U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#23-2020

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: July 31 to August 6, 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	8/3/20	1700	Turbine blade packing.
1	7/27	0638	8/14	NA	Annual & other maintenance.
3 & 4	7/31	1200	8/5	1200	Line 2 BPA relay.
11	8/3	0630	8/6	1700	Annual maintenance.
6 & 7	8/4	1000	8/4	1100	ESBS camera inspections.
6	8/5	0700	8/5	1600	Hub tapped.

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

Adult Fish Passage Facilities

McNary fisheries biologists performed measured inspections of the adult fishways on July 31, August 2 and 4. 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’	0.7’ on July 31.
X		Washington Exit	Head over weir 1.0’ to 1.3’	
	X	Washington Count Station Differential	0.0’ to 0.5’	1.2’ on July 31.

Comments: Debris loads were 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. The above out of criteria points were due to aquatic vegetation on the picketed leads. The general maintenance staff was called in to clean the leads. Also, the Oregon exit traveling screens debris trough was cleaned on July 31.

At the Washington exit, picketed lead high differential alarms did come in on July 31. Also, one regulating weir alarms was reset on August 2.

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 1.7 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: 24 to 25°.
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 no interruptions in the schedule.

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 occurred in units 6 and 7 on August 4. No problems were found.

Daily VBS differential monitoring continued. No high differentials were measured. Six screens were cleaned on August 1. Three 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?	42
	X		Dewaterer and cleaning systems operating satisfactory?	

Comments: Orifices were adjusted for VBS cleaning as required. Orifice operators were repaired as needed.

Early in the week, the rectangular screen cleaning brush appeared to have slipped down slightly. The mechanical staff inspected the brush and found no issues on August 4. During issues with the transition screen cleaning device, which will be discussed below, the rectangular screen brush alarmed once.

The transition screen brush alarm tripped an alarm on August 5 at about 0530 hours. The biologist found no issues and reset the alarm at about 0930 hours. The brush again tripped a timing alarm at on August 6 at about 1330 hours. The roving operator found no issues and reset the system but this did not reset the brush. With the transition brush alarm still in, the rectangular screen brush alarmed at about 1800 hours, 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.

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. The PIT-tag system remained out of service as there are no studies requiring its use.

This week, 20 juvenile lamprey and 4,379 smolts were bypassed during secondary bypass. Subyearling Chinook and 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
198.0	160.6	112.9	91.8	69.9	69.3	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 and 20 remained closed as parts to repair the hoist and Crane 6, respectively, are being procured. Spill for bays 15 and 20 was distributed throughout the other bays.

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

All water temperature monitoring probes are now 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 new weather station had to be returned to the manufacture.

Other

Inline Cooling Water Strainers: The cooling water strainer examinations occurred on August 4. There were four live and three juvenile lamprey mortalities removed. The next 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
July 31	Spill	19	1	0	9
	Powerhouse	0	0	0	0
	Outfall	17	27	0	6
August 1	Spill	26	0	1	11
	Powerhouse	0	0	0	0
	Outfall	6	37	0	5
August 2	Spill	16	0	0	2
	Powerhouse	0	0	0	0
	Outfall	13	16	0	2
August 3	Spill	17	1	0	2
	Powerhouse	0	0	0	0
	Outfall	13	15	0	4
August 4	Spill	15	0	0	3
	Powerhouse	0	0	0	0
	Outfall	10	13	0	2
August 5	Spill	20	0	1	9
	Powerhouse	0	0	0	0
	Outfall	3	18	0	3
August 6	Spill	94	9	0	3
	Powerhouse	0	0	0	0
	Outfall	3	12	0	2

No birds were observed in the powerhouse zone.

In the spillway zone, gull numbers increased. The gulls were mostly roosting on the navigation lock wing wall along with feeding. Cormorants were present and mostly observed when roosting. Tern numbers were very low

with the birds feeding. Pelican numbers continued to decline with birds roosting and feeding. An occasional osprey or great blue heron 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, 14 to 43 grebes and zero to six juvenile gulls were observed, along with an occasional pelican, cormorant 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.

One pelican was observed outside 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 were returned to service on August 3. The lasers will remain on until the new laser for the outfall location arrives. The wing wall laser did appear to reduce feeding. Hopefully, the new laser will discourage roosting on the outfall pipe.

The bird distress calls deployed along on the navigation lock wingwall 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.

Active hazing has ended for the year.

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

Fish Rescue/Salvage: None occurred this week.

Research: The gas bubble trauma (GBT) examinations occurred on August 4. No smolts were observed with signs of GBT. However, 83 fish were examined and seven subyearling Chinook mortalities were removed from the sample recovery raceway. GBT examinations were terminated for the year.

