# Fish Passage Center

# Weekly Report #13 - 12

June 07, 2013

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## Summary of Events:

**Water Supply**: Precipitation throughout the Columbia Basin has been below average over early June at most locations, varying between 0% and 117% of average at individual sub-basins over June. Precipitation above The Dalles has been 37% of average over June. Over the 2013 water year, precipitation has ranged between 69% and 104% of average.

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

| Location | Water Year 2013 June 1-5, 2013 | | Water Year 2013 October 1, 2012 to June 5, 2013 | |
|---|---|---|---|---|
| | Observed (inches) | % Average | Observed (inches) | % Average |
| Columbia above Coulee | 0.36 | 66 | 28.6 | 98 |
| Snake River above Ice Harbor | 0.03 | 11 | 13.6 | 74 |
| Columbia above The Dalles | 0.13 | 37 | 18.8 | 84 |
| Kootenai | 0.30 | 49 | 30.6 | 104 |
| Clark Fork | 0.48 | 117 | 16.7 | 78 |
| Flathead | 0.51 | 97 | 28.5 | 101 |
| Pend Oreille Basin | 0.49 | 106 | 23.1 | 89 |
| Snake Basin above Hells Canyon | 0.00 | 1 | 11.0 | 72 |
| Salmon River Basin | 0.05 | 11 | 15.9 | 69 |
| Clearwater | 0.21 | 42 | 29.2 | 86 |
| Willamette River above Portland | 0.00 | 0 | 53.1 | 90 |

Snowpack levels are compared to what is normally present on this date. Snowpack in the Columbia River for basins above the Snake River confluence are now at 96% of average. For Snake River Basins the average snowpack is now 28% of average, and for lower Columbia Basins between McNary and Bonneville Dam average snowpack is currently 17% of average.

Table 2 displays the April 7th and June 6th ESP runoff volume forecasts for multiple reservoirs. The June 6th forecast at The Dalles between January and July is 93,822 Kaf (93% of average).

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

| Location | April 7, 2013 ESP | | June 6, 2013 ESP | |
|---|---|---|---|---|
| | % Average (1971-2000) | Runoff Volume (Kaf) | % Average (1971-2000) | Runoff Volume (Kaf) |
| The Dalles (Jan–July) | 93 | 94287 | 93 | 93822 |
| Grand Coulee (Jan–July) | 101 | 60415 | 102 | 60744 |
| Libby Res. Inflow, MT (Apr–Aug) | 102 | 6001 *6189 | 108 | 6339 **6535 |
| Hungry Horse Res. Inflow, MT (Jan–July) | 99 | 2084 | 106 | 2219 |
| Lower Granite Res. Inflow (Apr–July) | 83 | 16485 | 69 | 13767 |
| Brownlee Res. Inflow (Apr–July) | 62 | 3376 | 47 | 2596 |
| Dworshak Res. Inflow (Apr–July) | 96 | 2319 *2036 | 86 | 2073 **2296 |

* Denotes COE April Forecast
** Denotes COE May Forecast

Grand Coulee Reservoir is at 1281.6 feet (6-6-13) and refilled 3.9 feet over the last week. Outflows at Grand Coulee have ranged between 139.8 and 161.4 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2427.4 feet (6-6-13) and has refilled 2.2 feet last week. Outflows at Libby Dam have decreased from 27.0 Kcfs to 22.0 Kcfs over the last week; inflows to Libby have ranged from 31.0 Kcfs to 35.7 Kcfs over the same period.

Hungry Horse is currently at an elevation of 3547.9feet (6-6-13) and has refilled 2.6 feet last week. Outflows at Hungry Horse Dam have decreased from 9.9 Kcfs to 7.6 Kcfs over the last week; inflows to Hungry Horse have ranged from 11.6 Kcfs to 14.1 Kcfs over the same period.

Dworshak is currently at an elevation of 1599.4 feet (6-6-13) and has refilled 3.5 feet last week. Outflows from Dworshak have varied over the last week, starting the week at 7.5 Kcfs for two days, reduced to 3.0 Kcfs for three days, then increased to 4.5 Kcfs for the past two days. Inflows to Dworshak have ranged between 9.0 Kcfs to 10.4 Kcfs last week.

The Brownlee Reservoir was at an elevation of 2076.1 feet on June 6th, 2013, refilling 0.6 feet over the last week. Over the last week, inflows at Brownlee have ranged between 12.7 and 16.2 Kcfs.

The Biological Opinion flow period began on April 3rd in the lower Snake River (Lower Granite). According to the April Final Water Supply Forecast, the flow objective this spring is 85 Kcfs at Lower Granite. Flows at Lower Granite Dam have averaged 69.8 Kcfs from April 3rd to June 6th. Over the last week flows at Lower Granite have averaged 65.2 Kcfs and are currently 63.7 Kcfs.

Based on the April Final Water Supply Forecast, the Spring Biological Opinion Flow Objectives will be 226 Kcfs at McNary Dam (began April 10th) and 135 Kcfs at Priest Rapids Dam (began April 10th). Flows at McNary Dam have averaged 267.2 Kcfs between April 10th and June 6th. Over the last week flows at McNary have averaged 250.9 Kcfs and are currently 266.1 Kcfs. Flows at Priest Rapids Dam have averaged 187.0 Kcfs between April 10th and June 6th. Over the last week flows have averaged 175.5 Kcfs at Priest Rapids and are currently 176.3 Kcfs.

**Spill**: Spring spill for fish passage began on April 3rd at the lower Snake River projects.

| Project | Spill Level Day/Night |
|---|---|
| Lower Granite | 20 Kcfs/20 Kcfs |
| Little Goose | 30%/30% |
| Lower Monumental | Gas Cap/Gas Cap |
| Ice Harbor | April 28–June 20: 30%/30% vs. 45 kcfs/Gas Cap |

Flow in the Snake River continued to decrease over the past week. All the lower Snake River dams met the Court Order spill levels described in the table. In the Regional Implementation Oversight Group discussions this week, it was decided that spring spill to the gas cap would continue through June 20th at Lower Monumental Dam. Earlier the COE had expressed a desire to switch to summer spill levels of 17 Kcfs beginning June 4th for performance standards testing. However, while still spilling to the gas cap, gas cap spill at Lower Monumental Dam was decreased from 29 Kcfs to 24 Kcfs to address the TDG in the Ice Harbor Dam forebay. While the tailrace TDG has been reduced to 114%, the TDG at the Ice Harbor forebay remains at 118%. Forebay monitors are usually more sensitive to local changes in temperature and primary productivity than to upstream TDG changes. In fact, for the past six days, the forebay readings for TDG at Ice Harbor Dam have exceeded the tailrace monitor readings at Ice Harbor Dam with spill occurring at the project.

Spring spill for fish passage at the Lower Columbia projects began on April 10th.

| Project | Spill Level Day/Night |
|---|---|
| McNary | 40%/40% |
| John Day | **Testing:** 30%/30% vs. 40%/40% |
| The Dalles | 40%/40% |
| Bonneville | 100 Kcfs/100 Kcfs |

Flow in the lower Columbia River has remained relatively steady over the past week. At McNary Dam spill met the Court Order spill of 40% of instantaneous flow, and was nearly 45% of instantaneous flow over the past two days due to increases in river flow. At John Day Dam the COE implemented the test conditions of 30% versus 40%. At The Dalles Dam spill met the Court Order, until yesterday when the percentage of spill was decreased to 38.5% in response to TDG readings at the Bonneville forebay monitor. At Bonneville Dam spill was increased and decreased over the past week in response to the Camas-Washougal TDG monitor. Spill was 96.5 Kcfs yesterday. The Camas Washougal TDG monitor represents a hypothetical forebay downstream of Bonneville Dam that is not a point of compliance for the TDG waiver.

In the past week, most total dissolved gas (TDG) estimates were below the 115/120% TDG standards, with the exception of the Ice Harbor and Bonneville dam forebays. Based on historic data collected since 1995 through the gas bubble trauma (GBT) monitoring program, we would not expect to see fish exhibit signs of GBT at the present TDG levels. Consistent with historic data, only three fish were sampled on June 5th with minor signs of GBT at Rock Island Dam.

**Smolt Monitoring:** Smolt monitoring is ongoing at all seven SMP dams (BON, JDA, MCN, RIS, LMN, LGS, and LGR). The Imnaha River Trap is the only trap that continues to operate for the 2013 season.

Passage of nearly all salmonid species decreased this week at BON, when compared to last week. This week's daily average passage indices for yearling Chinook, coho, sockeye, and steelhead at BON were about 4,700, 7,200, 1,150, and 1,600 per day, respectively. This week's daily average passage index for subyearling Chinook was about 4,100, which is a slight increase over last week's daily average passage index of nearly 4,000 per day. Albeit small, subyearling Chinook were the only salmonids that had increased passage at BON this week. Finally, only Pacific lamprey macropthalmia were collected at BON this week. Pacific macropthalmia were collected every day this week, with a daily average collection for the week of 65 per day.

Yearling Chinook continued to dominate the bypass sample at JDA this week. This week's daily average passage index for yearling Chinook was about 8,700 per day, which is a decrease over last week's daily average passage index of about 18,225 per day. Passage of steelhead, sockeye, and coho continued to decrease this week. This week's daily average passage indices for steelhead, sockeye, and coho at JDA were about 2,200, 2,100, and 2,000 per day, respectively. Last week's daily average passage indices were about 4,750 for steelhead, 11,000 for sockeye, and 4,300 for coho. Passage of subyearling Chinook decreased slightly this week. This week's daily average passage index for subyearling Chinook at JDA was about 1,440 per day. Last week's daily average passage index for subyearling Chinook was nearly 1,600 per day. Finally, only Pacific lamprey macropthalmia were sampled at JDA this week. Passage of Pacific lamprey macropthalmia decreased this week, when compared to last week. The daily average collection for Pacific lamprey macropthalmia this week was about 1,700 per day. Last week's daily average collection was about 6,700 per day.

Sampling at MCN for the 2013 season is every-other-day. Passage of nearly all salmonid species increased this week, when compared to last week. The largest increase in passage was for subyearling Chinook. This week's daily average passage index for subyearling Chinook at MCN was nearly 6,500 per day. Last week's daily average passage index for subyearling Chinook was only about 1,400 per day. The only salmonid species that had decreased passage at MCN this week, when compared to last week, was sockeye. This week's daily average passage index for sockeye was about 4,800 per day. Last week's daily average passage index was nearly 11,000 per day. Pacific lamprey macropthalmia continue to be the only species and life-stage of lamprey collected at MCN this season. This week's daily average collection for Pacific lamprey macropthalmia was about 950 which is a decrease from last week's daily average collection of about 3,500 per day.

Subyearling Chinook dominated the bypass samples at LGR this week. This week's daily average passage index for subyearling Chinook was about 27,200 per day, which is a significant increase over last week's daily average passage index of about 7,300 per day. Passage of yearling Chinook and steelhead decreased this week, when compared to last week. This week's daily average passage indices for yearling Chinook and steelhead at LGR were about 1,200 and 2,900 per day, respectively. Last week's daily average passage indices were about 1,500 for yearling Chinook and 5,400 for steelhead. While still relatively low, passage of coho and sockeye increased this week at LGR. This week's daily average passage indices for coho and sockeye at LGR were 120 and 55 per day, respectively. No lamprey juveniles were collected at LGR this week. Finally, due to the possible resampling of PIT-tagged research fish that are released into the gatewells, daily estimates of yearling Chinook, steelhead, and subyearling Chinook collection and passage indices may be inflated. The FPC is aware of this possible bias and is investigating ways to correct these inflated estimates after the research has ended. However, the magnitude of this bias is relatively low and is unlikely to skew estimates of timing for these two species.

Yearling Chinook, sockeye, and steelhead passage at LGS continued to decrease this week, when compared to last week. The largest decrease among these species was for sockeye. The daily average passage index for sockeye this week was about 24 per day. Last week's daily average passage index for sockeye at LGS was about 200 per day. Coho passage this week was very similar to last week. Passage of subyearling Chinook increased substantially this week. This week's daily average passage index for subyearling Chinook at LGS was about 16,000 per day. Last week's daily average passage index was only about 1,900 per day. Finally, both Pacific lamprey ammocoetes and macropthalmia were collected at LGS this week. Pacific lamprey ammocoetes were only collected on May 31st and June 2nd. Pacific lamprey macropthalmia were collected on May 31st, June 1st, and June 2nd.

