U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#18-2018

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: June 29 to July 5, 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	7/3	1000	7/3	1022	ESBS camera inspections.
8	7/3	1024	7/3	1045	ESBS camera inspections.

Comments: There is nothing to report.

Adult Fish Passage Facilities

McNary fisheries biologists performed adult fishways measured inspections on June 29, July 1 and 4. Temperature probe data was downloaded on July 4. Adult fish counting and video review of night time lamprey passage continued.

Fish Ladder Exits:

Yes	No	Location	Criteria	Comments
X		Oregon Exit	Head over weir 1.0’ to 1.3’	
X		Oregon Count Station Differential	0.0’ to 0.5’	
X		Washington Exit	Head over weir 1.0’ to 1.3’	
X		Washington Count Station Differential	0.0’ to 0.5’	

Comments: Debris loads were minimal to moderate near the Oregon exit and minimal near the Washington exit. Picketed leads were cleaned by the general maintenance staff as needed, including Saturday.

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: From June 29 to July 2, the control system panel view near the Oregon north powerhouse entrances was not functional.

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.
X	X		Oregon Ladder Fish Pump 2, Blade angle: 22.
X			Oregon Ladder Fish Pump 3, Blade angle: 22.
X			OR North Powerhouse Pool supply from juvenile fishway

Comments: On July 2, from 0708 to 0957 hours, fish pump 2 was in standby due to station service system testing. During this time, the blade angles on fish pumps 1 and 3 were increased to insure the ladder remained in criteria. Later in the day, from 1459 to 1507 hours, all three fish pumps were in standby due to the testing.

Juvenile Fish Passage Facility

The sampling season continued.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Minimal to moderate 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 moderate. Debris accumulation along the spillway was light to heavy. New incoming debris loads were minimal. Changes in wind direction moved the debris back and forth across the forebay from the spillway to the Oregon shore.

No trash racks were cleaned this week. No problems were noted in the gatewell slots.

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: On June 29, the brush on the screen in 4A slot tripped an alarm and was reset. On June 30, the brush cycles for the ESBSs in 1C and 14C slots were returned to automatic mode. ESBS camera inspections in units 7 and 8 revealed no problems. Though operational, the backup camera functioned intermittently. The cable for the primary camera arrived later in the week and was reinstalled.

VBS differential monitoring occurred daily. No high differentials were measured. On July 3, three VBSs were cleaned. One smolt mortality was 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 cleaning. Orifice operator air leaks were repaired as required.

We continued to monitor the two side dewatering valves as they appear to be operating more frequently and the motors appear to be warmer. Also, the programmed brush cycle sequence continued to be of great concern.

On July 2, scheduled maintenance was performed on the side dewatering screen brush. The transition screen brush remains out of service until the contractor can resolve the limit switch issues at an undetermined date.

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, 400 juvenile lamprey and 98,600 smolts were bypassed.

On July 3, the GBT transport line from the separator to the wet lab was repaired.

TSW Operations: The TSWs remain out of service per the summer FOP. The spill pattern remained as outlined in the Fish Passage Plan, Table MCN-9, without TSWs.

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
262.2	163.5	131.1	81.9	65.1	63.8	5.5	4.5

Comments: The above data is supplied by Anchor, QEA except water clarity, which is provided by the control room. The summer spill program continued with fifty percent of river flow being spilled.

Daily temperature monitoring by Anchor, QEA throughout the juvenile system continued. Temperature data and probe issues are described in a separate weekly report.

Other

Inline Cooling Water Strainers: The next cooling water strainer examinations will occur on July 10.

