

**U.S. ARMY CORPS OF ENGINEERS  
WALLA WALLA DISTRICT  
FISH FACILITIES WEEKLY REPORT  
#19-2018**

**Project: McNary**

Biologist: Bobby Johnson and Denise Griffith

Dates: July 6 to 12, 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	
8	7/9	0634	7/12	1443	Annual maintenance.
5	7/10	1000	7/10	1013	ESBS camera inspections.
6	7/10	1014	7/10	1041	ESBS camera inspections.
6	7/11	0657	7/11	1354	Hub tapped.

Comments: The saw tooth unit priority for warm water temperature abatement began on July 12 at 0711 hours. (The water temperature was 67.6 degrees Fahrenheit (F) at 0700 hours in the B side sample tank.) The sample tank temperature used for the saw tooth decision is taken from a thermometer installed in the B tank as close to 0700 hours as the day allows.

**Adult Fish Passage Facilities**

McNary fisheries biologists performed adult fishways measured inspections on July 6, 8 and 11. Temperature probe data was downloaded on July 11. Due to a faulty shuttle, the probes had to be removed, relaunched and redeployed on July 12. A spare shuttle was borrowed from Anchor, QEA and two new shuttles were ordered. Approximately 24 hours of data was lost. 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 light 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.

On July 6, at the Washington ladder exit, a regulating weir alarm came in and was reset. On July 11, scheduled maintenance was performed on the exit tilting and regulating weirs.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
X			North Oregon Entrance Head Differential	1.0' – 2.0'	
X			NFEW2 Weir Depth	≥ 8.0'	
X			NFEW3 Weir Depth	≥ 8.0'	
X			South Oregon Entrance Head Differential	1.0' – 2.0'	
X			SFEW1 Weir Depth	≥ 8.0'	
X			SFEW2 Weir Depth	≥ 8.0'	
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 2.1 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	
X			WFE2 Weir Depth	≥ 8.0'	
X			WFE3 Weir Depth	≥ 8.0'	

Comments: On July 6, the Oregon ladder south powerhouse entrances were briefly switched to manual mode in order to resolve issues with the control system read out. On July 11, scheduled maintenance was performed on the Washington ladder entrances.

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			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: There are no problems to report.

**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 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 light to minimal. Debris accumulation along the spillway was heavy to very light. 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. On July 10, the forebay debris near the spillway was spilled resulting in the lower debris loads just described above. The spill operation will be described below.

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: There are no problems to report. ESBS camera inspections in units 5 and 6 revealed no issues. Though functioning intermittently, the backup camera was used. The primary camera system was reinstalled in the camper shell and will be used next week.

VBS differential monitoring occurred daily. No high differentials were measured. No VBSs were cleaned.

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: There are no new problems to report. On July 12, scheduled maintenance was performed on the rectangular screen air burst system back up compressor. The contractor is tentatively scheduled to return to the project on July 18 to address the transition screen brush limit switch issues. The brush remained out of service.

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 162,801 smolts were bypassed.

On July 9, a drive gear was reinstalled on the B side sample tank fish crowding screen. On July 12, the A side flume add in water winterization drain was repaired.

TSW Operations: The TSWs remain out of service. 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
204.7	160.7	102.4	80.6	67.7	64.4	5.5	4.4

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.

This week, a fairly large amount of floating woody material had accumulated in the forebay near spillbays 18 through 21. On July 9, from 1438 to 1513 hours, the project staff manipulated spillbay 18 into and out of spilt leaf

mode. However, an extra spillgate leaf stored upstream of the spillgate made that bay unfeasible to use for debris removal. On July 10, from 0951 to 1117 hours, spillbay 16 was successfully operated in split leaf mode. Bays 17 through 21 were opened and closed as need to help maneuver the debris to bay 16, where the debris was passed to the tailwater (18 MCN 08 MFR).

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: On July 10, the cooling water strainer examinations revealed three live juvenile lamprey, which were returned to the river. Also, there were one juvenile lamprey, 14 unclipped and 4 clipped subyearling Chinook mortalities. The next strainer examinations will occur in December.

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. On July 6, we counted the pelicans from the interstate bridge to the forebay boat restricted zone. The total was 97 birds. Gulls were only occasionally observed during other observations. Tern numbers appeared to fluctuate. The gulls and terns are difficult to distinguish at long distances even with binoculars. The terns appeared to be feeding in the spillway. Cormorants remained difficult to observe. We suspect they were 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 returned to the project with as many as 13 being observed. No grebes were noted in the gatewell slots or juvenile fish channel. 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
July 6	Spill	0	0	3	22
	Powerhouse	0	0	0	2
	Outfall	0	2	0	5
July 7	Spill	0	0	10	20
	Powerhouse	0	0	0	3
	Outfall	0	0	0	10
July 8	Spill	0	0	10	10
	Powerhouse	0	0	0	4
	Outfall	0	0	0	6
July 9	Spill	0	0	8	12
	Powerhouse	0	0	0	10
	Outfall	0	0	0	0
July 10	Spill	0	1	45	19
	Powerhouse	0	0	0	1
	Outfall	0	3	0	12
July 11	Spill	0	0	9	22
	Powerhouse	0	0	0	0
	Outfall	0	1	0	11
July 12	Spill	0	0	5	7
	Powerhouse	0	0	0	1
	Outfall	0	4	0	7

