U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#05-2018

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: March 30 to April 5, 2018

Turbine Operation

Yes	No	Turbine Unit Status		
	X	All 14 turbine units available for service. (See table & comments below for details).	**Hard**	**Soft**
X		Available turbines operated within 1% peak efficiency? Constraint in effect.	X	X

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

	OOS		**RTS**		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
11	4/2	0712	4/4	2114	Cooling water strainer upgrade.
14	4/2	0630	4/2	1113	ESBS installation.
13	4/2	1116	4/2	1649	ESBS installation.
12	4/3	0632	4/3	1116	ESBS installation.
6	4/4	0726	4/4	1236	ESBS installation.
10	4/4	1239	4/4	1709	ESBS installation.
10	4/4	2135	4/5	0733	ESBS issues for screen in A slot.
9	4/5	0736	4/5	1137	ESBS installation.
8	4/5	1139	4/5	1442	ESBS installation.
10	4/5	1444	4/5	1709	ESBS replaced in A slot.

Comments: The hard constraint began on April 1.

Adult Fish Passage Facilities

McNary fisheries biologists performed adult fishways measured inspections on March 31, April 1 and 5. Temperature probes were deployed on March 31 and monitoring began on April 1. The Oregon and Washington ladders picketed leads were lowered on March 30 and 31, respectively. Adult fish counting resumed on April 1.

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 to moderate near the Washington exit.

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: NFEW3 and SFEW2 elevation dial indicators still require calibration.

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 system remained in primary bypass until April 2 at 0700 hours, at which time secondary bypass began. The sampling season will consist of 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)	Moderate to heavy. New debris was light.
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 trash racks will be cleaned again in mid-April.

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: ESBS installation occurred on April 2 to 5. ESBSs were installed at units 6 and 8 through 14. The EBBS in 10A slot failed on April 5 and was replaced.

VBS differential monitoring began on April 3.

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

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

Comments: Orifice attraction lights and operator air leaks were replaced and repaired as required. Wall lighting in the dewatering area was repaired on April 5.

With new systems and programming, the dewatering area is being monitored more closely. On April 1, at 1921 hours, the transition screen cleaner tripped an alarm. The motor that moves the brush within a zone (upstream/downstream) got caught on the electrical cord of the motor that moves the brush between zones (across the channel). The brush was removed from service and examined the next day. The electrical staff determined the contractor would have to return to the project to resolve the issue. With the new air burst zone 5 being active, having the brush out of service should have minimal impact on fish passage.

On April 2, at 1400 hours, the rectangular screen cleaner tripped an alarm. This was due to the transition brush not being parked properly after testing. The two brushes cleaning cycles overlap. Parking the transition brush cleared the rectangular brush alarm. Also, at the same time, the biologist found the lower drive sprocket (the drive operates the brush going upstream and downstream) for the side screen cleaner loose. The brush was turned off, a mechanic tighten the two Allen screens that hold the sprocket onto the drive shaft and the brush was returned to service at 1500 hours.

On April 4, at 1350 hours, the biologist again found the drive sprocket loose. The brush was removed from service, the mechanic used Lock Tite on the two Allen screws this time and the brush returned service at 1435 hours. The contract is scheduled to return to the project on April 11 or 12, at which time this issue will also be examined.

On April 5, from 1335 to 1615 hours, the side brush was off to test if the new sequencing program (the side, rectangular and transition brushes run in order) would run the rectangular screen cleaner with the other two brushes out of service. The test confirmed the rectangular brush would run.

Bypass Facility:

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

Comments: On April 5, from 0816 to 0830 hours, the facility was switched into and out of secondary bypass once for training. At this time, we observed that the bypass gate was not moving smoothing into secondary bypass. At 1228 hours, the gate was briefly moved into secondary bypass for observation. The mechanic first lubricated the bypass gate system. From 1308 to 1318 hours, the gate was tested multiple times and a leaking air hose was found. After both air lines were replaced, the gate was again tested multiple times from 1545 to 1555 hours. The gates function improved after use. The sample gates remained off during testing.

On April 5, at 1800 hours, the adult flush line supply valve, which is triggered to open and close with the bypass gate (open during secondary bypass) was found making an unusual noise. The valve was operated manually from April 6 to 8, which appears to have resolved the over torque issue, which had caused the motor to overheat. The valve was returned to automatic operation on April 9.

The sample gates are only on during secondary bypass for sample collection. The first sample was collected on April 2. The sample examination on April 3 was delayed 30 minutes due to issues with the sample system chiller. The chiller had been examined before the start of the season. New netting was placed over both sample tanks on April 3.

