Out of Criteria – Weekly Report #30

1. McNary

The swing shift biologist noted the head over weir was 0.9 feet on September 22. The roving operator adjusted the exit weirs' set points to resolve the issue.

The TSW in bay 20, per RCC schedule, was being opened as required. Due to a Washington Department of Transportation dive on the highway bridge piers, the TSW opening scheduled for Sunday, September 24 was moved to Monday, September 25.

Bay 3's dogging devices were reinstalled on September 23. The dogging mechanisms in bay 2 will be removed on September 29. The dogging devices in bay 9 will be removed on October 1. The gate in bay 9 will also be repaired. See MOC 23MCN10.

2. Ice Harbor

The actuator for the water regulating weirs in the collection channel is in local control due to a problem with the automatic control function. The weirs are being operated at the actuator to adjust the water level as needed until the problem can be fixed.

Biological and environmental testing of the new runner in unit 3 will be delayed by 2-3 weeks from September 21 due to warm water conditions.

North shore AWS pump #1 has been out of service since March 1 because of a hydraulic cylinder leak on the butterfly valve. The repairs are on hold until funding is available.

3. Lower Monumental

Spillgate 5 was taken out of service for seal replacement on September 13 and its gearbox was found bad and needing replaced, estimated return to service on September 30, 2024. Spillgate 7 was taken out of service on September 16 to swap gearboxes with spillgate 8, estimated return to service on September 30, 2024.

4. Little Goose

5. Lower Granite Dam

Yes	No	Sill	Location	Criteria	Comments
	X		South Shore Entrance (SSE-1) Weir Depth	$\geq$ 8.0'	7.2', 7.4', 7.4'
	X		South Shore Entrance (SSE-2) Weir Depth	$\geq$ 8.0'	7.2', 7.4', 7.4'
	X		North Shore Channel/Tailwater Differential	1.0'–2.0'	0.9', 0.9'

Ladder collection channel operation and configuration will continue to be evaluated this season to resolve ongoing issues.

U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#30-2023

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: September 22-28, 2023

Turbine Operation

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

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

	OOS		**RTS**		
Unit(s)	**Date**	**Time**	**Date**	**Time**	**Outage Description**
13 & 14	6/12	0636	12/21	NA	Control system upgrades
5 & 6	9/11	0609	9/28	1617	Transformer 3 leak repair
1, 3 & 4	9/26	1000	9/26	1130	ESBS camera inspections, rotated through units

Comments: RTS dates are subject to change. With sample tank water temperatures being consistently below 68 degrees F, the sawtooth unit priority pattern concluded on September 26.

Adult Fish Passage Facilities

Measured inspections of the adult fishways occurred on September 22, 24 and 27. Visual adult fish counting continues. Video review of nighttime lamprey passage will conclude on September 30.

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’	1.1’
X		Washington Count Station Differential	0.0’ to 0.5’	0.2’

Comments: Debris loads were light to moderate (woody material) near the Oregon shore exit along the shoreline and minimal (aquatic material) near the Washington shore exit. The general maintenance staff has been cleaning the picketed leads at both exits as needed, including on Saturday.

At the Oregon shore exit, the traveling screens’ debris trough was cleaned on September 27. One of the access doors to the north traveling screen was repaired on September 28. The swing shift biologist noted the head over weir was 0.9 feet on September 22. The roving operator adjusted the exit weirs’ set points to resolve the issue.

At the Washington shore exit, a low water alarm came in and was reset on September 22.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0' – 2.0'	1.3'
X			NFEW2 Weir Depth	≥ 8.0'	8.4' to 8.8'
X			NFEW3 Weir Depth	≥ 8.0'	8.4' to 8.8'
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.8'
X			SFEW1 Weir Depth	≥ 8.0'	8.3' to 8.4'
X			SFEW2 Weir Depth	≥ 8.0'	8.3' to 8.4'
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.8 fps
X			Washington Entrance Head Differential	1.0' – 2.0'	1.4' to 1.5'
X			WFE2 Weir Depth	≥ 8.0'	9.4' to 9.5'
X			WFE3 Weir Depth	≥ 8.0'	9.3' to 9.6'

Comments: There are no problems to report.

