U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#25-2022

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: August 19 – August 25, 2022

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.

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

	OOS		RTS		
Unit(s)	**Date**	**Time**	**Date**	**Time**	**Outage Description**
8	6/6	1002	9/15	N/A	9-year overhaul/Transformer gaskets (T4)
7	8/4	0635	9/15	N/A	Transformer gaskets (T4)
13 & 14	8/23	1000	8/23	1100	ESBS inspections, rotated through units
1	8/25	1105	8/25	1917	Debris removal

Comments: The one percent peak efficiency constraint and unit priority are being followed per the 2022 Fish Passage Plan (FPP). RTS dates are subject to change. The saw tooth unit priority pattern for temperature abatement continued. The 9-year overhaul in Unit 8 was completed this week. During the Unit 1 outage above, the unit was operated speed no load from 1637 to 1648 hours with all screens raised in order to flush debris from the unit. The outage will be discussed throughout this report in the juvenile section below.

Adult Fish Passage Facilities

The McNary fisheries staff performed measured inspections of the adult fishways on August 19, 21 and 24. In person fish counting and video review of nighttime lamprey passage continued. We determined the Oregon north tailwater sensor still needs repair/replacement this week. District personnel thought it was a programming issue at first but have now decided the probe needs to be replaced, which will occur on September 8.

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’	0.2’
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’	0.2’ to 0.3’

Comments: Debris loads were light to moderate near the Oregon exit and minimal near the Washington exit. Most of the debris was residual and circulated from the powerhouse to the Oregon shore depending on the wind direction. The general maintenance staff cleaned both exits’ picketed leads as needed including the weekend.

At the Oregon shore exit, the count station air conditioning failed on August 20. The fish counts from 1600 to 2100 were done by video review the next day. The air conditioning was repaired August 21, a Sunday. Scheduled maintenance was performed on the traveling screens on August 23.

At the Washington shore exit, one regulating weir alarm came in and were reset on August 14.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0' – 2.0'	1.4' to 1.5'
	X		NFEW2 Weir Depth	≥ 8.0'	7.9' to 8.1'
X			NFEW3 Weir Depth	≥ 8.0'	8.0' to 8.2'
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.3' to 1.4'
	X		SFEW1 Weir Depth	≥ 8.0'	7.9' to 8.0'
	X		SFEW2 Weir Depth	≥ 8.0'	7.9' to 8.0'
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.7 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	1.4' to 1.5'
X			WFE2 Weir Depth	≥ 8.0'	9.8' to 10.3'
X			WFE3 Weir Depth	≥ 8.0'	9.0' to 9.5'

Comments: The above Oregon ladder out of criteria points were possibly due to set point drifts on August 21. Scheduled maintenance was performed on the Oregon ladder entrance weirs on August 24. WFE3 still requires calibration, and this will occur when the spill season concludes. Currently, the weirs depth is being estimated and appears to be in criterion.

There are three floating orifice gate slots that still require future gate replacement, W8, W37 and W 41. These slots remain closed. A new gate will possibly be installed in slot W8 next week.

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			23° to 24°	Oregon Ladder Fish Pump 1
		Yes		Oregon Ladder Fish Pump 2 RTS date is Sept 30, 2022
Yes			23° to 24°	Oregon Ladder Fish Pump 3
Yes				OR North Powerhouse Pool supply from juvenile fishway

Comments: Fish pump 2 remains out of service. Repairs are waiting on funding so the return to service date is subject to change.

Juvenile Fish Passage Facility

Every other day sample collection continued with no interruptions in the schedule. The Unit 1 outage for debris removal resulted in ESBS camera inspections, ESBS's and VBS's being raised, orifices being closed, and systems cleaned on August 25.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Very light 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: Debris loads were very light to moderate near the powerhouse. Wind direction changes moved the residual debris across the forebay from the powerhouse to the Oregon shore and back. When at the powerhouse, the debris was in front of Unit 1. Debris loads beside the spillway were minimal to very light. New debris loads were minimal. Much of the debris was woody material and aquatic vegetation.

The trash rack differential in 1A slot measured 1.9 feet on August 25. Unit 1's trash racks were cleaned from 1210 to 1330 hours. Twenty yards of wood material and aquatic vegetation were removed. No fish were observed.

When the emergency bulkhead was removed from 8A slot on August 24, the algae bloom began to dissipate. Aquatic vegetation appeared to accumulate in Unit 1's gatewells slots and became an issue on August 25. The unit was operated speed no load with all screens raised to flush the debris.

