U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#14-2022

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: June 3 – June 9, 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	6/30/22	N/A	Blade seals replaced
8	6/6	1002	7/29	N/A	9-year overhaul
1	6/6	0639	6/9	1703	Annual maintenance
13 & 14	6/7	1030	6/7	1130	ESBS camera inspections, rotate units

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 June 3, 5 and 8. In person fish counting continued. Video review of nighttime lamprey passage will begin on June 15. New air conditioning units have been ordered for the Oregon ladder PIT tag station. The two current units were cleaned and repaired this week.

Fish Ladder Exits:

Yes	No	Location	Criteria	Measurements
X		Oregon Exit	Head over weir 1.0’ to 1.3’	0.9’ to 1.1’
X		Oregon Count Station Differential	0.0’ to 0.5’	0.2’ to 0.3’
X		Washington Exit	Head over weir 1.0’ to 1.3’	1.0’
X		Washington Count Station Differential	0.0’ to 0.5’	0.2’ to 0.5’

Comments: Debris loads were minimal to very light near the Oregon exit and light to moderate near the Washington exit. Most of the new incoming debris was arriving along the Washington shoreline and would be considered moderate to heavy. The general maintenance staff cleaned both exits’ picketed leads as needed including the weekend and call outs.

At the Oregon shore exit, the out of criterion point listed above was most likely due to a weir set point issue and occurred on June 3.

At the Washington shore exit, multiple weir alarms were reset on June 5. Also, a regulating weir alarm was reset on June 8.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0' – 2.0'	1.8' to 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'	0.9' to 1.2'
	X		SFEW1 Weir Depth	≥ 8.0'	7.5' to 7.7'
	X		SFEW2 Weir Depth	≥ 8.0'	7.5' 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'	9.5' to 9.9'
X			WFE3 Weir Depth	≥ 8.0'	9.5' to 10.0'

Comments: Most of 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. The south Oregon ladder pool differential was out of criterion possibly due high tailwater elevation and/or elevation sensor calibration drift on June 8.

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		Yes		WA shore Wasco County PUD Turbine Unit
Yes	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. Great progress has been made. Return to service dates are subject to change. The Wasco County PUD was removed from service for scheduled maintenance on June 9 at 0600 hours. The unit was initially scheduled for a one-day outage with the bypass system in use. However, issues were found and now the unit is scheduled to return to service late next week.

Juvenile Fish Passage Facility

Every other day sample collection continued with no interruptions in the schedule.

TSW closure and removal was scheduled for June 8. However, after regional discussion, due to total dissolved gas concerns, safe TSW removal requiring six bays to be closed daily for possibly up to five days and projected river flows, TSW closure will occur when river flows reach 300 kcfs.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Minimal to light
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 to light near the powerhouse and beside the spillway. New debris loads were minimal to heavy and arrived mostly along the Washington shoreline. The operators flushed much of this debris through the navigation lock this week.

The next trash rack cleaning is schedule for the week of June 22.

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 in units 13 and 14 revealed no issues.

Daily VBS differential monitoring revealed no high differentials, and no screens were cleaned.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe:

Yes	No	NA	Item	Number of orifices in service
X			Did orifices operate satisfactory?	42
X			Dewatering and cleaning systems operating satisfactory?	

Comments: 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 will continue at the normal frequency.

The light fixture at the orifice in 1A slot, south side, worked well, resulting in the south orifice returning to service on June 5. Orifice attraction lighting bulbs were replaced as needed.

The headgate repair pit rehab contractor's scaffolding at the south end of the channel was removed on June 3. The access deck covers were sealed on June 9.

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, 79,700 juvenile lamprey and 29,302 smolts, mostly sub-yearling Chinook salmon, were bypassed during secondary bypass. The smolt monitoring staff reports fish data in a separate report.

The facility PIT room air conditioning continued to trip offline and was reset repeatedly. A new unit will be researched and ordered.

Four juvenile lamprey mortalities were removed the primary/secondary gate this week.

Top Spillway Weir (TSW) Operations: The TSW's in spillbays 19 and 20 remained open with both attached to a hoist. The TSW's were scheduled to be closed June 8 at 0001 hours and installation of standard gates was to begin. However, this date will be changed as described above.

