# Fish Passage Center

# Weekly Report #11 - 24

August 26, 2011

1827 NE 44th Ave., Suite 240
Portland, OR 97213
phone: 503/230-4099
fax: 503/230-7559

## Summary of Events:

**Water Supply:** Precipitation throughout the Columbia Basin has varied between 0% and 121% of average at individual sub-basins over August. Precipitation above The Dalles has been 50% of average over August. Over the 2011 water year, precipitation has ranged between 107% and 124% of average.

**Table 1. Summary of August 1-15 precipitation and cumulative October through August 15 precipitation with respect to average (1971-2000), at select locations within the Columbia and Snake River Basins.**

| Location | Water Year 2011 August 1-15, 2011 | | Water Year 2011 October 1, 2010 to August 15, 2011 | |
|---|---|---|---|---|
| | Observed (inches) | % Average | Observed (inches) | % Average |
| Columbia Above Coulee | 0.37 | 45 | 26.24 | 114 |
| Snake River Above Ice Harbor | 0.40 | 97 | 20.41 | 124 |
| Columbia Above The Dalles | 0.29 | 50 | 25.51 | 119 |
| Kootenai | 0.42 | 52 | 25.77 | 109 |
| Clark Fork | 0.22 | 34 | 18.97 | 118 |
| Flathead | 0.16 | 20 | 25.67 | 121 |
| Pend Oreille/Spokane | 0.05 | 8 | 33.37 | 114 |
| Central Washington | 0.00 | 1 | 9.30 | 109 |
| Snake River Plain | 0.34 | 121 | 12.78 | 122 |
| Salmon/Boise/Payette | 0.11 | 32 | 20.60 | 110 |
| Clearwater | 0.09 | 16 | 35.87 | 124 |
| SW Washington Cascades/Cowlitz | 0.00 | 0 | 72.53 | 107 |
| Willamette Valley | 0.00 | 0 | 62.24 | 109 |

Table 2 displays the June Final and July Final runoff volume forecasts for multiple reservoirs. The July Final forecast at The Dalles between January and July is 142000 Kaf (132% of average).

**Table 2. June Final and July Final Runoff Volume Forecasts for various reservoirs within the Columbia and Snake River Basins.**

| Location | June Final | | July Final | |
|---|---|---|---|---|
| | % Average (1971-2000) | Probable Runoff Volume (Kaf) | % Average (1971-2000) | Probable Runoff Volume (Kaf) |
| The Dalles (Jan-July) | 131 | 141000 | 132 | 142000 |
| Grand Coulee (Jan-July) | 124 | 78300 | 126 | 79500 |
| Libby Res. Inflow, MT (Apr-Aug) | 127 | 7930<br>8099* | 129 | 8090 |
| Hungry Horse Res. Inflow, MT (Jan-July) | 153 | 3410 | 154 | 3430 |
| Lower Granite Res. Inflow (Apr- July) | 156 | 33700 | 159 | 34200 |
| Brownlee Res. Inflow (Apr-July) | 177 | 11200 | 173 | 10900 |
| Dworshak Res. Inflow (Apr-July) | 143 | 3770<br>3813* | 149 | 3940 |

* Denotes COE Forecast

The flow objective at Lower Granite over the summer period (June 21st to August 31st) is 55 Kcfs; over the summer period flows at Lower Granite have averaged 85.4 Kcfs and 36.9 Kcfs over the last week.

The summer flow objective period began at McNary Dam on July 1st with a flow objective of 200 Kcfs. Over the summer flow period, flows at McNary have averaged 270.6 Kcfs and 198.3 Kcfs last week.

Grand Coulee Reservoir is at 1282.2 feet (8-25-11) and has drafted 3.7 feet over the last week. The August 31st draft elevation at Grand Coulee is 1280 feet. Outflows at Grand Coulee have ranged between 126.6 and 143.0 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2449.2 feet (8-25-11) and has drafted 1.6 feet last week. Outflows at Libby Dam have been 14.6 Kcfs over the last week. The COE plans to reduce outflows from Libby to 12.0 Kcfs. Based on current projections, Libby will draft to an elevation slightly less than 2449 feet by the end of both August and September.

Hungry Horse is currently at an elevation of 3556.5 feet (8-25-11) and has drafted 1.0 foot last week. Outflows at Hungry Horse have been 3.5-4.0 Kcfs last week. The BOR plans to target elevation 3550 feet by the end of September.

Dworshak is currently at an elevation of 1551.4 feet (8-25-11) and has drafted 9.6 feet last week. Outflows from Dworshak have been 13.9-14.2 Kcfs last week. The temperature of the water being released from Dworshak is being managed so the tailrace at Lower Granite Dam does not exceed temperature standards.

The Brownlee Reservoir was at an elevation of 2056.7 feet on August 25th, 2011 drafting 1.0 foot last week. Over the last week, outflows at Brownlee have ranged between 12.3-17.0 Kcfs.

**Spill:** Spill levels transitioned from spring to summer levels for fish passage on June 21st at the lower Snake River projects. Flows in the Snake remains in the 30 to 40 kcfs range over the past week.

Spill occurred at Dworshak Dam this past week, as the project continues to draft to the end of August target elevation of 1535 feet that, because of total dissolved gas restriction on the amount of spill, will be met sometime in September. Over the past week, daily average flows at Lower Granite Dam have ranged from 33.8 to 39.3 Kcfs, and daily average spill has been 18.4 to 22.5 Kcfs. At Little Goose Dam, spill met the 30% of instantaneous flow Court Order through the week. At Lower Monumental Dam spill met the Court ordered 17 Kcfs over the past week.

Beginning July 13, spill levels at Ice Harbor were changed to the 45 Kcfs/gas cap levels, which will continue through the rest of the summer period. Over the past week spill levels have met the Court Order, except when flows were too low to maintain the spill levels and powerhouse minimum flows. Daily average spill over the past week has ranged from 26.0 to 34.5 Kcfs.

| Project | Day/Night Spill |
|---|---|
| Lower Granite | 18 Kcfs/18 Kcfs |
| Little Goose | 30%/30% |
| Lower Monumental | 17 Kcfs/17 Kcfs |
| Ice Harbor | **July 13 – August 31**: 45 Kcfs / gas cap |

Summer spill levels were initiated at McNary Dam on June 20th and at Bonneville Dam on June 16th. Summer spill season began at John Day and The Dalles dams on July 1st. Spill at McNary Dam has met the Court Ordered 50% of daily average flow. Spill levels at John Day are now meeting post-test conditions of 30% of total river flow. At The Dalles Dam, spill met the 40% of instantaneous flow Court Order over the past week. Finally, at Bonneville Dam spill met the Court ordered summer operations.

| Project | Day/Night Spill |
|---|---|
| McNary | 50%/50% |
| John Day | **Post-test:** 30%/30% |
| The Dalles | 40%/40% |
| Bonneville | **July 20th - August 31:** 75 Kcfs day/GasCap night. |

All projects were in compliance with the 115/120% total dissolved gas criteria, with the exception of a four day period when the Camas/Washougal gauge below Bonneville Dam was above the 115% TDG criterion. During this time, TDG at the Camas/Washougal gauge ranged from 115.6% to 116.3%. Two fish were observed with minor signs of gas bubble trauma this past week at McNary Dam in the sample taken on August 22th.

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

**Adult Passage:** Fall Chinook began to pass Bonneville Dam on August 1st . Daily counts of fall Chinook at Bonneville Dam ranged from 1,787 to 3,173. The 2011 adult fall Chinook count of 31,343 is about 97.2% of the 2010 count and has 179 more fish than the 10 year average count. The 2011 Bonneville Dam fall Chinook jack count of 6,544 is about 1.53 times greater than the 2010 count and 1.38 times greater than the 10 year average. The 2011 McNary Dam adult fall Chinook count of 7,920 is about 2.02 times greater than the 2010 count and about 1.65 times greater than the 10 year average. The 2011 fall Chinook jack McNary Dam count of 1,787 is about 2.8 times greater than the 2010 count and about 1.8 times greater than the 10 year average.

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 2011 A-run adult steelhead count at Bonneville of 258,582 is about 87.2% of the 2010 count of 296,448 and 97.6% of the 10 year average count of 264,820.

The Bonneville Dam 2011 steelhead count of 262,442 is about 86.3% of the 2010 count of 304,102 and about 97.3% of the 10 year average count of 269,605. In the Snake River, this year's Lower Granite steelhead count of 31,344 is about 92.7% of the 2010 count, while being about 1.59 times greater than the 10 year average count. The 2011 LGR wild steelhead count as of August 25th was 13,291. The 2011 Rock Island Dam adult steelhead count of 146,084 is about 43.2% of the 2010 count, while being 1.31 times greater than the 10 year average. At Willamette Falls Dam, the 2011 count for steelhead was 27,386, as of August 23rd. This year's steelhead count is about 86.1% of the 2010 count and about 97.1% of the 10 year average.

The 2011 adult sockeye count at Bonneville Dam of 185,793 is about 48.1% of the 2010 count, while being about 1.5 times greater than the 10 year average. The 2011 adult sockeye count at McNary Dam of 113,936 is about 40.9% of the 2010 count, while being 1.24 times greater than the 10 year average. 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 zone at Ice Harbor Dam, the 2011 adult sockeye count of 1,139 is about 87.4% of the 2010 count of 1,302, while being about 4.07 times greater than the 10 year average count of 280. The Lower Granite Dam 2011 adult sockeye count of 1,498 is about 69.5% of the 2010 count of 2,154 and about 3.5 times greater than the 10 year average of 427.

The 2011 Bonneville Dam adult coho salmon count of 6,532 is about 5.2 times greater than the 2010 count of 1,255 and 2.14 times greater than the 10 year average count of 3,049. The 2011 Bonneville Dam coho jack count of 487 is about 4.55 times greater than the 2010 count and 1.61 times greater than the 10 year average. As of August 25th at Bonneville Dam, the adult Shad count was 948,024 which was about 90.9% of the 2010 count of 1,042,387 and about 30.9% of the 10 year average count of 3,071,835.

