage Description
5	12/7	0643	8/18	1539	Blade seals and hub oil replacement
2	6/7	0732	8/19	1242	Nine-year overhaul/Transmission line 1
1	7/12	0720	8/19	1244	Line 1 outage for BPA relays
4	8/2	1018	9/24	N/A	Nine-year overhaul
3	8/16	0712	8/19	1114	Annual maintenance
7	8/17	1000	8/17	1030	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 and a technician performed a measured inspection of the adult fishways on August 13, 15 and 17. Fish counting, and video review of adult lamprey night passage continues.

No heat stressed adult fish mortalities were observed this week.

Fish Ladder Exits:

Yes	No	Location	Criteria	Measurements
	X	Oregon Exit	Head over weir 1.0’ to 1.3’	1.1’ to 1.4’
X		Oregon Count Station Differential	0.0’ to 0.5’	0.2’ to 0.5’
X		Washington Exit	Head over weir 1.0’ to 1.3’	1.1’
X		Washington Count Station Differential	0.0’ to 0.5’	0.2’

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, the out of criterion point listed above occurred on August 15. Adjusting the weirs and cleaning the picketed leads resolved the issue.

At the Washington exit, a regulating weir alarm came in and was reset on August 15.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0' – 2.0'	1.3' to 1.4'
	X		NFEW2 Weir Depth	≥ 8.0'	7.8' to 8.2'
	X		NFEW3 Weir Depth	≥ 8.0'	7.9' to 8.1'
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.4' to 1.5'
X			SFEW1 Weir Depth	≥ 8.0'	8.0' to 8.3'
X			SFEW2 Weir Depth	≥ 8.0'	8.0' to 8.3'
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.7 fps
X			Washington Entrance Head Differential	1.0' – 2.0'	1.1' to 1.3'
X			WFE2 Weir Depth	≥ 8.0'	8.9' to 10.2'
X			WFE3 Weir Depth	≥ 8.0'	8.9' to 10.1'

Comments: Possibly due to calibration drifts, NFEW2 and NFEW3 were out of criteria on August 15.

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			24° to 26°	Oregon Ladder Fish Pump 1
Yes			25° to 26°	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. However, due to Covid-19 and other personnel issues, the sample collection for August 13, 15, 17 and 19 was for 15 hours (0700 to 1500 hours and 0000 or 0030 hours to 0700 or 0730 hours). The next 24-hour sample should be completed on August 21. 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 was 71 to 72 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 debris loads were minimal to light near the powerhouse and very light to light beside the spillway. Incoming debris was minimal to very light and consisted of aquatic vegetation. 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.

There are no problems to report.

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. Camera inspections in unit 7 revealed no issues on August 17.

Daily VBS differential monitoring revealed no differentials out of criteria. There were 23 screens cleaned from August 16 to 19. No fish mortalities were observed.

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 was reopened on August 19 at 1530 hours about one hour after unit 1 RTS. Orifices were adjusted for VBS cleaning as required. With low debris loads and a temporary air supply line, orifice cycling remains at once a day.

After a breaker tripped on August 15, area lighting was repaired on August 16. The parameters of the control system program, which is not installed, were tested on August 19. It was found that the hi/low water alarms were not in the new program.

The temporary air supply line from the north end of the powerhouse will continue to be monitored.

The final improvements to the bypass pipe/flume access cover latches were completed this week.

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, which includes the 15-hour samples mentioned above. The PIT-tag system gates remained off as there is no need for that system.

This week, 28 juvenile lamprey and 440 smolts were bypassed during secondary bypass. The smolt monitoring staff reports fish data in a separate report. Since mid-July, juvenile shad have been the predominate species in the sample.

Three light switches around the outside sampling system were replaced on August 19.

Top Spillway Weir (TSW) Operations:

The TSW's remain out of service. Standard spill gates 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
177.3	113.2	101.5	19.9	72.1	71.0	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 continues. However, spill volume was reduced to 20 kcfs on August 15 at 0001 hours.

The motor starter for Crane 6 was delivered on 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.

Other

Inline Cooling Water Strainers: The next cooling water strainer inspections will occur on December 7.

