U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#35-2022

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: October 28 – November 3, 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).

	OOS		RTS		
Unit(s)	**Date**	**Time**	**Date**	**Time**	**Outage Description**
9	10/11	1008	2/3/23	NA	9-year overhaul
13 & 14	11/1	1000	11/1	1100	ESBS inspections, rotate through units
13	11/3	0734	11/3	0848	Speed switch replaced

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 October 28, 30 and November 1. Visual in person fish counting concluded on October 31, at which time, video review of adult passage began and will extend to February 28, 2023. Picketed leads will remain down through this time frame.

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’	0.3’
X		Washington Exit	Head over weir 1.0’ to 1.3’	1.1’
X		Washington Count Station Differential	0.0’ to 0.5’	0.2’ to 0.3’

Comments: Debris loads were light near the Oregon exit and minimal near the Washington exit. Most of the debris was residual and circulated from the powerhouse to the Oregon shore depending on the wind direction. The general maintenance staff cleaned both exits’ picketed leads as needed, including the weekend.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0' – 2.0'	1.0' to 1.1'
X			NFEW2 Weir Depth	≥ 8.0'	8.3' to 8.6'
X			NFEW3 Weir Depth	≥ 8.0'	8.5' to 8.6'
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.2' to1.3'
X			SFEW1 Weir Depth	≥ 8.0'	8.4' to 8.6'
X			SFEW2 Weir Depth	≥ 8.0'	8.5' to 8.7'
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.7 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	1.4' to 1.5'
X			WFE2 Weir Depth	≥ 8.0'	9.8' to 10.2'
X			WFE3 Weir Depth	≥ 8.0'	9.0' to 9.4'

Comments: 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. The general maintenance staff began attaching cables to the FOG's this week, which will facilitate their removal in the future.

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

Comments: Fish pump 2 remains out of service and work continued this week on the stator repairs. The current return to service date is January 31, 2023.

Juvenile Fish Passage Facility

The fall primary bypass season and maintenance continues. The separator and facility remain dewatered. More winterization was completed this 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 minimal 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.

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 are installed in all units. ESBS camera inspections revealed no issues in units 13 and 14 on November 1. The issue with unit 1's ESBS control panel view was resolved on November 3.

Daily VBS differential monitoring revealed no high differentials. A total of six screens were cleaned on November 1 and 3. 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 was a small amount of moisture in the temporary air supply line this week. Orifices were adjusted for VBS cleaning as required. With unit 9 out of service, those orifices remain closed in order ensure the facility remains dewatered for further winter maintenance.

A high-water alarm came in on November 3 at 0726 hours. We assume this was due to unit 13 being removed from service. Occasionally, unit load changes cause brief water elevation alarms in the channel due to orifice flow volume changes related to the unit change.

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 electrical work on the new unit for the facility PIT room air conditioning was completed October 31.

Top Spillway Weir (TSW) Operations: Spillbay 19 currently has a standard spillgate installed. The TSW is installed in bay 20 and is being opened per the fall season adult fallback schedule, which concludes on November 15. It was noted the hoist in bay 20 had broken coupler on November 3. This hoist was moved to bay 16 and the hoist in bay 21 was moved to bay 20. There was no interruption in TSW operation.

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
126.1	79.8	1.8	0.0	59.0	57.0	6.0	6.0

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

Crane 7 remains in service. Electrical work on crane 6 continues. With limited crane use and hoist issues, including the new problem mentioned above, 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 new hoist issue mentioned above depends on parts being on project or not at this time.

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. Currently, there is very little response from the roosting birds. However, more sounds were programmed this week and will be tested next week. Ordering parts for the laser has begun.

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

In the spillway zone, gulls and cormorants were roosting on structure unless the TSW was open, which encouraged the gulls to feed. Bird numbers fluctuated with the juvenile shad outmigration, though gull and cormorant numbers were high at times, with an estimate of 700 and 300 birds, respectively, in the tailwater area.

