U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#34-2020

Project: McNary
Biologist: Bobby Johnson and Denise Griffith
Dates: October 16- 22, 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	10/14	0700	10/20	1513	New top plate pump installation.
12	10/05	0700	10/22	1053	Annual and thrust bearing system maintenance.
6, 7 & 8	10/20	1000	10/20	1100	ESBS camera inspections.

Comments: The hard one percent peak efficiency constraint continued. The soft one percent peak efficiency constraint begins November 1 at 0001 hours.

Adult Fish Passage Facilities

McNary fisheries biologists performed measured inspections of the adult fishways on October 16, 18 and 21. The inspection on October 21 occurred when fish pump 2 was out of service, which will be discussed below. Adult fish counting continued and will conclude on October 31. The general maintenance staff will raise the picketed leads on November 2.

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 minimal to light near the Oregon and Washington exits. Aquatic vegetation continued to be an issue. The general maintenance staff cleaned the picketed leads frequently, including the on weekend.

At the Oregon exit, a traveling screen alarm was cleared on October 18.

At the Washington exit, a regulating weir alarm was reset and cleared on October 16.

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'	Raised on Oct 21.
	X		South Oregon Entrance Head Differential	1.0' – 2.0'	0.7' on Oct 21.
X			SFEW1 Weir Depth	≥ 8.0'	
X			SFEW2 Weir Depth	≥ 8.0'	
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.1 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 the south pool differential were out of criteria on October 21 due to fish pump 2 being out of service, which will be discussed below. NFEW3 was raised on October 21 at 0853 hours, which is required by the Fish Passage Plan when two fish pumps are out of service. NFEW was returned to service on October 22 at 1238 hours with fish pump 2. This week, the average water velocity was out of criterion possibly due to hydraulic gradients.

Auxiliary Water Supply System

Operating Satisfactory	Standby	Out of Service (OOS)	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 November 19.
Yes*		Yes*	Oregon Ladder Fish Pump 2, Blade angle: 24° or OOS.
Yes			Oregon Ladder Fish Pump 3, Blade angle: 26°.
Yes			OR North Powerhouse Pool supply from juvenile fishway

*Comments: Repairs to fish pump 1 continued.

A repair to a key potable water issue on the 8th floor of the powerhouse required the water to be shut down from 1300 to 1500 hours on October 21. Due to the structure of the potable water system, the juvenile fish facility and the Oregon ladder fish pumps' cooling system would lose the potable water during the repairs. At 0800 hours, fish pumps 2 and 3 were switched to raw cooling water in preparations for the work. Almost immediately, the strainer in the raw water line became obstructed. Fish pump 2 tripped offline at 0828 hours. Repeatedly starting and stopping these fish pumps is not recommended. Fish pump 2 was removed from service. To meet the Fish Passage Plan requirements for two fish pumps out of service, NFEW3 was raised as described above. Two issues were found with fish pump 2. The bearing cooling water line was ruptured, and the oil head pump limit switch was damaged. Repairs to the water line rupture were completed on October 21. An attempt was made to repair the limit switch damage, but this repair was not as successful. It was decided to remove the limit switch from fish pump 1 and use it on pump 2. The electrical work was not completed until October 22 and Fish pump 2 to service at 1238 hours (see 20MCN15 MFR).

Juvenile Fish Passage Facility

The juvenile system remains in primary bypass for the fall season. Cleaning, light maintenance and preparations for winter continued at the facility. Staffing remained on day shift only. The potable water to the juvenile fish facility was off on October 21 from 1300 to 1515 hours due to work described above.

Forebay Debris/Gatewell Debris/Oil

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

Comments: Debris loads were light to moderate near the powerhouse and minimal to very light beside the spillway. Incoming debris loads were minimal. The woody debris and aquatic vegetation continued to move back and forth from the powerhouse to the Oregon shoreline.

No trash rack cleaning or forebay debris removal occurred.

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 remained deployed in all units. ESBS camera inspections in units 5, 6, 7 and 8 reveal no problems on October 20. Unit 5 was already out of service.

