



## Fish Passage Center

# Weekly Report #14 - 23

August 22, 2014

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### Summary of Events

#### Water Supply

Precipitation throughout the Columbia Basin has varied between 22% and 251% of average at individual sub-basins over the first 20 days of August. Precipitation above The Dalles has been 122% of average over August. Over the 2014 water year, precipitation has ranged between 78% and 97% of average.

**Table 1.** Summary of August precipitation and cumulative October through August 20, 2014, precipitation with respect to average (1971–2000), at select locations within the Columbia and Snake River Basins.

Location	Water Year 2014 August 1-20, 2014		Water Year 2014 October 1, 2013 to August 20, 2014	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia above Coulee	1.29	86	32.9	92
Snake River above Ice Harbor	1.23	205	17.4	81
Columbia above The Dalles	1.08	122	22.1	84
Kootenai	1.67	100	34.8	94
Clark Fork	1.03	98	21.1	80
Flathead	1.14	94	33.4	97
Pend Oreille River Basin above Waneta Dam	1.11	98	27.6	88
Salmon River Basin	1.58	181	21.4	78
Upper Snake Tributaries	2.23	251	23.9	93
Clearwater	0.90	91	34.9	89
Willamette River above Portland	0.16	22	52.0	83

Grand Coulee Reservoir is at 1284.5 feet (8-21-14) and has drafted 0.8 feet over the last week. Outflows at Grand Coulee have ranged between 93.7 and 120.7 Kcfs over the last week. The end of August draft limit at Grand Coulee is 1280 feet this year, with an additional 1.0 foot of draft by the end of August as part of the Lake Roosevelt Incremental Storage Release Program.

The Libby Reservoir is currently at elevation 2452.1 feet (8-21-14) and has drafted 1.3 feet over the previous week. Daily average outflows at Libby Dam have been 9.0 Kcfs over the last week.

Hungry Horse is currently at an elevation of 3556.2 feet (8-21-14) and has drafted 0.6 feet over the previous week. Outflows at Hungry Horse have been 2.4–3.0 Kcfs over the last week.

Dworshak is currently at an elevation of 1550.9 feet (8-21-14) and has drafted 4.2 feet over the previous week. Outflows over the past week ranged from 6.6 Kcfs to 8.7 Kcfs. During the afternoon of August 15, 2014, Unit #3 at Dworshak was forced out of service. As a result, outflows at the project have been reduced to 6.6–6.8 Kcfs with the operation of the remaining smaller units (4.4 Kcfs) and spill amounts of 2.0–2.3 Kcfs, limited by the 110% TDG Cap below the project. At these outflows, Dworshak would not be capable of drafting to elevation 1535 feet by the end of August, reducing river flows and cooling potential in the lower Snake River. As a result, the Salmon Managers submitted SOR 2014-2 to the Action Agencies on 8-20-14, which asked for outflows of 10 Kcfs to be restored at Dworshak while drafting to elevation 1535 feet by the end of August. To achieve this outflow with Unit #3 out of service, the SOR asked the U.S. Army Corps of Engineers to coordinate a temporary TDG waiver up to 120% below Dworshak (increased spill) while also coordinating with hatcheries below the project that may be impacted by the increased TDG. Currently, Dworshak continues to release approximately 6.6 Kcfs for lower Snake River water temperature control and flow augmentation.

The Brownlee Reservoir was at an elevation of 2057.6 feet on August 21, 2014, and has drafted 0.2 feet last week. Inflows to Brownlee Dam have ranged between 9.0 and 9.8 Kcfs last week.

The Summer Biological Opinion flow period began on June 21<sup>st</sup> in the lower Snake River (Lower Granite). According to the June Final Water Supply Forecast (June 6, 2014), the flow objective this summer is 52 Kcfs at Lower Granite. Flows at Lower Granite Dam have averaged 24.0 Kcfs over the past week and 43.2 Kcfs since the beginning of the summer flow period.

The flow objective at McNary over the summer period (July 1<sup>st</sup> to August 31<sup>st</sup>) is 200 Kcfs. Flows at McNary Dam have averaged 150.6 Kcfs over the past week and 198.1 Kcfs since the beginning of the summer flow period.

**Spill**

The Snake River projects transitioned to the summer spill program on June 21<sup>st</sup>. At the lower Columbia projects summer spill was initiated on June 16<sup>th</sup>. Summer spill operations throughout the FCRPS will continue until August 31<sup>st</sup>.

Unit 3 at Dworshak Dam failed and was forced out of service on August 15 at 1411 hours. Since that time, project outflow (which had been 10 Kcfs) was reduced to approximately 7 Kcfs in order to prevent exceeding the Nez Perce and State of Idaho 110% TDG standard. Increasing discharge from the project would require increasing the amount of spill, since the powerhouse now has a limited hydraulic capacity. The net effect of the operation is a reduction in flow through the lower Snake River. This means a significant reduction in spill volume and proportion at projects that spill flow in excess of that needed to operate one turbine unit (Lower Granite, Lower Monumental, and Ice Harbor dams). A System Operational Request was submitted to the Action Agencies on August 20<sup>th</sup> requesting that the Corps pursue coordination and/or a temporary waiver from the State of Idaho and the Nez Perce Tribe to exceed the TDG standard of 110%, up to a tailrace level of 120% as is used to manage spill in the mainstem Snake and Columbia rivers. At this time Dworshak continues with a project outflow of 7 Kcfs and spill remains reduced.

Spill at Lower Granite Dam was 18 Kcfs at the beginning of the week, but was only 9.5 Kcfs by

week's end. Spill at Little Goose Dam transitioned to a flat spill operation (7–11 Kcfs as described in the FOP) due to decreased river flows in order to achieve the prescribed spill level downstream at Lower Monumental Dam, and to maintain minimum operating pool operations. At Lower Monumental Dam, daily average spill was often less than the 17 Kcfs specified in the Fish Operations Plan due to low flow and powerhouse minimum operation requirements. Spill ranged from a daily average of 14.4 Kcfs at the beginning of the week, to as low as 7.1 Kcfs towards the end of the week. At Ice Harbor spill is occurring as river flow in excess of that needed for the operation of one turbine unit, ranging from a daily average of 12.3 to 22 Kcfs.

Project	Spill Level Day/Night
Lower Granite	18 Kcfs/18 Kcfs*
Little Goose	30%/30%
Lower Monumental	17 Kcfs/17 Kcfs*
Ice Harbor	45 Kcfs/Gas Cap*

\* FOP levels not achieved due to low flows and the requirement of operating one turbine unit.

At the Middle Columbia River projects, McNary Dam spilled 50% of daily average flow. At John Day Dam the 30% spill level is in effect. Spill at The Dalles Dam averaged 40% of total daily flow. Bonneville Dam spilled an alternating 85 Kcfs/121 Kcfs and 95 Kcfs/95 Kcfs.

Project	Spill Level Day/Night
McNary	50%/50%
John Day	30%/30%
The Dalles	40%/40%
Bonneville	85 Kcfs/121 Kcfs and 95 Kcfs/95 Kcfs

New in 2014 is a change in the way the U.S. Army Corps of Engineers will assess whether a project is in compliance with the total dissolved gas variances in place. The States of Oregon and Washington use different methodologies to estimate the 12-hour average TDG. For Oregon, the 12-hour average is based on the 12 highest hourly TDG measurements in a single calendar day (not necessarily consecutive). For Washington, the 12-hour average is based on 12-hour rolling averages. The highest of the rolling averages is what is reported as the 12-hour average for a given day.

In 2014, the location of a TDG monitor and/or type of monitor will dictate which of these methodologies is used for compliance monitoring. The Washington methodology will apply to all the lower Snake River projects, as well as the lower Columbia River forebay monitors (since Oregon does not have a forebay TDG requirement). On any given day the compliance of the tailrace monitors at the lower Columbia River projects will be determined using either the Washington or Oregon methodology, whichever is the most restrictive, and spill may be decreased if needed.

Monitoring for signs of gas bubble trauma (GBT) occurred at Rock Island Dam over the past week. No fish were observed with signs of GBT. The action criteria for GBT are 15% of total fish with any signs of GBT in the fins, or 5% with severe signs (Rank 3 or greater).

### **Smolt Monitoring**

Smolt monitoring is ongoing at all seven SMP dams (BON, JDA, MCN, RIS, LMN, LGS, LGR). Sampling at the SMP traps has been completed for the 2014 out-migration season.

Subyearling Chinook dominated the collections at all the SMP dam sites this week. When compared to last week, subyearling Chinook passage decreased at most of the SMP dam sites, with exception to LMN and RIS. Subyearling Chinook passage this week remained similar to last week at LMN and increased at RIS. Due to the high temperature protocol at JDA, comparisons in passage at are not possible.

High temperature sampling protocols were first implemented at Bonneville Dam (BON) after the July 30<sup>th</sup> sample and remained in effect this week. Under these high temperature sampling protocols, index sampling occurred every other day. All fish were bypassed on non-sample days. The high temperature protocol will remain in place until the daily average temperature in the forebay falls below 69.5°F. Subyearling Chinook passage at BON decreased this week, when compared to the previous week. The daily average passage index for subyearling Chinook at BON this week was about 7,400 per day. Last week's daily average passage index was about 16,800 per

day. Similar to last week, no Pacific lamprey were encountered in this week's samples at BON.

