Out of Criteria – NWW Weekly Report #4 – March 29-April 4, 2024

1. McNary

At the Oregon shore exit, multiple exit alarms came in and were reset on March 29. Also, the biologist on duty noted the head over weir at 0.9 feet on March 30. The operators adjusted the exit set points soon after.

Yes	No	Sill	Location	Criteria	Measurements
	X*		NFEW2 Weir Depth	≥ 8.0’	7.4’ to 8.4’
	X*		NFEW3 Weir Depth	≥ 8.0’	7.3’ to 8.1’

*Comments: NFEW2 and NFEW3 were out of criteria on March 29 and 31. A set point adjustment was requested on March 31, returning the weirs to criteria.

Operating Satisfactory	Standby	Out of Service	Blade angle	Auxiliary Water Supply System (AWS)
X*			26° to 28°	Oregon Ladder Fish Pump 1
X*			26° to 27°	Oregon Ladder Fish Pump 2
		X		Oregon Ladder Fish Pump 3, return to service April 12

*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. Fish pump 1 was briefly out of service for a bus switch on March 29 at 1450 hours. Also, fish pump 2 was out of service for an exciter check from 1530 to 1605 hours.

2. Ice Harbor

Yes	No	Sill	Location	Criteria	Measurements
	x		South Fish Entrance (SFE-1) Weir Depth	≥ 8.0’ or on sill	

On April 2, the south fish ladder channel velocity meter was noticed to not be updating on the velocity reading. An electrician rebooted the meter on April 4 to fix the problem.

The north fish entrance channel/tailwater differential was logged as being below criteria on April 3. The low head differential was due to extremely turbulent waters from spring spill making it difficult to obtain accurate tailwater elevation readings.

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.

3. Lower Monumental

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	X	South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	

North Shore Entrance NSE-1 weir was out of criteria on the March 29 inspection with a reading of 7.9feet. The powerhouse operator adjusted weir to bring into criteria. North Shore Entrance NSE-2 weir was out of criteria during the March 29 and 31 inspections with a reading of 7.6 feet for both. The digital weir elevation readings did not match the readings at the weir control box. A trouble report was generated, and the powerhouse electricians calibrated the system to correct the issue. South Shore Entrance SSE-1 weir was out of criteria during the Mach 31 inspection with a reading of 6.6 feet. The powerhouse operator was informed and placed the weir at sill to correct.

The dewaterer incline screen brush was stuck in the down position and triggered an alarm at 0130 on March 29. The system was reset, the brush finished its cycle and there were no other issues with it during the remainder of the reporting period.

4. Little Goose

Yes	No	Sill	Location	Criteria	Measurements
X	X		South Shore Entrance (SSE-1) Weir Depth	$\geq$ 8.0’	4/1:7.7
X	X		South Shore Entrance (SSE-2) Weir Depth	$\geq$ 8.0’	4/1:7.9
X	X		Collection Channel Surface Velocity	1.5 – 4.0 fps	4/3: NPE:4.7

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		South Shore Entrance (SSE-1) Weir Depth	$\geq$ 8.0’	7.7’,6.5’,6.4’,7.2’
	X		South Shore Entrance (SSE-2) Weir Depth	$\geq$ 8.0’	6.9’6.4’6.3’7.3’
	X		South Shore Channel/Tailwater Differential	1.0’ – 2.0’	0.9’
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	0.8’
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	0.9’, 0.7’

AWS Pump 1 tripped out of service while in fast mode March 30 from 1435-1530 hours and was returned to service in slow mode. AWS pump 2 remains out of service for maintenance.

U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#05-2024

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: March 29-April 4, 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
2	4/2	0632	4/2	1206	ESBS install & Semi-annual maintenance
3	4/2	1027	4/2	1553	ESBS install & Semi-annual maintenance
4	4/3	0635	4/3	1136	ESBS install & Semi-annual maintenance
5	4/3	1205	4/3	1601	ESBS install & Semi-annual maintenance
6	4/4	0632	4/4	1203	ESBS install & Semi-annual maintenance
7	4/4	1216	4/4	1551	ESBS install & Semi-annual maintenance

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

Adult Fish Passage Facilities

McNary fisheries staff performed measured inspections of the adult fishways on March 29, 31 and April 3. Adult fish counting began on April 1. Leads were lowered on March 29.

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’ to 1.1’
X		Washington Count Station Differential	0.0’ to 0.5’	0.0’ to 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, multiple exit alarms came in and were reset on March 29. Also, the biologist on duty noted the head over weir at 0.9 feet on March 30. The operators adjusted the exit set points soon after.

