Out of Criteria – NWW Weekly Report #16 – June 14-20, 2024

1. McNary

During a visual check, both exits head over weir measured 0.9 feet on June 19. The operators were asked to adjust both exits set points.

Yes	No	Sill	Location	Criteria	Measurements
	X		WFE3 Weir Depth	≥ 8.0’	7.5’ to 7.8’

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.

2. Ice Harbor

Yes	No	Sill	Location	Criteria	Measurements
			South shore channel velocity	1.5 – 4.0 fps	
x			Central fish entrance (CFE-2) weir depth	≥ 8.0’ or on sill	7.8’
x			Central fish entrance channel/tailwater differential	1.0’ – 2.0’	0.8’
x			North fish entrance (NFE-1) weir depth	≥ 8.0’ or on sill	6.0’, 6.1’, 6.1’
	x		North fish entrance channel/tailwater differential	1.0’ – 2.0’	2.6’, 2.1’

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 not be updating on 11 June. The meter was rebooted again on June 18 and is back in service.

The north fish entrance (NFE-1) weir depth was below criteria on June 17, 18, and 20. North fish entrance channel/tailwater differential was above criteria on June 17 and 20. The channel and tailwater elevation readings on the PLC were significantly different 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 central fish entrance weir depth was slightly below criteria on June 17. The entrance weir was lowered to achieve an 8’ depth. Central fish entrance channel/tailwater differential was measured as below criteria on June 18. The PLC reading of the channel/tailwater differential was in criteria. Turbulent conditions from spill make it difficult to get an accurate measurement of the tailwater level.

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.

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.

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.

3. Lower Monumental

Yes	No	NA	Item	
	X		Dewaterer and cleaning systems operating satisfactory?	

4. Little Goose

Units 1 – 4 were brought offline due to Transformer-1 motor operated disconnect switch failure (MFR 24LGS06). Unit 6 was utilized during the Unit 1 – 4 (Transformer-1) outage until placed on SNL status on June 18 in preparation for Transformer-1 and LGS 500kV line reactivation and return to normal operations.

Yes	No	Sill	Location	Criteria	Measurements
X	X		North Shore Entrance (NSE-1) Weir Depth	≥ 6.0’ or on sill	6/17-4.9; 6/20-5.9
X	X		North Shore Entrance (NSE-2) Weir Depth	≥ 6.0’ or on sill	6/17-4.8; 6/20-6.0

During the outages for Transformer 1 MOD Failure, the Fish Ladder Cooling Pump (FLCP) was brought down twice and restarted. In preparation for transformer line switching, the FLCP was shut down on June 18 from 0230 hours until 1055. During this time, the 0.5 m forebay temperatures ranged from 61.3 to 61.6 F. Later, on June 18 the FLCP tripped during line reconfiguration and switching procedures at 2000 hours and was returned to service the morning of June 19 at 0715 hours. The 0.5 m forebay temperature ranged from 63.4 to 61.7 F.

5. Lower Granite Dam

Yes	No	Sill	Location	Criteria	Comments
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	0.6’, 0.6’, 0.6’, 0.6’
	X		Collection Channel Surface Velocity	1.5 – 4.0 fps	1.2, 1.3, 1.2

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’. Out of criteria reading exceeding 2.0’ of head differential may be related to the tailrace elevations being lower than the minimum operating range of 633.0 feet at LWG.

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
#16-2024

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: June 14-20, 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
11 & 12	6/18	1006	6/18	1200	ESBS camera inspections, rotated through units
11	6/18	1200	6/20	1822	Stop log jammed in discharge slot

Comments: RTS dates are subject to change. The hard one percent criteria remained in place. Part of the camera outage was used to test a stoplog with the new discharge deck crane in unit 11 on June 18. Unfortunately, the log jammed forcing the unit out of service.

Adult Fish Passage Facilities

McNary fisheries staff performed measured inspections of the adult fishways on June 14, 16, and 18. Adult fish counting continued. Video review of nighttime lamprey passage began 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’ to 0.3’
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’ to 0.3’

Comments: Debris loads were minimal near both exits.

At the Washington exit, a regulating weir alarm came in and was reset on June 14 and 16.

During a visual check, both exits head over weir measured 0.9 feet on June 19. The operators were asked to adjust both exits set points.

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'	1.3' to 1.4'
X			NFEW2 Weir Depth	≥ 8.0'	8.3' to 8.5'
X			NFEW3 Weir Depth	≥ 8.0'	8.2' to 8.4'
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.3' to 1.4'
X			SFEW1 Weir Depth	≥ 8.0'	8.1'
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'	1.3' to 1.5'
X			WFE2 Weir Depth	≥ 8.0'	8.9' to 9.1'
	X		WFE3 Weir Depth	≥ 8.0'	7.5' to 7.8'

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 1
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 interruptions in this schedule.

