U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#03-2020

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: March 13 to 19, 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	**Date**	**Time**	**Date**	**Time**	**Outage Description**
5	5/23/19	0943	4/7/20	NA	Turbine blade packing.

Comments: The soft one percent peak efficiency constraint continued. The hard constraint will begin April 1.

Adult Fish Passage Facilities

McNary fisheries biologists performed measured inspections of the adult fishways on March 13, 16 and 18. Adult fish counting will resume April 1, at which time the picketed leads will be lowered.

Fish Ladder Exits:

Yes	No	Location	Criteria	Comments
X		Oregon Exit	Head over weir 1.0' to 1.3'	
X		Oregon Count Station Differential	0.0' to 0.5'	
X		Washington Exit	Head over weir 1.0' to 1.3'	
X		Washington Count Station Differential	0.0' to 0.5'	

Comments: Debris loads were minimal to heavy near the Oregon exit and minimal near the Washington exit. Tumbleweeds have been observed on and removed from the Washington ladder trash rack. At the Oregon exit, one high water alarm came in and was reset on March 16.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
X			North Oregon Entrance Head Differential	1.0' – 2.0'	
X			NFEW2 Weir Depth	≥ 8.0'	
X			NFEW3 Weir Depth	≥ 8.0'	
X			South Oregon Entrance Head Differential	1.0' – 2.0'	
X			SFEW1 Weir Depth	≥ 8.0'	
X			SFEW2 Weir Depth	≥ 8.0'	
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.5 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	
X			WFE2 Weir Depth	≥ 8.0'	
X			WFE3 Weir Depth	≥ 8.0'	

Comments: There are no problems to report.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
Yes			WA shore Wasco County PUD Turbine Unit
	Yes		WA shore Wasco PUD Bypass
		Yes	Oregon shore Fish Pump 1, OOS to September 12.
Yes			Oregon Ladder Fish Pump 2, Blade angle: 23 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)	Minimal 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 from 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.

The next trash rack cleaning is scheduled to start on March 23.

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 2. There are no problems to report. Camera inspections in the four units mentioned above will begin in late March.

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: 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, 720 juvenile lamprey and 60 smolts were bypassed during secondary bypass.

One of two B side count tunnels was cleared of a debris blockage after sampling was completed. No harm to fish was observed on March 16.

TSW Operations: The TSW remained installed in bay 20 for the TSW passage study. The TSW was operated per the study plan. The TSW failed to open on March 15. The electrical staff and operators resolved the issue and the test date was moved to March 16. The TSW for bay 19 will be installed next week in preparations for the upcoming spill season, which 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
122.4	92.9	3.4	0.0	42.4	41.3	4.6	4.2

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.

The first bird distress call was deployed on the outfall walkway on March 10. There appeared to be limited success. The other bird calls and the laser on the navigation lock wing wall for the juvenile outfall will be installed or active before April 1. The second laser for the outfall pipe will be deployed after the solar panel support brackets have been made.

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 13 – March 19, 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: Unit 1, 2, 4, 5, and 6 were taken out of service one at a time on March 16 and 17 to rake the unit trash racks.

Adult Fish Passage Facility

Ice Harbor fish facility staff inspected the adult fishways on March 17, 18, and 19.

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	1 pump	1 pump	Status of the 8 South Shore AWS Pumps
2 pumps	1 pump		Status of the 3 North Shore AWS Pumps

Comments: South shore AWS pump #1 was out of service to replace worn bearings in the motor, and returned to service on March 16.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Average of 55 square yards
		X	Gatewell drawdown measured this week?	
		X	Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	STSs blocking view into slots
	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 STSs will be installed during the week of March 23.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
		X	Orifices operating satisfactory?	0
		X	Dewaterer and cleaning systems operating satisfactory?	

Comments: The juvenile fish channel will be watered up on March 23.

Juvenile Fish Facility: The fish facility is unwatered for annual maintenance. 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.

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
35.7	26.14	0	0	44	42	2.6	2.6

*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 13 - 19, 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	3/16/2020	0704	3/16/2020	1050	Trash Rack Raking
Unit 2	7/15/2019	0720	7/17/2020	ERTS	Annual, Draft Tube Liner
Unit 3	3/16/2020	1100	3/16/2020	1320	Trash Rack Raking
Unit 3	3/17/2020	0708	3/17/2020	1540	Trash Rack Raking
Unit 4	3/16/2020	1328	3/16/2020	1530	Trash Rack Raking
Unit 4	3/17/2020	0805	3/17/2020	1540	Trash Rack Raking
Unit 5	3/16/2020	1326	3/16/2020	1620	Trash Rack Raking
Unit 6	3/16/2020	1536	3/16/2020	1620	Trash Rack Raking

Comments: None.

Adult Fish Passage Facility

The adult fishways were inspected by Corps biologists on March 9, 11 and 12.

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: South Powerhouse Entrance weir (SPE-1) was on sill during all inspections with readings of 7.1, 7.0 and 7.2 feet respectively.
South Powerhouse Entrance weir (SPE-2) was on sill during all inspections with readings of 7.1, 7.0 and 7.2 feet respectively.
South Shore Entrance weir (SSE-1) was on sill during the March 18 inspection with a reading of 7.6 feet.

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)	939 yds^2
		X	Gatewell drawdown measured this week?	
		X	Gatewell drawdown acceptable	
		X	Any debris seen in gatewells (% coverage)	
		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. All STS's were in good working order.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
		X	Orifices operating satisfactory?	0
		X	Dewaterer and cleaning systems operating satisfactory?	

