U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#11-2020

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: May 8 to 14, 2020

Turbine Operation

Yes	No	Turbine Unit Status		
	X	All 14 turbine units available for service. (See table & comments below for details).	Hard	Soft
X		Available turbines operated within 1% peak efficiency? Constraint in effect.	X	

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

	OOS		RTS		
Unit(s)	Date	Time	Date	Time	Outage Description
5	5/23/19	0943	6/26/20	NA	Turbine blade packing.
2	5/2	0630	5/19	NA	Governor issue.
3 & 4	5/11	0630	5/12	1700	BPA transmission line outage.
13 & 14	5/12	1000	5/12	1100	ESBS camera inspections. Rotated through units.

Comments: The hard one percent peak efficiency constraint continued. There is nothing more to report.

Adult Fish Passage Facilities

McNary fisheries biologists performed measured inspections of the adult fishways on May 8, 10 and 13.

Fish Ladder Exits:

Yes	No	Location	Criteria	Comments
	X	Oregon Exit	Head over weir 1.0’ to 1.3’	1.4’ on May 10.
X		Oregon Count Station Differential	0.0’ to 0.5’	
X		Washington Exit	Head over weir 1.0’ to 1.3’	
X		Washington Count Station Differential	0.0’ to 0.5’	

Comments: Debris loads were very light near the Oregon exit and minimal to very light near the Washington exit. Tumbleweeds continued to be monitored at the Washington exit. The Oregon exit traveling screens debris trough was cleaned as required.

At the Oregon exit, the out of criteria point mentioned above was resolved with a set point adjustment. Tilting weir 335 tripped an alarm and was reset on May 10.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
X			North Oregon Entrance Head Differential	1.0' – 2.0'	
X			NFEW2 Weir Depth	≥ 8.0'	
X			NFEW3 Weir Depth	≥ 8.0'	
X			South Oregon Entrance Head Differential	1.0' – 2.0'	
X			SFEW1 Weir Depth	≥ 8.0'	
X			SFEW2 Weir Depth	≥ 8.0'	
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.7 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	
X			WFE2 Weir Depth	≥ 8.0'	
X			WFE3 Weir Depth	≥ 8.0'	

Comments: There are no problems to report.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
Yes			WA shore Wasco County PUD Turbine Unit
	Yes		WA shore Wasco PUD Bypass
		Yes	Oregon shore Fish Pump 1, OOS to September 12.
Yes			Oregon Ladder Fish Pump 2, Blade angle: 23°.
Yes*			Oregon Ladder Fish Pump 3, Blade angle: 26 to 28°.
Yes			OR North Powerhouse Pool supply from juvenile fishway

*Comments: Fish pump 3 was briefly out of service for a bus switch in the early morning on May 11.

Juvenile Fish Passage Facility

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

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Minimal to very light.
X			Trash rack differentials measured this week?	Daily.
X			Trash rack differentials acceptable?	
	X		Any debris seen in gatewells (% coverage)	
	X		Any oil seen in gatewells?	

Comments: Changes in the weather patterns moved the debris between the Oregon shoreline and the spillway. The debris appears have dissipated and/or passed over the TSWs. New debris and debris near the spillway would be described as minimal to very light. Debris removal has not yet been required.

No trash racks were cleaned and there are no problems to report. However, due to regional concerns over juvenile steelhead descaling, trash racks will be cleaned in units 1 and 10 to 14, the units most in use, on May 15.

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

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

Comments: ESBS's remained deployed in all units, except for unit 5, which is out of service. The ESBS camera inspections in units 13 and 14 revealed no problems on May 12.

Daily VBS differential monitoring continued. No high differentials were measured. The screens in 1B, 10C and 11A slots were cleaned on May 14. No fish were observed.

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

Yes	No	NA	Item	Number of orifices in service
X			Orifices operating satisfactory?	42
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: Orifice valve operators and area lighting were repaired as needed. Orifices were adjusted for VBS cleaning as required. There are no other problems to report.

Bypass Facility:

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

Comments: The sample gates were only operated on secondary bypass days. The PIT-tag system remained out of service as there are no studies requiring its use.

