Out of Criteria – NWW Weekly Report #17 – June 21-27, 2024

1. McNary

Yes	No	Sill	Location	Criteria	Measurements
	X		WFE3 Weir Depth	≥ 8.0’	7.7’ to 7.9’

WFE3 was out of criterion all week. This could possibly be calibration issues related to the spill season. However, adjustments are very difficult during the spill season.

Fish pump 1 remained out of service for a scheduled 5-year overhaul. Return to service dates are subject to change.

2. Ice Harbor

Yes	No	Sill	Location	Criteria	Measurements
	x		South fish entrance (SFE-1) weir depth	≥ 8.0’ or on sill	7.8’
			South shore channel velocity	1.5 – 4.0 fps	
	x		Central fish entrance (CFE-2) weir depth	≥ 8.0’ or on sill	7.9’
	x		North fish entrance (NFE-1) weir depth	≥ 8.0’ or on sill	6.4’, 6.6’, 6.2’
	x		North fish entrance channel/tailwater differential	1.0’ – 2.0’	2.2’

The north fish entrance (NFE-1) weir depth was below criteria on June 24, 26, and 27. North fish entrance channel/tailwater differential was above criteria on June 27. The channel and tailwater elevation readings on the PLC have been significantly higher than the physical readings obtained on the inspections. The discrepancies were partly due to turbulent water from spill making accurate measurement of the tailwater difficult. The channel and tailwater elevation transducers may also have drifted out of calibration. A request was made for electricians to recalibrate the transducers.

The south fish entrance and central fish entrance weir depths were slightly below criteria on the June 27 inspection, but were in criteria on the PLC. Turbulent tailwater conditions from spill may have caused the discrepancies.

South shore AWS pump #6 has been out of service since March 1, 2024, due to high vibration readings coming from the motor and gearbox. The gearbox is being replaced with a refurbished one.

North shore AWS pump #1 was out of service from 0651 hours to 1220 hours on June 26 to change filters.

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

The replacement actuator for the water regulating weirs in the collection channel is in local control due to a problem with the actuator being undersized for this application. The actuator will be rebuilt to enable it to work in automatic mode. The weirs are being operated at the actuator to adjust the water level as needed until the problem can be fixed.

3. Lower Monumental

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

Comments: Primary dewatering screen cleaning brush cycle was changed to clean once every 12 hours from once every 6 hours in order to mitigate the usage on the brush. The brush has failed several times while cycling over the last week. The mechanics will examine the limit switches next week.

4. Little Goose – none

5. Lower Granite Dam

6. Yes	No	Sill	Location	Criteria	Comments
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0'–2.0'	0.8', 0.9'
	X		Collection Channel Surface Velocity	1.5 – 4.0 fps	1.3, 1.1, 1.2

Fish ladder control system operation and configuration is an ongoing issue that began when the system was installed in 2016. LWG is moving forward with inhouse design and install of fish ladder control system based of the system used at LMN. Efforts of the electrical crew continue to bring the ladder back into criteria however the control system drifts out of calibration shortly after. There is a swell at the north powerhouse where the back eddy collides with powerhouse and spillway flow that may be impacting channel/tailwater differentials. North shore tailrace elevations ranged from 631.5' to 632.3'. the fish ladder was designed to operate at the minimum operating elevation of 633.0'.

AWS Pump 1 remains in slow mode due to the inability to operate in fast mode while operating at MOP elevation. AWS pump 2 remains out of service for maintenance.

U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#17-2024

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: June 21-27, 2024

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	**Date**	**Time**	**Date**	**Time**	**Outage Description**
14	5/13	1232	11/18	NA	Isophase replacement and headgate work
13	5/21	0955	11/18	NA	Isophase replacement and headgate work
3	5/29	0634	11/15	NA	Control system upgrades
4	5/29	0634	11/15	NA	Control system upgrades
7	6/25	1000	6/15	1036	ESBS camera inspections

Comments: RTS dates are subject to change. The hard one percent criteria remained in place. Unit 7 was in last on/first off status due to an exciter issue from June 22, at 1012 hours to June 24, at 0804 hours. Units 5 and 6 came online on June 22 from 1510 to 2200 hours. This is the only time unit 7 would have been used normally.

