U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#17-2023

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: June 23-29, 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
10	6/5	0758	7/28	NA	Nine-year overhaul
13 & 14	6/12	0636	12/21	NA	Control system upgrades
5 & 6	5/22	0605	6/27	1615	Transformer gasket replacement
3	6/26	0700	6/29	1238	Annual maintenance
1, 7, 8 & 9	6/27	0819	6/27	1109	Rotated through units for trash rack cleaning

Comments: RTS dates are subject to change.

Adult Fish Passage Facilities

Measured inspections of the adult fishways occurred on June 23, 25 and 28. Visual adult fish counting, and video review of nighttime lamprey passage continues.

Fish Ladder Exits:

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

Comments: Debris loads were minimal to light near the Oregon shore exit and minimal 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 Washington shore exit, a regulating weir alarm came in and was reset on June 28.

There are no other 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	≥ 8.0'	8.3' to 8.4'
X			NFEW3 Weir Depth	≥ 8.0'	8.2' to 8.4'
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.6' to 1.8'
X			SFEW1 Weir Depth	≥ 8.0'	8.4' to 8.5'
X			SFEW2 Weir Depth	≥ 8.0'	8.4' to 8.5'
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 2.2 fps
X			Washington Entrance Head Differential	1.0' – 2.0'	1.3' to 1.5'
X			WFE2 Weir Depth	≥ 8.0'	8.4' to 8.7'
X			WFE3 Weir Depth	≥ 8.0'	8.3' to 8.7'

Comments: There are no problems to report.

Three floating orifice gates (FOG's) slots, W32, W37 and W41 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			23° to 24°	Oregon Ladder Fish Pump 1
Yes			21° to 22°	Oregon Ladder Fish Pump 2
Yes			24°	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. Installation of a new forebay (intake) deck crane continues. This will add some challenges to various task.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Minimal to 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 light near the powerhouse. New incoming debris was minimal. Weather changes move the debris, and some has been spilled. Residual debris loads beside the spillway were light to moderate. Most of the debris was fine or woody material and aquatic vegetation.

Trash rack cleaning in units 1, 7, 8 and 9 occur on June 27. These were the units that had been running most frequently. There were two yards of woody and other material removed. No fish were observed.

The algae blooms in the gatewells slots in units 5 and 6 dissipated when the units returned to service on June 27.
For the new intake crane assembly, units 12 to 14 gatewells slots remained covered over. Only unit 12 will be online for the two weeks it will take to complete crane assembly. To allow vehicle access to the west side of the intake deck, the

gatewell in 7C slot also remained covered over. There are openings around the covers which will allow for VBS differential monitoring in unit 12 and 7C slot.

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. No camera inspections occurred this week due to traffic on the intake deck.

Daily VBS differential monitoring continued. No high differentials were recorded. Two screens were cleaned on June 27. No fish were observed.

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: Orifice were adjusted for VBS, and trash rack cleaning as required. The orifice in 7A slot appeared to have a partial blockage, which was immediately cleared, on June 23.

There are no other issues to report.

Bypass Facility:

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

Comments: The sample gates continue to operate every other day for sample collection. The PIT sample tag system will not be used again this year.

This week, 4,900 juvenile lamprey and 52,251 smolts, mostly sub-yearling Chinook, were bypassed during secondary bypass. The smolt monitoring staff reports fish data in a separate report.

The wet lab was inadvertently flooded when one of the sample tank release gates was found to be partially open on June 24. The wet lab and area below it was completely dry by June 26. To prevent this problem in the future, the release gates were also marked on June 26.

TSW Operations: In bay 19, the standard gate was installed on June 22 and limits were set June 27. However, the spillway control program would not communicate with the hoist. After two days of no success with the program, the bay was opened manually on June 29 at 1509 hours.

TSW removal and standard gate installation along with the hoist's limits being set in bay 20 occurred on June 26 and 27. The bay was opened on June 27 at 1620 hours. Current spill patterns were followed as closely as possible. Spillway pattern manipulation for TSW install this week will be discussed in the River Conditions section below.

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
167.7	138.6	95.4	81.1	67.0	62.2	6.0	4.0

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. The summer spill season, with 57 percent of the flow being spilled, continues. However, due to only one adjustment in the pattern being made at midnight, the percentage of flow being spilled is not exactly 57 percent.

The smolt monitoring staff continued to collect water temperature data related to juvenile passage and will report the data in daily and weekly reports. Adult passage temperature monitoring is year-round.

