U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#09-2022

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: April 29 – May 5, 2022

Turbine Operation

Yes	No	Turbine Unit Status
	X	All 14 turbine units available for service? (See table & comments below for details.)

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

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

	OOS		RTS		
Unit(s)	**Date**	**Time**	**Date**	**Time**	**Outage Description**
7	10/4/21	0730	6/23/22	N/A	Blade seals replaced
5	5/2	1307	5/3	1049	Inspect ESBS in 5B slot for lubricant leak
1 & 12	5/3	1000	5/3	1130	Rotated units for ESBS camera inspection
8	5/3	1230	5/3	1430	Remove woody material from 8A slot orifice

Comments: The one percent peak efficiency constraint and unit priority are being followed per the 2022 Fish Passage Plan (FPP). RTS dates are subject to change.

Adult Fish Passage Facilities

The McNary fisheries staff performed measured inspections of the adult fishways on April 29, May 1 and 4. In person fish counting continued.

Fish Ladder Exits:

Yes	No	Location	Criteria	Measurements
X		Oregon Exit	Head over weir 1.0’ to 1.3’	1.0’ to 1.2’
X		Oregon Count Station Differential	0.0’ to 0.5’	0.2’ to 0.3’
X		Washington Exit	Head over weir 1.0’ to 1.3’	1.0’ to 1.1’
X		Washington Count Station Differential	0.0’ to 0.5’	0.2’

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

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'	1.8' to 1.9'
X			NFEW2 Weir Depth	≥ 8.0'	9.3' to 9.5'
	X		NFEW3 Weir Depth	≥ 8.0'	Raised
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.2' to 1.3'
	X		SFEW1 Weir Depth	≥ 8.0'	7.4' to 7.5'
	X		SFEW2 Weir Depth	≥ 8.0'	7.4' to 7.5'
	X		Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.3 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	1.2' to 1.4'
X			WFE2 Weir Depth	≥ 8.0'	9.1' to 9.4'
X			WFE3 Weir Depth	≥ 8.0'	9.1' to 9.3'

Comments: The above out of criteria points were due to the Oregon ladder operating with only one functional fish pump under the configuration as outlined in the FPP. NEFW3 was raised, SFEW1 and SFEW2 were out of criteria, and the velocity was low all week.

Floating orifice gate slot W26 is currently closed. However, the gate in that slot is damaged and will need to be replaced.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Fish Pump Blade Angle	Auxiliary Water Supply System (AWS)
Yes				WA shore Wasco County PUD Turbine Unit
	Yes			WA shore Wasco PUD Bypass
Yes			28°	Oregon Ladder Fish Pump 1
		Yes		Oregon Ladder Fish Pump 2
		Yes		Oregon Ladder Fish Pump 3, RTS date is October 29
Yes				OR North Powerhouse Pool supply from juvenile fishway

Comments: Fish pumps 2 and 3 remain out of service. Fish pump 3 will be repaired first. Return to service dates are subject to change.

Juvenile Fish Passage Facility

Every other day sample collection continued with no interruptions in the schedule.

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 and minimal beside the spillway. New debris loads were minimal to very light. For now, forebay debris has dissipated.

Trash racks are scheduled to be cleaned in late May.

A sheen was noted in 5B slot on May 2. The orifice was closed for one hour. It was determined the sheen was probably a biological substance. However, the unit was switched from standby to out of service so the ESBS could

be inspected the next day. No issues with the screen were found. Absorbent pads added to the slot revealed on problems.

During ESBS camera inspections on May 3, 8A slot south orifice was examined. A piece of wood material was found covering at least half of the orifice opening. Unit 8 was switched from standby to out of service and both orifices in the slot were closed for safety while the woody material was removed.

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 unit 7, which remains out of service. No issues were found with the ESBS in 5B slot, and camera inspections in units 1 and 12 revealed no problems on May 3.

Daily VBS differential monitoring revealed no high differentials, 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: Moisture in the temporary air supply line has decreased. However, we will continue to bleed off the line on every shift and orifice cycling continues at the normal frequency. Orifice operators were repaired as required.

The orifices in 5A slot were closed for one hour on during inspection on May 2. The orifices in 8A slot were closed two hours for debris removal from the south orifice on May 3. Afterword, the south orifice returned to service. During both operations, an additional orifice was opened in an adjacent slot.