Adult Fish Passage Facilities

McNary fisheries staff performed measured inspections of the adult fishways on June 21, 23 and 25. Adult fish counting, and video review of nighttime lamprey passage continued.

Fish Ladder Exits:

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

Comments: Debris loads were minimal to light (woody material) near the Oregon exit and minimal to very light (aquatic vegetation) near the Washington exit.

A cell phone was delivered to the Oregon ladder count station on June 25. Issues with the land line will be resolved in the future.

At the Washington exit, a regulating weir alarm came in and was reset on June 21 and 23. Multiple weir 338 alarms came in and were reset on June 25.

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'	8.2' to 8.3'
X			NFEW3 Weir Depth	≥ 8.0'	8.2' to 8.4'
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.4'
X			SFEW1 Weir Depth	≥ 8.0'	8.1' to 8.2'
X			SFEW2 Weir Depth	≥ 8.0'	8.1' to 8.2'
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	2.1 fps
X			Washington Entrance Head Differential	1.0' – 2.0'	1.2' to 1.4'
X			WFE2 Weir Depth	≥ 8.0'	9.0' to 9.2'
	X		WFE3 Weir Depth	≥ 8.0'	7.7' to 7.9'

Comments: WFE3 was out of criterion all week. This could possibly be calibration issues related to the spill season. However, adjustments are very difficult during the spill season.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Blade angle	Auxiliary Water Supply System (AWS)
X				WA shore Wasco County PUD Turbine Unit
	X			WA shore Wasco PUD Bypass
		X	NA	Oregon Ladder Fish Pump 1, return to service July 8
X			23°	Oregon Ladder Fish Pump 2
X			26°	Oregon Ladder Fish Pump 3
X				OR North Powerhouse Pool from juvenile fishway

Comments: Fish pump 1 remained out of service for a scheduled 5-year overhaul. Return to service dates are subject to change.

Juvenile Fish Passage Facility

The juvenile system alternated between primary and secondary bypass every 24 hours at 0700 hours. There were no interrupts in this schedule.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Minimal to very light near the powerhouse
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: The powerhouse debris was minimal to very light. Debris (mostly woody material) did move from the Oregon shore and back. Spillway debris remained minimal due to much of it being spilled. New debris loads (mostly aquatic vegetation) were minimal.

No trash rack cleaning is scheduled.

There are no problems to report. The emergency bulkhead remained in 14A slot. In order to improve deck access for contractors and project staff, the slots in unit 7, 11C slot, 12A and 12B slots remined covered. For intake crane testing, 8A slot was briefly covered on June 26.

A small amount of woody material was removed from the gatewell slots on 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 14A slot. With the emergency bulkhead in 14A slot, the ESBS remained uninstalled. The control program for the fish screens in unit 10 is not currently communicating with the panel view on the 8th floor. When the unit is in service, the brush cycle sequences will be monitored in the control room until repairs can occur in the future. With units 13 and 14 being out of service, the ESBS's remained in manual mode so the brush cycle sequence would not occur. For the unit's outage, the brush cycle sequence for the screens in unit 3 were switched to manual mode on June 22. Camera inspections in unit 7 revealed no issues on June 25. Examination of ESBS screen brush programming continued with the screens in unit 4.

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

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

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	42
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: With 14A slot dewatered, the north orifice in 14B slot remained open.

Bypass Facility:

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

Comments: The sample system is being used on secondary bypass days. The sample gates will be used every other day. The PIT tag system will not be in use again this season, which is similar to past years.

There were 4,850 juvenile lamprey and 28,000 smolts bypassed this week. The primary species/races were subyearling Chinook.

Two juvenile lamprey mortalities were removed from the perforated plate on June 20. Rehabilitation of the barrier used upstream of the perforated plate was completed on June 24. This barrier was reinstalled so new gasket material could be attached to the backup barrier.