Cranes 6 and 7 cannot perform an overloaded lift until April 2024. We are unable to adjust spillway gates 2 and 6 for flow this season, as prescribed by the Fish Passage Plan, potentially we will be unable to perform critical maintenance and repairs on spillway equipment, and we will be unable to close spillway gates 2 and 6 at the end of this spill season.

Currently, only one hoist is out of service. The hoist is installed in bay 16. However, more work will be required before the hoist returns to service. The current target date range is July 10 to 13. A spill pattern for July is being followed.

So, into the season, bay 2 is set at 4 feet and bay 6 is set at 6 feet along with bay 16 being closed.

After the TSW/standard gate work in bay 19, bays 19 through 21 remained closed through the weekend, June 22 to 26. During the TSW removal and install of a standard gate in bay 20, bays 19 and 20 remained closed (bay 16 is currently closed). For work in bay 20, in order to retrieve gate parts from bay 6, which was dogged open, bays 5 and 7 were closed on June 26, from 0930 to 1545 hours. Bays 15, 17 and 18 were closed from 0730 to 1545 hours. Bay 21 was also opened at 1545 hours. Again, in order to retrieve gate parts from bay 6, which was dogged open, bays 5 and 7 were closed on June 27, from 0645 to 0850 hours. Bays 18 and 21 were closed at 0654 hours. These gates and bay 20 were opened at 1620 hours. Bay 19 was not opened as the hoist was not responding to the control program. After two days without success working on the control program, bay 19 was opened manually on June 29 at 1509 hours. Bay 16 remains closed due to failed hoist, which the project hopes to resolve starting July 10.

Other

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

Avian Activity: Avian counts continue. The results are recorded in Table 3 below.

For the report week, all species were counted.

In the spillway zone, gulls, pelicans, cormorants, and terns were noted. Pelican and tern numbers were fairly stable. Gull and cormorant numbers were low. Most birds were feeding. Wildlife Services hazing along with lethal take of gulls and cormorants from a boat may have contributed to the lower bird numbers. An occasional roosting osprey was noted.

At the bypass outfall zone, a roosting cormorant and osprey along with an occasional group of feeding pelicans were observed. Pelicans began visiting the outfall this week. Hazing from the boat and some birds occurring in low numbers has helped.

In the powerhouse zone, pelicans were noted to be feeding just outside the Oregon ladder floating orifice gates (as many as 50 were observed outside the count period) or roosting on the water. Terns were noted once at the northern edge of the zone. One pelican was observed in the Washington ladder on June 28.

In the forebay zone, a few grebes and pelicans were noted feeding or roosting. Outside the zone, a few gulls, terns, cormorants, pelicans, and osprey were noted.

The two large bird distress calls remain deployed and active on the navigation lock wing wall. These calls are very effective at reducing roosting. So, it could be moved to the outfall pipe, the laser on the navigation lock wingwall was removed on June 29. The LRAD on the outfall walkway was found off on June 25, returned to service on June 27 and removed for inspection on June 29. The laser and LRAD will be reinstalled in the near future, hopefully, in early July.

USDA Wildlife Services continues shore and boat hazing per schedule. The boat crew hazed from the shore on June 23. The last boat trip is July 7. As mentioned above, lethal take continued and will conclude on July 7. PSMFC has been examining the birds' stomach contents.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican	Grebe
June 23	Spill	2	0	2	21	0
	Powerhouse	0	0	0	15	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	0
June 24	Spill	0	0	0	37	0
	Powerhouse	0	0	0	18	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	2
June 25	Spill	0	0	7	31	0
	Powerhouse	0	0	0	18	0
	Outfall	0	0	0	7	0
	Forebay	0	0	0	0	1
June 26	Spill	4	0	11	18	0
	Powerhouse	0	0	0	14	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	0
June 27	Spill	2	1	26	43	0
	Powerhouse	0	0	6	28	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	0
June 28	Spill	0	3	33	13	0
	Powerhouse	0	0	0	32	0
	Outfall	0	1	0	7	0
	Forebay	0	0	0	3	3
June 29	Spill	0	0	6	21	0
	Powerhouse	0	0	0	26	0
	Outfall	0	1	0	0	0
	Forebay	0	0	0	1	0

Invasive Species: The mussel station examinations revealed on issues on June 25.

Siberian Prawn: No prawns were observed in this week's samples or for the season to date.

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

Research: USGS equipment for a juvenile passage study along the upstream edge of the powerhouse and spillway remains in place. For a CRITFC study, there were tissue samples removed from 42 juvenile lamprey collected at the facility this week for a total of 612 fish this season. All fish were returned to the river unharmed. Gas bubble trauma examinations occurred on June 27 and 29. The data is reported the next day. No fish showed signs of trauma during the report week.

