U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#36-2016

Project: McNary
Biologists: Bobby Johnson and Denise Griffith
Dates: October 28 – November 3, 2016

Turbine Operation

All available turbine units were operated within the hard 1% peak efficiency criteria until November 1, at which time, the soft 1% peak efficiency criteria began. Units ran outside the soft constraint on November 1 and 2. McNary turbine unit outages are recorded in Table 1 below.

Table 1. Unit Outages at McNary Project.

Units	Outage Dates	Outage Length	Reason
13	Oct 3 to Dec 2	About 2 months.	Nine year over-haul.
2	Oct 24 to 28	4.4 days.	Annual maintenance.
1	Oct 28	3.2 hours.	Regulator issue.
2, 3 & 4	Nov 1	11 hours.	Extended-length submersible bar screen (ESBS) camera inspections.
6	Nov 2	6.3 hours.	Hub tapped.

Adult Fish Passage Facilities

McNary fisheries biologists performed measured inspections of the adult fishways on October 28, 30 and November 2. Adult fish counts concluded on October 31. The general maintenance staff raised both ladders picketed leads on November 1. Both count stations were winterized on November 3.

Fish Ladder Exits: The head over weir criteria at both exits are to be within 1.0 to 1.3 feet. The differential criteria at the count stations are to be within 0.0 to 0.5 feet. The picketed leads were cleaned as required including weekends until the leads were raised. Debris loads were minimal at both exits and along the Oregon shore. Eurasian milfoil remained an issue at the Washington exit.

The Washington exit met all criteria during measured inspections except on October 30, when the count station differential measured 0.7 feet. The general maintenance staff immediately cleaned the picketed leads. However, tilting weir 337 tripped its lower limit, which could not be reset until October 31 by the electrical staff. The tilting weir set point was also adjusted on October 31. The count station window brush was found in the lowered position on November 1. The issue was resolved the next day.

The Oregon exit met all criteria. The regulating weir set point was adjusted on October 28. Weir 338 will remain out of service until the winter maintenance season. The soft forebay elevation constraint concluded on October 31.

Fishway Entrances and Collection Channel: Criteria for all entrances are pool differentials measuring between 1.0 and 2.0 feet, and weir depths measuring 8.0 feet or deeper.

At the Washington ladder, all inspection points met criteria.

At the Oregon ladder, south powerhouse entrances SFEW1 and SFEW2 measured 7.5 to 7.6 feet in depth, respectively on October 30. The biologist asked the maintenance staff to calibrate the tailwater elevation sensor. Operators also noted that the pool differential was drifting, which resulted in repeated alarms. They switched SFEW1 and SFEW2 to manual operation and monitored the entrances. The electrical staff cleaned and checked the sensor on October 31. Despite initial success, the issue was not resolved and the entrances were returned to manual operation. The electrical staff will be asked to examine the sensor again. All other inspection points remained in criteria.

The Oregon ladder collection channel surface velocities averaged 1.5 fps.

Auxiliary Water Supply System: The Wasco County Public Utility District (PUD) turbine unit in the Washington ladder remains out of service for runner replacement, which is near completion. Turbine unit testing is scheduled to start on November 14. The bypass continues to function satisfactorily.

Two of the three Oregon ladder fish pumps operated satisfactorily with no interruptions in service this week. Both pumps operated with blade angles of 24 degrees. Fish pump 2 is currently under contract for major overhaul with completion expected in mid-November. Testing is scheduled for early March.

The juvenile facility continued to supply 450 cubic feet per second (cfs) to the north powerhouse pool.

Juvenile Fish Passage Facility

The fall primary bypass season continues.

Forebay Debris/Gatewell Debris/Oil: Forebay debris loads at the powerhouse were light to minimal. Debris loads at the spillway were minimal.

No high trash rack differential measurements were recorded and no trash racks were cleaned.

No problems were observed in the gatewell slots.

