U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#13-2020

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: May 22 to 28, 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	6/26/20	NA	Turbine blade packing.
2 to 4 & 6 to 9	5/26	0630	5/26	1430	Trash rack cleaning. Rotated through units.
10	5/28	0800	5/28	0900	VBS in B slot replaced.

Comments: The hard one percent peak efficiency constraint continued. There is nothing more to report.

Adult Fish Passage Facilities

McNary fisheries biologists performed measured inspections of the adult fishways on May 22, 24 and 27.

Fish Ladder Exits:

Yes	No	Location	Criteria	Comments
	X	Oregon Exit	Head over weir 1.0' to 1.3'	0.9' on May 27.
X		Oregon Count Station Differential	0.0' to 0.5'	
X		Washington Exit	Head over weir 1.0' to 1.3'	
X		Washington Count Station Differential	0.0' to 0.5'	

Comments: Debris loads were minimal to very light near the Oregon exit and the exit traveling screens debris trough was cleaned as required. Debris loads were light to moderate near the Washington exit. Tumbleweeds continued to be an issue. The general maintenance staff cleaned the picketed leads at least daily and the operators flushed the tumbleweeds down the navigation lock as much as possible.

At the Oregon exit, the out of criterion point mentioned above was resolved with a set point adjustment.

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: 23°.
Yes			Oregon Ladder Fish Pump 3, Blade angle: 26°.
Yes			OR North Powerhouse Pool supply from juvenile fishway

Comments: There are no problems to report.

Juvenile Fish Passage Facility

The sampling season, consisting of alternating days of primary and secondary bypass, continued. There were no interruptions in the schedule. Juvenile steelhead descaling will be discussed in the Forebay Debris Section below.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Minimal.
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 remained minimal near the powerhouse. Debris removal has not yet been required. Debris near the spillway would be described as minimal to light. Incoming debris loads were light with most of the debris passing through the spillway or accumulating along the Washington shore line as mentioned above in the Adult Section.

Due to continued regional concerns over juvenile steelhead descaling, trash racks in units 2 to 4 and 6 to 9, were cleaned on May 26. Thirty five yards of debris were removed, which was mostly tumbleweeds. Sixteen live crayfish and one live juvenile smallmouth bass were removed from the debris. All units have now been cleaned except unit 5, which has been out of service for one year. So far, steelhead descaling remains unchanged.

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

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

Comments: ESBS's remained deployed in all units, except for unit 5, which is out of service. In order to insure trash rack cleaning occurred, no ESBS camera inspections were done this week.

Daily VBS differential monitoring continued. No high differentials were measured. The screens in units 2 and 10 were inspected, which includes cleaning, on May 27. One small tear was noted in the VBS in 10B slot. This screen was replaced with the VBS, which was cleaned, from 5C slot on May 28. During the inspections in unit 2, one juvenile smallmouth bass mortality was 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: Orifice valve operators were repaired as needed. Orifices were adjusted for VBS inspections, VBS replacement and trash rack cleaning as required. The torn VBS mentioned above was stored in 5C slot, which impeded orifice flow. This orifice was closed and the north orifice in 5B slot was opened.

The transition screen cleaning brush tripped a timing alarm on May 25 at approximately 1915 hours. When the biologist arrived an hour later, the brush was found downstream on the D beam and raised. The brush only needed to move from the D beam to the A beam to have completed the cycle. The biologist manually parked the brush with the buttons on the control panel, reset the alarms and tested the brush cycle twice. No future issues occurred. There had been heavy rain earlier in the day and it is suspected a limit switch or the hoist that moves the brush laterally was effected by the moisture. So far, the electrical staff has found no issues.

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, 11,950 juvenile lamprey and 52,350 smolts were bypassed during secondary bypass. Lamprey have become a major species in the samples.

Five and one juvenile lamprey mortalities were removed from under the primary bypass gate on May 25 and 27, respectively. This issue will be examined during the next winter outage. There are no other problems to report.

