



Fish Passage Center

Weekly Report #16-12

June 3, 2016

Summary of Events

Water Supply

Precipitation throughout the Columbia Basin has varied between 45% and 158% of average at individual sub-basins over May. Precipitation above The Dalles has been 93% of average over May. Over the 2016 water year, precipitation has ranged between 92% and 113% of average.

Table 1. Summary of May precipitation and cumulative October through May 31 precipitation with respect to average (1981–2010) at select locations within the Columbia and Snake River Basins.

| Location | Water Year 2016 May 1–31, 2016 | | Water Year 2016 October 1, 2015 to May 31, 2016 | |
|---|-----------------------------------|--------------|---|--------------|
| | Observed (inches) | % Average | Observed (inches) | % Average |
| | Columbia above Coulee | 3.39 | 111 | 29.4 |
| Snake River above Ice Harbor | 1.99 | 84 | 18.2 | 99 |
| Columbia above The Dalles | 2.27 | 93 | 22.5 | 102 |
| Kootenai | 3.46 | 114 | 29.2 | 104 |
| Clark Fork | 2.58 | 86 | 19.3 | 94 |
| Flathead | 5.45 | 158 | 30.9 | 113 |
| Pend Oreille River Basin above Waneta Dam | 3.64 | 114 | 26.0 | 104 |
| Salmon River Basin | 2.37 | 80 | 22.8 | 99 |
| Upper Snake Tributaries | 3.28 | 110 | 19.3 | 92 |
| Clearwater | 3.33 | 86 | 34.3 | 103 |
| Willamette River above Portland | 1.85 | 45 | 64.1 | 108 |

Table 2 displays the June 2nd ESP runoff volume forecasts for multiple reservoirs along with the May COE forecasts at Libby and Dworshak. The June 2nd ESP forecast at The Dalles between April and August is 80,091 Kaf (91% of average).

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

| Location | May 26, 2016 5-day QPF ESP | |
|---|-------------------------------|------------------------|
| | % Average (1981–2010) | Runoff Volume (Kaf) |
| The Dalles (Apr–Aug) | 91 | 80,091 |
| Grand Coulee (Apr–Aug) | 94 | 53,199 |
| Libby Res. Inflow, MT (Apr–Aug) | 94 99* | 5,308 5,831* |
| Hungry Horse Res. Inflow, MT (Apr–Aug) | 91 | 1,768 |
| Lower Granite Res. Inflow (Apr–July) | 83 | 16,391 |
| Brownlee Res. Inflow (Apr–July) | 74 | 4,045 |
| Dworshak Res. Inflow (Apr–July) | 89 86* | 2,144 2,090* |

* Denotes COE May Forecast

Grand Coulee Reservoir is at 1,275.9 feet (6-1-16) and has refilled 7.1 feet over the last week. Outflows at Grand Coulee have ranged between 88.1 and 130.2 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2,420.5 feet (6-1-16) and has refilled 3.3 feet over the previous week. Daily average outflows at Libby Dam have been reduced from 26 Kcfs to 17 Kcfs over the last week for the sturgeon pulse operation.

Hungry Horse is currently at an elevation of 3,548.7 feet (6-1-16) and has refilled 1.3 feet over the last week. Outflows at Hungry Horse have been 5.5–6.9 Kcfs over the last week.

Dworshak is currently at an elevation of 1,593.4 feet (6-1-16) and has refilled 4.9 feet over the last week. Outflows have been 1.6 Kcfs over the last week.

The Brownlee Reservoir was at an elevation of 2,071.6 feet on June 1, 2016, and has refilled 0.4 feet over the last week. Inflows at Brownlee have ranged between 17.9 and 21.8 Kcfs over the last week.

The Biological Opinion flow period began on April 3rd in the lower Snake River (Lower Granite). According to the April Final Water Supply Forecast (April 7, 2016), the flow objective this spring will be 96 Kcfs at Lower Granite. Flows at Lower Granite Dam have averaged 68.9 Kcfs last week and 91.1 Kcfs between April 3 and June 1, 2016.

Based on the April Final Water Supply Forecast, the Spring Biological Opinion Flow Objectives (which began April 10th) will be 243 Kcfs at McNary Dam and 135 Kcfs at Priest Rapids Dam. Over the last week, flows have averaged 214.4 Kcfs at McNary and 137.7 Kcfs at Priest Rapids. Between April 10 and June 1, 2016, flows at McNary Dam averaged 271.9 Kcfs. Priest Rapids Dam flows were 165.4 Kcfs.

Spill and River Temperature

No spill occurred at Dworshak Dam over the past week.

Spill for fish passage began on April 3rd at the Snake River projects. Spill for fish passage at the Snake River projects is to occur at the following amounts described in the 2016 Fish Operations Plan (FOP).

| Project | Spill Level Day/Night |
|------------------|--|
| Lower Granite | 20 Kcfs/20 Kcfs |
| Little Goose | 30%/30% |
| Lower Monumental | Gas Cap/Gas Cap |
| Ice Harbor | April 3–April 28: 45 Kcfs/Gas Cap April 28–June 20: 30%/30% vs. 45 Kcfs/Gas Cap |

This past week all Lower Snake River projects (Lower Granite, Little Goose, Lower Monumental and Ice Harbor dams) have spilled at the 2016 FOP levels. A System Operational Requests (SOR 2016_1) calling for a change in the spill pattern at Lower Monumental from bulk spill to uniform spill, which would increase spill at this project without exceeding the TDG criteria, was implemented on May 13th. Spill at Lower Monumental Dam has varied between 45 and 47 Kcfs this week, which represents a significant increase in the volume of spill compared to what would have occurred using the bulk spill pattern. This increased protection for

fish passage is due to end today, as it was only agreed to for protecting juvenile sockeye passing the Lower Monumental Dam project.

Spill for fish passage began on April 10th at the middle Columbia River projects. Spill for fish passage at the middle Columbia River projects is to occur at the following amounts described in the 2016 FOP.

| Project | Spill Level Day/Night |
|------------|--|
| McNary | 40%/40% |
| John Day | April 10-April 28: 30%/30% April 28-June 15: 30%/30% and 40%/40% |
| The Dalles | 40%/40% |
| Bonneville | 100 Kcfs/100 Kcfs |

This past week all Middle Columbia River projects (McNary, John Day, The Dalles, and Bonneville dams) have spilled at the 2016 FOP levels.

All sites were within TDG criteria over the past week, except for the last four days at the Ice Harbor Dam forebay, where TDG measured in excess of the upstream tailrace at Lower Monumental Dam for two of those days.

Note: The State of Oregon TDG waiver requires compliance only with 120% TDG in the tailrace, while the State of Washington requires compliance with both a 115% TDG forebay requirement and a 120% tailrace TDG requirement. The State of Oregon and the State of Washington also use different methodologies to estimate the 12-hour average TDG. For Oregon, the 12-hour average is based on the 12 highest hourly TDG measurements in a single calendar day (not necessarily consecutive). For Washington, the 12-hour average is based on 12-hour rolling averages. The highest of the rolling averages is what is reported as the 12-hour average for a given day. The location of a TDG monitor will dictate which of these methodologies is used for compliance monitoring. The Washington methodology will apply to all the lower Snake River projects, as well as the middle Columbia River forebay monitors. On any given day the compliance of the tailrace monitors at the middle Columbia River projects will be determined using either the Washington or Oregon methodology, whichever is the most restrictive, and spill will be decreased if needed.

Monitoring for signs of gas bubble trauma (GBT) occurred at Little Goose, Lower Monumental and McNary dams over the past week. No fish were observed with signs of GBT over the past week.

Temperature: At Lower Granite, the forebay temperatures have increased to near levels observed during this time in 2015. Thus far it has remained a bit cooler at Ice Harbor Dam and is closer to the 10 year average. At McNary and Bonneville dams the forebay temperatures have been less than what was observed in 2015, but are above the 10-year average.

Smolt Monitoring

Smolt Monitoring Program (SMP) sampling is ongoing at all SMP bypass facilities and the Imnaha trap. Sampling at the Salmon River and Snake River traps was officially terminated on May 24th. Sampling at the Grande Ronde River trap was terminated on May 30th.

This week's samples at Bonneville Dam (BON) were dominated by subyearling Chinook. This week's daily average passage index for subyearling Chinook at BON was about 3,900 per day, which is a slight increase over last week's daily average passage index of about 3,400 per day. Passage of spring migrants (yearling Chinook, steelhead, coho, and sockeye) all decreased this week, when compared to last week. This week's daily average passage indices for these four species were about 800, 1,800, 1,900, and 1,100 per day, respectively. Last week's daily average passage indices were about 7,200 for yearling Chinook, 5,000 for steelhead, 7,500 for coho, and 11,900 for sockeye. No Pacific lamprey ammocoetes were sampled at BON this week. Pacific lamprey macrophthalmia were encountered every day this week, with a daily average collection of nearly 100 per day.

Sampling at John Day Dam (JDA) in 2016 is every-other-day for the entire SMP season. This is the first time every-other-day sampling has occurred at this site over the entire season. Subyearling Chinook dominated the collections at JDA this week, with a daily average passage index of about 5,300 fish per day. This week's daily average passage index for subyearling Chinook is a slight decrease from last week's daily average of about 6,100 per day. Passage of spring migrants all decreased this week when compared to

last week. This week's daily average passage indices for spring migrants at JDA were 1,600 for yearling Chinook, 850 for coho, 2,800 for sockeye, and 950 for steelhead. Last week's daily average passage indices were 6,150, 1,800, 10,250, and 2,250 per day, respectively. No Pacific lamprey ammocoetes were encountered in this week's samples but Pacific lamprey macrophthalmia were collected in all three of this week's samples. This week's daily average collection for Pacific macrophthalmia at JDA was about 775 per day.

As in recent years, sampling at McNary Dam (MCN) in 2016 will be every-other-day for the entire SMP season. Subyearling Chinook dominated the samples at MCN this week, with a daily average passage index of about 11,000 per day. This daily average passage index is an increase from last week's daily average passage index of about 8,600 fish per day. As with the other Middle Columbia sites, passage of spring migrants at MCN all decreased this week, when compared to last week. This week's daily average passage indices were 2,800 for yearling Chinook, 2,500 for coho, 3,900 for sockeye, and 2,300 for steelhead. Last week's daily average passage indices for these four species were 12,400, 6,500, 16,750, and 7,250 per day, respectively. Finally, Pacific lamprey macrophthalmia were collected in all four of this week's samples, with a daily average collection of about 460 per day. No Pacific ammocoetes have been collected at MCN so far this year.

This week's samples at Lower Granite Dam (LGR) were dominated by subyearling Chinook, with a daily average passage index of nearly 19,000 per day. This is a large increase over last week's daily average passage index of about 5,350 subyearling Chinook per day. Passage of spring migrants all decrease this week when compared to last week. This week's daily average passage indices for spring migrants at LGR were 1,200 for yearling Chinook, 600 for coho, 1,000 for sockeye, and 4,500 for steelhead. Last week's daily average passage indices for these four species were 4,400, 1,000, 3,850, and 13,650 per day, respectively. Finally, no lamprey juveniles were encountered in this week's samples at LGR.

Sampling at Little Goose Dam (LGS) was limited to a 24-hour sample every-other-day until transportation began, at which time sampling switched to daily. Subyearling Chinook and Steelhead both dominated

this week's collections at LGS. This week's daily average passage indices for these two species were 2,740 and 2,860 fish per day, respectively. The daily average passage index for subyearling Chinook represents an increase over last week's daily average passage index of 1,260 per day. However, steelhead passage this week represents a decrease over last week's daily average passage index of nearly 12,000 per day. Yearling Chinook, coho, and sockeye passage all decreased this week, when compared to last week. This week's daily average passage indices for these three species were about 1,800, 700, and 950 per day, respectively. Last week's daily average passage indices were about 5,050 for yearling Chinook, 1,500 for coho, and 3,050 for sockeye. Finally, Pacific lamprey ammocoetes were encountered in three of this week's samples while Pacific lamprey macrophthalmia were encountered every day this week. This week's daily average collection for Pacific lamprey macrophthalmia at LGS was about 80 per day.

Sampling at Lower Monumental Dam (LMN) was limited to a 24-hour sample every-third-day through the April 14th, every-other-day from April 16th to April 30th, and every day with the initiation of transportation. This week's samples at LMN were dominated again by steelhead, with a daily average passage index of 1,100 per day. This is a decrease over last week's daily average passage index of about 8,500 steelhead juveniles per day. Passage of yearling Chinook, coho, and sockeye also decreased this week, when compared to the previous week. This week's daily average passage indices were 370, 125, and 500 per day, respectively. Last week's daily average passage indices were 6,800 for yearling Chinook, 950 for coho, and 2,800 for sockeye. Subyearling Chinook passage increased slightly this week, when compared to last week. This week's daily average passage index for subyearling Chinook at LMN was 715 per day, whereas that for last week was about 500 per day. Finally, Pacific lamprey ammocoetes were encountered in one sample this week (May 31st) while Pacific lamprey macrophthalmia were encountered in five of this week's samples. The ammocoete that was collected on May 31st is the first ammocoete for the year at LMN.

Coho and subyearling Chinook dominated this week's samples at Rock Island Dam (RIS). The daily average passage indices for these two species were 120 and 110 per day, respectively. This week's daily average

passage index for coho represents a decrease over the previous week, which was about 450 per day. However, subyearling Chinook passage this week was an increase over the previous week. Last week's daily average passage index for subyearling Chinook was only about 40 fish per day. Passage of yearling Chinook, steelhead, and sockeye all decreased this week when compared to last week. This week's daily average passage indices for these three species were about 25, 60, and 10 per day, respectively. Last week's daily average passage indices were 40 for yearling Chinook, 140 for steelhead, and 30 for sockeye. Finally, no lamprey juveniles were encountered in this week's samples at RIS.

