U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#13-2018

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: May 25 to 31, 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**
4	5/21	0701	5/31	1606	Lubricant replacement.
11	5/29	1002	5/29	1041	ESBS camera inspections.
12	5/29	1043	5/29	1109	ESBS camera inspections.
11	5/30	0708	5/30	1122	Exciter issue.

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

Adult Fish Passage Facilities

McNary fisheries biologists performed adult fishways measured inspections on May 25, 27 and 30. Temperature probe data was downloaded on May 25. Adult fish counting continued. On May 30, the Oregon ladder control program was examined. On May 31, both ladder exit alarms were tested.

Fish Ladder Exits:

Yes	No	Location	Criteria	Comments
	X	Oregon Exit	Head over weir 1.0’ to 1.3’	0.9’ on May 30
X		Oregon Count Station Differential	0.0’ to 0.5’	
X		Washington Exit	Head over weir 1.0’ to 1.3’	
	X	Washington Count Station Differential	0.0’ to 0.5’	0.8’ on May 30

Comments: Debris loads were light near the Oregon exit and light to moderate near the Washington exits. Picketed leads were cleaned at the Washington exit by the general maintenance staff as needed, including nights, the holiday and the weekend. At times, the leads were cleaned multiple times during the day after a high count station differential was noted. The high count station differential measured on May 30 was resolved by cleaning the picketed leads. New incoming debris loads along the Washington shore line was light and steady. In order to reduce the debris load along shoreline, the roving operator flushed the debris down the navigation lock as often as possible.

At the Oregon exit, the traveling screens debris trough was cleaned as required. On May 30, the low head over weir measurement occurred after a high picketed leads alarm and the leads had been cleaned. The exit set points were adjusted.

At the Washington exit, multiple alarms came in and were reset on May 25.

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'	7.9' on May 25
	X		NFEW3 Weir Depth	≥ 8.0'	7.4' on May 25
X			South Oregon Entrance Head Differential	1.0' – 2.0'	
	X		SFEW1 Weir Depth	≥ 8.0'	6.5' on May 25
	X		SFEW2 Weir Depth	≥ 8.0'	7.1' on May 25
	X		Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.0 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	
X			WFE2 Weir Depth	≥ 8.0'	
X			WFE3 Weir Depth	≥ 8.0'	

Comments: The readings on May 25 are a result of the entrances inadvertently being left in manual after fish pump 3 returned to service on May 24. Due to high tailwater elevations, the channel velocity has not been in criterion since May 13. As described below, entrance weir W3 was in manual mode on May 31 for 6.3 hours. The Washington ladder remained in criteria.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
X		X	WA shore Wasco County PUD Turbine Unit
X	X		WA shore Wasco PUD Bypass
X		X	Oregon Ladder Fish Pump 1, Blade angle: 23 to 28.
X		X	Oregon Ladder Fish Pump 2, Blade angle: 22 to 25.
X		X	Oregon Ladder Fish Pump 3, Blade angle: 24 to 27.
X			OR North Powerhouse Pool supply from juvenile fishway

Comments: On May 31, from 1025 to 1130 hours, the PUD unit was out of service so debris at the three auxiliary water intakes could be compacted, which improved flow through the system. Only one intake was cleaned at a time. The unit bypass functioned well while the unit was out of service. Only one low water entrance pool differential alarm came in during the cleaning.

From May 28, at 1512 hours, to May 29, at 1318 hours, fish pump 2 was out of service due to a governor oil pump issue. On May 31, from 0922 to 0933 hours, from 1321 to 1415 hours and from 1655 to 1712 hours, all three fish pumps were out of service for bus switching and electrical testing. During the first outage, fish pump 2 briefly had an exciter issue. When only two fish pumps were available, their blade angles were increased. The Oregon ladder remained in criteria when only two pumps were in use.

Juvenile Fish Passage Facility

The sampling season continued, with daily sampling scheduled through June 5, in order to monitor fish condition better, during the high flow conditions.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Minimal to very 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 remained minimal to very light. Some of the debris was noted going over the TSWs. New incoming debris was minimal except along the Washington shore line as mentioned above and spillway. New debris loads into the spillway would be described as light and steady. Debris accumulation along the spillway was light to moderate with debris increasing at bays 2 to 5. This debris was spilled on May 30 as described below.

No trash rack cleaning occurred this week.

Extended-length submersible bar screen (ESBSs)/Vertical barrier screen (VBSs):

Yes	No	NA	Item
X			ESBSs deployed in all slots and in service?
X			ESBSs inspected this week?
X	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. Electrical switching on May 30 resulted in ESBS alarms at units 1 and 2. The control operator resolved the issue. On May 31, the brush cycle for the screen in 1C slot was reset to timer mode. With the backup camera, ESBSs in units 11 and 12 were inspected on May 29. We found the brush on the screen in 11C slot was cycling the wrong direction. When the panel view recorded the brush as traveling up, it was actually traveling down. On May 30 and 31, this problem was examined and resolved.

