U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#20-2022

Project: McNary
Biologist: Bobby Johnson and Paul Bertschinger
Dates: July 15 – July 21, 2022

Turbine Operation

Yes	No	Turbine Unit Status
	X	All 14 turbine units available for service? (See table & comments below for details.)

*All available turbine units are operated in accordance with App. C of the Fish Passage Plan.

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

	OOS		RTS		
Unit(s)	**Date**	**Time**	**Date**	**Time**	**Outage Description**
8	6/6	1002	8/12	N/A	9-year overhaul
6	7/14	1148	7/15	1202	Turbine bearing indicator failed
5	7/18	0630	7/21	1515	Annual maintenance
1, 2 & 3	7/19	1000	7/19	1130	ESBS inspections, rotated through units

Comments: The one percent peak efficiency constraint and unit priority are being followed per the 2022 Fish Passage Plan (FPP). RTS dates are subject to change.

Adult Fish Passage Facilities

The McNary fisheries staff performed measured inspections of the adult fishways on July 15, 17 and 20. In person fish counting and video review of nighttime lamprey passage continued.

Fish Ladder Exits:

Yes	No	Location	Criteria	Measurements
	X	Oregon Exit	Head over weir 1.0’ to 1.3’	0.9’ to 1.0’
X		Oregon Count Station Differential	0.0’ to 0.5’	0.2’
X		Washington Exit	Head over weir 1.0’ to 1.3’	1.0’ to 1.2’
X		Washington Count Station Differential	0.0’ to 0.5’	0.2’ to 0.3’

Comments: Debris loads were very light to moderate near the Oregon exit and minimal to light near the Washington exit. New incoming debris was very light. Most of the debris was residual and moved across the forebay by changes in wind direction. The general maintenance staff cleaned both exits’ picketed leads as needed including the weekend.

The above out of criterion point for the Oregon exit occurred during high forebay elevations on July 20. The issue was resolved the next day with exit weir set point adjustments.

At the Washington shore exit, a regulating weir alarm came in and was reset on July 17. The exit weirs were found out of criteria and were reset on July 18.

Fishway Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Measurements
X			North Oregon Entrance Head Differential	1.0' – 2.0'	1.2' to 1.4'
	X		NFEW2 Weir Depth	≥ 8.0'	7.9' to 8.0'
	X		NFEW3 Weir Depth	≥ 8.0'	7.9' to 8.1'
X			South Oregon Entrance Head Differential	1.0' – 2.0'	1.0' to 1.3'
	X		SFEW1 Weir Depth	≥ 8.0'	7.8' to 8.2'
	X		SFEW2 Weir Depth	≥ 8.0'	7.8' to 8.1'
X			Oregon Collection Channel Velocities	1.5 to 4.0 fps	Averaged 1.9 fps.
X			Washington Entrance Head Differential	1.0' – 2.0'	1.3'
X			WFE2 Weir Depth	≥ 8.0'	9.0' to 9.2'
X			WFE3 Weir Depth	≥ 8.0'	8.2' to 8.3'

Comments: NEFW2, NFEW3 and SFEW1 were out of criteria on July 15. An increase in the fish pumps' blade angle resolved the issue. SFEW2 was out of criterion on July 15 and 17. The later date was possibly due to a slight weir set point drift. WFE3 still requires calibration, and this will occur when the spill season concludes. The weir remains in criterion.

The floating orifice gate in slot W26 was replaced and stoplogs removed on July 20. There are three other slots that still require future gate replacement, W8, W37 and W 41. These gates remain closed.

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			19° to 24°	Oregon Ladder Fish Pump 1
		Yes		Oregon Ladder Fish Pump 2 RTS date is Sept 30, 2022
Yes			19° to 25°	Oregon Ladder Fish Pump 3 RTS on July 6
Yes				OR North Powerhouse Pool supply from juvenile fishway

Comments: Opening the floating orifice gate in slot W26 required very little adjustment of the fish pumps' blade angles. However, to increase the weirs' depth, the fish pumps' blade angles were increased on July 16. Fish pump 2 remains out of service. Repairs are waiting on funding so the return to service date is subject to change.

Juvenile Fish Passage Facility

Every other day sample collection continued with one interruption in the schedule. Due to failure of the rectangular screen brush, one sample day was missed from July 17 at 0700 hours to July 18 at 0700 hours. The brush failure will be discussed in the Collection Channel section below. TSW closure and removal will be discussed below in the TSW section.

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	Moderate to heavy
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 to heavy near the powerhouse and light to heavy beside the spillway. New debris loads were very light to light. Wind direction changes moved the new and residual debris across the forebay. Much of the debris was woody material and aquatic vegetation. A debris spill, which reduced the spill debris for heavy to light, occurred on July 15 and will be discussed below in the River Conditions section.

