U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#16-2020

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: June 12 to 18, 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	7/2/20	NA	Turbine blade packing.
6	6/16	1000	6/16	1030	ESBS camera inspections.
6 to 8	6/17	0630	6/17	1200	Black start test with unit 8.

Comments: The hard one percent peak efficiency constraint continued.

Adult Fish Passage Facilities

McNary fisheries biologists performed measured inspections of the adult fishways on June 12, 14 and 17. Adult fish counting continued. Video review of night time lamprey passage began on June 15.

Fish Ladder Exits:

Yes	No	Location	Criteria	Comments
	X	Oregon Exit	Head over weir 1.0’ to 1.3’	1.4’ on June 12.
	X	Oregon Count Station Differential	0.0’ to 0.5’	0.6’ on June 12.
X		Washington Exit	Head over weir 1.0’ to 1.3’	
	X	Washington Count Station Differential	0.0’ to 0.5’	0.9’ on June 12.

Comments: Debris loads were minimal to very light near the Oregon and the Washington exits. The Oregon exit traveling screens debris trough was cleaned as required. Tumbleweeds continued to be an issue at the Washington exit. The general maintenance staff cleaned the picketed leads once or twice almost every day including after hours and the operators flushed the tumbleweeds down the navigation lock as much as possible. Cleaning the leads resolved the out of criteria points mentioned above on June 12.

At both exits, multiple alarms were reset on June 12. At the Oregon exit, the regulating weir, set point was adjusted on June 18. At the Washington exit, multiple alarms were also reset on June 17. These multiple alarms may have been due to bus switches.

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 1.6 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	
X			WFE2 Weir Depth	≥ 8.0'	
X			WFE3 Weir Depth	≥ 8.0'	

Comments: The Oregon ladder south powerhouse entrance panel view displayed erroneous readings on June 17. Over a few days previous to this, the entrance weirs were in and out of automatic mode due to similar readings. These readings may have occurred due to a bus switch. The electrical staff resolved the issue that day and we verified that the entrance inspection points were in criteria.

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 to 24°.
Yes			Oregon Ladder Fish Pump 3, Blade angle: 26 to 28°.
Yes			OR North Powerhouse Pool supply from juvenile fishway

Comments: There may have been very brief outages for bus switches that were not recorded.

Juvenile Fish Passage Facility

The sampling season, consisting of alternating days of primary and secondary bypass, continued. There was one interruption in the schedule. The system was in primary bypass from June 17 at 1900 hours to June 18 at 0700 hours due to a rectangular screen brush issue in the channel, which is discussed below. Twelve hours of sampling were missed.

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: Debris loads were minimal to very light along the powerhouse. Debris near the spillway was light. Incoming debris loads were minimal to light. Much of the debris was passed through the navigation lock or passed through the spillway. Debris removal has not yet been required.

No trash racks were cleaned this week. The next trash rack cleaning is scheduled for the week of June 22.

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. ESBS camera inspections in unit 6 revealed no problems on June 16.

Daily VBS differential monitoring continued. No high differentials were measured. A total of five screens were cleaned on June 15 and 18. Three juvenile lamprey mortalities were observed. The VBS's in unit 6 were inspected on June 16. No damage was found and no fish were noted.

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: Orifices were adjusted for VBS cleaning. Orifice operators and lighting were repaired as required.

The rectangular screen brush was noted to be running low on June 17. The electrical staff worked on the brush limit switches later in the day. The brush failed to complete a cycle, which tripped an alarm. The brush was removed from service at 1830 hours by the biologist. The facility was switched to primary bypass so the technician on duty could monitor the channel and occasionally run the brush manually using the switches on the control panel. The electrical staff returned the brush to service on June 18 at 1000 hours.

The transition screen brush failed to park properly, which tripped an alarm on June 18 at 1202 hours. The issue appeared to be limit switches as the brush would go pass limits at times, which resulted in the program losing its location. The electrical staff adjusted the limits but since it was very late in the day, the brush was removed from service until the next working day (June 22nd). The hoist that moves the brush from beam to beam may also be part of the problem.

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 gates were turned off on June 17 for the primary bypass due to rectangular screen brush issues. The PIT-tag system remained out of service as there are no studies requiring its use.

A brief power outage due to a bus switch had no adverse effects at the facility on June 18.

This week, 11,100 juvenile lamprey and 64,000 smolts were bypassed during secondary bypass. Subyearling Chinook and juvenile lamprey remain the major species in the samples.

One juvenile lamprey mortality was removed from under the primary bypass gate this week. This issue will be examined during the next winter outage.

TSW Operations: The TSW's remained out of service. The standard gates in bays 19 and 20 are attached to a hoist and crane, respectively. Last week's report was inaccurate in respect to the hoist and crane placement.