High temperature sampling protocols were first implemented at John Day (JDA) after the sample on July 31<sup>st</sup> and remained in effect this week. Under these high temperature sampling protocols, the SMP crew at JDA samples only twice a week (Monday and Thursday), for condition only. It is important to note that this type of sampling results in bias collection estimates, as sampling is not 24-hours. Therefore, it is not appropriate to compare passage index estimates during this period to those from previous weeks. Subyearling Chinook dominated the bypass samples at JDA this week. No Pacific lamprey juveniles were encountered in this week's samples at JDA. The high temperature sampling protocols will continue until the daily average temperature in the forebay falls below 69.5°F.

High temperature sampling protocols were in effect this week at McNary Dam (MCN). Under the high temperature protocols, sampling at MCN remains every other day except the target sample size for handling is reduced from between 300 and 500 to approximately 100 fish. As with BON and JDA, this high temperature protocol will remain until the daily average temperature in the forebay falls below 69.5°F. Subyearling Chinook passage decreased again this week when compared to the previous week. The daily average passage index for subyearling Chinook at MCN this week was about 12,300 per day. Last week's daily average passage index for subyearling Chinook was about 30,800. Pacific lamprey macrophthalmia were encountered in two of the four samples this week.

Barging in the Snake River ended after the August 16<sup>th</sup> sample, with every-other-day trucking beginning on August 18<sup>th</sup>. As a consequence, SMP staff at Lower Granite Dam (LGR) will work up two samples every other day, which means the FPC may be up to two days behind with SMP data from LGR. This week's daily average passage index for subyearling Chinook at Lower Granite Dam (LGR) was about 1,300 per day, which is a decrease from last week's daily average passage index of nearly 2,100 per day. Only three Pacific lamprey ammocoetes were sampled this week at LGR and no Pacific lamprey macrophthalmia were sampled.



Compared to last week, passage of subyearling Chinook decreased at Little Goose (LGS). This week's daily average passage index for subyearling Chinook at LGS was about 1,300 per day whereas last week's average was about 3,200 per day. Pacific lamprey ammocoetes were encountered in two of this week's samples at LGS while Pacific lamprey macrophthalmia were encountered in five of this week's samples. Due to the end of barge transportation after August 16<sup>th</sup>, SMP staff at Lower Monumental Dam (LMN) will work up two samples every other day, which means the FPC may be up to two days behind with SMP data from LMN. The switch to collections for truck transport also meant that the August 17<sup>th</sup> sample at LMN was a 16-hour sample, instead of the typical 24-hour sample. Subyearling Chinook passage at LMN this week was similar to the previous week, with a daily passage index of about 420 per day. No lamprey juveniles were encountered in this week's samples at LMN.

Passage of subyearling Chinook at Rock Island Dam (RIS) increased this week, when compared to last week. This week's daily average passage index for subyearling Chinook was about 220 per day whereas that for last week was about 160 per day. A total of four Pacific lamprey ammocoetes were collected in two of this week's samples. This was only the second week this season where Pacific lamprey ammocoetes were encountered at RIS. Pacific lamprey macrophthalmia were encountered in all seven of this week's samples, with a daily average collection of three per day.

### Hatchery Release

**Snake River Zone:** The Snake River Zone encompasses the Snake River and its tributaries from its confluence with the Columbia River to Hells Canyon Dam. There were no new releases scheduled for this zone this week. In addition, no new releases are scheduled for this zone over the next 2 weeks.

**Mid-Columbia Zone:** The Mid-Columbia Zone encompasses the area of the Columbia River and its tributaries from McNary Dam to Chief Joseph Dam. There were no releases scheduled for this zone this week and no releases are scheduled for this zone over the next 2 weeks.

**Lower Columbia Zone:** The Lower Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to McNary Dam. There were no releases scheduled for this zone this week. There are no other releases scheduled for this zone over the next 2 weeks.

### Adult Passage

Daily adult fall Chinook passage numbers at Bonneville Dam ranged between 966 and 4,353 last week. The adult fall Chinook count of 23,401 is about 55.8% of the 2013 count of 41,960, while being about 1.3 times greater than the 10-year average count of 18,406. The 2014 Bonneville Dam fall Chinook jack count of 4,818 is about 72.8% of the 2013 count of 6,620, while being about 1.4 times greater than the 10-year average count of 3,443. The 2014 McNary Dam adult fall Chinook count of 4,288 is about 53.8% of the 2013 count, while being 1.2 times larger than the 10-year average. The 2014 McNary Dam jack count of 1,686 is about 1.1 times greater than the 2013 count and 2.3 times greater than the 10-year average count.

During this time of year, there are times when there are higher steelhead counts at upstream projects compared to downstream projects. The higher counts of steelhead at upstream sites compared to downstream sites in any particular year is because some steelhead spend the winter between sites, for instance between Ice Harbor and Lower Granite, and then resume their migration upstream the following year. The summer steelhead run is delineated according to dates of passage past Bonneville Dam and is made up of two components. A-run steelhead are considered those that pass Bonneville Dam from the first of June through August 25<sup>th</sup> and B-run steelhead pass Bonneville from August 26<sup>th</sup> through October. The 2014 A-run adult steelhead count at Bonneville of 186,680 is about 1.2 times greater than the 2013 count of 155,565, while being 87.7% of the 10-year average count of 213,125. The 2014 Bonneville Dam adult steelhead count of 192,376 is about 1.2 times greater than the 2013 count of 158,959, while being 88% of the 10-year average count of 218,589. The 2014 Bonneville Dam adult wild steelhead count of 89,697 is about 1.2 times greater than the 2013 count of 75,840, and about 1.1 times greater than the 10-year average count of 79,234. In the Snake

River, this year's Lower Granite steelhead count of 15,534 is about 1.4 times greater than the 2013, while having 1,125 fewer fish than the 10-year average count of 16,659. The 2014 Lower Granite Dam adult wild steelhead count of 7,835 is about 1.5 times greater than the 2013 count and about 1.3 times greater than the 10-year average. At Willamette Falls, the 2014 count for steelhead was 26,535 as of August 20<sup>th</sup>. This year's steelhead count is about 1.5 times greater than the 2013 count of 17,443 and about 1.1 times greater than the 10-year average count of 24,882.

Daily adult sockeye passage numbers at Bonneville Dam ranged between 5 and 18 last week. The 2014 adult sockeye count at Bonneville Dam of 614,137 is about 3.3 times greater than the 2013 count of 185,493 and 3.2 times greater than the 10-year average of 192,376. Two of the major spawning sites for sockeye in the Upper Columbia River zone are Lake Wenatchee and Lake Osoyoos (Okanogan basin). The 2014 McNary Dam adult sockeye count of 545,932 is about 4 times greater than the 2013 and 10-year average counts. The Lower Granite Dam 2014 adult sockeye count of 2,730 is about 3.7 times greater than the 2013 count of 735 and 4 times greater than the 10-year average count of 681.

The 2014 Bonneville Dam adult coho count of 1,251 is about 3 times greater than the 2013 count of 405 and about has 41 more fish than the 10-year average count of 1,210. The 2014 Bonneville Dam coho jack count of 205 is about 3.6 times greater than the 2013 count of 57 and about 1.2 times greater than the 10-year average count of 174. As of August 21<sup>st</sup> at Bonneville Dam, the adult shad count was 2,603,184. This year's shad count is about 69.4% of the 2013 count of 3,751,232 and about 93.5% of the 10-year average count of 2,782,737.

## *Wanapum Dam Update*

At Wanapum Dam a significant crack (65-feet long by 2-inches wide) was discovered in a spillway monolith (#4) on February 27, 2014. This discovery has led to an emergency drawdown of the Wanapum pool to an elevation range of 541–545 feet, which is over 20 feet below its typical forebay elevation. Preliminary results of an investigation by Grant PUD and its consultants has determined that the primary contributing factor to a fracture developing within the dam's spillway was a mathematical error during the pre-construction design of Wanapum Dam.

The drawdown of Wanapum pool had caused the adult fishways at Wanapum Dam to not be operational. The adult fishways exits had been approximately 10 feet above the forebay water level. Grant County has designed adult fishway retrofits that involve the use of weir boxes and chutes to deliver adult fish into the forebay of Wanapum Dam. On April 15, 2014, the weir and chute retrofit was operational at the left bank fishway. A weir and chute has also been installed at the right bank fishway at Wanapum and was operational on April 26, 2014. Grant County PUD installed a spiral flume on the left bank fishway that reduces the elevation of the chute outflow from approximately 10 feet down to several feet. At the time of installing the spiral flume at the left bank fishway exit, Grant County also installed a ramp structure leading up to the weir and barriers to prevent jumping outside the structure. Grant PUD has also completed the installation of the spiral flume at the right bank fishway.

Visual observations of the exit retrofits have been promising. During Wanapum Dam site visits on May 7, May 21, June 4, June 18, July 2, July 23, and August 20, 2014, many fish have been seen passing the left bank fishway weir and chute. As of August 20, 2014, a total of 608,063 Sockeye and 103,773 adult Chinook had passed Priest Rapids Dam. As August 20, 2014, 580,879 sockeye and 101,781 adult Chinook had passed Rock Island dam.