TSW Operations: The TSW's in bays 19 and 20 remained open. Both TSW's are attached to a hoist. New this year, both TSW's will remain open through the spill season. No switch to standard gates will occur.

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
178.0	152.0	99.8	89.4	63.4	60.3	6.0	6.0

Comments: The above data is from the smolt monitoring staff, with the data day starting at 0700 hours. Water clarity comes from the control room.

The smolt monitoring staff continues to monitor water temperature throughout the juvenile system. Their results are stated daily and weekly in separate reports. Adult ladder water temperatures are reported by an automated system year-round.

The summer spill season continued, with 57 percent of flow being spilled. Adjustments are made once a day just after midnight. Bays 6 and 9 were adjusted on June 24 and 27. If adjustments are required in bays 6 and 9, they will occur on Mondays and Thursdays in the morning.

The downstream wall dogs from bay 22 will be reinstalled at a later date. After regional discussion, it was agreed the downstream dogs from bay 21 could be removed on June 21. Bay 21 was on seal by 0901 hours. Bay 16 was opened at the same time. Bays 17 and 22 were already open. There was no real change in flow. The downstream wall dogs were removed by 1123 hours. Bay 21 was opened and bay 16 closed by 1130 hours.

Boat and shore hazing was occurring. The bird counts that day, at 0915 hours, showed 1 cormorant and 1 tern along with 15 pelicans in the spill zone. The pelicans were looking for adult shad. There were no gulls in the tailwater area. The only other birds counted were 18 pelicans at the Oregon ladder FOG's.

Other

Inline Cooling Water Strainers: The next cooling water strainer inspections will occur on July 2.

Avian Activity: Bird counting continued, and the results are reflected in Table 3 below.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican	Grebe
June 21	Spill	0	1	1	15	0
	Powerhouse	0	0	0	18	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	2	24
June 22	Spill	0	1	2	15	0
	Powerhouse	0	0	0	21	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	1	32
June 23	Spill	90	0	0	45	0
	Powerhouse	5	0	0	40	0
	Outfall	70	5	0	0	0
	Forebay	0	0	0	0	4
June 24	Spill	3	1	0	62	0
	Powerhouse	0	0	0	34	0
	Outfall	0	0	0	0	0
	Forebay	1	0	0	0	39
June 25	Spill	1	0	3	55	0
	Powerhouse	0	0	0	16	0
	Outfall	7	1	0	0	0
	Forebay	0	0	0	0	52
June 26	Spill	8	0	2	72	0
	Powerhouse	0	0	0	32	0
	Outfall	0	0	2	0	0
	Forebay	0	0	0	0	60
June 27	Spill	76	0	2	102	0
	Powerhouse	0	0	0	76	0
	Outfall	13	5	0	0	0
	Forebay	0	0	0	0	42

In the spill zone, gulls in fluctuating numbers along with a few cormorants and terns were noted. Overall, pelican numbers increased. Most birds were feeding. On two occasions, one or three pelicans were noted roosting on the Washington ladder wall this week. On one occasion, two pelicans were noted just outside the Washington ladder entrance.

In the powerhouse zone, increasing numbers of pelicans were noted at the Oregon ladder floating orifice gates. One pelican landed in the Oregon ladder south entrance pool when coming in from upstream this week. The bird was immediately hazed from the area. A few gulls were noted once in the zone roosting on the water.

In the outfall zone, gulls in fluctuating numbers along with a few cormorants and terns were noted roosting on the outfall pipe. No feeding was observed. An osprey pair has nested on the outfall pipe where the walkway ends. This and the boat hazing has resulted the fluctuating bird counts observed.

For the forebay zone, grebes were observed in fluctuating numbers along with an occasional pelican, osprey, or gull. Birds were roosting and feeding. More grebes maybe outside the zone along with a few pelicans, cormorants, and ospreys. Gull numbers outside the zone have fluctuated.

The LRAD remains out of service until the osprey are done nesting.

The laser on the navigation lock wing wall opposite the outfall is in storage waiting shipment to the manufacture for a repair evaluation.

