Out of Criteria – Weekly Report #26

1. McNary

At the Oregon shore exit, the person on duty overnight noted the head over weir measure 0.9 feet on August 27. The roving operator adjusted the exit set points to resolve the issue.

South shore fish pump 3 tripped offline from 0900 to 0937 hours and from 1844 to 1849 hours on August 25. All three fish pumps tripped offline due to a cooling water issue from 0555 to 0608 hours on August 28.

Bays 1 and 3 remain out of service with dogging devises removed. Bay 21 is still available as only the upstream dogging mechanism was removed. The future plan is to rotate through the bays and repair one set of dogging mechanisms at a time. See MOC 23MCN10.

2. Ice Harbor

The south fishway channel velocity meter was noted as out of service on August 28 and was reported to electricians for repair.
North shore AWS pump #1 has been out of service since March 1 because of a hydraulic cylinder leak on the butterfly valve. The hydraulic cylinder needs to be rebuilt but is on hold until funding is available.

3. Lower Monumental

The five broken bird deterrent wires over Powerhouse 1 zone will be replaced by USDA personnel in September or October of 2023.

4. Little Goose

The fishway cooling pump has been out of operation since June 29.

5. Lower Granite Dam

Yes	No	Sill	Location	Criteria	Comments
	X		South Shore Entrance (SSE-1) Weir Depth	$\geq$ 8.0’	7.9’, 7.5’
	X		South Shore Entrance (SSE-2) Weir Depth	$\geq$ 8.0’	7.9’ ,7.5’
	X		North Powerhouse Entrance (NPE-1) Weir Depth	$\geq$ 8.0’ or on sill	7.6’
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	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’

North powerhouse continues to not meet channel/tailwater head differential criteria. Electrical crew continues to calibrate the ladder when issues are reported.
Pump 3 was removed from service to address a gearbox oil leak and to replace the input shaft. AWS pumps 1 and 2 remain in service. See MFR 23LWG10. AWS pump 1 was switched to “Fast” August 30 at 0754 hours.

U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#26-2023

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: August 25-31, 2023

Turbine Operation

Yes	No	Turbine Unit Status		
	X	All 14 turbine units available for service? (See table & comments below for details.)	**Hard**	**Soft**
X		Available turbines operated within 1% peak efficiency? Constraint in effect.	X	

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

	OOS		RTS		
Unit(s)	**Date**	**Time**	**Date**	**Time**	**Outage Description**
13 & 14	6/12	0636	12/21	NA	Control system upgrades/annual maintenance/T7
9 to 12	8/25	0816	8/25	1648	Remove material from powerhouse roof
3 & 6	8/29	1000	8/29	1040	ESBS camera inspections, rotated through units

Comments: RTS dates are subject to change. The sawtooth unit priority pattern for temperature abatement continues. The soft one percent peak efficiency will begin September 1 at 0001 hours.

Adult Fish Passage Facilities

Measured inspections of the adult fishways occurred on August 25, 27 and 29. Visual adult fish counting, and video review of nighttime lamprey passage continues.

Fish Ladder Exits:

Yes	No	Location	Criteria	Measurements
X		Oregon Exit	Head over weir 1.0’ to 1.3’	1.0’
X		Oregon Count Station Differential	0.0’ to 0.5’	0.2’
X		Washington Exit	Head over weir 1.0’ to 1.3’	1.0’ to 1.2’
X		Washington Count Station Differential	0.0’ to 0.5’	0.1’ to 0.2’

Comments: Debris loads were light to moderate (woody material) near the Oregon shore exit along the shoreline and minimal to very light (aquatic material) near the Washington shore exit. The general maintenance staff has been cleaning the picketed leads at both exits as needed and more frequently including on Saturday and Sunday. They came in twice on Sunday, August 27.

