Out of Criteria – NWW Weekly Report #4 – March 22-28, 2024

1. McNary

Yes	No	Sill	Location	Criteria	Measurements
	X		NFEW2 Weir Depth	≥ 8.0’	7.3’ to 7.4’
	X		NFEW3 Weir Depth	≥ 8.0’	7.3’

Fish pump 3 remains out of service due to a governor oil leak, which is being repaired. The return to service date is April 12, which is subject to change.

2. Ice Harbor

South fish entrance weir depth was observed to be below criteria at 7.8’ on March 27. After the powerhouse operator was informed, the operator lowered the weir to bring the depth into 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. 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
	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.

One of the two bird abatement hydrocannon nozzles became clogged during the reporting week and is no longer shooting out water. Repairs cannot be undertaken while spill is occurring, because the turbulent water makes boat access to the hydrocannon unsafe to perform maintenance.

3. Lower Monumental

4. Little Goose

Yes	No	Sill	Location	Criteria	Measurements
		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	X		North Shore Entrance (NSE-1) Weir Depth	≥ 6.0’ or on sill	3/26 – 5.8
X	X		North Shore Entrance (NSE-2) Weir Depth	≥ 6.0’ or on sill	3/26 – 5.7

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	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 8.0’ or on sill	7.9’

	X		North Shore Entrance (NSE-1) Weir Depth	≥ 7.0’ or on sill	6.8’
	X		North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	6.8’
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	0.8’

AWS pump 2 remains out of service for maintenance.

U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#04-2024

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: March 22-28, 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
13 & 14	3/22	0758	3/22	1034	Trash rack cleaning, rotated through units
1	3/23	2351	3/24	0957	Water leak

Comments: RTS dates are subject to change. Units ran outside the soft one percent criteria as requested by BPA.

Adult Fish Passage Facilities

McNary fisheries staff performed measured inspections of the adult fishways on March 22, 24 and 26. Adult fish counting will begin on April 1.

Fish Ladder Exits:

Yes	No	Location	Criteria	Measurements
X		Oregon Exit	Head over weir 1.0’ to 1.3’	1.0’
X		Oregon Count Station Differential	0.0’ to 0.5’	0.0’ to 0.1’
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’	0.0’ to 0.1’

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

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0’ – 2.0’	1.2’ to 1.5’
	X		NFEW2 Weir Depth	$\geq$ 8.0’	7.3’ to 7.4’
	X		NFEW3 Weir Depth	$\geq$ 8.0’	7.3’
X			South Oregon Entrance Head Differential	1.0’ – 2.0’	1.5’
X			SFEW1 Weir Depth	$\geq$ 8.0’	8.0’ to 8.2’
X			SFEW2 Weir Depth	$\geq$ 8.0’	8.0’ to 8.2’
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	2.1 fps
X			Washington Entrance Head Differential	1.0’ – 2.0’	1.5’
X			WFE2 Weir Depth	$\geq$ 8.0’	9.6’ to 10.0’
X			WFE3 Weir Depth	$\geq$ 8.0’	8.2’ to 8.6’

Comments: With the juvenile system being out of service most of the week, NFEW2 and NFEW3 were out of criteria. NFEW2 was found in manual mode and returned to automatic on March 24.

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			27° to 28°	Oregon Ladder Fish Pump 1
X			27° to 28°	Oregon Ladder Fish Pump 2
		X		Oregon Ladder Fish Pump 3, return to service April 12
X*		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 12, which is subject to change. The juvenile system remained out of service until March 28 at 1315 hours, at which time it began to supply auxiliary flow to the north powerhouse pool.

Juvenile Fish Passage Facility

The juvenile system returned to service on March 28 at 1315 hours, with the beginning of primary bypass. The first day of secondary bypass (sample collection) will begin on April 2 at 0700 hours.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Moderate near the powerhouse
X			Gatewell drawdown measured this week?	Twice
X			Gatewell drawdown acceptable	
	X		Any debris seen in gatewells (% coverage)	
	X		Any oil seen in gatewells?	

