U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
FISH FACILITIES WEEKLY REPORT
#10-2013

Project: McNary
Biologists: Carl Dugger and Bobby Johnson
Dates: May 3 – May 9, 2013

Turbine Operation

McNary had 12 units available for power generation this week. On April 1, the hard constraint one percent criteria began. On May 7, several units briefly ran outside the criteria. Unit outages are recorded in Table 1.

Table 1. Unit Outages at McNary Dam.

Units	Outage Dates	Outage Length	Reason
3	Jun 4, 2012 – May 24	About one year.	After rewind, thrust bearing.
14	Sep 18 – May 24	About eight months.	Turbine bearing issues continue.
5 & 8	May 5	Briefly once & twice each.	Reduce VBS differentials.

Adult Fish Passage Facilities

On May 3, 6 and 8, the McNary fisheries biologists performed measured inspections of the adult fishways. When the juvenile facility is in primary bypass, the fisheries staff helped to monitor the picketed leads. Visual fish counting continues.

Fish Ladders' Exits: During the inspections, all Fish Passage Plan criteria were met on both ladders' exits. The project cleaned both exits' picketed leads regularly including on the weekends when the fisheries staff cleaned the Washington leads. Debris loads along the Washington shore have been fluctuating.

At the Washington exit, on May 8, the weirs were briefly in manual for a training exercise. On May 9, the operators adjusted the set points once because the water was slightly high.

At the Oregon exit, there were 12 false traveling screen alarms which the operator reset. Our differential monitoring of the screens revealed no problems. Tumbleweeds are along some of the shoreline.

Fishway Entrances and Collection Channel: At the Washington ladder entrance, all inspection points were in criteria. Spill turbulence is causing calibration drifts which are very difficult to correct. On May 8, the biologist noted weir W3's south cable had a slight amount of slack. This

is the weir the project had been recently repaired and it is functioning well. Due to fish counts, for now, the project will just monitor the weir.

At the Oregon ladder entrances, all points appeared to be in criteria. However, on May 3, at north power house entrance, NFEW2's cables were slack enough that the weir may have been out of criteria. Replacing the rollers on NFEW2 and NFEW3 is under regional discussion.

At the south power house entrance, we continue to note calibration drifts at SFEW1. The project is monitoring the issue.

The Oregon ladder's collection channel velocity average 4.8 feet per second.

Auxiliary Water Supply System: For the report week, the Wasco county PUD in the Washington ladder had no interruptions.

For the Oregon ladder, fish pumps 1 and 3 operated all week with blade angles of 30 degrees and one interruption. On May 6, both pumps were out of service for 20 minutes for a bus switch. Pump 2 remains out of service for major overhaul which will require a contract.

The juvenile facility continues to supply the usual 450 cfs to the north powerhouse pool.

Juvenile Fish Passage Facility

The spring season with alternating days of primary and secondary bypass with the switch occurring every morning at 0700, continues. No deviations from this schedule occurred. We bypassed 570,336 smolts and 7,660 juvenile lampreys this week.

Forebay Debris/Gatewell Debris/Oil: For the week, forebay debris was light to heavy with most of it being at the powerhouse. Weather, debris infusion and project operations affected the debris' dispersal.

The highest trash rack different the fisheries staff measured was on May 9 at 1A slot and was 1.7 feet. The project plans to continue cleaning trash racks next week.

We noted no problems in the gatewell slots.

ESBSs/VBSs: All ESBS's are installed except at units 3 and 14 which are out of service. The screen at 2A slot remains in timer mode. On May 4 and 5, the biologist again found the screen's the brush mechanism short cycling. Each time the operator recalibrated the device. On May 6, the technical staff examined the screen's PLC. We will begin camera inspections in mid May.

On May 5, our VBS differential monitoring revealed three screens out of criteria. The operator "burped" the units which reduced the differentials as the general maintenance crew was not available. The next day, the crew cleaned these screens and three others. On May 7 and 9, one differential per day was high and the screen was cleaned. Also, on May 7, the maintenance crew

did preventative maintenance checks of VBS's at unit 2, 3A slot, 4A slot and 9A slot to 12A slot which includes cleaning for a total of 15 screens.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: For the week, we had 42 orifices open with no problems observed. During VBS cleaning and maintenance, we closed the orifices at the slot and opened spares at adjacent slots. On May 7, two water alarms occurred while a technician was exchanging orifices. We reviewed protocols.