This week, 1,300 juvenile lamprey and 83,703 smolts were bypassed during secondary bypass.

The temperature probe in the B side sample tank failed and was replaced on May 11. There are no other problems to report.

TSW Operations: The TSW's are installed and remain operational 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
325.2	264.7	227.4	179.0	53.2	52.5	6.0	5.6

Comments: The above data was supplied by the smolt monitoring staff except water clarity, which came from the control room. The spring flex spill season continued. There are no problems to report.

Other

Inline Cooling Water Strainers: The next cooling water strainer examinations will occur on June 2.

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

No birds were noted in the powerhouse zone.

In the spillway zone, gull numbers fluctuated. Most birds were feeding. Cormorants may be feeding but are difficult to observe. Occasionally, a pelican or tern was observed.

At the juvenile bypass outfall, gulls roosted on the outfall pipe in fairly high numbers when not hazed by the boat and/or laser(s). Gulls occasionally tried to feed at the outfall. Gulls appeared to be feeding in the high spill flow. Only one cormorant was observed roosting on the pipe this week. Cormorant numbers appeared to have declined.

In the forebay zone, an occasional grebe, gull, cormorant, blue heron or osprey was observed. Also, gulls and pelicans in fairly high numbers along with a few cormorants were noted on the roosting rocks along the Washington shoreline.

The lasers on the juvenile bypass outfall walkway and the navigation lock wing wall were programmed on May 12 and 14, respectively. The two lasers together appear to reduce roosting on the outfall pipe. However, there is some concern wether the solar panels will be able to keep the batteries charged for the length of time the lasers are programmed to run.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican
May 8	Spill	3	0	0	0
	Powerhouse	0	0	0	0
	Outfall	3	1	0	0
May 9	Spill	15	0	0	0
	Powerhouse	0	0	0	0
	Outfall	15	0	0	0
May 10	Spill	51	0	0	0
	Powerhouse	0	0	0	0
	Outfall	36	0	0	0
May 11	Spill	90	0	3	1
	Powerhouse	0	0	0	0
	Outfall	30	0	0	0
May 12	Spill	32	0	0	1
	Powerhouse	0	0	0	0
	Outfall	1	0	0	0
May 13	Spill	65	0	0	1
	Powerhouse	0	0	0	0
	Outfall	7	0	0	0
May 14	Spill	8	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0

The bird distress calls deployed along on the navigation lock wing wall appeared to be successful. No decision has been made on where to install the call that was removed from the outfall walkway last week. The forebay grebe distress call remained deployed and appeared somewhat effective.

USDA Wildlife Services continued hazing with two shifts from shore. Also, boat hazing trips occurred Tuesday through Thursday. When the wind speed did not allow for boat hazing, the crew hazed from the shore. Almost all efforts were concentrated in the tailwater area.

Invasive Species: The next mussel station examinations will occur in late May. No Siberian prawns were observed in this week's samples. None have been observed so far this season.

Fish Rescue/Salvage: None occurred this week.

Research: The gas bubble trauma (GBT) examinations occurred on May 8 and 12. Two smolts were observed with signs of GBT. Examinations will continue twice a week.

Project: Ice Harbor
Tim DeKoster (Fisheries Tech) & Ken Fone (Fisheries Biologist)
Dates: May 8 – May 14, 2020

Turbine Operation

Yes	No	Turbine Unit Status		
	X	All 6 turbine units available for service (see table & comments below for details).	**Hard**	**Soft**
	X	Available turbines operated within 1% peak efficiency? Constraint in effect.	X	

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: Units 4 was observed to be operating at one megawatt above the 1% operating efficiency range on May 11, 2020. Operations personnel are currently investigating why there have been infrequent occurrences of slightly elevated megawatt production outside the 1% operation efficiency range.

Adult Fish Passage Facility

Ice Harbor Fish Facility Staff inspected the adult fishways on May 11, 12, and 13.