**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

| | Grand Coulee | | Chief Joseph | | Wells | | Rocky Reach | | Rock Island | | Wanapum | | Priest Rapids | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Flow | Spill | Flow | Spill | Flow | Spill | Flow | Spill | Flow | Spill | Flow | Spill | Flow | Spill |
| 08/12/2011 | 148.2 | 0.1 | 146.9 | 0.0 | 155.7 | 10.6 | 161.5 | 14.3 | 161.0 | 26.2 | 173.5 | 51.6 | 172.6 | 41.3 |
| 08/13/2011 | 128.0 | 0.1 | 133.5 | 0.0 | 133.4 | 9.2 | 131.2 | 0.0 | 135.5 | 24.8 | 143.1 | 20.6 | 142.4 | 28.6 |
| 08/14/2011 | 131.4 | 0.1 | 122.8 | 0.0 | 129.4 | 10.7 | 131.0 | 0.5 | 133.5 | 28.1 | 145.5 | 21.2 | 145.2 | 29.4 |
| 08/15/2011 | 137.5 | 0.1 | 139.1 | 0.0 | 145.1 | 10.0 | 145.7 | 0.0 | 151.1 | 26.4 | 156.7 | 20.0 | 154.0 | 27.4 |
| 08/16/2011 | 153.0 | 0.1 | 154.7 | 0.0 | 154.9 | 10.0 | 151.0 | 0.0 | 153.8 | 26.3 | 159.5 | 30.4 | 155.7 | 34.4 |
| 08/17/2011 | 147.0 | 0.1 | 148.3 | 0.0 | 149.4 | 10.6 | 150.1 | 0.9 | 154.7 | 27.5 | 161.0 | 28.8 | 160.6 | 47.2 |
| 08/18/2011 | 146.8 | 0.1 | 151.6 | 0.0 | 153.6 | 13.6 | 151.2 | 5.2 | 153.7 | 28.1 | 158.8 | 28.3 | 156.4 | 34.6 |
| 08/19/2011 | 139.9 | 0.1 | 140.4 | 0.0 | 143.6 | 10.9 | 146.3 | 1.4 | 150.2 | 29.6 | 160.2 | 22.7 | 158.8 | 30.1 |
| 08/20/2011 | 134.6 | 0.1 | 131.5 | 0.0 | 132.3 | 9.3 | 131.2 | 0.0 | 135.3 | 24.1 | 149.2 | 19.6 | 147.8 | 28.2 |
| 08/21/2011 | 134.2 | 0.1 | 132.5 | 0.0 | 137.2 | 9.5 | 138.7 | 0.0 | 143.9 | 24.1 | 146.1 | 19.6 | 144.4 | 28.0 |
| 08/22/2011 | 135.8 | 0.1 | 140.5 | 0.0 | 141.6 | 12.3 | 139.0 | 0.9 | 141.2 | 27.7 | 140.1 | 30.1 | 137.7 | 28.4 |
| 08/23/2011 | 143.0 | 0.1 | 140.6 | 0.0 | 145.5 | 10.9 | 148.1 | 8.5 | 152.6 | 28.1 | 167.4 | 62.1 | 166.7 | 40.3 |
| 08/24/2011 | 132.3 | 0.1 | 133.1 | 0.0 | 143.3 | 9.2 | 145.1 | 0.4 | 149.9 | 25.5 | 149.0 | 46.2 | 152.8 | 31.2 |
| 08/25/2011 | 126.6 | 0.1 | 123.0 | 0.0 | 128.0 | 8.8 | 128.7 | 0.0 | 132.4 | 2.5 | 145.8 | 24.4 | 144.3 | 22.9 |

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

| | Dworshak | | Brownlee | Hells Canyon | Lower Granite | | Little Goose | | Lower Monumental | | Ice Harbor | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Flow | Spill | Inflow | Outflow | Flow | Spill | Flow | Spill | Flow | Spill | Flow | Spill |
| 08/12/2011 | 13.2 | 3.4 | 13.3 | 14.7 | 39.0 | 21.8 | 40.3 | 12.0 | 41.0 | 17.1 | 41.3 | 31.1 |
| 08/13/2011 | 13.2 | 3.4 | 13.5 | 13.5 | 40.0 | 22.6 | 39.5 | 11.8 | 39.0 | 16.4 | 41.3 | 31.1 |
| 08/14/2011 | 13.5 | 3.6 | 13.7 | 13.2 | 35.8 | 18.6 | 36.7 | 11.0 | 37.1 | 17.0 | 38.3 | 28.2 |
| 08/15/2011 | 13.4 | 3.6 | 14.2 | 12.3 | 36.3 | 28.0 | 36.9 | 11.0 | 35.3 | 16.5 | 35.8 | 25.9 |
| 08/16/2011 | 13.4 | 3.5 | 15.5 | 16.8 | 35.7 | 30.3 | 39.5 | 11.8 | 40.3 | 16.9 | 40.9 | 30.9 |
| 08/17/2011 | 13.4 | 3.5 | 14.0 | 14.3 | 38.7 | 30.1 | 38.9 | 11.6 | 38.2 | 17.0 | 40.0 | 29.9 |
| 08/18/2011 | 13.9 | 3.9 | 13.1 | 13.3 | 35.5 | 18.4 | 36.2 | 10.9 | 35.2 | 17.0 | 35.7 | 25.7 |
| 08/19/2011 | 13.9 | 3.9 | 15.2 | 11.6 | 35.5 | 22.5 | 36.2 | 10.9 | 36.0 | 16.9 | 37.1 | 27.1 |
| 08/20/2011 | 14.0 | 4.0 | 13.5 | 14.5 | 33.8 | 18.4 | 36.1 | 10.9 | 35.6 | 17.1 | 36.9 | 27.1 |
| 08/21/2011 | 14.0 | 3.9 | 14.3 | 14.5 | 36.7 | 18.4 | 37.1 | 11.1 | 35.3 | 17.0 | 36.9 | 26.8 |
| 08/22/2011 | 14.0 | 4.0 | 14.7 | 16.8 | 35.5 | 18.5 | 36.3 | 10.8 | 36.6 | 17.0 | 37.0 | 27.1 |
| 08/23/2011 | 14.0 | 4.0 | 14.7 | 16.6 | 39.3 | 18.5 | 39.0 | 11.6 | 38.4 | 16.9 | 36.0 | 26.0 |
| 08/24/2011 | 14.2 | 4.1 | 13.5 | 16.3 | 38.2 | 18.5 | 38.7 | 11.5 | 37.4 | 16.9 | 38.1 | 28.1 |
| 08/25/2011 | 14.2 | 4.0 | --- | --- | 39.2 | 18.5 | 41.0 | 12.2 | 41.2 | 17.0 | 45.0 | 34.5 |

## Daily Average Flow and Spill (in kcfs) at Lower Columbia Projects

| | McNary | | John Day | | The Dalles | | Bonneville | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date | Flow | Spill | Flow | Spill | Flow | Spill | Flow | Spill | PH1 | PH2 |
| 08/12/2011 | 222.2 | 110.1 | 208.1 | 62.3 | 200.3 | 80.3 | 221.6 | 93.3 | 88.9 | 27.0 |
| 08/13/2011 | 181.0 | 90.7 | 166.1 | 49.8 | 161.0 | 64.4 | 195.9 | 93.0 | 80.6 | 9.9 |
| 08/14/2011 | 188.4 | 93.5 | 164.3 | 49.2 | 149.3 | 59.6 | 165.9 | 93.3 | 56.8 | 3.4 |
| 08/15/2011 | 205.2 | 103.2 | 199.8 | 60.0 | 188.7 | 75.4 | 188.2 | 92.7 | 75.9 | 7.2 |
| 08/16/2011 | 209.4 | 103.6 | 198.3 | 59.4 | 189.2 | 75.9 | 206.4 | 95.8 | 78.8 | 19.5 |
| 08/17/2011 | 217.0 | 108.5 | 204.8 | 61.2 | 194.9 | 77.9 | 204.5 | 95.9 | 80.7 | 16.1 |
| 08/18/2011 | 207.9 | 104.6 | 199.2 | 59.7 | 189.8 | 75.8 | 206.3 | 96.3 | 65.5 | 32.1 |
| 08/19/2011 | 208.6 | 105.0 | 203.3 | 60.9 | 195.4 | 78.1 | 217.3 | 95.6 | 39.6 | 69.7 |
| 08/20/2011 | 199.0 | 99.9 | 185.8 | 55.8 | 175.5 | 70.1 | 180.7 | 96.0 | 9.1 | 63.3 |
| 08/21/2011 | 182.6 | 91.5 | 168.9 | 50.6 | 157.4 | 62.8 | 176.6 | 96.1 | 9.7 | 58.3 |
| 08/22/2011 | 191.5 | 96.0 | 168.5 | 50.3 | 161.7 | 64.7 | 178.6 | 95.9 | 13.8 | 56.5 |
| 08/23/2011 | 193.5 | 97.2 | 185.4 | 55.4 | 173.3 | 69.1 | 183.4 | 96.4 | 9.5 | 65.1 |
| 08/24/2011 | 211.1 | 105.7 | 198.3 | 59.4 | 186.9 | 74.4 | 196.3 | 96.4 | 12.0 | 75.5 |
| 08/25/2011 | 202.0 | 101.4 | 203.6 | 60.9 | 195.8 | 78.2 | 199.8 | 95.3 | 13.4 | 78.7 |

# 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Little Goose Dam** | | | | | | | | | | | |
| | 08/15/11 | Chinook + Steelhead | 9 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| | 08/22/11 | Chinook + Steelhead | 20 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| **Lower Monumental Dam** | | | | | | | | | | | |
| | 08/17/11 | Chinook + Steelhead | 19 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| | 08/24/11 | Chinook + Steelhead | 13 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| **McNary Dam** | | | | | | | | | | | |
| | 08/15/11 | Chinook + Steelhead | 100 | 2 | 2 | 2.00% | 0.00% | 2 | 0 | 0 | 0 |
| | 08/18/11 | Chinook + Steelhead | 100 | 1 | 1 | 1.00% | 0.00% | 1 | 0 | 0 | 0 |
| | 08/22/11 | Chinook + Steelhead | 100 | 2 | 2 | 2.00% | 0.00% | 2 | 0 | 0 | 0 |
| | 08/25/11 | Chinook + Steelhead | 100 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| **Bonneville Dam** | | | | | | | | | | | |
| | 08/13/11 | Chinook + Steelhead | 1 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| | 08/20/11 | Chinook + Steelhead | 20 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| | 08/21/11 | Chinook + Steelhead | 25 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| | 08/23/11 | Chinook + Steelhead | 70 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| | 08/24/11 | Chinook + Steelhead | 30 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| **Rock Island Dam** | | | | | | | | | | | |
| | 08/16/11 | Chinook + Steelhead | 55 | 1 | 1 | 1.82% | 0.00% | 1 | 0 | 0 | 0 |
| | 08/18/11 | Chinook + Steelhead | 98 | 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