The north side dewatering valve, one of two valves that regulate channel elevation, was observed not running smoothly at times and will be monitored.

Bypass Facility:

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

Comments: All bypass facility systems functioned well. The sample gates were only on during secondary bypass. The PIT-tag system gates remained off as there is no need for that system.

This week, 20 juvenile lamprey and 29,021 smolts, mostly yearling Chinook salmon, were bypassed during secondary bypass. The smolt monitoring staff reports fish data in a separate report.

Top Spillway Weir (TSW) Operations: The TSW's in spillbays 19 and 20 remained open. The TSW's in bays 19 and 20 are attached to crane 6 and a hoist, respectively.

River Conditions

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
161.0	150.1	105.4	94.7	51.2	49.3	6.0	5.0

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

The two spillway cranes can no longer be operated remotely. A crane operator is required to open any gate attached to the cranes. Both cranes are in service and can be used in a limited bases for the spill program. Their load limits will be tested in May. The hoist in bay 6 has a failed gearbox. The hoist's return to service date has yet to be fully finalized with parts on order. The spill pattern changes caused by these issues are in the current FPP.

Other

Inline Cooling Water Strainers: The cooling water strainer inspections revealed 26 juvenile lamprey, seven yearling Chinook salmon and two steelhead smolt mortalities along with one live clipped steelhead smolt on May 3.

Avian Activity: Recording avian counts continued. These counts are reflected in the Table below.

McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican	Grebe
April 29	Spill	36	0	0	0	0
	Powerhouse	2	0	0	0	0
	Outfall	24	12	0	1	0
	Forebay	0	0	0	0	2
April 30	Spill	29	0	0	1	0
	Powerhouse	2	0	0	2	0
	Outfall	42	10	0	0	0
	Forebay	0	0	0	0	0
May 1	Spill	20	0	0	2	0
	Powerhouse	3	0	0	0	0
	Outfall	44	18	0	0	0
	Forebay	0	0	0	0	0
May 2	Spill	115	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	18	16	0	0	0
	Forebay	0	0	0	0	2
May 3	Spill	42	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	78	21	0	1	0
	Forebay	0	0	0	0	20
May 4	Spill	35	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	25	6	0	0	0
	Forebay	0	0	0	0	0
May 5	Spill	16	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0

	Forebay	1	0	0	0	0

The laser on the outfall pipe remained out of service for safety concerns. The laser needs a new mounting backet manufactured.

The navigation lock wing wall laser, which is aimed at the outfall, remains in service along with the two large bird distress calls. Solar panels for the LRAD have been ordered. A mounting bracket for the LRAD is currently being built. USDA Wildlife Services daily shore hazing continued. The first boat hazing trip was on May 5. Two earlier trips were missed due to weather and illness. One trip will be made up on May 6.

In the spillway zone, gull numbers gradually increased, with the birds feeding along with an occasional pelican or two.

In the powerhouse zone, a few gulls were noted roosting on the water near the outfall pipe along with an occasional pelican.

In the bypass outfall zone, gulls and cormorant were observed. Most birds were roosting, but several were noted feeding in the outfall. More hazing effort needs to be applied to the feeding birds. The boat hazing was effective. Cormorant numbers remained lower and gull numbers increased. Two pelicans were noted drifting by the outfall.

In the forebay zone, grebes continued to feed but their number have been fluctuating. No other birds were noted except an occasional loon or gull. Outside the zone, more gulls, grebes, and pelicans along with a few cormorants, osprey, and loons were observed.

No terns have been verified on project at this time.

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

Siberian Prawn: No Siberian prawns were removed from the sample this week. None have been seen this year.

Fish Rescue/Salvage: For this week, there is nothing to report.

Research: For a CRITFC study, there were tissue samples removed from one juvenile lamprey collected at the facility this week. For the season, a corrected number of 229 juvenile lampreys have been sampled. All fish were returned to the river unharmed.

Gas bubble trauma examinations occurred on May 2. Fish are recorded on the next data day. For the report week, one smolt was observed with signs of trauma.

Project: Ice Harbor
Fisheries Biologist: Ken Fone

Turbine Operation

Yes	No	Turbine Unit Status
	x	All 6 turbine units available for service (see table & comments below for details).

