U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#18-2022

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: July 1 – July 7, 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	7/14/22	N/A	Blade seals replaced
8	6/6	1002	7/29	N/A	9-year overhaul
6 & 10	7/5	1000	7/5	1100	ESBS inspections, rotated through units
1 & 5	7/7	0800	7/7	0930	Trash rack cleaning, 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 1, 3 and 6. 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’
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 0.4’

Comments: Debris loads were minimal to very light near the Oregon exit and light near the Washington exit. New incoming debris was minimal to very light along the Washington shoreline. The general maintenance staff cleaned both exits’ picketed leads as needed including the holiday weekend and call outs.

At the Washington shore exit, a regulating weir alarm came in and was reset on July 3. High picketed lead differential and exit weir alarms came in and were reset after the leads were cleaned on July 6.

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'	1.3' to 2.1'
X			NFEW2 Weir Depth	≥ 8.0'	8.0' to 9.5'
	X		NFEW3 Weir Depth	≥ 8.0'	Raised to 8.0'
	X		South Oregon Entrance Head Differential	1.0' – 2.0'	0.9' to 1.2'
	X		SFEW1 Weir Depth	≥ 8.0'	6.0' to 7.9'
	X		SFEW2 Weir Depth	≥ 8.0'	6.0' to 7.9'
	X		Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.2 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	1.1' to 1.2'
X			WFE2 Weir Depth	≥ 8.0'	9.1' to 10.2'
X			WFE3 Weir Depth	≥ 8.0'	8.3' to 9.3'

Comments: Most of 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 until fish pump 3 returned to service on July 6. However, high tailwater elevations, spill turbulence, hydraulic gradients, and slight set point drifts may have contributed. NEFW3 was lowered and returned to automatic mode on July 6 by 1030 hours. SFEW1, SFEW2, and the channel velocity average were out of criteria all week as adjustments to the entrance weirs were made with the return of fish pump 3. The south and north Oregon entrance head differentials were both out of criteria on July 1.

WFE3 still requires calibration, and this will occur when the spill season concludes. The weir remains in criterion.

Floating orifice gates in slots W4, W14, W21 and W 32 will be opened next week when the stop logs are removed. Floating orifice gate 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 28°	Oregon Ladder Fish Pump 1
		Yes		Oregon Ladder Fish Pump 2 RTS date is Sept 30, 2022
Yes		Yes	20°	Oregon Ladder Fish Pump 3 RTS on July 6
Yes				OR North Powerhouse Pool supply from juvenile fishway

Comments: Fish pump 3 returned to service after testing on July 6 at 1030 hours. Blade angles on fish pumps 1 and 3 were adjusted down due to the four floating orifice gate slots still being closed. Fish pump 2 remains out of service. Repairs are waiting on funding so the return to service date is subject to change.

Juvenile Fish Passage Facility

Every other day sample collection continued with no interruptions in the schedule. After regional discussion, TSW closure and removal will begin on July 11.

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 spillway and powerhouse. Much of the debris was woody material and aquatic vegetation. The operators continued to flush debris through the navigation lock. Some debris passed over the TSW.

Trash racks were cleaned in units 1 and 5 on July 7 to see if there would be any impact on VBS cleaning. There was 18 yards of debris removed, mostly woody material, tumbleweeds, and aquatic vegetation. No fish were observed.

There are no problems to report.

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. Screens were deployed in unit 7 on July 6. Only 8A slot is without a fish screen. Units 7 and 8 remain out of service. The emergency bulkhead remains in 8A slot. ESBS camera inspections revealed no issues in units 6 and 10 on July 5.

Daily VBS differential monitoring revealed one high differential. This screen and 12 others were cleaned on July 3 to 7. There was one juvenile lamprey and one smolt mortality 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 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 will continue at the normal frequency. Orifices were adjusted for VBS, and trash rack cleaning as required. One low water alarm occurred during VBS cleaning on July 5. Orifice cycling protocols were reviewed. The orifice in 8A slot remained closed and the 8B slot north orifice remained open due to the emergency bulkhead installed in 8A slot.

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, 1,600 juvenile lamprey and 76,502 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.

There are no problems to report.