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
321.7	279.6	224.1	143.9	58.2	57.5	5.5	5.0

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 concluded and the summer spill program began on June 16 at 0001 hours, with 57 percent of the flow being spilled.

A water temperature monitoring probe was installed in 6B slot on June 17. All probes are now in place except for 5B gatewell slot due to an ESBS storage. Daily monitoring and reporting throughout the juvenile passage facility began on June 15. The smolt monitoring staff will publish weekly results in a separate report, which will include any issues with the probes.

Other

Inline Cooling Water Strainers: The next cooling water strainer examinations will occur on July 7.

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

Only an occasional pelican was observed below the separator building along the south edge of the powerhouse zone during the day. At night, large numbers of pelicans were noted there.

In the spillway zone, gull numbers remained low. Cormorants may be present but are difficult to observe. Pelican and tern numbers continued to increase. All birds were feeding.

At the juvenile bypass outfall, only one pelican was noted drifting by. No other bird species were noted. High water flows and bird behavior may have more to do with the absence of birds than hazing activities.

In the forebay zone, five to 25 grebes were observed, along with an occasional gull, tern, great blue heron, cormorant or osprey. Also, gulls and pelicans in moderate numbers along with a few cormorants were noted on the roosting rocks along the Washington shoreline.

Inside the Oregon ladder exit, pelicans were observed feeding on June 12 and 14 to 16, with increasing frequency. An exclusion net was installed on June 17, which blocked the path from the exterior floating trash rack to the interior slide in trash rack the pelicans were using to enter the exit. A new trash rack with smaller bar gaps will be built. Great blue herons and cormorants were also observed outside the ladder.

Four grebes entered the gatewell slots on June 17. Three birds were immediately removed and one passed to the juvenile collection channel. The bird in the channel passed out of the system during primary bypass on June 18.

The lasers on the navigation lock wing wall and on the juvenile bypass outfall walkway were turned off on June 15 as part of the evaluation study. However, due to low bird numbers and high flows, the lasers cannot be evaluated effectively at this point in time. Issues with the outfall laser are still being addressed.

The bird distress calls deployed on the navigation lock wing wall appeared to be successful. No decision has been made on where to install the second large distress call. The forebay grebe distress call remained deployed and appeared somewhat effective. However, we feel more volume is required.

USDA Wildlife Services continued hazing with two shifts from shore. Also, boat hazing trips occurred Tuesday through Thursday. Almost all efforts were concentrated in the tailwater area. However, the grebes in the forebay zone were also hazed from shore.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican
June 12	Spill	0	0	2	4
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
June 13	Spill	23	0	8	2
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
June 14	Spill	0	0	12	12
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
June 15	Spill	0	0	20	4
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
June 16	Spill	5	0	25	10
	Powerhouse	0	0	0	0
	Outfall	0	0	0	1
June 17	Spill	0	0	2	15
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
June 18	Spill	0	0	5	8
	Powerhouse	0	0	0	2
	Outfall	0	0	0	0

Invasive Species: The next mussel station examinations will occur in late June. 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 June 13 and 15. 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: June 12, 2020 – June 18, 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: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on June 15th, 16th, and 18th.

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	0.9, 1.3, 0.7 fps
	X		North Powerhouse Entrance (NFE-2) Weir Depth	≥ 8.0’ or on sill	7.9’, 7.8’
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 south shore channel velocity was lower than the 1.5 fps (see chart above) on all three inspections. Higher tailwater levels due to the increased river flow may have slowed down the opposing channel velocity of water flowing through the junction pool, where the velocity meter is located.

The NFE-2 weir gate depth was slightly below criteria on June 15 and 16. The gate is in manual control to reduce the wear and tear on the machinery from constantly adjusting to the fluctuating tailwater level from spill. On June 17, the powerhouse operator lowered the gate to get at least 8’ depth.

The north shore entrance channel/tailwater head differential was below criteria on June 16. The cause of this was debris clogging the north shore auxiliary water supply pump intake trash racks, causing reduced flow discharge from the pumps. The two pumps that were running were turned off from 1400 hours to 1614 hours on June 16 to allow the debris to fall off of the trash racks. The entrance head was back in criteria on the morning of June 17. See MFR 20 IHR 05 for more details.

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: All of the north shore AWS pumps were turned off from 1400 hours to 1614 hours on June 16, as described above.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Average of 2 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: The STSs were switched to continuous-run mode on May 18th, due to the presence of subyearling Chinook in the Ice Harbor fish sample with an average fork length 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: None.

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

Fish Sampling: Please see the tables below for a summary of the fish sampling results for June 15th and 18th. For Ice Harbor Dam fish sampling methodologies, please refer to 2020 Fish Passage Plan Chapter 6 (Ice Harbor Dam). Fish sampling is being conducted on Mondays and Thursdays each week this year from April 2 to July 13.

