U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#01-2023

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: March 1-9, 2023

Turbine Operation

Yes	No	Turbine Unit Status
	X	All 14 turbine units available for service? (See table & comments below for details.)

*All available turbine units are operated in accordance with App. C of the Fish Passage Plan.

McNary Unit Outages (OOS) and Return to Service (RTS).

	OOS		RTS		
Unit(s)	**Date**	**Time**	**Date**	**Time**	**Outage Description**
9	10/11/22	1008	4/3/23	NA	9-year overhaul
11 & 12	1/9/23	0630	7/28/23	NA	Control system upgrades

Comments: The one percent peak efficiency constraint and unit priority are being followed per the 2023 Fish Passage Plan (FPP). RTS dates are subject to change.

Adult Fish Passage Facilities

The Washington ladder was out of service from December 5, 2022, to January 13, 2023. The Oregon ladder was out of service from January 17 to February 28, 2023. All lamprey passage improvements were installed along with other maintenance. This was the second year the Oregon ladder collection channel was fully dewatered.

McNary fisheries biologists performed measured inspections of the adult fishways on March 1, 3 6 and 8. Picketed leads are currently raised. Visual adult fish counting will resume on April 1.

Fish Ladder Exits:

Yes	No	Location	Criteria	Measurements
X		Oregon Exit	Head over weir 1.0’ to 1.3’	1.0’ to 1.2’
X		Oregon Count Station Differential	0.0’ to 0.5’	0.0’ to 0.1’
X		Washington Exit	Head over weir 1.0’ to 1.3’	1.1’ to 1.2’
X		Washington Count Station Differential	0.0’ to 0.5’	0.0’ to 0.2’

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

At the Oregon exit, a new exit trash rack was installed this winter. Also, the exit temperature probe was inadvertently damaged. A new probe has been ordered. Multiple exit alarms came in and were reset on March 1. Finally, the traveling screens were found to be running almost continuously on March 6. Until the issue can be resolved, the roving operators began running the screens manually on March 8.

At the Washington exit, issues with the middle temperature probe were resolved on January 17. Multiple exit alarms came in and were reset on March 3.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
	X		North Oregon Entrance Head Differential	1.0' – 2.0'	0.5' to 1.1'
	X		NFEW2 Weir Depth	≥ 8.0'	7.2' to 8.0'
	X		NFEW3 Weir Depth	≥ 8.0'	6.8' to 7.9'
	X		South Oregon Entrance Head Differential	1.0' – 2.0'	0.7' to 1.9'
X			SFEW1 Weir Depth	≥ 8.0'	8.0' to 10.0'
	X		SFEW2 Weir Depth	≥ 8.0'	OOS or 8.0'
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.9 fps
X			Washington Entrance Head Differential	1.0' – 2.0'	1.4' to 1.5'
X			WFE2 Weir Depth	≥ 8.0'	9.2' to 10.0'
X			WFE3 Weir Depth	≥ 8.0'	9.1' to 10.0'

Comments: The above out of criteria points were due to SFEW2, fish pump 3 and the juvenile fish facility (JFF) being out of service. The north Oregon entrance differential was out of criterion on March 1, probably due to only one fish pump being operational. NFEW2 was out of criterion on March 3, 6 and 8. NFEW3 was out of criterion all week. These two weirs were probably out due to the JFF being out of service. The south Oregon entrance differential was out of criterion on March 1, again due to only one fish pump being online. SFEW2 had a coupler issue that could not be resolved until after the ladder returned to service. Due to the delay, the weir returned to service on March 7 at 1349 hours.

At the Washington ladder entrance, the elevation of WFE3 continues to be monitored until a calibration check can be made.