Over the last week, Grant PUD has had problems with aquatic vegetation clogging the upper ladder

supply pumps (four per ladder), especially on the left bank fishway. As long as this issue continues, Grant PUD plans to clean the pumps at least 3 days per week and more often if needed. During pump cleaning, attraction water to the lower fishway will remain on and two of the four upper ladder pumps will be cleaned at a time, always leaving two pumps to supply water to the upper fishway and the weir chute.

The drawdown of Wanapum pool has also had a significant impact on the adult fishways at Rock Island Dam, operated by Chelan PUD. With the lower than normal tailrace levels, Chelan PUD has constructed extensions or denils at several ladder entrances. Chelan County PUD currently has all three denils in place, two at the right bank fishway and one on the left bank fishway.

## **Hatchery Releases Last Two Weeks**

### **Hatchery Release Summary**

**From: 8/8/2014 to 8/21/2014**

**No Releases Scheduled**

## **Hatchery Releases Next Two Weeks**

### **Hatchery Release Summary**

**From: 8/22/2014 to 9/4/2014**

**No Releases Scheduled**

CH = Chinook, ST = Steelhead, CO = Coho, SO = Sockeye, CT = Cutthroat Trout, CM = Chum

**Daily Average Flow and Spill (in Kcfs) at Mid-Columbia Projects**

Date	Grand Coulee		Chief Joseph		Wells		Rocky Reach		Rock Island		Wanapum		Priest Rapids	
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
08/08/2014	125.2	0.1	125.4	0.0	127.4	9.6	120.8	11.1	124.4	24.1	126.4	22.7	129.6	24.3
08/09/2014	121.6	0.1	122.4	0.0	124.5	9.3	120.2	11.2	126.5	24.0	126.2	20.0	131.5	18.8
08/10/2014	107.6	0.1	110.0	0.0	120.1	12.0	115.9	10.5	120.1	21.6	122.8	22.6	126.7	22.8
08/11/2014	124.7	0.1	120.3	0.0	126.8	9.0	123.2	10.5	127.3	21.5	127.1	20.1	126.6	16.9
08/12/2014	117.2	0.1	117.8	0.0	120.3	8.5	116.1	10.0	120.0	21.8	119.6	20.1	112.9	16.4
08/13/2014	110.4	0.1	108.0	0.0	113.7	7.8	107.3	9.4	110.6	21.0	117.7	20.2	121.2	16.1
08/14/2014	106.0	0.1	108.6	0.0	112.9	8.7	111.9	10.7	115.9	24.8	115.7	20.1	116.3	19.5
08/15/2014	99.4	0.0	96.2	0.0	104.8	8.8	104.2	9.4	105.9	25.0	109.9	20.1	113.4	22.6
08/16/2014	93.7	0.1	94.6	0.0	99.5	7.6	96.6	10.1	98.9	21.5	96.3	20.4	91.8	25.4
08/17/2014	103.5	0.1	100.2	0.0	97.1	8.9	87.0	8.8	88.9	18.2	94.3	21.9	98.3	28.5
08/18/2014	120.7	0.2	115.4	0.0	118.9	8.4	123.1	10.6	121.3	26.5	118.1	29.4	116.6	25.6
08/19/2014	108.5	0.1	115.6	0.0	128.9	9.5	119.0	10.4	122.3	33.3	125.3	25.1	137.3	24.3
08/20/2014	103.7	0.1	97.2	0.0	99.8	0.0	104.9	10.6	106.9	22.4	114.2	19.9	114.0	21.3
08/21/2014	105.0	0.1	106.2	0.0	101.3	0.0	97.2	10.6	99.7	22.1	108.0	20.9	110.6	23.0

**Daily Average Flow and Spill (in Kcfs) at Snake Basin Projects**

Date	Dworshak		Brownlee Inflow	Hells Canyon Outflow	Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill			Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
08/08/2014	9.8	0.0	---	9.0	26.5	13.8	27.0	8.7	26.3	13.9	28.0	18.1
08/09/2014	11.8	1.9	---	9.8	26.3	13.6	29.2	8.7	29.8	15.9	31.7	22.0
08/10/2014	11.9	2.0	---	10.3	29.3	16.7	29.7	8.7	29.0	15.6	28.6	18.9
08/11/2014	12.0	2.0	---	10.5	28.2	21.0	28.6	8.7	27.9	17.7	30.0	19.9
08/12/2014	12.0	2.0	---	10.4	28.8	16.5	29.9	15.7	29.9	14.9	30.3	20.1
08/13/2014	10.1	0.0	---	11.8	27.0	19.3	27.7	9.0	28.9	13.9	30.4	20.3
08/14/2014	10.1	0.0	---	10.0	27.7	15.0	30.1	9.0	28.8	13.7	28.5	18.3
08/15/2014	8.4	0.6	---	9.8	26.5	18.8	28.8	9.0	29.8	14.4	32.0	22.0
08/16/2014	6.6	2.0	---	9.5	26.0	13.6	25.7	9.0	24.5	9.4	26.0	15.8
08/17/2014	6.8	2.3	---	9.8	23.4	12.7	25.5	8.9	25.2	10.2	25.8	15.7
08/18/2014	6.8	2.3	---	10.5	23.4	10.5	25.5	8.9	25.9	11.0	28.1	17.8
08/19/2014	6.7	2.2	---	9.5	23.1	10.5	23.7	9.0	23.2	8.1	22.5	12.3
08/20/2014	6.7	2.2	---	9.7	23.2	10.5	23.4	9.0	22.1	7.1	23.4	13.1
08/21/2014	6.7	2.1	---	9.3	22.4	9.5	23.5	9.0	22.4	10.9	23.3	13.7

**Daily Average Flow and Spill (in Kcfs) at Lower Columbia Projects**

Date	McNary		John Day		The Dalles		Bonneville		PH1	PH2
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill		
08/08/2014	171.4	85.8	165.5	49.7	154.3	61.8	159.3	96.6	0.0	50.3
08/09/2014	170.7	85.4	168.8	50.5	152.5	61.0	167.5	91.4	0.0	63.7
08/10/2014	166.3	83.2	153.9	46.1	144.3	58.0	169.2	95.9	0.0	60.9
08/11/2014	177.9	88.9	170.6	51.2	157.6	62.8	166.0	100.2	0.0	53.4
08/12/2014	169.4	84.8	152.9	45.7	141.2	56.2	161.4	95.8	0.0	53.1
08/13/2014	165.8	83.0	162.9	48.9	153.3	61.0	168.5	91.0	1.4	63.7
08/14/2014	167.0	83.6	163.3	48.7	151.8	60.7	159.9	96.5	0.0	50.9
08/15/2014	161.7	81.0	152.7	45.9	141.9	56.7	158.8	100.8	0.0	45.6
08/16/2014	139.2	69.6	132.8	40.1	127.4	51.3	148.2	95.5	0.0	40.3
08/17/2014	135.0	67.7	129.0	38.5	120.6	48.1	139.1	93.2	0.0	33.5
08/18/2014	152.7	76.4	146.1	43.7	133.7	53.4	148.7	98.2	0.0	38.2
08/19/2014	162.5	81.5	148.7	44.6	139.1	55.5	153.3	101.1	0.0	39.8
08/20/2014	162.0	81.2	139.5	41.9	128.0	50.8	145.2	94.5	0.0	38.3
08/21/2014	141.2	70.7	134.2	40.3	127.0	50.9	140.5	93.1	0.0	35.0



## Gas Bubble Trauma Monitoring Results from Representative Sites on the Snake River and Columbia River

Site	Date	Species	Number of Fish	Number w GBT signs	Number w Fin Signs	% Fin GBT	% Severe Fin GBT	Number of Fish with Fin GBT Listed by Highest Rank			
								Rank 1	Rank 2	Rank 3	Rank 4
<b>Lower Granite Dam</b>											
<b>Little Goose Dam</b>											
<b>Lower Monumental Dam</b>											
<b>McNary Dam</b>											
<b>Bonneville Dam</b>											
	08/10/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	08/12/14	Chinook + Steelhead	96	0	0	0.00%	0.00%	0	0	0	0
<b>Rock Island Dam</b>											
	08/13/14	Chinook + Steelhead	36	0	0	0.00%	0.00%	0	0	0	0
	08/14/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	08/15/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	08/19/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0

