U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#30-2020

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: September 18 to 24, 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 & 6	9/14	0700	9/24	1700	Transformer, unit annual & doble testing.
9	9/14	0700	10/2	NA	Annual and other maintenance.
3	9/21	0700	10/16	NA	New top plate pump installation.

Comments: The hard one percent peak efficiency constraint continued.

Adult Fish Passage Facilities

McNary fisheries biologists performed measured inspections of the adult fishways on September 18, 20 and 22. Adult fish counting continued. Video review of nighttime lamprey passage will conclude on September 30.

Fish Ladder Exits:

Yes	No	Location	Criteria	Comments
X		Oregon Exit	Head over weir 1.0’ to 1.3’	
X		Oregon Count Station Differential	0.0’ to 0.5’	
X		Washington Exit	Head over weir 1.0’ to 1.3’	
X		Washington Count Station Differential	0.0’ to 0.5’	

Comments: Debris loads were very light 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 on weekend. Also, the crew was called in at night to clean the ladders’ picketed leads on September 18. The ladders’ picketed lead differential alarm worked well.

At the Washington exit, the regulating weir tripped an alarm and was reset on September 19.

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 1.5 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	
X			WFE2 Weir Depth	≥ 8.0'	
X			WFE3 Weir Depth	≥ 8.0'	

Comments: There is nothing 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 November 19.
Yes			Oregon Ladder Fish Pump 2, Blade angle: 24°.
Yes			Oregon Ladder Fish Pump 3, Blade angle: 24°.
Yes			OR North Powerhouse Pool supply from juvenile fishway

Comments: Repairs to fish pump 1 continued.

Juvenile Fish Passage Facility

The sampling season, consisting of alternating days of primary and secondary bypass, will conclude on September 30. As mention last week, there was one long interruption in the schedule which carried into this week. The sample collection from September 17 at 0700 to September 18 at 0700 hours was missed due to regional wildfires causing hazardous air quality (see 20MCN13 MFR). Sampling was resumed on September 19 at 0700 hours.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Very light to light.
X			Trash rack differentials measured?	Daily.
X			Trash rack differentials acceptable?	
	X		Any debris seen in gatewells (% coverage)	
	X		Any oil seen in gatewells?	

Comments: Debris loads were very light to light near the powerhouse and minimal beside the spillway. Incoming debris loads were minimal and consisted mostly of aquatic vegetation. The woody debris and aquatic vegetation continued to move back and forth from the powerhouse to the Oregon shoreline.

No trash rack cleaning or forebay debris removal occurred.

Several large pieces of woody debris were removed from three gatewell slots on September 20

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

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

Comments: ESBS's remained deployed in all units. ESBS camera inspections in units 6 and 9, which were out of service, revealed no problems on September 22. The panel view for unit 1's ESBS control system was not functional from September 18 to 21.

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

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

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

Comments: Due to continued concern for the two side dewatering valves, orifices cycling remained once a day. Orifices attraction lights were repaired as needed. As air quality improved, channel observations returned to the normal frequency on September 20.

The transition screen cleaning brush remained out of service. The air burst system's zone 5 kept the transition screen clean.

The north side dewatering valve, one of two valves that regulate the channel water elevation, continued to run with frequent hot motor temperatures. Also, the valve still appeared to be hanging up at times, which resulted in a "popping" noise. We will attempt to reduce the valve's control response time next week, which may reduce the motor temperature.

Latching down the covers on the flume section of the bypass pipe has been an issue since the bypass pipe was installed in 2012. Northeast windstorms raise and flip the covers open. We began to readdress this issue this week.

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. There was one sampling day missed as described above. The PIT-tag system remained out of service as there are no studies requiring its use.

This week, eight juvenile lamprey and 40 smolts were bypassed during secondary bypass. Juvenile shad were the predominate species examined in the sample. No smolts were in the sample examined on September 22.

Top Spillway Weir (TSW) Operations: The TSW in bay 19 remained out of service. The TSW in bay 20 is being used for the adult steelhead TSW passage efficiency study and as required by the new Biological Opinion. The TSW will be operated per the study plan.

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
117.8	76.4	1.7	0.0	66.1	65.4	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 spill recorded above was for the TSW study.