Water temperature probes were deployed throughout the juvenile system on June 8 and 9. Data was downloaded on June 14 and any faulty probes were be replaced within a few days of monitoring, which began on June 15. The smolt monitoring staff reports daily and weekly results in separate reports.

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.

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.

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. The brush cycle for the screen in 10C slot was noted short cycling and was reset on June 19. 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 11 and 12 revealed no issues on June 18. Examination of ESBS screen brush programming continued.

Daily VBS monitoring continued, and no high differentials were recorded. Seven VBS's were cleaned on June 17. Twelve juvenile lamprey mortalities 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 VBS cleaning as required. 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 19,700 juvenile lamprey and 32,000 smolts bypassed this week. The primary species/races were subyearling Chinook.

During the week, eight and two juvenile lamprey mortalities were removed from the perforated plate and the primary/secondary bypass gate, respectively. The barrier used upstream of the perforated plate will be rehabilitated, with new gasket material installed.

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
216.4	169.2	157.4	100.1	60.0	59.4	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 concluded on June 16, at 0001 hours, when the summer spill season began, with 57 percent of flow being spilled.

Bays 6 and 9 were adjusted on June 20. 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 has been completed. The devices will be reinstalled at a later date. After regional discussion, a consensus was made on the removal of the downstream dogs from bay 21 on June 21.

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 14	Spill	37	0	0	3	0
	Powerhouse	0	0	0	6	0
	Outfall	30	4	0	0	0
	Forebay	0	0	0	0	11
June 15	Spill	121	2	0	1	0
	Powerhouse	0	0	0	10	0
	Outfall	2	3	0	0	0
	Forebay	0	0	0	0	18
June 16	Spill	360	1	3	8	0
	Powerhouse	0	0	0	18	0
	Outfall	59	11	0	0	0
	Forebay	0	0	0	3	21
June 17	Spill	460	0	1	17	0
	Powerhouse	0	0	0	17	0
	Outfall	44	7	0	0	0
	Forebay	0	0	0	0	20
June 18	Spill	160	0	4	21	0
	Powerhouse	0	0	0	35	0
	Outfall	71	3	0	0	0
	Forebay	0	0	0	0	27
June 19	Spill	0	2	0	23	0
	Powerhouse	0	0	0	9	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	0
June 20	Spill	12	0	5	12	0
	Powerhouse	0	0	0	48	0
	Outfall	0	1	0	0	0
	Forebay	0	0	0	1	21

In the spill zone, gulls, and pelicans in fluctuating numbers along with a few cormorants and terns were noted. Most birds were feeding. Two pelicans were noted roosting on the Washington ladder wall this week.

In the powerhouse zone, increasing numbers of pelicans were noted at the Oregon ladder floating orifice gates. Two pelicans landed in the Oregon ladder south entrance pool when coming in from upstream this week. The birds were immediately hazed from the area.

In the outfall zone, gulls in fluctuating numbers along with a few cormorants were noted roosting on the outfall pipe. 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 along with an occasional pelican. 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 was installed by floating orifice gate number 4 on June 15. Due to flows in the area the line may not be as effective, but its deployment may lead to other ideas.

Invasive Species: The next mussel station examinations will occur 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 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 77 juvenile lamprey collected at the facility this week. The yearly total is 333 fish, which were returned to the river unharmed.

Gas bubble trauma examinations occur twice a week. Fish were collected on June 17 and 19, with the data being reported the next day. For the report week, one mortality was removed from the recovery raceway and one smolt showed signs of trauma.

Project: Ice Harbor
Biologist: Ken Fone
Biological Science Technician: Ben McArthur
Dates: June 14 – 20, 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
2	6/18/24	1358	6/18/24	1411	Replace protective relay

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on June 17, 18, 20.

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	7.8’
x			Central fish entrance channel/tailwater differential	1.0’ – 2.0’	0.8’
x			North fish entrance (NFE-1) weir depth	≥ 8.0’ or on sill	6.0’, 6.1’, 6.1’
	x		North fish entrance channel/tailwater differential	1.0’ – 2.0’	2.6’, 2.1’

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 not be updating on 11 June. The meter was rebooted again on June 18 and is back in service.

The north fish entrance (NFE-1) weir depth was below criteria on June 17, 18, and 20. North fish entrance channel/tailwater differential was above criteria on June 17 and 20. The channel and tailwater elevation readings on the PLC were significantly different 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 central fish entrance weir depth was slightly below criteria on June 17. The entrance weir was lowered to achieve an 8' depth. Central fish entrance channel/tailwater differential was measured as below criteria on June 18. The PLC reading of the channel/tailwater differential was in criteria. Turbulent conditions from spill make it difficult to get an accurate measurement of the tailwater level.

Auxiliary Water Supply (AWS) System:

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

Comments: South shore AWS pump #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.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
x			Forebay debris load acceptable? (amount)	Average of 2 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-8% 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.

