U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#11-2022

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: May 13 – May 19, 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
1, 10 to 14	5/17	0808	5/17	1114	Rotated units for trash rack cleaning

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

Adult Fish Passage Facilities

The McNary fisheries staff performed measured inspections of the adult fishways on May 13, 15 and 17. In person fish counting continued. Video review of nighttime lamprey passage will begin on June 15. Brief power outages for bus switching had no ill effect on the ladder systems on May 15. The Oregon ladder south powerhouse entrance temperature probe has been recording a constant reading so far this season. District personnel will be examined the issue on May 20.

Fish Ladder Exits:

Yes	No	Location	Criteria	Measurements
X		Oregon Exit	Head over weir 1.0’ to 1.3’	1.1’ to 1.2’
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’
X		Washington Count Station Differential	0.0’ to 0.5’	0.3’ to 0.4’

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

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'	9.4' to 9.5'
	X		NFEW3 Weir Depth	≥ 8.0'	Raised
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.1' to 1.3'
	X		SFEW1 Weir Depth	≥ 8.0'	7.5'
	X		SFEW2 Weir Depth	≥ 8.0'	7.4' to 7.6'
	X		Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.1 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	1.2' to 1.3'
X			WFE2 Weir Depth	≥ 8.0'	9.1' to 9.3'
X			WFE3 Weir Depth	≥ 8.0'	9.1' to 9.2'

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, 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. Brief power outages for bus switches had no ill effect at the facility or the channel on May 15.

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 were cleaned in units 1 and 10 through 14 on May 17. Eight yards of debris were removed. No fish were observed. 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 19. The electrical staff immediately resolved the issue.

Daily VBS differential monitoring revealed no high differentials, and no screens were cleaned. VBS inspections in units 9 through 11 revealed no issues on May 1. 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 and trash rack cleaning. A low water alarm came in during the VBS inspections on May 17. Orifice cycling protocols were reviewed with the fisheries staff.

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, 5,670 juvenile lamprey and 37,790 smolts, mostly unclipped sockeye, were bypassed during secondary bypass. The smolt monitoring staff reports fish data in a separate report.

A leak from the B side PIT tag slide gate was noted on May 13. This leakage had occurred in a previous year. Three lamprey juveniles were removed from the B side PIT tag count tank on May 15. The gap between the PIT tag slide gate and the flume was filled in on May 18. Filling the gap resolved both issues and no lamprey have been found in the count tank since the gap was filled.

The light fixtures for the A side sample tank release chambers were repaired on May 18 after having been reported out on May 15.

Loss gasket material and a piece of woody debris were found in the A and B flumes, respectively, on May 15. Duty protocols were immediately reviewed with the fisheries staff.

One lamprey juvenile mortality was removed from the separator this week.

Top Spillway Weir (TSW) Operations: The TSW's in spillbays 19 and 20 remained open. The hoist from bay 16 was moved to bay 19, per approval and an updated spill table, on May 13 at 1407 hours. Both TSW's are now 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
251.6	230.7	194.6	174.4	52.5	51.7	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. 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. 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 hoist in bay 16 has been moved to bay 19. Bays 2, 6 and 16 have the gates dogged open and require a crane for adjustment. The spill pattern changes have been coordinated and the spill tables in the FPP have been updated.

The morning of May 16, the spillgate in bay 15 began to not respond probably when the program asked for adjustments. A project engineer went out to examine the gate and found the spillway hoist in bay 15 vibrating excessively and shuddering during operation. This indicates a potentially dangerous situation where the gate's guide wheels are seized and dragging in the slot or there may be some other mechanical issue with the hoist. Continuing to operate the hoist, which is already overloaded, ran the risk of a catastrophic failure, either dropping the gate or rough locking it in the slot. Until the issue is resolved, the hoist was removed from service at 1159 hours. The gate, which was at 4 stops, was dogged open at 5 stops, anticipating an increase in the spill volume.

The gate in bay 15 will remain dogged open at 5 stops. Any spill volume adjustments will occur evenly through the remaining operational bays. May 23 is the first day project staff will be able to take a deep look into the issue. First, the hoist will have to be removed. Then, crane 6 or 7 will to be used on the gate to determine if the guide and/or guide wheels are the issue. The hoist will also be inspected to see if it was damaged or if it was the issue. After that, a determination of what went wrong can be made and plan to resolve the problem can be put together.