Other

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

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

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican
Sept 18	Spill	3	0	0	0
	Powerhouse	8	0	0	0
	Outfall	7	56	0	0
Sept 19	Spill	182	18	0	0
	Powerhouse	32	0	0	0
	Outfall	15	45	0	0
Sept 20	Spill	78	8	0	0
	Powerhouse	20	0	0	0
	Outfall	13	42	0	0
Sept 21	Spill	35	0	0	0
	Powerhouse	9	0	0	0
	Outfall	8	29	0	0
Sept 22	Spill	134	18	0	0
	Powerhouse	60	0	0	0
	Outfall	9	43	0	0
Sept 23	Spill	72	1	0	0
	Powerhouse	150	0	0	0
	Outfall	12	59	0	0
Sept 24	Spill	48	28	0	0
	Powerhouse	28	0	0	0
	Outfall	15	67	0	0

No terns and pelicans were observed on project.

Tailwater zones were difficult to observe due to heavy smoke cover on September 18.

At times, gulls were observed feeding in the powerhouse zone along with some roosting. The gull feeding activity occurred very quickly.

In the spillway zone, gull and cormorants were observed. The birds were roosting around the spill basin with some feeding activity, especially during TSW use. Again, feeding activity was very short.

At the juvenile bypass outfall, gulls and cormorants were noted feeding in slightly increasing numbers. However, most of the gulls and cormorants were roosting on the bypass pipe.

In the forebay zone, an occasional gull, grebe or osprey was observed. A few gulls and cormorants were noted on the roosting rocks along the Washington shoreline. Finally, a flock of gulls was observed outside the counting zone, at times.

The navigation lock wing wall laser's solar panels may have not been fully recharging the battery due to shorter daylight hours that the fall brings. Also, the laser's run time required a program change. However, before any adjustments could be done, due to a neighbor's complaint, the laser was removed from service on September 23. The laser on the juvenile bypass outfall walkway had not been effective this season and a replacement was ordered. Unfortunately, due to miscommunication, it was determined that the laser had been off since July 27. At this point, it was determined it would be best to regroup and prepare for the 2021 season. Both lasers will be removed and put in storage next week. The wing wall laser did appear to reduce feeding at the outfall and roosting along the lock wall at times.

The bird distress calls deployed along on the navigation lock wing wall appeared to be somewhat successful, but roosting continued to occur. The second large distress call deployed on the juvenile facility barge loading dock also appeared to be somewhat effective. Again, more deterrents may be required.

There is no active hazing program currently.

A future LRAD test has not yet been scheduled.

Invasive Species: The mussel station examinations revealed no problems on September 22. No Siberian prawns were observed in this week's sample. The yearly total is two prawns.

Fish Rescue/Salvage: None occurred this week.

Research: Pacific Northwest National Laboratory (PNNL) continued with the adult steelhead TSW passage efficiency study. Also, PNNL collected 1,011 juvenile shad from the sample for an offsite study of experimental tags developed for shad research on September 24.

Project: Ice Harbor
Biologist: Ken Fone
Dates: September 18, 2020 – September 24, 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	9/21/20	0749	9/21/20	1430	STS inspection
5	9/21/20	0900	---	---	Annual maintenance and overhaul
4	9/22/20	0650	9/22/20	1402	STS inspection
2	9/23/20	0653	9/23/20	1237	STS inspection and swap STS in slot 2A
1	9/24/20	0656	9/24/20	0904	STS inspection

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on September 21, 22, and 23.

Fish Ladders:

Yes	No	Location	Criteria	Measurements
X		North Ladder Exit Differential	Head ≤ 0.3’	
X		North Ladder Picketed Lead Differential	Head ≤ 0.3’	
X		North Ladder Depth over Weirs	Head over weir 1.0’ to 1.3’	
X		South Ladder Exit Differential	Head ≤ 0.3’	
X		South Ladder Picketed Lead Differential	Head ≤ 0.3’	
X		South Ladder Depth over Weirs	Head over weir 1.0’ to 1.3’	

Fishway Entrances and Collection Channel:

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

Comments: None.

Auxiliary Water Supply System (AWS):

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

Comments: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Average of 49 square yards
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0-9%
X			Any oil seen in gatewells?	5C gatewell and headgate slots

Comments: A light oil sheen was observed in 5C gatewell and headgate slots on September 24. Unit 5 headgates were lowered down to sill on September 21 and believed to be the source of approximately 1 ounce of residual hydraulic oil released into 5C slots. The appropriate state and federal agencies were notified of the oil, and oil absorbent socks were deployed in the slots.

STSs/VBSs:

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

Comments: Unit 6, 5, 4, 2, and 1 STSs were inspected from September 21 to September 24. On September 23 the STS in slot 2A was observed to have some of the mesh and retaining clips torn from one of the fastening strips. The damage left two adjacent 4' x 6" holes in the mesh. The STS was immediately pulled and replaced with a spare STS. Fortunately, there were no fish found inside the damaged STS.