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	1.11, 1.03, 1.15
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 south shore channel velocity was slightly lower than the 1.5 fps (see chart above). Higher tailwater and channel levels may have slowed down the velocity of water flowing through the junction pool, where the velocity meter is located.

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 2.73 square yards
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 for available units?
	X		STSs in continuous-run mode? (Note: if not, then STSs are in cycle-run mode).
	X		STSs inspected this week?
		X	STSs inspection results acceptable?
		X	VBSs differentials checked this week?
		X	VBSs differentials acceptable?

Comments: None.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	20
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: None.

Juvenile Fish Facility: The Juvenile Fish Facility is being operated in primary bypass mode, except when collecting fish for sampling.

Fish Sampling: Fish sampling is being conducted on Mondays and Thursdays each week. Please see the tables below for a summary of the fish sampling results for May 11th & 14th. Two mortalities were observed for the fish sample conducted on May 11, which included one clipped steelhead and one clipped Chinook yearling. The steelhead appeared to have already been dead for several days.

Fish condition sampling results at Ice Harbor Dam:

Date: May 11

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	91	5	1	0
Chinook yearling unclipped	7	0	0	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	0	---	---	---
Steelhead clipped	57	2	1	0
Steelhead unclipped	17	0	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	172	7	1	0

Date: May 14

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	51	5	0	0
Chinook yearling unclipped	20	0	0	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	0	---	---	---
Steelhead clipped	78	4	0	0
Steelhead unclipped	15	0	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	164	9	0	0

Removable Spillway Weir (RSW): Voluntary 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
117.0	83.1	88.3	58.4	53	54	5.0	4.3

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Monthly turbine cooling water strainer inspections were conducted on the 13th of May. Turbine unit 5 had one clipped juvenile steelhead, five juvenile lamprey, and two Siberian prawn mortalities were found in its cooling water strainer. Turbine unit 6 had eleven juvenile lamprey mortalities in its cooling water strainer. The other cooling water strainers were inspected for the rest of the turbine units except for turbine unit 3, which is out of service for the runner replacement. The next monthly turbine cooling water strainer inspections will occur in June.

Avian Activity: There were low to high numbers of piscivorous birds seen around the project (see table below). The higher number of birds on May 9th and 10th were counted before bird hazing started for the day. Land-based hazing of piscivorous birds for 16 hours per day is occurring. Boat-based hazing is occurring for 8 hours per day, 5 days per week. The hazing has been effective at reducing bird numbers around the dam.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
May 8	3	7	0	0	26
May 9	0	40	0	0	291
May 10	0	29	0	0	167
May 11	0	0	0	0	1
May 12	2	7	0	0	0
May 13	1	4	0	0	9
May 14	0	17	1	0	4

Invasive Species: No new exotic species have been discovered.

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by fisheries management personnel, frozen and properly disposed 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*
May 11, 2020	0	0
May 14, 2020	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.

If you have any questions please contact the Ice Harbor Fish Facility Biologist Ken Fone for more information and updates.

Project: Lower Monumental
Biologists: Chuck Barnes and Raymond Addis
Dates: May 8 - 14, 2020

Turbine Operation

Yes	No	Turbine Unit Status		
	X	All 6 turbine units available for service (see table & comments below for details).	**Hard**	**Soft**
X		Available turbines operated within 1% peak efficiency? Constraint in effect.	X	

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	7/17/2020	ERTS	Annual, Draft Tube Liner

Comments: None.

Adult Fish Passage Facility

The adult fishways were inspected by Corps and EAS/Anchor QEA biologists on May 8, 9, 10 and 13.

Fish Ladder:

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

Comments: None.

Fishway Entrances and Collection Channel:

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

Comments:
South Powerhouse Entrance weir (SPE-1) was on sill during the May 8, 9 and 10 inspections with readings of 7.8, 6.8 and 6.4 feet respectively.
South Powerhouse Entrance weir (SPE-2) was on sill during the May 8, 9 and 10 inspections with readings of 7.8, 6.8 and 6.4 feet respectively.
South Shore Entrance weir (SSE-1) was on sill during the May 8 and 9 inspections with readings of 5.6 and 6.5 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 yds^2
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 10%
	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 in continuous-run mode during the April 5 inspection and were changed to cycle-run mode on April 8, mode due to average sub-yearling Chinook and sockeye lengths being greater than 120 mm.