At the Oregon shore exit, the person on duty overnight noted the head over weir measure 0.9 feet on August 27. The roving operator adjusted the exit set points to resolve the issue.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0’ – 2.0’	1.5’ to 1.6’
X			NFEW2 Weir Depth	$\geq$ 8.0’	8.3’ to 8.5’
X			NFEW3 Weir Depth	$\geq$ 8.0’	8.2’ to 8.5’

X			South Oregon Entrance Head Differential	1.0’ – 2.0’	1.6’ to 1.8’
X			SFEW1 Weir Depth	≥ 8.0’	8.3’ to 8.5’
X			SFEW2 Weir Depth	≥ 8.0’	8.4’ to 8.5’
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 1.6’
X			WFE2 Weir Depth	≥ 8.0’	9.8’ to 10.7’
X			WFE3 Weir Depth	≥ 8.0’	9.7’ to 10.6’

Comments: There are no problems to report.

Three floating orifice gates (FOG’s) slots, W32, W37 and W 41 remain closed. Nine of 12 slots are open.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Blade angle	Auxiliary Water Supply System (AWS)
Yes				WA shore Wasco County PUD Turbine Unit
	Yes			WA shore Wasco PUD Bypass
Yes*			22° to 23°	Oregon Ladder Fish Pump 1
Yes*			21° to 22°	Oregon Ladder Fish Pump 2
Yes*			22°	Oregon Ladder Fish Pump 3
Yes				OR North Powerhouse Pool supply from juvenile fishway

*Comments: Fish pump 3 tripped offline from 0900 to 0937 hours and from 1844 to 1849 hours on August 25. All three fish pumps tripped offline due to a cooling water issue from 0555 to 0608 hours on August 28.

Juvenile Fish Passage Facility

Every other day sample collection continues with no interruptions in the schedule this week. Installation of a new forebay (intake) deck crane continues. This will add some challenges to various task.

The smolt monitoring staff is still looking to relocate their internet dish.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Minimal to very light
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 minimal to very light near the powerhouse. New incoming debris was minimal. Weather changes move the debris throughout the forebay. Residual debris loads beside the spillway were minimal. Most of the debris was fine or woody material and aquatic vegetation.

No trash rack cleaning occurred this week and none is scheduled.
For the new intake crane testing, units 12 to 14 gatewells slots remained covered over. Only unit 12 will be online for the remainder of the crane testing. There are openings around the covers which will allow for VBS differential monitoring in unit 12.

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 deployed in all units. Camera inspections in units 3 and 6 revealed no issues on August 29.

Daily VBS differential monitoring continued. No high differentials were recorded. One screen was cleaned on August 31. No fish 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: Orifice were adjusted for VBS cleaning as required. Attraction lighting was rebulbed as needed. The air tuggers used to remove the emergency bypass covers received scheduled maintenance.

Bypass Facility:

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

Comments: The sample gates continue to operate every other day for sample collection. The PIT sample tag system will not be used again this year.

This week, 110 juvenile lamprey and 330 smolts, mostly sub-yearling Chinook, were bypassed during secondary bypass. Juvenile shad continue to be the predominate species in the sample. The smolt monitoring staff reports fish data in a separate report.

TSW Operations: Both TSW's remain out of service with a standard gate in bay 19. The TSW for bay 20 was installed on August 30 and 31. Per RCC schedule, the TSW will begin to be used on September 1.

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
125.7	115.1	20.2	19.9	70.2	68.9	6.0	6.0

Comments: The above data is provided by the smolt monitoring staff except the water clarity, which is provide by the control room. The data day runs from 0700 to 0700 hours. Summer spill to 20 kcfs will conclude on September 1 at 0001 hours.

Cranes 6 and 7 can perform their next overloaded lift on April 18, 2024. All hoists are functional.

For TSW installation in bay 20, the spill of 20 kcfs had to be moved to northern bays. Bays 19 and 20 were closed with bays 16 and 17 were opened on August 30 at 0700 hours. Bay 18 was closed and bay 14 was opened at 1100 hours. Bays 15, 16 and 17 were closed and bays 11, 12 and 13 were opened at 1400 hours.

Bays 11, 12 and 13 were closed and bays 15, 16, 17 and 18 were opened after TSW testing on August 31 from 1500 to 1700 hours. The open bays were closed at the end of the spill season.

Bays 1 and 3 remain out of service with dogging devises removed. Bay 21 is still available as only the upstream dogging mechanism was removed. The future plan is to rotate through the bays and repair one set of dogging mechanisms at a time.

The smolt monitoring staff concluded water temperature data collection related to juvenile passage on August 31. They have completed daily and weekly reports with the annual temperature report due in the near future. Adult passage temperature monitoring is year-round.