Comments: The powerhouse debris moved to and from the Oregon shore with weather changes. No debris was seen at the spillway. New debris loads were minimal but slowly increasing.

Trash rack cleaning occurred in units 13 and 14 on March 22. There were eight yards of debris removed. No fish were observed during cleaning this week and last week. With the units out of service for a long duration, the racks in units 9 and 10 were not cleaned.

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

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

Comments: ESBS maintenance and screen brush programming continued. ESBS install will begin on April 2. Camera inspection will begin in early May.

VBS monitoring will begin with ESBS install.

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

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

Comments: Maintenance on all systems was completed. Replacement of area lighting around the dewatering structure was finished on March 26.

After de-winterizing the system and watering up the drain chamber, the collection channel was returned to service on March 28, from 1200 to 1315 hours. All systems were in automatic mode and functioned well. The brush cycle sequence took its usual time in resetting itself.

Bypass Facility:

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

Comments: Maintenance on all systems was completed. The sample system will remain out of service until sample collection begins April 2. The PIT tag system will not be in use again this season, which is similar to past years.

Residual debris was flushed form the system.

TSW Operations: The TSW in bay 20 is being used as required by the Biological Opinion for adult fallbacks per RCC schedule. The TSW began 24/7 operation on March 21. The TSW in bay 19 is ready for the spring season. Both TSW's are attached to a hoist. For survival study equipment installation in bays 20 and 21, the TSW in bay 20 was closed as outlined in Table 2 below. Bay 17, set to split leaf, was used to supplement the closure of the TSW.

Table 2. TSW Closure for Study Equipment Install.

Date	Time	TSW Closed/Bay 17 Open
March 25	1035 to 1634	Yes
March 26	0948 to 1715	Yes
March 27	0813 to 1602	Yes

River Conditions

Table 3. River Conditions at McNary Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature (°F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
157.0	121.4	10.0	9.0	47.0	45.0	6.0	6.0

Comments: The flow above is due to the TSW requirement. The data is from the control room.

The spillway hoists and gates are set up for the upcoming season. The final determination of spill per gate has been made, the patterns have been updated in the Fish Operation Plan and the FPP.

Scheduled maintenance has been occurring on spillway crane 7.

Other

Inline Cooling Water Strainers: The next cooling water strainer inspections will occur on April 2.

Avian Activity: Casual bird observations continued. Bird counting will begin on April 1. Some cormorants and few gulls were observed roosting on the outfall pipe. A few gulls were also noted in the forebay outside the zone. One loon was observed in the forebay.

No hazing is occurring currently. However, the bird distress calls, laser and LRAD are being prepared for deployment.

Invasive Species: The mussel station examinations revealed no issues on March 24.

Siberian Prawn: With no sampling occurring, no prawns were observed.

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

Research: PNNL tested their equipment along the forebay with a remote-controlled boat on March 25. Preparing equipment and setting up for tagging at the juvenile facility completed this week. PNNL will be doing a juvenile lamprey passage study and a smolt passage study, which relates to the new configuration of the spillway.

Another contractor continues preparations for a survival study in bays 20 and 21, which resulted in the TSW closures mentioned above for equipment install. The contractor received 1,500 smolts on March 27, but all fish died overnight. They then received another batch of fish on March 28, and worked out their fish holding issues. Also, that day, a preliminary release occurred, which helped them work out some other minor issues.

Project: Ice Harbor
Biologist: Ken Fone
Biological Science Technician: Ben McArthur
Dates: March 22 – March 28, 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	3/25/24	0730	3/25/24	1047	STS installation
5	3/25/24	1124	3/25/24	1507	STS installation
4	3/26/24	0718	3/26/24	1030	STS installation
2	3/26/24	1108	3/25/24	1450	STS installation
3	3/27/24	0946	3/27/24	1212	STS installation and exciter maintenance

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on March 25, 27, and 28.

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	7.8’
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: South fish entrance weir depth was observed to be below criteria on March 27. After the powerhouse operator was informed, the operator lowered the weir to bring the depth into criteria.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
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 8.3 square yards
x			Gatewell drawdown measured this week?	Baseline readings taken
		x	Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-10% coverage
	x		Any oil seen in gatewells?	

