Out of Criteria – NWW Weekly Report #34 – October 18 – 24, 2024

1. McNary

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0' – 2.0'	1.1' to 1.4'
	X		NFEW2 Weir Depth	≥ 8.0'	7.9' to 8.0'
	X		NFEW3 Weir Depth	≥ 8.0'	7.8' to 8.1'
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.4' to 1.7'
	X		SFEW1 Weir Depth	≥ 8.0'	7.8' to 8.5'
	X		SFEW2 Weir Depth	≥ 8.0'	7.9' to 8.4'
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	1.9 fps
X			Washington Entrance Head Differential	1.0' – 2.0'	1.3' to 1.5'
X			WFE2 Weir Depth	≥ 8.0'	8.6' to 8.8'
X			WFE3 Weir Depth	≥ 8.0'	8.6' to 8.9'

At the Oregon shore entrances, NEFW2, SFEW1 and SFEW2 were out of criterion on October 24. NFEW3 was out of criterion on October 18 and 24. The out of criterion point on October 18 may have been due to calibration drifts. The out of criteria points on October 24 were due to set point adjustments after the fish pump 3 outage. Pump 3 was out for service on October 22, at 2327 hours to October 23, at 1452 hours due to a reduction in flow in the thrust bearing cooling line, which resulted in raised temperatures. Obstructions in the line were cleared on October 23. With the fish pump 3 outage on October 23 to 24, the Oregon ladder entrances were adjusted for one functional fish pump. NFEW3 was raised out of the water. NFEW2, SFEW1, and SFEW2 were adjusted to a depth that allowed both entrance pool differentials to remain in criteria. All weirs were returned to their normal settings just after the fish pump returned to service. Pump 2 was out of service for a bus switch on October 23, from 0725 to 0735 hours.

2. Ice Harbor

Yes	No	Sill	Location	Criteria	Measurements
	x		North fish entrance channel/tailwater differential	1.0' – 2.0'	2.4'

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 was replaced with a refurbished one and will require an overhead 115 kv line outage to remove the pump bulkhead.

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 replaced to enable automatic control. The weirs are being operated at the actuator to adjust the water level as needed until the problem can be fixed.

3. Lower Monumental

No comments.

4. Little Goose

Yes	No	Sill	Location	Criteria	Measurements
	X		South Shore Entrance (SSE-1) Weir Depth	≥ 8.0'	10/22-7.9
	X		North Shore Channel/Tailwater Differential	1.0'–2.0'	10/22-0.9

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. USACE Biologists, EAS Bio, and ODFW personnel are collaborating and manually taking physical readings for weir elevations at all three fishway entrances. FSC board readings of SSE Channel elevation continue to report discrepancies an average of 8.2 feet below physical staff gauge measurements documenting the same channel elevation. Criteria evaluations default to physical staff gauge measurements in this area. NPE FSC board no longer accurately reading weir heights, reporting measurements 1.2 and 1.1 ft higher than weirs currently positioned on sill (532 ft). NSE FSC board channel heights reflect similar and corresponding readings to staff gauge measurements.

5. Lower Granite Dam

Yes	No	Sill	Location	Criteria	Comments
	X		South Shore Entrance (SSE-1) Weir Depth	$\geq$ 8.0’	7.8’
	X		South Shore Entrance (SSE-2) Weir Depth	$\geq$ 8.0’	7.9’
	X		North Shore Entrance (NSE-1) Weir Depth	$\geq$ 7.0’ or on sill	6.7’
	X		North Shore Entrance (NSE-2) Weir Depth	$\geq$ 7.0’ or on sill	6.7’

Fish ladder control system operation and configuration is an ongoing issue that began when the system was installed in 2016.

U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#34-2024

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: October 18-24, 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**
14	5/13	1232	11/18	NA	Isophase replacement and headgate work
13	5/21	0955	11/18	NA	Isophase replacement and headgate work
3 & 4	5/29	0634	11/15	NA	Control system upgrades
5	8/21	1057	12/19	NA	9-year overhaul
1 & 2	10/21	1209	11/4	NA	Governor air accumulator issue
11 & 12	10/22	1007	10/22	1057	ESBS camera inspections, rotated through units

Comments: RTS dates are subject to change. Slight variations outside the soft one percent criterion are not recorded here. If units due run outside the soft constraint, it is at BPA's request, which did occur on October 23 and 24.

