

**U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#43-2020**

Project: McNary

Biologist: Bobby Johnson and Denise Griffith

Dates: December 18 – 24, 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	
5	12/7	0643	01/14	N/A	Thrust bearing system maintenance/upgrades.

Comments: The soft one percent peak efficiency constraint continues. At times, the units ran outside the constraint at BPA's request. All return to service dates are subject to change. There is nothing more to report.

Adult Fish Passage Facilities

McNary fisheries biologists performed measured inspections of the adult fishways on December 18, 20 and 22.

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. There is nothing more to report.

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 Dec 20 and 22.
	X		NFEW3 Weir Depth	≥ 8.0'	7.9' on Dec 20 and 22.
X			South Oregon Entrance Head Differential	1.0' – 2.0'	
X			SFEW1 Weir Depth	≥ 8.0'	
	X		SFEW2 Weir Depth	≥ 8.0'	Slack cables on Dec 20.
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.8 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	
X			WFE2 Weir Depth	≥ 8.0'	
X			WFE3 Weir Depth	≥ 8.0'	

Comments: The out of criteria points listed above for the Oregon ladder entrance weirs NFEW2 and NFEW3 were possibly due to the juvenile system no longer supplying flow to the Oregon north powerhouse pool. However, the biologist requested the weirs' set points be adjusted down 0.1 inch on December 22. The reading for Oregon ladder south entrance weir SFEW2 was erroneous on December 20. The weir was jammed with slack cables and out of

criterion. The operators were contacted and the issue was resolved as described below. Though in criteria, Washington ladder entrance weirs W2 and W3 were in manual mode overnight due to the weirs hitting their lower limit on December 19.

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 Ladder Fish Pump 1, Blade angle: 22°- 30°.
Yes*	Yes*		Oregon Ladder Fish Pump 2, Blade angle: 22°- 24°.
Yes*			Oregon Ladder Fish Pump 3, Blade angle: 23°- 30°.
		Yes	OR North Powerhouse Pool supply from juvenile fishway

Comments: The operators briefly reduced all three fish pumps’ blade angles to zero in order to free SFEW2 on December 20. During BPA requested line switching, fish pump 2 was in standby mode on December 23 from 0557 to 1756 hours. The other fish pumps’ blade angles were adjusted as required. The juvenile system, which was in emergency bypass and no longer supplying flow to the Oregon north powerhouse pool, was completely removed from service on December 21.

Juvenile Fish Passage Facility

The juvenile system was removed from service when all orifices were closed on December 21 at 0800 hours. Fish were evacuated from the upper and lower emergency bypass channels by 1400 hours. Maintenance and repairs will now expand throughout the system. Emergency bypass will resume for the TSW overshoot study in February 2021.

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?	Twice.
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 to very light beside the spillway. New debris loads were minimal to very light. The debris consisted mostly of aquatic vegetation and woody material.

The biologist noticed a slight sheen in 12A slot on December 20. The control room was notified. The sheen was determined to be ESBS gear box oil which leaked past a failed gasket. The oil was contained within the slot and completely removed by December 22. No fish mortality was observed.

No trash rack cleaning or forebay debris removal occurred.

Trash rack differentials and gatewell slots continued to be checked during the winter maintenance season.

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 maintenance has begun. Camera inspections will resume in March 2021.

VBS differential monitoring will resume when ESBS are installed for the TSW fallback study in February.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe

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

Comments: The 42 orifices in use during emergency bypass were closed and fish were evacuated from the system on December 21. Full winter maintenance season in the channel will begin. Modifying the electrical conduit to the three screen cleaning brushes' limit switches has almost been completed. Work on the control system program continued. Dewatering valve maintenance will begin next week.

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.

The separator and sample system rehabilitation continued along with gasket replacement on the full flow flume primary/secondary bypass gate. The metal for the separator rehabilitation was staged near the separator this week. Welding is scheduled to begin January 4, 2021.

