



Fish Passage Center

Weekly Report #12 - 27

September 14, 2012

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Summary of Events:

NOTE: This is the last weekly report of the season; bi-weekly reports begin September 28th through the end of October.

Water Supply: Precipitation throughout the Columbia Basin has varied between 1% and 64% of average at individual sub-basins over September. Precipitation above The Dalles has been 34% of average for September 1-10. Over the 2012 water year, precipitation has ranged between 88% and 117% of average.

Table 1. Summary of September precipitation and cumulative October through September 10, 2012 precipitation with respect to average (1971-2000), at select locations within the Columbia and Snake River Basins.

| Location | Water Year 2012 September 1-10, 2012 | | Water Year 2012 October 1, 2011 to September 10, 2012 | |
|-----------------------------------|--|--------------|---|--------------|
| | Observed (inches) | % Average | Observed (inches) | % Average |
| Columbia Above Coulee | 0.23 | 44 | 27.90 | 114 |
| Snake River Above Ice Harbor | 0.10 | 29 | 16.04 | 93 |
| Columbia Above The Dalles | 0.15 | 34 | 23.99 | 106 |
| Kootenai | 0.34 | 64 | 29.47 | 117 |
| Clark Fork | 0.03 | 7 | 17.05 | 100 |
| Flathead | 0.26 | 47 | 24.98 | 111 |
| Pend Oreille/Spokane | 0.06 | 13 | 34.43 | 113 |
| Central Washington | 0.02 | 11 | 7.92 | 89 |
| Snake River Plain | 0.15 | 54 | 9.71 | 88 |
| Salmon/Boise/Payette | 0.02 | 5 | 18.01 | 92 |
| Clearwater | 0.01 | 1 | 31.56 | 105 |
| SW Washington Cascades/Cowlitz | 0.08 | 8 | 69.47 | 100 |
| Willamette Valley | 0.02 | 2 | 62.26 | 106 |

Grand Coulee Reservoir is at 1283.6 feet (9-13-12) and refilled 1.8 feet over the last week. Outflows at Grand Coulee have ranged between 47.7 and 101.6 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2450.6 feet (9-13-12) and has drafted 0.5 feet over the last week. Outflows at Libby Dam have been 8.0 Kcfs last week.

Hungry Horse is currently at an elevation of 3551.6 feet (9-13-12) and has drafted 0.9 feet over the last week. Outflows at Hungry Horse have ranged between 2.0 and 2.2 Kcfs last week.

Dworshak is currently at an elevation of 1522.1 feet (9-13-12) and has drafted 4.4 feet over the last week for temperature and flow augmentation. Outflows from Dworshak have ranged between 4.8 and 8.2 Kcfs the past week.

The Brownlee Reservoir drafted 2.6 feet over the past week with an elevation of 2051.3 feet on September 13th, 2012. Over the last week, outflows at Brownlee have ranged between 11.6 and 15.1 Kcfs.

The Biological Opinion summer flow objective at Lower Granite (June 21st to August 31st) was 52 Kcfs; over the summer period flows at Lower Granite averaged 42.3 Kcfs.

The Summer Biological Opinion Flow Objective was 200 Kcfs at McNary Dam (began July 1st and ended August 31st). Over the summer period, flows at McNary averaged 265.2 Kcfs.

Smolt Monitoring:

Smolt monitoring activities are ongoing at all six SMP dams (BON, JDA, MCN, LGR, LGS, and LMN). SMP sampling at RIS for the 2012 season ended on August 31st. SMP sampling at JDA will end on September 15th.

Subyearling Chinook were the dominant species of salmonid at all SMP dams over the past week. When compared to last week, subyearling Chinook passage decreased or remained the same at all SMP sites this week, except LGR and LMN.

Subyearling Chinook numbers at BON decreased this week, with a daily average passage index of about 1,200 per day, compared to last week's daily average passage index of about 2,000 per day. No other species of salmonid was sampled at BON this week. Only pacific lamprey macrophthalmia were collected at BON this week, but in very low numbers. All but three screens have been pulled from the juvenile bypass system at the second powerhouse. These screens are expected to remain out for the remainder of the 2012 SMP season. The three screens that remain are in units 11, 12, and 18. Pulled screens will likely result in bias collection estimates, as not as many fish will be guided into the juvenile bypass system in the second powerhouse.

Passage of subyearling Chinook at JDA decreased this week, when compared to last week. The daily average passage index for subyearling Chinook at JDA this week was nearly 3,500 per day, compared to about 5,800 per day last week. As with previous weeks, sockeye were the only spring migrants that were collected at JDA this week. Furthermore, only pacific lamprey macrophthalmia were collected at JDA this week. Daily collections of lamprey macrophthalmia at JDA ranged from 0 to 83 per day this week. Sampling for the 2012 SMP season is scheduled to end at JDA on September 15th.

Passage of subyearling Chinook at MCN decreased this week. The daily average passage index for subyearling Chinook at MCN this week was nearly 4,800 per day, compared to about 7,650 per day last week. A very small number of yearling Chinook were collected at MCN this week. Daily average collections of pacific lamprey macrophthalmia increased this week, when compared to last week. Daily collections of pacific lamprey macrophthalmia ranged from 0 to 50 per day this week. No pacific lamprey ammocoetes were collected at MCN this week.

Subyearling Chinook passage at LGR increased slightly this week, when compared to last week. The daily average passage index for subyearling Chinook at LGR this week was about 175 per day. Last week's daily average passage index for subyearling Chinook was about 104 per day. Some coho, sockeye/kokanee, and steelhead juveniles were also collected at LGR this week, but in very small numbers. Only one pacific lamprey ammocoete was sampled at LGR this week.

When compared to last week, passage of subyearling Chinook at LGS remained similar, whereas that for LMN increased. The daily average passage

index for subyearling Chinook at LGS this week was about 14 per day, compared to about 10 per day last week. This week's daily average passage index for subyearling Chinook at LMN was about 213 per day, compared to about 29 per day last week. Collections this week included a small number of sockeye, coho, and steelhead juveniles at LGS and yearling Chinook, sockeye, coho, and steelhead at LMN. Only pacific lamprey macrophthalmia were collected at LGS and LMN this week. Mortality of subyearling Chinook at LMN has remained high this week. As with previous weeks, most of the mortalities seen this week are due to Columnaris infections, which tend to increase during this time of year.

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 of juvenile salmonids scheduled for this zone this week. In addition, there are no releases scheduled for this zone over the next two 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. No new releases of juvenile salmonids were scheduled to begin in this zone this week. There are also no releases of juvenile salmonids in this zone over the next two weeks.

Lower Columbia Zone: The Lower Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to McNary Dam. No new releases of juvenile salmonids were scheduled for this zone this week. Furthermore, there are no new releases to this zone scheduled over the next two weeks.

Adult Fish Passage:

Fall Chinook began to pass Bonneville Dam on August 1st. Daily counts of fall Chinook at Bonneville Dam ranged from 7,102 to 14,675. The adult fall Chinook count of 225,817 is about 90.5% of the 2011 count of 249,588 and about 83.1% of the 10 year average count of 271,867. The 2012 Bonneville Dam fall Chinook jack count of 55,316 is about 1.5 times greater than the 2011 count of 38,006 and about 1.9 times greater than 10 year average count of 28,621. The 2012 McNary Dam adult fall Chinook count of 72,888 is about 1.4 times greater than the 2011 count and about 1.4 times larger than the 10 year average. The 2012 McNary Dam 2012 jack count of 13,429 is about 1.3 times greater than the 2011 count and 1.3 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 25th and B-run steelhead pass Bonneville from August 26th through October. The 2012 B-run adult steelhead count at Bonneville of 37,328 is about 58.2% of the 2011 count of 64,173 and 48.1% of the 10 year average count of 77,583.

The Bonneville Dam 2012 steelhead count of 196,268 is about 60% of the 2011 count of 326,615 and about 59.5% of the 10 year average count of 329,937. The 2012 Bonneville wild adult steelhead count of 73,977 is about 62.7% of the 2011 count of 118,041 and about 70.8% of the 10 year average count of 104,490. In the Snake River, this year's Lower Granite steelhead count of 20,697 is about 30.7% of the 2011 count of 67,473 and 50.3% of the 10 year average of 41,135. The 2012 Lower Granite wild adult steelhead count of 8,197 is about 35.2% of the 2011 count of 23,257 and 64.9% of the 10 year average count of 12,634. At Willamette Falls Dam, the 2012 count for steelhead was 29,074, as of September 12th. This year's steelhead count is about 1.06 times greater than the 2011 count of 27,506 and 1.06 times greater than the 10 year average count of 27,434. The 2012 accumulated total adult sockeye count at Bonneville Dam of 515,670, as of 9/13/2012, is about 2.77 times greater than the 2011 count of 185,796 and about 3.94 times greater than the 10 year average count of 130,981. The 2012 McNary Dam adult sockeye count of 364,142 is about 3.2 times greater than the 2011 count of 113,946 and 3.9 times greater than the 10 year average count of 93,284. Two of the major spawning sites for sockeye in the Upper Columbia River zone are Lake Wenatchee and Lake Osoyoos (Okanogan basin). In the Snake River at Ice Harbor Dam, the 2012 adult sockeye count of 453 is 39.7% of the 2011 count of 1,141, while being 1.16 times greater than the 10 year average count of 390. The Lower Granite Dam 2012 adult sockeye count of 461 is about 30.7% of the 2011 count of 1,502 and about 80.5% of the 10 year average count of 573. The 2012 adult coho Bonneville Dam count of 24,929 adults is about 34% of the 2011 count of 73,216 and about 49% of the 10 year average count of 50,869. The 2012 Bonneville Dam coho jack count of 1,482 is about

74.6% of the 2011 count of 1,986 and about 56.6% of the 10 year average count of 2,617. As of September 13th at Bonneville Dam, the adult shad count was 2,432,394. This year's shad count is about 2.56 times greater than the 2011 count of 948,070, while being 82.8% of the 10 year average count of 2,936,990.

Hatchery Releases Last Two Weeks

No releases to report.

Hatchery Releases Next Two Weeks

No releases to report.