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: ESBS's are installed in all units. The screen for 8A slot was installed on August 24. The unit remains out of service. ESBS camera inspections revealed no issues in units 13 and 14 on August 23.

The ESBS's in Unit 1 A and B slots were short and multiple cycling, respectively from August 23 to August 25. No electrical or program issues were found over those three days. Unit 1's ESBS's were inspected, with no issues were found on August 25 from 1110 to 1210 hours. However, debris was observed in the slot. It was determined the debris was causing the brush cycling issues. Both screens were raised, debris was removed from them, the unit was flushed, and the screens were reinstalled on August 25 from 1330 to 1845 hours. After the debris removal, both screen brush cycles have operated properly. Since the ESBS's were installed in 1994, this is the first time over a wide variety of forebay debris loads, that a unit had to be cleaned in order to restore proper ESBS brush function.

Daily VBS differential monitoring revealed three high differentials. These screens and 16 others were cleaned on August 20 and 23 to 25. These numbers include the screens in 1A and 1B slot being raised as described above on August 25. One smolt mortality was observed during all of the cleaning.

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

Yes	No	NA	Item	Number of orifices in service
X			Did orifices operate satisfactory?	41/42
X			Dewatering and cleaning systems operating satisfactory?	

Comments: There was no moisture in the temporary air supply line this week. A small amount of oil has been noted in the air supply line, which is probably from previous powerhouse compressor work. We continued to bleed off the line on every shift. Orifices were adjusted for VBS cleaning along with the work in Unit 1 on August 25, which is discussed below. Due to the side dewatering valves opening at a lower valve, a spare orifice was opened in 8B slot, returning the orifice count to 42, on August 21. With the emergency bulkhead removed, the orifice in 8A slot was reopened on August 25 at 1000 hours. Orifice attraction light was repaired as required.

Channel orifices were closed in Unit 1's slots for camera inspections and trash rack cleaning on August 25, from 1110 to 1330 hours. Due to the debris observed and VBS cleaning, the orifices in 1A and 1B slots were again closed from 1600 to 1845 hours in order to the protect the channel systems from debris.

All channel systems functioned satisfactorily.

Bypass Facility:

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

Comments: All bypass facility systems functioned well. 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, 550 juvenile lamprey and 19,503 smolts, mostly sub-yearling Chinook salmon, were bypassed during secondary bypass. The smolt monitoring staff reports fish data in a separate report.

The facility PIT room air conditioning continued to trip offline and be reset. The new unit is being installed.

A new oil reservoir was installed on a release valve in the A side sample tank on August 22.

Top Spillway Weir (TSW) Operations: Spillbays 19 and 20 currently have standard spillgates in operation with TSW's removed. Preparations to install the TSW in bay 20 next week continued. The TSW will be ready for adult fallbacks by September 1. In order to install the TSW, the spill will be switched from the south side of the spillway to the north side on August 28 as coordinated with FPOM.

River Conditions

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
199.0	156.6	52.9	20.0	71.4	70.3	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. The summer spill program reduction to 20 kcfs occurred on August 15 at 0001 hours. However, due to flows in excess of powerhouse capacity, spill volume remained above 20 kcfs for part of the week.

Crane 6 was move on August 22. There was no record of any alteration in the spill pattern. Bay 20 was closed on August 23, from 0715 to 1603 hours, in order to work on and test the hoist in bay 21. Bays 17 to 19 were on seal on August 24, from 0805 to 1020 hours. Also, that day, bays 20 and 22 were on seal from 0805 to 1634 hours. Again, this was for work and testing of the hoist in bay 21. Bays 20 to 22 were on seal on August 25, at 0733 hours. The hoist in bay 21 was tested from 1019 to 1127 hours, at which time the hoist returned to service. Bays 20 and 22 also returned to service. Spill volume was evenly distributed through other bays during this work.

Crane 7 is currently out of service for gear box replacement. Once that work is completed, electrical work will resume on crane 6, which is currently available. With limited crane use and hoist issues previously discussed, crane 6 was required in order to adjust bays 2, 6, and 16.

Project wide temperature monitoring will conclude on August 31. The data will be published in separate daily, weekly, and annual reports by the smolt monitoring staff.

Other

Inline Cooling Water Strainers: The next cooling water strainer inspections will occur on December 6.

Avian Activity: Recording avian counts continued. These counts are reflected in the Table below.

McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican	Grebe
August 19	Spill	0	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	10	5	0	0	0
	Forebay	4	0	0	0	0
August 20	Spill	0	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	6	3	4	0	0
	Forebay	2	0	0	0	0
August 21	Spill	17	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	4	7	0	0	0
	Forebay	7	0	0	0	0
August 22	Spill	0	0	0	1	0
	Powerhouse	0	0	0	0	0
	Outfall	7	1	0	0	0
	Forebay	7	0	0	0	0
August 23	Spill	4	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	1	15	0	0	0
	Forebay	1	0	0	0	0
August 24	Spill	0	0	0	0	0
	Powerhouse	1	0	0	0	0
	Outfall	2	12	0	0	0
	Forebay	6	0	0	0	0
August 25	Spill	6	1	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	2	6	0	0	0
	Forebay	3	0	0	0	0

For the outfall, the LRAD has been in place. There appeared to be a partial response from the roosting birds. However, more sounds need to be tested. Ordering parts for the laser had to be delayed until the next fiscal year.

The navigation lock wing wall laser, which is aimed at the outfall, remains in service along with the two large bird distress calls. There was no other hazing.

In the spillway zone, gulls were mostly roosting in fairly low numbers along with an occasional cormorant, pelican, or osprey.

In the powerhouse zone, one gull and one night heron were noted roosting.

In the bypass outfall zone, gull, cormorant, and tern numbers were fairly low with most of the birds roosting.

In the forebay zone, a few scavenging juvenile gulls were observed. Outside the zone, small gull flocks, a couple of ospreys, a few cormorants, one great blue heron and one grebe were noted.

No pelicans were observed in the ladders and no grebes entered the gatewell slots this week.

Invasive Species: The next mussel station examinations will occur on August 21.

Siberian Prawn: No Siberian prawns were removed from the sample this week. None have been seen this year.

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

Research: For a CRITFC study, there were tissue samples removed from ten juvenile lamprey collected at the facility this week. For the season, a total of 671 juvenile lamprey have been sampled. All fish were returned to the river unharmed. Gas bubble trauma examinations occurred on August 22. Fish are recorded on the next data day. For the report week, no smolt were observed with signs of trauma. Examinations will only occur once a week to insure low mortality during elevated water temperatures.

Project: Ice Harbor
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

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on August 20, 22, and 25.

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’	
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’	2.3’

Comments: The south shore picketed leads are needing to be cleaned of filamentous algae twice per day to keep the differential across the leads in criteria.

The north shore entrance channel/tailwater differential was above criteria on the August 25 inspection. The low tailwater elevation resulted in the high differential. Two north shore auxiliary water supply pumps are operated to meet criteria and only operating one pump would not provide enough water to meet the channel/tailwater differential.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply (AWS) System
5 pumps	3 pumps		Status of the 8 south shore AWS pumps
2 pumps	1 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 13 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-5% coverage
	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?	20-21
	x		Dewaterer and cleaning systems operating satisfactory?	

Comments: The actuator for the water regulating weirs in the collection channel is in local control due to a problem with the automatic control function. The weirs are being operated at the actuator to adjust the water level as needed until the problem can be fixed.

Orifice 1AN light was found to be burned out on August 16 and was replaced on August 24.

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

Fish Sampling: Juvenile fish sampling is done for the season.

Removable Spillway Weir (RSW): Summer spill for fish passage is occurring. The RSW was closed on August 4 at 1330 hours due to the average daily project outflow being below 30 kcfs, per Ice Harbor section 2.3.2.6.iii of the Fish Passage Plan.

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
34.5	24.7	8.4	8.4	70	71	7.9	4.9

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Unit cooling water strainer inspections for fish are done for the season until December.

Avian Activity: There were moderate numbers of piscivorous birds observed around the project. Most of the birds were observed foraging near the upstream tip of Eagle Island.

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

Fish Rescue/Salvage: None.

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

Project: Lower Monumental
Biologists: Denise Griffith and 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 1	8/22/2022	0645	8/22/2022	0900	Down for T2 repair prep
Unit 2	8/22/2022	0645	8/22/2022	0900	Down for T2 repair prep
Unit 3	8/22/2022	0645	8/22/2022	0900	Down for T2 repair prep
Unit 4	8/22/2022	0645	8/22/2022	0900	Down for T2 repair prep
Unit 5	8/22/2022	0645	TBD		T2 repairs
Unit 6	8/22/2022	0645	TBD		Annual/T2 repairs

Comments: Unit 5 was spin-no load for station power from 0645 top 0900 on August 22. Estimated return to service for Units 5 and 6 has yet to be determined, but the target is December 15, 2022.