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 was noted when juvenile shad were present.

In the forebay zone, a few gulls, or a gull flock along with one grebe were observed. Outside the zone, large gull flocks, a few cormorants, one great blue heron and two pelicans were noted. Most birds were roosting.

Invasive Species: The next mussel station examinations will occur in late November.

Siberian Prawn: No Siberian prawns were observed this year.

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

Research: The Oregon Department of Fish and Wildlife continued their TSW adult fallback 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
4	10/29/22	0718	11/3/22	1222	BPA line 2 outage for maintenance

Comments: None.

Adult Fish Passage Facility

Ice Harbor staff inspected the adult fishways on October 31, November 2 and 3.

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	
	x		South Shore Channel/Tailwater Differential	1.0’ – 2.0’	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	
x			North Shore Channel/Tailwater Differential	1.0’ – 2.0’	

Comments: Adult fish counting ended for the season on October 31. The south ladder picketed leads were raised out of the water on November 1 and the north ladder picketed leads were raised on November 2.

The south shore entrance channel/tailwater differential was above criteria on all three 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’ of depth over the stationary weirs that are just above tailwater level.

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
2 pumps	1 pump		Status of the 3 north shore AWS pumps

Comments: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
x			Forebay debris load acceptable? (amount)	Average of 13 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-10% 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): The RSW is periodically opened from September 1 to November 15 for the downstream passage of adult steelhead that may have strayed into the Snake River. The RSW is scheduled to be operated from 0500 hours to 0900 hours on Sundays, Wednesdays, and Fridays for that purpose.

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	11.0	1.5	0	60	58	9.0	8.0

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Unit 1 cooling water strainer was cleaned on October 31. Approximately 1,000 dead juvenile shad were removed.

Avian Activity: There were moderate numbers of piscivorous birds observed around the project. Most of the birds were observed foraging near the upstream tip of Eagle Island, in the tailrace of spillbay 2 when the RSW was open, and in the tailrace adjacent to the navigation lock when the lock was drained.

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

Fish Rescue/Salvage: None.

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**
Unit 1	10/25/2022	0707	1/26/2023	TBD	Annual
Unit 2	10/31/2022	0940	11/4/2022	TBD	BPA line outage
Unit 3	10/28/2022	1550	11/4/2022	TBD	STS failure/BPA line outage
Unit 4	10/31/2022	0940	11/4/2022	TBD	BPA line outage
Unit 5	8/22/2022	0645	11/4/2022	TBD	T2 repairs
Unit 6	8/22/2022	0645	TBD	TBD	Annual/T2 repairs

Comments: Unit 1 OOS for urgent planned outage two weeks earlier than planned for its annual outage while researching a possible oil leak. BPA line outage and T2 repairs took place this week. Estimated return to service for Unit 6 has yet to be determined, but the target is December 15, 2022.

Adult Fish Passage Facility

The adult fishways were inspected by Army Corps biologists October 31, November 1 and 2.

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: The north side picketed leads were cleaned on November 2. The air was used to clean the north fish exit to remove the buildup of debris and lower the differential from 0.3 to a 0.1.

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: The south powerhouse entrance weir (SPE-1) was on sill during all inspections with readings of 6.7, 6.7 and 5.4 feet, respectively. The south powerhouse entrance weir (SPE-2) was on sill during all inspections with readings of 6.7, 6.7 and 5.4 feet, respectively. The south shore entrance weir (SSE-1) was on sill during all inspections with readings of 8.0, 7.7 and 5.6 feet, respectively. South powerhouse tailwater staff gauge's, SG9N, frame was found loose on the April 13 inspections. The project has received the new staff gauges. The JFF staff is working with powerhouse staff to arrange the installation. An air leak was found and repaired at the north fish view window brush on November 2.