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 |
| 08/31/2012 | 109.0 | 0.1 | 121.7 | 0.0 | 127.3 | 7.6 | 134.4 | 4.3 | 139.4 | 0.0 | 157.6 | 29.1 | 154.8 | 17.4 |
| 09/01/2012 | 81.3 | 0.1 | 82.8 | 0.0 | 82.8 | 0.0 | 84.3 | 0.0 | 87.2 | 0.0 | 93.7 | 1.9 | 93.1 | 7.5 |
| 09/02/2012 | 74.1 | 0.1 | 72.7 | 0.0 | 70.0 | 0.0 | 65.3 | 0.0 | 66.8 | 0.0 | 64.2 | 2.0 | 61.4 | 7.5 |
| 09/03/2012 | 89.6 | 0.1 | 87.9 | 0.0 | 87.4 | 0.7 | 86.6 | 0.7 | 91.5 | 0.0 | 97.9 | 2.7 | 94.8 | 7.7 |
| 09/04/2012 | 117.0 | 0.1 | 121.0 | 0.0 | 120.3 | 9.2 | 119.1 | 0.8 | 119.2 | 0.0 | 120.6 | 6.4 | 108.1 | 7.6 |
| 09/05/2012 | 92.4 | 0.1 | 95.0 | 0.0 | 97.7 | 0.0 | 102.3 | 0.0 | 109.2 | 0.0 | 121.5 | 5.5 | 121.9 | 16.4 |
| 09/06/2012 | 86.7 | 0.1 | 78.6 | 0.0 | 82.9 | 0.0 | 84.4 | 0.0 | 86.8 | 0.0 | 102.7 | 1.7 | 101.9 | 7.0 |
| 09/07/2012 | 101.6 | 0.1 | 104.8 | 0.0 | 98.5 | 0.6 | 96.1 | 0.0 | 99.1 | 0.0 | 92.5 | 3.2 | 85.4 | 8.6 |
| 09/08/2012 | 80.3 | 0.1 | 78.0 | 0.0 | 80.3 | 0.1 | 83.0 | 0.0 | 87.3 | 0.0 | 94.3 | 2.6 | 92.3 | 8.0 |
| 09/09/2012 | 47.7 | 0.1 | 49.8 | 0.0 | 53.1 | 0.0 | 52.9 | 0.0 | 54.0 | 0.0 | 63.8 | 2.1 | 66.4 | 7.0 |
| 09/10/2012 | 74.7 | 0.1 | 74.5 | 0.0 | 73.8 | 0.0 | 75.0 | 0.0 | 77.1 | 0.0 | 79.2 | 2.1 | 75.0 | 7.1 |
| 09/11/2012 | 86.6 | 0.1 | 86.6 | 0.0 | 89.2 | 0.0 | 90.1 | 0.0 | 94.7 | 0.0 | 106.6 | 1.6 | 99.7 | 7.4 |
| 09/12/2012 | 79.5 | 0.3 | 78.2 | 0.0 | 75.9 | 0.0 | 75.2 | 0.0 | 77.4 | 0.0 | 83.7 | 1.5 | 83.5 | 7.5 |
| 09/13/2012 | 93.4 | 0.1 | 93.2 | 0.0 | 91.6 | 0.8 | 90.7 | 0.9 | 92.8 | 0.0 | 86.6 | 4.2 | 79.6 | 6.5 |

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

| Date | Dworshak | | Hells Canyon | | Lower Granite | | Little Goose | | Lower Monumental | | Ice Harbor | |
|------------|----------|-------|--------------|---------|---------------|-------|--------------|-------|------------------|-------|------------|-------|
| | Flow | Spill | Inflow | Outflow | Flow | Spill | Flow | Spill | Flow | Spill | Flow | Spill |
| 08/31/2012 | 8.7 | 0.0 | 10.1 | 9.7 | 23.6 | 11.0 | 27.2 | 7.4 | 26.3 | 13.8 | 28.5 | 18.3 |
| 09/01/2012 | 8.5 | 0.0 | 9.9 | 9.7 | 23.7 | 0.1 | 20.0 | 0.0 | 18.3 | 0.0 | 14.2 | 0.1 |
| 09/02/2012 | 8.5 | 0.0 | 9.6 | 9.7 | 24.1 | 0.0 | 22.3 | 0.0 | 18.5 | 0.0 | 16.4 | 0.0 |
| 09/03/2012 | 8.5 | 0.0 | 9.9 | 10.2 | 25.4 | 0.0 | 12.9 | 0.0 | 12.8 | 0.0 | 12.5 | 0.0 |
| 09/04/2012 | 8.5 | 0.0 | 9.6 | 9.9 | 26.0 | 0.0 | 18.1 | 0.0 | 20.1 | 0.0 | 17.1 | 0.0 |
| 09/05/2012 | 8.5 | 0.0 | 10.5 | 15.4 | 23.6 | 0.0 | 22.9 | 0.0 | 24.3 | 0.0 | 24.5 | 0.0 |
| 09/06/2012 | 8.3 | 0.0 | 10.5 | 15.8 | 32.3 | 0.0 | 33.3 | 0.0 | 37.1 | 0.0 | 36.5 | 0.0 |
| 09/07/2012 | 8.2 | 0.0 | 9.5 | 15.0 | 30.5 | 0.0 | 30.5 | 0.0 | 30.9 | 0.0 | 31.0 | 0.0 |
| 09/08/2012 | 8.2 | 0.0 | 9.1 | 12.7 | 27.2 | 0.0 | 21.7 | 0.0 | 22.2 | 0.0 | 23.3 | 0.0 |
| 09/09/2012 | 5.9 | 0.0 | 10.0 | 13.2 | 25.0 | 0.0 | 26.0 | 0.0 | 27.4 | 0.0 | 27.6 | 0.0 |
| 09/10/2012 | 5.9 | 0.0 | 9.7 | 11.5 | 25.5 | 0.0 | 25.8 | 0.0 | 28.4 | 0.0 | 31.4 | 0.0 |
| 09/11/2012 | 5.8 | 0.0 | 9.8 | 11.9 | 24.1 | 0.0 | 27.1 | 0.0 | 28.5 | 0.0 | 27.7 | 0.0 |
| 09/12/2012 | 4.8 | 0.0 | 10.1 | 14.9 | 22.6 | 0.0 | 24.8 | 0.0 | 25.2 | 0.0 | 25.0 | 0.0 |
| 09/13/2012 | 4.8 | 0.0 | --- | --- | 25.0 | 0.0 | 23.5 | 0.0 | 26.7 | 0.0 | 26.5 | 0.0 |

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 | | |
| 08/31/2012 | 196.9 | 98.7 | 175.0 | 52.6 | 160.1 | 63.9 | 164.6 | 91.6 | 19.1 | 41.5 |
| 09/01/2012 | 141.5 | 16.4 | 143.9 | 1.1 | 139.2 | 0.0 | 148.9 | 1.8 | 88.6 | 46.1 |
| 09/02/2012 | 95.4 | 0.0 | 101.2 | 1.0 | 102.9 | 0.0 | 114.6 | 1.3 | 69.5 | 31.3 |
| 09/03/2012 | 102.6 | 0.0 | 94.0 | 0.9 | 94.1 | 0.0 | 100.8 | 1.3 | 45.5 | 41.5 |
| 09/04/2012 | 114.2 | 14.3 | 113.5 | 0.9 | 114.3 | 0.0 | 119.0 | 1.3 | 63.1 | 43.4 |
| 09/05/2012 | 155.0 | 58.7 | 141.3 | 1.0 | 135.9 | 0.0 | 141.9 | 10.0 | 74.0 | 45.5 |
| 09/06/2012 | 153.2 | 47.8 | 152.3 | 0.9 | 151.1 | 0.0 | 162.6 | 5.0 | 94.0 | 51.2 |
| 09/07/2012 | 110.0 | 0.0 | 111.9 | 0.9 | 111.3 | 0.0 | 123.8 | 1.4 | 56.6 | 53.4 |
| 09/08/2012 | 123.1 | 10.9 | 115.3 | 1.0 | 113.8 | 0.0 | 122.0 | 1.3 | 63.0 | 45.3 |
| 09/09/2012 | 105.9 | 0.0 | 92.7 | 0.9 | 92.9 | 0.0 | 100.2 | 1.3 | 43.4 | 43.1 |
| 09/10/2012 | 104.5 | 0.0 | 104.6 | 1.0 | 105.2 | 0.0 | 110.9 | 1.3 | 49.0 | 48.1 |
| 09/11/2012 | 110.2 | 10.7 | 117.0 | 1.0 | 114.8 | 0.0 | 118.0 | 1.3 | 50.9 | 53.4 |
| 09/12/2012 | 126.2 | 21.6 | 125.2 | 1.0 | 126.6 | 0.0 | 136.4 | 1.3 | 64.9 | 57.7 |
| 09/13/2012 | 102.8 | 0.0 | 98.1 | 0.9 | 96.8 | 0.0 | 108.4 | 1.3 | 40.5 | 54.2 |

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>24 h</u> | <u>12 h</u> | | | <u>24 h</u> | <u>12 h</u> | | | <u>24 h</u> | <u>12 h</u> | | | <u>24 h</u> | <u>12 h</u> | | <u>24 h</u> | <u>12 h</u> | | |
| | Avg | Avg | High | | Avg | Avg | High | | Avg | Avg | High | | Avg | Avg | High | | Avg | Avg | High | Avg | Avg | High | High |
| 8/31 | 103.8 | 104.5 | 105.0 | 24 | 111.4 | 111.8 | 112.4 | 23 | 109.4 | 110.3 | 110.7 | 24 | 107.0 | 108.5 | 109.6 | 23 | 109.8 | 110.0 | 110.3 | 24 | | | |
| 9/1 | 103.8 | 104.1 | 104.6 | 24 | 110.5 | 111.1 | 111.6 | 23 | 109.6 | 110.0 | 110.3 | 24 | 106.2 | 106.9 | 107.3 | 23 | 109.1 | 109.4 | 109.8 | 24 | | | |
| 9/2 | 103.3 | 103.5 | 103.7 | 24 | 106.8 | 107.0 | 107.4 | 24 | 109.6 | 109.8 | 110.0 | 24 | 106.2 | 107.0 | 107.9 | 21 | 108.2 | 108.5 | 108.7 | 24 | | | |
| 9/3 | 102.9 | 103.5 | 104.0 | 23 | 106.4 | 106.7 | 107.0 | 24 | 108.5 | 109.0 | 109.2 | 24 | 106.8 | 107.6 | 108.6 | 21 | 108.3 | 108.8 | 108.9 | 24 | | | |
| 9/4 | 103.2 | 103.6 | 103.9 | 24 | 106.0 | 106.3 | 106.6 | 23 | 108.5 | 109.2 | 109.5 | 24 | 107.4 | 108.3 | 108.9 | 22 | 108.6 | 109.3 | 109.7 | 24 | | | |
| 9/5 | 102.9 | 103.2 | 103.4 | 23 | 105.9 | 106.1 | 106.4 | 19 | 109.4 | 109.8 | 110.2 | 24 | 108.6 | 109.3 | 109.8 | 19 | 109.9 | 110.2 | 110.6 | 24 | | | |
| 9/6 | 103.3 | 103.6 | 103.9 | 24 | 105.7 | 105.8 | 106.2 | 20 | 108.0 | 108.6 | 109.1 | 24 | 108.1 | 108.5 | 109.2 | 20 | 108.8 | 109.1 | 109.2 | 24 | | | |
| 9/7 | 101.8 | 102.2 | 102.5 | 24 | 105.5 | 106.0 | 106.4 | 22 | 107.1 | 107.7 | 108.3 | 24 | 107.4 | 108.0 | 108.6 | 22 | 108.1 | 108.3 | 108.5 | 24 | | | |
| 9/8 | 102.3 | 102.8 | 103.2 | 24 | 106.3 | 106.9 | 107.7 | 22 | 107.0 | 107.4 | 107.9 | 24 | 107.1 | 108.0 | 109.1 | 22 | 108.9 | 109.3 | 109.7 | 24 | | | |
| 9/9 | 102.7 | 103.1 | 103.4 | 23 | 106.7 | 107.1 | 108.6 | 23 | 107.8 | 108.2 | 108.6 | 24 | 109.0 | 110.2 | 113.2 | 23 | 109.6 | 110.2 | 110.7 | 24 | | | |
| 9/10 | 102.7 | 103.0 | 103.2 | 24 | 105.8 | 106.1 | 106.5 | 21 | 108.8 | 109.2 | 109.6 | 24 | 108.5 | 109.0 | 109.9 | 21 | 108.4 | 108.7 | 108.8 | 24 | | | |
| 9/11 | 102.6 | 103.0 | 103.5 | 24 | 104.5 | 104.8 | 105.1 | 21 | 108.3 | 108.4 | 108.8 | 24 | 106.7 | 107.0 | 107.4 | 21 | 106.9 | 107.0 | 107.3 | 24 | | | |
| 9/12 | 102.2 | 102.6 | 103.0 | 24 | 104.2 | 104.9 | 105.6 | 22 | 105.5 | 106.0 | 106.7 | 24 | 105.9 | 106.5 | 107.8 | 22 | 106.4 | 106.5 | 106.9 | 24 | | | |
| 9/13 | 101.2 | 101.7 | 102.0 | 24 | 104.9 | 105.5 | 106.0 | 23 | 104.8 | 105.0 | 105.2 | 24 | 106.1 | 106.7 | 107.4 | 23 | 107.1 | 107.6 | 107.9 | 24 | | | |

