U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#25-2020

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: August 14 to 20, 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.
14	8/13	1536	8/17	0900	Exciter issue.
13	8/17	0700	8/20	1700	Annual maintenance.
2	8/17	0754	9/15	NA	New top plate pump installed.
10	8/17	0700	8/28	NA	Annual & other maintenance.

Comments: The above dates are subject to change. The hard one percent peak efficiency constraint continued. When summer spill was reduced to 20 kcfs on August 15, maintaining the saw tooth unit priority pattern for temperature abatement became more difficult with the current river flow volumes.

There is nothing more to report.

Adult Fish Passage Facilities

McNary fisheries biologists performed measured inspections of the adult fishways on August 14, 16 and 18. 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’	0.6’ on Aug 16.

Comments: Debris loads were light near the Oregon exit and minimal near the Washington exit. Aquatic vegetation continued to be an issue. The general maintenance staff cleaned the picketed leads frequently, including the on August 16, which resolved the out of criterion point listed above.

At the Oregon exit, there are no problems to report.

At the Washington exit, picketed lead differential alarms did come in on August 16. Also, one regulating weir alarm came in and was reset on August 18.

There is nothing more to report.

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 Aug 14.
X			South Oregon Entrance Head Differential	1.0' – 2.0'	
X			SFEW1 Weir Depth	≥ 8.0'	
X			SFEW2 Weir Depth	≥ 8.0'	
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.7 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	
X			WFE2 Weir Depth	≥ 8.0'	
X			WFE3 Weir Depth	≥ 8.0'	

Comments: The out of criterion point listed above was probably due to a calibration drift. There are no other 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: 25 to 26°.
Yes			OR North Powerhouse Pool supply from juvenile fishway

Comments: Repairs to fish pump 1 continued. There are no other problems to report.

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 16 because of issues with the transition and rectangular screen cleaning brushes in the juvenile collection channel, which will be discussed below. There was 24 hours of sampling missed. When the spill volume was reduced on August 15, no debris issues were observed throughout the juvenile system.

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 the powerhouse and light beside the spillway. Incoming debris loads were minimal and consisted mostly of aquatic vegetation. The woody debris and aquatic vegetation 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.

There is nothing more to report.

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 in units 2, 10 and 13, which were out of service, revealed no problems.

Daily VBS differential monitoring continued. No high differentials were measured. A total of four screens were cleaned on August 17, 18 and 20. There were three subyearling Chinook mortalities observed.

There is nothing more to report.

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

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

Comments: Orifice operators and channel lighting were repaired as needed.

The south side dewatering valve motor ran very hot and the north side dewatering valve appeared to slip at times resulting in the whole valve shaking on August 14 and 15. With the north valve possibly slipping, the south valve appears to over adjust at times. These are the two valves hat regulate the channel water elevation. The orifices were cycled the once a day to reduce operation of the valves from August 16 to 17. This appeared to help the problem with each valve, and the normal orifice cycling schedule was resumed. However, the south valve's motor again begun to run very hot at times on August 18 to 20. The north valve slipping was not as severe. So, orifices cycling was returned to the once a day in the morning on August 20. Concern over these valves and the issues with the screen cleaning brushes discussed below resulted in a full day (24 hours) of sampling being missed on August 16. The valves were examined with no electrical or mechanical issue found above water on August 20. Most crew members believe the control program operates the valves to frequently. Access to the control program will occur in about one month. Also, there may be some below water issues, but these would have to wait for the winter outage. The valves will continue to monitor.

The technician on duty reported the rectangular screen cleaning brush had stalled and the transition screen cleaning brush had jammed into the rectangular brush, on August 15 at 1700 hours. The project biologist was about an hour out and asked the technician to monitor the channel until they arrived at 1800 hours. The rectangular brush had stalled out downstream after the brush was raised and had not returned to the upstream part position. The brush did not trip an alarm and the green run light on the control panel was still on, both are very concerning. The biologist disengaged the rectangular brush from the transition brush by lowering the brush with the switches on the control panel and then used those switches to park the brush upstream with the brush raised. The biologist ran the brush twice using the start button on the control panel. However, due to the stall out problem, lack of an alarm earlier and questions about the control program, the fisheries staff on duty were asked to run the brush using the four switches on the control panel.

