U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#35-2021

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: October 22-28, 2021

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.

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

	OOS		RTS		
Unit(s)	**Date**	**Time**	**Date**	**Time**	**Outage Description**
4	8/2	1018	2/ 28/22	N/A	Nine-year overhaul
5, 6 & 8	10/4	0730	11/9	N/A	Lines 3 & 4 outages for BPA relays
7	10/4	0730	12/2	N/A	BPA line outages & 9-yr overhaul
3	10/24	1032	10/27	1736	Transformer fire suppression issue
13 & 14	10/26	1000	10/26	1100	ESBS camera inspections

Comments: The one percent peak efficiency constraint and unit priority are being followed per the 2021 Fish Passage Plan (FPP). RTS dates are subject to change. The transformer issue, which began October 24, related to unit 3 was an electrical problem, which cause the fire suppression system to turn on. Working on this issue resulted in electrical switching, which effected other systems and will be discussed in sections below.

Adult Fish Passage Facilities

The fisheries biologist and technician performed a measured inspection of the adult fishways on October 22, 24, and 27. Fish counting will conclude on October 31. Picketed leads will be raised on November 1.

Fish Ladder Exits:

Yes	No	Location	Criteria	Measurements
X		Oregon Exit	Head over weir 1.0’ to 1.3’	1.1’ to 1.3’
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’	1.2’ to 1.3’
X		Washington Count Station Differential	0.0’ to 0.5’	0.1’ to 0.3’

Comments: Debris loads near the Oregon shore exit were very light to moderate. Debris loads near the Washington shore exit were minimal. Picketed leads at both exits were cleaned as needed, including the weekend.

At the Washington exit, multiple alarms, that came in during the electrical switching mentioned above, were reset on October 24.

There are no other problems to report.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0' – 2.0'	1.1' to 1.2'
X			NFEW2 Weir Depth	≥ 8.0'	8.0' to 8.2'
X			NFEW3 Weir Depth	≥ 8.0'	8.0' to 8.2'
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.4'
X			SFEW1 Weir Depth	≥ 8.0'	8.1' to 8.3'
X			SFEW2 Weir Depth	≥ 8.0'	8.1' to 8.3'
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.7 fps
X			Washington Entrance Head Differential	1.0' – 2.0'	1.3' to 1.4'
X			WFE2 Weir Depth	≥ 8.0'	9.8' to 10.0'
X			WFE3 Weir Depth	≥ 8.0'	9.7' to 9.9'

Comments: Measures taken last week appear to have resolved any issue for now. There are no problems to report.

Fabrication of the six remaining FOG's is on hold until fish pump 3 repairs are completed.

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			25°	Oregon Ladder Fish Pump 1
Yes			23°	Oregon Ladder Fish Pump 2
		Yes		Oregon Ladder Fish Pump 3, RTS date is October 29
Yes				OR North Powerhouse Pool supply from juvenile fishway

Comments: Fish pump 3 remained out of service. The estimated return to service date was changed last week to May 31, 2023 due to stator replacement/repair being required. There are no other problems to report.

Juvenile Fish Passage Facility

Fall primary bypass season continues. Light maintenance and winterization have begun at the juvenile facility.

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: Current debris loads were very light to moderate near the powerhouse and minimal beside the spillway. Incoming debris was minimal. Most of the debris appeared to be moving back and forth from the powerhouse to the Oregon shoreline.

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: All ESBS's are in place. During electrical switching for the transformer issue mentioned above on October 24, ESBS alarms came in for units 5, 6, and 9, which were reset. Camera inspections in units 13 and 14 revealed no issues on October 26.

Daily VBS differential monitoring revealed no differentials out of criteria. A total of six screens were cleaned on October 26 and 28. No fish mortalities were observed during cleaning.

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: With low debris loads and a temporary air supply line, orifice cycling remains at once a day. Water in the air line continues to be an issue. This problem and the temporary air supply line from the north end of the powerhouse will continue to be monitored. Orifices were adjusted for VBS cleaning are required.

During the electrical switching mention above on October 24, the channel was briefly without power. No issues occurred.

The contractor who is reinforcing the intake deck crane's east rail will also continue to be monitored.

There are no problems to report.

Bypass Facility:

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

Comments: All bypass facility systems are down for above water winter maintenance and partial winterization.

During the electrical switching mention above on October 24, the facility was briefly without power. No issues occurred.

Replacement of the separator winterization drains continues. There are no other problems to report.