Similar to LGS, passage of yearling Chinook, sockeye, and steelhead continued to decrease at LMN this week. The largest decreases in passage at LMN this week was for sockeye. This week's daily average passage index for sockeye at LMN was about 20 per day. Last week's daily average passage index for sockeye was about 120 per day. Coho passage at LMN this week was very similar to last week. As with LGR and LGS, there was a significant increase in subyearling Chinook passage at LMN this week. This week's daily average passage index for subyearling Chinook at LGS was about 2,500 per day. Last week's daily average passage index was only about 370 per day. Only Pacific lamprey macropthalmia were collected at LMN this week. This week's daily average collection for Pacific lamprey macropthalmia was 110 per day.

This week's collections at RIS continued to be dominated by coho. However, when compared to last week, coho passage decreased again this week. This week's daily average passage index for coho at RIS was about 500 per day. Last week's daily average passage index for coho was about 1,900 per day. Passage of yearling Chinook, sockeye, and steelhead also decreased this week, when compared to last week. This week's daily average passage indices for yearling Chinook, sockeye, and steelhead at RIS were about 240, 6, and 100 per day, respectively. Last week's daily average passage indices were about 415 for yearling Chinook, 66 for sockeye, and 420 for steelhead. The daily average passage index for subyearling Chinook at RIS this week was about 140 per day, which is an increase over last week's daily average passage index of only about 30 per day. Finally, only two Pacific lamprey macropthalmia were collected this week, one on June 1st and one on June 3rd.

At this time, data from the Imnaha River Trap are only available through May 30th. As with previous weeks, the Imnaha River Trap continues to collect only steelhead and yearling Chinook at this time. However, steelhead have dominated the collections in recent weeks.

**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. Approximately 725,000 subyearling fall Chinook were scheduled for release into the middle fork of the Clearwater River this week. Of this release, about 58% were unmarked and therefore will be undistinguishable from wild subyearling Chinook.

Approximately 400,000 subyearling fall Chinook juveniles are scheduled for release into the Snake River Zone on June 14th. Of these, half will be released into the South Fork of the Clearwater River, and half will be released into the Selway River. All of these smolts will be marked. There are no other new 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. There were no new releases scheduled for this zone this week. Over the next two weeks, a volitional release of approximately 3.5 million subyearling fall Chinook is scheduled to begin at the Ringold Springs Hatchery. All of these smolts will be marked. Also over the next two weeks, a volitional release of 6.7 million subyearling fall Chinook juveniles is scheduled to begin at the Priest Rapids Hatchery. Of these, approximately 2.7 million will be unmarked and therefore undistinguishable from wild subyearling Chinook.

**Lower Columbia Zone:** The Lower Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to McNary Dam. No releases were scheduled to begin this week in this zone. There is one release of approximately 3.5 million subyearling fall Chinook scheduled for the Klickitat River. This release is scheduled to begin on or around June 17th. Of this release, about 1.1 million will be unmarked and will therefore be undistinguishable from wild subyearling Chinook.

**Adult Fish Passage**

The summer Chinook count began June 1st at Bonneville Dam. Daily passage numbers at Bonneville Dam ranged between 843 and 2,231 adult summer Chinook in the last week. The 2013 summer Chinook count of 9,516 is about 82% of the 2012 count and 94% of the 10-year average. The 2013 Bonneville Dam summer Chinook jack count of 3,011 is 3.8 times greater than the 2012 count and 1.5 times greater than the 10-year average count. The 2013 adult spring Chinook count at Bonneville Dam totaled 83,345. The 2012 adult spring Chinook count at Bonneville Dam was 158,089. The 2013 adult spring Chinook count at Bonneville Dam was about 52.7% of the 2012 count and 58.8% of the of the 10-year average count of 141,713. The 2013 spring Chinook jack count of 33,820 was 4.4 times greater than the 2012 count of 7,592 and 1.7 times greater than the 10-year average count of 20,323. At Willamette Falls 18,011 adult spring Chinook have been counted so far this year. In 2012, 21,371 adult spring Chinook were counted at Willamette. This year's count is 84.3% of the 2012 count and 54.7% of the 10-year average count of 32,932. As of June 6th, a total of 69,202 adult spring Chinook have been counted at The Dalles Dam and 50,426 have been counted at McNary Dam. The Dalles Dam 2013 adult spring Chinook count is 59.1% of the 2012 count and 64.4% of the 10-year average count. The 2013 McNary Dam adult spring Chinook count is about 50.9% of the 2012 count and 61.9% of the 10-year average count.

The 2013 Bonneville Dam adult steelhead count of 3,748 is about 58.1% of the 2012 count of 6,448 and 55.4% of the 10-year average count of 6,765. The 2013 Bonneville Dam adult wild steelhead count of 985 is about 50.4% of the 2012 count of 1,953 and 59.5% of the 10-year average count of 1,655. In the Snake River, this year's Lower Granite steelhead count of 7,445 is about 83.3% of the 2012 count of 8,932 and 77.2% of the 10-year average count of 9,648. The 2013 Lower Granite Dam adult wild steelhead count of 3,235 is about 82% of the 2012 count of 3,942, while having 32 more fish than the 10-year average count of 3,203. At Willamette Falls, the 2013 count for steelhead was 11,187 as of June 1st. This year's steelhead count is about 57.2% of the 2012 count of 19,554 and about 69.6% of the 10-year average count of 16,077.

Daily adult sockeye passage numbers at Bonneville Dam ranged between 15 and 328 last week. The 2013 adult sockeye count at Bonneville Dam of 756 is about 42.1% of the 2012 count of 1,796 and about 94.1% of the 10-year average count of 803.

# Hatchery Releases Last Two Weeks

**Hatchery Release Summary**

**From: 5/24/2013 to 06/06/13**

| Agency | Hatchery | Species | Race | MigYr | NumRel | RelStart | RelEnd | RelSite | RelRiver |
|---|---|---|---|---|---|---|---|---|---|
| Nez Perce Tribe | Nez Perce Tribal Hatchery | CH0 | FA | 2013 | 725,000 | 06-03-13 | 06-14-13 | Nez Perce Tribal Hatchery | Clearwater River M F |
| **Nez Perce Tribe Total** | | | | | **725,000** | | | | |
| Oregon Dept. of Fish and Wildlife | Round Butte Hatchery | CH1 | SP | 2013 | 258,885 | 04-15-13 | 06-01-13 | Deschutes River | Deschutes River |
| **Oregon Dept. of Fish and Wildlife Total** | | | | | **258,885** | | | | |
| Washington Dept. of Fish and Wildlife | COOP | CH0 | FA | 2013 | 175 | 05-01-13 | 05-31-13 | Wenatchee River | Wenatchee River |
| Washington Dept. of Fish and Wildlife | COOP | CH0 | FA | 2013 | 225 | 05-01-13 | 05-31-13 | Above McNary Dam | Mid-Columbia River |
| Washington Dept. of Fish and Wildlife | COOP | CH0 | FA | 2013 | 4,500 | 05-01-13 | 05-31-13 | Above McNary Dam | Mid-Columbia River |
| Washington Dept. of Fish and Wildlife | COOP | CH0 | FA | 2013 | 18,975 | 05-01-13 | 05-31-13 | Yakama River | Yakima River |
| Washington Dept. of Fish and Wildlife | COOP | CH0 | SU | 2013 | 225 | 05-01-13 | 05-31-13 | Methow River | Methow River |
| Washington Dept. of Fish and Wildlife | COOP | CH0 | SU | 2013 | 225 | 05-01-13 | 05-31-13 | Similkameen Acclim Pd | Okanogan River |
| Washington Dept. of Fish and Wildlife | Eastbank Hatchery | ST | SU | 2013 | 24,000 | 04-25-13 | 06-20-13 | Blackbird Island Acc Pond | Wenatchee River |
| Washington Dept. of Fish and Wildlife | Wells Hatchery | CH0 | SU | 2013 | 484,000 | 05-15-13 | 05-31-13 | Wells Hatchery | Mid-Columbia River |
| Washington Dept. of Fish and Wildlife | Wells Hatchery | ST | SU | 2013 | 140,000 | 05-15-13 | 05-25-13 | Wells Hatchery | Mid-Columbia River |
| **Washington Dept. of Fish and Wildlife Total** | | | | | **672,325** | | | | |
| Yakama Tribe | Cascade Hatchery | CO | UN | 2013 | 65,362 | 05-01-13 | 06-14-13 | Rolfings Acclim Pond | Wenatchee River |
| Yakama Tribe | Eagle Creek NFH | CO | UN | 2013 | 102,975 | 04-15-13 | 07-01-13 | Stiles Pond | Yakima River |
| Yakama Tribe | Eagle Creek NFH | CO | UN | 2013 | 104,059 | 04-15-13 | 07-01-13 | Holmes Pond | Yakima River |
| Yakama Tribe | Eagle Creek NFH | CO | UN | 2013 | 237,043 | 04-15-13 | 07-01-13 | Easton Pond | Yakima River |
| Yakama Tribe | Prosser Acclim. Pond | CO | UN | 2013 | 124,425 | 04-15-13 | 07-01-13 | Lost Creek Acclim Pond | Yakima River |
| Yakama Tribe | Prosser Acclim. Pond | CO | UN | 2013 | 131,858 | 04-15-13 | 07-01-13 | Stiles Pond | Yakima River |
| Yakama Tribe | Prosser Acclim. Pond | CO | UN | 2013 | 322,100 | 04-01-13 | 07-01-13 | Prosser Acclim Pond | Yakima River |
| Yakama Tribe | Willard Hatchery | CO | UN | 2013 | 36,293 | 05-06-13 | 06-06-13 | Methow River | Methow River |
| Yakama Tribe | Willard Hatchery | CO | UN | 2013 | 42,298 | 04-19-13 | 06-04-13 | Winthrop Hatchery | Methow River |
| Yakama Tribe | Willard Hatchery | CO | UN | 2013 | 56,507 | 05-09-13 | 06-14-13 | Coulter Creek | Wenatchee River |
| Yakama Tribe | Willard Hatchery | CO | UN | 2013 | 59,798 | 05-01-13 | 06-14-13 | Rolfings Acclim Pond | Wenatchee River |
| Yakama Tribe | Willard Hatchery | CO | UN | 2013 | 109,826 | 05-01-13 | 06-14-13 | Wenatchee River | Wenatchee River |
| Yakama Tribe | Winthrop NFH | CO | UN | 2013 | 253,091 | 04-22-13 | 06-09-13 | Winthrop Hatchery | Methow River |
| **Yakama Tribe Total** | | | | | **1,645,635** | | | | |
| **Grand Total** | | | | | **3,301,845** | | | | |

# Hatchery Releases Next Two Weeks

**Hatchery Release Summary**

**From: 6/7/2013 to 6/20/2013**

| Agency | Hatchery | Species | Race | MigYr | NumRel | RelStart | RelEnd | RelSite | RelRiver |
|---|---|---|---|---|---|---|---|---|---|
| Nez Perce Tribe | Nez Perce Tribal Hatchery | CH0 | FA | 2013 | 200,000 | 06-14-13 | 06-14-13 | Cedar Flats Acclim. | Selway River |
| Nez Perce Tribe | Nez Perce Tribal Hatchery | CH0 | FA | 2013 | 200,000 | 06-14-13 | 06-14-13 | Lukes Gulch Acclim. | S Fk Clearwater River |
| Nez Perce Tribe | Nez Perce Tribal Hatchery | CH0 | FA | 2013 | 725,000 | 06-03-13 | 06-14-13 | Nez Perce Tribal Hatchery | Clearwater River M F |
| **Nez Perce Tribe Total** | | | | | **1,125,000** | | | | |
| Washington Dept. of Fish and Wildlife | Eastbank Hatchery | ST | SU | 2013 | 24,000 | 04-25-13 | 06-20-13 | Blackbird Island Acc Pond | Wenatchee River |
| Washington Dept. of Fish and Wildlife | Priest Rapids Hatchery | CH0 | FA | 2013 | 6,700,000 | 06-10-13 | 06-20-13 | Priest Rapids Hatchery | Mid-Columbia River |
| Washington Dept. of Fish and Wildlife | Ringold Springs Hatchery | CH0 | FA | 2013 | 3,450,000 | 06-20-13 | 07-15-13 | Ringold Springs Hatchery | Mid-Columbia River |
| **Washington Dept. of Fish and Wildlife Total** | | | | | **10,174,000** | | | | |
| Yakama Tribe | Cascade Hatchery | CO | UN | 2013 | 65,362 | 05-01-13 | 06-14-13 | Rolfings Acclim Pond | Wenatchee River |
| Yakama Tribe | Eagle Creek NFH | CO | UN | 2013 | 102,975 | 04-15-13 | 07-01-13 | Stiles Pond | Yakima River |
| Yakama Tribe | Eagle Creek NFH | CO | UN | 2013 | 104,059 | 04-15-13 | 07-01-13 | Holmes Pond | Yakima River |
| Yakama Tribe | Eagle Creek NFH | CO | UN | 2013 | 237,043 | 04-15-13 | 07-01-13 | Easton Pond | Yakima River |
| Yakama Tribe | Klickitat Hatchery | CH0 | FA | 2013 | 3,500,000 | 06-17-13 | 06-17-13 | Klickitat Hatchery | Klickitat River |
| Yakama Tribe | Prosser Acclim. Pond | CO | UN | 2013 | 124,425 | 04-15-13 | 07-01-13 | Lost Creek Acclim Pond | Yakima River |
| Yakama Tribe | Prosser Acclim. Pond | CO | UN | 2013 | 131,858 | 04-15-13 | 07-01-13 | Stiles Pond | Yakima River |
| Yakama Tribe | Prosser Acclim. Pond | CO | UN | 2013 | 322,100 | 04-01-13 | 07-01-13 | Prosser Acclim Pond | Yakima River |
| Yakama Tribe | Willard Hatchery | CO | UN | 2013 | 56,507 | 05-09-13 | 06-14-13 | Coulter Creek | Wenatchee River |
| Yakama Tribe | Willard Hatchery | CO | UN | 2013 | 59,798 | 05-01-13 | 06-14-13 | Rolfings Acclim Pond | Wenatchee River |
| Yakama Tribe | Willard Hatchery | CO | UN | 2013 | 109,826 | 05-01-13 | 06-14-13 | Wenatchee River | Wenatchee River |
| Yakama Tribe | Winthrop NFH | CO | UN | 2013 | 253,091 | 04-22-13 | 06-09-13 | Winthrop Hatchery | Methow River |
| **Yakama Tribe Total** | | | | | **5,067,044** | | | | |
| **Grand Total** | | | | | **16,366,044** | | | | |