With the rectangular brush downstream and running, the control program is not supposed to let the transition brush run in order to avoid a collision. Yet, the brush did operate and collide with the rectangular brush. After about 30 minutes, a transition brush cycle timing alarm did come in as it never had an opportunity to complete the cycle. With the control switches, the biologist parked the transition brush back up stream and cleared the alarm. The brush was on the A beam. The green start button was used to operate the brush and it stalled out on the D beam with both the D and C beam limit

switches light up. The biologist used the switch buttons on the control panel to park the brush and removed it from service. The brush only cleans 7 percent of the total screened surfaces in the channel, the air burst system's zone 5 keeps the transition screen clean and keeping the rectangular screen brush operating is far more important due to the amount of surface area it cleans.

Again, with the dewatering valve and brush issues mentioned above, it was decided by 1900 hours it would be best to not sample on August 16 and monitor the channel 24/7 instead.

It was noted the transition brush C beam limit light had gone off on August 16. Also, the rectangular brush appeared to be lower as if it had slightly slipped down. Finally, the biologist found the air burst system zone 4 off. All were very curious conditions. Zone 4 was returned to service at 1118 hours. The rectangular brush continued to be operated by the control switches and the transition brush remained out of service.

The electrical staff attempted to find the issue with both brushes on August 17, from 0700 to 0900 hours. However, nothing was found. With no access to the program, testing the limits was the best they could do. They asked for the brushes to ran more frequently. Both brushes were returned to automatic mode and the brushes cycle sequence was set for approximately every hour. The transition brush ran once out of sequence, almost as if the program was finding itself at 0940 hours. The transition brush stalled out on the D beam with the C beam limit also light up at 1118 hours. The timing alarm came in at about 1150 hours. In the afternoon, the electrical tied the supply conduit up and away from the C beam limit in order to eliminate magnetic interference. However, the project biologist did not like the fact that the C limit stayed light up until the brush moved to the D beam. This had not been observed before. With no access to the program and a limited supply of limit switches, the biologist removed the transition brush from service at 1530 hours. Until issues with this brush can fully be resolved, attempting to run it risk more problems than the benefit as stated above.

The rectangular screen brush continued to operate satisfactory in automatic mode. The brushes cycle sequence was set for approximately every three hours at 1530 hours. With no problems overnight, sample collection was resumed as scheduled on August 18. The brushes cycle sequence was set at about every four hours at 0800 hours. That afternoon, the electrical staff examined the rectangular brush and determined position adjustments to the park and raise limits, which they made, should resolve the stalling downstream issue and the brush raised position problem, respectively. The brushes cycle sequence was set for every hour at 0800 hours on August 19. The rectangular screen brush continued to operate without issue. The cycle sequence was reset to every four hours at 1530 hours.

Magnetic limit switches not tripping off along with program concerns appears to be the main issues with the rectangular brush. Since these are the type of limits on the brush and we have one month before we have access to the program, we suspect there will be more issues until these limits can be replaced and the program examined.

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 the issues in the juvenile collection channel mentioned above, there was no sampling on August 16. There was 24 hours of sampling missed. Normal scheduled sampling did resume on August 18. The PIT-tag system remained out of service as there are no studies requiring its use.

This week, 48 juvenile lamprey and 1,860 smolts were bypassed during secondary bypass. Juvenile shad were the predominate species examined in the sample.

With increasing air and water temperatures, sample tank mortality became an issue which will need monitoring.

There is nothing more to report.

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
163.3	140.8	80.4	20.3	70.1	67.8	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. The spill volume was reduced to 20 kcfs on August 15 at 0001 hours per the Fish Passage Plan.

Spillbay 20 remained closed for repairs to Crane 6. No return to service date has been set for the Crane 6.

Repairs to the hoist in spillbay 15 were completed on August 14. The hoist's electrical limits were set on August 17. The spillgate returned to service at 1332 hours. However, after discussions with the district hydrological engineer, it was determined the bay should remain closed with 20 kcfs of spill occurring. During the work at bay 15, for safety, bays 14 and 16 were closed and out of service on August 14 from 0628 to 1154 hours and on August 17 from 0721 to 1444 hours, respectively. Spill for these bays was distributed throughout the other bays on August 14.

The same district engineer advised us to close spillbay 2 when 20 kcfs spill began on August 15. The bay had been 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 and new weather station.

