

**U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#07-2020**

Project: McNary

Biologist: Bobby Johnson and Denise Griffith

Dates: April 10 to 16, 2020

Turbine Operation

Yes	No	Turbine Unit Status	Hard	Soft
	X	All 14 turbine units available for service. (See table & comments below for details).		
X		Available turbines operated within 1% peak efficiency? Constraint in effect.	X	

Table 1. McNary Unit Outages (OOS) and Return to Service (RTS).

Unit(s)	OOS		RTS		Outage Description
	Date	Time	Date	Time	
5	5/23/19	0943	6/4/20	NA	Turbine blade packing.

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 10, 12 and 15. 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 to moderate near the Oregon exit and minimal to light near the Washington exit. Tumbleweeds have been observed on and removed from the Washington ladder trash rack as needed. The Oregon exit traveling screens debris trough was cleaned as required.

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'	7.9' on April 12 & 15.
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: The out of criterion point mentioned above, NFEW3 weir depth, could have possibly been due to low tailwater elevations and/or calibration drifts.

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: 25 to 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.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Minimal to heavy.
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 may have passed over the TSWs. New debris and debris near the spillway would be described as minimal. Debris removal may occur later in April.

The next trash rack cleaning is scheduled for April 20.

A few pieces of woody material were removed from various gatewell slots on April 10 and 11.

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 cycle for the screen in slot 11C was found short cycling on April 9 and 11. The cycle program was reset each time. 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: Orifice valve operators were repaired as needed.

There are no 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, 40 juvenile lamprey and 12,120 smolts were bypassed during secondary bypass.

Miscellaneous maintenance issues were resolved as needed this week. Also, a piece of woody material was removed from the “Y” downstream of where the sample return to river and the secondary bypass lines meet on April 13. No harm to fish was observed. The material was high in the water column. The temperature probe in the B side sample tank appeared to have failed on April 12 and was replaced on April 16.

TSW Operations: The TSW’s remained installed in bays 19 and 20. Both TSW’s become functional with the spring spill program on April 10.

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
144.4	119.4	80.6	18.8	50.0	47.7	6.0	5.2

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 began on April 10 at 0001 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.

In the tailwater zones, gull numbers increased with most birds feeding in the spillway. Also, gulls roosted on the outfall pipe but only occasionally tried to feed there. Cormorants were noted roosting on the juvenile outfall pipe in fairly high numbers. The number of cormorants noted feeding at the juvenile bypass outfall fluctuated for zero to three birds, which was a reduction. Cormorants are difficult to see feeding in the spillway zone. On the last three days of the week, a few pelicans were observed in the spillway zone. No birds were noted in the powerhouse zone. No terns have been observed on project.

In the forebay zone, an occasional gull, cormorant, small flock of grebes, loon or osprey were observed. A few gulls were noted roosting on the rocks along the Washington shoreline.

So far, the call and laser have not reduced cormorant numbers roosting on the outfall pipe and roosting gull numbers have increased. This issue will continue to be addressed. Deterring feeding appears to be somewhat more successful but this could be due to the spill volume, tailwater elevation and/or the osprey roosting on the outfall pipe. Installation of the second laser is currently scheduled for April 28. Material for the laser solar panel supports was ordered this week.

The bird distress calls remained deployed on the outfall walkway and the navigation lock wing wall. The calls on the wing wall appear to be having more success than the one on the outfall. The laser on the navigation lock wing wall for the juvenile outfall appeared to be successful on the wing wall and modestly effective on the outfall pipe. Deployment of the second laser on the outfall walkway should improve the hazing efforts. Also, the forebay grebe distress call remained deployed. USDA Wildlife Services will begin the first hazing shift on April 19.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican
April 10	Spill	0	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	36	0	0
April 11	Spill	4	0	0	0
	Powerhouse	0	0	0	0
	Outfall	2	22	0	0
April 12	Spill	2	1	0	0
	Powerhouse	0	0	0	0
	Outfall	1	15	0	0
April 13	Spill	7	0	0	0
	Powerhouse	0	0	0	0
	Outfall	1	22	0	0
April 14	Spill	26	0	0	4
	Powerhouse	0	0	0	0
	Outfall	3	15	0	0
April 15	Spill	50	1	0	1
	Powerhouse	0	0	0	0
	Outfall	15	21	0	0
April 16	Spill	31	0	0	2
	Powerhouse	0	0	0	0
	Outfall	6	13	0	0

Invasive Species: The next mussel station examinations will occur 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 adult steelhead top spillway weir (TSW) passage efficiency study researcher retrieved their data on April 11. The gas bubble trauma (GBT) examinations occurred on April 10 and 14. Three smolts were observed with signs of GBT. Examinations will occur twice a week.

