**U.S. ARMY CORPS OF ENGINEERS**
**WALLA WALLA DISTRICT**
**FISH FACILITIES WEEKLY REPORT**
**#26-2022**

**Project: McNary**
Biologist: Bobby Johnson and Paul Bertschinger
Dates: August 26-September 1, 2022

## Turbine Operation

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

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

| | OOS | | RTS | | |
|---|---|---|---|---|---|
| **Unit(s)** | **Date** | **Time** | **Date** | **Time** | **Outage Description** |
| 8 | 6/6 | 1002 | 9/15 | N/A | Transformer gaskets (T4) |
| 7 | 8/4 | 0635 | 9/15 | N/A | Transformer gaskets (T4) |
| 11 & 12 | 8/30 | 1000 | 8/30 | 1100 | ESBS inspections, rotated through units |
| 1 & 2 | 8/31 | 0931 | 8/31 | 1211 | Trash rack cleaning |

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. The sawtooth unit priority pattern for temperature abatement continued.

## Adult Fish Passage Facilities

The McNary fisheries staff performed measured inspections of the adult fishways on August 26, 28 and September 1. In-person fish counting and video review of nighttime lamprey passage continued. The Oregon north tailwater temperature sensor is scheduled to be replaced on September 8.

Fish Ladder Exits:

| Yes | No | Location | Criteria | Measurements |
|---|---|---|---|---|
| X | | Oregon Exit | Head over weir 1.0’ to 1.3’ | 1.0’ to 1.1’ |
| X | | Oregon Count Station Differential | 0.0’ to 0.5’ | 0.2’ to 0.3’ |
| X | | Washington Exit | Head over weir 1.0’ to 1.3’ | 1.1’ 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 light near the Oregon exit and minimal to very light near the Washington exit. Most of the debris was residual and circulated from the powerhouse to the Oregon shore depending on the wind direction. The general maintenance staff cleaned both exits’ picketed leads as needed including the weekend. count station backboards were cleaned as needed.

At the Oregon shore exit, one traveling screen alarm came on and was reset on September 1.

At the Washington shore exit, one regulating weir alarm came on and was reset on August 28. Also, picketed lead differential and weir alarms came on August 31. These were resolved after the picketed leads were cleaned.

Fishway Entrances and Collection Channel:

| Yes | No | Sill | Location | Criteria | Measurements |
|---|---|---|---|---|---|
| X | | | North Oregon Entrance Head Differential | 1.0' – 2.0' | 1.3' to 1.5' |
| | X | | NFEW2 Weir Depth | ≥ 8.0' | 7.9' to 8.1' |
| X | | | NFEW3 Weir Depth | ≥ 8.0' | 8.0' to 8.3' |
| X | | | South Oregon Entrance Head Differential | 1.0' – 2.0' | 1.2' to 1.3' |
| | X | | SFEW1 Weir Depth | ≥ 8.0' | 7.9' to 8.1' |
| X | | | SFEW2 Weir Depth | ≥ 8.0' | 8.0' 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' to 1.4' |
| X | | | WFE2 Weir Depth | ≥ 8.0' | 9.9' to 10.1' |
| X | | | WFE3 Weir Depth | ≥ 8.0' | 9.1' to 9.3' |

Comments: The above Oregon ladder out-of-criteria points were possibly due to set point drifts on August 28. WFE3 continues to require calibration, and this will occur in the near future. Currently, the weirs depth is being estimated and appears to be in criterion.

There are two floating orifice gate (FOG) slots that require future replacement, W37 and W41. These slots remain closed. A new gate was installed in slot W8 on September 1. Ten of 12 slots are now open.

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° to 24° | Oregon Ladder Fish Pump 1 |
| | | Yes | | Oregon Ladder Fish Pump 2 RTS date is Sept 30, 2022 |
| Yes | | | 23° | Oregon Ladder Fish Pump 3 |
| Yes | | | | OR North Powerhouse Pool supply from juvenile fishway |

Comments: Fish pump 2 remains out of service. Repairs are waiting on funding so the return to service date is subject to change. Fish pump 1's blade angle was slightly increased when the FOG was installed in W8 slot on September 1.

## Juvenile Fish Passage Facility

Every other day sample collection continued with no interruptions in the schedule.

