U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#28-2022

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: September 9-15, 2022

Turbine Operation

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

Table 1. McNary Unit Outages (OOS) and Return to Service (RTS).

	OOS		RTS		
Unit(s)	Date	Time	Date	Time	Outage Description
8	6/6	1002	9/16	0413	Transformer gaskets (T4)
7	8/4	0635	9/16	0431	Transformer gaskets (T4)
9 & 10	9/12	0625	9/22	NA	Transformer maintenance (T5)
1, 2 & 3	9/13	1000	9/13	1130	ESBS inspections, rotated 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. The sawtooth unit priority pattern for temperature abatement concluded on September 14, with B side sample tank temperatures at or below 68 degrees F.

Adult Fish Passage Facilities

The McNary fisheries staff performed measured inspections of the adult fishways on September 9, 11 and 14. In person fish counting and video review of nighttime lamprey passage continued.

Fish Ladder Exits:

Yes	No	Location	Criteria	Measurements
X		Oregon Exit	Head over weir 1.0' to 1.3'	1.0'
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'	0.2' to 0.3'

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

At both exits, the ladder set points were adjusted after the technician on duty found the exits slightly out of criteria on September 9 and 11.

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'	8.0'
X			NFEW3 Weir Depth	≥ 8.0'	8.0' to 8.1'
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.3' to 1.5'
	X		SFEW1 Weir Depth	≥ 8.0'	7.9'
	X		SFEW2 Weir Depth	≥ 8.0'	7.8' to 7.9'
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'	10.0'
X			WFE3 Weir Depth	≥ 8.0'	9.1' to 9.3'

Comments: The above Oregon ladder out of criteria points were possibly due to set point drifts for the entire week. WFE3 still requires calibration, and this will occur in the near future. Currently, the weirs depth is being estimated and appears to be in criterion.

There are four floating orifice gate (FOG) slots that still require future gate replacement. Slots W37 and W41 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*			24°	Oregon Ladder Fish Pump 1
		Yes		Oregon Ladder Fish Pump 2 RTS date is Dec. 19, 2022
Yes			23°	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 has been updated to December 19, 2022. Due to a bus switch, fish pump 1 was out of service on September 11, from 1245 to 1331 hours.

Juvenile Fish Passage Facility

Every other day sample collection continued with no interruptions in the schedule.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	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 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 were minimal. New debris loads were minimal. Much of the debris was woody material and aquatic vegetation.

No trash racks were cleaned this week.

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 September 13. Unit 1's ESBS control panel view has been intermittent since September 13. When needed, brush motor amp readings were requested from the control room.

Daily VBS differential monitoring revealed no high differentials. A total of six screens were cleaned on September 10, 12 and 15. 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. We continued to bleed off the line on every shift. Orifices were adjusted for VBS cleaning.

The side screen cleaning brush stalled just upstream of parking on September 10, at about 2330 hours. All three screen cleaning brushes tripped timing alarms. A piece of woody material was removed, and the side brush was manually parked using the electrical operations switches. All three brushes were reset and operated correctly. Four hours later, all brushes ran satisfactorily in automatic mode. We suspected the debris caused this problem but there could be unknown brush issue. This incident was not recorded. All but one set of alarm records were cleared, which the biologist found on September 11. The fisheries staff got a lecture from the project biologist. The electrical and mechanical staffs examined the side brush on September 13 and found no issues. The mechanic lubricated the device. The brush was briefly out of service during the inspections.

The control panel view channel elevation tracker seemed to have some odd readings, which appeared to have been reset on September 15. All other channel systems functioned satisfactorily.

Bypass Facility:

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

Comments: All bypass facility systems functioned well. The sample gates were only on during secondary bypass. The PIT-tag system gates remained off as there is no need for that system.

This week, 54 juvenile lamprey and 436 smolts, all sub-yearling Chinook, were bypassed during secondary bypass. Juvenile shad continued to be the predominant species. In fact, due to high shad numbers, the sample rate was reduced from 25 to 10 percent on September 13. The smolt monitoring staff reports fish data in a separate report.

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.

A brief power outage on September 11 at about 1000 hours for a bus switch had no ill effect on sample collection.

A blockage in one of two B side count tunnels may have resulted in one sample tank subyearling Chinook mortality recorded on September 14.

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

Table 2. 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
140.2	89.4	1.0	0.0	70.4	68.4	6.0	6.0

Comments: The above data is provided by the smolt monitoring staff except water clarity, which comes from the control room. The data day runs from 0700 to 0700 hours. The above spill is due to TSW use.

