U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#10-2022

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: May 6 – May 12, 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	6/23/22	N/A	Blade seals replaced
10 & 11	5/10	1000	5/10	1130	Rotated units for ESBS camera inspection

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 May 7, 8 and 11. In person fish counting continued.

Fish Ladder Exits:

Yes	No	Location	Criteria	Measurements
X		Oregon Exit	Head over weir 1.0’ to 1.3’	1.0’
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 minimal near both exits.

There are no 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'
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'	1.2'
	X		SFEW1 Weir Depth	≥ 8.0'	7.4' to 7.6'
	X		SFEW2 Weir Depth	≥ 8.0'	7.4' to 7.6'
	X		Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.0 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	1.4' to 1.5'
X			WFE2 Weir Depth	≥ 8.0'	8.9' to 10.2'
X			WFE3 Weir Depth	≥ 8.0'	9.0' to 10.2'

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 no interruptions in the schedule.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Minimal
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 minimal near the powerhouse and beside the spillway. New debris loads were minimal to very light. For now, forebay debris has dissipated. Trash racks are scheduled to be cleaned on May 17.

Previous sheens in 5A and 5B slots after rainfall lead to an examination of the headgate hydraulic lines this week. No issues were found but absorbent pads remain in the slots as a precaution.

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 are installed in all units except unit 7, which remains out of service. The camera inspections in units 10 and 11 revealed no problems on May 10. The ESBS brush cycle for the screen in 5B slot was returned to automatic mode on May 12. The unit has been in standby.

Daily VBS differential monitoring revealed no high differentials, and no screens were cleaned. VBS inspections in units 2 through 4 revealed no issues on May 12. While the screens were being cleaned, no fish mortalities 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			Dewatering and cleaning systems operating satisfactory?	

Comments: Moisture in the temporary air supply line has decreased. However, we will continue to bleed off the line on every shift and orifice cycling continues at the normal frequency. Orifices were adjusted as required for the VBS inspections.

The north side dewatering valve, one of two valves that regulate channel elevation, continued to be observed not running smoothly at times. The valve's operator was noted to slightly rotate on May 8. This issue was resolved on May 9, but the uneven operation continued and will be monitored.

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, 90 juvenile lamprey and 37,331 smolts, mostly yearling Chinook and unclipped sockeye, were bypassed during secondary bypass. The smolt monitoring staff reports fish data in a separate report.

Top Spillway Weir (TSW) Operations: The TSW's in spillbays 19 and 20 remained open. The TSW's in bays 19 and 20 were attached to crane 6 and a hoist, respectively, for the report week. The hoist from bay 16 will be moved to bay 19, per approval and an updated spill table, on May 13.

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
243.3	192.5	187.0	136.8	52.1	50.9	6.0	4.0

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 two spillway cranes can no longer be operated remotely. A crane operator is required to open any gate attached to the cranes. Both cranes are in service and can be used in a limited bases for the spill program. The hoist in bay 6 has a failed gearbox. The hoist's return to service date has yet to be fully finalized with parts on order. The spill pattern changes caused by these issues are in the current FPP.

On May 3, one of the electricians noticed that the coupling cover had backed off on the hoist motor-gearbox. This observation prompted an inspection of similar hoist motor-gearbox couplings on the hoists in spill bays 3, 9, 12, and 13 on May 9. During the inspections, that hoist and the neighboring hoists were removed from service with the gates on seal for safety, except for bay 2 where the gate is dogged off and there is no hoist that could fail. Also, the flow was distributed evenly through the remaining operational gates.

From 0827 to 0924 hours, bays 11, 12, 13, and 14 were closed and the hoists in bays 12 and 13 were inspected. From 0924 to 1056 hours, bays 8, 9, and 10 were closed and the hoist in bay 9 was inspected. From 1056 to 1138 hours, bays 3 and 4 were closed and the hoist in bay 3 was inspected. The inspections and repairs took slightly over three hours. Spill observations during the operation revealed no adverse flow effects. The couplers' bolts required tightening and adhesive was applied to keep the bolts in place. The inspections were successful and help to avoid major issues. However, future inspections will be required. Upon completion, the spill pattern was returned as outline in the FPP.