Comments: Orifices are closed and Dewaterer is OOS for winter maintenance.

Collection Facility: Fish collection is scheduled to begin on 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
35.6	26.7	0.0	0.0	42.0	41.0	6.4	5.7

*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 at Lower Monumental Dam.

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
March 13-19	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 13 – March 19, 2020

Turbine Operation

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

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

	OOS		RTS		
Unit	Date	Time	Date	Time	Outage Description
5	04/14/17	14:11	03/31/2021	17:00	Spider and upper guide bearing repair.
6	03/16/20	07:35	03/16/20	11:55	ESBS Install
4	03/16/20	11:55	03/16/20	16:00	ESBS Install
3	03/17/20	07:20	03/17/20	10:50	ESBS Install
2	03/17/20	10:58	03/17/20	15:05	ESBS Install
6	03/18/20	06:59	03/18/20	10:00	Remove/Repair ESBS 6B
4	03/18/20	10:01	03/18/20	15:00	Remove/Repair ESBS 4B
1	03/18/20	11:16	03/18/20	15:00	ESBS Install
4	03/19/20	12:30	03/19/20	13:37	Install ESBS 4B
6	03/19/20	13:45	03/19/20	15:50	Install ESBS 6B

Comments: Scheduled outages for ESBS install occurred throughout this report period.

Adult Fish Passage Facility

Little Goose fish facility staff inspected the adult Fishway on March 17, 18 and 19.

Fish Ladder:

Yes	No	NA	Location	Criteria	Measurements
X			Fish Ladder Exit Differential	Head ≤ 0.5’	
X			Fish Ladder Picketed Lead Differential	Head ≤ 0.3’	
X			Fish Ladder Depth over Weirs	Head over weir 1.0’ to 1.3’	
		X	Fish Ladder Cooling Water Pumps in Service		
		X	Fish Ladder Exit Cooling Water Pumps Operating Satisfactorily		

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	
X			South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
		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	5.9
	X		North Shore Entrance (NSE-2) Weir Depth	≥ 6.0’ or on sill	5.9, 5.9
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	0.9, 0.8, 0.9
	X		Collection Channel Surface Velocity	1.5 – 4.0 fps	1.4

Comments: The NSE-1 weir depth was found out of criteria on March 18. The NSE-2 weir depth was found out of criteria on March 18 and 19. The NSE channel/tailwater differential was found out of criteria on all inspections. Upon inspection, the fish control system computer had a faulty I/O module for the NSE weirs and is currently being repaired. Therefore, NSE weir depths appeared to be within criteria. 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 15,825 square feet of floating woody debris currently inside the trash shear boom in the forebay.

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.

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 is currently dewatered for winter maintenance.

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
34.5	26.0	0.0	0.0	44.4	43.5	4.7	4.2

*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 13-19, 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**
2	11/04/19	0800	03/19 20	0936	Overhaul

Comments: None.

Adult Fish Passage Facility

The adult fishway was watered up February 10 with gravity flow. AWS pumps 1 and 2 were returned to service at 1530 hours February 11. Lower Granite and EAS or Anchor QEA staff inspected the adult fishway on March 14, 15, 17, and 18.

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, 7.9
	X		South Shore Entrance (SSE-2) Weir Depth	$\geq$ 8.0’	7.9, 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	7.8
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	6.7, 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	1.1, 1.1, 1.0

Comments: All depth over weir out of criteria readings were likely related to fine tuning of the fish ladder control system. FOGs 1 and 10 are in operation. Once the problems with fish ladder control system and local staff gauge reading inconsistencies are resolved FOG operation will be revisited.

Auxiliary Water Supply System:

Operating Satisfactorily	Standby	Out of Service	Auxiliary Water Supply (AWS)
Yes			AWS Fish Pump 1
Yes			AWS Fish Pump 2
No		OOS guide bearing	AWS Fish Pump 3

Comments: AWS pumps were taken offline for TO1 outage at 1535 on March 17. Pump 2 was returned to service at 1538. Pump 1 failed to start due to a blown fuse and was restarted at 1803. Pump 1 removed from service to evaluate the issue from 0715-0834 hours March 18. The issues seems to be related to the historical issues with operating pump 1 in fast at current tailwater elevation.

Juvenile Fish Passage Facility

The juvenile bypass system was watered up on February 20 and sent to primary bypass.

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: Unit trash racks were raked February 18 and 19.

ESBSs/VBSs:

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

Comments: None.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	24
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: Forebay elevation is operating between 733-734 feet to facilitate installation of a fishing dock in Clarkston, WA. All 14" orifices and 10" orifices in units 5 and 6 due to low forebay elevation to support dock installation up river.

Collection Facility: The sample rate remained 100% for the week. A total of 206 juvenile salmonids were collected March 13-19.

Transport Summary: No transport at this time.

Spillway Weir: The spillway 1 PIT tag detection contract was completed in February. Spring spill and RSW operation will 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
34.6	27.2	0.0	0.0	43.5	42.1	5+	4.3

*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 3 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 13	1520	0	13	0	0
March 14	1300	0	0	0	0
March 15	1000	1	2	0	0
March 16	1635	0	3	0	0
March 17	1005	0	3	0	0
March 18	1509	0	4	0	0
March 19	1536	2	3	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.

Fish Rescue/Salvage: N/A

Research:

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.