U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#10-2018

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: May 4 to 10, 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**
3	5/7	0606	5/17	NA	Cooling water strainer repair/Lubricant replaced.

Comments: The hard constraint began on April 1.

Adult Fish Passage Facilities

McNary fisheries biologists performed adult fishways measured inspections on May 4, 6 and 10. Data from the temperature probes was downloaded on May 4. Adult fish counting continued.

Fish Ladder Exits:

Yes	No	Location	Criteria	Comments
X		Oregon Exit	Head over weir 1.0' to 1.3'	
X		Oregon Count Station Differential	0.0' to 0.5'	
X		Washington Exit	Head over weir 1.0' to 1.3'	
	X	Washington Count Station Differential	0.0' to 0.5'	0.6' on May 4 and 6

Comments: Debris loads were very light to light near the Oregon exit and light to heavy near the Washington exits. Picketed leads were cleaned at the Washington exit by the biologist, the roving operator and the general maintenance staff as needed, including the weekends. The majority of the debris was tumbleweeds. The high count station differentials observed on May 4 and 6 where resolved by cleaning the picketed leads. In order to reduce the debris load along the Washington shoreline, the roving operator flushed the debris down the navigation lock as often as possible.

On May 10, at 0229 hours, the technician on duty noted the Oregon tilting exit weirs were out of sequence. The roving operator resolved the problem.

Also, that day, at the Washington exit, the regulating were tripped an alarm and was reset. The general maintenance staff removed a log from tilting weir 336. Finally, the electrical staff examined the heating/cooling units in the exit control panel.

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: No problems were observed.

Auxiliary Water Supply System:

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

Comments: There are no problems to report.

Juvenile Fish Passage Facility

The sampling season continued, with alternating 24 hour days of secondary and primary bypass.

Forebay Debris/Gatewell Debris/Oil:

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

Comments: The forebay debris load near the powerhouse was light to moderate. New incoming debris was light to heavy and come in mostly along the Washington shore line. Debris accumulation along the spillway was minimal as part of the new debris passed over the TSWs. The next trash rack cleaning will begin on May 16. There are no problems to report 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: The brush cycles for the ESBSs in 1C and 2A slots remained in timer mode. There are no problems to report. The ESBS camera is currently at the manufacture for repairs. The backup camera required examination by the electrical staff before use. Due to these issues, only ESBSs in 3B and 3C slots were inspected on May 8. No problems were found.

VBS differential monitoring occurred daily. No high differentials were measured. On May 9, four total VBSs were cleaned in units 10 and 11. No fish 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 notes below.	

Comments: Orifice attraction lights and operator air leaks were replaced and repaired as required. Orifices were adjusted for VBS cleaning as needed.

Brush positon indication irregularities on the panel view are due to the quality of the laser system and reflect no operational difficulties. The reason for east floor dewatering valve level fluctuating on the panel view has yet to be determined. Again, operations are unaffected.

On May 7, an unclipped steelhead smolt mortality was found on the side screen brush access platform. The next day netting was install around the platform.

On May 9, the transition screen brush tripped a timing alarm as it did not complete the cleaning cycle. The brush was removed from service. The electrical staff determined the hoist brakes were not stopping the beam quick enough as the beam past the magnetic proximity switch for each cleaning zone. Once past the switch, the brush program became "lost". As an interim fix, the electrical staff purposed installing a piece of metal on the beam to widen and lengthen the area required for the proximity switches to "find" the beam. This will be completed on May 15. With the transition brush out of service, air zone 5 has adequately keep the screen surface clean.

Bypass Facility:

Yes	No	NA	Item
X			Sample gates on?
		X	PIT-tag sampling system on? (Remain off unless a study is occurring.)

Comments: The sample gates are only on during secondary bypass for sample collection. On May 4, the A and B side sample rates were set at 0.5 and 2.0 percent, respectively, to insure PNNL would have enough fish for tagging. No other sample rate alterations were made for PNNL as they waited for adjustments to their take permits.

On May 5, approximately four clipped yearling chinook and six unclipped sockeye smolt mortalities were found under the weir boards in the sample recovery raceway after the sample was released. For May 6, due to this issue, GBT monitoring was cancelled and moved to May 10. The fisheries staff determined the weir boards were improperly reinstalled after winter maintenance. This, along with the higher number of fish being sampled, resulted in the mortality observed. On May 7 and 8, after trying different alternatives, the fisheries staff determined the best solution was to permanently fasten the bottom weir board to the raceway with angle iron on the downstream side of the weir. No other mortalities were observed.

