U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#16-2018

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: June 15 to 21, 2018

Turbine Operation

Yes	No	Turbine Unit Status		
	X	All 14 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	

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

	OOS		**RTS**		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
7	6/18	0617	6/28	NA	Annual maintenance.
13	6/18	0747	6/21	1553	Annual maintenance and lubricant replacement.
12	6/20	0916	6/20	1010	Trash rack cleaning.
3	6/20	1012	6/20	1037	Trash rack cleaning.
2	6/20	1039	6/20	1134	Trash rack cleaning.

Comments: There is nothing to report.

Adult Fish Passage Facilities

McNary fisheries biologists performed adult fishways measured inspections on June 16, 18 and 21. Temperature probe data was downloaded on June 21. Due to the decrease in spill volume, the probe for the Oregon north tailwater area adjacent to the north powerhouse entrances was installed on June 18. Adult fish counting continued. Video review of night time lamprey passage began on June 15.

Fish Ladder Exits:

Yes	No	Location	Criteria	Comments
	X	Oregon Exit	Head over weir 1.0’ to 1.3’	0.9’ on June 18.
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 minimal to moderate near the Oregon and Washington exits. Picketed leads were cleaned at the Washington exit by the general maintenance staff as needed, including Saturday. New incoming debris loads along the Washington shore line were light with much of the debris collecting on the spillway.

At the Oregon exit, the traveling screens debris trough was cleaned as required. On June 18, the head over weir being the out of criterion was resolved with a regulating weir set point adjustment.

At the Washington exit, a low water alarm came in and was reset on June 19.

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 1.8 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	
X			WFE2 Weir Depth	≥ 8.0'	
X			WFE3 Weir Depth	≥ 8.0'	

Comments: There are no problems to report.

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: On June 21, from 2050 to 2055 hours, fish pump 3 was out of service due to a governor oil alarm, which tripped the pump off line.

Juvenile Fish Passage Facility

The sampling season continues.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Minimal to light near powerhouse.
X			Trash rack differentials measured this week?	Daily.
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 was minimal to light. Debris accumulation along the spillway was light to moderate. New incoming debris loads were light and arrived scattered from the Washington shore line to the powerhouse. Aquatic vegetation was noted in increasing amounts. Changes in wind direction also moved the debris back and forth across the forebay. Due to wind direction and project operation, some of the debris migrated to and passed over the TSWs.

Trash racks were cleaned in 2A, 2B, 3A, 12A and 13A slots were cleaned on June 20. Six yards of debris were removed. No fish were observed in the debris. No problems were noted in the gatewell slots this week.

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. No ESBS camera inspections occurred on June 19 due to both cameras being out of service. The electrical staff examined the backup camera later in the week and returned it to service. The cable connection may require replacement in the future. The cable for the primary camera was sent back to the manufacture this week.

VBS differential monitoring occurred daily. No high differentials were measured. On June 20, two VBSs were cleaned. No smolt or juvenile lamprey 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 and trash rack cleaning. Orifice attraction lights and operator air leaks were replaced or repaired as required.

On June 20, the east and west floor drain valves were opened one additional inch each in order to reduce the percentage opening of both side dewatering valves.

On June 18, at 1525 hours, the transition screen brush failed in the C zone. It was noted that both the B and C zone limit switches indicator lights were on, which would indicate the B zone switch had failed. With heavy rain that day, water from the road drains was dripping constantly on the limit switches, which are supposed to be all weather. The brush was removed from service as air zone 5 removes debris from the transition screen adequately. Both the side and rectangular screen brushes operated properly in automatic mode. On June 20, the B zone limit switch finally dried out and the indicator light went off. The brush was operated that morning but remained out of service due to uncertainty of the limit switches reliability. On June 21, at 0940 hours, the transition brush failed again while operating it for a once a day cleaning. This time, the downstream limit switch failed and the brush ran one foot past the limit. The brush remained in the down position. The biologist was able to raise the brush out of the water so it would not be a fish injury hazard. However, with the downstream limit out of the programming sequence, the PLC registered the brush as being upstream, which block the rectangular screen brush from operating. The paths of the transition and rectangular brushes overlap. At 1357 hours, the biologist and an electrician were able to use a section of metal conduit to trip the downstream limit switch, which allowed the brush to be operated and parked properly. Once parked, the brush was removed from service until the channel contractor can resolve the limit switch issue at some future date. After the transition brush was parked, the rectangular brush ran properly in automatic mode once a transition brush "did not operate in sequence" alarm came in. With this programming, the rectangular brush misses one cleaning sequence before it operates.