Other

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

Avian Activity: Avian counts continue. The results are recorded in Table 3 below.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican	Grebe
August 25	Spill	77	0	0	0	0
	Powerhouse	85	0	0	0	0
	Outfall	13	2	0	0	0
	Forebay	0	0	0	0	0
August 26	Spill	148	0	0	0	0
	Powerhouse	59	0	0	0	0
	Outfall	42	0	0	0	0
	Forebay	3	0	0	0	0
August 27	Spill	6	0	0	0	0
	Powerhouse	66	0	0	0	0
	Outfall	70	1	0	0	0
	Forebay	0	0	0	0	0
August 28	Spill	0	0	0	0	0
	Powerhouse	51	0	0	0	0
	Outfall	38	0	0	0	0
	Forebay	1	0	0	0	0
August 29	Spill	134	0	0	0	0
	Powerhouse	46	0	0	0	0
	Outfall	51	0	0	0	0
	Forebay	0	0	0	0	0
August 30	Spill	331	1	0	0	0
	Powerhouse	44	0	0	1	0
	Outfall	14	5	0	0	0
	Forebay	1	0	0	0	0
August 31	Spill	303	0	0	0	0
	Powerhouse	93	0	0	0	0
	Outfall	34	4	0	0	0
	Forebay	1	0	0	0	0

For the report week, no terns or grebes were counted.

In the spillway zone, gulls were noted roosting in fluctuating yet gradually increasing numbers along with one cormorant and one osprey. The gulls did occasionally feed in fair numbers in the 20 kcfs spill flow.

At the bypass outfall zone, a few cormorants and a fair number of gulls were observed. Most of the birds were roosting with light feeding at times.

In the powerhouse zone, gulls were noted intermittently feeding in fairly good numbers. Some birds were roosting. One pelican was noted. No pelicans were observed in either ladder.

In the forebay zone, a few gulls were noted feeding or roosting. Outside the zone, a few cormorants and osprey were noted along with a fair number of gulls.

The two large bird distress calls remain deployed and active on the navigation lock wing wall. These calls become less effective as gull numbers increase with the juvenile shad out migration. The laser and LRAD remained deployed on the outfall walkway and also lose effectiveness during the shad out migration. No other hazing is occurring.

Invasive Species: The next mussel station examinations will occur in late September.

Siberian Prawn: Four prawns were observed in this week's samples bring the season total to eleven.

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

Research: USGS equipment for a juvenile passage study along the upstream edge of the powerhouse and spillway remains in place. For a CRITFC study, there were tissue samples removed from eleven juvenile lamprey collected at the facility this week for a total of 772 fish this season. All fish were returned to the river unharmed.

Project: Ice Harbor
Biologist: Ken Fone
Biological Science Technician: Ben McArthur
Dates: August 25 – August 31, 2023

Turbine Operation

Yes	No	Turbine Unit Status
	x	All 6 turbine units available for service (see table & comments below for details).
x		All available turbine units are operated in accordance with Appendix 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
1	6/27/23	0708	---	---	Turbine runner replacement and stator rewind
3	7/31/23	0815	8/31/23	1449	Exciter controls upgrade

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on August 28, 29, and 30.

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’	
			South Shore Channel Velocity	1.5 – 4.0 fps	OOS
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’	

Comments: Channel velocity meter was noted as out of service on August 28 and was reported to electricians for repair. The velocity reading displayed on the meter is not updating.

Auxiliary Water Supply (AWS) System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply 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: North shore AWS pump #1 has been out of service since March 1 because of a hydraulic cylinder leak on the butterfly valve. The repairs are on hold until funding is available.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
x			Forebay debris load acceptable? (amount)	Average of 19 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	VBSs differentials checked this week?
		x	VBSs differentials acceptable?

Comments: The STS in slot 3B was replaced with a spare STS on August 30. When the screen was inspected with the underwater video camera earlier in the month, one of the seams was observed to be worn, but the extent of the wear could not be clearly seen with the camera. The screen was pulled out of the water on August 30 to get a better look, and an 18" rip under the flap of the seam was 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: 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.