Project: Ice Harbor
Biologist: Ken Fone
Biological Science Technician: Ben McArthur
Dates: June 23 – June 29, 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
3	5/3/19	0641	6/28/23	1651	Turbine runner replacement and stator rewind
1	6/27/23	0708	---	---	Turbine runner replacement and stator rewind

Comments: Unit 4 was operated out of unit priority order ahead of unit 6 from 2301 hours on June 22 to 0058 hours on June 23.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on June 26, 27, and 28.

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	7.2’, 7.3’
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’	2.1’

Comments: On June 18, an operator found that the north fish ladder exit debris boom was detached from its anchor point at one end. Later in the week, it also broke loose at the other end. Repair of the debris boom occurred on June 28. All spill was stopped on 28 June from 0704 hours to 1000 hours to allow the repairs to be made from a boat (MFR 23 IHR 06).

The lamprey passage structure at SFE-2 was opened on June 26 instead of at the end of the month, because of the presence of adult lamprey in some of the recent juvenile fish samples.

The south shore entrance weir depth was below criteria on June 26 and 27. The low entrance weir depth observed is probably due to the south shore tailwater transducer needing to be recalibrated. As the spill volume continues to decrease with the lessening river flow, the reduced turbulence in the tailrace will be more conducive for doing an accurate calibration.

North Shore channel/tailwater differential was slightly above criteria on June 28 while spill was being restored after the temporary outage (see comment on north fish ladder debris boom). The tailwater elevation probably decreased after spill was started back up, when the reading was taken.

Auxiliary Water Supply (AWS) System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System
6 pumps	2 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 hydraulic cylinder needs to be rebuilt but is 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 21 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-13%
	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: STSs are in continuous-run mode because of the presence of small subyearling chinook in the Ice Harbor juvenile fish sample.

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.

Juvenile Fish Facility: The juvenile fish facility is operating in primary bypass except when collecting fish for 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. Ten Chinook in each sample were observed with fin hemorrhaging mostly on the ventral fin.

Fish condition sampling results at Ice Harbor Dam:

Date: June 26

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	0	---	---	---
Chinook yearling unclipped	1	0	0	0
Chinook sub-yearling clipped	36	0	0	0
Chinook sub-yearling unclipped	62	0	0	1
Steelhead clipped	0	---	---	---
Steelhead unclipped	0	---	---	---
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	2	0	0	0
Total	101	0	0	1

Date: June 29

Species, Run, Rear type	**Sampled**	**#Descaled**	**Morts**	**Avian Marks**
Chinook yearling clipped	0	---	---	---
Chinook yearling unclipped	0	---	---	---
Chinook sub-yearling clipped	68	2	0	1
Chinook sub-yearling unclipped	72	0	0	0
Steelhead clipped	1	0	0	0
Steelhead unclipped	0	---	---	---
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	3	0	0	0
Total	144	2	0	1

Removable Spillway Weir (RSW): Summer 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
50.3	41.8	15.0	11.0	65	64	6.0	4.1

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: The next Cooling Water Strainer inspection is scheduled for early July.

Avian Activity: There were low to moderate numbers of piscivorous birds seen around the project (see table below). The number of terns and cormorants counted on June 24, 26, 27, and 28 slightly exceeded the threshold number for initiating incident response actions (see Section 7.4 of Appendix L in the Fish Passage Plan). The exceedance is mainly due to a higher number of Caspian terns compared to the average from prior years. The terns were mostly in the spillway tailrace, which is less accessible for land-based bird hazing. Land-based hazing of piscivorous birds occurs for 8 hours per day and continues to be somewhat effective at moving birds out of areas close to the dam.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
June 23	4	3	4	0	15
June 24	0	4	14	0	14
June 25	0	3	9	1	17
June 26	0	10	10	2	29
June 27	0	2	17	3	29
June 28	0	2	14	0	17
June 29	0	1	14	1	7

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 26	0	0
June 29	0	0
Totals	0	0

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

Fish Rescue/Salvage: None.

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

Project: Lower Monumental
Biologists: Denise Griffith and Raymond Addis
Dates: June 23 - 29, 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 5	6/20/23	0750	7/06/23	ERTS	Annual maintenance

Comments: Estimated return to service for Unit 5 changed.

