

Fish Passage Center

Weekly Report #20-01

March 6, 2020

This Week's Highlights

Water Supply

Precipitation throughout the Columbia Basin has varied between 4% and 53% of average at individual sub-basins over March. Precipitation above The Dalles has been 30% of average over March. Over the 2020 water year, precipitation has ranged between 62% and 88% of average.

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

| Location | Water Year 2020 | | Water Year 2020 | |
|---|-------------------|-----------|----------------------------------|-----------|
| | March 1-5, 2020 | | October 1, 2019 to March 5, 2020 | |
| | Observed (inches) | % Average | Observed (inches) | % Average |
| Columbia Above Coulee | 0.29 | 53 | 17.4 | 86 |
| Snake River Above Ice Harbor | 0.04 | 11 | 9.0 | 74 |
| Columbia Above The Dalles | 0.13 | 30 | 12.0 | 79 |
| Kootenai | 0.18 | 34 | 14.6 | 74 |
| Clark Fork | 0.15 | 37 | 10.3 | 77 |
| Flathead | 0.20 | 37 | 15.6 | 88 |
| Pend Oreille River Basin above Waneta Dam | 0.16 | 32 | 14.0 | 83 |
| Salmon River Basin | 0.03 | 6 | 9.4 | 62 |
| Upper Snake Tributaries | 0.08 | 19 | 10.5 | 78 |
| Clearwater | 0.20 | 31 | 17.8 | 80 |
| Willamette River above Portland | 0.05 | 4 | 29.9 | 67 |

Snowpack within the Columbia Basin has been variable. Average snowpack in the Columbia River for basins above the Snake River confluence is 106% of average, for Snake River Basins the average snowpack is 80% of average, and for lower Columbia Basins between McNary and Bonneville Dam average snowpack is 100% of average.

Table 2 displays the March 5th ESP runoff volume forecasts for multiple reservoirs along with the March COE forecasts at Libby and Dworshak. The March 5th ESP forecast at The Dalles between April and August is 86,723 Kaf (99% of average).

Table 2. March5 ESP Runoff Volume Forecasts for various reservoirs within the Columbia and Snake River Basins.

| Location | March 5 th , 2020 10-day QPF ESP | |
|--|--|---------------------|
| | % Average (1981-2010) | Runoff Volume (Kaf) |
| The Dalles (Apr-Aug) | 99 | 86,723 |
| Grand Coulee (Apr-Aug) | 108 | 61,357 |
| Libby Res. Inflow, MT (Apr-Aug) | 99 108* | 5,852 6,349* |
| Hungry Horse Res. Inflow, MT (Apr-Aug) | 111 | 2,140 |
| Lower Granite Res. Inflow (Apr- July) | 84 | 16,597 |
| Brownlee Res. Inflow (Apr-July) | 73 | 4,012 |
| Dworshak Res. Inflow (Apr-July) | 98 97* | 2,363 2,355* |

* Denotes COE March Forecast

Grand Coulee Reservoir is at 1,258.9 feet (3-5-20) and has drafted 3.8 feet over the last week. Outflows at Grand Coulee have ranged between 93.8 Kcfs and 123.1 Kcfs over the last week. The end of March FC Elevation at Grand Coulee is 1278.6 ft. (based on March Forecast).

The Libby Reservoir is currently at elevation 2,405.9 feet (3-5-20) and has drafted 0.4 feet over the past week. Daily average outflows at Libby Dam have been 4.0 Kcfs over the last week. The end of March FC at Libby is 2,404.1 ft. (based on March Forecast).

Hungry Horse is currently at an elevation of 3,528.1 feet (3-5-20) and has drafted 1.3 feet last week. Outflows at Hungry Horse have been increased from 3.1 Kcfs to 3.9 Kcfs over the last week. The end of March FC at Hungry Horse is 3,532.8 ft. (based on March Forecast).

Dworshak is currently at an elevation of 1,523.4 feet (3-5-20) and has refilled 0.8 feet over last week. Dworshak outflows have been 1.6 Kcfs over the last week. The end of March System FC at Dworshak at the end of March is 1,541.7 ft.

The Brownlee Reservoir was at an elevation of 2,035.4 feet on March 5, 2020. Outflows at Hells Canyon have ranged between 9.5 and 19.0 Kcfs over the last four days. The end of March FC (based on March forecast) is 2,053.4 ft.

Spill

Flows in the Snake River have been relatively low this week, with daily average flows ranging from 22.3 to 33.0 Kcfs at Lower Granite Dam. Daily average flows in the Upper Columbia ranged from 95.8 to 126.9 Kcfs (at Rock Island Dam) while flows in the Mid-Columbia were in the 125.6 to 162.5 Kcfs range (at McNary Dam).