The two distress calls on the navigation lock wing wall remained in service and have been functioning well.

USDA Wildlife Services continued shore and boat hazing. When wind speed has been too high or there have been issues with the boat, the boat crew hazes on the next day or from the shore. The osprey nest is not an issue. PSMFC continues the stomach content examinations of the birds that were lethally taken with the boat.

A tori line remains installed outside the Oregon ladder south entrance. This line so far appears to be effective. The second line installed by floating orifice gate number 4 was not as effective due to flows in the area and will be removed on June 28. The deployment of this line may lead to other ideas.

Invasive Species: The mussel station examinations revealed no issues on June 23.

Siberian Prawn: No prawns were observed in the sample this week. No have been observed this season.

Fish Rescue/Salvage**:** None occurred this week.

Research: As tag life expires on the smolts and juvenile lampreys, PNNL will begin removal of study equipment over the next several months and prepare for future studies.

For a CRITFC study, there were tissue samples removed from 51 juvenile lamprey collected at the facility this week. The yearly total is 384 fish, which were returned to the river unharmed.

Gas bubble trauma examinations occur twice a week. Fish were collected on June 25 and 27, with the data being reported the next day. For the report week, one mortality was removed from the recovery raceway and no smolts showed signs of trauma.

Project: Ice Harbor
Biologist: Ken Fone
Biological Science Technician: Ben McArthur
Dates: June 21 – 27, 2024

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
1	6/27/23	0708	---	---	Turbine runner replacement and stator rewind
3	6/22/24	1155	6/24/24	1650	Replace failed motor on 3A STS

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on June 24, 26, 27.

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 fish entrance (SFE-1) weir depth	≥ 8.0’ or on sill	7.8’
x			South fish entrance channel/tailwater differential	1.0’ – 2.0’	
			South shore channel velocity	1.5 – 4.0 fps	
	x		Central fish entrance (CFE-2) weir depth	≥ 8.0’ or on sill	7.9’
x			Central fish entrance channel/tailwater differential	1.0’ – 2.0’	
	x		North fish entrance (NFE-1) weir depth	≥ 8.0’ or on sill	6.4’, 6.6’, 6.2’
	x		North fish entrance channel/tailwater differential	1.0’ – 2.0’	2.2’

Comments: The north fish entrance (NFE-1) weir depth was below criteria on June 24, 26, and 27. North fish entrance channel/tailwater differential was above criteria on June 27. The channel and tailwater elevation readings on the PLC have been significantly higher than the physical readings obtained on the inspections. The discrepancies were partly due to turbulent water from spill making accurate measurement of the tailwater difficult. The channel and tailwater elevation transducers may also have drifted out of calibration. A request was made for electricians to recalibrate the transducers.

The south fish entrance and central fish entrance weir depths were slightly below criteria on the June 27 inspection, but were in criteria on the PLC. Turbulent tailwater conditions from spill may have caused the discrepancies.

Auxiliary Water Supply (AWS) System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System
6 pumps	1 pump	1 pump	Status of the 8 south shore AWS pumps
2 pumps	0-1 pump	0-1 pump	Status of the 3 north shore AWS pumps

Comments: South shore AWS pump #6 has been out of service since March 1, 2024, due to high vibration readings coming from the motor and gearbox. The gearbox is being replaced with a refurbished one.

North shore AWS pump #1 was out of service from 0651 hours to 1220 hours on June 26 to change filters.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
x			Forebay debris load acceptable? (amount)	Average of 6 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-3% coverage
	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 inspected this week?
		x	STSs inspection results acceptable?
		x	VBSs differentials checked this week?
		x	VBSs differentials acceptable?

Comments: None.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
x			Orifices operating satisfactory?	20
	x		Dewaterer and cleaning systems operating satisfactory?	

Comments: The replacement actuator for the water regulating weirs in the collection channel is in local control due to a problem with the actuator being undersized for this application. The actuator will be rebuilt to enable it to work in automatic mode. The weirs are being operated at the actuator to adjust the water level as needed until the problem can be fixed.

