U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#19-2020

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: July 3 to 9, 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	7/24/20	NA	Turbine blade packing.
7	7/6	0630	7/9	1700	Annual maintenance.

Comments: The hard one percent peak efficiency constraint continued.

Adult Fish Passage Facilities

McNary fisheries biologists performed measured inspections of the adult fishways on July 3, 5 and 7. 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 Washington exits. Aquatic vegetation 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 alarms and was reset on July 5 and 7. Weir 335 tripped alarms and was reset on July 5.

At the Washington exit, the regulating weir tripped two alarms and was reset on July 5.

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: 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: 24°.
Yes			Oregon Ladder Fish Pump 3, Blade angle: 24 to 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 one interruption in the schedule. The system was in primary bypass from July 3 1500 to July 4 0700 hours due to screen cleaning brush issues discussed last week and a cautious return to 24 hours sampling this week. There was 16 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 moderate beside the spillway. Incoming debris loads were minimal 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 did not occur this week.

Daily VBS differential monitoring continued. No high differentials were measured. A total of 13 screens were cleaned on July 3, 5 and 8. VBS inspections, which include cleaning, occurred in unit 1 and 7C slot on July 9. During the cleaning and inspections, a total of one subyearling Chinook and one juvenile lamprey 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 were repaired as needed.

The transition screen cleaning brush functioned satisfactorily this week. Due to a brush cycle sequence timing alarm caused by the side screen cleaning brush being out of service, the transition brush was off on July 8 at 1937 hours to July 9 at 0616 hours. Zone 5 of the air burst system did keep the transition screen clean while the brush was off.

There were no issues with the rectangular screen cleaning brush as it appeared to have operated adequately despite the brush cycle sequence program when the side screen brush was out of service, described below.

The side screen cleaning brush failed to park and was removed from service on July 8 at 1937 hours. The issue appeared to be the upstream magnetic limit switch not opening and the program "losing" the brush location when it arrived at the downstream limit switch. The brush was returned to service at 2345 hours. Before the upstream limit switch could fail again, an electrician replaced the switch the morning of July 9. The brush had no further issues.

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 July 3. The sample rate was higher for the 8 hour day versus 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 to start the week. GBT monitoring continued. The PIT-tag system remained out of service as there are no studies requiring its use.

This week, 240 juvenile lamprey and 54,530 smolts were bypassed during secondary bypass. Subyearling Chinook remained the primary species in the samples.

The slope of the GBT fish transport line from the separator to the wet lab was checked once this week and once last week.

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
316.0	224.9	177.4	103.5	63.2	61.0	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 summer spill program continued, with 57 percent of the flow being spilled.

Test equipment was installed on the spillways per MOC 20 MCN 02 from July 6 to 9.

While preparing for installation of test equipment per MOC 20 MCN 02, the general maintenance staff found an issue with the bearing mount for the hoist's north drum pillow block in spillbay 15 and request the bay be closed on July 9 at about 0900 hours. Spillbay 15's gate will remain lowered onto seal until the block is repaired. The gate cannot be dogged, raised or lowered until the repairs are completed. The flow that would have gone out of bay 15 will be redistributed evenly thought out the remaining bays.

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 will be replaced in the near future due to it producing faulty readings at times.

Other

Inline Cooling Water Strainers: The cooling water strainer examinations revealed 10 juvenile lamprey and four subyearling Chinook mortalities on July 7. All of the Chinook mortalities came from unit 1. The next strainer examinations will occur on August 4.

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.

In the spillway zone, gull numbers remained low. Cormorants were present but were difficult to observe. Tern numbers decreased and pelican counts remained fairly high. All birds were feeding with very little roosting. The pelicans were working along the navigation lock wing wall. An occasional osprey was noted roosting.

At the juvenile bypass outfall, only an occasional gull or tern was noted attempting to feed. 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, zero to 13 grebes and two to 14 juvenile gulls were observed, along with an occasional tern, cormorant, pelican 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.

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

One grebe entered a gatewell slot and passed to the juvenile collection channel on July 3. The grebe passed out of the channel while the system was in primary bypass on July 7.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican
July 3	Spill	11	1	19	20
	Powerhouse	0	0	0	5
	Outfall	0	0	0	0
July 4	Spill	0	0	5	29
	Powerhouse	0	0	0	15
	Outfall	0	0	0	0
July 5	Spill	0	1	10	20
	Powerhouse	0	0	0	15
	Outfall	0	0	0	0
July 6	Spill	1	0	2	17
	Powerhouse	0	0	0	7
	Outfall	0	0	0	0
July 7	Spill	0	1	4	39
	Powerhouse	0	0	0	15
	Outfall	0	0	1	0
July 8	Spill	0	0	0	30
	Powerhouse	0	0	0	6
	Outfall	0	0	0	0
July 9	Spill	0	0	0	11
	Powerhouse	0	0	0	9
	Outfall	1	0	0	0

The lasers on the navigation lock wing wall and on the juvenile bypass outfall walkway were returned to service as part of an evaluation study on July 6. However, due to low bird numbers and high flows, the lasers cannot be evaluated effectively at this point in time. The outfall laser was examined on July 9. Though functional, we believe it has lost intensity and needs to be replaced.

