

**U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#09-2018**

Project: McNary

Biologist: Bobby Johnson and Denise Griffith

Dates: April 27 to May 3, 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	
1	4/23	0609	5/3	1601	Cooling water strainer repair/Lubricant replaced.
6	5/2	0912	5/2	1558	Hub tapped.

Comments: The hard constraint began on April 1.

Adult Fish Passage Facilities

McNary fisheries biologists performed adult fishways measured inspections on April 28, 30 and May 2. Data from the temperature probes was downloaded on April 27. Adult fish counting continued.

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 and Washington exits. Picketed leads were cleaned as needed including the weekends.

On April 29 and 30, at the Oregon exit, the regulating weir had to be reset due to low water flows. Afterward, on April 30, the exit program was upgraded.

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 2.4 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	
X			WFE2 Weir Depth	≥ 8.0'	
	X		WFE3 Weir Depth	≥ 8.0'	7.7' on April 28 and 30.

Comments: Washington ladder entrance weir WFE3 was out of calibration and criterion on April 28 and 30. The electrical staff resolved the issue on May 1.

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 continued, 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)	Minimal to light.
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: The forebay debris load near the powerhouse was minimal to light. New incoming debris was minimal to very light. No debris has accumulated on the spillway.

The next trash rack cleaning will occur later in May.

The final estimate of gallons of hydraulic fluid lost in 13C slot on April 24 was 162 to 210 gallons. 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			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: The brush cycles for the ESBSs in 2A and 1C slots remained in timer mode. On April 30, the brush cycle program for the screen in 2A slot was examined. The brush had 18 incomplete cycles from April 27 to May 2. The brush on the ESBS in 2B slot had two incomplete cycles from April 30 to May 1. These two ESBSs will be monitored. ESBS camera inspections will begin on May 8.

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?	

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

Two interesting observations were made of the control program panel view this week. The transition screen brush, which is function properly, is skipping back and forth quickly upstream and downstream on the panel view. The east floor dewatering valve, which is off and set at a given level, has a fluctuating value on the panel view.

Bypass Facility:

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

Comments: The sample gates are only on during secondary bypass for sample collection. On April 26, the A and B side sample rates were set at two and four percent, respectively, to insure PNNL would have enough fish for tagging. On April 30, the A and B side sample rates were set at one and two percent, respectively, for the same reason.

This week, 600 juvenile lamprey and 219,925 smolts were bypassed. One juvenile lamprey mortality was removed from under the primary bypass gate.

TSW Operations: The TSWs remain installed in spillbays 19 and 20. The hoist on crane 6 has been repaired. Hoist testing protocols have yet to be determined. This is the crane normally attached to the TSW in bay 19.

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
341.8	290.5	179.2	150.2	51.8	49.9	4.3	2.4

Comments: The above data is supplied by Anchor, QEA except water clarity, which is provided by the control room. The spring spill program continued with spill to the gas cap.

Other

Inline Cooling Water Strainers: The cooling water strainer examinations on May 1 revealed one juvenile lamprey mortality.

Avian Activity: Avian counts continued and are recorded in Table 3 below. Pelicans were noted below the project but outside the counting zones. Gull numbers appear to have slightly increased. An occasional osprey, gull or small gull flock, small grebe flock, blue heron, loon, tern or cormorant was observed in the forebay. Twenty five to 30 pelicans were roosting on the rocks by the Washington shore boat dock. The outfall hazing water sprinklers have been operating well. Also, the bird distress calls deployed along the navigation lock wing wall have been functioning well. The calls have been adjusted weekly. USDA Wildlife Services began a second shift on April 29 and boat hazing on April 30. Boating hazing will occur Monday through Thursday at this time.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican
April 27	Spill	1	0	0	0
	Powerhouse	0	0	0	0
	Outfall	3	0	0	0
April 28	Spill	30	0	0	0
	Powerhouse	5	0	0	0
	Outfall	0	0	0	0
April 29	Spill	20	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
April 30	Spill	35	0	0	0
	Powerhouse	0	0	0	1
	Outfall	0	0	0	0
May 1	Spill	19	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
May 2	Spill	0	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	1
May 3	Spill	1	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0

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

Fish Rescue/Salvage: None occurred.

