Out of Criteria – NWW Weekly Report #7 – April 26 - May 2, 2024

1. McNary

Yes	No	Sill	Location	Criteria	Measurements
	X		NFEW3 Weir Depth	≥ 8.0’	7.9’ to 8.2’
	X		WFE3 Weir Depth	≥ 8.0’	7.5’ to 8.1’

Operating Satisfactory	Standby	Out of Service	Blade angle	Auxiliary Water Supply System (AWS)
X*		X*		WA shore Wasco County PUD Turbine Unit
X*	X*			WA shore Wasco PUD Bypass
		X	OOS	Oregon Ladder Fish Pump 1, return to service June 25

Fish pump 1 remained out of service for a scheduled 5-year overhaul. No other fish pump outages were recorded. To support the BPA line 6 outage, the Wasco County PUD was out of service on April 29 at 0630 hours to April 30 at 1315 hours.

2. Ice Harbor

Yes	No	Sill	Location	Criteria	Measurements
	x		South fish entrance (SFE-1) weir depth	≥ 8.0’ or on sill	6.6’
	x		South fish entrance channel/tailwater differential	1.0’ – 2.0’	2.2’
	x		Central fish entrance (CFE-2) weir depth	≥ 8.0’ or on sill	6.5’
	x		North fish entrance (NFE-1) weir depth	≥ 8.0’ or on sill	6.1’
	x		North fish entrance channel/tailwater differential	1.0’ – 2.0’	0.6’, 2.2’

The north fish entrance channel/tailwater differential was below criteria on April 30 and above criteria on May 1. The north fish entrance weir depth was below criteria on May 1. 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 north shore auxiliary water supply (AWS) pumps caused by debris on the intake trash racks could also be contributing to the below-criteria readings.

On April 27, north shore AWS pumps #2 and #3 were turned off from 0237 hours to 0512 hours, and from 0238 hours to 0513 hours, respectively, to allow debris to drop off the trash racks. North shore AWS pumps #2 and #3 were shut off again shortly after midnight on May 3 for approximately 2 hours for the same reason. However, the debris may not have fallen off or may have gotten sucked back on when the pumps were turned back on. While the pumps were off, the north fish entrance channel/tailwater differential was close to zero.

On May 1, the weir gate depths at the south fish entrance and central fish entrance were observed to be below criteria and the south fish entrance channel/tailwater differential was above criteria. The cause was likely due to decreasing tailwater levels and the operator not lowering the weirs until after the out of criteria readings were noted. The entrance weirs are in manual control to reduce the wear and tear on the operating machinery from constantly adjusting to fluctuating tailwater levels caused by spill.

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
	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.

Personnel noticed that the bird abatement hydrocannon was not shooting out any water on Apr 30. The hydrocannon pump was restarted but keeps tripping off. Electricians will investigate the problem.

3. Lower Monumental

BPA line tripped at ~ 0624 on May 1 causing OOS to all units (See MFR 24LMN01). Estimated return to service will be determined after BPA inspection. Unit 1 is operating at spin no load for station power.

Yes	No	Sill	Location	Criteria	Measurements
	X		North Shore Entrance (NSE-1) Weir Depth	≥ 8.0' or on sill	5/2 – 7.2 ft
	X		North Shore Entrance (NSE-2) Weir Depth	≥ 8.0' or on sill	5/2 – 7.3 ft

Automative system is not operating correctly due to unit outages and high spill associated with the outages. South Powerhouse channel velocity was out of criteria during the May 2 inspection with a reading of 1.3 ft/sec.

4. Little Goose

Yes	No	Sill	Location	Criteria	Measurements
X	X		North Shore Entrance (NSE-1) Weir Depth	≥ 6.0' or on sill	4/27 – 5.0 4/28 – 5.0 4/30 – 5.8
X	X		North Shore Entrance (NSE-2) Weir Depth	≥ 6.0' or on sill	4/27 – 5.0 4/28 – 4.9 4/30 – 5.8
X	X		North Shore Channel/Tailwater Differential	1.0'–2.0'	

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. EAS Bio personnel report the FSC board reflects weir and channel height readings with notable discrepancies compared to actual physical hand measurements taken during inspection periods.

