U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#05-2020

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: March 27 to April 2, 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	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	5/28/20	NA	Turbine blade packing.
10	3/29	0900	3/29	1000	ESBS control system fuse replaced.
13 & 14	3/31	1000	3/31	1130	ESBS camera inspections, rotated through units.

Comments: The hard one percent peak efficiency constraint began on April 1. All units ran with in a mix of soft and hard constraints this week.

Adult Fish Passage Facilities

McNary fisheries biologists performed measured inspections of the adult fishways on March 27, 29 and 31. The picketed leads were lowered on March 31. Adult fish counting resumed on April 1.

Fish Ladder Exits:

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

Comments: Debris loads were light near the Oregon exit and minimal near the Washington exit. Tumbleweeds have been observed on and removed from the Washington ladder trash rack as needed.

The out of criterion point mentioned above for the Oregon shore ladder exit was resolved that day by adjusting the regulating weir set point.

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'	Weir cables slack on Mar 31.
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 south Oregon powerhouse entrance out of criterion point listed above was due to the weir cables being slack, which results in an erroneous weir depth reading. The operators resolved the issue that day.

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: 21 to 23°.
Yes*			Oregon Ladder Fish Pump 3, Blade angle: 25 to 26°.
Yes			OR North Powerhouse Pool supply from juvenile fishway

*Comments: The blade angles for fish pumps 2 and 3 were briefly reduced to zero in order to remove the cable slack from weir SFEW2 on March 31.

Juvenile Fish Passage Facility

The sampling season, consisting of alternating days of primary and secondary bypass, continued. There were no interruptions in the schedule. However, in order to insure the juvenile outfall laser was operations, which requires two people to walk out on the navigation lock wing wall, the sample began at 0740 hours instead of 0700 hours on March 27. A full 24 hour sample was collected.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Moderate. New debris was minimal.
X			Trash rack differentials measured this week?	Three times this week.
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, which dissipated some of the debris. New debris and debris near the spillway would be described as minimal. Debris removal will occur when the spill program begins in April.

No trash racks were cleaned this week.

A few pieces of woody material were removed from 1A and 1B gatewell slots on March 30. Also, an extremely small amount of ESBS lubricant was removed from 11A slot with absorbent pads on March 30.

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 are installed in units 1, 10, 13 and 14 for early startup sampling and for the adult steelhead top spillway weir (TSW) passage efficiency study. The installation of the remaining ESBS's will begin on April 6. After alarms came in, a fuse in the control system for the ESBS's in unit 10 was replace, which resolved the issue on March 29. Camera inspections in units 13 and 14 revealed no problems on March 31.

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: A high water alarm came in due to improper orifice exchanges on March 31. Protocols were reviewed. Orifice valve operators were repaired as needed.

The rectangular and transition screen cleaning brushes tripped alarms on March 28 at 0905 hours. The rectangular brush was found downstream with the brush raised. It appeared to be a limit switch issue that did not allow the brush to return upstream to park. The transition brush alarm was due to the rectangular brush setting in its zone of operation. Once the rectangular brush was manually parked, the transition brush alarm was cleared. It and the side screen brush continued to function properly. However, multiple attempts to operate the rectangular brush properly failed. The channel was then monitored 24/7 by the fisheries staff. After wiping all the limit switches clean and resetting all brush controls, the brush was brought back to service and the alarm cleared on March 29 at 0636 hours. No further problems have occurred.

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, 100 juvenile lamprey and 360 smolts were bypassed during secondary bypass.

TSW Operations: The TSW remained installed in bay 20 for the TSW passage study. The TSW was operated per the study plan. The second TSW remained installed in bay 19. It will become functional with the spring spill program.

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
132.1	105.4	3.1	0.0	45.7	44.1	6.0	6.0

Comments: The above data was supplied by the smolt monitoring staff except water clarity, which came from the control room. All spill recorded was for the TSW passage study. The upcoming spill season begins on April 10 at 0001 hours.

Other

Inline Cooling Water Strainers: The next cooling water strainer examinations are scheduled for April 7.

Avian Activity: Avian counts began on April 1. These counts are reflected in Table 3 below. Before the counts began, gulls, great blue herons, bald eagles and osprey were observed in low numbers. However, cormorants were observed in fairly high numbers.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican
April 1	Spill	1	0	0	0
	Powerhouse	0	0	0	0
	Outfall	1	29	0	0
April 2	Spill	0	1	0	0
	Powerhouse	0	0	0	0
	Outfall	0	30	0	0

In the tailwater zones, gulls were observed in very low numbers. Cormorants were noted roosting on the juvenile outfall pipe and/or navigation lock wing wall in fairly high numbers. However, as the bird distress calls and the laser came in use, the roosting on the wing wall decreased. Feeding activity by both has been minimal. However, cormorants were noted feeding at the juvenile bypass outfall in low numbers. Again, the laser appeared to help reduce the number of birds observed. So far, neither the call nor laser have reduced cormorant numbers roosting on the outfall pipe. This issue will continue to be addressed.