## Total Dissolved Gas Saturation (%) - Average of 12 Highest Hours, 24 h Average and 24 h High

### Total Dissolved Gas Saturation Data at Upper Columbia River Sites

Date	<u>Hungry H. Dnst</u>			<u>Boundary</u>			<u>Grand Coulee</u>			<u>Grand C. Tlwr</u>			<u>Chief Joseph</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>		<u>High</u>	<u>Avg</u>		<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>		<u>High</u>	<u>Avg</u>		<u>Avg</u>	<u>High</u>			
8/8	107.2	107.6	108.2	24	---	---	---	0	110.1	110.2	110.3	24	109.5	109.6	109.8	24	110.1	110.5	110.8	24
8/9	106.9	107.1	107.4	24	---	---	---	0	109.7	109.8	110.0	24	108.7	109.1	109.4	24	109.4	109.8	110.2	24
8/10	106.6	107.0	107.3	24	---	---	---	0	109.6	109.7	109.9	24	108.1	108.7	109.4	24	109.2	109.7	109.9	24
8/11	106.8	107.3	107.6	24	---	---	---	0	109.9	110.1	110.2	24	108.7	109.2	109.6	24	109.6	110.3	110.6	24
8/12	107.2	107.4	107.6	24	---	---	---	0	110.3	110.4	111.2	24	108.8	109.1	109.6	24	110.0	110.4	111.0	24
8/13	107.2	107.6	107.9	24	---	---	---	0	109.5	110.1	112.1	24	108.1	108.4	108.9	24	109.1	109.4	109.8	24
8/14	107.4	107.7	108.1	24	---	---	---	0	108.5	108.7	109.1	24	107.3	107.6	107.9	24	108.1	108.3	108.7	24
8/15	106.4	106.7	107.0	24	---	---	---	0	108.2	108.4	108.5	24	107.0	107.2	107.5	24	107.8	108.0	108.3	24
8/16	106.2	106.6	106.9	24	---	---	---	0	108.1	108.3	108.4	24	106.8	107.4	107.9	24	107.6	107.9	108.2	24
8/17	105.6	105.9	106.0	24	---	---	---	0	107.8	108.0	108.3	24	106.8	107.2	107.8	24	107.4	107.8	108.1	24
8/18	106.4	106.9	107.2	24	---	---	---	0	108.0	108.1	108.3	24	107.1	107.7	108.0	24	108.4	108.9	109.2	21
8/19	106.6	106.9	107.6	24	---	---	---	0	108.3	108.5	108.7	24	107.7	108.1	108.6	24	108.8	109.2	109.7	24
8/20	105.8	106.2	106.6	24	---	---	---	0	107.9	108.1	108.3	24	106.9	107.2	107.7	24	107.7	108.1	108.5	24
8/21	106.1	106.6	106.9	23	---	---	---	0	107.7	108.0	108.3	23	106.0	106.4	107.0	23	106.6	106.9	107.3	23

### Total Dissolved Gas Saturation Data at Mid Columbia River Sites

Date	<u>Chief J. Dnst</u>			<u>Wells</u>			<u>Wells Dwnstrm</u>			<u>Rocky Reach</u>			<u>Rocky R. Tlwr</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>		<u>High</u>	<u>Avg</u>		<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>		<u>High</u>	<u>Avg</u>		<u>Avg</u>	<u>High</u>			
8/8	110.7	111.3	111.9	24	109.9	110.0	110.8	14	111.1	111.4	112.7	14	110.9	111.1	111.2	24	113.7	114.4	115.8	24
8/9	109.3	109.6	110.0	24	110.0	110.0	110.6	6	111.2	111.2	112.1	6	109.9	110.3	110.8	24	112.7	113.5	114.3	24
8/10	109.6	110.0	110.8	24	109.7	109.9	110.9	14	110.9	111.2	112.2	14	110.0	110.4	110.7	24	112.4	113.3	114.2	24
8/11	109.8	110.3	110.9	24	110.1	110.2	111.2	13	111.1	111.3	113.0	13	110.9	111.5	112.1	24	113.3	114.6	115.4	24
8/12	110.3	110.9	111.2	24	110.3	110.3	111.4	8	111.3	111.3	112.6	8	111.2	111.4	111.6	24	113.2	113.9	114.7	24
8/13	110.6	112.6	114.1	24	109.8	110.1	110.8	19	110.4	110.8	112.2	19	110.4	110.6	111.0	24	111.8	113.1	114.2	24
8/14	111.6	115.1	118.4	24	108.8	109.1	109.5	17	109.7	109.9	110.4	17	109.6	109.8	110.1	24	111.8	112.6	113.4	24
8/15	108.6	109.1	109.6	24	107.5	107.6	108.1	17	108.7	109.0	109.4	17	108.9	109.1	109.3	24	111.1	111.9	112.6	24
8/16	108.1	108.5	109.0	24	108.0	108.5	109.1	21	108.7	109.3	109.8	21	108.8	109.0	109.5	24	111.2	111.9	112.6	24
8/17	107.6	108.0	108.6	24	108.6	109.0	109.8	16	110.0	110.5	111.3	16	108.4	108.8	109.6	24	110.6	111.4	112.4	24
8/18	108.3	108.7	109.1	24	108.7	109.1	109.6	18	110.0	110.5	111.5	18	108.9	109.7	110.1	24	112.3	113.9	114.8	24
8/19	108.9	109.4	110.2	24	109.3	109.5	109.9	18	110.6	111.0	111.7	18	110.5	110.6	110.7	24	113.2	114.4	115.4	24
8/20	108.5	109.0	109.6	24	108.4	108.8	109.5	18	108.4	108.9	110.0	18	109.3	109.6	110.1	24	111.9	113.1	114.6	24
8/21	107.2	107.7	108.2	23	107.6	108.1	109.0	20	107.3	108.0	109.2	20	108.5	108.7	109.1	23	111.4	112.4	113.6	23

### Total Dissolved Gas Saturation at Mid Columbia River Sites

Date	<u>Rock Island</u>			<u>Rock I. Tlwr</u>			<u>Wanapum</u>			<u>Wanapum Tlwr</u>			<u>Priest Rapids</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>		<u>High</u>	<u>Avg</u>		<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>		<u>High</u>	<u>Avg</u>		<u>Avg</u>	<u>High</u>			
8/8	110.6	110.9	111.2	24	105.6	110.8	113.1	23	107.2	107.9	108.6	24	109.2	109.5	110.2	16	106.6	107.4	108.1	24
8/9	109.9	110.5	110.7	24	105.5	111.0	112.9	24	108.5	110.2	110.8	24	109.2	110.3	111.0	24	106.0	107.3	108.2	24
8/10	109.9	110.6	111.0	24	102.9	105.9	112.6	24	110.0	111.1	112.4	24	110.8	111.7	114.9	24	109.0	109.8	111.4	24
8/11	110.5	111.3	111.9	24	105.1	110.2	112.9	24	110.3	111.7	112.7	24	110.5	111.1	111.4	24	109.8	110.1	110.4	24
8/12	111.1	111.4	111.7	24	103.4	106.6	112.8	23	110.4	111.4	112.0	24	110.3	110.7	111.3	24	109.4	110.2	110.8	24
8/13	110.1	110.4	110.6	24	101.9	103.8	112.2	24	108.5	109.9	110.8	24	109.4	109.8	110.3	24	107.7	107.9	108.1	24
8/14	108.3	109.4	110.1	24	101.2	102.5	110.6	24	107.6	108.4	109.1	24	109.3	109.7	109.9	24	107.5	107.8	108.5	24
8/15	108.8	109.1	109.5	24	106.6	112.1	112.7	24	108.1	108.9	110.0	24	109.0	109.2	109.4	24	107.9	108.2	108.8	24
8/16	108.6	109.0	109.4	24	111.6	112.4	112.9	24	107.0	108.2	109.2	24	108.5	108.8	109.0	24	107.4	107.9	108.4	24
8/17	108.2	108.7	109.1	24	109.9	111.6	112.7	24	107.9	109.6	110.8	24	109.3	110.0	113.9	24	106.8	107.2	108.3	24
8/18	108.7	109.5	110.5	24	112.4	113.9	114.8	24	110.1	111.0	112.1	24	111.1	113.3	119.2	24	108.3	108.7	109.2	24
8/19	109.7	110.6	111.1	24	112.2	114.2	120.0	24	109.2	109.8	111.2	24	110.5	111.6	115.2	24	109.2	110.0	111.7	24
8/20	109.4	109.6	110.4	24	110.4	113.0	113.5	24	108.1	109.0	110.8	24	109.7	111.4	114.0	24	106.8	107.5	107.9	24
8/21	108.4	109.0	109.4	23	111.4	112.4	113.1	22	---	---	---	0	---	---	---	0	---	---	---	0

