U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#29-2014

Project: McNary
Biologists: Carl Dugger and Bobby Johnson
Dates: September 12 - 18, 2014

Turbine Operation

McNary had 10 units available for power generation this week. The hard constraint one percent criterion continues with no units having run outside the criteria. The summer unit priority sequence, known as the "saw tooth" pattern (with units being alternately on or off), concluded on September 13. Unit outages are recorded in Table 1 below.

Table 1. Unit Outages at McNary Dam.

Units	Outage Dates	Outage Length	Main Reason for Outage
11	Sep 18, 2013 to Nov 15, 2014	About one year and two months.	Turbine bearing issue continues.
4	Mar 27 to Nov 15	About 7.5 months.	Turbine bearing issue continues.
9	Aug 11 to Mar 25, 2015	About 7.5 months.	Maintenance then rewind contract.
5	Sep 2 to 25	About 23 days.	Annual and above water maintenance.

Adult Fish Passage Facilities

On September 12, 14 and 16, the McNary fisheries biologist performed measured inspections of the adult fishways. The fisheries staff is checking the exits on all shifts when the juvenile system is in primary bypass. Visual adult fish and lamprey counts continued. Ladder exit temperature monitoring efforts concluded on September 16.

On September 17, project personnel removed the lamprey passage research camera frame at SFEW2. However, we were unable to remove the side camera. A dive and ladder outage will likely be required to remove this camera.

Fish Ladder Exits: During measured inspections, both ladder exits met all Fish Passage Plan criteria. The project staff continues to clean the picketed leads as required, and on weekends. At the Washington exit, weir 339 triggered alarms twice this week. In each case, operators reset the alarm without incident. The amount of milfoil in the area is fairly light. Operators adjusted the Oregon exit set points on September 16. In addition, they also reset two false traveling screen differential alarms this week. The screen differential remains low. Trash rack differentials remain stable, ranging from 1.3 to 1.6 feet. We will continue to monitor both differentials regularly. Debris loads along the Oregon Shore and in the area of the exit continue to fluctuate

depending on wind direction. On September 16, the ladder exit crane failed again and project personnel have returned to cleaning the Oregon ladder picketed leads with a portable crane.

Fishway Entrances and Collection Channel: At the Washington ladder entrance, all inspection points were in criteria. Occasionally, we noted a slight amount of slack in W3's south cable. In the near future, the project will replace the LEDs (Light Emitting Diodes) for W2 and W3 with a panel view.

All Oregon ladder entrances, all inspection points were in criteria. At the north entrance, lower tailwater elevations are causing a reduction in criteria point values. Occasionally, we noted a slight amount of slack in the NFEW2 south cable. At the south entrance, SFEW2 continued to have very slight calibration drifts. Electrical upgrades of the Oregon entrances will be completed in the near future. Surface collection channel velocities averaged 1.5 feet per second. Again, lower tailwater elevations are probably affecting our readings.

Auxiliary Water Supply System: For the report week, the PUD turbine unit at the Washington ladder had no interruptions in service. Fish pumps 1 and 3 satisfactorily operated with blade angles of 30 degrees. Pump 2 remains out of service for major overhaul which will require a contract for the winter of 2014 – 2015. The juvenile facility continues to supply the usual 450 cfs to the north powerhouse pool without any interruptions in service.

Juvenile Fish Passage Facility

The bypass season continues with alternating days of secondary and primary bypass with the switch occurring every morning at 0700 hours. There were no deviations from this schedule. Secondary bypass occurred on September 13, 15 and 17. We bypassed 244 smolts, 32 juvenile lamprey and 112,284 juvenile shad this week.

Forebay Debris/Gatewell Debris/Oil: Floating forebay debris, consisting mainly of milfoil along with woody material, was minimal to very light. Also, incoming debris was minimal. Changes in wind direction moved the debris from the powerhouse to the Oregon shore and back. There is no debris at the spillway. On September 16, we removed a small amount of woody debris from the slots.

ESBSs/VBSs: ESBSs are installed at all units except units 4 and 11, which are out of service. The screens in slots 1A, 7A and 13C remain in timer mode. On September 16, we performed camera inspections at units 3 and 6 with no problems found. Both units were in standby. We observed no lamprey or ESA lisited fish mortalities in the gatewell slots during the inspections.