Forebay Debris/Gatewell Debris/Oil:

| Yes | No | NA | Item | Comments |
|---|---|---|---|---|
| X | | | Forebay debris load acceptable? (amount) | Light to 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 light to moderate near the powerhouse. Wind direction changes moved the residual debris across the forebay from the powerhouse to the Oregon shore and back. Debris loads beside the spillway were minimal. New debris loads were minimal. Much of the debris was woody material and aquatic vegetation.

The trash racks were cleaned in units 1 and 2 on August 31. Fifteen yards of mostly aquatic vegetation were removed. No fish were observed.

Ten yards of surface trash near units 1 and 2 were removed on September 1. This was woody material, and no fish were observed.

An ESBS rope was removed from the orifice in 2A slot on August 31.

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. ESBS camera inspections revealed no issues in units 11 and 12 on August 30. There are no problems to report.

Daily VBS differential monitoring revealed one high differential. This screen and 15 others were cleaned on August 26, 31 and September 1. 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 | | | Dewatering and cleaning systems operating satisfactory? | |

Comments: There was no moisture in the temporary air supply line this week. A small amount of oil has been noted in the air supply line, which is probably from previous powerhouse compressor work. We continued to bleed off the line on every shift. Orifices were adjusted for VBS and trash rack cleaning along removal of the ESBS rope mentioned above. Orifice attraction light was repaired as required.

The side screen cleaning brush tripped an alarm on August 31 at 1359 hours. There was no issue found that would have caused the timing alarm. Once, later in the day, the device was noted to be jerking upstream and downstream briefly. It is suspected the alarm and this moment was caused by debris.

All channel systems functioned satisfactorily. The spill closure resulted in no debris issues on September 1, at 0003 hours.

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.

This week, 100 juvenile lamprey and 3,891 smolts, all sub-yearling Chinook salmon, were bypassed during secondary bypass. Juvenile shad, when peaking, became the predominant species on August 9. The smolt monitoring staff reports fish data in a separate report.

The facility PIT room air conditioning continued to trip offline and be reset. The new unit is installed with only electrical work to be completed.

Top Spillway Weir (TSW) Operations: Spillbay 19 currently has a standard spillgate installed. In order to install the TSW in bay 20, the spill will be switched from the south side of the spillway to the north side on August 28, from 1230 to 1430 hours, as coordinated with FPOM. The TSW was installed in bay 20 with hoist limits set, from August 29 at 0730 hours to August 30 at 1240 hours. The TSW was ready for adult fallbacks before September 1.

## 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 |
| 165.6 | 125.0 | 20.4 | 14.2 | 72.3 | 70.4 | 6.0 | 5.0 |

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 on September 1 at 0003 hours, when the spillway was fully closed. As mentioned above, the spill was moved to northern bays on August 28 and the TSW was installed.

Crane 7 is currently out of service for gear box replacement. Once that work is completed, electrical work will resume on crane 6, which is currently available. With limited crane use and hoist issues previously discussed, crane 6 is required in order to move the gates in bays 2, 6, and 16. The hoist for bay 6 is still out of service until December at the earliest.

Project wide temperature monitoring concluded on August 31. The data will be published in an annual report in the near future by the smolt monitoring staff.

## Other

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

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

For the outfall, the LRAD has been in place. There appeared to be a partial response from the roosting birds. However, more sounds need to be tested. Ordering parts for the laser had to be delayed until the next fiscal year.

The navigation lock wing wall laser, which is aimed at the outfall, remains in service along with the two large bird distress calls. There was no other hazing.

In the spillway zone, gulls were roosting or feeding in fairly low numbers along with an occasional cormorant, pelican, or osprey. When testing the TSW, the gulls moved to that flow to feed. Feeding concluded with the spill closure.

In the powerhouse zone, with the spill closure, gulls moved here to feed. One great blue heron was observed.

In the bypass outfall zone, gull and cormorant numbers increased slightly with most of the birds roosting. Also, one osprey was noted roosting.

In the forebay zone, a few scavenging juvenile gulls along with an occasional cormorant, great blue heron and grebe were observed. Outside the zone, small gull flocks, a couple of ospreys and a few cormorants were noted.

No pelicans were observed in the ladders and no grebes entered the gatewell slots this week.