## Total Dissolved Gas Saturation (%) - Average of 12 Highest Hours, 24 h Average and 24 h High

### Total Dissolved Gas Saturation Data at Lower Columbia and Snake River Sites

Date	<u>Priest R. Dnst</u>			<u>Pasco</u>			<u>Dworshak</u>			<u>Clrwr-Peck</u>			<u>Anatone</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>				
8/8	110.7	111.8	114.8	24	---	---	---	0	100.8	101.2	101.7	24	102.8	103.9	104.8	24	101.1	102.2	103.3	24
8/9	109.5	110.6	110.9	24	---	---	---	0	103.7	104.1	104.3	24	104.4	105.6	106.4	24	101.1	102.6	103.7	24
8/10	111.6	112.8	113.9	24	---	---	---	0	103.9	104.2	104.4	24	104.6	105.7	106.4	24	101.6	103.0	104.2	24
8/11	112.2	112.5	112.9	24	---	---	---	0	104.1	104.5	104.8	24	104.9	105.9	106.7	24	101.7	103.0	104.2	24
8/12	112.0	112.8	115.1	24	---	---	---	0	104.3	104.6	105.6	24	104.8	105.6	106.8	24	101.4	102.4	103.4	24
8/13	110.7	111.3	112.0	24	---	---	---	0	101.0	101.3	101.9	24	102.8	103.7	104.4	24	100.4	100.9	101.7	24
8/14	110.6	111.2	113.7	24	---	---	---	0	100.8	101.2	101.8	24	102.5	103.5	104.7	24	100.8	101.6	102.8	24
8/15	110.9	111.5	113.6	24	---	---	---	0	102.4	104.2	106.4	24	103.3	104.8	105.8	24	100.3	101.1	101.8	24
8/16	111.5	112.6	115.8	24	---	---	---	0	107.1	108.1	109.1	24	106.5	108.4	109.9	24	101.0	102.0	103.1	23
8/17	112.4	113.9	115.9	24	---	---	---	0	108.2	108.9	109.3	24	107.3	108.9	110.2	24	101.3	102.3	103.3	24
8/18	112.3	113.5	116.3	24	---	---	---	0	108.9	109.4	110.0	24	108.0	109.5	110.9	24	101.0	101.8	102.6	24
8/19	112.5	113.5	114.3	24	---	---	---	0	109.1	109.4	109.7	24	107.8	109.1	110.6	24	101.1	101.9	102.7	24
8/20	110.0	110.7	111.6	24	---	---	---	0	108.9	109.1	109.3	24	106.6	107.6	109.0	24	100.5	101.1	101.9	24
8/21	---	---	---	0	---	---	---	0	108.4	108.9	109.7	23	107.0	108.4	109.6	23	100.4	101.2	101.9	23

### Total Dissolved Gas Saturation Data at Snake River Sites

Date	<u>Clrwr-Lewiston</u>			<u>Lower Granite</u>			<u>L. Granite Tlwr</u>			<u>Little Goose</u>			<u>L. Goose Tlwr</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>				
8/8	103.0	104.8	106.1	24	101.1	101.3	101.5	24	116.0	116.3	116.9	24	112.5	113.0	113.2	24	109.7	109.9	110.3	24
8/9	103.4	105.9	107.6	24	100.9	101.1	101.3	24	116.4	116.7	117.1	24	111.8	112.1	112.6	24	109.9	110.5	111.7	24
8/10	103.9	106.0	107.4	24	100.9	101.0	101.2	24	116.1	116.4	117.1	24	110.8	111.1	111.4	24	109.5	110.3	110.7	24
8/11	103.9	105.8	107.2	24	101.0	101.2	101.4	24	117.7	118.8	119.1	24	112.1	112.6	113.0	24	109.8	110.5	110.8	24
8/12	103.8	105.4	106.7	24	101.0	101.2	101.5	24	115.6	116.9	118.2	24	113.3	113.9	114.5	24	113.0	114.6	115.6	24
8/13	102.9	104.1	105.5	24	100.5	100.9	101.2	24	117.0	118.4	119.1	24	112.8	113.1	113.6	24	111.8	113.2	114.2	23
8/14	102.6	104.2	105.7	24	100.8	101.5	101.8	24	116.5	117.2	118.2	24	112.4	112.6	112.8	24	110.4	110.9	111.3	24
8/15	102.6	104.2	105.2	24	101.7	101.9	102.1	24	117.8	119.0	119.3	24	112.1	112.3	112.5	24	110.5	110.8	111.1	24
8/16	103.7	106.1	107.7	24	101.5	101.8	102.0	24	115.1	117.0	118.8	24	112.9	113.6	114.0	24	110.5	111.0	111.3	24
8/17	104.2	106.3	108.0	24	101.3	101.4	101.7	24	115.7	118.9	121.2	24	113.3	113.5	113.9	24	110.4	110.8	111.2	24
8/18	104.6	106.7	108.3	24	101.4	101.6	101.8	24	113.6	113.9	114.3	24	113.0	113.2	113.4	24	110.3	110.7	111.1	24
8/19	104.2	106.0	107.1	24	101.4	101.6	101.8	24	113.6	114.3	114.7	24	113.5	113.8	114.0	24	110.6	111.1	111.4	24
8/20	103.3	104.6	106.0	24	100.1	100.6	101.1	24	112.9	113.3	113.7	24	114.0	114.3	114.7	24	110.1	110.5	111.1	24
8/21	103.7	105.8	107.3	23	99.5	99.8	100.0	23	112.5	112.9	113.7	23	112.7	113.2	113.5	23	110.6	111.0	111.5	23

### Total Dissolved Gas Saturation Data at Snake and Lower Columbia River Sites

Date	<u>Lower Mon.</u>			<u>L. Mon. Tlwr</u>			<u>Ice Harbor</u>			<u>Ice Harbor Tlwr</u>			<u>McNary-Oregon</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>				
8/8	110.1	110.7	111.0	24	113.8	114.5	115.6	24	112.0	112.5	112.8	19	112.6	113.5	114.2	24	---	---	---	0
8/9	108.8	109.1	109.5	24	114.7	115.6	116.3	24	111.8	112.0	112.4	24	113.5	114.1	114.6	24	---	---	---	0
8/10	108.4	108.7	108.8	24	114.2	114.9	115.6	24	110.7	111.0	111.5	24	113.1	113.7	114.0	24	---	---	---	0
8/11	108.5	109.1	109.6	24	116.4	117.7	118.9	24	111.7	112.1	112.6	24	113.1	113.4	113.9	24	---	---	---	0
8/12	109.5	109.8	110.3	24	114.0	115.3	116.0	24	112.2	112.4	112.6	24	113.3	113.7	114.7	24	---	---	---	0
8/13	109.5	109.6	109.9	24	114.2	115.3	116.0	24	112.4	112.6	112.8	24	113.1	113.6	114.3	24	---	---	---	0
8/14	109.4	109.6	109.7	24	113.7	114.7	115.8	24	112.4	112.5	112.6	24	113.0	113.5	114.0	24	---	---	---	0
8/15	108.9	109.1	109.3	24	114.6	115.7	116.1	24	112.3	112.5	112.8	24	112.8	114.0	114.8	24	---	---	---	0
8/16	108.9	109.3	110.2	24	112.6	113.4	114.4	24	111.7	111.9	112.5	24	110.7	111.5	112.3	24	---	---	---	0
8/17	109.7	110.0	110.1	24	113.2	113.7	114.1	24	110.7	111.1	111.3	24	110.9	112.0	112.9	24	---	---	---	0
8/18	109.8	110.1	110.7	24	113.1	113.4	113.6	24	111.0	111.4	112.1	24	112.9	113.5	114.0	24	---	---	---	0
8/19	110.3	110.5	110.6	24	112.8	113.1	113.6	24	111.4	111.7	112.1	24	111.2	112.1	112.7	24	---	---	---	0
8/20	109.2	109.5	109.9	24	112.4	112.6	112.9	24	111.1	111.4	111.7	24	110.1	110.6	111.2	24	---	---	---	0
8/21	108.1	108.3	108.5	23	113.9	115.4	117.7	23	109.9	110.1	110.5	23	110.3	110.9	111.7	23	---	---	---	0

## Total Dissolved Gas Saturation (%) - Average of 12 Highest Hours, 24 h Average and 24 h High

**Total Dissolved Gas Saturation Data at Lower Columbia River Sites**

Date	<u>McNary-Wash</u>			<u>McNary Tlwr</u>			<u>John Day</u>			<u>John Day Tlwr</u>			<u>The Dalles</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24h</u>	<u>12h</u>	<u>#</u>	<u>24h</u>	<u>12h</u>	<u>#</u>	<u>24h</u>	<u>12h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>AVG</u>	<u>High</u>	<u>hr</u>				
8/8	107.8	108.0	108.5	24	116.1	116.3	116.5	24	106.7	107.1	107.6	24	113.8	114.1	114.4	24	106.4	106.7	106.9	24
8/9	107.2	107.4	107.7	24	115.9	116.1	116.3	24	105.2	105.5	105.7	24	113.4	113.6	113.9	24	106.4	106.8	107.4	24
8/10	107.5	108.0	109.8	24	115.7	116.3	116.6	24	105.5	105.8	106.8	24	113.0	113.5	113.7	24	108.7	109.0	109.2	24
8/11	108.2	108.9	109.3	24	115.9	116.7	116.9	24	106.4	106.9	108.5	24	112.8	113.4	113.8	24	109.3	109.7	110.1	24
8/12	107.9	108.1	108.5	24	116.4	116.8	117.3	24	106.5	107.1	107.9	24	112.7	113.1	113.9	24	109.3	110.1	110.2	24
8/13	107.7	108.0	108.4	24	115.8	116.4	117.0	24	105.9	106.2	106.7	24	111.0	111.5	111.9	24	107.7	108.2	108.6	24
8/14	107.4	107.6	107.9	24	115.6	115.8	116.1	24	105.9	106.3	106.6	24	109.7	110.5	111.4	24	106.5	106.8	107.0	24
8/15	106.7	106.9	107.2	24	115.1	115.7	116.2	24	106.8	107.3	107.6	24	108.8	109.8	110.7	24	108.0	108.4	108.7	24
8/16	106.4	106.7	107.1	24	114.3	114.6	114.8	24	106.9	107.2	107.6	24	107.7	108.5	109.2	24	108.3	108.6	109.0	24
8/17	106.6	107.1	107.5	24	114.3	114.8	115.1	24	106.7	107.0	107.3	24	109.1	110.2	111.0	24	108.5	109.0	109.4	24
8/18	108.5	109.1	110.0	24	115.0	115.5	115.8	24	107.6	108.2	108.8	24	110.0	110.9	111.6	24	109.4	110.2	110.5	24
8/19	109.1	109.5	109.7	24	115.6	116.3	116.8	24	108.6	108.9	109.5	24	110.7	111.3	111.8	24	109.2	110.0	110.3	24
8/20	107.7	107.8	108.1	24	114.9	115.7	116.5	24	106.5	106.9	107.5	24	109.7	110.0	110.2	24	105.5	106.0	106.7	24
8/21	106.7	106.9	107.1	23	113.8	115.0	115.9	23	105.0	105.3	105.7	23	107.9	108.6	109.4	23	104.5	104.7	104.9	23