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

## 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 |
| 05/24/2013 | 183.1 | 3.7 | 185.0 | 21.0 | 213.4 | 36.0 | 210.3 | 41.4 | 211.1 | 20.5 | 216.5 | 82.4 | 218.0 | 96.6 |
| 05/25/2013 | 184.6 | 5.0 | 183.6 | 21.0 | 212.6 | 37.4 | 208.8 | 45.7 | 211.0 | 19.8 | 226.5 | 88.7 | 227.2 | 105.2 |
| 05/26/2013 | 182.1 | 5.0 | 182.7 | 21.0 | 207.2 | 38.3 | 206.9 | 41.8 | 209.8 | 19.6 | 218.6 | 80.9 | 220.2 | 94.4 |
| 05/27/2013 | 189.7 | 5.0 | 189.5 | 21.0 | 211.1 | 38.5 | 210.2 | 38.6 | 210.3 | 21.4 | 217.6 | 75.6 | 220.0 | 90.6 |
| 05/28/2013 | 173.6 | 1.8 | 174.4 | 12.5 | 199.0 | 28.7 | 200.7 | 36.9 | 204.8 | 20.9 | 219.2 | 77.0 | 219.7 | 103.7 |
| 05/29/2013 | 148.7 | 0.1 | 152.6 | 0.0 | 181.4 | 19.2 | 178.1 | 16.7 | 184.6 | 21.0 | 201.4 | 61.0 | 206.1 | 69.6 |
| 05/30/2013 | 106.7 | 0.1 | 107.2 | 0.0 | 132.4 | 10.0 | 137.7 | 0.0 | 145.6 | 20.8 | 160.5 | 19.4 | 160.0 | 23.3 |
| 05/31/2013 | 147.2 | 0.1 | 139.3 | 0.0 | 153.1 | 10.0 | 144.8 | 0.0 | 149.7 | 19.0 | 156.5 | 18.9 | 147.0 | 25.1 |
| 06/01/2013 | 146.6 | 0.2 | 145.9 | 0.0 | 157.1 | 10.0 | 149.2 | 0.0 | 153.9 | 14.3 | 152.8 | 22.3 | 149.5 | 26.3 |
| 06/02/2013 | 153.7 | 0.2 | 157.7 | 0.0 | 179.1 | 13.3 | 176.7 | 14.3 | 182.1 | 17.3 | 193.3 | 56.3 | 188.1 | 61.3 |
| 06/03/2013 | 148.4 | 0.1 | 148.7 | 0.0 | 160.2 | 11.3 | 160.7 | 4.8 | 168.1 | 24.1 | 180.0 | 42.9 | 181.0 | 36.6 |
| 06/04/2013 | 161.4 | 0.1 | 162.6 | 0.0 | 177.7 | 16.0 | 176.9 | 15.3 | 181.9 | 24.0 | 192.0 | 50.6 | 188.3 | 46.7 |
| 06/05/2013 | 157.3 | 0.1 | 160.5 | 0.0 | 183.2 | 11.4 | 179.3 | 17.3 | 187.2 | 38.1 | 198.5 | 60.8 | 198.1 | 51.7 |
| 06/06/2013 | 139.8 | 0.1 | 140.8 | 0.0 | 162.0 | 10.0 | 162.0 | 15.6 | 171.1 | 36.1 | 179.2 | 44.0 | 176.3 | 34.8 |

## 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 |
| 05/24/2013 | 3.9 | 0.0 | --- | --- | 71.0 | 20.5 | 69.1 | 20.8 | 70.8 | 28.1 | 73.4 | 31.8 |
| 05/25/2013 | 3.9 | 0.0 | --- | --- | 68.5 | 26.1 | 68.7 | 25.3 | 72.5 | 28.2 | 72.0 | 30.0 |
| 05/26/2013 | 3.9 | 0.0 | --- | --- | 63.8 | 20.4 | 63.1 | 18.9 | 64.9 | 28.2 | 62.7 | 18.8 |
| 05/27/2013 | 3.9 | 0.0 | --- | --- | 60.6 | 20.3 | 55.3 | 16.6 | 59.1 | 29.3 | 59.8 | 17.8 |
| 05/28/2013 | 3.9 | 0.0 | --- | --- | 65.1 | 20.4 | 65.0 | 19.5 | 67.0 | 28.7 | 66.5 | 43.0 |
| 05/29/2013 | 3.9 | 0.0 | --- | --- | 63.9 | 20.2 | 63.4 | 19.1 | 64.8 | 28.5 | 66.0 | 51.1 |
| 05/30/2013 | 7.4 | 0.0 | --- | --- | 70.1 | 20.1 | 69.2 | 20.7 | 71.1 | 28.3 | 70.9 | 51.8 |
| 05/31/2013 | 7.4 | 0.0 | --- | --- | 74.4 | 20.2 | 73.9 | 22.2 | 75.5 | 28.8 | 77.1 | 54.8 |
| 06/01/2013 | 7.5 | 0.0 | --- | --- | 69.2 | 20.2 | 67.6 | 20.3 | 68.7 | 28.2 | 68.7 | 29.3 |
| 06/02/2013 | 3.0 | 0.0 | --- | --- | 63.5 | 20.2 | 61.6 | 18.4 | 63.1 | 27.4 | 64.1 | 19.2 |
| 06/03/2013 | 3.0 | 0.0 | --- | --- | 59.4 | 20.4 | 57.7 | 17.3 | 59.9 | 26.5 | 57.7 | 40.7 |
| 06/04/2013 | 3.0 | 0.0 | --- | --- | 63.4 | 20.2 | 62.6 | 18.8 | 63.5 | 25.6 | 65.7 | 49.5 |
| 06/05/2013 | 4.5 | 0.0 | --- | --- | 62.9 | 20.2 | 63.1 | 18.9 | 64.4 | 23.3 | 64.0 | 26.5 |
| 06/06/2013 | 4.5 | 0.0 | --- | --- | 63.7 | 20.2 | 61.2 | 18.3 | 62.3 | 24.0 | 63.5 | 19.1 |

## 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 |
| 05/24/2013 | 299.3 | 144.1 | 292.8 | 117.2 | 277.1 | 110.7 | 307.9 | 98.8 | 100.5 | 96.2 |
| 05/25/2013 | 295.1 | 147.9 | 294.4 | 112.9 | 273.8 | 110.1 | 292.4 | 97.3 | 95.0 | 87.7 |
| 05/26/2013 | 297.7 | 139.2 | 299.4 | 90.1 | 282.5 | 112.9 | 307.7 | 95.5 | 106.4 | 93.4 |
| 05/27/2013 | 301.7 | 141.9 | 299.6 | 94.7 | 281.3 | 112.1 | 303.0 | 94.7 | 102.7 | 93.2 |
| 05/28/2013 | 292.6 | 133.7 | 297.9 | 119.0 | 276.1 | 109.4 | 300.3 | 93.1 | 95.1 | 99.7 |
| 05/29/2013 | 280.2 | 120.6 | 273.0 | 104.7 | 257.8 | 102.9 | 287.3 | 90.4 | 89.5 | 94.9 |
| 05/30/2013 | 256.4 | 103.6 | 254.9 | 76.1 | 238.9 | 95.7 | 260.1 | 93.1 | 65.7 | 88.9 |
| 05/31/2013 | 245.1 | 98.3 | 253.6 | 80.9 | 240.6 | 96.1 | 273.4 | 98.4 | 73.5 | 89.1 |
| 06/01/2013 | 246.6 | 98.9 | 250.2 | 99.7 | 233.3 | 93.2 | 254.0 | 99.2 | 55.7 | 86.8 |
| 06/02/2013 | 232.7 | 93.4 | 211.8 | 80.7 | 194.4 | 77.8 | 216.9 | 98.0 | 22.2 | 84.3 |
| 06/03/2013 | 264.0 | 105.9 | 265.5 | 79.6 | 253.2 | 100.8 | 264.6 | 98.1 | 67.8 | 86.3 |
| 06/04/2013 | 241.5 | 96.8 | 242.4 | 77.0 | 221.8 | 88.5 | 245.4 | 99.5 | 45.9 | 87.6 |
| 06/05/2013 | 260.1 | 116.3 | 248.8 | 99.3 | 235.3 | 93.8 | 256.3 | 98.6 | 56.2 | 89.1 |
| 06/06/2013 | 266.1 | 119.2 | 264.5 | 101.6 | 247.2 | 95.1 | 261.9 | 96.4 | 64.8 | 88.3 |