*All available turbine units are operated in accordance with App. 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**
3	5/3/19	0641	---	---	Turbine runner replacement and stator rewind
6	4/16/22	1813	---	---	Head cover pump failure and turbine pit flooding; annual maintenance; Franklin Substation 115 kv line #3 relay replacement
5	4/18/22	1106	---	---	Franklin Substation 115 kv line #3 relay replacement; annual maintenance

Comments: Intake gate cylinder 6A was replaced with a refurbished cylinder during the reporting week.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on May 2, 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 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’	0.9’
		x	North Shore Entrance (NEW-1) Weir Depth	≥ 8.0’ or on sill	
x			North Shore Channel/Tailwater Differential	1.0’ – 2.0’	

Comments: The north powerhouse channel/tailwater differential was slightly below criteria on May 5 due to an increase in the tailwater elevation. The powerhouse operator was asked to raise NFE-2 weir enough to bring the head differential into criteria. The entrance weir is in manual control to reduce the wear and tear on the hoist machinery from the PLC constantly adjusting the weir, while in automatic control, in response to fluctuating tailwater elevations caused by spill.

Auxiliary Water Supply System:

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

Comments: South shore AWS pump #1 is out of service for unwatering and investigation of a cavitation/vibration problem.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
x			Forebay debris load acceptable? (amount)	Average of 5 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-6%
	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	VBS differentials checked this week?
		x	VBS 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 was placed in local control shortly after watering up the channel in March due to a problem with the automatic control settings. The weirs are being operated at the actuator to adjust the water level as needed until the problem can be fixed.

The mechanical screen cleaner in the primary dewatering structure was taken out of service on April 26 because of the travel cable getting wrapped over itself on the drive pulley. The sheaves were adjusted to keep the cable separated on the pulley, but the cable became too frayed to stay on the sheaves. New cable was installed, and the screen cleaner was returned to service on May 5.

Juvenile Fish Facility: The fish facility is operating in primary bypass mode except when collecting fish for sampling.

Fish Sampling: Fish condition sampling is occurring on Mondays and Thursdays of each week. See the tables below for a summary of the sampling results. The one mortality in the May 5 sample came into the separator in that condition and appeared to have been dead for several days.

Fish condition sampling results at Ice Harbor Dam:

Date: May 2

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	24	0	0	0
Chinook yearling unclipped	9	0	0	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	0	---	---	---
Steelhead clipped	94	2	0	0
Steelhead unclipped	9	0	0	2
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	136	2	0	2

Date: May 5

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	12	0	1	0
Chinook yearling unclipped	5	0	0	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	0	---	---	---
Steelhead clipped	86	0	0	1
Steelhead unclipped	6	0	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	109	0	1	1

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
57.2	44.9	46.1	34.4	50	49	7.0	7.0

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: The next turbine cooling water strainer inspections for fish will occur on May 11.

Avian Activity: There were low to high numbers of piscivorous birds observed around the project (see table below). Land-based hazing of piscivorous birds is occurring for 16 hours per day. Boat-based hazing is occurring for 8 hours per day, 5 days per week. Hazing has been effective at reducing cormorant, gull, and tern numbers around the project. The hazing of pelicans is still not allowed in Washington.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
April 29	10	2	0	0	2
April 30	2	8	0	0	4
May 1	0	17	0	0	110
May 2	0	5	0	0	62
May 3	0	0	0	0	0
May 4	0	1	0	0	0
May 5	11	3	0	0	0

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*
May 2	1	1
May 5	1	1
Totals	2	2

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

Fish Rescue/Salvage: Unwatering activities that involved fish rescue did not occur this week.

Research: No on-site research is occurring at this time

Project: Lower Monumental
Biologists: Denise Griffith and Raymond Addis

Turbine Operation

Yes	No	Turbine Unit Status
X		All 6 turbine units available for service (see table & comments below for details).

* 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 1	5/04/2022	0701	5/04/2022	0906	STS Inspection
Unit 2	5/04/2022	0925	5/04/2022	1045	STS Inspection
Unit 3	5/04/2022	1110	5/04/2022	1230	STS Inspection
Unit 4	5/04/2022	1300	5/04/2022	1510	STS Inspection
Unit 5	5/03/2022	1235	5/03/2022	1440	STS Inspection
Unit 6	5/03/2022	0900	5/03/2022	1225	STS Inspection

Comments: None.

