U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#28-2021

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: September 3 – September 9, 2021

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.

Table 1. McNary Unit Outages (OOS) and Return to Service (RTS).

	OOS		RTS		
Unit(s)	**Date**	**Time**	**Date**	**Time**	**Outage Description**
4	8/2	1018	9/24	N/A	Nine-year overhaul
9 thru 12	8/23	0646	10/1	N/A	Line 5 outage for BPA relays
1 & 2	9/7	1000	9/7	1100	ESBS camera inspections

Comments: The one percent peak efficiency constraint and unit priority are being followed per the 2021 Fish Passage Plan (FPP). RTS dates are subject to change.

Adult Fish Passage Facilities

The fisheries biologist and a technician performed a measured inspection of the adult fishways on September 3, 5, and 8. Fish counting, and video review of adult lamprey night passage continues.

No heat stressed adult fish mortalities were observed this week.

Fish Ladder Exits:

Yes	No	Location	Criteria	Measurements
X		Oregon Exit	Head over weir 1.0’ to 1.3’	1.0’ to 1.1’
X		Oregon Count Station Differential	0.0’ to 0.5’	0.3’ to 0.4’
X		Washington Exit	Head over weir 1.0’ to 1.3’	1.1’
X		Washington Count Station Differential	0.0’ to 0.5’	0.1’ to 0.2’

Comments: Debris loads near the Oregon exit were minimal to moderate and debris loads near the Washington shore exit were minimal. Picketed leads at both exits were cleaned as needed, including the weekend.

There are no problems to report.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0' – 2.0'	1.2' to 1.4'
	X		NFEW2 Weir Depth	≥ 8.0'	7.9' to 8.2'
X			NFEW3 Weir Depth	≥ 8.0'	8.0' to 8.1'
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.3' to 1.5'
	X		SFEW1 Weir Depth	≥ 8.0'	7.9' to 8.0'
	X		SFEW2 Weir Depth	≥ 8.0'	7.8' to 8.0'
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.6 fps
X			Washington Entrance Head Differential	1.0' – 2.0'	1.2' to 1.5'
X			WFE2 Weir Depth	≥ 8.0'	9.9' to 10.0'
X			WFE3 Weir Depth	≥ 8.0'	9.8' to 10.1'

Comments: Possibly due to calibration drifts, NFEW2, SFEW1, and SFEW2 were out of criteria on September 8.

Fabrication of the six remaining FOG's is on hold until fish pump 3 repairs are completed.

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			23°	Oregon Ladder Fish Pump 2
		Yes		Oregon Ladder Fish Pump 3, RTS date is October 29
Yes				OR North Powerhouse Pool supply from juvenile fishway

Comments: Fish pump 3 remained out of service. The estimated return to service date is October 29.

Juvenile Fish Passage Facility

Normal sampling season, consisting of alternating days of primary and secondary bypass, continues. There appears to be very little heat stress occurring even with the B side sample tank water temperature being above 68 degrees Fahrenheit all week.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Minimal to very 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: Current debris loads were minimal to moderate near the powerhouse and minimal beside the spillway. Incoming debris was minimal. Wind direction and project operations effected the debris distribution with the debris moving between the powerhouse and Oregon shoreline.

No trash racks were cleaned this week.

There are no problems to report.

Extended-length submersible bar screen (ESBSs)/Vertical barrier screen (VBSs):

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

Comments: All screens are in place. Camera inspections in units 1 and 2 revealed no issues on September 7.

Daily VBS differential monitoring revealed no differentials out of criteria. A total of six screens were cleaned on September 8 and 9. No fish mortalities were observed during cleaning.

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

Yes	No	NA	Item	Number of orifices in service
X			Did orifices operate satisfactory?	42
X			Dewatering and cleaning systems operating satisfactory?	

Comments: Orifices were adjusted for VBS cleaning as required. With low debris loads and a temporary air supply line, orifice cycling remains at once a day.

The temporary air supply line from the north end of the powerhouse and the contractor who is reinforcing the intake deck crane's east rail will continue to be monitored.

The rectangular screen cleaning brush's raise limit was adjusted on September 9.

The brushes cycle sequence was set at every eight hours from September 5 to 9. A cycle sequence of very six hours is normally used this season.

Bypass Facility:

Yes	No	NA	Item
X			Sample gates on?
		X	PIT-tag sampling system on?

