

**U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#02-2022**

Project: McNary

Biologist: Bobby Johnson and Paul Bertschinger

Dates: March 11-17, 2022

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).

Unit(s)	OOS		RTS		Outage Description
	Date	Time	Date	Time	
4	8/2/21	1018	3/16/22	1014	Blade seals/Trash racks cleaned 10/14
7	10/4/21	0730	4/20/22	N/A	Blade seals
13 & 14	10/14	0752	10/14	0833	Rotated through units for trash rack cleaning
9 to 11	10/14	1205	10/14	1612	Rotated through units for trash rack cleaning
2 to 8	10/15	0731	10/15	1531	Rotated through units for trash rack cleaning

Comments: The one percent peak efficiency constraint and unit priority are being followed per the 2022 Fish Passage Plan (FPP). RTS dates are subject to change.

Adult Fish Passage Facilities

The McNary fisheries staff performed measured inspections of the adult fishways on March 11, 13, and 15. Fish counting by video review continues.

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'	0.2' to 0.3'
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'	0.2' to 0.3'

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

The Washington shore count station window brush was found running at the bottom of the window for extended periods on March 11 and 17. The powerhouse mechanics examined the issue.

There are no other problems to report.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
	X		North Oregon Entrance Head Differential	1.0' – 2.0'	2.0' to 2.1'
X			NFEW2 Weir Depth	≥ 8.0'	9.5'
	X		NFEW3 Weir Depth	≥ 8.0'	Raised
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.1' to 1.3'
	X		SFEW1 Weir Depth	≥ 8.0'	7.5' to 8.2'
	X		SFEW2 Weir Depth	≥ 8.0'	7.5' to 8.1'
	X		Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.0 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	1.2' to 1.4'
X			WFE2 Weir Depth	≥ 8.0'	10.0 to 10.3'
X			WFE3 Weir Depth	≥ 8.0'	9.9' to 10.4'

Comments: The above out of criteria points were due to the Oregon ladder operating with only one functional fish pump under the configuration as outlined in the FPP. NFEW3 was raised all week and the north Oregon pool differential was out of criterion on March 11. At the south Oregon entrance, SFEW1 and SFEW2 were out of criteria on March 13 and 15. The velocity was low all week.

Floating orifice gate slot W26 is currently closed. However, the gate in that slot is damaged and will need to be replaced.

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			28°	Oregon Ladder Fish Pump 1
		Yes		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 pumps 2 and 3 remain out of service. Fish pump 3 will be repaired first. Return to service dates are subject to change.

Juvenile Fish Passage Facility

Every other day sample collection continued with no interruptions.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Light to heavy
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: Debris loads were light to heavy near the powerhouse and minimal beside the spillway. New debris loads were minimal to very light. Weather systems moved the debris to the Oregon shore and back.

Trash racks were cleaned on March 14 and 15 in units 2 through 6, 8 through 11, 13, and 14. There were 83 yards of debris removed. No fish were observed.

There is nothing more 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: For early sample start up, ESBS's are installed in units 1 and 12 through 14. Camera inspections will resume in late March. ESBS maintenance continued. Installation of the remaining ESBS's will begin April 4.

Daily VBS differential monitoring revealed no high differentials, 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			Dewatering and cleaning systems operating satisfactory?	

Comments: Orifices were rotated as required for trash rack cleaning. A high/low water alarm came in on March 14. Orifice cycling protocols were reviewed the next business day. Orifice valve operators were repaired as needed. Moisture in the temporary supply line continued to be an issue, with the moisture being bled off on every shift. With this main line, which is still rerouted for the headgate repair pit contractor, orifices were only cycled once a day. The south orifice in 8A slot remains closed, with the north orifice open. With an ESBS stored in the slot, we have yet to determine if the orifice has a blockage or not.

All systems operated satisfactorily. Area lighting was replaced as needed.

Bypass Facility:

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

Comments: All bypass facility systems functioned well. The sample gates were only on during secondary bypass. The PIT-tag system gates remained off as there is no need for that system.

This week, 768 juvenile lamprey and 84 smolts, mostly Chinook fry, were bypassed during secondary bypass. The smolt monitoring staff reports fish data in a separate report. Another ten adult walleye were removed from the separator this week. We have never seen walleye numbers like this at McNary.

Top Spillway Weir (TSW) Operations: The TSW in bay 19 remains closed and ready for the upcoming spill season. The TSW in bay 20 remains in place and is being used as required by the Biological Opinion and is opened per the schedule released by RCC.

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
187.6	161.2	1.2	0.0	41.8	39.9	6.0	6.0

Comments: The above data is provided by the smolt monitoring staff except water clarity, which comes from the control room. The data day runs from 0700 to 0700 hours. The spill recorded is due to the TSW.

