Out of Criteria – NWW Weekly Report #15 – June 7-13, 2024

1. McNary

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

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
			South shore channel velocity	1.5 – 4.0 fps	
	x		North fish entrance channel/tailwater differential	1.0’ – 2.0’	0.6’

The south shore channel velocity meter reading was observed to not be updating on June 3. Electricians later re-booted the meter. The meter was again noted to be not updating on 11 June. The meter will be replaced when manpower and conditions allow.

The north fish entrance weir depth and channel/tailwater differential were observed to be out of criteria on the June 10 and June 12 inspections, respectively, but were in criteria on the PLC display. The discrepancy was likely due to turbulent water from spill making accurate measurement of the tailwater elevation difficult, which also makes it difficult to do an accurate calibration of the tailwater transducer.

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 taken out of service from May 30 to June 11 due to problems with the resistance thermal detector. North shore AWS pump #2 tripped off on June 7 at 2301 hours due to a lubrication failure. There was only one north shore pump running until the problem was fixed and pump #2 was restarted at 0848 hours on June 10. The powerhouse operator noted that the fish ladder PLC display showed the north fish entrance weir depth and channel/tailwater differential being within the lower end of the criteria ranges while one pump was operating, but no physical readings were collected at the entrance during that period. Pump # 2 was also out of service from 0846 hours to 1550 hours on June 12 to perform preventative maintenance.

Yes	No	NA	Item	
	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

North ladder diffuser temperature probe stopped working at 2200 on June 9. Hydrology crew replaced the probe and it was back working at 1016 on June 11. South ladder exit differential was at 0.4 and 0.3 on June 8 and 9, respectively. This indicated that the exit trash rack needs cleaned off. The air bubbler system is inoperable due to a broken valve. Powerhouse and JFF personnel went out on a boat on June 10 to clean the racks. Approximately 20 ft^2 of debris: logs, milfoil, black locus leaves and a garbage was removed. The differential decreased to normal after the debris was removed.

4. Little Goose - None

5. Lower Granite Dam

Yes	No	Sill	Location	Criteria	Comments
	X		South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	7.9’
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.9’
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	0.4’, 0.3’, 0.2’, 0.5’
	X		Collection Channel Surface Velocity	1.5 – 4.0 fps	1.3, 1.3, 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.

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
#15-2024

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: June 7-13, 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
8	6/9	0311	6/10	0912	Stator issue
7, 9, 10 & 12	6/10	0915	6/10	1108	Trash rack cleaning, rotated through units
9 & 10	6/11	1000	6/11	1053	ESBS camera inspections, rotated through units
10	6/13	0623	6/13	1317	Low yield resistance

Comments: RTS dates are subject to change. The hard one percent criteria remained in place.

Adult Fish Passage Facilities

McNary fisheries staff performed measured inspections of the adult fishways on June 7, 9 and 12. Adult fish counting continued. Video review of nighttime lamprey passage will begin on June 15.

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

Comments: Debris loads were minimal to very light near the Oregon exit and minimal to light near the Washington exits.

At the Washington exit, a regulating weir alarm came in and was reset on June 7. Also, at the Washington exit, multiple alarms due to a brief power outage were reset on June 12.

There has been issues with the Oregon ladder count station phone line, which we are attempting to resolve.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0' – 2.0'	1.4' to 1.6'
X			NFEW2 Weir Depth	≥ 8.0'	8.2' to 8.4'
X			NFEW3 Weir Depth	≥ 8.0'	8.1' to 8.3'
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.4' to 1.5'
X			SFEW1 Weir Depth	≥ 8.0'	8.0' to 8.1'
X			SFEW2 Weir Depth	≥ 8.0'	8.0' 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'	1.3' to 1.4'
X			WFE2 Weir Depth	≥ 8.0'	8.9' to 9.2'
	X		WFE3 Weir Depth	≥ 8.0'	7.7' to 8.0'

Comments: WFE3 was out of criterion on June 9 and 12. This could possibly be calibration issues related to the spill season. However, adjustments are very difficult during the spill season. NFEW3 was found in manual mode on June 7. The operator immediately switched the weir to automatic operation.

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 June 25
X			23° to 24°	Oregon Ladder Fish Pump 2
X			22° to 27°	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.