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

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican	Grebe
August 13	Spill	24	1	0	4	0
	Powerhouse	0	0	0	0	0
	Outfall	1	19	0	0	0
	Forebay	0	0	0	0	0
August 14	Spill	47	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	16	16	0	1	0
	Forebay	0	0	0	0	15
August 15	Spill	5	2	0	6	0
	Powerhouse	0	0	0	0	0
	Outfall	4	10	0	0	0
	Forebay	0	0	0	0	0
August 16	Spill	17	0	0	3	0
	Powerhouse	0	0	0	0	0
	Outfall	16	8	0	0	0
	Forebay	0	0	0	0	0
August 17	Spill	450	0	0	1	0
	Powerhouse	0	0	0	0	0
	Outfall	5	30	0	0	0
	Forebay	0	0	0	0	0
August 18	Spill	36	0	0	1	0

	Powerhouse	0	0	0	0	0
	Outfall	10	6	0	1	0
	Forebay	0	0	0	0	0
August 19	Spill	12	0	0	1	0
	Powerhouse	0	0	0	0	0
	Outfall	1	18	0	0	0
	Forebay	0	0	0	0	0

The lasers on the outfall pipe and navigation lock wing remained off. Two large bird distress calls remain installed on the navigation lock wing wall. No other hazing is currently occurring.

Testing the LRAD began on August 17. Due to the limits of the device, it is only being used once a day at this time. However, the unit does seem to disperse birds very well.

In the spillway zone, gulls, pelicans, and cormorants were observed. The birds mostly roosting around the basin with some feeding in the spill flow. Osprey were also noted roosting in the area. Gull numbers fluctuated, cormorant numbers remained low and pelican numbers appear to be declining. No terns were observed.

In the powerhouse zone, no birds were observed.

In the bypass outfall zone, gulls and cormorants were noted. Gull numbers fluctuated and cormorant numbers were stable. Mostly, the birds were roosting on the pipe. One pelican was noted twice feeding near the outfall. The overall lack of feeding may be due bird activity.

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

No grebes or pelicans were noted elsewhere.

Invasive Species: The next mussel station examinations will occur on August 23.

Siberian Prawn: No Siberian prawns were removed from the sample and euthanized this week. The yearly total remains at eight prawns.

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

Research: There is nothing to report.

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)

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
3	5/3/19	0641	---	---	Turbine runner replacement and stator rewind
6	7/19/21	0720	8/19/21	1450	Annual maintenance and new oil
4	8/16/21	0830	---	---	Annual maintenance and new oil

Comments: Units 5, 2, and 1 were taken out of service one at a time for STS inspections on August 16, 17, and 18.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on August 17, 18, and 19.

Fish Ladders:

Yes	No	Location	Criteria	Measurements
x		North Ladder Exit Differential	Head ≤ 0.3’	
x		North Ladder Picketed Lead Differential	Head ≤ 0.3’	
x		North Ladder Depth over Weirs	Head over weir 1.0’ to 1.3’	
x		South Ladder Exit Differential	Head ≤ 0.3’	
x		South Ladder Picketed Lead Differential	Head ≤ 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	≥ 8.0’ or on sill	
	x		South Shore Channel/Tailwater Differential	1.0’ – 2.0’	2.1’, 2.4’
x			South Shore Channel Velocity	1.5 – 4.0 fps	
		x	North Powerhouse Entrance (NFE-2) Weir Depth	≥ 8.0’ or on sill	
x			North Powerhouse Entrance Channel/Tailwater Differential	1.0’ – 2.0’	
		x	North Shore Entrance (NEW-1) Weir Depth	≥ 8.0’ or on sill	
	x		North Shore Channel/Tailwater Differential	1.0’ – 2.0’	0.6’

Comments: The south fish ladder picketed leads at the count station are being cleaned of filamentous algae daily to keep the differential within criteria.

The south shore entrance channel/tailwater head differential was above criteria on August 17 and 18. Only four south shore auxiliary water supply (AWS) pumps have been operating since August 12 to decrease the head differential, but the low tailwater elevation is still causing the high readings. Since the south ladder has never been operated with just four pumps until now, personnel will continue monitoring the head differential, which will probably be in criteria when the tailwater is higher.

The north shore entrance channel/tailwater head differential was below criteria on August 19. The frequent high head differential at the north shore prompted the Project Biologist to have the powerhouse operator turn off a second north shore AWS pump on August 12. The head differential was in criteria on the fishway inspections conducted during the reporting period until August 19, when the tailwater was lower. On August 19, the Project Biologist requested that a second AWS pump be turned back on.