TSW Operations: The TSW's are installed and remain operational 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
335.6	298.2	260.8	211.3	54.9	53.3	5.0	3.8

Comments: The above data was supplied by the smolt monitoring staff except water clarity, which came from the control room. The spring flex spill season continued. There are no problems to report.

Other

Inline Cooling Water Strainers: The next cooling water strainer examinations will occur on June 2.

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

No birds were noted in the powerhouse zone.

In the spillway zone, gull numbers dropped off. The birds were feeding. Smolt numbers were relatively stable. The thought occurred that juvenile lamprey may be a primary prey source. Cormorants may be feeding but are difficult to observe. Occasionally, pelicans were noted.

At the juvenile bypass outfall, gulls roosted on the outfall pipe in fairly moderate numbers when not hazed by the boat and/or laser(s). Gulls occasionally tried to feed at the outfall. Gulls did pass by the outfall but appeared to be feeding in the high spill flow. No other bird species was observed.

In the forebay zone, zero to 65 grebes were observed, along with an occasional great blue heron, cormorant, tern or osprey. Also, gulls and pelicans in fairly high numbers along with a few cormorants were noted roosting on the rocks along the Washington shoreline.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican
May 22	Spill	240	0	0	1
	Powerhouse	0	0	0	0
	Outfall	1	0	0	0
May 23	Spill	270	0	0	0
	Powerhouse	0	0	0	0
	Outfall	22	0	0	0
May 24	Spill	40	1	0	0
	Powerhouse	0	0	0	0
	Outfall	32	0	0	0
May 25	Spill	26	0	0	1
	Powerhouse	0	0	0	0
	Outfall	9	0	0	0
May 26	Spill	12	0	0	3
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
May 27	Spill	18	0	0	4
	Powerhouse	0	0	0	0
	Outfall	1	0	0	0
May 28	Spill	21	0	0	1
	Powerhouse	0	0	0	0
	Outfall	2	0	0	0

The lasers on the juvenile bypass outfall walkway and the navigation lock wing wall remained off as part of a modified block study until May 26 at about 0900 hours. Laser function was verified on May 27. The two lasers together appear to reduce roosting on the outfall pipe. However, some concern remains with the laser on the outfall walkway.

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

USDA Wildlife Services continued hazing with two shifts from shore. Also, boat hazing trips occurred Tuesday through Thursday. Boat hazing appeared more effective in the spill and at the outfall though overall gull numbers declined this week. Almost all efforts were concentrated in the tailwater area. However, the grebes in the forebay zone were also hazed from shore.

Invasive Species: The next mussel station examinations will occur in late June. 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 May 22 and 26. No smolts were observed with signs of GBT. Examinations will continue twice a week.

Project: Ice Harbor
Tim DeKoster (Fisheries Tech) & Ken Fone (Fisheries Biologist)
Dates: May 22 – May 28, 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
5	5/28/20	1114	5/28/20	1515	Faulty power system stabilizer circuit. Switch replaced.

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on May 26th, 27th, and 28th.

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	0.8, 0.7, 0.9 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: The south shore channel velocity was lower than the 1.5 fps (see chart above) on all three inspections. Higher channel levels may have slowed down the velocity of water flowing through the junction pool, where the velocity meter is located. Three diffuser valves that are upstream of the velocity meter are currently set at 25% open, and will be opened all the way, as needed, to see if it increases the velocity.

Auxiliary Water Supply (AWS) System:

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

Comments: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Average of 2.8 square yards
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 for available units?
X			STSs in continuous-run mode? (Note: if not, then STSs are in cycle-run mode).
	X		STSs inspected this week?
		X	STSs inspection results acceptable?
		X	VBSs differentials checked this week?
		X	VBSs differentials acceptable?

Comments: The STSs were switched to continuous-run mode on May 18th, due to the presence of subyearling Chinook in the Ice Harbor fish sample with an average fork length of less than 120 mm.