The Grande Ronde Trap (GRN) is operated by the Oregon Department of Fish and Wildlife and is located at river kilometer 2 in the Grande Ronde River. Due to a boat race nearby, sampling at GRN was suspended on May 27th as a safety precaution. In addition, sampling at this trap was terminated for the season after the May 30th sample. Therefore, sampling at GRN this week was limited to only three samples, May 28–30. Subyearling Chinook were the most abundant species of salmonid in this week's samples, with a daily average collection of about 14 fish per day. One yearling Chinook was collected in the May 28th sample and one steelhead was collected in the May 29th sample.

The Salmon River Trap at Whitebird (WTB) is located at river kilometer 103 and operated by Idaho Department of Fish and Game. Similar to 2015, sampling at the Salmon River Trap in 2016 was five days per week. Sampling at WTB was suspended for the April 21 sample due to unsafe river conditions associated with high flows. River conditions never improved enough to resume sampling at this trap for 2016.

The Snake River Trap at Lewiston (LEW) is located at river kilometer 225 and is operated by Idaho Department of Fish and Game. Sampling at this trap was terminated for the season on May 24th.

The Imnaha River Trap (IMN) is located at river kilometer 7 and is operated by the Nez Perce Tribe. Sampling at the Imnaha River Trap is year-round and, for 2016, the Fish Passage Center has been receiving data since the January 1, 2016, sample. However, due to the remote nature of the trap, the Nez Perce Tribe is able to send collection data to the FPC only periodically. Currently, the FPC has data from IMN through the

May 25th sample. For the period of May 19–23, steelhead dominated the collections at IMN. The daily average collection for steelhead over this time period was 100 per day. The daily average collection for yearling Chinook over this same period was only 10 fish per day. The only other species of salmonid that was collected during this period was subyearling Chinook. However, subyearling Chinook collections during this time period were infrequent and in very low numbers.

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 920,000 subyearling fall Chinook were scheduled to be released into this zone this week. Of these, about 200,000 were scheduled to be released on May 30th from Lyons Ferry Hatchery, which is located in the Lower Monumental pool. The remaining 729,000 were scheduled for release above Lower Granite Dam. The above Lower Granite Dam releases consisted of a release of approximately 320,000 subyearling fall Chinook juveniles into Lapwai Creek, a tributary of the Clearwater River, and 400,000 fall Chinook juveniles into the Grande Ronde River. An unknown portion of the fall Chinook juveniles that were scheduled to be released above Lower Granite Dam this zone this week were unmarked. There were no other releases scheduled for this zone this week.

Four separate releases of subyearling fall Chinook juveniles are scheduled for this zone over the next two weeks. In all, these releases are expected to total nearly 1.3 million juveniles. The first of these fall Chinook releases is of about 200,000 (16%) subyearlings on June 10th from the Captain John Rapids Acclimation Facility on the Snake River. The remaining three releases are all scheduled to take place into the Clearwater River or its tributaries. In all, these Clearwater River releases are expected to total nearly 1.1 million fall Chinook juveniles. An unknown proportion of the fall Chinook juveniles that are scheduled to be released into the Clearwater River over the next two weeks are going to be unmarked and, therefore, difficult to distinguish from wild/natural fish. These are the only new releases that are scheduled for this zone over the next two weeks.

Mid-Columbia Zone: The Mid-Columbia Zone encompasses the area of the Columbia River and its tributaries from McNary Dam to Chief Joseph Dam. No new releases of juvenile salmonids were scheduled for this zone this week. However, several volitional releases from previous weeks were scheduled to end this week. These volitional releases were comprised of fall Chinook, summer Chinook, coho, and steelhead. Only one new release is scheduled for this zone over the next two weeks. Approximately 7.0 million subyearling fall Chinook juveniles are scheduled to be released from Priest Rapids Hatchery, which is located just below Priest Rapids Dam. This release is scheduled to begin on or around June 10th and is expected to run through late June. Although all of these fish are marked with an otolith mark, approximately 3.3 million will be otherwise unmarked (i.e., no clips or CWT) and, therefore, difficult to distinguish from wild/natural fish.

Lower Columbia Zone: The Lower Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to McNary Dam. Approximately 4.0 million subyearling fall Chinook were scheduled to be released from Klickitat Hatchery into the Klickitat River this week. This is the only new release that was scheduled for this zone this week. There are no new releases scheduled for this zone over the next two weeks.

Adult Passage

The summer Chinook count began June 1st at Bonneville Dam. Daily passage numbers at Bonneville Dam ranged between 1,692 and 2,089 adult summer Chinook in the last week. The 2016 summer Chinook count of 3,781 is about 73.6% of the 2015 count, while having 478 more fish than the 10-year average count. The 2016 Bonneville Dam summer Chinook jack count of 364 is 73.2% of the 2015 count and about 55.9% of the 10-year average count. A total of 137,215 adult spring Chinook have been counted at Bonneville Dam this year. In 2015, 220,480 adult spring Chinook were counted at Bonneville Dam for the same time period. The 2016 adult spring Chinook count at Bonneville Dam is about 62.2% of the 2015 count and 93.5% of the 10-year average count of 146,704. The 2016 spring Chinook jack count of 11,145 is about 83.7% of the 2015 count of 13,314 and 44.8% of the 10-year average count of 24,884. At Willamette Falls, 16,536 adult

spring Chinook have been counted so far this year. In 2015, 43,551 adult spring Chinook were counted at Willamette Falls. This year's count is about 38% of the 2015 count and 73.3% of the 10-year average count of 22,566. As of June 2nd, a total of 103,924 adult spring Chinook have been counted at The Dalles Dam and 75,584 have been counted at McNary Dam. The Dalles Dam 2016 adult spring Chinook count is about 54% of the 2015 count and 92.2% of the 10-year average count. The 2016 McNary Dam adult spring Chinook count is about 51% of the 2015 count and 90.8% of the 10-year average count. A total of 52,087 spring chinook have been counted at Lower Granite Dam as of June 2nd. The 2016 Lower Granite Dam adult spring Chinook count is about 54.8% of the 2015 count, while being about 1.1 times greater than the 10-year average count.

The 2016 Bonneville Dam adult steelhead count of 5,489 has 151 more fish than the 2015 count of 5,338 and 216 fewer fish than the 10-year average count of 5,705. The 2016 Bonneville Dam adult wild steelhead count of 2,054 has 545 fewer fish than the 2015 count of 2,599, while having 450 more fish than the 10-year average count of 1,604. At upriver sites, adult steelhead continue to move through the hydrosystem to reach their tributaries and spawning sites. The majority of these fish over-wintered in pools and will complete their trip to their spawning grounds in March through May. Daily adult steelhead counts at Lower Granite Dam ranged from 47 to 117 adults per day last week. This year's Lower Granite steelhead count of 5,474 is 59.6% of the 2015 count of 9,182 and 59.1% of the 10-year average count of 9,259. The 2016 Lower Granite Dam adult wild steelhead count of 3,117 is 71.7% of the 2015 count of 4,346 and is about 88.6% of the 10-year average count of 3,518. At Willamette Falls, the 2016 count for steelhead was 14,000 as of May 30th. This year's steelhead count is about 2.3 times greater than the 2015 count of 5,974 and 1.1 times greater than the 10-year average count of 12,522.

Daily adult sockeye passage numbers at Bonneville Dam ranged between 17 and 361 last week. The 2016 adult sockeye count at Bonneville Dam of 1,093 is 1.8 times greater than the 2015 count and 5.7 times greater than the 10-year average count.

Hatchery Releases Last Two Weeks

Hatchery Release Summary

From: **5/21/2016** to **06/03/16**

| Agency | Hatchery | Species | Race | MigYr | NumRel | RelStart | RelEnd | RelSite | RelRiver |
|--|---------------------------|---------|------|-------|------------------|----------|----------|----------------------------------|----------------------|
| Colville Tribe | Chief Joseph Hatchery | CH0 | SU | 2016 | 222,000 | 05-25-16 | 05-29-16 | Omak Pond | Okanogan River |
| Colville Tribe | Chief Joseph Hatchery | CH0 | SU | 2016 | 240,000 | 05-25-16 | 05-29-16 | Chief Joseph Hatchery | Wells Pool |
| Colville Tribe Total | | | | | 462,000 | | | | |
| Nez Perce Tribe | Lyons Ferry Hatchery | CH0 | FA | 2016 | 500,000 | 05-24-16 | 05-24-16 | Cpt John Acclim Pond | Snake River |
| Nez Perce Tribe | Lyons Ferry Hatchery | CH0 | FA | 2016 | 500,000 | 05-26-16 | 05-26-16 | Big Canyon (Clearwater River) | Clearwater River M F |
| Nez Perce Tribe | Nez Perce Tribal Hatchery | CH0 | FA | 2016 | 319,580 | 05-31-16 | 05-31-16 | Lapwai Creek | Clearwater River M F |
| Nez Perce Tribe Total | | | | | 1,319,580 | | | | |
| Oregon Dept. of Fish and Wildlife | Irrigon Hatchery Complex | CH0 | FA | 2016 | 400,000 | 05-31-16 | 05-31-16 | Grande Ronde River | Grande Ronde River |
| Oregon Dept. of Fish and Wildlife | Round Butte Hatchery | CH1 | SP | 2016 | 240,000 | 04-15-16 | 05-31-16 | Deschutes River | Deschutes River |
| Oregon Dept. of Fish and Wildlife Total | | | | | 640,000 | | | | |
| WA Dept. of Fish and Wildlife | COOP | CH0 | FA | 2016 | 175 | 05-01-16 | 05-31-16 | Wenatchee River | Wenatchee River |
| WA Dept. of Fish and Wildlife | COOP | CH0 | FA | 2016 | 1,025 | 05-01-16 | 05-31-16 | Above McNary Dam | McNary Pool |
| WA Dept. of Fish and Wildlife | COOP | CH0 | FA | 2016 | 3,850 | 05-01-16 | 05-31-16 | Above McNary Dam | McNary Pool |
| WA Dept. of Fish and Wildlife | COOP | CH0 | FA | 2016 | 3,975 | 05-01-16 | 05-31-16 | Above McNary Dam | McNary Pool |
| WA Dept. of Fish and Wildlife | COOP | CH0 | FA | 2016 | 13,600 | 05-01-16 | 05-31-16 | Yakama River | Yakima River |
| WA Dept. of Fish and Wildlife | COOP | CH0 | SU | 2017 | 225 | 05-01-16 | 05-31-16 | Methow River | Methow River |
| WA Dept. of Fish and Wildlife | Eastbank Hatchery | CH1 | SU | 2016 | 535,000 | 04-25-16 | 05-30-16 | Dryden Acclim Pond | Wenatchee River |
| WA Dept. of Fish and Wildlife | Eastbank Hatchery | ST | SU | 2016 | 24,000 | 04-20-16 | 05-31-16 | Blackbird Island Acc Pond | Wenatchee River |
| WA Dept. of Fish and Wildlife | Lyons Ferry Hatchery | CH0 | FA | 2016 | 200,000 | 05-30-16 | 05-30-16 | Lyons Ferry Hatchery | Snake River |
| WA Dept. of Fish and Wildlife | Wells Hatchery | CH0 | SU | 2016 | 484,000 | 05-25-16 | 06-07-16 | Wells Hatchery | Rocky Reach Pool |
| WA Dept. of Fish and Wildlife | Wells Hatchery | ST | SU | 2016 | 160,000 | 04-20-16 | 05-31-16 | Wells Hatchery | Rocky Reach Pool |
| WA Dept. of Fish and Wildlife Total | | | | | 1,425,850 | | | | |
| Yakama Tribe | Cascade Hatchery | CO | UN | 2016 | 68,020 | 05-01-16 | 05-31-16 | Twisp Acclim Pond | Methow River |
| Yakama Tribe | Cascade Hatchery | CO | UN | 2016 | 79,496 | 05-01-16 | 05-31-16 | Coulter Creek | Wenatchee River |
| Yakama Tribe | Cascade Hatchery | CO | UN | 2016 | 135,272 | 05-01-16 | 05-31-16 | Butcher Creek Acclim. Pond | Wenatchee River |
| Yakama Tribe | Eagle Creek NFH | CO | UN | 2016 | 95,939 | 04-15-16 | 06-01-16 | Stiles Pond | Yakima River |
| Yakama Tribe | Eagle Creek NFH | CO | UN | 2016 | 193,067 | 04-15-16 | 06-01-16 | Holmes Pond | Yakima River |
| Yakama Tribe | Eagle Creek NFH | CO | UN | 2016 | 215,045 | 04-15-16 | 06-01-16 | Easton Pond | Yakima River |
| Yakama Tribe | Klickitat Hatchery | CH0 | FA | 2016 | 4,000,000 | 06-01-16 | 06-01-16 | Klickitat Hatchery | Klickitat River |
| Yakama Tribe | Prosser Acclim. Pond | CO | UN | 2016 | 74,227 | 04-15-16 | 06-01-16 | Lost Creek Acclim Pond | Yakima River |
| Yakama Tribe | Prosser Acclim. Pond | CO | UN | 2016 | 74,951 | 04-15-16 | 06-01-16 | Stiles Pond | Yakima River |
| Yakama Tribe | Prosser Acclim. Pond | CO | UN | 2016 | 76,167 | 04-15-16 | 06-01-16 | Yakama River | Yakima River |
| Yakama Tribe | Prosser Acclim. Pond | CO | UN | 2016 | 299,959 | 04-15-16 | 06-01-16 | Prosser Acclim Pond | Yakima River |
| Yakama Tribe | Willard Hatchery | CO | UN | 2016 | 121,443 | 05-01-16 | 05-31-16 | Rolfings Acclim Pond | Wenatchee River |
| Yakama Tribe Total | | | | | 5,433,586 | | | | |
| Grand Total | | | | | 9,281,016 | | | | |