Top Spillway Weir (TSW) Operations:

A standard spill gate is spill bay 19. The TSW, which is attached to a hoist, in bay 20 is operational for the fall adult fallback season per the FPP and openings are occurring per the schedule released by RCC.

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
99.2	76.0	1.6	0.0	58.0	57.0	6.0	6.0

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

Crane 6 is in service. Crane 7 is out of service. The crane 7's motor starter still needs to be replaced. A contract will be required. The current target date for replacement will be in mid-December. Both cranes' load limit indicators continue to be an issue. The project biologist was just informed that both cranes will be removed from remote operation permanently due to the age and condition of the cranes.

Other

Inline Cooling Water Strainers: The next cooling water strainer inspections will occur on December 7.

Avian Activity: During fall primary bypass season, only casual avian observations are made.

In the spillway zone, gulls and cormorants were observed. The birds were mostly roosting around the basin. Cormorant numbers were moderate and stable. Gull numbers appeared to fluctuate with the out migration of juvenile shad. When the TSW was open, gulls feed heavily.

In the powerhouse zone, very few gulls were observed.

In the bypass outfall zone, gull numbers fluctuated with the birds occasionally feeding. Cormorant numbers remained high with the birds roosting on the pipe and feeding at the outfall occasionally.

In the forebay zone, grebes continued to be observed in high numbers. These birds were feeding and roosting on the water. Outside the zone, a few cormorants and a loon were observed along with gull flocks that roosted along the shorelines or on the water.

Two large bird distress calls remain installed on the navigation lock wing wall but will be removed soon for the winter. No other hazing occurred. The lasers on the outfall pipe and navigation lock wing remained off and will also be removed. The use of the LRAD will resume next spring.

Invasive Species: The mussel station examinations revealed no issues on October 24.

Siberian Prawn: There is nothing to report.

Fish Rescue/Salvage: There in nothing to report.

Research: There in nothing to report.

Project: Ice Harbor
Fisheries Biologist: Ken Fone

Turbine Operation

Yes	No	Turbine Unit Status
	x	All 6 turbine units available for service (see table & comments below for details).

*All available turbine units are operated in accordance with App. C of the Fish Passage Plan.

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

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
3	5/3/19	0641	---	---	Turbine runner replacement and stator rewind
6	10/25/21	0700	10/25/21	1645	Hub tap, STS inspection
1	10/25/21	0705	10/28/21	1606	Intake gate downpull testing, STS inspection
2	10/25/21	1228	10/25/21	1308	Power loss to turbine bearing oil pump from Line 2 tripping
5	10/26/21	0725	10/27/21	1055	Hub tap, STS inspection
4	10/27/21	1224	10/27/21	1545	Hub tap, STS inspection
2	10/28/21	0630	10/28/21	1024	STS inspection

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on October 26, 27, and 28.

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: There were no channel/tailwater head differentials at any of the fishway entrances when all of the auxiliary water supply pumps were without power for approximately 30 minutes on October 25 (see the next section for more details).

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: All of the AWS pumps lost power at 1227 hours on October 25 when the dam lost station service. After power to the dam was restored, the south shore and north shore AWS pumps were restarted on October 25 at 1313 hours and 1319 hours, respectively.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
x			Forebay debris load acceptable? (amount)	Average of 7 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-15%
	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: Unit 6, 1, 5, 4, and 2 STSs were inspected on October 25, 26, 27, and 28. There were no significant problems found.

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: Orifices are being backflushed once per day. There were no debris obstructions observed at the orifices, as indicated by reduced flow through the orifices. Orifice 1CN light and 1BN light were found to be burned out on October 25 and 27, respectively. Orifice 1CS and 1BS were opened in place of orifice 1CN and 1BN until the lights were replaced the following days.

The replacement actuator for the water regulating weirs in the collection channel is being operated in manual control. An analog controller input was added to the actuator and needs to be programmed to function automatically. Currently, the water level in the collection channel is being visually monitored once per day. The actuator is operated electronically in “local” control to manually adjust the weirs as needed.

The mechanical screen cleaner was found to be inoperable on October 20 due to the bracket for the drive cable sheaves breaking off and the cable wrapping over itself on the drive pulley. The bracket was welded back onto the screen cleaner and the frayed cable was replaced. The screen cleaner was returned to service on October 26. The water regulating weirs were lowered as necessary to maintain the proper water level as debris accumulated on the inclined floor screen during the outage.