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>24 h</u> | <u>12 h</u> | | | <u>24 h</u> | <u>12 h</u> | | | <u>24 h</u> | <u>12 h</u> | | | <u>24 h</u> | <u>12 h</u> | | <u>24 h</u> | <u>12 h</u> | | |
| | Avg | Avg | High | | Avg | Avg | High | | Avg | Avg | High | | Avg | Avg | High | | Avg | Avg | High | Avg | Avg | High | High |
| 8/31 | 108.9 | 109.3 | 109.8 | 24 | 109.2 | 109.7 | 110.4 | 24 | 111.1 | 113.0 | 117.4 | 24 | 109.8 | 110.2 | 110.6 | 24 | 109.7 | 110.6 | 112.6 | 24 | | | |
| 9/1 | 108.0 | 108.5 | 108.7 | 24 | 108.1 | 108.6 | 109.1 | 24 | 107.7 | 108.3 | 108.7 | 24 | 110.6 | 110.8 | 111.1 | 24 | 109.1 | 109.3 | 109.6 | 24 | | | |
| 9/2 | 107.1 | 107.5 | 107.8 | 24 | 108.1 | 108.7 | 109.3 | 24 | 107.7 | 108.4 | 108.7 | 24 | 109.7 | 110.3 | 110.8 | 24 | 108.2 | 108.6 | 109.2 | 24 | | | |
| 9/3 | 107.2 | 107.7 | 108.2 | 24 | 108.2 | 108.9 | 109.6 | 24 | 108.2 | 108.9 | 109.6 | 24 | 106.6 | 107.1 | 107.9 | 24 | 106.0 | 106.4 | 107.1 | 24 | | | |
| 9/4 | 107.7 | 108.4 | 108.6 | 24 | 107.7 | 108.3 | 108.7 | 24 | 109.2 | 111.3 | 117.0 | 24 | 106.5 | 107.0 | 107.3 | 24 | 105.9 | 106.5 | 109.3 | 24 | | | |
| 9/5 | 108.9 | 109.4 | 109.7 | 24 | 108.8 | 109.8 | 110.4 | 24 | 109.2 | 110.5 | 115.9 | 24 | 107.4 | 107.8 | 108.1 | 24 | 106.7 | 107.3 | 108.6 | 24 | | | |
| 9/6 | 107.8 | 108.2 | 108.5 | 24 | 108.2 | 109.0 | 109.5 | 24 | 107.9 | 108.7 | 109.1 | 24 | 107.8 | 108.6 | 109.6 | 24 | 106.7 | 107.3 | 107.9 | 24 | | | |
| 9/7 | 106.9 | 107.2 | 107.3 | 24 | 108.2 | 108.8 | 109.2 | 24 | 107.9 | 108.7 | 109.1 | 24 | 108.2 | 108.6 | 109.4 | 24 | 107.0 | 107.4 | 107.6 | 24 | | | |
| 9/8 | 107.9 | 108.4 | 108.7 | 24 | 108.6 | 109.5 | 110.0 | 24 | 108.5 | 109.2 | 109.7 | 24 | 107.2 | 107.8 | 108.3 | 24 | 106.1 | 106.7 | 107.3 | 24 | | | |
| 9/9 | 109.2 | 109.9 | 110.6 | 24 | 108.5 | 108.9 | 109.3 | 24 | 108.2 | 108.8 | 109.6 | 24 | 108.1 | 108.4 | 108.8 | 24 | 106.4 | 106.8 | 107.1 | 24 | | | |
| 9/10 | 107.8 | 108.4 | 108.6 | 24 | 107.0 | 107.4 | 107.8 | 24 | 106.5 | 106.9 | 107.3 | 24 | 107.0 | 107.4 | 107.7 | 24 | 105.0 | 106.0 | 106.5 | 24 | | | |
| 9/11 | 105.7 | 106.1 | 106.3 | 24 | 105.5 | 105.9 | 106.2 | 24 | 105.2 | 105.8 | 106.2 | 24 | 105.0 | 105.5 | 106.2 | 24 | 104.1 | 104.6 | 104.7 | 24 | | | |
| 9/12 | 105.1 | 105.5 | 105.8 | 24 | 104.9 | 105.6 | 106.0 | 24 | 104.4 | 105.3 | 105.9 | 24 | 102.7 | 103.0 | 103.6 | 24 | 101.8 | 102.3 | 102.7 | 24 | | | |
| 9/13 | 106.0 | 106.5 | 106.8 | 24 | 105.8 | 105.8 | 107.0 | 9 | 104.4 | 104.4 | 105.3 | 9 | 103.5 | 104.4 | 104.8 | 24 | 102.7 | 103.8 | 104.4 | 24 | | | |

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>24 h</u> | <u>12 h</u> | | | <u>24 h</u> | <u>12 h</u> | | | <u>24 h</u> | <u>12 h</u> | | | <u>24 h</u> | <u>12 h</u> | | <u>24 h</u> | <u>12 h</u> | | |
| | Avg | Avg | High | | Avg | Avg | High | | Avg | Avg | High | | Avg | Avg | High | | Avg | Avg | High | Avg | Avg | High | High |
| 8/31 | 108.6 | 109.8 | 110.4 | 24 | 108.6 | 109.8 | 110.4 | 24 | 107.3 | 107.8 | 108.3 | 24 | 109.3 | 111.3 | 121.2 | 24 | 108.5 | 110.7 | 114.7 | 24 | | | |
| 9/1 | 108.2 | 109.2 | 109.7 | 24 | 107.2 | 108.7 | 109.4 | 24 | 104.7 | 105.5 | 106.9 | 24 | 105.7 | 106.0 | 106.8 | 24 | 107.7 | 108.4 | 110.2 | 24 | | | |
| 9/2 | 109.2 | 109.6 | 109.9 | 24 | 106.2 | 108.8 | 109.4 | 24 | 103.4 | 103.7 | 104.0 | 24 | 105.1 | 105.6 | 106.7 | 24 | 105.0 | 105.2 | 105.8 | 24 | | | |
| 9/3 | 107.5 | 108.1 | 109.2 | 24 | 107.2 | 107.9 | 109.1 | 24 | 103.5 | 104.3 | 105.1 | 24 | 104.9 | 105.4 | 105.7 | 24 | 104.5 | 104.7 | 104.9 | 24 | | | |
| 9/4 | 105.8 | 106.5 | 106.7 | 24 | 105.9 | 106.4 | 106.7 | 24 | 105.3 | 106.4 | 107.1 | 24 | 106.7 | 108.4 | 120.2 | 24 | 104.1 | 104.3 | 104.6 | 24 | | | |
| 9/5 | 106.9 | 107.8 | 108.2 | 24 | 106.1 | 107.7 | 108.1 | 24 | 107.3 | 107.8 | 108.1 | 24 | 108.7 | 109.6 | 115.0 | 24 | 108.0 | 111.6 | 114.2 | 24 | | | |
| 9/6 | 106.4 | 106.9 | 107.4 | 24 | 103.0 | 105.7 | 107.0 | 24 | 106.0 | 106.4 | 107.0 | 24 | 106.6 | 106.9 | 107.1 | 24 | 108.4 | 109.0 | 110.0 | 24 | | | |
| 9/7 | 107.5 | 108.4 | 109.2 | 24 | 105.6 | 108.3 | 109.2 | 24 | 105.0 | 105.8 | 106.4 | 24 | 105.8 | 106.2 | 108.5 | 24 | 106.8 | 107.0 | 107.4 | 24 | | | |
| 9/8 | 106.9 | 107.3 | 107.6 | 24 | 106.8 | 107.3 | 107.7 | 24 | 105.8 | 106.4 | 106.9 | 24 | 106.1 | 106.8 | 107.6 | 24 | 106.6 | 106.9 | 107.3 | 24 | | | |
| 9/9 | 106.9 | 107.1 | 107.4 | 24 | 105.4 | 106.8 | 107.4 | 24 | 103.8 | 104.7 | 106.6 | 24 | 106.1 | 106.5 | 106.7 | 24 | 106.0 | 106.6 | 107.1 | 24 | | | |
| 9/10 | 105.9 | 106.1 | 106.3 | 24 | 105.7 | 106.1 | 106.2 | 24 | 100.4 | 101.0 | 101.4 | 24 | 104.3 | 104.7 | 104.9 | 24 | 103.1 | 103.5 | 104.2 | 24 | | | |
| 9/11 | 104.8 | 105.1 | 105.3 | 24 | 104.3 | 105.1 | 105.3 | 24 | 101.7 | 102.6 | 102.8 | 24 | 103.1 | 103.2 | 103.4 | 24 | 101.3 | 101.5 | 102.1 | 24 | | | |
| 9/12 | 103.2 | 103.5 | 104.4 | 24 | 100.5 | 101.2 | 103.0 | 24 | 101.8 | 102.2 | 102.6 | 24 | 102.9 | 103.1 | 103.3 | 24 | 100.7 | 100.8 | 100.9 | 24 | | | |
| 9/13 | 102.7 | 103.3 | 103.9 | 24 | 102.1 | 103.4 | 104.0 | 24 | 101.2 | 102.5 | 103.3 | 24 | 103.7 | 104.5 | 112.6 | 24 | 101.0 | 101.4 | 101.6 | 24 | | | |