Top Spillway Weir (TSW) Operations: The TSW's in spillbays 19 and 20 remained open with both attached to a hoist. The TSW closer and removal date has been coordinated 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
348.7	257.1	211.9	138.3	62.8	60.8	6.0	4.6

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 high flows, spill volume exceeded the 57 percent on July 1. With spillbays 2, 14, 15 and 16 being dogged high and flow not meeting the forecasted volume, spill was below 57 percent on data days, July 3, 5 and 6 due to total dissolved gas level concerns. Too match the flow volume, bays 2 and 16 were lowered and dogged at four feet and bays 14 and 15 were lowered and dogged at three feet on July 5 by 0930 hours. Shortly after, following examination by an engineer, bay 15's hoist returned to automatic operation as it was determined the gate was not the issue. The faulty hoist remains in bay 14. Per the spill Table 7, bay 6 was not adjusted.

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. 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. Due to the faulty hoist, bay 14 also must be adjusted by a crane.

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 cooling water strainer inspections revealed 18 juvenile lamprey and three subyearling Chinook salmon mortalities on July 5.

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 1	Spill	0	0	13	15	0
	Powerhouse	0	0	0	10	0
	Outfall	0	2	0	0	0
	Forebay	0	0	0	0	0
July 2	Spill	0	0	20	10	0
	Powerhouse	0	0	0	25	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	0
July 3	Spill	0	0	72	21	0
	Powerhouse	0	0	0	20	0
	Outfall	0	5	0	0	0
	Forebay	0	0	0	0	0
July 4	Spill	1	4	48	28	0
	Powerhouse	0	0	2	17	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	0
July 5	Spill	0	0	42	12	0
	Powerhouse	0	0	0	22	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	0
July 6	Spill	0	2	85	25	0
	Powerhouse	0	0	0	29	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	0
July 7	Spill	0	0	39	28	0
	Powerhouse	0	0	0	35	0
	Outfall	0	1	0	0	0
	Forebay	4	0	0	5	2

The laser and LRAD were inspected on July 5. Some preparations for operation were made but it is feared the wave action from previous weeks may have damaged both units.

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. Boat hazing concludes July 9.

In the spillway zone, tern and pelican numbers remained fairly high. The terns feed in the basin and the pelicans feed along navigation lock wing wall. A few gulls and cormorants were also observed.

In the powerhouse zone, pelican numbers remained fairly high. The pelicans were feeding near the Oregon ladder south entrance and floating orifice gates. Terns were noted once.

In the bypass outfall zone, a few cormorants had moved back in and began roosting on the outfall pipe.

In the forebay zone, a few juvenile gulls, pelicans, and grebes were observed roosting or feeding. Outside the zone, gulls or terns and pelicans were noted along the Washington shoreline. Also, a few cormorants, grebes and osprey were observed. On one occasion, there may have been 200 pelicans on site.

No grebes entered the gatewell slots this week. Two pelicans were observed in the Washington ladder. It is assumed they are feeding on adult sockeye salmonid shad in the ladder's bend and drifting or flying downstream and out.

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 15 juvenile lamprey collected at the facility this week. For the season, a total of 610 juvenile lampreys have been sampled. All fish were returned to the river unharmed.

Gas bubble trauma examinations occurred on July 1, 5 and 7. 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.

Comments: Unit 6 was noted to be operating at 1-2 MW below the 1% operating efficiency range on July 7.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on July 5, 6, and 7.

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	7.0’
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	6.7’
x			North Powerhouse Entrance Channel/Tailwater Differential	1.0’ – 2.0’	
	x		North Shore Entrance (NEW-1) Weir Depth	≥ 8.0’ or on sill	7.8’
x			North Shore Channel/Tailwater Differential	1.0’ – 2.0’	

Comments: The entrance weir depths at the south shore, north powerhouse, and north shore were out of criteria on July 5. The powerhouse operator was informed, and he lowered the entrance weirs to meet the depth 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 pumps	2 pumps	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 and repair of the pump intake trash rack. 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 22 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-8%
x			Any oil seen in gatewells?	Gatewell 5B

Comments: An oil sheen was observed in gatewell 5B on July 7. Oil absorbent socks were immediately deployed in the gatewell slot. The oil is estimated to be approximately 1 teaspoon of hydraulic oil, but the source has not been determined. The required notifications of the oil spill were made to the appropriate state and federal agencies.