Top Spillway Weir (TSW) Operations: The TSW's in bays 19 and 20 remained out of service.

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
139.8	94.6	0.0	0.0	45.0	45.0	6.0	6.0

Comments: The above data comes from the control room. The data day is 0000 to 0000 hours. Repairs to crane 6 continued. 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 January 5.

Avian Activity: Casual avian observations continued.

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

Gull and cormorant feeding activity remained light with very few birds in the powerhouse zone.

In the spillway zone, gulls and cormorants were observed in fairly low numbers, with the birds roosting around the spill basin or on the water.

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

In the forebay zone, fewer gulls were noted roosting on the water or flying by at times. In addition, gull flocks, a few grebes, two loons, two pelicans or a few cormorants were observed roosting outside the zone. Gull numbers also appear to be fluctuating.

Invasive Species: The mussel station examinations revealed no problems on December 20.

Fish Rescue/Salvage: During the evacuation of the emergency bypass channels, we noted adult salmonids: 23 steelhead, two coho (one was a jack) and one Chinook. Also, we observed two smolts: one steelhead and one Chinook. We did not examine the fish for clips.

Finally, we noted two small walleye, 24 small mouth bass in a full range of sizes, one sculpin and 12 juvenile shad.

Research: There is nothing to report.

Project: Ice Harbor

Fisheries Technician: Timothy DeKoster

Dates: December 18, 2020 – December 24, 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	12/10/20	1210	Annual maintenance and overhaul
2	11/30/20	0702	---	---	Annual maintenance

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on December 21st, and 22nd. Only two inspections were conducted for the week of December 18th to 24th, because the federal work week was reduced from a presidential executive order making December 24, 2020 a federal holiday.

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)
6 pumps	2 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 7.5 square yards
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	Stored STSs obstruct full view into gatewells
	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: STSs are removed for winter maintenance.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
		X	Orifices operating satisfactory?	0
		X	Dewaterer and cleaning systems operating satisfactory?	

Comments: The juvenile fish bypass is unwatered for winter maintenance. The collection channel juvenile by-pass pipe was inspected via pipe crawler ROV on December 16, 2020. Due to an equipment malfunction only about ~75% of the juvenile by-pass was inspected. The upper portion of the pipe leading into the collection channel still needs to be inspected, and an inspection later in the season will be determined by Project Fisheries Biologist.

Juvenile Fish Facility: The juvenile fish facility is unwatered for winter maintenance.

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

Removable Spillway Weir (RSW): Voluntary spill for fish is done for the year.

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
19.5	29.9	0	0	43	43	9.9	9.9

*Unit 1 scroll case temperature.

Comments: None.

Other

Inline Cooling Water Strainers: Seasonal inspections of strainers for lamprey started up again in December and will be completed later this month. Units 1, 2, 4, 5, and 6 were inspected on December 22nd for debris and American Shad to prevent clogged strainers over the weekend. A total of 53 American Shad mortalities were found, which is significantly lower amount than what was reported in previous years.

Avian Activity: There were moderate numbers of piscivorous birds seen around the project, including gulls, mergansers, and pelicans.

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.

Fish Rescue/Salvage: None.

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

Project: Lower Monumental

Biologists: Chuck Barnes and Raymond Addis

Dates: December 18-24, 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 1	12/7/2020	0700	1/11/2021	ERTS	Annual Maintenance
Unit 2	7/15/2019	0720	4/01/2021	ERTS	Annual, Draft Tube Liner

Comments: None.

Adult Fish Passage Facility

The adult fishways were inspected by Corps biologists on December 21 and 22.

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			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 both inspections with readings of 7.7 and 7.1 feet respectively.

South Powerhouse Entrance (SPE-2) Weir was on sill during both inspections with readings of 7.7 and 7.1 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)	80 yds ²
		X	Gatewell drawdown measured this week?	
		X	Gatewell drawdown acceptable	
		X	Any debris seen in gatewells (% coverage)	STS's dogged off blocking gatewells
		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.

