U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#19-2021
July 2 – July 8, 2021

Project: McNary
Biologist: Bobby Johnson and Denise Griffith

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
5	12/7	0643	7/29	N/A	Blade seals and hub oil replacement
2	6/7	0732	7/29	N/A	Nine-year overhaul
13 & 14	7/6	1000	7/6	1100	ESBS camera inspections, rotated thru units

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

Adult Fish Passage Facilities

McNary fisheries biologist performed a measured inspection of the adult fishways on July 2, 5 and 7. Fish counting, and video review of adult lamprey night passage continues.

Presumed heat stress of adult fish was noted this week. One five to six-foot sturgeon mortality was observed in the navigation lock. One sockeye mortality was noted behind Washington ladder entrance weir W1, which is raised. Three sockeye and approximately 50 shad were observed behind Oregon ladder entrance weir NFEW3, which is currently raised. All fish were flushed downstream.

Fish Ladder Exits:

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

Comments: Debris loads near the Oregon exit were light and minimal to light near the Washington exit.

At the Oregon exit, a traveling screen alarm came in and was reset on July 7.

At the Washington shore exit, a regulating weir alarm come in and was reset on July 2 and 7.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
	X		North Oregon Entrance Head Differential	1.0' – 2.0'	1.8' to 2.3'
X			NFEW2 Weir Depth	≥ 8.0'	9.3'
	X		NFEW3 Weir Depth	≥ 8.0'	Closed
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.4' to 1.5'
	X		SFEW1 Weir Depth	≥ 8.0'	7.5' to 7.6'
	X		SFEW2 Weir Depth	≥ 8.0'	7.4' to 7.6'
	X		Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.0 fps
X			Washington Entrance Head Differential	1.0' – 2.0'	1.1' to 1.2'
X			WFE2 Weir Depth	≥ 8.0'	9.0' to 9.2'
X			WFE3 Weir Depth	≥ 8.0'	9.0' to 9.2'

Comments: With fish pumps 1 and 3 being OOS, the Oregon ladder is adjusted for one operational fish pump according to the FPP, page MCN-25, 3.3.2.4.v. The out of criteria points for the Oregon ladder listed above are due to only fish pump 2 being functional. The Oregon north pool differential was out of criterion only on July 2. Between July 2 and 5, fish pumps 2's blade angle was reduced from 30 to 24 degrees, which appears to have improved flow within the ladder. SFEW2 was found with slack cables on July 4. The operators immediately resolved the issue. When SFEW2's cables are slack, the weir would be shallower than the readings recorded.

Stoplogs remain installed in all floating orifice gates (FOG's) except W1, W3, W43 and W44 per the FPP. Fabrication of the six remaining FOG's continued. Six gates have been rehabilitated to this point. The remaining gates will be replaced.

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		Oregon Ladder Fish Pump 1, RTS date is July 30
Yes			24° or 30°	Oregon Ladder Fish Pump 2
		Yes		Oregon Ladder Fish Pump 3, RTS date is September 30
Yes				OR North Powerhouse Pool supply from juvenile fishway

Comments: Fish pumps 1 and 3 remained out of service. Return to service dates are subject to change. To remove the slack from SFEW2's cables on July 4, the blade angle of fish pump 2 was reduced briefly. This may be when the blade angel was reduced to 24 degrees.

Juvenile Fish Passage Facility

Normal sampling season, consisting of alternating days of primary and secondary bypass, continues. There was one interruption in the schedule this week. For technician training, the system was in secondary bypass twice for approximately one minute each time on July 4, from 1017 to 1024 hours. Sample gates were off.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Minimal to moderate
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 loads were minimal to moderate near the powerhouse and very light to moderate beside the spillway. Incoming debris was minimal to very light and consisted of aquatic vegetation long with woody material. Wind direction and project operations effected the debris distribution, moving it from the spillway to the Oregon shore and back.

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 except in unit 5, which is OOS. Camera inspections in units 13 and 14 revealed no issues on July 6.

Daily VBS differential monitoring revealed no differentials out of criteria, and no screens were cleaned.

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

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

Comments: There are no problems to report.

