Out of Criteria – NWW Weekly Report #7 – April 12-18, 2024

1. McNary

WFE3 was out of criterion on April 15 and 17. This could possibly be a calibration issue related to the spill season.

Fish pump 3 remains out of service due to a governor oil leak, which is being repaired.

The juvenile system alternated between primary and secondary bypass every 24 hours at 0700 hours. There was one break in this schedule. The staff member on duty cut their hand and required stitches on April 14. The system was in primary bypass from 0944 to 1130 hours. The sample gates were left on.

The technician on duty "tapped" the separator before switching to primary bypass on April 13. The technician was reminded that it was not their responsibility get collect fish for tagging.

ESBS's are installed in all units except 9 and 10, which remain out of service. The screens will be installed before the units return to service. The brushes for the screens in unit 12 were found not cycling on April 16. A relay failure resulted 21 hours of cycling being missed.

With debris in bays 21 and 22, as debris spill was attempted on April 15, from 1525 to 1625 hours. The gates in bays 21 and 22 were raised and the gates in bays 4 and 7 were lowered. There was difficulty lowering the gate in bay 21. This issue will be resolved on April 22.

2. Ice Harbor

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 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.

All of the orifices for units 2, 3, 4,5, and 6 automatically closed on April 15 in response to a high differential between the juvenile fish channel water level and the overflow chamber water level. The differential occurred when too many orifices were switched around at one time in preparation for STS inspections. The orifice closure caused the water level in the bypass flume to drop while collecting fish for condition sampling. Fish that were stranded in the flume were promptly crowded by hand into the separator, where they recovered. Personnel reopened the orifices in approximately five minutes. To prevent this from happening again in the future, fewer orifices will be swapped at one time, or the auto-orifice closure feature will be temporarily disabled when orifices are switched.

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		South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	4/17-7.7
X	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	4/17-7.8
X	X		North Shore Entrance (NSE-1) Weir Depth	≥ 6.0’ or on sill	4/13-5.9, 4/17-5.6
X	X		North Shore Entrance (NSE-2) Weir Depth	≥ 6.0’ or on sill	4/17-5.6

Mechanical issues inhibiting the lowering of NSE-1 & NSE-2 weirs were encountered April 13 and April 14, resulting in documentation and issuance of a ‘Trouble Report’ submitted April 19.

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’	7.6’
	X	X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 8.0’ or on sill	5.4’, 5.5’, 5.5’, 5.5’,
	X	X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 8.0’ or on sill	5.4’, 5.5’, 5.5’, 5.5’,
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	0.2’, 0.6’, 0.5’
	X	X	North Shore Entrance (NSE-1) Weir Depth	≥ 7.0’ or on sill	6.6’, 6.9’
	X	X	North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	6.6’, 6.6’, 6.2’
X	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	

Efforts of the electrical crew continue to bring the ladder into criteria however the control system drifts out of calibration shortly after. Spill and current tailwater hydraulic conditions during gas cap appear to drawdown the north shore and may be impacting north powerhouse channel/tailwater differentials.

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.

U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#07-2024

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: April 12-18, 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		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	**Date**	**Time**	**Date**	**Time**	**Outage Description**
9 & 10	11/27/23	0631	4/26/24	NA	Control system upgrades
12	4/16	0923	4/16	1337	ESBS brushes not cycling/Relay replaced

*Comments: RTS dates are subject to change. The hard one percent criteria remained in place.

Adult Fish Passage Facilities

McNary fisheries staff performed measured inspections of the adult fishways on April 12, 15 and 17. Adult fish counting continued. The Oregon shore exit temperature probe communication issue with the base station will be resolved by district staff on April 23.

