U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#06-2020

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: April 3 to 9, 2020

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(s)	**Date**	**Time**	**Date**	**Time**	**Outage Description**
5	5/23/19	0943	5/28/20	NA	Turbine blade packing.
2, 3 & 4	4/6	0636	4/6	1511	ESBS installation, rotated through units.
6, 7 & 8	4/7	0622	4/7	1427	ESBS installation, rotated through units.
6 thru 12	4/7	2339	4/7	2356	BPA system trip.
9, 11 & 12	4/8	0630	4/8	1430	ESBS installation, rotated through units.

Comments: The hard one percent peak efficiency constraint continued. While restoring some project systems to power, after the BPA system trip mentioned above, unit 4 was operated out of priority for 31 minutes during the early morning of April 8.

Adult Fish Passage Facilities

McNary fisheries biologists performed measured inspections of the adult fishways on April 3, 5 and 8. Adult fish counting continued. During the project systems power outages mentioned above, power and weir adjustments occurred at the Oregon ladder exit from April 7 at 2339 hours to April 8 at 0259 hours. At the Washington exit, the adjustments occurred from April 7 at 2339 hours to April 8 at 0220 hours. Also, from April 7 at 2339 hours to approximately April 8 at 0040 hours both ladders entrances were out of criteria. Oregon ladder fish pump 2 will be described below.

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 near the Oregon exit and minimal near the Washington exit. Tumbleweeds have been observed on and removed from the Washington ladder trash rack as needed.

The Oregon shore ladder exit regulating weir tripped one alarm and was reset on April 5.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
X			North Oregon Entrance Head Differential	1.0' – 2.0'	
X			NFEW2 Weir Depth	≥ 8.0'	
X			NFEW3 Weir Depth	≥ 8.0'	
X			South Oregon Entrance Head Differential	1.0' – 2.0'	
X			SFEW1 Weir Depth	≥ 8.0'	
X			SFEW2 Weir Depth	≥ 8.0'	
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.8 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	
X			WFE2 Weir Depth	≥ 8.0'	
X			WFE3 Weir Depth	≥ 8.0'	

Comments: After the power outage mentioned above, the readings for the Washington shore ladder entrance data points appeared to be all erroneous on April 8. By examining the entrance weir cables, the biologist was fairly confident the entrance data points were in criteria. The next day, the electrical staff resolved the issue by calibrating the pool elevation sensor, tailwater elevation sensor and both entrance weirs.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
Yes			WA shore Wasco County PUD Turbine Unit
	Yes		WA shore Wasco PUD Bypass
		Yes	Oregon shore Fish Pump 1, OOS to September 12.
	No		Oregon Ladder Fish Pump 2, Blade angle: 21 to 23°.
Yes			Oregon Ladder Fish Pump 3, Blade angle: 25 to 26°.
Yes			OR North Powerhouse Pool supply from juvenile fishway

Comments: The BPA system trip mentioned above resulted in fish pump 2 being without power from April 7 at 2339 hours to April 8 at 0040 hours. Also, fish pump 2 was out of service on April 9, from 0427 to 0429 hours for a bus switch.

Juvenile Fish Passage Facility

The sampling season, consisting of alternating days of primary and secondary bypass, continued. There were no interruptions in the schedule. The power outages mentioned above appeared to have not effected the juvenile systems.

Forebay Debris/Gatewell Debris/Oil:

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

*Comments: Changes in the weather pattern again moved the debris for the powerhouse to the Oregon shoreline and back. New debris and debris near the spillway would be described as minimal. Debris removal will occur later in April.

No trash racks were cleaned this week.

A few pieces of woody material were removed from various gatewell slots on April 8.

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?
		NA	ESBSs inspection results acceptable?
X			VBSs differentials checked this week?
X			VBSs differentials acceptable?

*Comments: ESBS's were already installed in units 1, 10, 13 and 14 for early startup sampling and for the adult steelhead top spillway weir (TSW) passage efficiency study. ESBS's were installed in all remaining units from April 6 to 8, except for unit 5 which is out of service. See Table 1 above. ESBS installations included the typical brush cycle resetting that occurs. The brush cycle for the screen in slot 2A was short cycling and had to be reset on April 6. The next ESBS camera inspections will occur in units 1 and 10 on April 21.

