Out of Criteria – NWW Weekly Report #8 – April 19-25, 2024.

1. McNary

Yes	No	Sill	Location	Criteria	Measurements
	X		NFEW3 Weir Depth	≥ 8.0’	7.9’ to 8.1’
	X		WFE3 Weir Depth	≥ 8.0’	7.9’ to 8.3’

Operating Satisfactory	Standby	Out of Service	Blade angle	Auxiliary Water Supply System (AWS)
X		X	25° to 27°/OOS	Oregon Ladder Fish Pump 1, return to service June 25
X		X	23° to 24°	Oregon Ladder Fish Pump 2
X		X	OOS/RTS	Oregon Ladder Fish Pump 3, return to service April 24

Comments: Fish pump 1 was removed from service for a scheduled 5-year overhaul on April 24. After exciter equipment was removed from pump 1 and install in pump 3, pump 3 returned to service on April 24. Fish pump 2 was removed from service for exciter work on April 25. During the two above outages, NFEW3 was raised and the blade angle on the operational pump was increased. The return to service date is subject to change.

2. Ice Harbor

Yes	No	Sill	Location	Criteria	Measurements
	x		North Fish Entrance (NFE-1) Weir Depth	≥ 8.0’ or on sill	7.8’, 6.8’
	x		North Fish Entrance Channel/Tailwater Differential	1.0’ – 2.0’	0.8’

These readings may have resulted from the difficulty in obtaining an accurate tailwater reading at the north shore due to turbulent spill conditions. Reduced water from the auxiliary water supply pumps caused by debris on the intake trash racks could also be contributing to these below-criteria 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. 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.

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		North Shore Entrance (NSE-1) Weir Depth	≥ 6.0’ or on sill	4/19-4.4; 4/24-5.4
X	X		North Shore Entrance (NSE-2) Weir Depth	≥ 6.0’ or on sill	4/19-4.4; 4/24-5.4
X	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	4/19-2.1

5. Lower Granite Dam

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

Adult ladder auxiliary water cooling pumps were operated for testing/flushing on 4/23/2024 LWG mechanical crew is prioritizing returning cooling pumps to the original orientation with a target completion date of 1 June.

Yes	No	Sill	Location	Criteria	Comments
	X	X	North Powerhouse Entrance (NPE-1) Weir Depth	$\geq$ 8.0' or on sill	5.2', 5.8', 5.5', 5.5'
	X	X	North Powerhouse Entrance (NPE-2) Weir Depth	$\geq$ 8.0' or on sill	5.2', 5.8', 5.5', 5.5'
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0'–2.0'	0.5', 0.5', 0.1', 0.4'
	X	X	North Shore Entrance (NSE-1) Weir Depth	$\geq$ 7.0' or on sill	6.0' 6.8', 6.5'
	X	X	North Shore Entrance (NSE-2) Weir Depth	$\geq$ 7.0' or on sill	6.0' 6.8', 6.4'
	X		Collection Channel Surface Velocity	1.5 – 4.0 fps	1.4, 1.2 fps

Operating Satisfactorily	Standby	Out of Service	Auxiliary Water Supply (AWS)
No		Yes	AWS Fish Pump 2

AWS Pump 1 remains in slow mode due to the inability to operate in fast mode while at MOP. 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

U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#08-2024

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: April 19-25, 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	5/12/24	NA	Control system upgrades
11 & 12	4/22	0553	4/25	1550	Support BPA efforts
14	4/22	1206	4/22	1331	Trash rack cleaning
13	4/22	1341	4/22	1402	Trash rack cleaning
8	4/23	0833	4/23	1025	Trash rack cleaning
1	4/23	1026	4/23	1242	Trash rack cleaning

*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 19, 21 and 24. The inspection on April 24 occurred before the fish pump outage discussed below. Adult fish counting continued. The Oregon shore exit temperature probe communication issue was 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 1.2’
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’	0.2’

Comments: Debris loads were minimal near both exits.

