Out of Criteria – NWW Weekly Report #6 – April 5-11, 2024

1. McNary

NFEW3 was out of criterion on April 11. The weir was found in manual mode and the operators immediately resolved the issue. WFE3 was out of criterion on April 11. This could possibly be a calibration issue related to the start of spill season.

Fish pump 3 remains out of service due to a governor oil leak, which is being repaired. The blade angles on operational pumps are increased.

2. Ice Harbor

Yes	No	Sill	Location	Criteria	Measurements
	x		North Fish Entrance Channel/Tailwater Differential	1.0' – 2.0'	2.5'

On April 10, the north fish entrance channel/tailwater differential was above criteria when inspected. This was due to the difficulty in obtaining an accurate visual tailwater elevation reading with the turbulent conditions from spill. The PLC display of the tailwater elevation and resulting differentials showed similar fluctuating readings that were in and out of criteria.

North shore AWS pump #1 has been out of service since March 1, 2023, because of a hydraulic cylinder leak on the butterfly valve. A new cylinder is being ordered.

South shore AWS pump #6 has been out of service since March 1, 2024, due to high vibration readings coming from the motor and gearbox. The gearbox will be replaced with a refurbished one.

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

The replacement actuator for the water regulating weirs in the collection channel is in local control due to a problem with the actuator being undersized for this application. The weirs are being operated at the actuator to adjust the water level as needed until the problem can be fixed.

3. Lower Monumental

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

4. Little Goose

Yes	No	Sill	Location	Criteria	Measurements
X	X		Collection Channel Surface Velocity	1.5 – 4.0 fps	4/7: NPE:5.7*

NPE channel surface velocity was re-measured by USACE staff the same day, and the velocity we found was consistently 2.6-2.7 fps.

5. Lower Granite Dam

Yes	No	NA	Location	Criteria	Comments
	X		Fish Ladder Cooling Water Pumps in Service		

Yes	No	Sill	Location	Criteria	Comments
	X	X	South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	7.8’
	X	X	South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.8’
	X	X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 8.0’ or on sill	5.0’, 5.2’, 5.3’ 5.4’
	X	X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 8.0’ or on sill	5.0’, 5.2’, 5.3’ 5.4’
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	0.7’ 0.5’ 0.7’ 0.6’
	X	X	North Shore Entrance (NSE-1) Weir Depth	≥ 7.0’ or on sill	6.7’, 6.9’
	X	X	North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	6.7’, 6.9’

AWS pump 2 remains out of service for maintenance

U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#06-2024

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: April 5-11, 2024

Turbine Operation

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

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

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
9 & 10	11/27/23	0631	4/26/24	NA	Control system upgrades
8	4/8	0632	4/8	1147	ESBS install & semi-annual maintenance
11	4/8	1153	4/9	1053	ESBS install, semi-annual & other maintenance
12	4/9	0637	4/9	1146	ESBS install & semi-annual maintenance
1	4/9	1149	4/9	1638	ESBS install & semi-annual maintenance
13	4/11	0631	4/11	1128	ESBS install & semi-annual maintenance
14	4/11	1131	4/11	1659	ESBS install & semi-annual maintenance

*Comments: RTS dates are subject to change. Units ran outside the soft one percent criteria as requested by BPA before April 10. The hard one percent criteria began on April 10.

Adult Fish Passage Facilities

McNary fisheries staff performed measured inspections of the adult fishways on April 6, 7 and 11. Adult fish counting continued. Temperatures for the Oregon shore exit temperature probe had been recently noted not recording. District staff downloaded the data and determined the probe was not communicating with the main station. This issue will be resolved in the near future.

Fish Ladder Exits:

Yes	No	Location	Criteria	Measurements
X		Oregon Exit	Head over weir 1.0’ to 1.3’	1.0’ to 1.1’
X		Oregon Count Station Differential	0.0’ to 0.5’	0.2’ to 0.3’
X		Washington Exit	Head over weir 1.0’ to 1.3’	1.0’
X		Washington Count Station Differential	0.0’ to 0.5’	0.2’

Comments: Debris loads were very light near the Oregon shore exit and minimal near the Washington shore exit.

