

**U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#18-2021
June 25 – July 1, 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).

Unit(s)	OOS		RTS		Outage Description
	Date	Time	Date	Time	
5	12/7	0643	7/15	N/A	Blade seals and hub oil replacement
2	6/7	0732	7/29	N/A	Nine-year overhaul

Comments: The one percent peak efficiency constraint and unit priority are being followed per the 2021 Fish Passage Plan (FPP). The biologist requested the saw tooth unit priority pattern for temperature abatement on June 30, at 0630 hours as water temperature in the sample tanks reached 68 degrees Fahrenheit. RTS dates are subject to change.

Adult Fish Passage Facilities

McNary fisheries biologist performed a measured inspection of the adult fishways on June 25, 27 and July 1. Fish counting, and video review of adult lamprey night passage continues.

Fish Ladder Exits:

Yes	No	Location	Criteria	Measurements
	X	Oregon Exit	Head over weir 1.0' to 1.3'	0.9' 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'	1.0' to 1.2'
X		Washington Count Station Differential	0.0' to 0.5'	0.1' to 0.3'

Comments: Debris loads near the Oregon exit were very light to light and minimal to light near the Washington exit. New incoming debris was woody material and aquatic vegetation along the Oregon and Washington shorelines, respectively.

At the Oregon exit, a tilting weir alarm came in and was reset on June 25. Multiple cleanings of picketed leads and set point adjustments occurred on June 25 and 27 to 30. The out of criterion point recorded above occurred during this time frame.

The general maintenance staff reported seeing one adult salmon mortality on each of the ladders' the picketed lead access walkways so far this season. This is the first-time mortalities have been observed in these areas.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
	X		North Oregon Entrance Head Differential	1.0' – 2.0'	2.2' to 2.4'
X			NFEW2 Weir Depth	≥ 8.0'	9.0' to 9.1'
	X		NFEW3 Weir Depth	≥ 8.0'	Closed
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.5' to 1.8'
	X		SFEW1 Weir Depth	≥ 8.0'	7.2' to 7.4'
	X		SFEW2 Weir Depth	≥ 8.0'	7.2' to 7.4'
	X		Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.0 fps
X			Washington Entrance Head Differential	1.0' – 2.0'	1.2'
X			WFE2 Weir Depth	≥ 8.0'	8.7' to 9.2'
X			WFE3 Weir Depth	≥ 8.0'	8.7' 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. SFEW2 was found with slack cables on July 1. The operators immediately resolved the issue.

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			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. For the adjustment of the discharge stop logs installed in fish pump 1 and to remove the slack from SFEW2's cables, on June 29, and July 1, respectively, the blade angle of fish pump 2 was reduced briefly as required.

Juvenile Fish Passage Facility

Normal sampling season, consisting of alternating days of primary and secondary bypass, continued. There were no interruptions in the sampling schedule this week.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Light 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 light to moderate near the powerhouse and minimal to light beside the spillway. Incoming debris was minimal to light and consisted of aquatic vegetation long with woody material. Wind direction and project operations effected the debris distribution.

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. No camera inspections occurred this week. During powerhouse electrical work, the ESBS's in units 3 and 4 along with those in units 5 and 6 were without power briefly on June 25 and 28, respectively.

Daily VBS differential monitoring revealed one differential out of criteria on June 28. This screen and 16 others were cleaned on June 28, 29 and July 1. One juvenile lamprey and 13 smolt mortalities were observed on July 1. Heat stress is the most likely cause of the mortality.

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. Orifice attraction lighting was replaced as needed.

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, 200 juvenile lamprey and 73,903 smolts were bypassed during secondary bypass. The smolt monitoring staff reports fish data in a separate report.

Air leaks and drain valves were repaired in the raceway area this week.

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
235.2	198.0	134.5	113.4	68.3	66.0	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 separately.

The summer spill program, with 57 percent of flow being spilled, continues.

The motor control for Crane 6 is scheduled arrive on project on July 12. 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. A standard hoist is attached to the gate in bay 20. With crane 6 still OOS, the gate in bay 2 remained dogged open at four feet.

