U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#12-2020

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: May 15 to 21, 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	5/2	0630	5/19	1030	Governor issue.
1, 10 to 14	5/15	0630	5/15	1630	Trash rack cleaning. Rotated through units.
4	5/18	0630	5/18	1630	Unit 2 testing.
1 & 10	5/19	1000	5/19	1100	ESBS camera inspections. Rotated through units.

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 15, 17 and 20.

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 minimal near the Oregon exit and the exit traveling screens debris trough was cleaned as required. Debris loads were light to heavy near the Washington exit. Over the weekend, tumbleweeds arrived in large mats along the Washington shoreline. The general maintenance staff cleaned the picketed leads at least daily and the operators flushed the mats down the navigation lock as much as possible. Fortunately, the tumbleweeds dissipated.

At the Oregon exit, after repeated alarms, the issue with tilting weir 335 was resolved on May 18. The tilting weirs were reported to be lying down out of sequence on May 18 and 20 by the graveyard fisheries technician. The operators resolved the issue each time.

At the Washington exit, a regulating weir alarm came in and was reset on May 20. There is nothing more to report.

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 1.8 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. Two checks of the full juvenile system early in the week, beyond our normal routine, revealed no issues, which would result in descaling.

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 very light. However, as mentioned above in the Adult Section, heavy debris did come in along the Washington shore line and was dissipated this week.

Due to regional concerns over juvenile steelhead descaling, trash racks were cleaned in units 1 and 10 to 14, the units most in use, on May 15. Seventy yards of debris were removed, which was mostly tumbleweeds. One five foot sturgeon, one carp, one perch and one smolt were observed in the debris. The remaining units, 2 through 9, will have their trash racks cleaned the week of May 26, which was the week originally scheduled for trash rack cleaning. So far, steelhead descaling remains unchanged.

There is nothing more to report.

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. The control system panel view for the ESBS's in unit 1 was out of service from May 15 to 20. The control room operator verified the brush cycles for each screen were functional during the outage. The ESBS camera inspections in units 1 and 10 revealed no problems on May 19.

Daily VBS differential monitoring continued. No high differentials were measured. The screens in units 9 and 11 were inspected on May 18. Also, the screens in units 3 and 4 were inspected on May 19. The Inspections included cleaning. During all inspections, no fish were observed.

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

Yes	No	NA	Item	Number of orifices in service
X			Orifices operating satisfactory?	42
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: Orifice valve operators and area lighting were repaired as needed. Orifices were adjusted for VBS and trash rack cleaning as required. To insure no water alarms occurred, orifice cycling protocols were reviewed on May 19. There are no other problems to report.

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, 5,400 juvenile lamprey and 117,300 smolts were bypassed during secondary bypass.

One juvenile lamprey mortality was removed from under the primary bypass gate on May 19. 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
357.0	302.1	238.1	213.6	54.5	53.4	6.0	5.0

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 fluctuated. The birds were feeding. With the high spill volume, boat hazing the spill zone was not effective. Smolt numbers were relatively stable. The thought occurred that juvenile lamprey may have induced the spike in gull numbers. Cormorants may be feeding but are difficult to observe. Occasionally, a pelican was observed.

At the juvenile bypass outfall, gulls roosted on the outfall pipe in fairly high 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. Cormorant numbers appeared to have declined.

In the forebay zone, zero to 33 grebes were observed, along with an occasional gull, pelican or osprey. Also, gulls and pelicans in fairly high numbers along with a few cormorants were noted on the roosting rocks along the Washington shoreline.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican
May 15	Spill	26	0	0	1
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
May 16	Spill	13	0	0	0
	Powerhouse	0	0	0	0
	Outfall	4	0	0	0
May 17	Spill	70	0	0	3
	Powerhouse	0	0	0	0
	Outfall	52	0	0	0
May 18	Spill	95	0	0	1
	Powerhouse	0	0	0	0
	Outfall	47	0	0	0
May 19	Spill	320	0	0	0
	Powerhouse	0	0	0	0
	Outfall	28	0	0	0
May 20	Spill	290	0	0	0
	Powerhouse	0	0	0	0
	Outfall	17	0	0	0
May 21	Spill	340	0	0	0
	Powerhouse	0	0	0	0
	Outfall	1	0	0	0

The lasers on the juvenile bypass outfall walkway and the navigation lock wing wall were programmed and returned to service on May 15 and 16, respectively. Both lasers were turned off as part of a modified block study on May 18 at about 0900 hours. The two lasers together appeared to reduce roosting on the outfall pipe. However, there was some concern that the solar panels were not keeping the batteries changed for the length of time the lasers are programmed to run, especially for the laser on the outfall walkway, which appeared to fail on May 17. The lasers will be examined when they are returned to service on May 26.