Project: Ice Harbor

Biologist: Ken Fone

Dates: April 10 – April 16, 2020

Turbine Operation

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

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

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
3	5/3/19	0641	---	---	Turbine runner replacement and stator rewind

Comments: Unit 6 was observed to be operating a few megawatts above the 1% operating efficiency range on April 14.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on April 13, 14, and 15.

Fish Ladders:

Yes	No	Location	Criteria	Measurements
X		North Ladder Exit Differential	Head \leq 0.3'	
X		North Ladder Picketed Lead Differential	Head \leq 0.3'	
X		North Ladder Depth over Weirs	Head over weir 1.0' to 1.3'	
X		South Ladder Exit Differential	Head \leq 0.3'	
X		South Ladder Picketed Lead Differential	Head \leq 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	\geq 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	\geq 8.0' or on sill	7.9'
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0' – 2.0'	
X			North Shore Entrance (NEW-1) Weir Depth	\geq 8.0' or on sill	
X			North Shore Channel/Tailwater Differential	1.0' – 2.0'	

Comments: The north powerhouse entrance weir depth was slightly below criteria on the April 15 inspection. This may have resulted from the difficulty in getting an accurate tailwater elevation reading when spill is occurring.

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 16 square yards
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0-6%
	X		Any oil seen in gatewells?	

Comments: None.

STSs/VBSs:

Yes	No	NA	Item
	X		STSs deployed in all slots and in service?
	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 submersible traveling screens will be inspected the week of April 20.

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 hydrocannon pump for the fish bypass outfall pipe was tripping the disconnect switch, so it was pulled out of the water on April 6. A used spare pump was tested, but was found to be seized-up. Un-used spare pumps were located in the warehouse, and one was installed and the hydrocannon returned to service on April 14.

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. One of the clipped chinook mortalities in the April 16 sample appeared to have gotten stuck under the sample tank crowder as it was lowered down. From now on, two Fish Facility personnel will be using nets to scare fish away from the crowder as it is lowered in the tank, instead of one person. The other mortality occurred when fish were being flushed out of the anesthetizing basket into the sampling trough, and the fish became stranded on the unwatering screen in the pipe. The sampling contractor personnel were advised, and will double-check the unwatering screen during each flushing event to make sure there are no stranded fish.

Fish condition sampling results at Ice Harbor Dam:

Date: April 13

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	77	0	0	0
Chinook yearling unclipped	4	0	0	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	0	---	---	---
Steelhead clipped	30	0	0	0
Steelhead unclipped	3	0	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	114	0	0	0

Date: April 16

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	63	0	2	0
Chinook yearling unclipped	18	0	0	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	0	---	---	---
Steelhead clipped	53	4	0	2
Steelhead unclipped	11	1	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	145	5	2	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
59.5	52.7	38.9	33.2	48	47	5.5	5.2

*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 generally low numbers of piscivorous birds seen around the project (see table below). The higher number of birds on April 12 were counted before bird hazing started for the day. Land-based hazing of piscivorous birds for 16 hours per day and boat-based hazing for 8 hours per day, 3 days per week, are occurring. 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 10	2	8	0	0	2
April 11	0	9	0	0	14
April 12	1	25	0	0	50
April 13	0	4	0	0	1
April 14	0	0	0	0	0
April 15	0	0	0	0	0
April 16	8	12	0	0	1

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 will be 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 13	1	1
April 16	8	8
Totals	9	9

*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 10 - 16, 2020

Turbine Operation

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

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

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
Unit 2	7/15/2019	0720	7/17/2020	ERTS	Annual, Draft Tube Liner

Comments: None.

Adult Fish Passage Facility

The adult fishways were inspected by Corps and EAS/Anchor QEA biologists on April 11, 12, 14 and 15.

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		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 April 12 inspection with a reading of 0.3 feet. South Powerhouse Entrance weir (SPE-1) was on sill during all inspections with readings of 6.1, 7.2, 6.3 and 6.0 feet respectively.

South Powerhouse Entrance weir (SPE-2) was on sill during all inspections with readings of 6.1, 7.2, 6.3 and 6.0 feet respectively.

South Shore Entrance weir (SSE-1) was on sill during all inspections with readings of 6.1, 7.4, 7.1 and 7.2 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)	41 yds ²
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 25%
	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 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.

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 10 – 11, April 13 - 14 and April 15 - 16. A total of 1,980 fish were collected with 1,978 fish being bypassed back to the river.

