U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#27-2019

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: August 30 to September 5, 2019

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	05/23	0943	10/31	NA	Turbine blade packing.
13	06/10	0610	09/30	NA	Turbine bearing.
14	08/19	1221	09/30	NA	Oil replacement and turbine bearing.
12	08/26	0711	09/26	NA	Annual and oil leaks.
1 & 10	09/03	1002	09/03	1127	Trash rack cleaning. Rotated through units.
11	09/04	1309	09/05	1408	Thrust bearing oil level.

Comments: All return to service dates are subject to change. The saw tooth unit priority concluded with the summer spill season on September 1, at 0001 hours.

Adult Fish Passage Facilities

McNary fisheries biologists performed measured inspections of the adult fishways on August 30, September 1 and 4. Adult fish counting and video review of night time lamprey passage continued.

The ladder exits elevation sensor still wells (three per exit) were cleaned at the Oregon and Washington exits on September 4 and 5, respectively. Each cleaning was done in the afternoon with the exit in manual mode for 2 to 3 hours. With very little forebay elevation change, the exits remained in criteria. The cleaning improves the accuracy of the elevation readings, which allows the control programs to maintain criteria more precisely. At the Oregon exit, five adult lamprey mortalities were removed from the stationary weir and downstream regulating weir still wells, for a total of 10. The intakes to these still wells will be examined next winter. No other fish were found.

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 light near the Oregon exit and minimal to very light near the Washington exit. Picketed leads were cleaned as required, including twice on Thursday along with once Friday and Sunday.

At the Oregon exit, scheduled maintenance occurred on the count station window brush on September 4. Also, a new oil reservoir was installed in the brush system.

At the Washington ladder exit, one picketed leads and one regulating weir alarm came in and was reset on August 30 and September 1, respectively.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
X			North Oregon Entrance Head Differential	1.0' – 2.0'	
	X		NFEW2 Weir Depth	≥ 8.0'	7.9' on Aug 30
	X		NFEW3 Weir Depth	≥ 8.0'	7.9' on Aug 30 & Sep 4
X			South Oregon Entrance Head Differential	1.0' – 2.0'	
X			SFEW1 Weir Depth	≥ 8.0'	
	X		SFEW2 Weir Depth	≥ 8.0'	7.9" on Aug 30
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 2.2 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 criteria points listed above for the week are possibly due to calibration drifts, rounding errors and/or low tailwater elevations. The biologist found SFEW2 with slack cables on September 1. The weir was probably out of criterion that day too. After the spill closure on September 1, the blade angles on the fish pumps were adjusted. SFEW2 jammed during the adjustments. Inadvertently, the weir was not lowered to the proper elevation until September 2.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
X			WA shore Wasco County PUD Turbine Unit
	X		WA shore Wasco PUD Bypass
		X	Oregon shore Fish Pump 1, OOS to December 31.
X			Oregon shore Fish Pump 2, Blade angle: 24 to 25°
X			Oregon shore Fish Pump 3, Blade angle: 26°
X			OR North Powerhouse Pool supply from juvenile fishway

Comments: In order to low SFEW2 to the proper elevation, the blade angles of fish pumps 2 and 3 were briefly reduced to zero degrees on September 2, at 1005 hours.

Juvenile Fish Passage Facility

The sampling season consisting of alternating days of primary and secondary bypass continued. The schedule was not interrupted this week. The full flow flume adult flush line valve remains open. The valve will be repaired during the winter maintenance season. Daily water temperature monitoring and reporting throughout the juvenile passage facility concluded on August 31. An annual temperature report will be published in late September.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Powerhouse forebay debris load acceptable?	Minimal to very 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: New incoming debris was minimal. Aquatic vegetation continued to increase. The spillway debris load would be described as minimal to very light. After the spill closure, the debris migrated to the powerhouse. Much of the debris moves between the powerhouse and the Oregon shoreline. Trash racks were cleaned at slots 1A, 1B, 10A and 10B for the adult steelhead top spillway weir (TSW) passage efficiency study on September 3. Less than a cubic yard of debris was removed. No fish were observed.

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: The brush cycles for the screens in units 6, 8, 10 and 13 remained in timer mode. The brush cycle for the screen in 2A slot tripped multiple alarms and was reset on September 2. Also, that day, it was noted the program was not communicating with the screens in unit 11. The operators ran the brushes hourly until the electrical staff resolved the issue the next day. Camera inspections did not occur this week. The unit outage time was used to insure the trash racks were cleaned in units 1 and 10 instead.

