

**U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#22-2022**

Project: McNary

Biologist: Bobby Johnson and Paul Bertschinger

Dates: July 29 – August 4, 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).

Unit(s)	OOS		RTS		Outage Description
	Date	Time	Date	Time	
8	6/6	1002	10/13	N/A	9-year overhaul/Transformer gaskets (T4)
7	8/4	0635	10/13	N/A	Transformer gaskets (T4)
13	8/1	0719	8/5	1620	Annual maintenance
6, 7 & 9	8/2	1000	8/2	1130	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. The saw tooth unit priority pattern for temperature abatement continued.

Adult Fish Passage Facilities

The McNary fisheries staff performed measured inspections of the adult fishways on July 29, 31 and August 2. 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 1.3'
X		Oregon Count Station Differential	0.0' to 0.5'	0.2' to 0.3'
X		Washington Exit	Head over weir 1.0' to 1.3'	1.1' to 1.2'
X		Washington Count Station Differential	0.0' to 0.5'	0.2' to 0.3'

Comments: Debris loads were light to heavy near the Oregon exit and minimal to light near the Washington exit. New incoming debris was light. Most of the debris was residual and moved across the forebay by changes in wind direction. The general maintenance staff cleaned both exits' picketed leads as needed including the weekend.

At the Oregon shore exit, one exit alarm came in and was reset on July 31.

At the Washington shore exit, one regulating weir alarm came in and were reset on July 31.

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'	1.2' to 1.4'
X			NFEW2 Weir Depth	≥ 8.0'	8.0' to 8.1'
X			NFEW3 Weir Depth	≥ 8.0'	8.0' to 8.3'
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.0' to 1.4'
X			SFEW1 Weir Depth	≥ 8.0'	8.0' to 8.1'
X			SFEW2 Weir Depth	≥ 8.0'	8.0' to 8.2'
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.6 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	1.0' to 1.4'
X			WFE2 Weir Depth	≥ 8.0'	8.9 to 9.5'
	X		WFE3 Weir Depth	≥ 8.0'	7.9' to 8.7'

Comments: WFE3 still requires calibration, and this will occur when the spill season concludes. Currently, the weirs depth is being estimated. WFE3 was out of criterion on July 31.

WFE2 and WFE3 were in and out of manual mode from July 31 to August 2. This was done to control the pool differential. W1 was inadvertently in automatic mode on August 2. It was also determined that WFE3 had not moved since July 24. With WFE3 out of service, the control program was driving WFE2 to sill at times. Thus, the need for manual mode. The electrical staff found a faulty breaker associated with WFE3 on August 2 and replaced it by 1400 hours. WFE2 and WFE3 were returned to automatic mode.

There are three floating orifice gate slots that still require future gate replacement, W8, W37 and W 41. These slots remain closed.

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			23°	Oregon Ladder Fish Pump 1
		Yes		Oregon Ladder Fish Pump 2 RTS date is Sept 30, 2022
Yes			24° to 25°	Oregon Ladder Fish Pump 3 RTS on July 6
Yes				OR North Powerhouse Pool supply from juvenile fishway

Comments: 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.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Minimal 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 minimal to heavy near the powerhouse and heavy beside the spillway. New debris loads were minimal to light and constant. Wind direction changes moved the new and residual debris across the forebay. Much of the debris was woody material and aquatic vegetation.

No trash racks were cleaned this week.

There are no problems to report. An algae bloom continued 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 6, 7 and 9 on August 2.

Daily VBS differential monitoring revealed no high differentials. There was a total of three screens cleaned on August 3 and 4. No mortalities were observed during the cleaning.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe:

Yes	No	NA	Item	Number of orifices in service
X			Did orifices operate satisfactory?	41
	X		Dewatering and cleaning systems operating satisfactory?	

Comments: There was no moisture in the temporary air supply line this week. We continued to bleed off the line on every shift. Orifices were adjusted for VBS cleaning. The orifice in 8A slot remained closed.

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, 140 juvenile lamprey and 14,441 smolts, mostly sub-yearling Chinook salmon, were bypassed during secondary bypass. The smolt monitoring staff reports fish data in a separate report.

A pressure release valve was replaced on the A side sample gate oil reservoir on August 4. There was no interruption in sampling.

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

There are no other problems to report.

Top Spillway Weir (TSW) Operations: Spillbays 19 and 20 currently have standard spillgates in operation with TSW's removed.

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
208.1	174.1	118.9	99.1	70.4	69.3	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 with 57 percent of total flow being spilled. This will be reduced to 20 kcfs on August 15.