Table 3. McNary Project's Daily Avian Count.

| Date | Zone | Gull | Cormorant | Tern | Pelican | Grebe |
|---|---|---|---|---|---|---|
| August 26 | Spill | 0 | 0 | 0 | 0 | 0 |
| | Powerhouse | 0 | 0 | 0 | 0 | 0 |
| | Outfall | 7 | 6 | 0 | 0 | 0 |
| | Forebay | 2 | 0 | 0 | 0 | 0 |
| August 27 | Spill | 37 | 0 | 0 | 1 | 0 |
| | Powerhouse | 0 | 0 | 0 | 0 | 0 |
| | Outfall | 13 | 10 | 0 | 0 | 0 |
| | Forebay | 7 | 0 | 0 | 0 | 0 |
| August 28 | Spill | 0 | 0 | 0 | 0 | 0 |
| | Powerhouse | 0 | 0 | 0 | 0 | 0 |
| | Outfall | 0 | 9 | 0 | 0 | 0 |
| | Forebay | 4 | 0 | 0 | 0 | 0 |
| August 29 | Spill | 30 | 3 | 0 | 0 | 0 |
| | Powerhouse | 0 | 0 | 0 | 0 | 0 |
| | Outfall | 32 | 9 | 0 | 0 | 0 |
| | Forebay | 0 | 3 | 0 | 0 | 0 |
| August 30 | Spill | 0 | 0 | 0 | 0 | 0 |
| | Powerhouse | 0 | 0 | 0 | 0 | 0 |
| | Outfall | 5 | 11 | 0 | 0 | 0 |
| | Forebay | 3 | 0 | 0 | 0 | 2 |
| August 31 | Spill | 35 | 1 | 0 | 0 | 0 |
| | Powerhouse | 0 | 0 | 0 | 0 | 0 |
| | Outfall | 15 | 4 | 0 | 0 | 0 |
| | Forebay | 1 | 0 | 0 | 0 | 0 |
| September 1 | Spill | 0 | 0 | 0 | 0 | 0 |
| | Powerhouse | 27 | 0 | 0 | 0 | 0 |
| | Outfall | 29 | 3 | 0 | 0 | 0 |
| | Forebay | 0 | 0 | 0 | 0 | 0 |

Invasive Species: The next mussel station examinations will occur in late September.

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 six juvenile lamprey collected at the facility this week. For the season, a total of 677 juvenile lampreys have been sampled. All fish were returned to the river unharmed.

The last gas bubble trauma examinations occurred on August 30. Fish are recorded on the next data day. For the report week, no smolt were observed with signs of trauma. Two mortalities were removed from the sample recovery raceway before the examined fish were released.

**Project: Ice Harbor**
Biologist: Ken Fone
Dates: August 26 - September 1, 2022

## Turbine Operation

| Yes | No | Turbine Unit Status |
|---|---|---|
| | x | All 6 turbine units available for service (see table & comments below for details). |
| x | | All available turbine units are operated in accordance with Appendix 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 |

Comments: None.

## Adult Fish Passage Facility

Ice Harbor Fish Facility staff inspected the adult fishways on August 27, 29, and September 1.

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 (AWS) System:

| Operating Satisfactory | Standby | Out of Service | Auxiliary Water Supply System (AWS) |
|---|---|---|---|
| 5 pumps | 3 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 40 square yards |
| x | | | Gatewell drawdown measured this week? | |
| x | | | Gatewell drawdown acceptable | |
| x | | | Any debris seen in gatewells (% coverage) | 0-5% coverage |
| x | | | Any oil seen in gatewells? | 5C |

Comments: Oil sheens were observed in headgate and gatewell slots 5C on September 1. Oil absorbent booms were immediately deployed. Maintenance personnel estimated that 1-2 cups of hydraulic oil leaked past an isolation valve on the headgate cylinder. The oil leak to the water was secured and the isolation valve will be repaired. The appropriate state and federal agencies were notified of the oil spill.

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 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: 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.

Fish Sampling: Juvenile fish sampling is done for the season.

Removable Spillway Weir (RSW): Summer spill for fish passage ended at 2351 hours on August 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 |
| 27.8 | 22.3 | 8.4 | 0 | 71 | 70 | 7.9 | 6.1 |

*Unit 1 scroll case temperature.