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 17 sample was observed to be dead in the sample trough. There were no external maladies seen on the fish. The cause of the descaling observed on one of the fish in the June 17 sample was attributed to a predation attempt by another fish.

Fish condition sampling results at Ice Harbor Dam:

Date: June 17

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	0	---	---	---
Chinook yearling unclipped	0	---	---	---
Chinook subyearling clipped	2	0	0	0
Chinook subyearling unclipped	8	2	1	0
Steelhead clipped	1	0	0	0
Steelhead unclipped	0	---	---	---
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	11	2	1	0

Date: June 20

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	0	---	---	---
Chinook yearling unclipped	0	---	---	---
Chinook subyearling clipped	5	0	0	0
Chinook subyearling unclipped	17	0	0	0
Steelhead clipped	4	1	0	0
Steelhead unclipped	0	---	---	---
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	26	1	0	0

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

River Conditions

River conditions at Ice Harbor Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (°F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
76.4	49.6	62.7	36.2	62	60	5.8	5.0

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: The next monthly inspection of turbine unit cooling water strainers will occur in early July.

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 of piscivorous birds is occurring for 8 hours each day.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
June 14	9	5	0	0	15
June 15	0	8	0	4	0
June 16	2	0	0	0	6
June 17	0	3	0	0	5
June 18	0	0	1	0	1
June 19	1	3	1	0	4
June 20	0	1	1	0	9

Invasive Species: No exotic species that are new to the area have been found.

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by the fish sampling contractor, frozen and properly disposed of in a landfill. Daily and total Siberian prawn counts at Ice Harbor Dam for this reporting period are shown below.

Number of Siberian prawns in the sample at Ice Harbor Dam.

Date	**Sample (euthanized)**	**Collection***
June 17	0	0
June 20	0	0
Totals	0	0

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

Fish Rescue/Salvage: None

Research: No on-site research is occurring.

Project: Lower Monumental
Biologists: Denise Griffith and Raymond Addis
Dates: June 14 - 20, 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 14,15, 16 and 19.

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: None.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Shore Entrance (NSE-1) Weir Depth	≥ 8.0’ or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	≥ 8.0’ or on sill	
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	
		X	South Powerhouse Entrance (SPE-1) Weir Depth	≥ 8.0’ or on sill	
		X	South Powerhouse Entrance (SPE-2) Weir Depth	≥ 8.0’ or on sill	
X			South Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
		X	South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	
		X	South Shore Entrance (SSE-2) Weir Depth	≥ 6.0’	
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	

Comments: South Powerhouse Entrance SPE-1 weir was at sill during all inspections with readings 6.5, 6.1, 5.9 and 5.8 feet respectively. South Powerhouse Entrance SPE-2 weir was at sill during all inspections with 6.5, 6.1, 5.9 and

5.8 feet respectively. South Shore Entrance SSE-1 weir was at sill during all inspections with readings of 6.1, 6.0, 5.8 and 5.7 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)	12 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. Collection for transport ended at 1300 on June 17, at which time the facility was placed in primary bypass for one day and secondary bypass with sampling for condition the next day the remainder of the 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. Outfall pipe leaking at upper seal of the expansion joint downstream of the junction of the outfall pipe and lamprey bypass pipe.

Transport Summary: Transport at Lower Monumental ended with the June 17 barge. A total of 3,186 fish were collected of which 916 were transported and 2,264 were bypassed.

Spillway Weir: Spring spill continued until 23:59:59 on June 20 at which time summer spill began.

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
72.0	48.7	59.0	35.9	61.0	60.1	5.5	5.0

*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
6/14/2024	1845	9	6	0	0	0
6/15/2024	1700	26	0	0	0	8
6/16/2024	1530	47	5	0	0	3
6/17/2024	1015	35	6	0	0	6
6/18/2024	1030	7	0	0	0	5
6/19/2024	1200	56	1	1	0	11
6/20/2024	825	26	0	0	0	2

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*
6/14/2024	1	5
6/15/2024	3	12
6/16/2024	1	4
6/17/2024	2	8
6/18/2024	2	8
6/19/2024	1	2
6/20/2024	8	16
Total	18	55

*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 17. A total of 2 clipped subyearling Chinook, 5 unclipped subyearling Chinook and 1 clipped steelhead smolts were examined. No gas bubble trauma was detected.