ESBSs/Vertical barrier screen (VBSs): ESBSs are deployed in all units. ESBS camera inspections occurred in units 2 through 4 on November 1. No problems were found. The ESBSs in slots 1A, 6B, 6C, 12A and 12C remained in timer mode. The ESBS in slot 8C was switched to timer mode on October 30 after repeated alarms.

VBS differential monitoring revealed no screens out of criteria. Eight VBSs were cleaned on November 1 when differentials increased slightly due to some units running outside the soft 1% peak efficiency criteria. VBS inspections also occurred in units 9 through 11 on November 1. VBS rehabilitations continued with new mesh being installed on torn VBS sections.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: Forty-two orifices were in use. During VBS cleaning and inspections, orifices in the affected slots were closed, with makeup water coming from orifices in adjacent slots.

All dewatering and cleaning systems operated satisfactory in automatic mode. The rectangular screen cleaning brush was lubricated this week.

Bypass Facility: Facility winterization and maintenance continues.

River Conditions

River conditions during the week are outlined in Table 2 below as provided by the McNary control room. The data period runs from 0000 to 2400 hours each day. Flows and spill are recorded in one-thousand cubic feet per second (kcfs). Temperature is recorded in degrees Fahrenheit.

Scheduled spillway hoist maintenance and testing continued, which did not influence the daily average spill recorded below.

Table 2. River Conditions at McNary Dam.

Daily Average River Flow		Daily Average Spill		Water Temperature		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
162.4	120.7	0.0	0.0	58.0	57.0	6.0	6.0

Other

Inline Cooling Water Strainers: Cooling water strainer examinations occurred on November 1. No juvenile lamprey or smolt mortalities were observed or recovered.

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

Avian Activity: Casual avian observations were performed during other inspections. A gull flock appears to be roosting at various locations near the project.

Gulls and cormorants numbers in the tailwater area remained high at times. Over 100 gulls were observed. The birds were roosting on the navigation lock wing wall and other structures. They appeared to be feeding on juvenile shad in the powerhouse flow or at the juvenile bypass outfall on occasion.

In the forebay area, a large grebe flock nearing 100 birds was noted at times along with gulls or cormorants. Gulls and cormorants were also roosting on the rocks by the Washington shore boat dock. Gulls were observed roosting at the Oregon boat dock in large numbers on occasion.

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

Project: Ice Harbor
Biologists: Ken Fone
Dates: October 28 – November 3, 2016

Turbine Operation

Unit 5 was taken out of service on March 14 at 1117 hours, due to an oil leak from the blade packing. The packing was replaced and the blades will be welded in place to fix the leak. Unit 2 was taken out of service on April 25 at 0606 hours for runner replacement. Unit 4 was out of service from 0832 hours on October 3 to 0953 hours on October 28 for annual maintenance. Unit 6 was removed from service on October 31 at 1103 hours for annual maintenance. Units 3 and 4 were out of service from 0909 hours to 1252 hours on November 2 to accommodate BPA work on the 115 kV line 2.

Available units were operated within the 1% peak efficiency range (hard constraint until October 31, soft constraint after that), except for unit 3. Unit 3 was operated a few megawatts below the operating efficiency range, due to the GDACS (Generic Data Acquisition Control System) needing to be updated with the narrower operating efficiency range of unit 3 since it became a fixed-blade unit.

Adult Fish Passage Facilities

Fish facility personnel inspected the adult fishways on October 28, 31, November 1, and 2.

Fish Ladders: The north fish ladder inspection areas (head differentials at the fishway exit and picketed leads, and depth over the weirs) were in criteria on all inspections. The south fish ladder inspection areas (head differentials at the fishway exit and picketed leads, and depth over the weirs) were in criteria on all inspections. Criteria for head differentials at ladder exits and picketed leads, and depth over the weirs are 0.5 feet or less, 0.3 feet or less, and 1.0-1.3 feet, respectively. The water surface above the fish ladder exits were clear of debris and the bubblers were operating satisfactorily. The south shore picketed leads were raised at the end of the fish counting season on November 1. The north shore picketed leads will be raised as soon as power to the fish count slot barrier gate is restored, so the gate can be moved out of the way of the hoist.

