U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#20-2020

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: July 10 to 16, 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	7/31/20	NA	Turbine blade packing.
8	7/13	0630	7/16	1700	Annual maintenance.
11 & 12	7/14	0630	7/14	1700	Exciter brush spring replacement.

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 10, 12 and 14. 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 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 weekend. The Oregon exit traveling screens debris trough was cleaned as required.

At the Washington exit, the regulating weir tripped alarms and was reset on July 12 and 14.

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 to 25°.
Yes			Oregon Ladder Fish Pump 3, Blade angle: 25 to 26°.
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 two interruptions in the schedule. The system was in primary bypass on July 13 from 0900 hours to July 14 at 0700 hours and on July 15 from 0700 hours to July 16 at 0700 hours due to issues with the north side dewatering valve in the juvenile collection channel, which will be discussed below. There was 46 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 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. Debris removal has not yet been required.

No trash rack cleaning occurred this week.

Extended-length submersible bar screen (ESBSs)/Vertical barrier screen (VBSs):

Yes	No	NA	Item
X			ESBSs deployed in all slots and in service?
X			ESBSs inspected this week?
X			ESBSs inspection results acceptable?
X			VBSs differentials checked this week?
X			VBSs differentials acceptable?

Comments: ESBS's remained deployed in all units, except for unit 5, which is out of service. ESBS camera inspections in units 8, 11 and 12 occurred while the units were out of service on July 14. No problems were found.

Daily VBS differential monitoring continued. No high differentials were measured. Ten screens were cleaned on July 16. Five subyearling Chinook mortalities were observed.

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

Yes	No	NA	Item	Number of orifices in service
X			Orifices operating satisfactory?	39 to 42
	X		Dewaterer and cleaning systems operating satisfactory?	

Comments: Orifices were adjusted for VBS cleaning as required. Orifice operators were repaired as needed. As the forebay elevation changed, 39 to 41 orifices were in use in order to maintain the channel water elevation within the operating range of the south side dewatering valve while the north side dewatering was out of service from July 13 at 0910 hours to July 16 at 0758 hours. Orifices were closed or opened in unit 5, which was out of service. While the north 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 north side dewatering valve, orifices were opened and closed in units 2 through 5 on July 16 from 0815 to 1048 hours.

Four high water alarms came in from 0802 to 0816 hours on July 13. The biologist on duty found the north side dewatering valve inoperable at approximately 60 percent open. The south side dewatering valve was 100 percent open, thus the channel high water elevation alarms as the forebay elevation increased with no room for dewatering valves to open any further. At the control panel view, the program was showing both valves at 100 percent open. Orifices were closed in order to reduce the percent opening of the south side dewatering valve from 0841 to 0910 hours so this valve could regulate channel elevation in automatic mode while the north valve was out of service. The electrical and mechanical crew leaders had examined the north valve and determined the coupler between the actuator and valve stem had failed by 0927 hours. This is the same issue as we had last year. The separator attendant was asked to switch to primary bypass at 0900 hours due to the flow fluctuations stabilizing the channel would cause and the fact that fisheries staff members would have to monitor the channel 24/7 until the north dewatering valve was repaired and returned to automatic mode.

A clearance was in place and the north side dewatering valve was disassembled on July 14 by 1200 hours. The valve stem was stabilized so the valve would not slip closed. A new coupler was built, the valve was reassembled and tested on July 15 by 1600 hours. However, the valve remained off and open at 60 percent until it was calibrated the next day as mentioned above. The north valve returned to service on July 16 at 1048 hours. The cause of the coupler failing after one year will be examined during the next winter outage.

For the three screen cleaning brushes, it was been determined that the electrical conduit near the magnetic limit switches is the wrong type. This conduit will be replaced during the next winter outage. Five replacement limit switches have been ordered.

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 0900 hours on July 13. No sampling occurred from July 15 at 0700 hours to July 16 at 0700 hours. The next full sample day will begin on July 17 at 0700 hours. Sampling was missed to insure a fisheries staff member could monitor the juvenile collection channel 24/7 during the dewatering valve outage. The PIT-tag system remained out of service as there are no studies requiring its use.

This week, 550 juvenile lamprey and 67,601 smolts were bypassed during secondary bypass. Subyearling Chinook remained the primary species in the samples.

One subyearling Chinook mortality was removed from under the primary bypass gate this week, bring the total to four subyearling Chinook for the season. This issue will be examined during the next winter outage.

TSW Operations: The TSW's remained out of service. The standard gates in bays 19 and 20 are attached to a hoist and crane, respectively.

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
245.0	205.5	139.8	117.5	65.2	63.9	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.

Spillbay 15's gate remained lowered onto seal. The parts to repair the bearing mount for the hoist's north drum pillow block are special order items, which could take at least three weeks to receive. To insure the maintenance crews could work safely in bay 15 removing parts from the hoist, spillbays 14 and 16 were closed on July 13 to 15 from approximately 0700 to 1800 hours each day.