Adult Fish Passage Facility

Lower Monumental fish facility, EAS and WDFW staff inspected the adult fishways on June 24, 26 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	
			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: Depth South Powerhouse Entrance SPE-1 weir was at sill during all inspections with readings of 6.6, 6.3 and 5.9 feet respectively. South Powerhouse Entrance SPE-2 weir was at sill during all inspections with readings of 6.6, 6.3 and 5.9 feet respectively. South Shore Entrance SSE-1 weir was at sill during all inspections with readings of 7.4, 7.4 and 6.5 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)	171 yd²
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 20%
	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 running in continuous-run mode due to average sub-yearling Chinook and sockeye lengths being less than 120 mm.

Orifices, Collection Channel, Dewatering Structure, and Flume:

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

Comments: The attractant light was found burnt out at orifice 6B33 during the June 28 ladder inspection. The powerhouse operator was informed and switch to orifice 6B34 being open until the light could be changed.

Collection Facility: Collection for transport ended for the season. The facility went into every-other day condition sampling at that time. The outfall pipe bird hazing water sprinkler system was taken out of service June 21 and returned to service at 1030 on June 26 when repairs were made. The JFF mechanics found the u-bolt that held the vertical sprinkler pipe had fallen off and the pipe had fallen over.

Transport Summary: Every-other day barge transport ended for the season. Approximately 2,044 fish were collected and 2,042 fish being bypassed. All fish coming into the facility were bypassed.

Spillway Weir: Summer 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
49.0	42.2	17.3	17.0	66.0	64.0	4.8	3.6

*Scrollcase temperatures.

Other

Cooling Water Strainers: The cooling water strainers will be inspected in July.

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

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
6/23/2023	545	1	1	15	0	3
6/24/2023	545	2	5	8	0	15
6/25/2023	600	2	0	27	0	16
6/26/2023	540	0	0	16	0	22
6/27/2023	1015	0	1	20	0	37
6/28/2023	1345	1	0	16	0	35
6/29/2023	722	0	0	11	0	30

Comment: Bird hazing by USDA personnel is ongoing. During bird hazing on June 28, five of the bird detourant wires over Powerhouse 1 zone were found broke. They will be replaced by USDA personnel as time permits.

Invasive Species: Inspection for zebra or quagga mussels will occurred in July.

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. No sample on June 23, 25, 27 and 29.

Date	Sample (euthanized)	Collection*
June 24	5	20
June 26	6	24
June 28	8	32
Totals	19	76

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

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

Research: GBT examinations occurred on June 29. A total 22 clipped subyearling Chinook and 22 unclipped subyearling Chinook smolts were examined. No gas bubble trauma was detected.

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.

The Nez Perce steelhead kelt study and rehabilitation collection ended A total of 1 unclipped steelhead kelts was placed in the collection tank. This study will be ending June 30.

Project: Little Goose Dam
Biologist: Deb Snyder, Brooke Gerard, Cole Reeves
Dates: June 23 – June 29, 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		07/31/2023	ERTS	Spider and upper guide bearing repair.

Comments: Contractual obligations and performance issues realigned the Unit 5 ERTS date into 2023, testing remains in progress, reference 23 LGS 07 MOC.

Adult Fish Passage Facility

EAS Bio and USACE staff inspected the adult Fishway on June 25, 28 and 29.

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	X		Fish Ladder Depth over Weirs	Head over weir 1.0’ to 1.3’	0.8-6/25
X	X		Fish Ladder Cooling Water Pumps in Service		
X			Fish Ladder Exit Cooling Water Pumps Operating Satisfactorily		

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	
X			South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 7.0’ or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 7.0’ or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
X			North Shore Entrance (NSE-1) Weir Depth	≥ 6.0’ or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	≥ 6.0’ or on sill	
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: The adult fishway was 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. Rickley channel velocity measurements were completed and met criteria on June 29. 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. 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 forthcoming 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 35 ft² - Low 0 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 June 28 at 25 ft². The overall total forebay debris high also occurred June 28 at 35 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.

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 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 every date condition sampling and secondary bypass operations. A total of 19,153 fish were collected, 19,131 were bypassed. There were 22 sample or facility mortalities. The descaling and mortality rates were 1% and 0.1%, respectively. The collection and transport facility operated within criteria and no adult lamprey were removed from the separator 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.

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.

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
49.20	41.20	14.80	12.40	65.1	63.7	5.9	4.1

*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
6-23	08:45	0	0	0	0
6-24	09:00	1	0	0	4
6-25	11:00	0	0	0	0
6-26	08:30	2	0	0	6
6-27	12:20	0	0	0	4
6-28	07:30	2	0	0	10
6-29	08:00	0	0	0	1

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*
6-23	7	28
6-24	10	50
6-25	8	64
6-26	10	80
6-27	11	88
6-28	23	184
6-29	4	40
Totals	73	534

*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. GBT monitoring occurred on June 28. Of the 100 fish examined, 0 fish exhibited signs of GBT.