The hoist in bay 14 returned to service after limit switches were replaced on August 1. No adjustments with other bays were recorded.

The hoist in bay 19 returned to service after location indication issues were resolved on August 2. During the work, bay 19 was closed and bays 17, 18 and 20 were dogged open from 0944 to 1118 hours.

To support work in bay 21, the gate in bay 20 was put on seal from 0733 to 0858 hours on August 3. No other work was recorded.

During any spill gate adjustments, spill volume was distributed through other bays evenly as needed.

With limited crane use and hoist issues previously discussed, bays 2, 6, 16 and 21 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 cooling water strainer inspections revealed two juvenile lamprey and one subyearling Chinook salmon mortality on August 2. The next inspections will occur on December 6.

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 29	Spill	0	0	0	4	0
	Powerhouse	0	0	0	3	0
	Outfall	21	11	0	0	0
	Forebay	2	0	0	3	0
July 30	Spill	0	0	0	2	0
	Powerhouse	0	0	0	3	0
	Outfall	18	12	0	0	0
	Forebay	2	0	0	0	0
July 31	Spill	0	0	1	2	0
	Powerhouse	0	0	0	4	0
	Outfall	15	18	0	0	0
	Forebay	1	0	0	4	0
August 1	Spill	23	1	6	5	0
	Powerhouse	0	0	0	2	0
	Outfall	22	10	0	0	0
	Forebay	3	0	0	3	0
August 2	Spill	37	2	6	19	0
	Powerhouse	0	0	0	5	0
	Outfall	18	15	0	0	0
	Forebay	2	0	0	0	0
August 3	Spill	13	0	1	7	0
	Powerhouse	0	0	0	7	0
	Outfall	7	16	0	0	0
	Forebay	3	0	0	1	0
August 4	Spill	23	0	4	3	0
	Powerhouse	0	0	0	2	0
	Outfall	7	5	0	0	0
	Forebay	7	0	0	0	0

For the outfall, the LRAD still requires sounds to be programmed into the system and parts are on order for the laser.

The navigation lock wing wall laser, which is aimed at the outfall, remains in service along with the two large bird distress calls. There was no other hazing.

In the spillway zone, pelican numbers remained low. Gull numbers increased. Some terns and cormorants were also noted. Most birds were feeding or roosting. A few ospreys were also noted roosting.

In the powerhouse zone, pelican numbers remained low as hazing the Oregon ladder continued.

In the bypass outfall zone, gull and cormorant numbers increased with birds mostly roosting.

In the forebay zone, a few juvenile gulls and pelicans were observed. Only the pelicans were feeding. Outside the zone, small gull flocks, a couple of ospreys, a few cormorants and pelicans were noted.

Two to four pelicans were hazed from the Oregon ladder south entrance on July 30 and 31. The pelicans continued in low numbers outside the floating orifice gates and the south entrance all week.

No grebes entered the gateway slots this week.

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

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 seven juvenile lamprey collected at the facility this week. For the season, a total of 642 juvenile lampreys have been sampled. All fish were returned to the river unharmed.

Gas bubble trauma examinations occurred on July 29 and August 2. Fish are recorded on the next data day. For the report week, no smolt were observed with signs of trauma. Starting next week, examinations will only occur once a week to insure low mortality during elevated water temperatures.

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)

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
3	5/3/19	0641	---	---	Turbine runner replacement and stator rewind
2	7/11/22	0750	---	---	Doble testing, annual maintenance, cavitation repair

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on August 2, 3, and 4.

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	$>$ 8.0' or on sill	6.4', 7.7'
x			South Shore Channel/Tailwater Differential	1.0' – 2.0'	
x			South Shore Channel Velocity	1.5 – 4.0 fps	
		x	North Powerhouse Entrance (NFE-2) Weir Depth	$>$ 8.0' or on sill	
x			North Powerhouse Entrance Channel/Tailwater Differential	1.0' – 2.0'	
		x	North Shore Entrance (NEW-1) Weir Depth	$>$ 8.0' or on sill	
x			North Shore Channel/Tailwater Differential	1.0' – 2.0'	

Comments: The south shore entrance weir gate depth was out of criteria on August 2 and 3 when the gate was positioned slightly off of sill. With the low tailwater, the gate should have been on sill. This was corrected after the August 3 inspection.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply (AWS) System
5 pumps	3 pumps		Status of the 8 south shore AWS pumps

2 pumps	1 pump		Status of the 3 north shore AWS pumps
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Comments: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
x			Forebay debris load acceptable? (amount)	Average of 12 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-6% coverage
	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.

