

**U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#12-2018**

Project: McNary

Biologist: Bobby Johnson and Denise Griffith

Dates: May 18 to 24, 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	
4	5/21	0701	5/31	NA	Lubricant replacement.

Comments: The reduction in spill requested by TMT was extended from May 25 to June 1. This reduction will aid in decreasing the dissolved gas levels at McNary. This request allows units to operation throughout the entire 1% range, and hold reserves above 1%. No significant excursions outside the 1% criteria occurred.

Adult Fish Passage Facilities

McNary fisheries biologists performed adult fishways measured inspections on May 18, 20 and 23. NOAA fisheries personnel did their monthly inspection on May 22. Data from the temperature probes was downloaded on May 18. 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'	0.8' on May 23

Comments: Debris loads were minimal to very light near the Oregon exit and light to moderate near the Washington exits. Picketed leads were cleaned at the Washington exit by the general maintenance staff as needed, including nights and the weekend. The majority of the debris was tumbleweeds. The high count station differentials observed on May 23 was resolved by cleaning the picketed leads. New incoming debris loads along the Washington shore line was light and steady. In order to reduce the debris load along shoreline, the roving operator flushed the debris down the navigation lock as often as possible.

At the Oregon exit, the traveling screens debris trough was cleaned as required.

At the Washington exit, low water alarm came in and was cleared on May 23.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
X			North Oregon Entrance Head Differential	1.0' – 2.0'	
X			NFEW2 Weir Depth	≥ 8.0'	
X			NFEW3 Weir Depth	≥ 8.0'	
X			South Oregon Entrance Head Differential	1.0' – 2.0'	
X			SFEW1 Weir Depth	≥ 8.0'	
X			SFEW2 Weir Depth	≥ 8.0'	
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.1 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	
X			WFE2 Weir Depth	≥ 8.0'	
X			WFE3 Weir Depth	≥ 8.0'	

Comments: There were no problems to report.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
X		X	WA shore Wasco County PUD Turbine Unit
X	X		WA shore Wasco PUD Bypass
X			Oregon Ladder Fish Pump 1, Blade angle: 22 to 25.
X			Oregon Ladder Fish Pump 2, Blade angle: 22 to 24.
X		X	Oregon Ladder Fish Pump 3, Blade angle: 22 to 27.
X			OR North Powerhouse Pool supply from juvenile fishway

Comments: After testing, on May 22, at 1522 hours, the PUD unit returned to service. The unit bypass functioned well while it was out of service. The Washington ladder remained in criteria.

From May 23, at 0943 hours, to May 24, at 0856 hours, fish pump 3 was out of service with discharge logs in place to allow district personnel to collect flow data with two fish pumps operating. During the outage, NFEW3, SFEW1 and SFEW2 measured 7.6, 6.8 and 7.3 feet, respectively. High tailwater elevations may account for these readings.

Juvenile Fish Passage Facility

The sampling season continued, with alternating 24 hour days of secondary and primary bypass. In order to monitor fish condition better, during the high flow conditions, daily sampling will begin on May 24 and run through June 1.

Forebay Debris/Gatewell Debris/Oil:

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

Comments: The forebay debris load near the powerhouse remained minimal. Some of the debris was noted going over the TSWs. New incoming debris was minimal except along the Washington shore line as mentioned above. Debris accumulation along the spillway was light with some debris increase at bays 2 to 5.

No trash rack cleaning occurred this week. Sticks were removed from the gatewell slots as required.

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 1C and 2A slots remained in timer mode. There are no problems to report. With the backup camera, ESBSs in unit 4 were inspected on May 22. No problems were found.

VBS differential monitoring occurred daily. No high differentials were measured. On May 19 and 24, four total VBSs were cleaned. Also, on May 24, the screens in units 2 and 3 were inspected, which includes cleaning. No problems were found. During cleaning and inspection, one juvenile lamprey and 13 smolt mortalities were observed.

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

Yes	No	NA	Item	Number of orifices in service
X			Orifices operating satisfactory?	42
X			Dewatering and cleaning systems operating satisfactory? See note below.	

Comments: Orifices were adjusted for VBS inspection and cleaning as needed.

The transition screen brush remained out of service. Air zone 5 has been functioning satisfactory.

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 on during secondary bypass for sample collection. On May 20 and 22, the B side sample rate was set at 10.0 percent to insure PNNL would collect sufficient fish for tagging. The A side rate remained at 0.5 percent.

