U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#18-2023

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: June 30-July 6, 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	7/28	NA	Nine-year overhaul
13 & 14	6/12	0636	12/21	NA	Control system upgrades

Comments: RTS dates are subject to change. The biologist requested the sawtooth unit priority pattern for temperature abatement to begin on July 2 at 0730 hours. The sample tanks' water temperature had reached 68 degrees Fahrenheit that morning at 0700 hours.

Adult Fish Passage Facilities

Measured inspections of the adult fishways occurred on June 30, July 2 and 5. 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 1.0'
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'

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

The out of criterion point listed above for the Oregon ladder was resolved with a set point adjustment on July 5. At the Washington shore exit, a regulating weir alarm came in and was reset on June 30.

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 1.5'
X			NFEW2 Weir Depth	≥ 8.0'	8.3'
X			NFEW3 Weir Depth	≥ 8.0'	8.3'
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.6' to 1.8'
X			SFEW1 Weir Depth	≥ 8.0'	8.4'
X			SFEW2 Weir Depth	≥ 8.0'	8.4'
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.9 fps
X			Washington Entrance Head Differential	1.0' – 2.0'	1.3' to 1.4'
X			WFE2 Weir Depth	≥ 8.0'	8.4' to 8.8'
X			WFE3 Weir Depth	≥ 8.0'	8.5' to 8.8'

Comments: There are no problems to report.

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			23° to 24°	Oregon Ladder Fish Pump 1
Yes			21° to 22°	Oregon Ladder Fish Pump 2
Yes			23° to 24°	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 sample tanks' mortality rate was 3.04 percent on July 6. To reduce fish handling, the sample rate was decreased from two percent to one percent for the next sample collection day, July 7.

The smolt monitoring staff lost access to the internet for most of the week. With access being intermittent, they are looking at relocating their disc antenna.

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, and some debris has been spilled. Residual debris

loads beside the spillway were light to moderate. Most of the debris was fine or woody material and aquatic vegetation.

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

An algae bloom became visible in the 10A gatewell slot on July 5.

For the new intake crane assembly, units 12 to 14 gatewells slots remained covered over. Only unit 12 will be online for the week that is left to complete crane assembly. To allow vehicle access to the west side of the intake deck, the gatewell in 7C slot also remained covered over. There are openings around the covers which will allow for VBS differential monitoring in unit 12 and 7C slot.

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. No camera inspections occurred this week due the inspection day falling on the holiday.

Daily VBS differential monitoring continued. No high differentials were recorded. Two screens were cleaned on July 6. Three subyearling Chinook mortalities were observed.

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

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

*Comments: Orifice were adjusted for VBS cleaning as required. The south orifice in 7A slot appeared to have a partial blockage, which was immediately cleared, on July 5. However, this is the second partial blockage in as many weeks. The south orifice was closed, and the north orifice was opened at 1000 hours. The south orifice will be examined during ESBS camera inspections on July 11.

*The rectangular and transition screen cleaning brushes both tripped alarms on July 2 at 0308 hours. The alarms were acknowledged at 0456 hours. We assume the roving operator reset the brushes. No brush cycle was missed. However, the rectangular screen brush alarmed again and stalled at 0519 hours. It is assumed the brush cycle sequence had reset somehow. The rectangular brush was found lowered but not moving downstream by the technician on duty at 0813 hours. The biologist immediately reset the brush, cleared the alarm, and ran the brush. No other issues occurred. The limit switch that trips the brush to move downstream was adjusted and inspected by the mechanical and electrical staffs on July 3 by 0825 hours. This limit is probably the cause of most brush cycling alarms this season.

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, 4,550 juvenile lamprey and 52,755 smolts, mostly sub-yearling Chinook salmon, were bypassed during secondary bypass. The smolt monitoring staff reports fish data in a separate report.

The A side sample tank release valves and the primary/secondary bypass gate oil reservoirs both developed air leaks on July 2. Both reservoirs were repaired early on July 3.

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
156.9	140.8	89.5	80.5	68.2	67.0	6.0	5.0

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. The summer spill season, with 57 percent of the flow being spilled, continues. However, due to only one adjustment in the pattern being made at midnight, the percentage of flow being spilled is not exactly 57 percent.

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.

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 is installed in bay 16. However, more work will be required before the hoist returns to service. The current target date range has moved to July 17 to 20. A spill pattern for July is being followed.

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.

There is nothing more to report.

Other

Inline Cooling Water Strainers: The cooling water strainer inspections revealed 79 live juvenile lamprey, 40 juvenile lamprey mortalities, one clipped subyearling Chinook mortality and one nonclipped subyearling Chinook mortality on July 5. The next inspection will occur on August 1.