Daily VBS differential monitoring continued. No high differentials were measured. Three VBS's were cleaned on October 19. No fish were observed.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe

Yes	No	NA	Item	Number of orifices in service
X			Did orifices operate satisfactory?	42
X			Were the dewaterer and cleaning systems operated satisfactory?	

Comments: Due to continued concern for the two side dewatering valves, orifices cycling remained once a day. Orifices were adjusted for VBS cleaning as required. Orifice valve operators were repaired as needed.

The transition screen cleaning brush remained out of service. The air burst system's zone 5 kept the transition screen clean.

The fisheries staff continued to monitor the north and south side dewatering valves with both valves' motor temperatures being recorded. The highest motor temperature we recorded was 99 degrees F. The temperatures appear to be dropping as the weather gets cooler, but we also have less shift coverage. At this point, we see no need to continue to report the motors' temperatures. Future access to the control program is our next step. The north valve still appeared to hang up at times, which causes a "popping" noise with the valve shaking occasionally. This remains as a concern.

Bypass Facility

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

Comments: During fall primary bypass season, all systems remain out of service. Light maintenance continues.

Leaks in the sample tanks' release valves were repaired this week. After the potable water outage, repairs in the facility's restrooms had to occur.

Top Spillway Weir (TSW) Operations: The TSW in bay 19 remained out of service. The TSW in bay 20 is being used for the adult steelhead TSW passage efficiency study and as required by the new Biological Opinion. The TSW will be opened per the study plan.

Project: Ice Harbor
Biologist: Ken Fone
Dates: October 16, 2020 – October 22, 2020

Turbine Operation

Yes	No	Turbine Unit Status		
	X	All 6 turbine units available for service (see table 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
5	9/21/20	0900	---	---	Annual maintenance and overhaul

Comments: None.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on October 19, 21, and 22.

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’	2.3’
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’	2.1’
X			North Shore Entrance (NEW-1) Weir Depth	≥ 8.0’ or on sill	
X			North Shore Channel/Tailwater Differential	1.0’ – 2.0’	

Comments: On the October 19 inspection, the south shore and north powerhouse channel/tailwater differentials were above criteria. The differential readings from the PLC were in criteria, but the readings were jumping up and down. The tailwater surface conditions were turbulent from the wind, causing variability in the tailwater elevation.

The trash rack at the south shore fish ladder exit was cleaned on October 20. Debris had accumulated on the trash rack, causing a forebay/ladder exit differential of 0.2’. Maintenance staff used a boat to get close to the ladder exit and removed several long branches and milfoil.

Auxiliary Water Supply System (AWS):

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)	Average of 22 square yards
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0-10%
	X		Any oil seen in gatewells?	

Comments: None.

STSs/VBSs:

Yes	No	NA	Item
X			STSs deployed in all slots and in service for available units?
	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: None.

Orifices, Collection Channel, Dewatering Structure, and Flume:

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

Comments: None.

Juvenile Fish Facility: The Juvenile Fish Facility is operating in primary bypass mode.

Fish Sampling: Fish sampling is done for the year at Ice Harbor Project.

Removable Spillway Weir (RSW): The RSW is periodically opened for downstream passage of adult steelhead that may have strayed into the Snake River. For the benefit of steelhead, the RSW is scheduled to be operated from 0500 hours to 0900 hours on Sundays, Wednesdays, and Fridays, from October 1 to November 15.

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
26.0	14.8	1.6	0	62	59	8.6	7.5

*Unit 1 scroll case temperature.
Comments: None.

Other

Inline Cooling Water Strainers: Monthly strainer inspections for lamprey will resume in December.

Avian Activity: There were moderate numbers of piscivorous birds seen around the project. Many of the gulls were observed foraging in the powerhouse tailrace downstream of the unit 1 and unit 2 discharges. On October 21, Wildlife Services personnel added an avian deterrent wire to the south end of the wire array to cover the area of the unit 1 and unit 2 discharges. Also, three avian deterrent wires were installed over the spillway to replace the wires that had broken off several years ago.

Invasive Species: No new exotic species have been observed.