Orifices, Collection Channel, Dewatering Structure, and Flume:

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

Comments: None.

Collection Facility: The Juvenile collection facility was watered up at 10:00 on March 26.
Collection into raceways for transport began at 0700 on April 23.

Transport Summary: Every-day barge transport began on April 24.
A total of 145,600 fish were collected with 145,341 fish being transported and 200 fish bypassed back to the river during this reporting period. The 200 fish bypassed back to the river were estimated based on 2 fry being collected for condition sampling at a 1% sample rate.

Spillway Weir: 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
111.5	77.4	76.1	52.4	52.0	51.9	3.8	2.9

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on May 13. Live fish included 2 juvenile lamprey. Mortalities included 11 Chinook salmon smolts and 12 juvenile lamprey.

Avian Activity: Highest counts of foraging piscivorous birds in tailrace (SWT1+PH1+PH2) at Lower Monumental Dam.

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
5/8/2020	1120	4	0	0	0	0
5/9/2020	1100	8	0	0	0	0
5/10/2020	1130	10	0	0	0	0
5/11/2020	1200	2	0	0	0	0
5/12/2020	1155	18	0	0	0	0
5/13/2020	1300	10	0	0	0	0
5/14/2020	1100	22	2	0	0	1

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 May 1.

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

Date	Sample (euthanized)	Collection*
5/8 – 5/14	2	100

*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 at this time.

Project: Little Goose
Biologists: Scott St. John and Richard Weis
Dates: May 08-14, 2020

Turbine Operation

Yes	No	Turbine Unit Status		
	X	All 6 turbine units available for service (see table & comments below for details).	**Hard**	**Soft**
X		Available turbines operated within 1% peak efficiency? Constraint in effect.	X	

Little Goose Unit Outages (OOS) and Return to Service (RTS)

	OOS		11RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
5	04/14/17	14:11	03/31/21	17:00	Spider and upper guide bearing repair.

Comments: None.

Adult Fish Passage Facility

Little Goose fish facility staff inspected the adult fishway on May 10, 12 and 14.

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	~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’	
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 spring spill. The fish control system still has a faulty I/O module for the NSE weirs and is currently being repaired. The NSE weirs are in criteria and rest about 6 feet below tailwater according to manual measurement. However, the May 14 inspection manual measurements found the weir depths at NSE out of criteria. Adjustments were made and the fishway is currently in criteria. Subsurface water velocity was measured on May 10 and averaged 3.5 feet per second.

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: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comment
X			Forebay debris load acceptable? (amount)	
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 approximately 3,000 square feet of floating woody debris currently inside the trash shear boom in the forebay. Drawdowns were performed May 14 on Units 1, 2, 3, 4 and 6 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: VBS differentials were conducted May 14 on Units 1, 2, 3, 4 and 6 and were in criteria.

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: None.

Collection Facility: Collection for condition sampling began on April 01. Every day sampling for transportation began on April 23.

Transport Summary: Everyday barge transport began on April 24. The collection and transportation facility operated within criteria this report period. A total of 137,924 fish were collected. Of those collected, 137,864 were transported via barge and 2 were by-passed. The descaling and mortality rates were 1.8% and 0.04%, respectively. No adult lamprey were removed from the separator this reporting period.

Spillway Weir: Spring spill operations began on April 03 with the ASW set at high crest. The ASW was set in low crest on May 01 at 13:46.

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
110.6	78.5	64.9	52.6	54.0	52.0	4.0	3.1

*Ladder temperature.

Other

Inline Cooling Water Strainers: Inline cooling strainers are being inspected and results submitted to district operations every other week for FPOM distribution.