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, 650 juvenile lamprey and 30,001 smolts were bypassed during secondary bypass. The smolt monitoring staff reports fish data in a separate report.

Area light was repaired as required.

An ice bucket was lost down the A side secondary bypass line on July 3. Fortunately, the ice buckets are small enough to pass out of the system safely. Ice check protocols were removed.

Top Spillway Weir (TSW) Operations:

The TSW's remain out of service. Standard spillgates 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
218.7	169.2	124.9	96.7	69.4	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. Water temperature monitoring throughout the juvenile system continues. The smolt monitoring staff will report temperature data and monitoring issues in a separate report.

The summer spill program, with 57 percent of flow being spilled, continues. The hoist in spill bay 9 had lower limit issues on July 8, which were fortunately resolved.

The motor control for Crane 6 is in transit and should arrive next week. The electrical work will begin as soon as priority items like fish pump 1 have been completed. Crane 7 remains serviceable. However, its motor starter still needs to be replaced. A contract will be required. The current target date for replacement will be in October or November. Work will continue on Crane 7's gearbox. Both Cranes 6 and 7's load limit indicators continue to be an issue.

Crane 7 remained in bay 19 until July 8 at 1526 hours, at which time it was removed from the spill gate in preparation for removal and replacement of the main hoist gear box. The gate in bay 19 was dogged open at four feet. With crane 6 still OOS, the gate in bay 2 remained dogged open at four feet.

Other

Inline Cooling Water Strainers: The cooling water strainer inspections revealed four live and 33 lamprey mortalities along with eight smolt mortalities on July 6. The lampreys were observed in several units. The smolts were found only in units 1 and 14.

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
July 2	Spill	3	0	6	21	0
	Powerhouse	0	0	0	24	0
	Outfall	4	0	0	0	0
	Forebay	2	0	2	3	39
July 3	Spill	3	0	5	17	0
	Powerhouse	0	0	0	15	0
	Outfall	8	6	0	0	0
	Forebay	0	0	0	1	43
July 4	Spill	14	0	3	25	0
	Powerhouse	0	0	0	15	0
	Outfall	29	3	0	1	0
	Forebay	0	0	0	1	25
July 5	Spill	0	2	2	51	0
	Powerhouse	0	0	0	20	0
	Outfall	1	0	0	0	0
	Forebay	1	0	0	2	29
July 6	Spill	1	3	1	18	0
	Powerhouse	0	0	0	26	0

	Outfall	10	3	0	0	0
	Forebay	0	0	0	0	30
July 7	Spill	5	0	6	23	0
	Powerhouse	0	0	0	15	0
	Outfall	11	15	0	0	0
	Forebay	0	0	0	2	13
July 8	Spill	2	2	5	27	0
	Powerhouse	0	0	0	26	0
	Outfall	7	10	0	0	0
	Forebay	0	0	0	0	38

The lasers on the outfall pipe and navigation lock wing wall were turned on, deactivated, and reactivated on July 3, 5 and 8, respectively, as part of the evaluation study plan. Improving effectiveness of both lasers is still under consideration.

Two large bird distress calls remain installed on the navigation lock wing wall.

USDA Wildlife Services daily shore hazing continues. Boat hazing occurred on Monday, Wednesday, and Friday. The Wednesday boat trip started later in the day. The last boat trip will be on July 9.

In the spillway zone, gulls, pelicans, cormorants, and terns were observed. The birds were mostly feeding in the spill flow. Gull, tern, and cormorant numbers were low. Pelican numbers were high and stable. Osprey were also noted roosting in the area.

In the powerhouse zone, pelican numbers remained high. Most birds were observed along the face of the powerhouse, at the south Oregon ladder entrance or the Oregon shoreline. It is assumed they are feeding on adult shad. The birds appear to be more aggressively looking for shad than in past years.

In the bypass outfall zone, gull, and cormorant numbers moderate and stable. The gulls and cormorants were roosting on the pipe and lightly feeding at the outfall. Pelicans were noted once and appeared to be feeding. The overall lack of feeding may be due to spill volume, bird activity and/or laser use.