Load limit indicators for spillway cranes 6 and 7 have been difficult to procure. New indicators for both cranes were tested with the cranes rotating through bay 2, where the testing was conducted, from May 11 at 0900 hours to May 12 at 1633 hours. The gate in bay 2 remained dogged off as previously coordinated at 4 stops. The neighboring hoists in bays 1 and 3 were removed from service with the gates dogged off at 3 and 4 stops, respectively, which corresponded to the spill volume at the time. Removing the load from the adjacent hoists is a safety procedure.

During the testing, any flow changes were distributed evenly through the remaining operational gates. The spill volume ranged from approximately 140 to 190 kcfs. Upon completion, the spill pattern was returned as outline in the FPP. Crane 7 has been attached to bay 2 except during the testing period. The TSW in bay 19 was dogged off and open, so crane 6 could be moved to bay 2 for testing.

As previously coordinated, the hoist in bay 16 will be moved to the TSW in bay 19 on May 13. Crane 6 will be attached to the gate in bay 16, which will be dogged of at 4 stops per current spill volume.

Other

Inline Cooling Water Strainers: The next cooling water strainer inspections will occur on June 7.

Avian Activity: Recording avian counts continued. These counts are reflected in the Table below.

McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican	Grebe
May 6	Spill	17	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	4
May 7	Spill	57	0	0	0	0
	Powerhouse	8	0	0	0	0
	Outfall	15	9	0	0	0
	Forebay	0	0	0	0	0
May 8	Spill	41	0	0	0	0

	Powerhouse	0	0	0	0	0
	Outfall	122	10	0	0	0
	Forebay	1	0	0	0	0
May 9	Spill	100	0	0	2	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	0
May 10	Spill	51	0	0	0	0
	Powerhouse	21	0	0	0	0
	Outfall	29	0	0	0	0
	Forebay	0	0	0	0	0
May 11	Spill	40	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	7	0	0	0	0
	Forebay	0	0	0	0	0
May 12	Spill	12	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	23	0	0	0	0
	Forebay	0	0	0	0	0

The laser on the outfall pipe remained out of service for safety concerns. However, the laser and LRAD are scheduled to be deployed in the next two weeks.

The navigation lock wing wall laser, which is aimed at the outfall, remains in service along with the two large bird distress calls. USDA Wildlife Services daily shore hazing continued. Boat hazing trips were scheduled for three days a week.

In the spillway zone, gull numbers fluctuated, with the birds feeding along with two pelicans.

In the powerhouse zone, a few gulls were noted roosting on the water near the outfall pipe.

In the bypass outfall zone, gull numbers fluctuated, and cormorant numbers decreased. Most birds were roosting, but several gulls were noted feeding in the outfall. The boat hazing was effective the feeding birds.

In the forebay zone, four feeding grebes and one gull were observed. Outside the zone, more gulls and pelicans were noted along the Washington shoreline. Also, a few cormorants, osprey, blue herons, and loons were observed. A large grebe flock may be upstream of the powerhouse, but this has yet to be determined.

No terns have been verified on project at this time.

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

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 three juvenile lamprey collected at the facility this week. For the season, a total of 232 juvenile lampreys have been sampled. All fish were returned to the river unharmed.

Gas bubble trauma examinations occurred on May 6, 10, and 12. Fish are recorded on the next data day. For the report week, no smolts were observed with signs of trauma.

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
6	4/16/22	1813	---	---	Head cover pump failure and turbine pit flooding; annual maintenance; Franklin Substation 115 kv line #3 relay replacement; over-excitation on shutdown
5	4/18/22	1106	5/9/22	1253	Franklin Substation 115 kv line #3 relay replacement; annual maintenance

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on May 9, 10, and 11.

