U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#12-2022

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: May 27 – June 2, 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

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 May 27, 29 and June 1. In person fish counting continued. Video review of nighttime lamprey passage will begin on June 15. The Oregon ladder PIT tag station air conditioning was found in need of repair on May 31. The issue was examined the next day.

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’ to 0.3’
X		Washington Exit	Head over weir 1.0’ to 1.3’	1.0’ to 1.1’
X		Washington Count Station Differential	0.0’ to 0.5’	0.2’ to 0.3’

Comments: Debris loads were minimal to light near the Oregon exit and minimal to moderate near the Washington exit. Most of the new incoming debris was arriving along the Washington shoreline. The general maintenance staff cleaned both exits’ picketed leads as needed including the weekend.

At the Oregon shore exit, multiple weir alarms were reset on May 29.

During last winter’s outage, the Washington ladder was not dewatered. Over time, algae growth had become thick on the floor and back board area of the count station slot. After consultation with the fish counting contractor’s lead, it was determined it would be best to clean this area to improve fin clip detection and lamprey counting. Talking with the district fisheries biologist, led to the selection of the afternoon of June 1 as an opportune time for cleaning, which should affect the least amount of fish passage as possible. Trying to clean this area had not worked before due to the velocity through the counting slot. Putting the ladder in orifice flow mode was thought to be the best way to attempt to reduce the velocity through the slot.

From 1305 to 1445 hours, on June 1, the Washington shore ladder was switched into, sustained, and switched out of orifice flow mode. Water velocity was reduced but to reduce flow further, the count station slot isolation gate was closed several times during the cleaning. Also, for the last hour of the operation, the south side set of picketed leads were raised and all picketed leads were cleaned.

Brooms with scrub pads and a pressure washer were used to clean the count station slot. During the work, it was discovered that the window brush was not rotating. This issue will be resolved in the near future. The brush does not clean the back board, but it does clean part of the slot floor. The center of the back board is removable for cleaning, but it has a small surface area.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0' – 2.0'	1.9'
X			NFEW2 Weir Depth	≥ 8.0'	9.4' to 9.5'
	X		NFEW3 Weir Depth	≥ 8.0'	Raised
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.1' to 1.2'
	X		SFEW1 Weir Depth	≥ 8.0'	7.6' to 7.7'
	X		SFEW2 Weir Depth	≥ 8.0'	7.6' to 7.7'
	X		Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.0 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	1.0' to 1.5'
X			WFE2 Weir Depth	≥ 8.0'	10.0' to 10.1'
X			WFE3 Weir Depth	≥ 8.0'	10.0'

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, which we hope to do when fish pump 3 returns to service.

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. Great progress has been made. Return to service dates are subject to change.

Juvenile Fish Passage Facility

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

TSW closure and removal was scheduled for June 8. However, due to total dissolved gas concerns, safe TSW removal requiring six bays to be closed daily for possible five days and projected river flows, the TSW closure date will be changed to later in June after regional discussion.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Minimal
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 near the powerhouse and minimal to very light beside the spillway. New debris loads were minimal to moderate and arrived mostly along the Washington shoreline. The operators flushed much of this debris through the navigation lock this week.

The next trash rack cleaning is schedule for the week of June 20.

No issues have been found but absorbent pads remain in 5A and 5B slots as a precaution.

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. Camera inspections did not occur this week.

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: There was no moisture in the temporary air supply line this week. However, we will continue to bleed off the line on every shift and orifice cycling continues at the normal frequency.

The light fixture at the orifice in 1A slot, south side, was examined on May 31. The electrician determined the wrong light bulb was used. The south orifice was returned to service that morning. However, the light again failed on June 1. Immediately, the north orifice was opened with the light turned on as the south orifice was removed from service. This time, the light fixture was replaced on June 2. The light will be left on over the weekend to ensure the issue is resolved and the south orifice will be returned to service on June 5.

The light fixture and orifice in 6A slot, south side, were out of service from May 28 to 31. The north orifice was opened with the light turned on during the outage. The electrical determined the wrong light bulb was used.

The headgate repair pit rehab contractor's scaffolding at the south end of the channel will be removed on June 3 and 4.

At times, the north side dewatering valve, one of two valves that regulate channel elevation, continued to be observed not running smoothly 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, 8,420 juvenile lamprey and 23,255 smolts, mostly unclipped sockeye, were bypassed during secondary bypass. The smolt monitoring staff reports fish data in a separate report.