At the Oregon shore exit, weir 338 alarmed three times and was reset on April 6.

At the Washington shore exit, the regulating weir tripped one alarm that was reset on April 11.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0' – 2.0'	1.4' to 1.6'
X			NFEW2 Weir Depth	≥ 8.0'	8.2' to 8.4'
	X*		NFEW3 Weir Depth	≥ 8.0'	7.4' to 8.0'
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.5'
X			SFEW1 Weir Depth	≥ 8.0'	8.0' to 8.3'
X			SFEW2 Weir Depth	≥ 8.0'	8.1' to 8.2'
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	1.9 fps
X			Washington Entrance Head Differential	1.0' – 2.0'	1.5' to 1.6'
X			WFE2 Weir Depth	≥ 8.0'	9.0' to 9.8'
	X*		WFE3 Weir Depth	≥ 8.0'	7.8' to 8.6'

*Comments: NFEW3 was out of criterion on April 11. The weir was found in manual mode and the operators immediately resolved the issue. WFE3 was out of criterion on April 11. This could possibly be a calibration issue related to the start of spill season.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Blade angle	Auxiliary Water Supply System (AWS)
X				WA shore Wasco County PUD Turbine Unit
	X			WA shore Wasco PUD Bypass
X			25° to 26°	Oregon Ladder Fish Pump 1
X			24° to 26°	Oregon Ladder Fish Pump 2
		X		Oregon Ladder Fish Pump 3, return to service April 19
X				OR North Powerhouse Pool supply from juvenile fishway

Comments: Fish pump 3 remains out of service due to a governor oil leak, which is being repaired. The blade angles on operational pumps are increased. The return to service date is April 19, which is subject to change.

Juvenile Fish Passage Facility

The juvenile system alternated between primary and secondary bypass every 24 hours at 0700 hours. There was one break in this schedule. For technician training, the system was switched into and out off secondary bypass three times from 1622 to 1636 hours on April 7. The sample gates were off. No adults were observed.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Moderate to heavy near the powerhouse
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: The powerhouse debris remained in place most off the week. When the spill season began on April 10, the debris moved toward the north end of the powerhouse. Minimal debris was seen at the spillway. New debris loads were minimal to very light, but they were slowly increasing the overall debris load.

The next trash rack cleaning will occur the week of April 22.

There are no problems to report. A few pieces of larger woody material were removed from the gatewell slots on April 9.

Extended-length submersible bar screen (ESBSs)/Vertical barrier screen (VBSs):

Yes	No	NA	Item
X*	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 installation occurred in units 1, 8 and 11 through 14 on April 8, 9 and 11. The screens were installed in units 13 and 14 after unit 1's screens. ESBS's will be installed in units 9 and 10 before they return to service. The brush cycle for screen in 3A slot tripped alarms on April 6 and 7. The issue was resolved the next day. Camera inspection will begin in early May. Examination of ESBS screen brush programming continued.

Daily VBS monitoring continued, and no high differentials were recorded.

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

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	42
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: Orifice operators and valves are being repaired as needed along with attraction lighting with no interruption in service.

Bypass Facility:

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

Comments: The sample system is being used on secondary bypass days. The sample gates will be used every other day. The PIT tag system will not be in use again this season, which is similar to past years.

There were 340 juvenile lamprey and 32,111 smolts bypassed this week. The primary species/race was subyearling Chinook.

TSW Operations: The TSW in bay 20 remained open. Bay 20 was briefly closed as described below. The TSW in bay 19 was opened at 0001 hours on April 10. Both TSW's are attached to a hoist.

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
143.4	132.8	82.7	9.4	48.0	46.8	6.0	6.0

Comments: The above data is from the smolt monitoring staff, with the data day starting at 0700 hours. Water clarity comes from the control room.