**Total Dissolved Gas Saturation Data at Lower Columbia River Sites**

Date	<u>The Dalles Dnst</u>			<u>Bonneville</u>			<u>Warrendale</u>			<u>Camas\Washougal</u>			<u>Cascade Island</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24h</u>	<u>12h</u>	<u>#</u>	<u>24h</u>	<u>12h</u>	<u>#</u>	<u>24h</u>	<u>12h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>AVG</u>	<u>High</u>	<u>hr</u>				
8/8	113.0	113.6	114.1	24	105.0	105.2	105.4	24	114.6	115.8	116.6	24	109.9	111.4	112.2	24	116.8	117.1	117.3	24
8/9	113.3	113.9	114.2	24	105.5	106.5	107.1	24	114.4	115.0	115.2	24	111.8	112.6	113.5	24	115.5	116.5	118.4	24
8/10	114.7	115.5	116.0	24	107.9	109.1	109.6	24	115.7	116.4	117.4	24	112.5	114.5	116.2	24	116.0	117.3	119.2	24
8/11	115.2	116.3	116.9	24	111.2	112.0	112.2	24	117.1	117.8	118.4	24	113.8	115.6	116.9	24	117.5	118.1	119.2	24
8/12	115.0	115.3	116.0	24	112.5	113.1	113.5	24	116.5	116.8	117.2	24	113.5	114.3	116.0	24	117.4	117.6	117.8	24
8/13	114.1	114.4	114.8	24	110.0	110.5	111.2	24	115.2	115.9	116.5	24	112.9	114.0	114.6	24	115.8	116.8	119.1	24
8/14	113.3	114.1	114.7	24	108.3	108.6	108.7	24	115.7	116.5	118.0	24	112.5	114.4	116.2	24	115.9	117.1	118.9	24
8/15	113.5	114.3	114.8	24	108.1	108.3	108.4	24	116.8	117.5	118.0	24	112.9	114.8	116.1	24	117.1	117.2	117.4	24
8/16	114.1	114.7	115.2	24	108.8	109.2	109.6	24	116.1	116.8	117.3	24	114.0	114.0	114.9	6	117.1	117.2	117.4	24
8/17	114.2	114.8	115.1	24	108.7	109.2	109.6	24	115.9	116.1	116.3	24	145.8	147.4	150.7	24	115.5	116.9	118.7	24
8/18	114.9	116.0	116.4	24	109.5	110.5	111.0	24	117.0	117.7	118.4	24	144.7	145.9	149.9	23	116.0	117.7	118.8	24
8/19	114.8	115.3	115.8	24	109.6	110.2	110.9	24	116.9	117.8	118.4	24	143.9	143.9	146.0	12	117.4	117.8	118.9	24
8/20	112.2	112.9	113.2	24	106.0	106.4	107.7	24	115.0	115.4	115.8	24	144.0	146.0	147.8	24	116.9	117.1	117.3	24
8/21	111.5	112.3	112.8	23	104.5	104.8	105.3	23	114.4	114.8	115.3	23	144.4	146.3	148.9	23	115.0	116.2	118.4	23

## Two-Week Summary of Passage Indices

Source: Fish Passage Center

Updated: 8/22/2014 6:57

### Two-Week Summary of Passage Indices

\* One or more of the sites on this date had an incomplete or biased sample.

See Sampling Comments: <http://www.fpc.org/currentDaily/smpcomments.htm>

For clip information see: <http://www.fpc.org/CurrentDaily/catch.htm>

For sockeye and yearling chinook (Snake only) race information see: <http://www.fpc.org/smoltqueries/currentsmpsubmitdata.asp>

COMBINED YEARLING CHINOOK											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
08/08/2014 *	---	---	---	---	0	0	0	0	---	0	---
08/09/2014 *	---	---	---	---	0	0	0	0	0	---	0
08/10/2014 *	---	---	---	---	0	0	5	0	---	---	---
08/11/2014 *	---	---	---	---	0	0	0	0	0	---	0
08/12/2014 *	---	---	---	---	0	0	4	0	---	0	---
08/13/2014 *	---	---	---	---	0	0	0	0	0	---	0
08/14/2014 *	---	---	---	---	0	0	0	0	---	---	---
08/15/2014 *	---	---	---	---	0	3	4	0	0	0	0
08/16/2014 *	---	---	---	---	0	0	0	0	---	---	---
08/17/2014 *	---	---	---	---	0	0	0	0	0	---	0
08/18/2014 *	---	---	---	---	0	0	0	0	---	---	---
08/19/2014 *	---	---	---	---	0	0	0	0	0	0	0
08/20/2014 *	---	---	---	---	0	0	0	0	---	---	---
08/21/2014 *	---	---	---	---	---	0	---	0	0	---	0
08/22/2014	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>13</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b># Days:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>13</b>	<b>14</b>	<b>13</b>	<b>14</b>	<b>7</b>	<b>4</b>	<b>7</b>
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>YTD</b>	<b>65,404</b>	<b>63,591</b>	<b>25,420</b>	<b>10,159</b>	<b>4,807,472</b>	<b>2,838,738</b>	<b>1,969,627</b>	<b>26,427</b>	<b>2,022,048</b>	<b>2,320,483</b>	<b>2,151,268</b>

COMBINED SUBYEARLING CHINOOK											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
08/08/2014 *	---	---	---	---	1,390	4,980	174	281	---	3,572	---
08/09/2014 *	---	---	---	---	1,156	4,140	411	223	26,801	---	26,394
08/10/2014 *	---	---	---	---	1,490	4,036	601	162	---	---	---
08/11/2014 *	---	---	---	---	2,670	4,001	358	99	38,964	---	16,407
08/12/2014 *	---	---	---	---	2,573	2,614	408	106	---	1,083	---
08/13/2014 *	---	---	---	---	1,831	1,546	549	52	26,590	---	7,535
08/14/2014 *	---	---	---	---	3,329	962	522	220	---	---	---
08/15/2014 *	---	---	---	---	1,100	2,033	1,595	263	21,891	686	7,584
08/16/2014 *	---	---	---	---	2,865	2,960	484	199	---	---	---
08/17/2014 *	---	---	---	---	879	1,331	34	214	13,895	---	4,077
08/18/2014 *	---	---	---	---	1,419	1,099	114	128	---	---	---
08/19/2014 *	---	---	---	---	724	774	170	432	7,031	428	4,245
08/20/2014 *	---	---	---	---	913	624	113	198	---	---	---
08/21/2014 *	---	---	---	---	---	493	---	93	6,288	---	13,721
08/22/2014	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>22,339</b>	<b>31,593</b>	<b>5,533</b>	<b>2,670</b>	<b>141,460</b>	<b>5,769</b>	<b>79,963</b>
<b># Days:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>13</b>	<b>14</b>	<b>13</b>	<b>14</b>	<b>7</b>	<b>4</b>	<b>7</b>
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,718</b>	<b>2,257</b>	<b>426</b>	<b>191</b>	<b>20,209</b>	<b>1,442</b>	<b>11,423</b>
<b>YTD</b>	<b>0</b>	<b>27</b>	<b>4</b>	<b>332</b>	<b>936,917</b>	<b>1,042,836</b>	<b>379,030</b>	<b>37,731</b>	<b>4,899,198</b>	<b>2,590,995</b>	<b>4,219,685</b>



### Two-Week Summary of Passage Indices

COMBINED COHO												
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)	
08/08/2014	*	---	---	---	---	0	0	0	0	---	0	---
08/09/2014	*	---	---	---	---	0	0	0	0	0	---	0
08/10/2014	*	---	---	---	---	0	0	0	0	---	---	---
08/11/2014	*	---	---	---	---	0	0	0	0	0	---	0
08/12/2014	*	---	---	---	---	0	0	0	0	---	0	---
08/13/2014	*	---	---	---	---	0	0	0	0	0	---	0
08/14/2014	*	---	---	---	---	0	0	0	0	---	---	---
08/15/2014	*	---	---	---	---	0	0	0	0	0	0	0
08/16/2014	*	---	---	---	---	0	0	0	0	---	---	---
08/17/2014	*	---	---	---	---	0	0	0	0	0	---	0
08/18/2014	*	---	---	---	---	0	0	0	0	---	---	---
08/19/2014	*	---	---	---	---	0	0	0	2	0	0	0
08/20/2014	*	---	---	---	---	0	0	0	0	---	---	---
08/21/2014	*	---	---	---	---	---	0	---	0	0	---	0
08/22/2014	*	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b># Days:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>13</b>	<b>14</b>	<b>13</b>	<b>14</b>	<b>7</b>	<b>4</b>	<b>7</b>
<b>Average:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>YTD</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>267</b>	<b>74,168</b>	<b>59,431</b>	<b>27,316</b>	<b>66,433</b>	<b>147,455</b>	<b>225,188</b>	<b>776,651</b>

