Out of Criteria – NWW Weekly Report #14 – May 31-June 6, 2024

1. McNary

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

Fish pump 1 remained out of service for a scheduled 5-year overhaul.

2. Ice Harbor

Yes	No	Sill	Location	Criteria	Measurements
	x		North fish entrance channel/tailwater differential	1.0’ – 2.0’	0.7’, 0.5’

The north fish entrance channel/tailwater differential was observed to be below criteria on the June 3 and June 5 inspections but was 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.

The south shore channel velocity meter reading was observed to not be updating on June 3. Electricians were later notified to re-boot the meter.

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 on May 30 due to a failed resistance thermal detector.

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.

Personnel noticed that the bird abatement hydrocannon was not shooting out any water on Apr 30. The hydrocannon pump was restarted but kept tripping off. An electrician determined that the motor is drawing high amperage and needed to be replaced. The hydrocannon pump was reinstalled on June 5, and later tripped on a ground fault due to water in the 480V power receptacle. The pump was restarted on June 6.

3. Lower Monumental

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

Primary dewatering structure cleaning brush stopped operating in automatic mode on June 4 at 0500 hours. The brush was operated in hand mode, then returned to automatic mode on June 4 at 1238 hours. No issues have occurred with the cleaning brush since it was returned to automatic mode. A high-water alarm occurred on June 4 at 1845 hours in the collection channel. The alarm was reset at 1930 hours after an operator checked the number of orifices open in the channel and found too many opened. The number of orifices was returned to 18 open and the water level returned to normal levels.

At 0705 hours on June 5, the biological technician found the B side dewatering flume a quarter full of fish with little to no water in the flume. The biologist increased the water coming from the separator into the flume. The flume was checked for blockages with no issues found. Just prior to this occurring the orifices in the channel had been

switched around for STS/VBS inspections. It appeared that the low water had occurred due to this switch. After this occurred, two fish mortalities were found in raceway 2 and raceway 3 however, it is not believed that these fish were from this occurrence.

4. Little Goose

Nothing out of criteria to report for this week.

5. Lower Granite Dam

Yes	No	Sill	Location	Criteria	Comments
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0'–2.0'	0.4', 0.4', 0.8', 0.4'
	X		North Shore Entrance (NSE-1) Weir Depth	≥ 7.0' or on sill	6.3', 6.5'
	X		North Shore Entrance (NSE-2) Weir Depth	≥ 7.0' or on sill	6.4', 6.6'
	X		Collection Channel Surface Velocity	1.5 – 4.0 fps	1.2, 1.4

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
#14-2024

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: May 31-June 6, 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
1 & 8	6/4	1003	6/4	1103	ESBS camera inspections, rotated through units

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 May 31, June 2 and 4. 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’ to 1.1’
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 near both exits.

There are no problems to report.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0’ – 2.0’	1.4’ to 1.5’
X			NFEW2 Weir Depth	$\geq$ 8.0’	8.2’ to 8.3’
X			NFEW3 Weir Depth	$\geq$ 8.0’	8.2’ to 8.3’
X			South Oregon Entrance Head Differential	1.0’ – 2.0’	1.4’ to 1.5’
X			SFEW1 Weir Depth	$\geq$ 8.0’	8.0’ to 8.1’
X			SFEW2 Weir Depth	$\geq$ 8.0’	8.0’ to 8.1’
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 1.6’
X			WFE2 Weir Depth	≥ 8.0’	8.8’ 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. Adjustments are very difficult during the spill season. NFEW3 was found in manual mode on June 2. 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°	Oregon Ladder Fish Pump 2
X			22° to 26°	Oregon Ladder Fish Pump 3
X				OR North Powerhouse Pool from juvenile fishway

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

Juvenile Fish Passage Facility

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

Water temperature monitoring throughout the juvenile system will begin on June 15. Probes will be deployed and tested on June 8.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Minimal 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 and spillway debris remained minimal. New debris loads were minimal.

