

**U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#15-2023**

Project: McNary

Biologist: Bobby Johnson and Paul Bertschinger

Dates: June 9-15, 2023

Turbine Operation

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

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

Unit(s)	OOS		RTS		Outage Description
	Date	Time	Date	Time	
5 & 6	5/22	0605	6/25	NA	Transformer gasket replacement
10	6/5	0758	7/28	NA	Nine-year overhaul
13 & 14	6/12	0636	12/21	NA	Control system upgrades
8	6/12	0630	6/15	1134	Annual maintenance
12	6/12	2155	6/13	1207	Oil pump issue

Comments: RTS dates are subject to change.

Adult Fish Passage Facilities

Measured inspections of the adult fishways occurred on June 9, 11 and 14. Visual adult fish counting continues. Video review of nighttime lamprey passage began on June 15.

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' to 0.3'
X		Washington Exit	Head over weir 1.0' to 1.3'	1.0' to 1.1'
X		Washington Count Station Differential	0.0' to 0.5'	0.2' to 0.3'

Comments: Debris loads were minimal to very light near both exits. The general maintenance staff has been cleaning the picketed leads at both exits as needed including on Saturday.

At the Washington shore exit, a regulating weir alarm came on and was reset on June 9 and 14.

There are no other problems to report.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0' - 2.0'	1.3' to 1.4'
	X		NFEW2 Weir Depth	≥ 8.0'	7.7' to 7.8'
	X		NFEW3 Weir Depth	≥ 8.0'	7.7'
X			South Oregon Entrance Head Differential	1.0' - 2.0'	1.3'
	X		SFEW1 Weir Depth	≥ 8.0'	7.4' to 7.5'
	X		SFEW2 Weir Depth	≥ 8.0'	7.4' to 7.6'
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 2.1 fps
X			Washington Entrance Head Differential	1.0' - 2.0'	1.2' to 1.4'
X			WFE2 Weir Depth	≥ 8.0'	8.2' to 8.4'
X			WFE3 Weir Depth	≥ 8.0'	8.0' to 8.4'

Comments: The Oregon ladder out of criteria points for the entrances list above that occurred all week were due to only two fish pumps being operational and overall age of the ladder system.

At the Washington shore entrance, weir WFE3 was found in manual mode on June 14. The operator had made an adjustment and had inadvertently left the weir in manual mode.

Three floating orifice gates (FOG's) slots, W32, W37 and W41 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			25° to 26°	Oregon Ladder Fish Pump 1
Yes			24° to 26°	Oregon Ladder Fish Pump 2
		Yes*		Oregon Ladder Fish Pump 3/RTS date June 16
Yes				OR North Powerhouse Pool supply from juvenile fishway

*Comments: Fish pump 3 returned to service from the oil leak in the water-cooling system issue on June 15 at 1252 hours. However, the pump was removed from service due to an exciter issue at 1713 hours. The pump is expected to return to service on June 16.

The Wasco County PUD was out of service for transmission line switching related to units 13 and 14 on June 12 from 0638 to 0735 hours. The bypass system functioned properly but the entrance pool differential was briefly out of criterion.

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 tasks.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Minimal
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 near the powerhouse. As flow decreases, so have debris loads. Also, some of the debris passed through the spillway. Residual debris loads beside the spillway were moderate to heavy. New debris loads were minimal. Most of the debris was fine and woody material.

The next trash rack cleaning will occur the week of June 26.

For the new intake crane assembly, units 12 to 14 gate wells slots were covered over on June 15. Only unit 12 will be online for the month it will take to assemble the crane. 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. Unit 12's screens were briefly unplugged so the gate well slots could be covered on June 15. The camera inspections in units 13 and 14, which were out of service, revealed no issues on June 13.

Daily VBS differential monitoring continued. No high differentials were recorded, and no screens were cleaned.

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

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

*Comments: Orifice and area lighting was repaired as needed. The technician on duty found the orifice gate in 7B slot partially closed on June 11 at 0345 hours. Fortunately, unit 7 had been in standby. Orifice cycling protocols were reviewed with the staff.

