U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#08-2020

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: April 17 to 23, 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	6/4/20	NA	Turbine blade packing.
1, 12, 13 & 14	4/20	0700	4/20	1100	Trash rack cleaning.
9 thru 12	4/21	0630	4/21	1700	Transformer 5 and 6 relay replacement.
14	4/22	0630	4/22	1400	Brush spring replacement and motor repair.

Comments: The hard one percent peak efficiency constraint continued.

Adult Fish Passage Facilities

McNary fisheries biologists performed measured inspections of the adult fishways on April 17, 19 and 22. Adult fish counting 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 near the Oregon exit and minimal near the Washington exit. A very large piece of woody material was removed from the Washington ladder trash rack on April 19. The Oregon exit traveling screens debris trough was cleaned as required.

At the Oregon exit, one traveling screen alarm came in and was reset on April 22.

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	$\geq$ 8.0’	7.9’ on April 17.
X			NFEW3 Weir Depth	$\geq$ 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 1.9 fps.
X			Washington Entrance Head Differential	1.0’ – 2.0’	
X			WFE2 Weir Depth	≥ 8.0’	
X			WFE3 Weir Depth	≥ 8.0’	

Comments: The out of criterion point mentioned above, NFEW2 weir depth, could have possibly been due to low tailwater elevations and/or calibration drifts. The Oregon south powerhouse ladder entrance weirs tripped multiple alarms and the weirs were reset on April 20. Also, the Washington ladder entrance weirs tripped multiple alarms and had to be recalibrated by the electrical staff on April 20.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
X			WA shore Wasco County PUD Turbine Unit
	X		WA shore Wasco PUD Bypass
		X	Oregon shore Fish Pump 1, OOS to September 12.
X			Oregon Ladder Fish Pump 2, Blade angle: 22 to 23°.
X			Oregon Ladder Fish Pump 3, Blade angle: 25 to 28°.
X			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 moderate.
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: Changes in the weather pattern moved the debris for the powerhouse to the Oregon shoreline and back. The debris appears to be slowly dissipating. Also, some of the debris has passed over the TSWs. New debris and debris near the spillway would be described as minimal to very light. Debris removal may not be required at this time.

The trash rack cleaning occurring in units 1 and 12 through 14 on April 20. Approximately five yards of debris was removed. No fish were observed.

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

Yes	No	NA	Item
X			ESBSs deployed in all slots and in service?
	X		ESBSs inspected this week?
		NA	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 brush cycles for the screens in unit 4 tripped multiple alarms and were reset on April 20. The brush cycle for the screen in slot 11C was found short cycling on April 23. The cycle program was reset. The next ESBS camera inspections will occur in units 1 and 10 on April 28.

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

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

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

Comments: Orifices were adjusted for trash rack cleaning as required. Orifice valve 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, 40 juvenile lamprey and 21,980 smolts were bypassed during secondary bypass.

Miscellaneous maintenance issues were resolved as needed this week, including lighting repairs. Also, a piece of woody material was removed from the "wye" downstream of where the sample return to river and the secondary bypass lines meet on April 17. Finally, a piece of woody material was removed from one of two B side sample count tunnels on April 20. In each case, no harm to fish was observed.

TSW Operations: The TSW's are installed and remain functional 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
173.8	150.8	102.9	88.4	51.4	49.3	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 spring flex spill season continued. During the week, due to electrical issues, spillbays 2 and 4 were difficult to open and close. When the bays would not reopen until the electrical staff could respond, the spill volume was spread out over the remaining open bays. The issue was last addressed on April 24 at 1345 hours.

Other

Inline Cooling Water Strainers: The next cooling water strainer examinations will occur on May 5.

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
April 17	Spill	34	1	0	0
	Powerhouse	0	0	0	0
	Outfall	5	11	0	0
April 18	Spill	67	0	0	0
	Powerhouse	0	0	0	0
	Outfall	30	18	0	0
April 19	Spill	60	0	0	0
	Powerhouse	0	0	0	0
	Outfall	16	23	0	0
April 20	Spill	14	0	0	1
	Powerhouse	0	0	0	0
	Outfall	15	4	0	0
April 21	Spill	60	0	0	3
	Powerhouse	0	0	0	0
	Outfall	39	21	0	0
April 22	Spill	50	0	0	2
	Powerhouse	0	0	0	0
	Outfall	65	18	0	0
April 23	Spill	75	0	0	0
	Powerhouse	0	0	0	0
	Outfall	66	19	0	0

No birds were noted in the powerhouse zone.

In the spillway zone, gull numbers increased with most birds feeding though some roosted on the water. Cormorants may be feeding but are difficult to observe. Occasionally, pelicans were noted.

At the juvenile bypass outfall, gulls and cormorants roosted on the outfall pipe in fairly high numbers and each species occasionally tried to feed at the outfall. Occasionally, an osprey was observed roosting on the outfall pipe.