All systems operated well in automatic mode. The transition screen cleaning device remains out of service until it can be examined during a channel dewatering.

Finally, the fisheries staff monitored the channel during primary bypass.

Transportation Facility: With the spring bypass season, both primary and secondary bypass modes return all fish are to the river. PIT tag detection will occur in the full flow pipe during primary bypass and throughout the facility during secondary bypass. Smolt monitoring will occur on secondary bypass days.

We turned the sample gates on and off every other day to be on with secondary. The gates functioned well. The primary PIT tag system remains off as the bypass lines provide a better route for the fish than the PIT lines. Also, PSMFC preformed the weekly test of the PIT system. The secondary PIT/bypass gates remain off and open for bypass season.

We continue to do ice block checks of the return to river lines, though the bypass outfall is too far away to see the blocks exit the pipe even with binoculars.

Transport Summary: There is nothing to report.

River Conditions

River conditions during the week are outlined in Table 2 as provide the smolt monitoring staff, PSMFC. The data day runs from 0700 to 0700.

The spring spill season which calls for 40 percent of flow being spilled and both TSW's in operation continues. On May 9, due to flow in excess of powerhouse capacity, 46 percent of flow was spilled.

Table 2. River conditions at McNary 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
272.2	219.4	125.5	88.1	54.3	49.5	6.0	6.0

*****Control room data.

Other

Inline Cooling Water Strainers: The project examined the main unit cooling water strainers on May 7 and only found 24 lost juvenile lampreys.

Invasive Species: The next zebra mussel station examination will occur in late May.

Avian Activity: We continue bird counts with each zone being observed once a day usually in the morning. In the forebay, we observed a high count of five gulls with an occasional grebe, pelican or osprey seen. Also, we noted pelicans and gulls on the rocks by the Washington boat dock.

We noted no grebes in the gatewell slots.

In the tailwater area, we had high count of 45 gulls with an occasional pelican noted. Most of the birds were in the spill basin. We observed a high count of 16 gulls with an occasional pelican noted by the bypass outfall.

Hazing personnel continue to work seven days a week with two shifts covering the day light hours. Also, lethal take of gulls has been allowed for this year. Finally, the propane hazing and water cannons continued to function well.

Research: The FGE study continues at units 6, 7, 12 and 13. GBT examinations continue. On May 6, the Oregon exit traveling screen study researcher was noted on project with the debris basket installed at the screens' trough.

Project: Ice Harbor
Biologist: Mark Plummer
Dates: May 3 – May 9, 2013

Turbine Operation

Turbine units 1- 4 and 6 are in service. Turbine unit 5 remained out of service due to blade cracking.

Adult Fish Passage Facilities

Fish facility personnel inspected the adult fish ways April 29, April 30, and May 1.

Fish Ladders: The north and south shore adult fish ladder inspection areas (picketed leads, head differentials, fish way exits, and depth over weirs) were within criteria.

Fishway Entrances and Collection Channel (inspection date order): The south shore entrance (SFE) was off sill with a depth of 8.7 feet, off sill with a depth of 8.6 feet, and off sill with a depth of 10.6 feet. The north powerhouse entrance (NFE) was on sill with a depth of 10.7 feet, off sill with a depth of 9.1 feet, and off sill with a depth of 10.3 feet. The north shore entrance (NSE) was on sill with a depth of 7.8 feet, on sill with a depth of 7.8 feet, and off sill with a depth of 10.8 feet. Fishway entrance criterion is 8 feet depth, greater than 8 feet depth, or on sill. All channel/tailwater differentials were in criteria. Channel/tailwater differential criteria are 1 – 2 feet.

Auxiliary Water Supply System: 2 of the 3 north shore fish pumps were operated without problems. 6 of 8 south fish pumps are in service. All south fish pumps are available for operation.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: No problems to report. Fish ladder exits are clear of debris and the bubblers are operating.

