

**U.S. ARMY CORPS OF ENGINEERS  
WALLA WALLA DISTRICT  
FISH FACILITIES WEEKLY REPORT  
#38-2020**

**Project: McNary**

Biologist: Bobby Johnson and Denise Griffith

Dates: November 13 - 19, 2020

**Turbine Operation**

Yes	No	Turbine Unit Status	Hard	Soft
	X	All 14 turbine units available for service. (See table & comments below for details).		
	X	Available turbines operated within 1% peak efficiency? Constraint in effect.		X

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

Unit(s)	OOS		RTS		Outage Description
	Date	Time	Date	Time	
9	11/12	0641	11/18	1626	New top plate pump installation.
4	11/16	0627	12/4	N/A	Thrust bearing system maintenance/upgrades.
10, 11 & 12	11/17	1000	11/17	1115	ESBS camera inspections.
8	11/19	0641	11/19	1400	Hub tapped.

Comments: The soft one percent peak efficiency constraint continues. At times, the units ran outside the constraint at BPA's request.

**Adult Fish Passage Facilities**

McNary fisheries biologists performed measured inspections of the adult fishways on November 13, 15 and 17.

Fish Ladder Exits

Yes	No	Location	Criteria	Comments
X		Oregon Exit	Head over weir 1.0' to 1.3'	
X		Oregon Count Station Differential	0.0' to 0.5'	
X		Washington Exit	Head over weir 1.0' to 1.3'	
X		Washington Count Station Differential	0.0' to 0.5'	

Comments: Debris loads were minimal near the Oregon and Washington exits.

At the Oregon exit, the traveling screen trough was cleaned as needed. A regulating weir alarm was cleared on November 15. Area lighting was repaired on November 17.

Fishway Entrances and Collection Channel

Yes	No	Sill	Location	Criteria	Comments
X			North Oregon Entrance Head Differential	1.0' – 2.0'	
	X		NFEW2 Weir Depth	≥ 8.0'	7.9' on Nov 13.
	X		NFEW3 Weir Depth	≥ 8.0'	7.9' on Nov 13.
X			South Oregon Entrance Head Differential	1.0' – 2.0'	
X			SFEW1 Weir Depth	≥ 8.0'	
	X		SFEW2 Weir Depth	≥ 8.0'	Out of criteria on Nov 15.
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.7 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	
X			WFE2 Weir Depth	≥ 8.0'	
X			WFE3 Weir Depth	≥ 8.0'	

Comments: NFEW2 and NFEW3 measured out of criteria on November 13, possibly due to calibration drifts. SFEW2 was found with slack cables on November 15, resulting in the criterion point being slightly out. The operators resolved the issue as described below.

Auxiliary Water Supply System

Operating Satisfactory	Standby	Out of Service (OOS)	Auxiliary Water Supply System (AWS)
Yes			WA shore Wasco County PUD Turbine Unit
	Yes		WA shore Wasco PUD Bypass
		Yes	Oregon shore Fish Pump 1, OOS to Feb 1, 2021.
Yes			Oregon Ladder Fish Pump 2, Blade angle: 23°.
Yes			Oregon Ladder Fish Pump 3, Blade angle: 26°.
Yes		OOS	OR North Powerhouse Pool supply from juvenile fishway

Comments: Repairs to fish pump 1 continued. The returned to service date remains February 1, 2021. Fish pumps 2 and 3's blade angles were reduced to zero degrees briefly to reset SFEW2 on November 15. The juvenile system supplying flow to the Oregon north powerhouse entrance pool concluded on November 16. This will be discussed below.

**Juvenile Fish Passage Facility**

The juvenile system was switched from primary to emergency bypass mode in preparation for the winter maintenance season on November 16. Also, winterization was completed of the juvenile fish bypass facility. The switch to emergency bypass will allow for major repairs to occur in the juvenile system.

Separator rehabilitation continued. Gasket replacement on the full flow flume primary/secondary bypass gate began this week.

Forebay Debris/Gatewell Debris/Oil

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Minimal to light.
X			Were trash rack differentials measured?	Daily.
X			Trash rack differentials acceptable?	
	X		Any debris seen in gatewells (% coverage)	
	X		Any oil seen in gatewells?	

Comments: Debris loads were minimal to light near the powerhouse and minimal beside the spillway. New debris loads were minimal. Vegetation and woody debris continued to move back and forth from the powerhouse to the Oregon shoreline.

