

**U.S. ARMY CORPS OF ENGINEERS  
WALLA WALLA DISTRICT  
FISH FACILITIES WEEKLY REPORT  
#03-2019**

**Project: McNary**

Biologist: Bobby Johnson and Denise Griffith

Dates: March 15 to 21, 2019

**Turbine Operation**

Yes	No	Turbine Unit Status	Hard	Soft
X		All 14 turbine units available for service.		
X		Available turbines operated within 1% peak efficiency? Constraint in effect.		X

Comments: No units were out of service. The hard one percent constraint begins April 1.

**Adult Fish Passage Facilities**

McNary fisheries biologists performed measured inspections of the adult fishways on March 15, 17 and 20. Picketed leads will be installed before April 1 as adult fish counting will begin that day. Until the counting contract begins, counts will be done by video review.

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.

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'	7.9' on March 15.
	X		SFEW2 Weir Depth	≥ 8.0'	7.8' to 7.9' on March 15 & 17.
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 2.2 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	
X			WFE2 Weir Depth	≥ 8.0'	
X			WFE3 Weir Depth	≥ 8.0'	

Comments: The Oregon ladder out of criteria points list above could be due to several factors. Tailwater elevations, set point changes, calibration drifts, the absence of water from the juvenile system to the north powerhouse pool and/or the gradual degradation of the ladder system over time. On March 20, the control system panel view by the south powerhouse entrances failed. Also, the Oregon ladder entrance weirs set points were adjusted in an attempt to increase the depth of the weirs yet maintain the pool differentials.

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		Yes*	Oregon shore Fish Pump 1, Blade angle: 22°, OOS.
Yes		Yes*	Oregon shore Fish Pump 2, Blade angle: 20°, 25°
Yes		Yes*	Oregon shore Fish Pump 3, Blade angle: 22°, 27°
		Yes	OR North Powerhouse Pool supply from juvenile fishway

\*Comments: On March 18, at 0635 hours, fish pump 1 was removed from service for bearing inspection and system overhaul. At 0700 hours, fish pumps 2 and 3 were briefly operated with zero degree blade angles to insure the brakes on fish pump 1 would work properly. At 1050 hours, fish pumps 2 and 3 were briefly operated with zero degree blade angles to insure the intake and discharge logs for fish pump 1 installed properly. On March 19, from 1314 to 1503 hours, fish pumps 2 and 3 were out of service to insure fish pump 1 was being dewatered properly. With fish pump 1 out of service, the other two pumps are being operated near maximum blade angles. The juvenile facility will return to service in on March 27 or 28.

**Juvenile Fish Passage Facility**

The juvenile system remains out of service for winter maintenance. Primary bypass will begin March 27 or 28.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Light to moderate.
X			Trash rack differentials measured this week?	Twice.
X			Trash rack differentials acceptable	
	X		Any debris seen in gatewells (% coverage)	
	X		Any oil seen in gatewells?	

Comments: Changes in wind direction moved the debris back and forth between the powerhouse and Oregon shoreline. New incoming debris was minimal but has been accumulating at the powerhouse. There was minimal debris at the spillway. Trash rack cleaning will occur from Mach 25 to 28.

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 maintenance continues. ESBS installation is scheduled to begin on April 2, at which time, VBS differential monitoring will begin.

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

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

Comments: The juvenile channel is out of service for winter maintenance until March 27 or 28.

The drain valve pit down well contractor removed residue from previous sand blasting and resolved issues with the transition screen brush and drain valves this week. However, the contractor will return next week to improve a few remaining support brackets. Also, the electricians will complete installation of a new electrical cord for the transition brush. Finally, the mechanics will replace bolts on the east floor drain valve and repair air lines for the facility supply valve.

Bypass Facility:

Yes	No	NA	Item
		X	Sample gates on?
		X	PIT-tag sampling system on?

Comments: All systems are out of service for winter maintenance. This week, the fisheries staff completed rehabilitation of the separator upwell supply valves and installed a new GBT transport line from the separator to the wet lab.

TSW Operations: The TSWs will be installed in early April.

**River Conditions**

Table 1. 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
125.5	99.9	0.0	0.0	39	38	6.0	6.0

Comments: The above data is supplied by the control room. The spring spill program will begin April 10.

**Other**

Inline Cooling Water Strainers: The next cooling water strainer examinations will occur on April 2.

Avian Activity: Avian counts will begin on April 1. Gulls, cormorants, and grebes were observed in low numbers this week.

The stand for the laser to be deployed for the juvenile bypass outfall has not yet been built. A new installation date has not yet been set.

Invasive Species: The mussel stations will be examined in late March.