Crane 7 is currently out of service for gear box replacement. Once that work is completed, electrical work will resume on crane 6, which is currently available. With limited crane use and hoist issues previously discussed, crane 6 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: Recording avian counts continued. These counts are reflected in Table 3 below.

For the outfall, the LRAD has been in place. Over time, the response from the roosting birds has decreased as juvenile shad numbers have increased. However, more sounds need to be tested. Ordering parts for the laser had to be delayed until the next fiscal year.

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.

In the spillway zone, gulls were roosting unless the TSW was open, which encouraged feeding. The gull numbers were high. Some cormorants, an occasional pelican or osprey were observed roosting.

In the powerhouse zone, feeding gull numbers increased with some birds roosting. An occasion pelican was observed. The gulls were also noted feeding downstream of the release of juvenile shad from the sample.

In the bypass outfall zone, gull and cormorant numbers remained high with most of the birds roosting.

In the forebay zone, a few gulls were noted roosting on the water along with an occasional feeding grebe. Outside the zone, gull flocks, a great blue heron, a few ospreys, and cormorants were noted.

No pelicans were observed in the ladders and no grebes entered the gatewell slots this week.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican	Grebe
September 9	Spill	0	0	0	0	0
	Powerhouse	65	0	0	4	0
	Outfall	34	7	0	0	0
	Forebay	3	0	0	0	0
September 10	Spill	402	0	0	1	0
	Powerhouse	60	0	0	2	0
	Outfall	22	43	0	0	0
	Forebay	2	0	0	0	0
September 11	Spill	322	0	0	0	0
	Powerhouse	93	0	0	2	0
	Outfall	10	33	0	0	0
	Forebay	1	0	0	0	0
September 12	Spill	237	2	0	0	0
	Powerhouse	83	0	0	0	0
	Outfall	44	44	0	0	0
	Forebay	1	0	0	0	0
September 13	Spill	535	0	0	0	0
	Powerhouse	140	0	0	0	0
	Outfall	11	52	0	0	0
	Forebay	2	0	0	0	0
September 14	Spill	350	0	0	0	0
	Powerhouse	211	0	0	1	0
	Outfall	35	47	0	0	0
	Forebay	2	0	0	0	1
September 15	Spill	143	12	0	0	0
	Powerhouse	29	0	0	0	0
	Outfall	42	16	0	0	0
	Forebay	1	0	0	0	2

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

Siberian Prawn: No Siberian prawns were removed from the sample this week. None have been seen this year.

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

Research: For a CRITFC study, there were tissue samples removed from seven juvenile lamprey collected at the facility this week. For the season, a total of 699 juvenile lampreys have been sampled. All fish were returned to the river unharmed.

The Oregon Department of Fish and Wildlife set up equipment for a TSW adult fallback study around spillbay 20 on September 15.

Project: Ice Harbor
Biologist: Ken Fone
Dates: September 9 - September 15, 2022

Turbine Operation

Yes	No	Turbine Unit Status
	x	All 6 turbine units available for service (see table & comments below for details).
x		All available turbine units are operated in accordance with Appendix C of the Fish Passage Plan

Ice Harbor Unit Outages (OOS) and Return to Service (RTS)

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

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on September 12 and 15. A third fishway inspection was not accomplished during the reporting period due to staffing shortages.

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'	
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: None.

Auxiliary Water Supply (AWS) System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
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 45 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-5% 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 inspected this week?
		x	STSs inspection results acceptable?
		x	VBSs differentials checked this week?
		x	VBSs 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.

Orifice 2BN light was found to be burned out on September 14. Orifice 2BS was opened in place of orifice 2BN until September 20. The light was replaced on September 19.

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 as follows for downstream passage of adult steelhead that may have strayed into the Snake River. The RSW is scheduled to be operated for four hours between 0500 hours and 1100 hours on Sundays, Wednesdays, and Fridays, from September 1 to November 15.

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
22.9	15.8	1.6	0	69	68	8.0	7.0

*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
Dates: September 9 - 15, 2022

Turbine Operation

Yes	No	Turbine Unit Status		
	X	All 6 turbine units available for service (see table & comments below for details).	Hard	Soft
X		Available turbines operated within 1% peak efficiency? Constraint in effect.	X	

Comments: 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 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 and EAS biologists September 9, 10, 11 and 13.

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: It is planned to increase bank rip rap on the shoreline to keep debris away from the North edge of the North ladder debris barrier.