Three floating orifice gates (FOG's) slots, W32, W37 and W 41 remain closed. Nine of 12 slots are open.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Blade angle	Auxiliary Water Supply System (AWS)
Yes				WA shore Wasco County PUD Turbine Unit
	Yes			WA shore Wasco PUD Bypass
Yes			21° to 23°	Oregon Ladder Fish Pump 1
Yes			21°	Oregon Ladder Fish Pump 2
Yes			22° to 23°	Oregon Ladder Fish Pump 3
Yes				OR North Powerhouse Pool supply from juvenile fishway

Comments: There are no problems to report.

Juvenile Fish Passage Facility

Every other day sample collection continues with no interruptions in the schedule this week. The last sample for the season will be examined on September 30, when fall primary bypass season begins. Testing of the new forebay (intake) deck crane continues. This will add some challenges to various task.

The smolt monitoring staff is still looking to relocate their internet dish or find a new provider.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Minimal to very light
X			Gatewell drawdown measured this week?	Daily
X			Gatewell drawdown acceptable	
	X		Any debris seen in gatewells (% coverage)	
	X		Any oil seen in gatewells?	

Comments: Debris loads were minimal to very light near the powerhouse. Residual debris loads beside the spillway were minimal. New incoming debris was minimal. Weather changes move the debris throughout the forebay. Most of the debris was fine or woody material and aquatic vegetation.

In order to test the new intake deck crane, trash racks were cleaned in 6B and 6C slots on September 26. Three yards of debris were removed, and no fish were observed.
The new intake crane was used to test installation and removal of an emergency bulkhead in 5A slot from September 26 to 27.

For the new intake deck crane testing, 13B and 13C slots along with unit 14 gatewells slots remained covered over.

Extended-length submersible bar screen (ESBSs)/Vertical barrier screen (VBSs):

Yes	No	NA	Item
X			ESBSs deployed in all slots and in service?
X			ESBSs inspected this week?
X			ESBSs inspection results acceptable?
X			VBSs differentials checked this week?
X			VBSs differentials acceptable?

Comments: ESBS's are deployed in all units. In order to test the new intake crane for ESBS install and removal along with the emergency bulkhead mentioned above, the screen in 5A slot was removed from September 26 to 27. Camera inspections in units 1, 3 and 4 revealed no issues on September 26.

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

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

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

Comments: In order to allow for any intake crane testing that might be desired, orifices were closed in units 5 and 6 from September 25 to 28. Makeup orifices were opened in units 4 and 7. An orifice was inadvertently left closed briefly in unit 4, which resulted in a low water alarm on September 28.

Three orifice operator oil reservoirs were repaired this week. All orifice operator handles were check after one was found loose. All packing nuts on the lower air supply line were check after one was found loose.

A high-water alarm came in on September 23, at 1951 hours. No reason for the alarm was found. Most likely, a unit load change caused a temporary change in orifice discharge. Some interesting fluctuations in the water elevation are being monitored. The two side dewatering valves that control channel elevation received scheduled maintenance on September 25.

Bypass Facility:

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

Comments: The sample gates will continue to operate every other day for sample collection until September 30, at 0700 hours. The PIT sample tag system will not be used again this year.

This week, no juvenile lamprey and 24 smolts, all sub-yearling Chinook, were bypassed during secondary bypass. No smolts were collected for the September 24 and 28 sample days. Juvenile shad continue to be the predominate species in the sample, however, at greatly reduced numbers. The smolt monitoring staff reports fish data in a separate report.