5. Lower Granite Dam

Yes	No	Sill	Location	Criteria	Comments
	X	X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 8.0' or on sill	5.5', 5.8', 5.8'
	X	X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 8.0' or on sill	5.5', 5.8', 5.8'
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0'–2.0'	0.5', 0.4', 0.3'
	X	X	North Shore Entrance (NSE-1) Weir Depth	≥ 7.0' or on sill	6.5', 6.6'
	X	X	North Shore Entrance (NSE-2) Weir Depth	≥ 7.0' or on sill	6.6', 6.7'

AWS Pump 1 remains in slow mode due to the inability to operate in fast mode while at LGO MOP elevation. AWS pump 2 remains out of service for maintenance. It is recommended that pump 1 be removed from service and replaced with pump 2 when repairs are complete. This work will be scheduled when the mechanical crew has completed reconfiguring the fish ladder cooling pumps to its original state. Fish pumps 1 and 3 tripped offline from 1629-1636 hours May 2 due to low cooling water flow.

U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#09-2024

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: April 26-May 2, 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
13 & 14	4/29	0655	4/30	1241	Support BPA efforts
11 & 12	5/1	0948	5/1	1204	Support BPA efforts
11 & 12	5/1	1505	5/1	1719	Transmission line 5 tripped

*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 26, 28, and May 1. Adult fish counting continued.

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’	0.2’

Comments: Debris loads were minimal near both exits.

At the Washington shore exit, one regulating weir alarm came in and was reset on April 26 and May 1, respectively.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0’ – 2.0’	1.2’
X			NFEW2 Weir Depth	≥ 8.0’	8.0’ to 8.1’
	X		NFEW3 Weir Depth	≥ 8.0’	7.9’ to 8.2’
X			South Oregon Entrance Head Differential	1.0’ – 2.0’	1.1’ to 1.3’
X			SFEW1 Weir Depth	≥ 8.0’	8.0’ to 8.1’
X			SFEW2 Weir Depth	≥ 8.0’	8.0’ to 8.1’
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	2.1 fps

X			Washington Entrance Head Differential	1.0’ – 2.0’	1.4’ to 1.6’
X			WFE2 Weir Depth	≥ 8.0’	8.8’ to 9.4’
	X		WFE3 Weir Depth	≥ 8.0’	7.5’ to 8.1’

Comments: NFEW3 was out of criterion on April 26. WFE3 was out of criterion on April 28 and May 1. 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*		X*		WA shore Wasco County PUD Turbine Unit
X*	X*			WA shore Wasco PUD Bypass
		X	OOS	Oregon Ladder Fish Pump 1, return to service June 25
X			22° to 24°	Oregon Ladder Fish Pump 2
X			23° to 26°	Oregon Ladder Fish Pump 3
X				OR North Powerhouse Pool from juvenile fishway

*Comments: Fish pump 1 remained out of service for a scheduled 5-year overhaul. No other fish pump outages were recorded.

To support the BPA line 6 outage, the Wasco County PUD was out of service on April 29 at 0630 hours to April 30 at 1315 hours. The bypass system functioned well during this outage.

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.

In order to collect steelhead smolts for tagging, for the sample collection day of April 26, the sample rates were split, with the A side set at 1 percent and the B side set at 5 percent. For the sample collection day of April 30, the sample rates were split, with the A side set at 1 percent and the B side set at 2 percent.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Minimal to very 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 and spillway debris remained minimal to very light. New debris loads were minimal.

The next trash rack cleaning is scheduled for late May. There are no problems to report. A few pieces of larger woody material were removed from the gatewell slots on April 27 and May 2.

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 in units 13 and 14. Examination of ESBS screen brush programming continued.

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

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

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

Comments: There are no problems to report.

Rebuilding of the orifice valve operators and gates continued. The south orifice in 6B slot was closed from April 29 to May 1 for this purpose. Also, the south orifice in 7B slot was closed for several hours on May 2. The adjacent north orifice was used during each outage.

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.

One of two B side fish counters failed on April 26 at 2300 hours. The counter was replaced, and sample collection was estimated from the failed and new counter.

There were 3,550 juvenile lamprey and 50,155 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
168.9	141.6	108.6	82.0	52.3	51.2	6.0	4.5

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.