| | Hungry H. Dnst | | | | Boundary | | | | Grand Coulee | | | | Grand C. Tlwr | | | | Chief Joseph | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 24 h Avg | 12 h Avg | High | # hr | 24 h Avg | 12 h Avg | High | # hr | 24 h Avg | 12 h Avg | High | # hr | 24 h Avg | 12 h Avg | High | # hr | 24 h Avg | 12 h Avg | High | # hr |
| 8/12 | 106.0 | 106.3 | 106.6 | 24 | 112.5 | 113.2 | 113.7 | 23 | 114.6 | 114.8 | 115.0 | 24 | 113.3 | 113.9 | 114.5 | 23 | 111.8 | 111.9 | 112.1 | 24 |
| 8/13 | 106.3 | 106.6 | 106.8 | 24 | 113.1 | 113.7 | 114.4 | 23 | 114.7 | 115.0 | 115.2 | 24 | 113.3 | 113.9 | 114.4 | 23 | 112.2 | 112.5 | 112.8 | 24 |
| 8/14 | 106.3 | 106.7 | 106.9 | 24 | 113.1 | 113.3 | 113.7 | 22 | 114.7 | 114.9 | 115.1 | 24 | 113.4 | 114.1 | 115.0 | 22 | 112.0 | 112.4 | 112.8 | 24 |
| 8/15 | 105.7 | 106.0 | 106.3 | 24 | 111.9 | 112.4 | 113.0 | 24 | 114.0 | 114.2 | 114.5 | 24 | 112.5 | 113.3 | 114.4 | 24 | 111.4 | 111.7 | 111.9 | 24 |
| 8/16 | 105.3 | 105.6 | 106.0 | 23 | 111.2 | 111.4 | 111.8 | 19 | 113.5 | 113.6 | 113.9 | 24 | 112.3 | 112.8 | 113.3 | 19 | 110.8 | 111.2 | 111.4 | 24 |
| 8/17 | 105.5 | 106.1 | 106.5 | 23 | 110.7 | 111.1 | 111.3 | 22 | 113.3 | 113.5 | 113.6 | 24 | 112.1 | 112.6 | 113.3 | 22 | 111.2 | 111.4 | 111.6 | 24 |
| 8/18 | 105.6 | 105.8 | 106.0 | 24 | 110.6 | 111.1 | 111.6 | 22 | 113.2 | 113.4 | 113.6 | 24 | 111.9 | 112.6 | 113.4 | 22 | 110.7 | 110.8 | 111.1 | 24 |
| 8/19 | 105.2 | 105.9 | 106.3 | 24 | 110.1 | 110.5 | 110.7 | 22 | 113.0 | 113.2 | 113.5 | 24 | 111.9 | 112.6 | 113.0 | 22 | 110.2 | 110.4 | 110.6 | 24 |
| 8/20 | 105.5 | 105.9 | 106.3 | 22 | 110.4 | 110.9 | 111.8 | 20 | 112.2 | 112.7 | 113.0 | 24 | 112.1 | 112.8 | 113.5 | 20 | 110.9 | 111.2 | 111.4 | 24 |
| 8/21 | 105.8 | 106.3 | 106.6 | 24 | 110.6 | 110.9 | 111.2 | 24 | 111.6 | 112.7 | 113.1 | 24 | 112.1 | 113.0 | 113.2 | 24 | 111.2 | 111.4 | 111.7 | 24 |
| 8/22 | 105.5 | 105.7 | 105.9 | 24 | 110.9 | 111.2 | 111.4 | 23 | 111.0 | 111.4 | 112.0 | 24 | 112.1 | 112.8 | 114.1 | 23 | 110.6 | 111.0 | 111.3 | 24 |
| 8/23 | 105.4 | 105.7 | 106.0 | 23 | 110.3 | 110.7 | 111.2 | 20 | 110.5 | 111.1 | 111.8 | 23 | 111.1 | 112.3 | 124.2 | 20 | 109.6 | 110.0 | 110.9 | 24 |
| 8/24 | 105.1 | 105.5 | 105.7 | 24 | 110.3 | 110.6 | 111.1 | 22 | 110.8 | 111.3 | 111.7 | 24 | 108.7 | 110.0 | 110.5 | 22 | 109.3 | 109.6 | 109.7 | 24 |
| 8/25 | 105.3 | 105.6 | 105.7 | 23 | 110.5 | 110.8 | 111.3 | 21 | 110.4 | 110.8 | 111.3 | 24 | 109.6 | 110.2 | 112.0 | 21 | 109.7 | 110.1 | 110.3 | 24 |

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

| | Chief J. Dnst | | | | Wells | | | | Wells Dwnstrm | | | | Rocky Reach | | | | Rocky R. Tlwr | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 24 h Avg | 12 h Avg | High | # hr | 24 h Avg | 12 h Avg | High | # hr | 24 h Avg | 12 h Avg | High | # hr | 24 h Avg | 12 h Avg | High | # hr | 24 h Avg | 12 h Avg | High | # hr |
| 8/12 | 111.3 | 111.8 | 112.3 | 24 | 111.9 | 112.1 | 112.9 | 22 | 113.3 | 113.8 | 114.8 | 22 | 111.8 | 112.3 | 112.6 | 24 | 113.1 | 113.7 | 114.1 | 24 |
| 8/13 | 111.9 | 112.4 | 113.8 | 24 | 111.9 | 112.4 | 112.9 | 23 | 113.2 | 114.0 | 114.5 | 23 | 112.1 | 112.7 | 113.0 | 24 | 110.5 | 110.9 | 112.9 | 24 |
| 8/14 | 112.4 | 113.0 | 114.0 | 24 | 111.1 | 111.6 | 112.2 | 23 | 112.8 | 113.4 | 114.0 | 23 | 111.3 | 111.6 | 112.3 | 24 | 109.0 | 109.3 | 109.6 | 24 |
| 8/15 | 111.2 | 111.8 | 112.1 | 24 | 110.6 | 111.0 | 111.4 | 23 | 112.2 | 112.7 | 113.4 | 23 | 110.1 | 110.4 | 111.0 | 24 | 107.9 | 108.1 | 108.7 | 24 |
| 8/16 | 110.5 | 110.9 | 111.8 | 24 | 110.3 | 110.6 | 111.0 | 24 | 111.9 | 112.7 | 113.2 | 24 | 109.8 | 110.4 | 110.9 | 24 | 107.2 | 107.8 | 108.4 | 24 |
| 8/17 | 110.6 | 111.1 | 111.6 | 24 | 110.5 | 110.9 | 111.5 | 23 | 112.3 | 113.1 | 113.7 | 23 | 110.6 | 111.1 | 111.4 | 24 | 108.0 | 108.4 | 108.6 | 24 |
| 8/18 | 110.0 | 110.5 | 110.8 | 24 | 110.3 | 110.7 | 111.2 | 24 | 112.6 | 113.2 | 113.8 | 24 | 110.3 | 110.7 | 110.9 | 24 | 108.4 | 108.9 | 109.8 | 24 |
| 8/19 | 109.7 | 110.1 | 110.4 | 24 | 110.2 | 110.7 | 111.5 | 23 | 112.4 | 113.0 | 113.5 | 23 | 110.6 | 111.5 | 112.0 | 24 | 108.8 | 109.4 | 110.2 | 24 |
| 8/20 | 110.6 | 111.4 | 112.6 | 24 | 110.3 | 111.1 | 111.5 | 24 | 112.1 | 112.9 | 113.6 | 24 | 111.7 | 112.2 | 112.5 | 24 | 108.9 | 109.8 | 110.2 | 24 |
| 8/21 | 110.9 | 111.6 | 113.7 | 24 | 111.2 | 111.8 | 112.5 | 24 | 112.8 | 113.5 | 114.2 | 24 | 111.2 | 111.6 | 111.8 | 24 | 109.1 | 109.5 | 109.9 | 24 |
| 8/22 | 110.2 | 111.0 | 111.9 | 24 | 110.4 | 111.0 | 111.6 | 22 | 112.2 | 112.8 | 113.3 | 22 | 111.0 | 111.1 | 111.4 | 24 | 108.6 | 108.9 | 109.1 | 24 |
| 8/23 | 109.2 | 109.8 | 110.3 | 24 | 108.9 | 109.1 | 109.1 | 24 | 112.0 | 113.3 | 119.0 | 24 | 110.1 | 110.4 | 110.8 | 24 | 109.0 | 109.7 | 111.5 | 24 |
| 8/24 | 109.4 | 109.9 | 110.6 | 24 | 109.4 | 110.0 | 110.7 | 23 | 111.2 | 112.1 | 112.8 | 23 | 110.4 | 111.1 | 111.8 | 24 | 108.0 | 108.6 | 109.2 | 24 |
| 8/25 | 109.9 | 110.5 | 111.0 | 24 | 109.5 | 110.0 | 110.7 | 23 | 111.1 | 111.7 | 112.8 | 23 | 110.0 | 110.4 | 110.7 | 24 | 106.7 | 107.4 | 107.7 | 24 |

## Total Dissolved Gas Saturation at Mid Columbia River Sites

| | Rock Island | | | | Rock I. Tlwr | | | | Wanapum | | | | Wanapum Tlwr | | | | Priest Rapids | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 24 h Avg | 12 h Avg | High | # hr | 24 h Avg | 12 h Avg | High | # hr | 24 h Avg | 12 h Avg | High | # hr | 24 h Avg | 12 h Avg | High | # hr | 24 h Avg | 12 h Avg | High | # hr |
| 8/12 | 111.7 | 112.3 | 112.7 | 24 | 115.9 | 116.5 | 116.7 | 24 | 111.1 | 111.6 | 111.9 | 24 | 113.5 | 114.2 | 115.1 | 24 | 111.3 | 112.6 | 113.3 | 24 |
| 8/13 | 111.3 | 111.6 | 112.1 | 24 | 115.7 | 116.0 | 116.4 | 24 | 111.8 | 112.1 | 112.4 | 24 | 113.3 | 113.5 | 113.7 | 24 | 112.8 | 113.4 | 114.0 | 24 |
| 8/14 | 110.3 | 110.7 | 111.2 | 24 | 115.8 | 116.2 | 116.3 | 24 | 111.5 | 111.6 | 111.9 | 24 | 112.9 | 113.1 | 113.2 | 24 | 111.4 | 112.0 | 113.1 | 24 |
| 8/15 | 109.0 | 109.2 | 109.4 | 24 | 114.1 | 114.4 | 115.2 | 24 | 110.2 | 110.5 | 111.3 | 24 | 111.3 | 111.7 | 112.9 | 24 | 109.8 | 110.1 | 110.4 | 24 |
| 8/16 | 108.6 | 109.2 | 109.7 | 24 | 113.9 | 114.6 | 115.0 | 24 | 109.7 | 110.4 | 111.1 | 24 | 111.7 | 112.0 | 112.2 | 24 | 110.2 | 111.5 | 112.2 | 24 |
| 8/17 | 109.5 | 110.2 | 110.8 | 24 | 114.5 | 115.4 | 115.9 | 24 | 110.2 | 110.5 | 110.9 | 24 | 112.0 | 112.2 | 112.5 | 24 | 111.1 | 112.1 | 113.6 | 24 |
| 8/18 | 109.4 | 110.1 | 110.7 | 24 | 114.6 | 115.5 | 115.8 | 24 | 109.6 | 109.8 | 110.1 | 24 | 111.4 | 111.8 | 112.3 | 24 | 109.8 | 110.6 | 111.2 | 24 |
| 8/19 | 130.8 | 152.4 | 571.3 | 24 | 137.2 | 160.2 | 601.4 | 24 | 110.0 | 110.6 | 110.9 | 24 | 111.9 | 112.4 | 112.7 | 24 | 110.7 | 111.7 | 112.7 | 24 |
| 8/20 | 110.5 | 111.2 | 111.9 | 24 | 115.0 | 115.9 | 116.3 | 24 | 110.9 | 111.5 | 112.0 | 24 | 112.8 | 113.1 | 113.2 | 24 | 112.1 | 112.7 | 113.4 | 24 |
| 8/21 | 110.5 | 110.9 | 111.2 | 24 | 114.8 | 115.6 | 115.8 | 24 | 111.8 | 112.0 | 112.3 | 24 | 113.2 | 113.5 | 113.6 | 24 | 112.9 | 113.5 | 113.9 | 24 |
| 8/22 | 109.8 | 110.0 | 110.4 | 24 | 114.7 | 115.1 | 115.9 | 24 | 111.4 | 111.7 | 111.9 | 24 | 113.3 | 113.5 | 113.7 | 24 | 111.7 | 112.3 | 112.8 | 24 |
| 8/23 | 110.1 | 111.0 | 112.8 | 24 | 114.5 | 115.4 | 116.5 | 24 | --- | --- | --- | 0 | --- | --- | --- | 0 | --- | --- | --- | 0 |
| 8/24 | 109.2 | 110.5 | 111.5 | 24 | 112.8 | 115.1 | 115.8 | 24 | --- | --- | --- | 0 | --- | --- | --- | 0 | --- | --- | --- | 0 |
| 8/25 | 109.1 | 109.5 | 110.1 | 24 | 109.9 | 110.6 | 115.0 | 24 | --- | --- | --- | 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