Trash rack cleaning is scheduled for June 10.

There are no problems to report. A few pieces of larger woody and manmade material were removed from the gatewell slots on June 2. The emergency bulkhead remained in 14A slot.

To improve deck access for contractors and project staff, the slots in unit 7, 11C, 12A, and 12B slots will be 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 1 and 8 revealed no issues on June 4. Examination of ESBS screen brush programming continued.

Daily VBS monitoring continued, and no high differentials were recorded. The VBS's in unit 7 were cleaned on June 4 so the slots could be covered on June 7. Also, the screens in unit 13 were inspected with cleaning on June 4. The screens in unit 1, 11 and 12C slot were inspected with cleaning on June 6. (Slots 12A and 12B were inspected when cleaned last week.) The only issue found during inspections was mesh retaining clips on the screens in unit 1, which were replaced. A total of five juvenile lamprey mortalities were in units 11 and 12 on June 6. As mentioned above, slots 11C, 12A and 12B will also be covered on June 7.

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 inspection and cleaning as required. With 14A slot dewatered, north orifice in 13C slot was used for makeup water until June 4, at which time, this orifice was closed and the north orifice in 14B slot was opened.

Orifice valves are being rehabilitated as needed. Three valves had seals replaced this week. The south orifice in 7C slot was briefly closed for seal replacement on June 2. The north orifice was used for makeup water during the outage.

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 3,144 juvenile lamprey and 9,561 smolts bypassed this week. The primary species/races were subyearling Chinook.

A brief power outage for a bus switch had no adverse effect at the facility on June 5, at 0610 hours.

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
243.5	174.8	183.9	115.4	56.9	55.3	6.0	6.0

Comments: The above data is from the smolt monitoring staff, with the data day starting at 0700 hours. Water clarity comes from the control room.
The 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 6. If adjustments are required in bays 6 and 9, they will occur on Monday and Thursday.

The gate open settings were verified for bay 21 on June 6, at 0752 hours.

Rehabilitation of the downstream wall dogs from bay 22 continues.

Other

Inline Cooling Water Strainers: The cooling water strainer inspections revealed three live and 20 juvenile lamprey mortalities on June 4. The live fish came from unit 1. The mortalities were mostly from units in standby.

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
May 31	Spill	32	0	0	6	0
	Powerhouse	0	0	0	6	0
	Outfall	3	0	0	0	0
	Forebay	0	0	0	0	48
June 1	Spill	1	0	0	0	0
	Powerhouse	0	0	0	4	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	38
June 2	Spill	58	0	0	2	0
	Powerhouse	0	0	0	3	0
	Outfall	57	7	0	0	0
	Forebay	0	0	0	0	49
June 3	Spill	25	2	0	2	0
	Powerhouse	34	0	0	3	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	19
June 4	Spill	80	0	0	1	0
	Powerhouse	0	2	0	10	0
	Outfall	41	5	0	0	0
	Forebay	0	0	0	0	43
June 5	Spill	0	0	0	0	0
	Powerhouse	0	0	0	4	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	17
June 6	Spill	0	0	0	0	0
	Powerhouse	0	0	0	6	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	14

In the spill zone, gulls, and pelicans in fluctuating numbers along with an occasional cormorant were noted. Most birds were feeding.

In the powerhouse zone, gulls were noted once roosting on the water at the edge of the spill along with an occasional cormorant. Pelican in increasing numbers were noted at the Oregon ladder floating orifice gates.

In the outfall zone, gulls and cormorants in fluctuating numbers were noted roosting on the outfall pipe along with a few of these birds 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. Birds were roosting and feeding. More grebes maybe outside the zone along with a few gulls, cormorants, great blue herons, and ospreys. Pelican numbers outside the zone 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, 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 and more may be installed.