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. The weather station is being replaced in the near future due to it producing faulty readings at times.

Other

Inline Cooling Water Strainers: The next cooling water 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 were very low. Cormorants were present but were difficult to observe. Tern numbers remained fairly low. Pelican numbers decreased slightly. All birds were feeding with very little roosting. The pelicans were working along the navigation lock wing wall. An occasional osprey was noted roosting. The break in the spill pattern with bay 15 closed did not appear to attract many birds.

At the juvenile bypass outfall, occasionally gulls, terns, pelicans and cormorants were noted attempting to feed. Gulls were also roosting. The birds' behavior may have more to do with their low abundance than hazing activities.

In the forebay zone, zero to 22 grebes and two to ten juvenile gulls were observed, along with an occasional pelican or osprey. Also, pelicans in moderate numbers along with a few gulls 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.

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

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican
July 10	Spill	0	0	3	10
	Powerhouse	0	0	0	7
	Outfall	4	0	0	0
July 11	Spill	0	0	1	9
	Powerhouse	0	0	0	10
	Outfall	1	0	0	0
July 12	Spill	0	1	10	15
	Powerhouse	0	0	0	13
	Outfall	10	2	2	7
July 13	Spill	6	0	0	17
	Powerhouse	0	0	0	5
	Outfall	2	1	0	0
July 14	Spill	0	0	2	12
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
July 15	Spill	0	0	0	27
	Powerhouse	0	0	0	2
	Outfall	1	0	0	0
July 16	Spill	0	0	1	18
	Powerhouse	0	0	0	0
	Outfall	1	0	0	0

The lasers on the navigation lock wing wall and on the juvenile bypass outfall walkway were removed from service as part of an evaluation study on July 13. Due to low bird numbers, the lasers cannot be evaluated effectively to this point in time. We believe the outfall laser may need 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' second shift concluded on July 11. One eight hour shift continued with shore hazing of the tailwater area and forebay zone.

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 11 and13. 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 10, 2020 – July 16, 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: Comments: Units 6, 5, 4, 2, and 1 were taken out of service one at a time on July 14th and 15th for STS inspections.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on July 13th, 14th, and 15th.

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: On the July 14 inspection, the barrier gate at the north fish count station was found to be lowered down part way in the count slot, partially obstructing fish passage. The barrier gate is used to temporarily stop water flow through the slot in order to more effectively clean the count window. The window was last cleaned over a week ago, and the gate was raised up out of the water immediately after the cleaning. The circumstances of how and when the gate got lowered is unknown, but Fish Facility personnel will regularly monitor the gate position to make sure it stays up. The review of hourly fish counts past the window for several hours before and after the gate was raised on July 14, and of daily counts going back two weeks, indicate that fish were still passing under the gate when it was in the water and that there was no discernable reduction in passage numbers.

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 2.3 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. STS inspections were conducted on July 14th and 15th for turbine units 1, 2, 3, 4, 5, and 6. VBS inspections were conducted for unit 6 July 14th. No problems were observed during the STS and VBS inspections.

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 13th and July 16th. For Ice Harbor Dam fish sampling methodologies, please refer to 2020 Fish Passage Plan Chapter 6 (Ice Harbor Dam). Condition sampling ended for the year with the last condition sample on July 16th.

Fish condition sampling results at Ice Harbor Dam:

Date: July 13th

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	10	0	0	0
Chinook yearling unclipped	10	0	0	0
Chinook subyearling clipped	20	0	0	0
Chinook subyearling unclipped	46	0	0	0
Steelhead clipped	1	0	0	0
Steelhead unclipped	0	---	---	---
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	87	0	0	0

Date: July 16th

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	0	0	0	0
Chinook yearling unclipped	0	0	0	0
Chinook subyearling clipped	20	0	0	0
Chinook subyearling unclipped	67	0	0	0
Steelhead clipped	0	---	---	---
Steelhead unclipped	0	---	---	---
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	87	0	0	0

Removable Spillway Weir (RSW): Voluntary spill for fish passage is occurring.

River Conditions

River conditions at Ice Harbor Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (°F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
55.0	42.1	17.4	12.6	65	64	6.0	6.0

*Unit 1 scroll case temperature.

Comments: None.

Other

Inline Cooling Water Strainers: Monthly strainer inspections for lamprey ended in June and will begin in 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 10	---	---	---	---	---
July 11	---	---	---	---	---
July 12	---	---	---	---	---
July 13	21	7	0	0	13
July 14	23	1	0	0	9
July 15	26	5	0	0	27
July 16	5	0	0	0	13

Invasive Species: No new exotic species have been discovered.

Siberian Prawn: No Siberian prawns were collected in the sample for this reporting period.

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

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

If you have any questions please contact the Ice Harbor Fish Facility Biologist Ken Fone for more information and updates.

