

**U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#34-2022**

Project: McNary

Biologist: Bobby Johnson and Paul Bertschinger

Dates: October 21 – October 27, 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	12/9	NA	9-year overhaul
1, 2 & 3	10/25	1000	10/25	1130	ESBS inspections, rotate through 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 October 21, 23 and 25. Visual in person fish counting will conclude on October 31, at which time, video review of adult passage will begin and 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'	0.2' to 0.3'
X		Washington Exit	Head over weir 1.0' to 1.3'	1.0' to 1.1'
X		Washington Count Station Differential	0.0' to 0.5'	0.1' to 0.2'

Comments: Debris loads were light to moderate 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 the weekend.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0' – 2.0'	1.2' to 1.3'
	X		NFEW2 Weir Depth	≥ 8.0'	7.9' to 8.2'
X			NFEW3 Weir Depth	≥ 8.0'	8.1' to 8.2'
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.4'
X			SFEW1 Weir Depth	≥ 8.0'	8.0' to 8.1'
	X		SFEW2 Weir Depth	≥ 8.0'	7.9' to 8.1'
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'	9.8' to 10.1'
X			WFE3 Weir Depth	≥ 8.0'	9.0' to 9.3'

Comments: The above out of criteria points at NFEW2 and SFEW2 occurred on October 23 and were possibly due to set point drifts. 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 stoplogs in W37 and W41 were briefly swapped with other logs on October 25 and 27, respectively, in order to inspect the logs that had been in both slots. Each log swap took approximately 20 to 30 minutes. No ladder alarms occurred during the exchanges.

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			22°	Oregon Ladder Fish Pump 3
Yes				OR North Powerhouse Pool supply from juvenile fishway

Comments: Fish pump 2 remains out of service and work will resume next week on the stator repairs. The current return to service date is January 31, 2023. Fish pump 3 tripped offline from 1158 to 1219 hours on October 21. The governor pump oil level was again the issue.

Juvenile Fish Passage Facility

The fall primary bypass season and maintenance continues. The separator remains dewatered. More partial winterization was completed when the facility supply line was closed on October 27, which will be discussed below.

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 1 through 3 on October 25. Unit 1's ESBS control panel view continued to be intermittent. When needed, brush motor amp readings were requested from the control room.

Daily VBS differential monitoring revealed no high differentials. Four screens were cleaned on October 22. 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?	42 or 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. Orifice attraction light was repaired as needed.

With unit 9 out of service, those orifices were closed in order to be able to remove the facility water supply line from service so further winter maintenance could occur at the facility. Also, the east and west floor valves were opened one inch each to insure the two side dewatering valves remained at the same level. This all occurred on October 27, from 1141 to 1216 hours.

Bypass Facility:

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

Comments: Winter maintenance continues. As described above, the facility was fully dewatered on October 27.

The facility PIT room air conditioning continued to trip offline and be reset. The electrical work on the new unit will be completed on October 31.

This week, one of the B side sample tank's standpipes was repair for a better fit.

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.

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
91.4	69.5	1.8	0.0	64.0	61.0	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 began on October 24. With limited crane use and hoist issues previously discussed, a crane is required in order to move the gates in bays 2, 6, and 16. The hoist for bay 6 is still out of service until December at the earliest.

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 will be tested next week. Ordering parts for the laser is still delayed.

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 in very high numbers. Bird numbers fluctuated with the juvenile shad outmigration, though cormorant numbers appeared to be higher.

In the powerhouse zone, gull numbers fluctuated, with the birds roosting and/or feeding occasionally. One night heron was observed on the shore.

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 a few cormorants, grebes, and great blue herons were observed. Outside the zone, large gull flocks and a few cormorants were noted. Most birds were roosting.

Invasive Species: The mussel station examinations revealed no problems on October 23.

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)

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 October 22, 24, and 27.

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'	2.2
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 October 27 because of lower tailwater levels. Five south shore auxiliary water supply (AWS) pumps have been operating.

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 30 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?	Gatewell slot 5B

Comments: A light oil sheen was observed in gatewell slot 5B on October 25. The source of the oil has not been determined, but sheen was most likely produced from 1 teaspoon of hydraulic oil. Oil socks were already in 5B gatewell and head gate slots. An oil skimmer was deployed into the head gate slot. The appropriate state and federal agencies were notified of the oil spill.

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
21.1	13.8	1.6	0	64	60	9.0	9.0

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Unit cooling water strainer inspections for fish are done for the season until December.

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)

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
Unit 1	10/25/2022	07:07	1/26/2023	TBD	Annual
Unit 3	10/17/2022	0550	10/27/2022	12:20	Annual
Unit 5	8/22/2022	0645	TBD		T2 repairs
Unit 6	8/22/2022	0645	TBD		Annual/T2 repairs

Comments: Unit 1 was placed OOS as urgent to inspect an issue with a possible oil leak. Since the unit was scheduled to be OOS till the end of January for the annual, the unit will remain OOS. Unit 2 is currently the priority unit running. Estimated return to service for Units 5 and 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 24, 25 and 26.