Other

Inline Cooling Water Strainers: The next cooling water strainer inspections will occur on July 6.

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
June 25	Spill	0	0	4	14	0
	Powerhouse	0	0	0	16	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	1	3
June 26	Spill	5	0	3	3	0
	Powerhouse	0	0	0	16	0
	Outfall	11	15	0	0	0
	Forebay	0	0	0	1	5
June 27	Spill	3	1	5	30	0
	Powerhouse	0	0	0	17	0
	Outfall	12	13	0	0	0
	Forebay	0	0	0	0	5
June 28	Spill	1	0	1	15	0
	Powerhouse	0	0	0	16	0
	Outfall	2	0	0	0	0
	Forebay	0	0	0	0	10
June 29	Spill	0	0	4	10	0
	Powerhouse	0	0	0	10	0
	Outfall	16	18	0	3	0
	Forebay	4	0	0	0	37
June 30	Spill	2	0	2	28	0
	Powerhouse	0	0	0	24	0
	Outfall	3	3	0	0	0
	Forebay	2	0	0	1	36

July 1	Spill	97	0	3	33	0
	Powerhouse	0	0	0	21	0
	Outfall	65	20	0	0	0
	Forebay	2	0	0	4	37

The lasers on the outfall pipe and navigation lock wing wall were turned on and deactivated on June 28 and July 1, 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 occurs on Monday, Wednesday, and Friday each week. The Wednesday boat trip starts later in the day. The last boat trip will be July 9.

In the spillway zone, gulls, pelicans, and terns were observed. A cormorant was noted once. The birds were mostly feeding in the spill flow. Gull numbers fluctuated. Tern numbers were low and stable. Pelican numbers continued to slightly increase. 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 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 increased slightly. 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, juvenile gulls, and pelicans were noted. Grebe numbers fluctuated. Gull and pelican numbers were low. Most grebes and pelicans were feeding. Outside the zone, a gull flock, pelicans, ospreys, great blue herons, and cormorants were observed. These birds appeared to be staging.

No grebes or pelicans were noted elsewhere.

Invasive Species: The next mussel station examinations will occur on June 30.

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 June 25 and 29. No smolts showed signs of trauma. Due to four smolt mortalities removed from the recovery raceway, the GBT examinations will be reduced to once a week.

Project: Ice Harbor

5 NWW ESA Report

Turbine Operation

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

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

Ice Harbor Unit Outages (OOS) and Return to Service (RTS)

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

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on June 28, June 30, and July 1.

Fish Ladders:

Yes	No	Location	Criteria	Measurements
x		North Ladder Exit Differential	Head \leq 0.3'	
x		North Ladder Picketed Lead Differential	Head \leq 0.3'	
x		North Ladder Depth over Weirs	Head over weir 1.0' to 1.3'	
x		South Ladder Exit Differential	Head \leq 0.3'	
x		South Ladder Picketed Lead Differential	Head \leq 0.3'	
x		South Ladder Depth over Weirs	Head over weir 1.0' to 1.3'	

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
x			South Shore Entrance (SFE-1) Weir Depth	\geq 8.0' or on sill	
x			South Shore Channel/Tailwater Differential	1.0' – 2.0'	
x			South Shore Channel Velocity	1.5 – 4.0 fps	
x			North Powerhouse Entrance (NFE-2) Weir Depth	\geq 8.0' or on sill	
x			North Powerhouse Entrance Channel/Tailwater Differential	1.0' – 2.0'	
x			North Shore Entrance (NEW-1) Weir Depth	\geq 8.0' or on sill	
x			North Shore Channel/Tailwater Differential	1.0' – 2.0'	

Comments: The lamprey passage structure at the south shore entrance #2 (SFE-2) was opened on June 30 for the adult lamprey passage season.

Auxiliary Water Supply (AWS) System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
5-6 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 4 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 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 reduced flow through the orifices. There was no significant debris that came into the separator when the orifices were being backflushed.

