U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#24-2022

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: August 12 – August 18, 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**
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)
14	8/15	0710	8/18	1535	Annual maintenance
1 & 2	8/16	1040	8/16	1140	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 August 13, 14 and 16. 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’	0.9’ to 1.0’
X		Oregon Count Station Differential	0.0’ to 0.5’	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’	0.1’ to 0.3’

Comments: Debris loads were very light to light near the Oregon exit and minimal to very light near the Washington exit. Most of the debris was residual and circulated from the powerhouse to the Oregon shore depending on the wind direction. The general maintenance staff cleaned both exits’ picketed leads as needed including the weekend.

At the Oregon shore exit, the head over weir was out of criterion on August 13. A weir set point adjustment was required to resolve the issue.

At the Washington shore exit, one regulating weir alarm came in and were reset on August 14.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0' – 2.0'	1.1' to 1.5'
X			NFEW2 Weir Depth	≥ 8.0'	8.0' to 8.1'
X			NFEW3 Weir Depth	≥ 8.0'	8.0' to 8.1'
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.1' to 1.6'
X			SFEW1 Weir Depth	≥ 8.0'	8.0' to 8.1'
	X		SFEW2 Weir Depth	≥ 8.0'	8.0' to 8.1'/Slack
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.7 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	1.2' to 1.4'
X			WFE2 Weir Depth	≥ 8.0'	9.0' to 10.0'
X			WFE3 Weir Depth	≥ 8.0'	8.2' to 9.1'

Comments: The above Oregon ladder out of criterion point was due to slack in SFEW2's cables on August 16. The operators immediately resolved the issue. WFE3 still requires calibration, and this will occur when the spill season concludes. Currently, the weirs depth is being estimated and appears to be in criterion.

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			21° to 25°	Oregon Ladder Fish Pump 1
		Yes		Oregon Ladder Fish Pump 2 RTS date is Sept 30, 2022
Yes			25° to 27°	Oregon Ladder Fish Pump 3
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.

Fish pumps 1 and 3 briefly had their blade angles reduced to zero degrees in order to reset SFEW2 on August 16.

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 light
X			Gatewell drawdown measured this week?	Daily
X			Gatewell drawdown acceptable?	
	X		Any debris seen in gatewells? (% coverage)	
	X		Any oil seen in gatewells?	

Comments: Debris loads were minimal to light near the powerhouse. Wind direction changes moved the residual debris across the forebay from the powerhouse to the Oregon shore and back. Debris loads beside the spillway were minimal to light. Adjusting the spill pattern passed much of the spillway debris on August 15. New debris loads were minimal to very light. 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 1 and 2 on August 16.

Daily VBS differential monitoring revealed no high differentials. A total of thirteen screens were cleaned on August 15, 17 and 18. Four smolt 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. A small amount of oil has been noted in the air supply line, which is probably from previous powerhouse compressor work. We continued to bleed off the line on every shift. Orifices were adjusted for VBS cleaning. The orifice in 8A slot remained closed. Area lighting was repaired as required.

A transition and rectangular screen brush alarm came in at 1826 and 1829 hours, respectively, on August 14. Both alarms were brush cycle timing alarms. The technician on duty found the rectangular brush had stalled coming back upstream with the brush raised before the device had reached the park position. The technician used the control switches to park the rectangular brush. After, both brushes were tested with no issues observed.

A transition brush alarm came in at 1500 hours on August 15. The biologist immediately asked for an electrician to examine the rectangular screen brush, which alarmed soon after. The electrician found the device running up and downstream with the brush raised. They soon determined there was a limit switch issue on the rectangular brush. The limit switch was replaced, the alarms were cleared, the brushes were tested and returned to automatic mode by 1700 hours. We now suspect the problem report last week was probably this limit switch issue too. The next morning, the electrical staff examined the control PLC to verify all systems were functional, which they were.

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, 130 juvenile lamprey and 15,580 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. The new unit will be installed next week.

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. Preparations to install the TSW in bay 20 by September 1 have begun.

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
200.0	166.8	109.0	37.5	70.4	69.2	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 reduction to 20 kcfs occurred on August 15 at 0001 hours. However, due to flows in excess of powerhouse capacity, spill volume remained above 20 kcfs the rest of the week.