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by fisheries management personnel, frozen and properly disposed 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: Lower Monumental
Biologists: Chuck Barnes and Raymond Addis
Dates: October 16 - 22, 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	10/21/2020	0703	10/22/2020	1615	Governor Control Issues
Unit 2	7/15/2019	0720	4/01/2021	ERTS	Annual, Draft Tube Liner
Unit 5	10/19/2020	0707	11/13/2020	ERTS	Annual Maintenance
Unit 6	9/28/2020	0725	10/16/2020	1522	Annual Maintenance

Comments: None.

Adult Fish Passage Facility

The adult fishways were inspected by Corps biologists on October 19, 20, and 22.

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’	

Comments: None

Fishway Entrances and Collection Channel:

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

Comments:
South Powerhouse Entrance (SPE-1) Weir was on sill during all inspections with readings of 7.2, 7.7 and 7.1 feet respectively.
South Powerhouse Entrance (SPE-2) Weir was on sill during all inspections with readings of 7.2, 7.7 and 7.1 feet respectively.
South Shore Entrance (SSE-1) Weir was on sill during the October 22 inspection with reading of 8.0 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: None.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	0 yds^2
X			Gatewell drawdown measured this week?	
X			Gatewell drawdown acceptable	
X			Any debris seen in gatewells (% coverage)	0 – 20%
	X		Any oil seen in gatewells?	

Comments: None.

STSs/VBSs:

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

Comments: STS's were operating in cycle mode due to average sub-yearling Chinook and sockeye lengths being greater than 120 mm.

Orifices, Collection Channel, Dewatering Structure, and Flume:

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

Comments: None.

Collection Facility: The Juvenile collection facility was watered up at 10:00 on March 26.
Everyday collection for sample condition ended at 0700 on October 1. The facility went into primary bypass at that time. The collection facility was dewatered at 1230 on October 5.

Transport Summary: Alternate day barge transport ended June 21.

Spillway Weir: Summer spill ended on August 31 at 23:59:59.

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
25.5	16.3	14	0	60.1	59.8	4.6	4.1

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on August 10. No live fish or mortalities were recovered.

Avian Activity: Tailrace bird observations conducted during fish ladder inspections ended for the season September 30, 2020.Comments: Bird hazing efforts by USDA personnel ended June 2, 2020.

Invasive Species: No zebra or quagga mussels were observed during monitoring station inspections on October 19.

Siberian Prawn: Sampling has ended for the year.
Fish Rescue/Salvage: No Fish Rescue/Salvage took place during this reporting period.

Research: No research is occurring currently.

Project: Little Goose
Biologists: Scott St. John and Richard Weis
Dates: October 16-22, 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	03/31/21	17:00	Spider and upper guide bearing repair.
3	09/21/20	03:20	10/30/20	17:00	Unit Annual

Comments: None.

Adult Fish Passage Facility

Little Goose fish facility staff inspected the adult fishway on October 18, 20 and 22.

Fish Ladder:

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

Comments: Adult ladder cooling pump was shut down for the season on September 16.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	
X			South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	
X			South Shore Channel/Tailwater Differential	1.0’ – 2.0’	
	X		North Powerhouse Entrance (NPE-1) Weir Depth	≥ 7.0’ or on sill	6.3
	X		North Powerhouse Entrance (NPE-2) Weir Depth	≥ 7.0’ or on sill	6.2
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
X			North Shore Entrance (NSE-1) Weir Depth	≥ 6.0’ or on sill	
	X		North Shore Entrance (NSE-2) Weir Depth	≥ 6.0’ or on sill	5.3
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: The adult fishway continues to operate in manual mode. Project staff struggled to maintain entrance criteria at the NSE during Spring spill. The fish control system for the NSE weirs was replaced and is functioning satisfactorily. Sub surface channel velocity was performed on October 04 and averaged 2.5 fps. Weir depth at NPE-1, NPE-2 and NSE-2 were found out of criteria during the October 22 inspection.