## Other

Inline Cooling Water Strainers: Unit cooling water strainer inspections for fish are done for the season until December.

Avian Activity: There were low numbers of piscivorous birds observed around the project. Most of the birds were observed foraging near the upstream tip of Eagle Island.

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

Fish Rescue/Salvage: None.

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

**Project: Lower Monumental**
Biologists: Denise Griffith and Raymond Addis
Dates: August 26 – September 1, 2022

## 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 | |

Comments: 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 5 | 8/22/2022 | 0645 | TBD | | T2 repairs |
| Unit 6 | 8/22/2022 | 0645 | TBD | | Annual/T2 repairs |

Comments: Estimated return to service for Units 5 and 6 has yet to be determined, but the target is December 15, 2022.

## Adult Fish Passage Facility

The adult fishways were inspected by Army Corps and EAS biologists August 26, 27, 28 and September 1.

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: Woody debris trapped between the new debris barrier and the North ladder exit was cleared out on August 29. Additional barrels were placed at the ends of the debris barrier string to stop debris from going around the barrier. It is planned to increase bank rip rap to keep debris away from the North edge of the barrier.

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 6.8, 7.5, 7.1 and 7.4 feet, respectively. The south powerhouse entrance weir (SPE-2) was on sill during all inspections with readings 6.8, 7.5, 7.1 and 7.4 feet, respectively. The south shore entrance weir (SSE-1) was on sill during the August 26 and 28 inspections with readings 7.7 and 7.8 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 has ordered new staff gauges and they will be installed during the winter maintenance period.

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) | 138 $yds^2$ |
| X | | | Gatewell drawdown measured this week? | |
| X | | | Gatewell drawdown acceptable | |
| X | | | Any debris seen in gatewells (% coverage) | 0 – 5% |
| | 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: The STSs were running in Cycle-Run mode throughout this reporting period 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? | 18 |
| X | | | Dewaterer and cleaning systems operating satisfactory? | |

Comments: None.

Collection Facility: Every-third day condition sampling continued with samples collected on August 25–26, August 28-29, and August 31–September 1. A total of 76 fish were collected with 75 fish bypassed back to the river during this reporting period.

The lamprey bypass system was out of service due to a leaking air cylinder. This did not affect operations since the lamprey bypass was not in use because fish are not going to the raceways. The repair was made to the leaking cylinder on August 31 and the system was returned to service.

Transport Summary: At this time, there is no transporting of juvenile salmonids occurring.

Spillway: Summer Spill ended at 23:59:59 on August 31. Fall spill for steelhead began at 00:00:00 on September 1.

## 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 |
| 27.3 | 22.6 | 8.3 | 0.0 | 70.0 | 69.0 | 7.0 | 5.7 |

*Scrollcase temperatures.

## Other

Cooling Water Strainers: Cooling water strainers inspections will occur again in December. Monitoring is performed from December to June.

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 |
|---|---|---|---|---|---|---|
| 8/26/22 | 915 | 28 | 6 | 0 | 0 | 1 |
| 8/27/22 | 1300 | 35 | 21 | 0 | 0 | 0 |
| 8/28/22 | 1245 | 15 | 17 | 0 | 0 | 1 |
| 8/29/22 | 1300 | 7 | 15 | 0 | 0 | 0 |
| 8/30/22 | 910 | 18 | 19 | 0 | 0 | 0 |
| 8/31/22 | 1730 | 15 | 25 | 0 | 0 | 3 |
| 9/01/22 | 900 | 5 | 6 | 0 | 0 | 4 |

Comments: Piscivorous bird observations are occurring daily. The outfall bird cannon functioned efficiently this week. The numbers of some of the species of birds appear to be dropping from previous weeks.

Invasive Species: Zebra and quagga mussel examinations will occur again in September.

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

Research: No research is occurring currently.

**Project: Little Goose Dam**
Biologists: Chuck Barnes and Deb Snyder
Dates: August 26 – September 1, 2022

## 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** |
| 3 | 8/08/2022 | 08:45 | 9/1/2022 | 16:00 | Unit Annual Maintenance |
| 5 | 4/14/2017 | 14:11 | 12/31/2022 | ERTS | Spider and upper guide bearing repair. |
| 6 | 4/18/2022 | 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 August 27, August 28, August 29, and September 1.