With the decrease in spill volume, bays 2, 6, 16 and 21 were closed on August 15 by 1130 hours.

In preparation for future TSW installation in bay 20, bays 12 to 15 were put on seal from 0812 to 1122 hours on August 17. Also, bays 15, 17 and 18 were put on seal from 0755 to 1402 hours on August 18. Spill volume was distributed through other bays evenly as needed.

Crane 7 is currently out of service for gear box replacement. Once that work is completed, electrical work will resume on crane 6, which is currently available. Also, bay 21's the hoist repairs will resume. With limited crane use and hoist issues previously discussed, crane 6 was required in order to close bays 2, 6, 16 and 21.

The micro/macro spillgate plan concluded on August 15.

Project wide temperature monitoring will conclude on August 31. The data will be published in separate daily, weekly, and annual reports by the smolt monitoring staff.

Other

Inline Cooling Water Strainers: The next cooling water strainer 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
August 12	Spill	0	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	5	9	2	0	0
	Forebay	3	0	0	5	0
August 13	Spill	22	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	9	9	5	0	0
	Forebay	5	0	0	0	0
August 14	Spill	0	0	1	0	0
	Powerhouse	0	0	0	0	0
	Outfall	2	9	0	0	0
	Forebay	4	0	0	0	0
August 15	Spill	12	0	1	0	0
	Powerhouse	0	0	0	0	0
	Outfall	3	7	0	0	0
	Forebay	1	0	0	0	0
August 16	Spill	0	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	3	1	0	0	0
	Forebay	2	0	0	0	0
August 17	Spill	4	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	2	0	0	0	0
	Forebay	5	0	0	0	0
August 18	Spill	7	0	6	0	0
	Powerhouse	0	0	0	0	0
	Outfall	6	0	0	0	0
	Forebay	3	0	0	0	0

For the outfall, the LRAD was programmed and tested from August 13 to 15. There appeared to be a partial response from the roosting birds, so different sounds were tested from August 16 to 18. After which, the LRAD was left on, and further monitoring will occur. Ordering parts for the laser had to be delayed until the next fiscal year.

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, roosting gulls and feeding terns were noted in fairly low numbers. A few ospreys were observed.

In the powerhouse zone, no birds were observed. No hazing occurred in or around the Oregon ladder.

In the bypass outfall zone, gull, cormorant, and tern numbers were low with most of the birds roosting.

In the forebay zone, a few juvenile gulls and one group of pelicans were observed. Both species were scavenging. Outside the zone, small gull flocks, a couple of ospreys, a few cormorants and pelicans were noted.

No pelicans were observed in the ladders and no grebes entered the gatewell slots this week.

Invasive Species: The next mussel station examinations will occur on August 21.

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 12 juvenile lamprey collected at the facility this week. For the season, a total of 661 juvenile lampreys have been sampled. All fish were returned to the river unharmed.

Gas bubble trauma examinations occurred on August 16. Fish are recorded on the next data day. For the report week, no smolt were observed with signs of trauma. 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)

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
3	5/3/19	0641	---	---	Turbine runner replacement and stator rewind

Comments: Units 6, 4, 2, and 1 were taken out of service one at a time on August 16 and 17 to facilitate STS inspections.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on August 13, 15, and 16.

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	
x			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
x			South Shore Channel Velocity	1.5 – 4.0 fps	
		x	North Powerhouse Entrance (NFE-2) Weir Depth	≥ 8.0’ or on sill	
x			North Powerhouse Entrance Channel/Tailwater Differential	1.0’ – 2.0’	
		x	North Shore Entrance (NEW-1) Weir Depth	≥ 8.0’ or on sill	
	x		North Shore Channel/Tailwater Differential	1.0’ – 2.0’	2.3’

Comments: The south shore picketed leads are needing to be cleaned of filamentous algae three times per day to keep the differential across the leads in criteria.

The north shore entrance channel/tailwater differential was above criteria on the August 16 inspection. However, the turbulent tailwater conditions from spill can make it difficult to obtain an accurate tailwater elevation reading.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply (AWS) System
5-6 pumps	2-3 pumps		Status of the 8 south shore AWS pumps
2 pumps	1 pump		Status of the 3 north shore AWS pumps

Comments: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
x			Forebay debris load acceptable? (amount)	Average of 8 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-10% coverage
x			Any oil seen in gatewells?	