This week, 40 juvenile lamprey and 1,416 smolts were bypassed.

TSW Operations: The TSW installation in spillbays 19 and 20 was completed on March 31. Also, the crane in bay 19 and the TSW hoist in bay 20 had their limits set this week.

Spill Operations: Hoist issues at spillbay 9 were resolved this week. With the second spillway crane out of service, there is no crane available to adjust the spillgate in bay 2. The solution will be dogging the gate at 4 stops until the second crane can be repaired. Spill in excess of powerhouse capacity began April 1. The spring spill program will begin on April 10.

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
225.9	169.9	60.6	0.0	45	44	4.6	3.3

Comments: The above data is supplied by the control room.

Other

Inline Cooling Water Strainers: Fourteen juvenile lamprey mortalities were found during the April 3rd cooling water strainer Inspections.

Avian Activity: Avian counts began on April 1. Most cormorant were roosting on the navigation lock wing wall.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican
April 1	Spill	0	8	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
April 2	Spill	6	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
April 3	Spill	0	17	0	0
	Powerhouse	0	0	0	0
	Outfall	0	1	0	0
April 4	Spill	0	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	0	0	0
April 5	Spill	1	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	2	0	0

An occasional osprey, gull, cormorant or grebe was observed in the forebay. The outfall hazing water sprinklers have been operating well. The bird distress calls were deployed along the wing wall on April 5. USDA Wildlife Services will begin hazing April 15.

Invasive Species: The next mussel station examinations will occur in late April. No Siberian prawns were observed in the sample during this reporting period.

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

Research: GBT monitoring will begin April 10.

Project: Ice Harbor
Biologist: Ken Fone
Dates: March 30 – April 5, 2018

Turbine Operation

Yes	No	Turbine Unit Status		
	X	All 6 turbine units available for service (see table & comments below for details).	**Hard**	**Soft**
X		Available turbines operated within 1% peak efficiency? Constraint in effect.	X	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	---	---	Initially to investigate oil leak. Also fixing governor pump

Comments: The hard constraint began April 1st.

Adult Fish Passage Facility

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

Fish Ladders:

Yes	No	Location	Criteria	Measurements
X		North Ladder Exit Differential	Head ≤ 0.3’	
X		North Ladder Picketed Lead Differential	Head ≤ 0.3’	
X		North Ladder Depth over Weirs	Head over weir 1.0’ to 1.3’	
X		South Ladder Exit Differential	Head ≤ 0.3’	
X		South Ladder Picketed Lead Differential	Head ≤ 0.3’	
X		South Ladder Depth over Weirs	Head over weir 1.0’ to 1.3’	

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			South Shore Entrance (SFE-1) Weir Depth	≥ 8.0’ or on sill	
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
X			South Shore Channel Velocity	1.5 – 4.0 fps	
X			North Powerhouse Entrance (NFE-2) Weir Depth	≥ 8.0’ or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’ – 2.0’	
X			North Shore Entrance (NEW-1) Weir Depth (Criteria	≥ 8.0’ or on sill	
X			North Shore Channel/Tailwater Differential	1.0’ – 2.0’	

Comments: None.

Auxiliary Water Supply (AWS) System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
6 pumps	2 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)	22 square yards
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 to 15%
	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)? Cycle-run mode
	X		STSs inspected this week?
		X	STSs inspection results acceptable?
		X	VBSs differentials checked this week?
		X	VBSs differentials acceptable?

Comments: Unit 4 STSs were installed on April 2.

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 pump for the bird deterrent hydrocannon was installed and started on March 26.

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

Fish Sampling: Sampling began on April 2 and will be occurring on Mondays and Thursdays each week. See the table below for a summary of the sampling results.

Removable Spillway Weir (RSW): Voluntary spill for fish passage began at 0001 hours on April 3.

Fish condition sampling results at Ice Harbor Dam:

Date: April 2

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	6	0	0	0
Chinook yearling unclipped	6	0	0	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	0	---	---	---
Steelhead clipped	13	0	0	0
Steelhead unclipped	2	0	0	0
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Total	27	0	0	0

Date: April 5

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

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
78.7	62.1	68.6	6.1	45	45	5.1	3.8

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Turbine cooling water strainer inspections occurred on March 26, 27, and 28. A total of 1 live juvenile lamprey, 10 dead juvenile lamprey, 1 dead adult shad, and 5 dead Siberian prawns were identified.

