

**U.S. ARMY CORPS OF ENGINEERS  
WALLA WALLA DISTRICT  
FISH FACILITIES WEEKLY REPORT  
#32-2022**

**Project: McNary**

Biologist: Bobby Johnson and Paul Bertschinger

Dates: October 7 – October 13, 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
7, 8 & 9	10/11	1000	10/11	1100	ESBS inspections, rotate through units
6	10/12	1820	10/13	1005	Relay issue

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 7, 9 and 12. In person fish counting continued.

Fish Ladder Exits:

Yes	No	Location	Criteria	Measurements
	X	Oregon Exit	Head over weir 1.0' to 1.3'	0.9' to 1.2'
X		Oregon Count Station Differential	0.0' to 0.5'	0.3'
X		Washington Exit	Head over weir 1.0' to 1.3'	1.0' to 1.1'
X		Washington Count Station Differential	0.0' to 0.5'	0.2' to 0.3'

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 including the holiday weekend.

At the Oregon shore exit, the head over weir was out of criterion on October 7 and 9. Adjustments to the exit set points resolved the issue.

At the Washington shore exit, one regulating weir alarm came in and was reset on October 12.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0' – 2.0'	1.1' to 1.2'
X			NFEW2 Weir Depth	≥ 8.0'	8.0' to 8.1'
X			NFEW3 Weir Depth	≥ 8.0'	8.1' to 8.2'
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.3' to 1.4'
	X		SFEW1 Weir Depth	≥ 8.0'	7.9' to 8.0'
X			SFEW2 Weir Depth	≥ 8.0'	8.0'
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.6 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	1.4' to 1.5'
X			WFE2 Weir Depth	≥ 8.0'	9.6' to 9.9'
X			WFE3 Weir Depth	≥ 8.0'	8.8' to 9.1'

Comments: The above out of criterion point at SFEW1 occurred on October 12 and was possibly due to a set point drift. NFEW2 was found in manual mode on October 7. The operator immediately returned the weir to automatic mode. 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°	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. Repairs are waiting on funding. The return to service date is has been updated to January 31, 2023. Fish pump 3 tripped offline from 1043 to 1100 hours due to low oil level alarm on October 9.

**Juvenile Fish Passage Facility**

The fall primary bypass season and maintenance continues. The separator remains dewatered. More partial winterization was completed.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Very light 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 very 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. A few pieces of woody material were removed the gatewell slots this week.

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 one issue in units 7 through 9 on October 11. The ESBS brush cycle for the screen in 8B slot was backwards. The brush was parking at the top of the screen instead of the bottom though the control system indicated the brush was at the bottom when parked. An electrician immediately resolved the issue. 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. Two screens were cleaned on October 13. 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
X			Dewatering and cleaning systems operating satisfactory?	

Comments: There was a small amount of moisture in the temporary air supply line this week as air temperatures decreased at night. We continued to bleed off the line on every shift. Orifices were adjusted for VBS cleaning.

It was determined that last week's side screen cleaning brush stall on October 3 was probably due to debris. Also, the brushes' cycle sequence program was modified last week so a side screen brush timing alarm will no longer prevent the other two screen brushes from operating.

Bypass Facility:

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

Comments: Winter maintenance continues.

The facility PIT room air conditioning continued to trip offline and be reset. The new unit is installed with only electrical work to be completed.

This week, the adult release gate at the end of the separator was rehabilitated.

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.

## 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
80.0	68.7	1.8	0.0	66.0	66.0	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 and testing in bay 1 on October 11. Spillway scheduled maintenance occurred all week.

Cranes 6 and 7 remain in service. Electrical work is scheduled for crane 6 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 need to be tested. The laser was removed on October 13. Ordering parts for the laser is still delayed.

The navigation lock wing wall laser, which is aimed at the outfall, remains in service along with the two large bird distress calls. There was no other hazing. The project is still examining the use of falcons for hazing.

