U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#23-2022

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: August 5 – August 11, 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)
13	8/6	1221	8/6	1727	Brake issue
12	8/8	0800	8/11	1644	Annual maintenance
3, 4 & 5	8/9	1000	8/9	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 August 5, 7 and 10. In person fish counting and video review of nighttime lamprey passage continued.

We noted the Oregon ladder north and south tailwater temperature probes were out of service and intermittent, respectively, on July 22. These probes were replaced by district staff on August 11.

Fish Ladder Exits:

Yes	No	Location	Criteria	Measurements
X		Oregon Exit	Head over weir 1.0’ to 1.3’	1.1’ to 1.2’
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’
X		Washington Count Station Differential	0.0’ to 0.5’	0.2’ to 0.3’

Comments: Debris loads were very light to heavy near the Oregon exit and minimal 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, one tilting weir alarm came in and was reset on August 7.

At the Washington shore exit, one regulating weir alarm came in and were reset on August 10.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0' – 2.0'	1.3' to 1.4'
X			NFEW2 Weir Depth	≥ 8.0'	8.0'
	X		NFEW3 Weir Depth	≥ 8.0'	8.0'/Raised
	X		South Oregon Entrance Head Differential	1.0' – 2.0'	0.6' to 1.5'
X			SFEW1 Weir Depth	≥ 8.0'	8.0' to 8.2'
X			SFEW2 Weir Depth	≥ 8.0'	8.0' to 8.3'
	X		Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.4 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	1.3'
X			WFE2 Weir Depth	≥ 8.0'	8.9' to 9.0'
X			WFE3 Weir Depth	≥ 8.0'	8.1' to 8.2'

Comments: The three above Oregon ladder out of criteria points were due to one fish pump operation for testing, which will be described below. 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*			25°	Oregon Ladder Fish Pump 1
		Yes		Oregon Ladder Fish Pump 2 RTS date is Sept 30, 2022
Yes*			24°	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 pump vibration testing occurred on August 10. Pump 3 was out of service from 0726 to 1028 hours and 1140 to 1218 hours. Pump 1 was out of service from 1218 to 1501 hours and 1542 to 1641 hours. NFEW3 was raised from 0726 to 1641 hours. During the ladder inspection, the south pool differential and channel velocity measured 0.6 feet and 1.1 fps, respectively. All other data points were in criteria.

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. Wind direction changes moved the residual debris across the forebay from the powerhouse to the Oregon shore and back. A debris spill reduced the load from heavy to light beside the spillway on August 8. New debris loads were minimal. 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 3, 4 and 5 on August 9.

Daily VBS differential monitoring revealed no high differentials. There were six screens cleaned on August 8. 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. Orifice attraction lighting was repaired as required.

A transition screen brush alarm came in at 1834 hours on August 10. Four minutes later, a rectangular screen brush alarm came in. Both alarms were brush cycle timing alarms. The alarms clear fairly quickly and were not noted on the panel view until the next day. Even though the transition device alarm came in first, this is usually an indication of an issue with the rectangular brush cycle. There are two possibilities. One, the rectangular device briefly jammed on debris or two, a limit switch on the brush had a brief issue. Other than the alarms, no other problems have been observed.

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, 52 juvenile lamprey and 4,732 smolts, mostly sub-yearling Chinook salmon, were bypassed during secondary bypass. The smolt monitoring staff reports fish data in a separate report.

An air supply line was replaced on the B side sample gate before sampling began on August 8. 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
188.3	162.5	108.1	92.9	70.1	68.9	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.

With a large accumulation of debris along the spillway and the reduction in spill volume to 20 kcfs coming on August 15, project personal thought it prudent to spill debris from along the spillway before it could migrate to the powerhouse. The debris spill began on August 8 at 1012 hours. Debris was passed through bay 16 using a split leaf configuration. During the process, bays 15 and 17 were on sill, which helps pass debris and the operator managed spill volume through the other available bays. The procedure was completed at 1033 hours with a normal spill pattern being restored. The debris load alongside the spillway was reduced from heavy to light.

With a decrease in spill volume, bay 21 was lowered from 3 to 2 stops with crane 6 at 1043 hours on August 8.