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
398.2	289.0	266.7	230.1	55.9	54.7	5.5	4.2

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. Temperature probes were deployed on June 8 and 9.

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. Due to this being a large contract and a specialty item, the hoist's return to service date could be as late as December. 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.

The gates in bays 14 and 15 remained dogged of at six stops. The engineer was ill this week, and no further testing has occurred.

Other

Inline Cooling Water Strainers: The cooling water strainer inspections revealed 12 live and 178 juvenile lamprey mortalities on June 7. The live lamprey juveniles were returned to the river unharmed. The lampreys were scattered evenly throughout the powerhouse, including units in standby for long periods. Also, four sub-yearling Chinook salmon mortalities were recovered from unit 1.

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
June 3	Spill	26	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	22
June 4	Spill	11	0	0	1	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	0
June 5	Spill	28	0	0	1	0
	Powerhouse	0	0	0	0	0
	Outfall	12	4	0	0	0
	Forebay	0	0	0	0	0
June 6	Spill	75	0	0	0	0

	Powerhouse	0	0	0	3	0
	Outfall	25	0	0	0	0
	Forebay	0	0	0	0	5
June 7	Spill	53	0	0	2	0
	Powerhouse	0	0	0	0	0
	Outfall	23	3	0	0	0
	Forebay	0	0	0	0	24
June 8	Spill	10	0	1	1	0
	Powerhouse	8	0	0	1	0
	Outfall	5	0	0	0	0
	Forebay	0	0	0	0	19
June 9	Spill	12	0	2	1	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	16

The laser on the outfall pipe and the LRAD were installed early this week. However, due to high flows later, the laser could not be programmed and the LRAD's solar panels have yet to be installed.

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. However, staffing issues and high flows may have limited the trips taken.

In the spillway zone, gull numbers were down overall and fluctuated along with a few pelicans and terns noted. The birds were feeding along the edges of the zone. The tern's arrival matches the increase in sub-yearling Chinook salmon.

In the powerhouse zone, a few gulls and pelicans were noted feeding along the northern edge of the zone.

In the bypass outfall zone, gull numbers were down and fluctuated. A few cormorants were noted. The birds were roosting. High flows and water washing over the pipe discouraged roosting and feeding.
In the forebay zone, grebe numbers were down but more birds were feeding. Grebes too appear to prefer sub-yearling Chinook salmon. However, aggressive hazing does discourage feeding close to the powerhouse. Outside the zone, gulls and pelicans were noted along the Washington shoreline and appear to be staging. Also, a few cormorants and osprey were observed.

One grebe entered the gatewell slots this week and was found in the juvenile collection channel on June 9.

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

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

Fish Rescue/Salvage: Unit 8 was dewatered this week. No fish were found in the scroll case. Twenty channel catfish 12 to 30 inches long plus two channel catfish mortalities were removed from the draft tube on June 9. Also, three sturgeons were removed that measure three, four and six feet, respectively.

Research: For a CRITFC study, there were tissue samples removed from 60 juvenile lamprey collected at the facility this week. For the season, a total of 424 juvenile lampreys have been sampled. All fish were returned to the river unharmed.

Gas bubble trauma examinations occurred on June 3, 7 and 9. Fish are recorded on the next data day. For the report week, two smolt 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

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on June 6, 8, and 9.

Fish Ladders:

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

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
x			South Shore Entrance (SFE-1) Weir Depth	≥ 8.0’ or on sill	
x			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
	x		South Shore Channel Velocity	1.5 – 4.0 fps	1.3 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: On June 8, the water velocity in the south shore junction pool was below criteria. The higher tailwater and channel levels cause the water to back up in the ladder upstream of the junction pool, resulting in lower junction pool velocities.

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 and repair of the pump intake trash rack.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
x			Forebay debris load acceptable? (amount)	Average of 11 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: The STS in gatewell slot 4A was replaced with a spare STS on June 8 due to a failed motor.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
x			Orifices operating satisfactory?	19-20
	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.