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’	0.4’
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	7.8’
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: The differential at the south fish ladder picketed leads was out of criteria on May 9 due to a buildup of filamentous algae. The picketed leads were immediately cleaned to reduce the differential.

The north powerhouse entrance weir depth was slightly below criteria on May 9 when the tailwater elevation decreased. The powerhouse operator lowered NFE-2 weir enough to bring the weir depth into criteria. The entrance

weir is in manual control to reduce the wear and tear on the hoist machinery from the PLC constantly adjusting the weir, while in automatic control, in response to fluctuating tailwater elevations caused by spill.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply (AWS) System
6 pumps	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 7 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-8%
	x		Any oil seen in gatewells?	

Comments: None.

Submersible Traveling Screens (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: STSs were switched to continuous run mode on May 9 due to the presence of one subyearling Chinook salmon in the juvenile fish sample, which had a fork length of under 120 mm.

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 actuator for the water regulating weirs in the collection channel was placed in local control shortly after watering up the channel in March due to a problem with the automatic control settings. The weirs are being operated at the actuator to adjust the water level as needed until the problem can be fixed.

Orifice 1BN light was found to be burned out on May 11. Orifice 1BS was opened in place of 1BN until the light was replaced later that day.

Juvenile Fish Facility: The fish facility is operating in primary bypass mode except when collecting fish for sampling.

Fish Sampling: Fish condition sampling is occurring on Mondays and Thursdays of each week. See the tables below for a summary of the sampling results.

Fish condition sampling results at Ice Harbor Dam:

Date: May 9

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	32	0	0	0
Chinook yearling unclipped	7	0	0	0
Chinook subyearling clipped	1	0	0	0
Chinook subyearling unclipped	0	---	---	---
Steelhead clipped	83	2	0	4
Steelhead unclipped	8	0	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	1	0	0	0
Total	132	2	0	4

Date: May 12

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	26	1	0	0
Chinook yearling unclipped	0	---	---	---
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	0	---	---	---
Steelhead clipped	100	3	0	2
Steelhead unclipped	12	0	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	1	0	0	0
Total	139	4	0	2

Removable Spillway Weir (RSW): Spring spill for fish passage is occurring.

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
114.8	62.9	100.3	52.0	52	50	7.0	4.0

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Unit 1, 2, 4, 5, and 6 turbine cooling water strainers were inspected for fish on May 11. A total of 8 juvenile lamprey mortalities and one unidentifiable decomposing fish were found.

Avian Activity: There were low to moderate numbers of piscivorous birds observed around the project (see table below). Land-based hazing of piscivorous birds is occurring for 16 hours per day. Boat-based hazing is occurring for 8 hours per day, 5 days per week. Hazing has been effective at reducing cormorant, gull, and tern numbers around the project. The hazing of pelicans is still not allowed in Washington.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
May 6	2	2	0	0	9
May 7	---	---	---	---	---
May 8	32	7	0	0	3
May 9	19	1	0	0	6
May 10	21	2	0	0	0
May 11	15	12	0	0	2
May 12	4	2	0	0	0

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 are humanely euthanized by the fish sampling contractor, frozen and properly disposed of in a landfill. Daily and total Siberian prawn counts at Ice Harbor Dam for this reporting period are shown below.

Number of Siberian prawns in the sample at Ice Harbor Dam.

Date	Sample (euthanized)	Collection*
May 9	0	0
May 12	0	0
Totals	0	0

*Collection and sample numbers are the same as the facility when sampling at 100%

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

Comments: No Unit outages this reporting period.

Adult Fish Passage Facility

The adult fishways were inspected by Corps biologists on May 6, 7, 8 and 11.