Fishway Entrances and Collection Channel: The south shore entrance (SFE-1) depth and channel/tailwater head differential were in criteria on all inspections. The north powerhouse entrance (NFE-2) depth and channel/tailwater head differential were in criteria on all inspections. The north shore entrance (NSE-1) depth and channel/tailwater head differential were in criteria, except for a depth of 7.9 feet on October 28. This out-of-criteria reading may be due to calibration problems or human error when taking the measurement of the tailwater elevation. Fishway entrance criteria are 8 feet depth or greater, or on sill. Channel/tailwater differential criteria are 1 – 2 feet.

The south shore channel velocity was in criteria. The channel velocity criterion is 1.5-4.0 feet per second.

Auxiliary Water Supply (AWS) System: Two of the three north shore AWS pumps were in operation during the week. Five of the eight south shore AWS pumps were in operation throughout the week.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: There was an average of 1 square yard of debris observed in the forebay. The surface debris coverage in each gatewell slot ranged from 0% to 8%. Slot 2C was unwatered on July 6 to facilitate the unit 2 head gate sill plate repair.

STSs/VBSs: The STSs are in cycle-run mode. The STS for slot 5B remains uninstalled to facilitate the work on unit 5. Unit 2 STSs are raised and stored in their gatewell slots, since unit 2 will not be operated for the rest of the year. Units 1, 3, 4, and 6 STSs were inspected on October 18 and 19, with no problems found.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: The juvenile fish bypass operated with 20 opened orifices. Orifices were routinely cycled and back-flushed once per day.

Juvenile Fish Facility: The juvenile fish facility is operating in bypass mode.

Fish Sampling: Sampling is done for the season. The raw water lines to the sampling facility were drained and winterized on October 26.

Removable Spillway Weir (RSW): Spill for fish passage began on April 3 at midnight and ended on September 1 at midnight.

River Conditions

River conditions during the week are outlined in Table 1 below.

Table 1. 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
34.0	22.2	0.0	0.0	59.0	58.0	8.4	8.0

*Unit 1 scroll case temperature.

Other

Inline Cooling Water Strainers: Turbine cooling water strainers with high pressure differentials due to accumulations of dead shad were cleaned on November 2 and 3. A total of approximately 2,800 juvenile shad (all mortalities) were found.

Invasive Species: No new exotic species have been found.

Avian Activity: There were high numbers of grebes, pelicans, cormorants, gulls, and mergansers observed around the project. Many of the birds were resting in the spillway basin close to the dam, on the south shore of the tailrace across from the coffer cells, and on Eagle Island. A laser light was used unsuccessfully to try to scare off 10-20 cormorants that were foraging at the bypass pipe outfall.

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

Project: Lower Monumental
Biologists: Bill Spurgeon and Raymond Addis
Dates: October 28 – November 3, 2016

Turbine Operation

The units were operated within the hard constraint 1% peak efficiency criteria until 2359 hours on October 31 at which time the units began operating within the soft constraint of the 1% peak efficiency criteria. Unit 1 was removed from service on December 10, 2014 for Unit rehabilitation with an estimated return to service of March 8, 2017. Unit 5 was removed from service at 0658 on September 19 for annual maintenance with an estimated return to service of November 10, 2016.
Units 2, 3, 4 and 6 were rotated out of service on November 1 and 2 for STS inspection.

Adult Fish Passage Facility

The adult fishway was inspected by Corps biologists on October 31, November 1 and 2.

Fish Ladders: Fishway exit head differentials and depths over the weirs were within criteria (≤ 0.5' and 1.0'-1.3', respectively) on all inspections.

Picketed lead head differentials were in criteria (≤ 0.4' and ≤ 0.3' for north and south shore fishways, respectively) on all inspections.

Fishway Entrances and Collection Channel: NSE1 and NSE2 weir gates were in depth criteria (criteria: ≥ 8' or on sill) on all inspections. North shore channel/tailwater head was in criteria (1'-2') on all inspections.