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 | | X | North Powerhouse Entrance (NPE-2) Weir Depth | ≥ 7.0’ or on sill | Sill 8/30 |
| 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 | |
| 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. NSE weirs 1 and 2 are being monitored with manual measurements as 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. The Collection Channel Surface Velocity is measured at NPE.

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 1900 ft² - Low 50 ft² |
| | X | | Gatewell drawdown measured this week? | |
| | | X | Gatewell drawdown acceptable | |
| X | | | Any debris seen in gatewells (% coverage) | 3A,4A,5B,6C -1% 8/27; 3A-1% 8/28; 3A,5A,6A,6B -1% 8/29; 3A,4A, - 1% 8/30 |
| X | | | Any oil seen in gatewells? | 3C – 9/1 |

Comments: The forebay had minimal floating debris inside the trash shear boom with the highest measurement occurring on August 30. Oil absorbent booms deployed, and air bubbler placed within gatewell 3C.

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. Unit 3 ESBS and VBS undergoing work during scheduled annual maintenance. ESBS pulled and stored above gatewell 5C.

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 762 fish were collected, 0 were bypassed, 706 were transported by truck, and there was 1 sample or facility mortalities. The descaling and mortality rates were 1.2% and 0.61%, respectively. Ten adult lampreys were removed from the collection facility and both the collection and transport facility operated within criteria this report period.

Transport Summary: Collection for fish transportation began April 23 with the first barge departure on April 24. Every other day barging transitioned to everyday 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. Collection for truck transport operations began on August 1, with the first truck departure on August 3.

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. The ASW was closed for the spill season at 10:00 on August 1. Summer spill concluded for the season at 2357 hours on August 31. Surface spill to facilitate downstream passage of pre-spawn adult steelhead as natal stream overshoots commenced at 0500 hours on September 1. The ASW was positioned at an elevation of 639 feet and is scheduled to spill from 0500 hours through 0900 hours every Tuesday, Thursday, and Sunday through the month of October, with an anticipated slight schedule change to occur early November.

## 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 |
| 26.2 | 22.4 | 9.7 | 1.3 | 69.2 | 67.2 | 6.0 | 3.0 |

*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 |
|---|---|---|---|---|---|
| 8-26 | 8:30 | 6 | 0 | 0 | 0 |
| 8-27 | 8:30 | 10 | 4 | 0 | 0 |
| 8-28 | 7:15 | 6 | 2 | 0 | 0 |
| 8-29 | 8:10 | 11 | 5 | 0 | 0 |
| 8-30 | 8:00 | 9 | 5 | 0 | 0 |
| 8-31 | 10:45 | 0 | 0 | 0 | 0 |
| 9-01 | 8:30 | 13 | 8 | 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 EAS Bio personnel, 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* |
|---|---|---|
| 8-26 | 3070 | 3070 |
| 8-27 | 2422 | 2422 |
| 8-28 | 1948 | 1948 |
| 8-29 | 1609 | 1609 |
| 8-30 | 838 | 838 |
| 8-31 | 837 | 837 |
| 9-1 | 1198 | 1198 |
| Totals | 11922 | 11922 |

*Collection and sample numbers are equal when sample rates change to 100%

Gas Bubble Trauma (GBT): The last available GBT monitoring report occurred August 24 depicting an examination of 7 fish without signs of GBT.

Fish Rescue/Salvage: One gatewell and one scrollcase rescue – salvage activities transpired during this report period. On August 29 gatewell 6B was dipped and the scrollcase to unit 6 was cleared. Results were submitted to District personnel.

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
Dates: August 26-September 1, 2022

## 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** |
| 5 | 08/22 | 0746 | | | Annual Maintenance/Overhaul |

Comments: Units 1, 3, and 4 were rotated out of service August 28 and 29 for ESBS inspections.

## Adult Fish Passage Facility

Lower Granite Biologists and Anchor QEA staff inspected the adult fishway on August 26, 27, 30, and 31.

Fish Ladder:

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

Comments: The fish ladder cooling water pumps are in operation. Pump supply configuration was modified to provide water directly into the ladder exit channel from pump 1. Ladder temperature data can be found at https://www.nwd-wc.usace.army.mil/dd/common/dataquery/www/.