Over winter, the two old floating orifice gates (FOG's) were replaced with two new gates. Nine gates are new or rehabilitated. All gates have lifting cables attached. Slots W32, W37 and W 41 remain closed. Nine of 12 slots are open.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Fish Pump Blade Angle	Auxiliary Water Supply System (AWS)
Yes				WA shore Wasco County PUD Turbine Unit
	Yes			WA shore Wasco PUD Bypass
Yes			22° to 24°	Oregon Ladder Fish Pump 1
		Yes		Oregon Ladder Fish Pump 2 RTS date April 6, 2023
Yes		Yes	21° to 22°	Oregon Ladder Fish Pump 3
		Yes		OR North Powerhouse Pool supply from juvenile fishway

Comments: Fish pump 3 was out of service due to a gasket failure in a lubricant supply line on March 1 at 1419 hours to March 2 at 1503 hours. The blade angle on fish pump 1 was increased while pump 3 was out of service. Both fish pumps blade angles were reduced briefly to zero degrees for the return of SFEW2 on March 7.

Fish pump 2 remains out of service as stator repairs continue. The current return to service date is April 6, 2023. The juvenile bypass system remains out of service for winter maintenance and is not supplying the Oregon north powerhouse pool with auxiliary water. The JFF is set to return to service the week of March 27.

Juvenile Fish Passage Facility

The system remains out of service and dewatered for winter maintenance. Primary bypass is scheduled to begin the week of March 27. The first sample will be collected April 2.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Moderate to heavy
X			Gatewell drawdown measured this week?	4 times
X			Gatewell drawdown acceptable	
	X		Any debris seen in gatewells (% coverage)	
	X		Any oil seen in gatewells?	

Comments: Debris loads were moderate to heavy near the powerhouse. Wind direction changes moved the residual debris across the forebay from the powerhouse to the Oregon shore and back. New debris and the debris load beside the spillway were minimal. Most of the debris was woody material.

No trash racks were cleaned this week. Trash differentials were measured four time. Seven racks were tested cleaned on January 12, removing 15 yards of debris. No fish were observed. The next cleaning is scheduled for the week of March 27.

There are no problems to report.

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: All ESBS's remained raised and winter maintenance continues. No camera inspections are required. ESBS installation will begin on April 3.

Daily VBS differential monitoring will resume when ESBS's are reinstalled.

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

Yes	No	NA	Item	Number of orifices in service
		X	Did orifices operate satisfactory?	NA
		X	Dewatering and cleaning systems operating satisfactory?	

Comments: The collection channel remains dewatered for winter maintenance. All systems remain out of service. New limit switches were installed on all screen cleaning brushes this week. After testing, limit adjustments were required for the rectangular and transition screen cleaning brushes.

Bypass Facility:

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

Comments: The juvenile facility remains dewatered for winter maintenance, which is near completion.

Top Spillway Weir (TSW) Operations: The TSW in bay 19 remains closed. Spillbay 19 currently has a standard spillgate installed. The TSW will be installed before April 10. The TSW in bay 20 was in place before March 1. It

is being used as required by the Biological Opinion for adult fallbacks and is opened per the schedule released by RCC.

River Conditions

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
117.1	95.1	1.8	0.0	40.0	36.0	6.0	6.0

Comments: The above data is provided by the control room. The data day runs from 0000 to 0000 hours. The spill recorded is due to the TSW.

Repairs to cranes 6 and 7 have been completed. However, due to their age and the importance of these cranes, they will only be used to adjust spillgates without hoist as outlined in the 2023 Fish Passage Plan.

All hoist maintenance has been completed. The hoist with the broken coupler has been repaired. Currently, only the hoist for bay 6 is out of service. If ordered parts arrive, the hoist could return to service late June.

During winter maintenance, weld cracks in the gate's dogging assembly in bay 16 were found. The assembly will be inspected next week. If the repairs turn out to be simple, the gate may return to service by the end of March. However, more difficult repairs would delay the gates return until the end of April. Since it is the dogging assembly that is damaged, the gate cannot be raised, and the bay will have to remain closed until the repairs are complete.

So, to start the season, bays 2 and 6 will require a crane for adjustment. Bay 16 could possibly be closed.

Other

Inline Cooling Water Strainers: The cooling water strainer inspections in January, February, and March reveal 10, 37 and 28 juvenile lamprey mortalities, respectively. Seven live juvenile lamprey was removed in March. Juvenile shad mortalities were observed in January and February. One channel catfish and one yellow perch mortality were observed in January.

