U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#12-2022

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: May 20 – May 26, 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

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 21, 22 and 24. In person fish counting continued. Video review of nighttime lamprey passage will begin on June 15. District personnel examined and replaced the Oregon ladder south powerhouse entrance temperature probe on May 20 and 24, respectively.

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’ to 0.3’
X		Washington Exit	Head over weir 1.0’ to 1.3’	1.1’
X		Washington Count Station Differential	0.0’ to 0.5’	0.2’ to 0.3’

Comments: Debris loads were minimal near the Oregon exit and minimal to light near the Washington exit. What little debris that was coming in was mostly arriving along the Washington shoreline.

At the Oregon shore exit, weir 338 tripped an alarm and was reset on May 22. Also, that day, at the Washington exit, the regulating weir tripped an alarm and was reset.

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'	1.9' to 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'	7.6' to 7.7'
	X		SFEW2 Weir Depth	≥ 8.0'	7.6' to 7.7'
	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'	9.2' to 9.8'
X			WFE3 Weir Depth	≥ 8.0'	9.3' to 9.9'

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, which we hope to do when fish pump 3 returns to service.

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.

The next trash rack cleaning is schedule for the week of June 20.

No issues have been found but absorbent pads remain in 5A and 5B 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. Camera inspections did not occur this week. The control program lost contact with the ESBS's in unit 10 on May 25. The electrical staff immediately resolved the issue.

Daily VBS differential monitoring revealed no high differentials, and no screens were cleaned. VBS inspections in units 12 and 13 revealed no issues on May 26. (Correction: The inspections done last week were on May 17.) While the screens were being cleaned, four juvenile lamprey mortalities were removed from the screen in 13B slot.

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: There was no moisture in the temporary air supply line this week. 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 light fixture at the orifice in 1A slot, south side, failed on May 23. Immediately, the north orifice was opened with the light turned on as the south orifice was removed from service until the light fixture can be repaired next week.

Orifice attraction light bulbs were replaced as required.

The headgate repair pit rehab contractor installed scaffolding at the south end of the channel on May 19. The scaffolding makes observations of the transition screen cleaning brush difficult, but the scaffolding is scheduled to be removed May 31.

At times, the north side dewatering valve, one of two valves that regulate channel elevation, continued to be observed not running smoothly 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, 40,250 juvenile lamprey and 48,200 smolts, mostly yearling Chinook salmon and unclipped sockeye salmon, were bypassed during secondary bypass. The smolt monitoring staff reports fish data in a separate report.

This week, at the primary/secondary bypass gate, eight lamprey juvenile mortalities were found either under the gate or in gasket material gaps.

Top Spillway Weir (TSW) Operations: The TSW's in spillbays 19 and 20 remained open with both attached to a hoist. The TSW's are scheduled to be closed June 8 at 0001 hours. Replacement with a standard gate will begin that day.

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
275.6	252.2	218.3	195.5	53.9	51.9	5.0	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 summer spill program will begin on June 16 at 0001 hours. Project wide temperature monitoring will begin on June 15. The data will be published in a separate report by the smolt monitoring staff.

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 in locations where a hoist is not available.

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. As mentioned last week, bay 16 joined bay 2 as the two bays without a hoist. Therefore, bays 2, 6 and 16 have the gates dogged open and require a crane for adjustment. The spill pattern changes for these issues have been coordinated and the spill tables in the FPP have been updated.

With spill volume increasing and a crane work in the immediate area, spillbays 16 and 2 were changed from 4 to 6 stops at 1407 hours on May 23 and at 1310 hours on May 24, respectively.

As previously reported, the spillway hoist in bay 15 was found vibrating excessively and shuddering during operation on May 16. This indicates a potentially dangerous situation and continuing to operate the hoist ran the risk of a catastrophic failure. The hoist was removed from service at 1159 hours and the gate was dogged open at 5 stops until inspections could occur.

