U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#24-2020

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: August 7 to 13, 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**
1	7/27	0638	8/14	0842	Annual & other maintenance.
12	8/10	0630	8/13	1743	Annual maintenance.
14	8/13	1536	8/17	0900	Exciter issue.
8	8/11	0630	8/11	1600	Hub tapped.

Comments: The above dates are subject to change. The hard one percent peak efficiency constraint and the saw tooth unit priority pattern for temperature abatement continued.

Adult Fish Passage Facilities

McNary fisheries biologists performed measured inspections of the adult fishways on August 7, 9 and 12. Adult fish counting, and video review of nighttime 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 very light to light near the Oregon exit and minimal to very light near the Washington exit. Aquatic vegetation continued to be an issue. The general maintenance staff cleaned the picketed leads frequently, including the weekend.

At the Oregon exit, the traveling screens debris trough was cleaned as needed.

At the Washington exit, one regulating weir alarm came in and was reset on August 9 and 12, respectively.

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 1.8 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 to 25° (see comments)
Yes			Oregon Ladder Fish Pump 3, Blade angle: 25 to 26° (see comments)
Yes			OR North Powerhouse Pool supply from juvenile fishway

Comments: The Covid 19 issue had delayed resumption of fish pump 1 repairs. However, crews were able to resume this week. As part of the preparations to dewater fish pump 1, discharge logs had to be installed and sealed. In order to accomplish this, the blade angles of fish pumps 2 and 3 were reduced to zero degrees on August 12 from 1225 to 1253 hours and on August 13 from 0735 to 0805 hours.

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 on August 8 and 10 because of issues with the south side dewatering valve in the juvenile collection 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)	Minimal to 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 light at the powerhouse and light to moderate beside the spillway. Incoming debris loads were minimal and consisted mostly of aquatic vegetation. The debris continued to dissipate as it moved back and forth from the powerhouse to the Oregon shoreline with wind direction changes. Also, some the debris was probably going through the spillway. 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. ESBS camera inspections did not occur this week.

Daily VBS differential monitoring continued. No high differentials were measured, and no screens were cleaned.

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

Yes	No	NA	Item	Number of orifices in service
X			Did orifices operate satisfactory?	39 to 42
	X		Were the dewaterer and cleaning systems operated satisfactory?	

Comments: Orifice operators and channel lighting were repaired as needed. When the south side dewatering valve failed, two orifices were closed in unit 1, which was out of service, on August 8 at about 0355 hours by the technicians on duty. At 0800 hours, the project biologist came in and closed one more orifice in unit 1, leaving 39 orifices supplying the channel. With a stable forebay elevation, 39 orifices were in use in order to maintain the channel water elevation within the operating range of the north side dewatering valve while the south side dewatering was out of service from August 8 at 0355 to August 11 at 1430 hours. While the south side dewatering valve was out of service, the orifices were cycled just once a day. In order to calibrate upper and lower limits on the south side dewatering valve, orifices were opened and closed in units 1 through 3 on August 10 at 1230 to 1630 hours and August 11 at 0730 to 1430 hours as needed to maintain channel elevation in a reasonable range. Unit 1's orifices were reopened, resulting 42 orifices total on August 11 at 1430 hours.

On August 8 at about 0355 hours, the south side dewatering valve failed (one of two valves that regulate the channel water elevation) at about 50% open. The valve appeared to have slipped down some. The forebay elevation was high enough that the north valve topped out at 100% open when trying to compensate. The technician on duty closed two orifices in unit 1 as mentioned above. The channel was stable and functional on one dewatering valve. The assistant biologist came in at about 0700 hours and verified the channel stability. Also, they cancelled sample collection, which was to begin at 0700 hours. At 0800 hours, the project biologist came in and closed one more orifice in unit 1, leaving 39 orifices supplying the channel. Like the north side dewatering valve approximately one month ago, the south side valve's coupler had failed. All crew were notified so repairs could begin on Monday, August 10.

On August 8 by 0900 hours, due to high forebay elevations, in order to close the north valve further, the project biologist also opened the west and east floor valves approximately one inch each, from approximately 21 to 22 inches open. These valves will remain open at this level.

