U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#41-2020

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: December 4 – 10, 2020

Turbine Operation

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

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

	OOS		RTS		
Unit(s)	**Date**	**Time**	**Date**	**Time**	**Outage Description**
11	12/3	0705	12/9	1444	New top plate pump installation.
5	12/7	0643	12/23	N/A	Thrust bearing system maintenance/upgrades.
1	12/7	1019	12/7	1658	Brake solenoid repair.
1, 2 & 3	12/8	1000	12/8	1100	ESBS camera inspections.
1 & 2	12/9	0835	12/9	1141	Black start certification.
12	12/10	0600	12/16	N/A	New top plate pump installation.

Comments: The soft one percent peak efficiency constraint continues. At times, the units ran outside the constraint at BPA's request. The black start certification of units 1 and 2 had consciences related to the adult and juvenile fish facilities as will be described below.

Adult Fish Passage Facilities

McNary fisheries biologists performed measured inspections of the adult fishways on December 4, 6 and 9.

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, after the black start testing of units 1 and 2 on December 9, the ladder was taken out of automatic mode and placed into manual to resolve electrical and control issues. After the adjustments, the ladder was placed back into automatic mode.

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'	7.5 to 7.9' all week.
	X		NFEW3 Weir Depth	≥ 8.0'	7.4 to 7.9' all week.
X			South Oregon Entrance Head Differential	1.0' – 2.0'	
	X		SFEW1 Weir Depth	≥ 8.0'	7.9' on Dec 6, 7.6' on Dec 9.
	X		SFEW2 Weir Depth	≥ 8.0'	7.9' on Dec 6, 7.6' on Dec 9.
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.7 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	
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, NFEW3, SFEW1 and SFEW2 were possibly due to the juvenile system no longer supplying flow to the Oregon north powerhouse pool, hydraulic gradients and calibration drifts. However, on December 9, the black start testing of units 1 and 2, with the associated power outages, did result in ladder control issues, which probably contributed to the out of criteria points that day.

The biologist found NFEW2 in manual mode on December 6. The control room operator examined the settings and placed the weir back into automatic mode.

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: 26° - 27°.
Yes*			Oregon Ladder Fish Pump 3, Blade angle: 26°- 30°.
		Yes	OR North Powerhouse Pool supply from juvenile fishway

*Comments: Repairs to fish pump 1 continue. The below water work has been completed. Fish pump 1's intake and discharge stoplogs were removed on December 8. While removing the discharge logs, the blade angles of fish pumps 2 and 3 were reduced to zero degrees, from 1305 to 1357 hours.

The juvenile system remains in emergency bypass.

Juvenile Fish Passage Facility

The juvenile system remains in emergency bypass mode with the winter maintenance season continuing. Brief power outages occurred throughout the juvenile fish facility and the powerhouse systems as part of the black start testing of units 1 and 2 on December 9.

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 to very light. The debris consisted mostly of aquatic vegetation and woody material.

No trash rack cleaning or forebay debris removal occurred.

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 for most of the week. The ESBS's in units 5 and 12 were raised on December 10 as the units will be out of service beyond December 14, when ESBS removal is scheduled to begin. After the screens were raised in units 5 and 12, no fish were observed.

ESBS camera inspections in units 1, 2, and 3, revealed no problems on December 8. This was the last set of camera inspections of the season before ESBS removal begins.

The power outages associated with the black start testing of units 1 and 2 on December 9 appeared to effect the ESBS control system and expose issues with ESBS brush cycling, especially in 6A slot, unit 9 and 11C slot.

The brush cycle for the screen in 6A slot began to "short cycle" (not complete a cycle) on December 8. After the power outages mentioned above, the issue appeared to occur more frequently. The operators will monitor the screen and operate the brush as needed. We have asked for this ESBS to be removed on December 15.

Again, after the power outages, all brush cycles for the ESBS's in unit 9 had to be reset. Fortunately, no further issues have occurred.

The brush cycle for the screen in 11C slot appeared to be continue to "short cycling" after the unit returned to service on December 9. Also, the power outages appeared to have made the issue worse. The operators will monitor the screen and operate the brush as needed. This ESBS is scheduled for removal on December 14.

Daily VBS differential monitoring continued. No high differentials were measured. One screen was cleaned on December 7. No fish were observed.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe

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

Comments: The system remains in emergency bypass mode, which is scheduled to end on December 21. There were 42 orifices in use. Orifice operators were repaired as needed.

