

**U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#06-2018**

Project: McNary

Biologist: Bobby Johnson and Denise Griffith

Dates: April 6 to 12, 2018

Turbine Operation

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

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

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
12	4/9	0701	4/13	1041	Cooling water strainer upgrade.
7	4/9	0702	4/9	1131	ESBS installation.
5	4/9	1134	4/9	1613	ESBS installation.
4	4/10	0630	4/10	1115	ESBS installation.
3	4/10	1115	4/10	1617	ESBS installation.
2	4/11	0610	4/11	1111	ESBS installation.
1	4/11	1115	4/11	1721	ESBS installation.

Comments: The hard constraint began on April 1.

Adult Fish Passage Facilities

McNary fisheries biologists performed adult fishways measured inspections on April 6, 8 and 11. Data from the temperature probes was downloaded on April 6. Adult fish counting continues.

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'	1.5' on April 8.
	X	Washington Count Station Differential	0.0' to 0.5'	0.6' on April 8.

Comments: Debris loads were light to moderate near the Oregon exit and minimal to moderate near the Washington exit. On April 7, the biologist cleaned the Washington ladder picketed leads.

Also, that day, the ladder forebay elevation sensor failed, tripping an alarm. From April 7 to 9, the exit was in manual mode and adjusted by the operators as needed. The sensor was replaced on April 9. The out of criteria points on April 8 were due to the failed sensor, which was reading 10 to 12 feet lower than actual forebay elevation. The operator lowered the regulating weir half a foot, returning the exit within criteria.

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 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: On April 8, WFE2 was found not to be functional, yet in criterion. The weir was switched to manual mode. On April 9, an electrical repaired the weir and returned it to automatic mode.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
X			WA shore Wasco County PUD Turbine Unit
	X		WA shore Wasco PUD Bypass
X			Oregon Ladder Fish Pump 1, Blade angle: 22 degrees
X			Oregon Ladder Fish Pump 2, Blade angle: 22 degrees
X			Oregon Ladder Fish Pump 3, Blade angle: 22 degrees
X			OR North Powerhouse Pool supply from juvenile fishway

Comments: There are no problems to report.

Juvenile Fish Passage Facility

The sampling season continues, with alternating 24 hour days of secondary and primary bypass.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Heavy to minimal.
X			Trash rack differentials measured this week?	Everyday.
X			Trash rack differentials acceptable?	
X			Any debris seen in gatewells? (% coverage)	Large sticks.
X			Any oil seen in gatewells?	

Comments: With the beginning of the spill program and spring storms, on April 10 and 11, the forebay debris migrated to the spillway and was passed. New incoming debris was minimal to light. No debris has accumulated on the spillway. Any debris approaching the spillway appears to be passing. The trash racks will be cleaned again from April 17 to 19. On April 8, about a cup of hydraulic fluid was removed from 2B slot by the general maintenance staff, who found and repaired a headgate hydraulic line leak. During the week, large sticks and other woody material was removed from the slots as needed.

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

Yes	No	NA	Item
X	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 installation occurred on April 9 through 11. ESBSs were installed at units 7 and 1 through 5, which completed the installation process. On April 11, the biologist found the brush cycles for screens in 3A and 3B slots in manual mode. After confirming the ESBSs status with the control room, both screens brush cycles were switched to automatic mode. On April 12, the brush on the screen in 1C slot tripped multiple alarms. The brush cycle was set to timer mode. ESBS camera inspections will begin in mid-May.

VBS differential monitoring occurred daily.

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? See notes below.	

Comments: Orifice attraction lights and operator air leaks were replaced and repaired as required.

The transition screen cleaner remained out of service until April 12, at which time, the contractor installed a new electrical cord carrier for the motor that moves the brush between zones (across the channel) and returned the device to automatic mode.

Also, that day, the contract adjusted the side screen cleaner drive system that operates the brush going upstream and downstream. They used Lock-Tite on the fasteners and adjusted the drive chain.

Finally, that day, the biologist increased the brush cycle interval from every two hours to every three hours. With the reduction in powerhouse flow due to the spill program, we anticipate lower debris loads through system and this will reduce the possible frequency of any future brush failures.

Bypass Facility:

Yes	No	NA	Item
X			Sample gates on?
		X	PIT-tag sampling system on? (Remain off unless a study is occurring.)