Avian Activity: Casual avian observations continued. Over winter, cormorants, gulls, grebes, pelicans, mergansers, and bald eagles were noted. Avian counts will begin April 1.

For the report week, no terns, pelicans, gulls, or grebes were observed on project. Cormorants were noted roosting on the juvenile bypass outfall or the navigation wing wall. One bald eagle was observed.

The two large bird distress calls and one laser will be deployed next week on the navigation lock wing wall. Also, the LRAD and the second laser will be installed on the outfall pipe. All devices will be activated before April 1.

Invasive Species: No invasive species were noted during the winter maintenance season. Mussel station examinations will resume in late March.

Siberian Prawn: No prawns were noted during the winter season.

Fish Rescue/Salvage**:** One juvenile lamprey mortality was found in the dewatered navigation lock on March 7.

Research: ODFW personnel will be removing their equipment from the area around the TSW on March 30 as their fallback study has concluded. USGS personnel will be installing their equipment along the upstream edge of the powerhouse and spillway on March 20 and 21 for a juvenile study.

Project: Ice Harbor
Fisheries Biologist: Ken Fone

Turbine Operation

Yes	No	Turbine Unit Status
	x	All 6 turbine units available for service (see table & comments below for details).

*All available turbine units are operated in accordance with App. 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**
3	5/3/19	0641	---	---	Turbine runner replacement and stator rewind

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on March 1, 2, 6, 8, and 9.

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 Shore Entrance (SFE-1) Weir Depth	≥ 8.0’ or on sill	6.5’, 6.3’, 6.0’, 6.6’
	x		South Shore Channel/Tailwater Differential	1.0’ – 2.0’	2.3’, 2.1’, 2.2’
x			South Shore Channel Velocity	1.5 – 4.0 fps	
		x	North Powerhouse Entrance (NFE-2) Weir Depth	≥ 8.0’ or on sill	
x			North Powerhouse Entrance Channel/Tailwater Differential	1.0’ – 2.0’	
	x		North Shore Entrance (NEW-1) Weir Depth	≥ 8.0’ or on sill	6.5’
	x		North Shore Channel/Tailwater Differential	1.0’ – 2.0’	0.2’

Comments: Deteriorated plastic fencing that serves as a fish jump barrier near the south fish ladder upper diffuser area was replaced with new plastic fencing material during the 2023 winter maintenance period.

During the winter maintenance period, diffuser #7 grating in the south fish ladder was observed to have numerous holes where the bars had rusted through. Diffuser #7 and #9 grating was also observed to be sagging down due to deteriorating metal support beams under the grating. The support beams and grating were replaced in-kind with spare material. These diffusers are not used during normal fish ladder operation, so plates were re-installed onto diffuser #9 grating and added to diffuser #7 grating. The plates provide attachment points for adult lamprey and prevent fish from becoming stranded on exposed diffuser grating when unwatering the fish ladder.

Adult fish counting began on March 1. The picketed leads were installed just prior to March 1.

The north shore channel/tailwater differential was well below criteria on the March 1 fishway inspection because of the auxiliary water supply pumps not starting up at the end of the fish ladder winter maintenance outage. The hydraulic pressure was found to be low and was increased to fix the problem. Two pumps were started up at 1539 hours on March 1. There was also a delay in returning the upper diffuser (#10) to service. See MFR 23 IHR 01 for more information on the delay in returning the north fish ladder to full operation.

NEW-1 weir depth was below criteria on March 8 when the weir was not on sill. The weir was in automatic control during the inspection, but the channel level transducer may have been out of calibration, which affected the positioning of the weir. The transducer was calibrated on March 9.

The south shore entrance weir depth was below criteria on March 1, 2, 8, and 9. The south shore channel/tailwater differential was above criteria on March 2, 8, and 9. SFE-1 weir was not on sill during these inspections and the tailwater was too low to meet the 8' depth criteria. This resulted in the high channel/tailwater differentials. The biologist requested that the powerhouse operator lower the weir to sill. SFE-1 weir is in manual control because of concern of the brake coil failing in automatic control. Electricians are investigating the problem

Auxiliary Water Supply System:

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

Comments: The north shore AWS pumps were not put in operation until March 1 (see the section above for details).

