U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#19-2022

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: July 8 – July 14, 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	7/13/22	0839	Blade seals replaced
8	6/6	1002	7/29	N/A	9-year overhaul
4	7/11	0710	7/14	1501	Annual maintenance
5 & 9	7/12	1000	7/12	1100	ESBS inspections, rotated through units

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 July 8, 10 and 13. In person fish counting and video review of nighttime lamprey passage continued.

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 very light near the Oregon exit and minimal to light near the Washington exit. New incoming debris was very light along the Washington shoreline. The general maintenance staff cleaned both exits’ picketed leads as needed including the weekend.

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'	1.3' to 1.5'
	X		NFEW2 Weir Depth	≥ 8.0'	7.9' to 8.1'
X			NFEW3 Weir Depth	≥ 8.0'	8.0' to 8.2'
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.0'
X			SFEW1 Weir Depth	≥ 8.0'	8.1' to 8.2'
X			SFEW2 Weir Depth	≥ 8.0'	8.1' to 8.2'
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.8 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	1.2' to 1.3'
X			WFE2 Weir Depth	≥ 8.0'	9.1' to 9.3'
X			WFE3 Weir Depth	≥ 8.0'	8.3' to 8.5'

Comments: NEFW3 was out of criterion on July 8. This was possibly due to a slight set point drift. WFE3 still requires calibration, and this will occur when the spill season concludes. The weir remains in criterion.

Floating orifice gates in slots W21 and W 32 were opened on July 11 when the stop logs are removed. Floating orifice gates in slots W4 and W14 were opened the next day. Slot W26 will remain closed until that gate can be replaced. There are three other slots that still require future gate replacement, W8, W37 and W 41.

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			18° to 19°	Oregon Ladder Fish Pump 1
		Yes		Oregon Ladder Fish Pump 2 RTS date is Sept 30, 2022
Yes			19° to 20°	Oregon Ladder Fish Pump 3 RTS on July 6
Yes				OR North Powerhouse Pool supply from juvenile fishway

Comments: Opening the floating orifice gates required very little adjustment of the fish pumps' blade angles. Fish pump 2 remains out of service. Repairs are waiting on funding so the return to service date is subject to change.

The Wasco County PUD unit was out of service on July 13 from 1451 to 1523 hours. This outage was for debris management at the unit's intakes. The bypass system operated well during the outage.

Juvenile Fish Passage Facility

Every other day sample collection continued with no interruptions in the schedule. TSW closure and removal will be discussed below in the TSW section.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Moderate to heavy
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 moderate to heavy near the powerhouse and heavy beside the spillway. New debris loads were minimal to light and arrived at the powerhouse. Much of the debris was woody material and aquatic vegetation. A debris spill is planned for July 15.

No trash racks were cleaned this week.

There are no problems to report. An algae bloom was noted in 8A slot, which is isolated.

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. Only 8A slot is without a fish screen as the emergency bulkhead remains in the slot with the unit out of service. ESBS camera inspections revealed no issues in units 4, 5 and 9 on July 12. Unit 4 was out of service.

Unit 2's ESBS's were noted not to be operating on July 12. A faulty relay was found which requires the unit to be out of service. Until an outage can be scheduled, the operators will run the screens' brushes every hour when the unit is online.

Daily VBS differential monitoring revealed eight high differentials. These screens and 26 others were cleaned on July 8 and 11 to 14. There were 13 juvenile lamprey and 15 smolt mortalities 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: There was moisture in the temporary air supply line early in the week. This may have been due to work on the powerhouse air system late last week. We continued to bleed off the line on every shift. Orifices were adjusted for VBS cleaning as required. The orifice in 8A slot remained closed and the 8B slot north orifice remained open due to the emergency bulkhead installed in 8A slot. The south orifice in 3B slot appeared to have a blockage on July 13. The orifice was closed, and the north orifice was opened. A camera inspection of the south orifice will occur on July 19.

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, 1,300 juvenile lamprey and 69,801 smolts, mostly sub-yearling Chinook salmon, were bypassed during secondary bypass. The smolt monitoring staff reports fish data in a separate report.

The facility PIT room air conditioning continued to trip offline and be reset. A new unit has been ordered.