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 were on during secondary bypass for sample collection. This week, 250 juvenile lamprey and 47,600 smolts were bypassed.

As requested by district biologists, on June 21, for the first time since 1998, adult incidental fish released from the separator were recorded. Recording these fish will return as a route separator technician duty. Project operations have changed greatly since 1998 so recording the incidentals is a task that can now be accomplished quite easily.

TSW Operations: The TSWs installed in spillbays 19 and 20 were closed on June 18, at 0810 hours. TSW removal went satisfactorily. Spill Table MCN-10, for TSW removal, was used. However, June 21, two problems were causing difficulties in installing the standard spill leaf in each bay. First, the hoist used in bay 19 would not properly attach to the spillgate. Secondly, the crane used at bay 20 had brake issues. These two issues and setting the limits for the crane and hoist could not be resolved by the close of business. With June 22 being a non-work day, district biologists were consulted to see if completion of the work could be done on June 25. It was agreed to finalize the work on June 25. Spillbays 19 and 20 were returned to normal summer operations June 25 (see FPOM 18 MCN 05 MOC).

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
235.8	212.9	176.4	106.4	62.2	60.5	5.0	4.0

Comments: The above data is supplied by Anchor, QEA except water clarity, which is provided by the control room. Spill to gas cap will concluded on June 15. The summer spill program began on June 16, at 0001 hours. Fifty percent of river flow spilled is the summer FOP.

Daily temperature monitoring by Anchor, QEA throughout the juvenile system began on June 15. Due to the damage to the outfall walkway, the temperature probe normally installed at the outfall will not be used this year. With the digital thermometer installed in unit 1 scrollcase system out of service, Anchor, QEA with record data from the analog thermometer at the nearest operational unit. Temperature data is described in a separate weekly report.

Other

Inline Cooling Water Strainers: The next cooling water strainer examinations will occur on July 3.

Avian Activity: Avian tailwater counts continued and are recorded in Table 3 below.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican
June 15	Spill	5	0	0	0
	Powerhouse	0	0	0	2
	Outfall	0	0	0	0
June 16	Spill	5	0	0	5
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
June 17	Spill	3	0	0	7
	Powerhouse	0	0	0	2
	Outfall	0	0	0	0
June 18	Spill	0	0	10	10
	Powerhouse	0	0	0	0
	Outfall	0	0	0	3
June 19	Spill	0	0	1	24
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
June 20	Spill	0	1	2	13
	Powerhouse	0	0	0	1

	Outfall	0	0	0	0
June 21	Spill	7	0	11	16
	Powerhouse	0	0	0	8
	Outfall	0	0	0	0

As flow decreased, pelicans continued to move into each zone. Also, gull and tern numbers were slowly increasing. Cormorants remained difficult to observe. Most birds appear to be feeding in the spillway.

An occasional osprey, pelican, gull, cormorant or tern was observed in the forebay. Grebe numbers appeared to be decreasing. The highest count was 10 this week. Pelicans, cormorants and gulls were roosting on the rocks by the Washington shore boat dock. One to two pelicans were observed just outside the Oregon ladder exit. On June 18, one grebe was removed from the collection channel and the other grebe passed out of the system while in primary bypass. No grebes entered the gatewell slots.

The outfall hazing water sprinklers remain out of service due to system damage, which will require a contract to repair/replace. The fisheries staff is examining the possibility of purchasing a second bird distress call system for the outfall area. 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 on Monday through Thursday. The boat has been used slightly upstream of the outfall pipe this week. When weather conditions do not allow for boat hazing, the crew hazed from the shoreline and the project.

Invasive Species: The next the mussel station examinations will occur on June 23. No Siberian prawns were observed in the sample this week.

Fish Rescue/Salvage**:** None occurred.

Research: GBT monitoring occurred twice this week. No smolts exhibited signs of GBT. The University of Idaho adult lamprey passage telemetry study continued.

Project: Ice Harbor
Biologist: Ken Fone
Dates: June 15 – June 21, 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	

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

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
2	4/25/16	0606	---	---	Runner replacement
4	12/17/17	1342	---	---	Investigate oil leak.
1	6/20/18	1014	6/20/18	1431	STS inspection and repair.