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 cover for orifice 1CN started coming loose over the May 23 weekend. Orifice 1CS was opened in place of 1CN until the orifice cover was reattached on May 26.

Juvenile Fish Facility: The Juvenile Fish Facility is being operated in primary bypass mode, except when collecting fish for sampling.

Fish Sampling: Fish sampling is being conducted on Mondays and Thursdays each week. Please see the tables below for a summary of the fish sampling results for May 25th and 28th.

Fish condition sampling results at Ice Harbor Dam:

Date: May 25

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	37	0	0	0
Chinook yearling unclipped	22	1	0	0
Chinook subyearling clipped	15	0	---	---
Chinook subyearling unclipped	20	1	---	---
Steelhead clipped	57	7	0	0
Steelhead unclipped	15	0	0	0
Sockeye clipped	2	1	0	0
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	168	10	0	0

Date: May 28

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	36	1	0	0
Chinook yearling unclipped	19	1	0	0
Chinook subyearling clipped	1	---	---	---
Chinook subyearling unclipped	4	---	---	---
Steelhead clipped	60	6	0	0
Steelhead unclipped	26	2	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	146	10	0	0

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

River Conditions

River conditions at Ice Harbor Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (°F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
133.3	103.4	106.2	74.4	---	---	---	---

*Unit 1 scroll case temperature.

Comments: Water temperature and clarity data is currently unavailable at this time, and will be updated at a later date when it becomes available.

Other

Inline Cooling Water Strainers: The next monthly turbine cooling water strainer inspections will occur in June.

Avian Activity: There were low to high numbers of piscivorous birds seen around the project (see table below). The higher number of birds on May 23rd and 24th were counted before bird hazing started for the day. Land-based

hazing of piscivorous birds for 16 hours per day is occurring. Boat-based hazing for 8 hours per day, 5 days per week, changed to 3 days per week starting May 24. The hazing has been effective at reducing bird numbers around the dam.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
May 22	5	13	0	0	4
May 23	16	50	0	0	115
May 24	1	18	0	0	171
May 25	1	1	0	0	29
May 26	0	16	0	0	2
May 27	1	5	0	0	2
May 28	0	35	0	0	42

Invasive Species: No new exotic species have been discovered.

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by fisheries management personnel, frozen and properly disposed in a landfill. Daily and total Siberian prawn counts at Ice Harbor Dam for this reporting period are shown below.

Number of Siberian prawns in the sample at Ice Harbor Dam.

Date	Sample (euthanized)	Collection*
May 25, 2020	106	106
May 28, 2020	4	4
Totals	110	110

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

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

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

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

Project: Lower Monumental
Biologists: Chuck Barnes and Raymond Addis
Dates: May 22 - 28, 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	7/17/2020	ERTS	Annual, Draft Tube Liner
Unit 4	5/27/2020	0900	5/27/2020	1630	Hub Tapping
Unit 4	5/28/2020	0655	5/28/2020	1410	Hub Tapping

Comments: None.

Adult Fish Passage Facility

The adult fishways were inspected by Corps and EAS/Anchor QEA biologists on May 22, 23, 24 and 27.

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		X	South Powerhouse Entrance (SPE-1) Weir Depth	$\geq$ 8.0’ or on sill	
X		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 Channel/Tailwater differential was out of criteria on the May 27 inspection with a reading of 0.6 feet. This was caused by an automation error due to high tail water and spill levels.
South Powerhouse Entrance weir (SPE-1) was on sill during the May 24 and 27 inspections with readings of 7.1 and 7.9 feet respectively.
South Powerhouse Entrance weir (SPE-2) was on sill during the May 24 and 27 inspections with readings of 7.1 and 7.9 feet respectively.
South Shore Entrance (SSE-1) weir depth was out of criteria on the May 27 inspection with a reading of 7.6 feet. This was caused by an automation error due to high tail water and spill levels.