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 normally occurring on Mondays and Thursdays of each week. Sampling occurred on Tuesday (July 5) because of the unavailability of a Corps Fishery Biologist on July 4 (see MFR 22 IHR 06 for more information). See the tables below for a summary of the sampling results. The descaling observed on

one fish in the July 7 sample was attributed to a bird predation attempt. Approximately 6-8% of fish in each sample exhibited fin hemorrhaging, with most of the incidences likely symptomatic of disease.

Fish condition sampling results at Ice Harbor Dam:

Date: July 5

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	0	---	---	---
Chinook yearling unclipped	6	0	0	0
Chinook subyearling clipped	27	0	0	0
Chinook subyearling unclipped	63	2	0	0
Steelhead clipped	12	1	0	0
Steelhead unclipped	1	0	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	109	3	0	0

Date: July 7

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	0	---	---	---
Chinook yearling unclipped	0	---	---	---
Chinook subyearling clipped	32	0	0	0
Chinook subyearling unclipped	59	0	0	0
Steelhead clipped	6	1	0	1
Steelhead unclipped	0	---	---	---
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	97	1	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
69.1	52.2	20.6	15.5	63	60	6.0	5.5

*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 numbers of piscivorous birds observed around the project (see table below). Land-based hazing of piscivorous birds for 8 hours per day ended on June 30.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
July 1	---	---	---	---	---
July 2	---	---	---	---	---
July 3	---	---	---	---	---
July 4	---	---	---	---	---
July 5	4	6	0	0	4
July 6	5	3	0	0	11
July 7	14	4	0	0	4

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 27	0	0
June 30	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**
Unit 1	7/07/2022	0925	7/07/2022	1157	STS Inspection
Unit 2	7/07/2022	0725	7/07/2022	0900	STS Inspection
Unit 3	7/06/2022	1000	7/06/2022	1230	STS Inspection
Unit 4	7/05/2022	1127	7/05/2022	1305	STS Inspection
Unit 5	06/13/2022	0805	7/28/2022	ERTS	6 Year Overhaul
Unit 6	7/05/2022	0854	7/05/2022	1103	STS Inspection

Comments: None.

Adult Fish Passage Facility

The adult fishways were inspected by Army Corps and EAS biologists July 1, 2, 3 and 6.

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: The south powerhouse entrance weir (SPE-1) was on sill during all inspections with readings 7.2, 7.2, 7.0 and 6.0 feet, respectively. The south powerhouse entrance weir (SPE-2) was on sill during all inspections with

readings 7.2, 7.2, 7.0 and 6.0 feet, respectively. The south shore entrance weir (SSE-1) was on sill during all inspections with readings 7.8, 7.7, 7.3 and 6.8 feet, respectively

South Powerhouse tailwater staff gauge's, SG9N, frame was found loose on the April 13 inspections. If the gauge remains unreadable, readings will be taken from the digital readings. There has been an order placed for new staff gauges and the project plans to install them during the winter maintenance period.

Auxiliary Water Supply System:

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

Comments: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	136 yds^2
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 28%
	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			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 inspected between July 5 and July 7. All were in good working order. The STSs were operating on Continuous-Run mode due to average sub-yearling Chinook salmon and sockeye salmon lengths being less than 120 mm. During the STS inspections, the VBSs on Unit 5 were inspected with the camera. It was found that the 5A VBS was protruding away from the wall approximately 1.5" and there were sticks wedged between the VBS and the concrete wall of the gatewell. It was also found that the 5B VBS was protruding away from the wall approximately 2" on the south end. The powerhouse staff was notified and a plan to repair the VBSs was schedule for July 11-14. During the same inspections 5C was examined and appeared to be in good working order.

Orifices, Collection Channel, Dewatering Structure, and Flume:

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

Comments: A high water alarm occurred at the PDS on July 3, 6, 7, and 8th. The PDS was checked every time the alarm occurred, and they all appeared to be false alarms. After further examination, once bubbler #3 was repaired

the water level was increasing off and on, a 0.10 of an inch and caused the alarm to occur. The assistant biologist will adjust the water level at the PDS to fix the false alarms from occurring.