No trash racks were cleaned this week.

There are no problems to report. An algae bloom continued in 8A slot, which is isolated.

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 all units. Only 8A slot is without a fish screen as the emergency bulkhead remains in the slot with the unit out of service. ESBS camera inspections revealed no issues in units 1, 2 and 3 on July 19.

With unit 2 in standby all week, the faulty relay, which caused the unit's ESBS's to not operate in automatic mode was replaced early in the week.

Daily VBS differential monitoring revealed no high differentials. There was a total of six screens cleaned on July 18 and 21. Also, the screens in unit 7 were inspected on July 21. There were no fish observed during the cleaning and inspections.

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: There was no moisture in the temporary air supply line this week. We continued to bleed off the line on every shift. Orifices were adjusted for VBS cleaning and inspection as required. The orifice in 8A slot remained closed and the 8B slot north orifice remained open due to the emergency bulkhead installed in 8A slot. The south orifice in 3B slot was inspected on July 19. No blockage was found. The orifice was returned to service.

The rectangular screen brush failed on Saturday, July 16, at about 1700 hours and had to be run in manual mode until July 18 at 1430 hours, causing a 24-hour condition sample to be missed. The device was found on the downstream limit with the brush still down. There was no alarm. After multiple failed attempts to park the device upstream with the brush raised, an electrician who happened to be on duty for another issue, examined the unit and determined there was a limit switch issue at about 1930 hours. When a limit switch fails, the control program gets false information on the device's location. The electrician was able to park the unit properly and determined the device could be ran manually by using the individual directional switches. After consultation with the project Operations Chief, it was determined the best course would be to replace the limit switch on Monday, July 18. With the unit not functional in automatic mode, the project biologist determined it would be best to not collect a sample from July 17 at 0700 hours to July 18 at 0700 hours. The fisheries staff would monitor the collection channel instead and run the rectangular screen cleaning brush manually until the device could be repaired, which occurred on July 18 by 1430 hours. An electrician replaced the upstream limit switch, which had begun to come apart and removed a piece of metal that was interfering with another magnetic limit switch. The device was set to run in automatic mode every three hours overnight. No further issues occurred and sample collection along with GBT monitoring resumed on July 19 at 0700 hours.

During the rectangular screen brush issue, the brush cycle sequence was set for every four hours from July 17 to 18. Then, it was set for every three hours from July 18 to 19. After, the sequence was returned to every 6 hours.

The side screen cleaning brush failed on July 20 at 1640 hours. The device had stalled upstream, where the limit switch had failed, resulting in timing alarm. With this device out of service, the other two screen cleaners as tripped timing alarms and did not cycle. An electrician was called. They replaced the limit switch and returned the unit to service at 1745 hours along with clearing the other alarms.

Due to the two side dewatering valves running close to fully open during high forebay elevations, the west and middle floor valves were opened slightly in order to lower the side valves on July 17.

At times, the north side dewatering valve, one of two valves that regulate channel elevation, continued to be observed not running smoothly and will be monitored.

Bypass Facility:

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

Comments: All bypass facility systems functioned well. The sample gates were only on during secondary bypass. The PIT-tag system gates remained off as there is no need for that system.

As stated above, no sample collection occurred due to rectangular screen brush issues from July 17 at 0700 hours to July 18 at 0700 hours. One day of sampling was missed this week.

However, 500 juvenile lamprey and 22,201 smolts, mostly sub-yearling Chinook salmon, were bypassed during secondary bypass. The smolt monitoring staff reports fish data in a separate report.

The facility PIT room air conditioning continued to trip offline and be reset. A new unit has been ordered.

There are no problems to report.

Top Spillway Weir (TSW) Operations: As mentioned last week, the TSW's in spillbays 19 and 20 were closed on July 11 at 1011 hours. Bays 18, 21 and 22 were also closed. Bays 14 to 17 were dogged open for the current spill volume. Remaining spill volume was spread evenly through bays 1 to 13. Work on removing the TSW's and installing standard gates in bays 19 and 20 concluded on July 15 at 0843 hours. All bays returned to operation, which is further discussed below. Also, bay 6 was closed down to four feet from six feet.

River Conditions

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
246.6	219.4	138.4	125.7	66.5	64.6	6.0	6.0

Comments: The above data is provided by the smolt monitoring staff except water clarity, which comes from the control room. The data day runs from 0700 to 0700 hours. The summer spill program continued. However, due to the TSW removal mentioned above, spill was slightly below 57 percent on data day, July 15.