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 40 square feet of floating woody debris currently inside the trash shear boom in the forebay. Drawdowns were performed on October 22 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: All ESBS screens are in slots and deployed for all available and in-service Units. VBS differentials were performed on October 22 on Units 1 and 2 and were in criteria. ESBS/VBS camera inspections were performed on Unit 3 on September 24 and screens were in satisfactory 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 airline for the backflush system on orifice 1C1 was found broken and will need repaired once the juvenile channel is dewatered for winter maintenance (MFR 20 LGS 12). During prior ESBS/VBS inspections, an issue with the orifice liner in 6C2 was observed (MFR 20 LGS 14) and will need repaired during winter maintenance. The limit torque motor that operates the weirs for water elevation at the primary dewatering structure is out of service. Weirs are currently being adjust manually until repairs are made.

Collection Facility: Collection for condition sampling began on April 1. The facility continues to collect for daily sample and was placed in secondary bypass on June 21. Collection for every other day truck transport began on August 01 with the first truck leaving LGS on August 03.

Transport Summary: The JFF began collecting for truck transport on August 01. The collection and transportation facility operated within criteria this report period. A total of 4,673 fish were collected. Of the fish collected, 54 were sample or facility mortalities, 0 were by-passed and 4,990 were transported by truck to release site near Bonneville Dam. Total number of fish transported includes fish collected on October 15. The descaling and mortality rates were 1.2% and 1.5%, respectively. There were 0 adult lamprey removed from the separator this report period and released approximately 1-mile upstream of the powerhouse.

Spillway Weir: Summer spill operations began on June 21. The ASW was closed for the season on August 07. Spill for adult steelhead overshoots commenced on October 01. ASW spill operations will continue to be conducted in accordance to the most recent Columbia Basin Teletype.

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
25.3	16.2	1.3	0.0	61.4	60.1	6.0	5.8

*Ladder temperature.

Other

Inline Cooling Water Strainers: Inline cooling strainers were inspected and results submitted to district operations every other week for FPOM distribution through mid-June per Fish Passage Plan (FPP) requirements.

Avian Activity: Daily piscivorous bird counts at Little Goose Dam began on April 1.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
10-16	0800	53	18	0	0
10-17	0730	27	15	0	0
10-18	0830	105	28	0	0
10-19	0830	58	3	0	0
10-20	0840	141	28	0	0
10-21	0830	25	0	0	0
10-22	0800	112	18	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 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*
10-16	748	748
10-17	598	598
10-18	605	605
10-19	887	887
10-20	795	795
10-21	593	593
10-22	559	559
Totals	4,785	4,785

Gas Bubble Trauma (GBT): GBT monitoring has finished for the season.

Fish Rescue/Salvage: None

Research: The Nez Perce Tribe (NPT) ended steelhead kelt collection on June 25.

Project: Lower Granite
Biologists: Elizabeth Holdren and David Miller
Dates: October 16-22, 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 Granite Unit Outages (OOS) and Return to Service (RTS)

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
3	Oct 19	0659			Annual maintenance

Comments: None.

Adult Fish Passage Facility

Lower Granite and EAS/Anchor QEA staff inspected the adult fishway October 16, 17, and 19.

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’	
X			South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	
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	6.9
			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	1.4, 1.2

Comments: 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			AWS Fish Pump 3

Comments: AWS pump 3 is operational in standby mode with lower guide bearing work delayed until the winter outage due to COVID.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: Debris load has picked up this week and is being manages with additional facility rounds. Some woody debris observed in the forebay this season is likely due to the failure in the upriver two sections of the forebay debris boom. Repairs are recommended to prevent further damage to the boom and potential for additional debris in the powerhouse forebay and on unit trashracks.

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)	Ranged from 1-3%
	X		Any oil seen in gatewells?	

Comments: Gatewell differentials were measured October 19. Debris is removed from gatewells with a hand dip basket.

ESBSs/VBSs:

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

Comments: None.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe:

Yes	No	NA	Item	Number open and in service
X			Orifices operating satisfactory?	18-24
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: Debris load has increased resulting in obstructions in the sample collection system while at 100%. The bio tech on the night shift identified an obstruction in the sample collection line early in the morning October 21. The separator exits were closed from 0645-0835 to prevent additional fish from entering the sample system while the line was cleared of debris. October 21 at 0630 hours the SbyC water supply line separated resulting in the system being turned off from 0645-1040 hours. SbyC system was returned to normal operation after the line was repaired.