Comments: Units 6, 5, 3, and 1 were taken out of service one at a time for STS/VBS inspections on June 19 and 20. The STS in gatewell slot 1B was repaired during the unit 1 STS inspection outage.

Adult Fish Passage Facility

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

Fish Ladders:

Yes	No	Location	Criteria	Measurements
X		North Ladder Exit Differential	Head ≤ 0.3’	
X		North Ladder Picketed Lead Differential	Head ≤ 0.3’	
X		North Ladder Depth over Weirs	Head over weir 1.0’ to 1.3’	
X		South Ladder Exit Differential	Head ≤ 0.3’	
X		South Ladder Picketed Lead Differential	Head ≤ 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	≥ 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	≥ 8.0’ or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’ – 2.0’	
	X		North Shore Entrance (NEW-1) Weir Depth	≥ 8.0’ or on sill	6.4
	X		North Shore Channel/Tailwater Differential	1.0’ – 2.0’	0.7

Comments: The NEW-1 weir depth and channel/tailwater differential were below criteria on the June 18 and June 19 inspections, respectively. The north shore channel diffuser gates were opened all the way on June 21 to compensate for the loss in AWS pump efficiency with the dropping tailwater levels.

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)	110 square yards
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 to 10%
	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 subyearling chinook with average fork lengths of less than 120 mm in the Ice Harbor juvenile fish sample. Unit 6, 5, 3, and 1 STSs, and unit 6 and 5 VBSs were inspected on June 19 and 20. 1B STS was found to have some retaining clips missing at the edge of two seams, creating two narrow gaps, approximately 10" long, in the mesh. The STS was immediately raised out of the water, new retaining clips were installed, and the screen was re-deployed. There were no fish inside the STS.

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 of each week. See the tables below for a summary of the sampling results. The descaling observed on the two steelhead in the June 21 sample was attributed to predators.

Fish condition sampling results at Ice Harbor Dam:

Date: June 18

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	0	---	---	---
Chinook yearling unclipped	0	---	---	---
Chinook subyearling clipped	15	1	0	0
Chinook subyearling unclipped	33	1	0	0
Steelhead clipped	0	---	---	---
Steelhead unclipped	0	---	---	---
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	48	2	0	0

Date: June 21

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	0	---	---	---
Chinook yearling unclipped	0	---	---	---
Chinook subyearling clipped	31	1	0	0
Chinook subyearling unclipped	76	2	0	0
Steelhead clipped	4	2	0	2
Steelhead unclipped	1	0	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	1	0	0	0
Coho unclipped	0	---	---	---
Total	113	5	0	2

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
71.0	53.6	60.1	21.1	63	61	4.6	4.2

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: The turbine cooling water strainers will be inspected later this month.

Avian Activity: Gull and cormorant numbers were very low this week (see the table below). Most of the pelicans were observed foraging downstream of the spillway and around Eagle Island. Contracted land-based hazing of piscivorous birds for 8 hours per day is occurring.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
June 15	3	4	0	1	29
June 16	---	---	---	---	---
June 17	---	---	---	---	---
June 18	0	0	0	0	21
June 19	1	3	0	0	32
June 20	---	---	---	---	---
June 21	0	1	0	0	33

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 Fish Facility for this reporting period.

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

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

Other: On June 19, a dead 14" smallmouth bass was found just outside of the west door of the juvenile fish facility lab. The fish was probably dropped by an osprey.

Project: Lower Monumental
Biologists: Chuck Barnes and Raymond Addis
Dates: June 15 - 21, 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)

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
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 June 15, 16, 17, 18 and 20.

Fish Ladder:

Yes	No	Location	Criteria	Measurements
X		North Ladder Exit Differential	Head ≤ 0.5’	
X		North Ladder Picketed Lead Differential	Head ≤ 0.4’	
X		North Ladder Depth over Weirs	Head over weir 1.0’ to 1.3’	
X		South Ladder Exit Differential	Head ≤ 0.5’	
X		South Ladder Picketed Lead Differential	Head ≤ 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	≥ 8.0’ or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	≥ 8.0’ or on sill	
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	
X		X	South Powerhouse Entrance (SPE-1) Weir Depth	≥ 8.0’ or on sill	
X		X	South Powerhouse Entrance (SPE-2) Weir Depth	≥ 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	≥ 8.0’	
X			South Shore Entrance (SSE-2) Weir Depth	≥ 6.0’	
	X		South Shore Channel/Tailwater Differential	1.0’ – 2.0’	