After completion of switching bays 19 and 20 from the TSW's to standard gates on July 15, project personal thought it prudent to spill debris along the spillway before it could migrate to the powerhouse. The debris spill began at 1043 hours. Debris was passed through bays 5, 7, 8 and 9 on a rotational basis using split leaf configuration.

During the process, bays 4, 8, 10 and 11 were on sill on a rotational basis, which helped pass debris. The progression was completed at 1412 hours with a normal spill pattern being restored. During the debris removal, the operator managed spill volume through the other available bays. The debris load along the spillway was reduced from heavy to light.

After the debris spill on July 15, the hoist in bay 19 had an issue with its GDACS indication, which was proportionally off compared to the local position. The bay was taken off GDACS and adjusted manually as required. After work, which will be described below, and no resolution to the issue, the gate in bay 19 was dogged at five feet open on July 20.

The hoist in bay 20 requires the upper and lower limits to be calibrated. To ensure the integrity of the hoist and gate, the gate was put on seal on July 20 at 1520 hours. The general maintenance and electrical staffs will reset the limits on July 25 and return the hoist along with the bay to service.

The motor/gearbox coupling on the hoist in bay 21 failed on July 20 at 1459 hours. The brakes applied but could not stop the load. The gate went from 3.8 feet open to seal, where it remains, in about 26 seconds. The hoist was examined on July 21 from 1016 to 1635 hours. During this time, bay 22 was closed for safety. The hoist ‘s slack cable was pick up and work on the coupler began. So, the brakes, which are asbestos, can be repaired, the hoist will be removed on July 25. Also, crane 6 will be used to test the gate load and dog open the gate at 3 feet on July 26. The project engineer expects bay 21’s hoist to be out of service for at least a couple weeks.

While bays 20 and 21 are out of service, spill will be distributed evenly through the remaining bays with functional hoist.

The two spillway cranes can no longer be operated remotely. A crane operator is required to open any gate attached to the cranes. Both cranes are in service and can be used in a limited bases for the spill program in locations where a hoist is not available.

The hoist in bay 6 has a failed gearbox. Due to this being a large contract and a specialty item, the hoist’s return to service date could be as late as December. There are also issues with the hoist in bay 14. As mentioned above, there is a GDACS issue for bay 19. Therefore, bays 2, 6, 14, 16 and 19 have the gates dogged open and require a crane for adjustment along with bays 20 and 21 on seal.

Due to the issues with cranes and hoists, the project staff is examining an alternate way to use hoists and still provide spill as hoist rehabilitation will require approximately 10 years to complete.

Project wide temperature monitoring continued. The data will be published in separate daily and weekly reports by the smolt monitoring staff.

Other

Inline Cooling Water Strainers: The next cooling water strainer inspections will occur on August 2.

Avian Activity: Recording avian counts continued. These counts are reflected in the Table below.

McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican	Grebe
July 15	Spill	0	0	0	28	0
	Powerhouse	0	0	0	19	0
	Outfall	0	4	0	0	0
	Forebay	2	0	0	0	9
July 16	Spill	0	0	0	22	0
	Powerhouse	0	0	0	17	0
	Outfall	4	0	0	0	0
	Forebay	0	0	0	1	4
July 17	Spill	0	0	1	26	0
	Powerhouse	0	0	0	8	0
	Outfall	5	13	0	0	0
	Forebay	22	0	0	0	10
July 18	Spill	0	0	0	22	0
	Powerhouse	0	0	0	6	0
	Outfall	3	8	0	0	0
	Forebay	4	0	0	0	17
July 19	Spill	0	0	2	16	0
	Powerhouse	0	0	0	5	0
	Outfall	0	11	0	0	0
	Forebay	7	0	0	1	3
July 20	Spill	1	0	0	9	0
	Powerhouse	0	0	0	5	0
	Outfall	5	21	1	0	0
	Forebay	5	0	0	0	3
July 21	Spill	0	0	0	21	0
	Powerhouse	0	0	0	7	0
	Outfall	0	3	0	0	0
	Forebay	2	0	0	1	2

For the outfall, the LRAD still requires sounds to be programmed into the system and parts are on order for the laser.

The navigation lock wing wall laser, which is aimed at the outfall, remains in service along with the two large bird distress calls. USDA Wildlife Services daily shore hazing continues until July 23. USDA began hazing pelicans that enter the adult fish ladders on July 16. The hazing was very effective.

In the spillway zone, pelican numbers remained fairly high. A few terns and one gull were also noted.

In the powerhouse zone, pelican numbers decreased as hazing the Oregon ladder began.

In the bypass outfall zone, gull and cormorant numbers increased slight with birds roosting along with one tern.

In the forebay zone, juvenile gulls, pelicans, and grebes were observed. Outside the zone, a few gulls, a tern, a couple of ospreys, a few cormorants, grebes, and pelicans were noted.