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

Pelicans continued to be observed in all zones, feeding or roosting along the shorelines and at the bypass outfall. Pelicans appear to be roosting below the separator building at night. Gull and tern numbers appeared to fluctuate. The two birds are difficult to distinguish at long distances even with binoculars. Most birds appear to be feeding in the spillway. Cormorants remained difficult to observe. We suspect they are feeding at the outfall.
An occasional osprey or tern was observed in the forebay. Pelicans were feeding in the forebay with one to three birds generally present. Grebe were not observed anywhere this week. Pelicans, cormorants, terns and gulls were roosting on the rocks by the Washington shore boat dock.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican
June 29	Spill	3	0	0	27
	Powerhouse	0	0	0	0
	Outfall	0	0	0	6
June 30	Spill	0	0	1	10
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
July 1	Spill	0	0	10	14
	Powerhouse	0	0	0	10
	Outfall	0	0	0	0
July 2	Spill	0	0	28	29
	Powerhouse	0	0	0	3
	Outfall	0	3	0	4
July 3	Spill	0	1	10	36
	Powerhouse	0	0	0	5
	Outfall	0	3	0	1
July 4	Spill	10	1	20	17
	Powerhouse	0	0	0	0
	Outfall	0	3	0	18
July 5	Spill	0	0	11	27
	Powerhouse	0	0	0	0
	Outfall	0	0	0	14

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. However, terns may be roosting on the wing wall at times. USDA Wildlife Services continued with two shifts. However, the second shift concludes on July 14. Also, boating hazing happened on Monday through Thursday with the last trip occurring on July 5. The boat has been used slightly upstream of the outfall pipe. When weather conditions do not allow for boat hazing, the crew hazed from the shoreline and the project.

For the season, to date, Wildlife Services has lethally taken 6 cormorants and 70 gulls. With boat hazing concluded, further lethal take is highly unlikely.

On June 30, PSMFC staff began recording observations of pelicans feeding at the bypass outfall. They are using a spotting scope for these observations. They hope to begin video recording of the outfall on July 11.

Invasive Species: The next mussel station examinations will occur in late July. No Siberian prawn were removed for the sample this week.

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

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

Project: Ice Harbor
Biologist: Ken Fone
Dates: June 29 – July 5, 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.

Comments: Unit 3 ran below the 1% peak operating efficiency range on July 1, generating 4-5 megawatts from 0800 hours to 0852 hours, when the unit would not completely shut down remotely using the controls in the navigation lock stand.

Adult Fish Passage Facility

Ice Harbor fish facility staff inspected the adult fishways on July 2, 3, and 5.

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	6.6’
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0’ – 2.0’	0.7’
X			North Shore Entrance (NEW-1) Weir Depth	≥ 8.0’ or on sill	
X			North Shore Channel/Tailwater Differential	1.0’ – 2.0’	

Comments: The NFE-2 weir depth was below criteria on the July 2 inspection. The powerhouse operator was informed and he lowered the weir to bring the depth into criteria. The weir is being operated in manual mode to reduce the wear and tear of the weir operating machinery trying to adjust to fluctuating tailwater levels from spill. The NFE-2 channel/tailwater differential was below criteria on the July 3 inspection. This reading may have resulted from a visual reading error of the tailwater elevation, which fluctuates with the turbulence from spill.

Auxiliary Water Supply (AWS) System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
5 pumps	3 pumps		Status of the 8 South Shore AWS Pumps
2 pumps	1 pump		Status of the 3 North Shore AWS Pumps

Comments: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	6 square yards
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 to 8%
	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.

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. There were six fish in the July 5 sample with small gouges in their bellies. The wounds were not fresh, but were recent and not yet healed over. The wounds did not appear to be the type inflicted by predators.

Fish condition sampling results at Ice Harbor Dam:

Date: July 2

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	1	0	0	0
Chinook yearling unclipped	0	---	---	---
Chinook subyearling clipped	12	0	0	0
Chinook subyearling unclipped	16	1	0	0
Steelhead clipped	0	---	---	---
Steelhead unclipped	0	---	---	---
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	29	1	0	0

Date: July 5

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	0	---	---	---
Chinook yearling unclipped	0	---	---	---
Chinook subyearling clipped	35	1	0	0
Chinook subyearling unclipped	63	1	0	0
Steelhead clipped	0	---	---	---
Steelhead unclipped	0	---	---	---
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	98	2	0	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
50.9	39.9	33.4	12.6	65	64	7.0	6.5

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Unit 1, 3, 5, and 6 cooling water strainers were inspected on June 27. The number and kinds of fish found (all decomposing) were: 1 adult lamprey, 1 juvenile lamprey, 2 bullheads or catfish, and 12 Siberian prawns.