The outfall hazing water sprinklers remain out of service due to system damage, which will require a contract to repair/replace. The second bird distress call system will be shipped from the manufacture next week. Once the system arrives, it will be deployed at 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. However, the second shift concludes on July 14. PSMFC staff continued recording observations of pelicans feeding at the bypass outfall. They are using a spotting scope for these observations. Video recording of the outfall will not occur this season as no cameras with sufficient zoom capacity are available.

Invasive Species: The next mussel station examinations will occur in late July. One Siberian prawn mortality was 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: July 6 – July 12, 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	7/12/18	1358	Investigate oil leak.

Comments: Upon investigation, there was no oil found to be leaking from unit 4. During the outage, the governor oil system was cleaned. One of the unit 4 governor oil pumps was found to be broken and will be replaced with a new pump, which is on-order.

**Adult Fish Passage Facility**

Ice Harbor fish facility staff inspected the adult fishways on July 9, 10, and 12.

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	6.9'
	X		North Powerhouse Entrance Channel/Tailwater Differential	1.0' – 2.0'	0.7'
X			North Shore Entrance (NEW-1) Weir Depth	$\geq$ 8.0' or on sill	
	X		North Shore Channel/Tailwater Differential	1.0' – 2.0'	2.2', 0.6'

Comments: The NFE-2 channel/tailwater differential was below criteria and the NEW-1 channel/tailwater differential was above criteria on the July 9 inspection. These readings may have resulted from visual reading errors of the tailwater elevations, which fluctuate with the turbulence from spill. The NEW-1 channel/tailwater differential and NFE-2 weir depth were below criteria on the July 10 and July 12 inspections, respectively. The powerhouse operator was informed and he adjusted the weirs to bring those inspection points into criteria. Those weirs are being

operated in manual mode to reduce the wear and tear of the weir operating machinery trying to adjust to fluctuating tailwater levels from spill.

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)	0 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 were changed to cycle-run mode on July 11, as the average fork length of subyearling chinook has been greater than 120 mm in the Ice Harbor and Lower Monumental juvenile fish samples.

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, with July 12 being the last sample of the season. See the tables below for a summary of the sampling results. The cause of the descaling observed on two of the fish in the July 9 sample and one of the fish in the July 12 sample was attributed to predatory fish.

Fish condition sampling results at Ice Harbor Dam:

Date: July 9

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	0	---	---	---
Chinook yearling unclipped	0	---	---	---
Chinook subyearling clipped	24	0	0	0
Chinook subyearling unclipped	72	7	0	0
Steelhead clipped	0	---	---	---
Steelhead unclipped	0	---	---	---
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	96	7	0	0

Date: July 12

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	0	---	---	---
Chinook yearling unclipped	0	---	---	---
Chinook subyearling clipped	20	1	0	0
Chinook subyearling unclipped	73	3	0	0
Steelhead clipped	0	---	---	---
Steelhead unclipped	0	---	---	---
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	1	0	0	0
Total	94	4	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
48.1	41.4	34.1	13.7	67	65	7.5	7.0

\*Unit 1 scroll case temperature.

### Other

Inline Cooling Water Strainers: Monthly inspections for lamprey ended in June and will start up again in December.

Avian Activity: Gull and cormorant numbers were generally low this week (see the table below). Most of the pelicans were observed foraging downstream of the spillway and roosting on Eagle Island.



Daily maximum piscivorous bird counts at Ice Harbor Dam.

<b>Date</b>	<b>Gulls</b>	<b>Cormorants</b>	<b>Caspian Terns</b>	<b>Grebes</b>	<b>Pelicans</b>
July 6	---	---	---	---	---
July 7	---	---	---	---	---
July 8	---	---	---	---	---
July 9	9	8	0	0	13
July 10	32	3	2	0	49
July 11	0	4	0	0	46
July 12	7	6	0	0	56

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.

**Project: Lower Monumental**

Biologists: Chuck Barnes and Raymond Addis

Dates: July 6 - 12, 2018

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**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		09/25/2018	ERTS	Rehabilitation Overhaul
Unit 2	07/10/2018	0700	07/10/2018	1612	STS Inspections & Hub tapping
Unit 3	06/25/2018	0700	08/31/2018	ERTS	6 Year Overhaul
Unit 4	07/11/2018	0715	07/11/2018	1115	STS Inspection & Hub tapping
Unit 5	07/12/2018	0655	07/12/2018	1359	STS Inspections
Unit 6	07/11/2018	1220	07/11/2018	1345	STS Inspection

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 July 6, 7, 8, 9 and 11.

