U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#15-2021
June 4 – June 10, 2021

Project: McNary
Biologist: Bobby Johnson

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	7/15	N/A	Blade seals and hub oil replacement
2	6/7	0732	7/29	N/A	Nine-year overhaul
14	6/7	0655	6/10	1406	Annual maintenance

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

Adult Fish Passage Facilities

McNary fisheries biologist performed a physical inspection of the adult fishways on June 4. Only one inspection occurred due to illness. Fish counting continues. Video review of adult lamprey night passage will begin on June 15.

Fish Ladder Exits:

Yes	No	Location	Criteria	Measurements
	X	Oregon Exit	Head over weir 1.0’ to 1.3’	1.5’
	X	Oregon Count Station Differential	0.0’ to 0.5’	0.7’
X		Washington Exit	Head over weir 1.0’ to 1.3’	1.1’
X		Washington Count Station Differential	0.0’ to 0.5’	0.2’

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

At the Oregon shore exit, the out of criteria points listed above were due to debris on the picked leads and set point adjustments being required. Both issues were quickly resolved.

At the Washington shore exit, a regulating weir alarm came in and was reset on June 4.

There are no other problems to report.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0' – 2.0'	1.8'
X			NFEW2 Weir Depth	≥ 8.0'	10.5'
	X		NFEW3 Weir Depth	≥ 8.0'	Closed
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.2'
	X		SFEW1 Weir Depth	≥ 8.0'	6.8'
	X		SFEW2 Weir Depth	≥ 8.0'	6.8'
	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'	9.7'
X			WFE3 Weir Depth	≥ 8.0'	9.6'

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. NFEW2 remained in manual mode to ensure the north powerhouse pool differential remained in or close to criterion. Gradients and changes in spill volume have made it very difficult for the control room operator to maintain pool differential criterion at the north powerhouse entrance. The out of criteria points for the Oregon ladder listed above are due to only fish pump 2 being functional. Changes in tailwater elevation may have also had an effect.

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.

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)	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 and incoming debris loads were minimal to very light near the powerhouse and beside the spillway.

The next trash rack cleaning is scheduled for the week of June 21.

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.

Daily VBS differential monitoring revealed no issues 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: Bulbs were replaced in orifice attraction lighting and orifice operators were repaired as required.

All systems operated satisfactorily. The electrical staff continued to work on the channel control program.

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, 1,500 juvenile lamprey and 29,510 smolts were bypassed during secondary bypass. The smolt monitoring staff reports fish data in a separate report.

Top Spillway Weir (TSW) Operations: Due to new safety requirements, which require the bay being worked in and adjacent bays being closed along with the locations of spillgate sections needed to replace the TSW's in bays 19 and 20, the TSW's were closed on June 9 at 0630 hours and the spill pattern altered as follows. At 0900 hours, bays 14 to 18 and 21 were also closed so gate sections could be retrieved and installed in bays 19 and 20. The day's activity concluded at 1700 hours with bays 14 to 18 and 21 reopened.

On June 10, from 0645 to 1700 hours, the process was repeated as described above. However, bays 19 and 20 were also opened with standard spill gates in place at 1700 hours.

FPP McNary Table 10 for TSW removal was used except for the time frames described above when gate sections were moved on June 9 and 10. The spill volume was averaged across active bays 1 through 13 and 22 when the other bays were closed both days. At the end of work on June 10, the spill pattern reflected FPP McNary Table 9, without TSW's.

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
299.8	240.9	210.4	161.8	59.4	57.9	6.0	6.0

Comments: The above data is provided by the smolt monitoring staff except water clarity, which comes from the control room. The data day runs from 0700 to 0700 hours. Water temperature monitoring throughout the juvenile system will begin on June 15. The smolt monitoring staff will report temperature data separately.

The spring spill program continued with TSW removal and spill pattern adjustments described above. The summer spill program, with 57 percent of flow being spilled, will begin on June 16 at 0001 hours.

Repairs to crane 6 are scheduled to be completed after electrical parts arrive on project, possibly mid-July. 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 cooling water strainer inspections occurred on June 8. The ten smolt mortalities observed all came from unit 1. There were 13 live and 68 juvenile lamprey mortalities removed, with most of the fish coming from unit 1 and units that had been in standby.