Research: GBT monitoring continued twice a week. There were no signs of GBT on the fish examined. On April 27 and May 1, PNNL removed a total of 148 clipped and 28 unclipped steelhead smolts along with 95 clipped and 55 unclipped yearling Chinook smolts from the sample for tagging as part of the spill to gas cap evaluation. The fisheries staff monitored the fish while they were being held at McNary. During the week, the Yakima Nation removed nine juvenile lamprey from the sample for tagging off site.

Project: Ice Harbor

Biologist: Ken Fone

Dates: April 27 – May 3, 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 the April 30 and May 1 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 30, May 1, and 2.

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	
	X		North Powerhouse Entrance (NFE-2) Weir Depth	\geq 8.0' or on sill	7.1'
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	6.4'
	X		North Shore Channel/Tailwater Differential	1.0' – 2.0'	2.6'

Comments: The north powerhouse entrance weir depth was out of criteria on May 2. The north shore entrance weir depth and channel/tailwater differential were out of criteria on May 2. The powerhouse operator was informed and he lowered NFE-2 and NEW-1 weirs to bring the readings into criteria. These weirs are being operated in manual mode to reduce the wear and tear of the weir operating machinery trying to adjust to fluctuating tailwater levels from spill.

On May 2, the SFE-1 weir was found to be repeatedly slipping down and raising back up, while in automatic operation. The weir was lowered down to sill in manual mode until the brakes were fixed on May 3.

Auxiliary Water Supply (AWS) System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
7 pumps	1 pump		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)	5 square yards
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 to 5%
	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 remained in continuous-run mode due to the presence of sockeye with an average fork length of less than 120 mm in the Ice Harbor juvenile fish sample.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	20-21
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: On May 1, water regulating weir #10 (most downstream weir) in the dewatering structure was found to be sitting significantly lower than the other weirs. Upon investigation, the operating stem was found to be broken off of the weir again. This is the new weir that was fabricated and installed in March, during the winter maintenance period. The cause of the breakage has not been determined. The other weirs are operating in automatic mode at a slightly higher elevation than usual to compensate and maintain the proper water level in the channel. The water regulating system and functionality of the other weirs will be monitored during the season to make sure the water level continues to be properly controlled.

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 tables below for a summary of the sampling results. The cause of the descaling observed on one of the fish in the April 30 sample was attributed to a fish bite.

Fish condition sampling results at Ice Harbor Dam:

Date: April 30

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	18	0	0	0
Chinook yearling unclipped	7	0	0	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	0	---	---	---
Steelhead clipped	88	6	0	1
Steelhead unclipped	12	2	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	1	0	0	0
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	126	8	0	1

Date: May 3

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	58	1	0	0
Chinook yearling unclipped	12	1	0	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	0	---	---	---
Steelhead clipped	75	7	0	2
Steelhead unclipped	13	4	0	1
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	158	13	0	3

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
121.8	92.2	89.6	73.8	54	52	3.9	3.6

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: May inspections will occur later in the month.

Avian Activity: Gull, cormorant, and pelican numbers remained moderately high this week, with high variability in the numbers counted (see the table below). Most piscivorous birds were observed foraging downstream of the spillway and around Eagle Island. Contracted land-based hazing of piscivorous birds for 16 hours per day is occurring. Boat-based hazing for 8 hours per day, 5 days per week, is occurring. 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. The bird numbers counted on May 1 and 2 coincided with the occurrence of boat-based hazing.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
April 27	8	21	0	0	36
April 28	8	14	0	0	153
April 29	30	52	2	0	31
April 30	43	68	0	0	26
May 1	5	16	0	0	9
May 2	14	59	0	0	0
May 3	12	46	0	0	21

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. No Siberian prawns were collected in the sample at Ice Harbor Dam during this reporting period.

Fish Rescue/Salvage: Unwatering activities that could involve fish rescue did not occur.