The light for orifice 2BN was found to be burned out on June 28. Orifice 2BS was opened in place of orifice 2BN until the light was fixed on June 29.

The replacement actuator for the water regulating weirs could not be operated automatically because it did not have an analog controller input. An analog controller input was added to the actuator, but it still must be programmed to function properly. In the meantime, the water level in the collection channel is being visually monitored three times per day and the actuator is operated electronically in "local" control to adjust the weirs as needed.

Juvenile Fish Facility: The Juvenile Fish Facility is operating in primary bypass mode except when collecting sample fish.

Fish Sampling: Fish condition sampling is occurring on Mondays and Thursdays each week. See the two tables below for a summary of the sampling results. Hemorrhaging of mainly the ventral fins was observed in 13 subyearling chinook in the June 28 sample and seven subyearling chinook in the July 1 sample. These maladies were most likely symptomatic of disease, as the fins did not appear to be physically damaged. There were three fish in the June 28 sample observed with small scrapes or puncture wounds on the body. One of these bodily injuries was attributed to a predatory fish. The one mortality in the June 28 sample appeared to have already been dead for at least a day. The dead fish in the July 1 sample had a severe old injury and physical signs of columnaris.

Fish sampling did not occur on July 5 due to water temperatures above 70 degrees °F at the Juvenile Fish Facility, per Ice Harbor Section 2.3.2.5 of the Fish Passage Plan.

Fish condition sampling results at Ice Harbor Dam:

Date: June 28

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	0	---	---	---
Chinook yearling unclipped	1	0	0	0
Chinook subyearling clipped	47	1	0	0
Chinook subyearling unclipped	50	1	1	0
Steelhead clipped	2	0	0	0
Steelhead unclipped	0	---	---	---
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	2	0	0	0
Coho unclipped	0	---	---	---
Total	102	2	1	0

Date: July 1

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	0	---	---	---
Chinook yearling unclipped	0	---	---	---
Chinook subyearling clipped	32	0	0	0
Chinook subyearling unclipped	63	1	1	0
Steelhead clipped	0	---	---	---
Steelhead unclipped	0	---	---	---
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	2	1	0	0
Coho unclipped	0	---	---	---
Total	97	2	1	0

Removable Spillway Weir (RSW): Summer spill for fish passage is occurring. Spill gate #10 closed by itself at 1230 hours on July 1 due to a keyway in the gearbox that came loose. A new keyway was installed and spill gate #10 was opened back up at 1435 hours on July 1. The total required amount of spill was not affected by the closure of bay #10 and was made up by opening the next spillbay in the order given in Table IHR-7 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
44.0	35.9	13.0	10.8	68	64	8.0	6.5

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: The next turbine cooling water strainer inspections will occur in July.

Avian Activity: There were low to moderate numbers of piscivorous birds observed around the project (see table below). Most of the pelicans and gulls were observed on Eagle Island. Land-based hazing of piscivorous birds for 8 hours per day ended on June 30. Land-based hazing has generally been effective at dispersing birds away from the dam.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
June 25	1	3	2	0	30
June 26	3	4	1	0	22
June 27	20	10	5	0	33
June 28	30	8	0	0	18
June 29	2	2	0	0	11
June 30	8	2	2	0	25
July 1	2	3	0	0	13

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. Daily and total Siberian prawn counts at Ice Harbor Dam for this reporting period are shown below.

Number of Siberian prawns in the sample at Ice Harbor Dam.

Date	Sample (euthanized)	Collection*
June 28	0	0
July 1	0	0
Totals	0	0

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

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)

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
Unit 2	7/15/2019	0720	9/02/2021	ERTS	Annual, Draft Tube Liner

Comments: None.

Adult Fish Passage Facility

The adult fishways were inspected by Corps and EAS biologists on June 25, 26, 27, and 30.