Early in the week, seven pelicans were noted in the Oregon ladder's south pool and three pelicans were observed in the Washington shore ladder's sharp bend.

No grebes entered the gatewell slots this week.

Invasive Species: The mussel station examinations will occur on July 24.

Siberian Prawn: No Siberian prawns were removed from the sample this week. None have been seen this year.

Fish Rescue/Salvage: No fish rescue occurred this week.

Research: For a CRITFC study, there were tissue samples removed from five juvenile lamprey collected at the facility this week. For the season, a total of 628 juvenile lampreys have been sampled. All fish were returned to the river unharmed.

Gas bubble trauma examinations occurred on July 15, 19 and 21. Fish are recorded on the next data day. For the report week, no smolt were observed with signs of trauma.

Project: Ice Harbor
Fisheries Biologist: Ken Fone Maintenance Worker: AJ Chavez

Turbine Operation

Yes	No	Turbine Unit Status
	x	All 6 turbine units available for service (see table & comments below for details).

*All available turbine units are operated in accordance with App. C of the Fish Passage Plan.

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
2	7/11/22	0750	---	---	Doble testing, annual maintenance, cavitation repair

Comments: Units 6, 5, 4, and 1 were taken out of service one at a time for STS inspections on July 19 and 20.

Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on July 19, 20, and 21.

Fish Ladders:

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

Fishway Entrances and Collection Channel:

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

Comments: None.

Auxiliary Water Supply System:

Operating Satisfactory	Standby	Out of Service	Auxiliary Water Supply (AWS) System
5-6 pumps	1-2 pumps	0-1 pumps	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 #7 was out of service from June 14 to July 19 to replace the lower gearbox seal.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
x			Forebay debris load acceptable? (amount)	Average of 23 square yards
x			Gatewell drawdown measured this week?	
x			Gatewell drawdown acceptable	
x			Any debris seen in gatewells (% coverage)	0-23% coverage
	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 that are in service?
	x		STSs in continuous-run mode (Note: if not, then STSs are in cycle-run mode)?
x			STSs/VBSs inspected this week?
x			STS/VBS inspection results acceptable?
		x	VBS differentials checked this week?
		x	VBS differentials acceptable?

Comments: Unit 6, 5, 4, 2, and 1 STSs and Unit 2 VBSs were inspected on July 19 and 20. There were no significant problems found.

Orifices, Collection Channel, Dewatering Structure, and Flume:

Yes	No	NA	Item	Number open and in service
x			Orifices operating satisfactory?	20-21
	x		Dewaterer and cleaning systems operating satisfactory?	

Comments: The actuator for the water regulating weirs in the collection channel is in local control due to a problem with the automatic control function. The weirs are being operated at the actuator to adjust the water level as needed until the problem can be fixed.

Juvenile Fish Facility: The fish facility is operating in primary bypass mode except when collecting fish for sampling.

Fish Sampling: Fish condition sampling concluded for the season on July 18. See the table below for a summary of the sampling results. Approximately 6% of fish in the sample exhibited fin hemorrhaging, with the most of the Incidences likely symptomatic of disease. Seven fish had scrapes on the belly or side of the body. There were no debris obstruction at the orifices or in the flumes and there were no increased differentials across the unit trash racks from the baseline readings. Regular inspections of fish passage routes for the debris or equipment problems will continue.

Fish condition sampling results at Ice Harbor Dam:

Date: July 18

Species, Run, Rear type	Sampled	#Descaled	Morts	Avian Marks
Chinook yearling clipped	0	---	---	---
Chinook yearling unclipped	0	---	---	---
Chinook subyearling clipped	31	1	0	0
Chinook subyearling unclipped	65	1	0	0
Steelhead clipped	0	---	---	---
Steelhead unclipped	0	---	---	---
Sockeye clipped	0	---	---	---
Sockeye unclipped	0	---	---	---
Coho clipped	0	---	---	---
Coho unclipped	0	---	---	---
Total	96	2	0	0

Removable Spillway Weir (RSW): Summer spill for fish passage is occurring.

River Conditions

River conditions at Ice Harbor Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (°F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
45.2	36.5	13.4	10.8	67	66	8.9	7.0

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Cooling water strainers on unit's 1, 2, 4, 5, and 6 were inspected on July 18. There was a total of 1 juvenile lamprey mortalities and 1 unidentifiable decomposing fish found.

Avian Activity: There were moderate numbers of piscivorous birds observed around the project (see table below). Most of the birds were observed foraging downstream of the spillway and near the upstream tip of Eagle Island.

Daily maximum piscivorous bird counts at Ice Harbor Dam.