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
x			Forebay debris load acceptable? (amount)	Average of 46 square yards
		x	Gatewell drawdown measured this week?	
		x	Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	STSs partially blocking view into slots
	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/VBSs inspected this week?
		x	STS/VBS inspection results acceptable?
		x	VBS differentials checked this week?
		x	VBS differentials acceptable?

Comments: The STSs are removed for annual maintenance.

Orifices, Collection Channel, Dewatering Structure, and Flume:

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

Comments: The juvenile fish channel is unwatered for annual maintenance.

Juvenile Fish Facility: The fish facility is unwatered for annual maintenance.

Fish Sampling: Sampling begins on April 3.

Removable Spillway Weir (RSW): Voluntary spill through the RSW is periodically occurring for the downstream passage of adult steelhead that may have strayed into the Snake River. The RSW will be operated from 0500 hours to 0900 hours PST on Sundays, Wednesdays, and Fridays, from March 1 to April 2.

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
25.3	20.0	1.7	0	39	38	8.0	6.0

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Unit 1, 2, 4, 5, and 6 turbine cooling water strainer inspections took place on March 2. A total of 25 dead juvenile lamprey, one live juvenile lamprey, and six dead Siberian prawns were recovered.

Avian Activity: There were very few piscivorous birds seen around the project.

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

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility will be humanely euthanized by the fish sampling contractor, frozen and properly disposed of in a landfill.

Fish Rescue/Salvage: The one live juvenile lamprey found in the strainers was released into the lower south fish ladder in good condition.

Research: No on-site research is occurring at this time.

Project: Lower Monumental
Biologists: Denise Griffith and Raymond Addis

Turbine Operation

Yes	No	Turbine Unit Status
X		All 6 turbine units available for service (see table & comments below for details).

* All available turbine units are operated in accordance with App. C of the Fish Passage Plan.

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

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**

Comments: None

Adult Fish Passage Facility

Lower Monumental fish facility and EAS staff inspected the adult fishways on March 3, 4, 5, 6, 8 and 9.
New temperature stillwells were installed over the winter maintenance period for the adult fishways.

Fish Ladder:

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

Comments: None.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Shore Entrance (NSE-1) Weir Depth	≥ 8.0’ or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	≥ 8.0’ or on sill	
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	
		X	South Powerhouse Entrance (SPE-1) Weir Depth	≥ 8.0’ or on sill	
		X	South Powerhouse Entrance (SPE-2) Weir Depth	≥ 8.0’ or on sill	
X			South Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
	X		South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 6.0’	
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	

Comments: South Powerhouse Entrance Weir SPE-1 was on sill during all inspections with readings of 7.6, 8.3, 7.6, 7.3, 7.4 and 7.4 feet respectively. South Powerhouse Entrance Weir SPE-2 was on sill during all inspections with 7.6, 8.3, 7.6, 7.3, 7.4 and 7.4 feet respectively. South Shore Entrance (SSE-1) Weir Depth was out of criteria on the March 5, 8 and 9 inspections with reading of 7.5, 7.1 and 7.6 feet respectively. The powerhouse operator on duty was informed. SSE-1 does not appear to be moving. South Shore Entrance (SSE-2) Weir Depth was out of criteria

on the March 3 and 4 inspections with reading of 9.1 and 6.3 feet respectively. SSE-2 had been left at the uppermost position after being worked on during the winter and operators reported that they could not remotely operate on March 3. The operator set the gate as best as possible, and it was still out of criteria on the March 4 inspection. The weir gate position as corrected using two operators, one operating the gate and the other calling out the depth from the screen in the control room. SSE-2 can now be operated remotely from the control room.

During the winter outage, the staff gauges around the projects were replaced. In addition, the south entrance fishway expansion joint leak was repaired with a new rubber gasket.

The backboards at both fish count stations were removed on November 21, 2022. The backboards were sandblasted in December 2022. Specialty painting of the backboards will be completed next week, and they will be ready for installation.