STSs/VBSs: STSs are in operation. No problems were found on the April inspections. May STS/VBS inspections are scheduled for May 21 and 22. Turbine strainer inspections will be done at the same time.

Orifices, Collection Channel, Dewatering Structure, and Bypass Pipe: The juvenile bypass is watered up with 20 open orifices. The dewatering screen brush lifting cable was repaired and continues to be a problem. The cable comes off of the sheave and will not lift the brush off the screen.

Juvenile Bypass Facility: No problems to report.

Fish Sampling: The first sample is scheduled for April 8. Sampling days will alternate from Monday and Wednesday to Tuesday and Thursday each week.

Removable Spillway Weir: The RSW is in operation. Spill for fish began April 3, 2013.

Fish Sampling:

May 6:

Species	Sampled	#Descaled	Morts	Avian Marks
C-CH	43	4	0	0
UC-CH	17	1	0	0
C-CH-O	---	---	---	---
UC-CH-O	---	---	---	1
C-SH	50	2	0	4
UC-SH	3	0	0	0
C-COHO	---	---	---	---
UC-COHO	---	---	---	---
C-SOCK	---	---	---	---
UC-SOCK	---	---	---	---
TOTAL	113	7	0	5

May 8:

Species	Sampled	#Descaled	Morts	Avian Marks
C-CH	34	1	0	2
UC-CH	26	1	0	0
C-CH-O	---	---	---	---
UC-CH-O	---	---	---	---
C-SH	41	0	0	2
UC-SH	4	0	0	0
C-COHO	---	---	---	---
UC-COHO	---	---	---	---
C-SOCK	---	---	---	---
UC-SOCK	---	---	---	---
TOTAL	105	2	0	4

River Conditions

River conditions during the week are outlined in Table 1.

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
81.9	57.8	58.0	47.3	52	51	5.2	4.9

*Unit 1 scrollcase temperature.

Other:

Inline Cooling Water Strainers: Main turbine cooling water inspections for May are scheduled for 22 and 23.

Invasive Species: No invasive species were detected this week.

Avian Activity: Formal bird counts began April 8 and are in progress. Hazing activities by APHIS began April 1.

Project: Lower Monumental
Biologists: Bill Spurgeon and Elizabeth Lindsey
Dates: May 3 – May 9, 2013

Turbine Operation

The units are being operated in hard constraint of the 1% operation criteria. Units were rotated out of service on May 6, 7, and 8 for STS inspections. Unit 4 was out of service from 1830 hours on May 6 through 1724 hours on May 7 due to moisture in the control panel tripping the lockout relay at shutdown.

Adult Fish Passage Facility

The adult fishway was inspected by Corps and PSMFC/State biologists on May 3, 4, 5, 6, and 8.

Fish Ladders: Fishway exit head differentials and depths over the weirs were within criteria ($\leq$ 0.5' and 1.0'-1.3', respectively) on all inspections. Picketed lead head differentials were in criteria ($\leq$ 0.4' and $\leq$ 0.3' for north and south shore fishways, respectively) on all inspections.

Fishway Entrances and Collection Channel: NSE1 and NSE 2 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.

SPE 1 and SPE 2 weir gates were in sill criteria (criteria: $\geq$ 8' or on sill) on all inspections. While on sill, the gate depth readings were 6.0', 6.5', 5.6', 6.8', and 6.8 feet. South powerhouse channel/tailwater head was in criteria (1'-2') on all inspections.

SSE1 weir gate was in sill criteria (criteria: $\geq$ 8' or on sill) on all inspections. While on sill, the gate depth readings were 6.3', 6.9', 6.1', 7.1', and 7.1 feet. SSE 2 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 1 and 3 were operated throughout this period. Two pump operation will continue until bearing repair and shaft alignment work is completed on pump 2, approximately July 15.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: There was an average of 1.4 square yards of forebay debris observed during this period. Gatewell debris ranged from 0-9% surface coverage. No oil was observed in gatewells.

STSs/VBSs: STS's are operating in cycle mode. STS's were inspected May 6, 7, and 8. All screens passed inspection.