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: All three fish pumps were OOS on November 3, from 1643-1830 hours, with at least 30 minutes in the middle of that time operating as troubleshooting was occurring for a power outage. The power outage occurred while the project was "islanded", which means no units were operating due to BPA power grid modifications. An MFR will be submitted containing additional details.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	20 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: No gatewell drawdowns were measured this week due to the BPA power grid modification work. No units were available for power generation.

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: STSs were running in Cycle-Run mode throughout this reporting period. STS inspections took place this week. All units were inspected except Unit 5 which could not be taken OOS to inspect because this unit was providing station service, all other units were not generating power.

The STS in the 3B slot was found not operational on October 28 at 1550 hours. Unit 3 was kept OOS due to the failure until it could be examined by powerhouse staff. Powerhouse electricians worked on the STS operating system on October 31 and November 1. After troubleshooting the STS issue, the electrical issue with the STS was fixed and the STS was returned to service on November 2.

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.

A brief power outage occurred on October 31 from 0815 to 0840 hours while during the preparation for the BPA power grid modification.

A loss of power occurred to the station service on November 3 from 1643-1830 hours. The project was not running any units during the power outage, as BPA was performing power grid modifications. The single project operator was able to restore power for approximately 30 minutes during that time while troubleshooting the power loss issue. All systems returned to service at 1830 hours once station service was able to be restored.

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

Spillway: Fall spill for steelhead began at 00:00:00 on September 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
20.0	12.4	6.0	0.0	65.0	65.0	5.8	5.5

*Scrollcase temperatures are usually used for water temperatures. The only day river temperature was obtained during this report period was on October 31, 2022. All units were not generating on the other inspections, due to BPA power grid modifications.

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. On the days there is spill for the adult steelhead, larger amounts of gulls are observed feeding in the tailwater.

In addition, the new osprey pole was taken up to the location it will be placed once the new hole is dug. Pasco shop Corps employees will be assisting the digging the hole in the near future.

Invasive Species: Zebra and quagga mussel observations will occur in late November.

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

Research: No research is occurring currently.

Project: Little Goose
Biologists: R.A. Addis and 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	10/17/2022	1530	11/18/2022	ERTS	Turbine oil leak and unit annual
2	11/03/2022	1312	11/03/2022	1403	Unanticipated line trip
3	11/03/2022	1312	11/03/2022	1403	Unanticipated line trip
4	11/03/2022	1312	11/03/2022	1403	Unanticipated line trip
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.

Adult Fish Passage Facility

EAS Bio and USACE staff inspected the adult Fishway on October 29, 31, and November 3.

Fish Ladder:

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

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	
X			South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 7.0’ or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 7.0’ or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
X			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 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. All fish pumps maintained operations during the line trip event of 11/03/2022.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comment
X			Forebay debris load acceptable? (amount)	High 15 ft² - Low 0 ft²
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	1A-1%10/30, 10/31& 11/1; 1B-1%11/1
X	X		Any oil seen in gatewells?	3C 10/31

Comments: The forebay had minimal floating debris inside the trash shear boom with the highest measurement occurring on October 29. Detection of slight oil sheen in gatewell 3C on October 31 presumed to be from rainfall deckwash event of the previous day, no sheen visible November 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.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	19; 18 on 10/30
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. This week a total of 910 fish were collected, 0 were bypassed, 1,186 were transported by truck, and there were 0 sample or facility mortalities. The descaling and mortality rates were 2.8% and 0.0%, respectively. No adult lamprey were removed from the collection facility; both the collection and transport facility operated within criteria this report period.

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.

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
18.5	12.6	1.3	0.0	60.4	58.5	5.5	4.6

*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. Hazing ended on June 18.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
10-28	8:30	45	40	0	0
10-29	8:30	72	39	0	0
10-30	8:30	75	17	0	0
10-31	9:00	5	14	0	0
11-01	9:10	19	12	0	0

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 are humanely euthanized by Oregon Department of Fish and Wildlife and Anchor, frozen and properly disposed of in a landfill. Daily and total Siberian prawn counts at Little Goose Dam for this reporting period are listed below.