Fish Ladder:

Yes	No	Location	Criteria	Measurements
X		North Ladder Exit Differential	Head \leq 0.5'	
X		North Ladder Picketed Lead Differential	Head \leq 0.4'	
X		North Ladder Depth over Weirs	Head over weir 1.0' to 1.3'	
X		South Ladder Exit Differential	Head \leq 0.5'	
X		South Ladder Picketed Lead Differential	Head \leq 0.3'	
X		South Ladder Depth over Weirs	Head over weir 1.0' to 1.3'	

Comments:

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Shore Entrance (NSE-1) Weir Depth	\geq 8.0' or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	\geq 8.0' or on sill	
X			North Shore Channel/Tailwater Differential	1.0'–2.0'	
		X	South Powerhouse Entrance (SPE-1) Weir Depth	\geq 8.0' or on sill	
		X	South Powerhouse Entrance (SPE-2) Weir Depth	\geq 8.0' or on sill	
X			South Powerhouse Entrance Channel/Tailwater Differential	1.0'–2.0'	
		X	South Shore Entrance (SSE-1) Weir Depth	\geq 8.0'	
X			South Shore Entrance (SSE-2) Weir Depth	\geq 6.0'	
X			South Shore Channel/Tailwater Differential	1.0' – 2.0'	

Comments: The south powerhouse entrance weir (SPE-1) was on sill during all inspections with readings of 6.3, 5.2, and 5.5 feet respectively. The south powerhouse entrance weir (SPE-2) was on sill during all inspections with readings of 6.3, 5.2, and 5.5 feet respectively. The south shore entrance weir (SSE-1) was on sill during all inspections with readings of 6.9, 5.7, and 6.0 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)	14.2 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 42,801 fish were collected with 42,796 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
42.9	35.6	17.1	16.4	69	65.1	6.1	5.2

*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) at Lower Monumental Dam are listed in the table below.

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
6/25/2021	1230	15	0	0	0	5
6/26/2021	1100	8	0	0	0	6
6/27/2021	1300	6	0	0	0	0
6/28/2021	1115	5	0	0	0	5
6/29/2021	1200	7	0	0	0	1
6/30/2021	1220	22	1	0	0	4
7/1/2021	---	---	---	---	---	---

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*
6/25/2021	2	10
6/26/2021	7	56
6/27/2021	6	48
6/28/2021	26	208
6/29/2021	7	140
6/30/2021	1	50
7/1/2021	1	50
Total	50	562

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

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

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)

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
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. Pursuant to 2021 Fish Passage Plan Appendix C “Load Shaping Guidelines”, section 4.1 “System Reliability” BPA request of June 28 at 2214 hours increases MW demands outside of 1% from Units 1 and 2. BPA returns load within 1% at 2305 hours.

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 June 27, 29 and July 1. All inspections took place during performance spill operations.

Fish Ladder:

Yes	No	NA	Location	Criteria	Measurements
X			Fish Ladder Exit Differential	Head \leq 0.5'	
X			Fish Ladder Picketed Lead Differential	Head \leq 0.3'	
X			Fish Ladder Depth over Weirs	Head over weir 1.0' to 1.3'	
X			Fish Ladder Cooling Water Pumps in Service		
X			Fish Ladder Exit Cooling Water Pumps Operating Satisfactorily		

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			South Shore Entrance (SSE-1) Weir Depth	\geq 8.0'	
X			South Shore Entrance (SSE-2) Weir Depth	\geq 8.0'	
X			South Shore Channel/Tailwater Differential	1.0' – 2.0'	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	\geq 7.0' or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	\geq 7.0' or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0'–2.0'	
X			North Shore Entrance (NSE-1) Weir Depth	\geq 6.0' or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	\geq 6.0' or on sill	
X			North Shore Channel/Tailwater Differential	1.0'–2.0'	
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: The adult fishway 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. Additionally, NSE2 is giving erroneous readings during gas cap spill, but both NSE1 and NSE2 are in criteria according to physical measurements taken during performance standard spill.

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)	0 ft 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 54,898 fish were collected, 0 were transported via barge / truck, 54,869 were bypassed, and there were 29 sample or facility mortalities. The descaling and mortality rates were 0.4% and 0.05%, 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.