Daily VBS differential monitoring continued. No high differentials were measured and no screens were cleaned.

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

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

Comments: Orifice valve operators were repaired as needed.

There are no problems to report.

Bypass Facility:

Yes	No	NA	Item
X			Sample gates on?
		X	PIT-tag sampling system on?

Comments: The sample gates were only operated on secondary bypass days. The PIT-tag system remained out of service as there are no studies requiring its use.

This week, 112 juvenile lamprey and 6,273 smolts were bypassed during secondary bypass.

TSW Operations: The TSW remained installed in bay 20 for the TSW passage study, which concluded April 9. The TSW was operated per the study plan. The second TSW remained installed in bay 19. Both TSW's will become functional with the spring spill program.

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
129.1	99.6	3.3	0.0	47.6	45.5	6.0	5.0

Comments: The above data was supplied by the smolt monitoring staff except water clarity, which came from the control room. All spill recorded was for the TSW passage study. The upcoming spring flex spill season begins on April 10 at 0001 hours.

Other

Inline Cooling Water Strainers: The cooling water strainer examinations occurred on April 7. Three juvenile lamprey mortalities were removed. No other fish were observed.

Avian Activity: Avian counts continued. These counts are reflected in Table 3 below.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican
April 3	Spill	0	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	38	0	0
April 4	Spill	1	0	0	0
	Powerhouse	0	0	0	0
	Outfall	1	25	0	0
April 5	Spill	0	0	0	0
	Powerhouse	0	0	0	0
	Outfall	0	37	0	0
April 6	Spill	2	2	0	0
	Powerhouse	0	0	0	0
	Outfall	0	42	0	0
April 7	Spill	0	0	0	0
	Powerhouse	0	0	0	0
	Outfall	2	41	0	0
April 8	Spill	0	3	0	0
	Powerhouse	0	0	0	0
	Outfall	0	41	0	0
April 9	Spill	0	0	0	0
	Powerhouse	0	0	0	0
	Outfall	1	42	0	0

In the tailwater zones, gulls were observed in very low numbers, either roosting or feeding. Cormorants were noted roosting on the juvenile outfall pipe in fairly high numbers. The number of cormorants noted feeding at the juvenile bypass outfall fluctuated for zero to 15. On one occasion outside of counting, two pelicans were observed in the tailwater area.

So far, neither the call nor laser have reduced cormorant numbers roosting on the outfall pipe. This issue will continue to be addressed. Deterring feeding appears to be somewhat more successful. Installation of the second laser is currently scheduled for April 28.

In the forebay zone, an occasional gull, cormorant or osprey was observed. Five grebes were observed on April 9.

The bird distress calls remained deployed on the outfall walkway and the navigation lock wing wall. The calls on the wing wall appear to be having more success than the one on the outfall. The laser on the navigation lock wing wall for the juvenile outfall appeared to be successful on the wing wall and moderately effective on the outfall pipe. Deployment of the second laser on the outfall walkway should improve the hazing efforts. Also, the forebay grebe distress call remained deployed. USDA Wildlife Services will begin the first hazing shift on April 19.

Invasive Species: The next mussel station examinations will occur in late April. No Siberian prawns were observed in this week's samples. None have been observed so far this season.

Fish Rescue/Salvage: None occurred this week.

Research: The adult steelhead top spillway weir (TSW) passage efficiency study concluded on April 9. The researcher will retrieve their data on April 11. The first gas bubble trauma (GBT) examinations occurred on April 8. Two smolts were observed with signs of GBT. Examinations will occur twice a week.

Project: Ice Harbor
Biologist: Ken Fone
Dates: April 3 – April 9, 2020

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**
3	5/3/19	0641	---	---	Turbine runner replacement and stator rewind
6	4/3/20	0900	4/3/20	0944	To facilitate BPA line switching
2	4/7/20	1233	4/7/20	1810	Replace 2A STS with spare STS

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on April 6, 7, and 8.

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	7.7’
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’	2.2’

Comments: The north powerhouse entrance weir depth was below criteria on April 6 when the weir was slightly off of sill.

The north shore entrance channel/tailwater differential was above criteria on the April 6 inspection. The north shore entrance weir depth was less on that day because of lower north shore tailwater, resulting in the higher channel/tailwater differential.