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 light for orifice 1CN was found to be burned out on September 20. Orifice 1CS was opened in place of orifice 1CN until the light was replaced on September 21.

The water regulating weirs were discovered to be without power on September 21. The power to the weirs probably went out when station service through unit 1 was loss on September 16. The weirs were placed back in automatic control on September 21. However, the downstream five weirs were found to be disconnected from the actuator because of a loose coupling. The coupling was repaired on September 22, and all weirs were returned to automatic operation. There were no known extreme water level fluctuations that impacted fish in the primary dewatering structure while the weirs were stationary.

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 is not occurring in September.

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	0	0	66	65	9.2	7.7

*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 numbers of piscivorous birds seen around the project. Most of the birds were observed in the vicinity of Eagle Island.

Invasive Species: No new exotic species have been observed.

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: September 18 - 24, 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	9/25/2020	ERTS	Annual, Draft Tube Liner
Unit 4	8/10/2020	0730	9/25/2020	ERTS	Annual, Blade Seals, Headcover Pump

Comments: None.

Adult Fish Passage Facility

The adult fishways were inspected by Corps and EAS/Anchor QEA biologists on September 18, 19, 20 and 23.

Fish Ladder:

Yes	No	Location	Criteria	Measurements
X		North Ladder Exit Differential	Head ≤ 0.5’	
X		North Ladder Picketed Lead Differential	Head ≤ 0.4’	
X		North Ladder Depth over Weirs	Head over weir 1.0’ to 1.3’	
X		South Ladder Exit Differential	Head ≤ 0.5’	
X		South Ladder Picketed Lead Differential	Head ≤ 0.3’	
X		South Ladder Depth over Weirs	Head over weir 1.0’ to 1.3’	

Comments: None.

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 7.1, 6.8, 6.9 and 7.5 feet respectively.
South Powerhouse Entrance (SPE-2) Weir was on sill during all inspections with readings of 7.1, 6.8, 6.9 and 7.5 feet respectively.
South Shore Entrance (SSE-1) Weir was on sill during the September 20 and 23 inspections with readings of 8.0 and 8.47 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)	15 yds^2
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 5%
	X		Any oil seen in gatewells?	

Comments: None.

STSs/VBSs:

Yes	No	NA	Item
X			STSs deployed in all slots and in service?
	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 86 fish were collected during this reporting period with total of 86 bypassed back to the river.

Transport Summary: Alternate day barge transport ended June 21.

Spillway Weir: Summer spill ended on August 31 at 23:59:59.

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
24.3	19.9	0	0	66.0	65.0	5.1	3.4

*Scrollcase temperatures.

Other

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

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

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
9/18/2020	1430	0	8	0	0	0
9/19/2020	0900	8	1	0	0	0
9/20/2020	1330	2	4	0	0	0
9/23/2020	0900	4	4	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 September 4

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by PSMFC and EAS/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*
9/18/2020	6	12
9/19/2020	15	30
9/20/2020	14	28
9/21/2020	16	32
9/22/2020	19	38
9/23/2020	6	12
9/24/2020	3	6
Total	79	158

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

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

Research: No research is occurring currently.

Project: Little Goose
Biologists: Scott St. John and Richard Weis
Dates: September 18-24, 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.
3	09/21/20	03:20	10/10/20	17:00	Unit Annual
1, 2, 4	09/22/20	05:38	09/22/20	17:03	T2 neutral bushing repair/Line Outage
6	08/06/20	17:32	09/22/20	17:03	T2 neutral bushing repair
4	09/23/20	10:23	09/23/20	14:38	Replace brake solenoid

Comments: T2 neutral bushing repair was conducted on September 22. During the repairs, Unit 4 was operated at speed-no-load for station service power, river flows were spilled and the JFF was operating on emergency diesel generator (MOC 20LGS17).

Adult Fish Passage Facility

Little Goose fish facility staff inspected the adult fishway on September 20, 21 and 24.

Fish Ladder:

Yes	No	NA	Location	Criteria	Measurements
X			Fish Ladder Exit Differential	Head $\leq$ 0.5’	
X			Fish Ladder Picketed Lead Differential	Head $\leq$ 0.3’	
X			Fish Ladder Depth over Weirs	Head over weir 1.0’ to 1.3’	
	X		Fish Ladder Cooling Water Pump in Service		
X			Fish Ladder Exit Cooling Water Pumps Operating Satisfactorily		

Comments: Adult ladder cooling pump were shut down for the season on September 16.