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: The fish pumps returned to service after winter maintenance at 1430 on February 28.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	29 yd^2
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 30%
	X		Any oil seen in gatewells?	

Comments: Forebay trash racks were cleaned between February 13-15. Two full truck loads, estimated at 100 cubic yards, consisting of mostly of tumbleweeds, small sticks and logs were removed during the trash rack cleaning.

The benchmark gatewell drawdown readings were taken on February 23 and 27.

STSs/VBSs:

Yes	No	NA	Item
X			STSs deployed and in service in operating and available units?
	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: Pre-deployment inspection of the STS's took place on February 15. All were found in good working order. The STSs were deployed from February 21 through 23. The STSs are running in cycle-run mode until an average length of sub-yearling Chinook and sockeye can be determined.

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: Collection channel orifices were opened as the STS's were deployed into the gatewells between February 21 and 27. Dewaterer incline screen mechanical brush was found not to have completed its cycle on March 3. Facility operator manually repositioned the brush.

Collection Facility: The fish facility was watered up on February 28. Collection for condition sample took place on March 1, 5, and 7. A total of 207 fish were collected with 205 fish being bypassed during this reporting period. A plug of debris was found at 0400 on March 1 during collection. The plug was removed and no harm to fish was observed.
The fire suppression contractor began working after a new breaker box was installed on January 10. Most of the work for the fire suppression contract has been completed.

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

Spillway Weir: Spring spill for steelhead started at 00:00:01 on March 1.

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
26.4	19.7	1.4	0.0	38.0	36.8	7.1	6.6

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: The cooling water strainers were not checked this reporting period. Cooling water strainer baskets at unit 6 were fixed on January 5. A large stick was found to cause the mechanical issue with the unit.

Avian Activity: Tailrace counts of foraging piscivorous birds at Lower Monumental Dam are scheduled to begin on April 1. Bird hazing by USDA personnel is schedule to begin on April 3.

Invasive Species: No zebra or quagga mussels were observed during monitoring station inspections on March 4.

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by PSMFC and Anchor, frozen and properly disposed of in a landfill. Daily and total Siberian prawn counts at Lower Monumental Dam for this reporting period are reported below.

Date	Sample (euthanized)	Collection*
March 2	2	2
March 6	0	0
March 8	0	0
Totals	2	2

Fish Rescue/Salvage: Fish were rescued from the navigation lock's upstream tainter gate on March 5, with 2 unclipped adult steelhead, 1 unclipped yearling Chinook and 1 walleye relocated to the river.

Research: PNNL was present on March 6 through 9 installing hydrophones and associated equipment for their study on behavior and survival of juvenile Pacific lamprey at Lower Monumental Dam. The study itself will run from April 1 to September 30.

Project: Little Goose
Biologists: Deborah Snyder

Turbine Operation

Yes	No	Turbine Unit Status
	X	All 6 turbine units available for service (see table & comments below for details).

*All available turbine units are operated in accordance with App. 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**
1	3/08/2023	10:16	03/08/2023	11:15	Over-generation shut down during U6 testing
5	4/14/2017	14:11	06/30/2023	ERTS	Spider and upper guide bearing repair.

Comments: Unit 1 was temporarily forced out of service for power generation above target base point during mandatory Mod-25 (NERC) testing of unit 6 as outlined in 23 LGS 01 MFR, "Unit Priority Deviation".

Adult Fish Passage Facility

USACE staff inspected the adult Fishway on March 7, 8, and 9.

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		X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 7.0' or on sill	03/07 - sill
X		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 7.0' or on sill	03/07 - sill
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0'–2.0'	
X			North Shore Entrance (NSE-1) Weir Depth	≥ 6.0' or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	≥ 6.0' or on sill	
X			North Shore Channel/Tailwater Differential	1.0'–2.0'	
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: The adult fishway was initially returned to service on February 14, dewatered February 16 due to discovery of a second fish viewing window leak, then subsequently watered back up and commissioned for the season on February 23. The AWS pumps returned to service on February 23. The Fish Ladder Exit Cooling Water Pump was pulled, inspected, and readied for modest repairs on February 21. The Collection Channel Surface Velocity is measured at NPE.