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.

One cormorant was observed feeding 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. A few cormorants were present. They were observed roosting and feeding. No terns were observed. Pelican numbers were very low with the birds feeding. An occasional osprey was noted roosting. The breaks in the spill pattern and the reduction in spill volume did not appear to attract birds.

At the juvenile bypass outfall, gulls 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 28 grebes and zero to nine juvenile gulls were observed, along with an occasional pelican, cormorant, great blue heron or osprey. There was a mixture of feeding and roosting. Also, a few pelicans, 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.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican
August 14	Spill	12	2	0	0
	Powerhouse	0	0	0	0
	Outfall	5	18	0	0
August 15	Spill	9	0	0	2
	Powerhouse	0	0	0	0
	Outfall	4	9	0	0
August 16	Spill	10	0	0	0
	Powerhouse	0	0	0	0
	Outfall	8	2	0	0
August 17	Spill	16	0	0	0
	Powerhouse	0	1	0	0
	Outfall	5	3	0	0
August 18	Spill	17	0	0	0
	Powerhouse	0	0	0	0
	Outfall	4	14	0	0
August 19	Spill	21	1	0	0
	Powerhouse	0	0	0	0
	Outfall	8	22	0	0
August 20	Spill	30	2	0	0
	Powerhouse	0	0	0	0
	Outfall	9	17	0	0

The bird distress calls deployed along on the navigation lock wing wall appeared to be somewhat successful as roosting continued to increase. No decision has been made on where to install the second large distress call. The forebay grebe distress call failed on August 16 and was removed later in the week. Future deployment of a call for this area will be under discussion.

There is no active hazing program currently. USDA Wildlife Services reported their lethal take for the year at eight cormorants and 80 gulls.

The LRAD test has been tentatively scheduled for September 8.

Invasive Species: The next mussel station examinations will occur on August 23. One Siberian prawns was observed in this week's samples and euthanized. The yearly total is two prawns.

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 14 - 20, 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
6	8/10/20	0712	---	---	Annual maintenance

Comments: Units 6, 5, 4, 2, and 1 were taken out of service one at a time for STS inspections on August 17, 18, and 19.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on August 17, 19, and 20.

Fish Ladders:

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

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
x			South Shore Entrance (SFE-1) Weir Depth	$\geq$ 8.0’ or on sill	
	x		South Shore Channel/Tailwater Differential	1.0’ – 2.0’	2.5’
x			South Shore Channel Velocity	1.5 – 4.0 fps	
x			North Powerhouse Entrance (NFE-2) Weir Depth	$\geq$ 8.0’ or on sill	
	x		North Powerhouse Entrance Channel/Tailwater Differential	1.0’ – 2.0’	2.6
		x	North Shore Entrance (NEW-1) Weir Depth	$\geq$ 8.0’ or on sill	
	x		North Shore Channel/Tailwater Differential	1.0’ – 2.0’	2.8

Comments: The channel/tailwater head differentials at the south shore, north powerhouse, and north shore entrances were above criteria on the August 20 inspection. The tailwater elevations and entrance weir gate depths were low (with the gates on sill) during the inspection. These conditions contributed to the high entrance head differentials. The tailwater was higher in the afternoon of August 20, resulting in entrance head differentials that were back in criteria.

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: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
x			Forebay debris load acceptable? (amount)	Average of 4 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: Unit 6, 5, 4, 2, and 1 STSs and unit 5 VBSs were inspected on August 17, 18, and 19. No problems were found.

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 completed 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

33.1	27.9	8.3	8.1	70	69	9.0	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.

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.

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 14 - 20, 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 3	8/19/2020	1249	8/19/2020	1357	AC/DC Oil Pump Problem
Unit 4	8/10/2020	0730	10/12/2020	ERTS	Annual, Blade Seals, Headcover Pump

Comments:

Adult Fish Passage Facility

The adult fishways were inspected by Corps and EAS/Anchor QEA biologists on August 14, 15, 16 and 19.

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: The North Ladder Picketed Lead differential was out of criteria during the August 14 inspection with a reading of 0.5 feet. Fibrous alga was removed from the downstream pickets to correct the situation.

