

**U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#38-2022**

Project: McNary

Biologist: Bobby Johnson and Paul Bertschinger

Dates: November 18 – November 24, 2022

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).

Unit(s)	OOS		RTS		Outage Description
	Date	Time	Date	Time	
9	10/11	1008	2/3/23	NA	9-year overhaul
11	11/21	1019	12/15	NA	New emergency bulkhead inspections
5	11/21	1252	11/21	1747	ESBS replaced in A slot
6 to 8	11/22	1000	11/22	1130	ESBS camera inspections, rotated units

Comments: The one percent peak efficiency constraint and unit priority are being followed per the 2022 Fish Passage Plan (FPP). RTS dates are subject to change.

Adult Fish Passage Facilities

The McNary fisheries staff performed measured inspections of the adult fishways on November 18, 20 and 22. Video review of adult passage continues and will extend to February 28, 2023. Picketed leads will remain down through this time frame. To ensure installation of lamprey passage structures on the entrance weirs, the Washington ladder outage will begin on December 5.

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 1.2'
X		Washington Count Station Differential	0.0' to 0.5'	0.2' to 0.5'

Comments: Debris loads were minimal near the Oregon and Washington exits. The general maintenance staff cleaned both exits' picketed leads as needed, including the weekend.

There are no problems to report.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0' – 2.0'	1.3' to 1.5'
X			NFEW2 Weir Depth	≥ 8.0'	8.3' to 8.4'
X			NFEW3 Weir Depth	≥ 8.0'	8.2' to 8.4'
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.3' to 1.4'
	X		SFEW1 Weir Depth	≥ 8.0'	7.8' to 8.0'
	X		SFEW2 Weir Depth	≥ 8.0'	7.9' to 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'	1.5'
X			WFE2 Weir Depth	≥ 8.0'	9.6' to 10.0'
X			WFE3 Weir Depth	≥ 8.0'	8.8' to 9.2'

Comments: The above out of criteria points in the Oregon ladder were possibly due to calibration drifts and occurred on November 20. WFE3 still requires calibration, however, this will wait for the winter outage unless tailwater elevation drops and causes the weir to operate out of criteria. Currently, the weirs depth is being estimated and appears to be in criterion. Calibrating the weir would require it to be removed from service.

There are four floating orifice gate (FOG) slots that still require future gate replacement. Slots W37 and W 41 remain closed. Ten of 12 slots are open. Eight gates are new or rehabilitated. Two gates are old.

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 23°	Oregon Ladder Fish Pump 1
		Yes		Oregon Ladder Fish Pump 2 RTS date is Jan. 31, 2023
Yes			23° to 24°	Oregon Ladder Fish Pump 3
Yes				OR North Powerhouse Pool supply from juvenile fishway

Comments: Fish pump 2 remains out of service and stator repairs continued. The current return to service date is January 31, 2023. Due to a farval issue, fish pump 1 was offline on November 16, from 0413 to 0519 hours. which was not previously reported

Juvenile Fish Passage Facility

The fall primary bypass season and maintenance continues. The separator and facility remain dewatered. The last swing shift occurred on November 19. There will now only be day shift seven days a week.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Minimal to moderate
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: Debris loads were light to moderate near the powerhouse. Wind direction changes moved the residual debris across the forebay from the powerhouse to the Oregon shore and back. Debris loads beside the spillway and new debris loads were minimal. Much of the debris was woody material and aquatic vegetation.

No trash racks were cleaned and 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: ESBS's were installed in all units. Since Unit 11 will be out of service past December 12, the screens in that unit were raised on November 22. After the ESBS's were raised, no fish were observed on the screens except juvenile shad.

The screen in 5A slot failed and was replaced on November 21. ESBS camera inspections occurred in units 6, 7 and 8 on November 22. No issues were found.

Daily VBS differential monitoring revealed no high differentials this week. Four screens were cleaned on November 18. No fish were observed.

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

Yes	No	NA	Item	Number of orifices in service
X			Did orifices operate satisfactory?	39
X			Dewatering and cleaning systems operating satisfactory?	