In preparation for future TSW installation in bay 20, the short leaf was moved to bay 15. As part of the work, bays 14 and 15 were put on seal from 0745 to 1430 hours on August 10 and 11. 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, bays 2, 6, 16 and 21 have the gates dogged open and require crane 6 for adjustment.

Over the past two weeks, due to the large number of alarms and adjustments, the control operators have resorted to adjusting the spillgates in manual mode at times. This and the issues with cranes and hoists, lead the project staff to begin the micro/macro spillgate plan on August 11.

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

Other

Inline Cooling Water Strainers: The next cooling water strainer inspections will occur on 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 5	Spill	0	0	3	5	0
	Powerhouse	0	0	0	2	0
	Outfall	9	10	0	0	0
	Forebay	0	0	0	3	0
August 6	Spill	0	0	0	2	0
	Powerhouse	0	0	0	0	0
	Outfall	8	12	0	0	0
	Forebay	4	0	0	2	0
August 7	Spill	4	0	1	3	0
	Powerhouse	0	0	0	6	0
	Outfall	2	20	0	0	0
	Forebay	3	0	0	1	1
August 8	Spill	0	0	0	1	0
	Powerhouse	0	0	0	3	0
	Outfall	8	8	0	0	0
	Forebay	1	0	0	1	0
August 9	Spill	15	2	7	6	0
	Powerhouse	0	0	0	4	0
	Outfall	10	18	0	0	0
	Forebay	8	0	0	1	0
August 10	Spill	18	0	5	2	0
	Powerhouse	0	0	0	0	0
	Outfall	12	19	0	0	0
	Forebay	1	0	0	4	0
August 11	Spill	33	1	2	6	0
	Powerhouse	0	0	0	0	0
	Outfall	8	18	0	0	0
	Forebay	7	0	0	0	0

For the outfall, the LRAD was programmed and tested on August 10. However, there appeared to be no response from the roosting birds, so the program was removed on August 11 for further examination. 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, pelican, cormorant, and tern numbers were low. Gull numbers increased. A few ospreys were noted. The terns and pelicans were feeding. The other birds were mostly roosting.

In the powerhouse zone, pelican numbers remained low as hazing the Oregon ladder floating orifice gates and south entrance continued.

In the bypass outfall zone, gull and cormorant numbers were stable with the birds roosting. A few terns were noted roosting when working with the LRAD.

In the forebay zone, a few juvenile gulls and pelicans were observed. Only the pelicans were feeding. One grebe was noted. 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 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 649 juvenile lampreys have been sampled. All fish were returned to the river unharmed.

Gas bubble trauma examinations occurred on August 8. 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: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on August 8, 9, and 10.

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	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: None.

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 2 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-12% 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
34.2	27.7	10.2	8.2	70	69	9.0	7.5

*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	ERTS	Annual Maintenance

Comments: None.

Adult Fish Passage Facility

The adult fishways were inspected by Army Corps and EAS biologists August 5, 6, 7 and 10.

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 5.8, 6.0, 52 and 6.0 feet, respectively. The south powerhouse entrance weir (SPE-2) was on sill during all inspections with readings 5.8, 6.0, 52 and 6.0 feet, respectively. The south shore entrance weir (SSE-1) was on sill during all inspections with readings 7.2, 7.1, 7.3 and 6.7 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)	8 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: A large chunk of plastic bucket was retrieved from the 6A gatewell slot due to its ability to plug an orifice.

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: 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 438 fish were collected with 436 fish bypassed back to the river during this reporting period. The sample screen which controls the switch gates stopped working on August 10 at 2030. The technician on duty checked the timing of the gates with a stopwatch to ensure the gates were still collecting at an accurate percentage. The screen was able to be rebooted on August 11 at 0745. The B side count tank pipe was

found to be plugged on August 11 at 0615. The lead biological technician and mechanics were able to unplug the pipe at 0830. The plug consisted of two dead incidentals fish, walleye and a bass, and some possible smaller sticks.

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

Spillway: Summer spill began at 0000 on June 21. The RSW was closed at 1325 on August 4 due to high river temperatures with low river flows.

