U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#24-2023

Out of Criteria – Weekly Report #24

1. McNary

At the Oregon shore exit, the head over weir measure 0.9 feet on August 14. The operator adjusted the exit set points to resolve the issue.

The summer spill season, with 57 percent of the flow being spilled, continued until August 14. However, due to only one adjustment in the pattern being made per day at midnight, the percentage of flow being spilled is not always 57 percent. The summer spill season switched to 20 kcfs being spilled on August 15 at 0001 hours. At that time, the 20 kcfs was directed through bays 2, 4 and 6 since bays 2 and 6 require a crane to close them. After district discussion, cranes 6 and 7 were allowed to perform a third overloaded lift before April 18, 2024. Crane operators began work in bays 2 and 6 on August 15 at 0800 hours. First, bay 6 was set to split leaf to spill the remaining debris along the spillway. Then bays 2 and 6 were closed with the cranes (the control room operator closed bay 4) as bays 14, 15, 18, 19 and 20 were opened per FPP Table MCN-9 for 20 kcfs. The full closure and opening of bays were done by approximately 0900 hours. See MFR 23MCN11.
Bays 14 and 15 were closed and bay 10 was open for spillgate work in bay 15 on August 15, from approximately 1000 to 1600 hours. Again, for spillgate work, bays 14 and 15 were closed with bays 11 and 12 opened on August 16, at approximately 0700 hours. Due to miscommunication, the bays were not swapped back until August 20, at approximately 1330 hours.

Spillbays 1 and 3 remain closed for dog repairs, as coordinated in MOC 23MCN10.

2. Ice Harbor

Yes	No	Sill	Location	Criteria	Measurements
	x		South Shore Channel/Tailwater Differential	1.0' – 2.0'	2.2'
	x		North Shore Channel/Tailwater Differential	1.0' – 2.0'	2.4'

The south shore channel/tailwater differential was above criteria on the August 15 inspection.
The low tailwater level on that day was most likely the cause of the high differential. The north shore channel/tailwater differential was above criteria on August 15. The reading probably resulted from the low tailwater level.

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.

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

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.

3. Lower Monumental

Powerhouse operator found the attractant light out for gatewell orifice 6A31 during rounds on August 12 at which time they switched to orifice 6A32. Orifices were switch back to 6A31 when light was replaced on August 14.

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

Yes	No	Sill	Location	Criteria	Measurements
X	X		North Shore Channel/Tailwater Differential	1.0'–2.0'	.9 on 8/16-ODFW

*taken with NSE FSC board, which shows readings discrepant from physical weir height measurements

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	≥ 8.0'	7.7', 7.8', 7.9'
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0'	7.7', 7.7'
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0'–2.0'	0.8', 0.9'
	X		North Shore Channel/Tailwater Differential	1.0'–2.0'	0.7', 0.7', 0.7', 0.7'

North powerhouse continues to not meet channel/tailwater head differential criteria. Electrical crew continues to calibrate the ladder when issues are reported.

AWS pumps were out of service from 1209 hours to 1257 hours on August 16. 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.

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: August 11-17, 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**
10	6/5	0758	8/16	1617	Nine-year overhaul
13 & 14	6/12	0636	12/21	NA	Control system upgrades
5	8/15	1000	8/15	1030	ESBS camera inspections
11	8/17	1134	8/17	1556	Ground issue

Comments: RTS dates are subject to change. The sawtooth unit priority pattern for temperature abatement continues.

Adult Fish Passage Facilities

Measured inspections of the adult fishways occurred on August 12, 13 and 16. 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'	0.9' to 1.1'
X		Oregon Count Station Differential	0.0' to 0.5'	0.2' to 0.3'
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 were light to moderate (woody material) near the Oregon shore exit along the shoreline and minimal (aquatic material) near the Washington shore exit. The general maintenance staff has been cleaning the picketed leads at both exits as needed including on Saturday.

At the Oregon shore exit, the technician on duty noted the head over weir measure 0.9 feet on August 14. The roving operator adjusted the exit set points to resolve the issue.