On May 23, to inspect the gate and hoist in Spillbay 15, a spillway gate that was stored in bay 17's upstream slot was moved to the upstream slot in bay 15. For safety concerns, bays 14, 17 and 18 were but on sill from 0905 to 0908 hours. Bays 15 and 16 were already dogged open. After the gate was moved from bay 17 to 15, and various initial examinations were completed, bay 15 was put on sill at 1315 hours for further inspections of the downstream gate and hoist to occur. Bays 17 and 18 were returned to service at 1540 hours. With examinations completed for the day, bay 14 was returned to service at 1635 hours.

On May 24, spillbay 15 was raised to 10 feet for testing at 0933 hours. Next, bay 15 was put on sill at 0951 hours. Bays 14, 17 and 18 were put on sill to remove upstream bulkhead in bay 15 at 1007 hours. Bays 14, 17 and 18 returned to service at 1500 hours. Bay 16 remained dogged open during the process.

On May 25, spillbay 14 was put on sill and returned to service at 0705 and 1345 hours, respectively, for further inspections in bay 15. At this point, no issue was found with the gate or the hoist when examined independently.

On May 26, spillbay 14 was on sill from 0814 to 0954 hours. At the end of this time, bays 14 and 15 were opened together. The hoist in bay 15 opened the gate much slower than the hoist in bay 14. Further examination of hoist and gate in bay 15 is required.

From May 23 to 26, spillbay 15 remained out of service overnight. During this period, any spill volume adjustments occurred evenly through the remaining operational bays. At the end of the testing, bay 15 was dogged open at 6 stops. After consultation, the next tests in bay 15 are scheduled for June 1.

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 20	Spill	64	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	31	2	0	0	0
	Forebay	0	0	0	0	58
May 21	Spill	117	0	0	2	0
	Powerhouse	0	0	0	0	0
	Outfall	29	0	0	0	0
	Forebay	0	0	0	0	73
May 22	Spill	85	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	45	3	0	0	0
	Forebay	0	0	0	0	7
May 23	Spill	153	0	0	0	0
	Powerhouse	7	0	0	0	0
	Outfall	74	1	0	0	0
	Forebay	0	0	0	0	2
May 24	Spill	78	0	0	2	0
	Powerhouse	0	0	0	0	0
	Outfall	77	4	0	0	0
	Forebay	0	0	0	0	2
May 25	Spill	70	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	20
May 26	Spill	22	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	22

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 near future.

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 a few pelicans.

In the powerhouse zone, a few gulls were noted roosting on the water along the north edge of the zone.

In the bypass outfall zone, gull numbers increased, and a few cormorants were noted. Most birds were roosting, but several gulls were noted feeding in the outfall. The boat hazing was effective the gulls.

In the forebay zone, grebe numbers fluctuated with some birds occasionally feeding. Outside the zone, more gulls and pelicans were noted along the Washington shoreline and appear to be staging. Also, a few cormorants, osprey, and one great blue heron were observed. Occasionally, a large grebe flock may be upstream of the powerhouse.

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 42 juvenile lamprey collected at the facility this week. For the season, a total of 308 juvenile lampreys have been sampled. All fish were returned to the river unharmed.

Gas bubble trauma examinations occurred on May 20, 24 and 26. Fish are recorded on the next data day. For the report week, one smolt was 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

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on May 23, 24, and 25.

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’	0.6’
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 The south fish ladder picketed leads were cleaned of filamentous algae every other day to keep the differential within criteria. On May 21, one of the upstream picketed leads at the south shore was noticed to be sitting about 4” higher than the adjacent lead while in the lowered position. The picketed lead was raised, and an air hose was used to try to blow any debris out of the way, but the lead was still not going any further down. On May 31, an underwater camera was used to spot a log that was lodged in the guide slots. The log was pushed out of the way with a pole and the picketed lead was lowered to the normal position.

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)	0-7%
	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: None.

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 is in local control due to a problem with the automatic control function. The weirs are being operated at the actuator to adjust the water level as needed until the problem can be fixed.

The mechanical screen cleaner was broken down intermittently because of over-travel of the screen cleaner at the limit switches. The drive cable was tightened on May 25 to fix the problem.