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 smolt and juvenile lamprey passage studies, PNNL removed 69 smolts and 150 juvenile lampreys from the samples for tagging this week. The last smolt collection for tagging occurred on May 31. The last lamprey collection for tagging will occur on June 12. USDA Wildlife Services has been dealing with the racoon issue at the facility and no more fish have been lost.

For a CRITFC study, there were tissue samples removed from 54 juvenile lamprey collected at the facility this week. The yearly total is 214 fish, which were returned to the river unharmed.

Gas bubble trauma examinations occur twice a week. Fish were collected on June 3 and 5, with the data being reported the next day. For the report week, one mortality was removed from the recovery raceway and no signs of trauma were observed.

Project: Ice Harbor
Biologist: Ken Fone
Biological Science Technician: Ben McArthur
Dates: May 31 - June 6, 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

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on June 3, 4, and 5.

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	
	x		North fish entrance channel/tailwater differential	1.0’ – 2.0’	0.7’, 0.5’

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 were later notified to re-boot the meter.

The north fish entrance channel/tailwater differential was observed to be below criteria on the June 3 and June 5 inspections, but was 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

6 pumps	1 pump	1	Status of the 8 south shore AWS pumps
2 pumps		1	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 on May 30 due to a failed resistance thermal detector.

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)	0-15% 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: Several plastic STS screen rivets were found in the fish sample tank on May 30 and June 3. The rivets may have come off of unit 2 STSs. STSs will be inspected the week of June 10.

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.

Personnel noticed that the bird abatement hydrocannon was not shooting out any water on Apr 30. The hydrocannon pump was restarted but kept tripping off. An electrician determined that the motor is drawing high amperage and needed to be replaced. The hydrocannon pump was reinstalled on June 5, and later tripped on a ground fault due to water in the 480V power receptacle. The pump was restarted on June 6.

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 cause of descaling observed on the steelhead in the June 3 sample was attributed to a predation attempt by a bird.

Fish condition sampling results at Ice Harbor Dam:

Date: June 3

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	0	---	---	---
Chinook yearling unclipped	1	0	0	0
Chinook subyearling clipped	22	1	0	0
Chinook subyearling unclipped	42	1	0	0
Steelhead clipped	11	0	0	1
Steelhead unclipped	5	1	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	2	0	0	0
Total	83	3	0	1

Date: June 6

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	0	---	---	---
Chinook yearling unclipped	1	0	0	0
Chinook subyearling clipped	14	0	0	0
Chinook subyearling unclipped	23	0	0	0
Steelhead clipped	2	0	0	0
Steelhead unclipped	3	1	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	1	0	0	0
Total	44	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
111.0	78.2	97.0	64.6	60	59	6.1	5.0

*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 to moderate numbers of piscivorous birds seen around the project (see table below). Pelican numbers increased a little from last week, but bird hazing has been effective at disrupting their foraging. Land-based hazing of piscivorous birds is occurring for 16 hours each day. Boat-based hazing for 5 days per week changed to 3 days per week starting on June 2.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
May 31	0	4	1	0	14
June 1	1	5	0	0	11
June 2	7	13	10	0	27
June 3	3	7	2	0	7
June 4	0	6	2	0	5
June 5	0	6	1	1	15
June 6	0	4	1	0	11

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 3	1	1
June 6	1	1
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: May 31 – June 6, 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 1	6/06/24	1220	6/06/24	1415	STS Inspection
Unit 2	6/04/24	1120	6/04/24	1250	STS Inspection
Unit 3	6/04/24	1300	6/04/24	1510	STS Inspection
Unit 4	6/05/24	1225	6/05/24	1445	STS Inspection
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 May 31, June 1 and 2.