*A transition screen brush timing alarm came in on June 11 at 0345 hours. These alarms appear to be failure-to-start-on-time alarms. No issues were found, and the brushes cycled properly. The mechanical staff adjusted the rectangular screen brush's retracting springs tension, which should shorten the rectangular brush cycle time and eliminate the transition brush timing alarms, on June 12.

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, 4,900 juvenile lamprey and 37,080 smolts, mostly sub-yearling Chinook salmon, were bypassed during secondary bypass. The smolt monitoring staff reports fish data in a separate report.

Before switching to secondary bypass, the technician on duty found 21 juvenile lamprey mortalities on the perforated plate on June 15. Main flume barrier installation and inspection was reviewed with the staff.

TSW Operations: Both TSW's are attached to a hoist and are part of the spill pattern. After regional discussion, the TSW closure was moved to June 20, at which time, TSW removal and standard gate installation will begin. One gate part was moved from bay 6 to 16, with no adjustment in spill pattern, in preparation for the work, on June 14.

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
213.9	170.9	159.1	115.6	64.8	61.6	5.0	5.0

Comments: The above data is provided by the smolt monitoring staff except the water clarity, which is provided by the control room. The data day runs from 0700 to 0700 hours. The summer spill season, with 57 percent of the flow being spilled, will begin on June 16 at 0001 hours.

The smolt monitoring staff prepared and deployed equipment for juvenile passage water temperature monitoring from June 12 to 14. Data collection began on June 15. Due to some USGS equipment sites and the covering of gate well slots in units 12 to 14, some temperature probe locations had to be moved on June 14 and 16. The smolt monitoring staff will report these changes and the data in daily and weekly reports. Adult passage temperature monitoring is year-round.

Cranes 6 and 7 cannot perform an overloaded lift until April 2024. We are unable to adjust spillway gates 2 and 6 for flow this season, as prescribed by the Fish Passage Plan, potentially we will be unable to perform critical maintenance and repairs on spillway equipment, and we will be unable to close spillway gates 2 and 6 at the end of this spill season.

Currently, only one hoist is out of service. The hoist has been reassembled and was installed in bay 16 on June 15. However, more work will be required before the hoist returns to service. The current target date is July 10. A spill pattern for July with bay 16 closed needs to be established.

So, into the season, bay 2 is set at 4 feet and bay 6 is set at 6 feet along with bay 16 being closed.

Other

Inline Cooling Water Strainers: The next cooling water strainer inspections will occur on July 5.

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

For the report week, all species were counted.

In the spillway zone, gulls, cormorants, pelicans, and terns were noted. Pelican and tern numbers were fairly high. Gull and cormorant numbers remained fairly low. Wildlife Services hazing and lethal take of gulls and cormorants from a boat may have contributed to the low bird numbers. An occasional roosting osprey was noted.

At the bypass outfall zone, no birds were observed probably due to hazing from the boat and some birds occurring in low numbers.

In the powerhouse zone, pelicans were noted to be feeding just outside the Oregon ladder floating orifice gates. On one occasion, gulls were noted roosting on the water. One pelican was observed in the Oregon ladder on June 11 and 14. One pelican was observed in the Washington ladder on June 15.

In the forebay zone, a few grebes were noted feeding or roosting along with a couple of fly-by cormorants, osprey, and a pelican. Outside the zone, a few gulls, cormorants, pelicans, and osprey were noted. The two large bird distress calls remain deployed and active on the navigation lock wing wall. These calls are very effective at reducing roosting. The laser on the navigation lock wing wall remained activated along with the LRAD on

the outfall walkway. The LRAD was turned off when the outfall laser was removed on June 8. The fisheries staff returned the unit to service on June 10. At this time, there are no plans to replace the outfall laser.

USDA Wildlife Services continues shore and boat hazing per schedule. As mentioned above, lethal take continued. PSMFC has been examining the stomach contents.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican	Grebe
June 9	Spill	4	0	13	0	0
	Powerhouse	0	0	0	5	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	5
June 10	Spill	3	0	15	5	0
	Powerhouse	0	0	0	4	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	0
June 11	Spill	4	0	26	4	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
	Forebay	0	4	0	0	0
June 12	Spill	2	2	8	3	0
	Powerhouse	0	0	0	1	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	0
June 13	Spill	3	0	15	3	0
	Powerhouse	0	0	0	8	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	1	0
June 14	Spill	10	0	12	15	0
	Powerhouse	5	0	0	7	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	2
June 15	Spill	12	1	28	8	0
	Powerhouse	0	0	0	11	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	2

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

Siberian Prawn: No prawns were observed in this week's samples or for the season to date.

