

**U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#07-2018**

Project: McNary

Biologist: Bobby Johnson and Denise Griffith

Dates: April 13 to 19, 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.
13	4/16	0610	NA	NA	Cooling water strainer upgrade/Hydraulic leak.
2	4/16	0945	4/18	0810	Governor issue.

Comments: The hard constraint began on April 1.

Adult Fish Passage Facilities

McNary fisheries biologists performed adult fishways measured inspections on April 13, 15 and 19. Data from the temperature probes was downloaded on April 13, after resolving issues with the shuttle. 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'	
	X	Washington Count Station Differential	0.0' to 0.5'	0.6' on April 15.

Comments: Debris loads were light to moderate near the Oregon exit and light to moderate near the Washington exit. Picketed leads were cleaned as needed including the weekends. On April 15, the biologist cleaned the Washington ladder picketed leads, which resolved the out of criterion issue.

On April 16, at the Oregon exit, weir 335 tripped an alarm and was reset. The night shift fisheries technician had observed the weir out of sequence.

Scheduled maintenance was performed on both exit cranes this week.

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'	

Comments: With heavy spill, the Washington ladder entrance weirs elevation indication appears to be having wide and frequent swings at times. The electrical staff will be asked to see if the program can be adjusted to dampen these readings.

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)	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?	Hydraulic fluid in 13C slot

Comments: The forebay debris load near the powerhouse remained minimal to very light. New incoming debris was minimal. No debris has accumulated on the spillway. Tumbleweeds long the Washington shore line were flushed down the navigation lock on April 19. The trash racks will be cleaned on April 20.

On April 16, the current estimate of 205 gallons of hydraulic fluid entered 13C slot when an O-ring on the headgate supply line failed. By the end of the week, the majority of the fluid was removed with absorbent pads and booms, a pump and a skimmer. 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 cycle for the ESBS in 1C slot remained in timer mode. On April 15, the biologist found the brush cycles for screens in 2A and 2B slots to be incomplete. This issue was resolved on April 18. Unit 2 had been in standby or out of service. 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? See notes below.	42
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: On April 15, a stick was removed from the orifice flow out of 6C slot. On April 16, at 0655 hours, the orifices at unit 13 were closed so hydraulic fluid in 13C slot could be isolated. Make up orifices were opened at unit 14. No measureable amount of fluid entered the channel. The fluid appears to have been isolated in the gatewell slot. The orifice exchange did trip one low water alarm, which quickly cleared. Orifice attraction lights and operator air leaks were replaced and repaired as required.

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 16, from 0700 to 0803 hours, the system remained in primary bypass until we confirmed the hydraulic fluid was contained. Later, that day, from 1315 to 1345 hours, the sample gates were off while a water supply line used by researchers was repaired. These two events resulted in 10 samples being missed.

From April 18 to 19, the barge loading line flex hose was adjusted, which removed leaking split from the hose. Though this line has not been used since 2011 for barge loading, the leak had to be removed as this line can be used as an alternate sample release point.

This week, 1,580 juvenile lamprey and 30,882 smolts were bypassed. Also, 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 and testing will begin next week. 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
297.0	260.3	198.1	195.0	47.3	46.1	3.8	3.3

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 next cooling water strainer examinations will occur on May 1.

Avian Activity: Avian counts continued.

Table 3. McNary Project’s Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican
April 13	Spill	8	1	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
April 14	Spill	6	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
April 15	Spill	3	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
April 16	Spill	14	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
April 17	Spill	16	0	0	0
	Powerhouse	0	0	0	0
	Outfall	1	0	0	0
April 18	Spill	2	0	0	0
	Powerhouse	0	0	0	0
	Outfall	1	1	0	0
April 19	Spill	8	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0

An occasional osprey, gull or gull flock, pelican flock or cormorant 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. The call frequency has been adjusted weekly. USDA Wildlife Services began single shift hazing on April 15.

Invasive Species: The next mussel station examinations will occur on April 21. 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. On April 23, PNNL will begin collecting, tagging and releasing yearling Chinook and steelhead smolts at McNary as part of the spill to gas cap evaluation. PNNL set up their equipment this week.

Project: Ice Harbor

Biologist: Ken Fone

Dates: April 13 – April 19, 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
3	4/17/18	1525	4/19/18	0701	Inoperable STS – replaced with spare STS

Comments: Units 6, 5, 3, and 1 were taken out of service one at a time for STS inspections on April 17 and 19.

Adult Fish Passage Facility

Ice Harbor fish facility staff inspected the adult fishways on April 16, 18, and 19.

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	
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0' – 2.0'	0.9'
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: Manually timed measurements of the velocity are being taken until the velocity meter can be calibrated.

The north powerhouse channel/tailwater differential was slightly below criteria on April 18. This was partly due to the turbulent tailwater conditions from spill making it difficult to get an accurate elevation reading from the tailwater staff gauge. The control room reading showed a differential of about 1.0' at the north powerhouse at the time.

Auxiliary Water Supply (AWS) System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
7-8 pumps	0-1 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)	3 square yards
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 to 13%
	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 the average fork length of less than 120 mm in the Lower Monumental juvenile fish sample. The STS in gatewell slot 4B was removed on April 12 to fix an oil leak from the gearbox and reinstalled on April 18. Unit 6, 5, 3, and 1 STSS were inspected on April 17 and 19. The STS in slot 3A was found to not be able to rotate on April 17, and was replaced with a spare STS on April 18.