Water temperature monitoring throughout the juvenile system will begin on June 15. Probes were deployed on June 8 and 9. Data will be downloaded on June 14 and any faulty probes will be replaced.

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. Spillway debris remained minimal due to much of it being spilled. New debris loads were minimal to very light as more aquatic vegetation was observed.

Trash rack cleaning occurred in units 7, 9, 10, and 12 on June 10. Four yards of debris was removed, and no fish were observed.

There are no problems to report. A few pieces of larger woody and manmade material were removed from the gatewell slots on June 10. 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 were covered on June 7.

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 near 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 during the units' outage. Camera inspections in units 9 and 10 revealed no issues on June 11. Examination of ESBS screen brush programming continued.

Daily VBS monitoring continued, and no high differentials were recorded. A total of four VBS's were cleaned in units 1 and 12 on June 12. Also, that day, the screens in units 9 and 10 were inspected with cleaning. No fish were observed.

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: Orifices were adjusted for trash rack cleaning, VBS inspection, and VBS cleaning as required. With 14A slot dewatered, the north orifice in 14B slot remained open.

Orifice attraction light was repaired as needed.

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 3,700 juvenile lamprey and 17,700 smolts bypassed this week. The primary species/races were subyearling Chinook.

The HVAC in the shop and the outside walkway lighting were repaired on June 12.

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
248.0	210.4	188.4	151.4	60.2	57.4	6.0	5.0

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 spring spill season continues. The spillway hoists, cranes, and gates are set up per the updated Fish Operation Plan and the FPP. The summer spill season will begin on June 16, at 0001 hours, with 57 percent of flow being spilled.

Bays 6 and 9 were adjusted on June 13. If adjustments are required in bays 6 and 9, they will occur on Monday and Thursday.

Rehabilitation of the downstream wall dogs from bay 22 continues.

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 7	Spill	0	0	0	1	0
	Powerhouse	0	0	0	7	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	2	14
June 8	Spill	9	0	0	0	0
	Powerhouse	0	0	0	8	0
	Outfall	4	0	0	0	0
	Forebay	0	0	0	0	14
June 9	Spill	80	0	0	3	0
	Powerhouse	0	0	0	10	0
	Outfall	59	5	0	0	0
	Forebay	0	0	0	0	29
June 10	Spill	40	0	0	9	0
	Powerhouse	0	0	0	15	0
	Outfall	75	0	0	0	0
	Forebay	0	0	0	0	28
June 11	Spill	62	0	1	4	0
	Powerhouse	0	0	0	9	0
	Outfall	12	0	0	0	0
	Forebay	0	0	0	0	14
June 12	Spill	14	0	0	5	0
	Powerhouse	0	0	0	10	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	26
June 13	Spill	0	0	0	2	0
	Powerhouse	0	0	0	4	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	28

In the spill zone, gulls, and pelicans in fluctuating numbers along with one tern were noted. Most birds were feeding. One pelican was noted roosting on the Washington shore ladder wall.

In the powerhouse zone, pelicans in fluctuating numbers were noted at the Oregon ladder floating orifice gates.

In the outfall zone, gulls in fluctuating numbers were noted roosting on the outfall pipe. Cormorants were observed roosting on the pipe once. A few of these birds may have been feeding. 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. Pelicans and ospreys were noted once. 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. A second line may be installed and tested by floating orifice gate number 4.

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

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: For the juvenile lamprey passage study, PNNL removed 13 juvenile lampreys from the sample for tagging on June 12.

For a CRITFC study, there were tissue samples removed from 42 juvenile lamprey collected at the facility this week. The yearly total is 256 fish, which were returned to the river unharmed.

Gas bubble trauma examinations occur twice a week. Fish were collected on June 11 and 13, with the data being reported the next day. For the report week, no mortalities were removed from the recovery raceway and no signs of trauma were observed.

Project: Ice Harbor
Biologist: Ken Fone
Biological Science Technician: Ben McArthur
Dates: June 7 – 13, 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
6	6/10/24	0835	6/10/24	1315	Submersible traveling screen (STS) inspection
5	6/10/24	1400	6/10/24	1600	STS inspection
3	6/11/24	0700	6/11/24	0925	STS inspection
2	6/11/24	0938	6/11/24	1617	STS inspection

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on June 10, 11, 12.