Bay 6 was adjusted by crane on April 29. Bays 6 and 9 were adjusted by crane on May 2. 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 26	Spill	46	0	0	0	0
	Powerhouse	56	0	0	0	0
	Outfall	54	16	0	0	0
	Forebay	0	0	0	0	1
April 27	Spill	72	0	0	0	0
	Powerhouse	62	0	0	0	0
	Outfall	28	5	0	0	0
	Forebay	0	0	0	0	0
April 28	Spill	150	0	0	1	0
	Powerhouse	100	0	0	0	0
	Outfall	60	51	0	0	0
	Forebay	0	0	0	0	0
April 29	Spill	150	0	0	6	0
	Powerhouse	66	0	0	0	0
	Outfall	13	22	0	0	0
	Forebay	0	0	0	0	17
April 30	Spill	110	0	0	2	0
	Powerhouse	3	0	0	0	0
	Outfall	13	15	0	0	0
	Forebay	0	0	0	0	0
May 1	Spill	90	0	0	1	0
	Powerhouse	46	0	0	0	0
	Outfall	10	0	0	0	0
	Forebay	0	0	0	0	24
May 2	Spill	86	0	0	1	0
	Powerhouse	0	0	0	0	0
	Outfall	20	0	0	0	0
	Forebay	0	0	0	0	0

In the spill zone, gulls in fluctuating numbers along with a few 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. An osprey nest from last year was found on the end of the navigation lock wing wall on April 29.

For the forebay zone, grebes were observed in fluctuating numbers along an occasional osprey. More grebes maybe outside the zone along with a few gulls, cormorants, pelicans, blue herons, and other osprey. Pelican numbers in the area is slowly increasing.

The LRAD remains out of service until the osprey are done nesting.

The laser remained on the navigation lock wing wall opposite the outfall. The program does not appear to be functioning properly and the laser was examined on April 29 after contacting the manufacture on April 26. Further examinations are required.

Two bird distress calls on the navigation lock wing wall remained in service and functioned well.

USDA Wildlife Services continued shore hazing. Hazing from a boat began on April 29. The osprey nest was not an issue. The boat probably also contributed to the fluctuating bird numbers.

Invasive Species: The mussel station examinations revealed no issues on April 28.

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

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

Research: For the smolt and juvenile lamprey passage studies, PNNL removed 329 smolts and 15 juvenile lampreys from the samples for tagging this week.

For a CRITFC study, there were tissue samples removed from 20 juvenile lamprey collected at the facility this week. The yearly total is 48 fish, which were returned to the river unharmed.

Gas bubble trauma examinations occur twice a week. Fish were collected on April 30 and May 2, with the data being reported the next day. For the report week, no mortalities occurred and no signs of trauma were observed.

Project: Ice Harbor
Biologist: Ken Fone
Biological Science Technician: Ben McArthur
Dates: April 26 – May 2, 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 29, 30, and May 1.

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	6.6’
	x		South fish entrance channel/tailwater differential	1.0’ – 2.0’	2.2’
x			South shore channel velocity	1.5 – 4.0 fps	
	x		Central fish entrance (CFE-2) weir depth	≥ 8.0’ or on sill	6.5’
x			Central fish entrance channel/tailwater differential	1.0’ – 2.0’	
	x		North fish entrance (NFE-1) weir depth	≥ 8.0’ or on sill	6.1’
	x		North fish entrance channel/tailwater differential	1.0’ – 2.0’	0.6’, 2.2’

Comments: The north fish entrance channel/tailwater differential was below criteria on April 30 and above criteria on May 1. The north fish entrance weir depth was below criteria on May 1. 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 north shore auxiliary water supply (AWS) pumps caused by debris on the intake trash racks could also be contributing to the below-criteria readings. On April 27, north shore AWS pumps #2 and #3 were turned off from 0237 hours to 0512 hours, and from 0238 hours to 0513 hours, respectively, to allow debris to drop off the trash racks. North shore AWS pumps #2 and #3 were shut off again shortly after midnight on May 3 for approximately 2 hours for the same reason. However, the debris may not have fallen off or may have gotten sucked

back on when the pumps were turned back on. While the pumps were off, the north fish entrance channel/tailwater differential was close to zero.

On May 1, the weir gate depths at the south fish entrance and central fish entrance were observed to be below criteria and the south fish entrance channel/tailwater differential was above criteria. The cause was likely due to decreasing tailwater levels and the operator not lowering the weirs until after the out of criteria readings were noted. The entrance weirs are in manual control to reduce the wear and tear on the operating machinery from constantly adjusting to fluctuating tailwater levels caused by spill.

Auxiliary Water Supply 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.

North shore AWS pumps were turned off in the early morning of April 27 and May 2, for about 2.5 hours and 2 hours, respectively. See the section above for more details.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
x			Forebay debris load acceptable? (amount)	Average of 2 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-25% coverage
	x		Any oil seen in gatewells?	

Comments: None

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

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

Comments: 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.

Personnel noticed that the bird abatement hydrocannon was not shooting out any water on Apr 30. The hydrocannon pump was restarted but keeps tripping off. Electricians will investigate the problem.