Auxiliary Water Supply (AWS) System:

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

Comments: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
x			Forebay debris load acceptable? (amount)	Average of 7 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-2%
	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: Units 5, 4, 2 and 1 STSs and unit 5 VBSs were inspected on August 16, 17, and 18. There were no significant problems found.

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 are being backflushed once per day. There were no debris obstructions observed at the orifices, as indicated by reduced flow through the orifices.

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.

On August 11, the mechanical screen cleaner was observed to be parked at the upstream end of the primary dewatering structure with the brush part way in the water. The brush lift cable had come off of the lower pulley. The screen cleaner was shut off to prevent damage to the cable. Mechanics got the cable back on the pulley and the screen cleaner was returned to service later the same day. Electricians later adjusted the uptake on the pulley to reduce the slack in the cable as the screen cleaner travels downstream. This adjustment should prevent the cable from slipping off of the pulley.

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 ended on August 14. Beginning on August 15, approximately 8.5 kcfs of spill, 24 hours per day, has been occurring. The RSW was closed on July 9 to reduce tailrace temperatures, as coordinated through the Technical Management Team. The RSW remains closed because of low river flows below 30 kcfs.

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
29.9	18.9	8.9	8.3	71	70	9.0	9.0

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Unit 4 cooling water strainer was inspected on August 18 as part of the annual maintenance on the unit. There were no fish in the strainer.

Avian Activity: There was a low level of piscivorous bird activity observed around the project. Most of the birds were observed foraging or resting around Eagle Island.

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.

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)

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
Unit 2	07/15/2019	0720	11/18/2021	ERTS	Annual, Draft Tube Liner
Unit 3	08/16/2021	0825	09/02/2021	ERTS	Annual
Unit 4	07/06/2021	0700	09/23/2021	ERTS	Annual, Scroll Case Repair

Comments: None.

Adult Fish Passage Facility

The adult fishways were inspected by Corps and EAS biologists on August 13, 14, 15, and 18.

Fish Ladder:

Yes	No	Location	Criteria	Measurements
X		North Ladder Exit Differential	Head ≤ 0.5’	
X		North Ladder Picketed Lead Differential	Head ≤ 0.4’	
X		North Ladder Depth over Weirs	Head over weir 1.0’ to 1.3’	
X		South Ladder Exit Differential	Head ≤ 0.5’	
X		South Ladder Picketed Lead Differential	Head ≤ 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	≥ 8.0’ or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	≥ 8.0’ or on sill	
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	
		X	South Powerhouse Entrance (SPE-1) Weir Depth	≥ 8.0’ or on sill	
		X	South Powerhouse Entrance (SPE-2) Weir Depth	≥ 8.0’ or on sill	
X			South Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
		X	South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	
X			South Shore Entrance (SSE-2) Weir Depth	≥ 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 5.8, 5.5, 5.9 and 6.7 feet respectively. The south powerhouse entrance weir (SPE-2) was on sill during all inspections with readings of 5.8, 5.5, 5.9 and 6.7 feet respectively. The south shore entrance weir (SSE-1) was on sill during all inspections with readings of 6.7, 6.4, 6.9 and 7.7 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)	32 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 salmon and sockeye salmon 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
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 242 fish were collected with 242 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
29.6	19.6	17.1	7.0	72.3	70.5	7.0	5.5

*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
08/13/2021	1000	5	0	0	0	15
08/14/2021	1000	18	4	0	0	18
08/15/2021	0900	3	0	0	0	15
08/18/2021	1130	10	4	0	0	8

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 August 7.

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*
08/13/2021	---	---
08/14/2021	43	86
08/15/2021	---	---
08/16/2021	196	392
08/17/2021	---	---
08/18/2021	122	244
08/19/2021	---	---
Total	361	722

*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)

	OOS		RTS		
Unit	Date	Time	Date	Time	Outage Description
5	04/14/17	14:11	12/31/2022	17:00	Spider and upper guide bearing repair.
6	03/18/21	14:17	09/30/2021	17:00	T2 ground
3	07/26/21	07:20	09/03/2021	17:00	Unit annual and controls upgrade

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.

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 August 15, August 17, and August 18. All inspections took place during emergency modified summer spill operations.

Fish Ladder:

Yes	No	NA	Location	Criteria	Measurements
X		X	Fish Ladder Exit Differential	Head $\leq$ 0.5’	No reading 8/15
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	

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 August 12 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 August 12 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.