Adult Fish Passage Facility

The adult fishways were inspected by Corps biologists on April 29, 30, May 1 and 4.

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	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 Weir SPE-1 was on sill during all inspections with readings of 5.4, 5.5, 5.5 and 5.9 feet respectively. South Powerhouse Entrance Weir SPE-2 was on sill during all inspections with 5.4, 5.5, 5.5 and 5.9 feet respectively. South Shore Entrance SSE-1 was out of criteria on the April 29 inspection with a reading of 6.9 feet. Powerhouse operator was instructed to place SSE-1 at sill. South Shore Entrance SSE-1 was at sill during the April 30, May 1 and 4 inspections with readings of 5.8, 5.8 and 6.6 feet respectively. South Powerhouse tailwater staff gauge's, SG9N, frame was found loose on the April 13 inspections. If the gauge remains unreadable, readings will be taken from the digital readings. There has been an order placed for new staff gauges and the project plans to install them during the winter maintenance period.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
Yes			AWS Fish Pump 1
Yes			AWS Fish Pump 2
Yes			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)	7 yds^2
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 10%
	X		Any oil seen in gatewells?	Very small amount

Comments: None.

STSs/VBSs:

Yes	No	NA	Item
X			STSs deployed and in service in operating and available units?
	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 are running in Cycle-run mode due to average sub-yearling Chinook salmon and sockeye salmon lengths being greater than 120 mm. The STSs were inspected on May 3 and 4. All inspected STSs were in good working order.

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: The air bubbler, zone 3, stopped functioning on April 1. The mechanics examined the bubbler and found it needed a solenoid replacement. Zone 3 is currently OOS until the electrical powerhouse staff can complete the work.

Collection Facility: Collection for transport continues.

Transport Summary: Every-other day barge transport continues. A total of 52,000 fish were collected with 39,918 fish being transported and 100 fish bypassed back to the river during this reporting period.

Spillway: Spring spill is still occurring. Spillways 1, 2, 6 and 7 were taken out of service at 1800 on April 22 due to trunnion stress issues with an estimated return to service date of May 30. Spillway 7 received the approval to return to service on May 2 at 1625. The application of the grease line was completed to gate 6 on May 3 at 0900 and the gate was returned to service May 4 at 0925. Spillway 3 was out of service from 0700 to 1700 on May 5 while work was being done on spillway 2.

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
54.7	43.6	40.0	12.8	50.0	47.1	6.0	4.2

*Scrollcase temperatures.

Other

Cooling Water Strainers: The next cooling water examinations will occur in May.

Avian Activity: Highest daily counts of piscivorous birds in all zones combined at Lower Monumental Dam are reported in the table below.

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
4/29/2022	1715	56	5	0	0	3
4/30/2022	1700	8	0	0	0	0
5/1/2022	1715	26	2	0	0	3
5/2/2022	1000	68	2	0	0	49
5/3/2022	930	123	5	0	0	48
5/4/2022	1354	16	0	0	0	7
5/5/2022	815	77	3	0	0	15

Comments: Piscivorous bird observations are occurring daily. Bird hazing by USDA personnel is currently occurring. The outfall bird cannon functioned efficiently this week.

Invasive Species: No zebra or quagga mussels were observed during monitoring station inspections on May 1.

Fish Rescue/Salvage: No Fish Rescue/Salvage took place during this reporting period.

Research: GBT examinations occurred on May 4. A total of 26 clipped, 24 unclipped yearly Chinook salmon and 46 clipped steelhead and 4 unclipped steelhead smolts were examined. Gas bubble trauma was detected in the fins of 2 clipped and 1 unclipped yearling Chinook salmon.

Project: Little Goose
Biologists: Chuck Barnes and Deborah Snyder

Turbine Operation

Yes	No	Turbine Unit Status
	X	All 6 turbine units available for service (see table & comments below for details).

*All available turbine units are operated in accordance with App. 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	04/14/17	14:11	12/31/2022	ERTS	Spider and upper guide bearing repair.

Comments: None.