In order to remove the survival study release lines in bay 20, that bay was closed and bay 17 was opened from 1036 to 1313 hours on April 8.

After faulty readings were recorded, the gate opening indicator for bay 8 was replaced on April 9.

The spring spill season began at 0001 hours on April 10. The spillway hoists, cranes, and gates are set up per the updated Fish Operation Plan and the FPP. However, scheduled maintenance continued on spillway crane 7. Due to the nature of an engineered lift, bays 1 and 2 were opened to four feet each at 1346 and 1400 hours, respectively on April 10. A tour of engineers, tugboat personnel and biologists were there to watch bays 1 and 2 be opened. Also, crane 6 was used to open bay 6 to six feet at 1557 hours. As spill volumes increased, crane 6 was used to open bay 9 to five feet on April 11 at 1005 hours.

Other

Inline Cooling Water Strainers: The next cooling water strainer inspections will occur on May 7.

Avian Activity: Bird counting continued, and the results are reflected in Table 3 below.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican	Grebe
April 5	Spill	3	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	7	54	0	0	0
	Forebay	0	0	0	0	0
April 6	Spill	6	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	6	54	0	0	0
	Forebay	0	0	0	0	1
April 7	Spill	9	0	0	1	0
	Powerhouse	2	0	0	0	0
	Outfall	2	66	0	0	0
	Forebay	0	0	0	0	0
April 8	Spill	2	0	0	1	0
	Powerhouse	0	0	0	0	0
	Outfall	3	55	0	0	0
	Forebay	0	0	0	0	0
April 9	Spill	15	0	0	2	0
	Powerhouse	0	0	0	0	0
	Outfall	5	36	0	0	0
	Forebay	0	0	0	0	0
April 10	Spill	8	5	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	3	0	0	0	0
	Forebay	0	0	0	0	0
April 11	Spill	4	4	0	1	0
	Powerhouse	0	0	0	0	0
	Outfall	2	15	0	0	0
	Forebay	0	0	0	0	0

In the spill zone, a few gulls, cormorants, and pelicans were noted in or near the TSW or spill flow. The birds were feeding or roosting.

A couple of fly-by gulls were observed in the powerhouse zone.

In the outfall zone, gulls and cormorants in increasing numbers were noted roosting on the outfall pipe, with a few birds feeding in the outfall.

For the forebay zone, one grebe along with one to three loons were noted feeding. Outside the zone, a few loons, gulls, cormorants, grebes, and ospreys were observed.

The outfall laser and LRAD were installed on April 10. The laser appeared to have failed the night of April 11 and will be examined next week. One of two bird distress calls were deployed on the navigation lock wing wall on April 11. Issues with the second call will be examined next week. A falconer examined the tailwater area on April 9.

USDA Wildlife Services will begin shore hazing April 21.

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

Siberian Prawn: No prawns were observed in the sample this week.

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

Research: PNNL setting up for tagging at the juvenile facility continued. PNNL will be doing the juvenile lamprey and smolt passage studies together, which relate to the new configuration of the spillway.

The survival study in bays 20 and 21 concluded on April 6, with the contractor demobilizing.

For a CRITFC study, there were tissue samples removed from nine juvenile lamprey collected at the facility this week. The yearly total is 10 fish, which were returned to the river unharmed.

Gas bubble trauma examinations began on April 10. No signs of trauma were observed.

Project: Ice Harbor
Biologist: Ken Fone
Biological Science Technician: Ben McArthur
Dates: April 5 - 11, 2024

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	4/8/24	1315	---	---	Foreign material found in TW6 transformer oil recirculating line

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on April 8, 10,11.