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	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: North Shore Channel/Tailwater differential was out of criteria during the May 7 inspection with a reading of 0.9 feet. The automatized system may have been struggling with high tailwater levels and high spills. South Powerhouse Entrance Weir SPE-1 was on sill during all inspections with readings of 6.7, 9.4, 8.2 and 7.2 feet respectively. South Powerhouse Entrance Weir SPE-2 was on sill during all inspections with 6.7, 9.4, 8.2 and 7.2 feet respectively. South Shore Entrance SSE-1 was at sill during all inspections with readings of 6.6, 8.0, 8.1 and 7.4 feet respectively. South Powerhouse tailwater staff gauge’s, SG9N, frame was found loose on the April 13

inspections. If the gauge remains unreadable, readings will be taken from the digital readings. There has been an order placed for new staff gauges and the project plans to install them during the winter maintenance period.

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)	4 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 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: The STSs are running in Cycle-run mode due to average sub-yearling Chinook salmon and sockeye salmon lengths being greater than 120 mm.

Orifices, Collection Channel, Dewatering Structure, and Flume:

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

Comments: The air bubbler, zone 3, stopped functioning on April 1. The mechanics examined the bubbler and found it needed a solenoid replacement. Zone 3 is currently OOS until the electrical powerhouse staff can complete the work.

Collection Facility: Collection for transport continues.

Transport Summary: Every-other day barge transport continues. A total of 456,600 fish were collected with 468,329 fish being transported and 100 fish bypassed back to the river during this reporting period.

Spillway: Spring spill is still occurring. Spillways 1, 2, 6 and 7 were taken out of service at 1800 on April 22 due to trunnion stress issues with an initial estimated return to service date of May 30. Spillways 6 and 7 returned to service in the prior reporting period. Spillway 1 returned to service at 1430 on May 12. Spillway 2 returned to service at 1610 on May 10. Spillway 7 was forced out of service at 1520 on May 12 for a motor coupler issue and was returned to service at 1536 on May 12.

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
113.1	60.6	68.9	42.3	51.5	51.0	4.3	3.3

*Scrollcase temperatures.

Other

Cooling Water Strainers: The next cooling water examinations will occur next week.

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
4/29/2022	1715	56	5	0	0	3
4/30/2022	1700	8	0	0	0	0
5/1/2022	1715	26	2	0	0	3
5/2/2022	1000	68	2	0	0	49
5/3/2022	930	123	5	0	0	48
5/4/2022	1354	16	0	0	0	7
5/5/2022	815	77	3	0	0	15

Comments: Piscivorous bird observations are occurring daily. Bird hazing by USDA personnel is currently occurring. The outfall bird cannon functioned efficiently this week.

Invasive Species: The next zebra or quagga mussel observations will occur in June.

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

Research: GBT examinations occurred on May 10. A total of 45 clipped, 8 unclipped yearling Chinook salmon and 40 clipped steelhead and 7 unclipped steelhead smolts were examined. Gas bubble trauma was detected in the fins of 1 clipped yearling Chinook salmon and 1 clipped and 1 unclipped steelhead.

Collection for the Nez Perce steelhead kelt study and rehabilitation began in early April once the tank was set up fully. A total of 5 steelhead kelts were collected during this reporting period.

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	ERTS	Spider and upper guide bearing repair.

Comments: None.

Adult Fish Passage Facility

EAS Bio staff inspected the adult Fishway on May 7, May 11, and May 12. The FSC board was recommissioned on May 5, however, continues to operate with error issues concerning both NSE-1 and NSE-2 weir elevation readings.

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	X		South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	7.4 on 5/12
X	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.2 on 5/12
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	X		North Shore Entrance (NSE-1) Weir Depth	≥ 6.0’ or on sill	
X	X		North Shore Entrance (NSE-2) Weir Depth	≥ 6.0’ or on sill	
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	2.1 on 5/12
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 Fish System Control was recommissioned on May 5 with NSE weir reading anomalies. USACE staff readings and manual weir calculation substitutions were not available during this report period. Excepting SSE-1 and SSE-2 weir differentials on 5/12, slightly high channel to tailwater on north shore on 5/12 and FSC board giving faulty readings for NSE on 5/11 and 5/12, all other remaining locations met criteria during inspections for this report period. The Fish Ladder Exit Cooling Water Pump was replaced, installed, and readied for service on April 23.