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		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 5.9, 7.5, 7.6 and 7.1 feet, respectively. The south powerhouse entrance weir (SPE-2) was on sill during all inspections with 5.9, 7.5, 7.6 and 7.1 feet, respectively. The south shore entrance weir (SSE-1) was on sill during the September 2 and 7 inspections with readings 7.5 and 8.1 feet, respectively. South powerhouse tailwater staff gauge’s, SG9N, frame was found loose on the April 13 inspections. If the gauge remains unreadable, readings will be taken from the

digital readings. The project has ordered new staff gauges and they will be installed during the winter maintenance period.

The north side picketed leads were cleaned on September 15.

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)	153 yds^2
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 10%
	X		Any oil seen in gatewells?	

Comments: None.

STSs/VBSs:

Yes	No	NA	Item
X			STSs deployed in all slots and in service?
	X		STSs in continuous-run mode (Note: if not, then STSs are in cycle-run mode)?
X	X		STSs inspected this week?
X			STSs inspection results acceptable?
	X		VBSs differentials checked this week?
	X		VBSs differentials acceptable?

Comments: STS and VBS inspections took place on September 6 and 7. All STSs were in good condition. The VBSs in slots 3B, 4A and 4B were noted as needing work. Powerhouse management was notified and plans are in place to have the units examined by powerhouse mechanics. The STSs were running in Cycle-Run mode throughout this reporting period due to average sub-yearling Chinook and sockeye lengths being greater than 120 mm.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	18 - 21
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: During the evening of September 11, the PDS screen cleaning brush stopped in the middle of the cycle. The brush was returned to park position and reset. The brush functioned effectively during the next cleaning cycle.

Collection Facility: Every-third day condition sampling continued with samples collected on September 9–10 and September 12-13. A total of 32 fish were collected with 32 fish bypassed back to the river during this reporting period. The B-side PIT tank would not close using the electrical switch. The powerhouse electricians examined the PIT tank system on September 12. The electricians believe the corrosion on the switch contacts caused the PIT tank to not function. In the afternoon, after the inspection, the B-side PIT tank was returned to service.

The sample gate screen in the separator booth stopped functioning in the evening of September 12. The screen was reset twice and did not reboot correctly. The fish biologist rebooted the screen by removing the breaker and allowing it to cool for approximately 10 minutes. Once rebooted, the screen was able to be used. As a precaution, PSMFC was notified of the issue.

Parts were ordered to refurbish the two fire hydrants for the JFF on September 13.

The upwell diffusers for all the raceways were cleaned this week.

Transport Summary: At this time, there is no transporting of juvenile salmonids occurring.

Spillway: Fall spill for steelhead began at 00:00:00 on September 1. Work on modifying spillgate trunnions ended at 1445 on September 11.

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
22.5	15.9	1.4	0.0	68.9	68.0	5.9	5.8

*Scrollcase temperatures.

Other

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

Avian Activity: Highest daily counts of piscivorous birds in all zones combined at Lower Monumental Dam are reported
in the table below.

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
9/9/2022	1230	40	34	0	0	0
9/10/2022	1000	30	34	0	0	0
9/11/2022	1330	30	32	0	0	0
9/12/2022	1030	38	43	0	0	0
9/13/2022	1400	28	28	0	0	0
9/14/2022	1020	36	37	0	0	0
9/15/2022	710	33	32	0	0	4

Comments: Piscivorous bird observations are occurring daily. The outfall bird cannon functioned efficiently this week. The numbers of some of the species of birds appear to be dropping from previous weeks.

Invasive Species: The mussel traps are scheduled to be inspected in October.

Fish Rescue/Salvage: No fish rescue/salvage took place during this reporting period.

Research: No research is occurring currently.

Project: Little Goose Dam
Biologists: Chuck Barnes and Deb Snyder
Dates: September 9 – September 15, 2022

Turbine Operation

Yes	No	Turbine Unit Status		
	x	All 6 turbine units available for service (see table & comments below for details).	Hard	Soft
x		Available turbines operated within 1% peak efficiency? Constraint in effect.	x	

Little Goose Unit Outages (OOS) and Return to Service (RTS)

	OOS		RTS		
Unit	Date	Time	Date	Time	Outage Description
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 September 11, September 13, and September 15.

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		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 7.0' or on sill	Sill 9/11 & 9/15
X		X	North Powerhouse Entrance Channel/Tailwater Differential	1.0'–2.0'	Sill 9/11 & 9/15
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 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 1140 ft² - Low 110 ft²
	X		Gatewell drawdown measured this week?	
		X	Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	3A -1% 9/10
	X		Any oil seen in gatewells?	

Comments: The forebay had minimal floating debris inside the trash shear boom with the highest measurement occurring on September 15. Oil absorbent booms deployed and remained within gatewell 3C until September 14. Gatewell 6B remained dewatered for maintenance purposes.