Orifice light 6CN was found to be burned out on June 20. The other orifice in gatewell slot 6C was already open. The light on orifice 6CN was replaced on June 25.

The travel pulley cable for the mechanical screen cleaner was fraying and was replaced with new cable on June 25. The surface of the pulley had a groove worn into it, so the pulley was replaced with a spare.

Juvenile Fish Facility: The fish facility is in primary bypass mode except during fish 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. Four clipped and one unclipped subyearling Chinook in the June 27 sample exhibited hemorrhaging of the caudal and anal fins. There were no fin injuries associated with the hemorrhaging.

Fish condition sampling results at Ice Harbor Dam:

Date: June 24

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	0	---	---	---
Chinook yearling unclipped	0	---	---	---
Chinook subyearling clipped	28	0	0	0
Chinook subyearling unclipped	69	0	0	0
Steelhead clipped	0	---	---	---
Steelhead unclipped	0	---	---	---
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	1	0	0	0
Total	98	0	0	0

Date: June 27

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	0	---	---	---
Chinook yearling unclipped	0	---	---	---
Chinook subyearling clipped	22	0	0	0
Chinook subyearling unclipped	76	0	0	0
Steelhead clipped	2	0	0	0
Steelhead unclipped	0	---	---	---
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	100	0	0	0

Removable Spillway Weir (RSW): Spring spill ended and summer spill for fish passage began at 0001 hours on June 21.

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
52.5	37.6	15.5	11.1	64	62	6.4	5.5

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Turbine unit cooling water strainers will be inspected in early July.

Avian Activity: There were low to moderate numbers of piscivorous birds seen around the project (see table below). Caspian tern numbers increased towards the end of the reporting period. Bird hazing has been effective at disrupting foraging activities, although terns can be more difficult to move out of an area. Land-based hazing of piscivorous birds is occurring for 8 hours each day.

Bird counts were missed on June 25 due to personnel being busy with ongoing maintenance of the juvenile fish collection channel screen cleaner.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
June 21	1	3	0	0	14
June 22	0	0	0	0	3
June 23	0	0	0	0	0
June 24	3	7	2	0	5
June 25	---	---	---	---	---
June 26	0	5	7	0	1
June 27	3	3	11	0	15

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 24	2	2
June 27	0	0
Totals	2	2

*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.

Project: Lower Monumental
Biologists: Denise Griffith and Raymond Addis
Dates: June 21 - 27, 2024

Turbine Operation

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

Comments: See Unit Outages and Return to Service comments below.

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

	OOS		RTS		
Unit	Date	Time	Date	Time	Outage Description
Unit 5	5/01/24	0624	8/31/24	ERTS	T2/Rooftop bus out of service due to BPA Line outage
Unit 6	5/01/24	0624	8/31/24	ERTS	T2/Rooftop bus out of service due to BPA Line outage

Comments: BPA line tripped at 0624 hours on May 1. Units 5 and 6 remain out of service until T2 line is repaired. Estimated return to service date is August 31.

Adult Fish Passage Facility

Lower Monumental fish facility and EAS staff inspected the adult fishways on June 21, 22 and 13.

Fish Ladder Exit:

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: The temperature probe for the north exit was replaced on June 11 at 1046 hours and was not previously noted in the past weekly report.

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: South Powerhouse Entrance SPE-1 weir was at sill during all inspections with readings 6.3, 5.9 and 6.2 feet respectively. South Powerhouse Entrance SPE-2 weir was at sill during all inspections with 6.3, 5.9 and 6.2 feet respectively. South Shore Entrance SSE-1 weir was at sill during all inspections with readings of 6.8, 6.7 and 6.9

feet respectively. At the south side fish count station, the pneumatic oil mister was changed on the cleaning brush on June 26.

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)	11 yrd²
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	1 – 3%
		X	Any oil seen in gatewells?	

Comments: None

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	VBS screens checked this week?
		X	VBS screens acceptable?