Hatchery Releases Next Two Weeks

Hatchery Release Summary

From: **6/4/2016** to **6/17/2016**

| Agency | Hatchery | Species | Race | MigYr | NumRel | RelStart | RelEnd | RelSite | RelRiver |
|--|---------------------------|---------|------|-------|------------------|----------|----------|---------------------------|-----------------------|
| Nez Perce Tribe | Lyons Ferry Hatchery | CH0 | FA | 2016 | 200,000 | 06-10-16 | 06-10-16 | Cpt John Acclim Pond | Snake River |
| Nez Perce Tribe | Nez Perce Tribal Hatchery | CH0 | FA | 2016 | 280,070 | 06-13-16 | 06-13-16 | Cedar Flats Acclim. | Selway River |
| Nez Perce Tribe | Nez Perce Tribal Hatchery | CH0 | FA | 2016 | 280,070 | 06-13-16 | 06-13-16 | Lukes Gulch Acclim. | S Fk Clearwater River |
| Nez Perce Tribe | Nez Perce Tribal Hatchery | CH0 | FA | 2016 | 520,919 | 06-13-16 | 06-13-16 | Nez Perce Tribal Hatchery | Clearwater River M F |
| Nez Perce Tribe Total | | | | | 1,281,059 | | | | |
| WA Dept. of Fish and Wildlife | Priest Rapids Hatchery | CH0 | FA | 2016 | 7,039,543 | 06-10-16 | 06-25-16 | Priest Rapids Hatchery | McNary Pool |
| WA Dept. of Fish and Wildlife | Wells Hatchery | CH0 | SU | 2016 | 484,000 | 05-25-16 | 06-07-16 | Wells Hatchery | Rocky Reach Pool |
| WA Dept. of Fish and Wildlife Total | | | | | 7,523,543 | | | | |
| Grand Total | | | | | 8,804,602 | | | | |

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

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

| Date | Grand Coulee | | Chief Joseph | | Wells | | Rocky Reach | | Rock Island | | Wanapum | | Priest Rapids | |
|------------|--------------|-------|--------------|-------|-------|-------|-------------|-------|-------------|-------|---------|-------|---------------|-------|
| | Flow | Spill | Flow | Spill | Flow | Spill | Flow | Spill | Flow | Spill | Flow | Spill | Flow | Spill |
| 05/20/2016 | 92.7 | 0.0 | 91.5 | 0.0 | 112.5 | 7.6 | 113.4 | 0.0 | 125.0 | 12.3 | 137.0 | 17.9 | 137.3 | 22.5 |
| 05/21/2016 | 72.5 | 0.0 | 76.1 | 0.0 | 93.3 | 8.1 | 91.8 | 0.0 | 105.5 | 12.0 | 116.7 | 17.5 | 117.8 | 26.6 |
| 05/22/2016 | 83.2 | 0.0 | 81.3 | 0.0 | 80.5 | 6.6 | 70.3 | 0.0 | 77.8 | 9.9 | 94.9 | 18.0 | 92.8 | 23.6 |
| 05/23/2016 | 116.5 | 0.0 | 114.3 | 0.0 | 133.3 | 9.5 | 131.5 | 0.0 | 142.1 | 14.8 | 123.2 | 20.9 | 121.3 | 27.0 |
| 05/24/2016 | 117.0 | 0.0 | 119.4 | 0.0 | 140.1 | 10.0 | 139.7 | 0.0 | 153.1 | 13.4 | 147.9 | 19.0 | 139.5 | 26.7 |
| 05/25/2016 | 110.0 | 0.0 | 112.9 | 0.0 | 131.9 | 10.0 | 130.3 | 0.0 | 143.9 | 12.6 | 152.4 | 19.1 | 150.2 | 24.2 |
| 05/26/2016 | 115.9 | 0.0 | 115.7 | 0.0 | 124.9 | 9.5 | 118.4 | 0.0 | 130.1 | 12.6 | 136.7 | 18.5 | 135.9 | 25.9 |
| 05/27/2016 | 125.8 | 0.0 | 121.9 | 0.0 | 133.2 | 9.1 | 127.0 | 0.4 | 137.5 | 12.8 | 128.4 | 19.2 | 122.9 | 26.8 |
| 05/28/2016 | 127.9 | 0.1 | 126.6 | 0.0 | 139.7 | 9.4 | 138.4 | 0.0 | 151.2 | 12.7 | 148.5 | 20.6 | 141.0 | 28.9 |
| 05/29/2016 | 88.1 | 0.1 | 91.5 | 0.0 | 106.5 | 7.6 | 110.3 | 12.4 | 121.7 | 25.0 | 143.1 | 20.8 | 149.8 | 30.0 |
| 05/30/2016 | 98.1 | 0.1 | 97.3 | 0.0 | 116.0 | 8.4 | 117.1 | 11.0 | 126.3 | 24.0 | 131.7 | 16.0 | 128.9 | 26.0 |
| 05/31/2016 | 115.9 | 0.0 | 118.8 | 0.0 | 129.2 | 9.2 | 122.7 | 11.4 | 131.2 | 27.8 | 143.4 | 18.5 | 139.2 | 26.4 |
| 06/01/2016 | 130.2 | 0.1 | 126.3 | 0.0 | 140.0 | 9.4 | 139.1 | 13.1 | 148.5 | 26.9 | 150.5 | 18.8 | 145.9 | 26.4 |
| 06/02/2016 | 107.9 | 0.1 | 108.3 | 0.0 | 120.3 | 9.4 | 118.9 | 10.8 | 130.1 | 28.2 | 135.5 | 18.7 | 133.5 | 26.7 |

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

| Date | Dworshak | | Brownlee Inflow | Hells Canyon | | Lower Granite | | Little Goose | | Lower Monumental | | Ice Harbor | |
|------------|----------|-------|-----------------|--------------|-------|---------------|-------|--------------|-------|------------------|-------|------------|--|
| | Flow | Spill | | Outflow | Flow | Spill | Flow | Spill | Flow | Spill | Flow | Spill | |
| 05/20/2016 | 4.4 | 0.0 | --- | 19.7 | 107.0 | 20.4 | 102.1 | 30.8 | 102.2 | 40.8 | 106.1 | 59.9 | |
| 05/21/2016 | 2.2 | 0.0 | --- | 17.1 | 94.1 | 20.4 | 90.5 | 27.1 | 89.0 | 40.5 | 92.8 | 37.9 | |
| 05/22/2016 | 2.2 | 0.0 | --- | 16.5 | 89.9 | 20.4 | 85.9 | 25.8 | 85.0 | 40.3 | 89.8 | 52.9 | |
| 05/23/2016 | 2.2 | 0.0 | --- | 21.2 | 83.0 | 20.3 | 80.6 | 24.1 | 78.8 | 42.4 | 83.3 | 56.7 | |
| 05/24/2016 | 1.6 | 0.0 | --- | 23.7 | 84.1 | 20.4 | 81.0 | 24.3 | 79.0 | 45.0 | 81.7 | 37.9 | |
| 05/25/2016 | 1.6 | 0.0 | --- | 22.3 | 78.5 | 20.4 | 76.2 | 22.8 | 74.3 | 45.0 | 78.2 | 24.9 | |
| 05/26/2016 | 1.6 | 0.0 | --- | 21.9 | 76.6 | 20.5 | 73.8 | 22.1 | 71.9 | 47.1 | 74.3 | 22.2 | |
| 05/27/2016 | 1.6 | 0.0 | --- | 16.6 | 69.7 | 20.6 | 65.8 | 19.8 | 63.1 | 45.3 | 65.9 | 19.7 | |
| 05/28/2016 | 1.6 | 0.0 | --- | 19.9 | 68.8 | 20.6 | 68.5 | 20.4 | 66.2 | 47.0 | 69.8 | 43.6 | |
| 05/29/2016 | 1.6 | 0.0 | --- | 18.8 | 68.7 | 20.6 | 65.7 | 19.8 | 65.1 | 45.5 | 69.7 | 54.2 | |
| 05/30/2016 | 1.6 | 0.0 | --- | 18.7 | 64.5 | 20.6 | 62.9 | 18.8 | 61.1 | 47.0 | 64.7 | 51.9 | |
| 05/31/2016 | 1.6 | 0.0 | --- | 20.3 | 67.8 | 20.6 | 65.0 | 19.5 | 62.3 | 45.1 | 65.4 | 49.6 | |
| 06/01/2016 | 1.5 | 0.0 | --- | 18.0 | 66.4 | 20.6 | 63.9 | 19.2 | 63.3 | 47.1 | 68.2 | 29.2 | |
| 06/02/2016 | 1.4 | 0.0 | --- | 15.2 | 67.1 | 20.6 | 63.1 | 18.9 | 62.6 | 45.0 | 64.4 | 19.2 | |

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

| Date | McNary | | John Day | | The Dalles | | Bonneville | | | |
|------------|--------|-------|----------|-------|------------|-------|------------|-------|------|-------|
| | Flow | Spill | Flow | Spill | Flow | Spill | Flow | Spill | PH1 | PH2 |
| 05/20/2016 | 261.9 | 104.7 | 267.5 | 107.1 | 247.7 | 99.1 | 265.7 | 99.9 | 44.9 | 108.5 |
| 05/21/2016 | 241.4 | 96.8 | 231.6 | 89.5 | 216.8 | 86.9 | 252.7 | 99.5 | 29.9 | 110.8 |
| 05/22/2016 | 201.4 | 81.0 | 197.5 | 59.2 | 184.5 | 73.6 | 208.9 | 100.0 | 4.7 | 91.8 |
| 05/23/2016 | 214.9 | 86.0 | 213.2 | 67.4 | 197.0 | 78.5 | 207.8 | 100.6 | 0.9 | 93.9 |
| 05/24/2016 | 223.5 | 89.6 | 227.6 | 90.6 | 212.7 | 84.7 | 229.1 | 99.7 | 11.1 | 106.0 |
| 05/25/2016 | 237.4 | 95.3 | 227.3 | 86.8 | 209.4 | 83.5 | 232.6 | 100.2 | 14.5 | 105.5 |
| 05/26/2016 | 237.9 | 95.3 | 219.8 | 65.7 | 202.5 | 81.1 | 217.8 | 100.5 | 2.4 | 102.5 |
| 05/27/2016 | 211.2 | 84.9 | 225.8 | 71.2 | 211.2 | 84.6 | 228.2 | 101.3 | 1.3 | 113.3 |
| 05/28/2016 | 209.3 | 84.0 | 204.3 | 81.4 | 190.7 | 76.1 | 208.3 | 100.9 | 1.0 | 94.0 |
| 05/29/2016 | 209.8 | 84.4 | 193.8 | 73.9 | 174.9 | 70.0 | 201.6 | 100.8 | 1.5 | 86.9 |
| 05/30/2016 | 209.5 | 84.2 | 216.6 | 64.9 | 201.6 | 80.5 | 213.6 | 100.1 | 0.9 | 100.2 |
| 05/31/2016 | 223.7 | 89.8 | 223.5 | 70.5 | 207.2 | 82.8 | 224.4 | 99.7 | 4.3 | 108.0 |
| 06/01/2016 | 199.3 | 79.9 | 180.1 | 71.7 | 163.9 | 65.8 | 194.5 | 98.9 | 9.3 | 73.9 |
| 06/02/2016 | 210.7 | 84.3 | 209.0 | 79.8 | 192.4 | 77.1 | 204.5 | 98.9 | 11.2 | 82.0 |

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

| Site | Date | Species | Number of Fish | Number w GBT signs | Number w Fin Signs | % Fin GBT | % Severe Fin GBT | Number of Fish with Fin GBT Listed by Highest Rank | | | |
|-----------------------------|----------|---------------------|----------------|--------------------|--------------------|-----------|------------------|--|--------|--------|--------|
| | | | | | | | | Rank 1 | Rank 2 | Rank 3 | Rank 4 |
| Lower Granite Dam | | | | | | | | | | | |
| | 05/26/16 | Chinook + Steelhead | 100 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| Little Goose Dam | | | | | | | | | | | |
| | 05/23/16 | Chinook + Steelhead | 100 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| | 05/30/16 | Chinook + Steelhead | 100 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| Lower Monumental Dam | | | | | | | | | | | |
| | 05/25/16 | Chinook + Steelhead | 100 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| | 06/01/16 | Chinook + Steelhead | 100 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| McNary Dam | | | | | | | | | | | |
| | 05/20/16 | Chinook + Steelhead | 100 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| | 05/22/16 | Chinook + Steelhead | 102 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| | 05/26/16 | Chinook + Steelhead | 100 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| | 05/30/16 | Chinook + Steelhead | 100 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| Bonneville Dam | | | | | | | | | | | |
| | 05/21/16 | Chinook + Steelhead | 100 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| | 05/24/16 | Chinook + Steelhead | 100 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| Rock Island Dam | | | | | | | | | | | |
| | 05/24/16 | Chinook + Steelhead | 100 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |
| | 05/26/16 | Chinook + Steelhead | 100 | 0 | 0 | 0.00% | 0.00% | 0 | 0 | 0 | 0 |