Avian Activity: There were very few piscivorous birds seen around the project (see the table below). Contracted land-based hazing of piscivorous birds for 8 hours per day began on April 2.

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

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
April 1	---	---	---	---	---
April 2	6	2	0	0	0
April 3	1	0	0	0	0
April 4	---	---	---	---	---
April 5	0	2	0	0	0

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 for this reporting period are reported below.

Date	Sample (euthanized)	Collection*
April 2	2	2
April 5	0	0
Totals	2	2

*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 performed a test installation and operation of the adult fish trap in the south fish ladder exit pool on April 4, from about 1130 hours to 1500 hours, in preparation for trapping and tagging adult chinook for research.

Other: Operation of the forebay at minimum operating pool + 1' (437-438') for fish passage began on April 3.

Project: Lower Monumental
Biologists: Chuck Barnes and Raymond Addis
Dates: March 30 – April 5, 2018

Turbine Operation

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

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

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
Unit 1	12/10/2014		07/2018		Rehabilitation Overhaul
Unit 4	3/29/2018	1020	4/16/2018		Failed upper section of VBS
Unit 2	4/3/2018	0710	4/3/2018	1240	Hub Tapping
	4/4/2018	1325	4/4/2018	1545	STS Inspection
Unit 3	4/4/2018	0730	4/4/2018	1012	STS Inspection
Unit 5	4/5/2018	0720	4/5/2018	1000	STS Inspection
	4/5/2018	1055	4/6/2018	1355	STS's in slots B and C have missing/loose clips
Unit 6	4/4/2018	1035	4/4/2018	1245	STS Inspection

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

Adult Fish Passage Facility

The adult fishways were inspected by Corps and Anchor QEA biologists on April 1, 2 and 4.

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	≥ 8.0' or on sill	
X			North Shore Entrance (NSE-2) Weir Depth	≥ 8.0' or on sill	
X			North Shore Channel/Tailwater Differential	1.0'–2.0'	
X		X	South Powerhouse Entrance (SPE-1) Weir Depth	≥ 8.0' or on sill	See comments
X		X	South Powerhouse Entrance (SPE-2) Weir Depth	≥ 8.0' or on sill	See comments
X			South Powerhouse Entrance Channel/Tailwater Differential	1.0'–2.0'	
X		X	South Shore Entrance (SSE-1) Weir Depth	≥ 8.0'	See comments
X			South Shore Entrance (SSE-2) Weir Depth	≥ 6.0'	
X			South Shore Channel/Tailwater Differential	1.0' – 2.0'	

Comments: South Powerhouse Entrance weir (SPE-1) was on sill during April 1, 2 and 4 inspections with readings of 7.3, 7.6 and 6.7 feet respectively.

South Powerhouse Entrance weir (SPE-2) was on sill during April 1, 2 and 4 inspections with readings of 7.3, 7.6 and 6.7 feet respectively.

South Shore Entrance weir (SSE-1) was on sill during the April 4 inspection with a reading of 6.4 feet

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: 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)	887 sq yd average
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 25%
	X		Any oil seen in gatewells?	

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 could not be installed into Gatewell 4A; investigation found that the VBS frame for 4A came loose and is obstructing the gatewell. The loose VBS panel was inspected by divers and removed 30 March to be repaired. STS's in gatewells 5B and 5C had loose and missing screen clips, and are scheduled to be replaced on April 6.
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 1 and 4.

Transport Summary: No transport at this time.

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
73.3	58.6	44.0	0.0	45.0	44.9	3.8	2.7

*Scroll case temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on March 5. No live fish were recovered. Mortalities included 99 juvenile lamprey.

Avian Activity: Tailrace counts of foraging piscivorous birds at Lower Monumental Dam.

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
4/1/2018	1300	0	0	0	0	0
4/2/2018	1100	1	1	0	0	0
4/3/2018	1100	0	0	0	0	0
4/4/2018	1100	0	0	0	0	0
4/5/2018	1100	8	3	0	0	0

Comments: Bird hazing efforts by USDA personnel began on April 2.

Invasive Species: No zebra or quagga mussels were observed during monitoring station inspections on April 1.

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. No Siberian prawns were collected at Lower Monumental Dam from the sample on April 1 and 4.

Fish Rescue/Salvage: Fish salvage for gatewell 4A took place at 1400 on April 2 with 3 live, unclipped juvenile steelhead removed from the gatewell and relocated downstream of the project.