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 Fish Entrance (SFE-1) Weir Depth	≥ 8.0’ or on sill	
x			South Fish Entrance Channel/Tailwater Differential	1.0’ – 2.0’	
x			South Shore Channel Velocity	1.5 – 4.0 fps	
x			Central Fish Entrance (CFE-2) Weir Depth	≥ 8.0’ or on sill	
x			Central Fish Entrance Channel/Tailwater Differential	1.0’ – 2.0’	
		x	North Fish Entrance (NFE-1) Weir Depth	≥ 8.0’ or on sill	
	x		North Fish Entrance Channel/Tailwater Differential	1.0’ – 2.0’	2.5’

Comments: On April 10, the north fish entrance channel/tailwater differential was above criteria when inspected. This was due to the difficulty in obtaining an accurate visual tailwater elevation reading with the turbulent conditions from spill. The PLC display of the tailwater elevation and resulting differentials showed similar fluctuating readings that were in and out of criteria.

Auxiliary Water Supply (AWS) System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System
5 pumps	2 pumps	1	Status of the 8 south shore AWS pumps
2 pumps		1	Status of the 3 north shore AWS pumps

Comments: North shore AWS pump #1 has been out of service since March 1, 2023, because of a hydraulic cylinder leak on the butterfly valve. A new cylinder is being ordered.

South shore AWS pump #6 has been out of service since March 1, 2024, due to high vibration readings coming from the motor and gearbox. The gearbox will be replaced with a refurbished one.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
x			Forebay debris load acceptable? (amount)	Average of 5 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-25% coverage
	x		Any oil seen in gatewells?	

Comments: None

Submersible Traveling Screens (STSs) / Vertical Barrier Screens (VBSs):

Yes	No	NA	Item
x			STSs deployed in all slots that are in service?
x			STSs in continuous-run mode (Note: if not, then STSs are in cycle-run mode)?
	x		STSs inspected this week?
		x	STSs inspection results acceptable?
		x	VBSs differentials checked this week?
		x	VBSs differentials acceptable?

Comments: STSs were set to continuous run mode at 1530 hours on April 11 because of chinook salmon fry being observed in the fish sample at Lower Monumental Fish Facility.

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 replacement actuator for the water regulating weirs in the collection channel is in local control due to a problem with the actuator being undersized for this application. The actuator will be rebuilt to enable it to work in automatic mode. 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 1AN was found to be burned out on April 8. Orifice 1AS was operated in place of 1AN until the light was replaced on April 11.

Juvenile Fish Facility: The fish facility is in primary bypass mode except during fish 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. The cause of the descaling observed on one steelhead in each of the samples was attributed to predators (bird and fish). A small scrape was observed on each of four Chinook in the April 8 sample and two Chinook in the April 11 sample.

Fish condition sampling results at Ice Harbor Dam:

Date: April 8

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	76	3	0	0
Chinook yearling unclipped	6	0	0	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	0	---	---	---
Steelhead clipped	35	1	0	2
Steelhead unclipped	3	0	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	120	4	0	2

Date: April 11

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	30	0	0	0
Chinook yearling unclipped	13	0	0	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	0	---	---	---
Steelhead clipped	71	1	0	2
Steelhead unclipped	15	1	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	129	2	0	2

Removable Spillway Weir (RSW): Spring spill for fish passage began at 0001 hours on April 3.

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
69.9	61.8	56.4	48.4	51	50	6.0	5.3

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Strainers were inspected for lamprey on April 2. A total of 13 juvenile lamprey, 65 Siberian prawns, and 1 juvenile shad (all mortalities) were found.

Avian Activity: There were very few piscivorous birds seen around the project (see table below). Land-based hazing of piscivorous birds for 8 hours per day began on April 7.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
April 5	---	---	---	---	---
April 6	---	---	---	---	---
April 7	0	1	0	0	1
April 8	3	2	0	0	0
April 9	3	1	0	0	0
April 10	0	1	0	0	0
April 11	3	3	0	1	0

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*
April 8	1	1
April 11	0	0
Totals	1	1

*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.

Project: Lower Monumental
Biologists: Denise Griffith and Raymond Addis
Dates: April 5 - 11, 2024

Turbine Operation

Yes	No	Turbine Unit Status
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.