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

Total Dissolved Gas Saturation Data at Upper Columbia River Sites

| Date | <u>Hungry H. Dnst</u> | | | <u>Boundary</u> | | | <u>Grand Coulee</u> | | | <u>Grand C. Tlwr</u> | | | <u>Chief Joseph</u> | | | | | | | |
|------|-----------------------|-------------|-------------|-----------------|-------------|-------------|---------------------|-----------|-------------|----------------------|-------------|-----------|---------------------|-------------|-------------|-----------|------------|------------|-------------|-----------|
| | <u>24 h</u> | <u>12 h</u> | | <u>#</u> | <u>24 h</u> | <u>12 h</u> | | <u>#</u> | <u>24 h</u> | <u>12 h</u> | | <u>#</u> | <u>24 h</u> | <u>12 h</u> | | <u>#</u> | | | | |
| | <u>Avg</u> | <u>Avg</u> | <u>High</u> | <u>hr</u> | <u>Avg</u> | <u>Avg</u> | <u>High</u> | <u>hr</u> | <u>Avg</u> | <u>Avg</u> | <u>High</u> | <u>hr</u> | <u>Avg</u> | <u>Avg</u> | <u>High</u> | <u>hr</u> | <u>Avg</u> | <u>Avg</u> | <u>High</u> | <u>hr</u> |
| 5/20 | 105.2 | 105.4 | 105.5 | 24 | --- | --- | --- | 0 | 110.7 | 110.9 | 111.1 | 24 | 109.3 | 109.9 | 110.5 | 24 | 109.4 | 109.8 | 110.5 | 24 |
| 5/21 | 105.1 | 105.3 | 105.6 | 24 | --- | --- | --- | 0 | 110.8 | 111.0 | 111.3 | 24 | 109.7 | 110.1 | 110.4 | 24 | 109.4 | 109.6 | 109.9 | 24 |
| 5/22 | 104.9 | 105.2 | 105.3 | 24 | --- | --- | --- | 0 | 110.8 | 110.9 | 111.1 | 24 | 109.4 | 109.8 | 110.3 | 24 | 109.4 | 109.7 | 110.0 | 24 |
| 5/23 | 104.0 | 104.2 | 104.3 | 24 | --- | --- | --- | 0 | 110.6 | 110.8 | 111.0 | 24 | 109.0 | 109.1 | 109.6 | 24 | 109.4 | 109.6 | 109.8 | 24 |
| 5/24 | 103.4 | 103.5 | 103.7 | 24 | --- | --- | --- | 0 | 110.2 | 110.4 | 110.5 | 24 | 108.6 | 108.8 | 109.3 | 24 | 109.2 | 109.5 | 109.9 | 24 |
| 5/25 | 103.3 | 103.5 | 103.8 | 24 | --- | --- | --- | 0 | 109.9 | 110.0 | 110.2 | 24 | 108.0 | 108.2 | 108.5 | 24 | 108.8 | 109.1 | 109.5 | 24 |
| 5/26 | 103.8 | 104.1 | 104.6 | 24 | --- | --- | --- | 0 | 109.9 | 110.1 | 110.2 | 24 | 108.0 | 108.3 | 108.6 | 24 | 108.6 | 109.1 | 109.5 | 24 |
| 5/27 | 103.8 | 104.0 | 104.3 | 24 | --- | --- | --- | 0 | 109.8 | 109.9 | 110.2 | 24 | 108.1 | 108.4 | 108.7 | 24 | 108.2 | 108.5 | 108.8 | 24 |
| 5/28 | 103.2 | 103.5 | 103.7 | 24 | --- | --- | --- | 0 | 109.4 | 109.5 | 109.6 | 24 | 107.7 | 107.9 | 108.2 | 24 | 107.6 | 107.8 | 107.9 | 24 |
| 5/29 | 103.3 | 103.7 | 103.8 | 24 | --- | --- | --- | 0 | 109.1 | 109.3 | 109.4 | 24 | 108.1 | 108.5 | 109.1 | 24 | 107.7 | 108.1 | 108.5 | 24 |
| 5/30 | 103.0 | 103.3 | 103.5 | 24 | --- | --- | --- | 0 | 108.6 | 108.7 | 108.9 | 24 | 107.2 | 107.5 | 107.7 | 24 | 107.2 | 107.7 | 107.9 | 24 |
| 5/31 | 102.7 | 103.0 | 103.4 | 24 | --- | --- | --- | 0 | 108.6 | 108.7 | 109.0 | 24 | 107.4 | 107.9 | 108.2 | 24 | 107.7 | 108.3 | 108.6 | 24 |
| 6/1 | 103.8 | 104.6 | 105.0 | 24 | --- | --- | --- | 0 | 109.3 | 109.6 | 109.7 | 24 | 108.3 | 108.5 | 108.8 | 24 | 109.0 | 109.3 | 109.6 | 24 |
| 6/2 | 104.3 | 104.4 | 104.6 | 23 | --- | --- | --- | 0 | 109.3 | 109.5 | 109.7 | 23 | 108.2 | 108.5 | 109.2 | 23 | 108.2 | 108.5 | 108.8 | 23 |

Total Dissolved Gas Saturation Data at Mid Columbia River Sites

| Date | <u>Chief J. Dnst</u> | | | <u>Wells</u> | | | <u>Wells Dwnstrm</u> | | | <u>Rocky Reach</u> | | | <u>Rocky R. Tlwr</u> | | | | | | | |
|------|----------------------|-------------|-------------|--------------|-------------|-------------|----------------------|-----------|-------------|--------------------|-------------|-----------|----------------------|-------------|-------------|-----------|------------|------------|-------------|-----------|
| | <u>24 h</u> | <u>12 h</u> | | <u>#</u> | <u>24 h</u> | <u>12 h</u> | | <u>#</u> | <u>24 h</u> | <u>12 h</u> | | <u>#</u> | <u>24 h</u> | <u>12 h</u> | | <u>#</u> | | | | |
| | <u>Avg</u> | <u>Avg</u> | <u>High</u> | <u>hr</u> | <u>Avg</u> | <u>Avg</u> | <u>High</u> | <u>hr</u> | <u>Avg</u> | <u>Avg</u> | <u>High</u> | <u>hr</u> | <u>Avg</u> | <u>Avg</u> | <u>High</u> | <u>hr</u> | <u>Avg</u> | <u>Avg</u> | <u>High</u> | <u>hr</u> |
| 5/20 | 109.5 | 110.0 | 110.7 | 24 | 107.6 | 108.2 | 108.5 | 24 | 109.2 | 109.6 | 110.0 | 24 | 109.2 | 109.5 | 110.0 | 24 | 108.9 | 109.1 | 109.4 | 24 |
| 5/21 | 109.7 | 110.6 | 111.4 | 24 | 108.2 | 108.7 | 109.2 | 24 | 109.7 | 110.3 | 110.9 | 24 | 109.0 | 109.1 | 109.1 | 24 | 108.6 | 108.7 | 109.0 | 24 |
| 5/22 | 109.4 | 109.7 | 109.9 | 24 | 107.8 | 108.0 | 108.3 | 24 | 109.2 | 109.6 | 110.4 | 24 | 108.8 | 109.0 | 109.2 | 24 | 108.0 | 108.2 | 108.4 | 24 |
| 5/23 | 109.4 | 109.9 | 110.7 | 24 | 107.9 | 108.1 | 108.3 | 23 | 109.6 | 109.9 | 110.1 | 23 | 108.3 | 108.6 | 108.8 | 24 | 108.1 | 108.4 | 108.7 | 24 |
| 5/24 | 108.8 | 108.9 | 109.3 | 24 | 108.4 | 108.9 | 109.6 | 24 | 109.9 | 110.5 | 111.1 | 24 | 108.2 | 108.8 | 109.1 | 23 | 108.0 | 108.5 | 108.8 | 23 |
| 5/25 | 108.6 | 108.9 | 109.4 | 24 | 108.4 | 108.9 | 109.1 | 24 | 109.9 | 110.3 | 110.7 | 24 | 109.1 | 109.4 | 109.7 | 24 | 108.7 | 109.0 | 109.5 | 24 |
| 5/26 | 108.2 | 108.4 | 108.6 | 24 | 108.2 | 108.6 | 109.0 | 24 | 109.7 | 110.2 | 110.6 | 24 | 109.2 | 109.4 | 109.6 | 24 | 109.0 | 109.1 | 109.5 | 24 |
| 5/27 | 108.0 | 108.5 | 108.9 | 24 | 107.5 | 107.9 | 108.3 | 23 | 109.3 | 109.7 | 110.2 | 23 | 108.8 | 108.9 | 109.3 | 24 | 108.7 | 108.8 | 110.2 | 24 |
| 5/28 | 107.4 | 107.6 | 108.0 | 24 | 106.8 | 107.1 | 107.3 | 24 | 108.8 | 109.1 | 109.5 | 24 | 108.2 | 108.4 | 108.6 | 24 | 108.1 | 108.3 | 109.3 | 24 |
| 5/29 | 108.0 | 108.5 | 109.3 | 24 | 106.4 | 106.8 | 107.1 | 24 | 108.2 | 108.6 | 109.0 | 24 | 108.4 | 108.6 | 108.9 | 24 | 112.6 | 113.3 | 113.6 | 24 |
| 5/30 | 107.1 | 107.4 | 107.7 | 24 | 106.0 | 106.9 | 107.3 | 23 | 107.6 | 108.5 | 108.8 | 23 | 107.5 | 107.6 | 107.9 | 24 | 112.5 | 113.1 | 113.3 | 24 |
| 5/31 | 107.2 | 107.5 | 107.7 | 24 | 107.6 | 108.4 | 108.8 | 24 | 109.0 | 109.9 | 110.3 | 24 | 107.6 | 108.1 | 108.6 | 24 | 113.2 | 114.0 | 114.3 | 24 |
| 6/1 | 108.6 | 108.9 | 109.1 | 24 | 108.4 | 108.6 | 109.0 | 24 | 110.0 | 110.6 | 112.4 | 24 | 109.4 | 109.9 | 110.2 | 24 | 114.6 | 115.2 | 115.5 | 24 |
| 6/2 | 108.2 | 108.7 | 109.5 | 23 | 107.7 | 108.2 | 108.4 | 23 | 109.3 | 109.6 | 109.8 | 23 | 109.3 | 109.5 | 110.0 | 23 | 113.9 | 114.4 | 115.1 | 23 |

Total Dissolved Gas Saturation at Mid Columbia River Sites

| Date | <u>Rock Island</u> | | | <u>Rock I. Tlwr</u> | | | <u>Wanapum</u> | | | <u>Wanapum Tlwr</u> | | | <u>Priest Rapids</u> | | | | | | | |
|------|--------------------|-------------|-------------|---------------------|-------------|-------------|----------------|-----------|-------------|---------------------|-------------|-----------|----------------------|-------------|-------------|-----------|------------|------------|-------------|-----------|
| | <u>24 h</u> | <u>12 h</u> | | <u>#</u> | <u>24 h</u> | <u>12 h</u> | | <u>#</u> | <u>24 h</u> | <u>12 h</u> | | <u>#</u> | <u>24 h</u> | <u>12 h</u> | | <u>#</u> | | | | |
| | <u>Avg</u> | <u>Avg</u> | <u>High</u> | <u>hr</u> | <u>Avg</u> | <u>Avg</u> | <u>High</u> | <u>hr</u> | <u>Avg</u> | <u>Avg</u> | <u>High</u> | <u>hr</u> | <u>Avg</u> | <u>Avg</u> | <u>High</u> | <u>hr</u> | <u>Avg</u> | <u>Avg</u> | <u>High</u> | <u>hr</u> |
| 5/20 | 108.3 | 108.5 | 108.9 | 24 | 110.4 | 111.0 | 111.7 | 24 | 108.7 | 109.5 | 109.8 | 24 | 110.3 | 110.7 | 111.0 | 24 | 108.3 | 108.7 | 109.2 | 24 |
| 5/21 | 107.3 | 107.6 | 107.8 | 24 | 110.3 | 110.9 | 111.8 | 24 | 109.1 | 109.5 | 109.9 | 24 | 110.6 | 111.0 | 111.8 | 24 | 109.1 | 109.3 | 109.6 | 24 |
| 5/22 | 107.1 | 107.3 | 107.6 | 24 | 111.3 | 112.2 | 113.4 | 24 | 106.6 | 107.2 | 107.9 | 24 | 109.7 | 110.2 | 111.0 | 24 | 108.2 | 108.5 | 108.5 | 24 |
| 5/23 | 106.9 | 107.1 | 107.3 | 24 | 109.6 | 109.9 | 110.5 | 24 | 105.7 | 105.8 | 105.8 | 24 | 109.3 | 110.3 | 116.3 | 24 | 107.8 | 108.1 | 108.8 | 24 |
| 5/24 | 106.8 | 107.3 | 107.7 | 24 | 108.6 | 109.5 | 109.7 | 23 | 107.4 | 108.8 | 109.9 | 24 | 109.2 | 109.8 | 110.2 | 24 | 107.1 | 107.6 | 108.1 | 24 |
| 5/25 | 107.4 | 107.9 | 108.3 | 24 | 109.7 | 110.1 | 110.5 | 24 | 107.4 | 107.6 | 107.8 | 24 | 109.5 | 109.7 | 109.9 | 24 | 107.8 | 108.3 | 109.1 | 24 |
| 5/26 | 107.6 | 108.0 | 108.5 | 24 | 110.4 | 110.8 | 111.5 | 24 | 106.2 | 106.5 | 107.0 | 24 | 108.8 | 109.4 | 110.1 | 24 | 107.5 | 107.8 | 108.2 | 24 |
| 5/27 | 107.4 | 107.7 | 108.0 | 24 | 109.9 | 110.2 | 110.6 | 24 | 105.5 | 105.7 | 106.1 | 24 | 108.4 | 108.4 | 109.1 | 11 | 106.0 | 106.1 | 106.6 | 24 |
| 5/28 | 107.2 | 107.5 | 107.7 | 24 | 109.5 | 109.8 | 110.4 | 24 | 106.3 | 107.2 | 107.9 | 24 | --- | --- | --- | 0 | 106.9 | 107.7 | 108.4 | 24 |
| 5/29 | 107.7 | 108.5 | 108.8 | 24 | 112.9 | 115.5 | 116.2 | 24 | 107.5 | 107.7 | 108.0 | 24 | --- | --- | --- | 0 | 108.3 | 108.5 | 108.7 | 24 |
| 5/30 | 108.0 | 108.5 | 108.9 | 24 | 113.0 | 114.1 | 114.4 | 24 | 107.4 | 108.5 | 109.2 | 24 | --- | --- | --- | 0 | 107.5 | 107.9 | 108.7 | 24 |
| 5/31 | 108.3 | 109.0 | 109.5 | 24 | 113.8 | 115.0 | 115.4 | 24 | --- | --- | --- | 0 | --- | --- | --- | 0 | --- | --- | --- | 0 |
| 6/1 | 109.1 | 110.1 | 110.5 | 24 | 114.1 | 114.9 | 115.6 | 23 | --- | --- | --- | 0 | --- | --- | --- | 0 | --- | --- | --- | 0 |
| 6/2 | 109.5 | 109.6 | 110.0 | 23 | 114.6 | 115.2 | 115.5 | 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

