U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#18-2020

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: June 26 to July 2, 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	7/13/20	NA	Turbine blade packing.
13 & 14	6/30	1000	6/30	1100	ESBS camera inspections.

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 26, 28 and July 1. Adult fish counting and video review of night time lamprey passage continued.

Fish Ladder Exits:

Yes	No	Location	Criteria	Comments
X		Oregon Exit	Head over weir 1.0' to 1.3'	
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 minimal to very light near the Oregon and the Washington exits. Aquatic vegetation along with occasional tumbleweed influxes continued to be an issue. The general maintenance staff cleaned the picketed leads almost every day. The Oregon exit traveling screens debris trough was cleaned as required.

At the Oregon exit, weir 338 tripped an alarm and was reset on June 28. The next day, the weir was noted out of sequence and alarming. The electrical staff immediately resolved the problem.

At the Washington exit, the regulating weir tripped an alarm and was reset on June 28.

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'	7.9' on June 26.
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 out of criterion point mentioned above may have been due to a calibration or set point drift.

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

Comments: There are no problems to report.

Juvenile Fish Passage Facility

The sampling season, consisting of alternating days of primary and secondary bypass, continued. There were three interruptions in the schedule. The system was in primary bypass on June 27, 29 and July 1 from 1500 to 0700 hours the next day due to screen cleaning brush issues in the channel, which will be discussed below. There was 48 hours of sampling missed.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Light to moderate.
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 light to moderate along the powerhouse and near the spillway. Incoming debris loads were minimal to light and steady. The debris continued to dissipate. Debris removal has not yet been required.

No trash rack cleaning occurred this week.

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 units 13 and 14 revealed no problems on June 30.

Daily VBS differential monitoring continued. Two high differentials were measured. These screens and 14 others were cleaned on June 26, 28, 30 and July 1. One subyearling smolt mortality was 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: Orifices were adjusted for VBS cleaning as required. Orifice operators and lights were repaired as needed.

Since we were not sure the transition screen cleaning brush was fully functional, we began the week with the brush off and operated it as needed. The rectangular screen cleaning brush failed on June 26. In order to return the rectangular brush to service, the limit switch on the transition brush A beam was removed for use on the rectangular brush. The transition brush was removed from service. The brush was examined and a new limit switch was installed on the A beam on June 29 and 30, respectively. The brush returned to service on June 30 at 1037 hours with no further issues occurring. Zone 5 of the air burst system kept the transition screen clean while the brush was out of service.

To start the week, in automatic mode, the rectangular screen brush appeared to be slowly lowering again. The brush was found below the water line on June 26 at 1130 hours. The two mechanics and one electrician were called in the fix the brush. The mechanics raised the brush while the electrician took the magnetic limit switch from the transition brush A beam and installed it on the rectangular brush to replace the brush raise limit switch. The rectangular brush was returned to service in automatic mode at 1650 hours. After this, the brush cycled reliably.

The side screen cleaning brush functionality was also in question so we began the week operating the brush as needed. The brush was returned to automatic mode on June 28 at 1040 hours. The adjustment to the upstream limit switch last week appeared to resolve the brush parking issue as it operated dependably after returning to service.

The electrical staff found seven magnetic limit switches on project on June 29. One was used on the transition brush, which leaves six switches for future failures. The three brushes have a total of 14 magnetic limit switches. The electricians believe we can use mechanical limit switches if needed. Finally, the electrical staff is examining the possibility of ordering better magnetic limit switches. So far, all the issues with the brushes appeared to be related to limit switches.

The brush sequential cycling program is still an issue of concern, which will continue to be examined. The brush cycle sequence was set to run after every three air zone cycles from June 30 to July 1 in order to test the brushes. After the test, the brush cycle sequence was returned to after every four air zone cycles.

After all three brushes were back to automatic mode by June 30, we continued monitoring the channel 24/7 until July 5 to insure no other channel system issues would arise.

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. Sample collections occurred from 0700 to 1500 hours on June 27, 29 and July 1. The sample rate was higher for the 8 hour day verses what it would be during a normal 24 hour day. Sampling was reduced to insure a fisheries staff member could respond to collection channel alarms 24/7. GBT monitoring was able to continue. The PIT-tag system remained out of service as there are no studies requiring its use.

This week, 490 juvenile lamprey and 28,691 smolts were bypassed during secondary bypass. Subyearling Chinook remained the primary species in the samples.

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.