During the plant power outage on October 25, the biologist noticed that there was only about 6" of water in the main bypass flume. Fisheries staff quickly went up to juvenile fish collection channel and saw that almost all of the orifices were shut. The orifices had shut automatically when the power went out. The maintenance worker opened the flush valve to prevent the flume from drying out. Most of the orifices have an electric switch to operate, so they could not be opened back up while the power was out. When the power was restored after about 30 minutes, the orifices opened back up automatically. The reason for the orifices shutting automatically with the power outage is under investigation.

The hydrocannon at the end of the bypass outfall pipe was observed to be shut off on October 26 and was immediately turned back on. The hydrocannon pump lost power on October 25 and does not automatically restart when power is restored.

Juvenile Fish Facility: The Juvenile Fish Facility is operating in primary bypass mode.

Fish Sampling: Sampling at Ice Harbor Dam has concluded for the season.

Removable Spillway Weir (RSW): The RSW is periodically opened for 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, from October 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
20.3	12.1	1.6	0.0	59	58	9.9	9.9

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Unit 6 turbine cooling water strainers were cleaned of approximately 400 juvenile shad on October 28.

Avian Activity: There were high numbers of pelicans and gulls that were resting or foraging at Eagle Island and along the south shore downstream of the dam. Pelicans and gulls were also observed foraging in the tailrace closer to the dam.

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

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by the fish sampling contractor, frozen and properly disposed of in a landfill.

Fish Rescue/Salvage: Unwatering activities that involved fish rescue did not occur this week.

Research: No on-site research is currently going on.

Project: Lower Monumental
Biologists: Raymond Addis and Paul Bertschinger

Turbine Operation

Yes	No	Turbine Unit Status
	X	All 6 turbine units available for service (see table & comments below for details).

* All available turbine units are operated in accordance with App. C of the Fish Passage Plan.

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

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
Unit 2	07/15/2019	0720	12/16/2021	ERTS	Annual, Draft Tube Liner

Comments: None

Adult Fish Passage Facility

The adult fishways were inspected by Corps and EAS biologists on October 25, 26 and 28.

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: None.

Fishway Entrances and Collection Channel:

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

Comments: The south powerhouse entrance weir (SPE-1) was on sill during all inspections with readings of 6.9, 7.1 and 6.8 feet respectively. The south powerhouse entrance weir (SPE-2) was on sill during all inspections with readings of 6.9, 7.1 and 6.8 feet respectively. The south shore entrance weir (SSE-1) was on sill during all inspections with readings of 7.7, 8.1 and 7.7 feet respectively.

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)	3 yds^2
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: STS's were operating on cycle mode during the reporting period due to average sub-yearling Chinook salmon and sockeye salmon 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
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: None

Collection Facility: The fish collection facility out of service for winter maintenance.

Transport Summary: Transport at Lower Monumental ended June 20.

Spillway Weir: Fall spill began at 0001 on October 1.

River Conditions

River conditions at Lower Monumental Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature (°F)*		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
20.1	12.5	1.4	0.0	59.0	58.0	6.2	5.8

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainer inspections will resume in December.

Avian Activity: Highest counts of foraging piscivorous birds in tailrace (SWT1+PH1+PH2) at Lower Monumental Dam are reported in the table below.

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
10/25/2021	0945	45	34	0	0	0
10/26/2021	0915	79	50	0	3	0
10/28/2021	0945	29	18	0	0	0

Comments: Bird hazing efforts by USDA personnel ended June 2.

Invasive Species: No zebra or quagga mussels were observed during monitoring station inspections on October 18.

Siberian Prawn: Siberian prawn collection ended on October 1.

Fish Rescue/Salvage: No fish rescue or salvage occurred.

Research: No research is occurring currently.

Project: Little Goose
Biologists: Chuck Barnes and Deborah Snyder

Turbine Operation

Yes	No	Turbine Unit Status
	X	All 6 turbine units available for service (see table & comments below for details).

*All available turbine units are operated in accordance with App. C of the Fish Passage Plan.

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

	OOS		RTS		
Unit	Date	Time	Date	Time	Outage Description
5	04/14/17	14:11	12/31/2022	17:00	Spider and upper guide bearing repair.
6	03/18/21	14:17	N/A	17:00	T2 C phase ground fault
3	10/25/21	1250	10/27/2021	16:20	Forced outage - unit overheat, inspection
2	10/18/21	07:00	11/05/2021	ERTS	Annual Maintenance

Comments: Little Goose experienced a T2 transformer ground on March 18 at 14:17. T2 transformer and Units 5 and 6 will be out of service until repairs/replacement can be performed.

Adult Fish Passage Facility

Little Goose fish facility, Environmental Assessment Services (EAS) and Oregon Department of Fish and Wildlife (ODFW) staff inspected the adult fishway on October 23, October 25, and October 28.