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'	1.2' to 1.3'
X			NFEW2 Weir Depth	≥ 8.0'	8.3'
	X		NFEW3 Weir Depth	≥ 8.0'	7.9' to 8.1'
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.1' to 1.5'
X			SFEW1 Weir Depth	≥ 8.0'	8.0' to 8.3'
X			SFEW2 Weir Depth	≥ 8.0'	8.0' to 8.3'
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	2.1 fps
X			Washington Entrance Head Differential	1.0' – 2.0'	1.0' to 1.6'
X			WFE2 Weir Depth	≥ 8.0'	9.2' to 9.7'
	X		WFE3 Weir Depth	≥ 8.0'	7.9' to 8.3'

Comments: NFEW3 and WFE3 were out of criteria on April 21 and 19, respectively. This could possibly be calibration issues 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		X	25° to 27°/OOS	Oregon Ladder Fish Pump 1, return to service June 25
X		X	23° to 24°	Oregon Ladder Fish Pump 2
X		X	OOS/RTS	Oregon Ladder Fish Pump 3, return to service April 24
X				OR North Powerhouse Pool from juvenile fishway

Comments: Fish pump 1 was removed from service for a scheduled 5-year overhaul on April 24 at 1137 hours. After exciter equipment was removed from pump 1 and install in pump 3, pump 3 returned to service on April 24 at 1426 hours. Fish pump 2 was removed from service for exciter work on April 25 from 0713 to 1410 hours. During the two above outages, NFEW3 was raised and the blade angle on the operational pump was increased. The return to service date is subject to change.

Juvenile Fish Passage Facility

The juvenile system alternated between primary and secondary bypass every 24 hours at 0700 hours. There were no interrupts in this schedule.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Minimal to light 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 was very light to light, with most of the debris going over the spillway by April 21. New debris loads were minimal.

The trash rack cleaning in units 1, 8, and 11 through 14 removed 22 yards of woody material and tumbleweeds on April 22 and 23. No fish were observed in the debris.

There are no problems to report. A few pieces of larger woody material were removed from the gatewell slots on April 21 and 25.

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. Camera inspection will begin on May 7. Examination of ESBS screen brush programming continued.

Daily VBS monitoring continued, and no high differentials were recorded. The screen in 3A slot was cleaned on April 24. No fish were observed.

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. Orifices were adjusted for trash rack and VBS cleaning as required.

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 680 juvenile lamprey and 50,032 smolts bypassed this week. The primary species/race was yearling Chinook.

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
173.9	148.0	114.1	90.6	51.9	50.1	6.0	5.0

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.

The issue with lowering the gate in bay 21 was resolved by an electrician on April 22 at 0921 hours. The gate was adjusted at 1500 hours. In order to remove the downstream wall dogs, bay 22 was closed on April 23, from approximately 0740 to 1530 hours (see MOC 24MCN04). Spill was made up by opening bay 11 and partially so when bay 13 was opened. Bays 6 and 9 did not require adjustment with cranes this week. If adjustments are required in the future, they will occur on Monday and Thursday.

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 19	Spill	51	0	0	2	0
	Powerhouse	0	0	0	0	0
	Outfall	0	7	0	0	0
	Forebay	0	0	0	0	0
April 20	Spill	38	2	0	0	0
	Powerhouse	17	0	0	0	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	0
April 21	Spill	110	0	0	0	0
	Powerhouse	65	0	0	0	0
	Outfall	3	5	0	0	0
	Forebay	0	0	0	0	4
April 22	Spill	47	0	0	1	0
	Powerhouse	28	0	0	0	0
	Outfall	9	3	0	0	0
	Forebay	0	0	0	0	0
April 23	Spill	62	2	0	0	0
	Powerhouse	59	0	0	0	0
	Outfall	16	14	0	0	0
	Forebay	0	0	0	0	1
April 24	Spill	98	1	0	2	0
	Powerhouse	102	0	0	0	0
	Outfall	59	10	0	0	0
	Forebay	0	0	0	0	0
April 25	Spill	38	0	0	0	0
	Powerhouse	3	0	0	0	0
	Outfall	30	16	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, gulls and cormorants in fluctuating were noted roosting on the outfall pipe along with a few of these birds feeding. The osprey pair has nested on the outfall pipe where the walkway ends, which has resulted the fluctuating bird counts observed.