The facility PIT room air conditioning was reported as failed on May 31. The issue was resolved the next day.

Top Spillway Weir (TSW) Operations: The TSW's in spillbays 19 and 20 remained open with both attached to a hoist. The TSW's were scheduled to be closed June 8 at 0001 hours and installation of standard gates was to begin. However, this date will be changed as described above.

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
324.0	270.2	264.4	212.3	54.3	53.0	5.0	4.0

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 summer spill program will begin on June 16 at 0001 hours. Project wide temperature monitoring will begin on June 15. The data will be published in a separate report by the smolt monitoring staff.

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 in locations where a hoist is not available.

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. Therefore, bays 2, 6 and 16 have the gates dogged open and require a crane for adjustment. The spill pattern changes for these issues have been coordinated and the spill tables in the FPP have been updated.

As previously reported, the spillway hoist in bay 15 remained out of service and dogged open at six stops. After consultation, the next tests in bay 15 began on June 1. Amp readings were taken on the bays 14 and 15's hoist motors for comparison that morning. The readings were done will raising and lowering the gates in the bays about 1 foot each.

The next test occurred on June 2. That morning, the hoists in bays 14 and 15 were exchanged. It was hoped this would help to determine if the problem in bay 15 was the hoist or gate. The gates were lowered and raised two feet each with motor's readings taken. The next step was to put both gates on sill and then open the bays. This occurred from 1300 to 1420 hours. Both hoists were very slow in raising the gates, which raised concern about both bays. The data collected will need examined and more testing will be required. The gates in bays 14 and 15 were each dogged of at six stops.

Other

Inline Cooling Water Strainers: The next cooling water strainer inspections will occur on June 7.

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
May 27	Spill	24	0	0	2	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	23
May 28	Spill	71	0	0	2	0
	Powerhouse	0	0	0	0	0
	Outfall	56	0	0	0	0
	Forebay	0	0	0	0	35
May 29	Spill	426	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	54	0	0	0	0
	Forebay	0	0	0	0	0
May 30	Spill	172	0	0	0	0
	Powerhouse	11	0	0	0	0
	Outfall	77	7	0	0	0
	Forebay	0	0	0	0	56
May 31	Spill	30	1	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	1	0	0	0	0
	Forebay	0	0	0	0	4
June 1	Spill	50	0	0	4	0
	Powerhouse	0	0	0	0	0
	Outfall	10	0	0	0	0
	Forebay	0	0	0	0	0
June 2	Spill	23	0	0	2	0
	Powerhouse	0	0	0	0	0
	Outfall	5	0	0	0	0
	Forebay	0	0	0	0	19

The laser on the outfall pipe remained out of service for safety concerns. However, the laser and LRAD are scheduled to be deployed in the near future.

The navigation lock wing wall laser, which is aimed at the outfall, remains in service along with the two large bird distress calls. USDA Wildlife Services daily shore hazing continued. Boat hazing trips were scheduled for three days a week.

In the spillway zone, gull numbers fluctuated greatly, with the birds feeding along with a few pelicans and one cormorant.

In the powerhouse zone, a few gulls were noted roosting on the water along the north edge of the zone.

In the bypass outfall zone, gull numbers fluctuated, and a few cormorants were noted. Most birds were roosting, but a few gulls were noted feeding in the outfall. The boat hazing was effective the gulls. Also, water washing over the pipe discouraged roosting.

In the forebay zone, grebe numbers fluctuated with some birds occasionally feeding. Outside the zone, more gulls and pelicans were noted along the Washington shoreline and appear to be staging. Also, a few cormorants and osprey were observed.

No terns have been verified on project at this time.

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

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 56 juvenile lamprey collected at the facility this week. For the season, a total of 364 juvenile lampreys have been sampled. All fish were returned to the river unharmed.

Gas bubble trauma examinations occurred on May 30. 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	5/31/22	1645	Head cover pump failure and turbine pit flooding; annual maintenance; Franklin Substation 115 kv line #3 relay replacement; replace failed exciter component

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on May 31, June 1 and 2.

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’	0.6’
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	1.3 fps
	x		North Powerhouse Entrance (NFE-2) Weir Depth	≥ 8.0’ or on sill	7.9’, 7.2’
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: On May 21, one of the upstream picketed leads at the south shore was noticed to be sitting about 4” higher than the adjacent lead while in the lowered position. The picketed lead was raised, and an air hose was used to try to blow any debris out of the way, but the lead was still not going any further down. On May 31, an underwater camera was used to spot a log that was lodged in the guide slots. The log was pushed out of the way with a pole and the picketed lead was lowered to the normal position.