SPE1 and SPE2 weir gates were in sill criteria (criteria: ≥ 8' or on sill) on all inspections. While on sill, readings were 7.1, 7.0 and 6.5 feet. South powerhouse channel/tailwater head met criteria (1'-2') on all inspections.

SSE1 weir gate was in depth or sill criteria (criteria: ≥ 8' or on sill) on all inspections. While on sill, readings were 7.8 and 7.7 feet.

SSE2 was in criteria (6' above sill) on all inspections. South shore channel/tailwater head was in criteria (1'-2') on all inspections.

Auxiliary Water Supply System: AWS pumps 2 and 3 were operated throughout this report period. Pump 1 was out of service throughout this report period due to a bushing problem. This pump will be replaced with the spare pump as time permits.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: There was an average of 0 square yards of forebay debris observed during this period. Gatewell debris ranged from 0 - 25% surface coverage. No oil problems were observed in the gatewells.

STSs/VBSs: STSs were operated in cycle-run mode throughout this report period. STS inspections were conducted November 1 and 2 with all screens found in good operating condition.

Orifices, Collection Channel, Dewatering Structure, and Flume: The collection channel was operated with 18 opened orifices.

Collection Facility: The facility was dewatered for winter maintenance on October 1.

Transport Summary: Fish transport ended for the season on September 30.

River Conditions

Summer spill operations in support of juvenile fish passage ended at 2400 hours on August 31. River conditions during the week are outlined in Table 1 below.

Table 1. 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
29.7	22.3	0.0	0.0	58.8	58.0	4.4	4.2

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on October 31. No live fish were recovered. Mortalities included 3 juvenile lamprey, 1 Siberian prawn and 650 juvenile American shad.

Invasive Species: No zebra or quagga mussels were observed during monitoring station inspections on November 2.

Adult Collection Channel: During the October 31 inspection, the powerhouse collection channel water velocity meter failed to give a reading. Electricians investigated the meter on November 1 and found it working properly. There was no evidence of water or corrosion inside of the meter's box.

Avian Activity: Daily tailrace counts of feeding piscivorous birds are summarized in Table 2 below. Daily tailrace counts ceased at end of collection season on September 30. No action trigger points from the avian action plan occurred this period.

Table 2. Tailrace counts of foraging piscivorous birds at Lower Monumental Dam.

Date	Time	Gulls	Cormorants	Terns	Grebes	Pelicans
October 28	---	---	---	---	---	---
October 29	---	---	---	---	---	---
October 30	---	---	---	---	---	---
October 31	---	---	---	---	---	---
November 1	---	---	---	---	---	---
November 2	---	---	---	---	---	---
November 3	---	---	---	---	---	---

Research: No onsite research is in progress at this time.

Project: Little Goose
Biologists: Scott St. John and Richard Weis
Dates: October 28 – November 3, 2016

Turbine Operation

All turbine units were available for service except unit 3. Unit 3 was placed out of service for an extended annual on September 26. No 1% violations to report.

Adult Fish Passage Facility

The Fishway Control System software was updated by RJS construction and returned to automatic operation on August 9. All weirs were manually adjusted and returned to automatic mode to determine functionality of the new software. The system was not operating sufficiently and was returned to manual mode on September 19. Future calibration and maintenance still need to be performed.

Adult fishway inspections were performed on October 30, November 2 and 3.

Fish Ladder: The ladder exit head differentials and water depth at Diffuser 13 maintained criteria ($\leq$ 0.5 ft. and 1.1-1.2 ft., respectively) and picketed lead differentials held steady at 0.1 feet (criteria $\leq$ 0.3 ft.). The air bubbler used to prevent debris from collecting near the ladder exit operated satisfactorily. The emergency cooling pumps for the adult fish ladder were removed from service on September 09.

