U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#04-2021
March 19-25, 2021

Project: McNary
Biologist: Bobby Johnson and Denise Griffith

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	12/7	0643	5/30	N/A	Thrust bearing upgrades/blade seals
12	3/22	1111	3/23	1419	Exciter ground issue
7 to 9, 11 & 12	3/22	0845	3/22	1629	Trash rack cleaning/Rotated through units
2 to 6	3/23	0701	3/23	1242	Trash rack cleaning/Rotated through units

Comments: The soft one percent peak efficiency constraint continues per the 2021 Fish Passage Plan (FPP) page MCN-27. Also, unit priority is being followed per the FPP. RTS dates are subject to change.

Adult Fish Passage Facilities

McNary fisheries biologists performed measured inspections of the adult fishways on March 21, 23 and 25. Picketed leads will be lowered, and fish counting will resume on March 31 and April 1, respectively.

Fish Ladder Exits:

Yes	No	Location	Criteria	Measurements
X		Oregon Exit	Head over weir 1.0’ to 1.3’	1.1’ to 1.2’
X		Oregon Count Station Differential	0.0’ to 0.5’	0.0’
X		Washington Exit	Head over weir 1.0’ to 1.3’	1.0’ to 1.1’
X		Washington Count Station Differential	0.0’ to 0.5’	0.0’ to 0.1’

Comments: Debris loads were minimal to very light near the Oregon exit and minimal near the Washington exit. Some debris has been moving from the powerhouse to the Oregon shoreline and back.

At the Oregon shore exit, the north traveling screen was found not rotating and the south traveling screen was found rotating in the wrong direction on March 23. The roving operator immediately resolved the issue.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0' – 2.0'	1.2' to 1.3'
	X*		NFEW2 Weir Depth	≥ 8.0'	7.9' to 8.2'
X			NFEW3 Weir Depth	≥ 8.0'	8.0' to 8.1'
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.4' to 1.8'
X			SFEW1 Weir Depth	≥ 8.0'	8.0' to 8.2'
	X*		SFEW2 Weir Depth	≥ 8.0'	Slack, 7.9' to 8.2'
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.9 fps
X			Washington Entrance Head Differential	1.0' – 2.0'	1.2' to 1.4'
	X*		WFE2 Weir Depth	≥ 8.0'	6.7' to 10.3'
	X*		WFE3 Weir Depth	≥ 8.0'	6.8' to 10.3'

*Comments: For the Oregon ladder entrances out of criteria points noted above, SEFW2's cables were slack on March 23. The weir was jammed and shallow. The roving operator reset the weir. SFEW2 and NFEW2 both measured 7.9 feet on March 25. These readings may have been related to calibration drifts or set point settings.

For the Washington ladder entrance out of criteria points noted above, both WFE2 and WFE3 were shallow on March 23. WFE1 had inadvertently been switched to automatic mode resulting in the weir being lowered. All three weirs were found at the same depth. Once WFE1 was removed from automatic and the weir raised, the issue was resolved. Also, that day, the electrical staff was examining the pool elevation sensor, but this was not related to the weir problem.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Fish Pump Blade Angle	Auxiliary Water Supply System (AWS)
Yes				WA shore Wasco County PUD Turbine Unit
	Yes			WA shore Wasco PUD Bypass
Yes			22°	Oregon Ladder Fish Pump 1
Yes			21° to 22°	Oregon Ladder Fish Pump 2
Yes			22° to 24°	Oregon Ladder Fish Pump 3
		Yes		OR North Powerhouse Pool supply from juvenile fishway

Comments: To adjust SFEW2 as mentioned above, the operator had to briefly reduce all three fish pumps' blade angles to zero degrees on March 23.

The juvenile system remains in emergency bypass, which does not supply flow to the Oregon ladder north powerhouse pool. This will change when the juvenile system is switched to primary bypass on March 26.