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'	

Comments: South Ladder Depth over weir reading was out of criteria on the July 7 inspection with a reading of 0.9 feet. JFF personnel cleaned woody debris from the lower picketed leads.

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 5.8, 6.0, 6.0, 5.8 and 6.2 feet respectively.

South Powerhouse Entrance (SPE-2) was at during all inspections with readings of 5.8, 6.0, 6.0, 5.8 and 6.2 feet respectively.

South Shore Entrance (SSE-1) was at sill during all inspections with readings of 6.0, 6.8, 6.2, 6.6 and 7.0 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 – 1%
	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 operating setting changed from continuous mode to cycle mode on July 11 due to average sub-yearling Chinook and sockeye lengths being greater than 120 mm.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	18 or 19
	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.

Gas Bubble Trauma (GBT): GBT monitoring sampling began on April 10.

Transport Summary: Every-day barging changed to alternate day barging on May 22. A total of 9,205 fish were collected and 8,178 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
45.1	39.6	17.4	16.6	68.1	65.8	6.7	3.9

\*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 ended with the June 30. and 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 July 6.

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.

<b>Date</b>	<b>Sample (euthanized)</b>	<b>Collection*</b>
7/6/2018	0	0
7/7/2018	0	0
7/8/2018	0	0
7/9/2018	0	0
7/10/2018	2	20
7/11/2018	0	0
7/12/2018	0	0
Totals	2	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: July 6 - July 12, 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	11/16/18	17:00	Spider and upper guide bearing repair.
2	07/12/18	17:00	07/13/18	07:15	Exciter failure / lock out

Comments: None.

**Adult Fish Passage Facility**

Little Goose fish facility and Anchor QEA staff inspected the adult Fishway on July 08, July 10, and July 12.

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 units 1 and 2 were taken on July 08 and on July 12, 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 units 1 and 2 were taken on July 8 and on July 12, 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 19,658 fish were collected, and 17,448 were transported via barge. The descaling and mortality rates were 1.4% and 0.6%

respectively. This weekly report period, 6 adult lamprey were removed from the separator, raceways, and sample; subsequently 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
45.5	38.1	13.6	11.5	68.4	66.9	5.8	4.9

\*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	3	0	0	0	0
Trash/shear boom	6	0	0	0	0
Forebay count	5	0	0	0	0
Tailrace count	21	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*
7-06	2	20
7-07	1	10
7-08	2	10
7-09	9	45
7-10	9	45
7-11	6	60
7-12	8	80
<b>Total</b>	<b>37</b>	<b>270</b>



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

Gas Bubble Trauma (GBT): GBT monitoring was performed on July 09. 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: July 6- July 12, 2018

**Turbine Operation**

Yes	No	Turbine Unit Status		
	X	All 6 turbine units available for service (see table & comments below for details).	<b>Hard</b>	<b>Soft</b>
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	
3	July 7	1151	July 7	1250	Verify 3C head gate position.
6	July 9	0700			Annual Maintenance and Digital Governor Upgrade

Comments: None.

**Adult Fish Passage Facility**

Lower Granite and Anchor QEA staff inspected the adult fishway on July 06, 07, 08, and 11.

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: None.

Fish Ladder Entrances and Collection Channel:

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		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, 6.9
X			North Shore Entrance (NSE-2) Weir Depth	$\geq$ 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	1.3, 1.3, 1.2, 1.3

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. NSE-1 weir depth is being sacrificed for channel/tailwater differential.

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)	0.25 yd <sup>2</sup>
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 programming 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.

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
44.9	41.2	17.7	17.6	66.7	65.1	5.0	5.0

\*Cooling water intake temperature.

## Other

Inline Cooling Water Strainers: N/A.

Invasive Species: No mussels were present during the July 1 inspection. During the reporting period 78 Siberian prawns were euthanized and 18 Siberian prawn mortalities were collected in the condition sample.

Siberian Prawn:

Date	7/06/2018	7/07/2018	7/08/2018	7/09/2018	7/10/2018	7/11/2018	7/12/2018
<b>Euthanized</b>	3	5	8	2	6	26	28
<b>Dead</b>	0	0	5	4	1	1	7

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

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
7/06/2018	1530	0	0	0	0
7/07/2018	1230	2	0	0	0
7/08/2018	1030	4	0	0	0
7/09/2018	1540	4	0	0	0
7/10/2018	1345	3	0	0	0
7/11/2018	1136	4	6	0	0
7/12/2018	1115	7	8	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. NOAA is not repositioning the turnpool gate to the ladder passage position on the weekends.

Fish Rescue/Salvage: N/A

Research:

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. PNNL research concluded July 10.