TSW Operations: The TSW in bay 19 remains out of service with a standard gate in place. The TSW in bay 20, per RCC schedule, was being opened as required. Due to a Washington Department of Transportation dive on the highway bridge piers, the TSW opening scheduled for Sunday, September 24 was moved to Monday, September 25.

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
84.1	62.9	0.9	0.0	67.6	64.6	6.0	6.0

Comments: The above data is provided by the smolt monitoring staff except the water clarity, which is provide by the control room. The data day runs from 0700 to 0700 hours.

Cranes 6 and 7 can perform their next overloaded lift on April 18, 2024. All hoists are functional. Spillway hoist scheduled maintenance will begin in October.

Bay 3's dogging devices were reinstalled on September 23. The dogging mechanisms in bay 2 will be removed on September 29. The dogging devices in bay 9 will be removed on October 1. The gate in bay 9 will also be repaired.

Other

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

Avian Activity: Avian counts concluded on September 28. The results are recorded in Table 3 below.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican	Grebe
September 22	Spill	52	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	5	7	0	0	0
	Forebay	0	0	0	0	0
September 23	Spill	24	3	0	0	0
	Powerhouse	2	0	0	0	0
	Outfall	4	21	0	0	0
	Forebay	0	0	0	0	0
September 24	Spill	24	5	0	0	0
	Powerhouse	2	0	0	0	0
	Outfall	4	4	0	0	0
	Forebay	0	0	0	0	0
September 25	Spill	65	6	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	0	14	0	0	0
	Forebay	1	0	0	0	0
September 26	Spill	63	3	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	0	28	0	0	0
	Forebay	0	0	0	0	0
September 27	Spill	218	1	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	3	25	0	0	0
	Forebay	0	0	0	0	0
September 28	Spill	17	2	0	0	0
	Powerhouse	2	0	0	0	0
	Outfall	2	50	0	0	0
	Forebay	0	0	0	0	8

With fall primary bypass season about to begin, casual observations of bird counts will resume. For the report week, no terns, or pelicans were counted.

In the spillway zone, gulls and cormorants were noted roosting. Gull numbers fluctuated greatly. The gulls did feed in the TSW flow when open. One osprey was noted roosting.

At the bypass outfall zone, a few gulls and an increasing number of cormorants were noted roosting. Occasionally, the birds would feed.

In the powerhouse zone, a few gulls were noted roosting. Gulls moved freely between the three tailwater zones.

In the forebay zone, one nonfeeding gull and a small flock of grebes were noted. Outside the zone, a few cormorants were observed along with a small number of gulls. One great blue heron was observed.

The two large bird distress calls remain deployed and active on the navigation lock wing wall. These calls became less effective during the juvenile shad out migration. It is possible these birds are a different species than what our calls are programmed for. The laser and LRAD remained deployed on the outfall walkway and are also less effective during the shad out migration. No other hazing is occurring.

Invasive Species: The mussel station examinations revealed no problems on September 24.

Siberian Prawn: Seven prawns were observed in this week's samples, bringing the season total to twenty-three.

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

Research: USGS personnel will return to the project to remove their spillway equipment in November. For a CRITFC study, there were no tissue samples removed from juvenile lamprey as no lamprey were collected this week. The total number of tissue samples remains at 780 for the season.

U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#30-2023

Project: Ice Harbor
Biologist: Ken Fone
Biological Science Technician: Ben McArthur
Dates: September 22 – September 28, 2023

Turbine Operation

Yes	No	Turbine Unit Status
	x	All 6 turbine units available for service (see table & comments below for details).
x		All available turbine units are operated in accordance with Appendix C of the Fish Passage Plan

Ice Harbor Unit Outages (OOS) and Return to Service (RTS)

	OOS		RTS		
Unit	Date	Time	Date	Time	Outage Description
1	6/27/23	07:08	---	---	Turbine runner replacement and stator rewind

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on September 22, 23, 24.