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

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

Removable Spillway Weir (RSW): The RSW was closed at 0900 hours on August 1 when the daily average project outflow was less than 30 kcfs and the inflow was forecasted to stay that way for at least three days (IHR section 2.3.2.6.iii. of the Fish Passage Plan). Summer spill for fish passage ended at 1159 hours on August 31.

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
31.9	25.3	8.7	8.6	72	72	8.5	7.0

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Turbine unit cooling water strainers will not be regularly inspected again until juvenile shad start plugging them up in the fall.

Avian Activity: There was light 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: None.

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

Project: Lower Monumental
Biologists: Denise Griffith and Raymond Addis
Dates: August 25 - 31, 2023

Turbine Operation

Yes	No	Turbine Unit Status		
X		All 6 turbine units available for service (see table & comments below for details).	**Hard**	**Soft**
X		Available turbines operated within 1% peak efficiency? Constraint in effect.	X	

Comments: Unit 4 ran out of priority for testing on August 30 and 31. The testing took approximately 4 hours each day. This operation was coordinated per App. C of the Fish Passage Plan through MOC 23LMN09.

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

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
Unit 4	7/10/23	0710	9/15/23	ERTS	Annual/Overhaul/OPTO Upgrade
Unit 5	8/03/23	2200	10/05/23	ERTS	T-2 Repairs
Unit 6	8/03/23	2200	10/05/23	ERTS	T-2 Repairs

Comments: None.

Adult Fish Passage Facility

Lower Monumental fish facility, EAS and WDFW staff inspected the adult fishways on August 25, 27 and 29.

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: North ladder’s exit trash rack and surrounding area was cleared of woody debris on August 31 and approximately 3 cubic yards of debris was removed consisting of mostly logs.

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: South Powerhouse Entrance SPE-1 weir was at sill during all inspections with readings of 5.9, 6.2 and 6.1 feet respectively. South Powerhouse Entrance SPE-2 weir was at sill during all inspections with readings of 5.9, 6.2 and 6.1 feet respectively. South Shore Entrance SSE-1 weir was at sill during all inspections with readings of 7.1, 7.7, and 7.5 feet respectively.

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: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
	X		Forebay debris load acceptable? (amount)	233 yd^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: The STSs were on cycle mode 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
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: The screen cleaning brush at the PDS malfunctioned on August 30 at 1600 hours. The error was cleared, and the brush functioned normally. Due to an increase in leafy material, the brush run times were increased on August 29-30.

Collection Facility: Collection for condition sample took place between August 26 – 27 and August 28 – 29. A total of 66 fish were collected and 64 bypassed during this period.

Transport Summary: Collection for transport ended for the season.

Spillway Weir: Summer spill ended at 23:59:59 on August 31. RSW spill for fall steelhead started at that time.

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
30.5	26.0	8.3	8.0	69.9	69.2	6.0	5.3

*Scrollcase temperatures.

Other

Cooling Water Strainers: The cooling water strainers will not be examined again until December.

Avian Activity: Tailrace counts of foraging piscivorous birds at Lower Monumental Dam began on April 1.

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
8/25/2023	1215	22	3	0	0	5
8/26/2023	715	29	5	0	0	13
8/27/2023	1025	13	1	0	0	6
8/28/2023	945	36	5	0	0	8
8/29/2023	1415	20	7	0	0	8
8/30/2023	1350	35	8	0	0	9
8/31/2023	815	28	1	0	0	15

Comment: Bird hazing by USDA personnel ended on July 1. Corps personnel continues to haze with pyrotechnics when pelicans are found inside the adult fishways. The five broken bird deterrent wires over Powerhouse 1 zone will be replaced by USDA personnel in September or October of 2023.

Invasive Species: Inspection for zebra or quagga mussels will next occur in September.

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by EAS, frozen and properly disposed of in a landfill. Sampling occurred on August 27 and 29.

Date	Sample (euthanized)	Collection*
August 27	108	108
August 29	114	114
Total	222	222

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

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

Research: A PNNL study on behavior and survival of juvenile Pacific lamprey at Lower Monumental Dam will start on April 1 and run to September 30. PNNL removed most of the monitoring equipment from the raceways on June 22.