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’
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’	0.1’ to 0.2’

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

There are no problems to report.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0’ – 2.0’	1.4’
X			NFEW2 Weir Depth	$\geq$ 8.0’	8.3’ to 8.4’
X			NFEW3 Weir Depth	$\geq$ 8.0’	8.0’ to 8.1’
X			South Oregon Entrance Head Differential	1.0’ – 2.0’	1.4’ to 1.5’
X			SFEW1 Weir Depth	$\geq$ 8.0’	8.1’ to 8.2’
X			SFEW2 Weir Depth	$\geq$ 8.0’	8.1’ to 8.2’
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	2.2 fps

X			Washington Entrance Head Differential	1.0’ – 2.0’	1.1’ to 1.5’
X			WFE2 Weir Depth	≥ 8.0’	9.0’ to 9.3’
	X*		WFE3 Weir Depth	≥ 8.0’	7.6’ to 8.1’

*Comments: WFE3 was out of criterion on April 15 and 17. This could possibly be a calibration issue related to the 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			26° to 27°	Oregon Ladder Fish Pump 1
X			25° to 27°	Oregon Ladder Fish Pump 2
		X		Oregon Ladder Fish Pump 3, return to service April 26
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 26, 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. The staff member on duty cut their hand and required stitches on April 14. The system was in primary bypass from 0944 to 1130 hours. The sample gates were left on.

The technician on duty “tapped” the separator before switching to primary bypass on April 13. The technician was reminded that it was not their responsibility get collect fish for tagging.

For the sample collection day of April 16, the sample rates were split, with the A side set at 1 percent and the B side set at 10 percent in order to collect steelhead smolts for tagging.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Light 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 slowly toward the spillway. The debris at the spillway went from minimal to light. It appeared some debris may have passed out the spillway. A one-hour debris spill had no effect on the debris load on April 15. New debris loads were minimal to very light.

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 15 and 17.

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 installed in all units except 9 and 10, which remain out of service. The screens will be installed before the units return to service. The brushes for the screens in unit 12 were found not cycling on April 16. A relay failure resulted 21 hours of cycling being missed. The unit was removed from service and the relay was replaced immediately that day. Camera inspection will begin on May 7. Examination of ESBS screen brush programming continued.

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

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: There are no problems to report.

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 300 juvenile lamprey and 21,450 smolts bypassed this week. The primary species/race was subyearling Chinook.

One yearling Chinook mortality was removed from the GBT transport line on April 16. We completed adjusting the slope of the line on April 17.

TSW Operations: The TSW's in bays 19 and 20 remained open. 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
175.3	145.4	114.1	85.8	49.6	48.0	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.

The spring spill season continues. The spillway hoists, cranes, and gates are set up per the updated Fish Operation Plan and the FPP. Scheduled maintenance was completed on spillway crane 7.

With debris in bays 21 and 22, as debris spill was attempted on April 15, from 1525 to 1625 hours. The gates in bays 21 and 22 were raised and the gates in bays 4 and 7 were lowered. There was difficulty lowering the gate in bay 21. This issue will be resolved on April 22. The gate in bay 6 was adjusted with crane 6 on April 15.

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 12	Spill	18	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	2	25	0	0	0
	Forebay	0	0	0	0	0
April 13	Spill	12	0	0	2	0
	Powerhouse	0	0	0	0	0
	Outfall	5	47	0	0	0
	Forebay	0	0	0	0	0
April 14	Spill	27	0	0	0	0
	Powerhouse	24	0	0	0	0
	Outfall	2	32	0	0	0
	Forebay	0	0	0	0	0
April 15	Spill	50	0	0	0	0
	Powerhouse	178	0	0	0	0
	Outfall	11	59	0	0	0
	Forebay	0	0	0	0	23
April 16	Spill	75	3	0	0	0
	Powerhouse	155	0	0	0	0
	Outfall	13	56	0	0	0
	Forebay	0	0	0	0	0
April 17	Spill	140	2	0	0	0
	Powerhouse	20	0	0	0	0
	Outfall	5	35	0	0	0
	Forebay	0	0	0	0	0
April 18	Spill	35	1	0	2	0
	Powerhouse	0	0	0	0	0
	Outfall	2	1	0	0	0
	Forebay	0	0	0	0	0

In the spill zone, gulls in fluctuating numbers along with a few cormorants, and pelicans were noted. Most birds were feeding.