In the spillway zone, gulls and cormorants were roosting unless the TSW was open, which encouraged feeding. Bird numbers fluctuated with the juvenile shad outmigration.

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

In the bypass outfall zone, gull numbers fluctuated, and cormorant numbers were stable. Most of the birds were roosting but feeding was also noted.

In the forebay zone, a few gulls were observed passing by. Outside the zone, large gull flocks, a great blue heron, and few cormorants were noted. Most birds were roosting.

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

Siberian Prawn: No Siberian prawns were observed this year.

Fish Rescue/Salvage: Unit 9 dewatered this week. No fish were observed in the scroll case and draft tube on October 12 and 13, respectively.

Research: The Oregon Department of Fish and Wildlife continued their TSW adult fallback study.

**Project: Ice Harbor**  
 Fisheries Biologist: Ken Fone

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### 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 1, 3, and 5.

#### 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'	2.1'
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'	2.1'

Comments: The south shore entrance channel/tailwater differential was slightly above criteria on October 10 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.

The north shore entrance channel/tailwater differential was slightly above criteria on October 13 because of lower tailwater levels. Two north shore AWS pumps are the minimum number of pumps operated to provide at least 1.0' of channel/tailwater differential at the north shore entrance.

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 33 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-6% 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
20.2	14.4	1.6	0	65	64	8.0	8.0

\*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 low numbers of piscivorous birds observed around the project. Most of the birds were observed foraging near the upstream tip of Eagle Island.

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 4	9/26/2022	0805	10/13/2022	1300	Annual maintenance
Unit 5	8/22/2022	0645	TBD		T2 repairs
Unit 6	8/22/2022	0645	TBD		Annual/T2 repairs

Comments: 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 11, 12 and 13.

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 new riprap rock for the north entrance debris barrier was delivered on October 11 and should be in place by powerhouse staff soon. The south ladder picketed lead differential in the morning of October 11 was examined by a control room operator and found to be out of criteria at a 0.4. Powerhouse and JFF staff removed approximately 15 yards of debris from the south entrance by boat. North and south picketed leads were cleaned on October 12.

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	7.9 on 10/12
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 6.6, 6.7 and 6.4 feet, respectively. The south powerhouse entrance weir (SPE-2) was on sill during all inspections with readings of 6.6, 6.7 and 6.6 feet, respectively. The south shore entrance weir (SSE-1) was on sill during all inspections with readings of 7.2, 8.0 and 7.3 feet, respectively. The north powerhouse entrance weir (NSE-1) had a reading of 7.9 on October 12, possibly due to calibration drifts. 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)	38 yds <sup>2</sup>
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 2%
	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.

Orifices, Collection Channel, Dewatering Structure, and Flume:

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

Comments: None.

Collection Facility: The collection season ended on October 1. Winter maintenance of the facility continues. Power washing of all flumes and raceways began October 11. All flume leaks were repaired this week by removing old

silicone and replacing new silicone where the old gasket material has decomposed. Pasco shop Corps employees came out and blew out the sprinkler system at the JFF on October 12.

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
19.1	12.5	1.5	0.0	65.6	64.5	6.3	5.5

\*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. A few gulls can be found roosting around the forebay.

The broken anti-bird wire found broken was fully replaced by WS and fish facility staff on October 13. The outfall bird cannons were winterized on October 13. 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 next week.

Invasive Species: Mussel station observations will occur at the end of October.

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	
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.

**Adult Fish Passage Facility**

EAS Bio and USACE staff inspected the adult Fishway on October 9, twice on October 10, and October 12.