Fish Rescue/Salvage: None occurred.

Research: None is occurring.

**Project: Ice Harbor**

Biologist: Ken Fone

Dates: March 15 – March 21, 2019

**Turbine Operation**

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

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

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
2	4/25/16	0606	---	---	Runner replacement
4	9/20/18	1619	---	---	Investigate for possible oil leak
5	3/19/19	0703	3/21/19	1700	Water in turbine guide bearing

Comments: The internal oil coolers in unit 5 turbine guide bearing were replaced during the outage.

**Adult Fish Passage Facility**

Ice Harbor fish facility staff inspected the adult fishways on March 15, 18, 19, and 21.

Fish Ladders:

Yes	No	Location	Criteria	Measurements
X		North Ladder Exit Differential	Head $\leq$ 0.3'	
X		North Ladder Picketed Lead Differential	Head $\leq$ 0.3'	
	X	North Ladder Depth over Weirs	Head over weir 1.0' to 1.3'	0.7', 0.8'
X		South Ladder Exit Differential	Head $\leq$ 0.3'	
X		South Ladder Picketed Lead Differential	Head $\leq$ 0.3'	
X		South Ladder Depth over Weirs	Head over weir 1.0' to 1.3'	

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			South Shore Entrance (SFE-1) Weir Depth	$\geq$ 8.0' or on sill	
X			South Shore Channel/Tailwater Differential	1.0' – 2.0'	
X			South Shore Channel Velocity	1.5 – 4.0 fps	
	X		North Powerhouse Entrance (NFE-1) Weir Depth	$\geq$ 8.0' or on sill	7.7', 7.3'
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0' – 2.0'	
	X		North Shore Entrance (NEW-1) Weir Depth	$\geq$ 8.0' or on sill	7.8'
	X		North Shore Channel/Tailwater Differential	1.0' – 2.0'	0.0'

Comments: The depth over the weirs in the north fish ladder was observed to be below criteria on the March 19 and 21. Repairs to the fish transport barge loading dock at Lower Monumental Dam occurred on March 19 to March 21, 2019. The Lower Monumental tailrace elevation was lowered to 435.5'-436.5' to accomplish the repairs. Hydraulic calculations had indicated that there would still be adequate gravity flow from the forebay to meet the depth over weirs criteria. The upper diffuser was observed to be 100% open at the time of the fishway inspections. Woody debris accumulation on the trash rack is reducing flow from the diffuser. Previous attempts by project maintenance

to remove the trash rack for cleaning found that it was stuck in place and could not be removed with the crane. The forebay drawdown and the debris on the diffuser trash rack contributed to the depth over the weir deficiencies.

The north powerhouse entrance weir depth was below criteria on the inspections of March 19 and 21, when NFE-1 was not on sill. NFE-1 does not have a gauge to read the elevation, so readings are being taken from the control room, at which time the gate elevations may have changed.

The north shore entrance weir depth and channel/tailwater differential were below criteria on the March 15 inspection, when the all of the north shore AWS pumps were out of service during the 5 kv Dam Feeder Line testing. The plan was to have one pump running during the testing, but all of the pumps ended up being turned off for the safety of personnel (see MOC 19 IHR 02 for more details).

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 #8 has been out of service since March 1, due to the pump needing an oil change and heater installation. All of the north shore AWS pumps were out of service from on March 15, from 0923 hours to 1700 hours, for the feeder line testing.

**Juvenile Fish Passage Facility**

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	60 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: The unit trash racks were raked of debris during the reporting week. There was very little debris found.

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 are removed for annual maintenance.

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: On March 20, the broken overflow weir #10 (most-downstream weir) in the juvenile fish channel was manually lifted to the typical operating level and chained in place. This weir was fabricated and installed a year ago, but will not move easily in the guide slots, so it was not connected to the valve stem this time.

A corroded, rough floor area at the entrance to the bypass flume was ground smooth and repainted on March 20, to eliminate a possible source of descaling or injury to fish.

The juvenile fish channel was partially filled on March 20, and filled to flow out the flume on March 21, using the make-up water valve, to hasten the melting of large sheets of ice on the floor of the channel.

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

Fish Sampling: Sampling begins on April 1.

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
49.3	32.4	14.5	0	40	37	11.0	11.0

\*Unit 1 scroll case temperature.

### Other

Inline Cooling Water Strainers: Monthly turbine cooling water strainer inspections will take place later in March.

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.

Research: No on-site research is occurring at this time.

**Project: Lower Monumental**

Biologists: Chuck Barnes and Raymond Addis

Dates: March 15 - 21, 2019

**Turbine Operation**

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

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

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
Unit 4	3/1/2019	11:00	3/29/2019	ERTS	Dislodged Rotor Counterweight

Comments: None.