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)	13 yds^2
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 7%
	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 until 1515 on May 20 at which time they were changed to continuous-run mode due to average sub-yearling Chinook and sockeye lengths being less 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 began at 0700 on April 23.

Transport Summary: Every-day barge transport ended with the May 18 barge and alternate day transport began. A total of 105,550 fish were collected with 131,523 fish being transported and 50 being bypassed. The 50 fish bypassed back to the river were estimated based on 1 fry being collected for condition sampling at a 2% sample rate.

Spillway Weir: RSW went into service at 0001 on April 3.

River Conditions

River conditions at Lower Monumental Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature (°F)*		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
126.8	97.2	85.4	66.2	52.0	50.9	3.8	1.3

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on May 13. Live fish included 2 juvenile lamprey. Mortalities included 11 Chinook salmon smolts and 12 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
5/22/2020	1100	27	0	0	0	1
5/23/2020	1145	17	0	0	0	0
5/24/2020	1100	5	0	0	0	4
5/25/2020	1200	6	0	0	0	0
5/26/2020	1300	28	0	2	0	8
5/27/2020	1200	8	0	0	0	2
5/28/2020	1215	6	0	0	0	2

Comments: Bird hazing efforts by USDA personnel began on April 1.

Invasive Species: No zebra or quagga mussels were observed during monitoring station inspections on May 1.

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. No Siberian prawns were collected in the sample at Lower Monumental Dam for this reporting period.

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: May 22-28, 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		11RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
5	04/14/17	14:11	03/31/21	17:00	Spider and upper guide bearing repair.
1	05/26/20	15:06	05/26/20	16:50	Debris in orifice 1A2
1	05/27/20	11:56	05/27/20	13:27	Debris in orifice 1A2

Comments: Unit 1 was forced out of service to remove debris from orifice 1A2. Details are outlined in MFR 20 LGS 07.

Adult Fish Passage Facility

Little Goose fish facility staff inspected the adult fishway on May 24, 26, and 28.

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 Pumps in Service		
		X	Fish Ladder Exit Cooling Water Pumps Operating Satisfactorily		

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 have struggled to maintain entrance criteria during spring spill. The fish control system still has a faulty I/O module for the NSE weirs and is currently being repaired. The NSE weirs are in criteria and rest about 6 feet below tailwater according to manual measurement. Subsurface water velocity was measured on May 10 and averaged 3.5 feet per second.

Auxiliary Water Supply System:

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

Comments: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comment
X			Forebay debris load acceptable? (amount)	
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
	X		Any debris seen in gatewells (% coverage)	
	X		Any oil seen in gatewells?	

Comments: There is approximately 1,030 square feet of floating woody debris currently inside the trash shear boom in the forebay. Drawdowns were performed May 28 on Units 1, 2, 3, 4 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 conducted May 28 on Units 1, 2, 3, 4 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: None.

Collection Facility: Collection for condition sampling began on April 01. Every day sampling for transportation began on April 23.

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. The collection and transportation facility operated within criteria this report period. A total of 101,957 fish were collected. Of those collected, 120,485 were transported via barge, which includes fish collected on May 21 and 1 fish was by-passed. The descaling and mortality rates were 1.7% and 0.04%, respectively. No adult lamprey were removed from the separator this reporting period.

Spillway Weir: Spring spill operations began on April 03 with the ASW set at high crest. The ASW was set in low crest on May 01 at 13:46.

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
125.7	96.5	69.3	65.4	52.4	51.3	3.6	2.3

*Ladder temperature.

Other

Inline Cooling Water Strainers: Inline cooling strainers are being inspected and results submitted to district operations every other week for FPOM distribution.

Avian Activity: Daily piscivorous bird counts at Little Goose Dam began on April 01.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
5-22	0800	61	0	0	0
5-23	0730	46	0	0	0
5-24	1200	3	2	0	0
5-25	0745	40	3	0	0
5-26	0845	16	0	0	0
5-27	0800	5	0	0	0
5-28	1215	0	7	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*
5-22	0	0
5-23	0	0
5-24	1	100
5-25	0	0
5-26	0	0
5-27	0	0
5-28	0	0
Totals	1	100

Gas Bubble Trauma (GBT): GBT monitoring was performed on May 24. There was 1 fish with signs of GBT.