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

For the report week, all species were counted except gulls, which were noted during other inspections.

In the spillway zone, pelicans and terns were noted. Pelican and tern numbers were fairly stable. Most birds were feeding. Wildlife Services hazing along with lethal take from a boat may have contributed to the lower bird numbers.

At the bypass outfall zone, feeding pelicans became more prevalent. One roosting cormorant was observed. Hazing from the boat along with some species occurring in low numbers has helped.

In the powerhouse zone, pelicans were noted to be feeding just outside the Oregon ladder floating orifice gates and the south entrances or roosting on the water. No pelicans were observed in the ladders this week. However, seven pelicans were observed just outside the Washington ladder entrance for the first time on July 5. Later, sockeye adults were also noted in this area.

In the forebay zone, a few grebes and pelicans were noted feeding or roosting. 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 and LRAD will reprogrammed, reinstalled on the outfall walkway and functional on July 14.

USDA Wildlife Services continues shore hazing until July 22. The last hazing boat trip is scheduled for July 7. However, more boat hazing maybe possible due to funds still being available. As mentioned above, lethal take continued from the boat. PSMFC has been examining the birds' stomach contents.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican	Grebe
June 30	Spill	0	0	2	21	0
	Powerhouse	0	0	0	20	0
	Outfall	0	0	0	3	0
	Forebay	0	0	0	0	2
July 1	Spill	0	0	0	32	0
	Powerhouse	0	0	0	20	0
	Outfall	0	0	0	3	0
	Forebay	0	0	0	0	4
July 2	Spill	0	0	6	36	0
	Powerhouse	0	0	0	35	0
	Outfall	0	0	0	2	0
	Forebay	0	0	0	1	0
July 3	Spill	0	0	7	35	0
	Powerhouse	0	0	0	22	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	1	2
July 4	Spill	0	0	2	38	0
	Powerhouse	0	0	0	17	0
	Outfall	0	0	0	5	0
	Forebay	0	0	0	1	0
June 5	Spill	0	0	8	26	0
	Powerhouse	0	0	0	10	0
	Outfall	0	0	0	6	0
	Forebay	0	0	0	1	0
July 6	Spill	0	0	7	16	0
	Powerhouse	0	0	0	20	0
	Outfall	0	1	0	20	0
	Forebay	0	0	0	0	0

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

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 52 juvenile lamprey collected at the facility this week for a total of 664 fish this season. All fish were returned to the river unharmed.

Gas bubble trauma examinations occurred on July 3 and 5. The data is reported the next day. Six fish showed signs of trauma and five smolt mortalities were recorded during the report week. Due to possible heat stress, examinations may be reduced to once a week.

Project: Ice Harbor
Biologist: Ken Fone
Dates: June 30 – July 6, 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	6/30/23	0705	6/30/23	0937	Unit failed to start. Rebooted HMI controller.

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on July 3, 5, and 6.

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	7.2’
x			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
x			South Shore Channel Velocity	1.5 – 4.0 fps	
x			North Powerhouse Entrance (NFE-2) Weir Depth	≥ 8.0’ or on sill	
x			North Powerhouse Entrance Channel/Tailwater Differential	1.0’ – 2.0’	
x			North Shore Entrance (NEW-1) Weir Depth	≥ 8.0’ or on sill	
	x		North Shore Channel/Tailwater Differential	1.0’ – 2.0’	0.6’

Comments: The south shore entrance weir depth was below criteria on July 5. The low entrance weir depth observed is 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.

North Shore channel/tailwater differential was below criteria on July 6. This may have resulted from the difficulty in obtaining accurate tailwater elevation readings with the turbulent conditions caused by spill.

Auxiliary Water Supply (AWS) System:

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

The operator had to turn off four of the six operating south shore AWS pumps on July 1 from 0805 hours to 0809 hours to be able to lower SFE-1 weir gate to maintain the entrance depth criteria. The weir gate would not lower down unless the water pressure against the gate was reduced. Three of the pumps were turned off on July 3 at 1034 hours for the same reason and were restarted by 1044 hours. There was reduced fish-attraction flow coming out of the south fish ladder entrances while only two or three pumps were running.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
x			Forebay debris load acceptable? (amount)	Average of 7 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-20%
	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 were switched to cycle-run mode on July 5 because the average fork length of subyearling chinook in the Lower Monumental juvenile fish sample is over 120 mm.

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 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. Two Chinook in the July 3 sample and ten Chinook in the July 6 sample were observed with hemorrhaging on the ventral or caudal fin. Five Chinook on July 3 and six Chinook on July 6 had scrapes or lacerations mainly on the underside of the body. Most of the injuries did not appear to be fresh. The one mortality in the July 3 sample was observed to be almost dead when it came into the separator, and it did not otherwise exhibit any obvious maladies.