Transport Summary: No transport at this time.

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
54.6	47.0	37.8	32.8	48.0	46.9	5.6	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
4/10/2020	1300	1	0	0	0	0
4/11/2020	1245	5	0	0	0	0
4/12/2020	1300	6	0	0	0	0
4/13/2020	1300	5	0	0	0	0
4/14/2020	1100	16	0	0	0	0
4/15/2020	1300	0	0	0	0	0
4/16/2020	1100	16	4	0	0	1

Invasive Species: No zebra or quagga mussels were observed during monitoring station inspections on April 11.

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 10-16, 2020

Turbine Operation

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

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

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
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
1	04/13/20	06:05	04/13/20	17:20	XJ Breaker replacement/Adult ladder perm. power
2	04/13/20	06:05	04/13/20	17:20	XJ Breaker replacement/Adult ladder perm. power
3	04/13/20	06:05	04/13/20	17:20	XJ Breaker replacement/Adult ladder perm. power
4	04/13/20	06:05	04/13/20	17:20	XJ Breaker replacement/Adult ladder perm. power

Comments: Little Goose conducted a planned line outage on April 13 to disconnect T1 transformer in order to safely support XJ7/XJ8 work and adult cooling pump permanent power install. All Units were out of service for the majority of the day which resulted in 100% spill.

Adult Fish Passage Facility

Little Goose fish facility staff inspected the adult fishway on April 12, 14 and April 16.

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'	7.5
	X		South Shore Entrance (SSE-2) Weir Depth	\geq 8.0'	7.6
	X		South Shore Channel/Tailwater Differential	1.0' – 2.0'	0.9
		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'	0.9
	X		Collection Channel Surface Velocity	1.5 – 4.0 fps	1.3

Comments: SSE channel to tailwater was out of criteria on April 14 at 0.9ft. SSE weir depths were found at 7.5 and 7.6 on April 12. 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 7 feet below tailwater according to manual measurement. The collection channel surface velocity was found out of criteria near the SSE on April 14 at 1.3.

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 22,000 square feet of floating woody debris currently inside the trash shear boom in the forebay. Drawdowns were performed April 16 on Unit 1 and were in criteria.

ESBS/VBS:

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

Comments: VBS differentials were conducted April 16 on Unit 1 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: The juvenile bypass system is currently operating. Collection for condition sampling began on April 01 at 07:00. Sampling is occurring every other day with the first sample worked up on April 02.

Collection Facility: Collection for condition sampling began on April 01 and every other day sampling is occurring. The collection and transportation facility operated within criteria this report period. A total of 10,476 fish were collected, of which 10,475 were bypassed back to river. The descaling and mortality rates were 0.5% and .02% 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
57.8	48.1	39.0	25.9	50.5	48.8	5.0	4.6

*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
4-10	1630	5	8	0	0
4-11	0730	7	3	0	0
4-12	0730	2	3	0	0
4-13	0800	1	5	0	0
4-14	0800	0	5	0	0
4-15	0900	5	7	0	0
4-16	1300	1	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	Estimated Collection
4-10	10	40
4-11	NA	NA
4-12	13	52
4-13	NA	NA
4-14	19	92
4-15	NA	NA
4-16	5	50
Totals	47	234

Gas Bubble Trauma (GBT): GBT monitoring was performed on April 14. No signs of GBT were reported.

Fish Rescue/Salvage: None

Research: None.

Project: Lower Granite

Biologists: Elizabeth Holdren and David Miller

Dates: April 10-16, 2020

Turbine Operation

Yes	No	Turbine Unit Status	Hard	Soft
X		All 6 turbine units available for service (see table & comments below for details).		
		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 \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 7.8
	X		South Shore Entrance (SSE-2) Weir Depth	\geq 8.0'	7.9
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'	
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: None.

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 13.

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 13.

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 10-16 was 70,520 juvenile salmonids. All salmonids collected were sampled for condition.

Transport Summary: No transport.

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
58.5	49.7	36.8	31.6	49.5	48.0	5+	4.0

*Cooling water intake temperature.

Other

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

Invasive Species: No zebra/quagga mussels were detected on the trap substrate. There was 1 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 10	1037	3	5	0	0
April 11	1115	0	1	0	0
April 12	1236	2	0	0	0
April 13	0840	11	5	0	0
April 14	1643	18	4	0	0
April 15	1120	10	2	0	0
April 16	1820	9	0	0	0

Gas Bubble Trauma (GBT) Monitoring: GBT monitoring April 16 showed no signs of GBT in the 100 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.