There are no other problems to report.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0' – 2.0'	1.4' to 1.7'
	X*		NFEW2 Weir Depth	≥ 8.0'	7.4' to 8.4'
	X*		NFEW3 Weir Depth	≥ 8.0'	7.3' to 8.1'
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.4' to 1.6'
X			SFEW1 Weir Depth	≥ 8.0'	8.2' to 8.3'
X			SFEW2 Weir Depth	≥ 8.0'	8.1' to 8.3'
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	2.2 fps
X			Washington Entrance Head Differential	1.0' – 2.0'	1.3' to 1.5'
X			WFE2 Weir Depth	≥ 8.0'	9.8' to 9.9'
X			WFE3 Weir Depth	≥ 8.0'	8.4' to 8.7'

*Comments: NFEW2 and NFEW3 were out of criteria on March 29 and 31. A set point adjustment was requested on March 31, returning the weirs to criteria.

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 28°	Oregon Ladder Fish Pump 1
X*			26° to 27°	Oregon Ladder Fish Pump 2
		X		Oregon Ladder Fish Pump 3, return to service April 12
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. Fish pump 1 was briefly out of service for a bus switch on March 29 at 1450 hours. Also, fish pump 2 was out of service for an exciter check from 1530 to 1605 hours.

Juvenile Fish Passage Facility

The juvenile system remained in primary bypass until the first day of secondary bypass (sample collection) began on April 2 at 0700 hours. The system will alternate between primary and secondary bypass every 24 hours.

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?	Five times
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. 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.

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

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

*Comments: ESBS installation occurred in units 2 through 7 on April 2 to 4. Installation will be completed next week. Camera inspection will begin in early May. Examination of ESBS screen brush programming continued.

Daily VBS monitoring began on April 3. 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 are being repaired as needed.

Two brief power outages for bus switches occurred March 29 at 0646 and 0945 hours. No issues occurred except the brush cycle sequence took its usual time in resetting itself after each outage.

Bypass Facility:

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

*Comments: The sample system returned to service with sample collection on April 2 at 0700 hours. 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.

A gasket in the B flume was repaired, a new lid was installed at a B line access hatch, and the sample tanks supply lines were flushed on March 31. The sample gates and the weir boards in the recovery raceway were adjusted on April 1. A new recirculation pump was installed in the wet lab and area light was repaired on April 3.

There were four juvenile lamprey and 1,580 smolts sampled this week. The number and variety of smolts observed were more than in recent years.

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 and will be opened 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
155.3	120.2	13.5	9.9	47.0	46.0	6.0	6.0

Comments: The spill flow above is due to the TSW requirement and releases from Bay 21 for the survival study, which are recorded in Table 3 below. The above data is from the control room.

The spillway hoists and gates are set up for the upcoming season, which begins April 10. 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.

Table 3. Bay 21 Openings for Survival Study Releases in an Upstream Spilt Leaf Bay.

Day	Time
March 30	1500 to 1715
March 31	1259 to 1710
April 1	0809 to 1725
April 2	0814 to 1635
April 4	0756 to 1332

Other

Inline Cooling Water Strainers: The cooling water strainer inspections revealed six juvenile lamprey mortalities on April 2. Nothing else was observed. The next inspection will occur on May 7.

Avian Activity: Bird counting resumed on April 1, with the counts reflected in Table 4 below.

Table 4. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican	Grebe
April 1	Spill	0	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	2	1	0	0	0
	Forebay	0	0	0	0	0
April 2	Spill	0	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	0
April 3	Spill	5	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	1	20	0	0	0
	Forebay	0	0	0	0	0
April 4	Spill	8	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	0	2	0	0	0
	Forebay	0	0	0	0	0

In the spill zone, ga few gulls began feeding in the TSW flow. Three pelicans were observed when a count was not occurring.

No birds were observed in the powerhouse zone.

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

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

No hazing is occurring currently. The two survival study boats in the spillway and near the outfall along with bay 21 being opened at times may have affected bird activity. The bird distress calls, laser and LRAD will be deployed next week.

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**:** The powerhouse dewatering sump was almost totally emptied on April 1. One three-foot sturgeon, one adult carp, and one 20-inch walleye were rescued from the sump and returned to the river.

Research: PNNL tagged juvenile lamprey off site and did dead fish releases on site this week. Setting up for tagging at the juvenile facility continued. PNNL will first be doing a juvenile lamprey passage study, followed by a smolt passage study, which relates to the new configuration of the spillway.