Comments: From April 6 to 8, the adult flush line supply valve, which is trigger to open and close with the primary bypass gate (open during secondary bypass), was operated manually. After electricians examined the valve, it was returned to automatic operation on April 9.

The sample gates are only on during secondary bypass for sample collection. The sample examination on April 9 was delayed until 1030 hours due to issues with the sample system chiller. The chiller pump had been examine, a piece of the foot valve was removed and a new foot valve was installed.

On April 10, a new weather station was installed by the separator observation building. On April 12, the wet lab floor was waxed and sealed. During the week, the GBT monitoring station in the wet lab was improved.

This week, 216 juvenile lamprey and 10,666 smolts were bypassed.

TSW Operations: The TSW remain installed in spillbays 19 and 20. The crane in bay 19 had its limits set again on April 9. The TSWs were opened on April 9 at 2340 hours.

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
272.9	228.7	195.0	60.1	46.5	44.1	5.5	4.0

Comments: The above data is supplied by Anchor, QEA except water clarity, which is provided by the control room. Hoist issues at spillbay 9 were finally resolved on April 6. With the second spillway crane out of service, there is no crane available to adjust the spillgate in bay 2. The solution was to dog the gate at 4 stops, which occurred on April 9. The TSW crane was used and disconnected from the TSW for 26 minutes. Spill in excess of powerhouse capacity continued until April 10, at 0001 hours, when the spring spill program began with spill to the gas cap.

Other

Inline Cooling Water Strainers: The next cooling water strainer examinations will occur on May 1.

Avian Activity: Avian counts continue.

Table 3. McNary Project’s Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican
April 6	Spill	0	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	1	0	0
April 7	Spill	0	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
April 8	Spill	0	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
April 9	Spill	0	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
April 10	Spill	1	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
April 11	Spill	0	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
April 12	Spill	8	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0

An occasional osprey, gull, tern, cormorant, blue heron or grebe was observed in the forebay. The outfall hazing water sprinklers have been operating well. The bird distress calls deployed along the navigation lock wing wall have been functioning beyond expectations. No birds have been observed roosting on the wall. USDA Wildlife Services will begin hazing April 15.

Invasive Species: The next mussel station examinations will occur in late April. No Siberian prawns were observed in the sample.

Fish Rescue/Salvage: None occurred.

Research: GBT monitoring began on April 10. Monitoring will occur twice a week.

Project: Ice Harbor

Biologist: Ken Fone

Dates: April 6 – April 12, 2018

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	12/17/17	1342	---	---	Initially to investigate oil leak. Also fixing governor pump

Comments: Unit 3 was noted to be operating a few megawatts above the 1% peak operating efficiency range on April 9th and 11th fishway inspections. This was due to the GDACS program needing to be updated with the narrower operating efficiency range of unit 3 since it became a fixed-blade unit.

Adult Fish Passage Facility

Ice Harbor fish facility staff inspected the adult fishways on April 9, 11, and 12.

Fish Ladders:

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

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			South Shore Entrance (SFE-1) Weir Depth	\geq 8.0' or on sill	
X			South Shore Channel/Tailwater Differential	1.0' – 2.0'	
	X		South Shore Channel Velocity	1.5 – 4.0 fps	1.0 fps from meter
	X		North Powerhouse Entrance (NFE-2) Weir Depth	\geq 8.0' or on sill	7.9'
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0' – 2.0'	
X			North Shore Entrance (NEW-1) Weir Depth	\geq 8.0' or on sill	
X			North Shore Channel/Tailwater Differential	1.0' – 2.0'	

Comments: The channel velocity reading from the meter was below criteria on April 9, but the velocity meter is reading too low and is in need of calibration. Subsequent manually timed measurements of the velocity show that it is in criteria. Manual measurements will be taken until the velocity meter can be calibrated.

NFE-2 weir depth was slightly below criteria on April 12. The gate is being operated in manual mode to reduce the wear and tear of the gate operating machinery trying to adjust to fluctuating tailwater levels from spill.

Auxiliary Water Supply (AWS) System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
6-7 pumps	1-2 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)	7 square yards
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 to 15%
X			Any oil seen in gatewells?	Oil sheen in 4B gatewell and head gate slots

Comments: The oil sheens were reported to the powerhouse operator and oil absorbent pads were put in the slots on April 11.