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 60 juvenile lamprey collected at the facility this week for a total of 490 fish this season. All fish were returned to the river unharmed. Gas bubble trauma examinations occurred on June 13 and 15. The data is reported the next day. No signs of trauma were observed during the report week.

Project: Ice Harbor

Biologist: Ken Fone

Biological Science Technician: Ben McArthur

Dates: June 9 – June 15, 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)

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
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 June 12, 13, and 14.

Fish Ladders:

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

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
	x		South Shore Entrance (SFE-1) Weir Depth	\geq 8.0' or on sill	6.7', 7.5', 7.6'
x			South Shore Channel/Tailwater Differential	1.0' – 2.0'	
x			South Shore Channel Velocity	1.5 – 4.0 fps	
x			North Powerhouse Entrance (NFE-2) Weir Depth	\geq 8.0' or on sill	
	x		North Powerhouse Entrance Channel/Tailwater Differential	1.0' – 2.0'	0.4', 0.9'
x			North Shore Entrance (NEW-1) Weir Depth	\geq 8.0' or on sill	
x			North Shore Channel/Tailwater Differential	1.0' – 2.0'	

Comments: The south shore entrance weir depth was below criteria on all three inspections. The 6.7' depth on June 12 resulted from the entrance weir needing to be lowered as tailwater elevation decreased. The operator lowered the weir after the inspection. The weir is in manual control because of possible brake issues and because the weir is getting hung up in the guide slots and not lowering down. The low entrance weir depths observed on the other inspections were probably due to the south shore tailwater transducer needing to be recalibrated. As the spill volume continues to decrease with the lessening river flow, the reduced turbulence in the tailrace will be more conducive for doing an accurate calibration.

The difficulty in obtaining accurate tailwater elevation readings with the turbulent conditions caused by spill may have contributed to the low channel/tailwater differentials obtained at the north powerhouse entrance on June 12 and 14.

Auxiliary Water Supply (AWS) System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System
4-6 pumps	2-4 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.

North shore AWS pump #3 had high amperage readings on June 14. This was caused by debris partially obstructing the pump intake trash rack. The operator turned off pump #3 from 1345 hours to 1350 hours on June 14 to allow debris to fall off of the trash rack. Afterwards the amperage reading was back down to normal. Only north shore pump #2 was running when pump #3 was turned off, so the north shore channel/tailwater differential was briefly below 1'.

SFE-1 weir gate was found to be stuck in the guide slot and would not lower on June 14. The operator turned off all of the south shore AWS pumps from 1030 hours to 1055 hours on June 14 to reduce the water pressure against the gate to enable it to lower down. After this incident happened, the Project Fish Biologist wanted to observe the weir gate in operation as it was being lowered down. The biologist requested that the operator lower SFE-2 weir gate all the way down to reduce the water pressure on SFE-1, then raise SFE-1 slightly above tailwater level. SFE-1 gate became stuck again immediately when it was being lowered. The operator turned off all south shore AWS pumps on June 14 at 1130 hours to lower the gate back to the normal position, then raised SFE-2 gate back to the closed position. Most of the pumps could not be restarted for at least an hour because of a time-delay safety feature preventing too many starts in a short period of time. One pump was started at 1152 hours, followed by another pump at 1238 hours, then three more pumps at 1250 hours, and a sixth pump was started at 1301 hours. There was reduced or very little fish-attraction flow coming out of the south fish ladder entrances while the pumps were off.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
x			Forebay debris load acceptable? (amount)	Average of 37 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-11%
	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: STSs are in continuous-run mode because of the presence of small subyearling chinook in the Ice Harbor juvenile fish sample.

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.

The light for orifice 4BN was found to be burned out on June 15. That orifice was closed and the adjacent orifice in the slot was opened until the light can be replaced.

Juvenile Fish Facility: The juvenile fish facility is operating in primary bypass except when collecting fish for sampling.