Fish condition sampling results at Ice Harbor Dam:

Date: July 3

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	0	---	---	---
Chinook yearling unclipped	0	---	---	---
Chinook sub-yearling clipped	45	0	0	0
Chinook sub-yearling unclipped	55	0	1	0
Steelhead clipped	0	---	---	---
Steelhead unclipped	0	---	---	---
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	100	0	1	0

Date: July 6

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	0	---	---	---
Chinook yearling unclipped	0	---	---	---
Chinook sub-yearling clipped	32	0	0	0
Chinook sub-yearling unclipped	57	0	0	0
Steelhead clipped	0	---	---	---
Steelhead unclipped	0	---	---	---
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	1	0	0	0
Coho unclipped	0	---	---	---
Total	90	0	0	0

Removable Spillway Weir (RSW): Summer 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
52.4	39.5	15.7	11.8	67	66	6.8	6.5

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: The next cooling water strainer inspection is scheduled for early July.

Avian Activity: There were moderate to high numbers of piscivorous birds seen around the project (see table below). The number of terns, gulls, and cormorants counted on June 30, July 3, 5, and 6 exceeded the threshold number for initiating incident response actions (see Section 7.4 of Appendix L in the Fish Passage Plan). The exceedance was mainly due to a higher number of Caspian terns compared to the average from prior years. The terns were mostly foraging in the spillway tailrace and roosting on Eagle Island. Land-based hazing of piscivorous birds for 8 hours per day ended on June 30. The scheduled bird hazing season is done at Ice Harbor, but some additional days of boat-based hazing is being planned to take place soon to reduce tern numbers.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
June 30	13	3	9	0	11
July 1	---	---	---	---	---
July 2	---	---	---	---	---
July 3	4	7	48	0	32
July 4	---	---	---	---	---
July 5	0	3	57	0	20
July 6	0	8	21	0	14

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***
July 3	0	0
July 6	0	0
Totals	0	0

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

Fish Rescue/Salvage: Unit 1 scroll case was unwatered on July 5. Eight channel catfish were recovered and released in mostly good condition into the tailrace via the juvenile fish bypass pipe.

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

Project: Lower Monumental
Biologists: Denise Griffith and Raymond Addis
Dates: June 30 – July 6, 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 5	6/20/23	0750	7/06/23	1245	Annual maintenance

Comments: None.

Adult Fish Passage Facility

Lower Monumental fish facility, EAS and WDFW staff inspected the adult fishways on June 30, July 2, 4 and 6.

Fish Ladder:

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

Comments: South ladder exit trash rack was cleaned on July 6. The water level was noticed to be high in the pool between the 4th and 5th weirs below the South ladder exit pool during the June 30 inspection. JFF personnel found and clear a debris blockage at the square weir orifice. The water level in that pool went back to a normal level.

Fishway Entrances and Collection Channel:

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

Comments: Depth South Powerhouse Entrance SPE-1 weir was at sill during all inspections with readings of 6.4, 6.0, 5.6 and 5.6 feet respectively. South Powerhouse Entrance SPE-2 weir was at sill during all inspections with readings of 6.4, 6.0, 5.6 and 5.6 feet respectively. South Shore Entrance SSE-1 weir was at sill during all inspections with readings of 7.4, 6.8, 6.9 and 6.9 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)	68 yd²
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 15%
	X		Any oil seen in gatewells?	

Comments: 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 running in continuous-run mode due to average 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: Orifice 6B33 light was changed and went back into service on July 3.

Collection Facility: Collection for barge transport ended for the season. The facility went into every-other day condition sampling at that time.

Transport Summary: Every-other day barge transport ended for the season. Approximately 6,702 fish were collected and 6,701 fish being bypassed. All fish coming into the facility were bypassed.

Spillway Weir: Summer spill continues.

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
51.0	41.1	17.3	16.9	67.5	64.8	6.3	4.4

*Scrollcase temperatures.

Other

Cooling Water Strainers: The cooling water strainers will be inspected in July.

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

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
6/30/2023	630	1	1	8	0	42
7/1/2023	1130	0	1	16	0	29
7/2/2023	1315	0	3	2	0	18
7/3/2023	730	0	0	2	0	12
7/4/2023	955	0	0	3	0	7
7/5/2023	1625	0	2	2	0	19
7/6/2023	1120	0	0	0	0	6

Comment: Bird hazing by USDA personnel ended on July 1. During bird hazing on June 28, five of the bird detourant wires over Powerhouse 1 zone were found broke. They will be replaced by USDA personnel as time permits.