Comments: There no moisture in the permanent air supply lines this week. With unit 9 out of service, those orifices remain closed in order ensure the facility remains dewatered for further winter maintenance. The north orifice in 8B slot was used from November 18 to 21 due to an air leak in the south orifice operator. The 8B south operator and the 1B north orifice operator were repaired on November 23. Orifices were adjusted for VBS cleaning, ESBS camera inspections, gatewell slot grebe removal and orifice operator repairs as needed.

A transition screen cleaning brush timing alarm came in on November 18 at 2322 hours. The alarm self-cleared and no issues were found the next day. This alarm could have been trigger by a delay in any of the three screen brushes. The rectangular and transition brushes' limit switches were cleaned on November 20.

Bypass Facility:

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

Comments: Winter maintenance continues. The facility is fully dewatered. The A and B side flumes' winterization drains had to be thawed out this week. Both drains will be repaired once parts have been ordered.

Electrical, air and water lines no longer in use were removed from the wet lab.

Top Spillway Weir (TSW) Operations: Spillbay 19 currently has a standard spillgate installed. The TSW is installed in bay 20, which will remain closed, until the spring adult fallback season, which begins March 1.

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
148.8	110.6	0.0	0.0	49.0	49.0	6.0	6.0

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

Crane 7 remains in service. Electrical work on crane 6 continues. With limited crane use and hoist issues, a crane is required in order to move the gates in bays 2, 6, 16 and 21. The hoist for bay 6 is still out of service until February 2023 at the earliest. Only portion of the parts have arrived on project. The hoist with the broken coupler is scheduled to be repaired by January 3, 2023.

Other

Inline Cooling Water Strainers: The next cooling water strainer inspections will occur on December 6.

Avian Activity: Casual avian observations while doing other work continue.

For the outfall, the LRAD has been in place. However, there has been very little hazing effect. Parts for the laser have been ordered.

There are no other forms of hazing occurring at this time.

In the spillway zone, gulls and cormorants were roosting on structure or on the water. Bird numbers fluctuated with the juvenile shad outmigration, though cormorant numbers were fairly stable.

In the powerhouse zone, gull numbers fluctuated, with the birds roosting and/or feeding occasionally.

In the bypass outfall zone, gull numbers fluctuated, and cormorant numbers were stable at a fairly high number. Most of the birds were roosting but feeding at the outfall occurred occasionally.

In the forebay zone, a few gulls, and a fluctuating number of grebes (50 was the highest count) were observed. Most of the birds were roosting. Outside the zone, a gull flock, a few cormorants, two loons, a few grebes and one kingfisher were noted.

One grebe was removed from 7B gatewell slot on November 20.

Invasive Species: The mussel station examinations revealed no problems on November 20.

Siberian Prawn: No Siberian prawns were observed this year.

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

Research: There is currently no research taking place.

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)

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
3	5/3/19	0641	---	---	Turbine runner replacement and stator rewind

Comments: None.

Adult Fish Passage Facility

Ice Harbor staff inspected the adult fishways on November 21, 22, and 23.

Fish Ladders:

Yes	No	Location	Criteria	Measurements
x		North Ladder Exit Differential	Head \leq 0.3'	
x		North Ladder Picketed Lead Differential	Head \leq 0.3'	
x		North Ladder Depth over Weirs	Head over weir 1.0' to 1.3'	
x		South Ladder Exit Differential	Head \leq 0.3'	
x		South Ladder Picketed Lead Differential	Head \leq 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	\geq 8.0' or on sill	
	x		South Shore Channel/Tailwater Differential	1.0' – 2.0'	2.4', 2.5', 2.3'
x			South Shore Channel Velocity	1.5 – 4.0 fps	
		x	North Powerhouse Entrance (NFE-2) Weir Depth	\geq 8.0' or on sill	
x			North Powerhouse Entrance Channel/Tailwater Differential	1.0' – 2.0'	
		x	North Shore Entrance (NEW-1) Weir Depth	\geq 8.0' or on sill	
x			North Shore Channel/Tailwater Differential	1.0' – 2.0'	

Comments: The south shore entrance channel/tailwater differential was above criteria on all three fishway inspections because of lower tailwater levels. Five south shore auxiliary water supply (AWS) pumps have been operating, which are the minimum number of pumps needed to maintain at least 1.0' of channel/tailwater differential at the north powerhouse entrance as well as maintain at least 1.0' of depth over the stationary weirs that are just above tailwater level.