Juvenile Fish Passage Facility

For the top spillway weir (TSW) overshoot study, the juvenile system remains in emergency bypass. Early start up will not occur this year due to the facility separator needing new floor screens and the rectangular screen brush in the channel requiring a new drive clutch bearing, which helps to raise and lower the brush. A replacement bearing is currently scheduled to arrive on March 26 at 1000 hours. If bearing arrives and is installed, the system will be switched to primary bypass that day. Normal sampling season will begin on time on April 2. The first sample examination will occur April 3.

Forebay Debris/Gatewell Debris/Oil:

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

Comments: Debris loads were moderate near the powerhouse and minimal beside the spillway. New debris loads were minimal. The debris consisted mostly of woody material. Trash rack cleaning did remove some of the floating debris.

All trash racks in units 2 through 9, 11 and 12 were cleaned on March 22 and 23. There was 102 yards of debris removed, which consisted mostly of woody material and tumbleweeds. No fish were observed in the debris.

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's are installed in units 1, 10, 13 and 14. ESBS maintenance continued this week. The remaining ESBS's will be installed from April 5 to 15. Camera inspections will resume on March 30 in units 1 and 10.

Daily VBS differential monitoring revealed no issues.

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

Yes	No	NA	Item	Number of orifices in service
X			Did orifices operate satisfactory?	42
		X	Dewatering and cleaning systems operating satisfactory?	

Comments: Emergency bypass continues. Several orifice operators and one orifice valve were rehabilitated this week. Orifice attraction and area lighting bulbs were replaced as needed. Orifices were being adjusted as required during trash rack cleaning.

Due to the rectangular screen brush requiring a drive clutch bearing replacement, the remaining channel systems continue to be out of service. However, preparations were made this week for bearing installation to occur on March 26. If successful, the system will be switched to primary bypass that day with constant monitoring after.

The hoist required to remove the emergency bypass stop logs was repaired on March 25.

A total of four live juvenile lampreys were removed from the rectangular incline screen this week. It is assumed the lampreys passed around the stop logs by way of leakage.

Bypass Facility:

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

Comments: All bypass facility systems remain out of service. Primary bypass and later secondary bypass along with sample collection will resume once the rectangular screen brush repairs are completed. The fisheries staff continued to prepare for sampling season.

Top Spillway Weir (TSW) Operations: The TSW in bay 19 remains closed until April 10 at 0001 hours. The TSW in bay 20 is being used for the adult steelhead TSW passage efficiency study and as required by the Biological Opinion. The TSW will be opened per the study plan.

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
127.8	107.8	1.6	0.0	44.0	42.0	6.0	6.0

Comments: The above data comes from the control room. The data day is 0000 to 0000 hours. The spill recorded is due to the TSW study. Repairs to cranes 6 and 7 are continuing. The spring spill program begins on April 10 at 0001 hours.

Other

Inline Cooling Water Strainers: The next cooling water strainer inspections will occur on April 6.

Avian Activity: Casual avian observations continued. Avian counts will begin April 1.

On the navigation lock wing wall, one laser across from the outfall and two large bird distress calls were installed on March 25. One bird call was functional. The second bird call will be repaired on March 30. The laser on the outfall pipe will be installed on March 31. Both lasers will be programmed in the early morning of April 1.

No terns or grebes were observed on project. Twenty-five to 55 cormorants were noted roosting on the juvenile bypass outfall and occasionally feeding around the project. An occasional pelican or two were noted feeding in the tailwater area. Finally, a few gulls were occasionally observed around the project, mostly near the forebay.

Osprey returned to the project this week.

Invasive Species: The mussel station examinations revealed no problems on March 23.

Siberian Prawn: Removing and euthanizing Siberian prawns will resume with sampling.

Fish Rescue/Salvage: For this week, there is nothing to report.

Research: The spring phase of the Pacific Northwest National Laboratory (PNNL) adult steelhead TSW passage efficiency study continues.

Project: Ice Harbor
Fisheries Tech: Tim DeKoster
Fisheries Biologist: Ken Fone

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

Comments: None.

Adult Fish Passage Facility

Ice Harbor fish facility staff inspected the adult fishways on March 22, 23, and 25.

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	7.8’
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 South Shore Entrance (SFE-1) weir depth was observed to be slightly under criteria on the March 23 fishway inspection. Operations has SFE-1 entrance weir on automatic control, and it was in criteria on the subsequent inspection on March 25.