Comments: All available turbine units are operated in accordance with Appendix 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

Comments: None

Adult Fish Passage Facility

Lower Monumental fish facility and EAS staff inspected the adult fishways on April 5, 6, 8 and 11.

Fish Ladder Exit:

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: None

Fishway Entrances and Collection Channel:

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

Comments: South Powerhouse Entrance SPE-1 weir was at sill during all inspections with readings 6.6, 6.5, 7.7 and 6.4 feet respectively. South Powerhouse Entrance SPE-2 weir was at sill during all inspections with readings 6.6, 6.5, 7.7 and 6.4 feet respectively. South Shore Entrance SSE-1 weir was at sill during all inspections with readings of 6.6, 6.4, 6.0 and 6.2 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)	56 yrd²
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	1 – 20%
		X	Any oil seen in gatewells?	

Comments: Monthly gatewell drawdown at the benchmark of 105MW was conducted on April 4. Drawdown numbers showed that units' trashracks did not need raked in the month of April.

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: STSs running in cycle-run mode until sampling shows 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: None.

Collection Facility: The system was in primary bypass until condition samples occurred. Condition samples took place from April 6 - 7 and April 9 - 10. A total of 1,266 salmonids were sampled with 1,260 being bypassed back to the river.

Transport Summary: Daily barge transport is scheduled to begin on April 24.

Spillway Weir: The 24 hour/7 days per week Spring Surface spill for steelhead migration ended and normal Spring smolt migration spill began at 0000 on April 3.

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
66.2	59.7	60.7	47.0	49.0	47.3	5.6	4.4

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers will next be inspected in April.

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

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
4/5/2024	1200	11	0	0	0	1
4/6/2024	1230	21	1	0	0	0
4/7/2024	1400	26	1	0	0	0
4/8/2024	1200	16	0	0	0	0
4/9/2024	1200	2	0	0	0	0
4/10/2024	1110	27	4	0	0	3
4/11/2024	1300	23	10	0	0	7

Bird hazing by USDA personnel began on April 8.

Invasive Species: Zebra or quagga mussel traps were examined on April 6, none were found.

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by EAS personnel, frozen and properly disposed of in a landfill. Daily and total Siberian prawn counts at Lower Monumental Dam for this reporting period are reported below.

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Date	Sample (euthanized)	Collection*
April 7	0	0
April 10	0	0
Totals	0	0

*Collection refers to extrapolated values based on sampling percent.

Fish Rescue/Salvage: No fish rescue was performed this week for Lower Monumental Dam.

Research: This season, PNNL plan to obtain lamprey from Lower Monumental Dam to study behavior and survival of Pacific lamprey.

GBT examinations occurred on April 6. A total of 26 clipped yearling Chinook, 1 unclipped yearling Chinook and 5 clipped steelhead smolts were examined. No gas bubble trauma was detected.

The Nez Perce steelhead kelt study and rehabilitation collection of kelts began on March 29. This reporting period, no steelhead kelts were placed in the collection tank.

Project: Little Goose Dam
Biologist: Deb Snyder, Cole Reeves
Dates: April 5 – April 11, 2024

Turbine Operation

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

*All available turbine units are operated in accordance with Appendix C of the Fish Passage Plan

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

	OOS		RTS		
Unit	Date	Time	Date	Time	Outage Description
5	4/14/2017	14:11	06/30/2024	ERTS	Spider and upper guide bearing repair.

Comments: Contractual obligations and performance issues realigned the Unit 5 ERTS date into 2024.

Adult Fish Passage Facility

USACE and EAS Bio staff inspected the adult Fishway on April 7, April 9, and April 11.

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	X		Collection Channel Surface Velocity	1.5 – 4.0 fps	4/7: NPE:5.7*

Comments: The adult fishway was returned to service on February 15. The AWS pumps returned to service on February 22.
* NPE channel surface velocity was re-measured by USACE staff the same day, and the velocity we found was consistently 2.6-2.7 fps.