Orifices, Collection Channel, Dewatering Structure, Flume: The collection channel is operating with 19 orifices open.

Collection Facility: Facility operation changed to collection for transport on May 7 at 0700 hours.

Transport Summary: Every-day barging began on May 8.

River Conditions

River conditions during the week are outlined in Table 1.

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
93.9	53.4	29.9	23.4	55.0	51.0	4.2	3.9

*Scrollcase temperatures.

Other

Spring spill operation is occurring.

Inline Cooling Water Strainers: Cooling water strainers were inspected on May 1. No live lampreys were recovered. Mortalities included 5 juvenile lamprey, 16 juvenile salmon, and 3 juvenile steelhead.

Invasive Species: There were no zebra mussels observed at the monitoring stations on May 5.

Project: Little Goose
Biologists: Richard Weis
Dates: May 3 – May 9, 2013

Turbine Operation

Turbine units 1 through 6 were available for service throughout this report period. Unit 4 was forced out of service on April 28 due to exciter regulator problem and returned to service on May 3. Turbine units were operated within the 1% criteria.

Adult Fish Passage Facility

USACE and ODFW fisheries biologists performed measured inspections of the adult fishway May 03, 06 and 07.

Fish Ladder: The ladder exit head differentials ranged between 0 and 0.1 feet (criteria $\leq$ 0.5 ft.). Water depths over the weirs ranged between 1.1 and 1.2 feet (criteria 1.0-1.3 ft.) and picketed lead head differentials remained steady at 0 feet (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 1.5 and 2.2 feet (criteria 1.0 to 2.0 ft.). SSE weir depths ranged between 8.3 and 8.4 feet (criteria $\geq$8.0 ft). As a result of two pump operations and decreased channel to head differentials, NPE2 remained closed. NPE1 weir rested on sill and depths ranged 5.1 and 5.5 feet (criteria $\geq$7.0 ft or on sill). NSE weirs are at fixed elevations of 532.0 feet and depths ranged between 5.0 and 5.7 feet (criteria $\geq$ 6.0 ft.). Collection channel surface water velocities (criteria 1.5 fps) measured 2.0 for the single reading near the NSE. Surface water velocities at the junction pool were not measureable due to up-welling from diffuser 2 that dominated over lateral laminar flows.

Auxiliary Water Supply System: Fish pumps one and two operated within criteria ranging between 77 and 79 rpm. Fish pump 3 remains out of service and is undergoing repairs.

Juvenile Fish Passage Facility

Forebay Debris/Gatewell Debris/Oil: Woody debris observed this week ranged from 100 to 2,000 square feet inside the trash shear boom. Drawdowns measurements were performed on Turbine units 1, 2 and 3 on May 1. All measurements were within proper operating range and indicated no significant buildup of debris on trashracks, ESBS and VBS.

Spillway Weir: The spillway weir was changed to the lower crest position on May 9.

ESBS/VBS: All ESBS operated within criteria this report period. Video inspections of the VBS screens for units 1 were performed on May 10. Inspections on units 3 and 4 were performed on May 08 and Units 5 and 6 were done on May 07. All screens were found in good condition.

Orifices, Collection Channel, Dewatering Structure, and Flume: The juvenile collection system was operated throughout this period with 22 to 23 open orifices.

Transportation Facility: The facility switched from primary bypass to 24 hour collection on May 02 at 0700. The first everyday barge departed LGO on May 3. Total fish collection for the week ranged between 47,600 and 135,001 for a total of 639,446. The descaling and mortality rate was 0.7% % and less than 0.2% respectively.

Transport Summary: Direct loading operations commenced May 2 at 0700 hours. The first barge departed Little Goose on May 03.

River Conditions

River conditions during the week are outlined in Table 1.

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
89.8	52.2	22.6	15.5	53.4	52.8	5.0	4.0

*Ladder temperature.

Other

Inline Cooling Water Strainers: No cooling water strainers were inspected during this reporting period.

Invasive Species: The Zebra Mussel substrate monitor was inspected on May 7. No mussels were observed.

Avian Activity: Maximum bird count from single survey included 12 cormorants, 180 gulls and 2 pelicans. USDA-APHIS bird hazing started on April 1 and continued through this report period.

