U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#22-2020

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: July 24 to 30, 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	8/5/20	NA	Turbine blade packing.
1	7/27	0638	8/1	NA	Annual & other maintenance.
10	7/28	1000	7/28	1030	ESBS camera inspections.

Comments: The hard one percent peak efficiency constraint and the saw tooth unit priority pattern for temperature abatement continued.

Adult Fish Passage Facilities

McNary fisheries biologists performed measured inspections of the adult fishways on July 24, 26 and 29. Adult fish counting and video review of night time lamprey passage continued.

Fish Ladder Exits:

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

Comments: Debris loads were light to moderate near the Oregon exit and very light to 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 Oregon exit traveling screens debris trough was cleaned as required.

At the Oregon exit, traveling screen and exit weir alarms were reset on July 26 and 29, respectively.

At the Washington exit, regulating weir alarms were reset on July 29.

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: 25°.
Yes			Oregon Ladder Fish Pump 3, Blade angle: 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 the powerhouse and light to moderate beside the spillway. Incoming debris loads were minimal to very light 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. Screens were installed in unit 5, which is out of service, on July 28. ESBS camera inspections occurred in unit 10 on July 28. No problems were found.

Daily VBS differential monitoring continued. No high differentials were measured. A total of five screens were cleaned on July 29 and 30. Four subyearling Chinook mortalities were observed. Also, the screens in unit 5 were inspected on July 30. No issues were found.

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 and inspections as required. Orifice operators were repaired as needed.

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, 160 juvenile lamprey and 17,520 smolts were bypassed during secondary bypass. Subyearling Chinook remained the primary species in the samples. The first juvenile shad were observed on July 28.

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
197.9	182.2	112.9	104.0	69.2	67.7	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, which insures the integrity of Crane 7.

All water temperature monitoring probes are now in place. A probe was installed in 5B gatewell slot on July 29. 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 old weather station is still in use as there has been issues communicating with the new station.

Other

Inline Cooling Water Strainers: The next cooling water strainer examinations will occur on August 4.

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

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican
July 24	Spill	20	2	4	9
	Powerhouse	0	0	0	1
	Outfall	17	4	0	1
July 25	Spill	3	0	0	4
	Powerhouse	0	0	0	0
	Outfall	17	11	0	5
July 26	Spill	5	0	1	12
	Powerhouse	0	0	0	0
	Outfall	10	9	0	0
July 27	Spill	1	0	0	7
	Powerhouse	0	0	0	0
	Outfall	5	12	0	3
July 28	Spill	6	0	6	9
	Powerhouse	0	0	0	0
	Outfall	23	14	0	6
July 29	Spill	2	1	1	4
	Powerhouse	0	0	0	1
	Outfall	19	19	0	2
July 30	Spill	24	0	8	8
	Powerhouse	0	0	0	0
	Outfall	18	20	0	3

Only pelicans were observed in the powerhouse zone at the Oregon ladder floating orifice gates during the day.

In the spillway zone, gull numbers were low but increasing. The gulls were feeding and roosting on the navigation lock wing wall. Cormorants were present and mostly observed when roosting. Tern numbers remained fairly low with birds feeding. Pelican numbers were lower with most of them feeding. An occasional osprey 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, zero to 56 grebes and zero to 37 gulls were observed, along with an occasional pelican, cormorant or osprey. There was a mix of feeding and roosting activity. Also, a few pelicans and gulls were noted on the roosting rocks along the Washington shoreline. Finally, a flock of gulls was observed outside the counting zone, at times.

No pelicans were observed inside the Oregon ladder exit and no grebes were observed in the gatewell slots or in the juvenile collection channel.

The lasers on the navigation lock wing wall and on the juvenile bypass outfall walkway were removed from service as part of an evaluation study on July 27. The lasers appeared to reduce feeding but had little effect on roosting. A new laser has been purchased for the outfall location.

The bird distress calls deployed along on the navigation lock wing wall appeared to be successful, though roosting has begun on the wall. No decision has been made on where to install the second large distress call. The forebay grebe distress call remained deployed and appeared somewhat effective. However, we feel more volume is required.

USDA Wildlife Services' last eight hour shift concluded on July 25.

Invasive Species: The mussel station examinations revealed no issues on July 29. No Siberian prawns were observed in this week's samples. None have been observed so far this season.

Fish Rescue/Salvage: None occurred this week.

Research: The gas bubble trauma (GBT) examinations occurred on July 25 and 27. No smolts were observed with signs of GBT. However, five subyearling Chinook mortalities were removed from the sample recovery raceway on July 25. GBT examinations will be reduced to once a week.

Pacific Northwest National Laboratory (PNNL) tested their equipment in preparations for another phase of the adult steelhead top spillway weir (TSW) passage efficiency study on July 28. There were no issues found.