There are no problems to report.

Top Spillway Weir (TSW) Operations: The half gate, which closes the bay and TSW, was lower than normal in bay 20 on July 10. The operator found the hoist controls in automatic mode, returned them to manual and raised the gate.

The TSW's in spillbays 19 and 20 were closed on July 11 at 1011 hours. Bays 18, 21 and 22 were also closed. Bays 14 to 17 were dogged open for the current spill volume. Remaining spill volume was spread evenly through bays 1 to 13. Work on removing the TSW's and installing standard gates in bays 19 and 20 began that afternoon and will concluded on July 15. Due to the continued issues with cranes and hoists as well as issues pinning the new short spillbay leaf to the bottom of another spillbay leaf, the above spill configuration will be used until the work is completed.

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
285.4	264.2	163.7	132.1	64.6	62.8	6.0	6.0

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 continued. However, due to the TSW removal mentioned above, spill was slightly below 57 percent on data days, July 12 through 14.

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. Due to this being a large contract and a specialty item, the hoist's return to service date could be as late as December. There are also issues with the hoist in bay 14. Therefore, bays 2, 6, 14 and 16 have the gates dogged open and require a crane for adjustment.

Due to the issues with cranes and hoists, the project staff is examining an alternate way to use hoists and still provide spill as hoist rehabilitation will require approximately 10 years to complete.

Project wide temperature monitoring continued. The data will be published in separate daily and weekly reports by the smolt monitoring staff.

Other

Inline Cooling Water Strainers: The next cooling water strainer inspections will occur on August 2.

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
July 8	Spill	0	0	17	21	0
	Powerhouse	0	0	0	32	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	0
July 9	Spill	3	0	8	29	0
	Powerhouse	0	0	0	34	0
	Outfall	0	0	0	2	0
	Forebay	2	0	0	0	7
July 10	Spill	0	1	3	29	0
	Powerhouse	0	0	0	29	0
	Outfall	0	5	0	0	0
	Forebay	2	0	0	0	1
July 11	Spill	2	0	5	22	0
	Powerhouse	0	0	0	23	0
	Outfall	0	0	0	0	0
	Forebay	8	1	1	0	3
July 12	Spill	0	0	2	25	0
	Powerhouse	0	0	0	29	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	0
July 13	Spill	0	6	18	28	0
	Powerhouse	0	0	0	25	0
	Outfall	0	4	0	0	0
	Forebay	40	0	0	1	8
July 14	Spill	0	0	0	19	0
	Powerhouse	0	0	0	22	0
	Outfall	0	1	0	2	0
	Forebay	4	0	0	0	5

The LRAD on the outfall pipe was wired into the power supply on July 13. Next week, sounds will be programmed into the system. The laser was also examined, and a failed power supply and control system were removed. These parts will be ordered next week.

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 continues until July 23. The last boat hazing trip was on July 8. Birds taken from the boat during lethal take will have their stomach contents examined over the next two weeks. After regional discussion and agreement, USDA will begin hazing pelicans that enter the adult fish ladders on July 16.

In the spillway zone, pelican numbers remained fairly high. The tern numbers have begun to decline. Gull and cormorant numbers slightly increased.

In the powerhouse zone, pelican numbers remained fairly high. The pelicans were feeding near the Oregon ladder south entrance and floating orifice gates. Starting on July 13, pelicans began to enter the Oregon ladder at SFEW2 and were noted as far upstream as diffuser 12. The project biologist personally saw 15 pelicans in the Oregon ladder that day. After the FPOM meeting, COE personnel began hazing pelicans in the Oregon ladder on July 14.

Also, pelicans have been noted in the Washington shore ladder's sharp bend but in low numbers. Starting July 16, these birds will also be hazed.

In the bypass outfall zone, a few cormorants, and pelicans were noted.

In the forebay zone, juvenile gulls and grebes were observed along with an occasional cormorant, tern, and pelican. roosting or feeding. Outside the zone, gulls or terns and pelicans were noted along the Washington shoreline. Also, a few ospreys and cormorants along with one loon were observed.

No grebes entered the gatewell slots this week.