Fish Ladder:

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

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	
X			South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 7.0’ or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 7.0’ or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
X			North Shore Entrance (NSE-1) Weir Depth	≥ 6.0’ or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	≥ 6.0’ or on sill	
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: The adult fishway continues to operate in manual mode. The fish control system still has a faulty hydroranger for the NSE1 weir and is currently awaiting repair. Subsequent faulty NSE fish control system channel and tailwater readings were encountered and remedied with physical staff gauge and water level depth indicator measurements.

Ladder exit cooling pumps were placed into service at 2052 hrs on 12 June when 0.5m forebay temperatures exceeded 64°F. At 16:00 on September 19 the 0.5m forebay temperature met the qualifying criteria to shut down the ladder exit cooling pump for the season.

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 and 2 were returned to service on February 23. Fish pump 3 returned to service April 7.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comment
X			Forebay debris load acceptable? (amount)	300ft² on 10/24; 3000ft² on 10/23
	X		Gatewell drawdown measured this week?	
		X	Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	2A: 1% 10/22,23,26; 1C: 1% 10/23; 1A: 1% 10/24; 4A: 1% 10/26&27; 4B: 1% 10/28
X			Any oil seen in gatewells?	5C 10/22, oil absorbent material in place

Comments: There is currently fluctuating minimal to moderate floating woody debris inside the trash shear boom. No Gatewell drawdowns were scheduled for this report period.

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: ESBS's were installed in Units 2, 3 and 4 on March 22 and 23. ESBS/VBS camera inspections for all units took place June 8-10. Unit 2 camera inspections were completed October 28 in accordance with FPP guidance for unit annual maintenance. Unit 6 has 1 remaining ESBS currently raised and stored within the Unit 5-B slot position. Unit 6 bulkheads are in place; both Units 5 and 6 are out of service.

Orifices, Collection Channel, Dewatering Structure, and Flume:

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

Comments: The juvenile bypass system was watered up on March 22 and began daily collection for transportation on April 23.

Collection Facility: Collection for condition monitoring in conjunction with secondary bypass commenced on April 1 with the first sample being conducted on April 2. Every other day collection and sampling occurred through April 22. Daily collection for transportation began on April 23 with the first daily barge departing on April 24. The collection and transport facility operated within criteria this report period. A total of 110 fish were collected, 122 were transported via truck, 0 were bypassed, and there were 0 sample or facility mortalities. The descaling and mortality rates were 3.8% and 0%, respectively. No adult lamprey were removed from the separator during this report period.

Transport Summary: Daily fish transportation via barge began on April 24. Every other day barge transportation began May 18 and ended June 21. Collection for transport resumed at 0700 hrs July 5 and every other day truck transportation began July 6.

Spillway Weir: Spring spill operations began on April 3 with the ASW in high crest. ASW day surface spill emergency procedure began July 3 at 0900 hours and ceased July 9 at 1600 hours. Off-season surface spill for adult steelhead downstream passage as outlined in the 2020 NOAA Fisheries CRS Biological Opinion took place between 0500 and 0900 hours on October 24, October 26, and October 28.

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
19.1	13.3	1.2	0.0	60.0	59.5	6.0	6.0

*Ladder temperature.

Other

Inline Cooling Water Strainers: Inspections will resume in December.

Avian Activity: Daily piscivorous bird counts at Little Goose Dam began on April 1. USDA hazing activities began on March 29 and ended June 19.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
10-22	0800	57	17	0	0
10-23	0830	150	42	0	0
10-24	0800	160	30	0	0
10-25	0830	131	32	0	0
10-26	0815	80	15	0	0
10-27	0850	40	8	0	0
10-28	0745	318	25	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 reported below.

Date	Sample	Collection*
10-22	128	128
10-23	108	108
10-24	93	93
10-25	90	90
10-26	136	136
10-27	104	104
10-28	75	75
Totals	734	734

Gas Bubble Trauma (GBT): GBT monitoring for the 2021 season concluded July 26.

Fish Rescue/Salvage: The nav-lock floating bulkhead dry dock area was dewatered for cleaning and maintenance purposes on October 25. Initial fish rescue efforts on October 25 recovered and returned one adult Coho and nine adult Chinook salmonid to the river. A subsequent fish rescue of October 26 recovered and released to river one jack Chinook salmon.

Research: The Nez Perce Tribe (NPT) began adult steelhead kelt collection on May 3 and ended June 30.