At the Washington shore exit, one regulating weir alarm came in and was reset on August 16. Also, a new phone was installed in the count station 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 1.6'
X			NFEW2 Weir Depth	≥ 8.0'	8.3' to 8.5'

X			NFEW3 Weir Depth	≥ 8.0’	8.2’ to 8.5’
X			South Oregon Entrance Head Differential	1.0’ – 2.0’	1.4’ to 1.8’
X			SFEW1 Weir Depth	≥ 8.0’	8.3’ to 8.8’
X			SFEW2 Weir Depth	≥ 8.0’	8.3’ to 8.7’
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.8 fps
X			Washington Entrance Head Differential	1.0’ – 2.0’	1.3’ to 1.4’
X			WFE2 Weir Depth	≥ 8.0’	8.7’ to 10.5’
X			WFE3 Weir Depth	≥ 8.0’	8.8’ to 10.4’

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			24°	Oregon Ladder Fish Pump 1
Yes			22°	Oregon Ladder Fish Pump 2
Yes			20°	Oregon Ladder Fish Pump 3
Yes				OR North Powerhouse Pool supply from juvenile fishway

Comments: There are no problems to report.

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 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 light near the powerhouse. New incoming debris was minimal to very light. Weather changes move the debris throughout the forebay. Residual debris loads beside the spillway were minimal to light as some of the remaining debris was spilled on August 15 as will be described in the River Conditions section below. Most of the debris was fine or woody material and aquatic vegetation.

No trash rack cleaning occurred this week and none is scheduled.

The small patches of aquatic vegetation in the slots in unit 10 dissipated when the unit returned to service on August 16. The algae bloom noted in 2B slot on August 13 also dissipated on August 15.

For the new intake crane assembly, units 12 to 14 gatewells slots remained covered over. Only unit 12 will be online for the remainder of the crane assembly and 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 occurred in unit 5 on August 15 revealed no problems. Unit 10's ESBSs' brush cycles were switched to automatic mode on August 17. The brush cycles in 10A and 10C immediately tripped alarms, which were reset. The brush cycles were in manual mode approximately 16 hours.

Daily VBS differential monitoring continued. No high differentials were recorded. Scheduled VBS inspections, which includes cleaning, occurred in units 7 and 10 on August 15 and 17, respectively. During the inspections, some mess clips were replaced and the backs of the VBS's were cleaned. The VBS in 7B slot would have been cleaned if the inspection had not been scheduled. No other problems were found. A total of three other VBS's were cleaned on August 15 and 17. No fish were observed during the inspections or cleaning.

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 inspection and cleaning as required. The oil reservoir in slot 10B, north orifice was replaced on August 16. No oil entered the water.

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, 76 juvenile lamprey and 1,279 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.

After the system was switched into primary bypass, two pieces of woody material were removed from the A side transport flume, one upstream and one downstream of the sample gate on August 17. No fish injuries were note in the A side sample.

TSW Operations: Both TSW's remain out of service with standard gates 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
157.1	144.6	87.6	19.9	72.9	69.9	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.

After district discussion, cranes 6 and 7 were allowed to perform a third overloaded lift before April 18, 2024. Crane operators began work in bays 2 and 6 on August 15 at 0800 hours. First, bay 6 was set to split leaf to spill the remaining debris along the spillway. Then bays 2 and 6 were closed with the cranes (the control room operator closed bay 4) as bays 14, 15, 18, 19 and 20 were opened per FPP Table MCN-9 for 20 kcfs. The full closure and opening of bays were done by approximately 0900 hours. After district discussion, cranes 6 and 7 were allowed to perform a third overloaded lift before April 18, 2024. Crane operators began work in bays 2 and 6 on August 15 at 0800 hours. First, bay 6 was set to split leaf to spill the remaining debris along the spillway. Then bays 2 and 6 were closed with the cranes (the control room operator closed bay 4) as bays 14, 15, 18, 19 and 20 were opened per FPP Table MCN-9 for 20 kcfs. The full closure and opening of bays were done by approximately 0900 hours.

Due to the unit 11 outage, flow exceeded powerhouse capacity, so spill was increased to approximately 33 kcfs on August 17, from approximately 1300 to 1700 hours.

Bays 14 and 15 were closed and bay 10 was open for spillgate work in bay 15 on August 15, from approximately 1000 to 1600 hours. Again, for spillgate work, bays 14 and 15 were closed with bays 11 and 12 opened on August 16, at approximately 0700 hours. Due to miscommunication, the bays were not swapped back until August 20, at approximately 1330 hours.

All hoists are functional. Spillgate dogging mechanism rehabilitation continues. Bays 1 and 3 remain out of service with dogging devises removed. The dogging mechanisms in bay 21 will be removed in September after the spill season is over. The future plan is to rotate through the bays and repair one set of dogging mechanisms at a time.

The smolt monitoring staff continued to collect water temperature data related to juvenile passage and will report the data along with any issues in daily and weekly reports. The new crane construction on the intake deck does effect data collection at times. 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.

For the report week, all species were counted except grebes.