In the forebay zone, an occasional gull or small gull flock, cormorant, grebe or small flock of grebes, loon or osprey was observed. The gulls appeared to be roosting while the grebes were feeding. A few gulls were noted roosting on the rocks along the Washington shoreline at times.

No terns have been observed on project.

So far, the call and laser have not reduced cormorant numbers roosting on the juvenile outfall pipe. This issue will continue to be addressed. Deterring feeding appears to be somewhat more successful but this could be due to the spill volume and/or tailwater elevation. Installation of the second laser is currently scheduled for early May. Deployment of the second laser on the outfall walkway should improve the hazing efforts there.

The bird distress calls deployed on the navigation lock wing wall appear to be more successful than the one on the outfall walkway. The laser on the navigation lock wing wall for the juvenile outfall also appeared to be more effective on the wing wall than the outfall pipe. Finally, the forebay grebe distress call remained deployed and appears somewhat effective. All bird calls were inspected on April 23.

USDA Wildlife Services began the first hazing shift on April 19. The second shift will begin on April 26 and boat hazing is scheduled to begin on April 28.

Invasive Species: The mussel station examinations revealed no issues on April 19. 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 April 18 and 20. One smolt was observed with signs of GBT. Examinations will occur twice a week.

Project: Ice Harbor
Biologist: Ken Fone
Dates: April 17 – April 23, 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 and 4 were observed to be operating a few megawatts under the 1% operating efficiency range on April 21 and 22, respectively.

Units 1, 2, 4, 5, and 6 were taken out of service one at a time on April 21 and 22 for STS inspections.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on April 20, 21, and 22.

Fish Ladders:

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

Fishway Entrances and Collection Channel:

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

Comments: None.

Auxiliary Water Supply (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 3 square yards
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: Unit 1, 2, 4, 5, and 6 submersible traveling screens were inspected on April 21 and 22. The STS in slot 2A was observed to have 6 or 7 retaining clips coming loose at the end of one of the seams, but the seam was still intact. By the time the STS was removed and replaced with a spare STS on April 22, about 6" of the seam was found to have separated at the end. There were no fish observed to be stranded inside the STS.

Orifices, Collection Channel, Dewatering Structure, and Flume:

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

Comments: None.

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

Fish Sampling: Sampling is taking place on Mondays and Thursdays each week. See the tables below for a summary of the sampling results. The cause of the descaling observed on the two fish in the April 23 sample was attributed to birds.

Fish condition sampling results at Ice Harbor Dam:

Date: April 20

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	45	0	0	0
Chinook yearling unclipped	16	0	0	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	0	---	---	---
Steelhead clipped	83	1	0	2
Steelhead unclipped	8	0	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	152	1	0	2

Date: April 23

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	25	0	0	0
Chinook yearling unclipped	8	0	0	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	0	---	---	---
Steelhead clipped	88	1	0	0
Steelhead unclipped	19	1	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	140	2	0	2

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
61.0	47.9	41.0	31.2	51	48	5.2	4.0

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Unit 1, 2, 4, 5, and 6 turbine cooling water strainer inspections occurred on April 7. A total of 11 juvenile lamprey mortalities were found.

Avian Activity: There were low to moderate numbers of piscivorous birds seen around the project (see table below). The higher number of birds on April 18 and 19 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, 3 days per

week, changed to 5 days per week on April 19. 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
April 17	0	6	0	0	0
April 18	2	19	0	0	58
April 19	2	17	0	0	31
April 20	7	2	0	0	0
April 21	2	1	0	0	8
April 22	0	0	0	0	0
April 23	0	10	0	0	0

Invasive Species: No exotic species that are new to the area have been found.

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by fish condition sampling personnel, frozen and properly disposed of 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*
April 20	1	1
April 23	0	0
Totals	1	1

*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.

Project: Lower Monumental
Biologists: Chuck Barnes and Raymond Addis
Dates: April 17 - 23, 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	4/18/2020	1453	4/20/2020	1620	STS Failure/Trash Rack Raking
Unit 2	7/15/2019	0720	7/17/2020	ERTS	Annual, Draft Tube Liner
Unit 3	4/20/2020	1030	4/20/2020	1425	Trash Rack Raking
Unit 4	4/20/2020	1058	4/20/2020	1425	Trash Rack Raking

Comments: Unit 1 was taken out of service on April 18 due to a STS failure until the STS in gatewell1B could be swapped out with a spare working STS on April 20. Trash rack raking was done while the unit was out of service.

Adult Fish Passage Facility

The adult fishways were inspected by Corps and EAS/Anchor QEA biologists on April 18, 19, 20 and 22.

Fish Ladder:

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

Comments: None.

Fishway Entrances and Collection Channel:

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

Comments:
South Powerhouse Entrance weir (SPE-1) was on sill during all inspections with a reading of 6.0 feet on all inspections.
South Powerhouse Entrance weir (SPE-2) was on sill during all inspections with a reading of 6.0 feet on all inspections. South Shore Entrance weir (SSE-1) was on sill during all inspections with readings of 6.4, 6.0, 6.6 and 6.8 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)	20 yds^2
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 15%
	X		Any oil seen in gatewells?	

