U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#16-2023

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: June 16-22, 2023

Turbine Operation

Yes	No	Turbine Unit Status		
	X	All 14 turbine units available for service? (See table & comments below for details.)	Hard	Soft
X		Available turbines operated within 1% peak efficiency? Constraint in effect.	X	

Table 1. McNary Unit Outages (OOS) and Return to Service (RTS)

	OOS		RTS		
Unit(s)	Date	Time	Date	Time	Outage Description
5 & 6	5/22	0605	6/28	NA	Transformer gasket replacement
10	6/5	0758	7/28	NA	Nine-year overhaul
13 & 14	6/12	0636	12/21	NA	Control system upgrades
2	6/18	1900	6/20	0802	PLC issue
8	6/20	1000	6/20	1030	ESBS camera inspections

Comments: RTS dates are subject to change.

Adult Fish Passage Facilities

Measured inspections of the adult fishways occurred on June 16, 18 and 21. Visual adult fish counting, and video review of nighttime lamprey passage continues.

Fish Ladder Exits:

Yes	No	Location	Criteria	Measurements
X		Oregon Exit	Head over weir 1.0' to 1.3'	1.0'
X		Oregon Count Station Differential	0.0' to 0.5'	0.2' to 0.3'
X		Washington Exit	Head over weir 1.0' to 1.3'	1.0' to 1.2'
X		Washington Count Station Differential	0.0' to 0.5'	0.2' to 0.4'

Comments: Debris loads were very light to light near the Oregon shore exit and minimal near the Washington shore exit. The general maintenance staff has been cleaning the picketed leads at both exits as needed including on Saturday and the holiday.

At the Oregon shore exit, the count station window brush failed on June 17. The brush was repaired on June 20.

At the Washington shore exit, after minimal flow was noted coming down the ladder, the roving operator reset the exit weirs on June 17 at 0100 hours. Later the day, the assistant biologist and another roving operator cleaned the count station back board. A regulating weir alarm came on and was reset on June 18.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0' – 2.0'	1.2' to 1.4'
X			NFEW2 Weir Depth	≥ 8.0'	8.4' to 8.5'
X			NFEW3 Weir Depth	≥ 8.0'	8.4' to 8.5'
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.4' to 1.8'
X			SFEW1 Weir Depth	≥ 8.0'	8.4' to 8.5'
X			SFEW2 Weir Depth	≥ 8.0'	8.4' to 8.5'
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 2.3 fps
X			Washington Entrance Head Differential	1.0' – 2.0'	1.4'
X			WFE2 Weir Depth	≥ 8.0'	8.2' to 8.5'
X			WFE3 Weir Depth	≥ 8.0'	8.2' to 8.5'

Comments: There are no problems to report.

Three floating orifice gates (FOG's) slots, W32, W37 and W41 remain closed. Nine of 12 slots are open.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Blade angle	Auxiliary Water Supply System (AWS)
Yes				WA shore Wasco County PUD Turbine Unit
	Yes			WA shore Wasco PUD Bypass
Yes			18° to 23°	Oregon Ladder Fish Pump 1
Yes			18° to 21°	Oregon Ladder Fish Pump 2
		Yes*	18° to 24°	Oregon Ladder Fish Pump 3/RTS date June 16
Yes				OR North Powerhouse Pool supply from juvenile fishway

*Comments: Fish pump 3 was removed from service due to an exciter issue on June 15 at 1713 hours. The pump returned to service on June 16 at 0724 hours.

Juvenile Fish Passage Facility

Every other day sample collection continues with no interruptions in the schedule this week. Installation of a new forebay (intake) deck crane continues. This will add some challenges to various task.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Minimal to very 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 very light near the powerhouse. As flow decreases, so have debris loads. Also, some of the debris passed through the spillway. Residual debris loads beside the spillway were heavy to light. Some of this debris was spilled during operations discussed in the River Conditions section below. New debris loads were minimal. Most of the debris was fine material and aquatic vegetation.

The next trash rack cleaning will occur the week of June 26.

Algae blooms were noted in the gatewells slots in units 5 and 6 on June 21. The units are out of service.