Transport Summary: Truck transport for the week of October 16-22 totaled 3,328 fish transported in three trips.

Spillway Weir: The RSW is operating to facilitate adult steelhead passage from 0500-0900 hours Sundays, Tuesdays, and Thursdays October 1 through November 15.

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
26.1	17.7	1.2	0.0	60.0	56.5	5.0	5.0

*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 452 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
Oct 16	0917	12	33	0	0
Oct 17	0900	11	21	0	0
Oct 18	1414	1	27	0	0
Oct 19	0950	10	25	0	0
Oct 20	1610	5	30	0	0
Oct 21	1149	2	35	0	0
Oct 22	1246	10	32	0	0

Adult Fish Trap Operations: Coho broodstock collection and transport for NPT ended October 22.

Fish Rescue/Salvage: October 20 a fish rescue was performed in unit 3 scrollcase. There was one clipped and one unclipped subyearling Chinook mortalities and one juvenile crappie removed from the scrollcase. No other fish were present.

Research:

USGS Juvenile Fall Chinook Salmon Growth and Origin

USGS collection of previously tagged subyearling Chinook utilizing LWG juvenile collection facility SbyC system began September 8 and will continue through October 31. Previously PIT tagged fish are diverted to the SbyC tanks, weighed, measured, GSI sampled, scanned for PIT tag code, recovered from anesthetic, and released back to the river. The objective of this project is to estimate the growth of PIT-tagged subyearling Chinook salmon from the Clearwater River to Lower Granite Dam.

National Marine Fisheries Service (NMFS) Ancillary Adult Passage Monitoring:

Fish that were PIT as juveniles at LWG are monitored as returning adults through the river and LWG facility. For each returning adult the following is estimated; 1) passage time between sets of detection PIT tag coils, 2) whether the fish was handled at the adult trap, 3) duration the fish was held at the adult trap, 4) overall passage time from ladder entrance to exit, 5) whether the turnpool gate was open or closed during passage. This will be the last year of this evaluation.

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 SbyC 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.

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
95.5	73.5	1.8	0.0	62.0	59.0	6.0	6.0

Comments: The above data comes from the control room. The data day is 0000 to 0000 hours. Spillgate hoist maintenance continued. The spill recorded above was for the TSW study and hoist testing.

Other

Inline Cooling Water Strainers: The next cooling water strainer inspections will occur on December 1.

Avian Activity: Casual avian observations continued.

No terns were observed on project. Two pelicans were noted well downstream of the juvenile outfall. Also, one loon was observed in the tailwater area.

Gull activity fluctuated in the powerhouse zone with birds feeding and roosting. At times, gulls were noted feeding in large numbers. Occasionally, a cormorant was noted.

In the spillway zone, gull and cormorants were observed. The birds were roosting around the spill basin and feeding heavy at times, especially during TSW use.

At the juvenile bypass outfall, gulls and cormorants were noted. Roosting on the bypass pipe was still the primary use of the area. However, with the navigation lock laser removed, more gulls and cormorants were feeding at the outfall.

In the forebay zone, occasional gulls were observed flying by. A few gulls or a gull flocks and few cormorants were noted on the roosting rocks along the Washington shoreline. At times, a flock of gulls was observed outside the counting zones, generally near the Oregon boat launch, project helicopter pad or roosting on the water. Occasionally, great blue herons were noted roosting on the floating debris or an osprey was noted foraging. One grebe was also observed.

The lasers remained out of service and there is no active hazing program.

The bird distress calls deployed along on the navigation lock wing wall and the second large distress call deployed on the juvenile facility barge loading dock were removed on October 19. Their effectiveness had gradually decreased.

A future LRAD test has not yet been scheduled.

Hazing effort strategies for the spring of 2021 will now be developed.

Invasive Species: The next mussel station examinations will occur on October 25.

Fish Rescue/Salvage: None occurred this week.

Research: Pacific Northwest National Laboratory (PNNL) continued with the adult steelhead TSW passage efficiency study.