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: July 31, 2020 –August 6, 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	7/31/20	1838	8/1/20	1632	Tripped on reverse power – GDACS programming fix

Comments: Unit 6 was operated out of unit priority on August 1 from 1208 hours to 1432 hours, when it was operated for testing ahead of unit 2, prior to returning it to service.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on August 3, 4, and 5.

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’	0.0’
X			South Shore Channel Velocity	1.5 – 4.0 fps	
	X		North Powerhouse Entrance (NFE-2) Weir Depth	≥ 8.0’ or on sill	7.7’, 7.9’
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0’ – 2.0’	0.0’
	X		North Shore Entrance (NEW-1) Weir Depth	≥ 8.0’ or on sill	7.3’, 6.9’
X			North Shore Channel/Tailwater Differential	1.0’ – 2.0’	

Comments: The south shore and north powerhouse entrance channel/tailwater differentials were observed to be 0.0’ on the August 5 inspection. The south shore auxiliary water supply (AWS) pumps were noted to be operating normally shortly after obtaining those differential readings. The powerhouse operator was not aware of an AWS pump failure that might explain those readings. The cause of these reading is uncertain, but if any pumps did trip off, it was most likely of short duration.

The north powerhouse and north shore entrance weir gate depths were out of criteria on August 3 and 4, when the gates were slightly off sill. The operator was informed, and the gates were lowered to meet the sill criteria. NFE-2 and NEW-1 weir gates are being operated in manual control to reduce the wear and tear on the hoisting machinery from constantly adjusting to fluctuating tailwater levels during spill.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
6 pumps	2 pumps		Status of the 8 South Shore AWS Pumps
2 pumps	1 pump		Status of the 3 North Shore AWS Pumps

Comments: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Average of 3 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: The STSs were switched to cycle-run mode on July 27, due to the average fork length of subyearling Chinook in the Lower Monumental fish sample 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?	20
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: The power to the regulating weirs in the primary dewatering structure was found to be off on August 4. The weirs probably loss power several weeks ago when station service from unit 1 was loss. Although the weirs were immobile, they did function to help maintain the normal water level in the flume and there were no noted water level alarms during that period. The weirs were returned to automatic operation on August 5.

The pump for the bird abatement hydrocannon was found to be tripped off on August 4. The water line for the hydrocannon has had a sizeable water leak for several months, which has diminished the spray from the hydrocannon. Since there have not been any piscivorous birds seen at the end of the outfall pipe for quite some

time, the Project Biologist decided to leave the pump turned off to prevent it from burning out. The water line leak will be repaired after the spill season is done, when a boat can safely get out to the pipe.

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.

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
39.7	33.8	11.8	10.0	71	69	9.9	8.2

*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: July 31 – August 6, 2020

Turbine Operation

Yes	No	Turbine Unit Status		
	X	All 6 turbine units available for service (see table & comments below for details).	Hard	Soft
X		Available turbines operated within 1% peak efficiency? Constraint in effect.	X	

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

	OOS		RTS		
Unit	Date	Time	Date	Time	Outage Description
Unit 1	7/27/2020	0550	7/31/2020	1455	T-1 Doble Testing and Ground Harps Installation
	8/4/2020	1140	8/4/2020	1550	STS Inspection
Unit 2	7/15/2019	0720	8/28/2020	ERTS	Annual, Draft Tube Liner
Unit 3	7/06/2020	0706	8/06/2020	1715	Annual Maintenance
Unit 4	7/27/2020	0550	7/27/2020	1455	T-1 Doble Testing and Ground Harps Installation
	8/5/2020	1313	8/5/2020	1605	STS Inspection
Unit 5	7/27/2020	0550	7/31/2020	1455	T-1 Doble Testing and Ground Harps Installation
	8/3/2020	0800	8/5/2020	1614	XJ02 Breaker Installation
Unit 6	7/27/2020	0550	7/31/2020	1455	T-1 Doble Testing and Ground Harps Installation
	7/31/2020	2142	8/1/2020	0959	Field Ground Fault
	8/4/2020	0700	8/4/2020	1120	STS Inspection

Comments: Doble testing for transformer T-1 began on July 27.
Unit 5 was taken out of service and placed on "speed no load" to supply station service power during working hours for Doble testing and returned to service each night starting July 27 to 1455 on July 31.

Adult Fish Passage Facility

The adult fishways were inspected by Corps and EAS/Anchor QEA biologists on July 31, August 1, 2, and 5.

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: North Ladder Picketed Lead differential was out of criteria on the August 5 inspection with a reading of 0.6 feet. Fish Facility personnel cleaned fibrous algae and shad mortalities off the downstream pickets.