VBS differential monitoring efforts revealed one screen out of criteria. On September 16, project staff cleaned this screen and one other as a precautionary measure. We observed ESA listed fish or lamprey mortalities. VBS rehabilitation continues with unit 11 as the staging area.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe: Forty two orifices were open all week. During VBS cleaning, we closed the orifices in the slots the work was being done and opened spare orifices in adjacent slots.

There are no technical issues to report as all systems functioned well in automatic mode. The transition screen cleaning device will remain out of service until winter.

On September 14, for about three hours, the technician on duty inadvertently left two air zones in the rectangular dewatering screen's air burst system in operation. This resulted in the back up compressor continuously running for those three hours.

Bypass Facility: During the bypass season, both bypass modes return all fish to the river. PIT tag detection occurs in the full flow pipe during primary bypass and throughout the facility during secondary bypass. Smolt monitoring occurs only on secondary bypass days.

Sample gates operate only during secondary bypass periods. The gates and all systems functioned well. The primary PIT tag system remains off as the bypass lines provide a better route for the fish than the PIT tag system return lines. The PSMFC staff continues to perform weekly examinations of the PIT system. The secondary PIT/bypass gates remain off and open for bypass.

This week, we installed new seals in all the outside doors. Since technicians are now carrying radios, we returned voice mail to the separator phone. Finally, a phone was installed at the lead technician's desk.

River Conditions

River conditions during the week are outlined in Table 2 as provide by the smolt monitoring staff, whose data day runs from 0700 to 0700 hours each day.

Table 2. River conditions at McNary Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temp. (^{o}F)		Water Clarity* (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
107.4	79.2	0.0	0.0	67.5	65.4	6.0	5.0

*Control Room Data.

Other

Invasive Species: The next zebra mussel station examination will occur on September 21.

Inline Cooling Water Strainers: The next strainer examination will occur in early October.

Avian Activity: Bird counts continued with each zone being counted by the fisheries staff once a day, usually in the morning. Counts are reflected in Table 3 below. USDA avian hazing activity

concluded August 2. We continued to examine, monitor temperature and add oil to the outfall water cannon supply pump. We also continued to check and clean the pump intake. Repairs to the pump are being arranged. The bird distress calls deployed along the navigation lock wing wall and around the project appear to have discouraged roosting. The fisheries staff monitors and adjust all hazing equipment as needed. In the tailwater area, gulls and cormorants were feeding in the powerhouse flow while roosting on the navigation lock wing wall, which is part of the spill zone. Also, we observed gulls and cormorants at the bypass outfall. Bird numbers are now affected by the juvenile shad out migration. In the forebay area, we observed an occasional gull. Gulls continued to roost on the rock by the Washington boat dock. An occasional grebe, blue heron or kingfisher was observed on project.

Table 3. McNary Project's Daily Avian Count.

Date	Zone	Gull	Cormorant	Tern	Pelican	Grebe
Sep 12	Forebay	1	0	0	0	0
	Spill	25	12	0	0	0
	Powerhouse	106	5	0	0	0
	Outfall	0	3	0	0	0
Sep 13	Forebay	1	0	0	0	0
	Spill	30	29	0	0	0
	Powerhouse	5	0	0	0	0
	Outfall	0	1	0	0	2
Sep 14	Forebay	2	0	0	0	0
	Spill	22	42	0	0	0
	Powerhouse	36	0	0	0	0
	Outfall	12	6	0	0	0
Sep 15	Forebay	0	0	0	0	0
	Spill	5	60	0	0	0
	Powerhouse	47	1	0	0	0
	Outfall	5	6	0	0	0
Sep 16	Forebay	2	0	0	0	1
	Spill	10	23	0	0	0
	Powerhouse	75	1	0	0	0
	Outfall	12	9	0	0	0
Sep 17	Forebay	0	0	0	0	0
	Spill	25	56	0	0	0
	Powerhouse	45	0	0	0	0
	Outfall	0	2	0	0	0
Sep 18	Forebay	1	0	0	0	0
	Spill	41	21	0	0	0
	Powerhouse	26	0	0	0	0
	Outfall	1	4	0	0	0

Research: The adult lamprey passage study has begun to be phased out. Preparations for the adult salmonid fallback study have been delayed to November due to funding and other issues.