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: June 6

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	3	0	0	0
Chinook yearling unclipped	0	---	---	---
Chinook subyearling clipped	29	1	0	0
Chinook subyearling unclipped	48	0	0	0
Steelhead clipped	16	0	0	0
Steelhead unclipped	13	0	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	1	0	0	0
Coho unclipped	0	---	---	---
Total	110	1	0	0

Date: June 9

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	3	0	0	0
Chinook yearling unclipped	4	0	0	0
Chinook subyearling clipped	44	1	0	0
Chinook subyearling unclipped	44	1	0	0
Steelhead clipped	9	0	0	1
Steelhead unclipped	2	0	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	106	2	0	1

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
161.8	124.4	115.9	106.4	55	54	5.0	3.0

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Unit 1, 2, 4, 5, and 6 turbine cooling water strainers were checked for fish on June 8. A total of 110 juvenile lamprey mortalities were found.

Avian Activity: There were moderate to high numbers of piscivorous birds observed around the project (see table below). The number of gulls, cormorants, and terns counted on June 5 and 6 exceeded the threshold number for initiating incident response actions (see Section 7.4 of Appendix L in the Fish Passage Plan). These birds were not concentrated in any particular avian observation zones but were spread out among all the 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 June 7. Gull and cormorant numbers were below the threshold number on June 7 and for the rest of the reporting week. Land-based hazing of piscivorous birds is occurring for 16 hours per day. Boat-based hazing is occurring for 8 hours per day, 3 days per week. Boat-based hazing has been effective at reducing gull and cormorant numbers in the tailrace.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
June 3	12	21	0	0	23
June 4	---	---	---	---	---
June 5	34	16	0	0	16
June 6	3	13	16	0	27
June 7	0	4	3	0	25
June 8	6	7	3	0	36
June 9	2	7	1	0	28

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*
June 6	3	3
June 9	1	1
Totals	4	4

*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**
Unit 1	6/09/2022	0750	6/09/2022	0930	STS Inspection
Unit 2	6/08/2022	1042	6/08/2022	1420	STS Inspection
Unit 3	6/08/2022	0809	6/08/2022	1025	STS Inspection
Unit 4	6/072022	1314	6/07/2022	1510	STS Inspection
Unit 5	6/06/2022	0226	6/06/2022	1045	5B STS Failure
Unit 5	6/07/2022	1115	6/07/2022	1250	STS Inspection
Unit 6	6/07/2022	0830	6/07/2022	1100	STS Inspection

Comments: None.

Adult Fish Passage Facility

The adult fishways were inspected by Army Corps and EAS biologists June 3, 4, 5 and 8.

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 depth was out of criteria during the June 4, 5 and 8 inspections with readings of 7.6, 7.6 and 7.6 feet respectively. The June 4 and 5 inspections found that NSE-1 gauge at the weir controls was 0.5 feet different from the electronic readings. Powerhouse electrical crew was informed, and the electronic reading was calibrated to match the actual weir. North Shore Entrance (NSE-2) weir depth was out of criteria during the June 8 inspection with a reading of 7.7 feet. South Shore Entrance (SSE-1) weir depth was out of criteria during the June 5 and 8 inspections with readings of 7.9 and 7.8 feet respectively. The automatic system has issues keeping all criteria points within criteria during high river water and levels with high flows and spills during this reporting period. 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)	34 yds^2
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 35%
	X		Any oil seen in gatewells?	

Comments: Debris was dipped out of gatewells on June 9.

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: Alternate barge transport continues. A total of 112,050 fish were collected with 86,944 fish being transported and 38,633 fish bypassed back to the river during this reporting period. For safety of personnel and equipment due to high river levels and flows, the June 7 barge loading was canceled at Lower Monumental Dam. The fish collected on June 6 and 7 were bypassed back to the river. Bypass fish also included GBT sampled fish and sub-yearling Chinook salmon fry.

Spillway: Spring spill is occurring. Spillgate 5 was placed out of service at 1212 on June 7 and returned to service at 0835 on June 8 due to motor coupling issues.

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
157.8	126.3	81.1	69.3	55.0	52.0	3.0	1.6

*Scrollcase temperatures.

Other

Cooling Water Strainers: The cooling water strainers were examined on June 8. Live fish included 1 juvenile lamprey. Mortalities included 373 juvenile lamprey and 14 juvenile salmon.