For the new intake crane assembly, units 12 to 14 gatewells slots remained covered over. Only unit 12 will be online for the three weeks it will take to complete crane assembly. In order for the transformer gasket contractor's trailer to be moved, the gatewell in 7C slot was covered over on June 22. There are openings around the covers which will allow for VBS differential monitoring in unit 12 and 7C slot.

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 deployed in all units. 7C slot's screen was briefly unplugged so the gatewell slot could be covered on June 22. The camera inspections in unit 8 revealed no issues on June 20.

Daily VBS differential monitoring continued. No high differentials were recorded, and no screens were cleaned.

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

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

Comments: Orifice and area lighting was repaired as needed.

The side screen cleaning brush and both side dewatering valves received scheduled maintenance on June 20. The side brush was out of service for three hours during the maintenance. All systems functioned satisfactorily.

Bypass Facility:

Yes	No	NA	Item
X			Sample gates on?
		X	PIT-tag sampling system on?

Comments: The sample gates continue to operate every other day for sample collection. The PIT sample tag system will not be used again this year.

This week, 9,754 (four examined during GBT monitoring) juvenile lamprey and 30,301 smolts, mostly sub-yearling Chinook, were bypassed during secondary bypass. The smolt monitoring staff reports fish data in a separate report.

Area lighting was repaired as needed this week. Both sample tank crowding devices were lubricated on June 20.

TSW Operations: The TSW's in bays 19 and 20 were closed on June 20 at 0825 hours. Work began in bay 19 and was completed on June 22, except for limits being set on the hoist. TSW removal and standard gate installation in bay 20 will occur on June 26 and 27, after which, both hoists' limits will be set, and the standard gates will be opened in both bays per the current spill pattern. Spillway pattern manipulation for TSW install this week will be discussed in the River Conditions section below.

River Conditions

Table 2. 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
192.1	162.2	133.4	97.9	64.5	62.3	6.0	5.0

Comments: The above data is provided by the smolt monitoring staff except the water clarity, which is provide by the control room. The data day runs from 0700 to 0700 hours. The summer spill season, with 57 percent of the flow being spilled, began on June 16 at 0001 hours. However, due to only one adjustment in the pattern being made at midnight, the percentage of flow being spilled is not exactly 57 percent.

The smolt monitoring staff continued to collect water temperature data related to juvenile passage. After working out some program issues, the smolt monitoring staff will report the data in daily and weekly reports. Adult passage temperature monitoring is year-round.

Cranes 6 and 7 cannot perform an overloaded lift until April 2024. We are unable to adjust spillway gates 2 and 6 for flow this season, as prescribed by the Fish Passage Plan, potentially we will be unable to perform critical maintenance and repairs on spillway equipment, and we will be unable to close spillway gates 2 and 6 at the end of this spill season.

Currently, only one hoist is out of service. The hoist is installed in bay 16. However, more work will be required before the hoist returns to service. The current target date range is July 10 to 13. A spill pattern for July with bay 16 closed has been requested.

So, into the season, bay 2 is set at 4 feet and bay 6 is set at 6 feet along with bay 16 being closed.

A fire in the debris along the spillway was reported on June 17, at 1458 hours. Due to strong winds, the fire department was unable to extinguish the fire. In order to perform an emergency spill, bay 7, which had been at 2 stops, was fully open from 1532 to 1632 hours. This allowed the debris to pass into the spill flow downstream and extinguish the fire. No cause to the fire was determined.

During the TSW removal and install of standard gates, bays 19 and 20 remained closed (bay 16 is currently closed). In order to retrieve gate parts from bay 6, which was dogged open, bays 5 and 7 were closed on June 20, from 0825 to 1349 hours. Bays 14, 15, 17 and 18 were closed at 1100 hours for work in bay 19. Due to miscommunication, these bays were left closed over night and were not reopened until work was completed on June 21 at 1545 hours. In order to retrieve gate parts from bay 13, on June 22, bays 12 to 14 were closed from 0705 to 0805 hours. Bays 15, 17 and 18 were closed for the work in bay 19 from 0705 to 1041 hours. In preparations to work in bay 20, bay 21 was closed at about 1100 hours. Bay 19 through 21 remained closed through the weekend.

The emergency spill and TSW work mentioned above reduced the debris along side the spillway from heavy to light.

Other

Inline Cooling Water Strainers: The next cooling water strainer inspections will occur on July 5.