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 4	Spill	10	0	0	0	0
	Powerhouse	0	0	0	0	0
	Outfall	0	0	0	0	0
	Forebay	0	0	0	0	17
June 5	Spill	62	0	0	6	0
	Powerhouse	0	0	0	0	0
	Outfall	23	5	0	0	0
	Forebay	0	0	0	0	32
June 6	Spill	215	0	0	1	0
	Powerhouse	0	0	0	0	0
	Outfall	128	2	0	1	0
	Forebay	0	0	0	0	100
June 7	Spill	77	0	1	3	0
	Powerhouse	0	0	0	0	0
	Outfall	86	3	0	2	0
	Forebay	0	0	0	0	40
June 8	Spill	55	0	0	6	0
	Powerhouse	0	0	0	0	0
	Outfall	69	3	0	3	0
	Forebay	0	0	0	0	30
June 9	Spill	23	0	0	3	0
	Powerhouse	0	0	0	0	0
	Outfall	43	9	0	3	0
	Forebay	0	0	0	1	70

June 10	Spill	50	0	0	1	0
	Powerhouse	0	0	0	0	0
	Outfall	31	0	0	4	0
	Forebay	0	0	0	0	37

The lasers on the outfall pipe and navigation lock wing wall were turned activated on June 7, 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 will occur on Monday, Wednesday, and Friday each week. The Wednesday boat trip starts later in the day.

In the spillway zone, gulls, pelicans and one tern were observed. The birds were feeding in the spill flow. Gull numbers fluctuated. Pelican numbers increased slightly.

In the powerhouse zone, no birds were observed.

In the bypass outfall zone, gull numbers fluctuated. They were roosting on the pipe and water along with some light outfall feeding. Cormorant numbers increased slightly on the outfall pipe and light feeding was noted. Pelicans have returned to the outfall pipe in low numbers to feed. The overall lack of feeding may be due to spill volume and/or laser use.

In the forebay zone, loafing or feeding grebes were noted. Most birds were feeding. Grebe numbers appear to have declined somewhat. One pelican was also noted feeding this week. Outside the zone, grebes, gulls, pelicans, ospreys, and cormorants were observed. Most birds appeared to be staging.

One grebe entered a gatewell slot and passed to the juvenile collection channel on June 6. This bird was removed and returned to the river on June 8.

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

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

Fish Rescue/Salvage: Unit 2's scrollcase was dewatered on June 8. No fish were observed. The unit's draft tube was dewatered on June 11. There were 22 channel catfish (one mortality) and one 22-inch sturgeon removed and returned to the river.

Research: The two GBT examinations reported for the week occurred on June 3 and June 7. One smolt showed signs of trauma.

Project: Ice Harbor
Fisheries Tech: Tim DeKoster
Fisheries Biologist: Ken Fone

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.

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

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

Comments: None.

Adult Fish Passage Facility

Ice Harbor fish facility staff inspected the adult fishways on June 8, 9, and 10.

Fish Ladders:

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

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
x			South Shore Entrance (SFE-1) Weir Depth	≥ 8.0’ or on sill	
x			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
x			South Shore Channel Velocity	1.5 – 4.0 fps	
x			North Powerhouse Entrance (NFE-2) Weir Depth	≥ 8.0’ or on sill	
x			North Powerhouse Entrance Channel/Tailwater Differential	1.0’ – 2.0’	
x			North Shore Entrance (NEW-1) Weir Depth	≥ 8.0’ or on sill	
	x		North Shore Channel/Tailwater Differential	1.0’ – 2.0’	0.7’

Comments: The north shore channel/tailwater differential was below criteria on June 10. This reading may have resulted from the turbulent tailwater conditions from spill making it difficult to get an accurate tailwater staff gauge reading.

Auxiliary Water Supply (AWS) System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
6 pumps	2 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 0 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 recently installed 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. There were relatively few maladies observed in the sample fish.