Comments:
South Powerhouse Entrance (SPE-1) was at sill during all inspections with readings of 6.5, 6.6, 6.2, 5.6 and 7.0 feet respectively.
South Powerhouse Entrance (SPE-2) was at sill during all inspections with readings of 6.5, 6.6, 6.2, 5.6 and 7.0 feet respectively.
South Shore Entrance (SSE-1) was at sill during all inspections with readings of 6.2, 7.6, 6.1, 5.6 and 7.6 feet respectively.
South Shore Channel/Tailwater differential was out of criteria during the June 16 and 20 inspections with readings of 0.5 and 0.7 feet respectively. The powerhouse operator was informed and adjusted the settings to bring the differential back into criteria.

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 estimated return to service date.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	0 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?	

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: STS's were operating in continuous 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.

GBT: GBT monitoring sampling began on April 10.

Transport Summary: Every-day barging changed to alternate day barging on May 22. A total of 19,260 fish were collected and 21,904 were transported during this reporting period.

Spillway Weir: RSW went into service when Spring Spill began at 0001 on April 3. Spring Spill ended and Summer Spill began at 00:00:00 on June 21.

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
65.8	50.5	37.2	16.9	63.2	62.2	4.7	3.2

*Scroll case temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on June 13. No live fish were recovered. Mortalities included 7 juvenile salmon and 4 juvenile lamprey.

Avian Activity: Gulls and pelicans were the main piscivorous bird species observed during tailrace counts of foraging birds during fish ladder inspections this week.

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
6/15/2018	1115	3	0	0	0	1
6/16/2018	1100	2	0	0	0	2
6/17/2018	1140	4	0	0	0	5
6/18/2018	1130	0	0	0	0	4
6/19/2018	1130	3	0	0	0	5
6/20/2018	1130	2	0	0	0	6
6/21/2018	1100	0	0	0	0	3

Comments: Bird hazing efforts by USDA personnel ended at 2000 on June 2.

Outfall pipe bird water cannons were turned off on June 11, due to a damaged water cannon at pipe exit. The standby set of cannons had a missing water cannon and were already out of service.

Invasive Species: No zebra or quagga mussels were observed during monitoring station inspections on June 2.

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*
6/15/2018	0	0
6/16/2018	1	20
6/17/2018	0	0
6/18/2018	0	0
6/19/2018	0	0

6/20/2018	0	0
6/21/2018	0	0
Totals	1	20

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

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

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

Project: Little Goose
Biologists: Scott St. John and Richard Weis
Dates: June 15-21, 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	

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

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
5	04/14/17	14:11	11/16/18	17:00	Spider and upper guide bearing repair.
4	06/12/18	17:00	06/22/18	17:00	Forced due to VBS damage

Comments: None.

Adult Fish Passage Facility

Little Goose fish facility and Anchor QEA staff inspected the adult Fishway on June 17, 18, and 21.

Fish Ladder:

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

Comments: Fish ladder cooling pump is currently not able to operate due to XJ-7 failure (see MFR 18 LGS 12).

Fishway Entrances and Collection Channel: None.

Yes	No	Sill	Location	Criteria	Measurements
X			South Shore Entrance (SSE-1) Weir Depth	$\geq$ 8.0’	
X			South Shore Entrance (SSE-2) Weir Depth	$\geq$ 8.0’	
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	$\geq$ 7.0’ or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	$\geq$ 7.0’ or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
X			North Shore Entrance (NSE-1) Weir Depth	$\geq$ 6.0’ or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	$\geq$ 6.0’ or on sill	
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	0.8’ on June 18
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 and 3 were taken on June 21 and were in criteria. There is approximately 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 and 3 were taken on June 21 and were in criteria. During VBS camera inspection on June 12, damage on VBS in gatewell 4C was discovered (MFR 18 LGS 11) and unit 4 was removed from service while the VBS was repaired.

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 running in auto mode and appears to be working well.

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 121,240 fish were collected, and 127,646 were transported via barge which includes fish collected on June 14. The descaling and

mortality rates were 0.9% and 0.2% respectively. This weekly report period, 2 adult lamprey were removed from the raceways or sample and released one mile above the Dam at Little Goose Landing.