Transformer cooling water strainers were inspected on June 26. A total of 9 live juvenile lamprey were recovered and released in the river in good condition.

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 ended for the season on June 30.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
June 29	0	3	1	0	47
June 30	0	0	0	0	74
July 1	---	---	---	---	---
July 2	10	1	1	0	72
July 3	0	6	0	0	27
July 4	---	---	---	---	---
July 5	0	5	0	0	52

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 samples 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: Due to the navigation lock being out of service because of gate operation problems on July 4, all of the fish in the juvenile fish barge were released in the Ice Harbor forebay at 1220 hours on July 4.

Project: Lower Monumental
Biologists: Chuck Barnes and Raymond Addis
Dates: June 29 – July 5, 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		09/25/2018	ERTS	Rehabilitation Overhaul
Unit 3	06/25/2018	0700	08/31/2018	ERTS	6 Year Overhaul
Unit 6	06/28/2018	1731	07/03/2018	1000	Governor Oil System Troubleshooting

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 29, 30 and July 1, 2 and 4.

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	South Powerhouse Entrance (SPE-1) Weir Depth	≥ 8.0’ or on sill	
		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	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 6.9, 5.8, 5.5, 5.7 and 5.0 feet respectively.
South Powerhouse Entrance (SPE-2) was at during all inspections with readings of 6.9, 5.8, 5.5, 5.9 and 5.0 feet respectively.
South Shore Entrance (SSE-1) was at sill during all inspections with readings of 6.7, 6.5, 5.5, 6.6 and 5.8 feet respectively.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
No		X	AWS Fish Pump 1
Yes			AWS Fish Pump 2
Yes			AWS Fish Pump 3

Comments: AWS Fish pump 1 is out of service for seized Wicket Gate Bushings. There is no current 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 – 2%
	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: Incline screen mechanical cleaning brush system started faulting halfway into a run with the brush up on July 4. Separator technicians have been manually operating the brush to correct the fault when it occurs.

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

GBT monitoring sampling began on April 10.

Transport Summary: Every-day barging changed to alternate day barging on May 22. A total of 13,185 fish were collected and 14,679 were transported during this reporting period.

Spillway Weir: RSW went into service when Spring Spill began at 0001 on April 3. 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
48.2	37.6	17.0	16.5	65.2	64.3	6.7	4.3

*Scroll case temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on July 2. No live fish were recovered. Mortalities included 1 juvenile lamprey.

Avian Activity: Tailrace counts of foraging piscivorous birds at Lower Monumental Dam observed during fish ladder inspections this week were mostly gulls and pelicans. Tailrace observations for bird hazing effectiveness ended with the June 30 observation.

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
6/29/2018	1100	18	0	0	0	3
6/30/2018	1100	16	1	0	0	7

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*
6/29/2018	0	0
6/30/2018	1	10
7/1/2018	0	0
7/2/2018	0	0
7/3/2018	0	0
7/4/2018	1	10
7/5/2018	0	0
Totals	2	20

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

Fish Rescue/Salvage: Biologist entered main unit 4 scroll case as it was being de-watered on 29 June. No fish were found in the scroll case.

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

Project: Little Goose
Biologists: Scott St. John and Richard Weis
Dates: June 29-July 05, 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.

Comments: None

Adult Fish Passage Facility

Little Goose fish facility and Anchor QEA staff inspected the adult Fishway on June 29 and July 01 and 05.

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 failed soon after operation began on June 28 (MFR 18 LGS 14). Crews are working to replace the pump in order to return the cooling system back to service.

Fishway Entrances and Collection Channel: None.