Auxiliary Water Supply (AWS) System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply System (AWS)
5-6 pumps	1-2 pumps	1 pump	Status of the 8 south shore AWS pumps
2 pumps	1 pump		Status of the 3 north shore AWS pumps

Comments: South shore AWS pump #8 is out of service to replace worn seals in the lower gearbox.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
x			Forebay debris load acceptable? (amount)	Average of 55 square yards
		x	Gatewell drawdown measured this week?	
		x	Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	STSs blocking view into slots
	x		Any oil seen in gatewells?	

Comments: None.

Submersible Traveling Screens (STSs) / Vertical Barrier Screens (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 are removed for annual maintenance.

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 juvenile fish channel was watered up and orifices were opened on March 24. Orifice 1CN light was found to be burned out on March 24 and 4CN light was burned out on March 25. Both lights were replaced on March 25. Some of the orifice air filters were dirty and were replaced with new filters to improve the operation of fully opening and closing the orifices.

Juvenile Fish Facility: The raw water supply lines at the fish facility were watered up on March 24.

Fish Sampling: Sampling begins on April 1.

Removable Spillway Weir (RSW): Voluntary spill through the RSW is periodically occurring for the downstream passage of adult steelhead that may have strayed into the Snake River. The RSW will be operated from 0500 hours to 0900 hours on Sundays, Wednesdays, and Fridays, from March 1 to March 31.

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
54.0	33.3	1.6	0	44	42	6.7	6.0

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: No inline cooling water strainer inspections occurred this week.

Avian Activity: There were very few piscivorous birds seen around the project.

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 the fish sampling contractor, frozen and properly disposed of in a landfill.

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: Little Goose
Biologists: Scott St. John

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	03/18/21	14:17			T2 ground
1	11/30/20	08:00			6-year overhaul
2	03/18/21	08:44	03/18/21	09:00	86GX trip due to exciter thyrister bridge high temp
3	03/23/21	07:00	03/23/21	10:00	ESBS install
2	03/22/21	11:18	03/22/21	16:20	ESBS install
4	03/22/21	07:20	03/22/21	11:00	ESBS install

Comments: Little Goose experienced a T2 transformer ground on March 18 at 14:17. T2 transformer and Units 5 and 6 will be out of service until repairs/replacement can be conducted.

Adult Fish Passage Facility

Little Goose fish facility staff inspected the adult Fishway on March 23, 24 and 25.

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’	7.7, 7.7, 7.8
	X		South Shore Entrance (SSE-2) Weir Depth	$\geq$ 8.0’	7.7, 7.7, 7.8
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	5.7, 5.2, 5.7
	X		North Shore Entrance (NSE-2) Weir Depth	$\geq$ 6.0’ or on sill	5.7, 5.2, 5.7
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	1.1, 1.3

Comments: The adult fishway was returned to service on February 10, with AWS pumps 1 and 2 returning to service on February 23. The SSE and NSE weir depth were found out of criteria on all inspections. The SSE surface velocity was found out of criteria on March 24 and 25. Subsurface water velocity was measured on March 17 at NPE and averaged 1.8 fps.

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 pumps 1 and 2 were returned to service on February 23. Fish pump 3 remains out of service as staff await parts.

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 67,500 square feet of floating woody debris currently inside the trash shear boom in the forebay. Little Goose plans to conduct spill operations in hopes of removing forebay debris through the ASW (MOC 21 LGS 01). Gatewell drawdowns were conducted on March 25 for Units 2, 3 and 4 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: ESBS's were installed in Units 2, 3 and 4 on March 22 and 23. VBS differentials were conducted on March 25 for Units 2, 3 and 4 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 was watered up on March 22 and is currently operating in primary bypass.

Collection Facility: The juvenile collection facility was watered up on March 25 and is operating in primary bypass.

Transport Summary: Fish transportation is scheduled to begin in April.