In the forebay zone, grebes, gulls, and pelicans were noted. Terns were observed once. Grebe numbers were moderate and stable. Gull and pelican numbers were low. Most birds were either feeding or roosting on the water. Outside the zone, a gull flock, pelicans, ospreys, great blue herons, and cormorants were observed. These birds appeared to be staging.

No grebes were noted elsewhere. One pelican appeared to be feeding in the west bend of the Washington ladder during the week.

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

Siberian Prawn: No Siberian prawns were removed or euthanized this week.

Fish Rescue/Salvage: There is nothing to report.

Research: The two GBT examinations reported for the week occurred on July 1 and 5. No smolts showed signs of trauma. Due to four smolt mortalities removed from the recovery raceway on July 5, the GBT examinations will be reduced to once a week due to possible heat stress.

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
5	7/6/21	0640	---	---	Annual maintenance

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on July 6th, 7th, and 8th.

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’	2.3’
x			South Shore Channel Velocity	1.5 – 4.0 fps	
	x		North Powerhouse Entrance (NFE-2) Weir Depth	≥ 8.0’ or on sill	7.6’
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 North Shore Channel/Tailwater differential was found to be 2.3 feet for the July 6, 2021 fishway inspection. And, the South Shore Channel/Tailwater differential was found to be 2.3 feet for the July 8, 2021 fishway inspection. No actions could be taken to correct the differential criteria found from both fishway inspections. The gates for both channels were on sill on both dates, and the rpms of the north and south fish ladder pumps are constant and cannot be reduced, and the minimum number of pumps are being operated.

The north powerhouse entrance weir depth was below criteria on July 8, when NFE-2 weir was slightly off of sill. The powerhouse operator lowered the weir down to sill to bring it into sill criteria.

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 1.67 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: STSs are in continuous-run mode due to the presence of subyearling chinook in the Lower Monumental Fish Facility sample with average fork lengths of less than 120 mm.
Comments: STSs are in continuous-run mode due to the presence of subyearling chinook in the sample with average fork lengths of less than 120 mm.

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 three times per day. There were no debris obstructions observed at the orifices, as indicated by a 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 three times 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: Fish sampling did not occur on July 5 and July 8 and is most likely concluded for the season, because water temperatures are > 70ºF (N.B. Ice Harbor Section 2.3.2.5 of the Fish Passage Plan).

Removable Spillway Weir (RSW): Thirty percent spill for fish passage is occurring at Ice Harbor Dam.

River Conditions

River conditions at Ice Harbor Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (°F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
35.0	28.7	11.0	9.3	71	68	8.1	7.5

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: The next turbine cooling water strainer inspections will occur the week of July 12.

Avian Activity: There were moderate numbers of piscivorous birds observed around the project (see table below). Most of the pelicans, caspian terns, and gulls were observed foraging around Eagle Island. The land-based hazing of piscivorous birds for 8 hours per day ended on June 30.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
July 2	---	---	---	---	---
July 3	---	---	---	---	---
July 4	---	---	---	---	---
July 5	---	---	---	---	---
July 6	15	1	31	0	27
July 7	5	11	39	0	55
July 8	10	0	31	0	34

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	07/07/2021	0940	07/07/2021	1050	STS Inspection
Unit 2	07/15/2019	0720	09/02/2021	ERTS	Annual, Draft Tube Liner
Unit 3	07/07/2021	0730	07/07/2021	0915	STS Inspection
Unit 4	07/06/2021	0700	09/23/2021	ERTS	Annual, Scroll Case Repair
Unit 5	07/06/2021	0950	07/06/2021	1200	STS Inspection
Unit 6	07/06/2021	0700	07/06/2021	0945	STS Inspection

Comments: None.

Adult Fish Passage Facility

The adult fishways were inspected by Corps and EAS biologists on July 2, 3, and 5.

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 of 5.8, 5.7, and 5.6 feet respectively. The south powerhouse entrance weir (SPE-2) was on sill during all inspections with

readings of 5.8, 5.7, and 5.6 feet respectively. The south shore entrance weir (SSE-1) was on sill during all inspections with readings of 7.1, 7.1, and 6.9 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)	53 yds^2
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 - 5%
	X		Any oil seen in gatewells?	

Comments: None.

