U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#03-2022

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: March 18-24, 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).

	OOS		RTS		
Unit(s)	**Date**	**Time**	**Date**	**Time**	**Outage Description**
7	10/4/21	0730	4/20/22	N/A	Blade seals

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 18, 20, and 23. Fish counting by video review continues. In person counting begins April 1.

Fish Ladder Exits:

Yes	No	Location	Criteria	Measurements
X		Oregon Exit	Head over weir 1.0’ to 1.3’	1.1’
X		Oregon Count Station Differential	0.0’ to 0.5’	0.2’
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 very light near the Oregon exit and minimal to very light near the Washington exit. At the Oregon shore exit, weir 337 tripped an alarm and was reset on March 20.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0’ – 2.0’	1.8’ to 1.9’
X			NFEW2 Weir Depth	≥ 8.0’	9.4’ to 9.5’
	X		NFEW3 Weir Depth	≥ 8.0’	Raised
X			South Oregon Entrance Head Differential	1.0’ – 2.0’	1.3’
	X		SFEW1 Weir Depth	≥ 8.0’	7.4’ to 7.5’
	X		SFEW2 Weir Depth	≥ 8.0’	7.5’
	X		Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.0 fps.
X			Washington Entrance Head Differential	1.0’ – 2.0’	1.3’ to 1.5’
X			WFE2 Weir Depth	≥ 8.0’	10.0 to 10.1’
X			WFE3 Weir Depth	≥ 8.0’	9.9’ to 10.1’

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. NEFW3 was raised, SFEW1 and SFEW2 were out of criteria, and 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 one interruption. PIT tag equipment was upgraded on March 23. The sample timer was without power from 1150 to 1201 hours with two samples missed.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Moderate 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 moderate 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.

No trash racks were cleaned this week. The next cleaning will occur in April. 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. ESBS maintenance continued. Installation of the remaining ESBS's will begin on April 4. Camera inspections will resume on April 12.

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: Orifice valve operators and area lighting were repaired as needed.

Moisture in the temporary supply line continued to be an issue, with the moisture being bleed 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. However, one transition screen cleaning brush timing alarm came in on March 19 and 20, respectively. The electrical staff extended the cycle time sequence on March 22, which should resolve these "false" alarms.

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. There was a brief sample interruption as discussed above when new PIT tag equipment was installed on March 23.

This week, 264 juvenile lamprey and 88 smolts, mostly Chinook salmon fry, were bypassed during secondary bypass. The smolt monitoring staff reports fish data in a separate report. Another ten walleye adults were removed from the separator this week. We have never seen walleye numbers like this at McNary.

One Juvenile lamprey mortality was removed from under the primary bypass gate this week.

Top Spillway Weir (TSW) Operations: Bay 19 remains closed and the TSW will be installed the week of March 28. 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
175.2	127.9	0.9	0.0	43.3	42.2	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 will be completed in April and both cranes will be ready for the spill program beginning on April 10. The hoist in bay 6 has a failed gearbox. The hoist's return to service date has yet to be fully finalized. The spill pattern changes are in the current FPP.

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 were observed on project. One pelican, three loons, one grebe, one merganser, and a couple of ospreys were noted. Cormorants were noted roosting on the juvenile bypass outfall or the navigation wing wall and occasionally feeding around the project. A few gulls were noted roosting around the project.

The two large bird distress calls and one laser remain deployed. The outfall laser was removed on March 22 in order to allow a new mounting bracket to be built. An attempt to install bird wires on top of the outfall pipe was cancelled on March 23 and rescheduled for March 28. Solar panels for the LRAD will be ordered soon so it can be deployed on the outfall pipe.

Invasive Species: Mussel station examinations will occur on March 27.

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 40 juvenile lamprey collected at the facility this week. For the season, 116 juvenile lampreys 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)

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

Comments: Units 6, 5, 2, and 1 were taken out of service one at a time on March 21, 22, and 23 to rake debris off of the trash racks.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on March 21, 22, and 23.

Fish Ladders:

Yes	No	Location	Criteria	Measurements
x		North Ladder Exit Differential	Head ≤ 0.3’	
x		North Ladder Picketed Lead Differential	Head ≤ 0.3’	
x		North Ladder Depth over Weirs	Head over weir 1.0’ to 1.3’	
x		South Ladder Exit Differential	Head ≤ 0.3’	
x		South Ladder Picketed Lead Differential	Head ≤ 0.3’	
x		South Ladder Depth over Weirs	Head over weir 1.0’ to 1.3’	

Fishway Entrances and Collection Channel:

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

Comments: None.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply (AWS) System
6-7 pumps	0-1 pump	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.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
x			Forebay debris load acceptable? (amount)	Average of 163 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: A total of approximately 15 cubic yards of debris was removed from unit 6, 5, 4, 2, and 1 trash racks on March 21, 22, and 23.

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?	20
x			Dewaterer and cleaning systems operating satisfactory?	

Comments: The replacement actuator for the water regulating weirs in the collection channel was programmed to function automatically with the PLC. The worn pulley for the mechanical screen cleaner travel motor was replaced with a new pulley on March 24. The juvenile fish channel was watered up and orifices were opened on March 24.