Spillway Weir: Little Goose began operation of the adjustable spillway weir (ASW) on March 2 to facilitate passage of adult steelhead overshoots. Operation is occurring three days each week on non-consecutive days for four hours in the morning and will continue to occur on Tuesday, Thursday and Sunday each week, through March 31. Spring spill operations will begin on April 3. Little Goose staff are still working to resolve issues with the ASW automatic operation but remain able to meet overshoot spill requirements.

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
51.1	34.8	3.1	0.0	44.3	44.1	4.7	3.8

*Ladder temperature.

Other

Inline Cooling Water Strainers: Inline cooling strainer inspections commenced on January 13. Inspections will continue in accordance to the Fish Passage Plan (FPP) and results will be submitted to the District.

Avian Activity: Daily piscivorous bird counts at Little Goose Dam will begin on April 1 with hazing beginning on March 29.

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

Siberian Prawn: Juvenile fish collection begins on April 1. 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.

Gas Bubble Trauma (GBT): GBT monitoring is not being conducted at this time.

Fish Rescue/Salvage: No fish rescues occurred during this report period.

Research: No research activities occurred during this report period.

Project: Lower Monumental
Biologists: Chuck Barnes and Raymond Addis

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	3/22/2021	0701	3/22/2021	1045	STS Installation
Unit 2	7/15/2019	0720	4/01/2021	ERTS	Annual, Draft Tube Liner
Unit 3	3/22/2021	1116	3/22/2021	1640	STS Installation
Unit 4	3/24/2021	0705	3/24/2021	1115	STS Installation
Unit 5	3/23/2021	0710	3/23/2021	1045	STS Installation
Unit 6	3/23/2021	1050	3/23/2021	1540	STS Installation

Comments:

Adult Fish Passage Facility

The adult fishways were inspected by Corps biologists on March 22, 23 and 24.

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:

Fishway Entrances and Collection Channel:

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

Comments:
South Powerhouse Entrance (SPE-1) Weir was on sill during all inspections with readings of 7.2, 7.5 and 7.7 feet respectively.
South Powerhouse Entrance (SPE-2) Weir was on sill during all inspections with readings of 7.2, 7.5 and 7.7 feet respectively.

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: Fish pumps returned to service at 1200 hours on February 25 after winter maintenance was completed.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	497 yds^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:

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 inspected on the deck March 18 and deployed from March 22-24.

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: Primary Dewaterer returned to service and orifices were opened at 1045 on March 25.

Collection Facility: Fish collection is scheduled to begin April 1.

Transport Summary: No transport currently.

Spillway Weir: Per 2021 Fish Operations Plan, limited spill through the RSW for adult steelhead passage began on March 1 and will end on March 31. RSW is scheduled to open for juvenile salmonid passage 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
51.9	36.4	1.5	0.0	43.0	42.0	5.2	3.4

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers:

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

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
March 19 – 25		0	0	0	0	0

* Table shows tailrace observation conducted during Adult Fish Ladder inspections.

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

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

Research: No research is occurring currently.

Project: Lower Granite
Biologists: Elizabeth Holdren and David Miller

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

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

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
6	03/01				DC and low voltage switchgear

Comments:

Adult Fish Passage Facility

Lower Granite and Anchor QEA staff inspected the adult fishway on March 19, 20, 22, and 24.

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: Operation of diffuser 14 will remain in manual for the season due to an issue with the elevation sensor.

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
	X		South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	7.7, 7.9
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.7, 7.8, 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	
		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
		X	North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	6.9
	X		North Shore Channel/Tailwater Differential	1.0’–2.0’	0.6, 0.7, 0.6, 0.8
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: Ladder collection channel operation and configuration are being evaluated to resolve ongoing issues. FOGs 1, 4, 7, and 10 are in operation. North shore and north powerhouse channel/tailrace head differentials are unable to be maintained withing the criteria range under current operation. The Project is working with hydraulic engineers to improve collection channel conditions and find a permanent solution to the ongoing channel/tailwater criteria discrepancies.

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: AWS pump 1 is being operated in slow mode.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Weekly average 246 yds^2
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:

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: The VBS in gatewell slot 6A is being replaced while the unit is out of service for low voltage switchgear install.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	17-18
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: Orifices in gatewell slot 6A are closed to support VBS replacement during the low voltage switchgear upgrade.