In the powerhouse zone, gulls in fluctuating numbers were seen roosting on the water at the edge of the spill.

In the outfall zone, cormorants in increasing numbers were noted roosting on the outfall pipe along with some gulls. A few of these birds were feeding in the outfall. An osprey pair began nesting on the outfall pipe where the walkway ends on April 18, which resulted in a decrease in bird numbers.

For the forebay zone, one flock of grebes along an occasional loon were noted roosting and feeding. Outside the zone, a few loons, gulls, cormorants, grebes, pelicans, and ospreys were observed.

The LRAD remained installed on the outfall pipe with very little success. The outfall laser remained out of service as we are still examining what the issue may be. One of two bird distress calls remained deployed on the navigation lock wing wall. The second call will be returned to service on April 19.

USDA Wildlife Services will begin shore hazing on April 21. Hazing from a boat will begin on April 29, though the osprey nest may present some challenges for the hazers and falconers.

Invasive Species: The next mussel station examinations will occur on April 28.

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

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

Research: For the smolt passage study, PNNL removed 312 smolts form the samples this week. There has not been enough juvenile lamprey for tagging currently.

For a CRITFC study, there were tissue samples removed from three juvenile lamprey collected at the facility this week. The yearly total is 13 fish, which were returned to the river unharmed.

Gas bubble trauma examinations occur twice a week. Fish were collected on April 16 and 18, with the data being reported the next day. For the report week, two clipped yearling Chinook were removed from the recovery raceway after the GBT examinations. No signs of trauma were observed.

Project: Ice Harbor
Biologist: Ken Fone
Biological Science Technician: Ben McArthur
Dates: April 12-18, 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
3	4/15/24	1038	4/15/24	1700	STS inspection
4	4/16/24	0700	4/16/24	1122	STS inspection, hub tap
2	4/16/24	1130	4/16/24	1535	STS and VBS inspection
5	4/17/24	0715	4/17/24	1355	STS inspection, hub tap

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on April 16, 17, 18.

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’	

Comments: The north fish entrance weir, and north shore channel and tailwater transducers for the fishway control system were recalibrated on April 16.

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 6 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-20% 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. Unit 6, 5, 4, 3, and 2 STSs, and unit 2 VBSs, were inspected on April 15, 16, and 17. All screens were in good condition.

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.

All of the orifices for units 2, 3, 4,5, and 6 automatically closed on April 15 in response to a high differential between the juvenile fish channel water level and the overflow chamber water level. The differential occurred when too many orifices were switched around at one time in preparation for STS inspections. The orifice closure caused the water level in the bypass flume to drop while collecting fish for condition sampling. Fish that were stranded in the flume were promptly crowded by hand into the separator, where they recovered. Personnel reopened the orifices

in approximately five minutes. In order to prevent this from happening again in the future, fewer orifices will be swapped at one time, or the auto-orifice closure feature will be temporarily disabled when orifices are switched.

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 descaling observed on one clipped steelhead in the April 15 sample and three clipped Chinook in the April 18 sample was attributed to predation attempts by birds. Four fish in each sample exhibited eye hemorrhaging.

Fish condition sampling results at Ice Harbor Dam:

Date: April 15

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	26	0	0	1
Chinook yearling unclipped	11	0	0	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	0	---	---	---
Steelhead clipped	71	3	0	1
Steelhead unclipped	19	0	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	127	3	0	2

Date: April 18

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	25	4	0	0
Chinook yearling unclipped	33	1	1	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	0	---	---	---
Steelhead clipped	72	0	0	3
Steelhead unclipped	17	0	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	147	5	1	3

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
97.6	61.9	83.5	48.3	52	51	5.5	3.8

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: The next monthly inspection will occur in early May.