Adult Fish Passage Facility

EAS Bio staff inspected the adult Fishway on April 30, May 2, and May 5. The FSC board was recommissioned on May 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	X		South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	6.85 4/30;7.45 5/5
X	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	6.85 4/30; 7.40 5/5
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
	X	X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 7.0’ or on sill	5.05 5/5
	X	X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 7.0’ or on sill	4.85 5/5
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	-6.0 5/5
X	X		North Shore Entrance (NSE-2) Weir Depth	≥ 6.0’ or on sill	3.3 5/5
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 8 with AWS pumps returning to service on February 24. The NSE channel/tailwater differential and NSE weir depths were manually measured, adjusted, and monitored into criteria from February 24 through March 1. The fishway Fish System Control was recommissioned on May 5 with NPE weir reading anomalies. USACE staff readings and manual weir calculation substitutions were not available during this report period. Excepting SSE-1 and SSE-2 weir differentials on April 30 and weirs being out of criteria prior to FSC board calibration on May 5, all other remaining locations met criteria during inspections

for this report period. The Fish Ladder Exit Cooling Water Pump was replaced, installed, and readied for service on April 23.

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 24.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comment
X			Forebay debris load acceptable? (amount)	High 0^2 - Low $0ft^2$
	X		Gatewell drawdown measured this week?	
		X	Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	<1%: 5A & 6C 4/29
X			Any oil seen in gatewells?	3C 4/30; 3A 5/4 & 5/5

Comments: The forebay had no floating woody debris inside the trash shear boom. Gatewell sheens were observed in 3C and 3A from deck wash during rainy weather events with oil absorbent materials deployed.

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 began March 21 with most units completed on March 22.

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 March 23.

Collection Facility: The juvenile collection facility completed water up activities on March 29. Every other day collection for condition monitoring in conjunction with secondary bypass commenced on April 1 with the first sample being conducted on April 2. Everyday collection began April 23 coinciding with every other day barge transportation. A total of 144,889 fish were collected, 0 were bypassed, 127,996 were transported via barge, and there were 94 sample or facility mortalities. The descaling and mortality rates were 1.3% and 0.07%, respectively. No adult lamprey were removed from the separator during this report period. The collection and transport facility operated within criteria this report period.

Transport Summary: Collection for fish transportation began April 23 with the first barge departure on April 24.

Spillway Weir: Little Goose began operation of the adjustable spillway weir (ASW) on March 2 to facilitate passage of adult steelhead overshoots. Operation occurred three days each week on non-consecutive days for four hours in the morning and will continue to occur on Tuesday, Thursday and Sunday each week, through March 31. Spring spill operations began as scheduled on April 3 with the ASW in high crest. On April 14, the ASW standard high crest setting of 622 ft. elevation was raised to 625 ft. elevation as outlined in 22 LGS 03 MOC. Actions were taken to raise the forebay elevation to MOP+3 in order to mitigate a navigational hazard with an estimated duration of 2 weeks without impact to spill levels as outlined in both FOP and FPP.

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
51.0	40.0	31.7	17.2	48.1	47.2	5.5	4.1

*Ladder temperature.

Other

Inline Cooling Water Strainers: Inline cooling strainer inspections commenced on December 9, 2021. 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 began April 1 with hazing beginning on March 29.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
4-29	8:30	1	0	0	1
4-30	8:30	0	0	0	8
5-1	8:30	11	0	0	15
5-2	13:00	0	0	0	0
5-3	8:00	0	0	0	0
5-4	8:30	0	1	0	1
5-5	9:26	15	0	0	15

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

Siberian Prawn: Juvenile fish collection began on April 1. Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by Oregon Department of Fish and Wildlife and Anchor, frozen and properly disposed of in a landfill. Daily and total Siberian prawn counts at Little Goose Dam for this reporting period are listed below.

Date	Sample	Collection
4-29	0	0
4-30	0	0
5-1	0	0
5-2	0	0
5-3	0	0
5-4	0	0
5-5	0	0
Totals	0	0

Gas Bubble Trauma (GBT): GBT monitoring occurred May 4. Of the 100 fish examined, 0 fish exhibited signs of GBT.

Fish Rescue/Salvage: No fish salvage operations occurred during this report period.

Research: The Nez Perce Tribe (NPT) began adult steelhead kelt collection efforts on April 1.

Project: Lower Granite
Biologists: Elizabeth Holdren and David Miller

Turbine Operation

Yes	No	Turbine Unit Status
	X	All 6 turbine units available for service (see table & comments below for details).