Avian Activity: Daily piscivorous bird counts at Little Goose Dam began on April 01.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
5-08	0730	103	0	0	0
5-09	0815	24	0	0	0
5-10	0730	32	7	0	0
5-11	1320	6	1	0	0
5-12	1230	25	0	0	0
5-13	0800	100	0	0	0
5-14	1300	72	1	0	0

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

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by Oregon Department of Fish and Wildlife and EAS/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*
5-08	0	0
5-09	0	0
5-10	1	100
5-11	0	0
5-12	1	50
5-13	0	0
5-14	0	0
Totals	2	150

Gas Bubble Trauma (GBT): GBT monitoring was performed on May 10. There were 2 fish with signs of GBT.

Fish Rescue/Salvage: None

Research: None.

Project: Lower Granite
Biologists: Elizabeth Holdren and David Miller
Dates: May 8-14, 2020

Turbine Operation

Yes	No	Turbine Unit Status		
X		All 6 turbine units available for service (see table & comments below for details).	**Hard**	**Soft**
		Available turbines operated within 1% peak efficiency? Constraint in effect.	X	

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

Adult Fish Passage Facility

Lower Granite and EAS/Anchor QEA staff inspected the adult fishway on May 8, 9, 11, and 13.

Fish Ladder:

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

Comments: None.

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
	X		South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	7.4, 7.2
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.5, 7.3
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	
			North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	Closed
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	2.9
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: Depth over weir out of criteria reading are likely due to the gate not completed adjusting to tailwater elevation or related to flex spill operation. FOGs 1 and 10 are in operation. NSE channel tailwater differentials are due to spill volume creating a significant drawdown at the end of the north shore collection channel.

Auxiliary Water Supply System:

Operating Satisfactorily	Standby	Out of Service	Auxiliary Water Supply (AWS)
Yes			AWS Fish Pump 1
Yes			AWS Fish Pump 2
No		OOS guide bearing	AWS Fish Pump 3

Comments: AWS pump 3 return to service is delayed until mechanic report back to LWG and will require all AWS pumps be removed from service for about 4 hours while stoplogs are swapped.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	
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: Juvenile collection channel water level and flow is being adjusted using 10" orifices depending on forebay elevations.

Collection Facility: The sample rate is being adjusted based on the expanded sample counts. The facility is in collection for transport mode. Total fish facility collection and transport for May 8-14 was 165,282 juvenile salmonids. Of these, 6 fry were bypassed directly back to the river. All salmonids collected were sampled for condition. Collection for transport began at 0700 hours April 23.

Transport Summary: Everyday barge transport at LWG began April 24.

Spillway Weir: Spring spill and RSW operation began at 0001 hours April 3.

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
112.4	82.8	64.1	53.4	53.0	50.0	5+	4.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Unit cooling strainer inspections were conducted on April 29.

Invasive Species: No zebra/quagga muscles were detected on the trap substrate. There was 0 Siberian prawn collected in the sample and euthanized for disposal this reporting period.

Avian Activity: Biologist daily piscivorous bird counts at Lower Granite Dam.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
May 8	1310	0	0	0	1
May 9	1200	0	0	0	0
May 10	1240	0	1	0	0
May 11	1026	0	0	0	6
May 12	1920	5	0	0	14
May 13	1105	6	0	0	4
May 14	1510	0	1	0	10

Gas Bubble Trauma **(**GBT**)** Monitoring: GBT monitoring May 14 showed no signs of GBT in the 102 juvenile salmonids sampled.

Adult Fish Trap Operations: Adult trap operations are suspended until further notice due to COVID-19.

Fish Rescue/Salvage: N/A

Research:

Collection for research projects has been suspended until further notice as of March 24 due to COVID-19 with the exception of Kelt collection for NPT.

Nez Perce Tribe (NPT)/U. of Idaho (UI)/Columbia River Intertribal Fisheries Commission (CRITFC) – Kelt Study

This research investigates steelhead kelt physiology and endocrinology to evaluate the feasibility and success of rehabilitating strategies. Selected kelts collected at Granite are transported by NPT to Dworshak National Fish Hatchery for reconditioning and later release as part of this study. Corps biological technicians began collecting kelts off the juvenile fish separator for NPT at 1800 hours March 8 and continues collecting for transport.