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
33.1	26.8	16.9	13.8	70.0	69.5	6.2	5.5

*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
8/5/2022	830	51	4	9	0	6
8/6/2022	1300	39	9	10	0	0
8/7/2022	1115	28	10	12	0	2
8/8/2022	1534	20	11	9	0	3
8/9/2022	845	31	3	10	0	6
8/10/2022	800	39	3	0	0	3
8/11/2022	900	49	21	1	0	6

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 9. A total of 2 clipped and 11unclipped subyearling Chinook salmon and 1 clipped and 1 unclipped steelhead smolts were examined. No gas bubble trauma was seen. GBT was canceled for the rest of the season on August 11, due to elevated temperatures, low collection counts at the separator over the last several GBT samples and generally low TDG levels in the forebay.

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
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 were offline daily August 5-11 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 6, August 8, and August 11.

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. 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 375ft² - Low 0ft²
	X		Gatewell drawdown measured this week?	
		X	Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	4b,4c,5a,5b <1% 8/10; 4b<1% 8/9; 4a<1% 8/5
X			Any oil seen in gatewells?	3c 8/9 & 8/10

Comments: The forebay had minimal floating debris inside the trash shear boom. Gatewell 3C oil sheens contained with oil absorbent pads.

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. Unit 3 ESBS and VBS undergoing work during scheduled annual maintenance.

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 6,153 fish were collected, 0 were bypassed, 6,816 were transported by truck, and there were 64 sample or facility mortalities. The descaling and mortality rates were 1.7% and 0.97%, respectively. Eight 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 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
31.5	25.8	17.9	12.7	69.9	69.7	6.0	5.8

*Ladder temperature.

Other

Inline Cooling Water Strainers: Inline cooling strainer inspections commenced on December 9, 2021. Inspections will continue in accordance with the Fish Passage Plan (FPP) and results will be submitted to the District.

Avian Activity: Daily piscivorous bird counts at Little Goose Dam began April 1 with hazing beginning on March 29. Hazing ended on June 18.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
8-5	11:15	21	0	0	0
8-6	7:45	44	0	0	3
8-7	8:00	83	3	0	7
8-8	8:00	35	0	0	4
8-9	8:00	5	3	0	0
8-10	10:45	51	3	0	3
8-11	7:30	59	2	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
8-5	19	268
8-6	31	155
8-7	42	210
8-8	152	760
8-9	40	200
8-10	60	300
8-11	36	180
Totals	380	2073

Gas Bubble Trauma (GBT): GBT monitoring occurred August 9. Of the 101 fish examined, 0 fish exhibited signs of GBT.

Fish Rescue/Salvage: Gatewell dipping of slot 3B transpired on August 9 in order to facilitate work on the VBS screens during the scheduled annual maintenance period of Unit 3. Zero fish and 2 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
1-4	08/08	0605	08/08	1729	Doble testing
1-4	08/09	0605	08/09	1907	Doble testing
1-4	08/10	0605	08/10	1854	Doble testing
1-4	08/11	0558	08/11	1841	Doble testing
1-5	08/05	0605	08/11	1841	Doble testing

Comments: All units were out of service daily for Doble testing and addition of oil T1. Doble testing was completed August 11.

Adult Fish Passage Facility

Lower Granite Biologists and Anchor QEA staff inspected the adult fishway on August 5, 6, 8, and 10.

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. Temperature data for all ladder locations at LWG are now available online.

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
	X		South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	7.7’, 7.4’
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.7’, 7.4’
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 8.0’ or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 8.0’ or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
X			North Shore Entrance (NSE-1) Weir Depth	≥ 7.0’ or on sill	
	X		North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	0.6’, 0.3’, 0.4’
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)	100 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 changed to collection for transport at 0700 hours August 1. There were 6,805 fish collected this week.

Transport Summary: Collection for transport started at 0700 hours April 1 with the first truck departing from LWG August 3. There were 8,025 fish transported this week.

Spillway Weir: Summer spill continues. There were 106,280 juvenile and 173 PIT-tagged adult Chinook salmon, 72,840 juvenile and 505 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 39,089 juvenile and 19 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
33.9	27.4	23.6	15.0	64.0	61.5	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 15,191 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 5	1400	0	5	0	0
Aug 6	0915	10	0	0	0
Aug 7	1120	2	11	1	0
Aug 8	1235	1	12	0	0
Aug 9	1057	2	13	0	0
Aug 10	1228	1	10	0	0
Aug 11	0638	1	0	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.

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 1270 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.