The north shore channel/tailwater differential was most likely below criteria for about four to five hours during the early morning hours of both November 18 and 19 when only one north shore AWS pump was running. See the next section for more information about what happened.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply (AWS) System
5 pumps	3 pumps		Status of the 8 south shore AWS pumps
1-2 pumps	1-2 pumps	0-1	Status of the 3 north shore AWS pumps

Comments: North shore AWS pump #2 tripped off at 0009 hours on November 18 due to a lubrication system failure alarm. The pump was inspected and restarted at 0530 hours on November 18. The pump tripped off again for the same reason at 2339 hours on November 18 and was restarted at 0334 hours on November 19. When it tripped again at 0935 hours on November 19, north shore pump #3 was started in place of pump #2 at 0955 hours on November 19. North shore pump #2 was out of service to investigate the problem from 0801 hours to 1610 hours on November 22 and from 0953 hours to 1258 hours on November 23.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
x			Forebay debris load acceptable? (amount)	Average of 17 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-20% 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/VBSs inspected this week?
		x	STS/VBS inspection results acceptable?
		x	VBS differentials checked this week?
		x	VBS 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 actuator for the water regulating weirs in the collection channel is in local control due to a problem with the automatic control function. 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 operating in primary bypass mode.

Fish Sampling: Juvenile fish sampling is done for the season.

Removable Spillway Weir (RSW): Voluntary spill for fish passage is done for the year.

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
19.5	11.9	0	0	52	49	9.6	8.6

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Unit 1, 2, 4, 5, and/or 6 cooling water strainers were cleaned of juvenile shad on November 21 and 23. A total of approximately 930 dead shad were removed.

Avian Activity: There were high numbers of mergansers, gulls, cormorants, and pelicans observed around the project. Most of the birds were observed foraging along the south shore downstream of the powerhouse, near the upstream tip of Eagle Island, and in the tailrace adjacent to the navigation lock when the lock was being drained.

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

Fish Rescue/Salvage: None.

Research: None.

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)

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
Unit 1	10/25/2022	0707	1/26/2023	TBD	Annual

Comments: None.

Adult Fish Passage Facility

The adult fishways were inspected by Army Corps biologists November 21, 22 and 23.

Fish Ladder:

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

Comments: The north ladder picketed leads were cleaned on November 22. The counting stations backdrops were removed for winter maintenance on November 21.

Fishway Entrances and Collection Channel:

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

Comments: The south powerhouse entrance weir (SPE-1) and (SPE-2) was on sill during all inspections with readings of 7.0, 7.0 and 7.2 feet, respectively. The south shore entrance weir (SSE-1) was on sill during the November 22 inspection with a reading of 7.9 feet, respectively. The project has received the new staff gauges and the JFF is working with powerhouse staff to arrange the installation.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
Yes			AWS Fish Pump 1
Yes			AWS Fish Pump 2
Yes			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)	133 yds ²
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		VBSs differentials checked this week?
		X	VBSs differentials acceptable?

Comments: Installed STSs were running in Cycle-Run mode throughout this reporting period.

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 brush in the PDS is no longer in automatic mode due to the small amount of debris coming into the channel. The brush is now run manually Monday and Thursday in the afternoon.

Collection Facility: The collection season ended on October 1. Winter maintenance of the facility continues. The holes in the wet lab floor were filled in this week with cement. Weeds and brush were removed from inside the outfall pipe fence.

Transport Summary: No transport is occurring currently due to winter maintenance.

Spillway: Fall spill for steelhead ended on November 15.

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
18.9	12.2	0.0	0.0	49.0	48.0	6.9	6.1

* Scrollcase temperatures are used for water temperatures. Due to Unit 1 being OOS, temperatures are currently being read from Unit 2.

Other

Cooling Water Strainers: Cooling water strainers inspections will occur again in December. Monitoring is performed from December to June.

Avian Activity: Only general observations occurred this week with ladder inspections. Gulls and cormorants were observed roosting around the forebay and on the navigation lock guidewall. Western Grebes were observed roosting and foraging in both the forebay and tailwater areas on November 21 and 23. The approximate number of grebes were 28 and 20 respectively.