Avian Activity: Avian counts continue. The results are recorded in Table 3 below.

For the report week, all species were counted except cormorants, which were observed during other inspections.

In the spillway zone, gulls, pelicans, and terns were noted. Pelican numbers were fairly stable. Gull and tern numbers fluctuated. Most birds were feeding. Wildlife Services hazing along with lethal take of gulls and cormorants from a boat may have contributed to the lower bird numbers. An occasional roosting osprey was noted.

At the bypass outfall zone, no birds were observed probably due hazing from the boat and some birds occurring in low numbers.

In the powerhouse zone, pelicans were noted to be feeding just outside the Oregon ladder floating orifice gates. Two pelican was observed in the Oregon ladder on June 18. A security guard stated he saw five in the ladder. Also, one pelican was observed in the Washington ladder on June 18.

In the forebay zone, a few grebes were noted feeding or roosting along an occasional tern. Outside the zone, a few gulls, cormorants, pelicans, and osprey were noted.

The two large bird distress calls remain deployed and active on the navigation lock wing wall. These calls are very effective at reducing roosting. The laser on the navigation lock wingwall remained activated along with the LRAD on the outfall walkway. At this time, there are no plans to replace the outfall laser.

USDA Wildlife Services continues shore and boat hazing per schedule. The boat trip missed on June 19 was made up on June 20. As mentioned above, lethal take continued. PSMFC has been examining the stomach contents.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican	Grebe
June 16	Spill	3	0	5	10	0
	Powerhouse	0	0	0	19	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	1
June 17	Spill	5	0	14	23	0
	Powerhouse	0	0	0	15	0
	Outfall	0	0	0	0	0
	Forebay	0	0	1	0	2
June 18	Spill	110	0	10	17	0
	Powerhouse	0	0	0	19	0
	Outfall	0	0	0	0	0
	Forebay	0	0	1	0	4
June 19	Spill	20	0	2	16	0
	Powerhouse	0	0	0	3	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	4
June 20	Spill	4	0	20	13	0
	Powerhouse	0	0	0	15	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	7
June 21	Spill	0	0	1	17	0
	Powerhouse	5	0	0	6	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	4
June 22	Spill	0	0	3	17	0
	Powerhouse	0	0	0	16	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	0

Invasive Species: The next mussel station examinations will occur on June 25.

Siberian Prawn: No prawns were observed in this week's samples or for the season to date.

Fish Rescue/Salvage**:** No fish rescue occurred this week.

Research: USGS equipment for a juvenile passage study along the upstream edge of the powerhouse and spillway remains in place. For a CRITFC study, there were tissue samples removed from 80 juvenile lamprey collected at the facility this week for a total of 570 fish this season. All fish were returned to the river unharmed. Gas bubble trauma examinations occurred on June 19 and 21. The data is reported the next day. One fish showed signs of trauma during the report week.

Project: Ice Harbor
Biologist: Ken Fone
Biological Science Technician: Ben McArthur
Dates: June 16 – June 22, 2023

Turbine Operation

Yes	No	Turbine Unit Status
	x	All 6 turbine units available for service (see table & comments below for details).
x		All available turbine units are operated in accordance with Appendix 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 20, 21, and 22.

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	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’	0.8'
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 18, an operator found that the north fish ladder exit debris boom was detached from its anchor point at one end. Later in the week, it also broke loose at the other end. Fortunately, there is currently little or no debris in the vicinity of the north fish ladder exit. Repair of the debris boom is planned for June 28.

The south shore entrance weir depth was below criteria on 22-June. The low entrance weir depth observed is probably due to the south shore tailwater transducer needing to be recalibrated. As the spill volume continues to decrease with the lessening river flow, the reduced turbulence in the tailrace will be more conducive for doing an accurate calibration.

The difficulty in obtaining accurate tailwater elevation readings with the turbulent conditions caused by spill may have contributed to the low channel/tailwater differentials obtained at the north powerhouse entrance on 21-June.

Auxiliary Water Supply (AWS) System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System
4-6 pumps	2-4 pumps		Status of the 8 south shore AWS pumps
2 pumps		1 pump	Status of the 3 north shore AWS pumps

Comments: North shore AWS pump #1 has been out of service since March 1 because of a hydraulic cylinder leak on the butterfly valve. The hydraulic cylinder needs to be rebuilt but is on hold until funding is available.