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: When the station service at the dam was temporarily switched to a different line on April 3 at 0910 hours, some of the breakers tripped. This resulted in three of the south shore pumps and one of the north shore pumps to shut down. The pumps were restarted at 0918 hours

South shore pump #2 was out of service from 0701 hours to 1118 hours on April 8 to replace the gearbox oil seal.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Average of 11 square yards
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0-8%
X			Any oil seen in gatewells?	Gatewell 2A

Comments: An oil sheen was observed in gatewell 2A on April 7. Approximately one cup of oil was suspected to have leaked from the STS motor. Oil absorbent socks were deployed in the gatewell slot and the appropriate agencies were notified of the oil spill.

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 STS in gatewell 2A was replaced with a spare STS on April 7, because of a probable oil leak from the STS motor.

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 hydrocannon pump for the fish bypass outfall pipe was tripping the disconnect switch, so it was pulled out of the water on April 6. A used spare pump was tested, but was found to be seized-up. Un-used spare pumps were located in the warehouse, and one was installed and the hydrocannon returned to service on April 14.

The mechanical screen cleaner was found to be nonfunctional on April 7. Electricians worked on the controls for the brush lifting mechanism and restored it to normal operation on April 9.

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

Fish Sampling: Sampling is taking place on Mondays and Thursdays each week. See the tables below for a summary of the sampling results. The clipped chinook mortality in the April 6 sample appeared to have already been dead for several days.

Fish condition sampling results at Ice Harbor Dam:

Date: April 6

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	75	0	1	0
Chinook yearling unclipped	5	0	0	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	0	---	---	---
Steelhead clipped	43	0	0	0
Steelhead unclipped	1	0	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	124	0	1	0

Date: April 9

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	63	0	0	0
Chinook yearling unclipped	4	0	0	0
Chinook subyearling clipped	0	---	---	---
Chinook subyearling unclipped	0	---	---	---
Steelhead clipped	13	0	0	0
Steelhead unclipped	1	0	0	0
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	81	0	0	0

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

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
52.4	39.8	33.4	24.3	46	45	6.9	6.8

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Unit 1, 2, 4, 5, and 6 turbine cooling water strainer inspections occurred on April 7. A total of 11 juvenile lamprey mortalities were found.

Avian Activity: There were very few piscivorous birds seen around the project (see table below). Land-based hazing of piscivorous birds for 8 hours per day changed to 16 hours per day on April 5. Boat-based hazing for 8 hours per day, 3 days per week, began on April 5.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
April 3	0	1	0	0	0
April 4	0	1	0	0	0
April 5	0	4	0	0	0
April 6	1	0	0	0	0
April 7	0	4	0	0	0
April 8	0	0	0	0	0
April 9	1	2	0	0	4

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 will be humanely euthanized by fish condition sampling personnel, frozen and properly disposed of in a landfill. Daily and total Siberian prawn counts at Ice Harbor Dam for this reporting period are shown below.

Number of Siberian prawns in the sample at Ice Harbor Dam.

Date	Sample (euthanized)	Collection*
April 6	0	0
April 9	0	0
Totals	0	0

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

Fish Rescue/Salvage: Unwatering activities that involved fish rescue did not occur this week.

Research: No on-site research is occurring at this time.

Project: Lower Monumental
Biologists: Chuck Barnes and Raymond Addis
Dates: April 3 - 9, 2020

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	04/07/2020	1435	04/07/2020	1610	STS Inspections
Unit 2	7/15/2019	0720	7/17/2020	ERTS	Annual, Draft Tube Liner
Unit 3	04/07/2020	0715	04/07/2020	0905	STS Inspections
Unit 4	04/07/2020	0915	04/07/2020	1115	STS Inspections
Unit 5	04/07/2020	1120	04/07/2020	1300	STS Inspections
Unit 6	04/07/2020	1305	04/07/2020	1430	STS Inspections

Comments: None.

Adult Fish Passage Facility

The adult fishways were inspected by Corps and EAS/Anchor QEA biologists on April 5, 8 and 9.

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’	

Comments: None.