Adult Fish Passage Facilities

McNary fisheries staff performed measured inspections of the adult fishways on October 18, 20 and 24. Adult fish counting will conclude on October 31. Picketed leads will be raised on November 1 or 2. For water temperature monitoring, the Washington shore midpoint probe and the Oregon shore south entrance probe have been referred to district personnel.

Fish Ladder Exits:

Yes	No	Location	Criteria	Measurements
X		Oregon Exit	Head over weir 1.0' to 1.3'	1.0'
X		Oregon Count Station Differential	0.0' to 0.5'	0.2' 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. The general maintenance staff came in on Saturday and Monday to clean picketed leads. They were called in on Sunday for the same reason.

At the Oregon shore exit, multiple exit alarms were recorded and reset on October 18.

At the Washington shore exit, weir 339 remains in bypass mode. The control system continued to regulate the exit without this weir moving.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0' – 2.0'	1.1' to 1.4'
	X		NFEW2 Weir Depth	≥ 8.0'	7.9' to 8.0'
	X		NFEW3 Weir Depth	≥ 8.0'	7.8' to 8.1'
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.4' to 1.7'
	X		SFEW1 Weir Depth	≥ 8.0'	7.8' to 8.5'
	X		SFEW2 Weir Depth	≥ 8.0'	7.9' to 8.4'
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	1.9 fps
X			Washington Entrance Head Differential	1.0' – 2.0'	1.3' to 1.5'
X			WFE2 Weir Depth	≥ 8.0'	8.6' to 8.8'
X			WFE3 Weir Depth	≥ 8.0'	8.6' to 8.9'

Comments: At the Oregon shore entrances, NEFW2, SFEW1 and SFEW2 were out of criterion on October 24. NFEW3 was out of criterion on October 18 and 24. The out of criterion point on October 18 may have been due to calibration drifts. The out of criteria points on October 24 were due to set point adjustments after the fish pump 3 outage, which will be discussed below. Also, with the fish pump 3 outage on October 23 to 24, per the FPP, the Oregon ladder entrances were adjusted for one functional fish pump. NFEW3 was raised out of the water. NFEW2, SFEW1, and SFEW2 were adjusted to a depth that allowed both entrance pool differentials to remain in criteria. These adjustments occurred just after the fish pump was removed from service. With the length of the outage, no other adjustments were made. Finally, all weirs were returned to their normal settings just after the fish pump returned to service.

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, RTS 11/18
X				WA shore Wasco PUD Bypass
		X	NA	Oregon Ladder Fish Pump 1, RTS 10/31
X*			21° to 22°	Oregon Ladder Fish Pump 2
X*		X*	23°	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. The Wasco PUD unit remained out of service with the transmission line 6 outage. The bypass system has been functioning well. Return to service dates are subject to change. Fish pumps 2 and 3 were out of service on October 18, from 1412 to 1433 hours, in order to switch the fish pump cooling system from raw to potable water, which was related to a potable water line repair on October 18. Both pumps were again out of service on October 21, from 0922 to 0940 hours, for breaker trip testing. Pump 3 was out for service on October 22, at 2327 hours to October 23, at 1452 hours due to a reduction in flow in the thrust bearing cooling line, which resulted in raised temperatures. Obstructions in the line were cleared on October 23. Pump 2 was out of service for a bus switch on October 23, from 0725 to 0735 hours.

Juvenile Fish Passage Facility

Fall primary bypass season and light winter maintenance continued.

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 debris load near the powerhouse was minimal to very light. New incoming debris and the debris load at the spill were minimal. Most of the debris was aquatic vegetation and woody material, which is dissipating.

No trash rack cleaning is scheduled.

Sticks were removed from 1A gatewell slot on October 23.

The slots in units 7, 13, at 14A and 14B slots remained covered. This improved isophase contractor access by units 13 and 14.

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 14A slot. The control program for the fish screens in unit 10 is not currently communicating with the panel view on the 8th floor. When the unit is in service, the brush cycle sequences will be monitored in the control room until repairs can occur in the future. With units 3, 13 and 14 being out of service, the ESBS's remained in manual mode so the brush cycle sequence would not occur. Testing of ESBS screen brush programming continued with the screens in unit 4. ESBS camera inspections in units 11 and 12 revealed no issues on October 22.