Collection Facility: A total of 294 juvenile salmonids were collected March 19-25. Kokanee likely released from Dworshak are considered incidental species and will not be included as part of the SMP sample until further notice from NOAA. A weld on the sample holding tank crowder failed when SMP was crowding fish for conditions sampling March 24. The sample was turned off and all fish were diverted to the river via secondary bypass to from 0715-1120 hours. SMP and Anchor employees bypassed the sample directly to the river due to the inability to use the crowder.

Transport Summary: No transport.

Spillway Weir: The RSW is operating from 0500-0900 hours Sundays, Tuesdays, and Thursdays March 2 through March 30 to facilitate adult steelhead/overshoot passage. There was a total of 37 adult steelhead, 3 juvenile

steelhead, and 2 juvenile Chinook detected at RSW since spill began. Of the adult steelhead detected at the RSW 24 were tagged/released from the adult trap.
There were 8 adult PIT tagged steelhead detected going over the RSW this report week. Of the adult steelhead detected this week 2 were tagged at Bonneville in 2020, 1 was from tagged at Lyons Ferry, 1 was from the Tucannon in 2018, 3 were tagged at LWG adult trap fall of 2020, and 1 was an orphan.

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
54.3	36.7	1.2	0.0	44.0	42.0	3.7	3.6

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: N/A

Invasive Species: No zebra/quagga muscles were detected on the trap substrate. There were no Siberian prawns collected in the condition sample.

Avian Activity: Biologist began daily piscivorous bird counts at Lower Granite Dam March 1.

Date	**Time**	**Gulls**	**Cormorants**	**Caspian Terns**	**Pelicans**
March 19	1545	4	2	0	0
March 20	1110	7	8	0	0
March 21	0910	6	0	0	0
March 22	0850	0	2	0	0
March 23	1300	12	5	0	0
March 24	0953	21	2	0	0
March 25	1028	37	2	0	0

Gas Bubble Trauma (GBT) Monitoring: N/A

Adult Fish Trap Operations: The adult trap is in operation Monday through Friday at a 25% (18% /week) sample rate.

Fish Rescue/Salvage: N/A

Research:

Idaho Fish and Game (IDFG) Genetic Stock Identification

Fish collected as part of the Lower Granite juvenile 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.

National Marine Fisheries Service (NMFS) PIT tagging of Adult Wild Chinook and Adult Steelhead for ISEMP-Related Dispersal Monitoring:

The goal of this project is to PIT tag up to 4000 unclipped adult Chinook and 4000 unclipped adult steelhead collected in the adult trap daily sample for dispersal monitoring.

Sampling of Steelhead, Chinook salmon, and Sockeye salmon by the Idaho Department of Fish and Game (IDFG) and NOAA Fisheries for Biological data collection.

Upriver migrating steelhead, spring/summer Chinook salmon, and sockeye salmon are collected from the adult trap beginning April 4 through December 15. The goal is to collect 5-20% of adult steelhead, spring/summer Chinook salmon, and sockeye salmon ascending the ladder April 4-December 15. Data collection includes fish scales, genetics tissue, sex and length, wild/hatchery composition, and non-adipose clipped hatchery fish assessment. All natural origin adult steelhead and spring/summer Chinook salmon trapped will be PIT tagged to estimate headwater tributary escapement. Sockeye salmon may be PIT tagged in the future to estimate metrics regarding conversion rates. Some steelhead and spring/summer Chinook salmon may be radio-tagged or spaghetti-tagged. This information on adult fish forms the basis for status information used in several forums including BiOp-RPA identified needs.

PIT Tagging and Genetic Sample Collection from Bull Trout for USFWS:

Bull trout will be collected as part of the normal adult trap daily sample and using the adult Sort by Code system to recapture previously PIT tagged fish. Untagged bull trout will be PIT tagged, fin clipped for genetic analysis, and have morphometric data collected including weight and length etc. Fin clips will be sent to USFWS to determine the fish's origin. Previously PIT tagged bull trout will only have morphometric data collected. All fish will be released back into the adult fish ladder.