# 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Lower Granite Dam** | | | | | | | | | | | |
| | 05/28/13 | Chinook + Steelhead | 44 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| **Little Goose Dam** | | | | | | | | | | | |
| | 05/27/13 | Chinook + Steelhead | 77 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| | 06/04/13 | Chinook + Steelhead | 101 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| **Lower Monumental Dam** | | | | | | | | | | | |
| | 05/29/13 | Chinook + Steelhead | 50 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| | 06/05/13 | Chinook + Steelhead | 100 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| **McNary Dam** | | | | | | | | | | | |
| | 05/24/13 | Chinook + Steelhead | 100 | 2 | 2 | 2.00% | 0.00% | 2 | 0 | 0 | 0 |
| | 05/26/13 | Chinook + Steelhead | 100 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| | 05/30/13 | Chinook + Steelhead | 100 | 1 | 1 | 1.00% | 0.00% | 1 | 0 | 0 | 0 |
| | 06/03/13 | Chinook + Steelhead | 100 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| **Bonneville Dam** | | | | | | | | | | | |
| | 05/25/13 | Chinook + Steelhead | 88 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| | 05/28/13 | Chinook + Steelhead | 75 | 1 | 1 | 1.33% | 0.00% | 1 | 0 | 0 | 0 |
| | 06/01/13 | Chinook + Steelhead | 70 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| | 06/04/13 | Chinook + Steelhead | 54 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| **Rock Island Dam** | | | | | | | | | | | |
| | 05/26/13 | Chinook + Steelhead | 100 | 1 | 1 | 1.00% | 0.00% | 1 | 0 | 0 | 0 |
| | 05/27/13 | Chinook + Steelhead | 100 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| | 06/05/13 | Chinook + Steelhead | 100 | 3 | 3 | 3.00% | 0.00% | 3 | 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 |
| 5/24 | --- | --- | --- | 0 | --- | --- | --- | 0 | 111.3 | 111.4 | 111.6 | 24 | 107.4 | 107.6 | 107.8 | 24 | 109.1 | 109.6 | 109.7 | 24 |
| 5/25 | --- | --- | --- | 0 | --- | --- | --- | 0 | 111.5 | 111.8 | 112.0 | 24 | 107.5 | 108.0 | 108.4 | 24 | 108.5 | 108.7 | 108.8 | 24 |
| 5/26 | --- | --- | --- | 0 | --- | --- | --- | 0 | 112.1 | 112.4 | 112.6 | 24 | 107.7 | 108.1 | 108.3 | 24 | 108.9 | 109.2 | 109.5 | 24 |
| 5/27 | --- | --- | --- | 0 | --- | --- | --- | 0 | 112.8 | 113.2 | 113.3 | 24 | 108.7 | 109.2 | 109.6 | 24 | 109.3 | 109.4 | 109.7 | 24 |
| 5/28 | --- | --- | --- | 0 | --- | --- | --- | 0 | 113.4 | 113.7 | 114.0 | 24 | 108.7 | 109.0 | 109.3 | 24 | 109.8 | 110.0 | 110.1 | 24 |
| 5/29 | --- | --- | --- | 0 | --- | --- | --- | 0 | 113.5 | 113.6 | 113.8 | 24 | 108.3 | 108.8 | 109.1 | 24 | 110.1 | 110.2 | 110.2 | 24 |
| 5/30 | --- | --- | --- | 0 | --- | --- | --- | 0 | 113.3 | 113.4 | 113.6 | 24 | 106.7 | 107.1 | 107.2 | 24 | 109.9 | 110.1 | 110.2 | 24 |
| 5/31 | --- | --- | --- | 0 | --- | --- | --- | 0 | 112.3 | 112.6 | 112.8 | 24 | 107.4 | 108.6 | 108.9 | 24 | 109.7 | 110.2 | 110.4 | 24 |
| 6/1 | --- | --- | --- | 0 | --- | --- | --- | 0 | 113.1 | 113.5 | 113.9 | 24 | 108.7 | 110.1 | 111.0 | 24 | 111.1 | 111.8 | 112.1 | 24 |
| 6/2 | --- | --- | --- | 0 | --- | --- | --- | 0 | 114.1 | 114.3 | 114.5 | 24 | 109.6 | 110.6 | 111.2 | 24 | 111.4 | 111.5 | 111.7 | 24 |
| 6/3 | 99.5 | 99.8 | 99.9 | 24 | --- | --- | --- | 0 | 114.1 | 114.3 | 114.5 | 24 | 109.8 | 110.7 | 111.4 | 24 | 111.5 | 111.7 | 112.0 | 24 |
| 6/4 | 99.0 | 99.3 | 99.6 | 24 | --- | --- | --- | 0 | 114.2 | 114.5 | 115.0 | 24 | 110.4 | 111.3 | 112.1 | 24 | 111.8 | 112.2 | 112.5 | 24 |
| 6/5 | 99.8 | 100.1 | 100.3 | 24 | --- | --- | --- | 0 | 115.0 | 115.3 | 115.5 | 24 | 111.2 | 112.1 | 112.8 | 24 | 112.5 | 112.8 | 113.1 | 24 |
| 6/6 | 100.0 | 100.2 | 100.6 | 23 | --- | --- | --- | 0 | 115.4 | 115.6 | 115.9 | 23 | 111.6 | 112.5 | 113.7 | 23 | 113.0 | 113.3 | 113.5 | 23 |

## 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 |
| 5/24 | 110.0 | 110.2 | 110.2 | 24 | 108.5 | 108.7 | 109.1 | 23 | 113.2 | 113.9 | 115.1 | 23 | 111.0 | 112.0 | 112.3 | 24 | 118.6 | 119.1 | 119.3 | 24 |
| 5/25 | 109.9 | 110.1 | 110.3 | 24 | 107.9 | 108.1 | 108.2 | 22 | 113.1 | 113.7 | 115.0 | 22 | 112.0 | 112.5 | 113.0 | 24 | 119.4 | 119.6 | 119.7 | 24 |
| 5/26 | 110.0 | 110.2 | 110.3 | 24 | 108.1 | 108.4 | 108.5 | 24 | 113.4 | 113.8 | 114.1 | 24 | 112.3 | 112.6 | 113.0 | 24 | 119.2 | 119.4 | 119.6 | 24 |
| 5/27 | 110.2 | 110.3 | 110.5 | 24 | 108.3 | 108.5 | 108.7 | 21 | 113.5 | 113.9 | 114.2 | 21 | 112.7 | 112.9 | 113.0 | 24 | 119.6 | 119.8 | 119.9 | 24 |
| 5/28 | 109.6 | 109.9 | 110.4 | 24 | 108.8 | 109.2 | 109.5 | 21 | 113.1 | 114.0 | 114.4 | 21 | 112.7 | 113.0 | 113.2 | 24 | 119.3 | 120.0 | 121.0 | 24 |
| 5/29 | 109.5 | 109.7 | 110.1 | 24 | 108.7 | 108.9 | 109.3 | 20 | 111.3 | 112.1 | 112.3 | 20 | 112.5 | 113.0 | 113.2 | 24 | 116.5 | 118.6 | 118.9 | 24 |
| 5/30 | 109.8 | 110.1 | 110.6 | 24 | 107.8 | 108.1 | 108.4 | 21 | 109.4 | 109.8 | 110.1 | 21 | 110.2 | 110.4 | 110.6 | 24 | 109.8 | 110.0 | 110.4 | 24 |
| 5/31 | 108.9 | 109.5 | 110.0 | 24 | 108.1 | 108.5 | 108.6 | 21 | 109.5 | 110.1 | 110.5 | 21 | 108.3 | 108.6 | 109.2 | 24 | 107.8 | 108.1 | 108.4 | 24 |
| 6/1 | 110.3 | 110.8 | 111.1 | 24 | 109.4 | 110.1 | 110.3 | 23 | 110.8 | 111.5 | 111.8 | 23 | 109.0 | 109.9 | 110.3 | 24 | 108.4 | 109.2 | 109.6 | 24 |
| 6/2 | 110.6 | 110.9 | 111.6 | 24 | 110.7 | 111.0 | 111.9 | 22 | 112.6 | 113.1 | 113.6 | 22 | 110.3 | 110.7 | 111.0 | 24 | 113.6 | 115.3 | 115.8 | 24 |
| 6/3 | 110.5 | 110.8 | 111.0 | 24 | 110.3 | 110.5 | 110.8 | 21 | 111.9 | 112.3 | 112.7 | 21 | 111.3 | 111.8 | 112.0 | 24 | 112.3 | 113.5 | 115.0 | 24 |
| 6/4 | 110.1 | 111.1 | 111.4 | 24 | 110.6 | 111.0 | 111.2 | 24 | 113.0 | 113.3 | 113.9 | 24 | 111.1 | 111.4 | 111.7 | 24 | 115.4 | 115.9 | 116.3 | 24 |
| 6/5 | 111.6 | 111.9 | 112.1 | 24 | 111.5 | 111.8 | 112.0 | 21 | 113.3 | 113.6 | 114.1 | 21 | 112.6 | 113.2 | 113.4 | 24 | 116.8 | 117.2 | 117.5 | 24 |
| 6/6 | 112.4 | 112.6 | 112.9 | 23 | 112.0 | 112.4 | 112.6 | 22 | 113.3 | 113.7 | 114.1 | 22 | 112.5 | 112.7 | 112.9 | 23 | 116.2 | 116.8 | 117.2 | 23 |

## 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 |
| 5/24 | 112.3 | 112.8 | 113.4 | 24 | 114.5 | 115.1 | 115.5 | 24 | 112.3 | 112.4 | 112.6 | 24 | 115.7 | 116.1 | 117.1 | 24 | 113.3 | 113.8 | 114.3 | 24 |
| 5/25 | 113.2 | 114.1 | 114.6 | 24 | 115.2 | 116.1 | 116.5 | 24 | 112.6 | 112.9 | 113.3 | 24 | 116.8 | 117.2 | 118.2 | 24 | 115.4 | 116.2 | 116.7 | 24 |
| 5/26 | 113.6 | 113.7 | 114.0 | 24 | 115.5 | 115.8 | 116.0 | 24 | 113.5 | 113.8 | 114.0 | 24 | 116.4 | 116.6 | 117.6 | 24 | 115.4 | 115.8 | 116.4 | 24 |
| 5/27 | 113.8 | 114.1 | 114.3 | 24 | 115.8 | 116.2 | 116.3 | 24 | 114.1 | 114.3 | 114.5 | 24 | 116.0 | 116.5 | 116.8 | 24 | 115.3 | 115.7 | 115.9 | 24 |
| 5/28 | 114.0 | 114.8 | 115.4 | 24 | 115.9 | 116.4 | 116.7 | 24 | 114.6 | 114.8 | 115.0 | 24 | 116.1 | 116.6 | 116.7 | 24 | 115.0 | 115.8 | 116.1 | 24 |
| 5/29 | 111.7 | 113.1 | 113.4 | 24 | 114.9 | 115.5 | 115.9 | 24 | 114.6 | 114.9 | 114.9 | 24 | 114.7 | 115.0 | 115.1 | 24 | 113.7 | 114.2 | 115.7 | 24 |
| 5/30 | 109.0 | 109.6 | 111.8 | 24 | 112.5 | 113.5 | 115.2 | 24 | 112.3 | 113.4 | 113.8 | 24 | 112.8 | 113.5 | 113.8 | 24 | 112.0 | 112.4 | 112.9 | 24 |
| 5/31 | 107.7 | 108.0 | 108.5 | 24 | 111.3 | 112.3 | 113.3 | 24 | 111.6 | 113.0 | 113.8 | 24 | 111.6 | 112.1 | 112.6 | 24 | 110.4 | 111.1 | 111.7 | 24 |
| 6/1 | 107.7 | 108.4 | 109.0 | 24 | 109.8 | 110.8 | 111.8 | 24 | 112.2 | 113.0 | 114.0 | 24 | 112.5 | 112.9 | 113.4 | 24 | 112.1 | 112.4 | 112.8 | 24 |
| 6/2 | 109.7 | 110.6 | 111.6 | 24 | 111.5 | 112.6 | 113.6 | 24 | 111.1 | 111.8 | 113.3 | 24 | 112.5 | 113.0 | 113.6 | 24 | 111.6 | 112.1 | 112.7 | 24 |
| 6/3 | 110.5 | 111.2 | 111.5 | 24 | 114.0 | 114.5 | 115.1 | 24 | 109.7 | 110.5 | 111.2 | 24 | 111.2 | 111.4 | 112.2 | 24 | 110.8 | 111.1 | 111.7 | 24 |
| 6/4 | 110.8 | 111.8 | 112.5 | 24 | 114.1 | 114.8 | 115.4 | 24 | --- | --- | --- | 0 | --- | --- | --- | 0 | --- | --- | --- | 0 |
| 6/5 | 112.1 | 113.3 | 114.0 | 24 | 116.7 | 118.1 | 118.5 | 24 | --- | --- | --- | 0 | --- | --- | --- | 0 | --- | --- | --- | 0 |
| 6/6 | 112.0 | 112.6 | 113.1 | 23 | 116.9 | 117.9 | 118.3 | 23 | --- | --- | --- | 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 |
| 5/24 | 117.8 | 118.4 | 118.7 | 24 | --- | --- | --- | 0 | 96.7 | 97.1 | 97.3 | 24 | --- | --- | --- | 0 | 104.0 | 104.4 | 104.7 | 24 |
| 5/25 | 119.2 | 119.6 | 119.9 | 24 | --- | --- | --- | 0 | 97.0 | 97.5 | 98.0 | 24 | --- | --- | --- | 0 | 104.3 | 105.1 | 105.6 | 24 |
| 5/26 | 119.0 | 119.2 | 119.6 | 24 | --- | --- | --- | 0 | 97.3 | 97.9 | 98.6 | 24 | --- | --- | --- | 0 | 103.8 | 104.2 | 104.5 | 24 |
| 5/27 | 118.6 | 118.9 | 119.0 | 24 | --- | --- | --- | 0 | 97.4 | 98.0 | 98.6 | 24 | --- | --- | --- | 0 | 103.9 | 104.6 | 105.1 | 24 |
| 5/28 | 119.0 | 119.3 | 119.6 | 24 | --- | --- | --- | 0 | 97.6 | 98.1 | 98.6 | 24 | --- | --- | --- | 0 | 103.7 | 104.2 | 104.8 | 24 |
| 5/29 | 117.2 | 117.8 | 118.6 | 24 | --- | --- | --- | 0 | 97.7 | 98.2 | 98.6 | 24 | --- | --- | --- | 0 | 103.4 | 103.7 | 104.1 | 24 |
| 5/30 | 114.2 | 114.4 | 115.2 | 24 | --- | --- | --- | 0 | 96.8 | 97.2 | 97.7 | 24 | --- | --- | --- | 0 | 103.4 | 104.1 | 104.4 | 24 |
| 5/31 | 112.6 | 112.9 | 113.3 | 24 | --- | --- | --- | 0 | 96.5 | 96.9 | 97.2 | 24 | --- | --- | --- | 0 | 103.8 | 104.8 | 105.6 | 24 |
| 6/1 | 114.2 | 114.7 | 114.9 | 24 | --- | --- | --- | 0 | 97.1 | 97.6 | 97.8 | 24 | --- | --- | --- | 0 | 104.0 | 104.8 | 105.3 | 24 |
| 6/2 | 115.6 | 116.1 | 116.6 | 24 | --- | --- | --- | 0 | 97.0 | 99.2 | 100.3 | 24 | --- | --- | --- | 0 | 103.6 | 104.0 | 104.2 | 24 |
| 6/3 | 113.7 | 114.0 | 114.9 | 24 | --- | --- | --- | 0 | 98.1 | 98.5 | 98.9 | 24 | --- | --- | --- | 0 | 103.9 | 104.9 | 105.5 | 24 |
| 6/4 | --- | --- | --- | 0 | --- | --- | --- | 0 | 97.3 | 97.8 | 98.2 | 24 | --- | --- | --- | 0 | 104.0 | 104.8 | 105.3 | 24 |
| 6/5 | --- | --- | --- | 0 | --- | --- | --- | 0 | 101.4 | 102.6 | 103.0 | 24 | --- | --- | --- | 0 | 104.3 | 105.1 | 105.7 | 24 |
| 6/6 | --- | --- | --- | 0 | --- | --- | --- | 0 | 102.3 | 102.6 | 103.2 | 23 | --- | --- | --- | 0 | 104.4 | 105.2 | 105.9 | 23 |