On May 8, a water leak below the B side PIT tag slide gate was noted. On May 9, from 0915 to 0918 and 0951 to 0954 hours, the system was in secondary bypass with sample gates off to help determine the location of the leak. It was determined the leak would not affect operations adversely. Repairs will have to occur next winter.

This week, 3,500 juvenile lamprey and 453,902 smolts were bypassed.

TSW Operations: The TSWs remain installed in spillbays 19 and 20. The hoist on crane 6 has been repaired. Hoist testing protocols have yet to be determined. This is the crane normally attached to the TSW in bay 19.

River Conditions

Table 2. River Conditions at McNary Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature (°F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
421.5	326.1	261.5	156.7	52.6	52.1	4.7	3.5

Comments: Due to only one spillway crane being available, bay 2 remains dogged open at 4 stops. The above data is supplied by Anchor, QEA except water clarity, which is provided by the control room. The spring spill program continued.

Other

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

Avian Activity: Avian counts continued and are recorded in Table 3 below. Gull numbers appear stable. Gulls and pelicans were noted outside the counting zones due to the high flow volumes.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican
May 4	Spill	10	0	0	0
	Powerhouse	0	0	0	0
	Outfall	2	0	0	1
May 5	Spill	10	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
May 6	Spill	25	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
May 7	Spill	0	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
May 8	Spill	5	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
May 9	Spill	20	0	0	0
	Powerhouse	0	0	0	1
	Outfall	12	0	0	0
May 10	Spill	37	0	0	0
	Powerhouse	0	0	0	0
	Outfall	15	0	0	0

An occasional osprey, gull, grebe or loon was observed in the forebay. Pelicans and gulls were roosting on the rocks by the Washington shore boat dock. The outfall hazing water sprinklers have been operating well. However, on May 8, at 1600 hours, due to high flows cresting over the outfall, the sprinklers were turned off. The bird distress calls deployed along the navigation lock wing wall have been functioning well. The calls have been adjusted weekly. On May 10, avian spikes were installed on top of the wing wall light fixtures. USDA Wildlife Services continued with two shifts. Also, boating hazing occurred Monday through Thursday.

Invasive Species: The next mussel station examinations will occur in late May. No Siberian prawns were observed in the sample.

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

Research: GBT monitoring continued twice a week. The fish sampled on May 10 will be reported on May 11. There were no signs of GBT on the fish examined. On May 5, 7 and 9, PNNL removed a total of 111 clipped and 22 unclipped steelhead smolts along with 141 clipped and 17 unclipped yearling Chinook smolts from the sample for tagging as part of the spill to gas cap evaluation. The fisheries staff monitored the fish while they were being held at McNary. On May 5 and 9, the Yakima Nation removed 17 juvenile lamprey from the sample for tagging off site.

Project: Ice Harbor
Biologist: Ken Fone
Dates: May 4 – May 10, 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 was noted to be operating a few megawatts above the 1% peak operating efficiency range on all of the fishway inspections. This was due to the GDACS program needing to be updated with the narrower operating efficiency range of unit 3 since it became a fixed-blade unit.

Adult Fish Passage Facility

Ice Harbor fish facility staff inspected the adult fishways on May 7, 8, 9, and 10.

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	7.2’ on May 7
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	
	X		North Shore Channel/Tailwater Differential	1.0’ – 2.0’	0.9’ on May 10

Comments: The south powerhouse entrance weir depth was out of criteria on May 7. The powerhouse operator was informed and she decreased the channel/tailwater automated control system set-point a little to bring the depth into criteria. The north shore entrance channel/tailwater differential was slightly below criteria on the May 10 inspection. This reading resulted from the difficulty in getting an accurate visual reading of the tailwater staff gauge with the turbulent tailwater conditions from spill.

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)	21 square yards
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 to 5%
	X		Any oil seen in gatewells?	

Comments: None.

STSs/VBSs:

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

Comments: The STSs remained in continuous-run mode due to the presence of sockeye and/or subyearling chinook with average fork lengths of less than 120 mm in the Ice Harbor juvenile fish sample.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	20
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: None.

Juvenile Fish Facility: The fish facility is being operated in primary bypass, except when collecting fish for sampling.

Fish Sampling: Sampling is occurring on Mondays and Thursdays each week. See the tables below for a summary of the sampling results. The cause of the descaling observed on one of the fish in the May 7 sample and four of the fish in the May 10 sample was attributed to birds.