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 0^2 - Low $0ft^2$
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	<2%: 5B 5/12
X			Any oil seen in gatewells?	3A & 4A 5/6

Comments: The forebay had no floating woody debris inside the trash shear boom. Slight gatewell sheens were observed in 3A and 4A from deck wash during rainy weather events with oil absorbent materials deployed in 3A. Sheens were no longer reported for the remaining inspections of May 7 through May 12.

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. Unit 1 and unit 2 differentials were measured on May 6. Units 1, 2, and 3 were checked on May 12.

Orifices, Collection Channel, Dewatering Structure, and Flume:

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

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

Collection Facility: The juvenile collection facility completed water up activities on March 29. Every other day collection for condition monitoring in conjunction with secondary bypass commenced on April 1 with the first sample being conducted on April 2. Everyday collection began April 23 coinciding with every other day barge transportation. A total of 325,050 fish were collected, 0 were bypassed, 341,609 were transported via barge, and there were 240 sample or facility mortalities. The descaling and mortality rates were 1.9% and 0.07%, respectively. No adult lamprey were removed from the separator during this report period. The collection and transport facility operated within criteria this report period.

Transport Summary: Collection for fish transportation began April 23 with the first barge departure on April 24.

Spillway Weir: Little Goose began operation of the adjustable spillway weir (ASW) on March 2 to facilitate passage of adult steelhead overshoots. Operation occurred 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 began as scheduled on April 3 with the ASW in high crest. On April 14, the ASW standard high crest setting of 622 ft. elevation was raised to 625 ft. elevation as outlined in 22 LGS 03 MOC. Actions were taken to raise the forebay elevation to MOP+3 in order to mitigate a navigational hazard with an estimated duration of 2 weeks without impact to spill levels as outlined in both FOP and FPP.

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
110.3	60.6	63.4	21.3	52.1	51.3	5.5	4.1

*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 began April 1 with hazing beginning on March 29.

Date	**Time**	**Gulls**	**Cormorants**	**Caspian Terns**	**Pelicans**
5-6	11:30	0	0	0	0
5-7	14:00	0	0	0	0
5-8	8:00	0	0	0	0
5-9	8:00	0	0	0	0
5-10	8:30	2	0	0	0
5-11	8:45	1	0	0	0
5-12	13:30	0	0	0	0

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

Siberian Prawn: Juvenile fish collection began 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 listed below.

Date	Sample	Collection
5-6	0	0
5-7	0	0
5-8	0	0
5-9	0	0
5-10	0	0
5-11	0	0
5-12	1	200
Totals	1	200

Gas Bubble Trauma (GBT): GBT monitoring occurred May 11. Of the 100 fish examined, 0 fish exhibited signs of GBT.

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

Research: The Nez Perce Tribe (NPT) began adult steelhead kelt collection efforts on April 1.

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
4	4/11	0710			Annual Maintenance DCLV Switchgear/T1 Transformer oil leak/Doble Testing

Comments: None.

Adult Fish Passage Facility

Lower Granite Biologists and Anchor QEA staff inspected the adult fishway on May 6, 7, 9, and 11.

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: LWG mechanical crew started fish ladder cooling pump pipe reorientation work to provide additional cooling water to the ladder exit at 1215 hours May 5. This work is expected to completed around May 26.