COMBINED STEELHEAD												
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)	
08/08/2014	*	---	---	---	---	0	0	0	0	---	0	---
08/09/2014	*	---	---	---	---	0	0	9	2	0	---	0
08/10/2014	*	---	---	---	---	0	0	5	1	---	---	---
08/11/2014	*	---	---	---	---	0	0	0	0	0	---	0
08/12/2014	*	---	---	---	---	0	0	0	0	---	0	---
08/13/2014	*	---	---	---	---	0	0	4	0	0	---	0
08/14/2014	*	---	---	---	---	0	0	0	1	---	---	---
08/15/2014	*	---	---	---	---	0	0	0	4	0	0	0
08/16/2014	*	---	---	---	---	0	0	0	6	---	---	---
08/17/2014	*	---	---	---	---	0	0	2	4	0	---	0
08/18/2014	*	---	---	---	---	0	0	2	5	---	---	---
08/19/2014	*	---	---	---	---	0	0	0	15	0	0	0
08/20/2014	*	---	---	---	---	0	0	2	5	---	---	---
08/21/2014	*	---	---	---	---	---	0	---	0	0	---	0
08/22/2014	*	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>24</b>	<b>43</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b># Days:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>13</b>	<b>14</b>	<b>13</b>	<b>14</b>	<b>7</b>	<b>4</b>	<b>7</b>
<b>Average:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>YTD</b>		<b>2,080</b>	<b>43,465</b>	<b>4,243</b>	<b>12,842</b>	<b>3,376,170</b>	<b>1,975,613</b>	<b>1,183,207</b>	<b>27,499</b>	<b>586,885</b>	<b>1,032,890</b>	<b>459,444</b>

### Two-Week Summary of Passage Indices

COMBINED SOCKEYE											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
08/08/2014 *	---	---	---	---	0	0	0	0	---	29	---
08/09/2014 *	---	---	---	---	4	0	0	2	0	---	0
08/10/2014 *	---	---	---	---	0	0	0	1	---	---	---
08/11/2014 *	---	---	---	---	5	0	0	0	0	---	0
08/12/2014 *	---	---	---	---	10	0	0	0	---	0	---
08/13/2014 *	---	---	---	---	4	10	0	0	0	---	0
08/14/2014 *	---	---	---	---	0	6	0	0	---	---	---
08/15/2014 *	---	---	---	---	0	3	0	6	0	0	0
08/16/2014 *	---	---	---	---	9	0	7	3	---	---	---
08/17/2014 *	---	---	---	---	2	0	0	0	0	---	0
08/18/2014 *	---	---	---	---	7	0	0	0	---	---	---
08/19/2014 *	---	---	---	---	2	2	0	6	0	0	0
08/20/2014 *	---	---	---	---	0	0	0	0	---	---	---
08/21/2014 *	---	---	---	---	---	2	---	1	0	---	0
08/22/2014	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>43</b>	<b>23</b>	<b>7</b>	<b>19</b>	<b>0</b>	<b>29</b>	<b>0</b>
<b># Days:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>13</b>	<b>14</b>	<b>13</b>	<b>14</b>	<b>7</b>	<b>4</b>	<b>7</b>
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>7</b>	<b>0</b>
<b>YTD</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>182,034</b>	<b>88,438</b>	<b>69,802</b>	<b>37,938</b>	<b>1,495,564</b>	<b>577,701</b>	<b>590,103</b>

COMBINED LAMPREY JUVENILES											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR <sup>†</sup> (Samp)	LGS (Coll)	LMN (Coll)	RIS (Coll)	MCN (Coll)	JDA (Coll)	BO2 (Coll)
08/08/2014 *	---	---	---	---	0	15	0	1	---	0	---
08/09/2014 *	---	---	---	---	0	15	2	2	200	---	0
08/10/2014 *	---	---	---	---	0	10	0	1	---	---	---
08/11/2014 *	---	---	---	---	1	10	0	0	0	---	0
08/12/2014 *	---	---	---	---	0	0	2	1	---	0	---
08/13/2014 *	---	---	---	---	0	10	0	1	100	---	0
08/14/2014 *	---	---	---	---	0	12	0	35	---	---	---
08/15/2014 *	---	---	---	---	0	12	0	11	0	0	0
08/16/2014 *	---	---	---	---	0	17	0	4	---	---	---
08/17/2014 *	---	---	---	---	2	0	0	5	0	---	0
08/18/2014 *	---	---	---	---	0	4	0	1	---	---	---
08/19/2014 *	---	---	---	---	1	0	0	1	100	0	0
08/20/2014 *	---	---	---	---	0	2	0	3	---	---	---
08/21/2014 *	---	---	---	---	---	2	---	1	660	---	0
08/22/2014	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>109</b>	<b>4</b>	<b>67</b>	<b>1,060</b>	<b>0</b>	<b>0</b>
<b># Days:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>13</b>	<b>14</b>	<b>13</b>	<b>14</b>	<b>7</b>	<b>4</b>	<b>7</b>
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>5</b>	<b>151</b>	<b>0</b>	<b>0</b>
<b>YTD</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>130</b>	<b>20,854</b>	<b>29,477</b>	<b>129</b>	<b>59,615</b>	<b>98,895</b>	<b>19,310</b>

## Two-Week Summary of Passage Indices

\* See sampling comments

<http://www.fpc.org/currentDaily/smpcomments.htm>

Smolt indices, clipped & unclipped or combined, are presented in the following order: yearling chinook (chinook 1's,) subyearling chinook (chinook 0's), steelhead, coho, sockeye, and lamprey juveniles. Two classes of fish counts are shown in these tables:

Two classes of fish counts are shown in these tables:

Sample counts (Samp) are provided for juvenile lamprey at LGR. See note below for details †.

Collection counts (Coll), which account for sample rates but are not adjusted for flow;

Passage indices (INDEX), which are collection counts divided by the proportion of water passing through the sampled powerhouse.

Passage indices are not population estimates, but are used to adjust collection counts for daily fluctuations in the site's or project's operations.

The classes of counts presented in the report are defined below for each site. Most samples occur over a 24-hr period that spans two calendar days. In this report, the date shown corresponds with the sample end date.

Combined lamprey juvenile collection counts are provided for all sites. Combined lamprey juveniles is a combination of pacific lamprey ammocoetes, brook lamprey ammocoetes, unknown lamprey ammocoetes, pacific lamprey macrophthalmia, and unidentified lamprey species.

† In 2013 it was confirmed that juvenile lamprey can escape the sample tank at LGR which would lead to unreliable estimates of collection. Therefore, only sample counts are provided in this report.

### Definitions for Smolt Index Counts

WTB (Collection) = Salmon River Trap at Whitebird : Collection Counts

IMN (Collection) = Imnaha River Trap : Collection Counts

GRN (Collection) = Grande Ronde River Trap : Collection Counts

LEW (Collection) = Snake River Trap at Lewiston : Collection Counts

LGR (Index) = Lower Granite Dam Bypass Collection System : Passage Index Counts

Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}

LGS (Index) = Little Goose Bypass Collection System : Passage Index Counts

Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}

LMN (Index) = Lower Monumental Dam Bypass Collection System : Passage Index Counts

Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}

RIS (Index) = Rock Island Dam Second Powerhouse Bypass Trap : Passage Index Counts

Passage Index = Collection Counts / {Powerhouse 2 Flow / (Powerhouse 1 & 2 Flow + Spill)}

MCN (Index) = McNary Dam Bypass Collection System : Passage Index Counts

Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}

JDA (Index) = John Day Dam Bypass Collection System : Passage Index Counts

Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}

BO2 (Index) = Bonneville Dam Second Powerhouse Bypass Collection System : Passage Index Counts

Passage Index = Collection Counts / {Powerhouse 2 Flow / (Powerhouse 1 & 2 Flow + Spill)}

JDA and BO2 data collected for the FPC by Pacific States Marine Fisheries Commission.

RIS data collected for the FPC by Chelan Co. PUD.

LGR, LMN, and MCN data collected for the FPC by Washington Dept. of Fish and Wildlife.

LGS and GRN data collected for the FPC by Oregon Dept. of Fish and Wildlife.

IMN data collected for the FPC by the Nez Perce Tribe.

Fall (post SMP season) trapping at the Imnaha River Fish Trap (IMN) is funded by the Lower Snake River Compensation Program (LSRCP)

WTB and LEW data collected for the FPC by Idaho Dept. of Fish and Game.