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 | Priest R. Dnst | | | # | Pasco | | | # | Dworshak | | | # | Clrwrtr-Peck | | | # | Anatone | | | # | | | |
|------|----------------|-------|-------|----|-------|-------|-------|----|----------|-------|-------|----|--------------|-------|-------|----|---------|-------|-------|----|------|------|------|
| | 24 h | 12 h | | | 24 h | 12 h | | | 24 h | 12 h | | | 24 h | 12 h | | | 24 h | 12 h | | | 24 h | 12 h | |
| | Avg | Avg | High | | Avg | Avg | High | | Avg | Avg | High | | Avg | Avg | High | | Avg | Avg | High | | Avg | Avg | High |
| 8/31 | 109.3 | 110.5 | 113.1 | 24 | 105.4 | 106.0 | 106.5 | 24 | 101.0 | 101.3 | 101.7 | 24 | 102.2 | 103.3 | 104.2 | 24 | 101.8 | 103.1 | 104.6 | 24 | | | |
| 9/1 | 106.8 | 107.3 | 108.4 | 24 | 105.7 | 106.8 | 107.6 | 24 | 100.5 | 100.7 | 101.0 | 24 | 101.6 | 102.6 | 103.6 | 24 | 101.0 | 102.2 | 103.5 | 24 | | | |
| 9/2 | 105.5 | 105.9 | 106.3 | 24 | 105.0 | 105.5 | 106.5 | 24 | 100.1 | 100.4 | 100.8 | 24 | 101.4 | 102.2 | 103.2 | 21 | 101.0 | 102.3 | 103.5 | 24 | | | |
| 9/3 | 105.7 | 106.2 | 106.6 | 24 | 104.2 | 104.8 | 105.2 | 24 | 100.1 | 100.5 | 100.9 | 24 | 101.3 | 102.3 | 103.3 | 22 | 101.3 | 102.6 | 103.9 | 24 | | | |
| 9/4 | 105.6 | 106.1 | 106.3 | 24 | 104.0 | 104.9 | 105.3 | 24 | 100.0 | 100.2 | 100.5 | 24 | 101.1 | 102.0 | 103.0 | 22 | 101.4 | 102.7 | 104.0 | 24 | | | |
| 9/5 | 109.7 | 111.5 | 113.0 | 24 | 104.8 | 105.9 | 106.2 | 24 | 100.3 | 100.7 | 101.0 | 24 | 101.2 | 102.4 | 103.3 | 24 | 101.8 | 103.1 | 104.5 | 24 | | | |
| 9/6 | 108.2 | 108.5 | 109.2 | 24 | 105.7 | 106.2 | 106.5 | 24 | 100.3 | 100.5 | 100.9 | 24 | 101.2 | 102.1 | 102.9 | 22 | 101.1 | 101.8 | 102.6 | 24 | | | |
| 9/7 | 107.3 | 107.9 | 108.2 | 24 | 105.4 | 106.1 | 106.5 | 24 | 99.7 | 99.9 | 100.3 | 24 | 100.7 | 101.6 | 102.7 | 23 | 101.2 | 102.4 | 103.6 | 24 | | | |
| 9/8 | 107.5 | 108.0 | 108.2 | 24 | 105.6 | 106.5 | 106.8 | 24 | 100.0 | 100.5 | 100.8 | 24 | 100.9 | 102.0 | 103.1 | 23 | 101.9 | 103.2 | 104.4 | 24 | | | |
| 9/9 | 106.7 | 107.3 | 107.8 | 24 | 105.3 | 105.8 | 106.2 | 24 | 103.3 | 103.8 | 104.3 | 24 | 102.7 | 104.1 | 105.3 | 24 | 101.9 | 102.7 | 104.0 | 24 | | | |
| 9/10 | 104.6 | 104.9 | 105.1 | 24 | 102.7 | 103.2 | 103.7 | 24 | 102.9 | 103.3 | 103.7 | 24 | 102.3 | 103.3 | 104.3 | 24 | 100.8 | 101.7 | 102.9 | 24 | | | |
| 9/11 | 103.3 | 103.7 | 103.9 | 24 | 101.4 | 102.2 | 102.6 | 24 | 102.3 | 102.7 | 103.1 | 24 | 101.7 | 102.9 | 104.1 | 24 | 100.6 | 101.8 | 103.1 | 24 | | | |
| 9/12 | 103.7 | 104.2 | 104.4 | 24 | 101.6 | 102.2 | 102.6 | 24 | 99.1 | 99.7 | 101.9 | 24 | 99.3 | 100.2 | 101.0 | 21 | 100.9 | 102.0 | 103.2 | 24 | | | |
| 9/13 | 104.1 | 104.7 | 104.9 | 24 | 102.4 | 103.6 | 104.0 | 24 | 99.0 | 99.6 | 100.1 | 24 | 98.9 | 99.9 | 101.2 | 22 | 101.5 | 102.6 | 103.7 | 24 | | | |

Total Dissolved Gas Saturation Data at Snake River Sites

| Date | Clrwrtr-Lewiston | | | # | Lower Granite | | | # | L. Granite Tlwr | | | # | Little Goose | | | # | L. Goose Tlwr | | | # | | | |
|------|------------------|-------|-------|----|---------------|-------|-------|----|-----------------|-------|-------|----|--------------|-------|-------|----|---------------|-------|-------|----|------|------|------|
| | 24 h | 12 h | | | 24 h | 12 h | | | 24 h | 12 h | | | 24 h | 12 h | | | 24 h | 12 h | | | 24 h | 12 h | |
| | Avg | Avg | High | | Avg | Avg | High | | Avg | Avg | High | | Avg | Avg | High | | Avg | Avg | High | | Avg | Avg | High |
| 8/31 | 102.3 | 104.0 | 105.5 | 24 | 100.1 | 100.6 | 100.9 | 24 | 114.1 | 114.6 | 115.0 | 24 | 105.6 | 105.7 | 105.9 | 24 | 106.1 | 107.1 | 108.7 | 24 | | | |
| 9/1 | 101.9 | 103.6 | 105.1 | 24 | 100.0 | 100.1 | 100.4 | 24 | 100.4 | 101.5 | 111.9 | 24 | 107.1 | 107.7 | 107.9 | 24 | 103.8 | 104.6 | 105.1 | 24 | | | |
| 9/2 | 101.7 | 103.4 | 105.0 | 23 | 99.4 | 99.5 | 99.7 | 24 | 99.0 | 99.3 | 99.6 | 24 | 107.0 | 107.3 | 107.8 | 24 | 103.5 | 104.4 | 105.0 | 24 | | | |
| 9/3 | 101.9 | 103.7 | 105.2 | 23 | 99.2 | 99.6 | 99.9 | 24 | 99.3 | 99.8 | 99.9 | 24 | 106.3 | 106.4 | 106.6 | 24 | 102.7 | 103.2 | 103.9 | 24 | | | |
| 9/4 | 101.8 | 103.5 | 104.9 | 24 | 99.0 | 99.2 | 99.6 | 24 | 99.1 | 99.4 | 100.2 | 24 | 105.5 | 105.8 | 106.2 | 24 | 102.8 | 103.6 | 104.0 | 24 | | | |
| 9/5 | 102.0 | 103.9 | 105.4 | 24 | 99.8 | 100.0 | 100.4 | 24 | 99.9 | 100.6 | 101.8 | 24 | 106.5 | 106.9 | 107.4 | 24 | 103.8 | 104.5 | 105.2 | 24 | | | |
| 9/6 | 101.8 | 103.4 | 104.8 | 24 | 99.8 | 100.0 | 100.2 | 24 | 99.6 | 100.0 | 100.2 | 24 | 106.4 | 106.8 | 107.3 | 24 | 104.1 | 104.8 | 105.6 | 24 | | | |
| 9/7 | 101.6 | 103.3 | 104.9 | 23 | 99.5 | 99.7 | 100.0 | 24 | 98.9 | 99.3 | 99.4 | 24 | 105.9 | 106.1 | 106.4 | 24 | 101.2 | 101.9 | 103.2 | 24 | | | |
| 9/8 | 102.0 | 103.9 | 105.3 | 23 | 100.1 | 100.5 | 102.6 | 24 | 100.5 | 101.6 | 102.1 | 24 | 105.7 | 106.1 | 106.4 | 24 | 97.9 | 98.6 | 99.3 | 24 | | | |
| 9/9 | 102.1 | 103.5 | 104.9 | 24 | 100.8 | 101.1 | 102.4 | 24 | 100.6 | 101.1 | 101.5 | 24 | 104.4 | 105.5 | 106.3 | 24 | 97.2 | 98.1 | 98.5 | 24 | | | |
| 9/10 | 101.2 | 102.8 | 104.1 | 24 | 100.5 | 100.6 | 100.9 | 24 | 99.2 | 99.5 | 99.6 | 24 | 99.7 | 100.1 | 101.1 | 24 | 94.4 | 95.1 | 95.6 | 24 | | | |
| 9/11 | 101.1 | 102.9 | 104.5 | 24 | 99.3 | 99.5 | 99.9 | 24 | 98.3 | 98.7 | 99.0 | 24 | 99.3 | 99.3 | 99.5 | 10 | 96.2 | 99.0 | 100.3 | 23 | | | |
| 9/12 | 101.1 | 103.0 | 104.7 | 24 | 98.6 | 98.7 | 99.0 | 24 | 97.8 | 98.3 | 98.6 | 24 | --- | --- | --- | 0 | 98.9 | 99.2 | 99.4 | 24 | | | |
| 9/13 | 100.9 | 102.8 | 104.2 | 24 | 98.9 | 99.4 | 100.6 | 24 | 98.1 | 98.9 | 99.3 | 24 | --- | --- | --- | 0 | 98.1 | 98.4 | 98.6 | 24 | | | |