North shore AWS pump #3 had high amperage readings on June 21. This was caused by debris partially obstructing the pump intake trash rack. The operator turned off pump #3 from 0615 hours to 0628 hours on June 21 to allow debris to fall off of the trash rack. Afterwards the amperage reading was back down to normal. Only north shore pump #2 was running when pump #3 was turned off, so the north shore channel/tailwater differential was briefly below 1'.

SFE-1 weir gate was found to be stuck in the guide slot and would not lower on June 19. The operator turned off five of the six operating south shore AWS pumps from 0839 hours to 0855 hours on June 19 to reduce the water pressure against the gate to enable it to lower down. There was reduced fish-attraction flow coming out of the south fish ladder entrances while the pumps were off.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
x			Forebay debris load acceptable? (amount)	Average of 34 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-11%
	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	VBSs differentials checked this week?
		x	VBSs differentials acceptable?

Comments: STSs are in continuous-run mode because of the presence of small subyearling chinook in the Ice Harbor juvenile fish sample.

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 water level sensors that detect a differential across the inclined floor screen in the collection channel malfunctioned on June 17. The sensors were giving erratic readings, causing a false high differential reading and triggering orifices 2AS through 6CN to automatically shut. The operator promptly reopened the orifices and turned off the emergency auto-closure setting. An electrician found that the voltage to the sensors was low. After the problem was fixed, the orifices auto-closure setting was turned back on.

The light for orifice 4BN was found to be burned out on June 15. That orifice was closed and the adjacent orifice in the slot was opened until the light was replaced on June 21.

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

Fish Sampling: Juvenile fish sampling is scheduled to occur on Mondays and Thursdays each week. See the tables below for a summary of the sampling results. There was one clipped sub-yearling chinook on June 22, with Dwarfism deformity.

Fish condition sampling results at Ice Harbor Dam:

Date: June 19

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	0	---	---	---
Chinook yearling unclipped	0	---	---	---
Chinook sub-yearling clipped	20	0	0	0
Chinook sub-yearling unclipped	15	0	0	0
Steelhead clipped	0	---	---	---
Steelhead unclipped	1	0	0	---
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	1	0	0	---
Coho unclipped	0	---	---	---
Total	37	0	0	0

Date: June 22

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	1	0	0	0
Chinook yearling unclipped	0	---	---	---
Chinook sub-yearling clipped	18	0	0	0
Chinook sub-yearling unclipped	65	1	0	0
Steelhead clipped	6	1	---	1
Steelhead unclipped	2	0	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	5	1	---	---
Coho unclipped	1	0	---	---
Total	98	3	0	1

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

Spill gate #6 became stuck and would not operate at 0700 hours on June 17. The gate was manually closed and forced out of service at 1200 hours on June 17. A mechanic found that there were two sheared roll pins on the selsyn indicator assembly. The total spill volume called for in the 2023 Fish Operations Plan was maintained by shifting spill from bay #6 to bay #5, which had previously been closed. Spill gate #6 was returned to service on June 21 at 0918 hours. See MFR 23 IHR 05 for more information.

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
65.2	56.4	54.1	17.4	64	63	4.8	3.9

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Turbine unit 1, 2, 4, 5, and 6 cooling water strainers were inspected for fish on June 6. A total of 1 adult lamprey, 32 juvenile lamprey, and approximately 108 Siberian prawns were found. All of the fish were dead, with the lamprey in various stages of decomposition. There were also three decomposing unidentifiable fish. The next Cooling Water Strainer inspection is scheduled for early July.

Avian Activity: There were low to moderate numbers of piscivorous birds seen around the project (see table below). Land-based hazing of piscivorous birds occurs for 8 hours per day and continues to be effective at moving birds out of areas close to the dam.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
June16	4	10	5	0	12
June 17	2	10	13	0	14
June 18	0	5	12	0	11
June 19	0	1	2	0	11
June 20	1	2	10	0	7
June 21	0	1	5	0	6
June 22	0	3	9	0	6

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 19	0	0
June 22	1	1
Totals	0	0

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

Fish Rescue/Salvage: None.

Research: No on-site research is occurring at this time.