Comments: STSs were in continuous-run mode this reporting period due to the 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: Primary dewatering screen cleaning brush cycle was changed to clean once every 12 hours from once every 6 hours in order to mitigate the usage on the brush. The brush has failed several times while cycling over the last week. The mechanics will examine the limit switches next week.

Collection Facility: The facility has been running in primary bypass for one day and secondary bypass for condition sampling the next day for the entire reporting period. The flush water pipe for the truck transport recovery tank was removed during a repair and the truck tank cannot be used until this is addressed. On June 21, a biological science technician noticed the outfall pipe was leaking at the upper seal of the expansion joint downstream of the junction of the outfall pipe and lamprey bypass pipe, which primarily appeared to mainly be leaking when the facility was in collection mode/secondary bypass. The bolts were tightened to the collar where the nipple and the upper section of pipe meet, and the lamprey bypass gate was closed to lessen the leakage. Project engineers are evaluating the best course of action for the future of the leak. A total of 2,892 fish were collected with 2,888 were bypassed.

Transport Summary: Transport at Lower Monumental ended with the June 17 barge.

Spillway Weir: Summer (17kcfs) spill began at 00:00:00 on June 21.

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
51.8	37.7	17.1	17.0	62.9	62.3	5.7	5.4

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on June 24. Live included 2 juvenile lamprey. Mortalities included 19 juvenile lamprey and 1 subyearling Chinook.

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

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
6/21/2024	1515	3	7	0	0	0
6/22/2024	1500	0	0	0	0	5
6/23/2024	1515	14	4	0	0	2
6/24/2024	640	20	3	0	0	6
6/25/2024	800	10	1	0	0	12
6/26/2024	720	6	2	0	0	7
6/27/2024	1028	6	10	0	0	7

Comments: Bird hazing by USDA personnel begin on April 8.

Invasive Species: Zebra or quagga mussel traps will be examined in July.

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by EAS personnel, frozen and properly disposed of in a landfill. Daily and total Siberian prawn counts at Lower Monumental Dam for this reporting period are reported below.

Date	Sample (euthanized)	Collection*
6/21/2024	---	---
6/22/2024	2	4
6/23/2024	---	---
6/24/2024	0	0
6/25/2024	---	---
6/26/2024	3	12
6/27/2024	---	---
Total	5	16

*Collection refers to extrapolated values based on sampling percent.

Fish Rescue/Salvage: No fish rescue was performed this week for Lower Monumental Dam.

Research: The collection of lamprey for the PNNL study of the behavior and survival of Pacific lamprey has ended.

GBT examinations occurred on June 26. A total of 18 clipped subyearling Chinook, 29 unclipped subyearling Chinook and 3 unclipped steelhead smolts were examined. Gas bubble trauma was detected in 2 fish: eye of a clipped subyearling Chinook and the anal fin of an unclipped subyearling Chinook.

The Nez Perce steelhead kelt study and rehabilitation collection continued, 0 steelhead kelts was placed in the collection tank for this reporting period.

Project: Little Goose Dam
Biologist: Deb Snyder, Brooke Gerard
Dates: June 21 – June 27, 2024

Turbine Operation

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

*All available turbine units are operated in accordance with Appendix 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	11/22/2024	ERTS	Spider and upper guide bearing repair.

Comments: Contractual obligations, performance issues, and projected flow data once again realigned the Unit 5 ERTS date into late fall 2024

Adult Fish Passage Facility

EAS Bio staff inspected the adult Fishway on June 22, 23, and 26.

Fish Ladder:

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

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	
X			South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 7.0’ or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 7.0’ or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
X			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 15. The AWS pumps returned to service on February 22. The Collection Channel Surface Velocity is measured at NPE. The fish system control program is proving unreliable and inadequate to balance the adult fishway in “automated” mode. Biologist personnel are manually adjusting and balancing the adult fishway with increasing frequency. EAS Bio personnel report the FSC board reflects weir and channel height readings with notable discrepancies compared to actual physical hand measurements taken during inspection periods. FSC board readings of SSE Channel elevation continue to report discrepancies an average of 8.2 feet below physical staff gauge measurements documenting the same channel elevation. All channel staff gauge and NPE and NSE FSC board channel heights reflect similar and corresponding readings. On May 29, the new fish ladder cooling pump installation was completed. The newly installed pump

unit was commissioned for seasonal use June 9 at 1420 hours upon reaching criteria per FPP 2.4.2.14.i the prior evening of June 8 at 1900 hours.