Collection Facility: The collection facility was in secondary bypass at 0700 on July 6, at which time the every-day condition sample ended and the facility was placed into primary bypass. The facility began alternative day condition sampling at 0700 on July 7; secondary bypass at 0700 on odd days and primary bypass at 0700 on even days in July. A total of 9,090 fish were collected with 9,089 fish bypassed back to the river during this reporting period.

Transport Summary: Every-other day barge transport ended June 19. Trucking 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
67.7	51.2	17.0	16.8	63.5	61.0	5.7	4.1

*Scrollcase temperatures.

Other

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

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
7/1/2022	1115	2	5	1	0	2
7/2/2022	1230	0	0	0	0	0
7/3/2022	1500	2	5	1	0	2
7/4/2022	1230	5	8	0	0	1
7/6/2022	850	1	9	0	0	11
7/7/2022	715	3	9	2	1	11
6/30/2022	1045	0	5	1	0	3

Comments: Piscivorous bird observations are occurring daily. The outfall bird cannon functioned efficiently this week. USDA hazing has ended for the season. An adult osprey was found dead on the deck on July 5. It is believed it was part of a pair that had been trying to build a new nest in the framing between transformers T1 and T2.

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 7. A total of 5 clipped, 3 unclipped subyearling Chinook salmon and 3 clipped steelhead 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
1	7/7/2022	12:05	7/07/2022	16:05	VBS / ESBS Camera Inspection
2	7/7/2022	09:00	7/07/2022	11:50	VBS / ESBS Camera Inspection
3	7/06/2022	13:05	7/06/2022	16:30	VBS / ESBS Camera Inspection
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 staff inspected the adult Fishway on July 4 and July 6.

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			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 (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 90ft² - Low 0ft²
	X		Gatewell drawdown measured this week?	
		X	Gatewell drawdown acceptable	
	X		Any debris seen in gatewells (% coverage)	
X			Any oil seen in gatewells?	7/6 – 4A; 7/4 – 4C

Comments: The forebay had minimal floating debris inside the trash shear boom. Slight gatewell oil sheens were detected in 4A on July 6, and in 4C on July 4. Both incidences were determined to be sourced from deck wash material resultant of rainfall events.

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, and 4 differentials were checked on June 30. ESBS and VBS camera inspections initially scheduled during the period of emergency flood control releases took place July 6 and July 7 for units 1, 2, 3, 5, and 6. All screens were of sound integrity, minor orifice liner bolt issues were noted to be addressed during the winter maintenance period. Unit 4 is scheduled to be inspected July 14 while out of service during its planned unit 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 12,278 fish were collected, 12,271 were bypassed, and there were 7 sample or facility mortalities. The descaling and mortality rates were 0.5% and 0.6%, 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
67.4	54.0	20.1	16.2	63.5	62.7	1.9	1.7

*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
7-1	11:30	0	0	0	1
7-2	8:30	0	1	0	1
7-3	8:30	0	1	0	0
7-4	8:30	0	1	0	0
7-5	8:40	0	1	0	0
7-6	8:00	2	1	0	0
7-7	9:00	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
7-1	0	0
7-2	2	16
7-3	2	16
7-4	0	0
7-5	9	72
7-6	2	16
7-7	4	32
Totals	19	152

Gas Bubble Trauma (GBT): GBT monitoring occurred July 6. None of the 100 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

Comments: None.

Adult Fish Passage Facility

Lower Granite Biologists and Anchor QEA staff inspected the adult fishway on July 1, 2, 4, 6, and 7.

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 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. 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’	7.9’
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	6.8’
	X		North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	6.8’
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	0.7’
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 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)	147.0 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: None.

Collection Facility: The juvenile facility is collecting for condition sample in secondary bypass mode. There were 19,196 fish bypassed to the river this week.