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	
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	
x			Central fish entrance channel/tailwater differential	1.0’ – 2.0’	
x			North fish entrance (NFE-1) weir depth	≥ 8.0’ or on sill	7.7’
	x		North fish entrance channel/tailwater differential	1.0’ – 2.0’	0.6’

Comments: The south fish ladder picketed lead are being cleaned of filamentous algae daily to keep the differential in criteria. The south shore channel velocity meter reading was observed to not be updating on June 3. Electricians later re-booted the meter. The meter was again noted to be not updating on 11 June. The meter will be replaced when manpower and conditions allow.

The north fish entrance weir depth and channel/tailwater differential were observed to be out of criteria on the June 10 and June 12 inspections, respectively, but were in criteria on the PLC display. The discrepancy was likely due to turbulent water from spill making accurate measurement of the tailwater elevation difficult, which also makes it difficult to do an accurate calibration of the tailwater transducer.

Auxiliary Water Supply (AWS) System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System
5-6 pumps	1-2 pumps	1 pump	Status of the 8 south shore AWS pumps
1-2 pumps	0-1 pump	0-2 pumps	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 taken out of service from May 30 to June 11 due to problems with the resistance thermal detector. North shore AWS pump #2 tripped off on June 7 at 2301 hours due to a lubrication failure. There was only one north shore pump running until the problem was fixed and pump #2 was restarted at 0848 hours on June 10. The powerhouse operator noted that the fish ladder PLC display showed the north fish entrance weir depth and channel/tailwater differential being within the lower end of the criteria ranges while one pump was operating, but no physical readings were collected at the entrance during that period. Pump # 2 was also out of service from 0846 hours to 1550 hours on June 12 to perform preventative maintenance.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
x			Forebay debris load acceptable? (amount)	Average of 4 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-10% coverage
	x		Any oil seen in gatewells?	

Comments: None.

Submersible Traveling Screens / 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: Unit 6, 5, 3, and 2 STSs were inspected with an underwater video camera on June 10 and 11. There were no significant problems observed.

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.

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. The subyearling chinook mortality in the June 13 sample was found in the sample tank, with no external maladies observed on the fish. On June 10 and again on June 13, a juvenile lamprey mortality was found downstream of the sample switch gate in the adult fish release flume off of the separator. Tiny fish can hide under the switch gate after unwatering the separator. The switch gate was moved back and forth several times to flush any fish out from underneath the gate on June 13, but no fish came out. The mortalities were found several hours after the water was shut off.

Fish condition sampling results at Ice Harbor Dam:

Date: June 10

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	2	0	0	0
Chinook yearling unclipped	0	---	---	---
Chinook subyearling clipped	22	0	0	0
Chinook subyearling unclipped	22	1	0	0
Steelhead clipped	22	0	0	1
Steelhead unclipped	5	0	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	73	1	0	1

Date: June 13

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	0	---	---	---
Chinook yearling unclipped	0	---	---	---
Chinook subyearling clipped	10	0	0	0
Chinook subyearling unclipped	26	1	1	0
Steelhead clipped	4	1	0	0
Steelhead unclipped	0	---	---	---
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	40	2	1	0

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

River Conditions

River conditions at Ice Harbor Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (°F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
106.4	86.6	92.4	69.0	60	60	6.0	5.5

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Turbine unit cooling water strainers were inspected for lamprey on June 4. A total of 40 juvenile lamprey, 110 Siberian prawns, and 3 juvenile shad were found (all fish were mortalities).

Avian Activity: There were low numbers of piscivorous birds seen around the project (see table below). The hazing of piscivorous birds has been effective at disrupting their foraging activities. Land-based hazing for 16 hours each day changed to 8 hours per day starting on June 9. Boat-based hazing for 3 days per week ended on June 8.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
June 7	1	10	0	0	7
June 8	0	0	0	0	2
June 9	---	---	---	---	---
June 10	4	3	0	0	10
June 11	0	1	2	0	7
June 12	0	4	0	0	4
June 13	0	1	1	0	5

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 10	0	0
June 13	2	2
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 7 - 13, 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 7, 8, 9 and 10.

