U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#04-2020

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: March 20 to 26, 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	5/28/20	NA	Turbine blade packing.
11 to 14	3/23	1000	3/23	1600	Trash racks cleaned, rotated through units.
4 to 10	3/24	0700	3/24	1630	Trash racks cleaned, rotated through units.
1 to 4	3/25	0700	3/25	1130	Trash racks cleaned, rotated through units.

Comments: The soft one percent peak efficiency constraint continued. At times, units can run outside the constraint at BPA's request. The hard constraint will begin April 1.

Adult Fish Passage Facilities

McNary fisheries biologists performed measured inspections of the adult fishways on March 20, 22 and 26. The picketed leads will be lowered on March 31. Adult fish counting will resume April 1.

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 very light to 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.

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'	7.9' on March 22.
	X		NFEW3 Weir Depth	≥ 8.0'	7.8' on March 22.
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 1.5 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	
	X		WFE2 Weir Depth	≥ 8.0'	7.3' on March 22.
	X		WFE3 Weir Depth	≥ 8.0'	7.3' on March 22.

Comments: The north Oregon powerhouse entrance out of criteria points listed above are probably due to extremely low tailwater. At the Washington shore entrance, the out of criteria points were probably due to the lower limits of the weirs being set to high. The master (lead) weir was switched from W3 to W2 on March 22. The electrical staff adjusted the weirs limits on March 23.

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 degrees
Yes			Oregon Ladder Fish Pump 3, Blade angle: 26 degrees
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)	Light to Heavy. New debris was minimal.
X			Trash rack differentials measured this week?	Daily.
X			Trash rack differentials acceptable	
	X		Any debris seen in gatewells (% coverage)	
	X		Any oil seen in gatewells?	

Comments: 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.

Trash rack were cleaned in unit 1 through 14 on March 23 to 25. There was 169 yards of debris removed. Most of which was Tumbleweeds. No fish were observed in the debris.

There are no problems to report.

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

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

Comments: ESBS's 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. ESBS brush cycle programming continued. Camera inspections in units 13 and 14 are scheduled for March 31.

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 as required for trash rack cleaning. There are no problems.

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, 280 juvenile lamprey and 592 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 was installed in bay 19 on March 24. The upcoming spill season begins on April 10 at 0001 hours.

River Conditions

Table 4. 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
131.1	99.6	2.9	0.0	44.1	41.3	6.0	5.3

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.

Other

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

Avian Activity: Avian counts will begin on April 1. Gulls have been observed around the project in low numbers. Cormorants have been noted roosting on the juvenile outfall pipe and/or navigation lock wing wall in fairly high numbers. Feeding activity by both has been minimal. However, cormorants began to feed at the juvenile bypass outfall in low numbers late in the week. A few grebes, osprey and great blue herons were also observed.

The first bird distress call remained deployed on the outfall walkway. The call appears to be providing limited hazing success. The laser on the navigation lock wing wall for the juvenile outfall was activated on March 25. The laser pattern will be checked on March 27 and reprogrammed, if needed, on March 31. The remaining bird distress calls will be deployed on the navigation lock wing wall on March 31.

Invasive Species: No Siberian prawns were observed in this week's samples. None have been observed so far this season. Mussel stations will be examined on March 29.

Fish Rescue/Salvage: None occurred this week.

Research: The adult steelhead top spillway weir (TSW) passage efficiency continued.

Project: Ice Harbor
Biologist: Ken Fone
Dates: March 20 – March 26, 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 were taken out of service one at a time on March 24, 25, and 26 to install submersible traveling screens (STSs).

Adult Fish Passage Facility

Ice Harbor fish facility staff inspected the adult fishways on March 24, 25, and 26.

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 48 square yards
		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: 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 STSs were installed on March 24, 25, and 26.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
	X		Orifices operating satisfactory?	16-21 (variede during STS installation)
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: The juvenile fish channel was watered up and 20 orifices were opened on March 23. Just before watering up, the overflow weirs in the primary dewatering system were found to raise only about half-way up. The upper limit setting of the actuator had to be re-set to fix the problem.

Three orifice lights were found to be burned out on March 23 and 24, and were replaced the next day. Orifice 6BS would not close on March 24. On March 25, electricians replaced the solenoid for the 6BS orifice switch.