| Date | Priest R. Dnst | | | # | Pasco | | | # | Dworshak | | | # | Clrwtr-Peck | | | # | Anatone | | | # |
|------|----------------|----------|-------|----|----------|----------|------|---|----------|----------|-------|----|-------------|----------|-------|----|----------|----------|-------|----|
| | 24 h Avg | 12 h Avg | High | | 24 h Avg | 12 h Avg | High | | 24 h Avg | 12 h Avg | High | | 24 h Avg | 12 h Avg | High | | 24 h Avg | 12 h Avg | High | |
| 5/20 | 110.0 | 110.3 | 110.4 | 24 | --- | --- | --- | 0 | 104.4 | 105.1 | 105.8 | 24 | 102.4 | 103.0 | 103.5 | 24 | 105.1 | 105.6 | 105.9 | 24 |
| 5/21 | 110.9 | 111.0 | 111.1 | 24 | --- | --- | --- | 0 | 100.5 | 101.3 | 104.7 | 24 | 101.2 | 101.4 | 102.2 | 24 | 105.2 | 105.6 | 106.2 | 24 |
| 5/22 | 110.6 | 110.8 | 110.9 | 24 | --- | --- | --- | 0 | 99.7 | 100.3 | 100.6 | 24 | 101.1 | 101.6 | 102.1 | 24 | 105.2 | 105.5 | 106.0 | 24 |
| 5/23 | 110.3 | 111.0 | 113.3 | 24 | --- | --- | --- | 0 | 99.6 | 100.1 | 100.6 | 24 | 101.1 | 101.4 | 101.6 | 24 | 105.1 | 105.5 | 105.9 | 24 |
| 5/24 | 110.0 | 110.4 | 110.8 | 24 | --- | --- | --- | 0 | 103.3 | 104.4 | 105.0 | 24 | 101.5 | 102.2 | 103.1 | 24 | 104.5 | 104.8 | 105.3 | 24 |
| 5/25 | 109.9 | 110.3 | 110.6 | 24 | --- | --- | --- | 0 | 104.2 | 105.5 | 106.5 | 24 | 101.7 | 102.5 | 103.1 | 24 | 104.5 | 105.1 | 105.7 | 23 |
| 5/26 | 109.9 | 110.2 | 110.4 | 24 | --- | --- | --- | 0 | 104.4 | 105.8 | 108.4 | 24 | 101.7 | 102.6 | 103.0 | 24 | 104.4 | 105.1 | 105.6 | 24 |
| 5/27 | 109.4 | 109.8 | 110.1 | 24 | --- | --- | --- | 0 | 103.9 | 104.9 | 105.8 | 24 | 101.2 | 101.6 | 102.1 | 24 | 103.9 | 104.4 | 104.8 | 24 |
| 5/28 | 110.1 | 111.1 | 112.7 | 24 | --- | --- | --- | 0 | 104.0 | 105.2 | 106.1 | 24 | 101.3 | 102.2 | 102.4 | 24 | 104.0 | 104.8 | 105.4 | 24 |
| 5/29 | 111.1 | 111.3 | 111.6 | 24 | --- | --- | --- | 0 | 104.3 | 105.6 | 106.8 | 24 | 102.0 | 102.8 | 103.1 | 24 | 104.0 | 104.6 | 105.4 | 24 |
| 5/30 | 110.1 | 110.4 | 110.7 | 24 | --- | --- | --- | 0 | 103.7 | 104.9 | 106.0 | 24 | 101.6 | 102.5 | 102.7 | 24 | 103.8 | 104.6 | 105.3 | 24 |
| 5/31 | --- | --- | --- | 0 | --- | --- | --- | 0 | 104.1 | 105.5 | 106.6 | 24 | 101.9 | 102.8 | 103.2 | 24 | 104.3 | 105.3 | 106.0 | 24 |
| 6/1 | --- | --- | --- | 0 | --- | --- | --- | 0 | 105.1 | 106.7 | 107.9 | 24 | 102.1 | 102.9 | 103.3 | 24 | 104.5 | 105.2 | 106.1 | 23 |
| 6/2 | --- | --- | --- | 0 | --- | --- | --- | 0 | 105.3 | 105.9 | 106.4 | 23 | 101.0 | 101.4 | 102.1 | 23 | 103.6 | 103.8 | 104.0 | 23 |

Total Dissolved Gas Saturation Data at Snake River Sites

| Date | Clrwtr-Lewiston | | | # | Lower Granite | | | # | L. Granite Tlwr | | | # | Little Goose | | | # | L. Goose Tlwr | | | # |
|------|-----------------|----------|-------|----|---------------|----------|-------|----|-----------------|----------|-------|----|--------------|----------|-------|----|---------------|----------|-------|----|
| | 24 h Avg | 12 h Avg | High | | 24 h Avg | 12 h Avg | High | | 24 h Avg | 12 h Avg | High | | 24 h Avg | 12 h Avg | High | | 24 h Avg | 12 h Avg | High | |
| 5/20 | 101.4 | 102.4 | 103.1 | 24 | 105.4 | 105.6 | 105.9 | 24 | 110.4 | 110.5 | 110.9 | 24 | 107.5 | 107.9 | 108.1 | 24 | 114.6 | 115.0 | 115.4 | 24 |
| 5/21 | 101.2 | 101.6 | 102.3 | 24 | 103.6 | 103.9 | 104.5 | 24 | 109.8 | 110.0 | 110.4 | 24 | 107.4 | 107.6 | 107.8 | 24 | 113.5 | 114.0 | 114.4 | 24 |
| 5/22 | 100.9 | 101.5 | 102.1 | 24 | 102.3 | 102.4 | 102.6 | 24 | 109.3 | 109.4 | 109.7 | 24 | 106.5 | 106.8 | 107.2 | 24 | 112.7 | 112.8 | 112.9 | 24 |
| 5/23 | 101.0 | 101.5 | 101.8 | 24 | 102.3 | 102.5 | 102.6 | 24 | 109.6 | 109.8 | 109.9 | 24 | 104.5 | 104.8 | 105.4 | 24 | 112.0 | 112.2 | 112.4 | 24 |
| 5/24 | 101.5 | 102.7 | 103.9 | 24 | 102.9 | 103.3 | 103.5 | 23 | 109.8 | 110.1 | 110.5 | 24 | 103.7 | 103.8 | 104.0 | 24 | 111.9 | 112.1 | 112.4 | 24 |
| 5/25 | 103.4 | 106.4 | 121.5 | 24 | 103.2 | 103.4 | 103.5 | 24 | 109.5 | 109.8 | 110.2 | 24 | 105.0 | 105.9 | 106.4 | 24 | 111.2 | 111.6 | 112.3 | 24 |
| 5/26 | 110.1 | 115.2 | 136.4 | 24 | 103.2 | 103.4 | 103.8 | 24 | 109.8 | 110.0 | 110.3 | 24 | 106.6 | 106.9 | 107.4 | 24 | 110.7 | 111.0 | 111.4 | 24 |
| 5/27 | 101.1 | 102.1 | 103.0 | 24 | 103.3 | 103.5 | 103.8 | 24 | 109.7 | 109.8 | 110.0 | 24 | 106.8 | 106.9 | 107.1 | 24 | 110.1 | 110.3 | 110.4 | 24 |
| 5/28 | 101.6 | 103.4 | 104.5 | 24 | 103.4 | 103.5 | 103.9 | 24 | 110.0 | 110.3 | 111.6 | 24 | 106.7 | 107.0 | 107.3 | 24 | 110.4 | 110.8 | 112.3 | 24 |
| 5/29 | 101.8 | 103.2 | 104.2 | 24 | 103.3 | 103.4 | 103.5 | 24 | 110.0 | 110.4 | 111.0 | 24 | 107.4 | 107.8 | 108.1 | 24 | 110.6 | 110.7 | 111.1 | 24 |
| 5/30 | 101.8 | 103.4 | 104.5 | 24 | 102.2 | 102.5 | 102.8 | 24 | 109.9 | 110.2 | 110.6 | 24 | 107.2 | 107.6 | 108.1 | 24 | 110.4 | 110.7 | 111.0 | 24 |
| 5/31 | 102.0 | 103.7 | 105.0 | 24 | 103.4 | 103.6 | 103.8 | 24 | 110.3 | 110.6 | 111.4 | 24 | 109.1 | 110.0 | 110.8 | 24 | 110.9 | 111.3 | 111.4 | 24 |
| 6/1 | 102.0 | 103.3 | 104.5 | 24 | 104.0 | 104.4 | 104.6 | 24 | 110.4 | 110.8 | 112.3 | 24 | 111.1 | 111.3 | 111.7 | 24 | 111.3 | 111.5 | 111.8 | 24 |
| 6/2 | 100.7 | 101.2 | 102.0 | 23 | 103.6 | 103.9 | 104.2 | 23 | 110.4 | 110.5 | 110.7 | 23 | 110.3 | 110.6 | 111.0 | 23 | 110.9 | 111.0 | 111.3 | 23 |

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

| Date | Lower Mon. | | | # | L. Mon. Tlwr | | | # | Ice Harbor | | | # | Ice Harbor Tlwr | | | # | McNary-Oregon | | | # |
|------|------------|----------|-------|----|--------------|----------|-------|----|------------|----------|-------|----|-----------------|----------|-------|----|---------------|----------|------|---|
| | 24 h Avg | 12 h Avg | High | | 24 h Avg | 12 h Avg | High | | 24 h Avg | 12 h Avg | High | | 24 h Avg | 12 h Avg | High | | 24 h Avg | 12 h Avg | High | |
| 5/20 | 112.9 | 113.2 | 113.8 | 24 | 118.1 | 118.4 | 118.6 | 24 | 115.5 | 115.7 | 116.2 | 24 | 118.8 | 119.1 | 119.7 | 24 | --- | --- | --- | 0 |
| 5/21 | 113.8 | 113.9 | 114.1 | 24 | 117.8 | 118.0 | 118.2 | 24 | 115.2 | 115.4 | 115.5 | 24 | 117.0 | 118.3 | 118.8 | 24 | --- | --- | --- | 0 |
| 5/22 | 113.0 | 113.4 | 113.8 | 24 | 117.5 | 117.8 | 117.9 | 24 | 113.3 | 113.7 | 114.3 | 24 | 115.7 | 116.1 | 117.8 | 24 | --- | --- | --- | 0 |
| 5/23 | 110.9 | 111.2 | 111.8 | 24 | 117.2 | 117.5 | 117.7 | 24 | 111.7 | 111.9 | 112.2 | 24 | 116.0 | 116.3 | 116.7 | 24 | --- | --- | --- | 0 |
| 5/24 | 110.6 | 110.7 | 110.8 | 24 | 117.0 | 117.2 | 117.4 | 24 | 112.1 | 112.7 | 113.3 | 24 | 115.2 | 115.9 | 116.7 | 24 | --- | --- | --- | 0 |
| 5/25 | 111.0 | 111.4 | 111.7 | 24 | 116.8 | 117.0 | 117.7 | 24 | 114.2 | 114.8 | 115.2 | 24 | 115.5 | 116.0 | 116.8 | 24 | --- | --- | --- | 0 |
| 5/26 | 111.4 | 111.5 | 111.6 | 24 | 116.9 | 117.1 | 117.3 | 24 | 115.1 | 115.3 | 115.6 | 24 | 115.3 | 115.7 | 116.1 | 24 | --- | --- | --- | 0 |
| 5/27 | 110.1 | 110.3 | 111.0 | 24 | 116.6 | 116.8 | 116.8 | 24 | 114.3 | 114.5 | 115.3 | 24 | 114.5 | 115.2 | 115.4 | 24 | --- | --- | --- | 0 |
| 5/28 | 109.2 | 109.5 | 109.9 | 24 | 116.5 | 116.8 | 116.9 | 24 | 113.9 | 114.2 | 114.4 | 24 | 114.9 | 115.2 | 115.4 | 24 | --- | --- | --- | 0 |
| 5/29 | 109.7 | 109.8 | 109.9 | 24 | 116.4 | 116.8 | 117.0 | 24 | 115.1 | 115.5 | 115.7 | 24 | 115.1 | 115.3 | 115.4 | 24 | --- | --- | --- | 0 |
| 5/30 | 109.5 | 109.8 | 110.0 | 24 | 115.6 | 116.3 | 116.6 | 24 | 115.5 | 115.8 | 116.0 | 24 | 114.9 | 115.2 | 115.5 | 24 | --- | --- | --- | 0 |
| 5/31 | 110.5 | 110.8 | 111.2 | 24 | 116.8 | 117.0 | 117.2 | 24 | 116.3 | 116.6 | 117.0 | 24 | 114.9 | 115.3 | 115.4 | 24 | --- | --- | --- | 0 |
| 6/1 | 111.8 | 112.1 | 112.2 | 24 | 117.4 | 117.6 | 117.8 | 24 | 118.0 | 118.5 | 118.8 | 24 | 116.2 | 116.7 | 117.2 | 24 | --- | --- | --- | 0 |
| 6/2 | 111.7 | 111.9 | 112.1 | 23 | 116.8 | 117.2 | 117.5 | 23 | 117.8 | 118.2 | 118.6 | 23 | 115.2 | 116.2 | 116.4 | 23 | --- | --- | --- | 0 |