Fish condition sampling results at Ice Harbor Dam:

Date: June 7

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	0	---	---	---
Chinook yearling unclipped	1	0	0	0
Chinook subyearling clipped	46	0	0	0
Chinook subyearling unclipped	61	1	0	0
Steelhead clipped	20	2	0	0
Steelhead unclipped	5	0	0	0
Sockeye clipped	1	0	0	0
Sockeye unclipped	1	0	0	0
Coho clipped	1	0	0	0
Coho unclipped	1	0	0	0
Total	137	3	0	0

Date: June 10

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	59	0	0	0
Steelhead clipped	6	0	0	1
Steelhead unclipped	2	0	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	1	0	0	0
Coho unclipped	1	0	0	0
Total	101	0	0	1

Removable Spillway Weir (RSW): Voluntary spring spill for fish passage is occurring.

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
91.6	49.5	63.2	32.1	59	57	8.0	7.0

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Turbine cooling water strainer inspections occurred on June 7. A total of 10 juvenile lamprey (all mortalities) were recovered.

Avian Activity: There were low numbers of piscivorous birds observed around the project (see table below). Land-based hazing of piscivorous birds for 16 hours per day switched to 7 hours per day beginning on June 6. Boat-based hazing is occurring for 8 hours per day, 3 days per week, ended on June 5. Land-based hazing has generally been effective at dispersing birds away from the dam, except for the spillway tailrace zones. The shooting of

pyrotechnics from the north shore is no longer allowed because of the danger of starting a grass fire. Boat-based hazing has been effective at moving birds out of all the tailrace zones, except when turbulent river conditions from spill make it unsafe for the boat to go into the middle tailrace zones to haze birds.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
June 4	12	10	2	0	18
June 5	10	11	0	0	18
June 6	13	17	0	0	10
June 7	3	17	0	0	7
June 8	1	1	0	0	3
June 9	0	1	0	0	3
June 10	3	14	0	0	3

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 7	0	0
June 10	1	1
Totals	1	1

*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: Denise Griffith and Raymond Addis

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.

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

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

Comments: There are no problems to report.

Adult Fish Passage Facility

The adult fishways were inspected by Corps and EAS biologists on June 4, 5, 6 and 9.

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: There are no problems to report.

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 8.0, 8.0, 6.7 and 6.6 feet, respectively. The south powerhouse entrance weir (SPE-2) was on sill during all inspections with readings of 8.0, 8.0, 6.7 and 6.6 feet, respectively. The south shore entrance weir (SSE-1) was on sill during the June 6 and 9 inspections with readings of 6.5 and 7.0 feet, respectively. There are no other problems to report.

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: There are no problems to report.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	4 yds^2
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 - 7%
	X		Any oil seen in gatewells?	

Comments: There are no problems to report.

STSs/VBSs:

Yes	No	NA	Item
X			STSs deployed in all slots and in service?
X	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 cycle mode until 1515 on June 6 at which time they were changed to continuous-run mode due to average sub-yearling Chinook and sockeye lengths being less than 120 mm. There are no problems to report.

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: There are no problems to report.

Collection Facility: Collection into the raceways for transport continues.

Transport Summary: Alternating days of transport continues. A total of 9,707 fish were collected with 10,332 fish being transported and 96 fish bypassed back to the river during this reporting period. The 96 fish bypassed back to the river were estimated based on 22 fry being collected for condition sampling.

Spillway Weir: RSW went into service at 0001 on April 3 with the start of spring spill.

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
88.0	46.8	60.6	33.0	59.5	57.3	6.8	4.5

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were last inspected on May 5. Next inspections will take place in June.

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
6/4/2021	1300	8	0	0	0	6
6/5/2021	1100	13	0	0	0	4
6/6/2021	1115	45	0	0	0	6
6/7/2021	1105	31	0	0	0	2
6/8/2021	1130	31	0	0	0	3
6/9/2021	1230	27	0	0	0	1
6/10/2021	1100	25	0	0	0	3

Comments: Bird hazing efforts by USDA personnel began on April 1.

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*
6/04/2021	15	30
6/05/2021	7	28
6/06/2021	13	52
6/07/2021	1	5
6/08/2021	6	30
6/09/2021	9	72
6/10/2021	2	16
Total	53	233

*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 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.