Comments: Light oil sheens were observed in gatewell slot 6C and headgate slots 6C and 6B on August 16. Oil absorbent booms were immediately deployed. The oil sheens were most likely residual hydraulic oil that came off of the headgate cylinders after they were operated that day. 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: Unit 6, 4, 2, and 1 STSs and unit 6 VBSs were inspected on August 16 and 17. There were no significant problems found.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
x			Orifices operating satisfactory?	18-21
	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.

Orifice 5BN light was found to be burned out on August 13. Orifice 5BS was opened in place of orifice 5BN until the light was replaced on August 15. Orifice 1AN light was found to be burned out on August 16 and was replaced on August 24.

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
35.3	24.6	8.6	8.2	70	70	7.5	7.0

*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 numbers of piscivorous birds observed around the project. Most of the birds were observed foraging near the upstream tip of Eagle Island.

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)

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
Unit 2	8/01/2022	0715	8/18/2022	1040	Annual Exciter Replacement

Comments: None.

Adult Fish Passage Facility

The adult fishways were inspected by Army Corps and EAS biologists August 12, 13, 14 and 17.

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 6.5, 6.3, 5.6 and 6.4 feet, respectively. The south powerhouse entrance weir (SPE-2) was on sill during all inspections with readings 6.5, 6.3, 5.6 and 6.4 feet, respectively. The south shore entrance weir (SSE-1) was on sill during all inspections with readings 7.3, 7.2, 6.5 and 7.3 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 has ordered new staff gauges and they will be 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)	22 yds^2
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 20%
	X		Any oil seen in gatewells?	

Comments: The project staff finished installing the debris barrier on August 18.

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.

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: After multiple high-water alarms received on August 17, the PDS weirs were lowered to bring the water level 0.2-0.4 lower to aid with the alarms received by the control room. The electricians made a few modifications to the set points on August 18. The PDS weirs were raised to a normal setting on August 19 at 0700.

Collection Facility: Sampling for condition was switched to every third day beginning at 0700 on August 17 when the system was switched to primary bypass until secondary bypass began again at 0700 on August 19. A total of 378 fish were collected with 378 fish bypassed back to the river during this reporting period. A power outage occurred at the fish facility on August 18 at 1615 that lasted approximately 5 minutes. The only noticeable effect was the outfall cannon had to be restarted.

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
37.5	24.8	17.2	8.1	70.1	69.3	6.3	5.0

*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
8/12/2022	0910	39	5	1	0	6
8/13/2022	1445	10	14	15	0	1
8/14/2022	1100	24	2	3	0	2
8/15/2022	1530	11	11	7	0	4
8/16/2022	0930	39	5	4	0	1
8/17/2022	0820	24	3	0	0	3
8/18/2022	0800	15	1	2	0	0

Comments: Piscivorous bird observations are occurring daily. The outfall bird cannon functioned efficiently this week. The numbers of some of the species of birds appear to be dropping from previous weeks.

Invasive Species: Zebra and quagga mussel examinations will occur again in September.

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

Research: No research is occurring at this time.

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	8/17/2022	13:03	08/18/2022	11:40	Oil spill into headgate slot 1C
3	8/08/2022	08:45	8/26/2022	ERTS	Unit Annual Maintenance
5	4/14/2017	14:11	12/31/2022	ERTS	Spider and upper guide bearing repair.
6	4/18/2022	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 continued offline August 12-13 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 August 13, August 15, and August 18.

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			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. 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 1490 ft² - Low 0 ft²
	X		Gatewell drawdown measured this week?	
		X	Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	3C-1% 8/16
X			Any oil seen in gatewells?	1C 8/18

Comments: The forebay had minimal floating debris inside the trash shear boom with the highest measurement occurring on August 18. Gatewell 3C oil sheens contained last week with oil absorbent pads were followed up with oil pump deployment August 13 and 14, without further sheen detections. The gatewell 1C oil incident occurred after the juvenile fishway inspection of August 17, with oil pumping in combination with refilling actions occurring during the August 18 juvenile fishway inspection.