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, 2, and 3 were returned to service February 23.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comment
X			Forebay debris load acceptable? (amount)	High 2,485 ft² - Low 25 ft²
		X	Gatewell drawdown measured this week?	
		X	Gatewell drawdown acceptable	
	X		Any debris seen in gatewells (% coverage)	
	X		Any oil seen in gatewells?	

Comments: The forebay had minimal floating debris inside the trash shear boom with the highest measurement occurring on March 7 at 90 ft². The overall total forebay debris high occurred March 8. The season initial draw down differential measurements are scheduled for March 16 post ESBS installation.

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 are scheduled for the week of March 13 through March 16.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	18
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: The juvenile bypass system was initially watered up March 6, was halted to fix pinhole leaks discovered in the 42" primary emergency fish bypass pipe, resumed and was fully commissioned on March 7.

Collection Facility: The juvenile collection facility is scheduled to water up on March 20. Every other day collection for condition monitoring in conjunction with secondary bypass will commence on March 25 with the first sample being conducted on March 26. Everyday collection is scheduled to begin April 23 coinciding with every other day barge transportation.

Transport Summary: Collection for fish transportation is scheduled to begin April 23 with the first barge departure on April 24. Every other day barging is scheduled thereafter pending situational transition to everyday barging due to any unforeseen increase in fish numbers.

Spillway Weir: Little Goose began operation of the adjustable spillway weir (ASW) on March 1 to facilitate passage of adult steelhead overshoots. Operation occurred three days each week every other day for four hours in the morning. Spring spill operations are scheduled to being on April 3. Summer spill operations are scheduled to begin on June 21.

River Conditions

River conditions at Little Goose Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (°F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
25.2	20.1	1.2	0.0	39.8	39.3	6.0	6.0

*Ladder temperature.

Other

Inline Cooling Water Strainers: Inline cooling strainer inspections commenced on December 1, 2022. Inspections will continue in accordance with the Fish Passage Plan (FPP) and results will be submitted to the District.

Avian Activity: Daily piscivorous bird counts at Little Goose Dam are scheduled to begin April 1, while USDA-APHIS bird abatement contract services are in place.

Invasive Species: No invasive species have been observed on the mussel station.

Siberian Prawn: Juvenile fish collection will begin March 25. Siberian prawns collected in the sample at the Juvenile Fish Facility will be humanely euthanized by Oregon Department of Fish and Wildlife and EAS Bio personnel, frozen and properly disposed of in a landfill

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

Fish Rescue/Salvage: No fish rescue and salvage operations transpired during this reporting period.

Research: The Nez Perce Tribe (NPT) will begin adult steelhead kelt collection efforts on March 26 with an anticipated conclusion date of July 1.

Project: Lower Granite
Biologists: Elizabeth Holdren and David Miller

Turbine Operation

Yes	No	Turbine Unit Status
	X	All 6 turbine units available for service (see table & comments below for details).

*All available turbine units are operated in accordance with App. C of the Fish Passage Plan.

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

	OOS		RTS		
Unit	Date	Time	Date	Time	Outage Description
5	02/06	0700			Annual maintenance, bearing temperature indication upgrades

Comments: Units were rotated out of service February 27-March 1 to rake trash racks.

Adult Fish Passage Facility

The adult fishway was watered up with gravity flow February 8. The ladder was dewatered February 9 to repair expansion joint leaks that were impacting PDW access ramp construction. The ladder was watered back up with gravity flow February 15. AWS pumps 1 and 2 were returned to service at 0705 hours February 17 for testing. LWG adult fish ladder was returned to FPP operating criteria at 1015 hours February 22. Lower Granite staff inspected the adult fishway on March 1, 2, 6, 7, 8, and 9.

Fish Ladder:

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

Comments: Fish Ladder Cooling Pump annual maintenance PM will be completed March 12.