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 and 3 were returned to service February 22. Fish pump 2 was returned to service on February 28.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comment
X			Forebay debris load acceptable? (amount)	High 20 ft² - Low 0 ft²
	X		Gatewell drawdown measured this week?	Deferred 1 day due to staffing (6/28/24)
		X	Gatewell drawdown acceptable	
X	X		Any debris seen in gatewells (% coverage)	6/22-4A:1%, 5B:1%; 6/27-1C:2%, 5B:1%
	X		Any oil seen in gatewells?	

Comments: The forebay had minimal floating debris inside the trash shear boom with the highest measurement occurring on June 26 at 20 ft². The overall total forebay debris high simultaneously occurred June 26 at 20 ft^2. Drawdowns for units 1 and 2 are scheduled for June 28.

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 were fully functional and deployed the week of March 18. The second round of gatewell camera inspections were completed June 10, 11, 12, and 13, with the next round scheduled for July 8 through July 11.

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 on March 7 without incident.

Collection Facility: The juvenile collection facility was successfully watered up on March 20. Every other day collection for condition monitoring in conjunction with secondary bypass commenced March 25 with the first sample being conducted on March 26. Every day collection began April 23 coinciding with barge transportation operations. During this reporting period a total of 27,076 fish were collected, 0 were barged, 27,064 were bypassed, and there were 12 sample or facility mortalities. The descaling and mortality rates were 0.9% and 0.32%,

respectively. The collection and transport facility operated within criteria; no adult lamprey were removed from the sample or separator during this report period.

Transport Summary: Collection for fish transportation began April 23 with the first barge departure on April 24. Every day barging continued through May 16 upon transition to every other day barge operations. The last barge for the season departed 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. On March 21, the ASW transitioned to 625 ft. crest height spilling 24 hours 7 days per week per CBR LGS R 022724 1735. Spring spill operations began on April 3 spilling 24/7 up to the 125% gas cap. On April 16th we hit the 50 adult Chinook threshold at Ice Harbor and began spilling at performance spill (30% of outflow) from 0400 to 1200 to facilitate adult fish passage. On May 14 the ASW was positioned to Low Crest. On June 13 the ASW position changed to High Crest. 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
50.1	40.1	14.9	11.9	62.6	61.8	6.0	5.0

*Ladder temperature.

Other

Inline Cooling Water Strainers: Inline cooling strainer inspections commenced on December 1, 2023. 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
6-21	1230	3	0	0	3
6-22	1330	0	0	0	2
6-23	0840	0	0	0	2
6-24	0800	0	0	0	1
6-25	0800	0	0	0	3
6-26	0800	0	0	0	3
6-27	0800	8	0	5	2

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

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

Date	Sample	Collection*
6-21	5	25
6-22	4	40
6-23	2	20

6-24	1	10
6-25	0	0
6-26	3	30
6-27	0	0
Totals	15	125

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

Gas Bubble Trauma (GBT): Oregon Department of Fish and Wildlife performed GBT monitoring on June 26. Of the 102 fish examined, 1 fish exhibited gas bubble trauma symptoms.

Fish Rescue/Salvage: Fish rescue activities due to every-other-day collection and return to primary bypass operations took place April 19 and April 21. Results were reported and submitted to District.

Research: The Nez Perce Tribe (NPT) commenced adult steelhead kelt collection efforts on March 27 with an anticipated conclusion date of July 1.

Project: Lower Granite
Biologists: Elizabeth Holdren and Steve Lee
Dates: June 21-27, 2024

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**
4, 5, 6	June 23	0900	June 23	1520	ESBS/VBS camera inspections; ~ 2 hr. each
1, 2, 3	June 24	0730	June 24	1440	ESBS/VBS camera inspections; ~ 2 hr. each

Comments:

Adult Fish Passage Facility

Lower Granite Biologists and EAS staff inspected the adult fishway June 22, 24 and 26.