Daily VBS monitoring continued, and no high differentials were recorded. A total of 13 screens were cleaned on October 22 and 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: Orifices were adjusted for VBS cleaning as required. Orifice valve operator and orifice valve rehabilitations continued. This fall, we should have about 40 of the 84 orifices rehabilitated.

A low/high water elevation alarm sequence came in on October 22, from 0501 to 0509 hours. Two more high water alarms came in at 0649 and 0727 hours. One high alarm came in on October 23, at 1752 hours. Another low/high alarm sequence came in from 2203 to 2211 hours. Finally, one high alarm came in at 2307 hours. During an alarm sequence, only one low alarm occurs with two to three high alarms following. Unit load changes may be a possible cause. The channel water elevation will be monitored.

The capacitor for the adult flush line was replaced on October 21, at which time the valve was closed.

Bypass Facility:

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

Comments: The sample system remained out of service. The PIT tag system was not utilized this season.

Winter maintenance continued. For breaker trip testing, the facility was without power on October 18, from 1203 to 1205 hours, 1210 to 1211 hours, and on October 21 from 0903 to 0904 hours. During the potable water line repairs, the facility was without water on October 18, from 0642 to 1404 hours.

TSW Operations: The TSW bay 19 remained closed. The TSW in bay 20 was opened every morning for four hours for adult fallback passage.

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
88.6	70.4	1.7	1.6	61.0	60.0	6.0	6.0

Comments: The above data is from the control room, with the data day starting at 0000 hours. No spill in excess of available powerhouse capacity occurred this week. Rehabilitated of downstream wall dogs continued with the dogs from bays 14 and 17 currently removed. Scheduled crane and hoist maintenance also continued and should conclude next week.

Other

Inline Cooling Water Strainers: The next cooling water strainer inspections will occur on December 3.

Avian Activity: Casual bird observations continued during other inspections.

In the spill zone, gull and cormorant numbers increased. This is probably due to the juvenile shad out migration. Most gulls were roosting around the spill basin or feeding in the TSW flow. Cormorants were mostly roosting around the basin or feeding when the TSW was closed.

In the powerhouse zone, gulls in increasing numbers were occasionally observed feeding, with light roosting.

In the outfall zone, gull and cormorant numbers were high with the birds roosting and feeding frequently at the outfall.

For the tailwater area, the gulls appeared to move freely between the three zones, with TSW closure and feeding actively effecting that movement.

For the forebay zone, grebes in fluctuating numbers were observed. Most birds are roosting, but some feeding has been noted. There were some fly-by gulls along with gull flocks roosting on the water. Small gull flocks and a few cormorants were noted outside the zone with gull numbers increasing.

For the winter season, the LRAD on the outfall pipe was removed on October 24.

The laser on the navigation lock wing wall opposite the outfall was received back from the manufacture on October 21. The laser was not repairable.

Also, for the winter, the two distress calls on the navigation lock wing wall were removed on October 24.

There is no hazing occurring.

Invasive Species: The next mussel station examinations will occur on October 27.

Siberian Prawn: With sampling concluded, no prawns have been observed.

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

Research: PNNL will remove their spillway equipment at a later date.

Project: Ice Harbor
Biologist: Ken Fone
Biological Science Technician: Ben McArthur
Dates: October 18-24, 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	10/9/24	0640	---	---	6-year overhaul
3	10/9/24	2105	---	---	Replace oil head packing
2	10/21/24	1250	10/21/24	1440	STS Inspection
5	10/22/24	0753	10/22/24	1015	STS Inspection/ HUB TAP
4	10/22/24	1122	10/22/24	1524	STS Inspection/ HUB TAP

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on October 21, 22, 23, and 24.