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

| Date | Lower Mon. | | | # | L. Mon. Tlwr | | | # | Ice Harbor | | | # | Ice Harbor Tlwr | | | # | McNary-Oregon | | | # | | | |
|------|------------|-------|-------|----|--------------|-------|-------|----|------------|-------|-------|----|-----------------|-------|-------|----|---------------|------|------|---|------|------|------|
| | 24 h | 12 h | | | 24 h | 12 h | | | 24 h | 12 h | | | 24 h | 12 h | | | 24 h | 12 h | | | 24 h | 12 h | |
| | Avg | Avg | High | | Avg | Avg | High | | Avg | Avg | High | | Avg | Avg | High | | Avg | Avg | High | | Avg | Avg | High |
| 8/31 | 105.5 | 105.8 | 106.0 | 24 | 114.4 | 116.0 | 116.4 | 24 | 109.2 | 109.4 | 109.7 | 24 | 111.2 | 112.2 | 112.9 | 24 | --- | --- | --- | 0 | | | |
| 9/1 | 105.0 | 105.3 | 105.6 | 24 | 105.6 | 106.8 | 115.0 | 24 | 108.5 | 108.7 | 109.1 | 24 | 108.7 | 109.9 | 111.6 | 24 | --- | --- | --- | 0 | | | |
| 9/2 | 104.9 | 105.0 | 105.2 | 24 | 104.1 | 104.6 | 105.1 | 24 | 108.5 | 108.6 | 108.7 | 24 | 107.3 | 108.1 | 108.7 | 24 | --- | --- | --- | 0 | | | |
| 9/3 | 104.4 | 104.6 | 104.9 | 24 | 104.3 | 104.9 | 105.8 | 24 | 108.4 | 108.5 | 108.7 | 24 | 107.5 | 108.5 | 109.3 | 24 | --- | --- | --- | 0 | | | |
| 9/4 | 103.9 | 104.1 | 104.3 | 24 | 104.3 | 105.3 | 108.5 | 24 | 108.1 | 108.2 | 108.4 | 24 | 107.9 | 108.8 | 109.7 | 24 | --- | --- | --- | 0 | | | |
| 9/5 | 104.3 | 104.5 | 104.6 | 24 | 104.8 | 105.4 | 106.5 | 24 | 109.3 | 109.8 | 110.0 | 24 | 109.1 | 110.0 | 110.5 | 24 | --- | --- | --- | 0 | | | |
| 9/6 | 104.7 | 104.8 | 104.9 | 24 | 104.7 | 105.1 | 106.4 | 24 | 109.2 | 109.4 | 109.6 | 24 | 109.0 | 109.4 | 109.8 | 24 | --- | --- | --- | 0 | | | |
| 9/7 | 103.9 | 104.0 | 104.2 | 24 | 103.9 | 104.5 | 105.8 | 24 | 107.9 | 108.1 | 108.5 | 24 | 107.9 | 108.3 | 108.7 | 24 | --- | --- | --- | 0 | | | |
| 9/8 | 104.2 | 104.5 | 104.8 | 24 | 104.0 | 104.8 | 105.3 | 24 | 106.7 | 106.9 | 107.5 | 24 | 106.5 | 107.1 | 107.8 | 24 | --- | --- | --- | 0 | | | |
| 9/9 | 104.4 | 104.6 | 104.7 | 24 | 104.4 | 104.9 | 105.1 | 24 | 105.4 | 106.0 | 106.4 | 24 | 105.4 | 105.9 | 106.5 | 24 | --- | --- | --- | 0 | | | |
| 9/10 | 104.6 | 104.8 | 105.0 | 24 | 104.2 | 104.7 | 105.7 | 24 | 104.5 | 104.8 | 105.1 | 24 | 104.0 | 104.3 | 104.7 | 24 | --- | --- | --- | 0 | | | |
| 9/11 | 103.2 | 103.4 | 104.1 | 24 | 102.9 | 103.2 | 103.7 | 24 | 103.0 | 103.4 | 103.8 | 24 | 102.9 | 103.3 | 103.7 | 24 | --- | --- | --- | 0 | | | |
| 9/12 | 101.9 | 102.3 | 102.6 | 24 | 101.5 | 102.1 | 103.1 | 24 | 101.8 | 102.0 | 102.1 | 24 | 101.7 | 102.2 | 102.7 | 24 | --- | --- | --- | 0 | | | |
| 9/13 | 101.2 | 101.6 | 101.8 | 24 | 100.5 | 101.1 | 101.5 | 24 | 101.3 | 101.4 | 101.6 | 24 | 101.4 | 102.1 | 102.6 | 24 | --- | --- | --- | 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>24 h</u> | <u>12 h</u> | | | <u>24h</u> | <u>12h</u> | | | <u>24h</u> | <u>12h</u> | | | <u>24h</u> | <u>12h</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> | | <u>Avg</u> | <u>AVG</u> | <u>High</u> | |
| 8/31 | 107.0 | 107.5 | 108.1 | 24 | 116.2 | 116.5 | 116.8 | 24 | 105.3 | 105.5 | 105.7 | 24 | 114.3 | 115.6 | 116.1 | 24 | 107.6 | 108.1 | 108.4 | 24 |
| 9/1 | 105.5 | 105.6 | 105.8 | 24 | 108.8 | 110.4 | 114.1 | 24 | 104.5 | 104.8 | 105.2 | 24 | 104.6 | 105.1 | 108.6 | 24 | 105.4 | 105.9 | 106.6 | 24 |
| 9/2 | 104.9 | 105.2 | 105.5 | 24 | 104.6 | 104.8 | 105.2 | 24 | 103.8 | 104.0 | 104.1 | 24 | 103.6 | 103.9 | 104.2 | 24 | 103.2 | 103.6 | 104.6 | 24 |
| 9/3 | 104.4 | 104.7 | 104.9 | 24 | 104.1 | 104.3 | 104.5 | 24 | 103.8 | 104.1 | 104.4 | 24 | 103.6 | 104.1 | 104.4 | 24 | 102.0 | 102.3 | 102.4 | 24 |
| 9/4 | 104.3 | 104.8 | 105.6 | 24 | 106.6 | 109.4 | 109.9 | 24 | 103.9 | 104.4 | 104.8 | 24 | 103.9 | 104.3 | 105.0 | 24 | 102.2 | 102.6 | 102.9 | 24 |
| 9/5 | 105.6 | 106.2 | 108.0 | 24 | 114.2 | 117.4 | 119.9 | 24 | 105.1 | 105.5 | 105.9 | 24 | 104.8 | 105.4 | 105.9 | 24 | 103.6 | 104.3 | 104.7 | 24 |
| 9/6 | 104.7 | 105.4 | 106.3 | 24 | 112.9 | 113.8 | 114.8 | 24 | 106.5 | 107.7 | 108.4 | 24 | 105.4 | 105.9 | 106.2 | 24 | 103.9 | 104.1 | 104.2 | 24 |
| 9/7 | 103.7 | 104.4 | 105.8 | 24 | 103.8 | 104.2 | 105.8 | 24 | 106.9 | 107.6 | 108.2 | 24 | 105.8 | 106.0 | 106.5 | 24 | 104.1 | 104.6 | 104.9 | 24 |
| 9/8 | 104.8 | 105.4 | 106.7 | 24 | 106.3 | 108.7 | 109.7 | 24 | 106.9 | 107.3 | 107.7 | 22 | 106.2 | 106.5 | 107.0 | 22 | 105.2 | 105.8 | 106.0 | 24 |
| 9/9 | 105.0 | 105.4 | 105.7 | 24 | 104.5 | 105.0 | 105.6 | 24 | 106.1 | 106.6 | 107.1 | 24 | 105.1 | 105.6 | 106.4 | 24 | 104.7 | 105.1 | 105.8 | 24 |
| 9/10 | 103.8 | 104.1 | 104.4 | 24 | 103.2 | 103.4 | 103.6 | 24 | 104.1 | 104.4 | 104.9 | 24 | 103.3 | 103.6 | 103.8 | 24 | 102.5 | 103.0 | 103.7 | 24 |
| 9/11 | 102.7 | 102.8 | 103.0 | 24 | 104.8 | 107.3 | 109.6 | 24 | 102.7 | 102.9 | 103.2 | 24 | 101.8 | 102.3 | 102.6 | 24 | 101.0 | 101.2 | 101.4 | 24 |
| 9/12 | 101.6 | 102.1 | 102.6 | 24 | 107.3 | 108.6 | 109.8 | 24 | 101.6 | 102.0 | 102.8 | 23 | 100.9 | 101.3 | 101.6 | 23 | 101.0 | 101.2 | 101.4 | 23 |
| 9/13 | 100.6 | 101.2 | 101.7 | 24 | 100.5 | 100.9 | 101.9 | 24 | 101.2 | 101.7 | 102.2 | 24 | 100.8 | 101.3 | 101.7 | 24 | 101.1 | 101.4 | 101.7 | 24 |

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

| Date | <u>The Dalles Dnst</u> | | | # | <u>Bonneville</u> | | | # | <u>Warrendale</u> | | | # | <u>CamasWashougal</u> | | | # | <u>Cascade Island</u> | | | # |
|------|------------------------|-------------|-------------|----|-------------------|-------------|-------------|----|-------------------|------------|-------------|----|-----------------------|------------|-------------|----|-----------------------|------------|-------------|----|
| | <u>24 h</u> | <u>12 h</u> | | | <u>24 h</u> | <u>12 h</u> | | | <u>24h</u> | <u>12h</u> | | | <u>24h</u> | <u>12h</u> | | | <u>24h</u> | <u>12h</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> | | <u>Avg</u> | <u>Avg</u> | <u>High</u> | |
| 8/31 | 114.2 | 114.8 | 115.6 | 24 | 108.8 | 109.1 | 109.3 | 24 | 115.8 | 117.3 | 118.7 | 24 | 112.7 | 114.3 | 115.7 | 24 | 117.6 | 119.8 | 121.5 | 24 |
| 9/1 | 106.9 | 108.8 | 113.1 | 24 | 106.5 | 106.6 | 107.1 | 24 | 111.0 | 113.1 | 116.7 | 24 | 110.8 | 111.9 | 113.2 | 24 | 111.4 | 113.5 | 120.7 | 24 |
| 9/2 | 104.0 | 104.4 | 104.9 | 24 | 105.6 | 105.8 | 105.9 | 24 | 108.8 | 109.4 | 110.1 | 24 | 108.2 | 109.5 | 113.0 | 24 | 108.7 | 109.6 | 111.5 | 24 |
| 9/3 | 102.8 | 103.2 | 103.3 | 24 | 105.3 | 105.4 | 105.5 | 24 | 109.9 | 110.1 | 110.3 | 24 | 171.3 | 173.3 | 174.8 | 24 | 109.3 | 110.9 | 112.6 | 24 |
| 9/4 | 102.8 | 103.2 | 103.6 | 24 | 103.3 | 103.7 | 104.6 | 24 | 108.1 | 109.5 | 110.1 | 24 | 170.4 | 172.6 | 175.3 | 24 | 108.5 | 110.2 | 111.3 | 24 |
| 9/5 | 103.8 | 104.6 | 104.9 | 24 | 103.6 | 104.0 | 104.2 | 24 | 107.7 | 108.5 | 108.8 | 24 | 166.8 | 166.8 | 172.6 | 9 | 110.1 | 111.6 | 113.5 | 24 |
| 9/6 | 104.0 | 104.4 | 104.7 | 24 | 103.2 | 103.4 | 103.8 | 24 | 106.2 | 106.4 | 106.6 | 24 | --- | --- | --- | 0 | 108.8 | 109.6 | 110.5 | 24 |
| 9/7 | 104.3 | 105.1 | 105.7 | 24 | 102.6 | 102.9 | 103.0 | 24 | 106.6 | 107.8 | 108.3 | 24 | --- | --- | --- | 0 | 107.7 | 108.7 | 110.0 | 23 |
| 9/8 | 105.1 | 105.7 | 106.1 | 24 | 102.9 | 103.0 | 103.2 | 24 | 107.0 | 107.8 | 109.1 | 24 | --- | --- | --- | 0 | 107.2 | 108.2 | 108.9 | 24 |
| 9/9 | 104.6 | 104.9 | 105.2 | 24 | 102.4 | 102.6 | 102.9 | 24 | 106.3 | 107.6 | 108.9 | 24 | --- | --- | --- | 0 | 106.7 | 107.8 | 109.2 | 24 |
| 9/10 | 102.6 | 103.1 | 103.6 | 24 | 101.3 | 101.7 | 102.1 | 24 | 103.7 | 104.8 | 105.4 | 24 | --- | --- | --- | 0 | 106.5 | 107.5 | 108.4 | 23 |
| 9/11 | 101.4 | 101.7 | 102.1 | 24 | 100.6 | 100.8 | 100.9 | 24 | 105.1 | 105.5 | 106.7 | 24 | --- | --- | --- | 0 | 105.7 | 107.0 | 108.6 | 24 |
| 9/12 | 101.4 | 101.8 | 102.4 | 23 | 100.7 | 100.9 | 101.2 | 23 | 104.6 | 105.0 | 105.6 | 24 | --- | --- | --- | 0 | 105.0 | 105.7 | 106.1 | 24 |
| 9/13 | 101.6 | 102.2 | 102.6 | 24 | 100.7 | 100.9 | 101.1 | 24 | 104.1 | 104.7 | 105.1 | 24 | --- | --- | --- | 0 | 105.0 | 105.4 | 105.8 | 18 |