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 were switched to continuous-run mode on April 9 due to the presence of sockeye with the average fork length of less than 120 mm in the April 9 juvenile fish sample. The STS in gatewell slot 4B was removed on April 12 to check for oil leaking from the gearbox.

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: None.

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

Fish Sampling: Sampling is occurring on Mondays and Thursdays each week. See the table below for a summary of the sampling results. The cause of the descaling observed on four of the fish in the April 12 sample were attributed to birds and lamprey. The one mortality in the April 12 sample had a severe head injury.

Fish condition sampling results at Ice Harbor Dam:

Date: April 9

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	41	2	0	0
Chinook yearling unclipped	61	1	1	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	0	---	---	---
Steelhead clipped	15	1	0	0
Steelhead unclipped	4	0	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	1	0	0	0
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	122	4	1	0

Date: April 12

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	39	0	0	0
Chinook yearling unclipped	41	1	1	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	0	---	---	---
Steelhead clipped	61	7	0	0
Steelhead unclipped	6	1	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	3	2	0	0
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	150	11	1	0

Removable Spillway Weir (RSW): Voluntary spill for fish passage, including spill through the RSW, is occurring.

River Conditions

River conditions at Ice Harbor Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (°F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
120.7	84.3	96.0	74.4	48	44	5.6	4.0

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Turbine cooling water strainer inspections occurred on March 26, 27, and 28. A total of 1 live juvenile lamprey, 10 dead juvenile lamprey, 1 dead adult shad, and 5 dead Siberian prawns were identified.

Avian Activity: Gull and cormorant numbers increased dramatically during the week (see the table below). Most of the birds were observed foraging downstream of the spillway. Contracted land-based hazing of piscivorous birds switched from 8 hours per day to 16 hours per day on April 8. Boat-based hazing for 8 hours per day, 3 days per week, began on April 8. The land-based hazing has been effective at moving birds out of zones adjacent to the dam. Boat-based hazing has been effective at dispersing birds out of downstream spillway zones.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
April 6	1	5	0	0	0
April 7	3	12	0	0	2
April 8	38	83	3	7	3
April 9	60	30	0	0	3
April 10	14	31	0	0	0
April 11	23	21	0	0	0
April 12	50	4	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 are humanely euthanized by Anchor, frozen and properly disposed of in a landfill. Daily and total Siberian prawn counts at Ice Harbor Dam for this reporting period are reported below.

Date	Sample (euthanized)	Collection*
April 9	3	3
April 12	0	0
Totals	3	3

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

Fish Rescue/Salvage: Unwatering activities that could involve 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: April 6 - 12, 2018

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 1	12/10/2014		07/2018		Rehabilitation Overhaul
Unit 4	3/29/2018	1020	4/10/2018	1840	Failed upper section of VBS
Unit 5	4/5/2018	1055	4/6/2018	1355	STS's in slots B and C have missing/loose clips

Comments: Units went into Hard Restraint at 0001 on April 1.

Adult Fish Passage Facility

The adult fishways were inspected by Corps and Anchor QEA biologists on April 6, 7, 8 and 11.

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'	

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		X	South Powerhouse Entrance (SPE-1) Weir Depth	\geq 8.0' or on sill	
X		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 7.0, 7.3, 8.6 and 9.2 feet respectively.

South Powerhouse Entrance weir (SPE-2) was on sill during all inspections with readings of 7.0, 7.5, 8.6 and 9.3 feet respectively.

South Shore Entrance weir (SSE-1) was on sill during the April 6 and 7 inspection with a reading of 6.6 and 7.7 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 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)	5 sq yd average
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 20%
	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 was installed into Gatewell 4A on April 10, after VBS repair completion. STS's in gatewells 5B and 5C were either repaired or replaced on April 6.

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: Sampling for condition took place over 24 hour periods from 0700 to 0700 on April 7 and 10.

GBT monitoring sampling began on April 10.

Transport Summary: No transport at this time.

Spillway Weir: RSW went into service when Spring Spill began 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
112.8	76.9	46	41.6	48.2	46	2.9	2.3

*Scroll case temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on March 5. No live fish were recovered. Mortalities included 99 juvenile lamprey.

Avian Activity: Tailrace counts of foraging piscivorous birds at Lower Monumental Dam during fish ladder inspections are presented below. Gulls and cormorants were the predominant piscivorous bird species observed during fish ladder inspections this week.