Project: Ice Harbor
Biologist: Ken Fone
Dates: September 12 - 18, 2014

Turbine Operation

Unit 3 was taken out of service on July 7 at 1346 hours to investigate a generator electrical grounding problem. Annual maintenance of unit 3 is also taking place. Unit 5 was removed from service on September 9 at 0800 hours for annual maintenance.

Units were operated within 1% of peak turbine efficiency as specified in the Fish Passage Plan.

Adult Fish Passage Facilities

Fish facility personnel inspected the adult fishways on September 15, 16, and 17.

Fish Ladders: The north fish ladder inspection areas (head differentials at fishway exit and picketed leads, and depth over weirs) were in criteria on all inspections. The south fish ladder inspection areas (head differentials at fishway exit and picketed leads, and depth over 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. Fish ladder exits were clear of debris and the bubblers were operating satisfactorily. Both the north and the south shore picketed leads are lowered in their deployed positions.

Fishway Entrances and Collection Channel (inspection date order): The south shore entrance (SFE) depth and channel/tailwater differential were in criteria on all inspections. The north powerhouse entrance (NFE) depth and channel/tailwater differential were in criteria on all inspections. The north shore entrance (NSE) depth and channel/tailwater differential were in criteria on all inspections. Fishway entrance criteria are 8 feet depth or greater, or on sill. Channel/tailwater differential criteria are 1 – 2 feet.

Auxiliary Water Supply System: Two of the 3 north shore fish pumps were operated throughout the week. Six of the 8 south fish pumps were operated.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: There was little to no debris observed in the forebay and gatewells.

STSs/VBSs: STSs are in their deployed positions for juvenile fish guidance and have been in cycle run mode since July 21. Units 1, 2, 4, 5, and 6 STS inspections and unit 5 VBS inspections were performed on August 18 and 20. No significant problems were found. The next STS inspections are scheduled for the week of September 22.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: The juvenile fish bypass was placed in operation on March 17. Twenty orifices are open.

Juvenile Bypass Facility: The bypass is in operation.

Fish Sampling: Sampling operations began on April 2 and ended on July 15.

Removable Spillway Weir: The contractor for the spillbay 2 ogee and flow deflector modification began mobilizing materials and equipment to the project on September 9.

River Conditions

Spill in support of fish passage began on April 3, 2014 and ended on August 31. 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* (^{o}F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
28.1	15.7	0	0	68	67	8.2	7.8

*Unit 1 scrollcase temperature.

Other

Inline Cooling Water Strainers: Monthly turbine cooling water strainer inspections of units 1, 2, 4, 5, and 6 took place on August 18 and 20. A total of 21 Siberian prawn mortalities were found. The next inspections are scheduled for the week of September 22.

Invasive Species: No new exotic species have been found.

Avian Activity: Contracted hazing of piscivorous birds for 16 hours per day began on April 1 and ended on June 30. The piscivorous bird count program at the project began on April 1 and ended on July 15. Relatively low numbers of cormorants, gulls, and pelicans were seen around the project during the week.

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

Project: Lower Monumental
Biologists: Bill Spurgeon and Ray Addis
Dates: September 12 - 18, 2014

Turbine Operation

The units are being operated in hard constraint of the 1% operation criteria. Unit 3 was out of service on September 17 and 18 for an oil pressure issue. Unit 5 was down on September 12 for exciter maintenance and back to standby mode on September 13. Unit 6 was down for overhaul.

Adult Fish Passage Facility

The adult fishway was inspected by Corps and PSMFC/State biologists on September 12, 13, 14 and 17.

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 out of criteria (1'-2') on September 12 inspection at 0.5 feet. Operator adjusted weir gates to bring it back into criteria.