Daily VBS differential monitoring continued. No high differentials were recorded. A total of six screens were clean on September 1 and 5. No fish 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 operated as required for VBS and trash rack cleaning. During the spill closure on September 1, the channel was monitored to insure no debris issues occurred. No problems were observed.

A transition brush alarm came in on September 2, at 1800 hours. The operators reset the brush cycle. Two more alarms came in during the night shift on the September 3 to 4. Each time the operators reset the brush cycle. Another alarm came in on September 4 at about 0930 hours. The biologist found the brush "jammed/stalled" on the C beam. By operating the brush in "hand" mode (each function switch need to be operated), the biologist was able to park the brush and then operate the brush in "manual" mode (push the start button). With four alarms in two day, the project biologist determined it would be best to remove the transition brush from service at 1136 hours. With the air burst system zone 5, the transition screen will remain reasonably clean. With very little debris in the system, it is suspect the issue may be with a limit switch. The electrical staff will examine the problem in the near future.

Bypass Facility:

Yes	No	NA	Item
X			Sample gates on?
		X	PIT-tag sampling system on?

Comments: The sample gates were operated only when in secondary bypass. The PIT tag system will remain out of service as there are no studies requiring its use.

This week, 44 juvenile lamprey and 153 smolts were bypassed during secondary bypass. Juvenile shad remained the predominant fish examined.

TSW Operations: The two TSWs remained closed for the season.

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
134.1	86.6	76.5	0.0	71.7	70.5	6.0	6.0

Comments: The above data is supplied by Anchor, QEA except water clarity, which is provided by the control room. The summer spill program with 57 percent of the flow being spilled concluded on September 1, at 0001 hours.

Other

Inline Cooling Water Strainers: The cooling water next strainer inspections will occur on December 3.

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

Gull activity has increased the powerhouse zone with birds feeding and roosting. In the spill zone, gull numbers declined somewhat and cormorant numbers remained stable. Pelican were only occasionally observed. No terns were observed. All birds were feeding with a large percentage of gulls and cormorants roosting on the navigation lock wing wall. Bird numbers appear to be fluctuating with the juvenile shad out migration.

Table 3. McNary Project's Daily Tailwater Avian Counts.

Date	Zone	Gull	Cormorant	Tern	Pelican
Aug 30	Spill	134	0	0	0
	Powerhouse	0	0	0	0
	Outfall	31	12	0	0
Aug 31	Spill	82	7	0	0
	Powerhouse	0	0	0	0
	Outfall	13	4	0	0
Sep 1	Spill	82	8	0	2
	Powerhouse	18	0	0	0
	Outfall	24	8	0	1
Sep 2	Spill	63	0	0	0
	Powerhouse	8	0	0	0
	Outfall	20	21	0	0
Sep 3	Spill	34	0	0	0
	Powerhouse	8	0	0	0
	Outfall	27	21	0	0
Sep 4	Spill	24	1	0	0
	Powerhouse	0	0	0	0
	Outfall	22	17	0	0
Sep 5	Spill	5	0	0	0
	Powerhouse	12	0	0	0
	Outfall	18	17	0	0

In the bypass outfall zone, the gulls and cormorants were mostly roosting on the full flow pipe. At times, some for these gulls and cormorants along with an occasional pelicans were noted feeding.

The laser for bypass outfall hazing remained in place and functional. The laser does seem to deter the birds in flight. However, birds roosting are more difficult to haze with the laser. A second laser has been ordered.

The bird distress calls remained deployed along the navigation lock wing wall. Roosting on the wall has increased but this seems to correspond to the juvenile shad outmigration. A large bird distress call is also deployed at the end of the remaining outfall pipe walkway. Its effectiveness has also decreased. The calls are being monitored weekly.

In the forebay zone, an occasional gull, grebe, cormorant or osprey was observed. The grebe distress remains deployed. No grebes were observed elsewhere on project. A small numbers of cormorants, pelicans and gulls were noted roosting outside the zone along the Washington shore line. Large gull flocks have been staging around the project. Finally, no pelicans were observed inside the ladders.