| | Priest R. Dnst | | | | Pasco | | | | Dworshak | | | | Clrwtr-Peck | | | | Anatone | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 24 h Avg | 12 h Avg | High | # hr | 24 h Avg | 12 h Avg | High | # hr | 24 h Avg | 12 h Avg | High | # hr | 24 h Avg | 12 h Avg | High | # hr | 24 h Avg | 12 h Avg | High | # hr |
| 8/12 | 114.1 | 114.9 | 115.9 | 24 | 109.3 | 110.7 | 111.6 | 24 | 109.3 | 109.7 | 110.0 | 24 | 107.4 | 108.4 | 109.1 | 24 | 102.3 | 103.8 | 105.2 | 24 |
| 8/13 | 114.6 | 115.1 | 115.9 | 24 | 110.3 | 111.3 | 112.1 | 24 | 109.1 | 109.5 | 109.9 | 24 | 107.6 | 108.5 | 109.4 | 24 | 102.3 | 103.6 | 105.2 | 24 |
| 8/14 | 113.2 | 113.4 | 113.5 | 24 | 109.0 | 109.6 | 110.3 | 24 | 107.9 | 108.6 | 109.3 | 24 | 106.4 | 107.3 | 108.3 | 24 | 102.1 | 103.4 | 104.9 | 24 |
| 8/15 | 112.3 | 112.5 | 113.0 | 24 | 108.2 | 108.8 | 109.2 | 24 | 107.6 | 108.1 | 108.6 | 24 | 106.1 | 106.8 | 107.5 | 24 | 101.5 | 102.6 | 104.3 | 24 |
| 8/16 | 112.4 | 113.0 | 114.4 | 24 | 108.4 | 109.5 | 110.1 | 24 | 107.2 | 108.0 | 108.2 | 24 | 105.7 | 106.5 | 107.0 | 24 | 102.0 | 103.7 | 105.6 | 24 |
| 8/17 | 114.8 | 115.2 | 115.7 | 24 | 109.2 | 110.4 | 111.3 | 24 | 107.9 | 108.7 | 109.2 | 24 | 106.1 | 106.9 | 107.4 | 24 | 102.3 | 103.7 | 105.4 | 24 |
| 8/18 | 112.7 | 113.0 | 113.4 | 24 | 109.9 | 110.5 | 111.1 | 24 | 108.4 | 108.6 | 109.3 | 24 | 106.6 | 107.4 | 108.0 | 24 | 102.0 | 103.4 | 105.2 | 24 |
| 8/19 | 113.0 | 113.4 | 113.5 | 24 | 109.3 | 110.2 | 110.8 | 24 | 108.5 | 108.7 | 109.0 | 24 | 106.6 | 107.5 | 108.3 | 24 | 102.0 | 103.6 | 105.3 | 24 |
| 8/20 | 114.0 | 114.5 | 114.7 | 24 | 109.6 | 110.5 | 111.0 | 24 | 109.0 | 109.3 | 110.0 | 24 | 106.9 | 108.0 | 108.8 | 24 | 102.1 | 103.8 | 105.5 | 24 |
| 8/21 | 114.7 | 115.1 | 115.3 | 24 | 110.0 | 110.8 | 111.5 | 24 | 108.8 | 109.0 | 109.4 | 24 | 107.0 | 107.9 | 108.8 | 24 | 102.1 | 103.7 | 105.4 | 24 |
| 8/22 | 114.0 | 114.3 | 114.6 | 24 | 109.9 | 110.4 | 111.1 | 24 | 108.7 | 109.0 | 109.3 | 24 | 107.0 | 108.1 | 109.0 | 24 | 102.0 | 103.4 | 105.0 | 24 |
| 8/23 | --- | --- | --- | 0 | 109.0 | 110.4 | 110.9 | 24 | 108.6 | 108.9 | 109.2 | 24 | 106.7 | 107.6 | 108.4 | 24 | 102.0 | 103.5 | 105.2 | 24 |
| 8/24 | --- | --- | --- | 0 | 111.0 | 112.3 | 113.1 | 24 | 109.3 | 109.6 | 109.9 | 24 | 107.2 | 108.1 | 109.1 | 24 | 102.3 | 103.8 | 105.5 | 24 |
| 8/25 | --- | --- | --- | 0 | 112.2 | 112.8 | 113.5 | 24 | 109.4 | 109.7 | 110.1 | 24 | 107.6 | 108.3 | 109.0 | 24 | 102.2 | 103.5 | 105.0 | 24 |

## Total Dissolved Gas Saturation Data at Snake River Sites

| | Clrwtr-Lewiston | | | | Lower Granite | | | | L. Granite Tlwr | | | | Little Goose | | | | L. Goose Tlwr | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 24 h Avg | 12 h Avg | High | # hr | 24 h Avg | 12 h Avg | High | # hr | 24 h Avg | 12 h Avg | High | # hr | 24 h Avg | 12 h Avg | High | # hr | 24 h Avg | 12 h Avg | High | # hr |
| 8/12 | 105.4 | 107.8 | 109.6 | 24 | 102.5 | 102.6 | 102.8 | 24 | 117.8 | 118.8 | 119.8 | 24 | 111.9 | 112.4 | 113.0 | 24 | 112.5 | 112.8 | 113.2 | 24 |
| 8/13 | 105.5 | 107.9 | 109.7 | 24 | 102.7 | 102.8 | 103.0 | 24 | 117.7 | 118.7 | 119.5 | 24 | 113.5 | 113.7 | 114.0 | 24 | 112.8 | 113.1 | 113.5 | 24 |
| 8/14 | 105.0 | 107.2 | 108.8 | 24 | 102.3 | 102.6 | 102.8 | 24 | 116.2 | 116.5 | 117.1 | 24 | 112.7 | 113.0 | 113.5 | 24 | 112.5 | 112.8 | 113.5 | 24 |
| 8/15 | 103.9 | 106.0 | 107.3 | 24 | 102.1 | 102.3 | 102.7 | 24 | 118.8 | 120.1 | 120.5 | 24 | 111.4 | 112.2 | 113.0 | 24 | 112.4 | 113.0 | 114.6 | 24 |
| 8/16 | 104.3 | 106.8 | 108.6 | 24 | 102.5 | 102.7 | 102.9 | 24 | 119.7 | 120.0 | 120.9 | 24 | 109.7 | 109.9 | 110.4 | 24 | 111.9 | 112.3 | 112.6 | 24 |
| 8/17 | 104.4 | 106.8 | 108.5 | 24 | 102.6 | 102.8 | 103.1 | 24 | 118.6 | 119.6 | 120.2 | 24 | 109.3 | 110.0 | 111.1 | 24 | 111.7 | 112.3 | 112.8 | 24 |
| 8/18 | 104.3 | 106.7 | 108.4 | 24 | 102.0 | 102.2 | 102.7 | 24 | 116.5 | 116.8 | 117.3 | 24 | 110.6 | 110.8 | 110.9 | 24 | 112.1 | 112.7 | 113.1 | 24 |
| 8/19 | 104.5 | 106.6 | 108.2 | 24 | 102.2 | 102.7 | 103.1 | 24 | 117.7 | 119.1 | 120.3 | 24 | 110.9 | 111.2 | 111.4 | 24 | 111.9 | 112.2 | 112.6 | 24 |
| 8/20 | 104.5 | 106.6 | 108.4 | 24 | 102.8 | 103.1 | 103.3 | 24 | 116.3 | 116.6 | 117.2 | 24 | 110.7 | 110.8 | 111.1 | 24 | 112.6 | 112.9 | 113.2 | 24 |
| 8/21 | 104.5 | 106.6 | 108.2 | 24 | 102.6 | 102.9 | 103.9 | 24 | 116.1 | 116.3 | 116.6 | 24 | 111.5 | 112.4 | 113.6 | 24 | 113.3 | 113.8 | 114.3 | 24 |
| 8/22 | 104.5 | 106.5 | 107.9 | 24 | 102.4 | 102.7 | 103.1 | 24 | 115.9 | 116.1 | 116.3 | 24 | 113.7 | 114.2 | 114.8 | 24 | 112.7 | 113.1 | 113.5 | 24 |
| 8/23 | 104.5 | 106.4 | 107.9 | 24 | 101.9 | 102.2 | 102.4 | 24 | 115.9 | 116.1 | 116.5 | 24 | 113.3 | 113.6 | 114.0 | 24 | 113.2 | 114.1 | 117.9 | 24 |
| 8/24 | 104.6 | 106.5 | 108.1 | 24 | 102.6 | 103.0 | 103.3 | 24 | 116.0 | 116.4 | 117.1 | 24 | 112.2 | 112.5 | 113.2 | 24 | 112.9 | 113.2 | 113.7 | 24 |
| 8/25 | 104.8 | 106.5 | 107.9 | 24 | 103.0 | 103.4 | 103.7 | 24 | 116.1 | 116.4 | 116.8 | 24 | 111.4 | 111.8 | 112.3 | 24 | 112.8 | 113.6 | 114.7 | 24 |