Fishway Entrances and Collection Channel: SSE1 and SSE2 weir gates met depth criteria (criteria $\geq$ 8.0 ft. or on sill) on all inspections and depths ranged between 8.3 and 8.9 feet. South shore channel/tailwater head differential was in criteria (criteria 1.0-2.0 ft.) on all inspections.

NPE1 and NPE2 weir gates were in depth criteria on all inspections and were on sill. Weir depths ranged between 7.1 and 7.8 feet (criteria $\geq$7.0 ft. or on sill). North powerhouse channel/tailwater head differential was in criteria (criteria 1.0-2.0 ft.) on all inspections.

NSE1 and NSE2 weir gate depths ranged between 6.2 to 7.3 feet (criteria $\geq$ 6.0 ft or on sill.) and were in depth criteria on all inspections. North shore channel/tailwater head differential was in criteria (criteria 1.0-2.0 ft.) on all inspections.

Collection Channel Velocity: The average surface water velocity measurements were in criteria on all inspections and ranged between 1.7 and 2.2 fps (criteria 1.5 to 4.0 fps).

Auxiliary Water Supply System: The fish ladder is now operating on three pumps. The average water velocity (bottom, middle, top) of the adult channel at the NPE was 3.1 fps on September 28.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: The trash/shear boom is currently still on shore. Efforts are underway to have it repaired. Woody debris accumulations in the immediate forebay ranged from 650 to 6,000 sq.ft.

Spillway Weir: TSW was removed on July 11.

ESBS/VBS: Electrical ESBS brush tests were performed on September 13. Units 5 and 6 were found with electrical faults and repaired. Limits switches were reset on both units.

Orifices, Collection Channel, Dewatering Structure, and Flume: The gear box for the weirs in the primary dewatering structure was removed from service after an oil leak was discovered. The leak was subsequently contained and cleaned. The weirs were returned to automatic mode on October 26. The juvenile bypass system is presently running with 18 opened orifices. Orifices are cycled every 24 hours.

Collection Facility: Fish collection and sampling occurred daily at the JFF (Juvenile Fish Facility) until the end of collection and fish transportation by truck occurred on even numbered days in October. Fish collection ended at 0700 hours on October 31. Fish transport ended for the season with the last truck departure on November 1.

Transport Summary: The collection and transportation facility operated within criteria this report period. A total of 331 fish were collected. The descaling and mortality rates were 7.7% and 0.0% respectively. There were no adult lamprey removed from the raceways or the sample this report period.

River Conditions

River conditions during the week are outlined in Table 1 below.

Table 1. 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
32.8	23.5	0.0	0.0	58.6	56.9	6.0	5.0

*Ladder temperature.

Other

Inline Cooling Water Strainers: Cooling water strainers on all units were inspected October 31. No fish were seen.

Invasive Species: The zebra mussel substrate monitor was inspected on October 4. No mussels were seen.

Avian Activity: USDA Bird hazing ended on June 25. See Table 2 below for USACE counts.

Table 2. Daily Avian Counts at Little Goose Dam, October 28 – November 03, 2016.

Date	Time (hours)	Gulls	Cormorants	Caspian Terns	Pelicans
October 28	1010	105	26	0	0
October 29	1000	87	24	0	0
October 30	1330	105	28	0	0
October 31	1600	145	33	0	0
November 1	0850	169	12	0	0
November 2	1300	163	36	0	0
November 3	0800	190	40	0	0

*Bird counts are taken from a single observation, Forebay and Tailrace.

Siberian Prawn: Siberian prawns continued to be collected this week at the Juvenile Fish Facility. Prawns were humanely euthanized by Oregon Department of Fish and Wildlife and Anchor QEA, frozen and properly disposed of in a landfill. There were 87 prawns collected in the sample and euthanized during this report period. Prawn numbers are outlined in Table 3 below.

Table 3. Daily Siberian Prawn Counts at Little Goose Dam, October 28 – November 03, 2016.

Date	Sample	Collection*
October 28	38	
October 29	7	
October 30	11	
October 31	31	
November 1	---	
November 2	---	
November 3	---	
Totals	87	

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

Gas Bubble Trauma: GBT inspections ended for the season with the July 19 report. No signs of GBT were seen this season.