SPE1 and SPE2 weir gates were in sill criteria (criteria: ≥ 8' or on sill) on all inspections. While on sill the gate depth readings were 7.1', 7.1', 6.9', and 7.1 feet. South powerhouse channel/tailwater head was in of criteria (1'-2') on all inspections.

SSE1 weir gate was in sill criteria (criteria: ≥ 8' or on sill) on all inspections. While on sill, the gate depth readings were 8.4', 8.2', 7.9' and 8.2 feet. SSE2 was in criteria (6' above sill) on all inspections. South shore channel/tailwater head was out of criteria (1'-2') on September 12 inspection at 0.8 feet. Operator adjusted weir gates to bring it back into criteria.

The collection channel velocity remained in criteria (1.5 - 4.0 ft/sec) this week.

Any criteria violations at the fishway entrances are related to the failure of the PLC (Programmable Logic Circuit) for automated control. Without automated control, the FCRG (Fishway Control Regulating Gate) drifts closed causing the fishway entrance head to go out of criteria at the south shore entrances. Operators are manually controlling the FCRG and fish pumps to maintain head and depth criteria at fishway entrances. The loss of the fishway PLC also caused all weir gates to be placed in local control. This results in criteria violations if monitoring and adjustment does not occur as tailwater level fluctuates. To minimize this, SPE1 and SPE2 are placed on sill.

The replacement PLC for automated control of the fishway has been received. It is currently undergoing programming. The automated system was estimated to return to service in August. The operators have been instructed to conduct a physical inspection on night shift to replace the FPP inspection via data screen conducted normally on that shift.

Auxiliary Water Supply System: All AWS pumps were in service and operating throughout this period.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: There was an average of 16 square yards of forebay debris observed during this period. Gatewell debris ranged from 0 - 5% surface coverage. Oil absorbent pads were placed in 4 gatewells due to a sheen that was likely caused by grain dust.

STSs/VBSs: STSs are operating in cycle run mode. STSs were inspected September 9 and 10. All screens passed inspection.

Orifices, Collection Channel, Dewatering Structure, Flume: The collection channel is operating with 18 orifices open.

Collection Facility: Recently, sampled fish began showing symptoms consistent with Columnaris disease. On September 12, in concurrence with FPOM recommendations at the September 11 monthly meeting, juvenile fish began to be collected for the day of transport only and bypassed on alternate days. Fish collected to 0700 hours on September 12 were released to the river. Fish collected after that time were held for transport on September 13. This action was implemented to reduce fish stress and holding time. No fish are being held more than 24 hours before transport. These changes in fish transportation operations are similar to what has been done in the past at the Lower Monumental Juvenile Fish Facility under these types of circumstances.

Transport Summary: Alternate day trucking is in progress.

River Conditions

Summer spill ended at 0000 hours on September 1. 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 (^{o}F)*		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
26.8	16.9	0.0	0.0	68.0	65.5	5.0	4.5

*Scrollcase temperatures.

Other

Inline Cooling Water Strainers: Cooling water strainers were inspected on September 8. No live fish were recovered. Mortalities included l adult lamprey, 8 shad and 17 prawns.

Invasive Species: No zebra mussels were observed at the monitoring stations on September 6.

Avian Activity: Daily tailrace counts of feeding piscivorous birds are summarized in Table 2 below. Cormorants were the dominant species observed during inspections this week. Hazing for the season ended on June 2. No additional action trigger points were met from the avian action plan through this time period.

Table 2. Tailrace Counts of Foraging Piscivorous Birds at Lower Monumental Dam.

Date	Time (hours)	Gulls	Cormorants	Terns
September 12	1100	2	2	0
September 13	1100	1	2	0
September 14	1100	3	21	0
September 15	1110	1	6	0
September 16	1100	7	4	0
September 17	1100	0	5	0
September 18	1100	1	2	0

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

Project: Little Goose
Biologist: James Brandon
Dates: September 12 - 18, 2014

Turbine Operation

Turbine units 1, 2, 4 and 6 were available for this report period. Unit 3 was placed out of service on July 7 at 0700 hours for a planned six year overhaul. Unit 5 was out of service this report period as Station Service Transformer 1 is not working properly. All available turbine units were operated within 1% peak efficiency range.