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

| | Lower Mon. | | | | L. Mon. Tlwr | | | | Ice Harbor | | | | Ice Harbor Tlwr | | | | McNary-Oregon | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 24 h Avg | 12 h Avg | High | # hr | 24 h Avg | 12 h Avg | High | # hr | 24 h Avg | 12 h Avg | High | # hr | 24 h Avg | 12 h Avg | High | # hr | 24 h Avg | 12 h Avg | High | # hr |
| 8/12 | 110.2 | 110.4 | 110.5 | 24 | 116.7 | 117.0 | 117.6 | 24 | 110.8 | 111.0 | 111.5 | 24 | 113.1 | 113.7 | 114.3 | 24 | --- | --- | --- | 0 |
| 8/13 | 110.6 | 110.8 | 110.9 | 24 | 116.2 | 116.6 | 117.1 | 24 | 110.5 | 111.0 | 111.3 | 24 | 113.3 | 114.0 | 114.6 | 24 | --- | --- | --- | 0 |
| 8/14 | 110.5 | 110.6 | 110.8 | 24 | 116.1 | 116.3 | 116.4 | 24 | 110.7 | 110.9 | 111.1 | 24 | 113.8 | 114.5 | 114.9 | 24 | --- | --- | --- | 0 |
| 8/15 | 109.8 | 110.1 | 110.5 | 24 | 116.0 | 116.4 | 117.1 | 24 | 109.9 | 110.4 | 111.0 | 24 | 113.2 | 113.8 | 114.6 | 24 | --- | --- | --- | 0 |
| 8/16 | 109.2 | 109.4 | 109.5 | 24 | 116.5 | 117.0 | 117.5 | 24 | 110.0 | 110.2 | 110.3 | 24 | 113.6 | 114.2 | 114.6 | 24 | --- | --- | --- | 0 |
| 8/17 | 109.4 | 109.6 | 109.8 | 24 | 116.0 | 116.4 | 116.8 | 24 | 109.8 | 110.0 | 110.2 | 24 | 113.6 | 114.2 | 114.8 | 24 | --- | --- | --- | 0 |
| 8/18 | 109.4 | 109.7 | 110.2 | 24 | 116.2 | 116.4 | 116.6 | 24 | 109.5 | 109.8 | 110.5 | 24 | 113.5 | 114.0 | 114.5 | 24 | --- | --- | --- | 0 |
| 8/19 | 110.0 | 110.2 | 110.6 | 24 | 116.2 | 116.5 | 116.8 | 24 | 111.2 | 111.9 | 112.6 | 24 | 113.7 | 114.3 | 114.9 | 24 | --- | --- | --- | 0 |
| 8/20 | 110.5 | 110.9 | 111.2 | 24 | 116.1 | 116.4 | 116.7 | 24 | 111.8 | 112.2 | 112.5 | 24 | 113.6 | 114.1 | 114.6 | 24 | --- | --- | --- | 0 |
| 8/21 | 110.4 | 110.6 | 110.8 | 24 | 116.4 | 116.7 | 117.0 | 24 | 112.9 | 113.1 | 113.3 | 24 | 114.1 | 114.7 | 115.8 | 24 | --- | --- | --- | 0 |
| 8/22 | 110.4 | 110.5 | 110.6 | 24 | 116.2 | 116.5 | 116.6 | 24 | 113.1 | 113.3 | 113.5 | 24 | 114.0 | 114.5 | 115.3 | 24 | --- | --- | --- | 0 |
| 8/23 | 110.6 | 110.9 | 111.2 | 24 | 116.4 | 116.8 | 117.4 | 24 | 112.6 | 112.7 | 112.9 | 24 | 113.3 | 113.5 | 113.7 | 24 | --- | --- | --- | 0 |
| 8/24 | 110.9 | 111.2 | 111.4 | 24 | 116.7 | 117.0 | 117.4 | 24 | 112.3 | 112.6 | 112.9 | 24 | 114.2 | 114.8 | 115.4 | 24 | --- | --- | --- | 0 |
| 8/25 | 111.0 | 111.2 | 111.7 | 24 | 116.7 | 117.0 | 117.4 | 24 | 112.4 | 112.5 | 112.8 | 24 | 113.4 | 113.7 | 114.1 | 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**

| | McNary-Wash | | | | McNary Tlwr | | | | John Day | | | | John Day Tlwr | | | | The Dalles | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 24 h | 12 h | | # | 24 h | 12 h | | # | 24h | 12h | | # | 24h | 12h | | # | 24h | 12h | | # |
| Date | Avg | Avg | High | hr | Avg | Avg | High | hr | Avg | Avg | High | hr | Avg | Avg | High | hr | Avg | AVG | High | hr |
| 8/12 | 108.8 | 109.4 | 109.9 | 24 | 117.0 | 118.0 | 118.7 | 24 | 103.8 | 104.4 | 104.8 | 24 | 112.2 | 113.8 | 114.5 | 24 | 107.0 | 107.3 | 108.0 | 24 |
| 8/13 | 109.1 | 109.3 | 109.6 | 24 | 116.2 | 116.5 | 116.8 | 24 | 104.0 | 104.1 | 104.3 | 24 | 110.9 | 111.9 | 113.0 | 24 | 106.6 | 107.4 | 107.8 | 24 |
| 8/14 | 108.3 | 108.5 | 108.7 | 24 | 116.0 | 116.3 | 116.5 | 24 | 103.3 | 103.5 | 103.7 | 24 | 111.3 | 112.1 | 112.6 | 24 | 105.0 | 105.5 | 105.7 | 24 |
| 8/15 | 106.9 | 107.2 | 107.7 | 24 | 116.2 | 116.4 | 116.6 | 24 | 102.9 | 103.3 | 103.6 | 24 | 112.3 | 113.1 | 113.7 | 24 | 105.2 | 105.5 | 106.3 | 24 |
| 8/16 | 107.4 | 107.6 | 107.8 | 24 | 116.3 | 116.7 | 117.0 | 24 | 103.8 | 104.7 | 105.4 | 24 | 112.1 | 112.8 | 113.5 | 24 | 106.4 | 106.9 | 107.8 | 24 |
| 8/17 | 107.5 | 108.0 | 108.2 | 24 | 116.5 | 116.9 | 117.3 | 24 | 104.9 | 105.2 | 105.6 | 24 | 113.0 | 113.6 | 114.2 | 24 | 107.5 | 107.8 | 108.1 | 24 |
| 8/18 | 108.6 | 109.0 | 109.4 | 24 | 116.5 | 116.9 | 117.2 | 24 | 104.0 | 104.2 | 104.4 | 24 | 113.7 | 114.2 | 114.5 | 24 | 106.5 | 107.0 | 107.7 | 24 |
| 8/19 | 109.4 | 109.9 | 110.6 | 24 | 116.6 | 117.0 | 117.2 | 24 | 104.3 | 104.9 | 105.6 | 24 | 113.0 | 113.4 | 113.7 | 24 | 107.1 | 107.6 | 108.2 | 24 |
| 8/20 | 110.1 | 110.8 | 111.4 | 24 | 116.6 | 116.9 | 117.2 | 24 | 106.3 | 107.0 | 108.0 | 24 | 112.8 | 113.3 | 113.9 | 24 | 108.2 | 108.4 | 108.5 | 24 |
| 8/21 | 110.0 | 110.3 | 111.0 | 24 | 116.5 | 116.8 | 117.2 | 24 | 108.2 | 108.5 | 109.0 | 24 | 113.7 | 114.2 | 114.9 | 24 | 109.2 | 109.4 | 109.7 | 24 |
| 8/22 | 109.8 | 110.3 | 110.8 | 24 | 116.5 | 116.7 | 116.9 | 24 | 107.3 | 107.6 | 108.1 | 24 | 113.6 | 114.0 | 114.5 | 24 | 108.1 | 108.8 | 109.3 | 24 |
| 8/23 | 108.1 | 108.3 | 108.5 | 24 | 116.4 | 116.9 | 117.6 | 24 | 106.7 | 107.2 | 107.6 | 24 | 113.6 | 114.1 | 114.5 | 24 | 107.4 | 107.8 | 108.7 | 24 |
| 8/24 | 107.9 | 108.0 | 108.2 | 24 | 116.9 | 117.4 | 118.8 | 24 | 107.7 | 108.2 | 108.7 | 24 | 114.0 | 114.5 | 115.0 | 24 | 109.2 | 109.7 | 110.5 | 24 |
| 8/25 | 108.4 | 109.2 | 110.0 | 24 | 116.9 | 117.3 | 117.8 | 24 | 107.5 | 107.8 | 108.1 | 24 | 114.3 | 114.7 | 115.2 | 24 | 109.4 | 109.7 | 110.2 | 24 |

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

| | The Dalles Dnst | | | | Bonneville | | | | Warrendale | | | | Camas\Washougal | | | | Cascade Island | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 24 h | 12 h | | # | 24 h | 12 h | | # | 24h | 12h | | # | 24h | 12h | | # | 24h | 12h | | # |
| Date | Avg | Avg | High | hr | Avg | Avg | High | hr | Avg | Avg | High | hr | Avg | Avg | High | hr | Avg | Avg | High | hr |
| 8/12 | 114.7 | 115.9 | 116.8 | 24 | 108.0 | 108.6 | 108.7 | 24 | 111.5 | 112.2 | 113.1 | 24 | 111.5 | 113.5 | 115.4 | 24 | --- | --- | --- | 0 |
| 8/13 | 114.0 | 114.8 | 115.2 | 24 | 108.3 | 108.8 | 109.2 | 24 | 111.5 | 112.7 | 113.6 | 24 | 110.9 | 112.5 | 113.5 | 24 | --- | --- | --- | 0 |
| 8/14 | 112.8 | 113.6 | 114.3 | 24 | 107.2 | 107.4 | 107.9 | 24 | 112.2 | 113.5 | 115.5 | 24 | 112.0 | 114.0 | 115.9 | 24 | --- | --- | --- | 0 |
| 8/15 | 113.4 | 114.3 | 114.8 | 24 | 106.1 | 106.5 | 106.8 | 24 | 111.5 | 113.4 | 115.6 | 24 | 112.7 | 114.8 | 116.8 | 24 | --- | --- | --- | 0 |
| 8/16 | 114.3 | 115.2 | 115.7 | 24 | 108.5 | 109.6 | 110.4 | 24 | 112.4 | 113.3 | 114.7 | 24 | 112.3 | 114.7 | 116.8 | 24 | --- | --- | --- | 0 |
| 8/17 | 114.8 | 115.4 | 115.8 | 24 | 110.3 | 110.6 | 110.9 | 24 | 113.9 | 115.3 | 116.6 | 24 | 112.5 | 114.8 | 117.0 | 24 | --- | --- | --- | 0 |
| 8/18 | 114.2 | 114.9 | 115.6 | 24 | 108.3 | 108.8 | 109.6 | 24 | 112.7 | 114.2 | 115.5 | 24 | 111.8 | 113.9 | 115.9 | 24 | --- | --- | --- | 0 |
| 8/19 | 114.9 | 115.7 | 116.0 | 24 | 108.1 | 108.8 | 109.1 | 24 | 113.8 | 115.8 | 117.3 | 24 | 111.6 | 113.4 | 115.1 | 24 | --- | --- | --- | 0 |
| 8/20 | 115.4 | 115.8 | 116.6 | 24 | 110.6 | 111.4 | 112.2 | 24 | 116.8 | 117.9 | 119.2 | 24 | 112.2 | 115.0 | 116.8 | 24 | --- | --- | --- | 0 |
| 8/21 | 115.7 | 116.4 | 117.2 | 24 | 113.0 | 113.5 | 113.8 | 24 | 117.3 | 118.3 | 119.5 | 24 | 114.1 | 116.3 | 118.4 | 24 | --- | --- | --- | 0 |
| 8/22 | 114.4 | 114.9 | 115.3 | 24 | 109.8 | 110.6 | 112.0 | 24 | 116.0 | 117.9 | 119.3 | 24 | 113.7 | 115.6 | 117.3 | 24 | --- | --- | --- | 0 |
| 8/23 | 114.3 | 115.0 | 115.3 | 24 | 108.0 | 108.5 | 108.8 | 24 | 116.1 | 117.8 | 119.1 | 24 | 113.5 | 116.0 | 118.3 | 24 | --- | --- | --- | 0 |
| 8/24 | 115.8 | 116.5 | 116.9 | 24 | 109.6 | 110.3 | 110.8 | 24 | 116.1 | 117.8 | 119.3 | 24 | 113.6 | 116.0 | 118.2 | 24 | --- | --- | --- | 0 |
| 8/25 | 116.0 | 116.4 | 117.1 | 24 | 110.9 | 111.0 | 111.2 | 24 | 115.9 | 117.3 | 118.4 | 24 | 112.6 | 114.4 | 116.2 | 24 | --- | --- | --- | 0 |