Fish condition sampling results at Ice Harbor Dam:

Date: June 15th

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	0	---	---	---
Chinook yearling unclipped	0	---	---	---
Chinook subyearling clipped	1	0	0	0
Chinook subyearling unclipped	4	0	0	0
Steelhead clipped	0	---	---	---
Steelhead unclipped	0	---	---	---
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	5	0	0	0

Date: June 18th

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	1	0	0	0
Chinook yearling unclipped	2	0	0	0
Chinook subyearling clipped	35	0	0	0
Chinook subyearling unclipped	45	0	0	0
Steelhead clipped	2	0	0	0
Steelhead unclipped	0	---	---	---
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	85	0	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
97.2	90.3	83.3	61.6	58	57	4.5	4.5

*Unit 1 scroll case temperature.

Comments: None.

Other

Inline Cooling Water Strainers: Monthly turbine cooling water strainer inspections were conducted for turbine units 1, 2, 4, 5, 6 on June 9th. See the table below for a summary of results of the inline cooling water strainer inspections. The live lamprey was released to the river in good condition.

Turbine Unit	Live Lamprey Released	Lamprey Mortalities
1	1	1
2	---	2
3	Not Inpected - Out of Service	Not Inspected - Out of Service
4	---	18
5	---	15
6	---	10

Avian Activity: There were low to high numbers of piscivorous birds seen around the project (see table below). The higher number of birds on June 13th and 14th were counted before bird hazing started for the day. Land-based hazing of piscivorous birds for 8 hours per day is occurring. The bird hazing techniques currently being used are effective at reducing piscivorous bird numbers around the dam. On June 12th, 13th, and 14th, the number of cormorants counted exceeded the double of the most recent 3-year average daily count of gulls, cormorants, and terns for the same week (see the Ice Harbor Incident Response Section 6.4 of Appendix L of the Fish Passage Plan). However, the 3-year average daily count for the reporting week was only 3.3 birds. The cormorants were not concentrated in one particular location and half of them observed were not foraging, so the Project Fisheries Biologist was not overly concerned with their presence.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
June 12	0	12	0	0	12
June 13	0	14	0	0	110
June 14	0	10	0	0	54
June 15	0	0	0	0	17
June 16	0	0	0	0	28
June 17	0	1	0	0	27
June 18	4	2	0	0	14

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*
June 15	20	20
June 18	2	2
Totals	22	22

*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: June 12 - 18, 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 1	6/15/2020	0820	6/15/2020	1030	Trash Rack Cleaning
Unit 2	7/15/2019	0720	7/17/2020	ERTS	Annual, Draft Tube Liner
Unit 3	6/15/2020	1045	6/15/2020	1540	Trash Rack Cleaning
Unit 4	6/15/2020	1045	6/15/2020	1540	Trash Rack Cleaning
Unit 4	6/17/2020	0710	6/17/2020	1100	Hub Tapping

Comments: None.

Adult Fish Passage Facility

The adult fishways were inspected by Corps and EAS/Anchor QEA biologists on June 12, 13, 14 and 17.

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		X	South Powerhouse Entrance (SPE-1) Weir Depth	≥ 8.0’ or on sill	
X		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 (SPE-1) Weir was on sill during the June 12 and 13 inspections with readings of 7.9 and 7.3 feet respectively.
South Powerhouse Entrance (SPE-2) Weir was on sill during the June 12 and 13 inspections with readings of 7.9 and 7.3 feet respectively.
South Shore Entrance (SSE-1) Weir was on sill during the June 13 inspection with a reading of 7.2 feet.

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)	9 yds^2
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 17%
	X		Any oil seen in gatewells?	

Comments: Trash racks for Units 1, 3 and 4 were cleaned on June 15.

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 cycle mode until 1515 on May 20 when they were changed to continuous-run mode due to average sub-yearling Chinook 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: 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 ended with the May 18 barge and every other day transport began. A total of 4,289 fish were collected with 3,488 fish being transported and 39 being bypassed. The 39 fish bypassed back to the river were estimated based on fry collected during condition sampling per 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
90.8	83.6	65.4	57.7	58.4	56.3	4.4	3.3

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on June 9. No live fish were recovered. Mortalities included 4 Chinook salmon smolts and 238 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
6/12/2020	1130	0	0	0	0	0
6/13/2020	1100	3	1	0	0	2
6/14/2020	1100	1	0	0	0	3
6/15/2020	1100	0	0	0	0	0
6/16/2020	1300	1	0	0	0	0
6/17/2020	1300	0	0	0	0	2
6/18/2020	1300	1	0	0	0	1

Comments: Bird hazing efforts by USDA personnel ended June 2, 2020.