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.

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. A total of 850 fish were collected, 0 were bypassed, 720 were transported by truck, and there were

24 sample or facility mortalities. The descaling and mortality rates were 3.4% and 2.79%, respectively. Ten 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
21.6	15.6	1.7	0.0	68.6	67.3	6.0	5.6

*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.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
9-9	9:00	10	8	0	0
9-10	8:30	10	5	0	0
9-11	7:15	10	3	0	0
9-12	7:30	13	6	0	0
9-13	17:00	0	0	0	0
9-14	7:30	7	9	0	0
9-15	7:30	7	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 EAS Bio personnel, 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*
9-9	785	785
9-10	700	700
9-11	565	565
9-12	376	376
9-13	824	824
9-14	416	419
9-15	202	202
Totals	3871	3871

*Collection and sample numbers are equal when sample rates change to 100%

Gas Bubble Trauma (GBT): The last available GBT monitoring report occurred August 24 depicting an examination of 7 fish without signs of GBT.

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
Dates: September 9-15, 2022

Turbine Operation

Yes	No	Turbine Unit Status		
	X	All 6 turbine units available for service (see table & comments below for details).	Hard	Soft
X		Available turbines operated within 1% peak efficiency? Constraint in effect.	X	

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

	OOS		RTS		
Unit	Date	Time	Date	Time	Outage Description
5	08/22	0746			Annual Maintenance/Overhaul

Comments:

Adult Fish Passage Facility

Lower Granite Biologists and Anchor QEA staff inspected the adult fishway on September 9, 10, 12, and 14.

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: The fish ladder cooling water pumps are in operation. Pump supply configuration was modified to provide water directly into the ladder exit channel from pump 1. Fish have been observed milling around the exit pool in what seems to be higher number than typical years. Adult fish ladder cooling pump 1 was turned off September 11 at 0833 hours in response to an increased chinook salmon that appeared to be milling in the upper section of the ladder. Chinook holding in the upper section of the ladder may be related to operation of pump 1. There has also been a recent increase in salmonid mortalities observed at the adult trap this fall. 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'	0.9'
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

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

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	17.9 yds²
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:

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:

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:

Collection Facility: There were 1,657 fish collected this week.

Transport Summary: Truck transport continues even days. There were 1,476 fish transported this week.

Spillway Weir: Summer spill ended at 0000 hours September 1 and spill for overshoot steelhead began at 0500 hours September 1. Overshoot spill will continue Tuesdays, Thursdays, and Sundays between 0500 and 1100 hours until November 15. Four hour spill blocks were split to two hour blocks September 6 due to TDG reaching the EPA gas cap level of 110%. There were 10 adult PIT tagged steelhead fallbacks at LWG this report week with 6 detected

at the RSW and 4 detected in the JBS full flow array. Of the 10 adult steelhead fallbacks detected this week, 6 were PIT tagged and released from the LWG adult fish trap.

There were 106,370 juvenile and 179 PIT tagged adult Chinook Salmon, 72,878 juvenile and 556 adult PIT tagged Steelhead, 10,826 juvenile and 4 adult Sockeye Salmon, and 4,064 juvenile Coho Salmon detected over the RSW spillway since March 1. There have been 39,336 juvenile and 24 adult Chinook Salmon, 28,752 juvenile and 128 adult Steelhead, 2,112 juvenile 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
21.7	17.5	1.8	0.0	66.0	64.0	5.0	5.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: NA

Invasive Species: No zebra/quagga muscles were detected on the trap substrate. There were 17,716 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
Sept 9	1200	2	37	0	0
Sept 10	1300	4	20	0	0
Sept 11	1055	8	39	0	0
Sept 12	1245	18	23	0	0
Sept 13	1345	19	31	0	0
Sept 14	0628	6	13	0	0
Sept 15	1255	21	46	0	0

Gas Bubble Trauma (GBT) Monitoring: NA

Adult Fish Trap Operations: LWG Adult trap is in 24/7 collection broodstock operation. NPT is transporting Mondays and Tuesdays and WDFW is transporting Tuesday through Saturday.

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 640 macrophthalmia (juvenile) and 1498 ammocoete (larval) lamprey samples have been collected this season.

Idaho Power Hells Canyon Sturgeon Recruitment:

LWG Corps bio techs continue collecting passage and estimated lengths for White Sturgeon prior to removing them from the separator in support of Idaho Power Sturgeon program. A PIT tagged sturgeon was released from the juvenile separator August 8.