Juvenile Fish Facility: On March 17, the main fish collection/bypass drop gate was being operated to diagnose problems with associated unwatering valves, when the lifting mechanism for the gate broke. Repairs to the gate lifting mechanism and unwatering valves were completed on March 20.

The raw water supply lines at the fish facility were watered up on March 26.

Fish Sampling: Sampling begins on April 2.

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
43.0	24.9	0	0	44	44	6.8	6.0

*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.

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 PSMFC and Anchor, frozen and properly disposed of in a landfill.

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 20 - 26, 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	3/23/2020	0753	3/23/2020	1311	STS Installation
Unit 2	7/15/2019	0720	7/17/2020	ERTS	Annual, Draft Tube Liner
Unit 3	3/23/2020	1317	3/23/2020	1647	STS Installation
Unit 4	3/25/2020	0710	3/25/2020	1420	STS Installation
Unit 5	3/24/2020	1130	3/24/2020	1610	STS Installation
Unit 6	3/24/2020	0704	3/24/2020	1127	STS Installation

Comments: None.

Adult Fish Passage Facility

The adult fishways were inspected by Corps biologists on March 23, 25 and 26.

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: South Powerhouse Entrance weir (SPE-1) was on sill during all inspections with readings of 7.4, 7.3 and 8.0 feet respectively.
South Powerhouse Entrance weir (SPE-2) was on sill during all inspections with readings of 7.4, 7.3 and 8.0 feet respectively.
South Shore Entrance weir (SSE-1) was on sill during all inspections with readings of 8.5, 8.4 and 9.0 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 – 2%
	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 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 begins April 1.

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
42.2	26.8	0.0	0.0	43.8	43.0	6.1	4.2

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on March 4. Five live juvenile lamprey were salvaged. Mortalities included 346 juvenile lamprey.

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

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
March 20-26	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 20-26, 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.

Comments: None.

Adult Fish Passage Facility

Little Goose fish facility staff inspected the adult Fishway on March 23, 25 and 26.

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’	7.8
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	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	
X			North Shore Entrance (NSE-2) Weir Depth	≥ 6.0’ or on sill	
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	0.9, 0.8
	X		Collection Channel Surface Velocity	1.5 – 4.0 fps	1.3

Comments: The SSE weir depth was found out of criteria on March 25. The NSE channel/tailwater differential was found out of criteria on March 25 and 26. The fish control system still has a faulty I/O module for the NSE weirs and is currently being repaired. The collection channel surface velocity was found out of criteria near the SSE on March 23 and 25. Once all AWS pumps are in service, the surface velocity measurements should meet criteria.

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: Fish pumps were returned to service on February 27. Shortly after the pumps were started, maintenance staff noticed that the oiling system in the gearbox of fish pump 1 was not working correctly. Fish pump 1 was taken out of service and is currently being repaired.

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 7,500 square feet of floating woody debris currently inside the trash shear boom in the forebay. Drawdown inspections were performed March 26 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: ESBS's were installed the week of March 16. After screens were installed, ESBS screens 4B and 6B brush sensors failed due to water intrusion. Screens were removed, repaired and reinstalled. VBS differentials were conducted on March 26 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 was returned to service on March 12 and is operating in primary bypass.

Collection Facility: The juvenile collection facility was watered up on March 24. Collection for condition sampling will begin on April 01.

Transport Summary: Fish transportation is scheduled to begin in April.

Spillway Weir: Spring spill operations will begin on April 03.

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
42.6	26.6	0.0	0.0	45.7	45.6	4.8	4.3

*Ladder temperature.

Other

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

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

Invasive Species: No invasive species have been observed on the mussel station.

Siberian Prawn: Juvenile fish collection begins on April 01. Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by Oregon Department of Fish and Wildlife and Anchor, frozen and properly disposed of in a landfill.

Gas Bubble Trauma (GBT): GBT monitoring is not being conducted at this time.

Fish Rescue/Salvage: None.

Research: None.

Project: Lower Granite
Biologists: Elizabeth Holdren and David Miller
Dates: March 20-26, 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**

Comments: No Lower Granite Unit were OOS during this reporting period.

Adult Fish Passage Facility

Lower Granite and EAS/Anchor QEA staff inspected the adult fishway on March 20, 21, 23, 24, and 25.