No trash rack cleaning or forebay debris removal occurred.

Two pieces of woody material were removed from the gatewell slots on November 18. 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 remained deployed in all units. ESBS camera inspections in units 9, 10, 11 and 12 revealed no problems on November 17. Unit 9 was already out of service.

Daily VBS differential monitoring continued. No high differentials were measured, and no screens were cleaned.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe

Yes	No	NA	Item	Number of orifices in service
X			Did orifices operate satisfactory?	42
X		X	Were the dewaterer and cleaning systems operated satisfactory?	

Comments: The system was switched from primary to emergency bypass mode on December 16, from 0815 to 1115 hours. All systems were removed from service and winterized for extensive maintenance to begin. The current focus in the channel is replacing the electrical conduit to the three screen cleaning brushes' limit switches and modifying the control system program, which was recently examined. Next, the electrical staff must determine how to communicate with the control system PLC in order to modify the program.

There were 42 orifices in use when in primary or emergency bypass mode. Orifice valve operators were repaired as needed.

Maintenance also began on the channel hoist this week.

All systems were functional before the switch to emergency bypass except the transition brush as stated in previous reports. The repairs to the two side dewatering valves will begin after the orifices are closed on approximately December 21. It was determined that the control program was requesting the dewatering valves to respond to elevation changes within a fraction of a second. This would explain the wear on the valves and high operator temperatures.

Bypass Facility

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

Comments: All bypass facility systems remain out of service. As stated above, the juvenile system was switched to emergency bypass mode on November 16. The switch to this mode of bypass will allow major repairs in the juvenile channel and facility to begin a month earlier, which should ensure the system is ready for early start up in March.

Top Spillway Weir (TSW) Operations: The TSW in bay 19 remained out of service. The TSW in bay 20 was being used for the adult steelhead TSW passage efficiency study and as required by the new Biological Opinion. Both

concluded on November 15. New spillway leaves, which will facilitate TSW install and removal, were installed in bays 19 and 20 on November 18 and November 19, respectively.

### 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
142.4	109.7	1.5	0.0	52.0	50.0	6.0	6.0

Comments: The above data comes from the control room. The data day is 0000 to 0000 hours. The spill recorded above was for the TSW study. Repairs to crane 6 continue. The crane is scheduled to return to service in mid-January 2021. Crane 7 is also scheduled to receive a new gearbox.

### Other

Inline Cooling Water Strainers: The next cooling water strainer inspections will occur on December 1.

Avian Activity: Casual avian observations continued.

Currently, there are no hazing efforts occurring. No terns or pelicans were observed on project.

Gull and cormorant activity began decreasing in the powerhouse zone where the birds had been noted as feeding in large numbers.

In the spillway zone, gulls and cormorants that were observed in large numbers, began to decrease also. The birds are still roosting around the spill basin.

At the juvenile bypass outfall, gulls and cormorants were noted. Cormorant numbers remained high. Roosting on the bypass pipe was still the primary use of the area with feeding occurring occasionally.

In the forebay zone, a gull flock, several grebes or a few cormorants were occasionally noted roosting on the water. Gull flocks and a few cormorants were also noted roosting outside the zone.

Invasive Species: The next mussel stations examination will occur on November 23.

Fish Rescue/Salvage: The juvenile system switch to emergency bypass occurred on November 16. In the channel, during the switch, though technically not a fish salvage operation, we observed three adult Chinook, two adult coho and twenty-five adult steelhead. One juvenile Chinook was also observed. None of the fish were examined for clips. Also, six small sized adult walleye, six shad adults and twenty medium sized adult small mouth bass were noted. In addition, two sturgeon, approximately 3 to 4 foot long, were observed. Finally, a few dozen juvenile shad were noted, which included approximately a dozen mortalities.

Research: The fall phase of the Pacific Northwest National Laboratory (PNNL) adult steelhead TSW passage efficiency study concluded on November 15.

**Project: Ice Harbor**

Biologist: Ken Fone

Dates: November 13, 2020 – November 19, 2020

**Turbine Operation**

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

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

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
3	5/3/19	0641	---	---	Turbine runner replacement and stator rewind
5	9/21/20	0900	---	---	Annual maintenance and overhaul

Comments: Unit 6, 4, 2, and 1 were taken out of service one at a time on November 16, 17, and 18 to remove submersible traveling screens (STSs).