Summer Spill: On 21 June spill was reduced to 30% in accordance with Summer Spill levels as written in Appendix E of the Fish Passage Plan.

Project: Lower Monumental
Biologists: Denise Griffith and Raymond Addis
Dates: June 16 - 22, 2023

Turbine Operation

Yes	No	Turbine Unit Status		
X		All 6 turbine units available for service (see table & comments below for details).	Hard	Soft
X		Available turbines operated within 1% peak efficiency? Constraint in effect.	X	

Comments: 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 3	6/20/23	1230	6/20/23	1540	Trash rack racking
Unit 4	6/20/23	1230	6/20/23	1540	Trash rack racking
Unit 5	6/20/23	0750	6/29/23	ERTS	Annual maintenance

Comments: None.

Adult Fish Passage Facility

Lower Monumental fish facility, EAS and WDFW staff inspected the adult fishways on June 17, 18, 20 and 22.

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-2 weir was out of criteria on the June 17 and 18 inspections with readings of 7.5 feet both days. Powerhouse operator was informed on June 17 that NSE-2 gauge at the weir did not match the electronic gauge used by the automatic system which could be the reason the weir was out of criteria. Settings were changed but the problem was still there on the June 18 inspection. The second correction resolved the issue at the weir until powerhouse electricians can recheck the calibration of the electronic gauge. Depth South Powerhouse Entrance SPE-1 weir was at sill during all inspections with readings of 6.5, 6.4, 6.2 and 6.5 feet respectively. South

Powerhouse Entrance SPE-2 weir was at sill during all inspections with readings of 6.5, 6.4, 6.2 and 6.5 respectively. South Shore Entrance SSE-1 weir was at sill during all inspections with readings of 6.3, 7.0, 6.8 and 7.4 feet respectively.

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: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
	X		Forebay debris load acceptable? (amount)	145 yd²
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 15%
	X		Any oil seen in gatewells?	

Comments: Forebay wood debris amount was low during this reporting period. Trash rack cleaning occurred on June 20 at Unit's 3 and 4 until an issue occurred with the crane. The remainder of trash rack cleaning was canceled until next month, when the crane would possibly be repaired. Very little debris was removed from the slots.

STSs/VBSs:

Yes	No	NA	Item
X			STSs deployed in all slots and in service?
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 running in continuous-run mode due to average sub-yearling Chinook and sockeye 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: None.

Collection Facility: Collection for transport ended at 0700 on June 20. The facility went into every-other day condition sampling at that time. The lamprey bypass system had a high-water fault starting on June 10. The system would not reset, and the gates were manually placed in bypass positions on June 11. The system remained in manual mode until June 20 when the powerhouse electricians were able to make the repair. The outfall pipe bird hazing water sprinkler system was taken out of service at 0845 on June 21, due to a loose connector collar causing a massive water leak. The system will stay out of service until repairs have been made. Another small stick blockage occurred in the B side of the separator on June 21, which was easily removed. No mortality was observed from the blockage. A power outage occurred on June 21 from 0900-0908 at the facility. No issues resulted from the outage.

Transport Summary: Every-other day barge transport ended with the June 19 barge. Approximately 2,746 fish were collected with 1,758 fish transported and 986 fish being bypassed. Up to the June 19 barge, bypass fish include fry and GBT sampled fish. After the June 19 barge, all fish coming into the facility were bypassed.

Spillway Weir: Spring spill ended, and summer spill began at 00:00:00 on June 21. A blockage of woody debris was seen in the RSW on June 18. The powerhouse operator was informed and adjusted the level of the RSW to allow the debris to break free.

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
61.6	53.9	40.6	16.9	64.1	63.2	4.8	3.4

*Scrollcase temperatures.

Other

Cooling Water Strainers: The cooling water strainers will be inspected in July.

Avian Activity: Tailrace counts of foraging piscivorous birds at Lower Monumental Dam began on April 1.

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
6/16/2023	1530	0	0	0	0	6
6/17/2023	1115	1	0	0	0	13
6/18/2023	545	1	0	0	0	16
6/19/2023	545	0	1	4	0	1
6/20/2023	645	3	1	7	0	8
6/21/2023	1330	0	1	0	0	11
6/22/2023	820	2	4	5	0	7

Bird hazing by USDA personnel is ongoing.