Project: Lower Granite
Biologists: Elizabeth Holdren and David Miller

Turbine Operation

Yes	No	Turbine Unit Status
	X	All 6 turbine units available for service (see table & comments below for details).

*All available turbine units are operated in accordance with App. C of the Fish Passage Plan.

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

	OOS		RTS		
Unit	Date	Time	Date	Time	Outage Description
5	10/25	0651	10/28	1451	5A Prototype Weir Decommissioning Prework

Comments: None.

Adult Fish Passage Facility

Lower Granite Biologists and Anchor QEA staff inspected the adult fishway October 22, 23, 25, and 28.

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: None.

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’	0.7’, 0.9’, 0.7’, 0.7’
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: Ladder collection channel operation and configuration are being evaluated to resolve ongoing issues. FOGs 1, 4, 7, and 10 are in operation. North shore and north powerhouse channel/tailrace head differential’s ability to maintain criteria range is dependent of tailrace conditions. Lower Granite electrical crew continue to work on the ladder control system issues.

Auxiliary Water Supply System:

Operating Satisfactorily	Standby	Out of Service	Auxiliary Water Supply (AWS)
		October 25 @ 1545	AWS Fish Pump 1
Yes			AWS Fish Pump 2
October 27 @ 0810			AWS Fish Pump 3

Comments: AWS pump 1 failed tripped offline at 1545 hours October 25. Powerhouse operators found the pump disconnect had blown fuses and the coil was on fire. The electricians replaced the fuses and coil the next day. After trying to start the pump several times and several hours of troubleshooting it was determined there was an additional issue with AWS pump 1 stater motor and AWS pump 1 would remain out of service. AWS pump 2 was taken offline to support swapping stoplogs to bring AWS pump 3 online at 0720 hours October 27. AWS pumps 2 & 3 were returned to service at 0810 hours 25 October.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Weekly average 21.0 yds^2
X			Trash rack differentials measured this week?	
X			Trash rack differentials acceptable	
	X		Any debris seen in gatewells (% coverage)	
	X		Any oil seen in gatewells?	

Comments: None.

ESBSs/VBSs:

Yes	No	NA	Item
X			ESBSs deployed in all slots and in service?
X			ESBSs inspected this week?
X			ESBSs inspection results acceptable?
X			VBSs differentials checked this week?
X			VBSs differentials acceptable?

Comments: None.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe:

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

Comments: None.

Collection Facility: The facility is in collection mode for condition sample and juvenile truck transport.

Transport Summary: A total of 570 smolts were transported this reporting period. There have been 121,508 smolts transported by truck since July 2.

Spillway Weir: A total of 250,445 PIT tagged smolts have been detected over the RSW this season compared to a total of 23,591 smolts detected in the juvenile system. A total of 719 adult PIT tagged steelhead, 93 Chinook salmon, and 2 Sockeye salmon have been detected at the RSW this season compared to 104 adult steelhead and 53 Chinook salmon detected at the juvenile facility. Since October 1, 22 of the 36 PIT tagged fallback steelhead have been tagged at the Lower Granite Adult Trap.

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
20.7	14.2	1.9	0.0	57.0	55.5	5.0	5.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: N/A

Invasive Species: No zebra/quagga muscles were detected on the trap substrate. There were 101 Siberian prawns collected in sample and euthanized this week.

Avian Activity:

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
Oct 22	1215	1	12	0	0
Oct 23	1000	4	0	0	0
Oct 24	0910	4	13	0	0
Oct 25	1050	5	25	0	0
Oct 26	0945	16	18	0	0
Oct 27	1136	2	12	0	0
Oct 28	1430	3	13	0	0

Gas Bubble Trauma (GBT) Monitoring: N/A

Adult Fish Trap Operations: Trapping 7 days per week at 18%.

Fish Rescue/Salvage: N/A

Research:

National Marine Fisheries Service (NMFS) PIT tagging of Adult Wild Chinook 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 April 4-December 15. Data collection includes fish scales, genetics tissue, sex and length, wild/hatchery composition, and non-adipose clipped hatchery fish assessment. 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.

USGS Juvenile Fall Chinook Salmon Growth and Origin

USGS began collection of previously tagged subyearling Chinook salmon utilizing LWG juvenile collection facility SbyC system began September 8 and will continue through October 31. Previously PIT tagged fish are diverted to the SbyC tanks, weighed, measured, GSI sampled, scanned for PIT tag code, recovered from anesthetic, and released back to the river. The objective of this project is to estimate the growth of PIT-tagged subyearling Chinook salmon from the Clearwater River to Lower Granite Dam.