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 and 3 were returned to service February 22. Fish pump 2 was returned to service on February 28.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comment
X			Forebay debris load acceptable? (amount)	High 80 ft² - Low 10 ft²
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	4/7 – 2%: 6C; 4/11 – 1%: 5C, 2% 6C
	X		Any oil seen in gatewells?	

Comments: The forebay had minimal floating debris inside the trash shear boom with the highest measurement occurring on March 30 at 170 ft². The overall total forebay debris high occurred March 30. .

ESBS/VBS:

Yes	No	NA	Item
X			ESBSs deployed in all slots and in service?
	X		ESBSs inspected this week?
		X	ESBSs inspection results acceptable?
X			VBSs differentials checked this week?
X			VBSs differentials acceptable?
	X		VBSs inspected this week?

Comments: Installation of ESBS's were fully functional and deployed the week of March 18.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	19
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: The juvenile bypass system was watered up on March 7 without incident.

Collection Facility: The juvenile collection facility was successfully watered up on March 20. Every other day collection for condition monitoring in conjunction with secondary bypass commenced March 25 with the first sample being conducted on March 26. A total of 2,283 fish were collected, 2,279 were bypassed, and there were 4 sample or facility mortalities. The descaling and mortality rates were 1.9% and 0.2%, respectively. The collection and transport facility operated within criteria and zero adult lamprey were removed from the separator and sample during this report period. Everyday collection is scheduled to begin April 23 coinciding with barge transportation operations.

Transport Summary: Collection for fish transportation is scheduled to begin 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 adult steelhead overshoots. On March 21, the ASW transitioned to 625 ft. crest height spilling 24 hours 7 days per week per CBR LGS R 022724 1735. Spring spill operations began on April 3 spilling 24/7 up to the 125% gas cap. 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
65.5	58.6	52.8	45.7	50.1	48.6	5.6	3.2

*Ladder temperature.

Other

Inline Cooling Water Strainers: Inline cooling strainer inspections commenced on December 1, 2023. 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
4/5	0800	0	0	0	0
4/6	0845	1	0	0	0
4/7	0800	11	0	0	0
4/8	1600	20	0	0	0
4/9	1200	1	0	1	0
4/10					
4/11	1400	55	0	0	3

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

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

Date	Sample	Collection*
4-5	0	0
4-6	0	0
4-7	0	0
4-8	0	0
4-9	0	0
4-10	0	0
4-11	0	0
Totals	0	0

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

Gas Bubble Trauma (GBT): Oregon Department of Fish and Wildlife performed GBT monitoring on April 10. Of the 100 fish examined, zero had gas bubble trauma symptoms.

Fish Rescue/Salvage: Fish rescue activities due to every-other-day collection and return to primary bypass operations took place April 5, April 7, April 9 and April 11. Results were reported and submitted to District.

Research: The Nez Perce Tribe (NPT) commenced adult steelhead kelt collection efforts on March 27 with an anticipated conclusion date of July 1.

Project: Lower Granite
Biologists: Elizabeth Holdren and Steve Lee
Dates: April 05-April 11, 2024

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: Peak efficiency hard constraint began 03 April. No reported outages.

Adult Fish Passage Facility

Lower Granite Biologists and EAS staff inspected the adult fishway on April 05, 06, 07 and 10.

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	X	South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	7.8’
	X	X	South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.8’
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
	X	X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 8.0’ or on sill	5.0’, 5.2’, 5.3’ 5.4’
	X	X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 8.0’ or on sill	5.0’, 5.2’, 5.3’ 5.4’
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	0.7’ 0.5’ 0.7’ 0.6’
	X	X	North Shore Entrance (NSE-1) Weir Depth	≥ 7.0’ or on sill	6.7’, 6.9’
	X	X	North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	6.7’, 6.9’
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	

X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: Fish ladder control system operation and configuration will continue to be evaluated this season to resolve ongoing issues. FOGs 1, 4, 7, and 10 are in operation. SSEs and NPEs were on sill April 5, 6, 7 and 10; NSEs were on sill April 5, 6, 7. Electricians calibrated SSE gates April 4.