Project: Little Goose Dam
Biologist: Deb Snyder, Brooke Gerard, Cole Reeves
Dates: August 25 – August 31, 2023

Turbine Operation

Yes	No	Turbine Unit Status
	X	All 6 turbine units available for service? (See table and comments below for details)

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

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
5	4/14/2017		12/01/2023	ERTS	Spider and upper guide bearing repair.
4	8/10/23	0710	9/6/23	1700	Unit annual maintenance

Comments: Contractual obligations and performance issues realigned the Unit 5 ERTS date into 2023, testing scheduled for winter maintenance period. Unit 4 converted to annual maintenance status on August 10 at 0710 hours.

Adult Fish Passage Facility

EAS Bio and ODFW staff inspected the adult Fishway on August 27 and 31.

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	8/31-6.3
		X	North Powerhouse Entrance (NPE-2) Weir Depth	$\geq$ 7.0’ or on sill	8/31-6.3
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	8/31-5.7
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: The adult fishway was initially returned to service on February 14, dewatered February 16 due to discovery of a second fish viewing window leak, then subsequently watered back up and commissioned for the season on February 23. The AWS pumps returned to service on February 23. The Fish Ladder Exit Cooling Water Pump was pulled, inspected, and readied for modest repairs on February 21. The Collection Channel Surface Velocity is measured at NPE. Rickly channel velocity measurements were completed and met criteria on July 27. Transponder readings documenting the Fish Ladder Depth over Weirs began displaying data inconsistent with physical staff gauge measurements beginning March 30. The North Shore fish entrance weirs continue to

experience discrepancy readings between the Fish System Control (FSC) board and physical weir height measurements. We are working with SMP contracted personnel to standardize reporting to default to physical staff gauge measurements when FSC board discrepancies are detected. Criteria for activation of Fish Ladder Exit Cooling Pump was met, and the system was started at 2030 hours on June 7. The Fish Ladder Exit Cooling Pump failed during the 0900 hour on June 29th initially from two ground fault alarms, details outlined in 23 LGS 09 MFR.

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 23.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comment
X			Forebay debris load acceptable? (amount)	High 2050 ft² - Low 195 ft²
	X		Gatewell drawdown measured this week?	
		X	Gatewell drawdown acceptable	
X	X		Any debris seen in gatewells (% coverage)	8/28 – 1% 1A
	X		Any oil seen in gatewells?	

Comments: The forebay maintained minimal floating debris inside the trash shear boom with the highest measurement occurring on August 26 at 300 ft². The overall total forebay debris high occurred August 25 at 2050 ft².

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 Unit 4-6 ESBS's were completed on March 13 and installation of units 1-3 took place March 14. Underwater camera inspections of all unit gatewell VBS screens occurred June 12, 13, and 14. No deficiencies were found; detailed notes were taken and forwarded to mechanical crew personnel in preparation for upcoming scheduled unit annual maintenance activities. During unit 6 annual, VBS screens in slot A were pulled and the few remaining stainless-steel fasteners were refurbished with nylon replacements.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	8/25-31 0745:19, 8/31 at 0745 on:18
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: The juvenile bypass system was initially watered up March 6, was halted to fix pinhole leaks discovered in the 42" primary emergency fish bypass pipe, resumed and was fully commissioned on March 7.

Collection Facility: The juvenile collection facility watered up on March 21. Every other day collection for condition monitoring in conjunction with secondary bypass began March 25 with the first sample being conducted on March 26. Everyday collection began April 23 coinciding with every other day barge transportation. Barging transportation concluded with the final barge departure of June 19 returning to a combination of everyday condition sampling and secondary bypass operations. Every-other day primary by-pass was initiated on July 11 due to water temperatures above 68°F. Every day collection resumed at 0700 on August 1st corresponding with the start of every other day trucking operations as per the FPP. A total of 974 fishes were collected and 864 were trucked. There were 16 sample or facility mortalities. The descaling and mortality rates were 5.39% and 2.5%, respectively. The collection and transport facility operated within criteria. Thirteen adult lamprey were removed from the collection facility during this report period.

Transport Summary: Collection for fish transportation began April 23 with the first barge departure on April 24. Every other day barging is scheduled thereafter pending situational transition to everyday barging due to any unforeseen increase in fish numbers. Barge transportation for the season ended with the final barge departure on June 19. Collection for truck transport operations began August 1 with the first truck departure on August 2.