Research: Gas Bubble Trauma research was conducted on May 06. No signs of GBT were observed.

Project: Lower Granite
Biologists: Mike Halter and Ches Brooks
Dates: May 3 – May 9, 2013

Turbine Operation

Lower Granite had all turbine units available for power generation at the beginning of the report period. Turbine unit 6 was out of service from 1007 until 1235 hours on May 9 in support of a gatewell dipping operation (see below).

Adult Fish Passage Facility

On May 3, 4 and 6 the Lower Granite fisheries biologists performed measured inspections of the adult fishway system.

Fish Ladder: All criteria were met.

Fishway Entrances and Collection Channel: Head differential readings remained within criteria at all fishway entrances during the period inspections.

Weir depths at the south shore fishway entrances also met criteria during all weekly inspections. The north powerhouse fishway entrances were on sill during all inspections this week with depths of 5.3– 5.7 feet due to tailwater elevations below 636.0 feet (these gates bottom out at elevations below 636.0 feet). Weir depths at the north shore entrances ranged from 3.3 to 5.1 feet (criterion $\geq$ 7.0 feet). Only north shore entrance 1 can adjust its' depth relative to the tailwater elevation. North shore entrance 2 is manually set at a compromise depth of 630.0 feet. Normally weir depth readings at the north shore entrances are sacrificed in order to maintain the requisite 1.0 foot of head differential.

Velocity readings in the adult fishway collection channel transition pool area ranged from 0.96 to 1.13 feet per second and averaged 1.05 feet per second.

Auxiliary Water Supply System: Fish pumps 1 and 3 were operated during the week. There were no problems.

Juvenile Fish Passage Facility

Sample rates varied between 1% and 0.5% during the report week. Fish collection numbers bounced around quite a bit during the week and the rate was increased (or decreased) in attempt to supply enough fish for research marking operations without exceeding general sample guidelines.

Forebay Debris/Gatewell Debris/Oil: The amount of forebay debris varied during the week due to wind strength and direction; none was removed.

ESBSs/VBSs: VBS/ESBS video inspections took place on April 19-20. The next video inspections are scheduled for May 17-18. A gatewell dipping operation took place on May 9 in attempt to determine if the replacement fish screens obtained from John Day Dam caused increased fish descaling in comparison to the fish screens presently in use. At the present time, a John Day fish screen is installed in the C slot on turbine unit 6 only. The "A", "B" and "C" slots of turbine unit 6 were dipped and a total of 287 smolts were examined (101 from slot 6A, 116 from slot 6B and 70 from slot 6C). No descaled fish were found in 6A. Three descaled fish were found in 6B and one descaled fish was found in 6C. This operation is scheduled to continue one day per week through the month of June.

Orifices, Collection Channel, Dewatering Structure, Bypass Pipe: Orifices are being backflushed every three hours around the clock in an attempt to keep them free of materials that might impact fish passage.

Transportation Facility: Every day barge transport operations at Lower Granite began on May 2. All operations to date have been going smoothly. Debris has been light and we have been able to direct load barges at Lower Granite a relatively high percentage of the time.

Transport Summary: The first everyday barge left Lower Granite on May 2. The only research barge of the season (index barging) departed Lower Granite on April 26. Research fish are now being barged along with the general fish collection. Every day barging from Little Goose began on May 3 and Lower Monumental began on May 8. Every day fish barging is scheduled to continue through the month of May.

Removable Spillway Weir: Mandatory spill operations began at 0000 hours on April 3. The RSW was operated in support of general spill operations.

River Conditions

River conditions during the week are outlined in Table 1.

Table 1. River conditions at Lower Granite 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
93.2	53.4	20.3	18.4	52.4	52.1	5.0	4.5

*Scrollcase temperature.

Other

Video counts in the adult fish ladder counting room began on March 1 and concluded on March 31. Visual counting between the hours of 0400 and 2000 began on April 1.

Inline Cooling Water Strainers: Cooling water strainers were last inspected for lamprey entrainment on April 30. A total of 78 lamprey were found in the strainers over a combined run time of 2,007 unit hours. The next cooling water strainer inspections are scheduled for late May.