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		X	South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	
X			South Shore Entrance (SSE-2) Weir Depth	≥ 6.0’	
	X		South Shore Channel/Tailwater Differential	1.0’ – 2.0’	

Comments:
South Powerhouse Entrance weir (SPE-1) was on sill during all inspections with readings of 5.9, 6.0 and 6.0 feet respectively.
South Powerhouse Entrance weir (SPE-2) was on sill during all inspections with readings of 5.9, 6.0 and 6.0 feet respectively.
South Shore Entrance weir (SSE-1) was on sill during the April 9 inspection with a reading of 7.6 feet.
South Shore Channel/Tailwater differential was out of criteria on the April 5 and 8 inspections with readings of 0.3 and 0.5 feet respectively. Powerhouse operator was informed on both occasions.

Auxiliary Water Supply System:

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

Comments: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	146 yds^2
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: None.

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 in continuous-run mode during the April 5 inspection and were changed to cycle-run mode on April 8, mode due to average sub-yearling Chinook and sockeye lengths being greater than 120 mm. STS's were inspected on April 7 and all screens were in good condition.

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: The mechanical screen cleaner was not completing its travel cycle on April 4 and 5. It is being monitored by powerhouse electricians to ensure it continues to function properly.

Collection Facility: The Juvenile collection facility was watered up at 10:00 on March 26.

Collection for condition sampling occurred from 0700 to 0700 on April 4 – 5 and April 7 - 8. A total of 565 fish were collected with 565 fish being bypassed back to the river.

Transport Summary: No transport at this time.

Spillway Weir: RSW went into service at 0001 on April 3 with the start of spring spill operations.

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
46.7	37.4	32.2	24.9	47.0	46.0	3.0	2.5

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on April 2. Mortalities included 7 juvenile lamprey, 11 Chinook salmon smolts and 2 Siberian prawns.

Avian Activity: Highest counts of foraging piscivorous birds in tailrace (SWT1+PH1+PH2) at Lower Monumental Dam.

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
4/3/2020	1245	1	0	0	0	0
4/4/2020	1235	2	0	0	0	0
4/5/2020	1100	3	0	0	0	0
4/6/2020	1130	4	0	0	1	0
4/7/2020	1135	0	0	0	0	0
4/8/2020	1100	1	0	0	0	0
4/9/2020	1300	0	0	0	0	0

Invasive Species: No zebra or quagga mussels were observed during monitoring station inspections on March 3.

Fish Rescue/Salvage: No Fish Rescue/Salvage took place during this reporting period.

Research: No research is occurring at this time.

Project: Little Goose
Biologists: Scott St. John and Richard Weis
Dates: April 03-09, 2020

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	03/31/2021	17:00	Spider and upper guide bearing repair.
6	04/04/20	05:21			XJ Breaker opening without valid input signal

Comments: None.

Adult Fish Passage Facility

Little Goose fish facility staff inspected the adult Fishway on April 05, 06 and April 09.

Fish Ladder:

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

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			South Shore Entrance (SSE-1) Weir Depth	$\geq$ 8.0’	
X			South Shore Entrance (SSE-2) Weir Depth	$\geq$ 8.0’	
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
		X	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	6.9, 2.6, 3.7
	X		North Shore Entrance (NSE-2) Weir Depth	$\geq$ 6.0’ or on sill	6.9, 2.6, 3.7
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	0.9
	X		Collection Channel Surface Velocity	1.5 – 4.0 fps	1.3

Comments: NSE channel to tailwater was out of criteria on April 09 at 0.9. The fish control system still has a faulty I/O module for the NSE weirs and is currently being repaired. The NSE weirs are in criteria and rest about 7 feet below tailwater according to manual measurement. The collection channel surface velocity was found out of criteria near the NPE on April 09 at 1.3.

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: Fish pump #1 was returned to service on April 03 at 1330.

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 22,000 square feet of floating woody debris currently inside the trash shear boom in the forebay. Drawdowns were performed April 09 on Units 1 and 2 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 differentials were conducted April 09 on Units 1 and 2 and were in criteria.

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: The juvenile bypass system is currently operating. Collection for condition sampling began on April 01 at 07:00. Sampling is occurring every other day with the first sample worked up on April 02.