In the spillway zone, pelicans and gulls were noted along with occasional terns or ospreys. Pelican numbers were decreasing as gull numbers fluctuated. Many of the gulls were juveniles. Most birds were feeding or roosting. When spill decreased on August 15, many of the birds moved to the powerhouse zone.

At the bypass outfall zone, a few pelicans, and along with a fair number of gulls, mostly juveniles, were observed. One cormorant was noted. Most of the birds were roosting except pelicans.

In the powerhouse zone, gulls and pelicans moved from the spill zone and began to intermittently feed in the powerhouse zone on August 15. No pelicans were observed in either ladder.

In the forebay zone, a few juvenile gulls and pelicans were noted feeding or roosting. Outside the zone, a few cormorants, tern, 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 are effective at reducing roosting at times. The laser and LRAD remained deployed on the outfall walkway and appear to be somewhat effective. No other hazing is occurring. When the juvenile shad are out-migrating, roosting deterrents appear to be less effective.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican	Grebe
August 11	Spill	108	0	2	6	0
	Powerhouse	0	0	0	0	0
	Outfall	27	1	0	0	0
	Forebay	6	0	0	0	0
August 12	Spill	58	0	1	2	0
	Powerhouse	0	0	0	0	0
	Outfall	15	0	0	2	0
	Forebay	4	0	0	0	0
August 13	Spill	33	0	1	5	0
	Powerhouse	0	0	0	0	0
	Outfall	40	0	0	5	0
	Forebay	0	0	0	0	0
August 14	Spill	14	0	6	0	0
	Powerhouse	0	0	0	0	0
	Outfall	31	0	0	0	0
	Forebay	0	0	0	2	0
August 15	Spill	43	0	1	9	0
	Powerhouse	0	0	0	0	0
	Outfall	5	0	0	0	0
	Forebay	1	0	0	2	0
August 16	Spill	2	0	0	3	0
	Powerhouse	37	0	0	2	0
	Outfall	14	0	0	1	0
	Forebay	3	0	0	2	0
August 17	Spill	29	0	0	1	0
	Powerhouse	0	0	0	0	0
	Outfall	17	0	0	0	0
	Forebay	0	0	0	0	0

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

Siberian Prawn: One prawn was observed in this week's samples bring the season total to six.

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 19 juvenile lamprey collected at the facility this week for a total of 746 fish this season. All fish were returned to the river unharmed.

Project: Ice Harbor
Biologist: Ken Fone
Biological Science Technician: Ben McArthur
Dates: August 11 – August 17, 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
6	7/20/23	1703	---	---	Current surge, annual maintenance
3	7/31/23	0815	---	---	Exciter controls upgrade

Comments: Units 5, 4, and 2 were taken out of one at a time for submersible traveling screen inspections on August 15 and 16.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on August 14, 15, and 17.

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’	2.2’
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’	2.4’

Comments: The south shore channel/tailwater differential was above criteria on the August 15 inspection. The low tailwater level on that day was most likely the cause of the high differential. At least five south shore auxiliary water supply pumps need to be operated to help maintain criteria for the depth over the stationary weirs just above tailwater.

The north shore channel/tailwater differential was above criteria on August 15. The reading probably resulted from the low tailwater level. Two north shore auxiliary water supply pumps are normally operated to meet criteria at the north fish ladder entrance and only operating one pump normally does not supply enough water to maintain at least 1.0' of differential.

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 hydraulic cylinder needs to be rebuilt but is 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 3 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: Unit 6, 5, 4, 3, and 2 STSs and unit 6 VBS were inspected on August 14, 15, and 16. There were no significant problems found requiring immediate attention, but one seam flap of the STS in 3B was bent upwards and may be prone to separating at the seam. The 3B screen will be pulled out of the water and its condition inspected more closely during the current unit outage.

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): Summer spill for fish passage is occurring. The RSW has been closed since 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).

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
31.1	21.6	9.0	8.0	72	71	8.1	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 11 - 17, 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: 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 4	7/10/23	0710	8/31/23	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 12, 14, and 17.

Fish Ladder:

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

Comments: None.

Fishway Entrances and Collection Channel:

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

Comments: South Powerhouse Entrance SPE-1 weir was at sill during all inspections with readings of 5.7, 6.0 and 6.5 feet respectively. South Powerhouse Entrance SPE-2 weir was at sill during all inspections with readings of 5.7, 6.0 and 6.5 feet respectively. South Shore Entrance SSE-1 weir was at sill during all inspections with readings of 6.4, 6.7 and 7.9 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)	62 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: Powerhouse operator found the attractant light out for gatewell orifice 6A31 during rounds on August 12 at which time they switched to orifice 6A32. Orifices were switch back to 6A31 when light was replaced on August 14.