Yes	No	Sill	Location	Criteria	Measurements
X			South Shore Entrance (SSE-1) Weir Depth	$\geq$ 8.0’	
X			South Shore Entrance (SSE-2) Weir Depth	$\geq$ 8.0’	
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	$\geq$ 7.0’ or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	$\geq$ 7.0’ or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
X			North Shore Entrance (NSE-1) Weir Depth	$\geq$ 6.0’ or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	$\geq$ 6.0’ or on sill	
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: Adult fishway control system is currently operating in manual mode. Fishway is currently operating within 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 unit 1 were taken on June 28 and were in criteria. There is approximately 0 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 unit 1 were taken on June 28 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 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 20,115 fish were collected, and 23,749 were transported via barge. A portion of these fish were released upstream of Ice Harbor due to a navigation lock gate malfunction (MFR 18 JFT 01). The descaling and mortality rates were 0.8% and 0.6% respectively this week. This weekly report period, 1 adult lamprey was 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
48.9	37.2	14.8	11.1	66.7	64.6	4.2	3.0

*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	3	0	0	0	0
Tailrace count	3	0	0	0	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*
6-29	4	60
6-30	0	0
7-01	2	30
7-02	1	10
7-03	2	40
7-04	1	10
7-05	4	40
Total	**14**	**190**

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

Gas Bubble Trauma (GBT): GBT monitoring was performed on July 02. Personnel examined 100 fish and 0 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 29- July 5, 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	

Comments: No units were out of service (OOS) this reporting period.

Adult Fish Passage Facility

Lower Granite and Anchor QEA staff inspected the adult fishway on June 29 and 30, July 02, 03, and 04.

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
X			Fish Ladder Cooling Water Pumps in Service		
X			Fish Ladder Cooling Water Pumps Operating Satisfactorily		

Comments: None

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	
X			South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	
	X		South Shore Channel/Tailwater Differential	1.0’ – 2.0’	0.9
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’	0.8
	X		Collection Channel Surface Velocity	1.5 – 4.0 fps	1.1,1.1,1.1,1.4,1.1

Comments: The inability to operate AWS pump 1 in fast mode with current tailwater elevations may be influencing collection channel velocities. The problem is being investigated. Wave action caused by current spill patterns at tailwater elevations is likely contributing to NSE channel/tailwater differential out of criteria readings.

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: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	3 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 operated 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.

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

Transport Summary: Every other day barging continues. At about 1220 hours July 4 an estimated 11,052 fish collected from Lower Granite, Little Goose, and Lower Monumental were released at Snake River mile 10 due to navigational lock failure at Ice Harbor (18JFT01 MFR). Fish by species included 10,872 subyearings Chinook, 20 yearling Chinook, 99 steelhead, and 29 Coho. Ice Harbor navigation lock was returned to limited commercial service at about 1500 hours July 4 and restored to full service July 5 at 1015 hours. Fish collection and

transport operations at all three collection Projects continued as normal with the barge departing Lower Granite at about 0830 hours July 5.

Spill/Spillway Weir: Summer spill began June 21 at 0000 hours. June 29 Lower Granite transitioned to MOP plus 2 feet operating range (735.0-736.0 feet) due to river flows dropping below 50 kcfs per RCC and coordinated with BPA.

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
50.5	37.9	18.9	17.5	65.8	65.0	5.0	5.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Unit cooling water strainers were inspected July 2. Mortalities included 1 juvenile lamprey mortality.

Invasive Species: No mussels were present during the July 1 inspection. There were 14 Siberian prawns euthanized and 3 Siberian prawn mortalities collected in the sample this reporting period.

Siberian Prawn:

Date	6/29/2018	6/30/2018	7/01/2018	7/02/2018	7/03/2018	7/04/2018	7/05/2018
Euthanized	1	1	2	1	2	3	4
Dead	0	0	0	0	0	0	3

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

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
6/29/2018	1600	0	0	0	1
6/30/2018	1230	0	0	0	0
7/01/2018	1523	0	0	0	0
7/02/2018	1110	0	1	0	0
7/03/2018	1015	13	2	0	1
7/04/2018	1112	5	0	0	1
7/05/2018	1245	2	2	0	0

Gas Bubble Trauma **(**GBT**)** Monitoring: N/A.

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. IDFG sampling ended June 29.

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. Kelt collection for this study concluded June 30 with 1,127 kelts collected and 259 transported for reconditioning.

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. Sort by code collection for this study concluded June 30.

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.