## 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 |
| 5/24 | 100.8 | 101.3 | 101.8 | 24 | 102.2 | 102.4 | 102.6 | 24 | 110.8 | 111.1 | 111.3 | 24 | 108.3 | 108.5 | 108.7 | 24 | 113.1 | 113.4 | 113.6 | 24 |
| 5/25 | 101.5 | 103.0 | 104.0 | 24 | 102.7 | 103.0 | 103.3 | 24 | 112.7 | 114.2 | 116.3 | 24 | 109.0 | 109.4 | 109.5 | 24 | 114.8 | 115.6 | 116.8 | 24 |
| 5/26 | 101.3 | 102.2 | 102.6 | 24 | 103.5 | 103.7 | 103.9 | 24 | 111.9 | 112.3 | 112.9 | 24 | 110.1 | 110.4 | 110.5 | 24 | 113.9 | 114.0 | 114.2 | 24 |
| 5/27 | 101.5 | 102.5 | 103.6 | 24 | 103.5 | 103.7 | 103.9 | 24 | 111.9 | 112.3 | 112.6 | 24 | 111.0 | 111.4 | 111.7 | 24 | 114.7 | 115.1 | 115.4 | 24 |
| 5/28 | 101.0 | 101.7 | 102.4 | 24 | 104.0 | 104.1 | 104.2 | 24 | 111.9 | 112.2 | 112.9 | 24 | 111.8 | 112.2 | 112.5 | 24 | 115.0 | 115.2 | 115.5 | 24 |
| 5/29 | 100.8 | 101.3 | 102.2 | 24 | 103.8 | 104.1 | 104.5 | 24 | 112.2 | 112.5 | 112.9 | 24 | 112.6 | 112.7 | 112.8 | 24 | 114.7 | 115.1 | 115.5 | 24 |
| 5/30 | 100.7 | 101.6 | 102.2 | 24 | 102.4 | 102.8 | 103.1 | 24 | 111.2 | 111.4 | 111.9 | 24 | 111.4 | 111.6 | 112.1 | 24 | 113.8 | 114.0 | 114.2 | 24 |
| 5/31 | 101.5 | 102.9 | 103.9 | 24 | 101.3 | 101.4 | 101.8 | 24 | 110.8 | 111.2 | 111.6 | 24 | 110.4 | 110.6 | 110.7 | 24 | 113.5 | 113.9 | 114.3 | 24 |
| 6/1 | 101.6 | 102.7 | 103.4 | 24 | 101.7 | 102.1 | 102.6 | 24 | 110.6 | 111.2 | 111.8 | 24 | 110.7 | 111.1 | 111.2 | 24 | 113.9 | 114.3 | 114.5 | 24 |
| 6/2 | 101.8 | 102.7 | 103.7 | 24 | 103.1 | 103.3 | 103.7 | 24 | 111.8 | 112.2 | 113.4 | 24 | 111.6 | 111.8 | 112.0 | 24 | 114.4 | 114.7 | 115.0 | 24 |
| 6/3 | 102.3 | 103.7 | 104.6 | 24 | 103.6 | 103.8 | 104.1 | 24 | 112.2 | 112.8 | 113.8 | 24 | 111.6 | 111.7 | 111.8 | 24 | 113.3 | 114.4 | 115.4 | 24 |
| 6/4 | 102.6 | 104.0 | 105.1 | 24 | 103.3 | 103.4 | 103.7 | 24 | 111.5 | 111.9 | 112.2 | 24 | 111.6 | 111.8 | 112.1 | 24 | 111.9 | 112.2 | 112.3 | 24 |
| 6/5 | 103.0 | 104.6 | 105.6 | 24 | 103.1 | 103.3 | 103.7 | 24 | 111.2 | 111.6 | 112.4 | 24 | 112.5 | 112.8 | 113.1 | 24 | 111.8 | 112.2 | 112.9 | 24 |
| 6/6 | 103.0 | 104.3 | 105.3 | 23 | 103.6 | 103.8 | 104.5 | 23 | 111.4 | 111.8 | 112.6 | 23 | 113.0 | 113.2 | 113.3 | 23 | 112.2 | 112.4 | 112.6 | 23 |

## 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 |
| 5/24 | 111.3 | 111.4 | 111.5 | 24 | 118.1 | 118.7 | 119.2 | 24 | 112.2 | 112.7 | 113.2 | 24 | 114.8 | 115.3 | 116.1 | 24 | --- | --- | --- | 0 |
| 5/25 | 111.6 | 111.9 | 112.3 | 24 | 118.0 | 119.1 | 119.4 | 24 | 113.7 | 114.0 | 114.2 | 24 | 115.4 | 115.9 | 116.9 | 24 | --- | --- | --- | 0 |
| 5/26 | 111.8 | 111.9 | 112.0 | 24 | 117.7 | 118.6 | 119.4 | 24 | 114.4 | 114.7 | 114.9 | 24 | 114.7 | 115.2 | 115.5 | 24 | --- | --- | --- | 0 |
| 5/27 | 113.5 | 114.3 | 114.7 | 24 | 119.2 | 120.1 | 120.9 | 24 | 115.3 | 115.6 | 115.7 | 24 | 113.3 | 114.4 | 116.0 | 24 | --- | --- | --- | 0 |
| 5/28 | 113.4 | 113.6 | 114.0 | 24 | 119.6 | 120.3 | 120.9 | 24 | 115.6 | 115.9 | 116.0 | 24 | 114.6 | 115.8 | 116.1 | 24 | --- | --- | --- | 0 |
| 5/29 | 113.1 | 113.3 | 113.4 | 24 | 118.9 | 119.6 | 120.4 | 24 | 116.1 | 116.2 | 116.5 | 24 | 115.6 | 116.2 | 116.7 | 24 | --- | --- | --- | 0 |
| 5/30 | 112.0 | 112.2 | 112.5 | 24 | 118.4 | 119.1 | 119.4 | 24 | 114.7 | 115.1 | 115.7 | 24 | 115.5 | 115.8 | 116.1 | 24 | --- | --- | --- | 0 |
| 5/31 | 111.6 | 111.8 | 112.0 | 24 | 118.6 | 119.0 | 119.4 | 24 | 114.0 | 114.1 | 114.3 | 24 | 115.8 | 116.0 | 116.0 | 24 | --- | --- | --- | 0 |
| 6/1 | 112.6 | 113.1 | 113.5 | 24 | 118.5 | 119.2 | 119.8 | 24 | 115.4 | 116.1 | 116.5 | 24 | 115.4 | 115.7 | 116.0 | 24 | --- | --- | --- | 0 |
| 6/2 | 114.1 | 114.2 | 114.3 | 24 | 118.3 | 119.5 | 120.0 | 24 | 117.1 | 117.5 | 117.7 | 24 | 114.8 | 116.4 | 116.8 | 24 | --- | --- | --- | 0 |
| 6/3 | 113.9 | 114.1 | 114.3 | 24 | 119.0 | 119.6 | 120.1 | 24 | 117.3 | 117.6 | 117.7 | 24 | 114.7 | 115.7 | 116.0 | 24 | --- | --- | --- | 0 |
| 6/4 | 113.7 | 114.0 | 114.4 | 24 | 117.0 | 119.1 | 119.5 | 24 | 117.4 | 117.6 | 118.2 | 24 | 115.6 | 115.8 | 115.9 | 24 | --- | --- | --- | 0 |
| 6/5 | 113.9 | 114.1 | 114.2 | 24 | 113.9 | 114.2 | 115.3 | 24 | 117.6 | 117.9 | 118.1 | 24 | 115.6 | 116.5 | 117.2 | 24 | --- | --- | --- | 0 |
| 6/6 | 113.2 | 113.4 | 113.8 | 23 | 113.7 | 114.1 | 114.5 | 23 | 117.8 | 118.2 | 118.5 | 23 | 116.1 | 117.1 | 117.6 | 23 | --- | --- | --- | 0 |

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

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

| | McNary-Wash | | | | McNary Tlwr | | | | John Day | | | | John Day Tlwr | | | | The Dalles | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 24 h Avg | 12 h Avg | High | # hr | 24 h Avg | 12 h Avg | High | # hr | 24h Avg | 12h Avg | High | # hr | 24h Avg | 12h Avg | High | # hr | 24h Avg | 12h AVG | High | # hr |
| 5/24 | 111.2 | 111.9 | 112.2 | 24 | 117.6 | 117.9 | 118.1 | 24 | 109.8 | 110.4 | 111.0 | 24 | 117.9 | 118.1 | 118.5 | 24 | 112.8 | 113.3 | 113.5 | 24 |
| 5/25 | 112.4 | 112.9 | 113.5 | 24 | 117.1 | 117.7 | 119.2 | 24 | 108.6 | 109.1 | 109.6 | 24 | 117.7 | 118.1 | 118.5 | 24 | 112.4 | 112.8 | 113.3 | 24 |
| 5/26 | 112.5 | 113.0 | 113.7 | 24 | 117.2 | 117.4 | 117.5 | 24 | 111.0 | 111.5 | 111.7 | 24 | 116.0 | 116.3 | 116.8 | 24 | 112.4 | 112.9 | 113.4 | 24 |
| 5/27 | 114.2 | 114.5 | 114.7 | 24 | 117.1 | 117.4 | 117.6 | 24 | 111.5 | 111.7 | 112.0 | 24 | 116.3 | 117.0 | 118.6 | 24 | 112.1 | 112.3 | 112.5 | 24 |
| 5/28 | 113.3 | 113.4 | 114.1 | 24 | 117.1 | 117.5 | 117.7 | 24 | 112.1 | 112.6 | 113.1 | 24 | 118.3 | 118.6 | 118.8 | 24 | 112.5 | 113.1 | 113.7 | 24 |
| 5/29 | 112.3 | 112.6 | 112.8 | 24 | 116.3 | 116.4 | 116.7 | 24 | 112.9 | 113.3 | 113.4 | 24 | 117.6 | 118.5 | 119.4 | 24 | 113.5 | 113.9 | 114.0 | 24 |
| 5/30 | 110.7 | 110.9 | 111.0 | 24 | 114.5 | 114.9 | 116.0 | 24 | 110.5 | 110.9 | 111.5 | 24 | 114.6 | 115.0 | 115.2 | 24 | 110.6 | 111.0 | 111.8 | 24 |
| 5/31 | 109.9 | 110.3 | 110.7 | 24 | 113.9 | 114.1 | 115.2 | 24 | 108.9 | 109.1 | 109.4 | 24 | 114.4 | 115.6 | 117.6 | 24 | 110.1 | 110.9 | 111.4 | 24 |
| 6/1 | 111.7 | 112.3 | 113.0 | 24 | 113.8 | 114.2 | 114.6 | 24 | 109.1 | 109.3 | 109.6 | 24 | 116.8 | 117.6 | 118.0 | 24 | 111.8 | 112.6 | 113.0 | 24 |
| 6/2 | 112.8 | 113.1 | 113.6 | 24 | 114.0 | 114.2 | 114.5 | 24 | 108.8 | 108.9 | 109.3 | 24 | 114.1 | 115.9 | 116.6 | 24 | 112.0 | 112.8 | 113.1 | 24 |
| 6/3 | 111.9 | 112.2 | 112.5 | 24 | 114.2 | 114.5 | 114.8 | 24 | 109.0 | 109.8 | 110.4 | 24 | 114.7 | 115.5 | 116.0 | 24 | 110.6 | 111.1 | 111.5 | 24 |
| 6/4 | 112.7 | 113.6 | 114.2 | 24 | 114.2 | 114.3 | 114.6 | 24 | 111.3 | 112.4 | 113.4 | 24 | 114.1 | 115.2 | 117.4 | 24 | 111.4 | 112.2 | 113.0 | 24 |
| 6/5 | 113.3 | 113.9 | 114.5 | 24 | 114.7 | 115.6 | 116.4 | 24 | 113.2 | 113.6 | 114.0 | 24 | 116.5 | 117.7 | 118.0 | 24 | 113.7 | 114.4 | 114.7 | 24 |
| 6/6 | 112.9 | 113.4 | 113.8 | 23 | 116.5 | 116.9 | 119.8 | 23 | 113.7 | 114.2 | 114.7 | 23 | 116.8 | 118.1 | 118.3 | 23 | 114.5 | 114.9 | 115.0 | 23 |