The bird distress calls deployed 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. As mentioned above, in the high spill volume, boat hazing did not appear to be as effective. Almost all efforts were concentrated in the tailwater area. However, the grebes in the forebay zone were also hazed from shore.

Invasive Species: The mussel station examinations revealed no issues on May 20. 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 16 and 18. One smolt was observed with signs of GBT. Examinations will continue twice a week.

Project: Ice Harbor
Tim DeKoster (Fisheries Tech) & Ken Fone (Fisheries Biologist)
Dates: May 15 – May 21, 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

Comments: Units 6, 5, 4, 2, and 1 were taken out of service one at a time for STS inspections on May 19 and 20.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on May 18th, 19th, and 20th.

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	1.0, 0.9, 1.1 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	7.9’
X			North Shore Channel/Tailwater Differential	1.0’ – 2.0’	

Comments: The south shore channel velocity was slightly 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.

The north shore entrance weir depth was observed to be slightly below criteria on the May 19th inspection (see chart above for water depth). This may have been due to the tailwater elevation fluctuating rapidly from spill, resulting in some instantaneous readings that may be out of criteria.

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 1.17 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 18, due to the presence of subyearling chinook in the Ice Harbor fish sample with an average fork length of less than 120 mm.

The STS inspections were conducted on May 19 and 20. On May 20, we discovered that the STS in slot 2A had its plastic retaining rivets ripped off on one of the seams, creating a separation along the entire length of the seam. No fish were found inside the STS, and it was quickly repaired and returned to service the same day. Unit 1 VBSs for slots A, B, and C were inspected on May 20th and no new anomalies were found.

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, 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 18 and 21. A clipped steelhead in the May 21 sample died in the fish recovery tank after being examined. There were no external maladies seen on the fish.

Fish condition sampling results at Ice Harbor Dam:

Date: May 18

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	64	0	0	0
Chinook yearling unclipped	11	0	0	0
Chinook subyearling clipped	11	---	---	---
Chinook subyearling unclipped	6	---	---	---
Steelhead clipped	64	6	0	0
Steelhead unclipped	19	3	0	0
Sockeye clipped	3	1	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	178	10	0	0

Date: May 21

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	62	2	0	0
Chinook yearling unclipped	14	1	0	0
Chinook subyearling clipped	10	---	---	---
Chinook subyearling unclipped	13	---	---	---
Steelhead clipped	34	3	1	0
Steelhead unclipped	13	2	0	0
Sockeye clipped	2	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	2	---	---	---
Coho unclipped	0	---	---	---
Total	150	8	1	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
132.0	97.9	95.5	69.1	54	54	4.4	4.0

*Unit 1 scroll case temperature.

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 16th and 17th 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 is occurring for 8 hours per day, 5 days per week. 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 15	2	7	0	0	52
May 16	0	13	0	0	222
May 17	0	10	0	0	165
May 18	1	0	0	0	3
May 19	0	0	0	0	1
May 20	0	5	0	0	6
May 21	3	2	0	0	1

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. No Siberian prawns at Ice Harbor Dam were collected for this reporting period.

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 15 - 21, 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

Comments:

Adult Fish Passage Facility

The adult fishways were inspected by Corps and EAS/Anchor QEA biologists on May 15, 16, 17 and 20.

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:

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		X	South Powerhouse Entrance (SPE-1) Weir Depth	≥ 8.0’ or on sill	
X		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			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 weir (SPE-1) was on sill during the May 16 and 17 inspections with readings of 8.0 and 7.9 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)	21 yds^2
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 10%
	X		Any oil seen in gatewells?	

Comments: None.

STSs/VBSs:

Yes	No	NA	Item
X			STSs deployed in all slots and in service?
X	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 214,800 fish were collected with 188,655 fish being transported.