On August 10, from 0800 to 1030 hours, the south valve was disassembled, a new coupler was installed, and the valve was reassembled. From 1230 to 1630 hours, attempts to calibrate the valve's upper and lower limits were not successful. On August 11, from 0730 to 1430 hours, the south valve's limits were finally set. The valve was returned to automatic mode at 1430 hours. During calibration attempts, the north valve was off.

Throughout the south side dewatering valve outage, the fisheries staff monitored the channel 24/7 to insure there was not a more significant channel failure. With only one side dewatering valve functional in automatic mode and calibration attempts causing wide channel elevation changes, we did not attempt sampling on August 8 and 10. One concern noted during the week was the fact the north dewatering valve did seem to slip at times causing the whole valve to shake. We will monitor this situation.

Due to the Corona virus in our area, the project continues to work with two teams. However, now, one team works outside the powerhouse, and the second team works inside the powerhouse.

As discussed last week, the transition screen brush tripped a timing alarm on August 5 and 6. The fisheries staff and roving operators found no issues. With the second transition brush alarm still in, the rectangular screen brush alarmed on August 6, which appeared to be related to the brushes cycle sequential program. Due to inadvertent miscommunication, the transition and rectangular screen alarms were not reset by another roving operator until August 7 at about 0320 hours. The technician and biologist on duty found no issues with the brushes at about 0700 hours. The dewatering screens appeared clean. The causes of the two transition brush timing alarms and the one related rectangular brush alarm were undetermined. The control program still raises concerns. When the south side dewatering valve failed on August 8, in order to concentrate on that issue, the transition brush was turned off at about 0830 hours. The project biologist cleaned the limit switches on August 11 at about 1228 hours and returned the brush to automatic mode. No further issues have occurred. The air burst system's zone 5 keep the transition screen clean.

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. Due to the south side dewatering valve, there was no sampling on August 8 and 10. There was 48 hours of sampling missed. Normal scheduled sampling did resume on August 12. GBT monitoring had concluded the week before. The PIT-tag diversion sampling system remained out of service as there are no studies requiring its use.

This week, 52 juvenile lamprey and 796 smolts were bypassed during secondary bypass. Juvenile shad were the predominate species.

TSW Operations: The TSW's remained out of service. Standard gates remain in bays 19 and 20.

River Conditions

Table 2. River Conditions at McNary Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature (°F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
173.0	143.8	98.8	82.1	69.0	67.9	6.0	6.0

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 percent of the flow being spilled. However, this will be reduced to 20 kcfs on August 15 at 0001 hours.

Spillbay 15 and 20 remained closed for repair to the hoist and Crane 6, respectively. Spill for bays 15 and 20 was distributed throughout the other bays. Parts for the hoist in bay 15 arrived this week, with repairs started on August 12. The hoist is scheduled to return to service on August 17. During the work at bay 15, for safety, bays 14 and 16 were closed on August 12 from 0705 to 1610 hours and on August 13 from 0944 to 1700 hours. Again, spill for these bays was distributed throughout the other bays.

The gate in bay 2 remained set at four stops, which ensures the integrity of Crane 7.

All water temperature monitoring probes remained in place. 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. The replacement weather station arrived on August 13.

Other

Inline Cooling Water Strainers: The next cooling water strainer inspections will occur on December 1.

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

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican
August 7	Spill	50	2	1	1
	Powerhouse	0	0	0	0
	Outfall	10	11	0	1
August 8	Spill	24	1	0	1
	Powerhouse	0	0	0	0
	Outfall	1	18	0	3
August 9	Spill	13	1	0	0
	Powerhouse	0	0	0	0
	Outfall	8	31	0	0
August 10	Spill	6	0	0	1
	Powerhouse	0	0	0	0
	Outfall	5	19	0	1
August 11	Spill	18	0	0	0
	Powerhouse	0	0	0	0
	Outfall	14	20	0	0
August 12	Spill	79	4	0	0
	Powerhouse	0	0	0	0
	Outfall	2	21	0	0
August 13	Spill	44	1	0	1
	Powerhouse	0	0	0	0
	Outfall	2	16	0	0

No birds were observed in the powerhouse zone.