This week, 63,170 juvenile lamprey and 80,322 smolts were bypassed.

TSW Operations: The TSWs remain installed in spillbays 19 and 20. On May 22, the hoist on crane 6 was load tested and the crane was returned to service. Crane 6 was attached to the TSW in bay 19. Crane 7 was moved back to bay 2 and attached to the spillgate. On May 23, from 1350 to 1430 hours, the TSW in bay 19 was closed so the lower limits could be set on crane 6.

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
498.2	488.1	335.4	334.7	56.2	54.3	2.4	1.9

Comments: The above data is supplied by Anchor, QEA except water clarity, which is provided by the control room. As mentioned above, the TMT requested spill reduction remains in effect. On May 24, at 1136 hours, the control room received an expanded spill table, which included bay 2 being functional. The spring spill program continued. During the May 23 fish ladder inspection, the biologist found an unclipped yearling Chinook mortality on the deck near spillbay 22.

Other

Inline Cooling Water Strainers: The next cooling water strainer examinations will occur on June 5.

Avian Activity: Avian counts continued and are recorded in Table 3 below. Gulls appear to be feeding later in the day. Due to the high flow volumes, gulls and a large group of pelicans were noted outside the counting zones. Gulls observed at the outfall maybe actually feeding in the spill flow.

Table 3. McNary Project’s Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican
May 18	Spill	3	0	0	0
	Powerhouse	0	0	0	0
	Outfall	4	0	0	1
May 19	Spill	0	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
May 20	Spill	2	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
May 21	Spill	0	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
May 22	Spill	0	0	0	1
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
May 23	Spill	3	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
May 24	Spill	2	0	0	0
	Powerhouse	0	0	0	0
	Outfall	1	0	0	0

An occasional osprey, gull, cormorant, blue heron or pelican was observed in the forebay. As many as 20 grebes have been observed. Pelicans, cormorants and gulls were roosting on the rocks by the Washington shore boat dock. The outfall hazing water sprinklers remain off due to high flows, which are currently cresting over the outfall pipe. The bird distress calls deployed along the navigation lock wing wall have been functioning well. The calls have been adjusted weekly. USDA Wildlife Services continued with two shifts. Also, boating hazing occurred Monday through Thursday. Due to the flow volume, the boat has remained below the outfall pipe. Some afternoon boat hazing also occurred.

Invasive Species: On May 20, the mussel station examinations revealed no problems. No Siberian prawns were observed in the samples this week.

Fish Rescue/Salvage: On May 22, navigation lock tainter valve 3 was dewatered for contractor inspection. We estimated we removed 500 to 600 smolts from the area. We observed approximately 25 mortalities and an additional 25 highly stress smolts.

Research: GBT monitoring continued twice a week. Five smolts exhibited signs of GBT. On May 19, 21, and 23, PNNL removed smolts from the samples, with the focus on steelhead. On May 20 and 22, they removed steelhead

from the GBT samples. A total of 55 clipped and 59 unclipped steelhead smolts along with 35 clipped and five unclipped yearling Chinook smolts were collect for tagging as part of the spill to gas cap evaluation. The fisheries staff monitored the fish while they were being held at McNary.

Project: Ice Harbor

Biologist: Ken Fone

Dates: May 18 – May 24, 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	---	---	Investigate oil leak.

Comments: Unit 3 was noted to be operating a few megawatts above the 1% peak operating efficiency range on each of the 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 May 21, 22, and 23.

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'	
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: None.

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)	400 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 and/or subyearling chinook with average fork lengths 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
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 tables below for a summary of the sampling results. The cause of the descaling observed on four of the fish in the May 21 sample and three of the fish in the May 24 sample was attributed to birds.

Fish condition sampling results at Ice Harbor Dam:

Date: May 21

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	42	3	0	0
Chinook yearling unclipped	17	1	0	1
Chinook subyearling clipped	1	0	0	0
Chinook subyearling unclipped	3	0	0	0
Steelhead clipped	49	7	0	2
Steelhead unclipped	35	3	0	1
Sockeye clipped	11	2	0	1
Sockeye unclipped	7	1	0	0
Coho clipped	0	---	---	---
Coho unclipped	8	0	0	0
Total	173	17	0	5