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

| | The Dalles Dnst | | | | Bonneville | | | | Warrendale | | | | Camas\Washougal | | | | Cascade Island | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | 24 h Avg | 12 h Avg | High | # hr | 24 h Avg | 12 h Avg | High | # hr | 24h Avg | 12h Avg | High | # hr | 24h Avg | 12h Avg | High | # hr | 24h Avg | 12h Avg | High | # hr |
| 5/24 | 117.9 | 118.5 | 118.8 | 24 | 115.2 | 115.4 | 115.4 | 24 | 115.8 | 115.9 | 116.0 | 24 | 113.4 | 114.3 | 114.5 | 23 | 119.9 | 120.5 | 120.8 | 24 |
| 5/25 | 117.8 | 118.2 | 118.6 | 24 | 115.6 | 116.3 | 116.6 | 24 | 116.0 | 116.4 | 116.7 | 24 | 115.3 | 116.3 | 117.0 | 24 | 119.1 | 119.4 | 120.4 | 24 |
| 5/26 | 118.0 | 118.4 | 119.2 | 24 | 116.3 | 116.4 | 116.5 | 24 | 116.4 | 116.5 | 116.6 | 24 | 115.3 | 115.7 | 115.9 | 24 | 120.7 | 121.1 | 121.3 | 24 |
| 5/27 | 117.8 | 118.1 | 118.3 | 24 | 115.9 | 116.2 | 116.4 | 24 | 116.2 | 116.5 | 116.6 | 24 | 114.8 | 115.1 | 115.3 | 24 | 120.4 | 121.1 | 121.4 | 24 |
| 5/28 | 117.6 | 118.1 | 118.7 | 24 | 115.5 | 115.7 | 116.0 | 24 | 115.8 | 116.0 | 116.2 | 24 | 114.5 | 115.0 | 115.3 | 24 | 120.7 | 120.8 | 121.3 | 24 |
| 5/29 | 118.3 | 118.7 | 119.0 | 24 | 115.0 | 115.5 | 115.8 | 24 | 115.2 | 115.7 | 116.1 | 24 | 113.4 | 114.2 | 115.0 | 24 | 119.4 | 120.5 | 120.7 | 24 |
| 5/30 | 116.4 | 116.9 | 117.4 | 24 | 113.3 | 113.6 | 113.9 | 24 | 114.7 | 114.9 | 115.1 | 24 | 112.5 | 113.2 | 113.6 | 24 | 117.5 | 118.2 | 118.5 | 24 |
| 5/31 | 115.9 | 116.4 | 116.9 | 24 | 112.9 | 113.3 | 113.6 | 24 | 114.8 | 114.9 | 115.1 | 24 | 114.0 | 115.1 | 115.8 | 24 | 118.6 | 118.7 | 118.9 | 24 |
| 6/1 | 117.4 | 118.0 | 118.6 | 24 | 114.2 | 114.7 | 115.0 | 24 | 115.8 | 116.4 | 116.6 | 24 | 114.7 | 116.0 | 116.8 | 24 | 118.7 | 118.8 | 118.8 | 24 |
| 6/2 | 117.2 | 117.6 | 118.2 | 24 | 114.1 | 114.6 | 114.9 | 24 | 116.3 | 116.5 | 116.8 | 24 | 114.6 | 115.2 | 115.9 | 24 | 118.7 | 118.8 | 118.9 | 24 |
| 6/3 | 116.7 | 117.1 | 117.6 | 24 | 112.7 | 112.9 | 112.9 | 24 | 114.8 | 115.1 | 115.5 | 24 | 113.8 | 114.6 | 115.5 | 24 | 118.4 | 118.6 | 118.7 | 24 |
| 6/4 | 116.9 | 117.6 | 118.1 | 24 | 113.8 | 114.8 | 115.3 | 24 | 116.1 | 116.9 | 117.1 | 24 | 114.3 | 115.9 | 116.7 | 24 | 118.7 | 119.0 | 119.2 | 24 |
| 6/5 | 118.3 | 118.9 | 119.3 | 24 | 115.8 | 116.1 | 116.5 | 24 | 116.9 | 117.3 | 117.5 | 24 | 115.8 | 117.2 | 118.2 | 24 | 118.8 | 118.9 | 119.0 | 24 |
| 6/6 | 118.5 | 119.0 | 119.4 | 23 | 115.2 | 115.3 | 115.4 | 23 | 116.3 | 116.6 | 116.8 | 23 | 115.6 | 116.4 | 117.2 | 23 | 118.7 | 118.9 | 119.0 | 23 |

# Two-Week Summary of Passage Indices

Source: Fish Passage Center Updated: 6/7/2013 8:04

## 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) |
| 05/24/2013 | * | --- | 8 | --- | --- | 2,475 | 3,874 | 1,865 | 397 | --- | 28,355 | 17,672 |
| 05/25/2013 | * | --- | 9 | --- | --- | 1,938 | 1,965 | 416 | 340 | 31,572 | 22,283 | 19,387 |
| 05/26/2013 | * | --- | 4 | --- | --- | 665 | 1,561 | 687 | 318 | --- | 14,739 | 9,085 |
| 05/27/2013 | * | --- | 10 | --- | --- | 967 | 1,219 | 525 | 284 | 21,752 | 13,750 | 11,064 |
| 05/28/2013 | * | --- | 4 | --- | --- | 511 | 1,021 | 288 | 350 | --- | 15,330 | 7,624 |
| 05/29/2013 | * | --- | 13 | --- | --- | 2,264 | 1,290 | 508 | 632 | 24,280 | 19,116 | 7,853 |
| 05/30/2013 | * | --- | 23 | --- | --- | 1,518 | 1,090 | 315 | 585 | --- | 13,995 | 7,691 |
| 05/31/2013 | | --- | --- | --- | --- | 3,397 | 2,091 | 531 | 488 | 50,303 | 13,657 | 6,330 |
| 06/01/2013 | * | --- | --- | --- | --- | 1,928 | 1,033 | 539 | 249 | --- | 11,930 | 4,802 |
| 06/02/2013 | | --- | --- | --- | --- | 862 | 931 | 394 | 234 | 26,168 | 7,796 | 4,660 |
| 06/03/2013 | * | --- | --- | --- | --- | 1,062 | 645 | 101 | 155 | --- | 7,564 | 4,667 |
| 06/04/2013 | | --- | --- | --- | --- | 344 | 588 | 415 | 119 | 28,097 | 8,958 | 3,663 |
| 06/05/2013 | * | --- | --- | --- | --- | 354 | 573 | 351 | 211 | --- | 5,679 | 3,960 |
| 06/06/2013 | | --- | --- | --- | --- | 295 | 430 | 202 | 232 | 17,754 | 5,347 | 4,876 |
| 06/07/2013 | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Total:** | | **0** | **71** | **0** | **0** | **18,580** | **18,311** | **7,137** | **4,594** | **199,926** | **188,499** | **113,334** |
| **# Days:** | | **0** | **7** | **0** | **0** | **14** | **14** | **14** | **14** | **7** | **14** | **14** |
| **Average:** | | **0** | **10** | **0** | **0** | **1,327** | **1,308** | **510** | **328** | **28,561** | **13,464** | **8,095** |
| **YTD** | | **50,632** | **55,252** | **26,301** | **2,797** | **2,605,170** | **1,496,628** | **610,501** | **27,966** | **2,056,407** | **2,019,823** | **1,848,472** |

| | | | | 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) |
| 05/24/2013 | * | --- | 0 | --- | --- | 1,650 | 2,941 | 487 | 14 | --- | 2,350 | 5,720 |
| 05/25/2013 | * | --- | 0 | --- | --- | 6,008 | 3,223 | 500 | 8 | 999 | 2,010 | 5,173 |
| 05/26/2013 | * | --- | 0 | --- | --- | 4,026 | 908 | 172 | 12 | --- | 776 | 2,963 |
| 05/27/2013 | * | --- | 0 | --- | --- | 2,929 | 1,076 | 659 | 16 | 1,690 | 1,862 | 2,709 |
| 05/28/2013 | * | --- | 0 | --- | --- | 3,712 | 949 | 126 | 14 | --- | 839 | 3,644 |
| 05/29/2013 | * | --- | 0 | --- | --- | 11,452 | 1,405 | 272 | 89 | 1,390 | 1,670 | 4,108 |
| 05/30/2013 | * | --- | 0 | --- | --- | 21,290 | 2,626 | 374 | 50 | --- | 1,564 | 3,628 |
| 05/31/2013 | | --- | --- | --- | --- | 30,875 | 10,469 | 924 | 146 | 2,125 | 1,144 | 3,165 |
| 06/01/2013 | * | --- | --- | --- | --- | 21,960 | 14,956 | 1,245 | 75 | --- | 1,377 | 4,727 |
| 06/02/2013 | | --- | --- | --- | --- | 24,221 | 13,289 | 1,237 | 126 | 1,778 | 725 | 2,652 |
| 06/03/2013 | * | --- | --- | --- | --- | 20,668 | 11,614 | 609 | 113 | --- | 1,302 | 4,304 |
| 06/04/2013 | | --- | --- | --- | --- | 16,775 | 12,615 | 3,269 | 87 | 5,853 | 1,345 | 3,722 |
| 06/05/2013 | * | --- | --- | --- | --- | 35,245 | 30,561 | 7,580 | 162 | --- | 1,374 | 4,575 |
| 06/06/2013 | | --- | --- | --- | --- | 40,423 | 18,302 | 2,740 | 250 | 16,055 | 2,807 | 5,386 |
| 06/07/2013 | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Total:** | | **0** | **0** | **0** | **0** | **241,234** | **124,934** | **20,194** | **1,162** | **29,890** | **21,145** | **56,476** |
| **# Days:** | | **0** | **7** | **0** | **0** | **14** | **14** | **14** | **14** | **7** | **14** | **14** |
| **Average:** | | **0** | **0** | **0** | **0** | **17,231** | **8,924** | **1,442** | **83** | **4,270** | **1,510** | **4,034** |
| **YTD** | | **2** | **41** | **195** | **2,668** | **277,672** | **142,745** | **31,256** | **2,442** | **50,257** | **27,691** | **2,065,593** |