Date	Gulls	Cormorants	Caspian Terns	Grebes	Pelicans
July 15	---	---	---	---	---
July 16	---	---	---	---	---
July 17	---	---	---	---	---
July 18	24	3	16	6	5
July 19	25	3	19	0	7
July 20	7	0	21	0	10
July 21	2	0	11	0	11

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

Siberian Prawn: Siberian prawns collected in the sample at the Juvenile Fish Facility are humanely euthanized by the fish sampling contractor, 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*
July 18	0	0
Totals	0	0

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

Fish Rescue/Salvage: None.

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

Project: Lower Monumental
Biologists: Denise Griffith and Raymond Addis

Turbine Operation

Yes	No	Turbine Unit Status
	X	All 6 turbine units available for service (see table & comments below for details).

* All available turbine units are operated in accordance with App. C of the Fish Passage Plan.

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

	OOS		RTS		
Unit	**Date**	**Time**	**Date**	**Time**	**Outage Description**
Unit 1	7/19/2022	1403	7/19/2022	1625	Trash Rack Raking
Unit 1	7/20/2022	0933	7/20/2022	1220	Trash Rack Raking
Unit 2	7/19/2022	1033	7/19/2022	1620	Trash Rack Raking
Unit 2	7/20/2022	0927	7/20/2022	1220	Trash Rack Raking
Unit 3	7/19/2022	0727	7/19/2022	1340	Trash Rack Raking
Unit 4	7/19/2022	0735	7/19/2022	1017	Trash Rack Raking
Unit 5	06/13/2022	0805	7/28/2022	ERTS	6 Year Overhaul

Comments: None.

Adult Fish Passage Facility

The adult fishways were inspected by Army Corps and EAS biologists July 15, 16, 17 and 19. The backboard for the adult fish count window was also cleaned on July 20.

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	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: The south powerhouse entrance weir (SPE-1) was on sill during all inspections with readings 5.8, 5.5, 6.3 and 5.9 feet, respectively. The south powerhouse entrance weir (SPE-2) was on sill during all inspections with readings 5.8, 5.5, 6.3 and 5.9 feet, respectively. The south shore entrance weir (SSE-1) was on sill during all inspections with readings 6.5, 6.4, 6.9 and 6.6 feet, respectively. South powerhouse tailwater staff gauge's, SG9N, frame was found loose on the April 13 inspections. If the gauge remains unreadable, readings will be taken from the digital readings. The project is looking into new staff gauges, so they can be ordered and installed during the winter maintenance period. The staff gauges at the north and south ladder were both cleaned on July 20.

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 pump RPMs were decreased by the operator July 21, 2022.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comments
X			Forebay debris load acceptable? (amount)	5 yds^2
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: Trash racks were raked on July 19-20. Approximately 30 yards of debris was removed from the trash racks, with the heaviest amounts pulled from unit 1 and 2. The majority of the debris consisted of logs and sticks.

STSs/VBSs:

Yes	No	NA	Item
X			STSs deployed and in service in operating and available units?
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: The STSs were running in Cycle-Run mode throughout this reporting period due to average sub-yearling Chinook salmon and sockeye salmon 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?	18
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: A high water alarm came in on July 21. Adjustments were made to the water level at the PDS.

Collection Facility: Sampling for condition on alternating days began July 7. The facility was placed into Primary Bypass on non-sample days. A total of 976 fish were collected with 975 fish bypassed back to the river during this reporting period. Collection for every-other day truck transport is scheduled to begin on August 1.

Transport Summary: Truck transport scheduled to begin in August.

Spillway: Summer spill began at 0000 on June 21.

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
44.7	35.8	17.2	169	68.0	66.5	7.0	5.9

*Scrollcase temperatures.

Other

Cooling Water Strainers: Cooling water strainers inspection will occur in August.

Avian Activity: Highest daily counts of piscivorous birds in all zones combined at Lower Monumental Dam are reported in the table below.

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
7/15/2022	830	53	9	16	0	17
7/16/2022	1230	9	8	8	0	9
7/17/2022	1230	32	9	13	0	13
7/18/2022	950	80	16	27	0	14
7/19/2022	815	38	8	13	0	15
7/20/2022	815	29	12	25	0	22
7/21/2022	800	40	5	22	0	17

Comments: Piscivorous bird observations are occurring daily. Birds were also hazed from the entrance of the North ladder. The outfall bird cannon functioned efficiently this week. JFF personnel have been performing bird hazing activities during the day, due to larger than normal numbers of piscivorous birds feeding in the tailrace area and in the adult fishways.

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

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

Research: GBT examinations occurred on July 19. A total of 7 clipped and 13 unclipped subyearling smolts were examined. No gas bubble trauma was detected.