Unit 4 was run out of unit operating priority, ahead of unit 6, from 0821 hours to 1009 hours on November 17. Unit 6 was shut off during that time period to provide safe conditions for divers that were inspecting the removable spillway weir (RSW).

**Adult Fish Passage Facility**

Ice Harbor Fish Facility staff inspected the adult fishways on November 16, 17, and 18.

Fish Ladders:

Yes	No	Location	Criteria	Measurements
X		North Ladder Exit Differential	Head $\leq$ 0.3'	
X		North Ladder Picketed Lead Differential	Head $\leq$ 0.3'	
X		North Ladder Depth over Weirs	Head over weir 1.0' to 1.3'	
X		South Ladder Exit Differential	Head $\leq$ 0.3'	
X		South Ladder Picketed Lead Differential	Head $\leq$ 0.3'	
X		South Ladder Depth over Weirs	Head over weir 1.0' to 1.3'	

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
		X	South Shore Entrance (SFE-1) Weir Depth	$\geq$ 8.0' or on sill	
X			South Shore Channel/Tailwater Differential	1.0' – 2.0'	
X			South Shore Channel Velocity	1.5 – 4.0 fps	
		X	North Powerhouse Entrance (NFE-2) Weir Depth	$\geq$ 8.0' or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0' – 2.0'	
		X	North Shore Entrance (NEW-1) Weir Depth	$\geq$ 8.0' or on sill	
X			North Shore Channel/Tailwater Differential	1.0' – 2.0'	

Comments: None.

Auxiliary Water Supply System (AWS) :

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 5 square yards
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0-8%
	X		Any oil seen in gatewells?	

Comments: None.

Submersible Traveling Screens/Vertical Barrier Screens (STSs/VBSs):

Yes	No	NA	Item
X			STSs deployed in all slots and in service for 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: Unit 6, 5, 4, 2, and 1 STSs were removed for winter maintenance on November 16, 17, and 18. (Unit 3 STSs were not installed this year since the unit has been out of service). STSs were pulled a month early to accommodate the contractor for the intake crane upgrade (see MOC 2020 IHR 04 for more details).

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: None.

Juvenile Fish Facility: The Juvenile Fish Facility is operating in primary bypass mode and will be unwatered for winter maintenance on November 23.

Fish Sampling: Fish sampling is done for the year at Ice Harbor Project.

Removable Spillway Weir: The RSW was periodically opened for downstream passage of adult steelhead that may have strayed into the Snake River. For the benefit of steelhead, the RSW was operated from 0500 hours to 0900 hours on Sundays, Wednesdays, and Fridays, from October 1 to November 15.

The periodic 3-year inspection of the RSW by divers was conducted on November 17. There were no significant problems found.

## 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
23.7	14.5	1.5	0	52	50	9.8	7.2

\*Unit 1 scroll case temperature.

Comments: None.

## Other

Inline Cooling Water Strainers: On November 17, unit 1 strainer was unclogged of American shad. Approximately 1,200 juvenile shad mortalities were removed from the strainers.

Avian Activity: There were high numbers of piscivorous birds seen around the project, including gulls, mergansers, and pelicans. Many of the birds were observed foraging downstream of the powerhouse or resting along the south shore and on Eagle Island.

Invasive Species: No new exotic species have been observed.

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by fisheries management personnel, frozen and properly disposed in a landfill. Sampling activities have ended for the year.

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

Research: No on-site research is occurring at this time.

**Project: Lower Monumental**

Biologists: Chuck Barnes and Raymond Addis

Dates: November 13 – 19, 2020

**Turbine Operation**

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

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

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
Unit 2	7/15/2019	0720	4/01/2021	ERTS	Annual, Draft Tube Liner

Comments: Soft restraint for turbines operated within 1% peak efficiency began on November 1.

**Adult Fish Passage Facility**

The adult fishways were inspected by Corps biologists on November 16, 18 and 19.

Fish Ladder:

Yes	No	Location	Criteria	Measurements
X		North Ladder Exit Differential	Head $\leq$ 0.5'	
X		North Ladder Picketed Lead Differential	Head $\leq$ 0.4'	
X		North Ladder Depth over Weirs	Head over weir 1.0' to 1.3'	
X		South Ladder Exit Differential	Head $\leq$ 0.5'	
X		South Ladder Picketed Lead Differential	Head $\leq$ 0.3'	
X		South Ladder Depth over Weirs	Head over weir 1.0' to 1.3'	

Comments: None.