Invasive Species: The next mussel station examinations will occur in late September. This week, one Siberian prawns was removed from the sample and euthanized. This brings the total to ten prawns for the season.

Fish Rescue/Salvage**:** After the unit 14 was dewatered, no fish were rescued from the scrollcase on September 4. Two channel catfish adults and one 3.5 foot sturgeon were evacuated from the draft tube in unit 14 on September 5.

Research: The University of Idaho continued the adult lamprey passage study.

Project: Ice Harbor
Biologist: Ken Fone
Dates: August 30 – September 5, 2019

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	8/14/19	0743	---	---	Annual maintenance and overhaul
4	8/17/19	0700	---	---	TWO transformer replacement

Comments: None.

Adult Fish Passage Facility

Ice Harbor fish facility staff inspected the adult fishways on September 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’	
X			South Shore Channel Velocity	1.5 – 4.0 fps	
X			North Powerhouse Entrance (NFE-1) Weir Depth	≥ 8.0’ or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’ – 2.0’	
X			North Shore Entrance (NEW-2) Weir Depth	≥ 8.0’ or on sill	
X			North Shore Channel/Tailwater Differential	1.0’ – 2.0’	

Comments: None.

Auxiliary Water Supply (AWS) System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
7 pumps	1 pump		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)	20-45 square yards
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0-2%
	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: None.

Orifices, Collection Channel, Dewatering Structure, and Flume:

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

Comments: None.

Juvenile Fish Facility: The fish facility is being operated in primary bypass.

Fish Sampling: Sampling has ended for the year.

Removable Spillway Weir (RSW): Voluntary spill for fish passage ended for the year on September 1, 2019 at 0002 hours. Annual maintenance on all ten spillway weirs is currently being conducted. The RSW was closed on August 11 at 2347 hours.

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
25.5	18.6	7.10	6.7	71	70	7.4	7.1

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Monthly strainer inspections for lamprey ended in June and will start again in December.

Avian Activity: There low numbers of gulls and pelicans observed around the project

Invasive Species: No new exotic species have been found.

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by Anchor, frozen and properly disposed of in a landfill. Sampling is done for the year.

Fish Rescue/Salvage: None.

Research: Blue Leaf is conducting research on the recently installed lamprey entrance structure at the south adult fish ladder (SFE2). A Didson camera is being used to observe adult lamprey movement and adult salmonid fish interactions with the lamprey entrance.

Project: Lower Monumental
Biologists: Chuck Barnes and Raymond Addis
Dates: August 30 – September 5, 2019

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	9/03/2019	09:32	9/03/2019	12:56	STS Inspection
Unit 2	7/15/2019	07:20	1/10/2020	ERTS	Annual Maintenance/Draft Tube Liner Repair
Unit 3	9/05/2019	09:08	9/05/2019	15:45	STS Inspection
Unit 4	9/03/2019	07:35	9/03/2019	09:35	STS Inspection
Unit 5	9/04/2019	11:20	9/04/2019	15:55	STS Inspection
Unit 6	8/05/2019	12:20	11/01/2019	ERTS	6 Year maintenance

Comments: Units went into Hard Restraint at 0001 on April 1.

Adult Fish Passage Facility

The adult fishways were inspected by Corps and Anchor QEA biologists on August 30, 31, September 1 and 4.

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 weir (SPE-1) was on sill during all inspections with readings of 6.2, 6.2, 6.1 and 6.9 feet, respectively.
South Powerhouse Entrance weir (SPE-2) was on sill during all inspections with readings of 6.2, 6.2, 6.1 and 6.9 feet, respectively.
South Shore Entrance weir (SSE-1) was on sill during all inspections with readings of 6.8, 7.3, 6.9 and 6.1 feet, respectively.

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	Comments
X			Forebay debris load acceptable? (amount)	9 yd^2
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 10 %
	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.
STS's were inspected from September 3 to 5 and were found 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: Collection into raceways for transport began at 1500 on April 23. Loading fish into raceways for barge transport ended at 1500 on July 30. The facility went to 100% sample for truck transport at that time.

Transport Summary: Every-other day barging transport ended with the July 30 barge. Every-other day truck transport began with the August 1 truck. A total of 357 fish were collected with 303 fish being bypassed during this reporting period. Per 2019 Fish Passage Plan, the Lower Monumental trucking schedule is contingent upon fish numbers. Saturday, August 3 was the third consecutive day with less than 50 smolts collected; therefore trucking was ceased after the second trip. Bypassed fish numbers reflect the end of truck transport.