Date: May 24

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	33	0	1	0
Chinook yearling unclipped	19	2	0	0
Chinook subyearling clipped	5	0	0	0
Chinook subyearling unclipped	6	0	0	0
Steelhead clipped	50	7	0	3
Steelhead unclipped	39	7	1	5
Sockeye clipped	15	1	0	1
Sockeye unclipped	3	0	0	0
Coho clipped	1	0	0	0
Coho unclipped	9	1	0	0
Total	180	18	2	9

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
156.2	147.3	101.6	92.1	54	54	3.3	3.1

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: The turbine cooling water strainers were last inspected on May 15. A total of 4 clipped dead juvenile steelhead, 1 clipped dead juvenile Chinook, 1 decaying juvenile Chinook, 2 unidentifiable decaying fish, 1 live juvenile lamprey, 47 dead juvenile lamprey, 1 dead juvenile catfish, and 18 dead Siberian prawns were found.

Avian Activity: Cormorant and pelican numbers were generally moderate this week, with high variability in the number of gulls counted (see 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.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
May 18	3	22	0	1	64
May 19	0	20	0	0	25
May 20	2	48	0	0	14
May 21	87	16	0	0	24
May 22	15	12	0	0	0
May 23	14	7	0	0	1
May 24	132	11	0	0	32

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 Fish Facility for this reporting period are reported below.

Date	Sample (euthanized)	Collection*
May 21	0	0
May 24	7	7
Totals	7	7

*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: PNNL personnel continue 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.

Project: Lower Monumental

Biologists: Chuck Barnes and Raymond Addis

Dates: May 18 -24, 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		08/2018		Rehabilitation Overhaul

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 May 18, 19, 20 and 23.

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			South Powerhouse Entrance (SPE-1) Weir Depth	\geq 8.0' or on sill	
X			South Powerhouse Entrance (SPE-2) Weir Depth	\geq 8.0' or on sill	
X			South Powerhouse Entrance Channel/Tailwater Differential	1.0'–2.0'	
X			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:

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)	392 sq yd average
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 30%
	X		Any oil seen in gatewells?	

Comments: Due to increasing debris, gatewells were dipped to limit impact on juvenile fish passage.

STSs/VBSs:

Yes	No	NA	Item
X			STSs deployed in all slots and in service?
X			STSs in continuous-run mode (Note: if not, then STSs are in cycle-run mode)?
	X		STSs inspected this week?
		X	STSs inspection results acceptable?
		X	VBSs differentials checked this week?
		X	VBSs differentials acceptable?

Comments: STS’s were operating in cycle mode during this reporting period due to average sub-yearling Chinook and sockeye lengths being less than 120 mm.

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: Collection into raceways for transport began at 0700 on April 23.

B side separator exit was found blocked with wood debris at approximately 04:30 am on May 24. Blockage was clear at approximately 05:10 am. During this time, sample and PIT tag gates had been turned off to reduce the chance of woody debris blocking the exit orifices of the sample and PIT tag counting tanks. A total of 41 salmonid mortalities were found in the raceway after the blockage was cleared. Mortalities included: 12 clipped and 8 unclipped yearling Chinook, 3 clipped subyearling Chinook, 5 clipped and 2 unclipped steelhead and 10 clipped and 1 unclipped sockeye.

GBT monitoring sampling began on April 10.

Transport Summary: Every-day barging changed to alternate day barging on May 22. A total of 158,150 fish were collected, of which 157,983 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
148.3	140.9	60.3	52.2	55.5	54.0	2.7	1.3

*Scroll case temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on May 10. No live fish were recovered. Mortalities included 44 juvenile salmon, 3 juvenile steelhead, 28 juvenile lamprey and 1 smallmouth bass.

Avian Activity: Gulls were the predominant piscivorous bird species observed during fish ladder inspections this week for tailrace foraging piscivorous birds.

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
5/18/2018	1100	0	0	0	0	0
5/19/2018	1200	1	0	0	0	0
5/20/2018	1100	2	0	0	0	0
5/21/2018	1230	4	0	0	0	2
5/22/2018	1245	0	0	0	0	0
5/23/2018	1100	0	0	0	0	0
5/24/2018	1130	0	1	0	0	0

Comments: Bird hazing efforts by USDA personnel began on April 2. Peak season extended hazing began on May 6.

Invasive Species: No zebra or quagga mussels were observed during monitoring station inspections on May 5.

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

Date	Sample (euthanized)	Collection*
5/23/2018	1	1
Totals	1	1

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

Siberian prawns were only seen in the sample on May 23.