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’	2.4’

Comments: The north fish entrance channel/tailwater differential was above criteria on October 21 due to low tailwater levels. Two north shore auxiliary water supply (AWS) pumps are normally operated to meet criteria, and the north channel/tailwater differential would most likely be below criteria with only one pump running unless tailwater was very low.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System
5 pumps	2 pumps	1 pump	Status of the 8 south shore AWS pumps
2 pumps	1 pump		Status of the 3 north shore AWS pumps

Comments: 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 was replaced with a refurbished one and will require an overhead 115 kv line outage to remove the pump bulkhead.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
x			Forebay debris load acceptable? (amount)	Average of 5 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-4% coverage
	x		Any oil seen in gatewells?	

Comments: None.

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

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

Comments: STSs were inspected one at a time between October 21, 22, and 23. No notable damage was observed.

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 replaced to enable automatic control. 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.

Fish Sampling: Juvenile fish sampling has ended for the season.

Removable Spillway Weir (RSW): The RSW is opened daily from approximately 0600 hours to 1000 hours to facilitate downstream passage back to the Columbia River for steelhead that strayed into the Snake River.

River Conditions

River conditions at Ice Harbor Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (°F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
18.0	14.4	1.6	1.3	64	62	11.2	7.5

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Cooling water strainer differential pressure is routinely monitored. The strainers will be cleaned if there is indication of clogging caused by debris or juvenile shad, and inspection results will be reported. Unit 6 cooling water strainers were removed and inspected as part of the 5-year overhaul on October 21. Five juvenile shad were removed (all dead).

Avian Activity: There were variable numbers of piscivorous birds observed around the dam. The birds were roosting on Eagle Island and opportunistically foraging downstream of the spillway and at the discharge of the navigation lock while it was being drained.

Invasive Species: No exotic species that are new to the area have been found.

Siberian Prawn: Siberian prawns that were collected in the sample at the Juvenile Fish Facility were humanely euthanized by the fish sampling contractor, frozen and properly disposed of in a landfill. Fish sampling has ended for the season.

Fish Rescue/Salvage: None.

Research: On October 16, Pacific Northwest National Laboratory (PNNL) personnel deployed four new autonomous hydroacoustic receivers into spillway forebay trolley pipes. PNNL is testing the equipment in preparation for a study at Little Goose Dam next year. The system is being monitored onsite one day per week.

Project: Lower Monumental
Biologists: Denise Griffith and Raymond Addis
Dates: October 18 - 24, 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: See Unit Outages and Return to Service comments below.

Lower Monumental Unit Outages (OOS) and Return to Service (RTS)

	OOS		RTS		
Unit	Date	Time	Date	Time	Outage Description
Unit 3	10/15/24	0700	12/06/24	ERTS	6 Year annual maintenance
Unit 5	9/23/24	0700	11/4/24	ERTS	DC low voltage upgrade

Comments: None.

Adult Fish Passage Facility

Lower Monumental fish facility staff inspected the adult fishways on October 21, 22 and 23.

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: JFF personnel used air to clean South ladder exit trash rack on October 21.

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 Powerhouse Channel Velocity	1.5 – 4.0 fps	
		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 of 7.2, 7.0 and 6.9 feet respectively. South Powerhouse Entrance SPE-2 weir was at sill during all inspections with of 7.2, 7.0 and

6.9 feet respectively. South Shore Entrance SSE-1 weir was at sill during all inspections with readings of 7.7, 7.6 and 8.4 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)	270 yrd²
	X		Gatewell drawdown measured this week?	
		X	Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 5%
	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	VBS screens checked this week?
		X	VBS screens acceptable?

Comments: STSs were running on cycle-run mode due to the average sub-yearling Chinook and sockeye lengths being greater 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 collection facility is down for winter maintenance.

The flush water pipe for the truck transport recovery tank was removed during a repair and the truck tank cannot be used until this is addressed. It will be replaced during the winter.

Outfall pipe leakage at the expansion joint near the lamprey bypass Y is planned to be repaired the winter maintenance period.

Transport Summary: Transport at Lower Monumental has ended for the season.

Spillway Weir: Surface spill for fall steelhead continues: RSW spill (~7.5kcfs) for 4 hours in the morning, 7 days a week.

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
21.9	14.4	1.4	1.3	61.5	61.0	5.8	5.6

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers inspections are done until December.

Avian Activity: All bird hazing is over for the season.

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

Siberian Prawn: Siberian prawn collection ended for the season.