Comments: All bypass facility systems operated satisfactorily. 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, 24 juvenile lamprey and 68 smolts were bypassed during secondary bypass. The smolt monitoring staff reports fish data in a separate report. Since mid-July, juvenile shad have been the predominate species in the sample.

There are no problems to report.

Top Spillway Weir (TSW) Operations:

The TSW's remain out of service. Standard spill gates are in bays 19 and 20.

River Conditions

Table 2. 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
118.2	75.7	0.0	0.0	69.3	68.1	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.

Crane 6 was load tested on September 8 from 1247 to 1252 hours with spillbay 19 being opened to two stops. The electrical staff completed repairs shortly after the testing and Crane 6 has returned to service. The load limit indicator continues to be an issue.

Crane 7 remains serviceable. However, work on the main hoist gearbox will begin next week. The crane's motor starter still needs to be replaced. A contract will be required. The current target date for replacement will be in October or November. Also, the crane's load limit indicator continues to be an issue.

Other

Inline Cooling Water Strainers: The next cooling water strainer inspections will occur on December 7.

Avian Activity: Avian counts continued. These counts are reflected in Table 3 below.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican	Grebe
Sept 3	Spill	0	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	0	4	0	0	0
	Forebay	0	0	0	0	0
Sept 4	Spill	0	0	0	0	1
	Powerhouse	0	1	0	0	0
	Outfall	1	21	0	0	0
	Forebay	0	0	0	0	0
Sept 5	Spill	0	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	2	18	0	0	0
	Forebay	0	0	0	0	0
Sept 6	Spill	11	0	0	2	0
	Powerhouse	0	0	0	0	0
	Outfall	2	16	0	0	0
	Forebay	0	0	0	0	0
Sept 7	Spill	14	2	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	1	17	0	0	0
	Forebay	0	0	0	0	0
Sept 8	Spill	13	7	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	6	17	0	0	0
	Forebay	0	0	0	0	0
Sept 9	Spill	19	0	0	0	0
	Powerhouse	0	0	0	0	0

	Outfall	12	20	0	0	0
	Forebay	0	0	0	0	0

The lasers on the outfall pipe and navigation lock wing remained off. Two large bird distress calls remain installed on the navigation lock wing wall. No other hazing is currently occurring.

Testing the LRAD continues Monday through Thursday. Due to the limits of the device, it is only being used once a day at this time. However, the unit does seem to disperse birds very well.

In the spillway zone, gulls and cormorants were noted. The birds were mostly roosting around the basin. A grebe, two pelicans, an occasional osprey and one great blue heron were also noted roosting in the area. Bird numbers fluctuated.

In the powerhouse zone, one cormorant was were observed.

In the bypass outfall zone, gulls and cormorants were noted. Gull numbers fluctuated and cormorant numbers were stable. All the birds were roosting on the pipe with only a couple of cormorants noted feeding. The lack of feeding may be due bird behavior.

In the forebay zone, no birds were was observed. Outside the zone, gulls, ospreys, and cormorants were observed in low numbers.

No grebes or pelicans were noted elsewhere.

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

Siberian Prawn: No Siberian prawn were removed from the sample and euthanized this week. The yearly total remains at nine prawns.

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

Research: There is nothing to report.

Project: Ice Harbor
Fisheries Tech: Tim DeKoster
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
4	8/16/21	0830	---	---	Annual maintenance and new oil
5	9/5/21	2109	9/7/21	1628	Governor tripped off - troubleshoot
2	9/7/21	1155	---	---	Thrust bearing pump losing pressure

Comments: Unit 5 was operated out of priority order ahead of unit 6 on September 5, from 1738 hour to 2109 hours. Unit 6 was off (not out of service) because of concern that the unit was not operating correctly.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on September 7, 8, and 9.

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’	2.1’
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 channel/tailwater head differential was slightly above criteria on September 9. The auxiliary water supply pump speed is not adjustable to make small changes to the water supply to help meet head criteria at the entrances.

Auxiliary Water Supply (AWS) System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
5 pumps	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 1 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-1%
	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: Orifices are being backflushed once per day. There were no debris obstructions observed at the orifices, as indicated by reduced flow through the orifices.