# Two-Week Summary of Passage Indices

Source: Fish Passage Center Updated: 8/26/2011 9:52

## 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 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | WTB | IMN | GRN | LEW | LGR | LGS | LMN | RIS | MCN | JDA | BO2 |
| Date | | (Coll) | (Coll) | (Coll) | (Coll) | (INDEX) | (INDEX) | (INDEX) | (INDEX) | (INDEX) | (INDEX) | (INDEX) |
| 08/12/2011 | | --- | --- | --- | --- | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08/13/2011 | | --- | --- | --- | --- | 0 | 0 | 36 | 0 | 0 | 0 | 0 |
| 08/14/2011 | | --- | --- | --- | --- | 0 | 0 | 21 | 0 | 0 | 0 | 0 |
| 08/15/2011 | | --- | --- | --- | --- | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08/16/2011 | | --- | --- | --- | --- | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| 08/17/2011 | | --- | --- | --- | --- | 0 | 0 | 0 | 0 | 20 | 0 | 0 |
| 08/18/2011 | | --- | --- | --- | --- | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 08/19/2011 | | --- | --- | --- | --- | 0 | 0 | 4 | 0 | 0 | 0 | 16 |
| 08/20/2011 | | --- | --- | --- | --- | 0 | 0 | 10 | 0 | 0 | 0 | 0 |
| 08/21/2011 | | --- | --- | --- | --- | 0 | 0 | 6 | 0 | 0 | 0 | 0 |
| 08/22/2011 | | --- | --- | --- | --- | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 08/23/2011 | | --- | --- | --- | --- | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 08/24/2011 | * | --- | --- | --- | --- | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08/25/2011 | | --- | --- | --- | --- | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 08/26/2011 | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Total:** | | **0** | **0** | **0** | **0** | **0** | **0** | **90** | **0** | **20** | **0** | **28** |
| **# Days:** | | **0** | **0** | **0** | **0** | **14** | **14** | **14** | **14** | **14** | **14** | **14** |
| **Average:** | | **0** | **0** | **0** | **0** | **0** | **0** | **6** | **0** | **1** | **0** | **2** |
| **YTD** | | **31,090** | **30,210** | **12,492** | **18,836** | **3,831,084** | **2,528,593** | **1,236,899** | **26,463** | **1,979,496** | **2,936,420** | **1,322,304** |

| | | | | COMBINED SUBYEARLING CHINOOK | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | WTB | IMN | GRN | LEW | LGR | LGS | LMN | RIS | MCN | JDA | BO2 |
| Date | | (Coll) | (Coll) | (Coll) | (Coll) | (INDEX) | (INDEX) | (INDEX) | (INDEX) | (INDEX) | (INDEX) | (INDEX) |
| 08/12/2011 | | --- | --- | --- | --- | 614 | 283 | 299 | 129 | 34,039 | 13,607 | 4,118 |
| 08/13/2011 | | --- | --- | --- | --- | 726 | 192 | 1,065 | 84 | 23,582 | 13,215 | 4,377 |
| 08/14/2011 | | --- | --- | --- | --- | 997 | 269 | 821 | 80 | 13,175 | 3,811 | 937 |
| 08/15/2011 | | --- | --- | --- | --- | 779 | 245 | 327 | 100 | 8,372 | 6,340 | 188 |
| 08/16/2011 | | --- | --- | --- | --- | 1,081 | 182 | 174 | 73 | 9,562 | 6,277 | 703 |
| 08/17/2011 | | --- | --- | --- | --- | 318 | 472 | 231 | 86 | 24,490 | 7,417 | 2,126 |
| 08/18/2011 | | --- | --- | --- | --- | 294 | 516 | 198 | 155 | 22,511 | 5,197 | 1,894 |
| 08/19/2011 | | --- | --- | --- | --- | 297 | 304 | 214 | 111 | 17,910 | 7,156 | 3,943 |
| 08/20/2011 | | --- | --- | --- | --- | 582 | 357 | 305 | 117 | 20,484 | 7,838 | 1,764 |
| 08/21/2011 | | --- | --- | --- | --- | 348 | 772 | 438 | 89 | 11,652 | 5,980 | 1,682 |
| 08/22/2011 | | --- | --- | --- | --- | 292 | 486 | 438 | 60 | 10,500 | 6,484 | 2,341 |
| 08/23/2011 | | --- | --- | --- | --- | 230 | 474 | 521 | 70 | 12,598 | 5,007 | 1,640 |
| 08/24/2011 | * | --- | --- | --- | --- | 196 | 411 | 235 | 24 | 24,270 | 6,547 | 2,478 |
| 08/25/2011 | | --- | --- | --- | --- | 134 | 252 | 162 | 23 | 20,845 | 8,730 | 3,452 |
| 08/26/2011 | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Total:** | | **0** | **0** | **0** | **0** | **6,888** | **5,215** | **5,428** | **1,201** | **253,990** | **103,606** | **31,643** |
| **# Days:** | | **0** | **0** | **0** | **0** | **14** | **14** | **14** | **14** | **14** | **14** | **14** |
| **Average:** | | **0** | **0** | **0** | **0** | **492** | **373** | **388** | **86** | **18,142** | **7,400** | **2,260** |
| **YTD** | | **9** | **38** | **12** | **163** | **1,156,428** | **1,358,258** | **368,653** | **30,944** | **5,570,841** | **3,273,512** | **5,178,329** |

# Two-Week Summary of Passage Indices

| | | | | COMBINED COHO | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | WTB | IMN | GRN | LEW | LGR | LGS | LMN | RIS | MCN | JDA | BO2 |
| Date | | (Coll) | (Coll) | (Coll) | (Coll) | (INDEX) | (INDEX) | (INDEX) | (INDEX) | (INDEX) | (INDEX) | (INDEX) |
| 08/12/2011 | | --- | --- | --- | --- | 8 | 20 | 22 | 0 | 51 | 57 | 0 |
| 08/13/2011 | | --- | --- | --- | --- | 32 | 11 | 21 | 0 | 0 | 0 | 32 |
| 08/14/2011 | | --- | --- | --- | --- | 28 | 13 | 28 | 0 | 51 | 0 | 0 |
| 08/15/2011 | | --- | --- | --- | --- | 30 | 11 | 8 | 0 | 0 | 0 | 0 |
| 08/16/2011 | | --- | --- | --- | --- | 7 | 10 | 6 | 1 | 20 | 0 | 0 |
| 08/17/2011 | | --- | --- | --- | --- | 7 | 9 | 7 | 0 | 0 | 0 | 0 |
| 08/18/2011 | | --- | --- | --- | --- | 6 | 6 | 6 | 0 | 0 | 0 | 0 |
| 08/19/2011 | | --- | --- | --- | --- | 4 | 17 | 12 | 0 | 0 | 0 | 0 |
| 08/20/2011 | | --- | --- | --- | --- | 20 | 13 | 4 | 0 | 0 | 72 | 0 |
| 08/21/2011 | | --- | --- | --- | --- | 11 | 16 | 2 | 0 | 0 | 0 | 0 |
| 08/22/2011 | | --- | --- | --- | --- | 10 | 26 | 4 | 0 | 0 | 24 | 0 |
| 08/23/2011 | | --- | --- | --- | --- | 6 | 13 | 4 | 0 | 0 | 0 | 25 |
| 08/24/2011 | * | --- | --- | --- | --- | 4 | 20 | 7 | 0 | 0 | 0 | 0 |
| 08/25/2011 | | --- | --- | --- | --- | 10 | 19 | 5 | 0 | 0 | 0 | 0 |
| 08/26/2011 | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Total:** | | **0** | **0** | **0** | **0** | **183** | **204** | **136** | **1** | **122** | **153** | **57** |
| **# Days:** | | **0** | **0** | **0** | **0** | **14** | **14** | **14** | **14** | **14** | **14** | **14** |
| **Average:** | | **0** | **0** | **0** | **0** | **13** | **15** | **10** | **0** | **9** | **11** | **4** |
| **YTD** | | **0** | **0** | **0** | **218** | **83,818** | **81,710** | **19,908** | **46,400** | **188,189** | **477,004** | **439,931** |

| | | | | COMBINED STEELHEAD | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | WTB | IMN | GRN | LEW | LGR | LGS | LMN | RIS | MCN | JDA | BO2 |
| Date | | (Coll) | (Coll) | (Coll) | (Coll) | (INDEX) | (INDEX) | (INDEX) | (INDEX) | (INDEX) | (INDEX) | (INDEX) |
| 08/12/2011 | | --- | --- | --- | --- | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08/13/2011 | | --- | --- | --- | --- | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08/14/2011 | | --- | --- | --- | --- | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 08/15/2011 | | --- | --- | --- | --- | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08/16/2011 | | --- | --- | --- | --- | 7 | 0 | 4 | 1 | 20 | 0 | 0 |
| 08/17/2011 | | --- | --- | --- | --- | 0 | 3 | 0 | 1 | 0 | 0 | 0 |
| 08/18/2011 | | --- | --- | --- | --- | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08/19/2011 | | --- | --- | --- | --- | 0 | 0 | 4 | 0 | 0 | 0 | 0 |
| 08/20/2011 | | --- | --- | --- | --- | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08/21/2011 | | --- | --- | --- | --- | 2 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08/22/2011 | | --- | --- | --- | --- | 2 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08/23/2011 | | --- | --- | --- | --- | 0 | 3 | 0 | 0 | 0 | 0 | 0 |
| 08/24/2011 | * | --- | --- | --- | --- | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08/25/2011 | | --- | --- | --- | --- | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 08/26/2011 | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Total:** | | **0** | **0** | **0** | **0** | **14** | **7** | **8** | **6** | **20** | **0** | **0** |
| **# Days:** | | **0** | **0** | **0** | **0** | **14** | **14** | **14** | **14** | **14** | **14** | **14** |
| **Average:** | | **0** | **0** | **0** | **0** | **1** | **1** | **1** | **0** | **1** | **0** | **0** |
| **YTD** | | **1,080** | **13,882** | **4,071** | **2,934** | **4,118,584** | **2,033,086** | **838,177** | **28,471** | **608,082** | **2,620,215** | **246,497** |