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

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

| Date | <u>McNary-Wash</u> | | | <u>McNary Tlwr</u> | | | <u>John Day</u> | | | <u>John Day Tlwr</u> | | | <u>The Dalles</u> | | | | | | | |
|------|--------------------|-------------|-------------|--------------------|-------------|------------|-----------------|------------|------------|----------------------|-------------|-----------|-------------------|------------|-------------|------------|------------|------------|-------------|-----------|
| | <u>24 h</u> | <u>12 h</u> | <u>#</u> | <u>24 h</u> | <u>12 h</u> | <u>#</u> | <u>24h</u> | <u>12h</u> | <u>#</u> | <u>24h</u> | <u>12h</u> | <u>#</u> | <u>24h</u> | <u>12h</u> | <u>#</u> | <u>24h</u> | <u>12h</u> | <u>AVG</u> | <u>High</u> | <u>#</u> |
| | <u>Avg</u> | <u>Avg</u> | <u>High</u> | <u>hr</u> | <u>Avg</u> | <u>Avg</u> | <u>High</u> | <u>hr</u> | <u>Avg</u> | <u>Avg</u> | <u>High</u> | <u>hr</u> | <u>Avg</u> | <u>Avg</u> | <u>High</u> | <u>hr</u> | <u>Avg</u> | <u>AVG</u> | <u>High</u> | <u>hr</u> |
| 5/20 | 110.0 | 110.5 | 111.5 | 24 | 115.4 | 115.6 | 115.8 | 24 | 107.4 | 107.9 | 108.0 | 24 | 117.9 | 118.4 | 118.6 | 24 | 108.9 | 111.0 | 111.7 | 24 |
| 5/21 | 108.7 | 109.2 | 110.0 | 24 | 115.1 | 115.3 | 115.5 | 24 | 107.6 | 107.8 | 108.0 | 24 | 115.9 | 116.3 | 118.2 | 24 | 110.1 | 110.9 | 112.3 | 24 |
| 5/22 | 108.0 | 108.4 | 108.8 | 24 | 114.7 | 114.9 | 115.1 | 24 | 106.1 | 106.4 | 106.8 | 24 | 114.3 | 114.5 | 114.7 | 24 | 108.1 | 108.5 | 108.7 | 24 |
| 5/23 | 106.2 | 106.6 | 107.1 | 24 | 114.8 | 114.9 | 115.2 | 24 | 105.2 | 105.3 | 105.5 | 24 | 114.5 | 114.9 | 116.6 | 24 | 107.4 | 107.9 | 108.1 | 24 |
| 5/24 | 106.0 | 106.6 | 107.1 | 24 | 114.2 | 114.4 | 114.6 | 24 | 105.2 | 105.5 | 105.7 | 24 | 115.7 | 116.6 | 116.8 | 24 | 107.9 | 108.7 | 109.3 | 24 |
| 5/25 | 107.5 | 107.9 | 108.4 | 24 | 114.1 | 114.4 | 114.7 | 24 | 104.7 | 104.9 | 105.2 | 24 | 115.3 | 116.9 | 117.9 | 24 | 108.2 | 108.6 | 109.1 | 24 |
| 5/26 | 107.9 | 108.2 | 108.4 | 24 | 113.7 | 113.8 | 114.0 | 24 | 103.8 | 104.0 | 104.2 | 24 | 113.5 | 113.7 | 114.0 | 24 | 106.4 | 107.2 | 107.8 | 24 |
| 5/27 | 106.9 | 107.2 | 107.7 | 24 | 113.7 | 114.0 | 114.2 | 24 | 103.3 | 103.5 | 103.7 | 24 | 113.6 | 114.0 | 115.3 | 24 | 105.0 | 105.5 | 105.8 | 24 |
| 5/28 | 106.4 | 106.7 | 107.5 | 24 | 113.9 | 114.4 | 115.5 | 24 | 103.8 | 104.3 | 104.6 | 24 | 114.6 | 115.7 | 116.4 | 24 | 106.3 | 107.3 | 108.3 | 24 |
| 5/29 | 107.9 | 108.4 | 108.7 | 24 | 114.0 | 114.2 | 114.4 | 24 | 104.1 | 104.3 | 104.4 | 24 | 113.5 | 113.9 | 114.5 | 24 | 108.9 | 109.4 | 109.6 | 24 |
| 5/30 | 107.6 | 108.6 | 110.3 | 24 | 114.2 | 114.4 | 114.7 | 24 | 103.9 | 104.4 | 104.9 | 24 | 113.7 | 114.2 | 114.6 | 24 | 107.5 | 108.1 | 108.4 | 24 |
| 5/31 | 109.7 | 110.5 | 111.5 | 24 | 114.2 | 114.5 | 114.8 | 24 | 105.5 | 106.1 | 106.9 | 24 | 113.7 | 114.2 | 116.7 | 24 | 108.6 | 108.8 | 109.0 | 24 |
| 6/1 | 111.4 | 111.5 | 111.8 | 24 | 115.0 | 115.4 | 116.4 | 24 | 107.1 | 107.3 | 107.7 | 24 | 113.5 | 114.1 | 114.9 | 24 | 109.3 | 109.5 | 109.9 | 24 |
| 6/2 | 110.8 | 111.2 | 111.4 | 23 | 115.3 | 115.8 | 116.8 | 23 | 106.9 | 107.1 | 107.3 | 23 | 114.1 | 115.5 | 116.7 | 23 | 108.9 | 109.0 | 109.4 | 23 |

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

| Date | <u>The Dalles Dnst</u> | | | <u>Bonneville</u> | | | <u>Warrendale</u> | | | <u>Camas\Washougal</u> | | | <u>Cascade Island</u> | | | | | | | |
|------|------------------------|-------------|-------------|-------------------|-------------|------------|-------------------|------------|------------|------------------------|-------------|-----------|-----------------------|------------|-------------|------------|------------|-------------|-------------|-----------|
| | <u>24 h</u> | <u>12 h</u> | <u>#</u> | <u>24 h</u> | <u>12 h</u> | <u>#</u> | <u>24h</u> | <u>12h</u> | <u>#</u> | <u>24h</u> | <u>12h</u> | <u>#</u> | <u>24h</u> | <u>12h</u> | <u>#</u> | <u>24h</u> | <u>12h</u> | <u>High</u> | <u>hr</u> | |
| | <u>Avg</u> | <u>Avg</u> | <u>High</u> | <u>hr</u> | <u>Avg</u> | <u>Avg</u> | <u>High</u> | <u>hr</u> | <u>Avg</u> | <u>Avg</u> | <u>High</u> | <u>hr</u> | <u>Avg</u> | <u>Avg</u> | <u>High</u> | <u>hr</u> | <u>Avg</u> | <u>Avg</u> | <u>High</u> | <u>hr</u> |
| 5/20 | 114.3 | 115.3 | 115.9 | 24 | 110.5 | 111.1 | 111.3 | 24 | 114.6 | 114.8 | 115.0 | 24 | 112.1 | 112.9 | 113.6 | 24 | 118.0 | 118.3 | 118.4 | 24 |
| 5/21 | 115.0 | 115.5 | 116.1 | 24 | 110.4 | 110.9 | 111.4 | 24 | 114.4 | 114.6 | 114.8 | 24 | 110.7 | 110.9 | 111.5 | 24 | 117.7 | 117.9 | 118.4 | 24 |
| 5/22 | 113.7 | 114.0 | 114.3 | 24 | 109.9 | 110.1 | 110.1 | 24 | 114.9 | 115.3 | 115.4 | 24 | 110.7 | 111.2 | 111.6 | 24 | 117.0 | 117.3 | 117.6 | 24 |
| 5/23 | 113.4 | 113.7 | 114.1 | 24 | 110.4 | 110.6 | 110.8 | 24 | 115.5 | 115.7 | 115.8 | 24 | 111.8 | 112.8 | 113.2 | 24 | 116.9 | 117.2 | 117.4 | 24 |
| 5/24 | 113.8 | 114.0 | 114.3 | 24 | 110.3 | 110.4 | 110.6 | 24 | 115.1 | 115.3 | 115.5 | 24 | 112.0 | 112.5 | 113.4 | 24 | 117.2 | 117.5 | 117.6 | 24 |
| 5/25 | 113.7 | 114.1 | 114.6 | 24 | 109.2 | 109.6 | 110.1 | 24 | 114.5 | 114.8 | 115.2 | 24 | 110.7 | 111.3 | 112.0 | 24 | 117.1 | 117.3 | 117.4 | 24 |
| 5/26 | 112.7 | 113.0 | 113.4 | 24 | 108.0 | 108.3 | 108.8 | 24 | 114.0 | 114.2 | 114.5 | 24 | 109.6 | 110.0 | 110.2 | 24 | 117.0 | 117.1 | 117.2 | 24 |
| 5/27 | 111.7 | 111.9 | 112.1 | 24 | 107.6 | 107.9 | 108.1 | 24 | 114.1 | 114.4 | 114.5 | 24 | 109.9 | 110.6 | 111.1 | 24 | 117.1 | 117.1 | 117.3 | 24 |
| 5/28 | 112.6 | 113.3 | 114.0 | 24 | 108.8 | 109.3 | 109.6 | 24 | 115.0 | 115.5 | 115.7 | 24 | 111.2 | 112.8 | 113.6 | 24 | 116.8 | 117.1 | 117.2 | 24 |
| 5/29 | 113.6 | 113.9 | 114.2 | 24 | 109.5 | 109.7 | 109.7 | 24 | 114.9 | 115.3 | 115.7 | 24 | 111.3 | 111.6 | 112.1 | 24 | 116.7 | 116.9 | 117.2 | 24 |
| 5/30 | 113.3 | 113.7 | 114.1 | 24 | 110.3 | 111.2 | 111.8 | 24 | 115.4 | 116.0 | 116.3 | 24 | 111.9 | 113.4 | 114.0 | 24 | 116.8 | 116.9 | 117.0 | 24 |
| 5/31 | 114.3 | 114.7 | 115.1 | 24 | 112.9 | 113.6 | 114.1 | 24 | 116.4 | 116.9 | 117.1 | 24 | 112.8 | 113.6 | 114.2 | 24 | 117.2 | 117.5 | 117.7 | 24 |
| 6/1 | 114.4 | 114.7 | 115.0 | 24 | 114.5 | 114.7 | 114.8 | 24 | 116.7 | 117.0 | 117.2 | 24 | 114.2 | 115.4 | 116.2 | 24 | 116.9 | 117.0 | 117.5 | 24 |
| 6/2 | 114.1 | 114.4 | 114.6 | 23 | 111.3 | 112.2 | 113.4 | 23 | 115.6 | 115.9 | 116.4 | 23 | 113.3 | 113.8 | 114.1 | 23 | 116.7 | 116.9 | 117.1 | 23 |

Two-Week Summary of Passage Indices

Source: Fish Passage Center

Updated: 6/3/2016 7:01

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

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

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

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

| COMBINED YEARLING CHINOOK | | | | | | | | | | | | |
|---------------------------|---------------|---------------|---------------|---------------|----------------|------------------|------------------|------------------|----------------|------------------|------------------|------------------|
| Date | WTB (Coll) | IMN (Coll) | GRN (Coll) | LEW (Coll) | LGR (INDEX) | LGS (INDEX) | LMN (INDEX) | RIS (INDEX) | MCN (INDEX) | JDA (INDEX) | BO2 (INDEX) | |
| 05/20/2016 | * | --- | 10 | 76 | 0 | 4,176 | 5,382 | 9,521 | 23 | --- | 9,679 | 14,935 |
| 05/21/2016 | * | --- | 12 | 37 | --- | 4,465 | 6,108 | 9,265 | 30 | 19,321 | --- | 8,232 |
| 05/22/2016 | * | --- | 7 | 21 | --- | 3,880 | 5,083 | 5,575 | 30 | --- | 5,384 | 10,166 |
| 05/23/2016 | * | --- | 7 | 16 | 0 | 5,358 | 8,161 | 7,878 | 45 | 12,655 | --- | 7,204 |
| 05/24/2016 | * | --- | 6 | 11 | 0 | 7,278 | 5,852 | 9,927 | 53 | --- | 5,916 | 3,609 |
| 05/25/2016 | * | --- | 11 | 16 | --- | 3,458 | 3,009 | 3,249 | 52 | 5,163 | --- | 3,646 |
| 05/26/2016 | * | --- | --- | 8 | --- | 2,393 | 1,860 | 2,418 | 60 | --- | 3,357 | 2,665 |
| 05/27/2016 | * | --- | --- | --- | --- | 1,796 | 4,044 | 1,337 | 37 | 4,470 | --- | 1,220 |
| 05/28/2016 | * | --- | --- | 1 | --- | 1,936 | 3,242 | 328 | 56 | --- | 2,697 | 1,319 |
| 05/29/2016 | * | --- | --- | 0 | --- | 1,583 | 574 | 148 | 40 | 2,969 | --- | 1,014 |
| 05/30/2016 | * | --- | --- | 0 | --- | 862 | 1,177 | 148 | 23 | --- | 928 | 815 |
| 05/31/2016 | * | --- | --- | --- | --- | 875 | 1,299 | 79 | 6 | 3,032 | --- | 521 |
| 06/01/2016 | * | --- | --- | --- | --- | 575 | 1,232 | 479 | 5 | --- | 1,217 | 257 |
| 06/02/2016 | * | --- | --- | --- | --- | 733 | 1,288 | 85 | 11 | 848 | --- | 670 |
| 06/03/2016 | * | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Total: | | 0 | 53 | 186 | 0 | 39,368 | 48,311 | 50,437 | 471 | 48,458 | 29,178 | 56,273 |
| # Days: | | 0 | 6 | 10 | 3 | 14 | 14 | 14 | 14 | 7 | 7 | 14 |
| Average: | | 0 | 9 | 19 | 0 | 2,812 | 3,451 | 3,603 | 34 | 6,923 | 4,168 | 4,020 |
| YTD | | 27,295 | 55,949 | 16,183 | 7,757 | 5,890,182 | 3,483,200 | 4,885,654 | 44,766 | 2,172,588 | 1,453,730 | 2,657,164 |