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
320.2	299.4	182.7	179.5	63.1	61.3	6.0	5.0

Comments: The above data was supplied by the smolt monitoring staff except water clarity, which came from the control room. The summer spill program continued, with 57% of the flow being spilled. There are no problems to report.

All water temperature monitoring probes are now in place except for 5B gatewell slot due to an ESBS being stored. Daily monitoring and reporting throughout the juvenile passage facility continued. The smolt monitoring staff will publish weekly results in a separate report. The weekly report will include any issues with the probes and the weather station, which was examined on July 1.

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 pelicans were observed in the powerhouse zone along the south edge below the separator building and at the Oregon ladder floating orifice gates during the day. At night, large numbers of pelicans were also noted below the separator building.

In the spillway zone, gull numbers remained low. Cormorants were present but were difficult to observe. Pelican and tern numbers remained fairly high. All birds were feeding with very little roosting. The pelicans were working along the navigation lock wing wall.

At the juvenile bypass outfall, only an occasional gull or cormorant was noted. The gulls were roosting on the navigation light and the cormorants appeared to be drifting by. No other bird species were noted. High flows and bird behavior may have more to do with the absence of birds than hazing activities.
In the forebay zone, zero to 23 grebes were observed, along with an occasional gull, tern, cormorant, great blue heron or osprey. Also, pelicans in moderate numbers along with a few gulls, terns and cormorants were noted on the roosting rocks along the Washington shoreline. Juvenile gulls arrived on project late in the week.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican
June 26	Spill	0	0	12	11
	Powerhouse	0	0	0	1
	Outfall	0	0	0	0
June 27	Spill	5	0	12	30
	Powerhouse	0	0	0	4
	Outfall	0	0	0	0
June 28	Spill	2	0	33	20
	Powerhouse	0	0	0	1
	Outfall	1	0	0	0
June 29	Spill	3	1	6	23
	Powerhouse	0	0	0	10
	Outfall	0	2	0	0
June 30	Spill	5	1	23	40
	Powerhouse	0	0	0	7
	Outfall	1	0	0	0
July 1	Spill	1	0	80	27
	Powerhouse	0	0	0	7
	Outfall	0	0	0	0
July 2	Spill	7	0	23	14
	Powerhouse	0	0	0	5
	Outfall	0	0	0	0

No pelicans were observed inside the Oregon ladder exit. A few pelicans were observed just outside the exit at times.

No grebes were observed in the gatewell slots or the juvenile collection channel.

The lasers on the navigation lock wing wall and on the juvenile bypass outfall walkway were removed from service on June 30 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 along 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. Boat hazing occurred Tuesday through Thursday. Both the second shift and boat hazing will conclude on July 11. Almost all efforts were concentrated in the tailwater area. However, the grebes in the forebay zone were also hazed from shore.

Invasive Species: The mussel station examinations reveal no problems on June 28. 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 27 and 29. No 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 26, 2020 – July 2, 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 29th, 30th, and July 1st.

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	1.1, 1.4 fps
	X		North Powerhouse Entrance (NFE-2) Weir Depth	≥ 8.0’ or on sill	7.3 ft
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’ – 2.0’	
	X		North Shore Entrance (NEW-1) Weir Depth	≥ 8.0’ or on sill	7.3ft
X			North Shore Channel/Tailwater Differential	1.0’ – 2.0’	

Comments: The south shore channel velocity was lower than the 1.5 fps (see table above) for June 30th and July 1st 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 and NEW-1 weir gate depths were below criteria for the fishway inspection on June 29th. The tailwater elevation increased and the weir gate depths were in criteria by the next day. The gates are in manual control to reduce the wear and tear of the operating machinery from the gates constantly adjusting to the fluctuating tailwater level caused by spill.

On June 30, SFE-2 weir gate was opened for adult lamprey passage through the lamprey entrance structure. The lamprey entrance structure will remain in operation through October 1.

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 3.0 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: The mechanical screen cleaner in the dewatering structure was found to be broken the night of June 30. The travel cable was jammed on the drive pulley and two rollers were broken off. The cable and rollers were replaced, and electrical work was conducted to energize the motor and return the screen cleaner to service on July 1st.

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 29th and July 2nd. For Ice Harbor Dam fish sampling methodologies, please refer to 2020 Fish Passage Plan Chapter 6 (Ice Harbor Dam). Fish sampling is currently being conducted on Mondays and Thursdays each week this year from April 2nd to July 16th.