Cranes 6 and 7 are both back in service. Load limit tests and electrical maintenance will be completed month on both cranes before the spill program begins April 10. The hoist in bay 6 has a failed gearbox. The hoist's return to service date has yet to be fully finalized. A spill pattern change has been requested per FPP change form, 22MCN002, which relates to both cranes and the hoist.

Other

Inline Cooling Water Strainers: The next cooling water strainer inspections will occur on April 5.

Avian Activity: Casual avian observations continued. Avian counts will begin April 1.

For the report week, no terns, pelicans, or grebes were observed on project. Cormorants were noted roosting on the juvenile bypass outfall or the navigation wing wall and occasionally feeding around the project. A small gull flock was noted occasionally around the forebay area along with one loon. A few mergansers were also observed in the tailwater area.

The two large bird distress calls and both lasers remain deployed. Remounting the outfall laser and installing the LRAD remain as priorities.

Invasive Species: Mussel station examinations will resume in late March.

Siberian Prawn: No Siberian prawns were removed from the sample this week. None have been seen this year.

Fish Rescue/Salvage: For this week, there is nothing to report.

Research: For a CRITFC study, there were tissue samples removed from ten juvenile lamprey collected at the facility this week. For the season, 36 juvenile lamprey have been sampled. All fish were returned to the river unharmed.

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)

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
3	5/3/19	0641	---	---	Turbine runner replacement and stator rewind
4	2/28/22	0800	---	---	Line 2 maintenance

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on March 14, 16, and 17.

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	1.3 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: On March 16, there was no channel/tailwater differential for fish attraction at the south fish ladder entrances when all of the south shore auxiliary water supply pumps were turned off for a short period. See MFR 22 IHR 03 for more information.

The water velocity in the south shore channel junction pool was slightly under criteria at 1.3 feet per second on March 17. Higher tailwater and channel water elevations on March 16 and 17 caused water to back further up into the fish ladder, slowing down velocities. Water velocities on March 14 and 16 were in criteria at 2.6 and 1.6 feet per second, respectively.

The north shore channel and tailwater ultrasonic transducer readings were inconsistent with the staff gauge and tape-measured readings at the same locations. Electricians performed a calibration check and adjustment of the transducers. The tailwater transducer head had to be replaced with a spare head. Further calibration checks will be done throughout the year to monitor transducer performance.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply (AWS) System
7 pumps	0 pumps	1 pump	Status of the 8 south shore AWS pumps
2 pumps	1 pump		Status of the 3 north shore AWS pumps

Comments: South shore AWS pump #1 is out of service for unwatering and investigation of a cavitation/vibration problem. The first unwatering bulkhead was getting hung up in the lower part of the guide slots. All of the south shore pumps were shut off on March 16 from 1227 hours to 1340 hours to facilitate a ROV inspection of pump #1 bulkhead guide slots. See MFR 22 IHR 03 for more details.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
x			Forebay debris load acceptable? (amount)	Average of 100 square yards
		x	Gatewell drawdown measured this week?	
		x	Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	STSs partially blocking view into slots
	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: The STSs are removed for annual 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 channel is unwatered for annual maintenance.

Juvenile Fish Facility: The fish facility is unwatered for annual maintenance. Areas of open flume with peeling paint and corrosion were cleaned and painted to maintain smooth surfaces for fish passage.

Fish Sampling: Sampling begins on April 4.

Removable Spillway Weir (RSW): Voluntary spill through the RSW is periodically occurring for the downstream passage of adult steelhead that may have strayed into the Snake River. The RSW is being operated from 0500 hours to 0900 hours on Sundays, Wednesdays, and Fridays in March.

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
51.9	30.1	1.8	0	41	40	4.0	3.5

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Unit 1, 2, 4, 5, and 6 turbine cooling water strainer inspections took place on March 1. A total of nine dead juvenile lamprey and one live juvenile lamprey were recovered.

Avian Activity: There were very few piscivorous birds seen around the project.

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 will be humanely euthanized by the fish sampling contractor, frozen and properly disposed of in a landfill.

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

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

Project: Lower Monumental

Biologists: Denise Griffith and Raymond Addis

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)

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
Unit 1	3/17/2022	0710	3/17/2022	1125	Trash Rack Raking
Unit 2	3/16/2022	0934	3/16/2022	1620	Trash Rack Raking
	3/17/2022	0705	3/17/2022	1125	Trash Rack Raking
Unit 3	3/15/2022	1110	3/15/2022	1625	Trash Rack Raking
	3/16/2022	0710	3/16/2022	1623	Trash Rack Raking
Unit 4	3/15/2022	1005	3/15/2022	1630	Trash Rack Raking
	3/16/2022	0707	3/16/2022	0805	Trash Rack Raking
Unit 5	3/15/2022	0710	3/15/2022	1100	Trash Rack Raking
Unit 6	3/15/2022	0710	3/15/2022	1000	Trash Rack Raking

Comments: None

Adult Fish Passage Facility

The adult fishways were inspected by Corps biologists on March 15, 16 and 17.