Fishway Entrances and Collection Channel:

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



**Comments:**

South Powerhouse Entrance (SPE-1) Weir was on sill during all inspections with readings of 6.6, 7.4 and 8.1 feet respectively.

South Powerhouse Entrance (SPE-2) Weir was on sill during all inspections with readings of 6.6, 7.4 and 8.1 feet respectively.

South Shore Entrance (SSE-1) Weir was on sill during the November 16 and 18 inspections with a reading of 7.5 and 7.9 feet respectively and out of criteria on the November 19 inspection with a reading of 7.5 feet.

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)	17 yds <sup>2</sup>
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 25%
	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		STSs inspected this week?
		X	STSs inspection results acceptable?
		X	VBSs differentials checked this week?
		X	VBSs differentials acceptable?

Comments: STS's were operating in cycle mode 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
	X		Dewaterer and cleaning systems operating satisfactory?	

Comments: None.

Collection Facility: The Juvenile collection facility was watered up at 10:00 on March 26.

Everyday collection for sample condition ended at 0700 on October 1 and the facility was placed into primary bypass at that time. The collection facility was dewatered at 1230 on October 5.

Transport Summary: Alternate day barge transport ended June 21.

Spillway Weir: Summer spill ended on August 31 at 23:59:59. Off-season spill ended 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
23.8	13.6	1.4	0	49.5	48.5	5.2	4.8

\*Scrollcase temperatures.

## Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on August 10. No live fish or mortalities were recovered.

Avian Activity: Bird hazing efforts by USDA personnel ended June 2, 2020. Tailrace bird observations conducted during fish ladder inspections ended for the season September 30, 2020.

Invasive Species: No zebra or quagga mussels were observed during monitoring station inspections on October 19.

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by PSMFC and Anchor, frozen and properly disposed of in a landfill. Sampling has ended for the season thus no Siberian prawns were collected for this reporting period.

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

Research: No research is occurring currently.

**Project: Little Goose**

Biologists: Scott St. John

Dates: November 13-19, 2020

**Turbine Operation**

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

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

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
5	04/14/17	14:11	03/31/21	17:00	Spider and upper guide bearing repair.
2	10/26/20	03:08	11/30/20	17:00	Unit Annual

Comments: None.

**Adult Fish Passage Facility**

Little Goose fish facility staff inspected the adult fishway on November 16, 17 and 18.

Fish Ladder:

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

Comments: Adult ladder cooling pump was shut down for the season on September 16.

Fishway Entrances and Collection Channel:

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

Comments: The adult fishway continues to operate in manual mode.

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: None

## Juvenile Fish Passage Facility

### Forebay Debris/Gatewell Debris/Oil:

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

Comments: There is approximately 5 square feet of floating woody debris currently inside the trash shear boom in the forebay. Drawdowns were performed on November 9 on Units 1, 3 and 4 and were in criteria.

### 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: All ESBS screens are in slots and deployed for all available and in-service Units. VBS differentials were performed on November 9 on Units 1, 3 and 4 and were in criteria. ESBS/VBS camera inspections were performed on Unit 2 on November 10 and screens were in satisfactory condition.

### 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 airline for the backflush system on orifice 1C1 was found broken and will need repaired once the juvenile channel is dewatered for winter maintenance (MFR 20 LGS 12). During prior ESBS/VBS inspections, an issue with the orifice liner in 6C2 was observed (MFR 20 LGS 14) and will need repaired during winter maintenance. The limitorque motor that operates the weirs for water elevation at the primary dewatering structure is out of service. Weirs are currently being adjust manually until repairs are made.

Collection Facility: The collection facility was placed in primary bypass on November 1. The facility was dewatered for winter maintenance on November 4.

Transport Summary: Daily collection and transport ended on November 1 at 07:00.

Spillway Weir: Spill for adult steelhead overshoots commenced on October 01. ASW spill operations were conducted in accordance to the most recent Columbia Basin Teletype. Off-season spill ended November 15.

## 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	13.5	1.2	0.0	48.6	47.9	5.7	5.3

\*Ladder temperature.