After scheduling bay 21 use, the other contractor began the survival study in bays 20 and 21 on March 29. The last fish release was on April 4. When the fish were being held at the facility, the fisheries staff monitored the holding tanks. One tank was noted overflowing on April 1. After this, the contractor changed the drain hoses on each holding tank.

For a CRITFC study, there was a tissue sample removed from one juvenile lamprey collected at the facility this week. The fish was returned to the river unharmed.

Gas bubble trauma examinations begin on April 10.

Project: Ice Harbor
Biologist: Ken Fone
Biological Science Technician: Ben McArthur
Dates: March 29 – April 4, 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

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on April 1, 2, and 3.

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’	0.6’

Comments: On April 2, the south fish ladder channel velocity meter was noticed to not be updating on the velocity reading. An electrician rebooted the meter on April 4 to fix the problem.

The north fish entrance channel/tailwater differential was logged as being below criteria on April 3. The low head differential was due to extremely turbulent waters from spring spill making it difficult to obtain accurate tailwater elevation readings.

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 26 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-15% 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: None

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. 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.

Juvenile Fish Facility: The fish facility is in primary bypass mode except during fish sampling.

Fish Sampling: Sampling began on April 1. 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 fish in the April 4 sample was attributed to a predation attempt by another fish.

Fish condition sampling results at Ice Harbor Dam:

Date: April 1

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	92	1	0	0
Chinook yearling unclipped	0	---	---	---
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	0	---	---	---
Steelhead clipped	0	---	---	---
Steelhead unclipped	0	---	---	---
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	92	1	0	0

Date: April 4

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	95	1	0	1
Chinook yearling unclipped	2	0	0	0
Chinook subyearling clipped	---	---	---	---
Chinook subyearling unclipped	---	---	---	---
Steelhead clipped	---	---	---	---
Steelhead unclipped	1	0	0	0
Sockeye clipped	---	---	---	---
Sockeye unclipped	---	---	---	---
Coho clipped	---	---	---	---
Coho unclipped	---	---	---	---
Total	98	1	0	1

Removable Spillway Weir (RSW): RSW spill occurred through April 2 to provide downstream passage for adult steelhead that may have strayed into the Snake River. 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
54.2	40.7	38.3	8.4	49	48	6.5	5.0

*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 generally few piscivorous birds seen around the project (see table below). There were 15 mergansers (some foraging) observed in the tailrace on April 2. Land-based hazing of piscivorous birds will begin on April 7.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
April 1	0	0	0	5	0
April 2	0	1	0	0	0
April 3	0	0	0	0	0
April 4	0	4	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.

Fish Rescue/Salvage: None

Research: No on-site research is occurring.

Project: Lower Monumental
Biologists: Denise Griffith and Raymond Addis
Dates: March 29 – April 4, 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
1	04/4	0800	04/4	1130	STS Inspections
2	04/3	1240	04/3	1520	STS Inspections
3	04/2	1305	04/2	1450	STS Inspections
4	04/2	0730	04/2	1030	STS Inspections
5	04/2	1040	04/2	1255	STS Inspections
6	04/3	0750	04/3	1200	STS Inspections

Comments: None

Adult Fish Passage Facility

Lower Monumental fish facility and EAS staff inspected the adult fishways on March 29, 31, April 2 and April 3.

Fish Ladder Exit:

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

Comments: None

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
	X		North Shore Entrance (NSE-1) Weir Depth	≥ 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: North Shore Entrance NSE-1 weir was out of criteria on the March 29 inspection with a reading of 7.9feet. The powerhouse operator adjusted weir to bring into criteria. North Shore Entrance NSE-2 weir was out of criteria during the March 29 and 31 inspections with a reading of 7.6 feet for both. The digital weir elevation readings did not match the readings at the weir control box. A trouble report was generated, and the powerhouse electricians calibrated the system to correct the issue. South Powerhouse Entrance SPE-1 weir was at sill during all inspections with readings 7.2, 6.0, 6.8 and 5.5 feet respectively. South Powerhouse Entrance SPE-2 weir was at sill during all inspections with readings 7.2, 6.0, 6.8 and 5.5 feet respectively. South Shore Entrance SSE-1 weir was out of criteria during the Mach 31 inspection with a reading of 6.6 feet. The powerhouse operator was informed and placed the weir at sill to correct. South Shore Entrance SSE-1 weir was at sill on the April 2 and 3 inspections with readings of 7.8 and 5.8 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)	550 yrd²
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	1 – 35%
		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. STS inspection took place between April 2 to 4. All were found to be in good condition.