Invasive Species: Inspection for zebra or quagga mussels occurred on July 2. 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. No sample on July 1, 3 and 5.

Date	Sample (euthanized)	Collection*
June 30	3	12
July 2	3	12
July 4	3	12
July 6	4	16
Totals	13	52

*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 July 5. A total 48 clipped subyearling Chinook and 52 unclipped subyearling Chinook and 2 clipped steelhead smolts and 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. 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.

Project: Little Goose Dam
Biologist: Deb Snyder, Brooke Gerard, Cole Reeves
Dates: June 30 – July 6, 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		07/31/2023	ERTS	Spider and upper guide bearing repair.

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

Adult Fish Passage Facility

EAS Bio and USACE staff inspected the adult Fishway on June 30, July 2, and July 5.

Fish Ladder:

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

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	
X			South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 7.0’ or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 7.0’ or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
X			North Shore Entrance (NSE-1) Weir Depth	≥ 6.0’ or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	≥ 6.0’ or on sill	
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	
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 June 29. 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 forthcoming 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 30 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 July 2 at 16 ft². The overall total forebay debris high occurred June 30 at 30 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.

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 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 every date condition sampling and secondary bypass operations. A total of 19,988 fishes were collected, 19,964 were bypassed. There were 24 sample or facility mortalities. The descaling and mortality rates were 1.0% and 0.12%, respectively. The collection and transport facility operated within criteria. 6 adult lamprey 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. Barge transportation for the season ended with the final barge departure on June 19.

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.

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
47.80	38.70	14.40	11.70	68.4	64.6	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
6-30	11:00	0	0	0	0
7-1	08:15	0	0	0	4
7-2	09:00	2	0	0	4
7-3	08:00	3	0	0	3
7-4	08:00	0	0	0	6
7-5	08:00	0	0	0	3
7-6	08:00	6	0	0	4

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*
6-30	3	30
7-1	4	40
7-2	19	190
7-3	8	80
7-4	9	90
7-5	5	50
7-6	17	170
Totals	65	650

*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 July 6th. Of the 101 fish examined, 0 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 adult steelhead kelt collection efforts on March 26 and concluded collection on July 1.

Project: Lower Granite
Biologists: Elizabeth Holdren and David Miller
Dates: June 30-July 6, 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

Comments:

Adult Fish Passage Facility

Lower Granite biologists inspected the adult fishway on June 30 and July 1, 3, and 5.

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 Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
	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	≥ 8.0’ or on sill	5.7’, 5.4’,5.5’, 5.4’
		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 8.0’ or on sill	5.7’, 5.4’,5.5’, 5.4’
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	0.8’, 0.9’, 0.9’, 0.9’
	X		North Shore Entrance (NSE-1) Weir Depth	≥ 7.0’ or on sill	6.9’
	X		North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	0.5’, 0.8’, 0.5’
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
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)	32.0 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 secondary bypass mode and collecting for condition sampling and USGS research. Lamprey genetic sampling for CRITFC continues.

Transport Summary: N/A

Spillway Weir: Summer spill started June 21. There have been 618 adult and 54,954 juvenile steelhead, 154 adult and 81,991 juvenile Chinook salmon, 2,981 juvenile Coho salmon, and 12,162 juvenile Sockeye salmon detected at the RSW since March 1. There have been 139 adult 27,777 juvenile steelhead, 12 adult and 41,279 juvenile Chinook salmon, 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
52.6	41.9	18.5	18.1	67.0	64.0	5.0+	5.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: N/A

Invasive Species: No zebra/quagga muscles were detected on the trap substrate. There were 649 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 30	1300	0	0	0	0
July 1	0945	0	0	0	1
July 2	0945	2	0	0	2
July 3	1306	1	0	0	3
July 4	0945	2	3	0	0
July 5	1153	2	0	0	0
July 6	1700	0	0	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. LWG biologists flushed the adult trap July 5 due to shad mortalities accumulating on the drain screen. The turnpool gate was also cleaned June 5.

Fish Rescue/Salvage: The adult fish trap was flushed on July 5 to clean debris and fish mortalities from the drain screens. Mortalities included 1 sucker, 1 peamouth, and about 200 shad mortalities. Live fish included 1 clip undefined adult Chinook and about 150 shad were flushed back to the tailrace.

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 570 kelts from the juvenile fish separator with 377 sampled and released, 27 were handled and release, and 162 being transported to the hatchery and there were 4 kelt mortalities this season. Kelt collection ended at 0700 hours June 29.

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 317 juvenile and 525 larval lamprey this season.