On June 1, the water velocity in the south shore junction pool was below criteria. The higher tailwater and channel levels cause the water to back up in the ladder upstream of the junction pool, resulting in lower junction pool velocities.

The north powerhouse entrance weir depth was out of criteria on May 31 and June 1. The powerhouse operator subsequently lowered NFE-2 weir to bring the weir depth 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 13 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	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 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 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. A clipped subyearling Chinook salmon was found dried up in the first batch of sample fish worked up on June 6. It was most likely a fish sampled on June 2 that became stranded in the pipe leading to the sample trough, so it is accounted for in the June 2 data. Sampling personnel will be vigilant in providing adequate water to flush fish out of the pipe with each batch of fish to prevent this from happening again.

Eight fish in the May 30 sample and seven fish in the June 2 sample were noted to have operculum injuries. Most of these injuries were not fresh, but the operculums appeared to be slightly short and not entirely covering the gills, and were mostly seen on clipped steelhead.

Fish condition sampling results at Ice Harbor Dam:

Date: May 30

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	39	0	0	0
Chinook yearling unclipped	9	1	0	0
Chinook subyearling clipped	7	0	0	0
Chinook subyearling unclipped	15	0	0	0
Steelhead clipped	65	2	0	0
Steelhead unclipped	30	0	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	1	0	0	0
Coho unclipped	3	0	0	0
Total	169	3	0	0

Date: June 2

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	55	0	0	0
Chinook yearling unclipped	13	0	0	0
Chinook subyearling clipped	12	0	1	0
Chinook subyearling unclipped	14	0	0	0
Steelhead clipped	36	2	0	0
Steelhead unclipped	17	1	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	2	0	0	0
Coho unclipped	1	0	0	0
Total	150	3	1	0

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

River Conditions

River conditions at Ice Harbor Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (°F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
142.8	109.2	113.9	96.5	54	53	5.0	4.1

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: The next monthly inspections of turbine cooling water strainers for fish will occur in June.

Avian Activity: There were moderate to high numbers of piscivorous birds observed around the project (see table below). The number of gulls and cormorants counted on May 29 exceeded the threshold number for initiating incident response actions (see Section 7.4 of Appendix L in the Fish Passage Plan). These birds were not concentrated in any particular avian observation zones but were spread out among all the zones. Boat-based bird hazing did not occur on that day, so the Project Biologist and Wildlife Services Field Crew Leader decided to wait and see how birds responded to boat-based hazing that was scheduled for May 30. Gull and cormorant numbers were below the threshold number on May 30 and for the rest of the reporting week. Land-based hazing of piscivorous birds is occurring for 16 hours per day. Boat-based hazing is occurring for 8 hours per day, 3 days per week. Boat-based hazing has been effective at reducing gull and cormorant numbers in the tailrace.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
May 27	3	29	0	0	12
May 28	10	15	0	0	5
May 29	33	52	0	0	3
May 30	10	6	0	0	3
May 31	22	8	0	0	29
June 1	14	13	0	0	31
June 2	7	14	0	0	5

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 30	0	0
June 2	0	0
Totals	0	0

*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

Comments: No Unit outages this reporting period.

Adult Fish Passage Facility

The adult fishways were inspected by Army Corps and EAS biologists on May 27, 28, 29 and June 1.

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 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)	2 yds^2
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 11%
	X		Any oil seen in gatewells?	

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 were operating on Continuous-Run mode due to average sub-yearling Chinook salmon and sockeye salmon 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 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: Alternate barge transport resumed after the May 24 transport due to a decrease in fish numbers alone the river. A total of 113,700 fish were collected with 99,887 fish being transported and 150 fish bypassed back to the river during this reporting period. Bypass fish included GBT sampled fish and sub-yearling Chinook salmon fry.

Spillway: Spring spill is occurring.

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
134.2	104.7	80.6	73.1	54.0	51.9	4.0	3.2

*Scrollcase temperatures.

Other

Cooling Water Strainers: The cooling water strainers will be examined in June.

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
5/27/2022	1715	36	1	0	0	3
5/28/2022	1930	30	0	0	0	3
5/29/2022	1415	22	2	0	0	3
5/30/2022	630	60	4	0	0	16
5/31/2022	900	30	5	0	0	7
6/1/2022	1045	2	0	0	0	3
6/2/2022	730	12	3	0	0	7

Comments: Piscivorous bird observations are occurring daily. Bird hazing by USDA personnel ended on June 2. The outfall bird cannon functioned efficiently this week.