Research: On April 26, PNNL personnel began trapping and tagging adult Chinook ascending the south fish ladder by using the adult fish trap. The fish are being released back to the river at Levey Park and their movements tracked further upstream for a Little Goose Dam fish passage study.

Other: On May 2, a 6.5” long clipped steelhead mortality was found on the ground in the transformer canyon of the dam. The fish had apparent bird claw marks on its side, and was probably dropped by an osprey.

Project: Lower Monumental

Biologists: Chuck Barnes and Raymond Addis

Dates: April 27 – May 3, 2018

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)

Unit	OOS		RTS		Outage Description
	Date	Time	Date	Time	
Unit 1	12/10/2014		07/2018		Rehabilitation Overhaul
Unit 2	5/1/2018	0730	5/1/2018	1450	STS Inspection/Clean Brush Rigging/Hub Tapping
Unit 3	5/3/2018	1420	5/3/2018	1650	STS Inspection
Unit 4	5/2/2018	0703	5/2/2018	1258	STS Inspection/Clean Brush Rigging/Hub Tapping
Unit 5	5/3/2018	0704	5/3/2018	1258	STS Inspection/Clean Brush Rigging
Unit 6	4/23/2018	0705	5/11/2018		Annual maintenance / Blade seal

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

Adult Fish Passage Facility

The adult fishways were inspected by Corps and Anchor QEA biologists on April 27, 28, 29 and May 2.

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 the May 2 inspection with a reading of 7.4.

South Powerhouse Entrance weir (SPE-2) was on sill during the May 2 inspection with a reading of 7.4.

South Shore Entrance weir (SSE-1) was on sill during the May 2 inspection with a reading of 7.7.

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)	2 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 in gatewell slot 4A was found to have missing and loose screen clips during the May 2 inspection. The STS was replaced with a good spare. STS in gatewell slot 5C was found to have missing and loose screen clips during the May 3 inspection. The STS was replaced with a good spare.

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:

Collection Facility: Sampling for condition took place over 24 hour periods starting at 0700 on April 21. Collection into raceways for transport began at 0700 on April 23.

GBT monitoring sampling began on April 10.

Transport Summary: Every-day barge transport began on April 24. A total of 668,900 fish were collected, of which 668,747 were transported during this reporting period.

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	87.4	43.8	30.4	54.0	53.2	3.0	2.5

*Scroll case temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were last inspected on April 14. Live fish included 3 juvenile steelhead and 2 juvenile lamprey. Mortalities included 39 juvenile salmon, 4 juvenile steelhead, 33 juvenile lamprey, 1 Siberian prawn and 7 unidentifiable fish.

Avian Activity: Gulls were the predominant piscivorous bird species of foraging piscivorous birds at Lower Monumental Dam observed during fish ladder inspections this week.

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
4/27/2018	1100	5	1	0	0	2
4/28/2018	1100	6	0	0	0	1
4/29/2018	1230	7	0	0	0	0
4/30/2018	1245	0	0	0	0	0
5/1/2018	1230	2	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. No Siberian prawns were collected in the sample this week at Lower Monumental Dam for this reporting period.

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 27- May 03, 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.
3	04/23/18	16:05	05/01/18	16:46	Forced out of service turbine guide bearing oil leak.
1	05/01/18	17:43	05/02/18	14:29	Forced out of service excessive turbine shaft packing leakage.

Comments: None.

Adult Fish Passage Facility

Little Goose fish facility and Anchor QEA staff inspected the adult Fishway on April 29, May 02 and 03.

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'	
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: Adult fishway control system is currently operating in manual mode.

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: Gatewell drawdown differential measurements on units 1, 2, 3, 4, and 6 were taken on May 03 and were in criteria. There is approximately 200 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: VBS differential measurements on units 1, 2, 3, 4, and 6 were taken on May 03 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: A partially plugged orifice was discovered in gatewell 6B on April 29, resulting in the recovery of 894 juvenile salmon and steelhead mortalities (MFR 18 LGS 05). 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: Juvenile fish facility is currently operating. Every day fish collection for daily condition monitoring and transport operations commenced on April 23.