Comments: Higher levels of debris were observed in several gatewells before STSs were installed. The debris appeared to be pushed down by the STSs as they were being installed and most of the debris did not return to the surface.

Submersible Traveling Screens (STSs) / Vertical Barrier Screens (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 installed from March 25-27.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
x			Orifices operating satisfactory?	20-21
	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. Parts were ordered to fix the original actuator. The weirs are being operated at the actuator to adjust the water level as needed until the problem can be fixed.

One of the two bird abatement hydrocannon nozzles became clogged up during the reporting week and is no longer shooting out water. Repairs cannot be undertaken while spill is occurring, because the turbulent water makes boat access to the hydrocannon unsafe to perform maintenance.

Juvenile Fish Facility: The fish facility was watered up on March 21 and is operating in bypass mode.

Fish Sampling: Sampling will begin on April 1.

Removable Spillway Weir (RSW): Spill is occurring through the RSW 24 hours a day to provide downstream passage for adult steelhead that may have strayed into the Snake River.

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
53.7	41.2	9.5	9.1	48	46	5.9	4.7

*Unit 1 scroll case temperature.

Other

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

Avian Activity: There were relatively few piscivorous birds seen around the project. Bird observation counts will begin on April 1.

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 will be humanely euthanized by the fish sampling contractor, frozen and properly disposed of in a landfill.

Fish Rescue/Salvage: None

Research: No on-site research is occurring.

Project: Lower Monumental
Biologists: Denise Griffith and Raymond Addis
Dates: March 22 - 28, 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
3	03/25	0500	03/25	1600	STS 3A not operating

Comments: None

Adult Fish Passage Facility

Lower Monumental fish facility staff inspected the adult fishways on March 22, 23 and 27.

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		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 6.9, 7.1 and 7.5 feet respectively. South Powerhouse Entrance SPE-2 weir was at sill during all inspections with readings 6.9, 7.1

and 7.5 feet respectively. South Shore Entrance SSE-1 weir was at sill on the March 22 and 23 inspections with readings of 7.8 feet both inspections.

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 pump 3 had a cold oil issue causing cavitation of that oil on March 28. Powerhouse mechanical crew made adjustment to correct the problem without taking the pump out of service.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	714 yrd²
	X		Gatewell drawdown measured this week?	
		X	Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	1 – 15%
		X	Any oil seen in gatewells?	

Comments: None.

STSs/VBSs:

Yes	No	NA	Item
X	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. STS 3A was found not to be operational on March 22 during powerhouse operators amperage checks. The STS was inspected by camera on March 22 to visually confirm the STS was not operating properly. Unit 3 was forced OOS until the repairs could be made. The STS was RTS at 1600 hours on March 25.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
		X	Orifices operating satisfactory?	0
X			Dewaterer and cleaning systems operating satisfactory?	

Comments:

Collection Facility: In primary bypass until a condition sample occurred from 0700 March 25 to 0700 March 26. A total of 36 salmonids were sampled and bypassed back to the river. The PIT tank butterfly valve was not operating correctly at 0600 hours on March 25. It was repaired by powerhouse electricians that same day around 1500 hours. A new secondary bypass flume screen was fabricated and installed on March 27.

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

Spillway Weir: The 24 hour/7 days per week Spring Surface continues. Spillgates 5 and 7 were out of service this reporting period with repairs underway, estimated return to service is March 29 for both.

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
52.8	40.2	8.1	7.7	45.0	44.8	5.6	5.5

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on March 27. Living fish included 1 Siberian prawn. Mortalities included 50 juvenile lamprey.

Avian Activity: Tailrace counts of foraging piscivorous birds at Lower Monumental Dam are scheduled to begin on April 1. Bird hazing by USDA personnel is schedule to begin on April 7 and end June 30 this season. Outfall bird cannon returned to service at 1100 on March 18.