For the forebay zone, a few grebes along an occasional loon were noted roosting and feeding. More grebes maybe outside the zone along with a few loons, gulls, cormorants, pelicans, and osprey. Pelican numbers in the area is slowly increasing.

The LRAD was removed from the outfall pipe due to its proximity to the osprey nest on April 21. Due to the nature of the device, it will not be deployed elsewhere. It had very little hazing success.

Since the outfall laser was out of service, it too was removed from the outfall due to its proximity to the nest on April 21. The laser was moved to the navigation lock wing wall opposite the outfall and programmed on April 23. However, the program does not appear to be functioning properly and will need to be examined further.

The second bird distress on the navigation lock wing wall call returned to service when a new battery was installed on April 19. Both calls have been functioning well.
USDA Wildlife Services began daily 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.

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 269 smolts from the samples this week. There has not been enough juvenile lamprey for tagging as this time.

For a CRITFC study, there were tissue samples removed from 16 juvenile lamprey collected at the facility this week. The yearly total is 29 fish, which were returned to the river unharmed.

Gas bubble trauma examinations occur twice a week. Fish were collected on April 22 and 24, with the data being reported the next day. For the report week, four 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 19-25, 2024

Turbine Operation

Yes	No	Turbine Unit Status
	x	All 6 turbine units available for service (see table & comments below for details).
x		All available turbine units are operated in accordance with Appendix C of the Fish Passage Plan

Ice Harbor Unit Outages (OOS) and Return to Service (RTS)

	OOS		RTS		
Unit	Date	Time	Date	Time	Outage Description
1	6/27/23	0708	---	---	Turbine runner replacement and stator rewind
6	4/8/24	1315	---	---	Foreign material found in TW6 transformer oil recirculating line

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on April 23, 24, and 25.

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	7.8’, 6.8’
	x		North Fish Entrance Channel/Tailwater Differential	1.0’ – 2.0’	0.8’

Comments: The north fish entrance weir depth was below criteria on April 23 and 24, and the north entrance channel/tailwater differential was below criteria on April 25. These readings may have resulted from the difficulty in obtaining an accurate tailwater reading at the north shore due to turbulent spill conditions. Reduced water from the auxiliary water supply pumps caused by debris on the intake trash racks could also be contributing to these below-criteria 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 4 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-25% coverage
x			Any oil seen in gatewells?	5B gatewell and headgate slots

Comments: Oil sheens in gatewell 5B and headgate slot 5B were observed on April 24. The sheens were from an estimated one teaspoon or less of hydraulic oil that leaked from the head gate cylinder. An oil skimmer and absorbent pads were deployed into the slots and the appropriate agencies were notified of the oil spill. The source of the leak has been secured.

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. 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.

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. One fish died in the April 25 sample when it was accidentally pinched in the anesthetizing chamber gate during a period of poor fish visibility due to turbid water. The other dead fish was found in the sample tank, with no obvious external maladies. The cause of the descaling observed on one fish in each sample was attributed to predation attempts by a bird and a fish. Five fish in each sample exhibited an eye injury, eye hemorrhage, or popeye, mostly on the left eye.

Fish condition sampling results at Ice Harbor Dam:

Date: April 22

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	14	2	0	0
Chinook yearling unclipped	5	2	0	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	0	---	---	---
Steelhead clipped	113	3	0	1
Steelhead unclipped	15	1	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	147	8	0	1

Date: April 25

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	7	0	0	0
Chinook yearling unclipped	3	0	0	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	1*	---	0	---
Steelhead clipped	111	1	2	1
Steelhead unclipped	15	1	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	137	2	2	1

*Fry – not examined

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
82.1	66.8	68.3	53.2	55	52	4.8	3.6

*Unit 1 scroll case temperature.

