U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#38-2021

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: November 12-18, 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.

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	Blade seals
7	10/4	0730	12/3	N/A	Nine-year overhaul
3	11/15	0731	12/23	N/A	Line 2 outage for BPA relays
11 & 12	11/16	1030	11/16	1130	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.

Adult Fish Passage Facilities

The fisheries biologist and technician performed a measured inspection of the adult fishways on November 12, 14, and 18.

Fish Ladder Exits:

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

Comments: Debris loads near the Oregon shore exit were minimal to light. Debris loads near the Washington shore exit were minimal.

At the Oregon exit, the traveling screens’ debris wash pump was found out of service on November 14. It could not be determined when the pump motor failed. Alternatives were examined. Fortunately, a new motor was ordered and installed on November 18, returning the wash pump to service. Differential readings revealed no issues while the pump was out of service.

At the Washington shore exit, weir 338 returned to service this week. The exit control program was able to keep the exit points in criteria while the weir was out of service.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0' – 2.0'	1.2' to 1.4'
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'	1.2' to 1.5'
X			SFEW1 Weir Depth	≥ 8.0'	8.1' to 8.2'
X			SFEW2 Weir Depth	≥ 8.0'	8.0' to 8.2'
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'
X			WFE2 Weir Depth	≥ 8.0'	9.7' to 10.5'
X			WFE3 Weir Depth	≥ 8.0'	9.6' to 10.0'

Comments: Though in criterion, the biologist found WFE2 in manual mode on November 14. The weir was immediately returned to automatic mode.

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*			26° to 27°	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 is subject to change. Fish pump 1 was out of service for a bus switch on November 15, from 0659 to 0703 hours. The juvenile system was switched to emergency bypass on November 18 as will be described below. The Oregon north powerhouse entrance lost the juvenile flow at about 1000 hours. The ladder inspection done that day occurred after the switch.

Juvenile Fish Passage Facility

Fall primary bypass season concluded when the system was switched to emergency bypass on November 18, from 08455 to 1145 hours, due to issues with the channel's rectangular screen cleaning brush, which will be described below. This switch will allow increased winter maintenance in the channel and at the facility, which was fully winterized. Also, switching early to emergency bypass should facilitate a smooth transition to early start up in March.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Minimal to moderate
X			Gatewell drawdown measured this week?	Daily
X			Gatewell drawdown acceptable?	
	X		Any debris seen in gatewells? (% coverage)	
	X		Any oil seen in gatewells?	

Comments: Current debris loads were minimal 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. A few pieces of woody and man-made material were removed from the slots.

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. Camera inspections in units 11 and 12 revealed no issues on November 16.

Daily VBS differential monitoring revealed one differential out of criterion when the unit was at 79 megawatts on November 18. This screen and four others were cleaned that day. Only juvenile shad 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. With the system in emergency bypass, orifices were not adjusted for VBS cleaning.

Lighting and orifice operators were repaired as needed.

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

The rectangular screen cleaning brush failed the morning of November 16 at about 0930. The brush was in the parked position, but the east side was hanging down in the water. The east brush retraction cable (one of two cables) was found wrapped around the east guide roller, which has never observed before. Project personnel were able to return the brush to service by close of business that day. One of the mechanics noted the brush bar frame was bend and rubbing along the east wall when the brush was going through its cycle. One of the electricians was concerned with the brush retracting springs. The brush again failed on November 16 at about 2030 hours on the downstream limit. The brush was raised but there was concern the two retracting cables were not fully on their spools. The technician was able to manually park the brush and stayed in the channel unit 0400 hours the next day, November 17. That morning, the mechanical and electrical staffs were about to return the brush to service. Adding to the previous concerns, the brush raise limit again needed to be adjusted as had occurred several times this season. Later, on November 17 at about 2130 hours, the brush again failed on the downstream limit. Also, the brush was still in the water and not fully raised. Again, the technician on duty was able to manually park the brush and they remained in the channel until 0400 hours on November 18.