Adult Fish Passage Facility

Adult fishway inspections were performed on September 16, 17 and 18.

Fish Ladder: Ladder exit differentials ranged between 0.0 and 0.1 ft. (criteria $\leq$ 0.5 ft.). Water depths over the weirs ranged between 1.1 and 1.3 feet (criteria 1.0-1.3 ft.). No differential was observed at the picketed leads (criteria $\leq$ 0.3 ft.). No debris was observed at the picketed leads or the ladder exit. The air bubbler used to prevent debris from collecting near the ladder exit operated satisfactorily.

Fishway Entrances and Collection Channel: Channel to tailwater head differentials ranged between 1.1 and 2.0 feet (criteria 1.0 to 2.0 ft.). SSE weir depths ranged between 8.1 and 8.4 feet (criteria $\geq$ 8.0 ft). NPE weirs ranged between 6.5 and 6.9 feet (criteria $\geq$7.0 ft). NSE weirs are in manual mode and depths ranged between 6.4 and 7.0 feet (criteria $\geq$ 6.0 ft.). Collection channel surface water velocity near north shore entrance ranged between 1.9 to 2.5 fps (criteria 1.5 to 4.0 fps). North powerhouse surface water velocity measured between 1.6 and 2.5 fps.

Auxiliary Water Supply System: All fish pumps operated within criteria.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: Estimated amounts of woody debris in the immediate forebay ranged between 0 and 100 sq ft.

Spillway Weir: The spillway weir was removed from service on August 4.

ESBS/VBS: All ESBSs operated within criteria this report period.

Orifices, Collection Channel, Dewatering Structure, and Flume: The number of opened orifices in the juvenile collection channel was previously reduced to 19 opened orifices due to an increase in forebay elevation.

Transportation Facility: The collection and transportation facility operated within criteria this report period. Daily fish collection ranged between 15 and 76 and totaled 251 for the week. The descaling and mortality rates were 0.5% and 5.48% respectively. This weekly report period saw 2 adult lamprey removed from sample and released above the dam at Little Goose Landing.

Transport Summary: Every other day trucking continues with no problems encountered.

River Conditions

Table 1. River conditions at Little Goose Dam.

Daily Average River Flow (kcfs)		Daily Average Spill (kcfs)		Water Temperature* (^{o}F)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
26.6	16.9	0	0	66.0	65.1	6.0	5.5

*Ladder temperature.

Other

Inline Cooling Water Strainers: Cooling water strainers were not checked this report period.

Invasive Species: No zebra mussels were observed on the substrate monitor on September 13. The next inspection is scheduled for October 13.

Avian Activity: USDA-APHIS bird hazing ended on June 20.

Table 2. Maximum Daily Avian Counts (single observation) at Little Goose Dam.

Date	Time	Gulls	Cormorants	Caspian Terns	Pelicans
September 12	1200	20	30	0	0
September 13	1400	11	25	0	0
September 14	1800	20	19	0	0
September 15	1130	16	23	0	0
September 16	1600	18	17	0	0
September 17	1330	10	20	0	0
September 18	1130	13	15	0	0

Gas Bubble Disease: WDFW Gas Bubble Trauma monitoring concluded July 28.

Research: The University of Idaho continued their adult salmon and adult lamprey passage study.

Project: Lower Granite
Biologists: Elizabeth Holdren and Ches Brooks
Dates: September 12 - 18, 2014

Turbine Operation

Turbine units are being operated in the hard constraint 1% operating criteria. Unit 5 was removed from service for annual maintenance at 0657 hours on September 2. A contact issue with unit 5 blades and liner is being investigated. The expected return to service date for unit 5 is October 24.

Adult Fish Passage Facility

The fish ladder was inspected by Corps/PSMFC biologists on September 12, 16, and 17. Auxiliary Pump 1 was removed from service at 0831 hours on September 17 (Auxiliary Pump 1 is a permanent pump that draws water from the forebay and should not be confused with the rental pumps mentioned in previous reports or the Auxiliary Water System pumps mentioned below that draw water from the tailrace). Visual adult fish counts are scheduled to continue through October 31.