Fish condition sampling results at Ice Harbor Dam:

Date: June 29th

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	0	---	---	---
Chinook yearling unclipped	0	---	---	---
Chinook subyearling clipped	7	0	0	0
Chinook subyearling unclipped	2	0	0	0
Steelhead clipped	1	0	0	0
Steelhead unclipped	1	0	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	11	0	0	0

Date: July 2nd

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	0	---	---	---
Chinook yearling unclipped	0	---	---	---
Chinook subyearling clipped	33	0	0	0
Chinook subyearling unclipped	69	0	0	0
Steelhead clipped	1	0	0	0
Steelhead unclipped	1	0	0	1
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	104	0	0	1

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
82.8	71.8	66.9	22.5	62	61	6.5	6.1

*Unit 1 scroll case temperature.

Comments: None.

Other

Inline Cooling Water Strainers: Monthly turbine cooling water strainer inspections for lamprey were conducted for turbine units #1, 2, 4, 5 and 6 on July 1st. One juvenile lamprey mortality was found in unit #2 and unit #5 each.

Avian Activity: There were low to moderate numbers of piscivorous birds seen around the project (see table below). Land-based hazing of piscivorous birds for 8 hours per day ended on June 30. There were very few gulls and cormorants to be hazed.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
June 26	0	0	0	0	14
June 27	0	0	0	0	23
June 28	0	0	0	0	22
June 29	3	0	0	0	12
June 30	0	0	0	0	12
July 1	0	0	0	0	11
July 2	3	0	0	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. No Siberian prawns were collected in the sample at Ice Harbor Dam for this reporting period.

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 26 – July 2, 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 June 26, 27, 28, 29 and July 1.

Fish Ladder:

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

Comments: None.

Fishway Entrances and Collection Channel:

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

Comments:
South Powerhouse Entrance (SPE-1) Weir was on sill during all inspections with readings of 7.6, 7.1, 6.9, 6.9 and 7.6 feet respectively.
South Powerhouse Entrance (SPE-2) Weir was on sill during all inspections with readings of 7.6, 7.1, 6.9, 6.9 and 7.6 feet respectively.
South Shore Entrance (SSE-1) Weir was on sill during all inspections with readings of 7.8, 7.6, 7.6, 7.8 and 8.0 feet respectively.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
Yes			AWS Fish Pump 1
Yes			AWS Fish Pump 2
Yes			AWS Fish Pump 3

Comments: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	31 yds^2
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 20%
	X		Any oil seen in gatewells?	

Comments: None.

STSs/VBSs:

Yes	No	NA	Item
X			STSs deployed in all slots and in service?
	X		STSs in continuous-run mode (Note: if not, then STSs are in cycle-run mode)?
	X		STSs inspected this week?
		X	STSs inspection results acceptable?
		X	VBSs differentials checked this week?
		X	VBSs differentials acceptable?

Comments STS's were operating in continuous-run mode until 1430 on June 28 when they were changed to cycle 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 ended at 1500 on June 21. The facility went into secondary bypass with daily condition sampling at that time.
A total of 18,270 fish were collected with total of 18,267 bypassed by to the river during this reporting period.

Transport Summary: Alternate day barge transport ended with the June 21.

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
78.2	68.0	34.3	16.9	63.0	60.0	5.3	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
6/26/2020	1300	1	0	0	0	0
6/27/2020	1100	5	1	0	0	1
6/28/2020	1200	15	0	0	0	4
6/29/2020	1200	2	0	0	0	0
6/30/2020	1100	15	0	0	0	0

Comments: Bird hazing efforts by USDA personnel ended June 2, 2020.
Observations of foraging piscivorous birds in tailrace ended with the June 30 observation.

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*
6/26/2020	2	20
6/27/2020	9	90
6/28/2020	0	0
6/29/2020	0	0
6/30/2020	5	50
7/01/2020	16	160
7/02/2020	4	40
Total	36	360

*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 26- July 02, 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		RTS		
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 28 and July 02.

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		

Comments: Adult ladder cooling pump was started on June 22 at 1035.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
	X		South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	7.6
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.6
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 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	5.0
	X		North Shore Entrance (NSE-2) Weir Depth	≥ 6.0’ or on sill	5.0
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	2.2
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 at the NSE. The fish control system still has a faulty I/O module for the NSE weirs and is currently being repaired. The out of criteria measurements were occurred during the June 28. 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 20 square feet of floating woody debris currently inside the trash shear boom in the forebay. Drawdowns were performed on June 25 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 25 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: The airline for the backflush system on orifice 1C1 was found broken and will needed repaired once the juvenile channel is dewatered for winter maintenance (MFR 20 LGS 12).