Nez Perce removed the equipment used for the steelhead kelt study on July 20, except for the tank, which will remain on project until next seasons study begins.

Project: Little Goose
Biologists: Chuck Barnes and Deborah Snyder

Turbine Operation

Yes	No	Turbine Unit Status
	X	All 6 turbine units available for service (see table & comments below for details).

*All available turbine units are operated in accordance with App. C of the Fish Passage Plan.

Little Goose Unit Outages (OOS) and Return to Service (RTS)

	OOS		RTS		
Unit	Date	Time	Date	Time	Outage Description
4	07/11/2022	10:34	07/29/2022	17:00	Unit Annual Maintenance
5	4/14/2017	14:11	12/31/2022	ERTS	Spider and upper guide bearing repair.
6	4/18/22	5:10	12/31/2022	ERTS	Rooftop replacement / BUS work replacement

Comments: Previously reported Unit 6 RTS date of 4/21/2022 pertained to station service only, the anticipated RTS for regular service is 12/31/2022.

Adult Fish Passage Facility

EAS Bio and USACE staff inspected the adult Fishway on July 17, July 19, and July 21.

Fish Ladder:

Yes	No	NA	Location	Criteria	Measurements
X			Fish Ladder Exit Differential	Head ≤ 0.5’	
X			Fish Ladder Picketed Lead Differential	Head ≤ 0.3’	
X			Fish Ladder Depth over Weirs	Head over weir 1.0’ to 1.3’	
X			Fish Ladder Cooling Water Pumps in Service		
X			Fish Ladder 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	≥ 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	
		X	North Powerhouse Entrance (NPE-2) Weir Depth	≥ 7.0’ or on sill	
X			North Powerhouse Entrance Channel/Tailwater Differential	1.0’–2.0’	
X	X		North Shore Entrance (NSE-1) Weir Depth	≥ 6.0’ or on sill	7/19 – 5.4
X	X		North Shore Entrance (NSE-2) Weir Depth	≥ 6.0’ or on sill	7/19 – 5.7
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	
X			Collection Channel Surface Velocity	1.5 – 4.0 fps	

Comments: The adult fishway was returned to service on February 8 with AWS pumps returning to service on February 24. The NSE channel/tailwater differential and NSE weir depths were manually measured, adjusted, and monitored into criteria from February 24 through March 1. The fishway Fish System Control (FSC) was recommissioned on May 5 with NSE weir reading anomalies. Both NSE weirs 1 and 2 failed criteria during the July 19 inspection. Both weir targets enabling the FSC system to accurately read and automatically adjust weir heights were compromised during emergency flood control measures in June, repairs are pending. The Fish Ladder Exit Cooling Water Pump was replaced, installed, and readied for service on April 23. Criteria requiring the

activation of the Fish Ladder Exit Cooling Pump was met during the night hours of June 26, and the system was started at 0800 hours on June 27.

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, 2, and 3 were returned to service February 24.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil:

Yes	No	NA	Item	Comment
X			Forebay debris load acceptable? (amount)	High 62ft² - Low 0ft²
	X		Gatewell drawdown measured this week?	
		X	Gatewell drawdown acceptable	
	X		Any debris seen in gatewells (% coverage)	
	X		Any oil seen in gatewells?	

Comments: The forebay had minimal floating debris inside the trash shear boom.

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: Installation of ESBS's began March 21 with most units completed on March 22. Units 1 and 2 differentials were checked on July 14. ESBS and VBS camera inspections for Unit 4 were completed July 21.

Orifices, Collection Channel, Dewatering Structure, and Flume:

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

Comments: The juvenile bypass system was watered up March 23.

Collection Facility: The juvenile collection facility completed water up activities on March 29. Every-other-day collection for condition monitoring in conjunction with secondary bypass commenced on April 1 with the first sample being conducted on April 2. Everyday collection began April 23 coinciding with every-other-day barge transportation. A total of 18,793 fish were collected, 18,770 were bypassed, and there were 23 sample or facility mortalities. The descaling and mortality rates were 0.6% and 0.12%, respectively. One adult lamprey was removed from the separator during this report period. The collection and transport facility operated within criteria this report

period, initiating every-other-day primary bypass on July 21 due to water temperatures above 68◦F. Primary bypass and every other day collection are scheduled to continue through July 30.

Transport Summary: Collection for fish transportation began April 23 with the first barge departure on April 24. Every other day barging transitioned to every day barging on May 16 due to an increase in fish numbers. Every other day barging resumed on May 24. Barge transportation for the season ended with the final barge departure of June 19.