Spillway Weir: Spring spill operations began on April 03 in accordance to the Fish Passage Plan. Adjustable spillway weir crest height was changed to the high crest position on June 11 at 1410.

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
67.2	52.7	33.0	20.1	63.4	61.8	4.2	3.5

*Ladder temperature.

Other

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

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

Zone	**Gull**	**Cormorant**	**Tern**	**Pelican**	**Grebe**
Unmodified boat barrier	0	0	0	0	0
Modified boat barrier*	0	0	0	0	0
Forebay debris	0	0	0	0	0
Trash/shear boom	0	0	0	0	0
Forebay count	0	0	0	0	0
Tailrace count	0	0	0	1	0

*modified and unmodified boat barrier section was removed on 7 buoys directly upstream of the ASW.

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***
6-15	0	0
6-16	0	0
6-17	1	20
6-18	0	0
6-19	0	0
6-20	2	20
6-21	2	40
Total	**5**	**80**

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

Gas Bubble Trauma (GBT): GBT monitoring was performed on June 18. Personnel examined 100 fish and none 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: June 15- June 21, 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 Granite Unit Outages (OOS) and Return to Service (RTS)

	OOS		RTS		
Unit	Date	Time	Date	Time	Outage Description
3	18-June	0705			Repair governor oil leak.

Comments: None.

Adult Fish Passage Facility

Lower Granite and Anchor QEA staff inspected the adult fishway on June 15, 16, 17, and 19.

Fish Ladder:

Yes	No	NA	Location	Criteria	Measurements
X			Fish Ladder Exit Differential	Head ≤ 0.5’	
X			Fish Ladder Picketed Lead Differential	Head ≤ 0.3’	
	X		Fish Ladder Depth over Weirs	Head over weir 1.0’ to 1.3’	1.4, 1.4
X			Fish Ladder Cooling Water Pumps in Service		
X			Fish Ladder Cooling Water Pumps Operating Satisfactorily		

Comments: The shift Operator inspected diffuser-14 level sensors and returned depth over the weirs to criteria. Fish ladder cooling water pumps were placed in service at 1300 hours June 21.

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	
X			South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
X		X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 8.0’ or on sill	
X		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 8.0’ or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
X			North Shore Entrance (NSE-1) Weir Depth	≥ 7.0’ or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	≥ 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: None.

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 pumps 1 and 3 were out of service from 1400-1437 hours June 19 to swap bulkheads and test AWS pump 2. After testing pumps 1 and 2 are operating with pump 3 in standby. AWS pumps were out service from 1130-1134 hours and 1830-1838 hours while swapping the main power line supply for BPA work on the 500kV line June 20.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	90 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: 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: 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 programing issues with the new system. Overflow weirs in groups A, B, and C remain in auto; weir group D continues to be in manual to achieve optimal flow from the PDW to the transport flume. Problems are being investigated and troubleshooting the system for needed repairs is ongoing. During the 500kV power swap 3 of the PDW valves (PD-WS) that supply the JFF closed. The closure of PD-WS valves caused a significant drop in the water supply pipe pressure (7.24 to 0.67 psi) and resulted in the water level in the JFF upwell dropping 2 feet. The valves were reopened using the HMI touch screen and water supply was returned to normal operational levels.

Collection Facility: Operational modifications continue as needed. The facility is in collection for transport mode.

Transport Summary: Every other day barging continues.

Spill/Spillway Weir: Summer spill began June 21 at 0000 hours.

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
67.2	54.3	41.5	19.2	62.1	59.8	5.0	4.4

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Cooling water strainers were not inspected this week.

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

Siberian Prawns:

Date	6/15/2018	6/16/2018	6/17/2018	6/18/2018	6/19/2018	6/20/2018	6/21/2018
Euthanized	0	0	0	0	0	1	1
Dead	0	0	0	0	0	2	0

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

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
6/15/2018	1545	0	0	0	16
6/16/2018	1245	0	0	0	2
6/17/2018	1115	3	0	0	10
6/18/2018	No observations conducted				
6/19/2018	1615	0	0	0	9
6/20/2018	0622	1	1	0	2
6/21/2018	1336	0	0	0	9

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. Collection for NOAA concluded June 14 with the last fish tagged June 15 and transported June 16.

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.