Other

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

Avian Activity: There were variable numbers of piscivorous birds seen around the project (see table below). The pelicans observed on April 19 and 20 were counted before bird hazing began for the day. The pelicans counted on April 19 were scattered across the tailrace and not concentrated in any particular spot. Starting April 21, daily land-based hazing of piscivorous birds increased to 16 hours per day and boat-based hazing is occurring 3 days per week for up to 8 hours per day.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
April 19	2	6	0	0	101
April 20	5	9	0	0	22
April 21	8	11	0	0	0
April 22	5	7	0	0	0
April 23	1	3	0	0	0
April 24	1	8	0	0	0
April 25	0	9	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 22	0	0
April 25	1	1
Totals	1	1

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

Fish Rescue/Salvage: None

Research: No on-site research is occurring.

Project: Lower Monumental
Biologists: Denise Griffith and Raymond Addis
Dates: April 19 - 25, 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 19, 20 and 21.

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 6.7, 6.5 and 6.6 feet respectively. South Powerhouse Entrance SPE-2 weir was at sill during all inspections with readings 6.7, 6.5

and 6.6 feet respectively. South Shore Entrance SSE-1 weir was at sill during all inspections with readings of 6.6, 5.9 and 6.6 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)	219 yrd²
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	1 – 40%
		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 19 – 20, April 21 – 22 and April 23 (0700 to 1300). A total of 11,141 salmonids were sampled with 11,134 being bypassed back to the river. Collection into the raceways for barge transport started at 1300 on April 23.

Transport Summary: Daily barge transport began on April 24. A total of 13,176 fish were collected of which 12,994 were transported and 173 were bypassed. The bypassed fish being Chinook fry.

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
76.8	65.7	64.1	52.9	52.9	51.0	4.9	4.1

*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
4/19/2024	1100	5	0	0	0	0
4/20/2024	1240	1	3	0	0	0
4/21/2024	1300	3	2	0	0	0
4/22/2024	1325	3	0	0	0	0
4/23/2024	1030	14	0	0	0	7
4/24/2024	800	18	3	0	0	26
4/25/2024	700	13	1	0	0	14

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*
4/19/2024	---	---
4/20/2024	0	0
4/21/2024	---	---
4/22/2024	0	0
4/23/2024	0	0
4/24/2024	0	0
4/25/2024	1	50
Total	1	50

*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 19. A total of 10 clipped yearling Chinook, 5 unclipped yearling Chinook and 74 clipped steelhead and 10 unclipped smolts were examined. No gas bubble trauma was detected.

The Nez Perce steelhead kelt study and rehabilitation collection continued, no steelhead kelts were placed in the collection tank for this reporting period.

Project: Little Goose Dam
Biologist: Deb Snyder, Cole Reeves
Dates: April 19 – April 25, 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 19, April 21, and April 24.

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	4/19-4.4; 4/24-5.4
X	X		North Shore Entrance (NSE-2) Weir Depth	≥ 6.0’ or on sill	4/19-4.4; 4/24-5.4
X	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	4/19-2.1
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. Current LGS performance spill operations create rapid tailrace elevation changes during each 24-hour period. The fish system control program is proving unreliable and

inadequate to balance the adult fishway in "automated" mode. Biologist personnel are manually adjusting and balancing the adult fishway with increasing frequency.

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 20 ft² - Low 9 ft²
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	4/19-5C:1% 4/23-1A:1%,1C:1%,4B:1%, 5B:1%,5C:5%,6A:1% 4/24-4B:1%,4C:1%,5A:5%,5B:5%, 5C:1%,6B:1%,6C:1% 4/25-4C:1%,5A:1%,5B:1%,5C:2% 6A:1%,6C1%
	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 23 and 24 at 20 ft². The overall total forebay debris high occurred April 23 and 24 at 20 ft². Drawdowns on Units 1, 2, and 3 were completed April 25.

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 294,977 fishes were collected, 167,062 were bypassed, and there were 74 sample or facility mortalities. The descaling and mortality rates were 2.6% and 0.03%, respectively. The collection and transport facility operated within criteria and no lamprey were removed from the sample or separator during this report period. Everyday collection began April 23 coinciding with starting barge transportation operations.