Two-Week Summary of Passage Indices

| 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) |
| 08/31/2012 | * | --- | --- | --- | --- | 0 | 0 | 2 | 0 | 0 | 0 |
| 09/01/2012 | * | --- | --- | --- | --- | 0 | 0 | 0 | --- | 0 | 0 |
| 09/02/2012 | * | --- | --- | --- | --- | 0 | 0 | 0 | --- | 27 | 0 |
| 09/03/2012 | * | --- | --- | --- | --- | 0 | 0 | 0 | --- | 0 | 0 |
| 09/04/2012 | * | --- | --- | --- | --- | 0 | 0 | 0 | --- | 0 | 0 |
| 09/05/2012 | * | --- | --- | --- | --- | 0 | 0 | 0 | --- | --- | 0 |
| 09/06/2012 | * | --- | --- | --- | --- | 0 | 0 | 0 | --- | --- | 0 |
| 09/07/2012 | * | --- | --- | --- | --- | 0 | 0 | 0 | --- | 0 | 0 |
| 09/08/2012 | * | --- | --- | --- | --- | 0 | 0 | 0 | --- | 25 | 0 |
| 09/09/2012 | * | --- | --- | --- | --- | 0 | 0 | 2 | --- | 0 | 0 |
| 09/10/2012 | * | --- | --- | --- | --- | 0 | 0 | 0 | --- | 0 | 0 |
| 09/11/2012 | * | --- | --- | --- | --- | 0 | 0 | 2 | --- | 0 | 0 |
| 09/12/2012 | * | --- | --- | --- | --- | 0 | 0 | 0 | --- | 0 | 0 |
| 09/13/2012 | * | --- | --- | --- | --- | 0 | 0 | 1 | --- | 0 | --- |
| 09/14/2012 | * | --- | --- | --- | --- | --- | 0 | --- | --- | --- | --- |
| Total: | | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 52 | 0 | 0 |
| # Days: | | 0 | 0 | 0 | 0 | 14 | 15 | 14 | 1 | 12 | 15 |
| Average: | | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4 | 0 |
| YTD | | 58,098 | 10,922 | 26,417 | 13,494 | 4,042,662 | 2,266,021 | 754,595 | 25,797 | 2,179,425 | 4,290,562 |

| 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) |
| 08/31/2012 | * | --- | --- | --- | --- | 232 | 31 | 26 | 46 | 8,705 | 9,094 |
| 09/01/2012 | * | --- | --- | --- | --- | 138 | 17 | 23 | --- | 14,294 | 7,045 |
| 09/02/2012 | * | --- | --- | --- | --- | 68 | 10 | 13 | --- | 7,405 | 8,664 |
| 09/03/2012 | * | --- | --- | --- | --- | 55 | 4 | 35 | --- | 3,475 | 5,191 |
| 09/04/2012 | * | --- | --- | --- | --- | 72 | 1 | 20 | --- | 700 | 4,269 |
| 09/05/2012 | * | --- | --- | --- | --- | 90 | 6 | 33 | --- | --- | 3,713 |
| 09/06/2012 | * | --- | --- | --- | --- | 74 | 5 | 56 | --- | --- | 2,658 |
| 09/07/2012 | * | --- | --- | --- | --- | 78 | 20 | 116 | --- | 9,454 | 2,868 |
| 09/08/2012 | * | --- | --- | --- | --- | 64 | 11 | 115 | --- | 3,050 | 4,171 |
| 09/09/2012 | * | --- | --- | --- | --- | 125 | 15 | 247 | --- | 3,639 | 3,208 |
| 09/10/2012 | * | --- | --- | --- | --- | 284 | 20 | 307 | --- | 4,700 | 3,094 |
| 09/11/2012 | * | --- | --- | --- | --- | 251 | 19 | 459 | --- | 3,350 | 5,317 |
| 09/12/2012 | * | --- | --- | --- | --- | 230 | 6 | 153 | --- | 6,426 | 3,632 |
| 09/13/2012 | * | --- | --- | --- | --- | 203 | 7 | 92 | --- | 2,763 | 1,996 |
| 09/14/2012 | * | --- | --- | --- | --- | --- | 2 | --- | --- | --- | 1,141 |
| Total: | | 0 | 0 | 0 | 0 | 1,964 | 174 | 1,695 | 46 | 67,961 | 66,061 |
| # Days: | | 0 | 0 | 0 | 0 | 14 | 15 | 14 | 1 | 12 | 15 |
| Average: | | 0 | 0 | 0 | 0 | 140 | 12 | 121 | 46 | 5,663 | 4,404 |
| YTD | | 0 | 5 | 67 | 327 | 1,064,631 | 1,049,200 | 377,522 | 28,725 | 3,278,953 | 3,973,471 |

Two-Week Summary of Passage Indices

| 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) | |
| 08/31/2012 | * | --- | --- | --- | --- | 2 | 0 | 0 | 0 | 0 | 0 | |
| 09/01/2012 | * | --- | --- | --- | --- | 0 | 0 | 0 | --- | 0 | 0 | |
| 09/02/2012 | * | --- | --- | --- | --- | 0 | 0 | 0 | --- | 0 | 0 | |
| 09/03/2012 | * | --- | --- | --- | --- | 1 | 0 | 0 | --- | 0 | 0 | |
| 09/04/2012 | * | --- | --- | --- | --- | 2 | 0 | 0 | --- | 0 | 0 | |
| 09/05/2012 | * | --- | --- | --- | --- | 0 | 0 | 0 | --- | --- | 0 | |
| 09/06/2012 | * | --- | --- | --- | --- | 1 | 0 | 0 | --- | --- | 0 | |
| 09/07/2012 | * | --- | --- | --- | --- | 1 | 0 | 0 | --- | 0 | 0 | |
| 09/08/2012 | * | --- | --- | --- | --- | 1 | 1 | 0 | --- | 0 | 0 | |
| 09/09/2012 | * | --- | --- | --- | --- | 0 | 0 | 0 | --- | 0 | 0 | |
| 09/10/2012 | * | --- | --- | --- | --- | 1 | 1 | 0 | --- | 0 | 0 | |
| 09/11/2012 | * | --- | --- | --- | --- | 1 | 0 | 1 | --- | 0 | 0 | |
| 09/12/2012 | * | --- | --- | --- | --- | 1 | 0 | 0 | --- | 0 | 0 | |
| 09/13/2012 | | --- | --- | --- | --- | 1 | 0 | 0 | --- | 0 | --- | |
| 09/14/2012 | | --- | --- | --- | --- | --- | 0 | --- | --- | 0 | --- | |
| Total: | | 0 | 0 | 0 | 0 | 12 | 2 | 1 | 0 | 0 | 0 | |
| # Days: | | 0 | 0 | 0 | 0 | 14 | 15 | 14 | 1 | 12 | 13 | |
| Average: | | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | |
| YTD | | 0 | 0 | 0 | 80 | 69,825 | 78,639 | 19,964 | 49,618 | 145,764 | 287,512 | 689,839 |

| 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) | |
| 08/31/2012 | * | --- | --- | --- | --- | 0 | 0 | 0 | 1 | 0 | 0 | |
| 09/01/2012 | * | --- | --- | --- | --- | 0 | 0 | 0 | --- | 0 | 0 | |
| 09/02/2012 | * | --- | --- | --- | --- | 0 | 1 | 0 | --- | 0 | 0 | |
| 09/03/2012 | * | --- | --- | --- | --- | 0 | 0 | 0 | --- | 0 | 0 | |
| 09/04/2012 | * | --- | --- | --- | --- | 1 | 1 | 0 | --- | 0 | 0 | |
| 09/05/2012 | * | --- | --- | --- | --- | 4 | 1 | 0 | --- | --- | 0 | |
| 09/06/2012 | * | --- | --- | --- | --- | 1 | 1 | 0 | --- | --- | 0 | |
| 09/07/2012 | * | --- | --- | --- | --- | 0 | 1 | 0 | --- | 0 | 0 | |
| 09/08/2012 | * | --- | --- | --- | --- | 0 | 1 | 0 | --- | 0 | 0 | |
| 09/09/2012 | * | --- | --- | --- | --- | 1 | 0 | 0 | --- | 0 | 0 | |
| 09/10/2012 | * | --- | --- | --- | --- | 0 | 1 | 1 | --- | 0 | 0 | |
| 09/11/2012 | * | --- | --- | --- | --- | 0 | 1 | 1 | --- | 0 | 0 | |
| 09/12/2012 | * | --- | --- | --- | --- | 1 | 0 | 1 | --- | 0 | 0 | |
| 09/13/2012 | | --- | --- | --- | --- | 1 | 0 | 0 | --- | 0 | --- | |
| 09/14/2012 | | --- | --- | --- | --- | --- | 0 | --- | --- | 0 | --- | |
| Total: | | 0 | 0 | 0 | 0 | 9 | 8 | 3 | 1 | 0 | 0 | |
| # Days: | | 0 | 0 | 0 | 0 | 14 | 15 | 14 | 1 | 12 | 13 | |
| Average: | | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | |
| YTD | | 2,722 | 21,616 | 2,065 | 2,311 | 3,539,003 | 1,490,314 | 611,062 | 17,329 | 543,078 | 2,834,971 | 296,204 |