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 trips occurred Tuesday through Thursday. The last boat trip was July 9. The second shift 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 next mussel station examinations will occur in late July. 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 July 3 and 7. 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: July 3, 2020 – July 9, 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
4	7/6/20	0740	---	---	Annual maintenance

Comments: Unit 6 was observed to be operating approximately 1 MW below the 1% operating efficiency range on July 6th, 7th, and 8th. Operations personnel are investigating why there have been infrequent occurrences of megawatt production slightly outside the 1% operating efficiency range.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on July 6th, 7th, and 8th.

Fish Ladders:

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

Fishway Entrances and Collection Channel:

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

Comments: None.

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 5.0 square yards
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0-6%
	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 July 6th and July 9th. 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. The three mortalities in the July 6 sample were fish that were anesthetized and examined, and died in the recovery tank. Those fish were not looked at for external maladies after they died, so it is unknown whether they had any injuries, although most of the fish in the sample were malady-free.

Fish condition sampling results at Ice Harbor Dam:

Date: July 6th

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	7	0	0	0
Chinook yearling unclipped	5	0	0	0
Chinook subyearling clipped	25	0	0	0
Chinook subyearling unclipped	65	1	3	0
Steelhead clipped	2	0	0	0
Steelhead unclipped	0	---	---	---
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	104	1	3	0

Date: July 9th

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	7	1	0	0
Chinook yearling unclipped	13	1	0	0
Chinook subyearling clipped	28	0	0	0
Chinook subyearling unclipped	66	2	0	0
Steelhead clipped	0	---	---	---
Steelhead unclipped	0	---	---	---
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	114	4	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
68.9	46.1	21.8	13.8	65	62	6.5	6.0

*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. Further strainer inspections for lamprey are done until December.

Avian Activity: There were low numbers of piscivorous birds seen around the project (see table below).

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
July 3	---	---	---	---	---
July 4	---	---	---	---	---
July 5	---	---	---	---	---
July 6	0	0	0	0	12
July 7	0	0	0	0	14
July 8	0	0	0	0	8
July 9	0	0	0	0	9

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*
July 6	0	0
July 9	2	2
Totals	2	2

*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: July 3-9, 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	7/08/2020	0910	7/08/2020	1308	STS Inspection and STS Swap
Unit 2	7/15/2019	0720	8/28/2020	ERTS	Annual, Draft Tube Liner
Unit 3	7/06/2020	0706	8/06/2020	ERTS	Annual Maintenance
Unit 4	7/07/2020	1300	7/07/2020	1450	STS Inspection
Unit 5	7/07/2020	1030	7/07/2020	1200	STS Inspection
Unit 6	7/07/2020	0810	7/07/2020	0945	STS Inspection

Comments: None.

Adult Fish Passage Facility

The adult fishways were inspected by Corps and EAS/Anchor QEA biologists on July 3, 4, 5, 7 and 8.

Fish Ladder:

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

Comments: None.

Fishway Entrances and Collection Channel:

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

Comments:
South Powerhouse Entrance (SPE-1) Weir was on sill during all inspections with readings of 7.2, 6.8, 6.3, 6.5 and 6.6 feet respectively.
South Powerhouse Entrance (SPE-2) Weir was on sill during all inspections with readings of 7.2, 6.8, 6.3, 6.5 and 6.6 feet respectively.
South Shore Entrance (SSE-1) Weir was on sill during all inspections with readings of 7.7, 7.1, 7.0, 6.7 and 6.9 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)	35 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: 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 cycle mode due to average sub-yearling Chinook and sockeye lengths being greater than 120 mm.

STS's were inspected on July 7-8. STS in gatewell 1A was found with a tear in the screen and was immediately replaced with a spare screen.

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 17,748 fish were collected with total of 17,745 bypassed by to the river.

Transport Summary: Alternate day barge transport ended 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
67.5	44.6	18.6	17.0	65.0	63.9	4.6	3.1

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on July 6. No live fish were recovered. Mortalities included 7 salmonid smolts and 9 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
7/03/2020	1430	4	0	0	0	6
7/04/2020	0930	9	0	0	0	0
7/05/2020	1030	5	0	0	0	1
7/07/2020	1430	0	0	0	0	4
7/08/2020	0930	13	0	0	0	0

* Table shows tailrace observation conducted during Adult Fish Ladder inspections

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 July 5.