VBS differential monitoring occurred daily. No high differentials were measured. On May 31, the VBSs in 2A and 2B slots were cleaned. We recorded 39 smolt mortalities. On May 30, the screens in units 9, 13 and 14 were inspected, which includes cleaning. During inspection, two smolt mortalities were observed.

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

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

Comments: With daily sampling, the channel was only examined on day shift. Orifices were adjusted for VBS inspection and cleaning as needed. Orifice attraction lights and operator air leaks were replaced and repaired as required.

The electrical switching on May 30, resulted in two very brief power outages in the channel. The one adverse effect was each outage reset the brushes operational sequence to the beginning, resulting in the screen cleaning brushes not operating in automatic mode for 8 hours.

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

Bypass Facility:

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

Comments: The sample gates are on during secondary bypass for sample collection. On May 30, from 1212 to 1226 hours and 1607 to 1610 hours, the sample gates were off for electrical switching. Both outages were very brief. At one percent, one sample may have been missed.

This week, 53,500 juvenile lamprey and 155,752 smolts were bypassed.

TSW Operations: The TSWs remain installed in spillbays 19 and 20. TSW removal is scheduled to begin June 11. The project management may request this date to be moved out depending on forebay debris distribution.

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
504.7	443.7	344.7	289.9	57.9	56.7	2.8	2.1

Comments: The above data is supplied by Anchor, QEA except water clarity, which is provided by the control room. As mentioned above, the TMT requested spill reduction remains in effect. The spring spill program continued.

On May 30, for the debris spill mentioned above, the project staff used spillbays 2, 4 and 5 operated in split leaf mode, which expedited debris removal from bays 2 through 5. Bays 2 through 6 were closed and opened in a rotating fashion, which drew the debris to the one of three split leaf bays and passed it to the tailwater. When open, each leaf was raised to approximately 14 feet and passed approximately 23 kcfs. The operation began at 1330 hours and concluded at 1633 hours. The spillway gates settings were verified visually by 1730 hours.

On May 27, the biologist noted the electrical box for Washington ladder entrance weir W3 was severely damaged. On May 31, in order to repair the box in a safe environment, spillbay 1 was closed from 0718 to 1338 hours. W3 was in manual mode during the repairs and the entrance remained in criteria.

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. Due to the high flow volumes, gulls and pelicans were noted outside the counting zones. Gulls observed at the outfall maybe actually feeding in the spill flow. Terns made one visit on May 29. Cormorants were not visible but have been reported by USDA Wildlife Services personnel.

An occasional osprey, gull, cormorant, blue heron or pelican was observed in the forebay. As many as 19 grebes have been observed. Pelicans, cormorants and gulls were roosting on the rocks by the Washington shore boat dock. The outfall hazing water sprinklers remain off due to high flows, which are currently cresting over the outfall pipe. The bird distress calls deployed along the navigation lock wing wall have been functioning well. The calls have been adjusted weekly. USDA Wildlife Services continued with two shifts. Also, boating hazing occurred Tuesday through Thursday. The Monday, May 28 trip will be moved to Friday, June 1. Due to the flow volume, the boat has remained below the outfall pipe.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican
May 25	Spill	2	0	0	0
	Powerhouse	0	0	0	0
	Outfall	1	0	0	0
May 26	Spill	0	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
May 27	Spill	0	0	0	0
	Powerhouse	0	0	0	1
	Outfall	0	0	0	0
May 28	Spill	0	0	0	1
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
May 29	Spill	0	0	9	0
	Powerhouse	0	0	0	0
	Outfall	0	0	2	0
May 30	Spill	1	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
May 31	Spill	0	0	0	0
	Powerhouse	0	0	0	0
	Outfall	1	0	0	0

Invasive Species: The next the mussel station examinations will occur in late June. One Siberian prawn mortality was removed from the sample this week. This was the first prawn of the season.

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

Research: GBT monitoring continued twice a week. Two smolts exhibited signs of GBT. On May 27, PNNL did their last live fish release. The fisheries staff monitored the fish while they were being held at McNary. The dead fish releases will continue to June 10 as part of the spill to gas cap evaluation. The University of Idaho will begin setting up telemetry equipment for an adult lamprey passage study on June 4.

Project: Ice Harbor
Biologist: Ken Fone
Dates: May 25 – May 31, 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 each of the fishway inspections. This was due to the GDACS program needing to be updated with the narrower operating efficiency range of unit 3 since it became a fixed-blade unit.

Adult Fish Passage Facility

Ice Harbor fish facility staff inspected the adult fishways on May 29, 30, and 31.