ESBS/VBS:

Yes	No	NA	Item
	X		ESBSs deployed in all slots and in service?
X	X		ESBSs inspected this week?
		X	ESBSs inspection results acceptable?
	X		VBSs differentials checked this week?
		X	VBSs differentials acceptable?
X	X		VBSs inspected this week?

Comments: Installation of ESBS's began March 21 with most units completed on March 22. Unit 3 ESBS and VBS undergoing work during scheduled annual maintenance. No other unit ESBS / VBS inspections took place during this reporting period.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	8/13-18, 8/12-20, remainder-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 4,894 fish were collected, 0 were bypassed, 4,648 were transported by truck, and there were 36 sample or facility mortalities. The descaling and mortality rates were 0.0% and 0.99%, respectively. Eleven adult lamprey were removed from the separator during this report period. The collection and transport facility operated within criteria this report period. 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 everyday 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
31.8	24.5	16.0	9.6	69.6	68.4	6.0	5.4

*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. Hazing ended on June 18.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
8-12	8:30	77	2	1	4
8-13	11:15	79	9	0	2
8-14	11:35	47	1	0	0
8-15	7:30	42	7	0	3
8-16	9:25	0	0	0	1
8-17	8:30	17	1	0	2
8-18	8:30	36	0	0	2

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
8-12	14	70
8-13	24	120
8-14	20	100
8-15	35	350
8-16	127	1016
8-17	168	840
8-18	299	602
Totals	687	3098

Gas Bubble Trauma (GBT): GBT monitoring occurred August 16. Of the 19 fish examined, 1 fish exhibited signs of GBT.

Fish Rescue/Salvage: Gatewell dipping of slot 3A transpired on August 15 in order to facilitate work on the VBS screens during the scheduled annual maintenance period of Unit 3. Zero fish and 6 Siberian prawn were collected during the salvage operation.

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
6	08/01	0718			Annual maintenance

Comments: None.

Adult Fish Passage Facility

Lower Granite Biologists and Anchor QEA staff inspected the adult fishway on August 12, 13, 15, and 17.

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. 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 and are currently uploading data online.

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
	X		South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	7.4’, 7.7’, 7.8’
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.9’, 7.7’, 7.8’
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’	0.9’
	X		North Shore Entrance (NSE-1) Weir Depth	≥ 7.0’ or on sill	6.9’
	X		North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	6.9’
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	0.8’, 0.9’, 0.6’, 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)	65 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. A substance was reported in gatewell slot 3C that was not identified as oil. The ESBS in gatewell slot 3C was pulled to ensure the unknown substance was not originating from the gearbox.

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 in collection for truck transport mode. There were 7,499 fish collected this week.

Transport Summary: Transport continues with trucks departing LWG on odd days. There were 5,444 fish transported this week. August 15 the transport tank capacity was exceeded by 7.3 pounds due to human error. Tank oxygen was increased, and fish were successfully transported and released below Bonneville with a mortality rate of 0.3%.

Spillway Weir: Summer spill continues. There were 106,333 juvenile and 175 PIT-tagged adult Chinook salmon, 72,876 juvenile and 508 adult PIT-tagged steelhead, 10,826 juvenile and 4 adult sockeye salmon, and 4,064 juvenile

coho salmon detected over the RSW spillway since March 1. There have been 39,149 juvenile and 19 adult Chinook salmon, 28,752 juvenile and 87 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
31.1	24.0	18.0	9.7	65.5	63.0	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 30,182 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
Aug 12	0845	5	20	0	0
Aug 13	1015	3	0	0	0
Aug 14	1232	1	18	0	0
Aug 15	1203	1	21	0	0
Aug 16	1325	4	14	0	0
Aug 17	1149	4	14	0	0
Aug 18	1535	0	14	0	0

Gas Bubble Trauma (GBT) Monitoring: N/A

Adult Fish Trap Operations: Adult trap operations switched to 24/7 collection for broodstock at 1400 hours August 17 with a 60% 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 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 526 macrophthalmia (juvenile) and 1340 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. A PIT-tagged sturgeon was released from the juvenile separator August 8.