| COMBINED SUBYEARLING CHINOOK | | | | | | | | | | | | |
|------------------------------|---------------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------------------|
| Date | WTB (Coll) | IMN (Coll) | GRN (Coll) | LEW (Coll) | LGR (INDEX) | LGS (INDEX) | LMN (INDEX) | RIS (INDEX) | MCN (INDEX) | JDA (INDEX) | BO2 (INDEX) | |
| 05/20/2016 | * | --- | 0 | 22 | 108 | 757 | 646 | 429 | 14 | --- | 5,838 | 3,576 |
| 05/21/2016 | * | --- | 0 | 26 | --- | 1,364 | 790 | 612 | 14 | 11,142 | --- | 3,874 |
| 05/22/2016 | * | --- | 0 | 22 | --- | 3,363 | 859 | 577 | 33 | --- | 3,043 | 3,303 |
| 05/23/2016 | * | --- | 0 | 47 | 55 | 4,705 | 1,789 | 505 | 24 | 7,148 | --- | 2,147 |
| 05/24/2016 | * | --- | 0 | 55 | 252 | 7,410 | 1,434 | 718 | 38 | --- | 9,046 | 3,538 |
| 05/25/2016 | * | --- | 3 | 64 | --- | 9,710 | 1,791 | 249 | 62 | 7,534 | --- | 2,807 |
| 05/26/2016 | * | --- | --- | 72 | --- | 10,119 | 1,517 | 495 | 76 | --- | 6,636 | 4,774 |
| 05/27/2016 | * | --- | --- | --- | --- | 6,113 | 946 | 869 | 99 | 13,145 | --- | 3,508 |
| 05/28/2016 | * | --- | --- | 21 | --- | 10,254 | 1,520 | 474 | 109 | --- | 6,875 | 3,092 |
| 05/29/2016 | * | --- | --- | 9 | --- | 13,815 | 1,718 | 591 | 227 | 8,567 | --- | 4,113 |
| 05/30/2016 | * | --- | --- | 12 | --- | 19,405 | 2,239 | 332 | 206 | --- | 4,641 | 5,011 |
| 05/31/2016 | * | --- | --- | --- | --- | 26,311 | 3,330 | 556 | 68 | 12,733 | --- | 3,941 |
| 06/01/2016 | * | --- | --- | --- | --- | 29,919 | 5,459 | 694 | 32 | --- | 4,313 | 3,583 |
| 06/02/2016 | * | --- | --- | --- | --- | 26,155 | 3,950 | 1,484 | 39 | 8,991 | --- | 4,016 |
| 06/03/2016 | * | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Total: | | 0 | 3 | 350 | 415 | 169,400 | 27,988 | 8,585 | 1,041 | 69,260 | 40,392 | 51,283 |
| # Days: | | 0 | 6 | 10 | 3 | 14 | 14 | 14 | 14 | 7 | 7 | 14 |
| Average: | | 0 | 1 | 35 | 138 | 12,100 | 1,999 | 613 | 74 | 9,894 | 5,770 | 3,663 |
| YTD | | 0 | 19 | 698 | 2,869 | 228,624 | 57,480 | 21,594 | 7,774 | 308,757 | 63,238 | 1,684,250 |

Two-Week Summary of Passage Indices

| COMBINED COHO | | | | | | | | | | | | |
|-----------------|---------------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Date | WTB (Coll) | IMN (Coll) | GRN (Coll) | LEW (Coll) | LGR (INDEX) | LGS (INDEX) | LMN (INDEX) | RIS (INDEX) | MCN (INDEX) | JDA (INDEX) | BO2 (INDEX) | |
| 05/20/2016 | * | --- | 0 | 0 | 0 | 757 | 1,291 | 1,029 | 373 | --- | 2,381 | 12,831 |
| 05/21/2016 | * | --- | 0 | 0 | --- | 1,364 | 2,154 | 1,136 | 639 | 7,759 | --- | 9,684 |
| 05/22/2016 | * | --- | 0 | 0 | --- | 776 | 1,789 | 769 | 592 | --- | 1,873 | 8,546 |
| 05/23/2016 | * | --- | 0 | 0 | 0 | 523 | 1,932 | 1,212 | 384 | 6,114 | --- | 6,588 |
| 05/24/2016 | * | --- | 0 | 0 | 0 | 2,514 | 1,577 | 1,316 | 387 | --- | 1,527 | 6,249 |
| 05/25/2016 | * | --- | 0 | 0 | --- | 665 | 573 | 498 | 406 | 5,502 | --- | 4,500 |
| 05/26/2016 | * | --- | --- | 0 | --- | 479 | 1,288 | 714 | 378 | --- | 1,522 | 3,935 |
| 05/27/2016 | * | --- | --- | --- | --- | 343 | 1,291 | 201 | 227 | 3,723 | --- | 3,203 |
| 05/28/2016 | * | --- | --- | 0 | --- | 1,004 | 545 | 73 | 230 | --- | 1,178 | 3,279 |
| 05/29/2016 | * | --- | --- | 0 | --- | 791 | 200 | 0 | 225 | 2,545 | --- | 1,577 |
| 05/30/2016 | * | --- | --- | 0 | --- | 934 | 775 | 185 | 93 | --- | 619 | 1,658 |
| 05/31/2016 | * | --- | --- | --- | --- | 656 | 930 | 40 | 17 | 2,462 | --- | 1,361 |
| 06/01/2016 | * | --- | --- | --- | --- | 216 | 874 | 377 | 14 | --- | 723 | 1,412 |
| 06/02/2016 | * | --- | --- | --- | --- | 293 | 347 | 0 | 39 | 1,188 | --- | 907 |
| 06/03/2016 | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Total: | | 0 | 0 | 0 | 0 | 11,315 | 15,566 | 7,550 | 4,004 | 29,293 | 9,823 | 65,730 |
| # Days: | | 0 | 6 | 10 | 3 | 14 | 14 | 14 | 14 | 7 | 7 | 14 |
| Average: | | 0 | 0 | 0 | 0 | 808 | 1,112 | 539 | 286 | 4,185 | 1,403 | 4,695 |
| YTD | | 0 | 0 | 0 | 316 | 196,878 | 145,251 | 59,144 | 44,978 | 151,707 | 57,558 | 791,533 |

| COMBINED STEELHEAD | | | | | | | | | | | | |
|--------------------|---------------|---------------|---------------|---------------|----------------|------------------|------------------|------------------|----------------|----------------|----------------|----------------|
| Date | WTB (Coll) | IMN (Coll) | GRN (Coll) | LEW (Coll) | LGR (INDEX) | LGS (INDEX) | LMN (INDEX) | RIS (INDEX) | MCN (INDEX) | JDA (INDEX) | BO2 (INDEX) | |
| 05/20/2016 | * | --- | 133 | 94 | 6 | 23,221 | 14,853 | 9,864 | 129 | --- | 2,996 | 6,731 |
| 05/21/2016 | * | --- | 92 | 46 | --- | 18,851 | 13,214 | 14,859 | 164 | 10,523 | --- | 6,779 |
| 05/22/2016 | * | --- | 73 | 23 | --- | 14,099 | 9,015 | 8,651 | 174 | --- | 2,497 | 4,667 |
| 05/23/2016 | * | --- | 89 | 12 | 21 | 12,285 | 10,236 | 7,979 | 127 | 8,393 | --- | 3,984 |
| 05/24/2016 | * | --- | 59 | 11 | 0 | 10,719 | 22,762 | 6,937 | 135 | --- | 1,603 | 4,929 |
| 05/25/2016 | * | --- | 40 | 3 | --- | 8,912 | 8,382 | 8,213 | 143 | 5,844 | --- | 3,880 |
| 05/26/2016 | * | --- | --- | 4 | --- | 7,452 | 3,950 | 3,188 | 93 | --- | 1,874 | 3,605 |
| 05/27/2016 | * | --- | --- | --- | --- | 5,142 | 4,245 | 2,474 | 82 | 3,459 | --- | 1,983 |
| 05/28/2016 | * | --- | --- | 0 | --- | 7,457 | 2,927 | 765 | 80 | --- | 1,216 | 2,097 |
| 05/29/2016 | * | --- | --- | 1 | --- | 8,634 | 1,002 | 812 | 126 | 2,290 | --- | 1,920 |
| 05/30/2016 | * | --- | --- | 0 | --- | 3,162 | 2,755 | 443 | 56 | --- | 851 | 1,788 |
| 05/31/2016 | * | --- | --- | --- | --- | 3,353 | 2,339 | 397 | 17 | 2,231 | --- | 2,057 |
| 06/01/2016 | * | --- | --- | --- | --- | 1,798 | 4,069 | 2,373 | 29 | --- | 799 | 1,354 |
| 06/02/2016 | * | --- | --- | --- | --- | 2,198 | 2,691 | 467 | 33 | 1,103 | --- | 1,615 |
| 06/03/2016 | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Total: | | 0 | 486 | 194 | 27 | 127,283 | 102,440 | 67,422 | 1,388 | 33,843 | 11,836 | 47,389 |
| # Days: | | 0 | 6 | 10 | 3 | 14 | 14 | 14 | 14 | 7 | 7 | 14 |
| Average: | | 0 | 81 | 19 | 9 | 9,092 | 7,317 | 4,816 | 99 | 4,835 | 1,691 | 3,385 |
| YTD | | 755 | 25,279 | 3,377 | 9,186 | 3,922,514 | 2,270,538 | 1,828,267 | 17,218 | 724,944 | 500,195 | 609,913 |

Two-Week Summary of Passage Indices

| COMBINED SOCKEYE | | | | | | | | | | | | |
|------------------|---------------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Date | WTB (Coll) | IMN (Coll) | GRN (Coll) | LEW (Coll) | LGR (INDEX) | LGS (INDEX) | LMN (INDEX) | RIS (INDEX) | MCN (INDEX) | JDA (INDEX) | BO2 (INDEX) | |
| 05/20/2016 | * | --- | 0 | 0 | 6 | 5,934 | 2,511 | 515 | 26 | --- | 17,974 | 28,607 |
| 05/21/2016 | * | --- | 0 | 0 | --- | 3,969 | 5,816 | 3,933 | 55 | 24,288 | --- | 17,916 |
| 05/22/2016 | * | --- | 0 | 0 | --- | 4,139 | 5,653 | 5,575 | 52 | --- | 10,379 | 15,174 |
| 05/23/2016 | * | --- | 0 | 0 | 2 | 3,659 | 2,436 | 4,141 | 29 | 14,265 | --- | 6,896 |
| 05/24/2016 | * | --- | 0 | 0 | 9 | 3,176 | 2,799 | 2,272 | 33 | --- | 7,481 | 5,069 |
| 05/25/2016 | * | --- | 0 | 0 | --- | 2,527 | 573 | 2,243 | 20 | 11,681 | --- | 6,285 |
| 05/26/2016 | * | --- | --- | 0 | --- | 3,555 | 1,689 | 769 | 18 | --- | 5,152 | 3,152 |
| 05/27/2016 | * | --- | --- | --- | --- | 2,061 | 2,983 | 1,137 | 20 | 6,854 | --- | 1,576 |
| 05/28/2016 | * | --- | --- | 0 | --- | 3,298 | 1,606 | 219 | 11 | --- | 4,444 | 1,556 |
| 05/29/2016 | * | --- | --- | 0 | --- | 1,151 | 630 | 960 | 18 | 4,326 | --- | 1,230 |
| 05/30/2016 | * | --- | --- | 0 | --- | 287 | 432 | 665 | 0 | --- | 2,978 | 1,465 |
| 05/31/2016 | * | --- | --- | --- | --- | 73 | 645 | 199 | 4 | 2,292 | --- | 986 |
| 06/01/2016 | * | --- | --- | --- | --- | 0 | 186 | 226 | 8 | --- | 1,026 | 565 |
| 06/02/2016 | * | --- | --- | --- | --- | 73 | 130 | 85 | 6 | 2,205 | --- | 551 |
| 06/03/2016 | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Total: | | 0 | 0 | 0 | 17 | 33,902 | 28,089 | 22,939 | 300 | 65,911 | 49,434 | 91,028 |
| # Days: | | 0 | 6 | 10 | 3 | 14 | 14 | 14 | 14 | 7 | 7 | 14 |
| Average: | | 0 | 0 | 0 | 6 | 2,422 | 2,006 | 1,639 | 21 | 9,416 | 7,062 | 6,502 |
| YTD | | 1 | 0 | 0 | 133 | 43,851 | 32,624 | 23,960 | 56,573 | 858,149 | 300,643 | 797,053 |

| COMBINED LAMPREY JUVENILES | | | | | | | | | | | | |
|----------------------------|---------------|---------------|---------------|---------------|----------------------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|
| Date | WTB (Coll) | IMN (Coll) | GRN (Coll) | LEW (Coll) | LGR [†] (Samp) | LGS (Coll) | LMN (Coll) | RIS (Coll) | MCN (Coll) | JDA (Coll) | BO2 (Coll) | |
| 05/20/2016 | * | --- | 0 | 0 | 0 | 1 | 0 | 50 | 1 | --- | 1,550 | 0 |
| 05/21/2016 | * | --- | 0 | 0 | --- | 0 | 500 | 0 | 0 | 1,800 | --- | 0 |
| 05/22/2016 | * | --- | 0 | 0 | --- | 0 | 150 | 50 | 0 | --- | 1,050 | 100 |
| 05/23/2016 | * | --- | 0 | 0 | 0 | 0 | 0 | 50 | 0 | 2,900 | --- | 133 |
| 05/24/2016 | * | --- | 0 | 0 | 0 | 0 | 0 | 200 | 0 | --- | 775 | 67 |
| 05/25/2016 | * | --- | 0 | 0 | --- | 0 | 500 | 0 | 0 | 200 | --- | 67 |
| 05/26/2016 | * | --- | --- | 0 | --- | 0 | 100 | 20 | 0 | --- | 450 | 0 |
| 05/27/2016 | * | --- | --- | --- | --- | 0 | 80 | 20 | 0 | 550 | --- | 50 |
| 05/28/2016 | * | --- | --- | 0 | --- | 0 | 80 | 20 | 0 | --- | 1,600 | 65 |
| 05/29/2016 | * | --- | --- | 0 | --- | 0 | 160 | 20 | 0 | 150 | --- | 131 |
| 05/30/2016 | * | --- | --- | 0 | --- | 0 | 120 | 40 | 0 | --- | 500 | 229 |
| 05/31/2016 | * | --- | --- | --- | --- | 0 | 80 | 30 | 0 | 50 | --- | 86 |
| 06/01/2016 | * | --- | --- | --- | --- | 0 | 10 | 0 | 0 | --- | 225 | 71 |
| 06/02/2016 | * | --- | --- | --- | --- | 0 | 120 | 0 | 0 | 1,100 | --- | 43 |
| 06/03/2016 | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Total: | | 0 | 0 | 0 | 1 | 1,900 | 500 | 1 | 6,750 | 6,150 | 1,042 | |
| # Days: | | 0 | 6 | 10 | 3 | 14 | 14 | 14 | 14 | 7 | 7 | 14 |
| Average: | | 0 | 0 | 0 | 0 | 136 | 36 | 0 | 964 | 879 | 74 | |
| YTD | | 0 | 4 | 1 | 0 | 158 | 32,100 | 28,920 | 84 | 29,493 | 23,154 | 9,158 |

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:

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

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

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

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

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

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

† In 2013 it was confirmed that juvenile lamprey can escape the sample tank at LGR which would lead to unreliable estimates of collection.