In the forebay zone, an occasional gull, great blue heron, bald eagle or osprey was observed.

The bird distress call remained deployed on the outfall walkway. The call appeared to provide limited hazing success. The laser on the navigation lock wing wall for the juvenile outfall had its patterns checked on March 27 and the patterns were reprogrammed on March 31. More pattern adjustments may be require after the second laser is ready for deployment. The remaining bird distress calls were deployed on the navigation lock wing wall on March 31. The forebay grebe distress call will be deployed on April 6.

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

Fish Rescue/Salvage: None occurred this week.

Research: The adult steelhead top spillway weir (TSW) passage efficiency continued. Gas bubble trauma (GBT) examinations will begin on April 8.

Project: Ice Harbor
Biologist: Ken Fone
Dates: March 27 – April 2, 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	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: The hard constraint for operating the units within the 1% peak operating efficiency range began on April 1. On the April 1st and 2nd fishway inspections, units 4 and 6 were noted as operating 1-3 MW below the 1% peak efficiency range.

Adult Fish Passage Facility

Ice Harbor fish facility staff inspected the adult fishways on March 31, April 1, and April 2.

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’	0.4’

Comments: The north shore entrance channel/tailwater differential was below criteria on the March 31 inspection. This may have resulted from a measuring error of the channel elevation, which was obtained using an electronic measuring tape. The channel/tailwater differential was in criteria on the two subsequent inspections.

The north shore and south shore picketed leads were installed on March 25 and 26, respectively. Adult fish counting from 0500 hours to 2100 hours PDT began on April 1.

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 15 square yards
X			Gatewell drawdown measured this week?	Obtained baseline measurements for 2020
		X	Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0-8%
	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: None.

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 tripped the disconnect switch several times during the reporting week, and will need to be replaced.

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

Fish Sampling: Sampling began on April 2, and will take place on Mondays and Thursdays each week. See the table below for a summary of the sampling results.

Fish condition sampling results at Ice Harbor Dam:

Date: April 2

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	82	0	0	0
Chinook yearling unclipped	17	1	0	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	0	---	---	---
Steelhead clipped	1	0	0	0
Steelhead unclipped	3	0	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	103	1	0	0

Removable Spillway Weir (RSW): Voluntary spill for fish passage begins on April 3.

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
46.2	34.7	0	0	45	45	6.9	6.7

*Unit 1 scroll case temperature.

Other

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

Avian Activity: There were very few piscivorous birds seen around the project (see table below). Land-based hazing of piscivorous birds for 8 hours per day began on April 1.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
April 1	0	0	0	0	0
April 2	3	0	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 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 2	0	0
Totals	0	0

*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: March 27 – April 2, 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	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: The hard 1% peak efficiency constraint began on April 1st.

Adult Fish Passage Facility

The adult fishways were inspected by Corps biologists on March 29, April 1 and April 2.

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: None.

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	South Powerhouse Entrance (SPE-1) Weir Depth	≥ 8.0’ or on sill	
		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: North Shore Entrance (NSE-1) weir depth was out of criteria on the April 2 inspection with a reading of 7.7 feet. Powerhouse electricians adjusted the automated system.
North Shore Entrance (NSE-2) weir depth was out of criteria on the April 2 inspection with a reading of 7.5 feet. Powerhouse electricians adjusted the automated system.
South Powerhouse Entrance weir (SPE-1) was on sill during all inspections with readings of 7.1, 7.4 and 6.9 feet respectively.
South Powerhouse Entrance weir (SPE-2) was on sill during all inspections with readings of 7.1, 7.4 and 6.9 feet respectively.
South Shore Entrance weir (SSE-1) was on sill during all inspections with readings of 8.3, 8.3 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)	0 yds^2
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?	

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 inspected prior to deployment on March 19. STS's were deployed in all operational units' gatewells by March 25.

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 collection channel and the PDW went back into service on at approximately 14:00 on March 23. The mechanical screen cleaner was upgraded over the winter and needs its operation refined by powerhouse electricians.

Collection Facility: The Juvenile collection facility was watered up at 10:00 on March 26. Collection for condition sampling occurred from 0700 on April 1 until 0700 April 2. A total of 1,110 fish were collected with 1,110 fish being bypassed back to the river.