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 Pump 1 remains in slow mode due to the inability to operate in fast mode while at LGO MOP elevation. AWS pump 2 remains out of service for maintenance. It is recommended that pump 1 be removed from service and replaced with pump 2 when repairs are complete.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	106 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: All ESBS's installed.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe:

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

Comments: The juvenile facility continues to be operated secondary bypass with collection for condition sampling occurring daily and fish collection for the NOAA in river survival Monday and Tuesday.

Collection Facility: Research collection for in-river survival tagging occurred April 8 and 9. Fish were tagged April 9 and 10 and released April 11. Collection for in river survival and juvenile transport evaluation is scheduled for April 15 and 16 with barge research. Collection for everyday barging is scheduled to begin April 23.

Transport Summary: The first research trip is scheduled for April 18. Spring Chinook salmon from the Tucannon fish hatchery will be loaded at Lyons Ferry fish hatchery and released below Bonneville Dam on the research trip departing LWG April 18.

Spillway Weir: RSW 24-hour operation began on March 21. Spring spill operation began April 3.

PIT tag interrogations: RSW detections included 4070 juvenile Chinook salmon, 5873 juvenile steelhead, and 176 adult steelhead detected at the RSW. Juvenile bypass system detections included 1583 juvenile Chinook salmon,1043 juvenile steelhead, and 14 adult steelhead through April 11 (PTAGIS).

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
67.5	61.0	55.1	48.6	48.0	46.5	4.6	1.7

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Unit cooling strainer inspections were conducted on March 28.

Invasive Species: No zebra/quagga muscles were detected on the trap substrate. No Siberian prawns were collected in the sample.

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

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
Apr 05	1430	18	1	0	1
Apr 06	1300	13	0	0	2
Apr 07	0920	125	0	0	1
Apr 08	1520	24	0	0	0
Apr 09	0745	57	1	0	0
Apr 10	1208	78	0	0	0
Apr 11	1210	3	0	0	0

Gas Bubble Trauma (GBT) Monitoring: April 11, SMP examined 100 salmonids with no signs of GBT symptoms.

Adult Fish Trap Operations: The adult trap was watered up March 4. Collection for sampling started at 1400 hours on March 4 at a 25% (18% /week) sample rate. Collection for sampling will be conducted 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 will be PIT tagged to investigate movement and ascension rate of walleye that successfully exit the fish ladder into the upstream reservoir. PIT tag data collected will be used to gain an understanding of the potential expansion and threat of walleye upstream of LWG to ESA-listed salmonids and guide future management actions of walleye in the Snake River Basin.

PIT Tagging and Genetic Sample Collection from Bull Trout for USFWS:

Bull trout will be collected as part of the normal adult trap daily sample and using the adult SbyC system to recapture previously PIT tagged fish. Untagged bull trout will be PIT tagged, fin clipped for genetic analysis, and have morphometric data collected including weight and length etc. Fin clips will be sent to USFWS to determine the fish's origin. Previously PIT tagged bull trout will only have morphometric data collected. All fish will be released back into the adult fish ladder.

PNNL Juvenile Pacific Lamprey Passage Behavior and Survival study:

Juvenile lamprey (macropthalmia) will be collected from LWG sample, as needed, to meet PNNL downriver study objectives. No juvenile lamprey were collected from LWG this week to support this study.

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 1250 larval Pacific lamprey, not to exceed 10 juvenile and 5 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 have collected genetic samples from 52 juvenile and 27 larval lamprey this season.

National Marine Fisheries Service (NMFS) In-River Survival:

NMFS PIT-tag Chinook and steelhead smolts for their Survival Study April through early June to compare smolt to adult returns of in-river migrating smolts to the smolt to adult returns of transported smolts. PIT-tagged fish are held

for 24 hours before being bypassed to the LWG tailrace. Fish were collected April 8 and 9, tagged April 9 and 10, and released to the river April 21. Collection will continue Monday-Friday until the middle of June.