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

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
52.9	33.3	1.6	0	41	41	4.0	4.0

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Unit 4 turbine cooling water strainer inspection took place on March 21 as part of the annual maintenance performed on the unit. Twelve dead juvenile lamprey were removed from the strainer.

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)

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
Unit 1	3/23/2022	1054	3/23/2022	1617	STS Installation
Unit 2	3/23/2022	0710	3/23/2022	1045	STS Installation
Unit 3	3/22/2022	0710	3/22/2022	1033	STS Installation
Unit 4	3/22/2022	1040	3/22/2022	1455	STS Installation
Unit 5	3/21/2022	1120	3/21/2022	1525	STS Installation
Unit 6	3/21/2022	0715	3/21/2022	1105	STS Installation

Comments: None

Adult Fish Passage Facility

The adult fishways were inspected by Corps biologists on March 21, 22 and 24.

Fish Ladder:

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

Comments: None.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Shore Entrance (NSE-1) Weir Depth	≥ 8.0’ or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	≥ 8.0’ or on sill	
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	
		X	South Powerhouse Entrance (SPE-1) Weir Depth	≥ 8.0’ or on sill	
		X	South Powerhouse Entrance (SPE-2) Weir Depth	≥ 8.0’ or on sill	
X			South Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
X		X	South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	
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 6.8, 7.0 and 6.8 feet respectively. South Powerhouse Entrance Weir SPE-2 was on sill during all inspections with readings 6.8, 7.0 and 6.8 feet respectively. South Shore Entrance Weir SSE-1 was on sill during the March 21 and 24 inspections with readings of 7.6 feet on both.

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)	498 yds^2
X			Gatewell drawdown measured this week?	
		X	Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 17%
		X	Any oil seen in gatewells?	

Comments: Benchmark gatewell drawdowns were conducted on March 23.

STSs/VBSs:

Yes	No	NA	Item
X	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 were deployed from March 21 at 0700 to March 23 at 1620. The STSs are running in cycle-run mode until an average length of sub-yearling Chinook salmon and sockeye can be determined.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	0 - 18
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: Collection channel watering up took place from March 21 to 23. Orifices were opened after their respective STSs were installed in the gatewell. Primary dewatering structure returned to service on March 21 at 0820.

Collection Facility: The Collection facility was watered up to test new fish counting box system on March 23 and 24. It is scheduled to be watered up for the collection season on March 29. Collection for condition sampling is scheduled to begin on April 1. Collection for transportation is schedule to begin on April 23.

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
49.9	33.1	1.4	0	43.0	42.0	3.7	2.3

*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)

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

Comments: None.

Adult Fish Passage Facility

Little Goose fish facility staff inspected the adult Fishway on March 21, 23 and 24.

Fish Ladder:

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

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	
X			South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
X		X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 7.0’ or on sill	Sill – 3/23
X		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 7.0’ or on sill	Sill – 3/23
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 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 30,675ft² - Low 29,250ft²
		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 30,675 to 29,250 square feet of floating woody debris inside the trash shear boom in the forebay. The high of 30,675 square feet occurred during the inspection of March 15, and the low of 14,780 square feet occurred during the inspection of March 24. 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: Installation of ESBS's began March 21 with most units completed on March 22.

Orifices, Collection Channel, Dewatering Structure, and Flume:

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

Comments: The juvenile bypass system was watered up April 23.

Collection Facility: The juvenile collection facility remained 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
48.0	34.1	1.2	0.0	44.0	42.4	4.6	4.2

*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)

	OOS		RTS		
Unit	Date	Time	Date	Time	Outage Description
2	3/15	0655			Annual Maintenance, DC low voltage switchgear
1	3/21	0705	3/21	1559	ESBS Installation
3	3/22	0704	3/22	1110	ESBS Installation
4	3/22	1155	3/22	1528	ESBS Installation
5	3/23	1049	3/23	1605	ESBS Installation
6	3/23	0700	3/23	1047	ESBS Installation

Comments: None.

Adult Fish Passage Facility

Lower Granite staff inspected the adult fishway on March 19, 22, and 23.

Fish Ladder:

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

Comments: None.

Fish Ladder Entrances and Collection Channel:

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

Comments: 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 have 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)	34.6 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: Units 1 and 3-6 were rolled out of service for ESBS installation March 21-23. ESBSs will be installed in unit 2 when it is returned to service. Gatewell drawdown baselines will be completed when all operating units are online.

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 juvenile bypass system was watered up March 14 in primary bypass operation.

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

Transport Summary: Research trips are scheduled for April 14 and 21. Everyday barging is schedule 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 46 adult and 3 juvenile PIT tagged steelhead and 8 juvenile PIT tagged Chinook salmon 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 51 juvenile Chinook salmon, 5 juvenile steelhead, and 3 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
46.9	37.2	1.6	0.0	43.0	42.0	5.0	3.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Unit cooling strainer inspections were conducted on March 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 transported 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 1000 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 releases 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.