In the spillway zone, gull numbers fluctuated. The gulls were mostly roosting on the navigation lock wing wall along with light feeding. Cormorants were present and mostly observed when roosting. Only one tern was observed feeding. Pelican numbers continued to decline with birds roosting and feeding. An occasional osprey was noted roosting. The breaks in the spill pattern with bays 15 and 20 closed did not appear to attract birds.

At the juvenile bypass outfall, gulls, pelicans and cormorants were noted attempting to feed. Most of the gulls and cormorants were roosting on the bypass pipe.

In the forebay zone, zero to 25 grebes and zero to 19 juvenile gulls were observed, along with an occasional pelican, cormorant or osprey. There was a mixture of feeding and roosting. Also, a few cormorants and gulls were noted on the roosting rocks along the Washington shoreline. Finally, a flock of gulls was observed outside the counting zone, at times.

No pelicans were observed inside the Oregon ladder exit and no grebes were observed in the gatewell slots or in the juvenile collection channel.

The lasers on the navigation lock wing wall and on the juvenile bypass outfall walkway remained on. When the new laser for the outfall location arrives, we may again attempt an evaluation study. The wing wall laser did appear to reduce feeding at the outfall and roosting along the navigation lock wing. Hopefully, the new laser will discourage roosting on the outfall pipe.

The bird distress calls deployed along on the navigation lock wing wall appeared to be successful, though roosting has increased. 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.

There is no active hazing program currently.

The LRAD purchased for testing along the outfall pipe arrived on August 17. A test is tentatively scheduled for early September.

Invasive Species: The next mussel station examinations will occur in late August. No Siberian prawns were observed in this week's samples and euthanized. The yearly total is one prawn.

Fish Rescue/Salvage: None occurred this week.

Research: Gas bubble trauma (GBT) examinations are no long occurring.

Pacific Northwest National Laboratory (PNNL) continued to prepare for the upcoming adult steelhead top spillway weir (TSW) passage efficiency study.

Project: Ice Harbor
Biologist: Ken Fone
Dates: August 7, 2020 –August 13, 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
5, 6	8/7/20	0742	8/7/20	1215	Line 3 outage for BPA line work
1	8/9/20	0002	8/11/20	1555	Governor blade response issue – replaced linear variable differential transducer
6	8/10/20	0712	---	---	Annual maintenance
1	8/13/20	0701	8/13/20	1758	XJO breaker replacement testing

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on August 10, 11, and 12.

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 System (AWS):

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: Station service through unit 1 was loss when the unit tripped off because of the governor blade response problem. As a result, power was lost to three of the six operating south shore AWS pumps and to both operating north shore AWS pumps at 0002 hours on August 9. The south shore pumps were restarted at 0030 hours and the north shore pumps were restarted at 0050 hours, on August 9.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Average of 3 square yards
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0-4%
	X		Any oil seen in gatewells?	

Comments: None.

STSs/VBSs:

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

Comments: None.

Orifices, Collection Channel, Dewatering Structure, and Flume:

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

Comments: None.

Juvenile Fish Facility: The Juvenile Fish Facility is operating in primary bypass mode.

Fish Sampling: Fish sampling is done for the year at Ice Harbor Project.

Removable Spillway Weir (RSW): Voluntary spill for fish passage is occurring. Spill through the RSW was shut off at 1250 hours on August 10, due to low river flows, per Ice Harbor section 2.3.2.6.iv of the 2020 Fish Passage Plan.

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
32.1	25.3	9.5	8.7	70	70	9.8	9.0

*Unit 1 scroll case temperature.

Comments: None.

Other

Inline Cooling Water Strainers: Monthly strainer inspections for lamprey will resume in December.

Avian Activity: There were low to moderate numbers of piscivorous birds seen around the project. Many of the birds were observed in the vicinity of Eagle Island.

Invasive Species: No new exotic species have been discovered.

Fish Rescue/Salvage: Unwatering activities that involved fish rescue did not occur this week.

Research: No on-site research is occurring at this time.

Project: Lower Monumental
Biologists: Chuck Barnes and Raymond Addis
Dates: August 7 - 13, 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	8/28/2020	ERTS	Annual, Draft Tube Liner
Unit 4	8/10/2020	0730	10/12/2020	ERTS	Annual, Blade Seals, Headcover Pump

Comments: None.