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	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 5.7, 6.6, 6.5 and 5.8 feet respectively.
South Powerhouse Entrance (SPE-2) Weir was on sill during all inspections with readings of 5.7, 6.6, 6.5 and 5.8 feet respectively.
South Shore Entrance (SSE-1) Weir was out of criteria on the July 31 inspection with a reading of 5.5 feet and not on sill. South Shore Entrance (SSE-1) Weir was on sill during the August 1, 2 and 5 inspections with readings of 7.2, 6.8 and 6.4 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: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	29 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.
STS's were inspected from August 4 – 6. All STS's were in good working order.

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 4,910 fish were collected during this reporting period with total of 4,901 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. The RSW was closed at 1600 on 28 July due to anchor cable issues associated with the floating navigation guide wall (see 20LMN07 MFR). An emergency contract for a tugboat was implemented to hold the floating guide wall in position until repairs could be made. In close coordination with the tugboat holding the floating guide wall in position, the Lower Monumental Dam RSW was reopened at 10:35 August 4, 2020.

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
37.7	31.4	19.5	16.8	70.0	69.0	6.8	3.8

*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
7/31/2020	1400	0	0	0	0	2
8/1/2020	0930	25	0	0	0	2
8/2/2020	1300	0	1	0	0	0
8/5/2020	0900	42	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*
7/31/2020	38	380
8/1/2020	36	288
8/2/2020	30	240
8/3/2020	25	200
8/4/2020	34	136
8/5/2020	118	236
8/6/2020	27	54
Total	308	1,534

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

Fish Rescue/Salvage: No Fish Rescue/Salvage took place during this reporting period.

Research: No research is occurring at this time.

Project: Little Goose
Biologists: Scott St. John and Richard Weis
Dates: July 31-August 06, 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.
5 & 6	07/27/20	09:17	08/06/20	17:32	T2 Doble
All	08/06/20	06:25	08/06/20	17:32	Line outage for Doble
6	08/06/20	17:32			T2 neutral bushing

Comments: None.

Adult Fish Passage Facility

Little Goose fish facility staff inspected the adult fishway on August 02, 04 and 06.

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. Adult fish ladder cooling pump was out of service due to a line outage in preparation for Doble testing on August 6 from 05:25 to 17:53. 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 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 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. Project staff were unable to conduct drawdowns this report period due to Doble testing. Drawdowns were last performed on July 23 on Units 1 and 2 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: Project staff were unable to conduct VBS differentials this report period due to Doble testing. VBS differentials were last performed on July 23 on Units 1, and 2 and were in criteria.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	19
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: The airline for the backflush system on orifice 1C1 was found broken and will 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 (MFR 20 LGS 14).

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 is collecting for truck transport beginning August 01. The collection and transportation facility operated within criteria this report period. A total of 8,061 fish were collected. Of those, 3,540 were bypassed back to the river and 31 were sample or facility mortalities. A total of 4,063 were transported by truck to release site near Bonneville Dam. The descaling and mortality rates were 0.7% and 0.74%, respectively. There was 1 adult lamprey removed from the separator this report period and released upstream of the powerhouse.

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

River Conditions

River conditions at Little Goose Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (°F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
40.5	31.3	18.0	9.9	69.5	67.7	6.0	5.6

*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
7-31	1200	17	3	0	0
8-01	0800	72	6	0	0
8-02	0815	46	5	0	2
8-03	1320	39	10	0	0
8-04	0730	17	1	0	0
8-05	1115	22	4	0	0
8-06	0800	33	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*
7-31	97	388
8-01	144	576
8-02	33	33
8-03	316	632
8-04	1,338	2,676
8-05	520	520
8-06	542	542
Totals	2,990	5,367

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: July 31- August 6, 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			T1 and T2 Outage
6	July 27	0700			Annual Maintenance

Comments: Unit 5 is being 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 July 31, August 1, 3, and 5.

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	6.7
			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. The fish ladder control system maintained criteria following the calibration the previous week.

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 2.

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 began with the first truck departing LWG August 3 with a total of 2,475 fish transported in two 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
41.7	33.8	26.2	18.4	66.0	63.0	5.0	5.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Unit cooling strainer inspections were delayed due to T1 and T2 transformer work.

Invasive Species: No zebra/quagga muscles were detected on the trap substrate. There was 1,981 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
July 31	0925	2	15	0	0
Aug 1	1010	0	8	0	0
Aug 2	0752	5	21	0	0
Aug 3	1053	2	24	0	0
Aug 4	1118	2	22	0	0
Aug 5	1225	1	20	0	1
Aug 6	1015	4	17	0	1

Adult Fish Trap Operations: Adult trap operations were adjusted from a 20% over all sample rate to an overall sample rate of 18% at 1500 hours August 2. 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 2 to prevent shad mortalities from plugging the drain screen. During trap flushing, no salmonid mortality was observed. 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.