Project: Lower Monumental
Biologists: Chuck Barnes and Raymond Addis
Dates: July 10 - 16, 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	7/06/2020	0706	8/06/2020	ERTS	Annual Maintenance

Comments: None.

Adult Fish Passage Facility

The adult fishways were inspected by Corps and EAS/Anchor QEA biologists on July 10, 11, 12 and 15.

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 7.3, 6.4, 7.0 and 5.7 feet respectively.
South Powerhouse Entrance (SPE-2) Weir was on sill during all inspections with readings of 7.3, 6.4, 7.0 and 5.7 feet respectively.
South Shore Entrance (SSE-1) Weir was on sill during all inspections with readings of 7.4, 6.9, 7.6 and 5.9 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)	94 yds^2
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 15%
	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 17,227 fish were collected with total of 17,216 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
57.7	42.2	17.1	17.0	65.0	62.3	4.7	3.4

*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
7/10/2020	1500	0	0	0	0	2
7/11/2020	1000	3	0	0	0	0
7/12/2020	1230	9	0	0	0	5
7/15/2020	0830	1	0	0	0	1

* 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*
7/10/2020	5	10
7/11/2020	3	15
7/12/2020	1	5
7/13/2020	4	20
7/14/2020	6	60
7/15/2020	1	10
7/16/2020	1	20
Total	21	140

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

Fish Rescue/Salvage: Fish facility personnel entered the scollcase on Unit 3 at 1015 on July 9th due to the unit being dewatered for annual maintenance. No fish were present and the scrollcase was successfully dewatered.

Research: No research is occurring at this time.

Project: Little Goose
Biologists: Scott St. John and Richard Weis (via Deb Snyder)
Dates: July 10-16, 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	07/30/20	17:00	Unit annual maintenance

Comments: None.

Adult Fish Passage Facility

Little Goose fish facility staff inspected the adult fishway on July 12, 15 and 16.

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	1 of 9 @1.4 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. Three separate fishway inspections (FWI) were completed on July 12, 15, and 16. Each FWI measured surface velocity near each of the 3 fish entrances. On 07/16/20 SSE failed criteria with a measurement of 1.4 fps. Project staff conducted subsequent SSE velocity measurements that met criteria.

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 115 square feet of floating woody debris currently inside the trash shear boom in the forebay. Drawdowns were last 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: Upon transition to bi-weekly measurements per FPP 2020 (Chapter 8 2.3.2.3.vii.) VBS differentials were last performed on July 9 on units 1, 2 and 3 and were in criteria. ESBS and VBS inspections were last 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 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 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 18,663 fish were collected. Of those, 18,657 were bypassed back to the river and 6 were sample or facility mortalities. The descaling and mortality rates were 0.9% and 0.04%, respectively. There were no adult lamprey removed from the separator this report period.

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
55.9	42.0	16.7	12.5	66.0	62.4	5.7	4.9

*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. An extra inspection conducted 07/13/2020 affirmed trending counts below 10 for juvenile lamprey species, thus suspending further inspections until mid-December per FPP 2020 Appendix D 5.2.4.

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

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
7-10	1100	0	4	0	0
7-11	1600	2	13	0	0
7-12	0730	9	5	0	0
7-13	0740	8	8	0	0
7-14	1040	10	8	0	0
7-15	1130	5	5	0	0
7-16	0800	22	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 EAS/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*
7-10	37	296
7-11	56	448
7-12	66	660
7-13	70	700
7-14	104	1040
7-15	87	696
7-16	453	3624
Totals	873	7464

Gas Bubble Trauma (GBT): GBT monitoring was performed on July 13. Of the 77 fish examined, none showed signs of GBT.

Fish Rescue/Salvage: None.

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

Project: Lower Granite
Biologists: Elizabeth Holdren and David Miller
Dates: July 10-16, 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 10, 11, 13, and 15.

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’	
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

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 July 12.

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 12.

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. Collection for transport is scheduled to begin at 0700 hours August 1.

Transport Summary: Truck transport is scheduled to begin with the first truck departing LWG August 3.

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
57.7	45.4	18.8	18.5	64.5	63.5	5.0	5.0

*Cooling water intake temperature.

Other

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

Invasive Species: No zebra/quagga muscles were detected on the trap substrate. There was 239 Siberian prawn collected in the sample and euthanized for disposal during this reporting period.

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

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
July 10	0735	1	1	0	1
July 11	1045	0	0	0	0
July 12	1250	2	7	0	0
July 13	0940	1	7	0	0
July 14	0940	4	9	0	0
July 15	1003	1	4	0	0
July 16	1205	3	12	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 operating the adult facility with IDFG handling the adult fish sample.

Fish Rescue/Salvage: The adult fish trap was flushed due to shad mortalities plugging the drain screen. During trap flushing 2 adult chinook were recovered and returned to the fish ladder and two mortalities were observed. It was unclear if the Chinook were clipped or unclipped. It is likely the trap will need to be dewatered for flushing at least once a week.

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.