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

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

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

Research: For a CRITFC study, there were tissue samples removed from 13 juvenile lamprey collected at the facility this week. For the season, a total of 623 juvenile lampreys have been sampled. All fish were returned to the river unharmed.

Gas bubble trauma examinations occurred on July 11. Fish are recorded on the next data day. For the report week, no smolt were 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
5	7/1/22	1116	7/8/22	0700	Cooling water discharge NPDES test result exceeded limit for detectable oil
2	7/11/22	0750	---	---	Doble testing, annual maintenance, cavitation repair
1	7/11/22	0751	7/14/22	1739	Doble testing

Comments: Doble testing on line 1 was originally scheduled for the week of July 18, as shown in Appendix A of the Fish Passage Plan. Earlier this year, Doble testing was rescheduled for the week of July 11 when special generator testing of unit 3 was projected to occur the week of July 18 to avoid conflicts with the requirements of the tests.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on July 11, 12, and 14.

Fish Ladders:

Yes	No	Location	Criteria	Measurements
x		North Ladder Exit Differential	Head $\leq$ 0.3’	
x		North Ladder Picketed Lead Differential	Head $\leq$ 0.3’	
x		North Ladder Depth over Weirs	Head over weir 1.0’ to 1.3’	
x		South Ladder Exit Differential	Head $\leq$ 0.3’	
x		South Ladder Picketed Lead Differential	Head $\leq$ 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	$\geq$ 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	$\geq$ 8.0’ or on sill	7.6’
	x		North Powerhouse Entrance Channel/Tailwater Differential	1.0’ – 2.0’	0.8’
x			North Shore Entrance (NEW-1) Weir Depth	$\geq$ 8.0’ or on sill	
	x		North Shore Channel/Tailwater Differential	1.0’ – 2.0’	0.6’

Comments: The adult lamprey passage structure at the south shore entrance #2 was opened on July 1 at 0001 hours.

The entrance weir depth at the north powerhouse and the channel/tailwater differential at the north powerhouse and north shore were below criteria on July 12. The powerhouse operator was informed, and he adjusted the entrance

weirs to meet the entrance depth and head differential criteria. The entrance weirs are 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
5-6 pumps	1-2 pumps	1-2 pumps	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 was out of service for unwatering and investigation of a cavitation/vibration problem and repair of the pump intake trash rack. South shore AWS pump #1 was returned to service on July 12. South shore AWS pump #7 is out of service to replace the lower gearbox seal.

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)	0-13%
	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	VBS differentials checked this week?
		x	VBS differentials acceptable?

Comments: STSs were switched to cycle-run mode on July 11 because the average fork length of subyearling Chinook salmon is above 120 mm in the Ice Harbor and Lower Monumental juvenile fish samples.

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 normally occurring on Mondays and Thursdays of each week. See the tables below for a summary of the sampling results. The descaling observed on one fish in the July 11 sample was attributed to a fish predation attempt. Approximately 5% of fish in the July 11 sample and 9% of fish in the July 14 sample exhibited fin hemorrhaging that was most likely symptomatic of disease.

Fish condition sampling results at Ice Harbor Dam:

Date: July 11

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	0	---	---	---
Chinook yearling unclipped	0	---	---	---
Chinook subyearling clipped	32	2	0	0
Chinook subyearling unclipped	65	2	0	0
Steelhead clipped	0	---	---	---
Steelhead unclipped	0	---	---	---
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	97	4	0	0

Date: July 14

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	0	---	---	---
Chinook yearling unclipped	0	---	---	---
Chinook subyearling clipped	40	0	0	1
Chinook subyearling unclipped	56	0	0	0
Steelhead clipped	1	0	0	0
Steelhead unclipped	0	---	---	---
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	97	0	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
57.3	41.4	17.1	12.1	67	63	9.0	6.5

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: The next monthly turbine cooling water strainer inspections will occur later in July.