Fish Ladders:

Yes	No	Location	Criteria	Measurements
x		North Ladder Exit Differential	Head ≤ 0.3’	
x		North Ladder Picketed Lead Differential	Head ≤ 0.3’	
x		North Ladder Depth over Weirs	Head over weir 1.0’ to 1.3’	
x		South Ladder Exit Differential	Head ≤ 0.3’	
x		South Ladder Picketed Lead Differential	Head ≤ 0.3’	
x		South Ladder Depth over Weirs	Head over weir 1.0’ to 1.3’	

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
		x	South Shore Entrance (SFE-1) Weir Depth	≥ 8.0’ or on sill	
x			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
x			South Shore Channel Velocity	1.5 – 4.0 fps	
		x	North Powerhouse Entrance (NFE-2) Weir Depth	≥ 8.0’ or on sill	
x			North Powerhouse Entrance Channel/Tailwater Differential	1.0’ – 2.0’	
		x	North Shore Entrance (NEW-1) Weir Depth	≥ 8.0’ or on sill	
x			North Shore Channel/Tailwater Differential	1.0’ – 2.0’	

Comments: None

Auxiliary Water Supply (AWS) System:

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

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

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
x			Forebay debris load acceptable? (amount)	Average of 11 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-5%
	x		Any oil seen in gatewells?	

Comments: None.

Submersible Traveling Screens (STSs) / Vertical Barrier Screens (VBSs):

Yes	No	NA	Item
x			STSs deployed in all slots that are in service?
	x		STSs in continuous-run mode (Note: if not, then STSs are in cycle-run mode)?
	x		STSs/VBSs inspected this week?
		x	STS/VBS inspection results acceptable?
		x	VBSs differentials checked this week?
		x	VBSs differentials acceptable?

Comments: 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 actuator for the water regulating weirs in the collection channel is in local control due to a problem with the automatic control function. The weirs are being operated at the actuator to adjust the water level as needed until the problem can be fixed.

Orifice 6CN light was found to be out on September 23. The fixture was replaced to get the light working on September 25. Orifice 6CS was already open with its light working during that period, as two orifices are normally open in that slot.

Juvenile Fish Facility: The juvenile fish facility is operating in primary bypass.

Fish Sampling: Juvenile fish sampling is done for the season.

Removable Spillway Weir (RSW): Spill is occurring three times per week on non-consecutive days, from 0500 hours to 0900 hours.

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
24.0	17.0	1.6	0	69	67	8.2	6.5

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Turbine unit cooling water strainers will not be regularly inspected again until juvenile shad start plugging them up in the fall.

Avian Activity: There was light piscivorous bird activity observed around the project.

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.

Fish Rescue/Salvage: None.

Research: Unit 3 biotesting with sensor fish continues.

U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#30-2023

Project: Lower Monumental
Biologists: Denise Griffith and Raymond Addis
Dates: September 22 - 28, 2023

Turbine Operation

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

Comments: All available turbine units are operated in accordance with App. C of the Fish Passage Plan.

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

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
Unit 4	7/10/23	0710	9/28/23	1554	Annual/Overhaul/OPTO Upgrade
Unit 5	8/03/23	2200	10/05/23	ERTS	T-2 Repairs
Unit 6	8/03/23	2200	10/05/23	ERTS	T-2 Repairs

Comments: None.

Adult Fish Passage Facility

Lower Monumental fish facility, EAS and WDFW staff inspected the adult fishways on September 22, 23, 24, 25 and 28.