# Two-Week Summary of Passage Indices

| | | | | COMBINED SOCKEYE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | WTB | IMN | GRN | LEW | LGR | LGS | LMN | RIS | MCN | JDA | BO2 |
| Date | | (Coll) | (Coll) | (Coll) | (Coll) | (INDEX) | (INDEX) | (INDEX) | (INDEX) | (INDEX) | (INDEX) | (INDEX) |
| 08/12/2011 | | --- | --- | --- | --- | 0 | 0 | 0 | 10 | 102 | 0 | 0 |
| 08/13/2011 | | --- | --- | --- | --- | 5 | 0 | 0 | 1 | 0 | 82 | 0 |
| 08/14/2011 | | --- | --- | --- | --- | 0 | 3 | 0 | 9 | 103 | 0 | 0 |
| 08/15/2011 | | --- | --- | --- | --- | 0 | 6 | 8 | 0 | 102 | 0 | 0 |
| 08/16/2011 | | --- | --- | --- | --- | 7 | 0 | 0 | 3 | 20 | 24 | 0 |
| 08/17/2011 | | --- | --- | --- | --- | 7 | 3 | 4 | 10 | 82 | 0 | 0 |
| 08/18/2011 | | --- | --- | --- | --- | 0 | 3 | 0 | 3 | 20 | 47 | 0 |
| 08/19/2011 | | --- | --- | --- | --- | 4 | 1 | 0 | 2 | 248 | 24 | 0 |
| 08/20/2011 | | --- | --- | --- | --- | 3 | 4 | 0 | 3 | 123 | 24 | 25 |
| 08/21/2011 | | --- | --- | --- | --- | 2 | 1 | 0 | 4 | 124 | 24 | 0 |
| 08/22/2011 | | --- | --- | --- | --- | 0 | 3 | 0 | 0 | 82 | 47 | 12 |
| 08/23/2011 | | --- | --- | --- | --- | 0 | 4 | 0 | 3 | 0 | 96 | 0 |
| 08/24/2011 | * | --- | --- | --- | --- | 0 | 4 | 0 | 0 | 82 | 0 | 43 |
| 08/25/2011 | | --- | --- | --- | --- | 0 | 0 | 0 | 3 | 0 | 72 | 19 |
| 08/26/2011 | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Total:** | | **0** | **0** | **0** | **0** | **28** | **32** | **12** | **51** | **1,088** | **440** | **99** |
| **# Days:** | | **0** | **0** | **0** | **0** | **14** | **14** | **14** | **14** | **14** | **14** | **14** |
| **Average:** | | **0** | **0** | **0** | **0** | **2** | **2** | **1** | **4** | **78** | **31** | **7** |
| **YTD** | | **0** | **0** | **1** | **0** | **119,347** | **44,440** | **31,325** | **18,750** | **325,516** | **363,924** | **114,007** |

| | | | | COMBINED LAMPREY JUVENILES | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | WTB | IMN | GRN | LEW | LGR† | LGS | LMN | RIS | MCN | JDA | BO2 |
| Date | | (Coll) | (Coll) | (Coll) | (Coll) | (Coll) | (Coll) | (Coll) | (Coll) | (Coll) | (Coll) | (Coll) |
| 08/12/2011 | | --- | --- | --- | --- | 0 | 8 | 0 | 1 | 25 | 153 | 0 |
| 08/13/2011 | | --- | --- | --- | --- | 0 | 2 | 0 | 0 | 75 | 86 | 0 |
| 08/14/2011 | | --- | --- | --- | --- | 0 | 1 | 0 | 1 | 0 | 86 | 0 |
| 08/15/2011 | | --- | --- | --- | --- | 0 | 8 | 0 | 0 | 0 | 217 | 0 |
| 08/16/2011 | | --- | --- | --- | --- | 1 | 14 | 0 | 0 | 70 | 134 | 0 |
| 08/17/2011 | | --- | --- | --- | --- | 0 | 6 | 0 | 0 | 60 | 83 | 8 |
| 08/18/2011 | | --- | --- | --- | --- | 0 | 1 | 0 | 0 | 80 | 17 | 4 |
| 08/19/2011 | | --- | --- | --- | --- | 0 | 4 | 0 | 0 | 120 | 100 | 4 |
| 08/20/2011 | | --- | --- | --- | --- | 0 | 0 | 0 | 1 | 120 | 34 | 0 |
| 08/21/2011 | | --- | --- | --- | --- | 0 | 1 | 0 | 0 | 100 | 116 | 0 |
| 08/22/2011 | | --- | --- | --- | --- | 0 | 9 | 0 | 0 | 40 | 100 | 0 |
| 08/23/2011 | | --- | --- | --- | --- | 1 | 0 | 0 | 0 | 40 | 67 | 0 |
| 08/24/2011 | * | --- | --- | --- | --- | 3 | 1 | 0 | 0 | 120 | 67 | 12 |
| 08/25/2011 | | --- | --- | --- | --- | 5 | 1 | 0 | 1 | 120 | 67 | 4 |
| 08/26/2011 | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Total:** | | **0** | **0** | **0** | **0** | **10** | **56** | **0** | **4** | **970** | **1,327** | **32** |
| **# Days:** | | **0** | **0** | **0** | **0** | **14** | **14** | **14** | **14** | **14** | **14** | **14** |
| **Average:** | | **0** | **0** | **0** | **0** | **1** | **4** | **0** | **0** | **69** | **95** | **2** |
| **YTD** | | **0** | **0** | **0** | **0** | **10,548** | **17,621** | **746** | **326** | **163,862** | **494,338** | **26,042** |

* 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, and pacific lamprey macropthalmia.
† 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

# Two-Week Summary of Passage Indices

**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/Washington Dept. of Fish and Wildlife.
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.

# Two Week Transportation Summary

Source: Fish Passage Center Updated: 8/26/11 9:45 AM

**08/12/11 TO 08/26/11**

| | | Species | | | | | |
|---|---|---|---|---|---|---|---|
| Site | Data | **CH0** | **CH1** | CO | ST | SO | **Grand Total** |
| **LGR** | Sum of NumberCollected | 2,602 | | 77 | 4 | 8 | 2,691 |
| | Sum of NumberBarged | 1,380 | | 43 | 0 | 2 | 1,425 |
| | Sum of NumberBypassed | 1 | | 0 | 2 | 0 | 3 |
| | Sum of Numbertrucked | 1,157 | | 33 | 2 | 5 | 1,197 |
| | Sum of SampleMorts | 49 | | 0 | 0 | 1 | 50 |
| | Sum of FacilityMorts | 0 | | 1 | 0 | 0 | 1 |
| | Sum of ResearchMorts | 15 | | 0 | 0 | 0 | 15 |
| | Sum of TotalProjectMorts | 64 | | 1 | 0 | 1 | 66 |
| **LGS** | Sum of NumberCollected | 3,631 | | 142 | 5 | 23 | 3,801 |
| | Sum of NumberBarged | 313 | | 22 | 0 | 0 | 335 |
| | Sum of NumberBypassed | 1 | | 0 | 0 | 0 | 1 |
| | Sum of Numbertrucked | 2,830 | | 103 | 4 | 14 | 2,951 |
| | Sum of SampleMorts | 105 | | 1 | 0 | 5 | 111 |
| | Sum of FacilityMorts | 55 | | 0 | 0 | 1 | 56 |
| | Sum of ResearchMorts | 0 | | 0 | 0 | 0 | 0 |
| | Sum of TotalProjectMorts | 160 | | 1 | 0 | 6 | 167 |
| **LMN** | Sum of NumberCollected | 2,932 | 49 | 74 | 4 | 6 | 3,065 |
| | Sum of NumberBarged | 1,354 | 32 | 42 | 0 | 3 | 1,431 |
| | Sum of NumberBypassed | 32 | 0 | 0 | 2 | 0 | 34 |
| | Sum of Numbertrucked | 1,460 | 17 | 25 | 0 | 2 | 1,504 |
| | Sum of SampleMorts | 40 | 0 | 5 | 0 | 0 | 45 |
| | Sum of FacilityMorts | 46 | 0 | 2 | 0 | 1 | 49 |
| | Sum of ResearchMorts | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum of TotalProjectMorts | 86 | 0 | 7 | 0 | 1 | 94 |
| **MCN** | Sum of NumberCollected | 123,895 | 10 | 60 | 10 | 530 | 124,505 |
| | Sum of NumberBarged | 27,595 | 0 | 60 | 8 | 108 | 27,771 |
| | Sum of NumberBypassed | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum of Numbertrucked | 95,595 | 9 | 0 | 0 | 419 | 96,023 |
| | Sum of SampleMorts | 37 | 0 | 0 | 0 | 0 | 37 |
| | Sum of FacilityMorts | 668 | 1 | 0 | 2 | 3 | 674 |
| | Sum of ResearchMorts | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum of TotalProjectMorts | 705 | 1 | 0 | 2 | 3 | 711 |
| Total Sum of NumberCollected | | 133,060 | 59 | 353 | 23 | 567 | 134,062 |
| Total Sum of NumberBarged | | 30,642 | 32 | 167 | 8 | 113 | 30,962 |
| Total Sum of NumberBypassed | | 34 | 0 | 0 | 4 | 0 | 38 |
| Total Sum of Numbertrucked | | 101,042 | 26 | 161 | 6 | 440 | 101,675 |
| Total Sum of SampleMorts | | 231 | 0 | 6 | 0 | 6 | 243 |
| Total Sum of FacilityMorts | | 769 | 1 | 3 | 2 | 5 | 780 |
| Total Sum of ResearchMorts | | 15 | 0 | 0 | 0 | 0 | 15 |
| Total Sum of TotalProjectMorts | | 1,015 | 1 | 9 | 2 | 11 | 1,038 |