Fish Sampling: Juvenile fish sampling is done for the season.

Removable Spillway Weir (RSW): Summer spill for fish passage is occurring. The RSW was closed on August 4 at 1330 hours due to the average daily project outflow being below 30 kcfs, per Ice Harbor section 2.3.2.6.iii of the Fish Passage Plan.

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
35.0	26.5	10.3	9.2	70	69	9.3	8.0

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Unit cooling water strainer inspections for fish are done for the season until December.

Avian Activity: There were moderate to high numbers of piscivorous birds observed around the project. Most of the birds were observed foraging downstream of the spillway and near the upstream tip of Eagle Island. Predation attempts by Caspian terns diving in the water were observed downstream of the avian wire array.

Invasive Species: No exotic species that are new to the area have been found.

Fish Rescue/Salvage: None.

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)

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
Unit 1	8/03/2022	1035	8/03/2022	1205	STS Inspection
Unit 2	8/01/2022	0715	8/18/2022	ERTS	Annual Maintenance
Unit 3	8/03/2022	0710	8/03/2022	0850	STS Inspection
Unit 4	8/02/2022	1200	8/02/2022	1345	STS Inspection
Unit 5	8/02/2022	1000	8/02/2022	1040	STS Inspection
Unit 6	8/02/2022	0750	8/02/2022	0940	STS Inspection

Comments: None.

Adult Fish Passage Facility

The adult fishways were inspected by Army Corps and EAS biologists July 29, 30, 31 and August 3.

Fish Ladder:

Yes	No	Location	Criteria	Measurements
X		North Ladder Exit Differential	Head \leq 0.5'	
X		North Ladder Picketed Lead Differential	Head \leq 0.4'	
X		North Ladder Depth over Weirs	Head over weir 1.0' to 1.3'	
X		South Ladder Exit Differential	Head \leq 0.5'	
X		South Ladder Picketed Lead Differential	Head \leq 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	\geq 8.0' or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	\geq 8.0' or on sill	
X			North Shore Channel/Tailwater Differential	1.0'–2.0'	
		X	South Powerhouse Entrance (SPE-1) Weir Depth	\geq 8.0' or on sill	
		X	South Powerhouse Entrance (SPE-2) Weir Depth	\geq 8.0' or on sill	
X			South Powerhouse Entrance Channel/Tailwater Differential	1.0'–2.0'	
		X	South Shore Entrance (SSE-1) Weir Depth	\geq 8.0'	
X			South Shore Entrance (SSE-2) Weir Depth	\geq 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 5.8, 5.8, 5.6 and 6.2 feet, respectively. The south powerhouse entrance weir (SPE-2) was on sill during all inspections with readings 5.8, 5.8, 5.6 and 6.2 feet, respectively. The south shore entrance weir (SSE-1) was on sill during all inspections with readings 6.5, 6.6, 6.4 and 6.9 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)	3 yds ²
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 10%
	X		Any oil seen in gatewells?	

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 running in Cycle-Run mode throughout this reporting period due to average sub-yearling Chinook salmon and sockeye salmon lengths being greater than 120 mm. STS inspections occurred from August 2 to August 3, all screens appeared to be intact and in good 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: None.

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 280 fish were collected with 279 fish bypassed back to the river during this reporting period.

Transport Summary: At this time, there is no transporting of juvenile salmonids occurring.

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
36.0	27.6	17.3	14.6	69.6	69.5	6.7	5.8

*Scrollcase temperatures.

Other

Cooling Water Strainers: Cooling water strainers inspections will occur again in December. Monitoring is performed from December to 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
7/29/2022	830	48	3	22	0	10
7/30/2022	1140	18	0	6	0	4
7/31/2022	1015	26	2	6	0	4
8/1/2022	1000	3	2	1	0	0
8/2/2022	1120	61	9	7	0	5
8/3/2022	820	43	6	4	0	2
8/4/2022	920	52	16	6	0	4

Comments: Piscivorous bird observations are occurring daily. Birds were also hazed from the entrance of the North ladder. The outfall bird cannon functioned efficiently this week. JFF personnel have been performing bird hazing activities during the day, due to larger than normal numbers of piscivorous birds feeding in the tailrace area and in the adult fishways.

Invasive Species: No zebra or quagga mussels were observed at the monitoring station on August 4.

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

Research: GBT examinations occurred on August 3. A total of 1 clipped and 3 unclipped subyearling Chinook salmon smolts were examined. No gas bubble trauma was seen.