Fish Ladder:

Yes	No	Location	Criteria	Measurements
X		North Ladder Exit Differential	Head ≤ 0.5’	
X		North Ladder Picketed Lead Differential	Head ≤ 0.4’	
X		North Ladder Depth over Weirs	Head over weir 1.0’ to 1.3’	
X		South Ladder Exit Differential	Head ≤ 0.5’	
X		South Ladder Picketed Lead Differential	Head ≤ 0.3’	
X		South Ladder Depth over Weirs	Head over weir 1.0’ to 1.3’	

Comments: None.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Shore Entrance (NSE-1) Weir Depth	≥ 8.0’ or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	≥ 8.0’ or on sill	
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	
		X	South Powerhouse Entrance (SPE-1) Weir Depth	≥ 8.0’ or on sill	
		X	South Powerhouse Entrance (SPE-2) Weir Depth	≥ 8.0’ or on sill	
X			South Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
X		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 of 6.5, 7.0, 7.2, 7.2 and 6.9 feet respectively. South Powerhouse Entrance SPE-2 weir was at sill during all inspections with readings of 6.5, 7.0, 7.2, 7.2 and 6.9 feet respectively. South Shore Entrance SSE-1 weir was at sill during the September 22, 23, 25 and 28 inspections with readings of 7.7, 7.7, 7.9 and 7.9 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)	304 yd^2
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 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	VBSs differentials checked this week?
		X	VBSs differentials acceptable?

Comments: The STSs were on cycle mode due to average sub-yearling Chinook and sockeye lengths being greater 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 condition sample took place between September 24 – 25 and September 27 – 28. A total of 2 fish were collected and 2 bypassed during this period.

Transport Summary: Collection for transport ended for the season.

Spillway Weir: RSW spill for fall steelhead continues. Spillgate 5 was taken out of service for seal replacement on September 13 and its gearbox was found bad and needing replaced, estimated return to service on September 30,

2024. Spillgate 7 was taken out of service on September 16 to swap gearboxes with spillgate 8, estimated return to service on September 30, 2024.

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
25.5	17.7	1.4	0.0	66.5	65.2	5.7	4.7

*Scrollcase temperatures.

Other

Cooling Water Strainers: The cooling water strainers will not be examined again until December.

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

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
9/22/2023	1015	22	40	0	0	0
9/23/2023	1030	30	36	0	0	0
9/24/2023	930	47	38	0	0	0
9/25/2023	1030	115	29	0	0	0
9/26/2023	1500	31	12	0	0	2
9/27/2023	1525	39	35	0	0	1
9/28/2023	915	24	23	0	0	0

Comment: Bird hazing by USDA personnel ended on July 1. The five broken bird detourant wires over Powerhouse 1 zone will be replaced by USDA personnel in September or October of 2023.

Invasive Species: Mussel traps will be inspected for zebra or quagga mussels in October.

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by EAS, frozen and properly disposed of in a landfill. Sampling occurred on September 25 and 28.

Date	Sample (euthanized)	Collection*
September 25	2	2
September 28	13	26
Total	15	28

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

Fish Rescue/Salvage: No fish salvage took place this week.

Research: A PNNL study on behavior and survival of juvenile Pacific lamprey at Lower Monumental Dam will start on April 1 and run to September 30. PNNL removed most of the monitoring equipment from the raceways on June 22 and plans to remove remaining equipment during the first 2 weeks of November.

U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#30-2023

Project: Little Goose Dam
Biologist: Deb Snyder, Brooke Gerard, Cole Reeves
Dates: September 22 – September 28, 2023

Turbine Operation

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

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

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
5	4/14/2017	1411	12/01/2023	ERTS	Spider and upper guide bearing repair.
3	9/11/2023	0600	9/28/2023	1305	Unit annual maintenance

Comments: Contractual obligations and performance issues realigned the Unit 5 ERTS date into 2023, testing scheduled for winter maintenance period. Unit 3 returned to service from annual maintenance status on September 28 at 1305 hours.

Adult Fish Passage Facility

EAS Bio and ODFW staff inspected the adult Fishway on September 23, 27 and 28.