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	7.0’
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’	

Comments: The SFE-1 weir depth was below criteria on the May 30 inspection. This may have been due to the weir gate motor tripping out on an overload. Electricians are working on the problem.

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)	60 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 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 28 sample was attributed to birds. Unit trash racks will be raked on June 1 in case debris on the trash racks is contributing to the descaling seen in the May 28 sample.

Fish condition sampling results at Ice Harbor Dam:

Date: May 28

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	7	1	0	0
Chinook yearling unclipped	7	0	0	0
Chinook subyearling clipped	40	0	0	0
Chinook subyearling unclipped	14	4	0	0
Steelhead clipped	63	12	0	2
Steelhead unclipped	36	7	0	1
Sockeye clipped	3	2	0	1
Sockeye unclipped	1	0	0	0
Coho clipped	0	---	---	---
Coho unclipped	2	0	0	0
Total	173	26	0	4

Date: May 31

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	0	---	---	---
Chinook yearling unclipped	0	---	---	---
Chinook subyearling clipped	51	1	0	0
Chinook subyearling unclipped	43	0	0	0
Steelhead clipped	0	---	---	---
Steelhead unclipped	1	0	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	95	1	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
178.0	151.7	122.9	97.8	56	54	3.3	1.8

*Unit 1 scroll case temperature.

Other

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

Avian Activity: Gull numbers were less this week, while cormorant and pelican numbers remained moderate (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 and 5 days per week changed to 3 days per week on May 27. The land-based hazing has been effective at moving birds out of zones adjacent to the dam. Boat-based hazing has been effective at dispersing birds out of downstream spillway zones and away from the outfall of the juvenile fish bypass pipe.

Daily maXimum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
May 25	0	17	0	0	30
May 26	0	24	0	1	21
May 27	0	30	0	0	29
May 28	30	0	0	0	38
May 29	---	---	---	---	---
May 30	0	7	0	0	2
May 31	0	23	0	0	22

Invasive Species: No exotic species that are new to the area have been found.

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

Date	Sample (euthanized)	Collection*
May 28	5	5
May 31	0	0
Totals	5	5

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

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

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

Project: Lower Monumental
Biologists: Chuck Barnes and Raymond Addis
Dates: May 25 - 31, 2018

Turbine Operation

Yes	No	Turbine Unit Status		
	X	All 6 turbine units available for service (see table & comments below for details).	**Hard**	**Soft**
X		Available turbines operated within 1% peak efficiency? Constraint in effect.	X	

Lower Monumental Unit Outages (OOS) and Return to Service (RTS)

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
Unit 1	12/10/2014		08/2018		Rehabilitation Overhaul

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

Adult Fish Passage Facility

The adult fishways were inspected by Corps and Anchor QEA biologists on May 25, 26, 27, 28 and 30.

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: None.

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)	77 sq yd average
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 40%
	X		Any oil seen in gatewells?	

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

STSs/VBSs:

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

Comments: STS's were operating in 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: Orifice 17 was observed with a log protruding from it on May 31. Orifice 17 was closed and orifice 18 was put into service until the obstruction is cleared.

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 155,200 fish were collected, of which 129,104 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
172.4	143.8	84.5	55.1	57.0	55.9	1.7	0.8

*Scroll case temperatures.

Other

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

Avian Activity: Gulls, cormorants and pelicans were the piscivorous bird species observed in the tailrace during fish ladder inspections this week..

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
5/25/2018	1200	0	0	0	0	0
5/26/2018	1230	1	0	0	0	0
5/27/2018	1245	1	0	0	0	1
5/28/2018	1200	0	0	0	0	0
5/29/2018	1230	0	0	0	0	0
5/30/2018	1200	0	0	0	0	0
5/31/2018	1200	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: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by PSMFC and Anchor, frozen and properly disposed of in a landfill. Daily and total Siberian prawn counts at Lower Monumental Dam for this reporting period are reported below.

Date	Sample (euthanized)	Collection*
5/25/2018	0	0
5/26/2018	1	1
5/27/2018	1	1
5/28/2018	1	1
5/29/2018	0	0
5/30/2018	1	1
5/31/2018	1	1
Totals	5	5

*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: May 25-31, 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.

Comments: None.

Adult Fish Passage Facility

Little Goose fish facility and Anchor QEA staff inspected the adult Fishway on May 27, 29, and 30.

Fish Ladder: None.

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 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	≥ 8.0’	5-29 was 7.2
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	5-29 was 7.3
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
		X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 7.0’ or on sill	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 7.0’ or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
	X		North Shore Entrance (NSE-1) Weir Depth	≥ 6.0’ or on sill	5-29 was 5.6
	X		North Shore Entrance (NSE-2) Weir Depth	≥ 6.0’ or on sill	5-29 was 5.4
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. North shore and South shore entrances were out of criteria on May 29 due to high flows. Adjustments were made and the adult fishway is currently operating in criteria.