Avian Activity: There were low to moderate numbers of piscivorous birds observed around the project (see table below). Most of the birds were observed foraging downstream of the spillway and near the upstream tip of Eagle Island. The number of gulls, cormorants, and terns counted on July 14 met the threshold number for initiating incident response actions (see Section 7.4 of Appendix L in the Fish Passage Plan). However, most of these birds were in areas where there are no secure facilities to deploy additional avian deterrents, such as propane cannons or bird distress calls. Also, the seasonal bird hazing performed by Wildlife Services ended on June 30.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
July 8	---	---	---	---	---
July 9	---	---	---	---	---
July 10	---	---	---	---	---
July 11	5	4	0	0	14
July 12	4	2	12	0	8
July 13	8	10	32	0	29
July 14	30	6	34	0	20

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*
July 11	43	43
July 14	1	1
Totals	44	44

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

Fish Rescue/Salvage: Unit 2 scroll case was unwatered on July 13. Two channel catfish were recovered and released back to the river in good condition.

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 5	06/13/2022	0805	7/28/2022	ERTS	6 Year Overhaul

Comments: None.

Adult Fish Passage Facility

The adult fishways were inspected by Army Corps and EAS biologists July 8, 9, 10 and 13.

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: South ladder depth over weirs was out of criteria on the July 10 inspection with a reading of 0.9 feet. JFF personnel cleaned the downstream picketed lead to bring back into criteria. The picketed leads were cleaned again when the differential was found to be at 0.4’ on July 12 during an inspection.

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: The south powerhouse entrance weir (SPE-1) was on sill during all inspections with readings 7.9, 6.8, 6.0 and 5.6 feet, respectively. The south powerhouse entrance weir (SPE-2) was on sill during all inspections with readings 7.9, 6.8, 6.0 and 5.6 feet, respectively. The south shore entrance weir (SSE-1) was on sill during all inspections with readings 6.4, 7.5, 6.6 and 6.0 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. The project is looking into new staff gauges, so they can be ordered and installed 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)	5 yds^2
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 18%
	X		Any oil seen in gatewells?	

Comments: Trash racks are scheduled to be cleaned July 18-21.

STSs/VBSs:

Yes	No	NA	Item
X			STSs deployed and in service in operating and available units?
X	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 changed to Cycle-Run mode at 1030 on July 11 due to average sub-yearling Chinook salmon and sockeye salmon lengths being greater than 120 mm. The VBS 5A and 5B frames were repaired on July 11 and 12 respectively and are now in good working condition.

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 water levels were adjusted at the PDS to help with the high-water alarms on July 10 at 1430.

Collection Facility: Sampling for condition on alternating days began July 7. The facility was placed into Primary Bypass on non-sample days. A total of 2,472 fish were collected with 2,470 fish bypassed back to the river during this reporting period.

Transport Summary: Truck transport scheduled to begin August 1.

Spillway: Summer spill began at 0000 on June 21.

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
53.4	41.0	17.3	17.0	66.5	64.5	6.5	4.4

*Scrollcase temperatures.

Other

Cooling Water Strainers: Cooling water strainers were examined on July 12. A total of four lamprey and 2 salmonid mortalities were recovered. The next cooling water strainer inspection will occur in August.

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
7/8/2022	0820	20	7	1	0	12
7/9/2022	1530	16	8	1	0	5
7/10/2022	1200	7	0	4	0	7
7/11/2022	1015	30	11	11	0	6
7/12/2022	0930	14	6	7	0	8
7/13/2022	0750	33	11	12	0	10
7/14/2022	0830	49	15	11	0	9

Comments: Piscivorous bird observations are occurring daily. JFF staff hazed birds on July 12 once the bird numbers reached over 90 counted. Birds were also hazed from the entrance of the North ladder. The outfall bird cannon functioned efficiently this week.

Invasive Species: No zebra or quagga mussels were observed during monitoring station inspections on July 3.

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

Research: GBT examinations occurred on July 13. A total of 5 clipped and 6 unclipped subyearling Chinook salmon smolts were examined. No gas bubble trauma was detected.

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
4	07/11/2022	10:34	07/29/2022	17:00	Unit Annual Maintenance
5	4/14/2017	14:11	12/31/2022	ERTS	Spider and upper guide bearing repair.
6	4/18/22	5:10	12/31/2022	ERTS	Rooftop replacement / BUS work replacement

Comments: Previously reported Unit 6 RTS date of 4/21/2022 pertained to station service only, the anticipated RTS for regular service is 12/31/2022.