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		X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 7.0’ or on sill	
X		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	4.9- 9/27
X	X		North Shore Entrance (NSE-2) Weir Depth	≥ 6.0’ or on sill	5.0- 9/27 4.7- 9/28
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 initially returned to service on February 14, dewatered February 16 due to discovery of a second fish viewing window leak, then subsequently watered back up and commissioned for the season on February 23. The AWS pumps returned to service on February 23. The Fish Ladder Exit Cooling Water Pump was pulled, inspected, and readied for modest repairs on February 21. The Collection Channel Surface Velocity is measured at NPE. Rickly channel velocity measurements were completed and met criteria on July 27. Transponder readings documenting the Fish Ladder Depth over Weirs began displaying data inconsistent with physical staff gauge measurements beginning March 30. The North Shore fish entrance weirs continue to experience discrepancy readings between the Fish System Control (FSC) board and physical weir height measurements. We are working with SMP contracted personnel to standardize reporting to default to physical staff gauge measurements when FSC board discrepancies are detected. North Shore elevator out of service for September 27, 28 inspections defaulting measurements to FSC only at NSE. Criteria for activation of Fish Ladder Exit Cooling Pump was met, and the system was started at 2030 hours on June 7. The Fish Ladder Exit Cooling Pump failed during the 0900 hour on June 29th initially from two ground fault alarms, details outlined in 23 LGS 09 MFR.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
X			AWS Fish Pump 1
X			AWS Fish Pump 2
X			AWS Fish Pump 3

Comments: Fish pumps 1, 2, and 3 were returned to service February 23.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comment
X			Forebay debris load acceptable? (amount)	High 60 ft² - Low 8 ft²
	X		Gatewell drawdown measured this week?	
		X	Gatewell drawdown acceptable	
	X		Any debris seen in gatewells (% coverage)	
	X		Any oil seen in gatewells?	

Comments: The forebay maintained minimal floating debris inside the trash shear boom with the highest measurement occurring on September 23, 26, 27 at 40 ft². The overall total forebay debris high occurred September 27 at 60 ft².

ESBS/VBS:

Yes	No	NA	Item
X			ESBSs deployed in all slots and in service?
	X		ESBSs inspected this week?
		X	ESBSs inspection results acceptable?
	X		VBSs differentials checked this week?
		X	VBSs differentials acceptable?
	X		VBSs inspected this week?

Comments: Installation of Unit 4-6 ESBS's were completed on March 13 and installation of units 1-3 took place March 14. Underwater camera inspections of all unit gatewell VBS screens occurred June 12, 13, and 14. No deficiencies were found; detailed notes were taken and forwarded to mechanical crew personnel in preparation for

upcoming scheduled unit annual maintenance activities. During unit 6 annual, VBS screens in slot A were pulled and the few remaining stainless-steel fasteners were refurbished with nylon replacements.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	18-19
X			Dewaterer and cleaning systems operating satisfactory?	

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

Collection Facility: The juvenile collection facility watered up on March 21. Every other day collection for condition monitoring in conjunction with secondary bypass began March 25 with the first sample being conducted on March 26. Everyday collection began April 23 coinciding with every other day barge transportation. Barging transportation concluded with the final barge departure of June 19 returning to a combination of everyday condition sampling and secondary bypass operations. Every-other day primary by-pass was initiated on July 11 due to water temperatures above 68°F. Every day collection resumed at 0700 on August 1st corresponding with the start of every other day trucking operations as per the FPP. A total of 79 fish were collected and 67 were trucked. There were 0 sample or facility mortalities. The descaling and mortality rates were 2.4% and 0%, respectively. The collection and transport facility operated within criteria. Three adult lamprey were removed from the collection facility during this report period.

Transport Summary: Collection for fish transportation began April 23 with the first barge departure on April 24. Every other day barging is scheduled thereafter pending situational transition to everyday barging due to any unforeseen increase in fish numbers. Barge transportation for the season ended with the final barge departure on June 19. Collection for truck transport operations began August 1 with the first truck departure on August 2.