The replacement actuator for the water regulating weirs in the collection channel is being operated in manual control. An analog controller input was added to the actuator and needs to be programmed to function automatically. Currently, the water level in the collection channel is being visually monitored once per day. The actuator is operated electronically in "local" control to manually adjust the weirs as needed.

Juvenile Fish Facility: The Juvenile Fish Facility is operating in primary bypass mode.

Fish Sampling: Sampling at Ice Harbor Dam has concluded for the season.

Removable Spillway Weir (RSW): Summer spill for fish ended on August 31 at 2338 hours.

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
25.8	17.2	0.0	0.0	69	68	7.0	6.5

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Inspection of turbine cooling water strainers for lamprey will resume in December.

Avian Activity: There was a low level of piscivorous bird activity observed around the project. Most of the birds were observed foraging or resting around Eagle Island.

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

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by the fish sampling contractor, frozen and properly disposed of in a landfill.

Fish Rescue/Salvage: Unwatering activities that involved fish rescue did not occur this week.

Research: No on-site research is occurring at this time.

Project: Lower Monumental
Biologists: Raymond Addis

Turbine Operation

Yes	No	Turbine Unit Status
	X	All 6 turbine units available for service (see table & comments below for details).

*All available turbine units are operated in accordance with App. C of the Fish Passage Plan.

Lower Monumental Unit Outages (OOS) and Return to Service (RTS)

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
Unit 1	09/08/2021	0659	09/08/2021	0919	STS Inspection
Unit 2	07/15/2019	0720	11/18/2021	ERTS	Annual, Draft Tube Liner
Unit 3	08/16/2021	0825	09/03/2021	1410	Annual
Unit 3	09/07/2021	1130	09/07/2021	1350	STS Inspection
Unit 5	09/07/2021	0930	09/07/2021	1110	STS Inspection
Unit 6	09/08/2021	0920	09/08/2021	1035	STS Inspection

Comments: None.

Adult Fish Passage Facility

The adult fishways were inspected by Corps and EAS biologists on September 3, 4, 5 and 8.

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		X	South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’ or on sill	
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 of 6.8, 6.6, 7.3 and 6.8 feet respectively. The south powerhouse entrance weir (SPE-2) was on sill during all inspections

with readings of 6.8, 6.3, 7.3 and 6.8 feet respectively. The south shore entrance weir (SSE-1) was on sill during three inspections with readings of 8.1, 7.7 and 7.6 feet respectively.

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)	43 yds^2
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 - 4%
	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: STS's were operating on cycle mode during the 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: Collection into the raceways for transport ended June 20 at 1500. Secondary Bypass began June 20 at 1500. Sampling for condition on alternating days began July 9. The facility was placed into Primary Bypass on non-sample days. A total of 76 fish were collected with 76 fish bypassed back to the river during this reporting period.

Transport Summary: Transport at Lower Monumental ended June 20.

Spillway Weir: Summer Spill ended at 23:59:59 on August 31. The RSW went into service at 0001 on April 3 and was closed on July 9 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
25.8	17.0	0.0	0.0	68.5	67.5	5.9	5.0

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected June 14.

Avian Activity: Highest counts of foraging piscivorous birds in the tailrace (SWT1+PH1+PH2) during adult ladder inspections at Lower Monumental Dam are listed in the table below.

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
09/03/2021	1200	0	8	0	0	2
09/04/2021	1115	2	8	0	0	0
09/05/2021	0945	0	6	0	0	7
09/08/2021	1130	21	3	0	3	6

Comments: Bird hazing efforts by USDA personnel ended on June 2.

Invasive Species: No zebra or quagga mussels were observed during monitoring station inspections on August 7.

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by PSMFC and EAS, frozen and properly disposed of in a landfill. Total Siberian prawn counts at Lower Monumental Dam for this reporting period are reported in the table below.

Date	Sample (euthanized)	Collection*
09/03/2021	102	204
09/04/2021	---	---
09/05/2021	53	106
09/06/2021	58	116
09/07/2021	64	128
09/08/2021	---	---
09/09/2021	53	106
Total	330	660

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

Fish Rescue/Salvage: No fish rescue or salvage occurred.

Research: No research is occurring currently.