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
	X		South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	7.7’, 7.0’, 7.7’
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.7’, 7.0’, 7.7’
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’	0.6’, 0.2’
X			North Shore Entrance (NSE-1) Weir Depth	≥ 7.0’ or on sill	6.8’
	X		North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	6.5’
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	0.8’
	X		Collection Channel Surface Velocity	1.5 – 4.0 fps	4.8

Comments: Ladder collection channel operation and configuration are being evaluated to resolve ongoing issues. FOGs 1, 4, 7, and 10 are in operation. Although both entrance gates are operating, the north shore has 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)
	X		AWS Fish Pump 1
Yes			AWS Fish Pump 2
Yes			AWS Fish Pump 3

Comments: AWS pump 1 was returned to service in standby at 1415 hours April 19. Bringing AWS pump 1 online will require a four-hour outage of AWS pumps to swap stoplogs which will be coordinated thought FPOM.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	6.8 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: Gatewells are inspected for foreign substances and debris quantity and removal daily.

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 and VBS inspection were conducted April 24-25. All screens passed inspection.

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 switched from secondary bypass to general collection for transport at 0700 hours April 23.

Collection Facility: Collection for general transport began at 0700 hours April 23. Collection for NOAA in river verses transport study is occurring Sunday-Thursday. Fish are tagged and sent to a recovery tank or raceway the following day.

Transport Summary: Every-other-day transport began April 24. A total of 1,126,271 fish were collected and transported this week. Recovered NOAA fish in the raceway were transported every-other-day.

Spillway Weir: Lower Granite shifted to Spring Spill operations with the RSW open 24 hours per day at 0001 hours April 3. There were 53,182 juvenile and 297 adult PIT-tagged steelhead, 76,126 juvenile and 21 adult PIT-tagged

Chinook salmon, 3,364 juvenile sockeye salmon, and 2,943 juvenile coho 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 19,820 juvenile and 2 adult Chinook salmon, 12,524 juvenile and 24 adult steelhead, 374 juvenile sockeye salmon, and 753 juvenile coho salmon.

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
118.0	65.6	61.0	44.3	50.5	47.5	4.7	0.6

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: N/A

Invasive Species: No zebra/quagga muscles were detected on the trap substrate. There were 3 Siberian prawn in the condition sample.

Avian Activity: Biologist daily piscivorous bird counts and hazing began April 1 at Lower Granite Dam.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
May 6	1321	19	1	0	0
May 7	1109	15	0	0	17
May 8	1318	18	0	0	0
May 9	1328	13	0	0	0
May 10	1912	7	0	0	3
May 11	1303	0	0	0	1
May 12	1300	9	0	0	4

Gas Bubble Trauma (GBT) Monitoring: GBT sampling occurred May 12 with 100 smolts sampled and no symptoms of GBT observed.

Adult Fish Trap Operations: The adult trap is operating Monday through Friday at a 25% (18% /week) sample rate.

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. 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. Since March 24, 211 juvenile lamprey have been collected for the study, 177 were tagged and released at Blyton Landing upstream of LWG.

Columbia River Inter-Tribal Fisheries Commission (CRITFC) Pacific Lamprey Genetic Study:

CRITFC has requested that the SMP collect non-lethal tissue samples from up to 1000 juvenile and 500 larval Pacific lamprey, not to exceed 20 juvenile or larvae daily, during the routine smolt monitor condition sampling from March through September. The purpose of this study is to fill two objectives; 1) Determine relative proportion of translocation offspring among the total abundance of larval and juvenile lamprey passing the juvenile bypass systems at BON, JDA, MCN, and LWG. 2) Describe life history characteristics of larval and juvenile lamprey emigrating from the Columbia and Snake River basins. The genetic information collected will be used to evaluate the tribal Pacific lamprey programs efficacy and assist with guiding future management. There have been 116 macrophthalmia (juvenile) and 301 ammocoete (larval) lamprey samples have been collected this season.

National Marine Fisheries Service (NMFS) In-River Survival:

NMFS PIT tags Chinook salmon and steelhead smolts for their survival study April through early June to compare smolt to adult returns of in-river migrating smolts to the smolt to adult returns of transported smolts. PIT-tagged fish are held for 24 hours before being bypassed to the LWG tailrace. Collection will continue Monday-Friday until the middle of June.