Transport Summary: Daily barging commenced on April 24. The collection and transportation facility operated within criteria this report period. A total of 793,566 fish were collected, of which a total of 791,834 were transported via barge. The descaling and mortality rates were 1.7% and 0.2% respectively.

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
114.5	87.7	42.3	26.6	53.6	52.1	3.7	2.6

*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	23	3	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 QEA, frozen and properly disposed of in a landfill. No Siberian prawn were collected in the sample at Little Goose Dam for this reporting period.

Gas Bubble Trauma (GBT): GBT monitoring was performed on April 30. Personnel examined 100 fish of which, 1 were found to have symptoms of GBT.

Fish Rescue/Salvage: None.

Research: PNNL is currently conducting an acoustic telemetry study of adult passage at Little Goose Dam.

Project: Lower Granite

Biologists: Elizabeth Holdren and Stephen Hampton

Dates: April 27-May 3, 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	
2,4,5,6	4/29/18	0912	04/29/18	1657	ESBS/VBS Inspections
1,3	4/30/18	0804	04/30/18	1628	ESBS/VBS Inspections
1,2,3,4,6	5/02/18	0940	5/02/18	1414	BPA kV line work

Comments: Units 1,2,3,4, and 6 were removed from service due to the scheduled 500 kV line de-energization. Unit 5 provided station service power.

Adult Fish Passage Facility

Lower Granite and Anchor QEA staff inspected the adult fishway on April 27, 28, and May 3.

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:

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
	X		South Shore Entrance (SSE-1) Weir Depth	\geq 8.0'	7.4,7.5
	X		South Shore Entrance (SSE-2) Weir Depth	\geq 8.0'	7.4,7.5
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'	
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.

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)	56.7 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 being operated in manual mode due to mechanical issues with the new system that are being investigated and need to be repaired. Orifice lights were off during the May 2 500kV outage.

Collection Facility: Collection for transport began at 0700 hours April 23. The facility is collecting for 24 hour condition sampling. Operational modifications continue as needed to address fish holding under the separator and the east sections of the porosity plate losing water flow. During preparation for the 500 kV line outage PLC programming issues with the facility supply throttling valve and the 42" upwell drain resulted in a loss of water to the facility. The throttling valve was manually set to 26% open and the 42" remains in auto control to prevent future water loss in the event of a power outage.

Transport Summary: Every day barge transport continues. The barge loading boom horizontal movement drive chain and bearing assembly failed April 27 during barge loading preparation. The boom is being operated by hand while parts are being fabricated and repairs are made.

Spill/Spillway Weir: Spring spill operation continues 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
118.2	91.4	38.5	32.2	53.0	49.5	3.7	2.9

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: N/A.

Invasive Species: No mussels were present during 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
4/27/18	1504	3	0	0	0
4/28/18	1230	0	1	0	0
4/29/18	1300	3	0	0	0
4/30/18	1340	5	0	0	0
5/01/18	1400	15	2	0	0
5/02/18	1430	15	2	0	2
5/03/18	1240	21	0	0	3

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.

National Marine Fisheries Service (NMFS) In-river Survival Study: NMFS staff is collecting and PIT-tagging Chinook salmon and steelhead smolts for their in-river survival study to compare smolt-to-adult returns of in-river migrating smolts to the smolt-to-adult returns of transported smolts.

National Marine Fisheries Service (NMFS) Transportation Study: NMFS staff is collecting and PIT-tagging yearling Chinook salmon and steelhead smolts for the Transportation Evaluation Study to compare smolt-to-adult returns of transported smolts to the smolt-to-adult returns of in-river migrating smolts.

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 from the Leavenworth hatchery were released in gateway slots 1a and 5a and allowed to move through the system. This evaluation began April 5 and concluded April 12.

PNNL System Survival Study: This study will evaluate the effects of increased spill on the passage and in-river survival of yearling Chinook salmon and juvenile steelhead migrating through the Snake and Columbia River hydro-system. The study will also evaluate the effects of increased spill on the passage of adult Chinook salmon and steelhead at Little Goose Dam during 2018 spring gas cap spill. Collection of yearling Chinook and juvenile steelhead at Lower Granite began April 15.