Spillway Weir: Spring spill operations began on April 3 with the ASW in high crest.

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
38.6	29.9	11.7	9.3	70.2	68.7	6.0	6.0

*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
6-25	8:30	6	1	0	0
6-26	8:30	3	1	0	0
6-27	11:20	0	2	0	0
6-28	12:30	1	0	0	0
6-29	12:15	1	0	0	0
6-30	6:45	4	0	0	0
7-1	8:30	10	2	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*
6-25	37	370
6-26	33	330
6-27	22	550
6-28	12	525
6-29	9	450
6-30	11	450

7-1	13	575
Totals	137	3250

Gas Bubble Trauma (GBT): GBT monitoring was performed on June 27. Of the 100 fish examined, 5 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)

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
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 June 25, 26, 28, 30, and July 1.

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 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	\geq 8.0'	7.7', 7.8', 7.8'
	X		South Shore Entrance (SSE-2) Weir Depth	\geq 8.0'	7.8', 7.7', 7.7'
	X		South Shore Channel/Tailwater Differential	1.0' – 2.0'	0.9'
		X	North Powerhouse Entrance (NPE-1) Weir Depth	\geq 8.0' or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	\geq 8.0' or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0'–2.0'	
	X		North Shore Entrance (NSE-1) Weir Depth	\geq 7.0' or on sill	6.8'
	X		North Shore Entrance (NSE-2) Weir Depth	\geq 7.0' or on sill	6.8'
	X		North Shore Channel/Tailwater Differential	1.0'–2.0'	0.7', 0.8', 0.9', 0.8', 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 programming 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
NA		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 18.6 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 and transport continues.

Transport Summary: N/A

Spillway Weir: Spring flex spill continues. A total of 248,584 PIT tagged smolts have been detected over the RSW this season (132,273 Chinook, 92,543 steelhead, 3,966 Coho, and 19,802 sockeye) compared to a total of 9,958 smolts detected in the juvenile system. A total of 652 adult PIT tagged steelhead and 27 Chinook have been detected at the RSW this season compared to 6 Chinook and 69 adult steelhead 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
42.5	33.8	18.1	17.6	66.0	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 359 Siberian prawns collected in the condition sample.

Avian Activity: Bird hazing activity concluded on June 30.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
June 25	0952	0	1	0	1
June 26	1100	0	1	0	0
June 27	0840	0	0	0	1
June 28	1024	0	0	0	0
June 29	1515	0	0	0	0
June 30	0954	0	0	0	0
July 1	1220	0	1	0	0

Gas Bubble Trauma (GBT) Monitoring: No GBT sampling this week.

Adult Fish Trap Operations: The adult trap is operated Monday through Friday at a 25% (18% /week) sample rate. Total collected and sampled for the report week was 513 Chinook (280 clipped and 233 unclipped), 6 steelhead (1 clipped and 5 unclipped), and 5 sockeye (3 clipped and 2 unclipped).

Fish Rescue/Salvage: The adult trap was flushed on June 25 to clear the screens of incidental species mortalities. No salmonid mortalities were observed.

Research:

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.

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.

National Marine Fisheries Service (NMFS) In-River Survival:

NMFS PIT-tag Chinook and steelhead smolts for their Survival Study April through early June to compare smolt to adult returns of in-river migrating smolts to the smolt to adult returns of transported smolts. PIT-tagged fish are held for 24 hours before being bypassed to the LWG tailrace. Collection for this study ended June 11.

National Marine Fisheries Service (NMFS) Seasonal Effects of Transporting Fish from the Snake River to Optimize Transportation Strategy:

This study aims to build on the current database of information on the seasonality of smolt-to-adult return rates (SARs). LWG biological staff began collection for the early non-transport season Monday April 1. Fish are being collected Monday and Tuesday for tagging on Tuesday and Wednesday with the barge departing LWG on Thursdays. Collection will occur Sunday-Thursday with fish being tagged Monday-Friday once general everyday fish transport begins. Collection for this study ended Ju