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
6/3/2022	1930	8	0	0	0	0
6/4/2022	1830	21	0	0	0	10
6/5/2022	1500	9	1	0	0	10
6/6/2022	1230	26	2	0	2	0
6/7/2022	1100	20	8	0	0	2
6/8/2022	1055	0	0	0	0	4
6/9/2022	1100	10	6	0	0	2

Comments: Piscivorous bird observations are occurring daily. Bird hazing by USDA personnel ended on June 2. 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 June 8. A total of 24 clipped, 19 unclipped subyearling Chinook salmon, 2 clipped and 2 unclipped yearling Chinook salmon and 37 clipped and 16 unclipped steelhead smolts were examined. Gas bubble trauma was detected on the fins of 2 unclipped subyearling 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 10 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.
6	4/21/22	14:30	12/31/2022	ERTS	Rooftop replacement / BUS work replacement

Comments: None.

Adult Fish Passage Facility

EAS Bio staff inspected the adult Fishway on June 4 and June 6.

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	6.8, 6.8
		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 7.0’ or on sill	6.8, 6.8
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
X			North Shore Entrance (NSE-1) Weir Depth	≥ 6.0’ or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	≥ 6.0’ or on sill	
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: The adult fishway was returned to service on February 8 with AWS pumps returning to service on February 24. The NSE channel/tailwater differential and NSE weir depths were manually measured, adjusted, and monitored into criteria from February 24 through March 1. The fishway Fish System Control was recommissioned on May 5 with NSE weir reading anomalies. All 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 550ft² - Low 0ft²
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
	X		Any debris seen in gatewells (% coverage)	
	X		Any oil seen in gatewells?	

Comments: The forebay had minimal floating 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. Units 1, 2, 3, and 4 differentials were checked on June 9.

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 102,569 fish were collected, 17 were bypassed, 112,854 were transported via barge, and there were 192 sample or facility mortalities. The descaling and mortality rates were 1.6% and 0.18%, 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. The ASW was positioned in low crest on May 28.

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
155.2	125.3	84.9	62.9	55.2	52.5	2.1	1.9

*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
6-3	8:30	0	0	0	0
6-4	12:30	0	0	0	0
6-5	13:30	1	0	0	0
6-6	8:00	0	0	0	0
6-7	12:45	0	0	0	0
6-8	8:00	0	0	0	0
6-9	15:40	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
6-3	0	0
6-4	0	0
6-5	0	0
6-6	0	0
6-7	0	0
6-8	0	0
6-9	0	0
Totals	0	0

Gas Bubble Trauma (GBT): GBT monitoring occurred June 7. 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: None.

Adult Fish Passage Facility

Lower Granite Biologists and Anchor QEA staff inspected the adult fishway on June 3, 4, 6, and 8.

Fish Ladder:

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

Comments: None.

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
	X		South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	7.9’, 7.3’, 7.5’, 7.4’
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.9’, 7.4’, 7.2’, 7.4’
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
	X		North Powerhouse Entrance (NPE-1) Weir Depth	≥ 8.0’ or on sill	7.2’
	X		North Powerhouse Entrance (NPE-2) Weir Depth	≥ 8.0’ or on sill	7.2’
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	0.9’
	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	6.8’
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	0.9
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: Ladder collection channel operation and configuration are being evaluated to resolve ongoing issues. FOGs 1, 4, 7, and 10 are in operation. Although 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: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	28.0 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: None.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe:

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

Comments: The 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 170,028 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 66,543 juvenile and 443 adult PIT-tagged steelhead, 98,416 juvenile and 120 adult PIT-tagged Chinook salmon, 10,814 juvenile sockeye salmon, and 4,037 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 32,965 juvenile and 5 adult Chinook salmon, 17,865 juvenile and 62 adult steelhead, 2,263 juvenile sockeye salmon, and 941 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
159.0	131.8	62.0	58.8	54.0	51.5	2.5	1.2

*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 2 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
June 3	1545	0	0	0	0
June 4	1012	0	0	0	2
June 5	1441	0	0	0	17
June 6	1005	0	0	0	0
June 7	1934	0	0	0	30
June 8	1407	0	0	0	15
June 9	1451	0	0	0	17

Gas Bubble Trauma (GBT) Monitoring: GBT sampling occurred June 9 with 83 smolts sampled and 1 clipped steelhead showed symptoms of GBT.

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, 473 juvenile lamprey have been collected for the study, 342 were tagged and released at Blyton Landing upstream of LWG. There were 79 lamprey tagged and released during this report week.

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 501 macrophthalmia (juvenile) and 673 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.