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

Fish Sampling: Juvenile fish sampling is scheduled to occur on Mondays and Thursdays each week. See the tables below for a summary of the sampling results. The cause of the descaling observed on one steelhead in the April 29 sample and two steelhead in the May 2 sample was attributed to predation attempts by birds. Six fish in the April 29 sample and five fish in the May 2 sample exhibited operculum injuries.

On April 29, one dead chinook fry and two dead juvenile lamprey were found in a portion of secondary bypass flume that is not used during fish sampling. The fish had to fit and hide under the switch gate where they most likely became stranded after the April 25 fish sampling, then got pushed out by water into the flume during the April 29 sampling. This flume is routinely checked for stranded fish right after unwatering, so mortality events at this location are rare.

Fish condition sampling results at Ice Harbor Dam:

Date: April 29

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	29	1	0	0
Chinook yearling unclipped	`1	0	0	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	1*	0	0	0
Steelhead clipped	84	2	0	2
Steelhead unclipped	10	0	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	1	0	0	0
Total	126	3	0	2

Date: May 2

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	12	1	0	0
Chinook yearling unclipped	2	0	0	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	1*	0	0	0
Steelhead clipped	89	4	0	0
Steelhead unclipped	4	0	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	3	0	0	0
Total	111	5	0	0

*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
86.3	71.7	72.5	58.3	55	54	4.9	2.1

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected for lamprey on May 1. A total of 166 juvenile lamprey, 1 adult lamprey, 60 Siberian prawns, 1 juvenile smallmouth bass, and 1 unidentifiable decomposing juvenile salmonid (all fish were mortalities) were found.

Avian Activity: There were variable numbers of piscivorous birds seen around the project (see table below). The pelicans observed on April 26 and 27 were counted before bird hazing began for the day. The pelicans were scattered across the tailrace and not concentrated in any particular spot. Land-based hazing has been effective at moving pelicans in the tailrace further downstream, away from the dam. Land-based hazing of piscivorous birds is occurring for 16 hours per day. Boat-based hazing for 3 days per week (up to 8 hours per day) increased to 5 days per week on April 28.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
April 26	4	2	0	0	55
April 27	5	0	0	0	245
April 28	13	1	0	0	0
April 29	0	8	0	0	0
April 30	0	3	1	0	0
May 1	0	9	0	0	0
May 2	2	5	1	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 29	1	1
May 2	0	0
Totals	1	1

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

Fish Rescue/Salvage: None

Research: No on-site research is occurring.

Project: Little Goose Dam
Biologist: Deb Snyder, Cole Reeves
Dates: April 26 – May 2, 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.
1	4/29/2024	1200	4/29/2024	1615	Governor Oil Balancing

Comments: Contractual obligations and performance issues realigned the Unit 5 ERTS date into 2024. Unit 1 was shut down April 29 for governor oil balancing purposes per FPP 4.3.11. Unit 2 was coincidentally running and continued for the duration of the Unit 1 testing phase.

Adult Fish Passage Facility

USACE and EAS Bio staff inspected the adult Fishway on April 27, April 28, and April 30.

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	4/27 – 5.0 4/28 – 5.0 4/30 – 5.8
X	X		North Shore Entrance (NSE-2) Weir Depth	≥ 6.0’ or on sill	4/27 – 5.0 4/28 – 4.9 4/30 – 5.8
X	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. 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. EAS Bio personnel report the FSC board reflects weir and channel height readings with notable discrepancies compared to actual physical hand measurements taken during inspection periods.

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 10 ft² - Low 0 ft²
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X	X		Any debris seen in gatewells (% coverage)	4/26-1A:2%,4B:1%,4C:1%, 5B:1%,5C:5% 4/27-1A:1%,1A:1%,1C:1%,4C:1%, 5A:1%,5B:5%,5C:1% 4/30-5A-1%,5B-1% 5/1-1A-2%,5A-1%,5B-1%, 5C-1% 5/2-1B-1%,5A-1%,5B-1%, 5C-1%
	X		Any oil seen in gatewells?	

Comments: The forebay had minimal floating debris inside the trash shear boom with the highest measurement occurring on April 26 at 10 ft². The overall total forebay debris high occurred April 26 at 10 ft^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.