Collection Facility: Collection for condition sampling began on April 1. The facility continues to collect the daily sample, but was placed in secondary bypass on June 21. Collection for truck transport is scheduled to begin on August 15 but could begin earlier pending input from the regional fish managers.

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. Last barge of the season left LGS on June 21. The JFF is collecting for sample every day and is in secondary by-pass. The collection and transportation facility operated within criteria this report period. A total of 46,428 fish were collected. Of those, 46,414 were bypassed back to the river and 14 were sample or facility mortalities. The descaling and mortality rates were 1.0% and 0.02%, respectively. There were no adult lamprey removed from the separator this report period and released upstream of the powerhouse.

Spillway Weir: Summer spill operations began on June 21 with the ASW crest height set in the high position.

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
75.6	67.7	38.1	21.1	64.1	62.9	5.5	5.2

*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
6-26	No count	0	0	0	0
6-27	0800	0	0	0	0
6-28	0800	10	2	0	0
6-29	0830	30	2	0	0
6-30	1320	27	4	0	0
7-01	0910	9	0	0	0
7-02	0830	19	2	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*
6-26	4	80
6-27	5	100
6-28	9	180
6-29	12	120
6-30	12	390
7-01	5	100
7-02	10	250
Totals	57	1,220

Gas Bubble Trauma (GBT): GBT monitoring was performed on June 28. Of the 4 fish examined, none showed signs of GBT.

Fish Rescue/Salvage: None

Research: The Nez Perce Tribe (NPT) ended steelhead kelt collection on June 25.

Project: Lower Granite
Biologists: Elizabeth Holdren and David Miller
Dates: June 26-July 2, 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	

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

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
1	June 29	1204	June 29	1437	ESBS/VBS Inspection
2	June 28	1140	June 28	1345	ESBS/VBS Inspection
3	June 28	1021	June 28	1135	ESBS/VBS Inspection
4	June 29	0902	June 29	1046	ESBS/VBS Inspection
5	June 20	0751			Annual Maintenance
6	June 28	0900	June 28	1015	ESBS/VBS Inspection

Comments: None.

Adult Fish Passage Facility

Lower Granite and Anchor QEA staff inspected the adult fishway June 26, 27, 29, and July 1.

Fish Ladder:

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

Comments: Adult fish ladder temperature control system was brought on line at 1400 hours June 19 in response to forebay temperatures.

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
	X		South Shore Entrance (SSE-1) Weir Depth	$\geq$ 8.0’	7.9
X			South Shore Entrance (SSE-2) Weir Depth	$\geq$ 8.0’	
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	$\geq$ 8.0’ or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	$\geq$ 8.0’ or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
X			North Shore Entrance (NSE-1) Weir Depth	$\geq$ 7.0’ or on sill	
			North Shore Entrance (NSE-2) Weir Depth	$\geq$ 7.0’ or on sill	Closed
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	
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 spill operation. FOGs 1 and 10 are in operation. Similar to 2019, 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 28.

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 28.

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 fish passage numbers. Collection for transport ended at 0700 hours June 21.

Transport Summary: Barge transport ended June 21.

Spillway Weir: RSW operation began at 0001 hours April 3, and LWG transitioned to summer spill at 0001 hours June 21.

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
78.8	70.9	45.6	29.8	64.5	59	5.0	5.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Unit cooling strainer inspections were conducted on June 25.

Invasive Species: No zebra/quagga muscles were detected on the trap substrate. There was 86 Siberian prawns 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 26	1240	2	2	0	3
June 27	1100	0	0	0	0
June 28	0935	1	2	0	0
June 29	0949	1	1	0	1
June 30	1535	0	0	0	0
July 1	1037	0	0	0	0
July 2	1240	3	0	0	0

Adult Fish Trap Operations: Adult trap operations resumed on July 2. USACE personnel are operating the facility with limited staffing from IDFG.

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 concluded 0700 hours June 30.

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) Ancillary Adult Passage Monitoring:

Fish that were PIT as juveniles at LWG are monitored as returning adults through the river and LWG facility. For each returning adult the following is estimated; 1) passage time between sets of detection PIT tag coils, 2) whether the fish was handled at the adult trap, 3) duration the fish was held at the adult trap, 4) overall passage time from ladder entrance to exit, 5) whether the turnpool gate was open or closed during passage. This will be the last year of this evaluation.

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.