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
127.0	90.3	90.4	63.0	53.9	52.0	3.9	2.9

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on May 13. Living 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
5/15/2020	1230	2	0	0	0	0
5/16/2020	1300	4	0	0	0	1
5/17/2020	1300	0	0	0	0	13
5/18/2020	1230	5	0	0	0	2
5/19/2020	1215	12	0	0	0	2
5/20/2020	1230	30	0	0	0	0
5/21/2020	1200	18	0	0	0	7

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. Daily and total Siberian prawn counts at Lower Monumental Dam for this reporting period are reported below.

Date	Sample (euthanized)	Collection*
5/15-21/2020	1	100

*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: May 15-21, 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.
6	05/19/20	04:40	05/19/20	08:28	Breaker opening without valid input signal

Comments: None.

Adult Fish Passage Facility

Little Goose fish facility staff inspected the adult fishway on May 17, 19, 20 and 21.

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 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	≥ 8.0’	
X			South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	
	X		South Shore Channel/Tailwater Differential	1.0’ – 2.0’	0.9
		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’	0.9
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	1.2

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. The May 20 inspection found the surface velocity near the SSE out of criteria. The May 21 inspection found SSE and NSE channel to tailwater measurements at 0.9. Adjustments were made and the fishway is currently in criteria. 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 3,000 square feet of floating woody debris currently inside the trash shear boom in the forebay. Drawdowns were performed May 21 on Units 1, 2, 3, 4 and 6 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 21 on Units 1, 2, 3, 4 and 6 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 206,137 fish were collected. Of those collected, 187,317 were transported via barge and 0 were by-passed. The descaling and mortality rates were 1.2% and 0.12%, 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
128.4	91.0	68.6	61.3	53.2	51.7	4.2	3.0

*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
5-15	0730	25	0	0	0
5-16	0730	23	1	0	0
5-17	1230	0	0	0	0
5-18	0800	0	0	0	0
5-19	1130	99	0	0	2
5-20	1300	56	0	0	0
5-21	0730	57	0	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*
5-15	0	0
5-16	0	0
5-17	1	200
5-18	1	200
5-19	0	0
5-20	0	0
5-21	0	0
Totals	2	400

Gas Bubble Trauma (GBT): GBT monitoring was performed on May 17. There were 2 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 15-21, 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	5/17	1103	05/20	1052	ESBS Inspection and VBS repair in gatewell slot 6C

Comments: Units were rolled out of service for ESBS inspections May 17-18. Unit 6 was forced out of service to repair a 1.5" by 4.0" opening in slot 6C VBS screen that was observed during scheduled ESBS inspections.

Adult Fish Passage Facility

Lower Granite and Anchor QEA staff inspected the adult fishway on May 15, 16, 18, and 20.

Fish Ladder:

Yes	No	NA	Location	Criteria	Comments
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 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	$\geq$ 8.0'	7.9 and 7.5
	X		South Shore Entrance (SSE-2) Weir Depth	$\geq$ 8.0'	7.9 and 7.5
X			South Shore Channel/Tailwater Differential	1.0' – 2.0'	
X			North Powerhouse Entrance (NPE-1) Weir Depth	$\geq$ 8.0' or on sill	
X			North Powerhouse Entrance (NPE-2) Weir Depth	$\geq$ 8.0' or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0'–2.0'	
X			North Shore Entrance (NSE-1) Weir Depth	$\geq$ 7.0' or on sill	
			North Shore Entrance (NSE-2) Weir Depth	$\geq$ 7.0' or on sill	Closed
	X		North Shore Channel/Tailwater Differential	1.0'–2.0'	0.9 and 3.0
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 locations and automatic control system digital readings. This resulting in out of criteria readings at the south shore entrances.

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 operation is delayed until the guide bearing completed 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 debris boom and potential for additional debris in the powerhouse forebay and trash racks.

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

Comments: None.

ESBSs/VBSs:

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

Comments: VBS differentials were measured on May 18.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe:

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

Comments: 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 transported for May 15-21 was 161,752 juvenile salmonids. Of these, 3 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: Every other day barge transport at LWG began May 18.

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
132.5	94.0	70.9	61.9	51.0	49.5	4.7	3.7

*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 15	1325	0	0	0	3
May 16	1145	6	0	0	0
May 17	1045	4	1	0	4
May 18	1435	0	1	0	1
May 19	0620	0	0	0	1
May 20	1435	0	0	0	1
May 21	1045	6	0	0	4

Gas Bubble Trauma (GBT) Monitoring: GBT monitoring May 21 showed no signs of GBT in the 101 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.