Project: Little Goose
Biologists: Chuck Barnes

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**
5	04/14/17	14:11	12/31/2022	17:00	Spider and upper guide bearing repair.
6	03/18/21	14:17	09/30/2021	17:00	T2 ground
3	07/26/21	07:20	09/15/2021	17:00	Unit annual and controls upgrade
1,2,4	09/08/21	09:08	09/08/2021	19:07	T2 line outage for bus reconnect of T2-A & T2-C bushings – 21 LGS 12 MOC
1,2,4	09/09/21	09:05	09/09/2021	19:40	T2 line outage for bus reconnect of T2-A & T2-C bushings – 21 LGS 12 MOC

Comments: Little Goose experienced a T2 transformer ground on March 18 at 14:17. T2 transformer and Units 5 and 6 will be out of service until repairs/replacement can be performed. A line outage occurred daily September 8-10 for transformer bus reconnect as stated in FPOM document, 21LGS 12 MOC.

Adult Fish Passage Facility

Little Goose fish facility, Environmental Assessment Services (EAS) and Oregon Department of Fish and Wildlife (ODFW) staff inspected the adult fishway on September 4 and September 9.

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	≥ 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 continues to operate in manual mode. The fish control system still has a faulty hydroranger for the NSE1 weir and is currently awaiting repair. The fishway control system hydroranger for the NSE channel, tailwater, and both weir 1 and 2 readings all malfunctioned for the September 9 EAS report. Little Goose fish facility staff followed up with manual measurements and found the system to be in criteria.

Ladder exit cooling pumps were placed into service at 2052 hrs on 12 June when 0.5m forebay temperatures exceeded 64°F. On 09/08/2021, the ladder exit cooling pump was taken offline at 07:50, returned to service at 14:15, taken offline at 18:45, and returned to service at 19:53 to facilitate switching from EDG and station service power according to the T2 line outage works outlined in 21 LGS 12 MOC. The switching process was repeated on 09/09/2021 taking the ladder exit cooling pump offline at 08:27, returning at 09:35, taken offline at 19:14, and returned to service at 20:05.

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 and 2 were returned to service on February 23. Fish pump 3 returned to service April 7. Fish pump #2 tripped on 09/08/2021 at 09:04 as a result of the transition to EDG during the T2 line outage switching and was brought back on line 09/08/2021 at 09:30 when station power on Unit 4 was stabilized.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comment
X			Forebay debris load acceptable? (amount)	5000ft^2 on 09/06
	X		Gatewell drawdown measured this week?	
		X	Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	6C-5% 9/4; 6B & 6C-<1% 9/5 & 9/6
X			Any oil seen in gatewells?	5A

Comments: There is currently fluctuating minimal to moderate floating woody debris inside the trash shear boom. Gatewell drawdowns for Unit 1 were conducted on August 26 and were in criteria.

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: ESBS’s were installed in Units 2, 3 and 4 on March 22 and 23. VBS differentials for Unit 1 were conducted on August 26 and were in criteria. ESBS/VBS camera inspections for all units took place June 8-10. Unit

3 was inspected again on August 26. Unit 5 ESBS are currently raised and stored within the slot position however are not in service as unit 5 is currently undergoing substantiative repair.

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 on March 22 and began daily collection for transportation on April 23.

Collection Facility: Collection for condition monitoring in conjunction with secondary bypass commenced on April 1 with the first sample being conducted on April 2. Every other day collection and sampling occurred through April 22. Daily collection for transportation began on April 23 with the first daily barge departing on April 24. The collection and transport facility operated within criteria this report period. A total of 138 fish were collected, 118 were transported via truck, 0 were bypassed, and there were 3 sample or facility mortalities. The descaling and mortality rates were 0.8% and 2.11%, respectively. No adult lamprey were removed from the separator during this report period.

Transport Summary: Daily fish transportation via barge began on April 24. Every other day barge transportation began May 18 and ended June 21. Collection for transport resumed at 0700 hrs July 5 and every other day truck transportation began July 6.

Spillway Weir: Spring spill operations began on April 3 with the ASW in high crest. ASW day surface spill emergency procedure began July 3 at 0900 hours and ceased July 9 at 1600 hours.

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
28.1	18.0	3.5	0.0	66.9	66.3	6.0	5.7

*Ladder temperature.

Other

Inline Cooling Water Strainers: Inline cooling strainer inspections commenced on January 13 with the last inspection occurring on July 15. Inspection results were submitted to the District.