Fish Rescue/Salvage: A fish rescue took place for Unit 3 scrollcase and draft tube, October 22 and 24 respectively. One channel catfish was recovered from the scrollcase. No fish were observed in the draft tube.

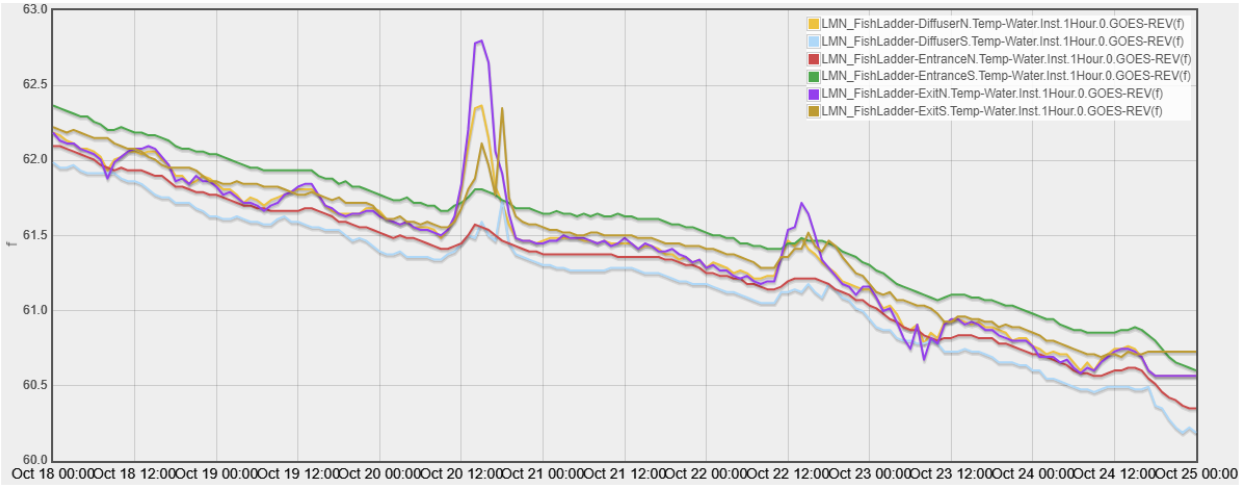
Research: The collection of lamprey for the PNNL study of the behavior and survival of Pacific lamprey has ended.

GBT sampling has ended for the 2024 season.

The Nez Perce steelhead kelt study and rehabilitation collection ended on for the season.

Temperature Probes: The adult passage temperature probes operated correctly during this reporting period.

The graph below shows the temperatures per recording point for the reporting period.



Project: Little Goose Dam
Biologist: Deb Snyder
Dates: October 18 – October 24, 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
3	8/19/2024	07:00	2/15/2025	17:00	Annual 6-year overhaul.
5	4/14/2017	14:11	01/31/2025	ERTS	Spider and upper guide bearing repair.

Comments: Contractor has demobilized until further notice realigning the Unit 5 ERTS date to January 31, 2025. Unit 3 Annual 6-year overhaul extended for oil leak precautionary measures.

Adult Fish Passage Facility

EAS Bio staff inspected the adult Fishway on October 18, 22, and 23.

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’	10/22-7.9
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	≥ 7.0’ or on sill	
X		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	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	10/22-0.9
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. 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. USACE Biologists, EAS Bio, and ODFW personnel are collaborating and manually taking physical readings for weir elevations at all three fishway entrances. FSC board

readings of SSE Channel elevation continue to report discrepancies an average of 8.2 feet below physical staff gauge measurements documenting the same channel elevation. Criteria evaluations default to physical staff gauge measurements in this area. NPE FSC board no longer accurately reading weir heights, reporting measurements 1.2 and 1.1 ft higher than weirs currently positioned on sill (532 ft). NSE FSC board channel heights reflect similar and corresponding readings to staff gauge measurements. On May 29 the new fish ladder cooling pump installation was completed. The newly installed pump unit was commissioned for seasonal use June 9 at 1420 hours upon reaching criteria per FPP 2.4.2.14.i the prior evening of June 8 at 1900 hours. The fish ladder cooling pump was turned off for the season on September 19 at 0933 in accordance with FPP Chapter 8 section 2.4.2.14.