# YTD Transportation Summary

Source: Fish Passage Center Updated: 8/26/11 9:45 AM

**TO: 08/26/11**

| | | Species | | | | | |
|---|---|---|---|---|---|---|---|
| Site | Data | **CH0** | **CH1** | CO | SO | ST | **Grand Total** |
| **LGR** | Sum of NumberCollected | 727,100 | 2,716,906 | 54,605 | 78,049 | 2,713,301 | 6,289,961 |
| | Sum of NumberBarged | 641,690 | 1,705,111 | 40,040 | 35,412 | 1,437,012 | 3,859,265 |
| | Sum of NumberBypassed | 81,889 | 1,009,672 | 14,509 | 42,055 | 1,275,911 | 2,424,036 |
| | Sum of NumberTrucked | 1,157 | 0 | 33 | 5 | 2 | 1,197 |
| | Sum of SampleMorts | 285 | 101 | 2 | 73 | 41 | 502 |
| | Sum of FacilityMorts | 2,049 | 1,781 | 21 | 504 | 272 | 4,627 |
| | Sum of ResearchMorts | 30 | 241 | 0 | 0 | 58 | 329 |
| | Sum of TotalProjectMorts | 2,364 | 2,123 | 23 | 577 | 371 | 5,458 |
| **LGS** | Sum of NumberCollected | 732,123 | 1,449,324 | 41,450 | 24,284 | 1,132,401 | 3,379,582 |
| | Sum of NumberBarged | 725,204 | 1,344,369 | 40,927 | 18,893 | 893,350 | 3,022,743 |
| | Sum of NumberBypassed | 93 | 103,168 | 401 | 5,227 | 238,633 | 347,522 |
| | Sum of NumberTrucked | 2,830 | 0 | 103 | 14 | 4 | 2,951 |
| | Sum of SampleMorts | 359 | 52 | 1 | 14 | 10 | 436 |
| | Sum of FacilityMorts | 3,310 | 1,735 | 2 | 133 | 403 | 5,583 |
| | Sum of ResearchMorts | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum of TotalProjectMorts | 3,669 | 1,787 | 3 | 147 | 413 | 6,019 |
| **LMN** | Sum of NumberCollected | 248,267 | 854,178 | 13,199 | 21,051 | 565,777 | 1,702,472 |
| | Sum of NumberBarged | 236,788 | 636,755 | 12,003 | 18,832 | 459,659 | 1,364,037 |
| | Sum of NumberBypassed | 8,555 | 215,901 | 1,254 | 1,964 | 103,439 | 331,113 |
| | Sum of NumberTrucked | 1,460 | 17 | 25 | 2 | 0 | 1,504 |
| | Sum of SampleMorts | 86 | 3 | 6 | 0 | 5 | 100 |
| | Sum of FacilityMorts | 1,378 | 1,499 | 13 | 253 | 872 | 4,015 |
| | Sum of ResearchMorts | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum of TotalProjectMorts | 1,464 | 1,502 | 19 | 253 | 877 | 4,115 |
| **MCN** | Sum of NumberCollected | 2,288,357 | 952,682 | 71,790 | 136,464 | 295,989 | 3,745,282 |
| | Sum of NumberBarged | 1,060,689 | 24 | 260 | 2,793 | 108 | 1,063,874 |
| | Sum of NumberBypassed | 975,593 | 949,771 | 71,277 | 132,464 | 295,663 | 2,424,768 |
| | Sum of NumberTrucked | 210,468 | 9 | 75 | 792 | 0 | 211,344 |
| | Sum of SampleMorts | 792 | 187 | 8 | 41 | 13 | 1,041 |
| | Sum of FacilityMorts | 40,815 | 2,691 | 170 | 374 | 205 | 44,255 |
| | Sum of ResearchMorts | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum of TotalProjectMorts | 41,607 | 2,878 | 178 | 415 | 218 | 45,296 |
| Total Sum of NumberCollected | | 3,995,847 | 5,973,090 | 181,044 | 259,848 | 4,707,468 | 15,117,297 |
| Total Sum of NumberBarged | | 2,664,371 | 3,686,259 | 93,230 | 75,930 | 2,790,129 | 9,309,919 |
| Total Sum of NumberBypassed | | 1,066,130 | 2,278,512 | 87,441 | 181,710 | 1,913,646 | 5,527,439 |
| Total Sum of NumberTrucked | | 215,915 | 26 | 236 | 813 | 6 | 216,996 |
| Total Sum of SampleMorts | | 1,522 | 343 | 17 | 128 | 69 | 2,079 |
| Total Sum of FacilityMorts | | 47,552 | 7,706 | 206 | 1,264 | 1,752 | 58,480 |
| Total Sum of ResearchMorts | | 30 | 241 | 0 | 0 | 58 | 329 |
| Total Sum of TotalProjectMorts | | 49,104 | 8,290 | 223 | 1,392 | 1,879 | 60,888 |

**Cumulative Adult Passage at Mainstem Dams Through: 08/25**

| | | Spring Chinook | | | | | | Summer Chinook | | | | | | Fall Chinook | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2011 | | 2010 | | 10-Yr Avg. | | 2011 | | 2010 | | 10-Yr Avg. | | 2011 | | 2010 | | 10-Yr Avg. | |
| DAM | EndDate | Adult | Jack | Adult | Jack | Adult | Jack | Adult | Jack | Adult | Jack | Adult | Jack | Adult | Jack | Adult | Jack | Adult | Jack |
| BON | 08/25 | 167097 | 50945 | 244384 | 12612 | 174444 | 16431 | 108279 | 51451 | 97604 | 15603 | 89217 | 13568 | 31343 | 6544 | 32227 | 4275 | 31164 | 4726 |
| TDA | 08/25 | 124164 | 40146 | 189839 | 11546 | 130174 | 13470 | 81127 | 39844 | 81292 | 12528 | 78252 | 10628 | 17622 | 4359 | 13549 | 2163 | 13636 | 2496 |
| JDA | 08/25 | 103401 | 39823 | 179446 | 11794 | 110572 | 12004 | 74073 | 34571 | 70955 | 12475 | 71151 | 11642 | 10292 | 3406 | 5866 | 1198 | 7189 | 2020 |
| MCN | 08/25 | 101245 | 31750 | 153500 | 9185 | 102003 | 11175 | 74621 | 28165 | 66526 | 8063 | 67398 | 9237 | 7920 | 1787 | 3919 | 644 | 4792 | 1009 |
| IHR | 08/25 | 69306 | 18161 | 101188 | 6047 | 70295 | 6879 | 26758 | 12378 | 29583 | 3503 | 17776 | 3412 | 2261 | 274 | 1203 | 176 | 891 | 156 |
| LMN | 08/25 | 69832 | 18094 | 97334 | 5898 | 69566 | 5561 | 31176 | 13730 | 35097 | 4362 | 18759 | 3055 | 1429 | 192 | 619 | 95 | 589 | 185 |
| LGS | 08/25 | 67321 | 23492 | 92985 | 5461 | 64800 | 6145 | 42211 | 18214 | 32410 | 3968 | 15770 | 3504 | 1378 | 135 | 474 | 80 | 363 | 55 |
| LGR | 08/25 | 59342 | 22063 | 94203 | 6409 | 65342 | 7745 | 36764 | 16425 | 28778 | 5294 | 14778 | 4385 | 889 | 117 | 376 | 104 | 234 | 69 |
| PRD | 08/22 | 15246 | 6030 | 30539 | 932 | 20141 | 818 | 50865 | 4223 | 49265 | 1217 | 58614 | 2426 | 2251 | 517 | 1143 | 408 | 1950 | 523 |
| RIS | 08/24 | 13089 | 8394 | 29684 | 1513 | 17327 | 1572 | 44432 | 14299 | 47220 | 4018 | 55301 | 5331 | 1479 | 858 | 803 | 337 | 1215 | 342 |
| RRH | 08/24 | 6989 | 3491 | 8660 | 523 | 6536 | 525 | 38861 | 8131 | 34173 | 1724 | 42074 | 4056 | 992 | 477 | 763 | 130 | 851 | 188 |
| WEL | 08/23 | 4153 | 3969 | 7596 | 661 | 5414 | 510 | 28540 | 8072 | 26387 | 1692 | 30704 | 1976 | 0 | 0 | 0 | 0 | 0 | 0 |
| WFA | 08/23 | 43748 | 1399 | 65293 | 1758 | 51657 | 1104 | - | - | - | - | - | - | 79 | 7 | 37 | 4 | 62 | - |

| | Coho | | | | | | Sockeye | | | Steelhead | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2011 | | 2010 | | 10-Yr Avg. | | 2011 | 2010 | 10-Yr Avg. | 2011 | 2010 | 10-Yr Avg. | Wild 2011 |
| DAM | Adult | Jack | Adult | Jack | Adult | Jack | | | | | | | |
| BON | 6532 | 487 | 1255 | 107 | 3049 | 303 | 185793 | 386515 | 123897 | 262442 | 304102 | 269605 | 101370 |
| TDA | 1609 | 347 | 68 | 13 | 273 | 73 | 138286 | 325123 | 105743 | 176598 | 152887 | 106656 | 73093 |
| JDA | 902 | 241 | 8 | 5 | 117 | 50 | 143132 | 324110 | 110243 | 118506 | 104512 | 77128 | 50430 |
| MCN | 189 | 60 | 3 | 0 | 9 | 3 | 113936 | 278794 | 91599 | 99328 | 86146 | 54470 | 38541 |
| IHR | 1 | 0 | 0 | 0 | 0 | 0 | 1139 | 1302 | 280 | 56387 | 55592 | 29645 | 17155 |
| LMN | 0 | 1 | 0 | 0 | 0 | 0 | 1394 | 1653 | 349 | 46671 | 49001 | 26362 | 16116 |
| LGS | 0 | 0 | 0 | 0 | 0 | 0 | 1435 | 1653 | 335 | 31822 | 30966 | 16682 | 12648 |
| LGR | 0 | 0 | 0 | 0 | 0 | 0 | 1498 | 2154 | 427 | 31344 | 33804 | 19673 | 13291 |
| PRD | 0 | 0 | 0 | 0 | 16 | 0 | 145064 | 357056 | 115334 | 7544 | 15621 | 7629 | 0 |
| RIS | 0 | 0 | 0 | 0 | 0 | 0 | 146084 | 338274 | 111616 | 6381 | 12057 | 6552 | 3461 |
| RRH | 0 | 0 | 0 | 0 | 1 | 0 | 132072 | 295591 | 88115 | 4514 | 8801 | 4772 | 2430 |
| WEL | 0 | 0 | 0 | 0 | 0 | 0 | 111444 | 291677 | 88267 | 2069 | 4607 | 2541 | 1032 |
| WFA | 61 | 128 | 45 | 63 | 8 | 10 | - | - | - | 27386 | 31807 | 28207 | - |

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.

Page last updated on: 08/26/11

BON counts from January 1, 2011 to March 14, 2011 (historical counts begin March 15):

| Year | Chinook Adult | Chinook Jack | Steelhead | Wild Steelhead |
|---|---|---|---|---|
| 2011 | 49 | 1 | 1,419 | 600 |
| 2010 | 39 | 0 | 2,318 | 657 |