Fish Sampling: Juvenile fish sampling is scheduled to occur on Mondays and Thursdays each week. See the tables below for a summary of the sampling results. There was one unclipped sub-yearling Chinook on June 12 and two clipped sub-yearling chinook on June 15 with fin hemorrhaging.

Fish condition sampling results at Ice Harbor Dam:

Date: June 12

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	0	---	---	---
Chinook yearling unclipped	0	---	---	---
Chinook sub-yearling clipped	8	0	0	0
Chinook sub-yearling unclipped	9	0	0	0
Steelhead clipped	0	---	---	---
Steelhead unclipped	0	---	---	---
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	17	0	0	0

Date: June 15

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	1	0	0	0
Chinook yearling unclipped	0	---	---	---
Chinook sub-yearling clipped	18	0	0	0
Chinook sub-yearling unclipped	15	1	0	0
Steelhead clipped	0	---	---	0
Steelhead unclipped	1	0	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	35	0	0	0

Removable Spillway Weir (RSW): Spring spill for fish passage is occurring.

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
85.5	71.1	74.5	60.3	63	61	5.5	4.2

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Turbine unit 1, 2, 4, 5, and 6 cooling water strainers were inspected for fish on June 6. A total of 1 adult lamprey, 32 juvenile lamprey, and approximately 108 Siberian prawns were found. All of the fish were dead, with the lamprey in various stages of decomposition. There were also three decomposing unidentifiable fish.

Avian Activity: There were low to moderate numbers of piscivorous birds seen around the project (see table below). Land-based hazing of piscivorous birds for 16 hours per day was reduced to 8 hours per day starting on June 11 but continues to be effective at moving birds out of areas close to the dam. Boat-based hazing is no longer occurring as of June 10. Avian counts were missed on June 11 due to an oversight.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
June 9	8	1	2	0	11
June 10	0	2	0	0	22
June 11	---	---	---	---	---
June 12	2	10	3	3	12
June 13	0	3	3	0	4
June 14	4	3	3	0	11
June 15	0	4	3	0	9

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. Daily and total Siberian prawn counts at Ice Harbor Dam for this reporting period are shown below.

Number of Siberian prawns in the sample at Ice Harbor Dam.

Date	Sample (euthanized)	Collection*
June 12	0	0
June 15	0	0
Totals	0	0

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

Fish Rescue/Salvage: None.

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

Project: Lower Monumental

Biologists: Denise Griffith and Raymond Addis

Dates: June 9 - 15, 2023

Turbine Operation

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

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
Unit 2	6/07/23	0700	6/12/23	1615	Wicket Gate Repacking
Unit 4	6/12/23	0405	6/12/23	0955	Oil in Turbine Bearing

Comments: None.

Adult Fish Passage Facility

Lower Monumental fish facility, EAS and WDFW staff inspected the adult fishways on June 9, 11, 13 and 14'.

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 8.1, 7.7, 8.0 and 8.2 respectively. South Powerhouse Entrance SPE-2 weir was at sill during all inspections with readings of 8.1, 7.7, 8.0 and 8.2 respectively. South Shore Entrance SSE-1 weir was at sill during all inspections with readings of 7.8, 8.1, 8.1 and 8.0 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)	944 yd ²
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 25%
	X		Any oil seen in gatewells?	

Comments: Forebay wood debris amount has been decreasing.

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 running in continuous-run mode due to a verage sub-yearling Chinook and sockeye lengths being less than 120 mm.

Orifices, Collection Channel, Dewatering Structure, and Flume:

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

Comments: None.

Collection Facility: Collection for transport began at 0700 on April 23. The lamprey bypass system had a high-water fault starting on June 10. The system would not reset, and the gates were manually placed in bypass positions on June 11. In addition, there was an air leak when the manual valve was left on, and the low air pressure in the pneumatic lines around the raceways caused an approximate 30-minute delay in loading that day's barge while the low air pressure issue was being trouble-shot.

Transport Summary: Every-other day barge transport continued this week. Approximately 7,767 fish were collected with 9,350 fish transported and 87 fish being bypassed. Bypass fish include fry and GBT sampled fish.

Spillway Weir: Spring spill continued.

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
84.0	58.1	69.2	46.8	63.2	61.5	4.9	3.6

* Scroll case temperatures.