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, 6.7 and 6.8 feet respectively. South Powerhouse Entrance SPE-2 weir was at sill during all inspections with readings 6.5, 6.7

and 6.8 feet respectively. South Shore Entrance SSE-1 weir was at sill during all inspections with readings of 6.2, 6.4 and 6.8 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)	11 yrd²
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	1 – 2%
		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. STS's inspections took place between June 4 and 6. All STSs were in operational condition. VBS screens for Units 4, 5 and 6 were inspected during the STS inspections. VBS screens for Units 1, 2 and 32 were completed in the month of May with STS inspections. They appear to be in good working order. An excess power cord was in gatewell 6A and was laying on the VBS screen. This issue was corrected.

Orifices, Collection Channel, Dewatering Structure, and Flume:

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

Comments: Primary dewatering structure cleaning brush stopped operating in automatic mode on June 4 at 0500 hours. The brush was operated in hand mode, then returned to automatic mode on June 4 at 1238 hours. No issues have occurred with the cleaning brush since it was returned to automatic mode. A high-water alarm occurred on June 4 at 1845 hours in the collection channel. The alarm was reset at 1930 hours after an operator checked the number of orifices open in the channel and found too many opened. The number of orifices was returned to 18 open and the water level returned to normal levels.

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. A side sample flume appeared to have little to no water for a small period of time on May 31. Issue resolved itself once water was increased. No fish injury or mortality was noted. At 0705 hours on June 5, the biological technician found the B side dewatering flume a quarter full of fish with little to no water in the flume. The biologist increased the water coming from the separator into the flume. The flume was checked for blockages with no issues found. Just prior to this occurring the orifices in the channel had been switched around for STS/VBS inspections. It appeared that the low water had occurred due to this switch. After this occurred, two fish mortalities were found in raceway 2 and raceway 3 however, it is not believed that these fish were from this occurrence.

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 transports. (See collection facility above) A total of 12,868 fish were collected of which 6,236 were transported and 6,599 were bypassed. After 1300 of June 1, all fish were bypassed for three days and collected for transport four days.

Spillway Weir: Spring spill continues.

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
109.1	74.3	92.4	60.9	55.4	54.7	4.6	4.3

*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
5/31/2024	1645	11	0	0	0	12
6/1/2024	1630	7	0	0	0	15
6/2/2024	1715	26	0	0	0	8
6/3/2024	730	38	5	0	0	13
6/4/2024	1048	38	3	0	0	12
6/5/2024	730	43	2	0	0	20
6/6/2024	1410	3	3	0	0	11

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

Invasive Species: Zebra or quagga mussel traps were examined on June 1. None were detected.

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*
5/31/2024	9	36
6/1/2024	4	16
6/2/2024	2	20
6/3/2024	2	20

6/4/2024	4	40
6/5/2024	9	90
6/6/2024	6	60
Total	36	282

*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 6. A total of 1 clipped yearling Chinook, 4 unclipped yearling Chinook, 32 clipped subyearling Chinook, 51 unclipped subyearling Chinook, 6 clipped steelhead and 6 unclipped steelhead smolts were examined. No gas bubble trauma was detected.

The Nez Perce steelhead kelt study and rehabilitation collection continued, 1 steelhead kelt was placed in the collection tank for this reporting period.

Project: Little Goose Dam
Biologist: Deb Snyder
Dates: May 31 – June 6, 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	06/06/2024	07:51	06/06/2024	10:28	Mod 25 / Volt Regulator validation testing

Comments: Contractual obligations and performance issues realigned the Unit 5 ERTS date into 2024. Module 25 testing of units 1-4, and 6 took place the morning of June 6. Unit 1 displayed volt regulator response issues and was secured from testing at 07:51 hours to verify volt regulator status. By 08:50 the U-1 volt regulator issue was resolved, and validation testing re-initiated. At 10:28 the validation test was completed, and U-1 returned to normal operations. During the testing process, units 2-4, 6 were run according to unit priority.

Adult Fish Passage Facility

EAS Bio staff inspected the adult Fishway on May 31, June 3, and June 5.