Fish condition sampling results at Ice Harbor Dam:

Date: May 7

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	65	3	0	0
Chinook yearling unclipped	16	2	0	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	1	0	0	0
Steelhead clipped	66	3	0	3
Steelhead unclipped	10	0	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	2	0	0	0
Total	160	8	0	3

Date: May 10

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	60	5	0	0
Chinook yearling unclipped	6	0	0	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	0	---	---	---
Steelhead clipped	90	6	0	6
Steelhead unclipped	19	1	0	1
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	8	1	0	1
Total	183	13	0	8

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
159.2	91.5	104.8	80.7	55	54	4.9	3.9

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: May inspections will occur later in the month.

Avian Activity: Cormorant and pelican numbers remained moderately high this week, while gull numbers were generally lower, with high variability in the numbers counted (see the table below). Most piscivorous birds were observed foraging downstream of the spillway and around Eagle Island. Contracted land-based hazing of piscivorous birds for 16 hours per day is occurring. Boat-based hazing for 8 hours per day, 5 days per week, is occurring. The land-based hazing has been fairly effective at moving birds out of zones adjacent to the dam. Boat-based hazing has been effective at dispersing birds out of downstream spillway zones.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
May 4	0	24	0	0	9
May 5	0	25	0	0	78
May 6	18	44	0	0	47
May 7	15	29	0	0	94
May 8	7	54	0	0	29
May 9	7	19	0	0	32
May 10	57	38	0	0	21

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 for this reporting period.

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

Research: PNNL personnel continue trapping and tagging adult chinook ascending the south fish ladder by using the adult fish trap. The fish are being released back to the river at Levey Park and their movements tracked further upstream for a Little Goose Dam fish passage study.

Project: Lower Monumental
Biologists: Chuck Barnes and Raymond Addis
Dates: May 4 -10, 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
Unit 6	4/23/2018	0705	5/11/2018		Annual maintenance

Comments: Units went into Hard Constraint at 0001 on April 1.

Adult Fish Passage Facility

The adult fishways were inspected by Corps and Anchor QEA biologists on May 4, 5, 6 and 9.

Fish Ladder:

Yes	No	Location	Criteria	Measurements
X		North Ladder Exit Differential	Head $\leq$ 0.5’	
X		North Ladder Picketed Lead Differential	Head $\leq$ 0.4’	
X		North Ladder Depth over Weirs	Head over weir 1.0’ to 1.3’	
X		South Ladder Exit Differential	Head $\leq$ 0.5’	
X		South Ladder Picketed Lead Differential	Head $\leq$ 0.3’	
X		South Ladder Depth over Weirs	Head over weir 1.0’ to 1.3’	

Fishway Entrances and Collection Channel:

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

Comments: South Powerhouse Entrance weir (SPE-1) was on sill during the May 4 inspection with a reading of 7.3. South Powerhouse Entrance weir (SPE-2) was on sill during the May 4 inspection with a reading of 7.3. South Shore Entrance weir (SSE-1) was on sill during the May 4 inspection with a reading of 7.7.

Auxiliary Water Supply System:

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

Comments: AWS Fish pump 1 is out of service for seized Wicket Gate Bushings. There is no current return to service estimate date.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	88 sq yd average
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 45%
	X		Any oil seen in gatewells?	

STSs/VBSs:

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

Comments: STS's were operating in cycle mode until 1445 on May 9 at which time they were changed to continuous-run mode 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: Sampling for condition took place over 24 hour periods starting at 0700 on April 21. Collection into raceways for transport began at 0700 on April 23.

GBT monitoring sampling began on April 10.

Transport Summary: Every-day barge transport began on April 24. A total of 555,300 fish were collected, of which 555,221 were transported during this reporting period.

Spillway Weir: RSW went into service when Spring Spill began at 0001 on April 3.

River Conditions

River conditions at Lower Monumental Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature (°F)*		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
151.6	84.8	80.3	30.0	54.0	51.9	2.9	2.6

*Scroll case temperatures.

Other

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

Avian Activity: Tailrace counts of foraging piscivorous birds at Lower Monumental Dam this reporting period had gulls being the predominant piscivorous bird species observed during fish ladder inspections this week, however, over all numbers were very low.

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
5/4/2018	1250	4	0	0	0	1
5/5/2018	1215	3	0	0	0	0
5/6/2018	1250	0	0	0	0	0
5/7/2018	1230	1	0	0	0	0
5/8/2018	1130	2	0	0	0	0
5/9/2018	1200	0	0	0	0	0
5/10/2018	1230	0	0	0	0	0

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

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

Siberian Prawn: No Siberian prawns were collected in the sample at the Juvenile Fish Facility for this reporting period are reported below.