Auxiliary Water Supply System:

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

Comments: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comment
X			Forebay debris load acceptable? (amount)	
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
	X		Any debris seen in gatewells (% coverage)	
	X		Any oil seen in gatewells?	

Comments: Gatewell drawdown differential measurements on units 1, 2, 3, 4 and 6 were taken on May 31 and were in criteria. There is approximately 5,000 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 31 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 341,518 fish were collected, of which a total of 293,175 were transported via barge. The descaling and mortality rates were 1.5% and 0.7% respectively. 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 set to the low crest elevation at 16:00 on April 08.

River Conditions

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
171.6	144.4	81.0	54.6	57.8	56.0	1.9	1.1

*Ladder temperature.

Other

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

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

Zone	Gull	Cormorant	Tern	Pelican	Grebe
Unmodified boat barrier	0	0	0	0	0
Modified boat barrier*	0	0	0	0	0
Forebay debris	0	0	0	0	0
Trash/shear boom	0	0	0	0	0
Forebay count	0	0	0	0	0
Tailrace count	0	0	0	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. Daily and total Siberian prawn counts at Little Goose Dam for this reporting period are reported below.

Date	Sample (euthanized)	Collection*
5-25	1	100
5-26	0	0
5-27	0	0
5-28	2	100
5-29	0	0
5-30	0	0
5-31	0	0
Total	**3**	**200**

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

Gas Bubble Trauma (GBT): GBT monitoring was performed on May 28. Personnel examined 100 fish and 9 were found to have symptoms of GBT.

Fish Rescue/Salvage: None.

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

Project: Lower Granite
Biologists: Elizabeth Holdren and Stephen Hampton
Dates: May 25-May 31, 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 26, 27, 28, 30, and 31.

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’	7.5, 7.5, 7.3
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.6, 7.5, 7.4
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
	X	X	North Powerhouse Entrance (NPE-1) Weir Depth	≥ 8.0’ or on sill	7.7
	X	X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 8.0’ or on sill	7.6, 7.9
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
	X		North Shore Entrance (NSE-1) Weir Depth	≥ 7.0’ or on sill	6.8
			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 reading at the gate have consistently been reading higher than the electronioc reading on the fish ladder contraol system. Electricians used a Radar Unit to evaluate the issue and found the readings to be about 0.4 tenths off. They made adjustments to the gates and program May 29 and the issue seems to be resolved.

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)	124.2 yd^2
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
	X		Any debris seen in gatewells (% coverage)	
	X		Any oil seen in gatewells?	

Comments: None.

ESBSs/VBSs:

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

Comments: ESBS/VBS inspections were canceled due to high turbidity levels (0.5 ft.).

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	18
	X		Dewaterer and cleaning systems operating satisfactory?	

Comments: Primary dewaterer floor screen brushes, side screen brushes, and the pneumatic screen cleaners are being operated in manual mode by powerhouse operators due to mechanical and programing issues with the new system. Overflow weirs in groups A. B, and C remain in auto D continues to be in manual to achieve optimal flow from the PDW to the transport flume. Problems are being investigated and troubleshooting the system for needed repairs is ongoing.

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: Spring spill operation continues at court ordered gas cap levels.

River Conditions

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
175.4	149.9	73.4	42.1	58.0	54.0	2.1	0.9

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Unit cooling water strainers were inspected May 31. There were 59 juvenile lamprey mortalities.

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

Siberian Prawn: No Siberian prawns were collected in the sample this week.

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

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
5/25/2018	1548	1	0	0	35
5/26/2018	1400	0	0	0	4
5/27/2018	1514	0	0	0	25
5/28/2018	1025	0	3	0	2
5/29/2018	0845	2	0	0	1
5/30/2018	1138	0	1	0	2
5/31/2018	0930	0	1	0	2

Gas Bubble Trauma **(**GBT**)** Monitoring: Fish are collected from the separator and examined for GBT Thursdays. No symptoms of GBT were observed this week.

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

Fish Rescue/Salvage: N/A

Research:

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

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

National Marine Fisheries Service (NMFS)-Monitoring the Migrations of Wild Snake River Spring/Summer Chinook: This study is monitoring the migration behavior and survival of wild spring/summer Chinook salmon. The goals are to characterize migration timing and estimate parr-to-smolt survival to LGR of wild Chinook populations as they migrate from their natal rearing areas and determine migration patterns and what environmental factors influence those patterns. Fish were PIT-tagged during the summer of 2017 in natal streams and are diverted to the Sort-By-Code tanks at LGR.

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

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

PNNL System Survival Study

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