Fish Ladder: Fishway exit head differentials and depths over the weirs were in criteria (≤0.5' and 1.0-1.3', respectively) on all inspections. Picketed lead head differentials were in criteria (≤ 0.3') on all inspections.

Fishway Entrances and Collection Channel: NSE1 was out of criteria (criteria ≥7' or on sill) on all inspections. NSE1 depth readings were 4.9', 5.0', and 4.8 feet. NSE2 was out of criteria on two inspections with depth readings of 6.5' 4.6' and 5.2 feet. North shore channel/tailwater head was out of criteria (criteria 1'-2') on all inspections. The head differential readings were 0.3', 0.3', and 0.5 feet. NSE2 has been out of service since 2011 and is currently suspended with a hoist system at a compromised depth of 630.0 feet. The gate requires a complete rehab and will remain out of service until funding is available. Entrance weir depths are being sacrificed in an attempt to maintain channel/tailwater head differential.

NPE1 and NPE2 weir gates were in depth criteria (criteria ≥8' or on sill) on all inspections. North powerhouse channel/tailwater head was out of criteria (criteria 1'-2') on two inspections with readings of 0.8' and 0.8 feet.

SSE1 and SSE2 weir gates were in depth or sill criteria (criteria ≥8' or on sill) on all inspections. While on sill the gate depth readings were 6.6' and 7.4 feet. South shore channel/tailwater head was in criteria (criteria 1'-2') on all inspections

Collection channel velocity was out of criteria (criteria 1.5-4.0 fps) on all inspections. The daily average channel velocity readings were 0.9, 1.0, and 1.0 feet per second. It is likely these reading are inaccurate due to a faulty velocity meter. The powerhouse electrical crew is

investigating the problem and looking into alternatives for velocity meter replacement. Physical surface velocity readings were taken at the north and south shore channels. North shore channel surface velocity readings were 1.5 and 1.9 fps and south shore channel readings were 1.8 and 1.6 fps.

Auxiliary Water Supply System: All AWS were available for service. Pumps 1 and 3 were operated and fish pump 2 was in standby mode.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: Forebay debris quantities varied during the week due to wind strength and direction. Daily monitoring and removal of gatewell debris continued.

ESBSs/VBSs: ESBSs are deployed in all units. The brush cleaning cycle is set for once every two hours. ESBSs/VBSs in unit 4 were inspected on September 8. All screens passed inspection.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe: Orifices are backflushed every 3 hours. Debris levels remained light during the week.

Collection Facility: The collection facility is operating at a 100% sample rate.

Transport Summary: Every-other-day midi-tank truck transport is occurring with trucks departing on odd numbered days in September.

River Conditions

Summer spill operations ended at 0001 hours on September 1. 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^o)		Water Clarity (Secchi disk - feet)	
High	Low	High	Low	High	Low	High	Low
22.9	21.1	0.0	0.0	65.5	63.5	4.4	3.9

*Cooling water intake temperature.

Other

Inline Cooling Water Strainers: Unit cooling water strainers were inspected on August 25. There were no live lamprey or lamprey mortalities recovered. No other fish species were recovered. The combined unit run time was 666.5 hours.

Invasive Species: No zebra/quagga mussels were observed at the monitoring station on August 2.

Avian Activity: Daily piscivorous bird counts are taken from the juvenile fish separator platform one hour after sunrise and one hour before sunset. Maximum picivorous bird counts are summarized in Table 2.

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

Date	Time (hours)	Gulls	Cormorants	Terns
September 12	0710	2	43	0
September 13	0710	2	9	0
September 14	0710	3	25	0
September 15	0710	3	18	0
September 16	0710	0	11	0
September 17	0710	0	10	0
September 18	0720	14	17	0

Adult Fish Trap Operations: The adult fish trap facility was in 24 hours operation at a 10% sample rate. Collection of fall adult Chinook for truck transportation to Lyons Ferry Hatchery and for the Nez Perce Hatchery at Cherry Lane continued. Nez Perce personnel are transporting on Sundays and Mondays and Lyons Ferry Hatchery personnel are transporting fish Tuesdays through Saturdays.

Research: Onsite juvenile fish research has concluded for the year.