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: North ladder diffuser temperature probe stopped working at 2200 on June 9. Hydrology crew replaced the probe and it was back working at 1016 on June 11. South ladder exit differential was at 0.4 and 0.3 on June 8 and 9, respectively. This indicated that the exit trash rack needs cleaned off. The air bubbler system is inoperable due to a broken valve. Powerhouse and JFF personnel went out on a boat on June 10 to clean the racks. Approximately 20 ft² of debris: logs, milfoil, black locus leaves and a garbage was removed. The differential decreased to normal after the debris was removed.

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		X	South Powerhouse Entrance (SPE-1) Weir Depth	≥ 8.0’ or on sill	
X		X	South Powerhouse Entrance (SPE-2) Weir Depth	≥ 8.0’ or on sill	
X			South Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
X		X	South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	
		X	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 7.7, 7.5, 8.8 and 7.5 feet respectively. South Powerhouse Entrance SPE-2 weir was at sill during all inspections with 7.7, 7.5, 8.8 and 7.5 feet respectively. South Shore Entrance SSE-1 weir was at sill during the June 7. 8 and 10 inspections with readings of 7.1, 7.6 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)	27 yrd²
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	1 – 5%
		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: None.

Collection Facility: Collection for transport changed to a two-day bypass and two-day collection schedule at 1300 on June 1 due to a ruling by RIOG over adult fish passage holding up between Ice Harbor and Lower Monumental. 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.

Transport Summary: Every-other day transport ended with the June 1 barge. At which time, Lower Monumental was changed to a two-day bypass/two-day collection for transport. (See collection facility above) A total of 8,802 fish were collected of which 5,196 were transported and 3,598 were bypassed.

Spillway Weir: Spring spill continues. From June 5 until June 9 there was a 40% cap on daytime spill operation for 8 hours per day with a targeted start time between 0400 - 0800 due to adult passage delays between Lower Monumental and Ice Harbor Dams.

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
103.9	80.9	87.8	65.9	57.5	56.5	5.4	3.8

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers will be inspected next in June.

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

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
6/7/2024	1530	0	0	0	0	5
6/8/2024	1900	0	1	0	0	2
6/9/2024	1445	6	1	0	0	0
6/10/2024	1100	2	0	0	0	0
6/11/2024	720	4	6	0	0	15
6/12/2024	1210	14	1	0	0	6
6/13/2024	950	6	1	1	0	4

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*
6/7/2024	2	20
6/8/2024	1	10
6/9/2024	0	0
6/10/2024	1	10
6/11/2024	0	0
6/12/2024	1	10
6/13/2024	4	10
Total	9	60

*Collection refers to extrapolated values based on sampling percent.

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

Research: This season, PNNL plan to obtain lamprey from Lower Monumental Dam to study behavior and survival of Pacific lamprey.

GBT examinations occurred on June 11. A total of 1 unclipped yearling Chinook, 6 clipped subyearling Chinook, 10 unclipped subyearling Chinook,11 clipped steelhead and 4 unclipped steelhead smolts were examined. No gas bubble trauma was detected.

The Nez Perce steelhead kelt study and rehabilitation collection continued, 4 steelhead kelts was placed in the collection tank for this reporting period.

Project: Little Goose Dam
Biologist: Deb Snyder
Dates: June 7 – June 13, 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	06/30/2024	ERTS	Spider and upper guide bearing repair.
1	6/13/2024	1209	6/13/2024	1415	Cameral Inspection / Governor Oil Balancing

Comments: Contractual obligations and performance issues realigned the Unit 5 ERTS date into 2024. Unit 1 was brought offline for gatewell camera inspections and governor unit oil balancing. Unit 2 was utilized during the Unit 1 outage per FPP prescribed unit priority.

Adult Fish Passage Facility

EAS Bio staff inspected the adult Fishway on June 8, 9, and 12.

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. Current LGS performance spill operations create rapid tailrace elevation changes during each 24-hour period. 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 continues 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 10 ft² - Low 0 ft²
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X	X		Any debris seen in gatewells (% coverage)	6/11-1C:2%, 5A:1%; 6/12-5C:1%,6C:1%; 6/13-5A:1%,5C: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 9 at 10 ft². The overall total forebay debris high occurred June 9 at 10 ft^2.