Adult Fish Passage Facility

EAS Bio and USACE staff inspected the adult Fishway on July 9, July 11, and July 14.

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	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 7.0’ or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 7.0’ or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
X	X		North Shore Entrance (NSE-1) Weir Depth	≥ 6.0’ or on sill	7/11 – 5.8
X	X		North Shore Entrance (NSE-2) Weir Depth	≥ 6.0’ or on sill	7/11 – 5.8
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 (FSC) was recommissioned on May 5 with NSE weir reading anomalies. The Fish Ladder Exit Cooling Water Pump was replaced, installed, and readied for service on April 23. Criteria requiring the activation of the Fish Ladder Exit Cooling Pump was met during the night hours of June 26, and the system was started at 0800 hours on June 27.

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 167ft² - Low 0ft²
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	7/12 – 3A 2% (1 large stick)
	X		Any oil seen in gatewells?	

Comments: The forebay had minimal floating debris inside the trash shear boom.

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 and 2 differentials were checked on July 14. ESBS and VBS camera inspections for Unit 4 were re-scheduled to be inspected July 21 during its scheduled unit outage and annual maintenance period.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	19; 7/7 – 18 during camera insp.
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 14,467 fish were collected, 14,454 were bypassed, and there were 13 sample or facility mortalities. The descaling and mortality rates were 0.8% and 0.9%, 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. Barge transportation for the season ended with the final barge departure of June 19.

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. Summer spill operations began as scheduled on June 21, and the ASW was repositioned into high crest on June 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
54.8	42.3	16.3	12.5	71.8	67.1	4.8	3.7

*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
7-8	8:30	0	0	0	0
7-9	12:00	0	0	0	0
7-10	8:30	0	0	0	2
7-11	8:00	0	1	0	1
7-12	8:10	0	1	0	2
7-13	8:30	6	0	0	2
7-14	8:22	4	1	0	3

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
7-8	2	16
7-9	29	232
7-10	16	80
7-11	33	165
7-12	18	90
7-13	59	472
7-14	31	248
Totals	188	1303

Gas Bubble Trauma (GBT): GBT monitoring occurred July 12. None of the 102 fish examined 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 and concluded June 29.

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	7/11	0733			Annual Maintenance

Comments: None.

Adult Fish Passage Facility

Lower Granite Biologists and Anchor QEA staff inspected the adult fishway on July 9, 11, and 13.

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: The fish ladder cooling water pumps are in operation. The fish ladder exit cooling pumps were removed from service from 1056-1131 hours July 14 to repair a failed solenoid valve on pump 1. The fish ladder temperature probes and system were upgraded over the winter outage season. NWW and NWD continues working on the issue with some sensor readings available online. Two clipped adult Chinook salmon were observed at the fish ladder exit pool July 11. HOBO ladder temperature data are in at the end of this report (Figure 1).

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’	
	X		North Shore Entrance (NSE-1) Weir Depth	≥ 7.0’ or on sill	6.9’, 6.6’
	X		North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	6.8’, 6.6’
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	
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 NSEs and all four FOGs are in operation, the north shore has

not consistently met 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)	35.3 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: 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: None.

Collection Facility: The juvenile facility is collecting for condition sample in secondary bypass mode. There were 9,620 fish bypassed to the river this week.

Transport Summary: N/A

Spillway Weir: Summer spill continues. There were 104,035 juvenile and 166 PIT-tagged adult Chinook salmon, 72,833 juvenile and 491 adult PIT-tagged steelhead, 10,815 juvenile and 2 adult sockeye salmon, and 4,064 juvenile coho salmon detected over the RSW spillway since March 1. There have been 35,367 juvenile and 15 adult

Chinook salmon, 18,075 juvenile and 84 adult steelhead, 2,112 juvenile sockeye salmon, and 950 juvenile coho salmon detected at the JBS full flow PIT tag detection array since March 14 (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
53.6	44.5	18.6	17.6	65.5	62.0	5.0	5.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: N/A

Invasive Species: No zebra/quagga muscles were detected on the trap substrate. There were 1,582 Siberian prawn in the condition sample this report week.