Avian Activity: There were generally low numbers of piscivorous birds seen around the project (see table below). Land-based hazing of piscivorous birds for 8 hours per day is occurring.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
April 12	15	13	0	0	5
April 13	1	6	0	0	2
April 14	4	1	0	1	0
April 15	5	0	0	0	0
April 16	0	3	0	0	0
April 17	0	1	0	0	0
April 18	1	10	0	0	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 15	2	2
April 18	0	0
Totals	2	2

*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 12 - 18, 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 12, 13 and 14.

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 6.3, 6.2 and 6.7 feet respectively. South Powerhouse Entrance SPE-2 weir was at sill during all inspections with readings 6.3, 6.2

and 6.7 feet respectively. South Shore Entrance SSE-1 weir was at sill during all inspections with readings of 6.0, 6.2 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)	64 yrd²
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	1 – 25%
		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: 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 12 – 13, April 15 – 16 and April 17 - 18. A total of 6,021 salmonids were sampled with 5,995 being bypassed back to the river.

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

Spillway Weir: Spring 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
95.1	60.9	82.2	48.1	50.1	49.2	5.5	3.8

*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
4/12/2024	1300	10	3	0	0	0
4/13/2024	1230	3	0	0	0	0
4/14/2024	1230	3	1	0	0	0
4/15/2024	1300	8	0	0	0	0
4/16/2024	1400	13	1	0	0	1
4/17/2024	1400	29	0	0	0	1
4/18/2024	1400	15	0	0	0	3

Bird hazing by USDA personnel begin on April 8.

Invasive Species: Zebra or quagga mussel traps will be examined in May.

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 13	0	0
April 16	7	35
April 18	0	0
Totals	7	35

*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 12. A total of 22 clipped yearling Chinook, 10 unclipped yearling Chinook and 17 clipped steelhead and 2 unclipped smolts were examined. No gas bubble trauma was detected.

The Nez Perce steelhead kelt study and rehabilitation collection shows 1 steelhead kelt was placed in the collection tank for this reporting period.

Project: Little Goose Dam
Biologist: Deb Snyder, Cole Reeves
Dates: April 12 – April 18, 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 13, April 15, and April 17.

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	X		South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	4/17-7.7
X	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	4/17-7.8
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	X		North Shore Entrance (NSE-1) Weir Depth	≥ 6.0’ or on sill	4/13-5.9, 4/17-5.6
X	X		North Shore Entrance (NSE-2) Weir Depth	≥ 6.0’ or on sill	4/17-5.6
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 returned to service on February 15. The AWS pumps returned to service on February 22. The Collection Channel Surface Velocity is measured at NPE. Mechanical issues inhibiting the lowering of NSE-1 & NSE-2 weirs were encountered April 13 and April 14, resulting in documentation and issuance of a ‘Trouble Report’ submitted April 19.

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 50 ft² - Low 1 ft²
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	4/17 –1C:1%
	X		Any oil seen in gatewells?	

Comments: The forebay had minimal floating debris inside the trash shear boom with the highest measurement occurring on April 17 at 40 ft². The overall total forebay debris high occurred April 17 at 50 ft^2. Drawdowns for units 1 – 4 were completed April 18.

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. During this reporting period a total of 23,823 fish were collected, 23,806 were bypassed, and there were 17 sample or facility mortalities. The descaling and mortality rates were 3.4% and 0.1%, respectively. The collection and transport facility operated within criteria and one adult lamprey was removed from the 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 day barging is scheduled thereafter pending situational transition to every other day barging due to any unforeseen changes 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. On April 16th we hit the 50 adult Chinook threshold at Ice Harbor and began spilling at performance spill (30% of outflow) from 0400 to 1200 to facilitate adult fish passage. 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
94.8	58.3	79.4	45.5	52.5	49.7	4.7	2.3

*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
4-12	0730	53	3	0	5
4-13	0845	55	4	0	2
4-14	0730	40	3	0	1
4-15	0815	14	1	0	0
4-16	1100	43	1	0	9
4-17	0815	37	0	0	12
4-18	1400	37	0	1	0

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*
4-12	0	0
4-13	0	0
4-14	0	0
4-15	0	0
4-16	0	0
4-17	0	0
4-18	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 18. Of the 103 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 13, April 15, and April 17. 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 12-April 18, 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 unit outages reported. Navigation lock fill valve #4 was returned to service at 1354 hours April 17.