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: 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 fish condition sampling results. The cause of the descaling observed on two of the fish in the April 19 sample was attributed to birds.

Date: April 16

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	23	1	0	0
Chinook yearling unclipped	17	0	0	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	0	---	---	---
Steelhead clipped	84	11	0	0
Steelhead unclipped	9	2	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	133	14	0	0

Date: April 19

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	38	1	1	0
Chinook yearling unclipped	51	2	0	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	0	---	---	---
Steelhead clipped	35	2	0	0
Steelhead unclipped	7	1	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	131	6	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
122.5	103.4	93.1	91.9	49	49	4.4	2.6

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Unit 3 cooling water strainer was inspected on April 18. There were no fish in the strainer.

Avian Activity: Pelican numbers increased dramatically from last week and were mainly present around dawn and dusk. Most piscivorous birds were observed foraging downstream of the spillway. Contracted land-based hazing of piscivorous birds for 16 hours per day is occurring. Boat-based hazing for 8 hours per day, 3 days per week, is taking place. 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 13	21	44	0	1	30
April 14	2	39	0	0	39
April 15	24	76	4	0	67
April 16	8	13	0	0	2
April 17	21	7	0	0	0
April 18	0	27	0	0	3
April 19	51	13	0	0	88

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 16	1	1
April 19	0	0
Totals	1	1

*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 13 - 19, 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 2	04/18/2018	1120	4/18/2018	1240	Investigate a bent shaft coupling shroud
Unit 3	04/16/2018	0940	4/16/2018	1500	Brush and brush rigging cleaning

Comments: Units went into Hard Restraint at 0001 on April 1. Unit 3 was in violation of 1% peak efficiency for a 20 minute period on 17 April.

Adult Fish Passage Facility

The adult fishways were inspected by Corps and Anchor QEA biologists on April 13, 14, 15 and 18.

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 April 13, 14 and 18 inspections with readings of 9.8, 8.8 and 7.7 feet respectively.

South Powerhouse Entrance weir (SPE-2) was on sill during the April 13, 14 and 18 inspections with readings of 9.8, 8.8 and 7.1 feet respectively.

South Shore Entrance weir (SSE-1) was on sill during the April 13 and 18 inspection with a reading of 10.2 and 7.8 feet respectively. The entrance weir depth was out of criteria on the April 14 inspection with a depth reading of 7.9 feet. The operator was informed and adjusted the system.

The South Shore Channel to Tailwater differential was out of criteria on the April 13 inspection with a reading of 0.8 feet. The operator was informed and adjusted the system.

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)	1 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: None

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 starting at 0700 on April 13, 15, 17 and 19.

GBT Monitoring: Sampling for GBT 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
113.6	97.5	40	39.6	49.2	48.4	2.0	1.4

*Scroll case temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were 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 and cormorants were the predominant piscivorous bird species observed in the tailrace during fish ladder inspections this week.

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
4/13/2018	1230	1	0	0	0	0
4/14/2018	1115	3	0	0	0	1
4/15/2018	1110	2	0	0	0	0
4/16/2018	1300	5	2	0	0	0
4/17/2018	1145	5	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.

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 13-19, 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 17, 18 and 19.

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	5.8 on 4/17
X			North Shore Entrance (NSE-2) Weir Depth	\geq 6.0' or on sill	5.8 on 4/17
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: There is approximately 1,000 square feet of floating woody debris currently inside the trash shear boom in the forebay. Gatewell drawdown measurements on units 1 2, 3, and 4 were taken on April 19 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, and 4 were taken on April 19 and were in criteria.

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: 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 468,572 fish were collected. The descaling and mortality rates were 0.9% and 0.02% 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
113.3	96.8	38.3	29.3	49.9	49.2	3.3	2.8

*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	6	3	0	0	0
Tailrace count	2	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*
4-13	0	0
4-14	0	0
4-15	0	0
4-16	0	0
4-17	0	0
4-18	0	0
4-19	0	0
Total	0	0

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

Gas Bubble Trauma (GBT): GBT monitoring was performed on April 16. 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 13-April 19, 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	

Comments: No unit outages to report.

Adult Fish Passage Facility

Lower Granite and Anchor QEA staff inspected the adult fishway on April 13, 14, 15, and 18.

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'	7.6
	X		South Shore Entrance (SSE-2) Weir Depth	\geq 8.0'	7.6
	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 measuring an area where unit 1 operation creates a boil about one foot higher than the actual tailwater elevation. NSE-2t 1 has been out of service since the fish ladder control system was installed.

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)	32.5 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:

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

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.

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

Transport Summary: Lower Granite barge departed April 19 with 30,964 smolts transported as part of NMFS Seasonal Effects 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
116.4	100.2	45.4	45.1	49.2	47.9	3.0	2.0

*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
4/13/18	13:45	12	0	0	0
4/14/18	14:00	12	0	0	0
4/15/18	15:42	17	0	0	0
4/16/18	15:17	32	0	0	0
4/17/18	15:50	49	1	0	0
4/18/18	16:15	29	0	0	0
4/19/18	14:30	22	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 the Leavenworth hatchery are in gatewell 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.