Adult Fish Passage Facility

The adult fishways were inspected by Corps and EAS/Anchor QEA biologists on August 7, 8, 9 and 12.

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 5.4, 6.0, 6.3 and 6.6 feet respectively.
South Powerhouse Entrance (SPE-2) Weir was on sill during all inspections with readings of 5.4, 6.0, 6.3 and 6.6 feet respectively.
South Shore Entrance (SSE-1) Weir was on sill during all inspections with readings of 5.8, 7.3, 6.8 and 7.5 feet respectively.

Auxiliary Water Supply System:

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

Comments: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	41 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 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 202 fish were collected during this reporting period with total of 200 bypassed back to the river.

Transport Summary: Alternate day barge transport ended June 21.

Spillway Weir: RSW went into service at 0001 on April 3 and was closed at 1000 August 10th due to inflow being less than 30kcfs for 3 consecutive days and trending downward, per the FPP.

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
29.9	25.0	17.0	12.7	69.6	68.5	6.2	3.7

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on August 10. No live fish or mortalities were recovered.

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

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
8/7/2020	1530	9	2	0	0	0
8/8/2020	0930	18	0	0	0	0
8/9/2020	1300	0	0	0	0	0
8/12/2020	0900	10	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 August 2.

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*
8/7/2020	61	122
8/8/2020	46	92
8/9/2020	42	84
8/10/2020	98	196
8/11/2020	80	160
8/12/2020	85	170
8/13/2020	65	65
Total	477	889

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

Fish Rescue/Salvage: A fish salvage/rescue was conducted for Unit 4 Scrollcase on August 12. Four live channel catfish were recovered and released at Devils Bench boat ramp.

Research: No research is occurring currently.

Project: Little Goose
Biologists: Scott St. John and Richard Weis
Dates: August 07-13, 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.
4	08/10/20	03:00	09/17/20	17:00	Unit Annual and 6-year overhaul
6	08/06/20	17:32	09/04/20	17:00	T2 neutral bushing

Comments: T2 remains out of service after Doble testing, forcing Unit 6 out of service. A bad neutral bushing was found which will need replaced before returning T2 to service.

Adult Fish Passage Facility

Little Goose fish facility staff inspected the adult fishway on August 09, 11 and 13.

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 Pump in Service		
X			Fish Ladder Exit Cooling Water Pumps Operating Satisfactorily		

Comments: Adult ladder cooling pump was started on June 22 at 1035. The cooling pump was out of service on July 27 and August 06 due to a line outage for Doble testing. The cooling pump is currently operating satisfactorily.

Fishway Entrances and Collection Channel:

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

Comments: The adult fishway continues to operate in manual mode. Project staff struggled to maintain entrance criteria at the NSE during Spring spill. The fish control system still has a faulty I/O module for the NSE weirs which is scheduled to be repaired after spill ends. Subsurface water velocity was measured on August 8 and averaged 2.5 feet per second.

Auxiliary Water Supply System:

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

Comments: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comment
X			Forebay debris load acceptable? (amount)	
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
	X		Any debris seen in gatewells (% coverage)	
	X		Any oil seen in gatewells?	

Comments: There is approximately 20 square feet of floating woody debris currently inside the trash shear boom in the forebay. Drawdowns were performed on August 13 on Unit 1 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 August 13 on Unit 1 and were in criteria. Camera inspections were conducted on Unit 4 ESBS/VBS screens on August 13 and all were in good condition.

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 need repaired once the juvenile channel is dewatered for winter maintenance (MFR 20 LGS 12). During prior ESBS/VBS inspections, an issue with the orifice liner in 6C2 was observed (MFR 20 LGS 14) and will need repaired during winter maintenance.

Collection Facility: Collection for condition sampling began on April 1. The facility continues to collect for daily sample and was placed in secondary bypass on June 21. Collection for every other day truck transport began on August 01 with the first truck leaving LGS on August 03.