Adult Fish Passage Facility

Lower Granite Biologists and EAS staff inspected the adult fishway on April 12, 13, 15 and 17.

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’	7.6’
		X	South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.7’
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
	X	X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 8.0’ or on sill	5.4’, 5.5’, 5.5’, 5.5’,
	X	X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 8.0’ or on sill	5.4’, 5.5’, 5.5’, 5.5’,
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	0.2’, 0.6’, 0.5’
	X	X	North Shore Entrance (NSE-1) Weir Depth	≥ 7.0’ or on sill	6.6’, 6.9’
	X	X	North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	6.6’, 6.6’, 6.2’
X	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 and 10 are in operation. FOGs 4 and 7 were removed from service at 0818 hours

16 April per 2024 FPP guidance. Efforts of the electrical crew continue to bring the ladder into criteria however the control system drifts out of calibration shortly after. Spill and current tailwater hydraulic conditions during gas cap appear to drawdown the north shore and may be impacting north powerhouse channel/tailwater differentials.

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. This work will be scheduled when the mechanical crew has completed reconfiguring the fish ladder cooling pumps to its original state.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	78 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 minimum
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/transport survival Monday and Tuesday.

Collection Facility: Research collection for in river survival and juvenile transport evaluation occurred April 15 and16, fish were tagged April 16 and 17, and transported April 18. Collection for everyday barging is scheduled to begin at 0700 hours April 23.

Transport Summary: The research trip departed LWG April 18. Spring Chinook salmon from the Tucannon fish hatchery were loaded at Lyons Ferry fish hatchery into a separate hold for release below Bonneville Dam on April 19.

Spillway Weir: Spring spill operation began April 3.

PIT tag interrogations: RSW detections included 8499 juvenile Chinook salmon, 14295 juvenile steelhead, 225 adult steelhead and 3 juvenile coho salmon at the RSW. Juvenile bypass system detections included 3386 juvenile Chinook salmon, 1 adult Chinook salmon, 3113 juvenile steelhead, 15 adult steelhead and 1 juvenile coho salmon through April 18 (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
98.6	61.3	80.1	48.9	52.0	48.0	4.6	0.6

*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. Five live Siberian prawns were collected in the sample.

Avian Activity: Biologist daily piscivorous bird counts and hazing began April 1. Bird hazers are on site daily.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
Apr 12	1015	0	2	0	0
Apr 13	1230	0	0	0	0
Apr 14	0815	0	3	0	0
Apr 15	0925	0	2	0	0
Apr 16	0930	0	0	0	0
Apr 17	1202	0	0	0	0
Apr 18	0645	0	0	0	0

Gas Bubble Trauma (GBT) Monitoring: SMP examined 100 salmonids with no signs of GBT symptoms April 18.

Adult Fish Trap Operations: The adult trap was watered up March 4. Collection for sampling continues with fish being collected 24-hours per day Sunday-Thursday and sampled Monday- Friday 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. There were 172 juvenile lamprey 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 94 juvenile and 56 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 15 and 16, tagged April 16 and 17, and released to the river/transported April 18. Collection will continue Monday-Friday until the middle of June.

National Marine Fisheries Service (NMFS) Seasonal Effects of Transporting Fish from the Snake River to Optimize Transportation Strategy:

This study aims to build on the current database of information on the seasonality of smolt-to-adult return rates (SARs). LWG biological staff collected fish Monday and Tuesday for tagging on Tuesday and Wednesday with the

barge departing LWG on Thursday, April 18. Beginning April 21 collection will occur Sunday-Thursday with fish being tagged Monday-Friday during the barging fish transport.

Idaho Power Hells Canyon Sturgeon Recruitment:

LWG Corps bio techs continue collecting passage and estimated lengths and of White Sturgeon prior to removing them from the separator in support of Idaho Power Sturgeon program.