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 50 ft² - Low 0 ft²
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X	X		Any debris seen in gatewells (% coverage)	10/18-4C:1%, 10/19-2B:2%, 10/22-2B:2%,
X	X		Any oil seen in gatewells?	10/21 – 4B

Comments: The forebay had minimal floating debris inside the trash shear boom with the highest measurement occurring on October 21 at 15 ft². The overall total forebay debris high occurred on October 23 at 20 ft². The oil sheen detected and reported in gatewell 4B was investigated and determined to be sourced from eco-friendly grease resultant of rain and deck wash event.

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. The third round of gatewell camera inspections was completed July 8-11. Unit 2 annual camera inspections were completed July 31.

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. Every day collection began April 23 coinciding with barge transportation operations. Every-other day collection was initiated on July 8 due to water temperatures above 68°F. Every day collection resumed at 0700 on August 1st corresponding with the start of every other day trucking operations as per the FPP. During this reporting period a total of 648 fish were collected, 756 were trucked, 0 were bypassed, and there were 15 sample or facility mortalities. The descaling and mortality rates were 8.0% and 2.0%, respectively. The collection and transport facility operated within criteria; 0 adult lamprey were removed from the collection facility during this report period.

Transport Summary: Collection for fish transportation began April 23 with the first barge departure on April 24. Every day barging continued through May 16 upon transition to every other day barge operations. The last barge for the season departed on June 19. Collection for truck transport operations began August 1 with the first truck departure on August 3.

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. On May 14 the ASW was positioned to Low Crest. On June 13 the ASW position changed to High Crest. Summer spill operations began as scheduled on June 21. On August 1 at 00:15 hours the ASW was closed per FPP Chapter 8 section 2.3.2.7.e.i, diminished outflows below the 35 kcfs threshold. The ASW was opened on September 1 for 4 daily hours of steelhead overshoot spill operations from 0600 to 1000 hours.

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
21.9	14.2	1.3	1.1	63.0	61.7	6.0	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
10-18	1330	148	21	0	0
10-19	1145	271	3	0	0
10-20	1245	360	0	0	0
10-21	0800	94	0	0	0
10-22	1115	473	1	0	0
10-23	0745	222	0	0	0
10-24	1130	220	10	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*
10-18	79	79
10-19	113	113
10-20	93	93
10-21	125	125
10-22	131	131
10-23	96	96
10-24	210	210
Totals	847	847

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

Gas Bubble Trauma (GBT): Oregon Department of Fish and Wildlife began GBT monitoring on April 4 and completed final monitoring activities on July 23.

Fish Rescue/Salvage: No fish rescue activities took place during the report period.

Research: The Nez Perce Tribe (NPT) commenced adult steelhead kelt collection efforts on March 27 and concluded July 1.

Project: Lower Granite
Biologists: Elizabeth Holdren and Steve Lee
Dates: October 18-24, 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	10/15	0700			Annual Maintenance (6-year overhaul)

Comments:

Adult Fish Passage Facility

Lower Granite Biologists and EAS staff inspected the adult fishway October 18, 19, 20, and 23.

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’	7.8’
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.9’
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
X			North Powerhouse Entrance (NPE-1) Weir Depth	≥ 8.0’ or on sill	
X			North Powerhouse Entrance (NPE-2) Weir Depth	≥ 8.0’ or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
	X		North Shore Entrance (NSE-1) Weir Depth	≥ 7.0’ or on sill	6.7’
	X		North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	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.

Auxiliary Water Supply System:

Operating Satisfactorily	Standby	Out of Service	Auxiliary Water Supply (AWS)
N/A	X		AWS Fish Pump 1
Yes			AWS Fish Pump 2
Yes			AWS Fish Pump 3

Comments:

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	25.8 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		ESBS/VBSs inspected this week?
		X	ESBS/VBSs inspection results acceptable?
X			VBSs differentials checked this week?
X			VBSs differentials acceptable?

Comments:

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:

Collection Facility: Collection for truck transport continues.

Transport Summary: Truck transport continues with LWG supporting transport from LGO as necessary with trucks departing every other day on even days in October.

Spillway Weir: Steelhead fallback spill through the RSW is occurring daily for 4-consecutive hours from about 0600-1000 hours.