Because of these issues with the rectangular screen brush, project staff determined the smooth operation of the brush mechanism compromised. With early start up in March, it was decided to switch the channel to emergency bypass to get a proper maintenance window of three months instead of two that early start up would cause. On November

18, from 0845 to 1145 hours, the channel was switched from primary to emergency bypass to ensure the rectangular screen brush and all other systems are fully function for early start up. The switch to emergency bypass was originally scheduled for December 13.

Though not a fish salvage operation, about 35 adult salmonids (an even mix of Chinook and steelhead), one adult catfish, one juvenile walleye, several juvenile bass, and a large school of juvenile shad were observed during the switch to emergency bypass.

Bypass Facility:

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

Comments: All bypass facility systems are down for water winter maintenance.

There are no problems to report.

Top Spillway Weir (TSW) Operations:

A standard spill gate is spill bay 19. The TSW in bay 20 was operational for the fall adult fallback season per the FPP and openings were occurring per the schedule released by RCC until November 15, at which time the season concluded.

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
164.6	98.8	17.0	0.0	54.0	53.0	6.0	6.0

Comments: The above data is provided by the control room. The data day runs from 0000 to 0000 hours. The recorded spill was over the TSW or spill for flow in excess of powerhouse capacity, which occurred on November 18.

Crane 6 is in service and received scheduled maintenance this week. Crane 7 is out of service. The crane 7's motor starter still needs to be replaced. A contract is required. The current target date for replacement will be in January. Other maintenance on the crane is ongoing. Both cranes' load limit indicators continue to be an issue.

Other

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

Avian Activity: During the fall, 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 greatly with the out migration of juvenile shad. When the TSW or spill was open, gulls feed but in generally on low numbers.

In the powerhouse zone, some gulls were occasionally observed feeding.

In the bypass outfall zone, gull numbers fluctuated with low numbers of birds feeding occasionally. Cormorant numbers remained high with the birds roosting on the pipe and occasionally feeding at the outfall. After emergency bypass began, feeding concluded at the outfall.

In the forebay zone, grebe and gull numbers fluctuated. The birds were mostly roosting on the water. Outside the zone, a few cormorants and gull flocks were noted roosting along the shorelines or on the water.

A couple of bald eagles were also observed around the project.

No hazing is occurring.

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

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
2	11/1/21	0630	---	---	Annual maintenance

Comments: Units 6, 5, 4, and 1 were taken out of service one at a time to remove submersible traveling screens on November 15, 16, and 17.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on November 15, 16, and 17.

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 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 7 square yards
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.

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: STSs were raised out of the water for winter maintenance on November 15, 16, and 17. STSs were pulled a month early to accommodate the contract to upgrade the intake crane and also to accomplish the modification to the lifting beam for the unit trash rake (see MOC 21 IHR 11 for more details).

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
x			Orifices operating satisfactory?	19-20
	x		Dewaterer and cleaning systems operating satisfactory?	

Comments: Orifice 5BN light was found to be burned out on November 12. Orifice 5BS was opened in place of orifice 5BN until the light was replaced on November 15.

On November 16, the fishery biologist noticed that the amount of water shooting out of the hydrocannon at the end of the outfall pipe was significantly reduced. The intake for the hydrocannon pump was plugging up with debris. The biologist turned the pump off because of the risk of the pump burning itself out. There have been no piscivorous birds seen at the outfall.

The juvenile fish collection channel and bypass pipe were unwatered for the start of the winter maintenance period on November 18.

Juvenile Fish Facility: The Juvenile Fish Facility is unwatered for winter maintenance.

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

Removable Spillway Weir (RSW): The RSW was periodically opened for downstream passage of adult steelhead that may have strayed into the Snake River. The RSW was 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
27.7	17.7	1.6	0.0	54	53	9.9	9.0

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Unit 1, 4, 5, and/or 6 turbine cooling water strainers were cleaned of a total of approximately 8,437 juvenile shad on November 12, 14, 17, and 18.