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)

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
1	8/01/2022	07:35	8/06/2022	09:31	High temperature alarm
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. Units 1-6 were offline August 1-4 from 1700-0900 as outlined in the powerhouse roof work MOC. Unit 6 was operated at speed-no-load to supply station service during the outages.

Adult Fish Passage Facility

EAS Bio and USACE staff inspected the adult Fishway on July 30, August 1, and August 4.

Fish Ladder:

Yes	No	NA	Location	Criteria	Measurements
X			Fish Ladder Exit Differential	Head \leq 0.5'	
X			Fish Ladder Picketed Lead Differential	Head \leq 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	\geq 8.0'	
X			South Shore Entrance (SSE-2) Weir Depth	\geq 8.0'	
X			South Shore Channel/Tailwater Differential	1.0' – 2.0'	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	\geq 7.0' or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	\geq 7.0' or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0'–2.0'	
X			North Shore Entrance (NSE-1) Weir Depth	\geq 6.0' or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	\geq 6.0' or on sill	
X	X		North Shore Channel/Tailwater Differential	1.0'–2.0'	08/01 – 0.5
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. NSE weirs 1 and 2 are being monitored with manual measurements as both weir targets enabling the FSC system to accurately read and automatically adjust weir heights were compromised during emergency flood control measures in June, repairs are pending. 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 115ft ² - Low 0ft ²
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X	X		Any debris seen in gatewells (% coverage)	8/4 - <1% in 1A & 2B
	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.

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 10,266 fish were collected, 8,256 were bypassed, 3,305 were transported by truck, and there were 21 sample or facility mortalities. The descaling and mortality rates were 1.2% and 0.4%, respectively. Four adult lamprey were removed from the separator during this report period. The collection and transport facility operated within criteria this report period, initiating every-other day primary by-pass on July 21 due to water

temperatures above 68°F. Every day collection resumed at 0700 on July 29 in accordance with the FPP three-day window prior to initiation of trucking operations.

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. Collection for truck transport operations began on August 1, with the first truck departure on August 3.

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. The ASW was closed for the spill season at 10:00 on August 1.

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
34.9	26.6	15.6	9.7	70.0	68.6	6.0	4.4

*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
7-29	8:30	59	8	2	2
7-30	9:00	59	0	0	4
7-31	8:30	57	2	0	2
8-1	8:00	54	2	0	3
8-2	10:00	0	0	0	0
8-3	8:00	59	3	0	2
8-4	8:00	43	0	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
7-29	11	120
7-30	6	60
7-31	17	170
8-1	13	140
8-2	18	180
8-3	15	150
8-4	19	76
Totals	99	896

Gas Bubble Trauma (GBT): GBT monitoring occurred August 3. None of the 79 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)

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
6	08/01	0718			Annual maintenance

Comments: None.

Adult Fish Passage Facility

Lower Granite Biologists and Anchor QEA staff inspected the adult fishway on July 29, 30 and August 1, 3.

Fish Ladder:

Yes	No	NA	Location	Criteria	Comments
X			Fish Ladder Exit Differential	Head \leq 0.5'	
X			Fish Ladder Picketed Lead Differential	Head \leq 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. Pump supply configuration was modified to provide water directly into the ladder exit channel from 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 only some sensor readings available online. Fish ladder temperature data is provided in (Figure 1).

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
	X		South Shore Entrance (SSE-1) Weir Depth	\geq 8.0'	7.2', 7.8', 7.8', 7.7'
	X		South Shore Entrance (SSE-2) Weir Depth	\geq 8.0'	7.2', 7.9', 7.7'
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	\geq 7.0' or on sill	
	X		North Shore Entrance (NSE-2) Weir Depth	\geq 7.0' or on sill	
	X		North Shore Channel/Tailwater Differential	1.0'–2.0'	0.9', 0.9', 0.5'
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)	67.1 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 changed to collection for transport at 0700 hours April 1. There were 14,270 fish were collected this week. Of these, 9,854 were bypassed back to the river.

Transport Summary: Collection for transport started at 0700 hours April 1 with the first truck departing from LWG August 3. There were 3,161 fish transported this week.