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 atewell 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 20,885 fish were collected, 24,199 were barged, 66 were bypassed, and there were 13 sample or facility mortalities. The descaling and mortality rates were 1.8% and 0.07%, respectively. The collection and transport facility operated within criteria and zero 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 is scheduled for 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. 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 are scheduled to begin 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
103.5	81.8	68.5	54.0	60.2	57.2	5.0	3.7

*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
6-7	0830	0	0	0	0
6-8	0830	1	1	0	1
6-9	0830	0	0	0	1
6-10	0900	4	0	0	0
6-11	1100	0	0	0	3
6-12	0800	2	0	0	11
6-13	1200	0	0	0	0

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*
6-7	0	0
6-8	0	0
6-9	0	0
6-10	0	0
6-11	0	0
6-12	1	50
6-13	1	20
Totals	0	0

*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 12. Of the 101 fish examined, 0 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 7-13, 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**

Comments:

Adult Fish Passage Facility

Lower Granite Biologists and EAS staff inspected the adult fishway June 8, 9, 11 and 12.

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: Cooling pumps 1 and 2 were placed in service on June 9 at 1800 hours.

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
	X		South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	7.9’
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.9’
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 8.0’ or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 8.0’ or on sill	
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	0.4’, 0.3’, 0.2’, 0.5’
		X	North Shore Entrance (NSE-1) Weir Depth	≥ 7.0’ or on sill	
		X	North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	
	X		Collection Channel Surface Velocity	1.5 – 4.0 fps	1.3, 1.3, 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.

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)	38.7 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: LWG is using a ESBS camera on loan from LMN and is in the process of purchasing a replacement.

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 in collection for condition sampling and transport mode. Collection for the seasonal effects of transport and in river survival evaluation studies concluded June 13 with transport/survival marking ending June 14.

Transport Summary: Every-other-day barging continues with the last barge scheduled for June 19. The transport schedule from LMN has been modified from every-other-day to every fourth day. Change in LMN transport schedule is due to fisheries managers concern that operational changes required to safely load fish at LMN may be influencing the potential delay in adult fish passage between IHR and LMN Columbia River DART Results | Columbia Basin Research (washington.edu).

Spillway Weir: Spring spill continues.

PIT tag interrogations: RSW detections included 56,899 juvenile and 63 adult Chinook salmon, 47,651 juvenile and 554 adult steelhead, 8,860 juvenile sockeye and 2,577 juvenile coho salmon. Juvenile bypass system detections included 8,452 juvenile and 4 adult Chinook salmon, 14,158 juvenile and 40 adult steelhead, 220 juvenile sockeye, and 238 juvenile coho salmon through June 6 (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
104.8	86.2	80.5	73.8	59.5	54.0	4.7	3.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: N/A

Introduced Species: No zebra/quagga muscles were detected on the trap substrate. Siberian prawns collected in the sample included 10 live and 7 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
07 June	1220	0	1	0	0
08 June	1015	2	0	0	3
09 June	1130	0	0	0	1
10 June	1503	0	0	0	12
11 June	1620	0	0	0	0
12 June	1023	0	0	0	7
13 June	1445	1	0	0	0

Gas Bubble Trauma (GBT) Monitoring: GBT sampling has ended for the season.

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) will be collected from LWG sample, as needed, to meet PNNL downriver study objectives. LWG collected a total of 1502 this season in support of 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 538 juvenile and 293 larval lamprey this season.

National Marine Fisheries Service (NMFS) In-River Survival:

NMFS PIT-tag Chinook and steelhead smolts for their Survival Study April through early June to compare smolt to adult returns of in-river migrating smolts to the smolt to adult returns of transported smolts. PIT-tagged fish are held for 24 hours before being bypassed to the LWG tailrace. Tagging ended June 14.

National Marine Fisheries Service (NMFS) Seasonal Effects of Transporting Fish from the Snake River to Optimize Transportation Strategy:

This study aims to build on the current database of information on the seasonality of smolt-to-adult return rates (SARs). Collection will occur Sunday-Thursday with fish being tagged Monday-Friday throughout the barging fish transport period. Collection and tagging ended June 14.

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.