Spillway Weir: Little Goose began operation of the adjustable spillway weir (ASW) on March 1 to facilitate passage of adult steelhead overshoots. Operation occurred three days each week every other day for four hours in the morning. Spring spill operations began as scheduled on April 3. On June 12 the ASW was adjusted to high crest at 0840 hours per teletype instructions reducing ASW outflow from 11 to 7.4 kcfs due to decreased reservoir inflows. Summer spill operations began as scheduled on June 21. On August 1 at 14:02 hours the ASW was closed per RCC teletype in conjunction with FPP Chapter 8 section 2.3.2.7.e, diminished outflows below the 35 kcfs threshold.

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
22.60	17.50	1.5	0	67.1	66.4	6.0	6.0

*Ladder temperature.

Other

Inline Cooling Water Strainers: Inline cooling strainer inspections commenced on December 1, 2022. Inspections will continue in accordance with the Fish Passage Plan (FPP) and results will be submitted to the District.

Avian Activity: Daily piscivorous bird counts at Little Goose Dam are scheduled to begin April 1, while USDA-APHIS bird abatement contract services are in place.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
9-22	1030	3	0	0	0
9-23	1000	4	0	0	0
9-24	0955	7	10	0	0
9-25	1345	10	7	0	0
9-26	0800	17	11	0	0
9-27	1200	12	12	0	0
9-28	1000	17	0	0	0

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

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

Date	Sample	Collection*
9-22	69	69
9-23	91	91
9-24	81	81
9-25	102	102
9-26	50	50
9-27	80	80
9-28	76	76
Totals	549	549

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

Gas Bubble Trauma (GBT): Oregon Department of Fish and Wildlife began GBT monitoring services starting on April 4, 2023. Final season GBT monitoring occurred on July 26 and 27th. Of the 46 fish examined, 0 fish exhibited signs of GBT.

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

Research: The Nez Perce Tribe (NPT) began adult steelhead kelt collection efforts on March 26 and concluded collection on July 1.

U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#30-2023

Project: Lower Granite
Biologists: David Miller/Steve Lee
Dates: September 22-28, 2023

Turbine Operation

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

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

	OOS		RTS		
Unit	Date	Time	Date	Time	Outage Description

Comments:

Adult Fish Passage Facility

Lower Granite biologists inspected the adult fishway on September 23, 24, 25, and 27.

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 Cooling Pump 1 was turned off at 1400 on August 24.

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
	X		South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	7.2’, 7.4’, 7.4’
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.2’, 7.4’, 7.4’
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’	
X			North Shore Entrance (NSE-1) Weir Depth	≥ 7.0’ or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	0.9’, 0.9’
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: Ladder collection channel operation and configuration will continue to be evaluated this season to resolve ongoing issues. FOGs 1, 4, 7, and 10 are in operation. Electrical crew continues to calibrate the ladder when issues are reported.

Auxiliary Water Supply System:

Operating Satisfactorily	Standby	Out of Service	Auxiliary Water Supply (AWS)
Yes			AWS Fish Pump 1
Yes			AWS Fish Pump 2
	Yes		AWS Fish Pump 3

Comments: AWS pumps 1 and 2 remain in service.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	12.0 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: N/A

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe:

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

Comments:

Collection Facility: The collection facility is general collection mode for transport and collecting for condition sampling and USGS research. Lamprey genetic sampling for CRITFC continues. Collection for truck transport started at 0700 hours August 1.

Transport Summary: Transport resumed with the first truck departing LWG August 3. A total of 161 fish were transported by truck during the current report week. For the season, 16,809 fish have been transported by truck and 3,041,835 were transported by barge from Lower Granite.

Spillway Weir PIT OBS: Late summer spill started August 15. There have been 213 adult and 84,648 juvenile Chinook salmon; 713 adult and 54,965 juvenile steelhead; 8 adult and 2,981 juvenile Coho salmon; and 12,162 juvenile Sockeye salmon detected at the RSW since March 1 (DART).