Avian Activity: Biologist daily piscivorous bird counts and hazing continues at Lower Granite Dam.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
July 8	1230	1	0	0	0
July 9	1030	0	0	0	1
July 10	1250	0	0	0	0
July 11	1053	0	2	0	1
July 12	0925	0	3	1	0
July 13	1305	0	0	3	0
July 14	1320	0	1	0	1

Gas Bubble Trauma (GBT) Monitoring: N/A

Adult Fish Trap Operations: The adult trap is operating Monday through Friday at a 20% (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.

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 523 macrophthalmia (juvenile) and 990 ammocoete (larval) lamprey samples have been collected this season.

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.

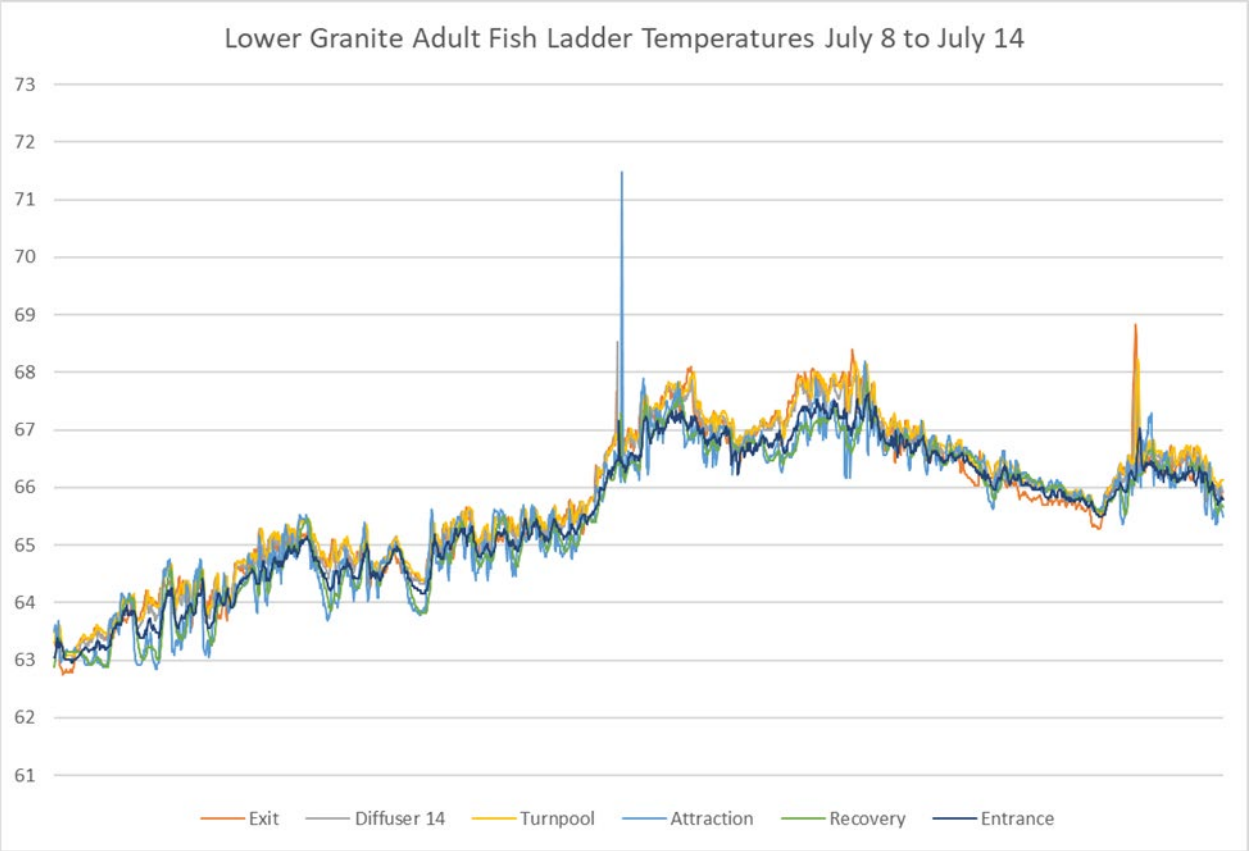

Figure 1. Lower Granite Dam adult fish ladder temperatures July 8 to July 14, 2022.