Collection Facility: The water temperatures stayed below 21º C during this reporting period. Every-other day collection for condition sample resumed on August 11 to August 14. The facility started every-third day collection on August 16. A total of 16 fish were collected and bypassed back to the fish during this period.

Transport Summary: Collection for transport ended for the season.

Spillway Weir: Summer spill continues. The RSW was removed from service on July 31 due to 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
32.7	21.1	16.9	8.1	70.0	69.9	6.7	5.2

*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
8/11/2023	715	55	1	1	0	7
8/12/2023	1030	62	2	0	0	15
8/13/2023	1015	38	5	0	0	3
8/14/2023	1010	30	5	0	0	6
8/15/2023	1035	2	1	0	0	5
8/16/2023	1030	4	2	0	0	6
8/17/2023	830	0	1	0	0	2

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 detourant 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. No sampling occurred on August 11, 13, 15 and 16.

Date	Sample (euthanized)	Collection*
8/12	26	26
8/14	92	92
8/17	122	122
Total	240	240

*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: GBT examinations ended for the season.

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.

The Nez Perce steelhead kelt study and rehabilitation collection ended on June 30. Preparation for winterizing their equipment began August 2.

Project: Little Goose Dam
Biologist: Deb Snyder, Brooke Gerard, Cole Reeves
Dates: August 11 – August 17, 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		08/31/2023	ERTS	Spider and upper guide bearing repair.
4	8/10/23	0710	9/1/23	1700	Unit annual maintenance

Comments: Contractual obligations and performance issues realigned the Unit 5 ERTS date into 2023, testing remains in progress, reference 23 LGS 07 MOC. 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 11, 14, 16.

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	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	.9 on 8/16-ODFW
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 275 ft² - Low 0 ft²
	X		Gatewell drawdown measured this week?	
		X	Gatewell drawdown acceptable	
	X		Any debris seen in gatewells (% coverage)	
	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 12 at 50 ft². The overall total forebay debris high occurred August 14 at 275 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?	20 8/11 to 8/14 at 0745, 19 after that
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 1,589 fishes were collected and 1,355 were trucked. There were 20 sample or facility mortalities. The descaling and mortality rates were 3.4% and 1.28%, respectively. The collection and transport facility operated within criteria. Thirty-four 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
31.20	22.50	11.00	6.50	70.5	69.1	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
8-11	1600	10	2	0	2
8-12	0800	9	1	0	4
8-13	1100	19	3	0	0
8-14	1545	7	1	0	2
8-15	0800	5	0	0	5
8-16	0800	9	0	0	3
8-17	0830	2	0	0	2

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*
8-11	463	463
8-12	524	524
8-13	235	235
8-14	135	135
8-15	151	151
8-16	144	288
8-17	200	400
Totals	1852	2196

*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
Dates: August 11-17, 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
6	July 31	0700	Aug 17	1000	Annual maintenance

Comments:

Adult Fish Passage Facility

Lower Granite biologists inspected the adult fishway on August 11, 12, 14, and 16.

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 started at 1400 on August 16 to help with rising water temperatures in the upper section of the ladder.

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
	X		South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	7.7’, 7.8’, 7.9’
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.7’, 7.7’
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’	0.8’, 0.9’
X			North Shore Entrance (NSE-1) Weir Depth	≥ 7.0’ or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	0.7’, 0.7’, 0.7’, 0.7’
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 pumps were out of service from 1209 hours to 1257 hours on August 16. 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.

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 3,697 fish were transported by truck during the current report week. For the season, 8,631 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 170 adult and 84,630 juvenile Chinook salmon, 634 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 23 adult and 45,946 juvenile Chinook salmon, 170 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
29.0	26.2	16.6	6.3	67.0	65.0	5.0	2.7

*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 112,940 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 11	1535	0	0	0	0
Aug 12	1045	3	18	0	0
Aug 13	1345	4	15	0	0
Aug 14	1240	6	20	0	0
Aug 15	1505	18	21	0	0
Aug 16	1406	2	8	0	0
Aug 17	0843	7	16	0	0

Gas Bubble Trauma (GBT) Monitoring: N/A

Adult Fish Trap Operations: Fish will continue to be sampled Monday through Friday until broodstock collection starts August 18.

Fish Rescue/Salvage: N/A

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 408 juvenile and 867 larval lamprey this season.