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 began collecting for truck transport on August 01. The collection and transportation facility operated within criteria this report period. A total of 1,515 fish were collected. Of the fish collected, 20 were sample or facility mortalities and 1,922 were transported by truck to release site near Bonneville Dam. The total fish transported includes fish collected on August 06. The descaling and mortality rates were 0.1% and 1.47%, respectively. There were 4 adult

lamprey removed from the separator this report period and released approximately 1-mile upstream of the powerhouse.

Spillway Weir: Summer spill operations began on June 21. The ASW was closed for the season on August 07.

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
31.7	25.6	11.5	9.0	68.7	68.3	6.0	6.0

*Ladder temperature.

Other

Inline Cooling Water Strainers: Inline cooling strainers were inspected and results submitted to district operations every other week for FPOM distribution through mid-June per Fish Passage Plan (FPP) requirements.

Avian Activity: Daily piscivorous bird counts at Little Goose Dam began on April 1.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
8-07	1215	26	1	0	0
8-08	1210	17	4	0	0
8-09	0730	36	2	0	0
8-10	0800	26	3	0	0
8-11	0850	9	0	0	0
8-12	1020	15	1	0	0
8-13	0730	23	4	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*
8-07	449	449
8-08	469	469
8-09	475	475
8-10	562	562
8-11	478	478
8-12	692	692
8-13	518	518
Totals	3,643	3,643

Gas Bubble Trauma (GBT): GBT monitoring has finished for the season.

Fish Rescue/Salvage: A fish salvage was conducted in the scroll case of Unit 4 on August 10. The Unit is being dewatered for Unit annual and 6-year overhaul. No fish were observed.

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

Project: Lower Granite
Biologists: Elizabeth Holdren and David Miller
Dates: August 7-13, 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**
1-4	8/3	0600	8/8	1254	T1 and T2 Outage
6	July 27	0700			Annual Maintenance

Comments: Unit 5 was operated for station service power during the T1 and T2 outage.

Adult Fish Passage Facility

Lower Granite and EAS/Anchor QEA staff inspected the adult fishway August 7, 8, 10, and 12.

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’	7.9, 7.6
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.9, 7.6
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	6.8
			North Shore Entrance (NSE-2) Weir Depth	≥ 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	1.4

Comments: 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 remains in standby until LWG mechanical is able to perform standard testing that requires all AWS pumps be removed from service for 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 August 9.

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: The ESBS is dogged off in gatewell slot 6A during the annual maintenance outage.

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. A bulkhead was installed and the orifices were closed in slot 6A to facilitate the unit 6 annual maintenance. Additional 10” orifices in 6B and 6C are opened to maintain the required flow to the Primary Dewatering Structure. July 30 LWG electrical crew updated the orifice gallery control system to ensure program solenoid outputs don't exceed manufacturer’s maximum that was causing them to overheat and short. They also repaired the issue that was preventing valves from being controlled if a limit switch failed. All alarms remain the same and the program will prevent orifices from operating in HMI or Auto mode if a problem occurs.

Collection Facility: The sample rate is being adjusted daily, based on fish passage numbers. Collection for truck transport began at 0700 hours August 1.

Transport Summary: Truck transport for the week of August 7-13 totaled 1,966 fish transported in four trips.

Spillway Weir: Summer spill continues.

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
30.6	26.1	17.0	13.4	65.5	64.0	5.0	5.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Unit cooling strainer inspections were conducted on August 10.

Invasive Species: No zebra/quagga muscles were detected on the trap substrate. There was 8,252 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
Aug 7	1049	6	32	0	0
Aug 8	1010	0	9	0	0
Aug 9	0744	3	20	0	0
Aug 10	1515	2	37	0	0
Aug 11	1115	2	21	0	0
Aug 12	1245	1	20	0	1
Aug 13	1645	2	22	0	1

Adult Fish Trap Operations: Adult trap was operated at a 20% overall sample rate. LWG Project Biologist are providing oversight and operating the adult facility with IDFG handling the adult fish sample.

Fish Rescue/Salvage: The adult fish trap was flushed August 9 to prevent shad mortalities from plugging the drain screen. There was one juvenile clipped chinook mortality and one unclipped adult chinook mortalities observed during flushing. It is likely the trap will continue to need to be dewatered for flushing at least once a week. Currently flushing is scheduled for Sundays.

Research:

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.