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’	7.8’
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
X			North Powerhouse Entrance (NPE-1) Weir Depth	≥ 8.0’ or on sill	7.8’
X			North Powerhouse Entrance (NPE-2) Weir Depth	≥ 8.0’ or on sill	7.8’
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	0.9’, 0.9’,
	X		North Shore Entrance (NSE-1) Weir Depth	≥ 7.0’ or on sill	6.9’
	X		North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	6.9’
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	0.5’, 0.5’, 0.8’, 0.7’, 0.8’
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: Ladder collection channel operation and configuration will continue to be evaluated this season to resolve ongoing issues. FOGs 1, 4, 7, and 10 are in operation. Although there is no spill and both entrance gates are operating, north shore did not meet channel/tailwater head differential criteria. Efforts of the electrical crew were able to bring the ladder into criteria with the exception of the north shore channel/tailrace differential.

Auxiliary Water Supply System:

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

Comments: AWS pump 3 remained out of service for maintenance.

Juvenile Fish Passage Facility

The juvenile bypass system is scheduled to be watered up March 14 in primary bypass operation.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	
	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: Unit trash racks were raked February 27-March 1.

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: None.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe:

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

Comments: The juvenile bypass system is schedule to be watered up in primary bypass mode March 14.

Collection Facility: Condition sampling is scheduled to begin at 0700 March 25 with the first sample worked up March 26. Research collection for in-river survival tagging will be take place the weeks of April 2 and April 10, collection for the transport study will begin the week of April 20, and collection is scheduled to begin April 23.

Transport Summary: The first research trip is scheduled for April 20.

Spillway Weir: The RSW was operated from 0500-0900 hours March 1, 3, 5, 7, and 9. The RSW continue to be operated for steelhead overshoot passage from 0500-0900 hours Sundays, Tuesdays, and Thursdays until spring spill begins April 3. There were 29 adult steelhead detected at the RSW March 1-9 that included 17 unclipped, 5 clipped, and 2 unknown run/origin (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
20.6	19.4	1.7	0.0	38.0	37.0	5+	5+

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Unit cooling strainer inspections were conducted on February 23.

Invasive Species: No zebra/quagga muscles were detected on the trap substrate.

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

Gas Bubble Trauma (GBT) Monitoring: N/A

Adult Fish Trap Operations: The adult trap was watered up February 28. Collection for sampling started at 0730 hours on March 1 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 salmon and Adult Steelhead for ISEMP-Related Dispersal Monitoring:

The goal of this project is to PIT tag up to 4000 unclipped adult Chinook salmon 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 April 4 through December 15. The goal is to collect 5-20% of adult steelhead, spring/summer Chinook salmon, and sockeye salmon ascending the ladder April 4-December 15. Data collection includes fish scales, genetics tissue, sex and length, wild/hatchery composition, and non-adipose clipped hatchery fish assessment. All natural origin adult steelhead and spring/summer Chinook salmon trapped will be PIT tagged to estimate headwater tributary escapement. Sockeye salmon may be PIT tagged in the future to estimate metrics regarding conversion rates. Some steelhead and spring/summer Chinook salmon may be radio-tagged or spaghetti-tagged. This information on adult fish forms the basis for status information used in several forums including BiOp-RPA identified needs.

Sampling and PIT tagging of Walleye by the Idaho Department of Fish and Game (IDFG) and NOAA Fisheries.

Walleye collected in the adult fish trap will be PIT tagged to investigate movement and ascension rate of walleye that successfully exit the fish ladder into the upstream reservoir. PIT tag data collected will be used to gain an understanding of the potential expansion and threat of walleye upstream of LWG to ESA-listed salmonids and guide future management actions of walleye in the Snake River Basin.

PIT Tagging and Genetic Sample Collection from Bull Trout for USFWS:

Bull trout will be collected as part of the normal adult trap daily sample and using the adult SbyC system to recapture previously PIT tagged fish. Untagged bull trout will be PIT tagged, fin clipped for genetic analysis, and have morphometric data collected including weight and length etc. Fin clips will be sent to USFWS to determine the fish's origin. Previously PIT tagged bull trout will only have morphometric data collected. All fish will be released back into the adult fish ladder.