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
4/6/2018	1125	2	0	0	0	0
4/7/2018	1105	2	1	0	0	0
4/8/2018	1245	3	0	0	0	0
4/9/2018	1110	1	1	0	0	0
4/10/2018	1228	0	0	0	0	0

Comments: Bird hazing efforts by USDA personnel began on April 2.

Invasive Species: No zebra or quagga mussels were observed during monitoring station inspections on April 1.

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. No Siberian prawns were collected in the sample during this reporting period.

Date	Sample (euthanized)	Collection*
Totals	0	0

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

Fish Rescue/Salvage: No fish rescue during this reporting period.

Research: No onsite research is in progress at this time.

Project: Little Goose

Biologists: Scott St. John and Richard Weis

Dates: April 6-12, 2018

Turbine Operation

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

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

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
5	04/14/17	14:11	07/31/18	17:00	Spider and upper guide bearing repair.

Comments: None.

Adult Fish Passage Facility

Little Goose fish facility and Anchor QEA staff inspected the adult Fishway on April 08, 09 and 12.

Fish Ladder: None.

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

Fishway Entrances and Collection Channel: None.

Yes	No	Sill	Location	Criteria	Measurements
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	
X			North Shore Entrance (NSE-2) Weir Depth	\geq 6.0' or on sill	
	X		North Shore Channel/Tailwater Differential	1.0'–2.0'	0.8
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: Adult fishway control system is currently operating in manual mode. Adjustments were made and fishway is currently operating in 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: 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 1,500 square feet of floating woody debris currently inside the trash shear boom in the forebay. Gatewell drawdown measurements on units 1 2, 3, 4 and 6 were taken on April 12 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 differential measurements on units 1 2, 3, 4 and 6 were taken on April 12 and were in criteria.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	19
	X		Dewaterer and cleaning systems operating satisfactory?	

Comments: Primary dewatering structure weir elevation is currently operating in manual mode. The limitorque motor that automatically adjusts weirs for water elevation failed upon watering up the juvenile fish collection system. A new limitorque has been ordered and is expected to be installed upon delivery.

Collection Facility: The collection and transportation facility operated within criteria this report period. A total of 266,686 fish were collected. The descaling and mortality rates were 0.9% and 0.0% respectively.

Transport Summary: Collection for transportation is scheduled to begin on April 23. First barge will leave on April 24.

Spillway Weir: Spring spill operations began on April 03 in accordance to the Fish Passage Plan. Adjustable spillway weir crest height was set to the low crest elevation at 16:00 on April 08.

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
111.2	74.8	40.8	31.2	49.1	47.9	3.7	1.5

*Ladder temperature.

Other

Inline Cooling Water Strainers: Inline cooling strainers are being inspected and results submitted every other week.

Avian Activity: Average daily Piscivorous bird counts by zone for the report period at Little Goose Dam.

Zone	Gull	Cormorant	Tern	Pelican	Grebe
Unmodified boat barrier	0	0	0	0	0
Modified boat barrier*	0	0	0	0	0
Forebay debris	0	0	0	0	0
Trash/shear boom	0	0	0	0	0
Forebay count	18	5	0	0	0
Tailrace count	6	0	0	0	0

*modified boat barrier section has weights and bird spikes removed.

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 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 (euthanized)	Collection*
4-6	0	0
4-7	4	8
4-8	0	0
4-9	0	0
4-10	0	0
4-11	0	0
4-12	0	0
Total	4	8

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

Gas Bubble Trauma (GBT): GBT monitoring started on April 08. Personnel examined 100 fish, no signs of GBT were seen.

Fish Rescue/Salvage: None.

Research: PNNL is currently installing temporary trolley pipes, hydrophones and associated equipment for an acoustic telemetry study.

Project: Lower Granite

Biologists: Elizabeth Holdren and Stephen Hampton

Dates: April 6-April 12, 2018

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	
1	05-April	1015	05-April	1148	Gate lock oil leak.

Comments: None.

Adult Fish Passage Facility

Lower Granite and Anchor QEA staff inspected the adult fishway on April 6, 7, 11, and 12.

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 Cooling Water Pumps Operating Satisfactorily		

Comments: None.