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	7.6
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	≥ 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: South Powerhouse Entrance Weir SPE-1 was on sill during all inspections with readings of 7.6, 7.1 and 7.0 feet respectively. South Powerhouse Entrance Weir SPE-2 was on sill during all inspections with readings 7.6, 7.1 and 7.0 feet respectively. South Shore Entrance Weir SSE-1 was on sill during the March 17 inspection with reading of 7.9.

Old coaxial cables, zip ties, research equipment and a satellite dish were removed from the south shore fishway on March 15.

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)	494 yds ²
	X		Gatewell drawdown measured this week?	
		X	Gatewell drawdown acceptable	
		X	Any debris seen in gatewells (% coverage)	
		X	Any oil seen in gatewells?	

Comments: STS's are blocking gatewell observation area. Trash rack cleaning occurred March 15 to March 17.

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: STSs are not yet deployed for the 2022 season. Pre-deployment STS inspections took place on March 16. All STSs were in good operating condition. Deployment of STSs is schedule to take place the week of March 21.

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 are closed and Primary Dewaterer is OOS for winter maintenance. Collection channel is scheduled to be watered up on the week of March 21.

Collection Facility: Collection for condition sampling is scheduled to begin on April 1. Collection for transportation is schedule to begin on April 23. Wet lab floor was resealed on March 11-13.

Transport Summary: Daily barge transport is scheduled to begin on April 24.

Spillway Weir: Adult steelhead spill began March 1 and continues through March 30. The spill is through the RSW only and occurs Wednesday, Thursday, and Sunday for 4 hours per day.

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
50.3	29.8	1.4	0.0	40.2	39.5	4.3	3.5

*Scrollcase temperatures.

Other

Cooling Water Strainers: Cooling water strainers were inspected on March 10. Living fish included 1 juvenile lamprey. Mortalities included 48 juvenile lamprey, 1 Siberian prawn, 1 American shad and a juvenile walleye.

Avian Activity: Highest daily counts of piscivorous birds in all zones combined at Lower Monumental Dam are reported in the table below.

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans

Comments: Piscivorous bird observations are scheduled to begin on April 1. Bird hazing by USDA personnel is schedule to begin on April 3. The outfall bird cannon was returned to service on March 17 at 1430.

Invasive Species: No zebra or quagga mussels were observed during monitoring station inspections on March 1.

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

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)

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
5	04/14/17	14:11	12/31/2022	17:00	Spider and upper guide bearing repair.

Comments: None.

Adult Fish Passage Facility

Little Goose fish facility staff inspected the adult Fishway on March 14, 15 and 16.

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 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	\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		X	North Powerhouse Entrance (NPE-1) Weir Depth	\geq 7.0' or on sill	Sill – 3/16
X		X	North Powerhouse Entrance (NPE-2) Weir Depth	\geq 7.0' or on sill	Sill – 3/16
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 was returned to service on February 8 with AWS pumps returning to service on February 24. The NSE channel/tailwater differential and NSE weir depths were manually measured, adjusted, and monitored into criteria from February 24 through March 1. The fishway met criteria during all inspections for this report period.

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, 2, and 3 were returned to service February 24.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comment
X			Forebay debris load acceptable? (amount)	High 19,545ft ² - Low 14,780ft ²
		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 ranged approximately 19,545 to 14,780 square feet of floating woody debris inside the trash shear boom in the forebay. The high of 19,545 square feet occurred during the inspection of March 15, and the low of 14,780 square feet occurred during the inspection of March 14. Fluctuations were due to the timing and nature of weather conditions during the scheduled ASW spill operations for steelhead overshoots.

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 are scheduled to be installed the week of March 21.

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 is currently dewatered for winter maintenance.

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

Transport Summary: Fish transportation is scheduled to begin in April.

Spillway Weir: Little Goose began operation of the adjustable spillway weir (ASW) on March 2 to facilitate passage of adult steelhead overshoots. Operation is occurring three days each week on non-consecutive days for four hours in the morning and will continue to occur on Tuesday, Thursday and Sunday each week, through March 31. Spring spill operations are scheduled to begin April 3.

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
48.6	30.8	1.3	0.0	41.6	40.2	2.1	1.5

*Ladder temperature.

Other

Inline Cooling Water Strainers: Inline cooling strainer inspections commenced on December 9, 2021. Inspections will continue in accordance with the Fish Passage Plan (FPP) and results will be submitted to the District.

Avian Activity: Daily piscivorous bird counts at Little Goose Dam will begin on April 1 with hazing beginning on March 29.