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
Dates: June 14 – June 20, 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.
1	6/15/2024	20:26	6/18/2024	21:25	Transformer 1 MOD Failure
2	6/15/2024	20:26	6/18/2024	21:25	Transformer 1 MOD Failure
3	6/15/2024	20:26	6/18/2024	21:25	Transformer 1 MOD Failure
4	6/15/2024	20:26	6/18/2024	21:25	Transformer 1 MOD Failure
6	6/18/2024	07:55	6/18/2024	21:25	Transformer 1 MOD Failure, switch from T-2; Speed-No-Load (SNL) status

Comments: Contractual obligations, performance issues, and projected flow data once again realigned the Unit 5 ERTS date into late fall 2024. Units 1 – 4 were brought offline due to Transformer -1 motor operated disconnect switch failure, reference MFR 24 LGS 06, "Transformer-1 MOD Failure" for details. Unit 6 was utilized during the Unit 1 – 4 (Transformer-1) outage until placed on SNL status on June 18 in preparation for Transformer-1 and LGS 500kV line reactivation and return to normal operations.

Adult Fish Passage Facility

EAS Bio and ODFW staff inspected the adult Fishway on June 14, 17, and 20.

Fish Ladder:

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

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			South Shore Entrance (SSE-1) Weir Depth	≥ 8.0'	
X			South Shore Entrance (SSE-2) Weir Depth	≥ 8.0'	
X			South Shore Channel/Tailwater Differential	1.0' – 2.0'	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 7.0' or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 7.0' or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0'–2.0'	
X	X		North Shore Entrance (NSE-1) Weir Depth	≥ 6.0' or on sill	6/17-4.9; 6/20-5.9

X	X		North Shore Entrance (NSE-2) Weir Depth	≥ 6.0' or on sill	6/17-4.8; 6/20-6.0
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 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. During the outages for Transformer 1 MOD Failure, the Fish Ladder Cooling Pump (FLCP) was brought down twice and restarted. In preparation for transformer line switching, the FLCP was shut down on June 18 from 0230 hours until 1055. During this time the .5m forebay temperatures ranged from 61.3 to 61.6 F. Later, on June 18 the FLCP tripped during line reconfiguration and switching procedures at 2000 hours and was returned to service the morning of June 19 at 0715 hours. The 0.5 m forebay temperature ranged from 63.4 to 61.7 F.

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)	6/14-5A:2%, 5C:1%; 6/15-5C:1%; 6/18-1A:1%, 2B:1%, 3A:1%, 5B:1%; 6/19-5B:2%; 6/20-3A:1%, 5A:1%, 5C:2%
	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 17 at 10 ft². The overall total forebay debris high occurred June 17 at 10 ft^2. Drawdowns for units 1 and 2 were completed June 20.

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 12,791 fish were collected, 11,536 were barged, 1,237 were bypassed, and there were 18 sample or facility mortalities. The descaling and mortality rates were 1.5% and 0.23%, respectively. The collection and transport facility operated within criteria and two 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 16, 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
71.9	46.9	46.4	26.2	62.6	61.3	5.3	4.3

*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
6-14	1130	0	0	0	0
6-15	0830	0	0	0	2
6-16	0830	0	0	0	2
6-17	1100	0	0	0	0
6-18	0800	0	0	0	2
6-19	0800	0	0	0	7
6-20	0900	8	0	5	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*
6-14	0	0
6-15	0	0
6-16	0	0
6-17	0	0
6-18	1	10
6-19	8	32
6-20	4	16
Totals	13	58

*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 18. Of the 100 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 14-20, 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 14, 15, 16, and 19.

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’	0.6’, 0.6’, 0.6’, 0.6’
		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’	2.1’,
	X		Collection Channel Surface Velocity	1.5 – 4.0 fps	1.2, 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. 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'. Out of criteria reading exceeding 2.0' of head differential may be related to the tailrace elevations being lower than the minimum operating range of 633.0 feet at LWG.

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)	47.2 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 was switched to secondary bypass with for condition sampling only at 0700 hours June 19. 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 ended with the last barge departing LWG June 19. The transport schedule from LMN was modified from every-other-day to every fourth day. Changes in transport from LMN are due to fisheries managers concerns that operational changes to load fish at LMN may be influencing the delay in adult fish passage between IHR and LMN Columbia River DART Results | Columbia Basin Research (washington.edu). June 17 was the last day of transport from LMN.

Spillway Weir: Spring spill continues.

PIT tag interrogations: RSW detections included 58,476 juvenile and 71 adult Chinook salmon, 47,842 juvenile and 561 adult steelhead, 8,860 juvenile sockeye and 2,585 juvenile coho salmon. Juvenile bypass system detections included 8,606 juvenile and 4 adult Chinook salmon, 14,536 juvenile and 41 adult steelhead, 220 juvenile sockeye, and 239 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
75.0	50.1	12.2	11.8	60.0	58.0	5.0	4.2

*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 151 live and 36 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
14 June	1615	1	0	0	31
15 June	1030	0	0	0	3
16 June	1150	0	0	0	3
17 June	1445	0	0	0	10
18 June	1715	0	0	0	4
19 June	1015	0	0	0	7
20 June	1420	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) will be 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 589 juvenile and 328 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.