Adult Fish Passage Facility

The adult fishways were inspected by Army Corps and EAS biologists August 19, 20, 21 and 23.

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: The south fish ladder exit had a differential of 0.4 when checked by roving control operator. This was confirmed by the fish biologist. The powerhouse maintenance crew removed a large amount of milfoil off the exit trash rack.

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 6.8, 6.8, 7.0 and 6.8 feet, respectively. The south powerhouse entrance weir (SPE-2) was on sill during all inspections with readings 6.8, 6.8, 7.0 and 6.8 feet, respectively. The south shore entrance weir (SSE-1) was on sill during all inspections with readings 7.4, 7.3, 7.8 and 7.6 feet, respectively. South powerhouse tailwater staff gauge’s, SG9N, frame was found loose on the April 13 inspections. If the gauge remains unreadable, readings will be taken from the digital readings. The project has ordered new staff gauges and they will be installed during the winter maintenance period.

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)	91 yds^2
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 15%
	X		Any oil seen in gatewells?	

Comments: The project staff finished installing the debris barrier on August 18.

STSs/VBSs:

Yes	No	NA	Item
X			STSs deployed and in service in operating and available units?
	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: The STSs were running in Cycle-Run mode throughout this reporting period due to average sub-yearling Chinook salmon and sockeye salmon lengths being greater than 120 mm.

The new STS camera was hard wired to the STS van on August 22 and appeared to be working perfectly.

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: The PDS weirs at normal operation on August 19 at 0700, after an occurrence last week with water alarms.

Collection Facility: Every-third day condition sampling continued with samples collected on August 19 – 20 and August 22 – 23. A total of 80 fish were collected with 80 fish bypassed back to the river during this reporting period.

An air cylinder for the lamprey bypass system started leaking on August 20. Air supply was turned off. This did not affect operations since the lamprey bypass is not used when fish are not going to the raceways.

A power outage occurred at the JFF on August 22 at 0655 and then again at 1315 to assist with the XJ breaker and T-2 rehabilitation. No issues occurred from the power outages, except the bird cannon had to be reset after each power outage. Two additional power outages occurred on August 23, with no issues caused from the outages.

Transport Summary: At this time, there is no transporting of juvenile salmonids occurring.

Spillway: Summer spill began at 0000 on June 21.

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
31.5	24.6	9.0	7.9	70.0	69.0	6.8	6.2

*Scrollcase temperatures.

Other

Cooling Water Strainers: Cooling water strainers inspections will occur again in December. Monitoring is performed from December to June.

Avian Activity: Highest daily counts of piscivorous birds in all zones combined at Lower Monumental Dam are reported in the table below.

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
8/19/2022	900	26	6	0	0	1
8/20/2022	845	36	15	1	0	2
8/21/2022	815	49	18	0	0	3
8/22/2022	1115	8	0	0	0	0
8/23/2022	930	27	6	0	0	1
8/24/2022	900	21	17	0	0	4
8/25/2022	830	20	4	0	0	1

Comments: Piscivorous bird observations are occurring daily. The outfall bird cannon functioned efficiently this week. The numbers of some of the species of birds appear to be dropping from previous weeks.

Invasive Species: Zebra and quagga mussel examinations will occur again in September.

Fish Rescue/Salvage: No Fish Rescue/Salvage took place during this reporting period.

Research: No research is occurring at this time.

Project: Little Goose
Biologists: Chuck Barnes and Deborah Snyder

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
3	8/08/2022	08:45	8/26/2022	ERTS	Unit Annual Maintenance
5	4/14/2017	14:11	12/31/2022	ERTS	Spider and upper guide bearing repair.
6	4/18/2022	5:10	12/31/2022	ERTS	Rooftop replacement / BUS work replacement

Comments: Previously reported Unit 6 RTS date of 4/21/2022 pertained to station service only, the anticipated RTS for regular service is 12/31/2022.

Adult Fish Passage Facility

EAS Bio and USACE staff inspected the adult Fishway on August 20, August 22, and August 25.