Spillway Weir: Little Goose began operation of the adjustable spillway weir (ASW) on March 2 to facilitate passage of adult steelhead overshoots. Operation occurred three days each week on non-consecutive days for four hours in the morning on Tuesday, Thursday and Sunday each week, through March 31. Spring spill operations began as scheduled on April 3 with the ASW in high crest. The ASW was positioned in low crest on May 28. Summer spill operations began as scheduled on June 21, and the ASW was repositioned into high crest on June 28.

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
44.0	35.8	13.1	10.8	68.6	67.0	6.0	6.0

*Flow data received from powerhouse operations due to USACE daily flow data website being down.
**Ladder temperature.

Other

Inline Cooling Water Strainers: Inline cooling strainer inspections commenced on December 9, 2021. Inspections will continue in accordance with the Fish Passage Plan (FPP) and results will be submitted to the District.

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

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
7-15	8:30	2	1	0	4
7-16	8:30	6	1	0	3
7-17	8:30	7	0	0	4
7-18	13:50	98	0	0	2
7-19	8:00	14	1	0	1
7-20	8:00	28	0	0	3
7-21	12:30	20	1	0	0

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

Siberian Prawn: Juvenile fish collection began 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 listed below.

Date	Sample	Collection
7-15	54	432
7-16	20	160
7-17	38	380
7-18	63	630
7-19	65	520
7-20	32	640
7-21	29	290
Totals	301	3052

Gas Bubble Trauma (GBT): GBT monitoring occurred July 20. Of the 102 fish examined, 2 fish exhibited signs of GBT.

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

Research: The Nez Perce Tribe (NPT) began adult steelhead kelt collection efforts on April 1 and concluded June 29.

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).

*All available turbine units are operated in accordance with App. C of the Fish Passage Plan.

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

	OOS		RTS		
Unit	Date	Time	Date	Time	Outage Description
4	7/11	0733			Annual Maintenance

Comments: None.

Adult Fish Passage Facility

Lower Granite Biologists and Anchor QEA staff inspected the adult fishway on July 15, 16, 18, and 20.

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: The fish ladder cooling water pumps are in operation. The fish ladder temperature probes and system were upgraded over the winter outage season. NWW and NWD continues working on the issue with only some sensor readings available online. HOBO ladder temperature data for the week is included at the end of this report (Figure 1).

Fish Ladder Entrances and Collection Channel:

Yes	No	Sill	Location	Criteria	Comments
	X		South Shore Entrance (SSE-1) Weir Depth	≥ 8.0’	7.8’
	X		South Shore Entrance (SSE-2) Weir Depth	≥ 8.0’	7.8’
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	6.7’, 6.8’
	X		North Shore Entrance (NSE-2) Weir Depth	≥ 7.0’ or on sill	6.3’, 6.8’
X			North Shore Channel/Tailwater Differential	1.0’–2.0’	
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. Although both NSEs and all four FOGs are in operation, the north shore has not consistently met channel/tailwater head differential criteria which seems to be related to the operations of all four FOGs.

Auxiliary Water Supply System:

Operating Satisfactorily	Standby	Out of Service	Auxiliary Water Supply (AWS)
	X		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)	61.7 yds²
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: Gatewells are inspected for foreign substances and debris quantity and removal daily.

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?	
X			Dewaterer and cleaning systems operating satisfactory?	

Comments: None.

Collection Facility: The juvenile facility is collecting for condition sample in secondary bypass mode. There were 9,197 fish bypassed to the river this week.

Transport Summary: N/A

Spillway Weir: Summer spill continues. There were 105,494 juvenile and 167 PIT-tagged adult Chinook salmon, 72,835 juvenile and 493 adult PIT-tagged steelhead, 10,815 juvenile and 3 adult sockeye salmon, and 4,064 juvenile coho salmon detected over the RSW spillway since March 1. There have been 35,454 juvenile and 16 adult Chinook salmon, 18,075 juvenile and 84 adult steelhead, 2,112 juvenile sockeye salmon, and 950 juvenile coho salmon detected at the JBS full flow PIT tag detection array since March 14 (DART).

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
45.0	36.3	18.7	17.8	66.0	64.5	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 2,506 Siberian prawn in the condition sample this report week.

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

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
July 15	1052	1	6	0	0
July 16	0930	0	0	0	1
July 17	1015	0	3	0	0
July 18	1015	4	5	0	0
July 19	1335	0	4	1	0
July 20	1446	0	5	0	0
July 21	1320	0	3	1	0

Gas Bubble Trauma (GBT) Monitoring: N/A

Adult Fish Trap Operations: The adult trap is operating Monday through Friday at a 20% (18%/week) sample rate.

Fish Rescue/Salvage: N/A

Research:

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

The goal of this project is to PIT tag up to 4000 unclipped adult Chinook salmon 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. 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.