Project: Ice Harbor
Biologist: Ken Fone
Dates: July 24, 2020 – July 30, 2020

Turbine Operation

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

Ice Harbor Unit Outages (OOS) and Return to Service (RTS).

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
3	5/3/19	0641	---	---	Turbine runner replacement and stator rewind
4	7/6/20	0740	7/30/20	1031	Annual maintenance
1	7/27/20	1419	7/27/20	1720	Governor blade response issue – replaced governor proportional valve

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on July 27, 28, and 29.

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	7.2’
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0’ – 2.0’	2.2’
	X		North Shore Entrance (NEW-1) Weir Depth	≥ 8.0’ or on sill	6.5’
X			North Shore Channel/Tailwater Differential	1.0’ – 2.0’	

Comments: The north powerhouse entrance channel/tailwater differential was recorded as being above criteria on the July 27 inspection. The north powerhouse channel water elevation may have been read or recorded incorrectly from the staff gauge, resulting in the high differential reading.

The north powerhouse and north shore entrance weir gate depths were out of criteria on July 28. 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 (AWS) System:

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

Comments: Three of the operating south shore AWS pumps and both of the operating north shore pumps were switched off to shed the power load when unit 1 tripped off at 1419 hours on July 27. Station service was switched to unit 2 and normal pump operation was restored on July 27 at 1425 hours for the south fish ladder and at 1435 hours for the north fish ladder.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Average of 4 square yards
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0-6%
	X		Any oil seen in gatewells?	

Comments: None.

STSs/VBSs:

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

Comments: The STSs were switched to 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: None.

Juvenile Fish Facility: The Juvenile Fish Facility is being operated 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
48.4	35.7	14.5	11.0	69	68	8.2	6.9

*Unit 1 scroll case temperature.

Comments: None.

Other

Inline Cooling Water Strainers: Monthly strainer inspections for lamprey ended in July and will resume in December.

Avian Activity: There were low to moderate numbers of piscivorous birds seen around the project (see table below). Most of the gulls and terns were observed in the vicinity of Eagle Island.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
July 24	---	---	---	---	---
July 25	---	---	---	---	---
July 26	---	---	---	---	---
July 27	40	2	15	0	16
July 28	10	0	7	0	8
July 29	26	10	7	0	22
July 30	0	0	9	0	14

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 24 - 30, 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	ERTS	T-1 Doble Testing and Ground Harps Installation
Unit 2	7/15/2019	0720	8/28/2020	ERTS	Annual, Draft Tube Liner
Unit 3	7/06/2020	0706	8/06/2020	ERTS	Annual Maintenance
Unit 4	7/27/2020	0550	7/27/2020	ERTS	T-1 Doble Testing and Ground Harps Installation
Unit 5	7/27/2020	0550	7/31/2020	ERTS	T-1 Doble Testing and Ground Harps Installation
Unit 6	7/27/2020	0550	7/31/2020	ERTS	T-1 Doble Testing and Ground Harps Installation

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 the end of the reporting period.

Adult Fish Passage Facility

The adult fishways were inspected by Corps and EAS/Anchor QEA biologists on July 24, 25, 26 and 29.

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: North Shore Entrance (NSE-1) weir depth was out of criteria on the July 29 inspection with a reading of 7.8 feet.
North Shore Entrance (NSE-2) weir depth was out of criteria on the July 29 inspection with a reading of 7.8 feet.
South Powerhouse Entrance (SPE-1) Weir was on sill during all inspections with readings of 6.3, 6.6, 6.0 and 5.5 feet respectively.
South Powerhouse Entrance (SPE-2) Weir was on sill during all inspections with readings of 6.3, 6.6, 6.0 and 5.5 feet respectively.
South Shore Entrance (SSE-1) Weir was on sill during all inspections with readings of 6.5, 7.7, 7.0 and 5.8 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)	87 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.

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 7,994 fish were collected during this reporting period with total of 7,988 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 safety issues associated with the navigation floating guide wall (see 20LMN07 MFR).

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
41.7	31.2	20.9	6.9	68.9	67.9	6.4	3.7

*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
7/24/2020	1430	8	0	0	0	4
7/25/2020	1000	31	0	0	0	0
7/26/2020	1330	10	0	0	0	1
7/29/2020	0900	43	3	0	0	2

* Table shows tailrace observation conducted during Adult Fish Ladder inspections

Comments: Bird hazing efforts by USDA personnel ended June 2, 2020.

Invasive Species: No zebra or quagga mussels were observed during monitoring station inspections on July 5.

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by PSMFC and 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*
7/24/2020	14	140
7/25/2020	15	60
7/26/2020	1	4
7/27/2020	40	160
7/28/2020	12	96
7/29/2020	11	44
7/30/2020	23	230
Total	116	734

*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 24-30, 2020

Turbine Operation

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

Little Goose Unit Outages (OOS) and Return to Service (RTS)

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
5	04/14/17	14:11	03/31/21	17:00	Spider and upper guide bearing repair.
6	07/06/20	07:25	07/30/20	17:00	Unit annual maintenance
All	07/27/20	09:17	07/27/20	18:15	Line outage for Doble testing preparation.