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	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	X		North Shore Entrance (NSE-1) Weir Depth	$\geq$ 6.0' or on sill	5.9 on 10/12
X	X		North Shore Entrance (NSE-2) Weir Depth	$\geq$ 6.0' or on sill	5.9 on 10/12
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 620 ft <sup>2</sup> - Low 35 ft <sup>2</sup>
	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 October 10. Gatewell 6B remained dewatered for maintenance purposes. Oil absorbent booms placed within gatewell 3C effectively dissipated the previous sheen event and remained in place throughout the duration of this report period. Next round of drawdowns are scheduled for October 20.

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. 1 ESBS pulled and stored above gatewell 5C. Next round of differential readings are scheduled to take place October 20.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	19
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: The juvenile bypass system was watered up 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 159 fish were collected, 0 were bypassed, 152 were transported by truck, and there was 1 sample or facility mortality. The descaling and mortality rates were 0.5% and 0.49%, respectively. Two 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
18.2	13.4	1.3	0.0	66.2	65.8	6.2	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
10-7	7:30	9	10	0	1
10-8	8:30	10	5	0	0
10-9	9:45	0	2	0	0
10-10	8:00	19	8	0	1
10-11	9:45	7	11	0	0
10-12	12:40	8	4	0	0
10-13	8:30	11	5	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.

<b>Date</b>	<b>Sample</b>	<b>Collection</b>
10-7	142	142
10-8	147	147
10-9	263	263
10-10	181	181
10-11	235	235
10-12	203	203
10-13	274	274
Totals	1445	1445

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

Fish Rescue/Salvage: No fish rescue – salvage activities transpired during 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	
3	10/03	0700			Annual Maintenance

Comments: None.

**Adult Fish Passage Facility**

Lower Granite Biologists and Anchor QEA staff inspected the adult fishway on October 8, 11, and 12.

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: Fish ladder cooling water pumps remained in operation until 1605 hours on October 13. Ladder temperature data can be found at <https://www.nwd-wc.usace.army.mil/dd/common/dataquery/www/>. An untagged, unclipped Jack Chinook salmon mortality was found on the pavement downstream of the picketed leads during the fish ladder inspection October 7 (MFR 22 LWG 12). The reason is unknown.

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'	7.9'
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'	
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)	18.7 yds <sup>2</sup>
	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 647 fish collected this week.

Transport Summary: Truck transport continues even days. There were 595 fish transported this week.

Spillway Weir: There were 4 wild PIT-tagged steelhead fallbacks at LWG this report week with 3 detected at the RSW and 1 detected in the JBS full flow array. All wild steelhead fallbacks were tagged and released from the LWG adult trap September 17-October 12.

There were 106,481 juvenile and 233 PIT-tagged adult Chinook salmon, 72,882 juvenile and 591 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 39,450 juvenile and 37 adult Chinook salmon, 28,754 juvenile and



152 adult steelhead, 2,124 juvenile and 1 adult sockeye salmon, and 951 juvenile 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
18.3	14.9	1.7	0.0	64.5	63.0	5.0	5.0

\*Cooling water intake temperature.

### Other

Inline Cooling Water Strainers: N/A

Invasive Species: No zebra/quagga mussels were detected on the trap substrate. There were 2,215 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 7	1517	35	34	0	0
Oct 8	1245	40	24	0	0
Oct 9	1215	29	30	0	0
Oct 10	1325	39	51	0	0
Oct 11	1335	15	38	0	0
Oct 12	1300	22	54	0	0
Oct 13	1035	36	50	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 4000 unclipped adult Chinook salmon and 4000 unclipped adult steelhead collected in the adult trap daily sample for dispersal monitoring.

Sampling of Steelhead, Chinook salmon, and Sockeye salmon by the Idaho Department of Fish and Game (IDFG) and NOAA Fisheries for Biological data collection.

Upriver migrating steelhead, spring/summer Chinook salmon, and sockeye salmon are collected from the adult trap beginning April 4 through December 15. The goal is to collect 5-20% of adult steelhead, spring/summer Chinook salmon, and sockeye salmon ascending the ladder. 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 1,020 macrophthalmia (juvenile) and 1,724 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.