Fish Ladder:

Yes	No	NA	Location	Criteria	Measurements
X			Fish Ladder Exit Differential	Head ≤ 0.5’	
X			Fish Ladder Picketed Lead Differential	Head ≤ 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	≥ 8.0’	
X			South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
X			North Powerhouse Entrance (NPE-1) Weir Depth	≥ 7.0’ or on sill	
X			North Powerhouse Entrance (NPE-2) Weir Depth	≥ 7.0’ or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
X			North Shore Entrance (NSE-1) Weir Depth	≥ 6.0’ or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	≥ 6.0’ or on sill	
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	0.9 on 8/22
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: The adult fishway was returned to service on February 8 with AWS pumps returning to service on February 24. The NSE channel/tailwater differential and NSE weir depths were manually measured, adjusted, and monitored into criteria from February 24 through March 1. The fishway Fish System Control (FSC) was recommissioned on May 5 with NSE weir reading anomalies. NSE weirs 1 and 2 are being monitored with manual measurements as both weir targets enabling the FSC system to accurately read and automatically adjust weir heights were compromised during emergency flood control measures in June, repairs are pending. The Fish Ladder Exit

Cooling Water Pump was replaced, installed, and readied for service on April 23. Criteria requiring the activation of the Fish Ladder Exit Cooling Pump was met during the night hours of June 26, and the system was started at 0800 hours on June 27.

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, 2, and 3 were returned to service February 24.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comment
X			Forebay debris load acceptable? (amount)	High 5195 ft^2 - Low 0 ft^2
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	3B-1% 8/24, 3A-1% 8/23, 4A<1% 8/21
	X		Any oil seen in gatewells?	

Comments: The forebay had minimal floating debris inside the trash shear boom with the highest measurement occurring on August 25.

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: Installation of ESBS's began March 21 with most units completed on March 22. Unit 3 ESBS and VBS undergoing work during scheduled annual maintenance.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	8/23-20, remainder-19
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: The juvenile bypass system was watered up March 23.

Collection Facility: The juvenile collection facility completed water up activities on March 29. Every other day collection for condition monitoring in conjunction with secondary bypass commenced on April 1 with the first sample being conducted on April 2. Everyday collection began April 23 coinciding with every other day barge transportation. A total of 1,144 fish were collected, 0 were bypassed, 1,345 were transported by truck, and there

were 9 sample or facility mortalities. The descaling and mortality rates were 1.5% and 1.47%, respectively. Twenty-three adult lamprey were removed from the collection facility during this report period. The collection and transport facility operated within criteria this report period.

Transport Summary: Collection for fish transportation began April 23 with the first barge departure on April 24. Every other day barging transitioned to everyday barging on May 16 due to an increase in fish numbers. Every other day barging resumed on May 24. Barge transportation for the season ended with the final barge departure of June 19. Collection for truck transport operations began on August 1, with the first truck departure on August 3.

Spillway Weir: Little Goose began operation of the adjustable spillway weir (ASW) on March 2 to facilitate passage of adult steelhead overshoots. Operation occurred three days each week on non-consecutive days for four hours in the morning on Tuesday, Thursday and Sunday each week, through March 31. Spring spill operations began as scheduled on April 3 with the ASW in high crest. The ASW was positioned in low crest on May 28. Summer spill operations began as scheduled on June 21, and the ASW was repositioned into high crest on June 28. The ASW was closed for the spill season at 10:00 on August 1.

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
29.9	22.6	9.7	9.6	68.9	67.9	6.0	5.8

*Ladder temperature.

Other

Inline Cooling Water Strainers: Inline cooling strainer inspections commenced on December 9, 2021. Inspections will continue in accordance with the Fish Passage Plan (FPP) and results will be submitted to the District.

Avian Activity: Daily piscivorous bird counts at Little Goose Dam began April 1 with hazing beginning on March 29. Hazing ended on June 18.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
8-19	8:30	27	7	0	1
8-20	13:30	34	7	0	1
8-21	8:30	22	13	0	0
8-22	8:30	9	2	0	1
8-23	8:00	7	2	0	1
8-24	8:30	3	0	0	0
8-25	11:15	0	0	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 listed below.

Date	Sample	Collection
8-19	290	580
8-20	247	494

8-21	302	604
8-22	1314	1314
8-23	3224	3224
8-24	3172	3172
8-25	1911	1911
Totals	10460	11299

Gas Bubble Trauma (GBT): GBT monitoring occurred August 24. None of the 7 fish examined exhibited signs of GBT.

Fish Rescue/Salvage: No rescue – salvage activities transpired during this report period.