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. Five steelhead in each sample were observed to have an operculum

that was slightly short and not entirely covering the gills. The short operculums did not appear to be freshly torn or injured.

Fish condition sampling results at Ice Harbor Dam:

Date: May 23

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	47	0	0	0
Chinook yearling unclipped	2	0	0	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	1	0	0	0
Steelhead clipped	70	0	0	1
Steelhead unclipped	23	2	0	0
Sockeye clipped	2	0	0	0
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	1	0	0	0
Total	146	2	0	1

Date: May 26

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	34	1	0	0
Chinook yearling unclipped	5	0	0	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	1	0	0	0
Steelhead clipped	61	1	0	1
Steelhead unclipped	37	0	0	1
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	1	0	0	0
Total	139	2	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
106.4	78.2	94.5	67.2	54	52	4.5	2.4

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: The next monthly inspections of turbine cooling water strainers for fish will occur in June.

Avian Activity: There were moderate to high numbers of piscivorous birds observed around the project (see table below), with high gull numbers the first half of the week. The number of gulls, cormorants, and terns counted on

May 20, 21, 22, and 23 exceeded the threshold number for initiating incident response actions (see Section 7.4 of Appendix L in the Fish Passage Plan). Those birds were not concentrated in any particular avian observation zones, but were spread out among the tailrace zones. Boat-based bird hazing did not occur on those days, so the Project Biologist and Wildlife Services Field Crew Leader decided to wait and see how birds responded to boat-based hazing that was scheduled for May 24. Bird numbers were below the threshold number on May 24 and for the rest of the reporting week. Land-based hazing of piscivorous birds is occurring for 16 hours per day. Boat-based hazing for 8 hours per day / 5 days per week changed to 3 days per week on May 22. Boat-based hazing has been effective at reducing gull numbers in the tailrace.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
May 20	139	8	52	0	18
May 21	271	34	0	0	9
May 22	112	21	0	0	7
May 23	79	2	0	0	3
May 24	39	10	0	0	8
May 25	36	10	0	0	9
May 26	29	11	0	0	10

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 23	0	0
May 26	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 20, 21, 22 and 25.
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		X	South Shore Entrance (SSE-2) Weir Depth	≥ 6.0’	
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	

Comments: North Shore Entrance (NSE-1) weir depth was out of criteria on the May 25 inspection with reading of 7.8 feet. The powerhouse operator was notified and the settings adjusted to correct. South Powerhouse Entrance Weir SPE-1 was on sill during the May 21, 22 and 25 inspections with readings of 7.7, 7.3 and 7.8 feet respectively. South Powerhouse Entrance Weir SPE-2 was on sill during the May 21, 22 and 25 inspections with readings of 7.7, 7.3 and 7.8 feet respectively. South Shore Entrance SSE-1 was at sill during the May 21 and 22 inspections with readings of 7.3 and 7.1 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)	8 yds^2
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 12%
	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 were operating on Continuous-Run mode due to average sub-yearling Chinook salmon and sockeye salmon lengths being less 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-day barge transport ended on May 24 and alternate day transport began due to a decrease in fish numbers alone the river. A total of 171,405 fish were collected with 170,413 fish being transported and 905 fish bypassed back to the river during this reporting period. Bypass fish included GBT sampled fish and sub-yearling Chinook salmon fry.

Spillway: Spring spill is occurring.

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
102.4	76.4	70.8	51.3	53.0	51.8	4.0	2.3

*Scrollcase temperatures.

Other

Cooling Water Strainers: The cooling water strainers were examined on May 17. Live fish included 14 juvenile lamprey and 1 juvenile salmon. Mortalities included 538 juvenile lamprey, 46 juvenile salmon and 1 juvenile steelhead.