Fishway Entrances and Collection Channel:

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

Comments: The adult fishway continues to operate in manual mode. Project staff struggled to maintain entrance criteria at the NSE during Spring spill. The fish control system still has a faulty I/O module for the NSE weirs,

which is scheduled to be repaired after spill ends. Sub surface channel velocity was performed on September 05 and averaged 1.9fps.

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 8,125 square feet of floating woody debris currently inside the trash shear boom in the forebay. Drawdowns were performed on September 24 on Unit 1 and were in criteria.

ESBS/VBS:

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

Comments: VBS differentials were performed on September 24 on Unit 1 and were in criteria. ESBS/VBS camera inspections were performed on Unit 3 on September 24 and screens were in satisfactory condition.

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: 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 20LGS12). During prior ESBS/VBS inspections, an issue with the orifice liner in 6C2 was observed (MFR 20LGS14) and will need repaired during winter maintenance.

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

Transport Summary: The JFF began collecting for truck transport on August 01. The collection and transportation facility operated within criteria this report period. A total of 343 fish were collected. Of the fish collected, 25 were sample or facility mortalities, 0 were by-passed and 385 were transported by truck to release site near Bonneville

Dam. Transported fish include fish collected on September 17. The descaling and mortality rates were 1.0% and 7.68%, respectively. There were 0 adult lamprey removed from the separator this report period.

Spillway Weir: Summer spill operations began on June 21. The ASW was closed for the season on August 07. Fish passage spill operations ended on September 01.

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
23.2	17.5	3.6	0	65.3	64.6	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
9-18	0930	7	8	0	0
9-19	0745	19	4	0	0
9-20	1245	32	15	0	0
9-21	1215	23	11	0	0
9-22	1115	12	14	0	0
9-23	0900	12	8	0	0
9-24	1030	17	1	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*
9-18	107	107
9-19	109	109
9-20	227	227
9-21	281	281
9-22	416	416
9-23	234	234
9-24	208	208
Totals	1,582	1,582

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

Fish Rescue/Salvage: A fish rescue occurred in the scroll case of Unit 3 on September 22 and found 2 juvenile shad.

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

Project: Lower Granite
Biologists: Elizabeth Holdren and David Miller
Dates: September 18-24, 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 Granite Unit Outages (OOS) and Return to Service (RTS)

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
4	Aug 24	0700			Annual Maintenance

Comments: None.

Adult Fish Passage Facility

Lower Granite and EAS/Anchor QEA staff inspected the adult fishway September 18, 19, 21, and 23.

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 was removed from service at 1305 hours on September 18.

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	6.9, 6.8, 6.8
			North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	Closed
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	
	X		Collection Channel Surface Velocity	1.5 – 4.0 fps	1.1, 1.3, 1.2

Comments: FOGs 1 and 10 are in operation. The issue with the control system reading being in sync with local readings requires the electrical crew investigation of programming and calibration.

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 will require 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 September 20.

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 4C 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 mechanical staff will be making repairs to the 14" orifice in slot 4C during the outage. A bulkhead was installed in the gatewell slot for 4C, and the orifices were closed to facilitate repairs to the damaged flange.

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

Transport Summary: Truck transport for the week of September 18-24 totaled 435 fish transported in four trips.

Spillway Weir: No spill.

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
24.4	21.1	0	0	64.0	62.5	5.0	5.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: N/A

Invasive Species: No zebra/quagga muscles were detected on the trap substrate. There were 3,325 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
Sept 11	0952	4	32	0	0
Sept 12	1035	1	15	0	0
Sept 13	0843	14	23	0	0
Sept 14	1026	4	27	0	0
Sept 15	0845	1	15	0	0
Sept 16	1240	8	27	0	0
Sept 17	1015	1	22	0	0

Adult Fish Trap Operations: Adult trap sample rate was 18% for NPT and LFH adult chinook brood stock collection. NOAA personnel resumed daily operation of the adult trap August 26. Fall chinook broodstock collection concluded on September 23 with a total of 3,385 fish (2,477 to LFH and 908 to NPT).

Fish Rescue/Salvage: N/A

Research:

USGS Juvenile Fall Chinook Salmon Growth and Origin

USGS collection of previously tagged subyearling Chinook utilizing LWG juvenile collection facility SbyC system began September 8 and will continue through October 31. Previously PIT tagged fish are diverted to the SbyC tanks, weighed, measured, GSI sampled, scanned for PIT tag code, recovered from anesthetic, and released back to the river. The objective of this project is to estimate the growth of PIT-tagged subyearling Chinook salmon from the Clearwater River to Lower Granite Dam.

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.