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 4,249 fish were collected, 4,469 were transported via truck, 0 were bypassed, and there were 142 sample or facility mortalities. The descaling and mortality rates were 1.1% and 3.81%, respectively. Four 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
28.1	18.5	8.5	6.2	70.7	69.6	6.0	5.7

*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
8-13	0800	24	1	0	0
8-14	1200	7	8	0	0
8-15	0745	25	1	0	0
8-16	1000	14	5	0	0
8-17	1045	11	4	0	0
8-18	1010	20	9	0	0
8-19	1200	10	7	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*
8-13	354	3540
8-14	239	956
8-15	279	1116
8-16	517	2585

8-17	422	2110
8-18	367	1835
8-19	442	1768
Totals	2620	13910

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

Fish Rescue/Salvage: Fish rescue / salvage activities were performed in Unit 3 scrollcase on August 17, and within the Unit 3 draft tube on August 18. No fish were present in either of the two rescue / salvage events.

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)

	OOS		RTS		
Unit	Date	Time	Date	Time	Outage Description
6	07/26	0727			Six Year Overhaul
1-5	08/17	0633	08/17	1452	500 kv line outage for T2 Transformer Upgrades

Comments: Units 1-4 were out of service daily from 0600-1900 hours with unit 5 at speed no load for station service power during Doble testing this week. T1 was restored with units 1-4 available for service and operated in FPP compliance from 1900-0600 nightly. Doble testing was completed August 12. T1 was restored at 1833 hours August 12 with units 1-4 remaining available for service. T2 transformer instrumentation upgrade and iso-bus rehab continue as scheduled with the final 500 kv line outage from 0633 hours to 1452 hours August 17.

Adult Fish Passage Facility

Lower Granite Biologists and Anchor QEA staff inspected the adult fishway August 13, 14, 16, 18, and 19.

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: None.

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
	X		South Shore Entrance (SSE-1) Weir Depth	$\geq$ 8.0’	7.9’, 7.7’, 7.8’
	X		South Shore Entrance (SSE-2) Weir Depth	$\geq$ 8.0’	7.8’, 7.7’, 7.9’
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’	0.7’, 0.9’
X			North Shore Entrance (NSE-1) Weir Depth	$\geq$ 7.0’ or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	$\geq$ 7.0’ or on sill	
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	0.6’
	X		Collection Channel Surface Velocity	1.5 – 4.0 fps	1.4

Comments: Line switching during Doble testing caused some programming issues for the NSE weir gates causing them to lower to sill and not respond to remote controls. This combined with the north non-overflow elevator being out of service limited access to the NSE to troubleshoot the issue. The elevator was repaired August 18 and the programming issues were addressed restoring FSC control of the weirs. 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 differential's 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: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Weekly average 15.0 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 juvenile truck transport.

Transport Summary: A total of 5,350 smolts were transported this reporting period. There have been 113,529 smolts transported by truck since July 2. Prior to loading fish trucks biologist remove 2-3 five-gallon buckets of

Siberian prawns from the raceway to prevent clogging of recirculating systems during transport and overflow systems while loading.

Spillway Weir: A total of 250,426 PIT tagged smolts have been detected over the RSW this season compared to a total of 23,544 smolts detected in the juvenile system. A total of 674 adult PIT tagged steelhead, 41 Chinook salmon, and 1 sockeye salmon have been detected at the RSW this season compared to 74 adult steelhead and 14 Chinook salmon 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
25.3	19.5	12.7	6.9	66.5	64.0	5.0	5.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: N/A

Invasive Species: No zebra/quagga muscles were detected on the trap substrate. There were 74,319 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.

Avian Activity:

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
Aug 13	1310	3	17	0	0
Aug 14	1145	0	6	0	0
Aug 15	1700	1	0	0	0
Aug 16	1515	0	18	0	0
Aug 17	0705	2	0	0	0
Aug 18	1045	2	10	0	0
Aug 19	1500	1	15	0	0

Gas Bubble Trauma (GBT) Monitoring: N/A

Adult Fish Trap Operations: Trapping 7 days per week at 70% and collection of fall Chinook salmon broodstock for transport to NPT and WDFW hatcheries began August 18.

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

Fish Rescue/Salvage: N/A

Research:

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

The goal of this project is to PIT tag up to 4000 unclipped adult Chinook salmon 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.