Fish Ladder Entrances and Collection Channel:

| Yes | No | Sill | Location | Criteria | Comments |
|---|---|---|---|---|---|
| | X | | South Shore Entrance (SSE-1) Weir Depth | $\geq$ 8.0’ | 7.8’, 7.6’, 7.9’, 7.7’ |
| | X | | South Shore Entrance (SSE-2) Weir Depth | $\geq$ 8.0’ | 7.8’, 7.6’, 7.7’ |
| X | | | South Shore Channel/Tailwater Differential | 1.0’ – 2.0’ | |
| | | X | North Powerhouse Entrance (NPE-1) Weir Depth | $\geq$ 8.0’ or on sill | |
| | | X | North Powerhouse Entrance (NPE-2) Weir Depth | $\geq$ 8.0’ or on sill | |
| X | | | North Powerhouse Entrance Channel/Tailwater Differential | 1.0’–2.0’ | |
| | X | | North Shore Entrance (NSE-1) Weir Depth | $\geq$ 7.0’ or on sill | 6.9’, 6.7’ |
| | X | | North Shore Entrance (NSE-2) Weir Depth | $\geq$ 7.0’ or on sill | 6.9’, 6.6’ |
| X | | | North Shore Channel/Tailwater Differential | 1.0’–2.0’ | |
| X | | | Collection Channel Surface Velocity | 1.5 – 4.0 fps | |

Comments: The fish ladder control system continues to be 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. This may 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:

**Juvenile Fish Passage Facility**

Forebay Debris/Gatewell Debris/Oil:

| Yes | No | NA | Item | Comments |
|---|---|---|---|---|
| X | | | Forebay debris load acceptable? (amount) | 54.6 $yds^2$ |
| 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: ESBS inspection were complete on units 1, 3, and 4. All units passed ESBS inspections.

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:

Collection Facility: The juvenile facility is in collection for truck transport mode. There were 5,645 fish collected this week.

Transport Summary: Transport continues with trucks departing LWG on odd days. There were 4,923 fish transported this week.

Spillway Weir: Summer spill ended at 0000 hours September 1 and spill for overshoot steelhead began at 0500 hours September 1. Overshoot spill will continue Tuesdays, Thursdays, and Sundays from 0500 to 0900 hours until November 15. LWG had 29 unclipped adult PIT tagged steelhead fallbacks this week with 15 detected at the RSW

and 14 detected in the fullflow. Of the 29 adult steelhead fallbacks detected this week, 28 were PIT tagged and released from the LWG adult fish trap.

There were 106,364 juvenile and 175 PIT tagged adult Chinook salmon, 72,878 juvenile and 546 adult PIT tagged steelhead, 10,826 juvenile and 4 adult sockeye salmon, and 4,064 juvenile coho salmon detected over the RSW spillway since March 1. There have been 39,270 juvenile and 22 adult Chinook salmon, 28,752 juvenile and 110 adult steelhead, 2,112 juvenile sockeye salmon, and 951 juvenile coho sSalmon 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 |
| 26.9 | 23.9 | 9.6 | 1.7 | 66.0 | 63.5 | 5.0 | 5.0 |

*Cooling water intake temperature.

## Other

Inline Cooling Water Strainers: NA

Invasive Species: No zebra/quagga muscles were detected on the trap substrate. There were 29,343 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 |
|---|---|---|---|---|---|
| Aug 26 | 0922 | 4 | 36 | 0 | 0 |
| Aug 27 | 1120 | 3 | 1 | 0 | 0 |
| Aug 28 | 1545 | 3 | 20 | 0 | 0 |
| Aug 29 | 1620 | 0 | 21 | 0 | 0 |
| Aug 30 | 1210 | 4 | 27 | 0 | 0 |
| Aug 31 | 1343 | 3 | 19 | 0 | 0 |
| Sept 1 | 1545 | 0 | 5 | 0 | 0 |

Gas Bubble Trauma (GBT) Monitoring: NA

Adult Fish Trap Operations: LWG Adult trap is in 24/7 collection broodstock operation. NPT is transporting Mondays and Tuesdays and WDFW is transporting Tuesday through Saturday.

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 529 macrophthalmia (juvenile) and 1445 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. A PIT tagged sturgeon was released from the juvenile separator August 8.