## Two Week Transportation Summary

Source: Fish Passage Center

Updated:

8/22/14 6:58 AM

**08/08/14                      TO                      08/22/14**

		Species					
Site	Data	CH0	CH1	ST	SO	Grand Total	
<b>LGR</b>	Sum of NumberCollected	8,044			15	8,059	
	Sum of NumberBarged	6,456			10	6,466	
	Sum of NumberBypassed	0			0	0	
	Sum of Numbertrucked	1,970			5	1,975	
	Sum of SampleMorts	71			0	71	
	Sum of FacilityMorts	9			0	9	
	Sum of ResearchMorts	0			0	0	
	Sum of TotalProjectMorts	80			0	80	
<b>LGS</b>	Sum of NumberCollected	20,982	2		13	20,997	
	Sum of NumberBarged	20,400	2		19	20,421	
	Sum of NumberBypassed	0	0		0	0	
	Sum of Numbertrucked	2,294	0		0	2,294	
	Sum of SampleMorts	55	0		2	57	
	Sum of FacilityMorts	189	0		1	190	
	Sum of ResearchMorts	0	0		0	0	
	Sum of TotalProjectMorts	244	0		3	247	
<b>LMN</b>	Sum of NumberCollected	2,682		6	11	4	2,703
	Sum of NumberBarged	2,460		8	8	4	2,480
	Sum of NumberBypassed	0		0	0	0	0
	Sum of Numbertrucked	247		0	3	0	250
	Sum of SampleMorts	22		0	0	0	22
	Sum of FacilityMorts	23		0	0	0	23
	Sum of ResearchMorts	0		0	0	0	0
	Sum of TotalProjectMorts	45		0	0	0	45
Total Sum of NumberCollected		31,708		8	11	32	31,759
Total Sum of NumberBarged		29,316		10	8	33	29,367
Total Sum of NumberBypassed		0		0	0	0	0
Total Sum of Numbertrucked		4,511		0	3	5	4,519
Total Sum of SampleMorts		148		0	0	2	150
Total Sum of FacilityMorts		221		0	0	1	222
Total Sum of ResearchMorts		0		0	0	0	0
Total Sum of TotalProjectMorts		369		0	0	3	372

### YTD Transportation Summary

Source: Fish Passage Center

Updated:

8/22/14 6:58 AM

TO: 08/22/14

		Species					
Site	Data	CH0	CH1	CO	SO	ST	Grand Total
<b>LGR</b>	Sum of NumberCollected	638,195	3,442,337	52,722	130,959	2,404,229	6,668,442
	Sum of NumberBarged	622,537	1,939,440	48,991	70,855	1,326,856	4,008,679
	Sum of NumberBypassed	11,727	1,501,375	3,722	59,638	1,077,085	2,653,547
	Sum of NumberTrucked	1,970	0	0	5	0	1,975
	Sum of SampleMorts	405	138	1	46	60	650
	Sum of FacilityMorts	1,546	1,305	8	415	121	3,395
	Sum of ResearchMorts	10	79	0	0	107	196
	Sum of TotalProjectMorts	1,961	1,522	9	461	288	4,241
<b>LGS</b>	Sum of NumberCollected	735,627	1,951,719	41,832	61,232	1,369,624	4,160,034
	Sum of NumberBarged	731,173	1,768,377	40,932	54,864	1,149,468	3,744,814
	Sum of NumberBypassed	324	182,657	890	6,109	220,103	410,083
	Sum of NumberTrucked	2,294	0	0	0	0	2,294
	Sum of SampleMorts	178	34	1	21	16	250
	Sum of FacilityMorts	1,365	651	9	237	167	2,429
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	1,543	685	10	258	183	2,679
<b>LMN</b>	Sum of NumberCollected	256,727	1,326,222	19,905	48,374	792,145	2,443,373
	Sum of NumberBarged	253,846	1,138,579	17,505	45,110	686,179	2,141,219
	Sum of NumberBypassed	616	177,066	0	2,568	89,957	270,207
	Sum of NumberTrucked	247	0	0	0	3	250
	Sum of SampleMorts	77	25	0	1	17	120
	Sum of FacilityMorts	541	964	0	301	193	1,999
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	618	989	0	302	210	2,119
Total Sum of NumberCollected		1,630,549	6,720,278	114,459	240,565	4,565,998	13,271,849
Total Sum of NumberBarged		1,607,556	4,846,396	107,428	170,829	3,162,503	9,894,712
Total Sum of NumberBypassed		12,667	1,861,098	4,612	68,315	1,387,145	3,333,837
Total Sum of NumberTrucked		4,511	0	0	5	3	4,519
Total Sum of SampleMorts		660	197	2	68	93	1,020
Total Sum of FacilityMorts		3,452	2,920	17	953	481	7,823
Total Sum of ResearchMorts		10	79	0	0	107	196
Total Sum of TotalProjectMorts		4,122	3,196	19	1,021	681	9,039



Cumulative Adult Passage at Mainstem Dams Through: 08/21

DAM	END DATE	Spring Chinook						Summer Chinook						Fall Chinook					
		2014		2013		10-Yr Avg.		2014		2013		10-Yr Avg.		2014		2013		10-Yr Avg.	
		Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	08/21	188083	26094	83345	33820	130283	22257	109734	25342	93097	26186	85511	18881	23401	4818	41960	6620	18406	3443
TDA	08/21	143142	21080	69202	32311	99813	18973	96134	19525	85639	20750	73080	14947	11015	3587	19218	3602	9578	2004
JDA	08/21	123224	19103	56991	28957	87036	17743	86033	17655	75248	19714	65621	15576	5863	2043	10468	1960	5421	1532
MCN	08/21	107147	16033	52176	22279	79413	14950	87974	17022	75741	14808	61586	11232	4288	1686	7975	1517	3571	716
IHR	08/21	79298	12428	38017	18611	54814	9602	17433	4474	11912	6321	16717	4436	1170	109	2434	366	765	115
LMN	08/21	79942	14020	36470	19053	54458	8539	16064	8136	11765	7703	18241	4639	930	115	1735	264	503	107
LGS	08/21	77966	13649	35072	19443	49920	9660	17058	7477	10120	7632	17208	5330	670	58	1250	163	344	49
LGR	08/21	79167	13732	35031	19940	49728	11001	14668	7106	8423	7572	15316	5918	425	66	303	76	144	34
PRD	08/20	23742	2649	13725	1298	14700	1468	78434	4889	71083	3174	52746	2498	1597	939	2492	1641	1456	632
WAN		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RIS	08/20	23247	2934	13345	3100	13890	2468	77982	6494	68386	3986	50079	5174	552	319	988	1760	559	333
RRH	08/20	12376	2377	6841	2101	5576	1020	58569	5017	59685	4044	38940	4099	238	124	330	663	187	121
WEL	08/20	15376	2544	7133	2980	4880	1164	47635	5001	47805	3994	28099	2726	0	0	0	0	0	0
WFA	08/20	30071	1598	27897	1664	40347	1124	0	0	0	0	0	0	71	12	108	49	43	12

DAM	END DATE	Coho						Sockeye			Steelhead						Lamprey		
		2014		2013		10-Yr Avg.		2014	2013	10-Yr Avg.	2014	2013	10-Yr Avg.	Wild 2014	Wild 2013	10-Yr Avg.	2014	2013	10-Yr Avg.
		Adult	Jack	Adult	Jack	Adult	Jack												
BON	08/21	1251	205	405	57	1210	174	614137	185493	192203	192376	158959	218589	89697	75840	79234	30096	21869	22527
TDA	08/21	34	19	21	0	143	46	586085	161879	159032	81551	64343	91883	43653	35586	38760	10059	7573	5590
JDA	08/21	4	2	7	3	49	20	557475	155472	161051	46742	37294	70173	23585	19160	28251	7108	4870	4866
MCN	08/21	0	0	2	0	3	1	545932	134164	135987	42922	32906	50060	21454	16532	19168	1358	1191	1543
IHR	08/21	0	0	0	0	0	0	2387	895	505	21360	22803	26924	7875	7172	7766	573	224	217
LMN	08/21	0	0	0	0	0	0	2800	1012	632	21290	15780	25898	9486	6541	9048	178	68	60
LGS	08/21	0	0	1	0	0	0	2806	989	607	13093	8164	17321	6884	4101	6051	100	24	33
LGR	08/21	0	0	0	0	0	0	2730	735	681	15534	11071	16659	7835	5258	6193	54	12	8
PRD	08/20	0	0	0	0	13	0	608063	163066	167419	6584	4765	6556	0	0	0	4261	3732	1744
WAN		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RIS	08/20	0	0	0	0	0	0	580879	159144	164801	3775	3143	5120	2005	1972	2787	983	490	425
RRH	08/20	0	0	0	0	0	0	492629	131624	139897	2068	2042	3792	1095	1239	1922	1313	390	163
WEL	08/20	0	0	0	0	0	0	490111	129714	133558	1358	1262	1918	727	716	958	1	16	2
WFA	08/20	9	0	15	28	9	20	0	0	0	26535	17443	24882	0	0	0	0	0	0

PRD does not post wild steelhead numbers.  
 These numbers were collected from USACE, Grant PUD, Douglas PUD, Chelan PUD, ODFW and DART.  
 Wild steelhead numbers are included in the total. Wild Steelhead are defined as unclipped fish.  
 Historic counts (pre-1996) were obtained from CRITFC and compiled by the FPC.  
 Historic counts 1997 to present were obtained from the Corps of Engineers.