Columbia River Inter-Tribal Fisheries Commission (CRITFC) Pacific Lamprey Genetic Study:

CRITFC has requested that the SMP collect non-lethal tissue samples from up to 1,000 juvenile and 2,230 larval Pacific lamprey, not to exceed 20 juvenile or 10 larvae daily, during the routine smolt monitor condition sampling from March through October. The purpose of this study is to fill two objectives; 1) Determine relative proportion of translocation offspring among the total abundance of larval and juvenile lamprey passing the juvenile bypass systems at BON, JDA, MCN, and LWG. 2) Describe life history characteristics of larval and juvenile lamprey emigrating from the Columbia and Snake River basins. The genetic information collected will be used to evaluate the tribal Pacific lamprey programs efficacy and assist with guiding future management. There have been 523 macrophthalmia (juvenile) and 1060 ammocoete (larval) lamprey samples have been collected this season.

Idaho Power Hells Canyon Sturgeon Recruitment:

LWG Corps bio techs continue collecting passage and estimated lengths and of White Sturgeon prior to removing them from the separator in support of Idaho Power Sturgeon program.

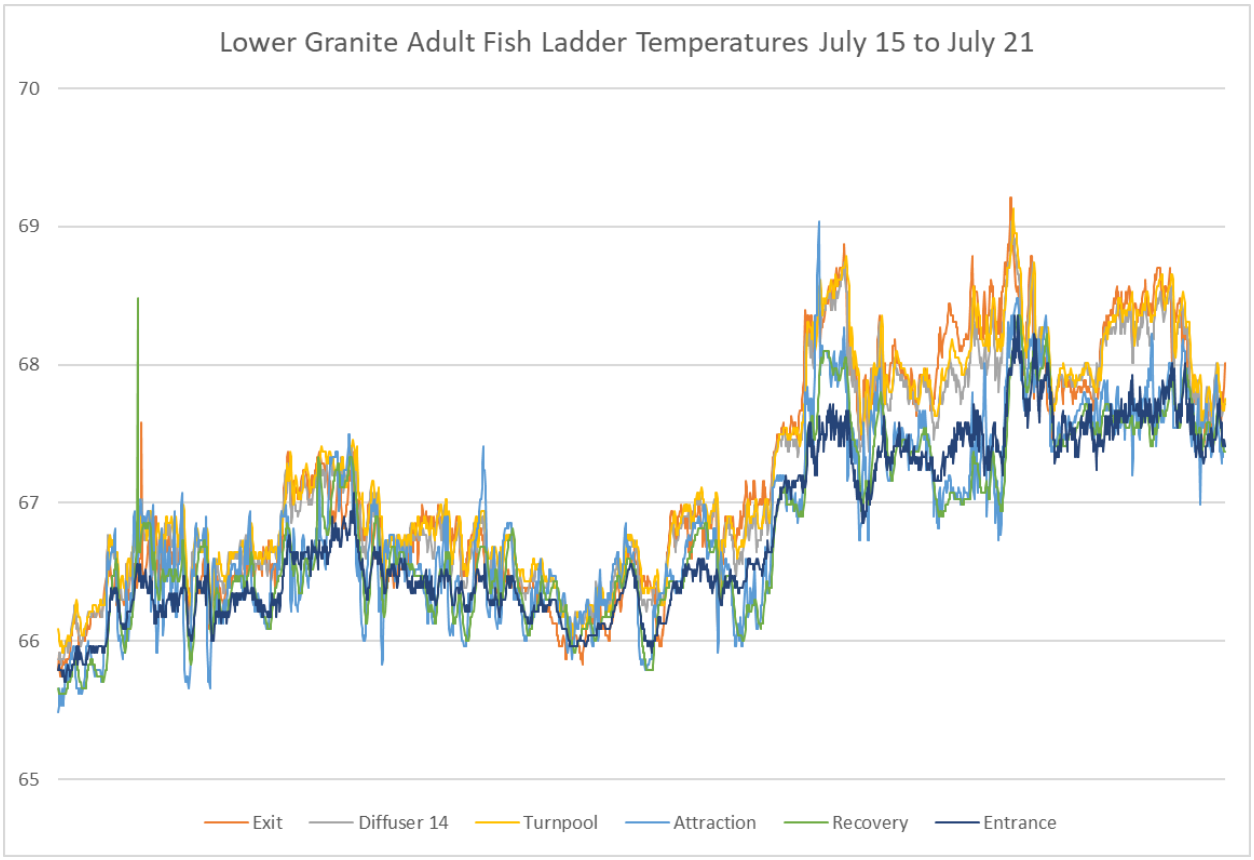

Figure 1. Lower Granite Dam adult fish ladder temperatures July 15 to July 21, 2022.