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*
7/03/2020	3	60
7/04/2020	0	0
7/05/2020	0	0
7/06/2020	0	0
7/07/2020	1	2
7/08/2020	13	26
7/09/2020	6	12
Total	23	100

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

Fish Rescue/Salvage: A fish rescue was conducted for the scrollcase of Unit 3 on July 9. Zero fish were recovered.

Research: No research is occurring at this time.

Project: Little Goose
Biologists: Scott St. John and Richard Weis
Dates: July 3-9, 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.
6	07/06/20	07:25	07/23/20	17:00	Unit annual maintenance

Comments: None.

Adult Fish Passage Facility

Little Goose fish facility staff inspected the adult fishway on July 5, 7 and 9.

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’	
X			South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 7.0’ or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 7.0’ or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
X			North Shore Entrance (NSE-1) Weir Depth	≥ 6.0’ or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	≥ 6.0’ or on sill	
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: The adult fishway continues to operate in manual mode. Project staff have struggled to maintain entrance criteria at the NSE. The fish control system still has a faulty I/O module for the NSE weirs and is currently being repaired. Subsurface water velocity was measured on July 3 and averaged 2.4 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 125 square feet of floating woody debris currently inside the trash shear boom in the forebay. Drawdowns were performed on July 9 on units 1, 2 and 3 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 July 9 on units 1, 2 and 3 and were in criteria. ESBS and VBS inspections were conducted on July 9 on Unit 6. ESBS and VBS inspections were acceptable.

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). During ESBS/VBS inspections, an issue with the orifice liner in 6C2 was observed and will need repaired during winter maintenance.

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 1 with the first truck departing on August 3.

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 condition sample every day and is in secondary by-pass. The collection and transportation facility operated within criteria this report period. A total of 18,253 fish were collected. Of those, 18,250 were bypassed back to the river and 3 were sample or facility mortalities. The descaling and mortality rates were 1.3% 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
66.1	44.0	19.9	13.3	62.5	59.6	5.4	4.1

*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 1.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
7-3	1005	4	5	0	0
7-4	0800	6	3	0	0
7-5	1110	2	6	0	0
7-6	1110	0	4	0	0
7-7	1230	0	3	0	0
7-8	0800	2	3	0	0
7-9	1100	0	3	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*
7-3	11	550
7-4	6	150
7-5	7	140
7-6	5	50
7-7	34	170
7-8	52	260
7-9	26	208
Totals	141	1,528

Gas Bubble Trauma (GBT): GBT monitoring was performed on July 5. Of the 14 fish examined, none showed signs of GBT.

Fish Rescue/Salvage: A fish rescue was conducted in the scroll case of Unit 6 on July 8. There were 2 crayfish released and no other fish observed.

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

Project: Lower Granite
Biologists: Elizabeth Holdren and David Miller
Dates: July 3-9, 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
5	June 20	0751			Annual Maintenance

Comments: None.

Adult Fish Passage Facility

Lower Granite and EAS/Anchor QEA staff inspected the adult fishway July 3, 4, 6, and 8.

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: Adult fish ladder temperature control system remains in operation.

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
X			South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	
X			South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
		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’	0.6
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. FOGs 1 and 10 are in operation. Impacts of spill operation on ladder out of criteria readings have declined with summer spill.

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 July 5.

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 July 5.

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. The 14" orifice in gatewell slot 4C was removed from service June 10 to prevent fish injury due to a damaged flange. The 10" orifice remains in operation and with no issues.

Collection Facility: The sample rate is being adjusted daily based on fish passage numbers. The facility is in secondary bypass mode.

Transport Summary: No transport at this time.

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
68.0	52.4	24.9	18.5	64.0	57.0	5.0	3.3

*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 277 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
July 3	0731	10	1	0	3
July 4	1055	7	0	0	0
July 5	0741	12	2	0	0
July 6	0838	2	5	0	2
July 7	0800	3	3	0	1
July 8	0632	4	0	0	5
July 9	1108	4	2	0	0

Adult Fish Trap Operations: Adult trap operations resumed at 0700 hours July 2 with an overall sample rate of 20%. LWG Project Biologist are providing oversight and LWG staff are operating the facility with IDFG handling the adult fish sample.

Fish Rescue/Salvage: N/A

Research:

Idaho Fish and Game (IDFG) Genetic Stock Identification

Fish collected as part of the Lower Granite juvenile condition sample are used to enumerate and characterize age composition and genetic stock profiles of naturally producing yearling chinook and juvenile steelhead. IDFG will sample Monday through Friday through mid-June with a goal of collecting 2,000-5,000 yearling chinook and juvenile steelhead genetic samples.

National Marine Fisheries Service (NMFS) 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.