Comments: None.

Adult Fish Passage Facility

Little Goose fish facility staff inspected the adult fishway on July 26, 29 and 30.

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 July 27 from 05:18 to 19:05. 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 July 3 and averaged 2.4 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 15 square feet of floating woody debris currently inside the trash shear boom in the forebay. Drawdowns were 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: 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.

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 truck transport is scheduled to begin on August 1 with the first truck departing on August 3.

Transport Summary: Everyday barge transport began on April 24 and ended on May 18. Every other day barging started with the first barge leaving on May 20. Last barge of the season left LGS on June 21. The JFF is collecting for condition sample every day and is in secondary by-pass. The collection and transportation facility operated within criteria this report period. A total of 6,124 fish were collected. Of those, 6,120 were bypassed back to the

river and 4 were facility mortalities. The descaling and mortality rates were 0.7% and 0.08%, respectively. There were 3 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
42.5	33.1	18.5	10.9	69.7	68.6	6.0	5.5

*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
7-24	0800	81	1	0	0
7-25	0745	63	3	0	0
7-26	1330	2	8	0	0
7-27	1330	21	10	0	0
7-28	1050	4	8	0	0
7-29	1050	22	4	0	0
7-30	0800	78	3	0	0

Invasive Species: No invasive species have been observed on the mussel station.

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by Oregon Department of Fish and Wildlife and 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*
7-24	32	640
7-25	192	1,920
7-26	326	1,630
7-27	297	1,485
7-28	401	1,604
7-29	129	516
7-30	108	432
Totals	1,485	8,227

Gas Bubble Trauma (GBT): GBT monitoring was performed on July 26. Of the 2 fish examined, none showed signs of GBT.

Fish Rescue/Salvage: None.

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

Project: Lower Granite
Biologists: Elizabeth Holdren and David Miller
Dates: July 24-30, 2020

Turbine Operation

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

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

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
6	July 27	0700			Annual Maintenance

Comments: None.

Adult Fish Passage Facility

Lower Granite and EAS/Anchor QEA staff inspected the adult fishway July 24, 25, 27, and 29. LWG adult fish ladder control system and weir gates were calibrated and mechanically adjusted July 27.

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’	7.9
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
	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.

Auxiliary Water Supply System:

Operating Satisfactorily	Standby	Out of Service	Auxiliary Water Supply (AWS)
Yes			AWS Fish Pump 1
Yes			AWS Fish Pump 2
No		OOS guide bearing	AWS Fish Pump 3

Comments: AWS pump 3 remains in standby until LWG mechanical is able to perform standard testing that requires all AWS pumps be removed from service for 4 hours while stoplogs are swapped.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: Forebay debris has not created any fish passage issues this season. Some woody debris observed in the forebay this season is likely due to the failure in the upriver two sections of the forebay debris boom. Though this has not created a problem, repairs are recommended to prevent further damage to the boom and potential for additional debris in the powerhouse forebay and on unit trashracks.

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	
X			Trash rack differentials measured this week?	
X			Trash rack differentials acceptable	
	X		Any debris seen in gatewells (% coverage)	
	X		Any oil seen in gatewells?	

Comments: Gatewell differentials were measured on July 26.

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 insure program solenoid outputs don't exceed manufacturer’s maximum that was causing them to overheat and short. They also repaired the issue 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. The facility is in secondary bypass mode. Collection for transport is scheduled to begin at 0700 hours August 1.

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

Spillway Weir: Summer spill continues.

River Conditions

River conditions at Lower Granite Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (°F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
43.6	39.7	18.6	18.4	66.0	64.5	5.0	5.0

*Cooling water intake temperature.

Other

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

Invasive Species: No zebra/quagga muscles were detected on the trap substrate. There was 676 Siberian prawn 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 24	1031	7	6	0	0
July 25	1000	3	0	0	0
July 26	1300	4	14	0	0
July 27	1335	3	14	0	2
July 28	0949	1	11	0	0
July 29	1055	2	13	0	0
July 30	1107	2	12	0	0

Adult Fish Trap Operations: Adult trap operations resumed at 0700 hours July 2 with an overall sample rate of 20%. LWG Project Biologist are providing oversight and operating the adult facility with IDFG handling the adult fish sample.

Fish Rescue/Salvage: The adult fish trap was flushed on July 26 and 29 due to shad mortalities plugging the drain screen. During trap flushing, two unclipped Chinook and one sockeye mortality were observed. One live unclipped Chinook and one live unclipped steelhead were also 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 Wednesday's and Sunday's. A fish rescue was performed in unit 6 scrollcase July 29 from 0947-1016 hours. One live adult sucker was recovered and released at the boat ramp along with about two dozen crawdads.

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.