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 dewaterer incline screen brush was stuck in the down position and triggered an alarm at 0130 on March 29. The system was reset, the brush finished its cycle and there were no other issues with it during the remainder of the reporting period.

Collection Facility: The system was in primary bypass until condition samples occurred. Condition samples took place from March 28 - 29, March 31 - April 1 and April 3 - 4. A total of 15,884 salmonids were sampled with 15,871 being bypassed back to the river. Raceway 3's supply valve has been sticking closed. Powerhouse electricians adjusted the electronic set points to resolve the issue on April 2. Counting boxes were calibrated on March 29.

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. Spillgates 5 and 7 returned to service at 1420 on March 29.

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
52.4	39.5	37.7	7.3	48.0	46.0	5.9	5.0

*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
4/1/2024	800	0	0	0	0	0
4/2/2024	810	2	0	0	0	0
4/3/2024	802	2	0	0	0	0
4/4/2024	1400	7	0	0	0	2

Bird hazing by USDA personnel is schedule to begin on April 7 and end June 30 this season.

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

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.

Date	Sample (euthanized)	Collection*
March 29	0	0
April 1	7	70
April 4	0	0
Totals	7	70

*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.

The Nez Perce steelhead kelt study and rehabilitation collection tank setup was completed on March 27 with collection of kelts beginning on March 29. A total of 1 unclipped and 1 clipped steelhead kelts were placed in the collection tank.

Project: Little Goose Dam
Biologist: Deb Snyder, Cole Reeves
Dates: March 29 – April 4, 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 30, twice on April 1, and April 3.

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’	4/1:7.7
X	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	4/1:7.9
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	4/3: NPE:4.7

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 250 ft² - Low 70 ft²
	X		Gatewell drawdown measured this week?	
		X	Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	3/30 – 1%: 1B,1C; 4/1 – 1%: 4A,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. Drawdowns were completed March 31 and April 4.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	18, 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 516 fish were collected, 511 were bypassed, and there were 5 sample or facility mortalities. The descaling and mortality rates were 0.9% and 0.01%, respectively. The collection and transport facility operated within criteria and 2 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
51.8	38.4	36.3	7.0	51.6	47.6	5.9	5.0

*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
3/29	0830	3	0	0	0
3/30	0815	2	1	0	0
3/31					
4/1	0800	3	0	0	0
4/2	0800	1	1	0	0
4/3	1330	1	0	0	0
4/4	0800	2	0	0	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.

Gas Bubble Trauma (GBT): Oregon Department of Fish and Wildlife began GBT monitoring services on April 4, 2024. Of the 59 fish examined, one 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 March 30, April 1, and April 3. 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: March 29-April 04, 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**
2	03/30	1427	04/01	0720	Incomplete startup sequence

Comments: Peak efficiency hard constraint began 03 April.

Adult Fish Passage Facility

Lower Granite Biologists and EAS staff inspected the adult fishway on March 29, 30 and April 01, 03.

Fish Ladder:

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

Comments:

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
	X		South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	7.7’,6.5’,6.4’,7.2’
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	6.9’6.4’6.3’7.3’
	X		South Shore Channel/Tailwater Differential	1.0’ – 2.0’	0.9’
X		X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 8.0’ or on sill	
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’	0.8’
X			North Shore Entrance (NSE-1) Weir Depth	≥ 7.0’ or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	0.9’, 0.7’
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 29, 30 and April 01, 03. 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 tripped out of service while in fast mode March 30 from 1435-1530 hours and was returned to service in slow mode. 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)	94 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 8 and April 15. 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. Spring spill operation began April 3.

PIT interrogation OBS: RSW detections included 1519 juvenile Chinook salmon, 1423 juvenile steelhead, and 137 adult steelhead detected at the RSW. Juvenile bypass system detections included 598 juvenile Chinook salmon, 531 juvenile steelhead, and 8 adult steelhead through April 4 (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
51.8	38.6	39.4	6.4	47.4	45.7	4.7	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 4 Siberian prawns collected in the sample.

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

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
Apr 01	0800	9	0	0	1
Apr 02	1236	1	0	0	1
Apr 03	1135	22	3	0	0
Apr 04	0905	4	3	0	0

Gas Bubble Trauma (GBT) Monitoring: GBT sampling occurred on April 4. No signs of GBT were reported.

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. This week there were 32 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.