# 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) |
| 05/24/2013 | * | --- | 0 | --- | --- | 34 | 430 | 0 | 1,651 | --- | 8,460 | 9,566 |
| 05/25/2013 | * | --- | 0 | --- | --- | 78 | 472 | 0 | 1,977 | 3,997 | 3,853 | 7,971 |
| 05/26/2013 | * | --- | 0 | --- | --- | 111 | 0 | 0 | 1,987 | --- | 3,568 | 12,992 |
| 05/27/2013 | * | --- | 0 | --- | --- | 30 | 72 | 123 | 1,708 | 2,627 | 3,724 | 7,659 |
| 05/28/2013 | * | --- | 0 | --- | --- | 45 | 57 | 10 | 2,118 | --- | 3,203 | 6,073 |
| 05/29/2013 | * | --- | 0 | --- | --- | 59 | 158 | 27 | 2,545 | 4,354 | 3,756 | 8,534 |
| 05/30/2013 | * | --- | 0 | --- | --- | 72 | 230 | 119 | 1,571 | --- | 3,362 | 9,940 |
| 05/31/2013 | | --- | --- | --- | --- | 166 | 215 | 65 | 952 | 6,120 | 2,503 | 10,142 |
| 06/01/2013 | * | --- | --- | --- | --- | 138 | 660 | 25 | 660 | --- | 2,397 | 8,553 |
| 06/02/2013 | | --- | --- | --- | --- | 72 | 287 | 160 | 548 | 3,132 | 1,503 | 8,108 |
| 06/03/2013 | * | --- | --- | --- | --- | 114 | 143 | 63 | 347 | --- | 1,612 | 5,704 |
| 06/04/2013 | | --- | --- | --- | --- | 105 | 179 | 55 | 375 | 4,820 | 2,576 | 7,444 |
| 06/05/2013 | * | --- | --- | --- | --- | 133 | 86 | 35 | 398 | --- | 1,588 | 4,469 |
| 06/06/2013 | | --- | --- | --- | --- | 111 | 36 | 7 | 336 | 2,911 | 1,905 | 5,840 |
| 06/07/2013 | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Total:** | | **0** | **0** | **0** | **0** | **1,268** | **3,025** | **689** | **17,173** | **27,961** | **44,010** | **112,995** |
| **# Days:** | | **0** | **7** | **0** | **0** | **14** | **14** | **14** | **14** | **7** | **14** | **14** |
| **Average:** | | **0** | **0** | **0** | **0** | **91** | **216** | **49** | **1,227** | **3,994** | **3,144** | **8,071** |
| **YTD** | | **0** | **0** | **0** | **107** | **61,600** | **53,285** | **10,271** | **48,752** | **77,454** | **179,092** | **727,190** |

| | | | | 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) |
| 05/24/2013 | * | --- | 181 | --- | --- | 6,016 | 8,895 | 5,595 | 431 | --- | 8,146 | 3,013 |
| 05/25/2013 | * | --- | 106 | --- | --- | 7,016 | 8,255 | 2,832 | 458 | 3,214 | 5,864 | 2,368 |
| 05/26/2013 | * | --- | 45 | --- | --- | 5,060 | 4,720 | 3,863 | 507 | --- | 4,655 | 1,791 |
| 05/27/2013 | * | --- | 60 | --- | --- | 5,264 | 5,235 | 2,834 | 636 | 1,895 | 4,440 | 1,541 |
| 05/28/2013 | * | --- | 27 | --- | --- | 4,418 | 2,333 | 1,535 | 465 | --- | 3,737 | 1,396 |
| 05/29/2013 | * | --- | 82 | --- | --- | 5,876 | 6,121 | 1,618 | 273 | 2,503 | 3,172 | 2,015 |
| 05/30/2013 | * | --- | 37 | --- | --- | 4,148 | 2,568 | 1,548 | 159 | --- | 3,284 | 1,741 |
| 05/31/2013 | | --- | --- | --- | --- | 4,391 | 4,053 | 916 | 111 | 5,374 | 2,002 | 1,654 |
| 06/01/2013 | * | --- | --- | --- | --- | 2,341 | 5,253 | 1,112 | 83 | --- | 3,977 | 1,275 |
| 06/02/2013 | | --- | --- | --- | --- | 4,025 | 3,654 | 773 | 93 | 2,116 | 2,282 | 2,430 |
| 06/03/2013 | * | --- | --- | --- | --- | 3,641 | 2,724 | 406 | 88 | --- | 2,294 | 2,697 |
| 06/04/2013 | | --- | --- | --- | --- | 1,867 | 1,687 | 474 | 105 | 3,930 | 1,660 | 1,063 |
| 06/05/2013 | * | --- | --- | --- | --- | 2,169 | 4,673 | 608 | 99 | --- | 1,618 | 762 |
| 06/06/2013 | | --- | --- | --- | --- | 2,029 | 2,829 | 363 | 73 | 2,159 | 1,404 | 1,191 |
| 06/07/2013 | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Total:** | | **0** | **538** | **0** | **0** | **58,261** | **63,000** | **24,477** | **3,581** | **21,191** | **48,535** | **24,937** |
| **# Days:** | | **0** | **7** | **0** | **0** | **14** | **14** | **14** | **14** | **7** | **14** | **14** |
| **Average:** | | **0** | **77** | **0** | **0** | **4,162** | **4,500** | **1,748** | **256** | **3,027** | **3,467** | **1,781** |
| **YTD** | | **3,789** | **39,479** | **3,547** | **9,925** | **2,019,975** | **1,685,179** | **603,304** | **14,479** | **450,314** | **720,357** | **434,055** |

# 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) |
| 05/24/2013 | * | --- | 0 | --- | --- | 34 | 287 | 405 | 203 | --- | 23,969 | 31,813 |
| 05/25/2013 | * | --- | 0 | --- | --- | 78 | 314 | 250 | 138 | 12,393 | 11,560 | 22,618 |
| 05/26/2013 | * | --- | 0 | --- | --- | 0 | 508 | 0 | 65 | --- | 12,102 | 7,554 |
| 05/27/2013 | * | --- | 0 | --- | --- | 30 | 0 | 67 | 24 | 11,641 | 9,167 | 7,819 |
| 05/28/2013 | * | --- | 0 | --- | --- | 15 | 115 | 55 | 9 | --- | 6,102 | 3,514 |
| 05/29/2013 | * | --- | 0 | --- | --- | 29 | 129 | 18 | 20 | 8,907 | 7,429 | 2,868 |
| 05/30/2013 | * | --- | 0 | --- | --- | 58 | 72 | 34 | 3 | --- | 6,959 | 3,555 |
| 05/31/2013 | | --- | --- | --- | --- | 110 | 72 | 65 | 6 | 8,162 | 4,076 | 2,590 |
| 06/01/2013 | * | --- | --- | --- | --- | 138 | 57 | 8 | 6 | --- | 2,600 | 1,876 |
| 06/02/2013 | | --- | --- | --- | --- | 0 | 0 | 29 | 8 | 3,896 | 2,117 | 807 |
| 06/03/2013 | * | --- | --- | --- | --- | 76 | 0 | 4 | 7 | --- | 1,612 | 933 |
| 06/04/2013 | | --- | --- | --- | --- | 30 | 0 | 5 | 5 | 4,566 | 2,461 | 768 |
| 06/05/2013 | * | --- | --- | --- | --- | 30 | 0 | 18 | 7 | --- | 855 | 349 |
| 06/06/2013 | | --- | --- | --- | --- | 0 | 36 | 16 | 3 | 2,723 | 1,003 | 737 |
| 06/07/2013 | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Total:** | | **0** | **0** | **0** | **0** | **628** | **1,590** | **974** | **504** | **52,288** | **92,012** | **87,801** |
| **# Days:** | | **0** | **7** | **0** | **0** | **14** | **14** | **14** | **14** | **7** | **14** | **14** |
| **Average:** | | **0** | **0** | **0** | **0** | **45** | **114** | **70** | **36** | **7,470** | **6,572** | **6,272** |
| **YTD** | | **1** | **0** | **0** | **326** | **54,499** | **32,675** | **11,260** | **24,621** | **615,441** | **404,449** | **388,129** |

| | | | | 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) |
| 05/24/2013 | * | --- | 0 | --- | --- | 0 | 50 | 0 | 0 | --- | 10,900 | 0 |
| 05/25/2013 | * | --- | 0 | --- | --- | 0 | 300 | 50 | 2 | 5,700 | 11,200 | 0 |
| 05/26/2013 | * | --- | 0 | --- | --- | 0 | 50 | 0 | 0 | --- | 6,300 | 0 |
| 05/27/2013 | * | --- | 0 | --- | --- | 0 | 25 | 12 | 0 | 3,600 | 6,100 | 0 |
| 05/28/2013 | * | --- | 0 | --- | --- | 0 | 20 | 15 | 0 | --- | 4,300 | 75 |
| 05/29/2013 | * | --- | 0 | --- | --- | 20 | 0 | 10 | 1 | 1,300 | 3,800 | 25 |
| 05/30/2013 | * | --- | 0 | --- | --- | 10 | 10 | 5 | 0 | --- | 4,050 | 25 |
| 05/31/2013 | | --- | --- | --- | --- | 0 | 20 | 15 | 0 | 850 | 4,050 | 25 |
| 06/01/2013 | * | --- | --- | --- | --- | 0 | 60 | 250 | 1 | --- | 2,100 | 25 |
| 06/02/2013 | | --- | --- | --- | --- | 0 | 125 | 100 | 0 | 1,200 | 1,000 | 87 |
| 06/03/2013 | * | --- | --- | --- | --- | 0 | 0 | 6 | 1 | --- | 1,420 | 80 |
| 06/04/2013 | | --- | --- | --- | --- | 0 | 0 | 401 | 0 | 850 | 1,220 | 60 |
| 06/05/2013 | * | --- | --- | --- | --- | 0 | 0 | 1 | 0 | --- | 1,140 | 100 |
| 06/06/2013 | | --- | --- | --- | --- | 0 | 0 | 0 | 0 | 900 | 1,060 | 80 |
| 06/07/2013 | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Total:** | | **0** | **0** | **0** | **0** | **30** | **660** | **865** | **5** | **14,400** | **58,640** | **582** |
| **# Days:** | | **0** | **7** | **0** | **0** | **14** | **14** | **14** | **14** | **7** | **14** | **14** |
| **Average:** | | **0** | **0** | **0** | **0** | **2** | **47** | **62** | **0** | **2,057** | **4,189** | **42** |
| **YTD** | | **0** | **8** | **0** | **0** | **4,872** | **51,026** | **60,225** | **84** | **55,210** | **123,833** | **3,394** |

# 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 macropthalmia, and unidentified lamprey species.
†† Passage index for yearling Chinook, steelhead, and subyearling Chinook at LGR may be inflated in 2013 due to possible resampling of PIT-tagged research fish
† 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 = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}
LGS (Index) = Little Goose Bypass Collection System : Passage Index Counts
Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}
LMN (Index) = Lower Monumental Dam Bypass Collection System : Passage Index Counts
Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}
RIS (Index) = Rock Island Dam Second Powerhouse Bypass Trap : Passage Index Counts
Passage Index = Collection Counts / {Powerhouse 2 Flow / (Powerhouse 1 & 2 Flow + Spill)}
MCN (Index) = McNary Dam Bypass Collection System : Passage Index Counts
Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}
JDA (Index) = John Day Dam Bypass Collection System : Passage Index Counts
Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}
BO2 (Index) = Bonneville Dam Second Powerhouse Bypass Collection System : Passage Index Counts
Passage Index = Collection Counts / {Powerhouse 2 Flow / (Powerhouse 1 & 2 Flow + Spill)}

JDA and BO2 data collected for the FPC by Pacific States Marine Fisheries Commission.
RIS data collected for the FPC by Chelan Co. PUD.
LGR, LMN, and MCN data collected for the FPC by Washington Dept. of Fish and Wildlife.
LGS and GRN data collected for the FPC by Oregon Dept. of Fish and Wildlife.
IMN data collected for the FPC by the Nez Perce Tribe.
Fall (post SMP season) trapping at the Imnaha River Fish Trap (IMN) is funded by the Lower Snake River Compensation Program (LSRCP)
WTB and LEW data collected for the FPC by Idaho Dept. of Fish and Game.