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: None.

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	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) was on sill during all inspections with readings of 7.5, 7.3 and 7.0 feet, respectively. The south powerhouse entrance weir (SPE-2) was on sill during all inspections with readings of 7.5, 7.3 and 7.0 feet, respectively. The south shore entrance weir (SSE-1) was on sill during all inspections with readings of 8.0 feet. 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.

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)	23 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 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. The STS in Unit 5 was found off during the ladder inspection on October 26. Control room was notified, and the STS was placed back into cycle mode.

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 elevation of the water at the PDS was found to be a little high on October 26. The water level was lowered a 0.10' of a foot. 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. Power washing of all flumes and raceways was completed this week. The main flume behind the separator building was scrubbed to remove the algae buildup on October 24. The JFF shop closet was cleaned out and organized to allow for the tools to be stored for winter. Trees and bushes were trimmed around the JFF.

The wet lab work was completed this week with the removal of old piping and PVC lines which are no longer used. A new PVC water line has been added to help with the water flow to the incidental fish release. The trip hazards on the wet lab floor have also been removed.

Transport Summary: No transport is occurring at this time 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
22.1	13.4	1.4	0.0	62.5	61.0	6.0	6.0

*Scrollcase temperatures.

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. The cormorant numbers seem to be dwindling down, although there is still a fair number of birds roosting around the project. Gulls 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: No zebra or quagga mussels were observed during monitoring station inspections on October 24.

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)

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
1	10/17/2022	1530	11/18/2022	ERTS	Turbine oil leak and 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.

Adult Fish Passage Facility

EAS Bio, and USACE staff inspected the adult Fishway on October 22, 24, 25, and October 27.

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		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 25 ft ² - Low 0 ft ²
	X		Gatewell drawdown measured this week?	
		X	Gatewell drawdown acceptable	
	X		Any debris seen in gatewells (% coverage)	<1% in 1A on 10/23
X	X		Any oil seen in gatewells?	3A 10/22; 3C 10/23

Comments: The forebay had minimal floating debris inside the trash shear boom with the highest measurement occurring on October 24. Oil absorbent booms repositioned into gatewell 3A on October 22 upon detection of slight oil sheen presumed to be from rainfall deckwash event of the previous day.

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. Unit 6 ESBS and VBS undergoing work during scheduled maintenance period.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	19; 20 on 10/21
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. This week a total of 1,673 fish were collected, 0 were bypassed, 1,393 were transported by truck, and there were 4 sample or facility mortality. The descaling and mortality rates were 4.1% and 0.24%, 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.

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
20.3	13.5	1.8	0.0	64.1	61.3	6.0	4.1

*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
10-21	8:00	13	12	0	0
10-22	8:30	13	17	0	1
10-23	8:00	32	6	0	0
10-24	10:50	17	5	0	0
10-25	9:10	21	23	0	0
10-26	8:30	32	14	0	0
10-27	7:45	110	1	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
10-21	4663	4663
10-22	414	414
10-23	554	554
10-24	316	316
10-25	208	208
10-26	61	61
10-27	55	55
Totals	6271	6271

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

Fish Rescue/Salvage: No fish rescue activity transpired this report period.

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)

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	

Comments: None.

Adult Fish Passage Facility

Lower Granite Biologists and Anchor QEA staff inspected the adult fishway on October 21, 22, and 26.

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: Ladder temperature data can be found at <https://www.nwd-uc.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	7.7'
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'	0.7'
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', 0.6'
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 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)	32.7 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 3,025 fish collected this week.

Transport Summary: Truck transport continues even days. There were 2,684 fish transported this week.

Spillway Weir: There were 10 wild PIT-tagged steelhead fallbacks at LWG this report week with 4 detected at the RSW and 6 detected in the JBS full flow array. All wild steelhead fallbacks were tagged and released from the LWG adult trap August 18-October 6.

There were 106,536 juvenile and 253 PIT-tagged adult Chinook salmon, 72,882 juvenile and 606 adult-PIT tagged steelhead, 10,826 juvenile and 4 adult sockeye salmon, and 4,064 juvenile and 3 adult coho salmon detected over the RSW spillway since March 1. There have been 39,496 juvenile and 44 adult Chinook salmon, 28,754 juvenile and

163 adult steelhead, 2,124 juvenile and 1 adult sockeye salmon, and 951 juvenile and 1 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
19.6	13.9	1.7	0.0	62.0	58.0	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 341 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 21	1300	11	35	0	0
Oct 22	1030	0	32	0	0
Oct 23	1235	13	35	0	0
Oct 24	1422	7	25	0	0
Oct 25	1640	1	3	0	0
Oct 26	1400	4	42	0	0
Oct 27	1520	7	16	0	0

Gas Bubble Trauma (GBT) Monitoring: N/A

Adult Fish Trap Operations: LWG Adult trap is in 24/7 operation for reconstruction data collection that will continue through October 7.

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 1,151 macrophthalmia (juvenile) and 1,733 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.