Transport Summary: Collection for fish transportation began 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
77.3	69.8	49.4	43.8	53.9	51.8	4.3	1.4

*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
4-19	0830	36	1	0	0
4-20	0830	40	3	0	3
4-21	0900	84	0	0	0
4-22	0800	11	0	0	8
4-23	1300	1	0	0	0
4-24	1230	1	0	0	6
4-25	1200	0	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.

Date	Sample	Collection*
4-19	0	0
4-20	0	0
4-21	1	100
4-22	0	0
4-23	0	0
4-24	0	0
4-25	0	0
Totals	1	100

*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 24. Of the 106 fish examined, two 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 19 and April 21. 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 19-April 25, 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:

Adult Fish Passage Facility

Lower Granite Biologists and EAS staff inspected the adult fishway on April 19, 20, 21 and 24.

Fish Ladder:

Yes	No	NA	Location	Criteria	Comments
X			Fish Ladder Exit Differential	Head $\leq$ 0.5’	
X			Fish Ladder Picketed Lead Differential	Head $\leq$ 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: Adult ladder auxiliary water cooling pumps were operated for testing/flushing on 4/23/2024 LWG mechanical crew is prioritizing returning cooling pumps to the original orientation with a target completion date of 1 June.

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
X		X	South Shore Entrance (SSE-1) Weir Depth	$\geq$ 8.0’	
X		X	South Shore Entrance (SSE-2) Weir Depth	$\geq$ 8.0’	
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
	X	X	North Powerhouse Entrance (NPE-1) Weir Depth	$\geq$ 8.0’ or on sill	5.2’, 5.8’, 5.5’, 5.5’
	X	X	North Powerhouse Entrance (NPE-2) Weir Depth	$\geq$ 8.0’ or on sill	5.2’, 5.8’, 5.5’, 5.5’
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	0.5’, 0.5’, 0.1’, 0.4’
	X	X	North Shore Entrance (NSE-1) Weir Depth	$\geq$ 7.0’ or on sill	6.0’ 6.8’, 6.5’
	X	X	North Shore Entrance (NSE-2) Weir Depth	$\geq$ 7.0’ or on sill	6.0’ 6.8’, 6.4’
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	

	X		Collection Channel Surface Velocity	1.5 – 4.0 fps	1.4, 1.2 fps

Comments: Fish ladder control system operation and configuration is an ongoing issue that began when the system was installed in 2016. LWG is moving forward to replace control system or upgrade the system with FOGs 1 and 10 are in operation. 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. SSEs on sill 19 April, NPEs on sill all inspections, NSEs on sill 19, 20 and 21 April.

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 MOP. 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)	72 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 is collecting daily for transport, with condition sampling occurring daily and collection for the NOAA in river/transport survival Sunday through Thursday.

Collection Facility: Collection for everyday barging began at 0700 hours April 23.

Transport Summary: Every day barging began April 23.

Spillway Weir: Spring spill operation began April 3.

PIT tag interrogations: RSW detections included 12557 juvenile Chinook salmon, 20166 juvenile steelhead, 262 adult steelhead and 6 juvenile coho salmon at the RSW. Juvenile bypass system detections included 4047 juvenile Chinook salmon, 1 adult Chinook salmon, 4011 juvenile steelhead, 18 adult steelhead and 3 juvenile coho salmon through April 25 (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
81.3	73.5	68.9	61.2	51.0	47.0	4.5	2.8

*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. Two dead 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
19 Apr	0820	0	0	0	9
20 Apr	1200	0	0	0	0
21 Apr	1615	5	0	0	0
22 Apr	0710	0	0	0	2
23 Apr	1045	5	0	0	0
24 Apr	1247	0	0	0	0
25 Apr	1550	0	0	0	0

Gas Bubble Trauma (GBT) Monitoring: SMP examined 100 salmonids with no signs of GBT symptoms April 25.

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. No 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 127 juvenile and 66 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.