Date	Sample	Collection
10-28	37	37
10-29	53	53
10-30	79	79
10-31	1279	1279
11-01	662	662
Totals	2110	2110

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

Fish Rescue/Salvage: Transition Flume and separator cleanout rescue activity transpired upon final collection and transition to primary bypass. Fish included 1 clipped jack Chinook salmon, 1 clipped adult steelhead, and 1 unclipped subyearling Chinook salmon were recovered from the transition flume. Separator cleanout resulted in 125 Siberian prawn, 6 young-of-year bullhead catfish, and 2 juvenile lamprey live captures; 80 Siberian prawns, 8 juvenile shad, and 1 juvenile white crappie mortalities.

Research: The Nez Perce Tribe (NPT) began adult steelhead kelt collection efforts on April 1 and concluded June 29.

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
1,2,6	10/30	0900	10/30	1351	ESBS/VBS Inspection
2	10/31	0714			Annual Maintenance

Comments: None.

Adult Fish Passage Facility

Lower Granite Biologists and Anchor QEA staff inspected the adult fishway on October 28, 29 and November 2, 3.

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: Ladder 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	≥ 8.0’	
X			South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
X			North Powerhouse Entrance (NPE-1) Weir Depth	≥ 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	
X			North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ 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 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. This may be related to the operations of all four FOGs.

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)	27.7 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: There were 1,116 fish collected this week. The juvenile bypass system was switched to primary bypass at 0700 hours on November 1.

Transport Summary: The last truck transport trip was November 1. There were 1,430 fish transported this week.

Spillway Weir: There were 8 wild PIT-tagged steelhead fallbacks at LWG this report week with 5 detected at the RSW and 3 detected in the JBS full flow array. Seven of the wild steelhead fallbacks were tagged and released from the LWG adult trap August 5-November 2.

There were 106,555 juvenile and 258 PIT-tagged adult Chinook salmon, 72,882 juvenile and 618 adult PIT-tagged steelhead, 10,826 juvenile and 4 adult sockeye salmon, and 4,064 juvenile and 7 adult coho salmon detected over the RSW spillway since March 1. There have been 39,517 juvenile and 50 adult Chinook salmon, 28,754 juvenile and

169 adult steelhead, 2,124 juvenile and 1 adult sockeye salmon, and 951 juvenile and 2 adult coho salmon detected at the JBS full flow PIT tag detection array since March 14 (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
17.8	14.5	1.7	0.0	58.0	53.5	5.0	5.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: N/A

Invasive Species: No zebra/quagga muscles were detected on the trap substrate. There were 54 Siberian prawn in the condition sample this report week.

Avian Activity: Biologist daily piscivorous bird counts and hazing continues at Lower Granite Dam.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
Oct 28	1430	8	38	0	0
Oct 29	1000	0	7	0	0
Oct 30	1528	2	25	0	0
Oct 31	1633	0	1	0	0

Gas Bubble Trauma (GBT) Monitoring: N/A

Adult Fish Trap Operations: LWG Adult trap is in 24/7 operation that will continue through November 15.

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 4,000 unclipped adult Chinook salmon and 4,000 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. 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.

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.

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 1,000 juvenile and 2,230 larval Pacific lamprey, not to exceed 20 juvenile or 10 larvae daily, during the routine smolt monitor condition sampling from March through October. The purpose of this study is to fill two objectives; 1) Determine relative proportion of translocation offspring among the total abundance of larval and juvenile lamprey passing the juvenile bypass systems at BON, JDA, MCN, and LWG. 2) Describe life history characteristics of larval and juvenile lamprey emigrating from the Columbia and Snake River basins. The genetic information collected will be used to evaluate the tribal Pacific lamprey programs efficacy and assist with guiding future management. There have been 1,193 macrophthalmia (juvenile) and 1,737 ammocoete (larval) lamprey samples collected 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.