Spillway Weir: RSW went into service at 00:01:00 on April 3. The RSW was removed from service at 0630 on August 8 due to low river flows. Summer Spill ended at 00:00:00 on September 1.

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
24.7	19.6	9.6	0.0	69.8	69.0	6.8	4.6

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were not checked during this reporting period.

Avian Activity: Gulls and cormorants were the predominant piscivorous bird species observed during fish ladder inspections this week.

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
8/30/2049	13:30	10	3	0	0	0
8/31/2019	09:20	0	3	0	0	0
9/01/2019	13:30	0	0	0	0	0
9/04/2019	09:30	0	0	0	0	0

Comments: Bird hazing efforts by USDA personnel ended at the end of the working day on June 2.
Daily bird hazing effectiveness tailrace observations ended with the June 30 observation.

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*
8/30/2019	1	1
8/31/2019	42	42
9/01/2019	9	9
9/02/2019	49	49
9/03/2019	15	15
9/04/2019	32	32
9/05/2019	13	13
Totals	161	161

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

Fish Rescue/Salvage: Fish Rescue/Salvage took place for Unit 6 scroll case on September 5. One channel catfish and one sucker were rescued and released into the river.

Research: No Research took place during this reporting period.

Project: Little Goose
Biologists: Scott St. John and Richard Weis
Dates: August 30-Sept. 05, 2019

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	04/21/17	00:54	03/31/21	17:00	Spider and Upper Guide Bearing Repair
4	08/13/19	14:46	09/05/19	17:05	Unit Annual, VBS/ESBS Inspections

Comments: Unit 4 returned to service on September 05 at 17:05.

Adult Fish Passage Facility

Little Goose fish facility, Anchor QEA and/or Oregon Department of Fish and Wildlife staff inspected the adult fishway on September 01, 03, and 05.

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 Pump Operating Satisfactorily		

Comments: Cooling pumps tripped their beaker on three occasions. Pumps were off for a short period and restarted. Electricians are looking into a solution (see 19 LGS 12 MFR.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurement
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’	0.9, 1.0, 0.9
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 during spill. The equipment used to measure NSE weir depth was found out of service on the

August 11 inspection. NSE weirs are at a depth greater than 7 foot. Subsurface water velocity was measured near NPE on August 27 using a Rickly velocity meter and averaged 3.2 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			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: Trash rack differential for Units 1and 2 was measured on September 05 and was in criteria. There is approximately 50 square feet of floating woody debris inside the trash shear boom in the immediate forebay.

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?

Comments: VBS differential for Unit 1 and 2 was measured on September 05 and was in criteria.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	21
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: None.

Collection Facility: The juvenile bypass system is currently operating in criteria. Daily collection for condition sampling began on April 23 at 07:00. The last every other day barge departed on July 30 and every other day truck transport commenced on August 01.

Transport Summary: The collection and transportation facility operated within criteria this report period. A total of 1,350 fish were collected, of which 1,066 transported via truck. The descaling and mortality rates were 1.2% and 2.7% respectively. There were 3 adult lamprey removed from the separator, raceways, and sample and released one mile above the Dam at Little Goose Landing.

Spillway Weir: The adjustable spillway weir (ASW) was closed on July 23 at 15:17 per the guidance outlined in the Columbia Basin Teletype (CBT). The ASW will remain closed for the season. Summer Spill ended at 00:00:00 on September 1.

River Conditions

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
25.0	21.4	7.0	0	69.1	68.5	6.0	6.0

*Ladder temperature.

Other

Inline Cooling Water Strainers: Cooling water strainers were last inspected on July 3 with no lamprey being observed. Inspections will resume in December per the Fish Passage Plan.

Avian Activity: Daily Piscivorous bird counts at Little Goose Dam will started on April 01.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
8-30	1100	4	9	0	0
8-31	1200	11	20	0	2
9-01	1500	5	21	0	0
9-02	1300	11	23	0	0
9-03	0800	0	8	0	0
9-04	1100	7	15	0	0
9-05	1100	7	11	0	0

Invasive Species: No zebra or Quagga mussels were observed.