Invasive Species: Zebra or quagga mussel traps were examined on March 25. 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*
March 26	8	32
Totals	8	32

*Collection refers to extrapolated values based on sampling percent

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

Research: No research is currently being performed at Lower Monumental Dam. This season, PNNL plan to obtain lamprey from Lower Monumental Dam to study behavior and survival of Pacific lamprey. In addition, the Nez Perce Tribe will be collecting steelhead kelts this season for reconditioning consisting of the collection of post-spawned steelhead and the administration of prophylactics and feeding for the purpose of improving survival relative to the untreated conditions. Employees finalized tank set up on March 27 and collection for kelts will begin on the next collection date once permit is received.

Project: Little Goose Dam
Biologist: Deb Snyder, Cole Reeves
Dates: March 22 – March 28, 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 March 24, 26, and 28.

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	X		North Shore Entrance (NSE-1) Weir Depth	≥ 6.0’ or on sill	3/26 – 5.8
X	X		North Shore Entrance (NSE-2) Weir Depth	≥ 6.0’ or on sill	3/26 – 5.7
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. Electricians resolved the NPE-1 limit switch issue on March 14.

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 100 ft² - Low 40 ft²
X			Gatewell drawdown measured this week?	U1 & U2 3/24 & 3/28
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	3/26 – 1%: 1C,3B,4A,6C; 3/28 – 1%: 3B (1 plastic bag)
	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 28 at 100 ft². The overall total forebay debris high occurred March 28. The season initial draw down differential measurements scheduled for the week of March 25 were completed for units 1 and 2.

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. Drawdowns for units 1 & 2 were completed on March 24 and March 28.

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: 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 will commence on March 25 with the first sample being conducted on March 26. Everyday collection is scheduled to begin April 23 coinciding with every other day barge transportation.

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. As of 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 are scheduled to begin on April 3. 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
51.0	41.5	7.1	6.9	48.3	46.6	5.9	5.1

*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.

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.

Gas Bubble Trauma (GBT): Oregon Department of Fish and Wildlife will perform GBT monitoring services with the scheduled start date to be determined.

Fish Rescue/Salvage: Fish rescue activities due to every-other-day collection and return to primary bypass operations took place March 26 and March 28. Results for March 26 were reported and submitted to District, while reporting and submission for the March 28 rescue activities are currently pending.

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 David Miller, Steve Lee
Dates: March 22-March 28, 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: No reported outages.

Adult Fish Passage Facility

Lower Granite Biologists and Anchor QEA staff inspected the adult fishway on March 23, 26 and 27.

Fish Ladder:

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

Comments:

Fish Ladder Cooling Pump annual maintenance PM has been completed.

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	X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 8.0’ or on sill	7.9’
X		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 8.0’ or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
	X		North Shore Entrance (NSE-1) Weir Depth	≥ 7.0’ or on sill	6.8’
	X		North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	6.8’
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	0.8’
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. NPEs were on sill March 23.

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 is operating in Fast mode and AWS pump 3 is On. AWS pump 2 remains out of service for maintenance.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	121 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 bypass system was watered-up in primary bypass on March 13 and was switched to secondary bypass operation March 25 at 0700 for condition sampling.

Collection Facility: Condition sampling began at 0700 March 25 with the first sample worked up March 26. Research collection for in-river survival tagging is scheduled for the weeks of April 1 and April 8, collection for the transport study will begin the week of April 15, and 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.

PIT interrogation OBS: RSW detections included 353 juvenile Chinook salmon, 15 juvenile steelhead, and 110 adult steelhead detected at the RSW. Juvenile bypass system detection included 78 juvenile Chinook salmon, 3 juvenile steelhead, and 5 adult steelhead through March 28 (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
49.4	42.9	8.9	7.9	47.0	45.5	5.0	4.0

*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. There were 12 Siberian prawns collected in the sample.

Avian Activity: Biologist daily piscivorous bird counts at Lower Granite Dam begin April 1. Some gulls and cormorants are present in the tailrace.

Gas Bubble Trauma (GBT) Monitoring: N/A

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 from 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. This week there were 22 juvenile lamprey collected from LWG 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 18 juvenile and 12 larval lamprey this season.