Research: The Fish Guidance Efficiency (FGE) emergency gate closure study ended on July 22 and equipment was removed from unit 2 on August 30.

Project: Lower Granite
Biologists: Elizabeth Holdren and Robert Horal
Dates: October 28 – November 3, 2016

Turbine Operation

Units are being operated within the soft constraint 1% peak efficiency criteria. Unit 1 remains out of service for Kaplan blade linkage repair. Unit 3 was removed from service at 0630 hours on October 17 for annual maintenance and is scheduled to return to service on November 9.

Adult Fish Passage Facility

Adult fish facilities were inspected by Corps or Anchor QEA biologists on October 28, 29, 30, and November 2. The Fishway Control System readings were used for the north shore due to the north elevator being out of service. Adult fish ladder window counts ended at 2000 hours (PST). Video counts of fish passage from 0400-2000 hours began November 1.

Fish Ladder: Fish ladder exit head differential and depth over the weirs were in criteria (≤0.5' and 1.0-1.3', respectively) on all inspections. Picketed lead head differential was in criteria (≤ 0.3'). An average of about 6.3 square yards of debris was observed near the ladder exit.

Fish Ladder Entrances and Collection Channel: SSE1 and SSE2 weir gates were in depth criteria (criteria ≥8' or on sill) on all inspections. South shore channel/tailwater head differential was in criteria (criteria 1'-2') on all inspections.

NPE1 and NPE2 weir gates were in depth or sill criteria (criteria ≥8' or on sill) on all inspections. North powerhouse channel/tailwater head differential was in criteria (criteria 1'-2') on all inspections.

NSE1 was in criteria (criteria ≥7' or on sill) on all inspections. NSE2 has been out of service since 2011 and remains set with a chain fall hoist in the closed position. North shore channel/tailwater head differential was in criteria (criteria 1'-2') on all inspections.

Collection Channel Velocity: The collection channel average velocity was in criteria (criteria 1.5-4.0 fps) on all inspections.

Auxiliary Water Supply System: The fish ladder is in two pump operation with AWS pumps 1 and 3 in service. Pump 2 is in standby mode.

Fish Ladder Temperature Control System: This system is not in service at this time.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: An average of about 111.3 square yards of debris was observed in the forebay this week.

ESBSs/VBSs: ESBS/VBS inspections are completed for the season.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: The collection channel is operating with 18-19 opened orifices. Orifices are being cycled every three hours.

Collection Facility: The facility was changed to secondary by-pass mode at 0700 hours on October 31.

Transport Summary: The final truck of the season departed Lower Granite on November 1.

River Conditions

No spill occurred this week. River conditions during the week are outlined in Table 1 below.

Table 1: 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
32.7	23.7	0.0	0.0	55.2	54.0	5.0	4.8

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: No inspections this week.

Invasive Species: The zebra/quagga mussel substrate was inspected October 16. No zebra/quagga mussel were found. Smolt monitoring biologists euthanized 3 Siberian prawns from the collection sample this week.

Avian Activity: Daily piscivorous bird counts are summarized in Table 2 below.

Table 2. Daily piscivorous bird counts at Lower Granite Dam.

Date	Time (hours)	Gulls	Cormorants	Caspian Terns	Pelicans
October 28	1222	11	19	0	0
October 29	1245	11	19	0	0
October 30	1326	6	23	0	0
October 31	1403	8	19	0	0
November 1	---	---	---	---	---
November 2	---	---	---	---	---
November 3	---	---	---	---	---

GBT: No Gas Bubble Trauma examinations are taking place at this time.

Adult Fish Trap Operations: The trap was operated seven days a week with a sample rate of 19%. Coho collection for the Nez Perce Tribe brood stock concluded November 3 with the last fish being transported November 4.

Fish Rescue Operation: No fish rescues took place this week.

Research: There is no active onsite research taking place at this time.