Fish Rescue/Salvage: None

Research: The Nez Perce Tribe (NPT) began kelt collection on May 13 for the kelt reconditioning program.

Project: Lower Granite
Biologists: Elizabeth Holdren and David Miller
Dates: May 22-28, 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**
4	05/22	0715	05/22	1340	Swap ESBS in gatewell slot 4C

Comments: Unit 4 was forced out of service to swap out ESBS after oil sheen was observed in gatewell slot 4C.

Adult Fish Passage Facility

Lower Granite and Anchor QEA staff inspected the adult fishway on May 22, 23, 24, and 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: None.

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
	X		South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	7.5 and 7.2
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.7 and 7.2
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 8.0’ or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 8.0’ or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
		X	North Shore Entrance (NSE-1) Weir Depth	≥ 7.0’ or on sill	
			North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	Closed
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: Depth over weir out of criteria reading are likely due to the gate not completed adjusting to tailwater elevation or related to flex spill operation. FOGs 1 and 10 are in operation. NSE channel tailwater differentials are due to spill volume creating a significant drawdown at the end of the north shore collection channel. North shore collection channel/tailrace continues to be out of criteria with differentials of over 2.0 feet during flex spill operation at the 125% gas cap. Similar to 2019, spring spill operations are impacting the fish ladder control systems resulting in differences between physical readings at gate and staff gauge locations and automatic control system digital readings resulting in out of criteria readings at the south shore.

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 return to service is delayed until mechanics report back to LWG and will require all AWS pumps be removed from service for about 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 May 24.

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: ESBS in 4C swapped out after oil sheen was observed in the gatewell slot. Gatewell differentials were measured on May 24.

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.

Collection Facility: The sample rate is being adjusted daily based on the previous day's fish passage numbers. The facility is in collection for transport mode. Total fish facility collection and transport for May 22-28 was 138,451 juvenile salmonids. Of these, 12 fry were bypassed directly back to the river. All salmonids collected were sampled for condition. Collection for transport began at 0700 hours April 23.

Transport Summary: Everyday barge transport at LWG began April 24 and every other day barge transport at LWG began on May 20.

Spillway Weir: Spring spill and RSW operation began at 0001 hours April 3.

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
131.3	101.2	77.3	58.9	53.0	49.0	4.2	2.1

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Unit cooling strainer inspections were conducted on April 29.

Invasive Species: No zebra/quagga muscles were detected on the trap substrate. There was 0 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
May 8	1310	0	0	0	1
May 9	1200	0	0	0	0
May 10	1240	0	1	0	0
May 11	1026	0	0	0	6
May 12	1920	5	0	0	14
May 13	1105	6	0	0	4
May 14	1510	0	1	0	10

Gas Bubble Trauma (GBT) Monitoring: GBT monitoring May 28 showed no signs of GBT in the 51 juvenile salmonids sampled.

Adult Fish Trap Operations: Adult trap operations are suspended until further notice due to COVID-19.

Fish Rescue/Salvage: N/A

Research:

Collection for research projects has been suspended until further notice as of March 24 due to COVID-19 with the exception of Kelt collection for NPT.

Nez Perce Tribe (NPT)/U. of Idaho (UI)/Columbia River Intertribal Fisheries Commission (CRITFC) – Kelt Study

This research investigates steelhead kelt physiology and endocrinology to evaluate the feasibility and success of rehabilitating strategies. Selected kelts collected at Granite are transported by NPT to Dworshak National Fish Hatchery for reconditioning and later release as part of this study. Corps biological technicians began collecting kelts off the juvenile fish separator for NPT at 1800 hours March 8 and continues collecting for transport.