Invasive Species: Inspection for zebra or quagga mussels will occurred in July.

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by EAS, frozen and properly disposed of in a landfill. No sample on June 21

Date	Sample (euthanized)	Collection*
June 16	2	10
June 17	5	25
June 18	6	24
June 19	3	12
June 20	4	16
June 21	---	---
June 22	9	27
Totals	29	114

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

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

Research: GBT examinations occurred on June 21. A total of 3 yearling clipped Chinook, 1 yearling unclipped Chinook, 13 clipped subyearling Chinook, 11 unclipped subyearling Chinook, 1 clipped steelhead and 1 unclipped steelhead smolts were examined. Gas bubble trauma was detected in 1 subyearling Chinook (anal fin).

A PNNL study on behavior and survival of juvenile Pacific lamprey at Lower Monumental Dam will start on April 1 and run to September 30. PNNL removed most of the monitoring equipment from the raceways on June 22.

The Nez Perce steelhead kelt study and rehabilitation collection tank setup was completed on March 26 with collection of kelts beginning on March 28. A total of 1 unclipped steelhead kelts were placed in the collection tank.

Project: Little Goose Dam
Biologist: Deb Snyder, Brooke Gerard, Cole Reeves
Dates: June 16 – June 22, 2023

Turbine Operation

Yes	No	Turbine Unit Status
	X	All 6 turbine units available for service? (See table and comments below for details)

Little Goose Unit Outages (OOS) and Return to Service (RTS)

	OOS		RTS		
Unit	Date	Time	Date	Time	Outage Description
5	4/14/2017		06/30/2023	ERTS	Spider and upper guide bearing repair.

Comments: Contractual obligations and performance issues realigned the Unit 5 ERTS date into 2023, testing remains in progress, reference 23 LGS 07 MOC.

Adult Fish Passage Facility

EAS Bio and USACE staff inspected the adult Fishway on June 17, 18 and 22.

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'	7.7-6/17
X	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0'	7.7-6/17
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			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	X		North Shore Channel/Tailwater Differential	1.0'–2.0'	0.9-6/18
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: The adult fishway was initially returned to service on February 14, dewatered February 16 due to discovery of a second fish viewing window leak, then subsequently watered back up and commissioned for the season on February 23. The AWS pumps returned to service on February 23. The Fish Ladder Exit Cooling Water Pump was pulled, inspected, and readied for modest repairs on February 21. The Collection Channel Surface Velocity is measured at NPE. Rickley channel velocity measurements were completed and met criteria on May 25. Transponder readings documenting the Fish Ladder Depth over Weirs began displaying data inconsistent with physical staff gauge measurements beginning March 30. The North Shore fish entrance weirs continue to experience discrepancy readings between the Fish System Control (FSC) board and physical weir height measurements. We are working with SMP contracted personnel to standardize reporting to default to physical staff

gauge measurements when FSC board discrepancies are detected. Criteria for activation of Fish Ladder Exit Cooling Pump was met, and the system was started at 2030 hours on June 7.

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 23.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comment
X			Forebay debris load acceptable? (amount)	High 45 ft² - Low 2 ft²
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 maintained minimal floating debris inside the trash shear boom with the highest measurement occurring on June 16 at 35 ft². The overall total forebay debris high occurred June 22 at 45 ft².

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 Unit 4-6 ESBS's were completed on March 13 and installation of units 1-3 took place March 14.

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 juvenile bypass system was initially watered up March 6, was halted to fix pinhole leaks discovered in the 42" primary emergency fish bypass pipe, resumed and was fully commissioned on March 7.

Collection Facility: The juvenile collection facility watered up on March 21. Every other day collection for condition monitoring in conjunction with secondary bypass began March 25 with the first sample being conducted on March 26. Everyday collection began April 23 coinciding with every other day barge transportation. A total of 6,254 fish were collected, 3,107 were bypassed, and 3,134 were transported via barge. There were 13 sample or facility mortalities. The descaling and mortality rates were 1.8% and 0.2%, respectively. The collection and

transport facility operated within criteria and 4 adult lampreys were removed from the separator during this report period.

Transport Summary: Collection for fish transportation began April 23 with the first barge departure on April 24. Every other day barging is scheduled thereafter pending situational transition to everyday barging due to any unforeseen increase in fish numbers. Barge transportation for the season ended with the final barge departure on June 19.