The summer spill program will begin on June 16 at 0001 hours.

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 13	Spill	43	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	3	0	0	0	0

	Forebay	0	0	0	0	0
May 14	Spill	35	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	22	0	0	0	0
	Forebay	0	0	0	0	18
May 15	Spill	9	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	4	0	0	0	0
	Forebay	1	0	0	0	0
May 16	Spill	24	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	0
May 17	Spill	47	1	0	3	0
	Powerhouse	0	0	0	0	0
	Outfall	7	0	0	0	0
	Forebay	0	0	0	0	1
May 18	Spill	68	0	0	2	0
	Powerhouse	1	0	0	9	0
	Outfall	46	2	0	0	0
	Forebay	0	0	0	0	0
May 19	Spill	76	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	23	0	0	0	0
	Forebay	0	0	0	0	71

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. Project personnel examined the area near the end of the bypass pipe walkway for installation locations on May 18.

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 were fairly stable, with the birds feeding along one cormorant and a few pelicans.

In the powerhouse zone, one gull and a few pelicans were noted roosting on the water along the north edge of the zone.

In the bypass outfall zone, gull numbers slowly increased, and two cormorants were noted. 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, grebe numbers fluctuated with some birds occasionally feeding and one gull was observed. 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 loon 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 34 juvenile lamprey collected at the facility this week. For the season, a total of 266 juvenile lampreys have been sampled. All fish were returned to the river unharmed.

Gas bubble trauma examinations occurred on May 16. Fish are recorded on the next data day. For the report week, three 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

Comments: Units 5, 2, and 1 were taken out of service one at a time for STS inspections on May 17 and 18.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on May 17, 18, and 19.

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	7.5’
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’	0.7’

Comments: The differential at the south fish ladder picketed leads was out of criteria on May 17 due to a buildup of filamentous algae. The picketed leads were immediately cleaned to reduce the differential. The picketed leads will be cleaned as needed (currently every other day) to keep the differential within criteria.

The south shore entrance weir depth was out of criteria on May 19. The powerhouse operator lowered SFE-1 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.

The north shore channel/tailwater differential was below criteria on May 17. The north shore channel diffusers were opened all the way on May 17 to increase the differential.

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 4 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-5%
	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: Unit 5, 2, and 1 STSs were inspected on May 17 and 18. There were no problems found. STSs on the other units were not inspected because the units have not been operated since last month's inspection.

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 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. Electricians are working on 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.

Fish condition sampling results at Ice Harbor Dam:

Date: May 16

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	18	0	0	0
Chinook yearling unclipped	2	0	0	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	2	---	0	---
Steelhead clipped	78	3	0	2
Steelhead unclipped	15	0	0	0
Sockeye clipped	1	0	0	0
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	116	3	0	2

Date: May 19

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	64	0	0	0
Chinook yearling unclipped	5	0	0	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	4	0	0	0
Steelhead clipped	53	0	0	0
Steelhead unclipped	17	0	0	0
Sockeye clipped	4	0	0	0
Sockeye unclipped	1	0	0	0
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	148	0	0	0

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
108.8	64.0	94.8	53.1	52	52	6.0	3.0

*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 high numbers of piscivorous birds observed around the project (see table below), with gull numbers increasing this week. 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. Boat-based hazing has been effective at reducing gull numbers in the tailrace. The higher number of gulls counted on May 16 and May 19 took place after boat-based hazing was done for the day.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
May 13	3	1	0	0	0
May 14	6	3	0	0	0
May 15	7	5	0	0	0
May 16	45	0	0	0	2
May 17	5	3	0	0	3
May 18	4	0	0	0	0
May 19	76	0	0	0	9

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 16	0	0
May 19	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 13, 14, 15 and 18.