Avian Activity: There were high numbers of mergansers, gulls, and pelicans that were resting or foraging at Eagle Island and along the south shore downstream of the dam. These birds were also occasionally 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: The juvenile fish channel was unwatered on November 18. The rescued fish were composed of 21 clipped adult steelhead, 8 unclipped adult steelhead, 4 unclipped juvenile steelhead, 10 adult Pacific lamprey, 5 channel catfish, and 26 adult shad. Fish were released in good condition at the Levey Park boat ramp.

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 biologists on November 15, 16 and 18.

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 7.1, 7.1 and 7.0 feet respectively. The south powerhouse entrance weir (SPE-2) was on sill during all inspections with readings of 7.1, 7.1 and 7.0 feet respectively. The south shore entrance weir (SSE-1) was on sill during the November 18 inspection with readings of 7.8.

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)	0 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 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 ended on November 15.

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
27.0	18.7	1.3	0.0	53.2	51.9	6.4	5.6

*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
11/15/2021	1330	36	10	0	12	0
11/16/2021	1400	8	10	0	4	0
11/18/2021	1230	2	4	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 November 8.

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

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 staff inspected the adult fishway on November 15, November 16, and November 17.

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		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	
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)	15ft² minimum – 50ft² maximum
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	30% 1A 11/15; 5% 2B 11/18
	X		Any oil seen in gatewells?	

Comments: There is currently fluctuating minimal to moderate floating woody debris inside the trash shear boom. Gatewell drawdowns were performed November 4 on unit 1.

ESBS/VBS:

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

Comments: 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. No camera inspections took place during this report period. 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. Unit 1 VBS differentials were checked in conjunction with drawdown activities of November 18.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	18-19
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. Collection ceased on November 1 and the collection facility was dewatered for cleaning and winter maintenance.

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. Collection ceased November 1 at 0700 with conversion to primary bypass mode and final truck departure to end the season.

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. Final Off-season surface spill activity for adult steelhead downstream passage as outlined in the 2020 NOAA Fisheries CRS Biological Opinion took place between 0500 and 0900 hours on November 14.

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
25.6	18.6	1.2	0.0	54.0	52.9	5.3	4.7

*Ladder temperature.

Other

Inline Cooling Water Strainers: Inline cooling strainer inspections commenced on January 13. Inspections continued in accordance with the Fish Passage Plan (FPP) through July and results were submitted to the District.

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. Daily bird counts ended for the season with the October 31 count.

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 concluded for the season with the November 1 counts.

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

Fish Rescue/Salvage: No fish rescue / salvage activities were performed this period.

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
2	11/01	0717			Annual Maintenance

Comments: None.

Adult Fish Passage Facility

Lower Granite Biologists and Anchor QEA staff inspected the adult fishway November 15, 16, 17, and 18.

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	7.5’
	X		North Powerhouse Entrance (NPE-2) Weir Depth	≥ 8.0’ or on sill	7.5’
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’, 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)
		Yes	AWS Fish Pump 1
Yes			AWS Fish Pump 2
No			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)	Weekly average 27.2 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: N/A

Transport Summary: N/A

Spillway Weir: A total of 250,456 PIT tagged smolts have been detected over the RSW this season compared to a total of 23,623 smolts detected in the juvenile system. A total of 732 adult PIT tagged steelhead, 97 Chinook, and 2 Sockeye have been detected at the RSW this season compared to 106 adult steelhead, 60 Chinook, and 1 Coho detected at the juvenile bypass system. Since October 1, 28 of the 45 PIT tagged fallback steelhead have been tagged at the Lower Granite Adult Trap.

The RSW is being opened from 0500-0700 hours and 0900-1100 Tuesday, Thursday, and Sunday thru November 14.

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
26.8	19.3	0.9	0.0	51.2	50.0	5.0	5.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: N/A

Invasive Species: No zebra/quagga muscles were detected on the trap substrate.

Avian Activity: N/A

Gas Bubble Trauma (GBT) Monitoring: N/A

Adult Fish Trap Operations: Trapping 7 days per week at 18%. The adult ladder turnpool gate was closed at 1430 hours November 18 ending the adult trapping season. The adult trap is scheduled to be dewatered and winterized November 22.

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.