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

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

Date	Sample (euthanized)	Collection*
6/12/2020	0	0
6/13/2020	0	0
6/14/2020	0	0
6/15/2020	0	0
6/16/2020	0	0
6/17/2020	2	8
6/18/2020	1	4
Total	3	12

*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: June 12-18, 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 June 14, 16 and 18.

Fish Ladder:

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

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
	X		South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	7.7
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.7
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	
17	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	0.8
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. SSE weir depths were found out of criteria on June 14. NSE channel to tailwater differential was found out of criteria on June 16. Subsurface water velocity was measured on June 6 and averaged 2.2 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 500 square feet of floating woody debris currently inside the trash shear boom in the forebay. Drawdowns were performed on June 18 on units 1, 2, 3 and 4 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 performed on June 18 on units 1, 2, 3 and 4 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 1. Every day sampling for transportation began on April 23.

Transport Summary: Everyday barge transport began on April 24 and ended on May 18. Every other day barging started with the first barge leaving on May 20. The collection and transportation facility operated within criteria this report period. A total of 60,840 fish were collected. Of those collected, 60,005 were transported via barge and 28 fish were by-passed. The descaling and mortality rates were 0.2% and 0.07%, respectively. There were no adult lamprey removed from the separator this report period and released upstream of the powerhouse.

Spillway Weir: Spring spill operations began on April 3 with the ASW set at high crest. The ASW was set in low crest on May 1 at 13:46. The ASW crest height has recently been operating in accordance to the most recent Columbia Basin Teletype (CBT).

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
92.0	86.0	61.0	57.8	59.7	56.1	5.5	3.9

*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 1.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
6-12	0800	0	1	0	0
6-13	0730	0	1	0	0
6-14	0730	1	1	0	0
6-15	1305	0	3	0	0
6-16	1300	0	3	0	0
6-17	0800	0	0	0	0
6-18	0730	0	0	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 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*
6-12	6	60
6-13	7	35
6-14	21	105
6-15	1	5
6-16	12	96
6-17	5	1,000
6-18	6	120
Totals	58	1,421

Gas Bubble Trauma (GBT): GBT monitoring was performed on June 14. Of the 100 fish examined, 1 showed signs of GBT.

Fish Rescue/Salvage: On June 18, a fish rescue was performed in Navigation lock fill valve area. A total of 15 juvenile salmon and steelhead were returned to the river. Of those, 3 were clipped subyearling Chinook salmon, 1 Coho salmon, 8 unclipped steelhead and 3 clipped steelhead.

Research: The Nez Perce Tribe (NPT) began kelt collection on May 13 for the kelt reconditioning program.

Project: Lower Granite
Biologists: Elizabeth Holdren and David Miller
Dates: June 12-18, 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 turbines were out of service at Lower Granite during this reporting period.

Adult Fish Passage Facility

Lower Granite and EAS/Anchor QEA staff inspected the adult fishway June 12, 13, 15, and 17.

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’	7.8, 7.7, 7.8
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.7, 7.8
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’	2.6
	X		Collection Channel Surface Velocity	1.5 – 4.0 fps	1.4

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. North shore collection channel/tailrace continues to be out of criteria with differentials of over 2.0 feet during flex spill operation at the 125% gas cap. Similar to 2019, spring spill operations are impacting the fish ladder control systems resulting in differences between physical readings at gate and staff gauge locations and automatic control system digital readings resulting in out of criteria readings at the south shore.

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 operation is delayed until LWG mechanical crew is able to schedule standard testing that 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: Forebay debris has not created any fish passage issues this season. Some woody debris observed in the forebay this season is likely due to the failure in the upriver two sections of the forebay debris boom. Though this has not created a problem, repairs are recommended to prevent further damage to the boom and potential for additional debris in the powerhouse forebay and on unit trashracks.

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: Gatewell differentials were measured on June 14.

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: Gatewell differentials were measured on June 14.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	18-24
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 daily based on the previous day's fish passage numbers. The facility is in collection for transport mode. Total fish facility collection and transport for June 12-18 was 19,586 juvenile salmonids. Of these, 56 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 and every other day barge transport at LWG began on May 20.

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
93.8	88.3	68.7	56.9	57.5	53.9	5.0	4.2

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Unit cooling strainer inspections were conducted on June 1.

Invasive Species: No zebra/quagga muscles were detected on the trap substrate. There was 11 Siberian prawn collected in the sample and euthanized for disposal.

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

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
June 12	1015	1	5	0	0
June 13	1214	3	1	0	8
June 14	1005	0	0	0	7
June 15	1000	0	1	0	20
June 16	1308	0	0	0	2
June 17	1100	0	1	0	30
June 18	1224	0	0	0	10

Gas Bubble Trauma **(**GBT**)** Monitoring: GBT sampling concluded for the season June 11.

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.