Therefore, only sample counts are provided in this report.

Definitions for Smolt Index Counts

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

IMN (Collection) = Imnaha River Trap : Collection Counts

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Two Week Transportation Summary

Source: Fish Passage Center

Updated:

6/3/16 7:02 AM

| | | 05/20/16 | TO | 06/03/16 | | | |
|--------------------------------|--------------------------|----------|--------|----------|---------|--------|-------------|
| | | Species | | | | | |
| Site | Data | CH0 | CH1 | CO | ST | SO | Grand Total |
| LGR | Sum of NumberCollected | 119,600 | 29,715 | 8,400 | 96,336 | 25,700 | 279,751 |
| | Sum of NumberBarged | 119,123 | 27,762 | 8,394 | 92,125 | 24,865 | 272,269 |
| | Sum of NumberBypassed | 47 | 1,802 | 0 | 4,173 | 0 | 6,022 |
| | Sum of Numbertrucked | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum of SampleMorts | 14 | 1 | 0 | 3 | 16 | 34 |
| | Sum of FacilityMorts | 296 | 39 | 6 | 20 | 814 | 1,175 |
| | Sum of ResearchMorts | 120 | 111 | 0 | 15 | 5 | 251 |
| | Sum of TotalProjectMorts | 430 | 151 | 6 | 38 | 835 | 1,460 |
| LGS | Sum of NumberCollected | 19,507 | 33,699 | 10,860 | 71,444 | 19,596 | 155,106 |
| | Sum of NumberBarged | 19,474 | 33,595 | 10,854 | 71,412 | 19,390 | 154,725 |
| | Sum of NumberBypassed | 22 | 0 | 0 | 0 | 6 | 28 |
| | Sum of Numbertrucked | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum of SampleMorts | 1 | 2 | 1 | 5 | 21 | 30 |
| | Sum of FacilityMorts | 10 | 102 | 5 | 27 | 179 | 323 |
| | Sum of ResearchMorts | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum of TotalProjectMorts | 11 | 104 | 6 | 32 | 200 | 353 |
| LMN | Sum of NumberCollected | 3,044 | 24,721 | 3,500 | 32,185 | 10,600 | 74,050 |
| | Sum of NumberBarged | 3,028 | 24,636 | 3,500 | 31,942 | 10,581 | 73,687 |
| | Sum of NumberBypassed | 14 | 57 | 0 | 238 | 0 | 309 |
| | Sum of Numbertrucked | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum of SampleMorts | 0 | 0 | 0 | 3 | 4 | 7 |
| | Sum of FacilityMorts | 2 | 28 | 0 | 2 | 15 | 47 |
| | Sum of ResearchMorts | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum of TotalProjectMorts | 2 | 28 | 0 | 5 | 19 | 54 |
| Total Sum of NumberCollected | | 142,151 | 88,135 | 22,760 | 199,965 | 55,896 | 508,907 |
| Total Sum of NumberBarged | | 141,625 | 85,993 | 22,748 | 195,479 | 54,836 | 500,681 |
| Total Sum of NumberBypassed | | 83 | 1,859 | 0 | 4,411 | 6 | 6,359 |
| Total Sum of Numbertrucked | | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Sum of SampleMorts | | 15 | 3 | 1 | 11 | 41 | 71 |
| Total Sum of FacilityMorts | | 308 | 169 | 11 | 49 | 1,008 | 1,545 |
| Total Sum of ResearchMorts | | 120 | 111 | 0 | 15 | 5 | 251 |
| Total Sum of TotalProjectMorts | | 443 | 283 | 12 | 75 | 1,054 | 1,867 |

YTD Transportation Summary

Source: Fish Passage Center

Updated:

6/3/16 7:02 AM

TO: 06/03/16

| | | Species | | | | | |
|--------------------------------|--------------------------|---------|------------|---------|--------|-----------|-------------|
| Site | Data | CH0 | CH1 | CO | SO | ST | Grand Total |
| LGR | Sum of NumberCollected | 165,490 | 4,503,998 | 149,570 | 33,350 | 2,962,167 | 7,814,575 |
| | Sum of NumberBarged | 133,538 | 1,397,291 | 116,437 | 31,849 | 1,087,415 | 2,766,530 |
| | Sum of NumberBypassed | 31,432 | 3,104,844 | 33,069 | 650 | 1,874,577 | 5,044,572 |
| | Sum of NumberTrucked | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum of SampleMorts | 26 | 94 | 1 | 16 | 33 | 170 |
| | Sum of FacilityMorts | 374 | 1,358 | 63 | 830 | 77 | 2,702 |
| | Sum of ResearchMorts | 120 | 411 | 0 | 5 | 65 | 601 |
| | Sum of TotalProjectMorts | 520 | 1,863 | 64 | 851 | 175 | 3,473 |
| LGS | Sum of NumberCollected | 40,208 | 2,432,707 | 102,660 | 22,796 | 1,583,364 | 4,181,735 |
| | Sum of NumberBarged | 37,341 | 1,016,793 | 89,054 | 22,589 | 653,527 | 1,819,304 |
| | Sum of NumberBypassed | 2,847 | 1,415,436 | 13,600 | 7 | 929,747 | 2,361,637 |
| | Sum of NumberTrucked | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum of SampleMorts | 4 | 22 | 1 | 21 | 12 | 60 |
| | Sum of FacilityMorts | 16 | 456 | 5 | 179 | 78 | 734 |
| | Sum of ResearchMorts | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum of TotalProjectMorts | 20 | 478 | 6 | 200 | 90 | 794 |
| LMN | Sum of NumberCollected | 12,144 | 3,506,740 | 40,020 | 11,300 | 1,279,824 | 4,850,028 |
| | Sum of NumberBarged | 10,097 | 1,893,937 | 33,781 | 11,280 | 624,964 | 2,574,059 |
| | Sum of NumberBypassed | 1,844 | 1,612,328 | 6,238 | 0 | 654,756 | 2,275,166 |
| | Sum of NumberTrucked | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum of SampleMorts | 0 | 127 | 0 | 4 | 16 | 147 |
| | Sum of FacilityMorts | 3 | 348 | 1 | 17 | 88 | 457 |
| | Sum of ResearchMorts | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sum of TotalProjectMorts | 3 | 475 | 1 | 21 | 104 | 604 |
| Total Sum of NumberCollected | | 217,842 | 10,443,445 | 292,250 | 67,446 | 5,825,355 | 16,846,338 |
| Total Sum of NumberBarged | | 180,976 | 4,308,021 | 239,272 | 65,718 | 2,365,906 | 7,159,893 |
| Total Sum of NumberBypassed | | 36,123 | 6,132,608 | 52,907 | 657 | 3,459,080 | 9,681,375 |
| Total Sum of NumberTrucked | | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Sum of SampleMorts | | 30 | 243 | 2 | 41 | 61 | 377 |
| Total Sum of FacilityMorts | | 393 | 2,162 | 69 | 1,026 | 243 | 3,893 |
| Total Sum of ResearchMorts | | 120 | 411 | 0 | 5 | 65 | 601 |
| Total Sum of TotalProjectMorts | | 543 | 2,816 | 71 | 1,072 | 369 | 4,871 |

Cumulative Adult Passage at Mainstem Dams Through: 06/02

| Dam | End Date | Spring Chinook | | | | | | Summer Chinook | | | | | | Fall Chinook | | | | | |
|-----|----------|----------------|--------|---------|--------|------------|--------|----------------|------|-------|------|------------|------|--------------|------|-------|------|------------|------|
| | | 2016 | | 2015 | | 10-Yr Avg. | | 2016 | | 2015 | | 10-Yr Avg. | | 2016 | | 2015 | | 10-Yr Avg. | |
| | | Adult | Jack | Adult | Jack | Adult | Jack | Adult | Jack | Adult | Jack | Adult | Jack | Adult | Jack | Adult | Jack | Adult | Jack |
| BON | 06/02 | 137,215 | 11,145 | 220,480 | 13,314 | 146,704 | 24,884 | 3,781 | 364 | 5,135 | 497 | 3,303 | 651 | 0 | 0 | 0 | 0 | 0 | 0 |
| TDA | 06/02 | 103,924 | 9,911 | 192,353 | 12,079 | 112,770 | 20,790 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| JDA | 06/02 | 90,022 | 7,973 | 161,720 | 11,087 | 95,258 | 18,924 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MCN | 06/02 | 75,584 | 6,576 | 148,330 | 7,990 | 83,229 | 14,728 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IHR | 06/02 | 61,221 | 4,368 | 109,484 | 4,937 | 57,787 | 9,133 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| LMN | 06/02 | 58,791 | 5,298 | 103,069 | 6,852 | 55,827 | 8,104 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| LGS | 06/02 | 53,766 | 5,184 | 96,666 | 6,652 | 50,344 | 8,498 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| LGR | 06/02 | 52,087 | 4,257 | 95,091 | 5,975 | 47,262 | 8,826 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PRD | 06/01 | 12,413 | 727 | 21,269 | 1,176 | 14,009 | 1,289 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| WAN | 06/01 | 12,998 | 540 | 20,694 | 726 | 13,954 | 1,457 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| RIS | 06/01 | 12,553 | 509 | 23,047 | 798 | 13,027 | 1,714 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| RRH | 06/01 | 5,313 | 272 | 9,312 | 433 | 5,316 | 715 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| WEL | 06/01 | 3,741 | 492 | 7,498 | 699 | 3,631 | 707 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| WFA | 05/30 | 16,536 | 834 | 43,551 | 1,625 | 22,566 | 667 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Dam | End Date | Coho | | | | | | Sockeye | | | Steelhead | | | | | | Lamprey | | |
|-----|----------|-------|------|-------|------|------------|------|---------|------|------------|-----------|-------|--------|-------|------------|-------|---------|------------|-------|
| | | 2016 | | 2015 | | 10-Yr Avg. | | 2016 | 2015 | 10-Yr Avg. | 10-Yr | | 2016 | 2015 | 10-Yr Avg. | 2016 | 2015 | 10-Yr Avg. | |
| | | Adult | Jack | Adult | Jack | Adult | Jack | | | | Wild | Wild | | | | | | | |
| BON | 06/02 | 0 | 0 | 0 | 0 | 0 | 0 | 1,093 | 595 | 193 | 5,489 | 5,338 | 5,705 | 2,054 | 2,599 | 1,604 | 3,988 | 1,194 | 1,000 |
| TDA | 06/02 | 0 | 0 | 0 | 0 | 0 | 0 | 434 | 266 | 69 | 385 | 518 | 2,611 | 200 | 204 | 963 | 59 | 175 | 14 |
| JDA | 06/02 | 0 | 0 | 0 | 0 | 0 | 1 | 254 | 226 | 43 | 393 | 645 | 4,965 | 266 | 354 | 1,863 | 315 | 115 | 39 |
| MCN | 06/02 | -1 | 0 | 5 | 4 | 1 | 0 | 33 | 81 | 9 | 472 | 766 | 5,630 | 296 | 413 | 1,876 | 50 | 25 | 3 |
| IHR | 06/02 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1,368 | 1,199 | 5,172 | 708 | 699 | 1,547 | 3 | 13 | 0 |
| LMN | 06/02 | -2 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 1,441 | 3,447 | 8,398 | 998 | 1,844 | 2,823 | 0 | 6 | 0 |
| LGS | 06/02 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,408 | 1,497 | 3,130 | 1,973 | 998 | 1,498 | -1 | -1 | 0 |
| LGR | 06/02 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 5,474 | 9,182 | 9,259 | 3,117 | 4,346 | 3,518 | -1 | 0 | 0 |
| PRD | 06/01 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 24 | 38 | 54 | 0 | 0 | 0 | 155 | 43 | 0 |
| WAN | 06/01 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 1 | 0 | 31 | 55 | 109 | 0 | 0 | 0 | 84 | 23 | 0 |
| RIS | 06/01 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 43 | 122 | 120 | 23 | 83 | 63 | 0 | 0 | 0 |
| RRH | 06/01 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 89 | 112 | 330 | 29 | 77 | 224 | 0 | 0 | 0 |
| WEL | 06/01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 61 | 37 | 70 | 26 | 30 | 52 | 1 | 0 | 0 |
| WFA | 05/30 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 14,000 | 5,974 | 12,522 | 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.

Columbia/Snake Project Forebay Temperatures