STSs/VBSs:

Yes	No	NA	Item
X			STSs deployed in all slots and in service?
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 in continuous-run mode due to average sub-yearling Chinook salmon and sockeye lengths being less 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 20th at 1500. Secondary Bypass began June 20th at 1500.

Transport Summary: Alternating days of transport ended June 20th. A total of 9,280 fish were collected with 9,275 fish bypassed back to the river during this reporting period.

Spillway Weir: Summer Spill began at 00:00:00 on June 21. The RSW went into service at 0001 on April 3.

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
35.4	28.5	17.2	16.2	70.9	70.0	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
07/02/2021	0930	66	0	0	0	11
07/03/2021	1015	25	0	0	0	8
07/05/2021	1130	44	0	0	0	9

Comments: Bird hazing efforts by USDA personnel began on April 1 and ended June 2.

Invasive Species: No zebra or quagga mussels were observed during monitoring station inspections on June 6.

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*
07/02/2021	0	50
07/03/2021	1	50
07/04/2021	4	200
07/05/2021	1	20
07/06/2021	8	160
07/07/2021	2	8
07/08/2021	24	96
Total	40	534

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

Fish Rescue/Salvage: Fish rescue/salvage took place at 1500 on July 8 for Unit 4 scrollcase. No living fish or mortalities found.

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	03/31/2022	17:00	Spider and upper guide bearing repair.
6	03/18/21	14:17	03/31/2022	17:00	T2 ground

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.

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 July 3, 5 and July 8. All inspections took place during summer spill operations.

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’	7.8
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.9
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	5.8
	X		North Shore Entrance (NSE-2) Weir Depth	≥ 6.0’ or on sill	5.8
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	0.9
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: The adult fishway continues to operate in manual mode. Project staff have struggled to maintain entrance criteria during gas cap spill. The fish control system still has a faulty hydroranger for the NSE1 weir and is currently awaiting parts. SSE-1, SSE-2, NSE-1, and NSE-2 were in criteria for the July 3 and 5 inspections and fell below criteria for the July 8th inspection. NS channel: tailwater was in criteria for inspections July 3 and July 5 and fell short of criteria during the July 8 inspection. The system was corrected and is in criteria again.

Ladder exit cooling pumps were placed into service at 2052 hrs on 12 June when 0.5m forebay temperatures exceeded 64°F.

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.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comment
X			Forebay debris load acceptable? (amount)	$0ft^2$
	X		Gatewell drawdown measured this week?	
		X	Gatewell drawdown acceptable	
	X		Any debris seen in gatewells (% coverage)	
	X		Any oil seen in gatewells?	

Comments: There is currently minimal floating woody debris inside the trash shear boom. Gatewell drawdowns for Units 1 and 2 were conducted on July 1 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 Units 1 and 2 were conducted on July 1 and were in criteria. ESBS/VBS camera inspections took place June 8-10.

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 11,439 fish were collected,

4,560 were transported via truck, 6,845 were bypassed, and there were 34 sample or facility mortalities. The descaling and mortality rates were 1.0% and 0.39%, 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 started 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.

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
31.1	23.5	10.6	7.4	69.3	68.7	6.0	5.6

*Ladder temperature.

Other

Inline Cooling Water Strainers: Inline cooling strainer inspections commenced on January 13. Inspections will continue in accordance to the Fish Passage Plan (FPP) and results will be 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.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
7-2	0930	9	0	0	0
7-3	0900	9	0	0	2
7-4	0830	18	2	0	3
7-5	0900	23	1	0	0
7-6	0800	9	0	0	0
7-7	0645	4	0	0	0
7-8	1015	12	0	0	1

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*
7-2	4	200
7-3	23	460
7-4	35	700
7-5	43	850
7-6	37	740
7-7	60	600

7-8	91	910
Totals	293	4460

Gas Bubble Trauma (GBT): GBT monitoring was performed on July 5. Of the 47 fish examined, 2 fish had signs of GBT.

Fish Rescue/Salvage: Neither rescue nor salvage activities applicable for this report 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
2	07/01	0705			Install oil/water separator

Comments: None.

Adult Fish Passage Facility

Lower Granite Biologists and Anchor QEA staff inspected the adult fishway July 3, 5, 7, and 8.