Invasive Species: No zebra or quagga mussels were observed during monitoring station inspections on November 15.

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

Research: No research is occurring currently.

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)

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
1	10/17/2022	1530	12/29/2022	ERTS	Turbine oil leak, unit annual
5	4/14/2017	14:11	12/31/2022	ERTS	Spider and upper guide bearing repair.
6	4/18/2022	5:10	12/31/2022	ERTS	Rooftop/BUS work replacement; 6-year overhaul

Comments: Previously reported Unit 6 RTS date of 4/21/2022 pertained to station service only, the anticipated RTS for regular service is 12/31/2022. Unit 1 was forced out of service for a turbine oil leak. Repairs will be combined with the unit annual maintenance. Unit 4 operating for station service only during the BPA work (MOC 22 LGS 08).

Adult Fish Passage Facility

USACE staff inspected the adult Fishway on November 21, 22, and November 23.

Fish Ladder:

Yes	No	NA	Location	Criteria	Measurements
X			Fish Ladder Exit Differential	Head \leq 0.5'	
X			Fish Ladder Picketed Lead Differential	Head \leq 0.3'	
X			Fish Ladder Depth over Weirs	Head over weir 1.0' to 1.3'	
	X		Fish Ladder Cooling Water Pumps in Service		
		X	Fish Ladder 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	\geq 8.0'	
X			South Shore Entrance (SSE-2) Weir Depth	\geq 8.0'	
X			South Shore Channel/Tailwater Differential	1.0' – 2.0'	
X			North Powerhouse Entrance (NPE-1) Weir Depth	\geq 7.0' or on sill	
X		X	North Powerhouse Entrance (NPE-2) Weir Depth	\geq 7.0' or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0'–2.0'	
X			North Shore Entrance (NSE-1) Weir Depth	\geq 6.0' or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	\geq 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 returned to service on February 8 with AWS pumps returning to service on February 24. The NSE channel/tailwater differential and NSE weir depths were manually measured, adjusted, and monitored into criteria from February 24 through March 1. The fishway Fish System Control (FSC) was recommissioned on May 5 with NSE weir reading anomalies. NSE weirs 1 and 2 are being monitored with manual

measurements as both weir targets enabling the FSC system to accurately read and automatically adjust weir heights were compromised during emergency flood control measures in June, repairs are pending. The Fish Ladder Exit Cooling Water Pump was replaced, installed, and readied for service on April 23. Criteria requiring the activation of the Fish Ladder Exit Cooling Pump was met during the night hours of June 26, and the system was started at 0800 hours on June 27. The Fish Ladder Exit Cooling Pump met criteria and was turned off at 1700 hours on September 30. 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 24.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comment
X			Forebay debris load acceptable? (amount)	High 41 ft ² - Low 4 ft ²
	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 November 21. The next Draw down differential measurements are scheduled for December 1.

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 began March 21 with most units completed on March 22. Units 6 and 1 ESBS and VBS undergoing work during scheduled maintenance periods. ESBS winter maintenance removal tentatively scheduled to begin December 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 watered up March 23.

Collection Facility: The juvenile collection facility completed water up activities on March 29. Every other day collection for condition monitoring in conjunction with secondary bypass commenced on April 1 with the first sample being conducted on April 2. Everyday collection began April 23 coinciding with every other day barge transportation. Collection ended for the season with the final sample of November 1.

Transport Summary: Collection for fish transportation began April 23 with the first barge departure on April 24. Every other day barging transitioned to everyday barging on May 16 due to an increase in fish numbers. Every other day barging resumed on May 24. Barge transportation for the season ended with the final barge departure of June 19. Collection for truck transport operations began on August 1 with the first truck departure on August 3 and concluded with the final truck departure of November 1.