Comments: Trash racks for Units 1, 3 and 4 were cleaned on April 20.

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 in continuous-run mode during the April 5 inspection and were changed to cycle-run mode on April 8, mode due to average sub-yearling Chinook and sockeye lengths being greater than 120 mm.
STS in Gatewell 1B failed on April 18 and Unit 1 was taken out of service until the STS could be swapped out with a spare working STS on April 20.

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 for condition sampling occurred from 0700 to 0700 on April 17 – 18, April 19 - 20 and April 21 - 22. A total of 5,433 fish were collected with 4,602 fish being bypassed back to the river.

Collection into raceways for transport began at 0700 on April 23.

Transport Summary: Every-day barge transport begins on April 24.

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
59.3	43.5	41.2	29.7	51.5	49.4	5.7	3.0

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on April 2. Mortalities included 7 juvenile lamprey, 11 Chinook salmon smolts and 2 Siberian prawns.

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

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
4/17/2020	1145	2	0	0	0	0
4/18/2020	1230	17	2	0	0	1
4/19/2020	1155	3	0	1	0	1
4/20/2020	1245	4	0	0	0	0
4/21/2020	1245	2	0	0	0	0
4/22/2020	1215	12	0	0	0	1
4/23/2020	1130	13	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 April 11.

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. 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: April 17-23, 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	03/31/2021	17:00	Spider and upper guide bearing repair.
6	04/04/20	05:21			XJ Breaker opening without valid input signal

Comments: Unit 6 was operated during performance standard spill at speed no load for troubleshooting.

Adult Fish Passage Facility

Little Goose fish facility staff inspected the adult fishway on April 19, 21 and 23.

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	5.7, 5.8
	X		North Shore Entrance (NSE-2) Weir Depth	$\geq$ 6.0’ or on sill	5.7, 5.9
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	
	X		Collection Channel Surface Velocity	1.5 – 4.0 fps	1.4

Comments: 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 surface velocity near the SSE was found out of criteria on April 21.

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 15,000 square feet of floating woody debris currently inside the trash shear boom in the forebay. Drawdowns were performed April 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 conducted April 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?	18
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: None.

Collection Facility: Collection for condition sampling began on April 01 and every other day sampling is occurring. Every day sampling for transportation began on April 23. The collection and transportation facility operated within criteria this report period. A total of 35,990 fish were collected, of which 35,989 were by-passed back to river. The descaling and mortality rates were 0.4% and 0.0%, respectively. No adult lamprey were removed from the separator this reporting period.

Transport Summary: Transport is scheduled to begin on April 24.

Spillway Weir: Spring spill operations began on April 03 with the ASW set at high crest.

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
61.1	46.1	38.9	27.6	51.3	50.4	4.9	4.1

*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
4-17	0730	2	1	0	0
4-18	0800	22	0	0	0
4-19	1300	9	3	0	0
4-20	0830	0	0	0	0
4-21	1140	15	1	0	0
4-22	0800	10	5	0	0
4-23	0830	5	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*
4-17	NA	NA
4-18	2	40
4-19	NA	NA
4-20	0	0
4-21	NA	NA
4-22	0	0
4-23	NA	NA
Totals	2	40

Gas Bubble Trauma (GBT): GBT monitoring was performed on April 19. There was 1 fish that showed signs of GBT.

Fish Rescue/Salvage: None

Research: None.

Project: Lower Granite
Biologists: Elizabeth Holdren and David Miller
Dates: April 17-23, 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	

Comments: No units were out of service at Lower Granite this reporting period.

Adult Fish Passage Facility

Lower Granite and EAS/Anchor QEA staff inspected the adult fishway on April 10, 11, 13, and 15.

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’	7.8 and 7.6
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.7 and 7.7
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’	2.2
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: Depth over weir out of criteria reading was likely due to the gate not completed adjusting to tailwater elevation or related to spill operation. FOGs 1 and 10 are in operation.

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 mechanic 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:

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 drawdowns were completed April 19.

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 completed April 19.

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 based on the expanded sample counts. Total fish facility collection and bypass for April 17-23 was 114,375 juvenile salmonids. All salmonids collected were sampled for condition. Collection for transport began at 0700 hours April 23.

Transport Summary: The first barge is scheduled to depart LWG April 24.

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
63.1	47.8	40.4	29.8	50.5	47.5	5+	4.8

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Unit cooling strainer inspections were conducted on April 1.

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
April 17	1251	2	0	0	0
April 18	1210	0	0	0	0
April 19	0820	0	0	0	0
April 20	1005	1	1	0	2
April 21	1042	13	0	0	0
April 22	1144	10	4	0	0
April 23	1430	6	0	0	0

Gas Bubble Trauma (GBT) Monitoring: GBT monitoring April 23 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.