Spillway Weir: Summer spill continues. There were 106,231 juvenile and 172 PIT-tagged adult Chinook salmon, 72,840 juvenile and 497 adult PIT-tagged steelhead, 10,815 juvenile and 4 adult sockeye salmon, and 4,064 juvenile coho salmon detected over the RSW spillway since March 1. There have been 39,051 juvenile and 18 adult

Chinook salmon, 28,750 juvenile and 86 adult steelhead, 2,112 juvenile sockeye salmon, and 951 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
35.7	30.7	18.5	18.2	65.0	64.0	5.0	5.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: N/A

Invasive Species: No zebra/quagga mussels were detected on the trap substrate. There were 4,962 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 29	0912	1	1	0	0
July 30	1000	1	0	0	0
July 31		0	2	1	0
Aug 1	1220	1	6	0	0
Aug 2	1050	4	4	0	0
Aug 3	1147	0	4	0	0
Aug 4	1430	0	6	0	0

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. HOBO data indicates a temperature between the main ladder and the adult trap (Figure 1). The adult trap was flushed with the screen cleaned July 29.

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 1,000 juvenile and 2,230 larval Pacific lamprey, not to exceed 20 juvenile or 10 larvae daily, during the routine smolt monitor condition sampling from March through October. 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 524 macrophthalmia (juvenile) and 1200 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.

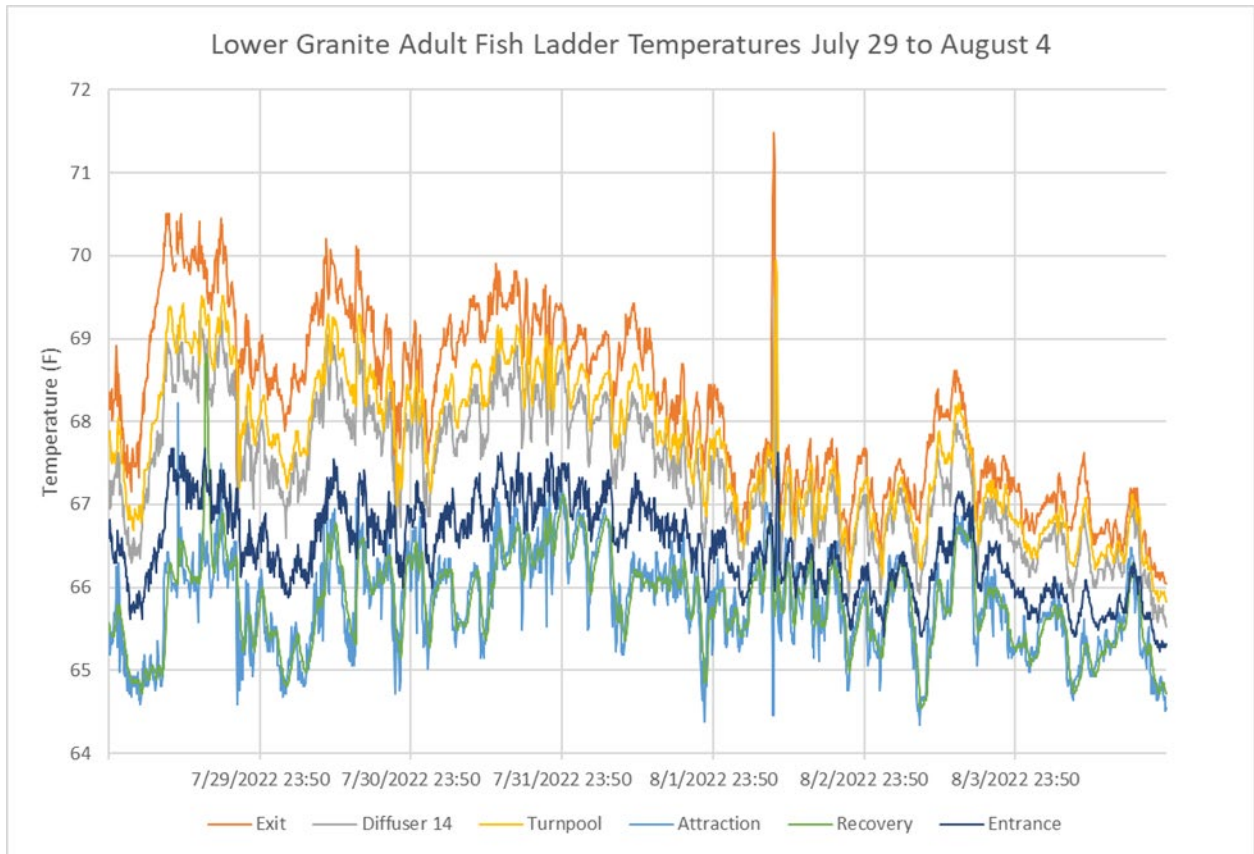


Figure 1. Lower Granite Dam adult fish ladder temperatures July 29 to August 4, 2022.