Spillway Weir: Little Goose began operation of the adjustable spillway weir (ASW) on March 2 to facilitate passage of adult steelhead overshoots. Operation occurred three days each week on non-consecutive days for four hours in the morning on Tuesday, Thursday, and Sunday each week through March 31. Spring spill operations began as scheduled on April 3 with the ASW in high crest. The ASW was positioned in low crest on May 28. Summer spill operations began as scheduled on June 21, and the ASW was repositioned into high crest on June 28. The ASW was closed for the spill season at 10:00 on August 1. Summer spill concluded for the season at 2357 hours on August 31. Surface spill to facilitate downstream passage of pre-spawn adult steelhead as natal stream overshoots commenced at 0500 hours on September 1. The ASW was positioned at an elevation of 639 feet and is scheduled to spill from 0500 hours through 0900 hours every Tuesday, Thursday, and Sunday through the month of October, with an anticipated slight schedule change to occur early November. Final ASW steelhead natal stream overshoot spill ended at 0900 on November 15.

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
17.4	12.5	0.0	0.0	49.3	48.6	6.0	6.0

*Ladder temperature.

Other

Inline Cooling Water Strainers: Inline cooling strainer inspections commenced on December 9, 2021. 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 began April 1 with hazing beginning on March 29 and ended June 18. Daily bird counts ended for the season with the November 1 count as reported in the previous reporting period.

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

Siberian Prawn: Juvenile fish collection began on April 1. Siberian prawns collected in the sample at the Juvenile Fish Facility were humanely euthanized by Oregon Department of Fish and Wildlife and EAS Bio personnel, frozen and properly disposed of in a landfill. Daily and total Siberian prawn counts at Little Goose Dam concluded for the season with the November 1 counts.

Gas Bubble Trauma (GBT): The last GBT monitoring event occurred August 24.

Fish Rescue/Salvage: Neither fish rescue nor salvage activities took place during this report period.

Research: The Nez Perce Tribe (NPT) began adult steelhead kelt collection efforts on April 1 and concluded June 2

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)

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
1-6	11/14	0801	11/18	1514	500 KV Line outage
2	10/31	0714	11/21	0938	Annual Maintenance
3	11/21	0608	11/21	1254	Forced outage excitation issues
4	11/21	0700			Thrust bearing repair and indication upgrades
5	11/23	0700	11/23	1042	ESBS removal

Comments: None.

Adult Fish Passage Facility

Lower Granite Biologists and Anchor QEA staff inspected the adult fishway on November 22 and 23.

Fish Ladder:

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

Comments: Temperature data can be found at <https://www.nwd-wc.usace.army.mil/dd/common/dataquery/www/>.**Fish Ladder Entrances and Collection Channel:**

Yes	No	Sill	Location	Criteria	Comments
X			South Shore Entrance (SSE-1) Weir Depth	\geq 8.0'	
X			South Shore Entrance (SSE-2) Weir Depth	\geq 8.0'	
X			South Shore Channel/Tailwater Differential	1.0' – 2.0'	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	\geq 8.0' or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	\geq 8.0' or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0'–2.0'	
X			North Shore Entrance (NSE-1) Weir Depth	\geq 7.0' or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	\geq 7.0' or on sill	
	X		North Shore Channel/Tailwater Differential	1.0'–2.0'	0.9'
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: The fish ladder control system continues to be evaluated to resolve ongoing issues. FOGs 1, 4, 7, and 10 are in operation. Although both NSEs and all four FOGs are in operation, the north shore has not consistently met channel/tailwater head differential criteria this season.

Auxiliary Water Supply System:

Operating Satisfactorily	Standby	Out of Service	Auxiliary Water Supply (AWS)
	X		AWS Fish Pump 1
Yes			AWS Fish Pump 2
Yes			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)	40.0 yds 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: None.

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: None.

Collection Facility: Dewatered for winter maintenance.

Transport Summary: No transport.

Spillway Weir: The RSW was closed November 18 at 1528 hours. There were 106,714 juvenile and 262 PIT-tagged adult Chinook salmon, 72,884 juvenile and 644 adult PIT-tagged steelhead, 10,826 juvenile and 4 adult

sockeye salmon, and 4,064 juvenile and 9 adult coho salmon detected over the RSW spillway from March 1 to November 18.

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
17.9	14.1	2.4	0.0	44.0	44.0	5.0	5.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: NA

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

Avian Activity: N/A

Gas Bubble Trauma (GBT) Monitoring: N/A

Adult Fish Trap Operations: N/A

Fish Rescue/Salvage: Unit 4 fish rescue occurred November 22. No fish were in the unit.

Research: N/A