PIT tag interrogations: RSW detections included 64,476 juvenile and 174 adult Chinook salmon, 48,227 juvenile and 752 adult steelhead, 8,864 juvenile and 3 adult sockeye, 2,592 juvenile and 18 adult coho salmon. Juvenile bypass system detections included 10,216 juvenile and 21 adult Chinook salmon, 14,580 juvenile and 122 adult steelhead, 221 juvenile and 4 adult sockeye, 240 juvenile and 3 adult coho salmon through October 23 (DART).

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
16.8	15.3	1.7	1.4	60.0	59.0	5	5

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: N/A

Introduced Species: No zebra/quagga muscles were detected on the trap substrate. Siberian prawns collected in the sample included 193 live and 53 mortalities this report week with a season total collection of 381,408. All live Siberian prawns are euthanized.

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

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
Oct 18	1311	0	0	0	0
Oct 19	0909	1	7	0	0
Oct 20	1357	0	0	0	0
Oct 21	0801	0	0	0	0
Oct 22	0817	6	1	0	0
Oct 23	1118	18	5	0	0
Oct 24	0927	8	10	0	0

Gas Bubble Trauma (GBT) Monitoring: N/A

Adult Fish Facility Operations: Collection continues 24-hours/day with genetic and scale samples taken from adipose intact fall Chinook without coded wire tags.

Fish Rescue/Salvage:

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. To date 182 walleye have been PIT tagged at LWG adult trap as part of this study.

NOAA Fisheries: The Last Barrier: An investigation of expanding walleye populations into Pacific Salmon habitat of the Snake River

The objective is to implement the first-ever project to monitor walleye movements using radio-tag technology within the Columbia Basin. The goals are to determine walleye dam passage rates and routes, walleye movements and habitat use, and how dam operations impact walleye habitat use and movements. They will also be looking at walleye seasonal movement patterns, and home range of individual walleye. Thirty walleye collected at LWG adult trap this fall will surgically implanted with 30MHz radiotransmitters, PIT tagged and released to the tailrace. Radio tags will be tested initially and then turned off until the juvenile salmon outmigration in 2025. Walleye tagging concluded October 22 with a total of 32 tagged 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.

United States Geological Survey (USGS) Wild Juvenile Fall Chinook Salmon Genetics Sampling:

The goal of this study is to determine the origin of unmarked subyearling Chinook salmon in LWG sample. The USGS has developed an approach to estimate the daily abundance of natural origin subyearling Chinook salmon passing LWG each year. The goal is to collect fin clips from 15 unmarked subyearling on Monday's, Wednesday's, and Friday's May 15 to August 31. Genetic samples will be used to determine origin of unclipped subyearling Chinook salmon thus validating estimates of origin and model abundance.

PNNL Juvenile Pacific Lamprey Passage Behavior and Survival study:

Juvenile lamprey (macropthalmia) were collected from LWG sample, as needed, to meet PNNL downriver study objectives. LWG collected a total of 1502 juvenile lamprey this season to support this study.

PNNL has requested that LWG collect additional juvenile lamprey to be used for testing a juvenile lamprey collection structure.

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 1000 juvenile and 500 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 program's efficacy and assist with guiding future management. LWG SMP have collected genetic samples from 970 juvenile and 500 larval lamprey this season.

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. Idaho Power Company commenced sampling for white sturgeon in the Snake River between Hells Canyon and Lower Granite dams May 7. This is the first of a two-year sampling effort to assess the current status of white sturgeon in the Hells Canyon Reach. Idaho Power crews will be sampling anywhere between Hells Canyon and Lower Granite dams, including a 23-mile section of the lower Salmon River from its confluence to Snowhole Rapid. Idaho Power conducts these assessments every ten years compliant with measures outlined in Idaho Power's Snake River White Sturgeon Conservation Plan. Sampling will continue through October 17.

Idaho Power Company has established and refined standardized sampling for juvenile White Sturgeon to monitor year class production (recruitment). Juvenile sampling will occur annually during the months of October and November, between RM 108 and RM 145, using small mesh, sinking style gill nets. This sampling is the continuation of previous sampling efforts over the last decade (2014-2023). Idaho Power will also incorporate baited set-lines to further understand growth and movement of juvenile White Sturgeon.