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

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

	OOS		RTS		
Unit	Date	Time	Date	Time	Outage Description
4	4/11	0710			Annual Maintenance DCLV Switchgear/T1 Transformer oil leak/Doble Testing

Comments: None.

Adult Fish Passage Facility

Lower Granite Biologists and Anchor QEA staff inspected the adult fishway on April 29, 30, May 2 and 4.

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: LWG mechanical crew started fish ladder cooling pump pipe reorientation work to provide additional cooling water to the ladder exit at 1215 hours May 5. This work is expected to completed around May 26.

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
X			South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	
X			South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 8.0’ or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 8.0’ or on sill	
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	0.8’
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	6.9’
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	0.9’, 0.8’
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: Ladder collection channel operation and configuration are being evaluated to resolve ongoing issues. FOGs 1, 4, 7, and 10 are in operation. Although both entrance gates are operating, the north shore has not consistently meet channel/tailwater head differential criteria which seems to be related to the operations of all four FOGs.

Auxiliary Water Supply System:

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

Comments: AWS pump 1 was returned at 1415 hours April 19. Brining AWS pump 1 online will requires a four-hour outage of AWS pumps to swap stoplogs which will be coordinated thought FPOM.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	10.3 yds^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: Gatewells are inspected for foreign substances and debris quantity and removal daily

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: ESBSs and VBS inspection were conducted April 24-25. All screens passed inspection.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe:

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

Comments: The juvenile bypass system was switched from secondary bypass to general collection for transport at 0700 hours April 23.

Collection Facility: Collection for general transport began at 0700 hours April 23. Collection for NOAA in river verses transport study is occurring Sunday-Thursday. Fish are tagged and sent to a recovery tank or raceway the following day.

Transport Summary: Every-other-day transport began April 24. A total of 110,775 fish were collected and transported this week. Recovered NOAA fish in the raceway were transported every-other-day.

Spillway Weir: Lower Granite shifted to Spring Spill operations with the RSW open 24 hours per day at 0001 hours April 3. There were 37,984 juvenile and 237 adult PIT-tagged steelhead, 56,015 juvenile and 1 adult PIT-tagged

Chinook salmon, and 1,364 juvenile Coho salmon detected over the RSW spillway since March 1. Since the juvenile bypass system was watered up on March 14, PIT detection within the JBS has detected 5,572 juvenile and 1 adult Chinook salmon, 4,679 juvenile and 17 adult steelhead.

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
55.9	42.8	37.2	28.0	51.0	50.0	5.0	4.6

*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 0 Siberian prawn in the condition sample however there was one noted during barge loading.

Avian Activity: Biologist daily piscivorous bird counts and hazing began April 1 at Lower Granite Dam.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
April 29	1015	0	0	0	4
April 30	1130	0	0	0	3
May 1	1046	11	0	0	2
May 2	1051	3	0	0	2
May 3	1240	14	0	0	5
May 4	1008	2	0	0	5
May 5	1240	14	0	0	0

Gas Bubble Trauma (GBT) Monitoring: GBT sampling occurred May 5 with 100 smolts sampled and no symptoms of GBT observed.

Adult Fish Trap Operations: The adult trap is operating Monday through Friday at a 25% (18% /week) sample rate.

Fish Rescue/Salvage: N/A

Research:

National Marine Fisheries Service (NMFS) PIT tagging of Adult Wild Chinook salmon and Adult Steelhead for ISEMP-Related Dispersal Monitoring:

The goal of this project is to PIT tag up to 4000 unclipped adult Chinook salmon 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 April 4 through December 15. The goal is to collect 5-20% of adult steelhead, spring/summer Chinook salmon, and sockeye salmon ascending the ladder. 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.

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 lamprey will be collected, implanted with a juvenile Eel/Lamprey Acoustic Transmitter (ELAT), and released upstream of LWG. 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. Since March 24, 66 juvenile lamprey have been collected for the study, 61 were tagged and released Blyton at Landing upstream of LWG. No lamprey were collected this report week.

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 1000 juvenile and 500 larval Pacific lamprey, not to exceed 20 juvenile or 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. There have been 75 macrophthalmia (juvenile) and 220 ammocoete (larval) lamprey samples have been collected this season.

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

NMFS PIT tags Chinook salmon 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 will continue Monday-Friday until the middle of June.