# Two Week Transportation Summary

Source: Fish Passage Center Updated: 6/7/13 8:05 AM

**05/24/13 TO 06/07/13**

| | | Species | | | | | |
|---|---|---|---|---|---|---|---|
| Site | Data | **CH0** | **CH1** | CO | ST | SO | **Grand Total** |
| **LGR** | Sum of NumberCollected | 166,075 | 12,912 | 870 | 39,852 | 435 | 220,144 |
| | Sum of NumberBarged | 133,162 | 11,973 | 792 | 34,802 | 432 | 181,161 |
| | Sum of NumberBypassed | 5,923 | 705 | 0 | 3,841 | 0 | 10,469 |
| | Sum of Numbertrucked | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum of SampleMorts | 324 | 24 | 2 | 8 | 2 | 360 |
| | Sum of FacilityMorts | 91 | 4 | 1 | 6 | 1 | 103 |
| | Sum of ResearchMorts | 27 | 6 | 0 | 6 | 0 | 39 |
| | Sum of TotalProjectMorts | 442 | 34 | 3 | 20 | 3 | 502 |
| **LGS** | Sum of NumberCollected | 86,939 | 12,637 | 2,080 | 43,388 | 1,085 | 146,129 |
| | Sum of NumberBarged | 74,124 | 12,329 | 2,055 | 41,400 | 1,060 | 130,968 |
| | Sum of NumberBypassed | 20 | 0 | 0 | 0 | 0 | 20 |
| | Sum of Numbertrucked | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum of SampleMorts | 10 | 4 | 0 | 2 | 0 | 16 |
| | Sum of FacilityMorts | 14 | 4 | 0 | 11 | 0 | 29 |
| | Sum of ResearchMorts | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum of TotalProjectMorts | 24 | 8 | 0 | 13 | 0 | 45 |
| **LMN** | Sum of NumberCollected | 12,135 | 4,206 | 393 | 14,277 | 581 | 31,592 |
| | Sum of NumberBarged | 9,273 | 4,061 | 388 | 13,951 | 571 | 28,244 |
| | Sum of NumberBypassed | 1,543 | 12 | 0 | 90 | 0 | 1,645 |
| | Sum of Numbertrucked | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum of SampleMorts | 1 | 2 | 0 | 2 | 0 | 5 |
| | Sum of FacilityMorts | 13 | 7 | 1 | 13 | 0 | 34 |
| | Sum of ResearchMorts | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum of TotalProjectMorts | 14 | 9 | 1 | 15 | 0 | 39 |
| **MCN** | Sum of NumberCollected | 16,462 | 111,610 | 15,600 | 11,854 | 28,465 | 183,991 |
| | Sum of NumberBarged | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum of NumberBypassed | 16,462 | 111,575 | 15,599 | 11,852 | 28,441 | 183,929 |
| | Sum of Numbertrucked | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum of SampleMorts | 0 | 9 | 1 | 1 | 8 | 19 |
| | Sum of FacilityMorts | 0 | 26 | 0 | 1 | 16 | 43 |
| | Sum of ResearchMorts | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum of TotalProjectMorts | 0 | 35 | 1 | 2 | 24 | 62 |
| Total Sum of NumberCollected | | 281,611 | 141,365 | 18,943 | 109,371 | 30,566 | 581,856 |
| Total Sum of NumberBarged | | 216,559 | 28,363 | 3,235 | 90,153 | 2,063 | 340,373 |
| Total Sum of NumberBypassed | | 23,948 | 112,292 | 15,599 | 15,783 | 28,441 | 196,063 |
| Total Sum of Numbertrucked | | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Sum of SampleMorts | | 335 | 39 | 3 | 13 | 10 | 400 |
| Total Sum of FacilityMorts | | 118 | 41 | 2 | 31 | 17 | 209 |
| Total Sum of ResearchMorts | | 27 | 6 | 0 | 6 | 0 | 39 |
| Total Sum of TotalProjectMorts | | 480 | 86 | 5 | 50 | 27 | 648 |

## YTD Transportation Summary

Source: Fish Passage Center Updated: 6/7/13 8:05 AM

**TO: 06/07/13**

| | | Species | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Site | Data | **CH0** | **CH1** | CO | SO | ST | LU | **Grand Total** |
| **LGR** | Sum of NumberCollected | 193,660 | 1,863,841 | 47,930 | 42,535 | 1,433,398 | | 3,581,364 |
| | Sum of NumberBarged | 159,339 | 1,553,097 | 47,586 | 42,466 | 1,076,179 | | 2,878,667 |
| | Sum of NumberBypassed | 7,283 | 308,258 | 210 | 52 | 355,707 | | 671,510 |
| | Sum of NumberTrucked | 0 | 0 | 0 | 0 | 0 | | 0 |
| | Sum of SampleMorts | 331 | 172 | 2 | 2 | 35 | | 542 |
| | Sum of FacilityMorts | 132 | 2,064 | 57 | 15 | 242 | | 2,510 |
| | Sum of ResearchMorts | 27 | 52 | 0 | 0 | 45 | | 124 |
| | Sum of TotalProjectMorts | 490 | 2,288 | 59 | 17 | 322 | | 3,176 |
| **LGS** | Sum of NumberCollected | 99,193 | 1,024,104 | 36,280 | 22,385 | 1,153,375 | | 2,335,337 |
| | Sum of NumberBarged | 86,168 | 976,536 | 36,055 | 22,360 | 1,085,087 | | 2,206,206 |
| | Sum of NumberBypassed | 229 | 46,698 | 200 | 0 | 66,201 | | 113,328 |
| | Sum of NumberTrucked | 0 | 0 | 0 | 0 | 0 | | 0 |
| | Sum of SampleMorts | 10 | 14 | 0 | 0 | 7 | | 31 |
| | Sum of FacilityMorts | 15 | 556 | 0 | 0 | 105 | | 676 |
| | Sum of ResearchMorts | 0 | 0 | 0 | 0 | 0 | | 0 |
| | Sum of TotalProjectMorts | 25 | 570 | 0 | 0 | 112 | | 707 |
| **LMN** | Sum of NumberCollected | 20,695 | 468,515 | 7,793 | 7,983 | 454,878 | 1 | 959,865 |
| | Sum of NumberBarged | 17,406 | 466,791 | 7,788 | 7,967 | 453,353 | 0 | 953,305 |
| | Sum of NumberBypassed | 1,561 | 1,070 | 0 | 2 | 1,090 | 16 | 3,739 |
| | Sum of NumberTrucked | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum of SampleMorts | 1 | 13 | 0 | 0 | 10 | 0 | 24 |
| | Sum of FacilityMorts | 24 | 517 | 1 | 4 | 204 | 0 | 750 |
| | Sum of ResearchMorts | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum of TotalProjectMorts | 25 | 530 | 1 | 4 | 214 | 0 | 774 |
| **MCN** | Sum of NumberCollected | 26,637 | 1,061,226 | 39,333 | 305,235 | 243,712 | | 1,676,143 |
| | Sum of NumberBarged | 0 | 0 | 0 | 0 | 0 | | 0 |
| | Sum of NumberBypassed | 26,631 | 1,060,418 | 39,329 | 304,990 | 243,664 | | 1,675,032 |
| | Sum of NumberTrucked | 0 | 0 | 0 | 0 | 0 | | 0 |
| | Sum of SampleMorts | 2 | 57 | 1 | 30 | 5 | | 95 |
| | Sum of FacilityMorts | 4 | 751 | 3 | 215 | 43 | | 1,016 |
| | Sum of ResearchMorts | 0 | 0 | 0 | 0 | 0 | | 0 |
| | Sum of TotalProjectMorts | 6 | 808 | 4 | 245 | 48 | | 1,111 |
| Total Sum of NumberCollected | | 340,185 | 4,417,686 | 131,336 | 378,138 | 3,285,363 | 1 | 8,552,709 |
| Total Sum of NumberBarged | | 262,913 | 2,996,424 | 91,429 | 72,793 | 2,614,619 | 0 | 6,038,178 |
| Total Sum of NumberBypassed | | 35,704 | 1,416,444 | 39,739 | 305,044 | 666,662 | 16 | 2,463,609 |
| Total Sum of NumberTrucked | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Sum of SampleMorts | | 344 | 256 | 3 | 32 | 57 | 0 | 692 |
| Total Sum of FacilityMorts | | 175 | 3,888 | 61 | 234 | 594 | 0 | 4,952 |
| Total Sum of ResearchMorts | | 27 | 52 | 0 | 0 | 45 | 0 | 124 |
| Total Sum of TotalProjectMorts | | 546 | 4,196 | 64 | 266 | 696 | 0 | 5,768 |

## Cumulative Adult Passage at Mainstem Dams Through: 06/07

| | | Spring Chinook | | | | | | Summer Chinook | | | | | | Fall Chinook | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2013 | | 2012 | | 10-Yr Avg. | | 2013 | | 2012 | | 10-Yr Avg. | | 2013 | | 2012 | | 10-Yr Avg. | |
| DAM | ENDDA | Adult | Jack | Adult | Jack | Adult | Jack | Adult | Jack | Adult | Jack | Adult | Jack | Adult | Jack | Adult | Jack | Adult | Jack |
| **BON** | **06/06** | **83345** | **33820** | **158089** | **7592** | **141713** | **20323** | **9516** | **3011** | **11598** | **784** | **10127** | **1956** | **0** | **0** | **0** | **0** | **0** | **0** |
| **TDA** | **06/06** | **69202** | **32311** | **117087** | **7175** | **107368** | **16911** | **4061** | **1061** | **5076** | **354** | **3834** | **709** | **0** | **0** | **0** | **0** | **0** | **0** |
| **JDA** | **06/06** | **56991** | **28957** | **107655** | **6755** | **92410** | **15875** | **1062** | **391** | **1863** | **105** | **844** | **149** | **0** | **0** | **0** | **0** | **0** | **0** |
| **MCN** | **06/06** | **50426** | **21773** | **99050** | **4618** | **81362** | **13229** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **IHR** | **06/06** | **36075** | **17384** | **67141** | **2669** | **55270** | **7750** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **LMN** | **06/06** | **33583** | **17249** | **63052** | **2623** | **52615** | **6375** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **LGS** | **06/06** | **31016** | **17134** | **60094** | **3015** | **46821** | **6913** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **LGR** | **06/06** | **30483** | **17079** | **56919** | **2964** | **44910** | **7677** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **PRD** | **06/05** | **11172** | **1157** | **17598** | **900** | **13480** | **1205** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **WAN** | **06/05** | **11638** | **1536** | **18503** | **846** | **14277** | **1882** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **RIS** | **06/05** | **9344** | **2635** | **16931** | **705** | **11989** | **1635** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **RRH** | **06/05** | **4577** | **1921** | **5873** | **368** | **4358** | **566** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **WEL** | **06/05** | **2813** | **2341** | **4006** | **407** | **2666** | **475** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **WFA** | **06/01** | **18011** | **850** | **21371** | **749** | **32932** | **667** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |

| | | Coho | | | | | | Sockeye | | | Steelhead | | | | | | Lamprey | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2013 | | 2012 | | 10-Yr Avg. | | | | 10-Yr | | | 10-Yr | Wild | Wild | 10-Yr | | | 10-Yr |
| DAM | ENDDA | Adult | Jack | Adult | Jack | Adult | Jack | 2013 | 2012 | Avg. | 2013 | 2012 | Avg. | 2013 | 2012 | Avg. | 2013 | 2012 | Avg. |
| **BON** | **06/06** | **0** | **0** | **0** | **0** | **0** | **0** | **756** | **1796** | **803** | **3748** | **6448** | **6765** | **985** | **1953** | **1655** | **2224** | **1985** | **2047** |
| **TDA** | **06/06** | **0** | **0** | **0** | **0** | **0** | **0** | **257** | **741** | **340** | **947** | **1970** | **3064** | **374** | **957** | **994** | **3** | **0** | **23** |
| **JDA** | **06/06** | **0** | **0** | **0** | **0** | **0** | **0** | **216** | **450** | **214** | **1044** | **2019** | **6647** | **504** | **1290** | **2038** | **40** | **4** | **130** |
| **MCN** | **06/06** | **1** | **0** | **0** | **0** | **0** | **0** | **53** | **31** | **43** | **1567** | **4811** | **6415** | **725** | **2219** | **2104** | **24** | **4** | **5** |
| **IHR** | **06/06** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **0** | **0** | **3869** | **2425** | **5289** | **1499** | **1089** | **1517** | **11** | **0** | **0** |
| **LMN** | **06/06** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **0** | **0** | **2543** | **3638** | **9774** | **1381** | **1928** | **3013** | **1** | **3** | **0** |
| **LGS** | **06/06** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **0** | **0** | **2216** | **3934** | **9562** | **1186** | **2304** | **3061** | **2** | **1** | **0** |
| **LGR** | **06/06** | **0** | **0** | **0** | **0** | **0** | **0** | **2** | **0** | **0** | **7445** | **8932** | **9648** | **3235** | **3942** | **3203** | **1** | **0** | **0** |
| **PRD** | **06/05** | **0** | **0** | **0** | **0** | **0** | **0** | **6** | **0** | **1** | **60** | **99** | **50** | **0** | **0** | **0** | **21** | **10** | **8** |
| **WAN** | **06/05** | **0** | **0** | **0** | **0** | **0** | **0** | **2** | **1** | **0** | **123** | **160** | **127** | **0** | **0** | **0** | **3** | **4** | **0** |
| **RIS** | **06/05** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **0** | **1** | **109** | **191** | **97** | **80** | **133** | **58** | **0** | **0** | **0** |
| **RRH** | **06/05** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **0** | **165** | **754** | **356** | **141** | **635** | **262** | **0** | **0** | **0** |
| **WEL** | **06/05** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **71** | **106** | **67** | **64** | **83** | **44** | **0** | **0** | **0** |
| **WFA** | **06/01** | **2** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **11187** | **19554** | **16077** | **0** | **0** | **0** | **0** | **0** | **0** |

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

Page last updated on: 06/07/13