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 6.5, 6.7, 6.5 and 6.7 feet respectively.
South Powerhouse Entrance (SPE-2) Weir was on sill during all inspections with readings of 6.5, 6.7, 6.5 and 6.7 feet respectively.
South Shore Entrance (SSE-1) Weir was on sill during all inspections with readings of 7.2, 7.2, 7.1 and 7.4 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:

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	53 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:

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:

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 317 fish were collected during this reporting period with a total of 315 were 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 on August 10 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
29.2	24.8	14.0	6.9	69.0	68.2	6.7	4.0

*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
8/14/2020	1500	0	0	0	0	0
8/15/2020	0945	0	0	0	0	0
8/16/2020	1000	2	1	0	0	2
8/19/2020	0900	35	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*
8/14/2020	72	72
8/15/2020	79	79
8/16/2020	83	83
8/17/2020	65	65
8/18/2020	91	91
8/19/2020	110	110
8/20/2020	75	75
Total	575	575

*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 currently.

Project: Little Goose
Biologists: Scott St. John and Richard Weis
Dates: August 14-20, 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 to be replaced before returning T2 to service.

Adult Fish Passage Facility

Little Goose fish facility staff inspected the adult fishway on August 16, 18 and 20.

Fish Ladder:

Yes	No	NA	Location	Criteria	Measurements
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 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	$\geq$ 8.0’	
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	$\geq$ 7.0’ or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	$\geq$ 7.0’ or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
X			North Shore Entrance (NSE-1) Weir Depth	$\geq$ 6.0’ or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	$\geq$ 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 and which is scheduled to be repaired once 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 100 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 to be 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 to be repaired during winter maintenance.

Collection Facility: Collection for condition sampling began on April 01. 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 20. The JFF began collecting for truck transport on August 01. The collection and transportation facility operated within criteria this report period. A total of 3,796 fish were collected. Of the fish collected, 24 were sample or facility mortalities and 2,529 were

transported by truck to release site near Bonneville Dam. The descaling and mortality rates were 0.4% and 0.53%, respectively. There were 8 adult lampreys 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
31.5	27.7	10.9	7.1	68.6	68.4	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 01.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
8-14	0800	21	1	0	0
8-15	0850	25	0	0	0
8-16	1300	0	6	0	0
8-17	1225	13	10	0	0
8-18	1330	22	13	0	0
8-19	0830	24	2	0	0
8-20	0730	21	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*
8-14	380	380
8-15	517	517
8-16	892	892
8-17	1,187	1,187
8-18	936	936
8-19	847	847
8-20	890	1,490
Totals	5,649	5,649

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

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: August 14-20, 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**
6	July 27	0700	Aug 19	1613	Annual Maintenance

Comments:

Adult Fish Passage Facility

Lower Granite and Anchor QEA staff inspected the adult fishway August 14, 15, 18, and 19.

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 remains in operation.

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
	X		South Shore Entrance (SSE-1) Weir Depth	$\geq$ 8.0’	7.8, 7.8
	X		South Shore Entrance (SSE-2) Weir Depth	$\geq$ 8.0’	7.8, 7.8
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	6.8, 6.3, 5.8, 6.4
			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	1.4, 1.3, 1.3

Comments: FOGs 1 and 10 are in operation. Impacts of spill operation on ladder out of criteria readings have declined with summer spill. There still appears to be an issue with the control system reading being in sync with local readings requiring the electrical crew investigation.

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 can 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 trash racks.

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 16.

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 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 were 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 14-20 totaled 653 fish transported in three 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
30.5	25.5	14.8	6.9	65.0	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 were 15,528 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
Aug 14	1250	2	22	0	1
Aug 15	1230	0	9	0	1
Aug 16	0754	6	28	0	0
Aug 17	1315	7	27	0	0
Aug 18	1420	0	20	0	0
Aug 19	1215	0	19	0	0
Aug 20	1225	3	23	0	0

Adult Fish Trap Operations: Adult trap was changed from an 18% overall sample rate to 80% sample rate at 1400 hours August 17 to accommodate adult Chinook brood stock collection for the NPT and LFH. LWG Project Biologist are providing oversight and operating the adult facility with IDFG handling the adult fish sample. The total number of Fall Chinook transported August 18-20 was 61 males and 63 females.

Fish Rescue/Salvage: The adult fish trap was flushed August 16 to prevent shad mortalities from plugging the drain screen. There was one juvenile clipped Chinook mortality and two clipped 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.