Spillway Weir: Little Goose began operation of the adjustable spillway weir (ASW) on March 1 to facilitate passage of adult steelhead overshoots. Operation occurred three days each week every other day for four hours in the morning. Spring spill operations began as scheduled on April 3. On June 12 the ASW was adjusted to high crest at 0840 hours per teletype instructions reducing ASW outflow from 11 to 7.4 kcfs due to decreased reservoir inflows. Summer spill operations began as scheduled on June 21. On August 1 at 14:02 hours the ASW was closed per RCC teletype in conjunction with FPP Chapter 8 section 2.3.2.7.e, diminished outflows below the 35 kcfs threshold.

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
29.50	23.90	6.60	6.40	68.7	67.8	6.0	6.0

*Ladder temperature.

Other

Inline Cooling Water Strainers: Inline cooling strainer inspections commenced on December 1, 2022. 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 are scheduled to begin April 1, while USDA-APHIS bird abatement contract services are in place.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
8-25	1600	0	0	0	1
--					
8-27	1300	4	0	0	0
8-28	1110	0	0	0	0
8-29	1055	2	0	0	0
8-30	0800	0	0	0	0
8-31	0800	0	0	0	0

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

Siberian Prawn: Juvenile fish collection began March 25. Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by Oregon Department of Fish and Wildlife and EAS Bio personnel, frozen and properly disposed of in a landfill.

Date	Sample	Collection*
8-25	214	428
8-26	161	322
8-27	620	620
8-28	1277	1277
8-29	4242	4242
8-30	2307	2307
8-31	2118	2118
Totals	10939	11314

*Collection and sample numbers are equal when sample rates change to 100%

Gas Bubble Trauma (GBT): Oregon Department of Fish and Wildlife began GBT monitoring services starting on April 4, 2023. Final season GBT monitoring occurred on July 26 and 27th. Of the 46 fish examined, 0 fish exhibited signs of GBT.

Fish Rescue/Salvage: No fish rescue or salvage operations transpired during this reporting period.

Research: The Nez Perce Tribe (NPT) began adult steelhead kelt collection efforts on March 26 and concluded collection on July 1.

Project: Lower Granite
Biologists: David Miller/Steve Lee
Dates: August 25-31, 2023

Turbine Operation

Yes	No	Turbine Unit Status		
	X	All 6 turbine units available for service (see table & comments below for details).	**Hard**	**Soft**
X		Available turbines operated within 1% peak efficiency? Constraint in effect.	X	

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

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
1-6	08/27	0738	08/28	1402	Planned outage for VBS inspections
2	08/28	0700			Annual maintenance and VBS replacement.

Comments:

Adult Fish Passage Facility

Lower Granite biologists inspected the adult fishway on August 25, 26, 28 and 30.

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: Fish Ladder Cooling Pump 1 was turned off at 1400 on August 24.

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
	X		South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	7.9’, 7.5’
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.9’ ,7.5’
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
	X		North Powerhouse Entrance (NPE-1) Weir Depth	≥ 8.0’ or on sill	7.6’
X			North Powerhouse Entrance (NPE-2) Weir Depth	≥ 8.0’ or on sill	
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	0.9’, 0.9’
	X		North Shore Entrance (NSE-1) Weir Depth	≥ 7.0’ or on sill	6.9’
	X		North Shore Entrance (NSE-2) Weir Depth	≥ 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 will continue to be evaluated this season to resolve ongoing issues. FOGs 1, 4, 7, and 10 are in operation. North powerhouse continues to not meet channel/tailwater head differential criteria. Electrical crew continues to calibrate the ladder when issues are reported.

Auxiliary Water Supply System:

Operating Satisfactorily	Standby	Out of Service	Auxiliary Water Supply (AWS)
Yes			AWS Fish Pump 1
Yes			AWS Fish Pump 2
No		Yes	AWS Fish Pump 3

Comments: AWS pumps 1 and 2 remain in service. AWS pump 1 was switched to "Fast" August 30 at 0754 hours.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	55.7 yd^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:

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: N/A

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	21
X			Dewaterer and cleaning systems operating satisfactory?	