Avian Activity: Daily piscivorous bird counts at Little Goose Dam began on April 1. USDA hazing actives began on March 29 and ended June 19.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
9-3	0945	18	2	0	0
9-4	0800	31	10	0	0
9-5	0845	18	12	0	0
9-6	1100	11	16	0	0
9-7	1135	23	2	0	0
9-8	0730	3	3	0	0
9-9	0800	23	19	0	0

Invasive Species: No invasive species have been observed on the mussel station.

Siberian Prawn: Juvenile fish collection began on April 1. Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by Oregon Department of Fish and Wildlife and Anchor, frozen and properly disposed of in a landfill. Daily and total Siberian prawn counts at Little Goose Dam for this reporting period are reported below.

Date	Sample	Collection*
9-3	95	95
9-4	122	122
9-5	99	99
9-6	147	147
9-7	236	236
9-8	316	316
9-9	457	457
Totals	1472	1472

Gas Bubble Trauma (GBT): GBT monitoring for the 2021 season concluded July 26.

Fish Rescue/Salvage: No fish rescue / salvage activities were performed this period.

Research: The Nez Perce Tribe (NPT) began adult steelhead kelt collection on May 3 and ended June 30.

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	07/26	0727			Six Year Overhaul

Comments: None.

Adult Fish Passage Facility

Lower Granite Biologists and Anchor QEA staff inspected the adult fishway August 21, 23, and 25.

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: None.

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
X			South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	
X			South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 8.0’ or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 8.0’ or on sill	
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	0.9’, 0.9’
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’, 0.9’, 0.6’
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. North shore and north powerhouse channel/tailrace head differential’s ability to maintain criteria range is dependent of tailrace conditions. Lower Granite electrical crew continue to work on the ladder control system issues.

Auxiliary Water Supply System:

Operating Satisfactorily	Standby	Out of Service	Auxiliary Water Supply (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)	Weekly average 16.4 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: None.

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: The ESBS in gatewell slot 6C had some minor damage allowing a screen section to become loose. The Unit 6 outage was extended to repair it.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe:

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

Comments: Orifices on 6A are closed due to a bulkhead being installed for the 6-year overhaul.

Collection Facility: The facility is in collection mode for condition sample and juvenile truck transport.

Transport Summary: A total of 300 smolts were transported this reporting period. There have been 118,176 smolts transported by truck since July 2. Prior to loading fish trucks biologist remove 2-3 five-gallon buckets of Siberian prawns from the raceway to prevent clogging of recirculating systems during transport and overflow systems while loading.

Spillway Weir: A total of 250,440 PIT tagged smolts have been detected over the RSW this season compared to a total of 23,569 smolts detected in the juvenile system. A total of 697 adult PIT tagged steelhead, 42 Chinook salmon, and 2 Sockeye salmon have been detected at the RSW this season compared to 81 adult steelhead and 19 Chinook salmon detected at the juvenile facility.

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
21.9	19.9	0.0	0.0	65.0	64.0	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 23,415 Siberian prawns collected in sample and euthanized this week. There were 2-3 five-gallon buckets of Siberian prawns removed from raceways on transport days.

Avian Activity:

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
Sept 3	1321	4	17	0	0
Sept 4	1133	3	11	0	0
Sept 5	1535	9	8	0	0
Sept 6	1217	3	12	0	0
Sept 7	0718	3	2	0	0
Sept 8	1222	12	16	0	0
Sept 9	1511	29	19	0	0

Gas Bubble Trauma (GBT) Monitoring: N/A

Adult Fish Trap Operations: Trapping 7 days per week at 18% and collection of fall Chinook salmon broodstock for transport to NPT and WDFW hatcheries began August 18.

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 April 4-December 15. Data collection includes fish scales, genetics tissue, sex and length, wild/hatchery composition, and non-adipose clipped hatchery fish assessment. 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.

USGS Juvenile Fall Chinook Salmon Growth and Origin

USGS began collection of previously tagged subyearling Chinook salmon utilizing LWG juvenile collection facility SbyC system began September 8 and will continue through October 31. Previously PIT tagged fish are diverted to the SbyC tanks, weighed, measured, GSI sampled, scanned for PIT tag code, recovered from anesthetic, and released back to the river. The objective of this project is to estimate the growth of PIT-tagged subyearling Chinook salmon from the Clearwater River to Lower Granite Dam.