STS's for Units 1 and 2 were pulled from their gatewells on December 7. Both units are out of service for the remainder of the juvenile fish passage season. STS's for Units 3-6 were removed for the season on December 16 and 17.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
		X	Orifices operating satisfactory?	0
		X	Dewaterer and cleaning systems operating satisfactory?	

Comments: Orifices were closed and juvenile channel and primary bypass were dewatered for winter maintenance on December 16.

Collection Facility: The collection facility is dewatered for winter maintenance.

Transport Summary: The 2020 transport season has ended.

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
32.5	19.0	0	0	43.0*	43.0	5.5	5.5

* Water temperature came from South Shore collection channel on all inspections, due to Scrollcase temperatures not being available.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on December 1. No live fish were recovered. Several juvenile American shad mortalities were present in strainers but could not be counted due to decomposition.

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 December 1.

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 year thus there were no Siberian prawns sampled at Lower Monumental Dam for this reporting period.

Fish Rescue/Salvage: N/A

Research: No research is occurring currently.

Project: Little Goose

Biologists: Scott St. John

Dates: December 18-24, 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.
1	11/30/20	08:00	01/29/21	17:00	Unit Annual

Comments: None.

Adult Fish Passage Facility

Little Goose fish facility staff inspected the adult fishway on December 21 and 22.

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 1,500 square feet of floating woody debris currently inside the trash shear boom in the forebay. Drawdowns were last performed on December 3 on Units 3, 4 and 6 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 were removed for winter maintenance on December 16 and 17. Screens were visually inspected and in satisfactory conditions. VBS differentials were last performed on December 3 on Units 3, 4 and 6 and were in criteria. ESBS/VBS camera inspections were last performed on Unit 1 on December 3 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?	0
		X	Dewaterer and cleaning systems operating satisfactory?	

Comments: The juvenile bypass system was dewatered for winter maintenance on December 21. The airline for the backflush system on orifice IC1 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.

Collection Facility: The juvenile bypass system was dewatered for winter maintenance on December 21.

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

Spillway Weir: Spill for adult steelhead overshoots ended on 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
24.9	19.3	0.0	0.0	41.8	41.5	6.0	6.0

*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. Strainer inspections will begin the middle of December.

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: A fish rescue was performed in the juvenile bypass channel and dewatering structure on December 21. Approximately 70 adult steelhead, clipped and unclipped, were released through the emergency release pipe to the tailrace. Additionally, 3 unclipped subyearling Chinook salmon and 75 juvenile lamprey were also released to the tailrace through the emergency release pipe.

Research: None.

Project: Lower Granite

Biologists: Elizabeth Holdren and David Miller

Dates: Dec 18-24, 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	Dec 18	1500	Annual maintenance

Comments: None.

Adult Fish Passage Facility

Lower Granite Biologist inspected the adult fishway December 21, and 22.

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'	
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 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	
			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	1.3, 1.2

Comments: FOGs 1 and 10 are in operation. The control system sensors continue to have issues recognizing and responding to tailwater elevation changes. The electrical crew continues to work on programming and calibration issues with the control system.

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: The failure in the upriver two sections of the forebay debris boom may be resulting in increased powerhouse debris. 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: 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: All orifice gallery lights were turned off December 16 to encourage fish to exit the juvenile collection channel. Orifices for unit 2-6 were closed with the 14" orifices in unit 1 and the north makeup water valve open to provide flow to flush the primary bypass prior to dewatering December 21. The facility remained in primary bypass until dewatered for winter maintenance on December 21.

Collection Facility: Dewatered for winter maintenance.

Transport Summary: No transport.

Spillway Weir: No spill.

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
29.3	21.3	0.0	0.0	40.0	38.0	5.0	5.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: N/A

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

Avian Activity: N/A

Adult Fish Trap Operations: N/A

Fish Rescue/Salvage: N/A

Research: N/A