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*
8-30	133	133
8-31	175	175
9-01	179	179
9-02	450	450
9-03	178	178
9-04	216	216
9-05	171	171
Totals	15,02	1,502

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

Gas Bubble Trauma (GBT): The last gas bubble monitoring occurred on July 15.

Fish Rescue/Salvage: None.

Research: N/A

Project: Lower Granite
Biologists: Elizabeth Holdren
Dates: August 30-September 5, 2019

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	

Comments: None.

Adult Fish Passage Facility

Lower Granite Corps biologist's and Anchor Environmental biologist's inspected the adult fish ladder August 30 and 31 and September 2 and 4.

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: Fish ladder temperature control pumps remain in operation.

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
X			South Shore Entrance (SSE-1) Weir Depth	≥ 8.0'	
X			South Shore Entrance (SSE-2) Weir Depth	≥ 8.0'	
X			South Shore Channel/Tailwater Differential	1.0' – 2.0'	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 8.0' or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 8.0' or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0'–2.0'	
X			North Shore Entrance (NSE-1) Weir Depth	≥ 7.0' or on sill	
			North Shore Entrance (NSE-2) Weir Depth	≥ 7.0' or on sill	Closed
X			North Shore Channel/Tailwater Differential	1.0'–2.0'	0.8' and 0.8'
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: Since May 4 the fish ladder control system screen and local reading for the south shore channel/tailwater and depth over the SSEs have been inconsistent. SSE gates remain in local operation until Operation and District engineering can resolve the control system issues. SSEs were raised 0.5 feet in response to the head differential out of criteria readings September 2. Lower granite Operations Electric System Control worker made adjustments to the gates and synced the control system with physical readings in response to a second out of criteria reading September 4. Based the September 5 inspection these adjustments seemed to improve operation.

NPE channel velocity sensor readings have consistently read below 1.5 fps and has been reading 0.82 fps for several weeks. Surface velocity is being verified using tape measure and stopwatch and found to be in criteria. Surface velocities and/or NSE velocities will be used until the fish ladder control system NPE velocity issues are resolved.

Auxiliary Water Supply System:

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

Comments: AWS pump 1 remains in slow speed.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

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: None.

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: None.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	18
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: The collection channel is operating with fifteen of the 14" orifices and three 10" orifices open to maintain optimal flume flow at current forebay elevation. The north makeup water valve remains in local control due to an automatic control motor hardware failure. Intermittent issues with local and remote operation of orifices for back flushing continue to be observed. Problems are reported to operations when they are identified.

Hours Collection Facility: The facility is in collection for transport mode at a 100% sample rate.

Transport Summary: Every-other-day truck transport continues.

Spillway Weir: Summer spill operation concluded at 0001 hours September 1.

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
29.0	23.2	11.8	0.0	66.5	65.0	5.0	5.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Cooling water strainers were not inspected during this reporting period.

Invasive Species: There were 8,338 Siberian prawns collected in the sample this week. Of these, 7,099 were live collected and euthanized and 1,239 were mortalities when sampled. No signs of Zebra/Quagga mussels were found on submerged substrates.

Avian Activity: Bird wires were removed from the spillway tailrace area August 29 for crane barge access to spillway 1 for PIT tag detection array install. Biologist daily piscivorous bird counts at Lower Granite Dam are listed below.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
08/30	0825	4	14	0	0
08/31	1210	1	0	0	0
09/01	0845	4	19	0	0
09/02	1225	2	37	0	0
09/03	1035	4	19	0	0
09/04	1440	2	20	0	0
09/05	1130	0	25	0	0

Gas Bubble Trauma (GBT) Monitoring: GBT monitoring has ended for the year.

Adult Fish Trap Operations: Adult operation was changed to 24 hours 7 day a week operation for brood stock collection for transport to LFH and NPT hatcheries continues.

Fish Rescue/Salvage: No fish salvage operations occurred during this reporting period.

Research:

National Marine Fisheries Service (NMFS) PIT tagging of Adult Wild Chinook and Adult Steelhead for ISEMP-Related Dispersal Monitoring:

The goal of this project is to PIT tag up to 4000 unclipped adult Chinook and 4000 unclipped adult steelhead collected in the adult trap daily sample for dispersal monitoring.

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 incidentally collected as part of the normal adult trap daily sample as well as the recaptured previously PIT tagged using adult SbyC system. 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.