Spillway Weir: Little Goose began operation of the adjustable spillway weir (ASW) on March 1 to facilitate passage of adult steelhead overshoots. Operation occurred three days each week every other day for four hours in the morning. Spring spill operations began as scheduled on April 3. On June 12 the ASW was adjusted to high crest at 0840 hours per teletype instructions reducing ASW outflow from 11 to 7.4 kcfs due to decreased reservoir inflows. Summer spill operations began as scheduled on June 21.

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
60.6	52.9	38.5	16.5	64.2	63.9	4.7	4.1

*Ladder temperature.

Other

Inline Cooling Water Strainers: Inline cooling strainer inspections commenced on December 1, 2022. 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 are scheduled to begin April 1, while USDA-APHIS bird abatement contract services are in place.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
6-16	8:30	0	0	0	4
6-17	8:45	0	0	0	6
6-18	10:30	0	0	0	4
6-19	11:25	0	0	0	4
6-20	11:20	0	0	0	4
6-21	8:30	0	0	0	0
6-22	11:10	0	0	0	4

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

Siberian Prawn: Juvenile fish collection began March 25. Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by Oregon Department of Fish and Wildlife and EAS Bio personnel, frozen and properly disposed of in a landfill

Date	Sample	Collection*
6-16	41	164
6-17	17	68
6-18	41	164
6-19	58	116

6-20	55	218
6-21	11	44
6-22	11	44
Totals	234	818

*Collection and sample numbers are equal when sample rates change to 100%

Gas Bubble Trauma (GBT): Oregon Department of Fish and Wildlife began GBT monitoring services starting on April 4, 2023. GBT monitoring occurred on June 22. Of the 102 fish examined, 2 fish exhibited signs of GBT.

Fish Rescue/Salvage: No fish rescue and salvage operations transpired during this reporting period.

Research: The Nez Perce Tribe (NPT) began adult steelhead kelt collection efforts on March 26 with an anticipated conclusion date of July 1.

Project: Lower Granite
Biologists: Elizabeth Holdren and David Miller
Dates: June 16-22, 2023

Turbine Operation

Yes	No	Turbine Unit Status		
X		All 6 turbine units available for service (see table & comments below for details).	**Hard**	**Soft**
X		Available turbines operated within 1% peak efficiency? Constraint in effect.	X	

Lower Granite Unit Outages (OOS) and Return to Service (RTS)

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**

Comments:

Adult Fish Passage Facility

Lower Granite biologists inspected the adult fishway on June 16, 17, 19, and 21.

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 fish ladder cooling system was brought online at 0913 hours June 5.

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’	
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 8.0’ or on sill	5.3’, 5.8’, 5.6’, 6.1’
		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 8.0’ or on sill	5.3’, 5.8’, 5.6’, 6.1’
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	0.5’, 0.6’, 0.9’
	X		North Shore Entrance (NSE-1) Weir Depth	≥ 7.0’ or on sill	6.7’
	X		North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	6.7’
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	0.5’, 0.6’
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: Ladder collection channel operation and configuration will continue to be evaluated this season to resolve ongoing issues. FOGs 1, 4, 7, and 10 are in operation. North powerhouse continues to not meet channel/tailwater head differential criteria. Electrical crew continues to calibrate the ladder when issues are

reported. Spill and current flow conditions during gas cap spill appear to drawdown the north and south edges of spillway flows. Tailrace hydraulic conditions continue to impact ladder operational criteria.

Auxiliary Water Supply System:

Operating Satisfactorily	Standby	Out of Service	Auxiliary Water Supply (AWS)
Yes			AWS Fish Pump 1
No		Yes	AWS Fish Pump 2
Yes			AWS Fish Pump 3

Comments: AWS pumps 1 and 3 remain in service.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	15.7 yd^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:

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:

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	21
X			Dewaterer and cleaning systems operating satisfactory?	

Comments:

Collection Facility: Collection for transport ended at 0700 hours on June 16.

Transport Summary: Barge transport continued with barges departing every-other-day. On June 15, the barge loading boom was taken out of service due to hydraulic failure. Barge loading at Lower Granite scheduled for June 17 and 19 have been cancelled. The juvenile collection facility was set to secondary bypass at 0700 hours on June 16.