Research: The Nez Perce Tribe (NPT) began adult steelhead kelt collection efforts on April 1 and concluded June 29.

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	08/01	0718	08/18	1448	Annual maintenance
5	08/22	0746			Annual Maintenance/Overhaul

Comments: None.

Adult Fish Passage Facility

Lower Granite Biologists and Anchor QEA staff inspected the adult fishway on August 19, 20, 22, and 24.

Fish Ladder:

Yes	No	NA	Location	Criteria	Comments
X			Fish Ladder Exit Differential	Head ≤ 0.5’	
X			Fish Ladder Picketed Lead Differential	Head ≤ 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 cooling water pumps are in operation. Pump supply configuration was modified to provide water directly into the ladder exit channel from pump 1. Fish ladder temperature probes and system were upgraded over the winter outage season and are currently uploading data online.

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
	X		South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	7.8’, 7.7’, 7.6’, 7.9’
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.8’, 7.6’, 7.6’
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 8.0’ or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 8.0’ or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
	X		North Shore Entrance (NSE-1) Weir Depth	≥ 7.0’ or on sill	6.9’, 6.8’
	X		North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	6.8’, 6.9’
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	
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. Although both NSEs and all four FOGs are in operation, the north shore has

not consistently met channel/tailwater head differential criteria which seems to be related to the operations of all four FOGs.

Auxiliary Water Supply System:

Operating Satisfactorily	Standby	Out of Service	Auxiliary Water Supply (AWS)
	X		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)	65 yds²
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?	
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: None.

Collection Facility: The juvenile facility is in collection for truck transport mode. There were 7,535 fish collected this week.

Transport Summary: Transport continues with trucks departing LWG on odd days. There were 9,550 fish transported this week.

Spillway Weir: Summer spill continues. There were 106,351 juvenile and 175 PIT-tagged adult Chinook salmon, 72,878 juvenile and 528 adult PIT-tagged steelhead, 10,826 juvenile and 4 adult sockeye salmon, and 4,064 juvenile coho salmon detected over the RSW spillway since March 1. There have been 39,208 juvenile and 20 adult

Chinook salmon, 28,752 juvenile and 95 adult steelhead, 2,112 juvenile sockeye salmon, and 951 juvenile coho salmon detected at the JBS full flow PIT tag detection array since March 14 (DART).

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
29.0	25.3	9.8	9.4	65.0	63.5	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 30,402 Siberian prawn in the condition sample this report week.

Avian Activity: Biologist daily piscivorous bird counts and hazing continues at Lower Granite Dam.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
Aug 19	1240	4	16	0	0
Aug 20	0925	0	0	0	0
Aug 21	1235	1	25	0	0
Aug 22	1045	2	32	0	0
Aug 23	1005	3	17	0	0
Aug 24	1339	1	16	0	0
Aug 25	1155	2	31	0	0

Gas Bubble Trauma (GBT) Monitoring: N/A

Adult Fish Trap Operations: LWG Adult trap is in 24/7 collection broodstock operation. NPT is transporting Mondays and Tuesdays and WDFW is transporting Tuesday through Saturday.

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. Data collection includes fish scales, genetics tissue, sex and length, wild/hatchery composition, and non-adipose clipped hatchery fish assessment. All 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.

Columbia River Inter-Tribal Fisheries Commission (CRITFC) Pacific Lamprey Genetic Study:

CRITFC has requested that the SMP collect non-lethal tissue samples from up to 1,000 juvenile and 2,230 larval Pacific lamprey, not to exceed 20 juvenile or 10 larvae daily, during the routine smolt monitor condition sampling from March through October. The purpose of this study is to fill two objectives; 1) Determine relative proportion of translocation offspring among the total abundance of larval and juvenile lamprey passing the juvenile bypass systems at BON, JDA, MCN, and LWG. 2) Describe life history characteristics of larval and juvenile lamprey emigrating from the Columbia and Snake River basins. The genetic information collected will be used to evaluate the tribal Pacific lamprey programs efficacy and assist with guiding future management. There have been 526 macrophthalmia (juvenile) and 1400 ammocoete (larval) lamprey samples have been collected this season.

Idaho Power Hells Canyon Sturgeon Recruitment:

LWG Corps bio techs continue collecting passage and estimated lengths and of White Sturgeon prior to removing them from the separator in support of Idaho Power Sturgeon program. A PIT-tagged sturgeon was released from the juvenile separator August 8.