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

Project: Little Goose
Biologists: Scott St. John and Richard Weis
Dates: March 30-April 5, 2018

Turbine Operation

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

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.
4	04/03/18	23:00	04/05/18	08:20	Forced OOS governor control

Comments: None.

Adult Fish Passage Facility

Little Goose fish facility and Anchor QEA staff inspected the adult Fishway on April 01, 04 and 05.

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’	
		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: None.

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: There is approximately 16,000 square feet of floating woody debris currently inside the trash shear boom in the forebay. Gatewell drawdown measurements on units 1, 4 and 6 were taken on April 05 and were in criteria.

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, 4 and 6 were taken on April 05 and were in criteria.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	19
	X		Dewaterer and cleaning systems operating satisfactory?	

Comments: Primary dewatering structure weir elevation is currently operating in manual mode. 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: The collection and transportation facility operated within criteria this report period. A total of 6,212 fish were collected. The descaling and mortality rates were 1.7% and 0.3% respectively.

Transport Summary: Fish transportation is scheduled to begin on April 24.

Spillway Weir: Spring spill operations began on April 03 in accordance to the Fish Passage Plan.

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
74.8	59.6	42.2	0.0	46.9	45.5	3.9	3.4

*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 are reported below.

Zone	Gull	Cormorant	Tern	Pelican	Grebe
Forebay count	43	24	0	0	0
Unmodified boat barrier	0	0	0	0	0
Modified boat barrier*	0	0	0	0	0
Boat barrier debris	0	0	0	0	0
Trash/shear boom	0	0	0	0	0
Tailrace count	11	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*
3-30	6	6
3-31	0	0
4-1	0	0
4-2	0	0
4-3	10	40
4-4	0	0
4-5	0	0
Total	**16**	**46**

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

Gas Bubble Trauma (GBT): GBT monitoring will commence on April 08.

Fish Rescue/Salvage: None.

Research: PNNL is currently installing temporary trolley pipes, hydrophones and associated equipment for an acoustic telemetry study.

Project: Lower Granite
Biologists: Elizabeth Holdren and Stephen Hampton
Dates: March 30-April 5, 2018

Turbine Operation

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

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

	OOS		RTS		
Unit	Date	Time	Date	Time	Outage Description
2	29-Mar	1636	03-April	1345	Due to JBS construction delaying ESBS installation
4	29-Mar	1636	02-April	1214	Due to JBS construction delaying ESBS installation
6	29-Mar	1636	02-April	1651	Due to JBS construction delaying ESBS installation

Comments: None.

Adult Fish Passage Facility

Lower Granite and Anchor QEA staff inspected the adult fishway on March 31, April 1, 3, and 4.

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’	3.9, 3.8, 3.1, 5.7
	X		South Shore Entrance (SSE-2) Weir Depth	$\geq$ 8.0’	3.9, 3.8, 3.1, 5.5
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	
			North Shore Entrance (NSE-2) Weir Depth	$\geq$ 7.0’ or on sill	OOS
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	2.2
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 measuring an area where unit 1 operation creates a boil about one foot higher than the actual tailwater elevation. Unit 1 has been out of service since the fish ladder control system was installed. The problem

was reported to operations March 29 and is being investigated. North shore channel/tailwater differential out of criteria readings were due to the fish ladder control system not being able to adjust the gate due to its position on sill.

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)	71.3 yd^2
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	25%
	X		Any oil seen in gatewells?	

Comments: Debris was removed from gatewells 2C, 4B, 4C, 5A, 6A, 6B, and 6C.

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: ESBSs were installed in unit 1 prior to returning the unit to service. ESBSs were installed in units 3 and 5 March 29. The remaining screens were installed April 2 and 3. This is a deviation from Lower Granite FPP section 2.3.1.2.vii. requirement to have ESBSs installed in at least four units by March 24.

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 and side screen brushes are not being operated due to mechanical issues that are being investigated.

Collection Facility: The facility began collection for condition sampling and kelt reconditioning in secondary bypass mode at 0700 hours April 1 with the first sample April 2.

Transport Summary: No transport occurring.

Spill/Spillway Weir: RSW spill operation began at 0001 hours March 25 to provide fish passage due to delay in JBS operation. Spring spill began at 0001 hours April 3 with spill 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
74.9	56.5	47.5	6.8	47.2	45.1	4.3	3.0

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: N/A

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

Siberian Prawn: N/A

Avian Activity: N/A

Gas Bubble Trauma (GBT) Monitoring: N/A

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

Fish Rescue/Salvage: N/A

Research:

Idaho Fish and Game (IDFG) Genetic Stock Identification

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

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.