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 153,819 fishes were collected, 153,707 were barged, and there were 112 sample or facility mortalities. The descaling and mortality rates were 3.1% and 0.08%, 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
80.7	72.2	53.3.4	46.5	53.5	53.0	5.2	3.0

*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
4-26	0900	2	0	0	0
4-27	1145	0	0	0	0
4-28	1400	0	0	0	0
4-29	1400	16	0	0	0
4-30	0830	2	0	0	0
5-1	1145	0	0	0	0
5-2	0800	3	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*
4-26	0	0
4-27	0	0
4-28	0	0
4-29	0	0
4-30	0	0
5-1	0	0
5-2	0	0
Totals	0	0

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

Gas Bubble Trauma (GBT): Oregon Department of Fish and Wildlife performed GBT monitoring on May 1. Of the 100 fish examined, zero had gas bubble trauma symptoms.

Fish Rescue/Salvage: Fish rescue activities due to every-other-day collection and return to primary bypass operations took place April 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 26 – May 02, 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**
4, 5, 6	04/28	0900	04/28	1630	ESBS/VBS camera inspections; approx. 2 hr. ea. unit
4, 1, 2, 3	04/29	0900	04/29	1645	ESBS/VBS camera inspections; approx. 2 hr. ea. unit

Comments:

Adult Fish Passage Facility

Lower Granite Biologists and EAS staff inspected the adult fishway on April 26, 27 and May 01.

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: LWG mechanical crew is prioritizing returning auxiliary cooling pumps to their original orientation with a target completion date of 1 June.

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	5.5’, 5.8’, 5.8’
	X	X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 8.0’ or on sill	5.5’, 5.8’, 5.8’
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	0.5’, 0.4’, 0.3’
	X	X	North Shore Entrance (NSE-1) Weir Depth	≥ 7.0’ or on sill	6.5’, 6.6’
	X	X	North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	6.6’, 6.7’
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: Fish ladder control system operation and configuration 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 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. NPEs on sill all inspections, NSE1 on sill April 27, NSE2 on sill all inspections.

Auxiliary Water Supply System:

Operating Satisfactorily	Standby	Out of Service	Auxiliary Water Supply (AWS)
Yes			AWS Fish Pump 1
No		Yes	AWS Fish Pump 2
Yes			AWS Fish Pump 3

Comments: AWS Pump 1 remains in slow mode due to the inability to operate in fast mode while at LGO MOP elevation. AWS pump 2 remains out of service for maintenance. It is recommended that pump 1 be removed from service and replaced with pump 2 when repairs are complete. This work will be scheduled when the mechanical crew has completed reconfiguring the fish ladder cooling pumps to its original state. Fish pumps 1 and 3 tripped offline from 1629-1636 hours May 2 due to low cooling water flow.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	73 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: Fish are being transported daily. Every other day barging will begin 18 May. There were two issues reported with 8105 operations. Engine 1 needs an alternator and engine 2 needs a cooling pump. Barge

loading densities have been reduced to 4500 pounds of fish to stay withing the one pomp capacity and have a spare in standby. Repairs will be made on the return trip May 8.

Spillway Weir: Spring spill operation began April 3.

PIT tag interrogations: RSW detections included 22,655 juvenile and 1 adult Chinook salmon, 31,918 juvenile and 330 adult steelhead, and 48 juvenile coho salmon at the RSW. Juvenile bypass system detections included 4,917 juvenile and 1 adult Chinook salmon, 6,558 juvenile and 21 adult steelhead, and 6 juvenile coho salmon through May 02 (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
85.5	77.0	73.0	64.4	52.5	51.0	4.5	3.2

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Unit cooling strainer inspections were conducted on April 30.

Invasive Species: No zebra/quagga muscles were detected on the trap substrate. One dead Siberian prawn was 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
26-Apr	1350	0	0	0	0
27-Apr	1300	0	1	0	0
28-Apr	1625	1	1	0	0
29-Apr	1550	0	0	0	0
30-Apr	1445	2	0	0	1
1-May	1203	0	0	0	0
2-May	1550	0	0	0	0

Gas Bubble Trauma (GBT) Monitoring: SMP examined 97 salmonids with no signs of GBT symptoms May 2.

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.

Nez Perce Tribe (NPT)/U. of Idaho (UI)/Columbia River Intertribal Fisheries Commission (CRITFC) – Kelt Study

This research investigates steelhead kelt physiology and endocrinology to evaluate the feasibility and success of rehabilitating strategies. The goal is to collect kelts from LWG and LGO juvenile fish facility separators. Up to 500 selected kelts are transported by NPT to Dworshak National Fish Hatchery for reconditioning and later release as part of this study.

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 163 juvenile and 83 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. Collection and tagging 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). Collection will occur Sunday-Thursday with fish being tagged Monday-Friday throughout the barging fish transport period. Collection and tagging continue as scheduled.

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.