Transport Summary: No transport at this time.

Spillway Weir: RSW scheduled to go 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
45.6	33.7	0.0	0.0	45.0	44.5	5.0	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 (PH1+PH2) at Lower Monumental Dam.

Date	**Time**	**Gulls**	**Cormorants**	**Terns**	**Grebes**	**Pelicans**
March 27- April 2	NA	1	0	0	0	0

Invasive Species: No zebra or quagga mussels were observed during monitoring station inspections on March 3.

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: March 27-April 02, 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	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.

Comments: The hard 1% peak efficiency constraint began on April 1st.

Adult Fish Passage Facility

Little Goose fish facility staff inspected the adult Fishway on March 30, 31 and April 02.

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’	7.9, 7.9
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.8, 7.9
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 7.0’ or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 7.0’ or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
	X		North Shore Entrance (NSE-1) Weir Depth	≥ 6.0’ or on sill	5.7, 5.9, 4.7
	X		North Shore Entrance (NSE-2) Weir Depth	≥ 6.0’ or on sill	5.7, 5.9, 4.7
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	
	X		Collection Channel Surface Velocity	1.5 – 4.0 fps	1.3

Comments: The SSE entrance weir depths were found out of criteria on March 30 and April 02. 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 March 31.

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 21,600 square feet of floating woody debris currently inside the trash shear boom in the forebay. Drawdowns were performed April 02 on units 1, 2 and 3 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 on April 02 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 1,144 fish were collected, of which 1,144 were by-passed back to river. The descaling and mortality rates were 1.9% and 0% respectively. There were two days of collection this period. 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
42.3	33.0	0.0	0.0	47.4	46.3	6.0	4.9

*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
3-27	NA	NA	NA	NA	NA
3-28	NA	NA	NA	NA	NA
3-29	NA	NA	NA	NA	NA
3-30	NA	NA	NA	NA	NA
3-31	NA	NA	NA	NA	NA
4-1	1600	0	4	0	0
4-2	1530	0	2	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*
3-27	NA	NA
3-28	NA	NA
3-29	NA	NA
3-30	NA	NA
3-31	NA	NA
4-1	NA	NA
4-2	1	4
Totals	1	4

Gas Bubble Trauma (GBT): GBT monitoring will begin on April 05.

Fish Rescue/Salvage: A fish rescue was conducted on April 02 and 03 in the Navigation Lock. JFF personnel captured and released 3 adult steelhead and 48 juvenile Chinook salmon.

Research: None.

Project: Lower Granite
Biologists: Elizabeth Holdren and David Miller
Dates: March 27-April 2, 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**
1	March 30	1046	March 30	1333	ESBS Inspections
2	March 29	1422	March 29	1524	ESBS Inspections
3	March 29	1530	March 30	1636	ESBS Inspections
3	March 30	0903	March 29	1042	ESBS Inspections
4	March 29	0900	March 29	1035	ESBS Inspections
5	March 29	1037	March 29	1205	ESBS Inspections
6	March 29	1210	March 29	1415	ESBS Inspections

Comments: The hard 1% peak efficiency constraint began on April 1st.

Adult Fish Passage Facility

Lower Granite and EAS/Anchor QEA staff inspected the adult fishway on March 27, 28, 30, and April 1.

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’	
X			South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
X			North Powerhouse Entrance (NPE-1) Weir Depth	≥ 8.0’ or on sill	
X			North Powerhouse Entrance (NPE-2) Weir Depth	≥ 8.0’ or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
	X		North Shore Entrance (NSE-1) Weir Depth	≥ 7.0’ or on sill	6.9
			North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	Closed
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	
	X		Collection Channel Surface Velocity	1.5 – 4.0 fps	1.2, 1.3, 1.0

Comments: Depth over weir out of criteria reading was likely the gate had not completed adjustment to tailwater elevation. 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 March 30.

ESBSs/VBSs:

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

Comments: ESBS inspections were completed March 29 & 30. All screens past inspection. VBS differentials were measured March 30.

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 March 27-April 2 was 16,904 juvenile salmonids. All salmonids collected were sampled for condition.

Transport Summary: No transport.

Spillway Weir: Spring spill and RSW operation are scheduled to begin 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
45.0	36.7	0.0	0.0	46.0	45.0	5+	5+

*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 were 5 Siberian prawns 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
March 27	1315	0	6	0	0
March 28	1315	0	6	0	0
March 29	1420	0	10	0	0
March 30	0840	1	5	0	0
March 31	1220	0	12	0	0
April 1	1337	1	4	0	0
April 2	1826	0	0	0	0

Gas Bubble Trauma (GBT) Monitoring: N/A

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.