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
	X		South Shore Entrance (SSE-1) Weir Depth	\geq 8.0'	5.8, 6.5, 7.3
	X		South Shore Entrance (SSE-2) Weir Depth	\geq 8.0'	5.6, 6.6, 7.3
X			South Shore Channel/Tailwater Differential	1.0' – 2.0'	
X		X	North Powerhouse Entrance (NPE-1) Weir Depth	\geq 8.0' or on sill	
X		X	North Powerhouse Entrance (NPE-2) Weir Depth	\geq 8.0' or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0'–2.0'	
X			North Shore Entrance (NSE-1) Weir Depth	\geq 7.0' or on sill	
			North Shore Entrance (NSE-2) Weir Depth	\geq 7.0' or on sill	OOS
	X		North Shore Channel/Tailwater Differential	1.0'–2.0'	2.4, 2.1, 2.7
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: SSE-1 and SSE-2 out of criteria readings were due to fish ladder control system tailwater elevation sensor position measuring an area where unit 1 operation creates a boil about one foot higher than the actual tailwater elevation. Unit 1 has been out of service since the fish ladder control system was installed. The problem was reported to operations March 29 and is being investigated. North shore channel/tailwater differential out of criteria readings were due to the fish ladder control system not being able to adjust the gate due to its position on sill.

Auxiliary Water Supply System:

Operating Satisfactorily	Standby	Out of Service	Auxiliary Water Supply (AWS)
X			AWS Fish Pump 1
		X	AWS Fish Pump 2
X			AWS Fish Pump 3

Comments: AWS pump 2 is out of service for drive shaft bearing repair.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	50 yd ²
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	<1%
	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: Floor screen brushes and side screen brushes are not being operated due to mechanical issues that are being investigated.

Collection Facility: The collection facility is in secondary bypass mode with 24 hour condition sampling occurring daily.

Transport Summary: Lower Granite barge departed April 12 with 27,346 smolts transported as part of NMFS In-River Survival study.

Spill/Spillway Weir: RSW spill operation began at 0001 hours March 25 to provide fish passage due to delay in JBS operation. Spring spill began at 0001 hours April 3 with spill at court ordered gas cap levels.

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
113.6	76.6	51.6	46.6	48.5	46.5	4.3	1.4

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: N/A

Invasive Species: No mussels were present during on the April 3 inspection.

Siberian Prawn: No Siberian prawns were observed this week.

Avian Activity: Biologist daily piscivorous bird counts at Lower Granite Dam.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
4/6/18	1020	19	0	0	0
4/7/18	1330	2	0	0	0
4/8/18	1330	0	0	0	0
4/9/18	1630	105	2	0	0
4/10/18	1500	64	0	0	0
4/11/18	1618	77	0	0	0
4/12/18	1600	31	0	0	0

Gas Bubble Trauma (GBT) Monitoring: Fish are collected from the separator and examined for GBT Thursdays. No symptoms of GBT were observed this week.

Adult Fish Trap Operations: Adult trap is operating Monday through Friday with a 28% sample rate.

Fish Rescue/Salvage: N/A

Research:

Idaho Fish and Game (IDFG) Genetic Stock Identification

Fish collected as part of the Lower Granite 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.

Nez Perce Tribe (NPT)/U. of Idaho (UI)/Columbia River Intertribal Fisheries Commission (CRITFC) – Kelt Study

Collection of adult steelhead kelt from Lower Granite juvenile separator for NPT rehabilitation program began April 1 with the first collection being worked up April 2. 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.

National Marine Fisheries Service (NMFS)-Monitoring the Migrations of Wild Snake River Spring/Summer Chinook: This study is monitoring the migration behavior and survival of wild spring/summer Chinook salmon. The goals are to characterize migration timing and estimate parr-to-smolt survival to LGR of wild Chinook populations as they migrate from their natal rearing areas and determine migration patterns and what environmental factors influence those patterns. Fish were PIT-tagged during the summer of 2017 in natal streams and are diverted to the Sort-By-Code tanks at LGR.

PNNL Lower Granite Dam (LWG) Post Construction Evaluation of the Juvenile Bypass System at Lower Granite Dam.

This evaluation includes travel times through the bypass system, determining condition of fish that have passed through the bypass, and testing the feasibility of using Sensor Fish in future bypass evaluations. Yearling Chinook raised at PNNL (Leavenworth stock) are released into gatewell slots 1a and 5a, pass through the system and recaptured for examination in the sort by code system. This evaluation began April 5 and concluded April 12.