Comments:

Collection Facility: The collection facility is general collection mode for transport and collecting for condition sampling and USGS research. Lamprey genetic sampling for CRITFC continues. Collection for truck transport started at 0700 hours August 1.

Transport Summary: Transport resumed with the first truck departing LWG August 3. A total of 1,914 fish were transported by truck during the current report week. For the season, 15,488 fish have been transported by truck and 3,041,835 were transported by barge from Lower Granite.

Spillway Weir: Late summer spill started August 15. There have been 173 adult and 84,642 juvenile Chinook salmon, 684 adult and 54,965 juvenile steelhead, 2,981 juvenile Coho salmon, and 12,162 juvenile Sockeye salmon detected at the RSW since March 1. There have been 28 adult and 45,242 juvenile Chinook salmon, 153 adult 38,032 juvenile steelhead, 1,209 juvenile Coho salmon, and 1,141 juvenile Sockeye salmon detected through the Juvenile Bypass System since March 15 (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
29.5	254.7	6.5	6.1	66.0	65.0	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 52,948 Siberian prawns collected in the sample.

Avian Activity: Biologist daily piscivorous bird counts and bird hazing began April 1.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
Aug 25	1445	5	23	0	0
Aug 26	0940	3	16	0	0
Aug 27	1005	17	18	0	0
Aug 28	0820	36	16	0	0
Aug 29	0706	4	0	0	0
Aug 30	1230	1	15	0	0
Aug 31	0855	22	17	0	0

Gas Bubble Trauma (GBT) Monitoring: N/A

Adult Fish Trap Operations: Broodstock collection started August 18. The trap sample rate was changed from 70% to 18% on August 30 at 1400 hours.

Fish Rescue/Salvage: The adult fish trap was flushed for screen cleaning/maintenance on 26 August.

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 March 1 through November 30. The goal is to collect 5-20% of adult steelhead, spring/summer Chinook salmon, and sockeye salmon ascending the ladder March 1-November 30. 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.

Sampling and PIT tagging of Walleye by the Idaho Department of Fish and Game (IDFG) and NOAA Fisheries.

Walleye collected in the adult fish trap are PIT tagged and released back into the ladder to investigate movement and ascension rate of walleye that successfully exit the fish ladder into the upstream reservoir. PIT tag data collected will be used to gain an understanding of the potential expansion and threat of walleye upstream of LWG to ESA-listed salmonids and guide future management actions of walleye in the Snake River Basin.

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.

PNNL Juvenile Pacific Lamprey Passage Behavior and Survival at Lower Granite:

The goal of the study is to address questions regarding potential effects of dam operations and configurations on juvenile Pacific lamprey behavior and survival using The Juvenile Salmon Acoustic Telemetry System (JSATS). A target of 450 juvenile and 450 larval lamprey will be collected, implanted with a juvenile Eel/Lamprey Acoustic Transmitter (ELAT), and released upstream of LWG. An additional 1000 juvenile or larval lamprey will be implanted with PIT tags. Distribution and approach routes (including vertical, horizontal, and temporal), primary routes of passage (proportions) at LWG, project survival from forebay to tailrace, and reach survival and reservoir residence time will be evaluated using the telemetry system. In addition, 50 dead tagged juvenile lamprey will be released from LGR and 50 from LMN to estimate dam passage survival using the virtual release/dead-fish correction (ViRDCt) model. Detection of tagged individuals will be summarized to evaluate passage routing and estimate dam passage survival at LGR and LMN, estimate reach survival downstream of LWG and downstream of LMN, and evaluate travel time between detection arrays. There have been 493 larval and 1170 juvenile lamprey have been collected for PNNL this season. Of the total collection, 437 larval and 1074 juvenile lamprey have been either PIT tagged or acoustic tagged at LWG and released at Blyton Landing, 55 larval and 196 juveniles were handled and released without being tagged, and there were 1 larval and 14 juvenile lamprey recovery mortalities. Collection of juvenile lamprey will resume in September.

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 2000 juvenile and 1000 larval Pacific lamprey, not to exceed 10 juvenile or larvae daily, during the routine smolt monitor condition sampling from March through September. 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. LWG SMP collected genetic samples from 423 juvenile and 961 larval lamprey this season.