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	X		South Shore Channel/Tailwater Differential	1.0’ – 2.0’	6/5-0.9
		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	6/3 – 5.5
X	X		North Shore Entrance (NSE-2) Weir Depth	≥ 6.0’ or on sill	6/3 – 5.3
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. For example, the FSC board readings of May 14 report the SSE Channel elevation at 531.7 feet, while physical measurements document the same channel height to be 539.9 feet. Although the FSC board readings change slightly, the discrepancy between actual staff gauge measurements and the FSC board readings remains constant. On May 29 the new fish ladder cooling pump installation was completed. Forebay river temp criteria hovered 5-10 degrees below the threshold to start pump operations, thus intermittent start-up, commissioning, and shutdown inspection activities transpired May 30. Inspections entailed examination of new installation devise for proper functionality. Additional test run took place May 30 – June 4. The newly installed pump unit was released for seasonal use on June 6. The adult fishway inspection on June 6 transpired during gas cap spill operations.

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)	5/31-6C:5%, 6/1-5C:1%,6A:1%, 6/4-2C:2%,5C:1%, 6/5 -,1C:2%,6C:3%
	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 2 at 10 ft². The overall total forebay debris high occurred June 2 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. Next gatewell camera inspections are scheduled for June 10 through June 13.

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 76,508 fish were collected, 67,014 were barged, 15 were bypassed, and there were 34 sample or facility mortalities. The descaling and mortality rates were 0.7% and 0.05%, respectively. The collection and transport facility operated within criteria and two 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. 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
109.7	76.2	68.8	50.0	58.8	55.4	5.0	4.4

*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
5-31	0830	2	0	0	4
6-1	0830	0	0	0	4
6-2	0830	0	0	0	0
6-3	1240	0	0	0	0
6-4	1200	0	0	0	0
6-5	1045	0	0	0	0
6-6	1100	1	0	0	2

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

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

Date	Sample	Collection*
5-31	0	0
6-1	1	20
6-2	0	0

6-3	0	0
6-4	0	0
6-5	1	50
6-6	0	0
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 5. 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: May 31-Jume 6, 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 1, 2, 5, and 6.

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		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’, 0.4’, 0.8’, 0.4’
	X		North Shore Entrance (NSE-1) Weir Depth	≥ 7.0’ or on sill	6.3’, 6.5’
	X		North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	6.4’, 6.6’
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	
	X		Collection Channel Surface Velocity	1.5 – 4.0 fps	1.2, 1.4

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)	31.8 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: Trash rack/VBS differentials were not completed this reporting period due to lack of staffing. 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 is occurring Sunday through Thursday.

Transport Summary: Every-other-day barging continues with the last barge scheduled for 19 June. The transport schedule from LMN has been modified from every-other-day to every fourth day. Change in LMN transport schedule is due 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 55,785 juvenile and 59 adult Chinook salmon, 47,279 juvenile and 545 adult steelhead, 8,858 juvenile sockeye and 2,562 juvenile coho salmon. Juvenile bypass system detections included 8,249 juvenile and 3 adult Chinook salmon, 13,372 juvenile and 41 adult steelhead, 220 juvenile sockeye, and 236 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
114.3	81.6	80.0	67.6	56.0	54.0	5.0	4.5

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Inspections occurred May 30 with one chinook smolt and 348 lampreys were removed from the unit cooling water strainers. Lamprey were collected and stored for CRITFC to pick up at the end of the season.

Introduced Species: No zebra/quagga muscles were detected on the trap substrate. Siberian prawns collected in the sample included 29 live and 18 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
31 May	0805	0	0	0	2
1 Jun	1145	0	0	0	0
2 Jun	0835	0	0	0	2
3 Jun	1713	0	0	0	2
4 Jun	1543	0	0	0	7
5 Jun	1130	0	0	0	6
6 Jun	1145	0	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 898 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 programs efficacy and assist with guiding future management. LWG SMP have collected genetic samples from 475 juvenile and 236 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. Collection and tagging will continue Monday-Friday until the middle of June.

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 continue as scheduled.

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.