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’	
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	$\geq$ 8.0’ or on sill	
	X		North Powerhouse Entrance (NPE-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 (NSE-1) Weir Depth	$\geq$ 7.0’ or on sill	6.8
			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	1.2, 1.3, 1.0, 1.0

Comments: Depth over weir out of criteria readings were likely related to the fish ladder control system. 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

Juvenile fish passage facility collection for most research projects and research related operations were suspended until further notice beginning March 24 due to COVID-19. Projects not impacted include juvenile condition sampling, SMP, GBT, NPT Kelt collection, and avian predation control.

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: None.

ESBSs/VBSs:

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

Comments: None.

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 remained 100% for the week. Total fish facility collection from March 20-26 was 990 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
45.5	30.2	0.0	0.0	45.5	43.0	5+	4.7

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Unit cooling strainer inspections were conducted on February 27.

Invasive Species: No zebra/quagga muscles were detected on the trap substrate. There were 8 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 20	1345	4	0	0	0
March 21	1300	0	0	0	0
March 22	1250	0	6	0	0
March 23	1830	5	0	0	0
March 24	1435	0	3	0	0
March 25	1158	2	9	0	0
March 26	1335	4	14	0	0

Gas Bubble Trauma (GBT) Monitoring: N/A

Adult Fish Trap Operations: The adult trap was watered up at 1200 hours March 2 started sampling at a 28% (20% /week) sample rate. Collection for sampling will be conducted Monday through Friday until broodstock collection starts August 18. Adult trap operations were suspended March 24 until further notice due to COVID-19.

Fish Rescue/Salvage: N/A

Research:

Collection for most research projects and research related operations were suspended until further notice beginning March 24 due to COVID-19. Projects not impacted include juvenile condition sampling, SMP, GBT, NPT kelt collection, and avian predation control.

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.

Idaho Fish and Game (IDFG) Genetic Stock Identification

Fish collected as part of the Lower Granite juvenile condition sample are used to enumerate and characterize age composition and genetic stock profiles of naturally producing yearling chinook and juvenile steelhead. IDFG will sample Monday through Friday through mid-June with a goal of collecting 2,000-5,000 yearling chinook and juvenile steelhead genetic samples.

National Marine Fisheries Service (NMFS) PIT tagging of Adult Wild Chinook and Adult Steelhead for ISEMP-Related Dispersal Monitoring:

The goal of this project is to PIT tag up to 4000 unclipped adult Chinook and 4000 unclipped adult steelhead collected in the adult trap daily sample for dispersal monitoring.

National Marine Fisheries Service (NMFS) Ancillary Adult Passage Monitoring:

Fish that were PIT as juveniles at LWG are monitored as returning adults through the river and LWG facility. For each returning adult the following is estimated; 1) passage time between sets of detection PIT tag coils, 2) whether the fish was handled at the adult trap, 3) duration the fish was held at the adult trap, 4) overall passage time from ladder entrance to exit, 5) whether the turnpool gate was open or closed during passage. This will be the last year of this evaluation.

Sampling of Steelhead, Chinook salmon, and Sockeye salmon by the Idaho Department of Fish and Game (IDFG) and NOAA Fisheries for Biological data collection.

Upriver migrating steelhead, spring/summer Chinook salmon, and sockeye salmon are collected from the adult trap beginning April 4 through December 15. The goal is to collect 5-20% of adult steelhead, spring/summer Chinook salmon, and sockeye salmon ascending the ladder April 4-December 15. Data collection includes fish scales, genetics tissue, sex and length, wild/hatchery composition, and non-adipose clipped hatchery fish assessment. All natural origin adult steelhead and spring/summer Chinook salmon trapped will be PIT tagged to estimate headwater tributary escapement. Sockeye salmon may be PIT tagged in the future to estimate metrics regarding conversion rates. Some steelhead and spring/summer Chinook salmon may be radio-tagged or spaghetti-tagged. This information on adult fish forms the basis for status information used in several forums including BiOp-RPA identified needs.

PIT Tagging and Genetic Sample Collection from Bull Trout for USFWS:

Bull trout will be collected as part of the normal adult trap daily sample and using the adult SbyC system to recapture previously PIT tagged fish. Untagged bull trout will be PIT tagged, fin clipped for genetic analysis, and have morphometric data collected including weight and length etc. Fin clips will be sent to USFWS to determine the fish's origin. Previously PIT tagged bull trout will only have morphometric data collected. All fish will be released back into the adult fish ladder.