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: May 18-24, 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.
1	05/19/18	07:05	05/19/18	10:50	Trash raking
2	05/19/18	07:05	05/19/18	13:05	Trash raking
3	05/19/18	10:58	05/19/18	15:35	Trash raking
4	05/19/18	13:15	05/19/18	15:35	Trash raking
6	05/19/18	15:45	05/19/18	16:40	Trash raking

Comments: Little Goose conducted emergency trash raking on May 19 due to increased debris.

Adult Fish Passage Facility

Little Goose fish facility and Anchor QEA staff inspected the adult Fishway on May 18, 20, 22 and 24.

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'	5/24 was 0.6
		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 cooling pump is currently operating in accordance to MOC 18 LGS 04. Adult fishway control system is currently operating in manual mode. South shore entrance was recorded at 0.6 on May 24. Adjustements were made and the adult 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: Gatewell drawdown differential measurements on units 1, 2, 3, 4 and 6 were taken on May 24 and were in criteria. There is approximately 3,500 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 24 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: The limitorque motor that automatically adjusts weirs for water elevation in the primary dewatering structure is currently being replaced.

Collection Facility: Juvenile fish facility is currently operating. The facility was changed to every other day barging on May 24.

Transport Summary: Daily barging commenced on April 24 and every other day barging commenced on May 24. The collection and transportation facility operated within criteria this report period. A total of 282,654 fish were collected, of which a total of 280,838 were transported via barge. The descaling and mortality rates were 1.6% and 0.6% 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
151.0	142.0	72.6	51.7	55.9	54.3	2.5	1.0

*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	1	0	0	0	0
Tailrace count	0	0	0	1	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*
5-18	0	0
5-19	0	0
5-20	0	0
5-21	0	0
5-22	0	0
5-23	0	0
5-24	1	100
Total	1	100

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

Gas Bubble Trauma (GBT): GBT monitoring was performed on May 21. Personnel examined 100 fish and 2 were found to have symptoms of GBT.

Fish Rescue/Salvage: None.

Research: PNNL is currently monitoring hydrophones and associated equipment for an acoustic telemetry study.

Project: Lower Granite

Biologists: Elizabeth Holdren and Stephen Hampton

Dates: May 18-May 24, 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	
6	05/20	0831	05/20	1001	VBS Inspection; Inspection postponed due to turbidity.
6	05/21	0807	05/21	1111	VBS Inspection; Inspection canceled due to turbidity.

Comments: None.

Adult Fish Passage Facility

Lower Granite and Anchor QEA staff inspected the adult fishway on May 19, 20, 21, 22, and 23.

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'	7.5, 7.9
	X		South Shore Channel/Tailwater Differential	1.0' – 2.0'	0.9
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	6.9
			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 are being investigated.

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)	112.6 yd ²
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
	X		Any debris seen in gatewells (% coverage)	
	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: ESBS/VBS inspections were canceled due to high turbidity levels (0.5 ft.).

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: Primary dewaterer floor screen brushes, side screen brushes, and the pneumatic screen cleaners are being operated in manual mode by powerhouse operators due to mechanical and programming issues with the new system. Overflow weirs were returned to auto operation May 9. Problems are being investigated and troubleshooting the system for needed repairs is ongoing.

Collection Facility: Operational modifications continue as needed to address fish holding under the separator booth and the east sections of the porosity plate losing water flow.

Transport Summary: Every day barge transport concluded May 22. Every other day barging began with the first barge departing May 24.

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
157.6	147.6	49.4	38.9	55.0	52.2	2.0	0.5

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: N/A.

Invasive Species: No mussels were present during the May 6 inspection.

Siberian Prawn:

Date	5/18/2018	5/19/2018	5/20/2018	5/21/2018	5/22/2018	5/23/2018	5/24/2018
Euthanized	0	0	0	0	1	0	0
Dead	0	1	0	0	0	1	0

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

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
5/18/2018	1500	5	0	0	6
5/19/2018	1548	3	3	0	8
5/20/2018	1522	1	1	0	4
5/21/2018	1338	0	0	0	0
5/22/2018	1730	0	0	0	14
5/23/2018	1240	0	0	0	5
5/24/2018	1230	0	1	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: NMFS PIT-tag Chinook and steelhead smolts for their Survival Study April through early June to compare smolt to adult returns of in-river migrating smolts to the smolt to adult returns of transported smolts. PIT-tagged fish are held for 24 hours before being bypassed to the LGR tailrace.

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 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.