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 Entrance (NSE-1) weir and North Shore Entrance (NSE-2) weir depths were out of criteria on the May 18 inspection with reading of 7.9 and 0.0 feet respectively. The operator on duty was notified and it appeared to be an electrical issue, which was corrected. South Powerhouse Entrance Weir SPE-1 was on sill during all inspections with readings of 6.2, 6.5, 6.7 and 7.9 feet respectively. South Powerhouse Entrance Weir SPE-2 was on sill during all inspections with 6.2, 6.5, 6.7 and 7.9 feet respectively. South Shore Entrance SSE-1 was at sill during all inspections with readings of 5.7, 6.2, 6.5 and 8.5 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)	9 yds^2
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 25%
	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 switched from Cycle-run mode to Continuous-Run mode at approximately 1230 on May 17 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: Everyday barge transport began on May 16 due to an increase in fish numbers throughout the river. A total of 462,700 fish were collected with 453,661 fish being transported and 8,900 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
109.4	64.4	71.3	45.2	51.1	50.0	2.9	1.0

*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
5/13/2022	1830	135	2	0	0	4
5/14/2022	1630	18	0	0	0	5
5/15/2022	1630	36	2	0	0	6
5/16/2022	715	112	0	0	0	17
5/17/2022	515	165	3	0	0	1
5/18/2022	745	61	0	0	0	40
5/19/2022	530	168	0	0	0	29

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 17. A total of 54 clipped, 3 unclipped yearly Chinook salmon and 31 clipped steelhead and 12 unclipped steelhead smolts were examined. Gas bubble trauma was detected in the fins of 3 clipped yearling Chinook salmon.

Collection for the Nez Perce steelhead kelt study and rehabilitation began in early April once the tank was set up fully. A total of 7 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.
2	5/13/2022	12:10	5/19/2022	09:20	Oil in cooling water discharge

Comments: None.

Adult Fish Passage Facility

EAS Bio staff inspected the adult Fishway on May 14, May 16, and May 19.

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	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’	
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 was completed on May 18 and all points were within criteria. Excepting faulty NSE readings on May 16 due to malfunction of the FSC board, 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 5/19
	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. 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 barge transportation. A total of 408,099 fish were collected, 12 were bypassed, 407,881 were transported via barge, and there were 206 sample or facility mortalities. The descaling and mortality rates were 1.8% and 0.04%, 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.

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
103.8	62.3	63.5	38.6	52.8	50.1	3.2	1.3

*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
5-13	8:30	4	1	0	0
5-14	9:30	24	0	0	2
5-15	8:15	0	0	0	1
5-16	11:45	0	0	0	0
5-17	8:50	1	0	0	0
5-18	8:45	6	2	0	0
5-19	8:30	0	0	0	1

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
5-13	0	0
5-14	0	0
5-15	0	0
5-16	0	0
5-17	0	0
5-18	0	0
5-19	0	0
Totals	0	0

Gas Bubble Trauma (GBT): GBT monitoring occurred May 18. Of the 100 fish examined, 2 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: None.

Adult Fish Passage Facility

Lower Granite Biologists and Anchor QEA staff inspected the adult fishway on May 13, 14, and 18.

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’	7.9’
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.9’
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 8.0’ or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 8.0’ or on sill	
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	0.7’, 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’	
	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. The separator exit gate A was closed from 0800 hours to 1007 hours May 13 to repair the dewatering screen.

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 59,713 juvenile and 333 adult PIT-tagged steelhead, 84,039 juvenile and 62 adult PIT-tagged Chinook salmon, 10,781 juvenile sockeye salmon, and 3,536 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 24,024 juvenile and 2 adult Chinook salmon, 14,530 juvenile and 28 adult steelhead, 2,258 juvenile sockeye salmon, and 841 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
108.0	66.5	65.2	42.9	51.0	48.0	4.5	2.2

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: N/A

Invasive Species: No zebra/quagga muscles were detected on the trap substrate. There 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 13	1240	125	0	0	2
May 14	1140	4	0	0	0
May 15	1335	6	0	0	0
May 16	1913	14	0	0	14
May 17	1220	3	0	0	1
May 18	1510	34	0	0	7
May 19	1130	22	0	0	2

Gas Bubble Trauma (GBT) Monitoring: GBT sampling occurred May 19 with 101 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 213 macrophthalmia (juvenile) and 365 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.