Transport Summary: N/A

Spillway Weir: Summer spill continues. There were 102,994 juvenile and 165 PIT-tagged adult Chinook salmon, 72,819 juvenile and 486 adult PIT-tagged steelhead, 10,815 juvenile and 1 adult sockeye salmon, and 4,064 juvenile coho salmon detected over the RSW spillway since March 1. There have been 35,234 juvenile and 14 adult Chinook salmon, 18,074 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
71.0	52.6	18.2	17.8	62.0	61.0	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 157 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 1	0845	0	0	0	2
July 2	1037	0	0	0	0
July 3	1050	0	1	0	0
July 4	0745	0	0	0	0
July 5	1525	1	0	0	0
July 6	1415	0	1	0	7
July 7	1230	0	1	0	3

Gas Bubble Trauma (GBT) Monitoring: N/A

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.

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 521 macrophthalmia (juvenile) and 920 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.

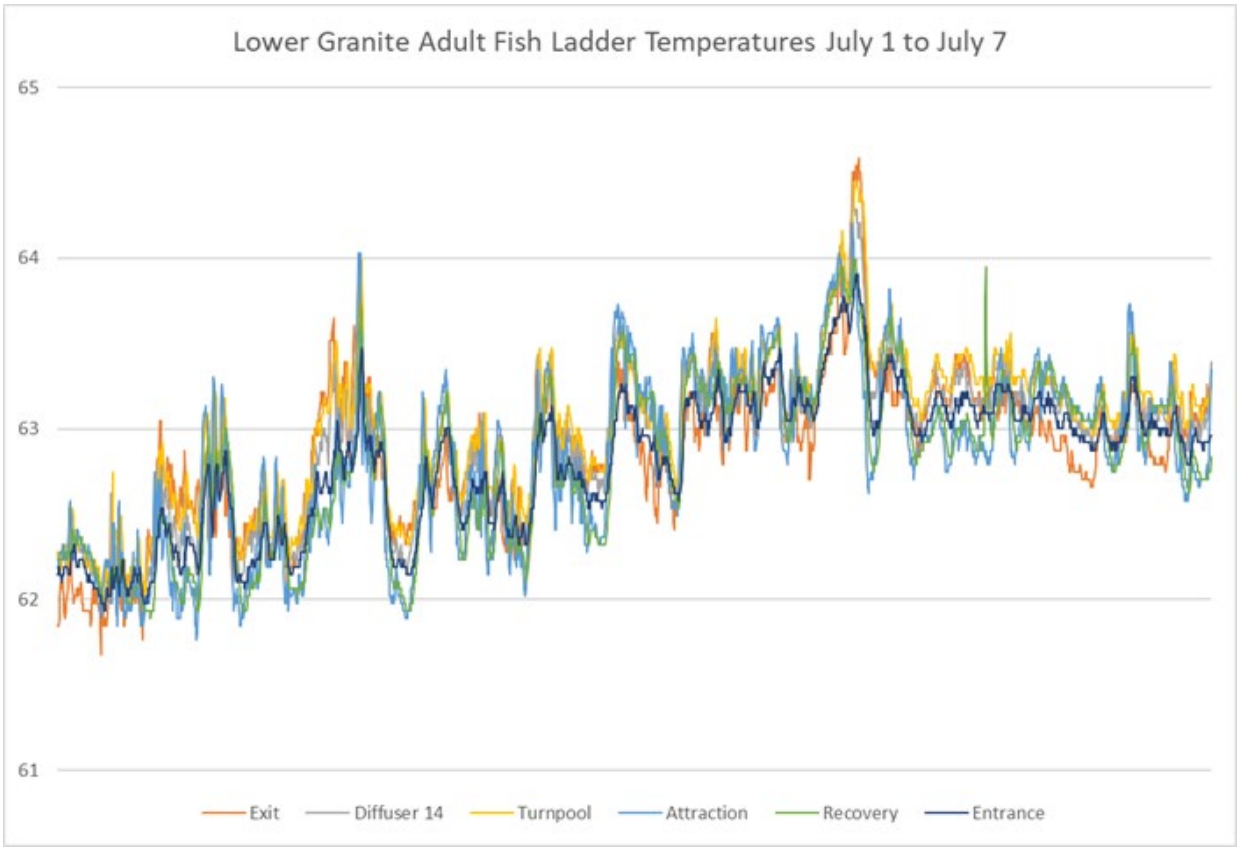

Figure 1. Lower Granite Dam adult fish ladder temperatures July 1 to July 7, 2022.