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:

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
X			South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	
X			South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 8.0’ or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 8.0’ or on sill	
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	0.8’, 0.9’
X			North Shore Entrance (NSE-1) Weir Depth	≥ 7.0’ or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	
		X	North Shore Channel/Tailwater Differential	1.0’–2.0’	0.7’, 0.9’
	X		Collection Channel Surface Velocity	1.5 – 4.0 fps	1.3, 1.1, 1.2

Comments: Fish ladder control system operation and configuration is an ongoing issue that began when the system was installed in 2016. LWG is moving forward with inhouse design and install of fish ladder control system based of the system used at LMN. Efforts of the electrical crew continue to bring the ladder back into criteria however the control system drifts out of calibration shortly after. There is a swell at the north powerhouse where the back eddy

collides with powerhouse and spillway flow that may be impacting channel/tailwater differentials. North shore tailrace elevations ranged from 631.5' to 632.3'. the fish ladder was designed to operate at the minimum operating elevation of 633.0'.

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 Pump 1 remains in slow mode due to the inability to operate in fast mode while operating at MOP elevation. AWS pump 2 remains out of service for maintenance.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	41 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: LWG is using an ESBS camera on loan from LMN and is in the process of purchasing a replacement. No issues were observed during ESBS/VBS inspections.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe:

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

Comments:

Collection Facility: The juvenile facility is operating in secondary bypass for condition sampling.

Transport Summary: Every-other-day barging ended June 19.

Spillway Weir: Summer spill began at 0001 hours June 21.

PIT tag interrogations: RSW detections included 61,106 juvenile and 80 adult Chinook salmon, 47,972 juvenile and 573 adult steelhead, 8,860 juvenile sockeye and 2,590 juvenile coho salmon. Juvenile bypass system detections

included 9,028 juvenile and 4 adult Chinook salmon, 14,543 juvenile and 43 adult steelhead, 220 juvenile sockeye, and 240 juvenile coho salmon through June 27 (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
49.4	42.0	18.7	17.6	62.5	57.0	5.0	5.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Unit cooling water strainers were inspected and cleaned June 27; 95 lamprey mortalities were collected for CRITFC genetics research. No salmonids were observed, 8 Siberian prawns were identified.

Introduced Species: No zebra/quagga muscles were detected on the trap substrate. Siberian prawns collected in the sample included 166 live and 55 mortalities this report week. All live Siberian prawns are euthanized.

Avian Activity: Biologist daily piscivorous bird counts and hazing began April 1. Bird hazers are on site daily.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
June 21	1415	0	0	0	1
June 22	1000	0	0	0	0
June 23	1400	0	0	0	0
June 24	1120	0	0	0	0
June 25	1310	1	0	0	1
June 26	1247	0	0	0	0
June 27	1120	0	0	0	0

Gas Bubble Trauma (GBT) Monitoring: N/A

Adult Fish Trap Operations: Collection for sampling continues with fish being collected 24-hours per day Sunday-Thursday and sampled Monday- Friday at a 25% (18% /week) sample rate. Collection for sampling will be conducted Monday through Friday until broodstock collection starts August 18.

Fish Rescue/Salvage: N/A

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 will be PIT tagged 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.

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 kelts from LWG and LGO juvenile fish facility separators. Up to 500 selected kelts are transported by NPT to Dworshak National Fish Hatchery for reconditioning and later release as part of this study.

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 study:
Juvenile lamprey (macropthalmia) were collected from LWG sample, as needed, to meet PNNL downriver study objectives. LWG collected a total of 1502 juvenile lamprey this season to support this study.

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 1250 larval Pacific lamprey, not to exceed 10 juvenile and 5 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 program's efficacy and assist with guiding future management. LWG SMP have collected genetic samples from 625 juvenile and 361 larval lamprey this season.

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.