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

Siberian Prawn: Juvenile fish collection begins on April 1. Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by Oregon Department of Fish and Wildlife and Anchor, frozen and properly disposed of in a landfill. Daily and total Siberian prawn counts at Little Goose Dam for this reporting period are not applicable.

Gas Bubble Trauma (GBT): GBT monitoring is not being conducted at this time.

Fish Rescue/Salvage: No fish salvage operations occurred during this report period.

Research: No research activities occurred during this report period.

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)

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
2	3/15	0655			Annual Maintenance, DC low voltage switchgear

Comments: None.

Adult Fish Passage Facility

Lower Granite staff inspected the adult fishway on March 14, 15, and 17.

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: Fish Ladder Cooling Pump annual maintenance PM was conducted March 1.

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	6.7
	X		North Shore Entrance (NSE-2) Weir Depth	\geq 7.0' or on sill	6.6
	X		North Shore Channel/Tailwater Differential	1.0'–2.0'	0.9
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. Although there is no spill and both entrance gates are operating, north shore did not consistently meet channel/tailwater head differential criteria which seems to be related to the operations of all four FOGs.

Auxiliary Water Supply System:

Operating Satisfactorily	Standby	Out of Service	Auxiliary Water Supply (AWS)
No		Yes	AWS Fish Pump 1
Yes			AWS Fish Pump 2
Yes			AWS Fish Pump 3

Comments: AWS pump 1 remained out of service for maintenance.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	15.7 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: Unit trash racks were raked February 21-24.

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?	
		X	Dewaterer and cleaning systems operating satisfactory?	

Comments: The emergency bypass hoist system for the primary dewatering structure was replaced during the winter maintenance outage. Dry testing was completed March 10 and wet testing was completed March 15. The juvenile bypass system will remain in service in primary bypass after testing has been completed.

Collection Facility: Collection condition sampling is scheduled to begin at 0700 hours March 25 with the first condition sample processed up March 26. Collection for transport is scheduled to begin April 23.

Transport Summary: Research trips are scheduled for April 14 and 21. Regular barging is scheduled to start April 24.

Spillway Weir: The RSW is operating from 0500-0900 hours Sundays, Tuesdays, and Thursdays March 1 through March 30 to facilitate adult steelhead passage. There were 33 adult and 3 juvenile PIT tagged steelhead detected at the RSW and 5 juvenile PIT tagged chinook detected over the RSW spillway since March 1. Since the Juvenile

bypass system was watered up on March 14, PIT detection within the JBS has detected 13 juvenile Chinook, 1 juvenile steelhead, and 1 adult steelhead.

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
50.7	31.2	5.8	2.2	40.0	39.6	4.8	1.7

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Unit cooling strainer inspections were conducted on February 24.

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

Avian Activity: Biologist daily piscivorous bird counts at Lower Granite Dam. Some gulls and cormorants are present in the tailrace.

Gas Bubble Trauma (GBT) Monitoring: N/A

Adult Fish Trap Operations: The adult trap was watered up February 28 and started sampling at 1400 hours on March 1 at a 25% (18% /week) sample rate. Collection for sampling will be conducted Monday through Friday until broodstock collection starts August 18.

Fish Rescue/Salvage: N/A

Research:

National Marine Fisheries Service (NMFS) PIT tagging of Adult Wild Chinook salmon 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. All 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.

PNNL Juvenile Pacific Lamprey Passage Behavior and Survival at Lower Granite:

The goal of the study is to address questions regarding potential effects of dam operations and configurations on juvenile Pacific lamprey behavior and survival using The Juvenile Salmon Acoustic Telemetry System (JSATS). A target of 450 juvenile lamprey will be collected, implanted with a juvenile Eel/Lamprey Acoustic Transmitter (ELAT), and released upstream of LWG. Distribution and approach routes (including vertical, horizontal, and temporal), primary routes of passage (proportions) at LWG, project survival from forebay to tailrace, and reach survival and reservoir residence time will be evaluated using the telemetry system.

PNNL deployed telemetry cable in forebay, performed accuracy survey, install receiver trolleys at powerhouse and spillway forebay, and installed a receiver in the south March 7-10.

NOAA RSW PIT Tag Detection Efficiency Evaluation:

NOAA fisheries will be transporting 6000-7000 juvenile fish from the Clearwater hatchery to the LWG juvenile fish facility March 15. These fish will be tagged March 16 and released through pipes attached to the LWG RSW March 17 to determine the PIT detection efficiency of the RSW array that was installed and operational in 2020. USGS will also be tagging about 1,000 of these fish to determine detection efficiency using 8mm PIT tags. A total of 5,549 fish with 8mm, 9mm, or 12mm PIT tags were released over the RSW March 17. Total number of unique detections for those fish were 1,919. Detection efficiencies were very different between tag sizes and varied between locations with the 8 mm and 9 mm tags detected at lower rate than 12 mm-tagged fish. NOAA will complete a preliminary report in the next month.