Collection Facility: Collection for condition sampling began on April 01 and every other day sampling is occurring. The collection and transportation facility operated within criteria this report period. A total of 1,532 fish were collected, of which 1,531 were by-passed back to river. The descaling and mortality rates were 0.4% and 0.05% respectively. There were three days of collection this period. No adult lamprey were removed from the separator this reporting period.

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

Spillway Weir: Spring spill operations began on April 03 with the ASW set at high crest.

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
46.4	33.9	25.7	15.5	48.5	46.6	6.0	5.0

*Ladder temperature.

Other

Inline Cooling Water Strainers: Inline cooling strainers are being inspected and results submitted to district operations every other week for FPOM distribution.

Avian Activity: Daily piscivorous bird counts at Little Goose Dam began on April 01.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
4-3	1230	0	3	0	0
4-4	0730	0	2	0	0
4-5	1330	0	1	0	0
4-6	0800	4	0	0	0
4-7	0800	15	2	0	0
4-8	0750	12	2	0	0
4-9	0830	2	9	0	0

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 EAS/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	Collection*
4-3	NA	NA
4-4	37	148
4-5	NA	NA
4-6	21	42
4-7	NA	NA
4-8	152	304
4-9	NA	NA
Totals	210	494

Gas Bubble Trauma (GBT): GBT monitoring began on April 05. No signs of GBT were reported.

Fish Rescue/Salvage: None

Research: None.

Project: Lower Granite
Biologists: Elizabeth Holdren and David Miller
Dates: April 3-9, 2020

Turbine Operation

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

Comments: No units were Out of Service (OOS) at Lower Granite during this reporting period.

Adult Fish Passage Facility

Lower Granite and EAS/Anchor QEA staff inspected the adult fishway on April 3, 4, 6, and 8.

Fish Ladder:

Yes	No	NA	Location	Criteria	Comments
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	Comments
	X		South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	7.9 and 7.9
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.8 and 7.9
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
	X		North Powerhouse Entrance (NPE-1) Weir Depth	≥ 8.0’ or on sill	7.9
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	6.8
			North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	Closed
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: Depth over weir was out of criteria reading was likely the gate had not completed adjustment to tailwater elevation changes associated with spill. FOGs 1 and 10 are in operation.

Auxiliary Water Supply System:

Operating Satisfactorily	Standby	Out of Service	Auxiliary Water Supply (AWS)
Yes			AWS Fish Pump 1
Yes			AWS Fish Pump 2
No		OOS guide bearing	AWS Fish Pump 3

Comments: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

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

Comments: Gatewell drawdowns were completed April 5.

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: VBS differentials were completed April 5

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: Juvenile collection channel water level and flow is being adjusted using 10" orifices depending on forebay elevations.

Collection Facility: The sample rate is being adjusted based on the expanded sample counts. Total fish facility collection and bypass for April 3-9 was 28,490 juvenile salmonids. All salmonids collected were sampled for condition.

Transport Summary: No transport.

Spillway Weir: Spring spill and RSW operation began at 0001 hours April 3.

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
46.8	34.4	29.2	21.1	47.5	46.0	5+	4.1

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Unit cooling strainer inspections were conducted on April 1.

Invasive Species: No zebra/quagga muscles were detected on the trap substrate. There were 0 Siberian prawns collected in the sample and euthanized for disposal.

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

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
April 3	1315	26	5	0	0
April 4	1230	13	0	0	0
April 5	1125	76	7	0	0
April 6	0835	117	6	0	0
April 7	1015	93	6	0	0
April 8	1054	23	2	0	0
April 9	1515	6	1	0	0

Gas Bubble Trauma (GBT) Monitoring: GBT monitoring began on April 9 and there were no signs of GBT in the salmonids tested.

Adult Fish Trap Operations: Adult trap operations are suspended until further notice due to COVID-19.

Fish Rescue/Salvage: N/A

Research:

Collection for research projects has been suspended until further notice as of March 24 due to COVID-19 with the exception of Kelt collection for NPT.

Nez Perce Tribe (NPT)/U. of Idaho (UI)/Columbia River Intertribal Fisheries Commission (CRITFC) – Kelt Study

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. Corps biological technicians began collecting kelts off the juvenile fish separator for NPT at 1800 hours March 8 and continues collecting for transport.