Spillway Weir: Spring spill began April 3. There have been 613 adult and 54,848 juvenile steelhead, 146 adult and 74,282 juvenile Chinook salmon, 2,966 juvenile Coho salmon, and 12,161 juvenile Sockeye salmon detected at the RSW since March 1. There have been 137 adult 27,764 juvenile steelhead, 5 adult and 40,562 juvenile Chinook

salmon, 1,209 juvenile Coho salmon, and 1,141 juvenile Sockeye salmon detected through the Juvenile Bypass System since it was opened on March 15 (DART).

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
67.1	56.1	42.2	18.4	63.5	61	4.5	3.0

*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 322 Siberian prawns collected in the sample.

Avian Activity: Biologist daily piscivorous bird counts and bird hazing began April 1.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
June 16	1250	0	1	0	12
June 17	0940	0	2	0	8
June 18	1345	0	0	0	30
June 19	1220	0	0	0	12
June 20	1440	0	0	0	9
June 21	1230	0	0	0	2
June 22	1948	0	0	0	6

Gas Bubble Trauma (GBT) Monitoring: No GBT sampling conducted this week.

Adult Fish Trap Operations: Fish will continue to be sampled Monday through Friday until broodstock collection starts August 18.

Fish Rescue/Salvage: The adult fish trap was flushed on June 19 to clean debris and fish mortalities from the drain screens. Mortalities included 1 unclipped Chinook, 1 clipped Chinook, and 1 clipped steelhead.

Research:

National Marine Fisheries Service (NMFS) PIT tagging of Adult Wild Chinook and Adult Steelhead for ISEMP-Related Dispersal Monitoring:

The goal of this project is to PIT tag up to 4000 unclipped adult Chinook 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 March 1 through November 30. The goal is to collect 5-20% of adult steelhead, spring/summer Chinook salmon, and sockeye salmon ascending the ladder March 1-November 30. 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.

Sampling and PIT tagging of Walleye by the Idaho Department of Fish and Game (IDFG) and NOAA Fisheries.

Walleye collected in the adult fish trap are PIT tagged and released back into the ladder to investigate movement and ascension rate of walleye that successfully exit the fish ladder into the upstream reservoir. PIT tag data collected will be used to gain an understanding of the potential expansion and threat of walleye upstream of LWG to ESA-listed salmonids and guide future management actions of walleye in the Snake River Basin.

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.

Nez Perce Tribe (NPT)/U. of Idaho (UI)/Columbia River Intertribal Fisheries Commission (CRITFC) – Kelt Study

This research investigates steelhead kelt physiology and endocrinology to evaluate the feasibility and success of rehabilitating strategies. The goal is to collect 450-700 kelts from LWG juvenile fish facility separator. Selected kelts are transported by NPT to Dworshak National Fish Hatchery for reconditioning and later release as part of this study. LWG Corps biological technicians collected 570 kelts from the juvenile fish separator with 377 sampled and released, 27 were handled and release, and 162 being transported to the hatchery and there were 4 kelt mortalities this season.

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 and 450 larval lamprey will be collected, implanted with a juvenile Eel/Lamprey Acoustic Transmitter (ELAT), and released upstream of LWG. An additional 1000 juvenile or larval lamprey will be implanted with PIT tags. 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. In addition, 50 dead tagged juvenile lamprey will be released from LGR and 50 from LMN to estimate dam passage survival using the virtual release/dead-fish correction (ViRDCt) model. Detection of tagged individuals will be summarized to evaluate passage routing and estimate dam passage survival at LGR and LMN, estimate reach survival downstream of LWG and downstream of LMN, and evaluate travel time between detection arrays. There have been 493 larval and 1170 juvenile lamprey have been collected for PNNL this season. Of the total collection, 437 larval and 1074 juvenile lamprey have been either PIT tagged or acoustic tagged at LWG and released at Blyton Landing, 55 larval and 196 juvenile were handled and released without being tagged, and there were 1 larval and 14 juvenile lamprey recovery mortalities.

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 2000 juvenile and 1000 larval Pacific lamprey, not to exceed 10 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. LWG SMP collected genetic samples from 306 juvenile and 385 larval lamprey this season.