Invasive Species: The zebra mussel substrate near the adult fishway exit was examined for zebra mussels on May 6. No evidence of zebra mussels was found. The next inspection is scheduled for early June.

Avian Activity: Formal bird counts and hazing started on April 1. Gulls are presently being hazed from dawn to nearly dusk and the control agents have been very successful in keeping them out of the tailrace area of the dam.

Adult Fish Trap: The adult fish trap was watered up and sampling began on March 4. The sample rate is now 25%. Since in 2013 adult trapping will only be conducted Monday thru Friday the 25% sample rate represents an overall weekly sample rate of 21%. Genetic samples will be taken from one out of every 10 hatchery steelhead. All wild steelhead captured will be PIT-tagged and scale and genetic samples taken. Any previously PIT-tagged steelhead (either hatchery or wild) will have both scale and genetic samples taken for verification purposes.

Research

Idaho Fish and Game (IDFG) Genetic Stock Identification: The goal of this study is to develop fine-scale genetic profiles for natural origin salmon and steelhead; develop genetic stock identification (GSI) techniques to estimate stock-specific escapement over LGR, monitor abundance, productivity and distribution of naturally produced adult and juvenile steelhead and salmon; research and monitor stock-specific life history characteristics. At LGR the goal of the study will be to enumerate and characterize the natural production of spring/summer Chinook salmon and steelhead above LGR with regards to age composition and genetic stock profiles. IDFG will sample Monday through Friday until the first part of July with the goal to collect between 2,000-5,000 genetic samples each from yearling spring/summer Chinook and steelhead and 500-3,000 genetic samples from subyearling fall Chinook.

Biological Evaluation of Prototype Overflow Weir and 14 inch Orifice: A prototype overflow weir and enlarged 14 inch orifice were installed into intake gatewell 5A during the winter. These structures will be evaluated by UC Davis, Biomark and Blue Leaf Environmental. Biological testing will take place from April 15-June 30; the goal is to release 350 hatchery steelhead and 350 hatchery yearling Chinook into the gatewells six days a week, beginning April 15. When yearling spring/summer fish numbers decline 350 hatchery subyearling Chinook will be collected and released.

Nez Perce Tribe (NPT)/U. of Idaho (UI)/Columbia River Intertribal Fisheries Commission (CRITFC) – Kelt Study: The goal of this research project is to study the physiology and endocrinology of steelhead kelts to evaluate the feasibility and success of several strategies for rehabilitating and handling steelhead collected at LGR. Also, to understand and identify the suite of physiological changes that occurs in Snake River steelhead during the process of sexual

maturity, and to determine changes that occur post spawning that are associated with successful downstream migration and recovery to spawn again. As part of this collaborative study to investigate approaches to increase adult steelhead returns the NPT will select up to 150 fish for transport to the Dworshak National Fish Hatchery holding facility.

United States Fish and Wildlife Service (USFWS), United States Geological Service (USGS), Pacific Northwest National Laboratory (PNNL) and National Marine Fisheries Service (NMFS) –Holdover fall Chinook Study: This study is part of the regional discovery based research titled "Investigating passage of ESA-listed fall Chinook salmon at Lower Granite Dam during winter when the fish bypass system is not operated". This is a cooperative study of the survival and prevalence of the reservoir-type life history of juvenile fall Chinook salmon in the Snake River and the passage of subyearlings and reservoir-type fish through the lower Snake River. This part of the study collects PIT-tagged yearling fall Chinook holdovers in the Sort by Code tanks at LGR from the 2012 release of Dworshak hatchery fish.

National Marine Fisheries Service (NMFS)-Monitoring the Migrations of Wild Snake River Spring/Summer Chinook: This study is done to monitor the migration behavior and survival of wild spring/summer Chinook salmon in the Snake River basin. The specific goals are to characterize the migration timing and estimate parr-to-smolt survival to LGR of different wild Chinook populations as they migrate from their natal rearing areas and determine migration patterns and what environmental factors influence those patterns. Fish were PIT-tagged during the summer of 2012 in natal streams and are diverted to the Sort by Code tanks at LGR.