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
1	06/08/21	12:45	06/08/21	16:15	Trash Raking/ESBS/VBS inspections
2	06/09/21	09:00	06/09/21		ESBS/VBS inspections
3	06/09/21	12:25	06/09/21	15:50	ESBS/VBS inspections
3	06/10/21	13:30	06/10/21	15:50	ESBS/VBS inspections
4	06/10/21	13:30	06/10/21	15:50	ESBS/VBS inspections

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 June 4, 6 and 10. Two of the inspections took place during performance spill operations and one (June 6) was during Gas Cap Spill.

Fish Ladder:

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

Fishway Entrances and Collection Channel:

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

Comments: The adult fishway 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. NSE1 and NSE2 and the north shore channel to tailwater differential were out of criteria during the June 6, Gas Cap Spill, inspection.

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, 2 and 3 were conducted on May 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 Units 1 and 2 were conducted on June 10 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?	18
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 27,506 fish were collected, 28,802 were transported via barge and there were 18 sample or facility mortalities. The descaling and mortality rates were 0.7% and 0.09%, 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.

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
84.0	49.2	56.0	26.5	60.2	58.8	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
6-04	10:30	0	0	0	0
6-05	9:00	0	0	0	2
6-06	8:00	1	0	0	1
6-07	8:00	0	0	0	2
6-08	8:30	1	0	0	3
6-09	10:00	0	0	0	0
6-10	8:30	0	0	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*
6-04	58	116
6-05	40	80
6-06	27	522
6-07	6	60
6-08	8	80
6-09	10	100
6-10	17	170

Totals	166	1128

Gas Bubble Trauma (GBT): GBT monitoring was performed on June 6. Of the 100 fish examined, 7 fish had signs of GBT.

Fish Rescue/Salvage: No fish rescues occurred during this report period.

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

Project: Lower Granite
Biologists: Elizabeth Holdren and David Miller

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.

Comments: No units were out of service (OOS) at Lower Granite during this reporting period.

Adult Fish Passage Facility

Lower Granite Biologists and EAS/Anchor QEA staff inspected the adult fishway June 5, 7, and 9.

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 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’	
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	0.7’
		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’	0.6’, 0.2’
	X		North Shore Entrance (NSE-1) Weir Depth	≥ 7.0’ or on sill	6.8’, 4.2’, 6.4,
	X		North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	6.8’, 6.4’, 6.5’
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	0.9’, 2.4’, 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
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 7.7 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. The A side separator exit gate and PIT tag gate were closed from 0450-0830 hours June 10 due to a PIT tag gate pneumatic operating valve failure.

Transport Summary: Every-other-day barging continues.

Spillway Weir: Spring flex spill continues. A total of 231,311 PIT tagged smolts have been detected over the RSW this season (116,466 Chinook, 91,156 steelhead, 3,926 Coho, and 19,763 sockeye) compared to a total of 11,858 smolts detected in the juvenile system. A total of 640 adult PIT tagged steelhead and 20 Chinook have been detected at the RSW this season compared to 68 adult steelhead detected and 2 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
88.7	54.5	57.0	34.5	58.5	57.0	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 3 Siberian prawns collected in the condition sample.

Avian Activity: Biologist began daily piscivorous bird counts and bird hazing continues. Pelican abundance in the tailrace and on the island downstream continue to increase. A few pelicans were observed navigating through the bird wires to forage in the tailrace next to the RSW spillway.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
June 4	1939	0	0	0	54
June 5	1310	0	0	0	21
June 6	1309	1	1	0	26
June 7	0850	0	0	0	12
June 8	1920	0	2	1	19
June 9	1151	0	0	0	0
June 10	0935	0	0	0	8

Gas Bubble Trauma (GBT) Monitoring: There were two juvenile Chinook examined for GBT June 10. No GBT symptoms were observed.

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 2 unclipped steelhead and 754 Spring Chinook (551 clipped and 203 unclipped). One bulltrout was collected.

Fish Rescue/Salvage: N/A

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 began April 21 and will continue Monday-Friday until the middle of June. Tagged fish were released to the river the following day.

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 began April 21.