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
5/20/2022	1930	80	0	0	0	19
5/21/2022	1630	95	0	0	0	34
5/22/2022	1445	86	2	0	0	4
5/23/2022	600	96	2	0	0	13
5/24/2022	1000	100	2	0	0	8
5/25/2022	1025	60	1	0	0	9
5/26/2022	915	44	3	0	0	10

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 24. A total of 19 clipped, 5 unclipped yearly Chinook salmon, 1 unclipped subyearling Chinook salmon and 57 clipped steelhead and 13 unclipped steelhead smolts were examined. No gas bubble trauma was detected.

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	4/14/2017	14:11	12/31/2022	ERTS	Spider and upper guide bearing repair.

Comments: None.

Adult Fish Passage Facility

EAS Bio and ODFW staff inspected the adult Fishway on May 20, May 21, and May 23.

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’	7.8; 7.7
X	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.8; 7.7
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	5.7; 5.4
X	X		North Shore Entrance (NSE-2) Weir Depth	≥ 6.0’ or on sill	5.8; 5.3
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 Fish System Control was recommissioned on May 5 with NSE weir reading anomalies. Excepting SSE and NSE weir differential readings on May 20 and 21 due to inspection occurrence during gas cap spill, 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)	<1%: 5B 5/20
	X		Any oil seen in gatewells?	

Comments: The forebay had no floating woody debris inside the trash shear boom.

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.

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 53,407 fish were collected, 2 were bypassed, 52,966 were transported via barge, and there were 79 sample or facility mortalities. The descaling and mortality rates were 3.2% and 0.17%, 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. Every other day barging transitioned to every day barging on May 16 due to an increase in fish numbers. Every other day barging resumed on May 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 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.

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
99.0	74.3	65.3	48.3	53.5	52.6	2.7	2.2

*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 began April 1 with hazing beginning on March 29.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
5-20	8:30	10	0	0	0
5-21	13:15	0	0	0	0
5-22	11:30	2	0	0	1
5-23	8:00	10	0	0	0
5-24	8:30	2	0	0	0
5-25	12:45	0	0	0	1
5-26	15:45	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
5-20	12	600
5-21	4	200
5-22	3	150
5-23	0	0
5-24	0	0
5-25	0	0
5-26	0	0

Totals	19	950

Gas Bubble Trauma (GBT): GBT monitoring occurred May 25. Of the 100 fish examined, 1 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

Comments: Units were rolled out of service for ESBS inspections May 22 and 23.

Adult Fish Passage Facility

Lower Granite Biologists and Anchor QEA staff inspected the adult fishway on May 20, 21, 24, and 27.

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 completed reorientating pipe configuration for the fish ladder temperature control pumps May 26 to provide direct cooling water at the ladder exit.

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’	0.8’, 0.5’
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’	0.8’, 0.6’
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 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)	10.3 yds²
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 May 22-23.

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 87,502 fish were collected and transported this week. Recovered NOAA fish in the raceway were transported every-other-day.

Spillway Weir: Spring spill continues. There were 63,589 juvenile and 375 adult PIT-tagged steelhead, 90,050 juvenile and 83 adult PIT-tagged Chinook salmon, 10,812 juvenile sockeye Salmon, and 3,777 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 26,019 juvenile and 3 adult Chinook salmon, 15,383 juvenile and 29 adult steelhead, 2,261 juvenile sockeye salmon, and 860 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
104.3	79.6	65.8	50.6	51.0	49.0	4.8	3.2

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: N/A

Invasive Species: No zebra/quagga muscles were detected on the trap substrate. There was 1 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 20	1321	76	1	0	8
May 21	1150	36	0	0	3
May 22	1250	10	5	0	7
May 23	1700	10	2	0	2
May 24	1205	5	0	0	0
May 25	1130	2	0	0	15
May 26	1320	1	0	0	12

Gas Bubble Trauma (GBT) Monitoring: GBT sampling occurred May 19 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, 346 juvenile lamprey have been collected for the study, 263 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 336 macrophthalmia (juvenile) and 470 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.

Idaho Power Hells Canyon Sturgeon Recruitment:

LWG Corps bio techs continue collecting passage and estimated lengths and of White Sturgeon prior to removing them from the separator in support of Idaho Power Sturgeon program.