**Adult Fish Passage Facility**

The adult fishways were inspected by Corps and Anchor QEA biologists on March 15, 16, 17 and 20.

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		X	North Shore Entrance (NSE-1) Weir Depth	$\geq$ 8.0' or on sill	
X		X	North Shore Entrance (NSE-2) Weir Depth	$\geq$ 8.0' or on sill	
X			North Shore Channel/Tailwater Differential	1.0'–2.0'	
		X	South Powerhouse Entrance (SPE-1) Weir Depth	$\geq$ 8.0' or on sill	
		X	South Powerhouse Entrance (SPE-2) Weir Depth	$\geq$ 8.0' or on sill	
X			South Powerhouse Entrance Channel/Tailwater Differential	1.0'–2.0'	
	X	X	South Shore Entrance (SSE-1) Weir Depth	$\geq$ 8.0'	
X			South Shore Entrance (SSE-2) Weir Depth	$\geq$ 6.0'	
X			South Shore Channel/Tailwater Differential	1.0' – 2.0'	

Comments: North Shore Entrance weir (NSE-1) was on sill during the March 20 inspection with reading of 7.0 feet.

North Shore Entrance weir (NSE-2) was on sill during the March 20 inspection with reading of 7.0 feet.

South Powerhouse Entrance weir (SPE-1) was on sill during all inspections with readings of 6.9, 6.8, 7.5 and 5.1 feet respectively.

South Powerhouse Entrance weir (SPE-2) was on sill during all inspections with readings of 6.9, 6.8, 7.5 and 5.1 feet respectively.

South Shore Entrance weir (SSE-1) was out of criteria on the March 15 inspection with a reading of 7.4 feet. The set point for the SSE-1 weir opening had been set at 7.5 feet. Powerhouse operator changed the set point back to 8.0

feet. South Shore Entrance weir (SSE-1) was on sill during the March 16, 17 and 20 inspections with readings of 8.0, 7.8 and 5.0 feet respectively.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
No		X	AWS Fish Pump 1
Yes			AWS Fish Pump 2
Yes			AWS Fish Pump 3

Comments: AWS Fish pump 1 is out of service for a Seized Wicket Gate Bushings. There is no current return to service estimate date.

**Juvenile Fish Passage Facility**

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	270 yd <sup>2</sup>
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 35%
	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 are not yet deployed in Units 4, 5 and 6. STS's for top three priority units were installed prior to March 1. STS's were in cycle-run to start the season.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	18
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: None.

Collection Facility: Every other day fish condition sampling began at 0700 on March 8. A total of 16,562 fish were collected with 16,558 fish bypassed back to the river during this reporting period.

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
51.2	33.6	0.0	0.0	37.5	37.0	5.2	3.3

\*Scrollcase temperatures.

## Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on March 19. No live fish were recovered. Mortalities included 33 juvenile lamprey and 11 juvenile salmon.

Avian Activity: Highest counts of foraging piscivorous birds in tailrace (SW+PH1+PH2) at Lower Monumental Dam during this reporting period are reported below.

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
March 15-21	NA	18	0	0	0	0

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

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by PSMFC and Anchor, frozen and properly disposed of in a landfill. Daily and total Siberian prawn counts at Lower Monumental Dam for this reporting period are reported below.

Date	Sample (euthanized)	Collection*
3/15/19	1	1
3/17/19	0	0
3/19/19	0	0
3/21/19	0	0
Totals	1	1

\*Collection and sample numbers are the same as the facility when sampling at 100%

Fish Rescue/Salvage: No Fish Rescue/Salvage took place during this reporting period.

Research: PNNL is installing equipment needed for the Fish Guidance Efficiency Study, which is scheduled to begin approximately April 20, 2019.

**Project: Little Goose**

Biologists: Scott St. John and Richard Weis

Dates: March 15-21, 2019

**Turbine Operation**

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

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

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
5	04/21/17	00:54	03/31/21	17:00	Spider and Upper Guide Bearing Repair
6	03/18/19	07:20	03/18/19	10:40	Trash raking
3 & 4	03/18/19	10:40	03/18/19	15:15	Trash raking
1 & 2	03/19/19	07:30	03/19/19	16:05	Trash raking

Comments: None.

**Adult Fish Passage Facility**

Little Goose fish facility and Anchor QEA staff inspected the adult fishway on March 19, 20 and 21.