Modifying the electrical conduit to the three screen cleaning brushes' limit switches and the control system program continued.

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.

Separator and the sample system rehabilitation continued along with gasket replacement on the full flow flume primary/secondary bypass gate.

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	116.8	0.0	0.0	47.0	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 continue. The crane is scheduled to return to service in mid-January 2021. Crane 7 is also scheduled to receive a new gearbox. Spillgate inspections are scheduled to begin next week.

Other

Inline Cooling Water Strainers: The cooling water strainer inspections revealed juvenile shad mortalities and one decomposed juvenile lamprey on December 8. The next inspections will occur on January 4.

Avian Activity: Casual avian observations continued.

Currently, there are no hazing efforts occurring. No terns or pelicans 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. 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. In addition, a cormorant, an eagle or a loon was observed. Gull flocks and a few cormorants were also noted roosting outside the zone.

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

Fish Rescue/Salvage: There is nothing to report.

Research: There is nothing to report.

Project: Ice Harbor
Biologist: Ken Fone
Dates: December 4, 2020 – December 10, 2020

Turbine Operation

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

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
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 8, 9, and 10.

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 (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 22 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.

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
26.1	12.6	0	0	48	44	10.0	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.

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. Several hundred gulls were observed foraging at the discharge of the navigation lock when the lock was being drained.

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 has ended for the year.

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 04 - 10, 2020

Turbine Operation

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

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

	OOS		RTS		
Unit	Date	Time	Date	Time	Outage Description
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 7, 8 and 10.

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 7.0, 7.2 and 6.7 feet respectively.
South Powerhouse Entrance (SPE-2) Weir was on sill during all inspections with readings of 7.0, 7.2 and 6.7 feet respectively.
South Shore Entrance (SSE-1) Weir was on sill during all inspections with readings of 7.9, 8.6 and 7.7 feet respectively.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
Yes			AWS Fish Pump 1
Yes			AWS Fish Pump 2
Yes			AWS Fish Pump 3

Comments: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	83 yds^2
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 15%
	X		Any oil seen in gatewells?	

Comments: None.

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.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	17
	X		Dewaterer and cleaning systems operating satisfactory?	

Comments: None.

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 and 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
23.7	14.0	0	0	45.0[A]	43.7	7.1	7.0

*Scrollcase temperatures.

[A] Water temperature came from South Shore collection channel on the December 10 inspection, 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.

Fish Rescue/Salvage: Fish Rescue/Salvage took place in Unit 1 scroll case on December 10. No fish were found when the unit was dewatered.

Research: No research is occurring currently.

Project: Little Goose
Biologists: Scott St. John
Dates: December 4-10, 2020

Turbine Operation

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

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

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
5	04/14/17	14:11	03/31/21	17:00	Spider and upper guide bearing repair.
2	10/26/20	03:08	12/18/20	17:00	Unit Annual
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 7, 8and 9.

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 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	≥ 8.0’	
X			South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 7.0’ or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 7.0’ or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
X			North Shore Entrance (NSE-1) Weir Depth	≥ 6.0’ or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	≥ 6.0’ or on sill	
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

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

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 2,460 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 are in slots and deployed for all available and in-service Units. 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?	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 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
21.9	14.1	0.0	0.0	43.8	43.7	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: None.

Research: None.

Project: Lower Granite
Biologists: Elizabeth Holdren and David Miller
Dates: Dec 4-10, 2020

Turbine Operation

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

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

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
1	Nov 30	0704			Annual maintenance
3	Oct 19	0659			Annual maintenance

Comments: None.

Adult Fish Passage Facility

Lower Granite Biologist inspected the adult fishway December 7, 9, and 10.

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’	7.8, 7.9
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.9
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 8.0’ or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 8.0’ or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
	X		North Shore Entrance (NSE-1) Weir Depth	≥ 7.0’ or on sill	6.9, 6.9
			North Shore Entrance (NSE-2) Weir Depth	≥ 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, 1.3, 1.1

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: Gatewell differentials were measured December 7. 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: ESBSs were removed from unit 1 and unit 3 on December 2 for winter maintenance.

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: 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
21.9	14.4	0.0	0.0	41.0	38.0	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

Adult Fish Trap Operations: N/A

Fish Rescue/Salvage: N/A

Research: N/A