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

Research: The Nez Perce Tribe (NPT) began adult steelhead kelt collection efforts on March 26 with an anticipated conclusion date of July 1.

Project: Lower Granite
Biologists: Elizabeth Holdren and David Miller
Dates: June 23-29, 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: Units were rolled out of service for ESBS inspections June 25 and 26.

Adult Fish Passage Facility

Lower Granite biologists inspected the adult fishway on June 23, 24, 26, and 28.

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’	7.9’
X			South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.9’
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 8.0’ or on sill	5.3’, 6.1’,5.8’, 5.5’
		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 8.0’ or on sill	5.3’, 6.1’,5.8’, 5.5’
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	0.9’, 0.9’, 0.6’, 0.8’
	X		North Shore Entrance (NSE-1) Weir Depth	≥ 7.0’ or on sill	6.9’, 6.7’
	X		North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	6.9’, 6.7’
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	0.6’, 0.8’, 0.6’
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. North powerhouse continues to not meet channel/tailwater head differential criteria. Electrical crew continues to calibrate the ladder when issues are reported. FOG 7 was replaced with a refurbished FOG June 26. FOG refurbishing will continue until all FOG are complete.

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 pumps 1 and 3 remain in service. AWSs were removed from service from 1400-1421 hours to replace FOG 7 with a refurbished FOG.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	29.0 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: ESBS and VBS inspection were completed June 25 and 26. All screens passed inspection.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	21
X			Dewaterer and cleaning systems operating satisfactory?	

Comments:

Collection Facility: The collection facility is secondary bypass mode and collecting for condition sampling and research fish for IDFG and USGS.

Transport Summary: N/A

Spillway Weir: Summer spill June 21. There have been 617 adult and 54,936 juvenile steelhead, 153 adult and 78,951 juvenile Chinook salmon, 2,976 juvenile Coho salmon, and 12,162 juvenile Sockeye salmon detected at the RSW since March 1. There have been 137 adult 27,771 juvenile steelhead, 9 adult and 41,105 juvenile Chinook salmon, 1,209 juvenile Coho salmon, and 1,141 juvenile Sockeye salmon detected through the Juvenile Bypass System since it was opened on 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
53.8	45.0	18.5	17.8	63.5	60.0	5.0+	5.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Unit cooling water strainers were inspected June 29. There were 12 live and 97 mortality lamprey collected with a total unit run time of 1986.0 hours.

Invasive Species: No zebra/quagga muscles were detected on the trap substrate. There were 344 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
June 23	0845	0	0	0	4
June 24	0955	1	0	0	7
June 25	1450	0	0	0	0
June 26	0915	0	0	0	1
June 27	1945	0	0	0	0
June 28	1250	0	0	0	1
June 29	1440	0	0	0	1

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

Adult Fish Trap Operations: Fish will continue to be sampled Monday through Friday until broodstock collection starts August 18. LWG biologists flushed the adult trap June 29 due to mainly shad mortalities accumulating on the drain screen. The turnpool gate was also cleaned June 29.

Fish Rescue/Salvage: The adult fish trap was flushed on June 29 to clean debris and fish mortalities from the drain screens. Mortalities included 1 clipped Chinook. There were an estimated 25 suckers and about 100 shad mortalities. Live fish included 3 clip undefined adult Chinook, about 30 suckers, and about 150 shad were flushed back to the tailrace.

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.

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 450-700 kelts from LWG juvenile fish facility separator. Selected kelts are transported by NPT to Dworshak National Fish Hatchery for reconditioning and later release as part of this study. LWG Corps biological technicians collected 570 kelts from the juvenile fish separator with 377 sampled and released, 27 were handled and release, and 162 being transported to the hatchery and there were 4 kelt mortalities this season.

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 493 larval and 1170 juvenile lamprey have been collected for PNNL this season. Of the total collection, 437 larval and 1074 juvenile lamprey have been either PIT tagged or acoustic tagged at LWG and released at Blyton Landing, 55 larval and 196 juvenile were handled and released without being tagged, and there were 1 larval and 14 juvenile lamprey recovery mortalities.

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 1000 larval Pacific lamprey, not to exceed 10 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. LWG SMP collected genetic samples from 314 juvenile and 455 larval lamprey this season.