Fish Ladder:

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

Comments: None.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurement
X			South Shore Entrance (SSE-1) Weir Depth	$\geq$ 8.0'	
X			South Shore Entrance (SSE-2) Weir Depth	$\geq$ 8.0'	
X			South Shore Channel/Tailwater Differential	1.0' – 2.0'	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	$\geq$ 7.0' or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	$\geq$ 7.0' or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0'–2.0'	
	X		North Shore Entrance (NSE-1) Weir Depth	$\geq$ 6.0' or on sill	5.6
	X		North Shore Entrance (NSE-2) Weir Depth	$\geq$ 6.0' or on sill	5.6
	X		North Shore Channel/Tailwater Differential	1.0'–2.0'	0.9
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: The adult fishway continues to operate in manual mode. Weir depth at NSE was found out of criteria on March 20. Channel to tailwater differential at NSE was found out of criteria on March 20. Adjustments at all

locations were made immediately and the fishway is currently in criteria. Rickly water velocity found 2.8 feet per second average for the adult channel on March 19.

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 pump 2 RTD was replaced on March 18. The pump was out of service on March 18 from 12:15 until 13:20. During that time the channel to tailwater differential was out of criteria at the NSE (MFR 19LGS01). The fishway is currently in criteria and all three fish pumps are in service.

**Juvenile Fish Passage Facility**

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comment
X			Forebay debris load acceptable? (amount)	9,600
		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: There is approximately 9,600 square feet of floating woody debris inside the trash shear boom in the immediate forebay. ESBS screens are currently being stored in the gatewell slots for winter maintenance.

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?

Comments: ESBS screens are currently being stored in the gatewell slots for winter maintenance.

Orifices, Collection Channel, Dewatering Structure, and Flume:

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

Comments: The juvenile bypass system is currently dewatered for winter maintenance.

Collection Facility: The juvenile fish facility is currently dewatered for winter maintenance.

Transport Summary: N/A

Spillway Weir: N/A

## 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
50.9	34.2	0.0	0.0	43.0	40.9	5.6	4.4

\*Ladder temperature.

## Other

Inline Cooling Water Strainers: Cooling water strainers are currently being inspected every other week and results are sent to district for FPOM distribution.

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

Invasive Species: No zebra or Quagga mussels were observed.

Siberian Prawn: N/A

Gas Bubble Trauma (GBT): Gas bubble monitoring will begin on April 07.

Fish Rescue/Salvage: N/A

Research: N/A

**Project: Lower Granite**

Biologists: Elizabeth Holdren

Dates: March 15-21, 2019

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**Turbine Operation**

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

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

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
2	02/11	0830			Annual Maintenance/Digital Governor Install/OPTO

Comments: Units were rolled out of service for ESBS installation March 18-21.

**Adult Fish Passage Facility**

Lower Granite biological staff inspected the adult fishways on March 19, 20, and 21.

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'	1.6' on March 20
	X		Fish Ladder Cooling Water Pumps in Service		
		X	Fish Ladder Cooling Water Pumps Operating Satisfactorily		

Comments: Depth over weirs of 1.6 feet March 20 may have been due to diffuser 14 not automatically adjusting to forebay elevation.

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	
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	
X			North Shore Entrance (NSE-2) Weir Depth	$\geq$ 7.0' or on sill	Closed
X			North Shore Channel/Tailwater Differential	1.0'–2.0'	
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: None.

Auxiliary Water Supply System:

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

Comments: AWS pump 1 remains out of service for lower guide bearing repair.

**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: Debris observed during ESBS installation was removed by maintenance staff.

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: ESBSs were installed March 18-21. Baseline gatewell drawdowns and VBS differentials will be measured on all operating units as they are brought on line.

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: The collection channel is in primary bypass mode.

Collection Facility: The collection facility is scheduled to be watered up at 0700 hours March 25 with the first condition sample March 26.

Transport Summary: No Transport

Spillway Weir: Standby

### 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
52.0	37.5	0	0	42.2	40.8	4.2	3.9

\*Cooling water intake temperature.

### Other

Inline Cooling Water Strainers: N/A

Invasive Species: Zebra/Quagga mussel traps were inspected March 20. No mussels were found.

Avian Activity: Biologist daily piscivorous bird counts at Lower Granite Dam will begin April 1.

Gas Bubble Trauma (GBT) Monitoring: N/A

Adult Fish Trap Operations: Remains dewatered until NOAA completes their anesthetic waste disposal system to EPA Clean Water Act compliance. Multiple adult trap tank supply lines ruptured March 21 when NOAA was watering up the trap for operational testing. The damage was likely due to sending supply water through the facility with valves in the incorrect position. LWG mechanical crew will complete damaged pipe repairs Monday March 25.

Fish Rescue/Salvage: N/A

Research: N/A