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

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

Project: Little Goose
Biologists: Scott St. John and Richard Weis
Dates: May 04-10, 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	07/31/18	17:00	Spider and upper guide bearing repair.
6	05/08/18	07:09	05/08/18	07:30	Forced OOS malfunction lube oil level indicator.
2	05/09/18	15:42	05/09/18	15:57	Forced OOS loss of AC power during transformer commissioning.

Comments: None.

Adult Fish Passage Facility

Little Goose fish facility and Anchor QEA staff inspected the adult Fishway on May 06, 08 and 10.

Fish Ladder: None.

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

Fishway Entrances and Collection Channel: None.

Yes	No	Sill	Location	Criteria	Measurements
X			South Shore Entrance (SSE-1) Weir Depth	$\geq$ 8.0’	
X			South Shore Entrance (SSE-2) Weir Depth	$\geq$ 8.0’	
	X		South Shore Channel/Tailwater Differential	1.0’ – 2.0’	0.9 on May 10
		X	North Powerhouse Entrance (NPE-1) Weir Depth	$\geq$ 7.0’ or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	$\geq$ 7.0’ or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
X			North Shore Entrance (NSE-1) Weir Depth	$\geq$ 6.0’ or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	$\geq$ 6.0’ or on sill	
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: Adult fishway cooling pump is currently operating in accordance to MOC 18 LGS 04. Adult fishway control system is currently operating in manual mode. On May 10, south shore channel/tailwater differential was out of criteria and measured 0.9 feet. Adjustments were made and the 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, 2, 3, 4 and 6 were taken on May 10 and were in criteria. There is approximately 200 square feet of floating woody debris currently inside the trash shear boom in the forebay.

ESBS/VBS:

Yes	No	NA	Item
X			ESBSs deployed in all slots and in service?
	X		ESBSs inspected this week?
		X	ESBSs inspection results acceptable?
X			VBSs differentials checked this week?
X			VBSs differentials acceptable?
X			VBSs inspected this week?

Comments: VBS differential measurements on units 1, 2, 3, 4 and 6 were taken on May 10 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 failed upon watering up the juvenile fish collection system. A new limitorque has been ordered and is expected to be installed upon delivery.

Collection Facility: Juvenile fish facility is currently operating. Every day fish collection for daily condition monitoring and transport operations commenced on April 23.

Transport Summary: Daily barging commenced on April 24. The collection and transportation facility operated within criteria this report period. A total of 943,222 fish were collected, of which a total of 942,193 were transported via barge. The descaling and mortality rates were 1.7% and 0.1% respectively.

Spillway Weir: Spring spill operations began on April 03 in accordance to the Fish Passage Plan. Adjustable spillway weir crest height was set to the low crest elevation at 16:00 on April 08.

River Conditions

River conditions at Little Goose Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (°F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
152.4	86.3	61.7	29.0	54.1	51.1	3.1	2.8

*Ladder temperature.

Other

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

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

Zone	Gull	Cormorant	Tern	Pelican	Grebe
Unmodified boat barrier	0	0	0	0	0
Modified boat barrier*	0	0	0	0	0
Forebay debris	0	0	0	0	0
Trash/shear boom	0	0	0	0	0
Forebay count	3	1	0	0	0
Tailrace count	2	0	0	0	0

*modified boat barrier section has weights and bird spikes removed.

Invasive Species: No invasive species have been observed on the mussel station.

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by Oregon Department of Fish and Wildlife and Anchor, frozen and properly disposed of in a landfill. No Siberian prawns were collected in the sample at Little Goose Dam for this reporting period.

Gas Bubble Trauma (GBT): GBT monitoring was performed on May 07. Personnel examined 100 fish of which, 1 was found to have symptoms of GBT.

Fish Rescue/Salvage: None.

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

Project: Lower Granite
Biologists: Elizabeth Holdren and Stephen Hampton
Dates: May 4-May 10, 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: None.

Adult Fish Passage Facility

Lower Granite and Anchor QEA staff inspected the adult fishway on May 4, 5, 6, and 9.

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’	
	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’	7.6
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.7
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	
			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: SSE-1 and SSE-2 out of criteria readings were due to fish ladder control system tailwater elevation sensor position.

Auxiliary Water Supply System:

Operating Satisfactorily	Standby	Out of Service	Auxiliary Water Supply (AWS)
X			AWS Fish Pump 1
		X	AWS Fish Pump 2
X			AWS Fish Pump 3

Comments: AWS pump 2 is out of service for drive shaft bearing repair.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	63.8 yd^2
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	<1%
	X		Any oil seen in gatewells?	