Juvenile Bypass System PIT OBS: There have been 37 adult and 45,250 juvenile Chinook salmon; 196 adult 38,032 juvenile steelhead; 3 adult and 1,209 juvenile Coho salmon; and 1,141 juvenile Sockeye salmon detected through the JBS since March 15 (DART).

River Conditions

River conditions at Lower Granite Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (°F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
24.4	18.8	1.6	0	65.5	64.0	5.0	5.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: N/A

Invasive Species: No zebra/quagga muscles were detected on the trap substrate. There were 1,053 Siberian prawns collected in the sample.

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

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
Sep 22	1407	1	18	0	0
Sep 23	1030	0	17	0	0
Sep 24	0905	2	11	0	0
Sep 25	1005	0	19	0	0
Sep 26	0735	0	12	0	0
Sep 27	1300	0	10	0	0
Sep 28	1315	0	20	0	0

Gas Bubble Trauma (GBT) Monitoring: N/A

Adult Fish Trap Operations: Broodstock collection for WDFW ended September 20 and September 26 for NPT. The trap sample rate was changed to 18% on August 30 and the trap is being operated 7 days per week.

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

PIT Tagging and Genetic Sample Collection from Bull Trout for USFWS:

Bull trout will be collected as part of the normal adult trap daily sample and using the adult SbyC system to recapture previously PIT tagged fish. Untagged bull trout will be PIT tagged, fin clipped for genetic analysis, and have morphometric data collected including weight and length etc. Fin clips will be sent to USFWS to determine the fish's origin. Previously PIT tagged bull trout will only have morphometric data collected. All fish will be released back into the adult fish ladder.

PNNL Juvenile Pacific Lamprey Passage Behavior and Survival at Lower Granite:

The goal of the study is to address questions regarding potential effects of dam operations and configurations on juvenile Pacific lamprey behavior and survival using The Juvenile Salmon Acoustic Telemetry System (JSATS). A target of 450 juvenile and 450 larval lamprey will be collected, implanted with a juvenile Eel/Lamprey Acoustic Transmitter (ELAT), and released upstream of LWG. An additional 1000 juvenile or larval lamprey will be implanted with PIT tags. Distribution and approach routes (including vertical, horizontal, and temporal), primary routes of passage (proportions) at LWG, project survival from forebay to tailrace, and reach survival and reservoir residence time will be evaluated using the telemetry system. In addition, 50 dead tagged juvenile lamprey will be released from LGR and 50 from LMN to estimate dam passage survival using the virtual release/dead-fish correction (ViRDCt) model. Detection of tagged individuals will be summarized to evaluate passage routing and estimate dam passage survival at LGR and LMN, estimate reach survival downstream of LWG and downstream of LMN, and evaluate travel time between detection arrays. There have been 816 larval and 1170 juvenile lamprey have been collected for PNNL this season. Of the total collection, 655 larval and 1074 juvenile lamprey have been either PIT tagged or acoustic tagged at LWG and released at Blyton Landing, 110 larval and 196 juveniles were handled and released without being tagged, and there were 25 larval and 14 juvenile lamprey recovery mortalities. Collection of juvenile lamprey resumed the last week of September.

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 (***Samples limits for larval season total were increased to 1250 and larval daily collection limits were decreased to 5 daily on September 13***), during the routine smolt monitor condition sampling from March through September. The purpose of this study is to fill two objectives; 1) Determine relative proportion of translocation offspring among the total abundance of larval and juvenile lamprey passing the juvenile bypass systems at BON, JDA, MCN, and LWG. 2) Describe life history characteristics of larval and juvenile lamprey emigrating from the Columbia and Snake River basins. The genetic information collected will be used to evaluate the tribal Pacific lamprey programs efficacy and assist with guiding future management. LWG SMP collected genetic samples from 421 juvenile and 1059 larval lamprey this season.