Invasive Species: The next zebra or quagga mussel observations will occur in June.

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

Research: GBT examinations occurred on May 31. A total of 6 clipped, 7 unclipped subyearling Chinook salmon, 7 clipped 7 unclipped yearling Chinook salmon and 52 clipped steelhead and 21 unclipped steelhead smolts were examined. Gas bubble trauma was detected on 1 unclipped subyearling Chinook salmon and 1 unclipped steelhead.

Collection for the Nez Perce steelhead kelt study and rehabilitation began in early April once the tank was set up fully. A total of 12 steelhead kelts were collected during this reporting period.

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	4/14/2017	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 May 28, May 30, and June 2.

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	6.3,6.2,6.4
X	X	X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 7.0’ or on sill	6.4,6.4,7.4
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 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 NSE weir reading anomalies. Excepting NSE weir differential readings on May 30, due to inspection occurrence during gas cap spill, 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 200ft² - Low 0ft²
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	1%: 5A 5/27
X			Any oil seen in gatewells?	5/27/22 – oil absorbent booms present

Comments: The forebay had minimal floating debris inside the trash shear boom. The inspection of May 27 detected a sheen in gatewell 3A where oil absorbent materials were already 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. Units 1, 2, 3, and 4 differentials were checked on June 2.

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 100,333 fish were collected, 3 were bypassed, 89,756 were transported via barge, and there were 80 sample or facility mortalities. The descaling and mortality rates were 2.1% and 0.10%, 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. Every other day barging transitioned to every day barging on May 16 due to an increase in fish numbers. Every other day barging resumed on May 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 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. The ASW was positioned in low crest on May 28.

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
131.10	98.8	67.6	38.2	54.8	52.4	3.0	2.8

*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
5-27	8:00	0	0	0	0
5-28	8:30	0	0	0	0
5-29	8:30	0	1	0	2
5-30	8:30	0	0	0	0
5-31	8:00	0	0	0	0
6-1	8:30	0	0	0	0
6-2	8:30	0	0	0	0

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
5-27	0	0
5-28	0	0
5-29	0	0
5-30	0	0
5-31	0	0
6-1	0	0
6-2	0	0
Totals	0	0

Gas Bubble Trauma (GBT): GBT monitoring occurred June 1. Of the 100 fish examined, 3 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

Comments: None.

Adult Fish Passage Facility

Lower Granite Biologists and Anchor QEA staff inspected the adult fishway on May 27, 28, 30, and June 1.

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: None.

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
	X		South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	6.7’, 7.1’
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	6.8’, 7.1’
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’	0.5’, 0.0’, 0.2’
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: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	9.0 yds²
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: None.

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 128,956 fish were collected and transported this week. Recovered NOAA fish in the raceway were transported every-other-day.

Spillway Weir: Spring spill continues. There were 66,079 juvenile and 417 adult PIT-tagged steelhead, 95,337 juvenile and 101 adult PIT-tagged Chinook salmon, 10,813 juvenile sockeye salmon, and 3,987 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 29,888 juvenile and 4 adult Chinook salmon, 16,860 juvenile and 49 adult steelhead, 2,262 juvenile sockeye salmon, and 906 juvenile coho salmon.

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
139.2	105.4	66.0	59.5	53.0	48.5	4.2	2.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Unit cooling water strainer inspections were conducted on May 26. A total of 413 juvenile lamprey, 6 salmonids, and 1 unidentified fish were collected from the strainer baskets.

Invasive Species: No zebra/quagga muscles were detected on the trap substrate. There was 1 Siberian prawn in the condition sample.

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

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
May 27	0840	0	4	0	0
May 28	1030	0	0	0	4
May 29	1240	16	6	0	5
May 30	1115	9	0	0	1
May 31	1931	0	0	0	8
June 1	1340	0	0	0	2
June 2	1325	1	0	0	0

Gas Bubble Trauma (GBT) Monitoring: GBT sampling occurred June 2 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, 346 juvenile lamprey have been collected for the study, 263 were tagged and released at Blyton Landing upstream of LWG.

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 476 macrophthalmia (juvenile) and 533 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.

Idaho Power Hells Canyon Sturgeon Recruitment:

LWG Corps bio techs continue collecting passage and estimated lengths and of White Sturgeon prior to removing them from the separator in support of Idaho Power Sturgeon program.