## **Other**

Inline Cooling Water Strainers: Inline cooling strainers were inspected and results submitted to district operations every other week for FPOM distribution through mid-June per Fish Passage Plan (FPP) requirements.

Avian Activity: Daily piscivorous bird counts at Little Goose Dam began on April 1 and ended on October 31.

Invasive Species: No invasive species have been observed on the mussel station.

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized, frozen and properly disposed of in a landfill. Daily collection ended on November 1; therefore no prawns were collected and euthanized.

Gas Bubble Trauma (GBT): GBT monitoring has finished for the season.

Fish Rescue/Salvage: None.

Research: None.

**Project: Lower Granite**

Biologists: Elizabeth Holdren and David Miller

Dates: Nov 13-19, 2020

**Turbine Operation**

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

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

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
3	Oct 19	0659			Annual maintenance

Comments: None.

**Adult Fish Passage Facility**

Lower Granite Biologist inspected the adult fishway November 16, 17, and 19.

Fish Ladder:

Yes	No	NA	Location	Criteria	Comments
X			Fish Ladder Exit Differential	Head $\leq$ 0.5'	
X			Fish Ladder Picketed Lead Differential	Head $\leq$ 0.3'	
X			Fish Ladder Depth over Weirs	Head over weir 1.0' to 1.3'	
	X		Fish Ladder Cooling Water Pumps in Service		
		X	Fish Ladder Cooling Water Pumps Operating Satisfactorily		

Comments: None.

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
	X		South Shore Entrance (SSE-1) Weir Depth	$\geq$ 8.0'	7.9, 7.9
	X		South Shore Entrance (SSE-2) Weir Depth	$\geq$ 8.0'	7.9
X			South Shore Channel/Tailwater Differential	1.0' – 2.0'	
X			North Powerhouse Entrance (NPE-1) Weir Depth	$\geq$ 8.0' or on sill	
X			North Powerhouse Entrance (NPE-2) Weir Depth	$\geq$ 8.0' or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0'–2.0'	
	X		North Shore Entrance (NSE-1) Weir Depth	$\geq$ 7.0' or on sill	6.7, 6.7, 6.7
			North Shore Entrance (NSE-2) Weir Depth	$\geq$ 7.0' or on sill	Closed
X			North Shore Channel/Tailwater Differential	1.0'–2.0'	
	X		Collection Channel Surface Velocity	1.5 – 4.0 fps	1.1, 1.2, 1.2

Comments: FOGs 1 and 10 are in operation. The control system sensor for NSE-1 continues to have issues recognizing and responding to tailwater elevation changes.

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: AWS pump 3 is operational in standby mode with lower guide bearing work delayed until the winter outage due to COVID.

**Juvenile Fish Passage Facility**

Forebay Debris/Gatewell Debris/Oil: Woody debris observed in the forebay this season is likely due to the failure in the upriver two sections of the forebay debris boom. Repairs of the forebay debris boom are recommended to prevent further damage and limit debris in the powerhouse forebay and on unit trashracks.

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	
X			Trash rack differentials measured this week?	
X			Trash rack differentials acceptable	
X			Any debris seen in gatewells (% coverage)	Ranged from 1-3%
	X		Any oil seen in gatewells?	

Comments: Gatewell differentials were measured November 16. Debris is removed from gatewells with a hand dip basket.

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?	18-24
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: Juvenile collection channel water level and flow is being adjusted using 10" orifices depending on forebay elevations. The facility is in primary bypass.

Collection Facility: Dewatered for winter maintenance.

Transport Summary: No transport.

Spillway Weir: The RSW operation to facilitate adult steelhead passage ended November 15.

**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
24.1	17.2	1.2	0.0	47.0	46.0	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: Biologist daily piscivorous bird counts at Lower Granite Dam concluded on October 31.

Adult Fish Trap Operations: The adult trap was dewatered November 15.

Fish Rescue/Salvage: Prior to dewatering the adult trap, the drain valve gate was opened with the return channel flow set to allow fish to volitionally exit directly to the tailrace. All fish remaining in the recovery pool and return channel were guided to the tailrace without being netted or handled. Speciation and other observations were made as the fish exited the area. Live salmonids guided to the tailrace included 12 Chinook jacks and 1 Coho. Mortalities included 5 adult Chinook and 2 adult steelhead in various stages of decomposition.

Research: N/A