Comments: 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: 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. Problems are being investigated and troubleshooting the system for needed repairs is ongoing. Irregular flow was observed in the 14" orifices in slots 2A and 4A during maintenance inspection May 4. Both orifices were closed for future inspection and three 10" orifices were opened. Mortar splatter from construction in the collection channel was discovered and removed from the 14" orifices. The 14" orifices were returned to service with the three 10" orifices closed that day.

Collection Facility: Collection for transport began at 0700 hours April 23. Operational modifications continue as needed to address fish holding under the separator booth and the east sections of the porosity plate loosing water flow.

Transport Summary: Every day barge transport continues. The barge loading boom horizontal movement drive chain and bearing assembly failed April 27 during barge loading preparation. Maintenance staff fabricated parts need and the boom was repaired and fully operational May 11.

Spill/Spillway Weir: Spring spill operation continues at court ordered gas cap levels.

River Conditions

River conditions at Lower Granite Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (°F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
158.1	90.1	49.1	33.5	53.0	49.9	3.7	2.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: N/A.

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

Siberian Prawn: No Siberian prawns were observed this week.

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

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
5/4/2018	14:45	15	0	0	2
5/5/2018	12:45	1	0	0	1
5/6/2018	13:00	2	0	0	0
5/7/2018	12:45	2	0	0	1
5/8/2018	15:00	7	0	0	3
5/9/2018	15:55	5	2	0	0
5/10/2018	15:30	17	0	0	13

Gas Bubble Trauma **(**GBT**)** Monitoring:

Fish are collected from the separator and examined for GBT Thursdays. No symptoms of GBT were observed this week.

Adult Fish Trap Operations: Adult trap is operating Monday through Friday with a 28% sample rate.

Fish Rescue/Salvage: N/A

Research:

Idaho Fish and Game (IDFG) Genetic Stock Identification
Fish collected as part of the Lower Granite condition sample are used to enumerate and characterize age composition and genetic stock profiles of naturally producing yearling chinook and juvenile steelhead. IDFG will sample Monday through Friday through mid-June with a goal of collecting 2,000-5,000 yearling chinook and juvenile steelhead genetic samples.

Nez Perce Tribe (NPT)/U. of Idaho (UI)/Columbia River Intertribal Fisheries Commission (CRITFC) – Kelt Study
Collection of adult steelhead kelt from Lower Granite juvenile separator for NPT rehabilitation program began April 1 with the first collection being worked up April 2. This research investigates steelhead kelt physiology and endocrinology to evaluate the feasibility and success of rehabilitating strategies. Selected kelts collected at Granite are transported by NPT to Dworshak National Fish Hatchery for reconditioning and later release as part of this study.

National Marine Fisheries Service (NMFS)-Monitoring the Migrations of Wild Snake River Spring/Summer Chinook: This study is monitoring the migration behavior and survival of wild spring/summer Chinook salmon. The goals are to characterize migration timing and estimate parr-to-smolt survival to LGR of wild Chinook populations as they migrate from their natal rearing areas and determine migration patterns and what environmental

factors influence those patterns. Fish were PIT-tagged during the summer of 2017 in natal streams and are diverted to the Sort-By-Code tanks at LGR.

National Marine Fisheries Service (NMFS) In-River Survival: NMFS PIT-tag Chinook and steelhead smolts for their Survival Study April through early June to compare smolt to adult returns of in-river migrating smolts to the smolt to adult returns of transported smolts. PIT-tagged fish are held for 24 hours before being bypassed to the LGR tailrace.

National Marine Fisheries Service (NMFS) Transportation Study: NMFS staff is collecting and PIT-tagging yearling Chinook salmon and steelhead smolts for the Transportation Evaluation Study to compare smolt-to-adult returns of transported smolts to the smolt-to-adult returns of in-river migrating smolts.

PNNL Lower Granite Dam (LWG) Post Construction Evaluation of the Juvenile Bypass System at Lower Granite Dam.
This evaluation includes travel times through the bypass system, determining condition of fish that have passed through the bypass, and testing the feasibility of using Sensor Fish in future bypass evaluations. Yearling chinook raised at PNNL from Leavenworth hatchery were released in gatewell slots 1a and 5a and allowed to move through the system. This evaluation began April 5 and concluded April 12.

PNNL System Survival Study
This study will evaluate the effects of increased spill on the passage and in-river survival of yearling Chinook salmon and juvenile steelhead migrating through the Snake and Columbia River hydro-system. The study will also evaluate the effects of increased spill on the passage of adult Chinook salmon and steelhead at Little Goose Dam during 2018 spring gas cap spill. Collection of yearling chinook and juvenile steelhead at Lower Granite began April 15.