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) | |
| 8/31/2012 | * | --- | --- | --- | 6 | 3 | 0 | 7 | 0 | 0 | 0 | |
| 9/01/2012 | * | --- | --- | --- | 11 | 3 | 0 | --- | 0 | 66 | 0 | |
| 9/02/2012 | * | --- | --- | --- | 5 | 1 | 1 | --- | 27 | 0 | 0 | |
| 9/03/2012 | * | --- | --- | --- | 6 | 4 | 0 | --- | 0 | 0 | 0 | |
| 9/04/2012 | * | --- | --- | --- | 2 | 3 | 0 | --- | 0 | 25 | 0 | |
| 9/05/2012 | * | --- | --- | --- | 4 | 2 | 0 | --- | --- | 0 | 11 | |
| 9/06/2012 | * | --- | --- | --- | 1 | 0 | 0 | --- | --- | 20 | 0 | |
| 9/07/2012 | * | --- | --- | --- | 1 | 0 | 0 | --- | 0 | 0 | 0 | |
| 9/08/2012 | * | --- | --- | --- | 4 | 5 | 0 | --- | 0 | 0 | 0 | |
| 9/09/2012 | * | --- | --- | --- | 3 | 3 | 0 | --- | 0 | 20 | 0 | |
| 9/10/2012 | * | --- | --- | --- | 1 | 0 | 1 | --- | 0 | 0 | 0 | |
| 9/11/2012 | * | --- | --- | --- | 1 | 7 | 0 | --- | 0 | 17 | 0 | |
| 9/12/2012 | * | --- | --- | --- | 1 | 7 | 0 | --- | 0 | 0 | 0 | |
| 9/13/2012 | | --- | --- | --- | 2 | 1 | 2 | --- | 0 | 0 | --- | |
| 9/14/2012 | | --- | --- | --- | --- | 1 | --- | --- | --- | 0 | --- | |
| <hr/> | | | | | | | | | | | | |
| total: | | 0 | 0 | 0 | 48 | 40 | 4 | 7 | 27 | 148 | 11 | |
| Days: | | 0 | 0 | 0 | 14 | 15 | 14 | 1 | 12 | 15 | 13 | |
| verage: | | 0 | 0 | 0 | 3 | 3 | 0 | 7 | 2 | 10 | 1 | |
| TD | | 5 | 0 | 0 | 475 | 43,414 | 37,224 | 18,249 | 46,856 | 1,135,846 | 851,019 | 778,777 |

| COMBINED LAMPREY JUVENILES | | | | | | | | | | | |
|----------------------------|---------------|---------------|---------------|---------------|----------------------------|---------------|---------------|---------------|----------------|----------------|---------------|
| Date | WTB (Coll) | IMN (Coll) | GRN (Coll) | LEW (Coll) | LGR [†] (Coll) | LGS (Coll) | LMN (Coll) | RIS (Coll) | MCN (Coll) | JDA (Coll) | BO2 (Coll) |
| 8/31/2012 | * | --- | --- | --- | 0 | 5 | 0 | 0 | 25 | 100 | 0 |
| 9/01/2012 | * | --- | --- | --- | 0 | 12 | 0 | --- | 25 | 25 | 4 |
| 9/02/2012 | * | --- | --- | --- | 0 | 8 | 0 | --- | 25 | 33 | 0 |
| 9/03/2012 | * | --- | --- | --- | 0 | 4 | 0 | --- | 0 | 67 | 0 |
| 9/04/2012 | * | --- | --- | --- | 0 | 2 | 0 | --- | 0 | 25 | 0 |
| 9/05/2012 | * | --- | --- | --- | 0 | 3 | 0 | --- | --- | 0 | 4 |
| 9/06/2012 | * | --- | --- | --- | 2 | 5 | 0 | --- | --- | 20 | 0 |
| 9/07/2012 | * | --- | --- | --- | 0 | 0 | 0 | --- | 25 | 20 | 0 |
| 9/08/2012 | * | --- | --- | --- | 0 | 2 | 0 | --- | 0 | 0 | 0 |
| 9/09/2012 | * | --- | --- | --- | 0 | 3 | 0 | --- | 25 | 20 | 12 |
| 9/10/2012 | * | --- | --- | --- | 1 | 0 | 0 | --- | 50 | 20 | 0 |
| 9/11/2012 | * | --- | --- | --- | 0 | 7 | 1 | --- | 50 | 83 | 4 |
| 9/12/2012 | * | --- | --- | --- | 0 | 2 | 0 | --- | 50 | 0 | 0 |
| 9/13/2012 | | --- | --- | --- | 0 | 9 | 0 | --- | 50 | 17 | --- |
| 9/14/2012 | | --- | --- | --- | --- | 3 | --- | --- | --- | 29 | --- |
| <hr/> | | | | | | | | | | | |
| total: | | 0 | 0 | 0 | 3 | 65 | 1 | 0 | 325 | 459 | 24 |
| Days: | | 0 | 0 | 0 | 14 | 15 | 14 | 1 | 12 | 15 | 13 |
| verage: | | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 27 | 31 | 2 |
| TD | | 6 | 0 | 0 | 6,997 | 6,497 | 2,210 | 135 | 121,562 | 502,941 | 31,903 |

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:

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.

† Caution should be used with interpreting lamprey juvenile collection counts at LGR because of the possibility that lamprey may escape the sample tank before being sampled

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 = $\text{Collection Counts} / \{ \text{Powerhouse Flow} / (\text{Powerhouse Flow} + \text{Spill}) \}$

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

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

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

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

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

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

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

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

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

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

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

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

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.

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

Two Week Transportation Summary

Source: Fish Passage Center

Updated:

9/14/12 9:50 AM

| | | 08/31/12 | TO | 09/14/12 | | | | |
|--------------------------------|--------------------------|----------|-----|----------|----|----|-------------|--------|
| | | Species | | | | | | |
| Site | Data | CH0 | CH1 | CO | ST | SO | Grand Total | |
| LGR | Sum of NumberCollected | 1,804 | | | 11 | 9 | 41 | 1,865 |
| | Sum of NumberBarged | 0 | | | 0 | 0 | 0 | 0 |
| | Sum of NumberBypassed | 461 | | | 0 | 0 | 0 | 461 |
| | Sum of Numbertrucked | 1,324 | | | 11 | 8 | 26 | 1,369 |
| | Sum of SampleMorts | 19 | | | 0 | 1 | 14 | 34 |
| | Sum of FacilityMorts | 0 | | | 0 | 0 | 1 | 1 |
| | Sum of ResearchMorts | 0 | | | 0 | 0 | 0 | 0 |
| | Sum of TotalProjectMorts | 19 | | | 0 | 1 | 15 | 35 |
| LGS | Sum of NumberCollected | 158 | | | 2 | 8 | 37 | 205 |
| | Sum of NumberBarged | 0 | | | 0 | 0 | 0 | 0 |
| | Sum of NumberBypassed | 0 | | | 0 | 0 | 0 | 0 |
| | Sum of Numbertrucked | 156 | | | 2 | 8 | 34 | 200 |
| | Sum of SampleMorts | 2 | | | 0 | 0 | 1 | 3 |
| | Sum of FacilityMorts | 0 | | | 0 | 0 | 2 | 2 |
| | Sum of ResearchMorts | 0 | | | 0 | 0 | 0 | 0 |
| | Sum of TotalProjectMorts | 2 | | | 0 | 0 | 3 | 5 |
| LMN | Sum of NumberCollected | 1,671 | | 6 | 1 | 3 | 4 | 1,685 |
| | Sum of NumberBarged | 0 | | 0 | 0 | 0 | 0 | 0 |
| | Sum of NumberBypassed | 0 | | 0 | 0 | 3 | 0 | 3 |
| | Sum of Numbertrucked | 1,406 | | 6 | 1 | 0 | 4 | 1,417 |
| | Sum of SampleMorts | 265 | | 0 | 0 | 0 | 0 | 265 |
| | Sum of FacilityMorts | 0 | | 0 | 0 | 0 | 0 | 0 |
| | Sum of ResearchMorts | 0 | | 0 | 0 | 0 | 0 | 0 |
| | Sum of TotalProjectMorts | 265 | | 0 | 0 | 0 | 0 | 265 |
| MCN | Sum of NumberCollected | 52,950 | | 50 | | | 25 | 53,025 |
| | Sum of NumberBarged | 0 | | 0 | | | 0 | 0 |
| | Sum of NumberBypassed | 3,444 | | 0 | | | 0 | 3,444 |
| | Sum of Numbertrucked | 48,906 | | 49 | | | 25 | 48,980 |
| | Sum of SampleMorts | 17 | | 0 | | | 0 | 17 |
| | Sum of FacilityMorts | 583 | | 1 | | | 0 | 584 |
| | Sum of ResearchMorts | 0 | | 0 | | | 0 | 0 |
| | Sum of TotalProjectMorts | 600 | | 1 | | | 0 | 601 |
| Total Sum of NumberCollected | | 56,583 | | 56 | 14 | 20 | 107 | 56,780 |
| Total Sum of NumberBarged | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Total Sum of NumberBypassed | | 3,905 | | 0 | 0 | 3 | 0 | 3,908 |
| Total Sum of Numbertrucked | | 51,792 | | 55 | 14 | 16 | 89 | 51,966 |
| Total Sum of SampleMorts | | 303 | | 0 | 0 | 1 | 15 | 319 |
| Total Sum of FacilityMorts | | 583 | | 1 | 0 | 0 | 3 | 587 |
| Total Sum of ResearchMorts | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Total Sum of TotalProjectMorts | | 886 | | 1 | 0 | 1 | 18 | 906 |

YTD Transportation Summary

Source: Fish Passage Center

Updated:

9/14/12 9:50 AM

TO: 09/14/12

| | | Species | | | | | |
|--------------------------------|--------------------------|-----------|-----------|---------|---------|-----------|-------------|
| Site | Data | CH0 | CH1 | CO | SO | ST | Grand Total |
| LGR | Sum of NumberCollected | 670,285 | 2,693,485 | 47,669 | 30,652 | 2,353,380 | 5,795,471 |
| | Sum of NumberBarged | 652,812 | 989,041 | 39,447 | 29,087 | 949,611 | 2,659,998 |
| | Sum of NumberBypassed | 11,916 | 1,702,758 | 8,165 | 1,429 | 1,403,473 | 3,127,741 |
| | Sum of NumberTrucked | 3,329 | 2 | 20 | 41 | 17 | 3,409 |
| | Sum of SampleMorts | 408 | 180 | 4 | 31 | 62 | 685 |
| | Sum of FacilityMorts | 1,820 | 1,429 | 33 | 64 | 182 | 3,528 |
| | Sum of ResearchMorts | 0 | 75 | 0 | 0 | 35 | 110 |
| | Sum of TotalProjectMorts | 2,228 | 1,684 | 37 | 95 | 279 | 4,323 |
| LGS | Sum of NumberCollected | 662,967 | 1,498,505 | 53,315 | 25,782 | 971,266 | 3,211,835 |
| | Sum of NumberBarged | 659,750 | 1,109,509 | 51,706 | 25,027 | 683,534 | 2,529,526 |
| | Sum of NumberBypassed | 121 | 388,249 | 1,601 | 691 | 287,507 | 678,169 |
| | Sum of NumberTrucked | 2,185 | 1 | 6 | 53 | 37 | 2,282 |
| | Sum of SampleMorts | 159 | 30 | 0 | 3 | 15 | 207 |
| | Sum of FacilityMorts | 752 | 716 | 2 | 8 | 173 | 1,651 |
| | Sum of ResearchMorts | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum of TotalProjectMorts | 911 | 746 | 2 | 11 | 188 | 1,858 |
| LMN | Sum of NumberCollected | 251,399 | 543,404 | 14,387 | 13,401 | 438,641 | 1,261,232 |
| | Sum of NumberBarged | 235,990 | 531,284 | 14,356 | 13,372 | 428,327 | 1,223,329 |
| | Sum of NumberBypassed | 12,941 | 11,582 | 19 | 13 | 9,830 | 34,385 |
| | Sum of NumberTrucked | 1,540 | 6 | 2 | 5 | 0 | 1,553 |
| | Sum of SampleMorts | 390 | 60 | 0 | 3 | 37 | 490 |
| | Sum of FacilityMorts | 538 | 472 | 10 | 8 | 150 | 1,178 |
| | Sum of ResearchMorts | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum of TotalProjectMorts | 928 | 532 | 10 | 11 | 187 | 1,668 |
| MCN | Sum of NumberCollected | 1,370,290 | 1,040,187 | 72,876 | 555,759 | 247,889 | 3,287,001 |
| | Sum of NumberBarged | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum of NumberBypassed | 1,178,183 | 1,039,959 | 72,876 | 555,534 | 247,862 | 3,094,414 |
| | Sum of NumberTrucked | 190,368 | 49 | 0 | 149 | 0 | 190,566 |
| | Sum of SampleMorts | 201 | 43 | 0 | 28 | 10 | 282 |
| | Sum of FacilityMorts | 1,538 | 136 | 0 | 48 | 17 | 1,739 |
| | Sum of ResearchMorts | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum of TotalProjectMorts | 1,739 | 179 | 0 | 76 | 27 | 2,021 |
| Total Sum of NumberCollected | | 2,954,941 | 5,775,581 | 188,247 | 625,594 | 4,011,176 | 13,555,539 |
| Total Sum of NumberBarged | | 1,548,552 | 2,629,834 | 105,509 | 67,486 | 2,061,472 | 6,412,853 |
| Total Sum of NumberBypassed | | 1,203,161 | 3,142,548 | 82,661 | 557,667 | 1,948,672 | 6,934,709 |
| Total Sum of NumberTrucked | | 197,422 | 58 | 28 | 248 | 54 | 197,810 |
| Total Sum of SampleMorts | | 1,158 | 313 | 4 | 65 | 124 | 1,664 |
| Total Sum of FacilityMorts | | 4,648 | 2,753 | 45 | 128 | 522 | 8,096 |
| Total Sum of ResearchMorts | | 0 | 75 | 0 | 0 | 35 | 110 |
| Total Sum of TotalProjectMorts | | 5,806 | 3,141 | 49 | 193 | 681 | 9,870 |

Cumulative Adult Passage at Mainstem Dams Through: 09/14

| DAM | EndDate | Spring Chinook | | | | | | Summer Chinook | | | | | | Fall Chinook | | | | | |
|-----|---------|----------------|------|--------|-------|------------|-------|----------------|-------|--------|-------|------------|-------|--------------|-------|--------|-------|------------|-------|
| | | 2012 | | 2011 | | 10-Yr Avg. | | 2012 | | 2011 | | 10-Yr Avg. | | 2012 | | 2011 | | 10-Yr Avg. | |
| | | Adult | Jack | Adult | Jack | Adult | Jack | Adult | Jack | Adult | Jack | Adult | Jack | Adult | Jack | Adult | Jack | Adult | Jack |
| BON | 09/13 | 158075 | 7591 | 167097 | 50945 | 152015 | 20110 | 81663 | 12235 | 108279 | 51451 | 92437 | 17241 | 225817 | 55316 | 249588 | 38006 | 271867 | 28621 |
| TDA | 09/13 | 117071 | 7173 | 124164 | 40146 | 112195 | 16495 | 69222 | 10392 | 81123 | 39845 | 79218 | 13523 | 121201 | 39244 | 113982 | 25130 | 123667 | 19901 |
| JDA | 09/13 | 107655 | 6755 | 103401 | 39823 | 94492 | 15370 | 60814 | 10415 | 75375 | 35544 | 72273 | 14191 | 83485 | 32261 | 78062 | 18904 | 80440 | 16059 |
| MCN | 09/13 | 102763 | 4787 | 101246 | 31750 | 86252 | 13687 | 64428 | 5104 | 74621 | 28165 | 68072 | 11090 | 72888 | 13429 | 52223 | 10038 | 53072 | 10217 |
| IHR | 09/13 | 71957 | 2905 | 69306 | 18161 | 60108 | 8392 | 14182 | 1481 | 26758 | 12378 | 18923 | 4410 | 19765 | 7293 | 13346 | 4754 | 10572 | 4485 |
| LMN | 09/13 | 68608 | 2891 | 69832 | 18094 | 58469 | 7193 | 15150 | 1611 | 31176 | 13730 | 19948 | 4267 | 15423 | 8314 | 9996 | 2925 | 8588 | 3667 |
| LGS | 09/13 | 68247 | 3449 | 67321 | 23492 | 54053 | 8198 | 14748 | 1613 | 42211 | 18214 | 18393 | 5041 | 12937 | 5960 | 8912 | 2294 | 7159 | 2370 |
| LGR | 09/12 | 66366 | 3525 | 59342 | 22063 | 54084 | 9639 | 13163 | 1717 | 36764 | 16425 | 17083 | 5652 | 11375 | 4243 | 7024 | 1946 | 5241 | 2252 |
| PRD | 09/11 | 19495 | 1015 | 15246 | 6030 | 16630 | 1325 | 50667 | 1994 | 50865 | 4223 | 58386 | 2526 | 8310 | 3421 | 8491 | 1979 | 10306 | 2082 |
| RIS | 09/09 | 19881 | 800 | 13089 | 8394 | 14658 | 2236 | 52184 | 3343 | 44432 | 14299 | 54861 | 5446 | 3180 | 2177 | 3481 | 2340 | 3716 | 1071 |
| RRH | 09/09 | 6641 | 459 | 6989 | 3491 | 5643 | 822 | 45528 | 2775 | 38861 | 8131 | 42042 | 4317 | 2530 | 1156 | 3252 | 1576 | 2806 | 789 |
| WEL | 09/12 | 5311 | 700 | 4153 | 3969 | 4833 | 817 | 38588 | 3271 | 29821 | 8465 | 31187 | 2517 | 1542 | 382 | 1290 | 815 | 1662 | 598 |
| WFA | 09/12 | 35899 | 1314 | 43748 | 1399 | 50770 | 1108 | - | - | - | - | - | - | 522 | 120 | 351 | 111 | 309 | 35 |

| DAM | Coho | | | | | | Sockeye | | | Steelhead | | | | | | |
|-----|-------|------|-------|------|------------|------|---------|--------|------------|-----------|--------|------------|-----------|-----------|------------|--|
| | 2012 | | 2011 | | 10-Yr Avg. | | 2012 | 2011 | 10-Yr Avg. | 2012 | 2011 | 10-Yr Avg. | Wild 2012 | Wild 2011 | Wild 10-Yr | |
| | Adult | Jack | Adult | Jack | Adult | Jack | | | | | | | | | | |
| BON | 24929 | 1482 | 73216 | 1986 | 50869 | 2617 | 515670 | 185796 | 130981 | 196268 | 326615 | 329937 | 73988 | 118041 | 104490 | |
| TDA | 15871 | 1797 | 20648 | 2151 | 11122 | 1521 | 410099 | 138293 | 109313 | 140018 | 221818 | 189752 | 53343 | 83765 | 62403 | |
| JDA | 15044 | 2348 | 12114 | 1223 | 7726 | 1239 | 394162 | 143605 | 113830 | 93828 | 163846 | 154599 | 38690 | 64912 | 50396 | |
| MCN | 5721 | 399 | 6288 | 761 | 3024 | 402 | 364142 | 113946 | 93284 | 77824 | 140693 | 108976 | 29107 | 50018 | 34468 | |
| IHR | 439 | 32 | 513 | 133 | 219 | 22 | 453 | 1141 | 390 | 37134 | 95382 | 69471 | 10190 | 26104 | 17841 | |
| LMN | 212 | 35 | 180 | 32 | 118 | 8 | 486 | 1395 | 486 | 31789 | 82536 | 59761 | 10021 | 24385 | 16778 | |
| LGS | 182 | 66 | 166 | 93 | 76 | 17 | 451 | 1435 | 467 | 23305 | 69160 | 45073 | 8619 | 22441 | 12903 | |
| LGR | 38 | 1 | 38 | 4 | 7 | 1 | 461 | 1502 | 573 | 20697 | 67473 | 41135 | 8197 | 23257 | 12634 | |
| PRD | 1674 | 437 | 522 | 155 | 292 | 44 | 408258 | 145070 | 118727 | 11636 | 14707 | 13292 | - | - | - | |
| RIS | 79 | 2 | 150 | 31 | 70 | 27 | 410607 | 146110 | 115768 | 9376 | 11953 | 10540 | 4230 | 5914 | 5293 | |
| RRH | 4 | 1 | 16 | 1 | 3 | 1 | 363286 | 132096 | 94735 | 7609 | 8359 | 7652 | 3399 | 3972 | 3535 | |
| WEL | 12 | 0 | 7 | 0 | 0 | 0 | 326071 | 111507 | 92048 | 5350 | 6125 | 5506 | 2455 | 2615 | 2503 | |
| WFA | 153 | 319 | 165 | 272 | 520 | 100 | - | - | - | 29074 | 27506 | 27434 | - | - | - | |

PRD and WFA do 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.

Page last updated on: 09/14/12

BON counts from January 1, 2012 to March 14, 2012 (historical counts begin March 15):

| Year | Chinook Adult | Chinook Jack | Steelhead | Wild Steelhead |
|------|---------------|--------------|-----------|----------------|
| 2012 | 12 | 1 | 1,471 | 497 |
| 2011 | 47 | 0 | 1,370 | 580 |