Other

Cooling Water Strainers: The cooling water strainers were inspected on June 14. There were no live fish recovered. Mortalities included 3 juvenile lamprey and 1 juvenile salmon.

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

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
6/9/2023	815	1	1	6	2	4
6/10/2023	700	1	1	6	2	0
6/11/2023	545	1	0	0	0	8
6/12/2023	1130	1	4	0	0	12
6/13/2023	1245	2	1	0	0	2
6/14/2023	1122	0	1	0	0	7
6/15/2023	800	0	1	1	0	12

Bird hazing by USDA personnel is ongoing.

Invasive Species: Inspection for zebra or quagga mussels occurred on June 3. None were found.

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.

Date	Sample (euthanized)	Collection*
June 9	1	10
June 10	0	0
June 11	1	5
June 12	2	10
June 13	8	40
June 14	2	10
June 15	0	0
Totals	14	75

* 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 occurred on June 14. A total of 9 clipped subyearling Chinook, 12 unclipped subyearling Chinook, 4 clipped steelhead and 2 unclipped steelhead smolts were examined. No gas bubble trauma was detected.

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.

The Nez Perce steelhead kelt study and rehabilitation collection tank setup was completed on March 26 with collection of kelts beginning on March 28. A total of 1 unclipped steelhead kelts were placed in the collection tank.

Project: Little Goose Dam

Biologist: Deb Snyder, Brooke Gerard, Cole Reeves

Dates: June 9 – June 15, 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)

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
1	6/14/2023	14:55	6/14/2023	16:35	VBS camera inspection
2	6/14/2023	12:30	6/14/2023	14:50	VBS camera inspection
3	6/13/2023	12:30	6/13/2023	15:50	VBS camera inspection
4	6/13/2023	07:30	6/13/2023	11:20	VBS camera inspection
6	6/12/2023	08:20	6/12/2023	11:30	VBS camera inspection
5	4/14/2017		06/30/2023	ERTS	Spider and upper guide bearing repair.

Comments: Contractual obligations and performance issues realigned the Unit 5 ERTS date into 2023, load testing remains in progress, reference 23 LGS 07 MOC. A secondary outage on Unit 5 occurred on June 12 to complete gate well VBS camera inspections.

Adult Fish Passage Facility

EAS Bio and USACE staff inspected the adult Fishway on June 9, 12, 15.

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'	7.9-6/9 7.1-6/12 7.8-6/15
	X		South Shore Entrance (SSE-2) Weir Depth	\geq 8.0'	7.9-6/9 7.1-6/12 7.8-6/15
X			South Shore Channel/Tailwater Differential	1.0' – 2.0'	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	\geq 7.0' or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	\geq 7.0' or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0' – 2.0'	
X	X		North Shore Entrance (NSE-1) Weir Depth	\geq 6.0' or on sill	5.7-6/9 4.6-6/12
X	X		North Shore Entrance (NSE-2) Weir Depth	\geq 6.0' or on sill	5.7-6/9 4.7-6/12
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. Rickley channel velocity measurements were completed and met criteria on May 25. 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.

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 100 ft ² - Low 1 ft ²
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	<1%: 6C 6/10 & 6/12
	X		Any oil seen in gatewells?	

Comments: The forebay maintained minimal floating debris inside the trash shear boom with the highest measurement occurring on June 13 at 75 ft². The overall total forebay debris high also occurred June 13 at 100 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.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	17-20
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. A total of 11,947 fish were collected, 108 were bypassed, and 17,663 were transported via barge. There were 17 sample or facility mortalities. The descaling and mortality rates were 2.13% and 0.14%, respectively. The collection and transport facility operated within criteria and 4 adult lampreys were removed from the separator 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.

Spillway Weir: Little Goose began operation of the adjustable spillway weir (ASW) on March 1 to facilitate passage of a 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 are scheduled to begin on June 21.

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
85.2	67.7	56.6	44.3	64.9	62.2	4.0	3.8

*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
6-9	11:45	0	0	0	0
6-10	12:15	0	0	0	0
6-11	13:10	0	0	0	0
6-12	14:00	0	0	0	0
6-13	12:30	0	0	0	0
6-14	13:00	0	0	0	0
6-15	12:30	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*
6-9	1	25
6-10	1	10
6-11	18	36
6-12	0	0
6-13	8	40
6-14	30	150
6-15	16	80
Totals	74	341

*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. GBT monitoring occurred on June 15. Of the 50 fish examined, 1 fish exhibited signs of GBT.