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 adult fish ladder cooling pumps were brought online June 3.

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
	X		South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	7.6’
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.6’
	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	6.1’, 6.5’, 6.8
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	0.6’, 0.8’, 0.6’. 0.8’
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 differentials ability to maintain criteria range is dependent of tailrace conditions. The Project is working with engineers to find a permanent solution to the ongoing channel/tailwater criteria discrepancies along with control system programing 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: AWS pump 3 lower guide bearing replacement was completed July 6. Testing pump 3 requires removing all AWS pumps from service for up to 4 hours to swap stoplogs as coordinated in the past. Lower Granite will postpone testing until fish passage conditions and temperatures improve.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Weekly average 20.0 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: None.

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: None.

Collection Facility: Collection for condition sampling continues. Emergency juvenile truck transport in response to high regional temperatures and declining river conditions began at 1100 hours July 2 and will continue until condition improve.

Transport Summary: The first truck departed July 4 with 22,292 smolts. A total of 41,581 smolts were transported by truck since this reporting period. The 3500-gallon transport trailer required modification to the loading hatch seals to prevent water loss while driving on a grade due to a design flaw.

Spillway Weir: Spill patterns were modified to only the RSW open from 0900-2300 hours and FPP summer spill from 2300-0900 hours daily in response to high ambient temperatures. A total of 249,928 PIT tagged smolts have been detected over the RSW this season (133,286 Chinook, 92,574 steelhead, 3,966 Coho, and 19,802 sockeye)

compared to a total of 13,769 smolts detected in the juvenile system. A total of 657 adult PIT tagged steelhead and 30 Chinook have been detected at the RSW this season compared to 70 adult steelhead and 7 Chinook 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
35.4	25.3	17.9	10.0	66.7	64.5	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 333 Siberian prawns collected in the condition sample.

Avian Activity: Bird hazing activity concluded on June 30.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
July 2	0608	0	0	0	0
July 3	1130	0	1	0	2
July 4	1452	0	0	0	0
July 5	0804	0	0	0	0
July 6	1138	1	2	0	0
July 7	1317	1	3	0	0
July 8	1530	0	0	0	0

Gas Bubble Trauma (GBT) Monitoring: N/A

Adult Fish Trap Operations: Emergency transport of Sockeye for IDFG began at 0700 hours July 6 and a scheduled to continue until July 23. The adult trap is operated Monday through Friday at a 28% (20% /week) sample rate. Total collected and sampled for the report week was 420 Chinook (239 clipped and 181 unclipped), 14 steelhead (5 clipped and 9 unclipped), and 51 sockeye. Of the sockeye collected this week 39 were hauled by IDFG as part of the emergency trap and haul program.

Fish Rescue/Salvage: The adult trap was flushed on July 4 and 7 to clear the screens of incidental species mortalities. No salmonid mortalities were observed.

Research:

Idaho Fish and Game (IDFG) Emergency Adult Sockeye Trap and Haul

Collection of adult sockeye from Lower Granite adult trap and fallback from the juvenile separator for emergency trap and haul in response to increasing temperature in the Stanly Basin began at 0700 hours July 6. Collection will occur Monday through Thursday until July 23 with the final date contingent on regional temperature. Sockeye will be loaded directly into truck tanks for transport on Tuesday and Thursdays. Sockeye will be held in the kelt tanks located at the JFF with flows and temperatures monitored by Corps bio technicians when IDFG trucks are not on site.

Idaho Fish and Game (IDFG) Genetic Stock Identification

Fish collected as part of the Lower Granite juvenile condition sample are used to enumerate and characterize age composition and genetic stock profiles of naturally producing yearling chinook and juvenile steelhead. IDFG will sample Monday through Friday through mid-June with a goal of collecting 2,000-5,000 yearling chinook and juvenile steelhead genetic samples. Collection for this study emend June 30.

National Marine Fisheries Service (NMFS) PIT tagging of Adult Wild Chinook and Adult Steelhead for ISEMP-Related Dispersal Monitoring:

The goal of this project is to PIT tag up to 4000 unclipped adult Chinook 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. 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.