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

Research: The Nez Perce Tribe (NPT) began a dult steelhead kelt collection efforts on March 26 with an anticipated conclusion date of July 1.

Project: Lower Granite

Biologists: Elizabeth Holdren and David Miller

Dates: June 9-15, 2023

Turbine Operation

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

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

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	

Comments:

Adult Fish Passage Facility

Lower Granite biologists inspected the adult fishway on June 9, 10, 13, and 14.

Fish Ladder:

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

Comments: LWG fish ladder cooling system was brought online at 0913 hours June 5.

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
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'	0.9'
		X	North Powerhouse Entrance (NPE-1) Weir Depth	\geq 8.0' or on sill	5.8', 6.9', 6.0', 6.4'
		X	North Powerhouse Entrance (NPE-2) Weir Depth	\geq 8.0' or on sill	5.8', 6.9', 6.0', 6.4'
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0'–2.0'	0.2'
X			North Shore Entrance (NSE-1) Weir Depth	\geq 7.0' or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	\geq 7.0' or on sill	
	X		North Shore Channel/Tailwater Differential	1.0'–2.0'	0.8', 0.7', 0.6'
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. Spill and current flow conditions during gas cap spill appear to drawdown the north and south edges of spillway flows. Tailrace hydraulic conditions continue to impact ladder operational criteria.

Auxiliary Water Supply System:

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

Comments: AWS pumps 1 and 3 remain in service.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	42.3 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:

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: Collection for transport continues.

Transport Summary: Barge transport continued with barges departing every-other-day. On June 15, the barge loading boom was taken out of service due to hydraulic failure. Barge loading at Lower Granite scheduled for June 17 and 19 have been cancelled. The juvenile collection facility was set to secondary bypass at 0700 hours on June 16.

Spillway Weir: Spring spill began April 3. There have been 594 adult and 54,642 juvenile steelhead, 110 adult and 72,542 juvenile Chinook salmon, 2,902 juvenile Coho salmon, and 12,160 juvenile Sockeye salmon detected at the RSW

since March 1. There have been 135 adult 27,754 juvenile steelhead, 4 adult and 40,405 juvenile Chinook salmon, 1,206 juvenile Coho salmon, and 1,141 juvenile Sockeye salmon detected through the Juvenile Bypass System since it was opened on March 15 (DART).

River Conditions

River conditions at Lower Granite Dam.

Daily Average River Flow (kcs)		Daily Average Spill (kcs)		Water Temperature* (°F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
90.4	70.9	58.4	46.1	62.5	60.5	3.5	2.3

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: N/A

Invasive Species: No zebra/quagga mussels were detected on the trap substrate. There were 65 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
June 9	1230	0	3	0	7
June 10	1100	0	0	0	7
June 11	1110	0	0	0	0
June 12	1510	0	0	0	21
June 13	1450	0	0	0	34
June 14	1153	0	0	0	99
June 15	1946	0	1	0	12

Gas Bubble Trauma (GBT) Monitoring: SMP handled 11 and examined 2 smolts for signs of GBT symptoms. No GBT symptoms were observed.

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.

Nez Perce Tribe (NPT)/U. of Idaho (UI)/Columbia River Intertribal Fisheries Commission (CRITFC) – Kelt Study

This research investigates steelhead kelt physiology and endocrinology to evaluate the feasibility and success of rehabilitating strategies. The goal is to collect 450-700 kelts from LWG juvenile fish facility separator. Selected kelts are transported by NPT to Dworshak National Fish Hatchery for reconditioning and later release as part of this study. LWG Corps biological technicians collected 567 kelts from the juvenile fish separator with 374 sampled and released, 27 were handled and release, and 162 being transported to the hatchery and there were 4 kelt mortalities this season.

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 juvenile were handled and released without being tagged, and there were 1 larval and 14 juvenile lamprey recovery mortalities.

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 297 juvenile and 315 larval lamprey this season.