Voluntary spill for fish passage at FCRPS projects is expected to begin on April 3rd in the Snake River and April 10th in the Mid-Columbia.

Smolt Monitoring

Smolt Monitoring Program (SMP) activities began at Bonneville Dam (BON) on March 2nd, with the first sample tallied and reported on March 3rd. In addition to regular sampling at BON, sampling activities at McNary and Lower Granite dams began on March 1st, with the first samples tallied and reported on March 2nd. Sampling at the SMP traps on the Salmon and Snake rivers began on March 1st, with the first samples tallied and reported on March 2nd. Data for the SMP trap on the Imnaha River are available back to February 15th. The Grande Ronde River Trap has been installed and sampling is planned to start sometime over the next couple of days. SMP sampling at the other bypass facilities (Little Goose, Lower Monumental, John Day, and Rock Island dams) is expected to begin in early April.

Subyearling Chinook have made up the majority of

the salmonids sampled at Bonneville Dam (BON) so far this year. All of the subyearling Chinook sampled at BON so far this year have been fry. Over the three days of sampling so far, the daily average passage index for subyearling Chinook fry was about 280 per day. A small number of yearling Chinook and coho have also been collected this week. Approximately 50% of the yearling Chinook that were collected this week were holdover fall Chinook and 25% of the coho were fry. Pacific lamprey macrophthalmia were encountered in all three samples this week. This week's daily average collection for Pacific lamprey macrophthalmia was about 120 per day. Pacific lamprey ammocoetes were encountered in one of this week's samples (March 4th).

Sampling at McNary Dam (MCN) is every-other-day. Subyearling Chinook fry and yearling fall Chinook holdovers are the only salmonids that have been encountered at MCN in these first two samples of 2020. Collections of these two species have been low. Pacific lamprey ammocoetes were encountered in one sample this week (March 4th) while macrophthalmia were encountered in both of this week's samples. The average collection count for Pacific lamprey macrophthalmia from these two samples was approximately 370.

Yearling Chinook and steelhead are the only salmonids that have been encountered at Lower Granite Dam (LGR) over the first four samples of 2020. Collections of these species have been low. Yearling Chinook were encountered in two of this week's samples while steelhead were encountered in three samples. Pacific lamprey ammocoetes and macrophthalmia were each encountered in three of this week's four samples.

The Snake River Trap at Lewiston, ID (LEW) is located at river kilometer 225 of the Snake River and is operated by Idaho Department of Fish and Game. No salmonids or lamprey juveniles have been collected over the first four days of sampling at LEW.

The Salmon River Trap at Whitebird (WTB) is located at river kilometer 103 of the Salmon River and is operated by Idaho Department of Fish and Game. Similar to recent years, sampling at WTB in 2020 will only occur during the weekdays. To date, no salmonids or lamprey juveniles have been collected at this trap.

The Imnaha River Trap (IMN) is located at river kilometer 007 of the Imnaha River and is operated by

the Nez Perce Tribe. Sampling at the Imnaha River Trap is year round. For 2020, the FPC currently has data from IMN for the period of February 15th through March 4th. Over this period, a total of seven yearling Chinook and eleven steelhead have been sampled at the trap. All of the yearling Chinook and steelhead collected over this period have been unmarked.

Hatchery Releases

FPC has not received preliminary data from some hatcheries as of 3/6/20, therefore, this hatchery release schedule represents the most up to date accounting that are available, but should not be considered a complete record of scheduled hatchery releases.

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. No releases were scheduled for this zone this week. However, approximately 3.5 million yearling spring Chinook juveniles are scheduled to be released in this zone over the next two weeks. Of these, 71% are expected to be released into the Little Salmon River at Rapid River hatchery, 23% are scheduled to be released into the Lochsa River, and the remainder are expected to be released into the Imnaha River. The releases from Rapid River Hatchery into the Little Salmon River are volitional, and they are expected to run through early April. Additionally, 555,000 summer steelhead are expected to be released into the Snake River at Hells Canyon Dam beginning on March 16th and running through the end of the month.

Upper Columbia Zone:

The Upper Columbia Zone encompasses the area of the Columbia River and its tributaries from Priest Rapids Dam to Chief Joseph Dam. No releases were scheduled for this zone during this week. No releases are scheduled to begin over the next two weeks for this zone.

Middle Columbia Zone:

The Middle Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to Priest Rapids Dam (excluding the Snake River). Approximately 900,000 juvenile fall Chinook were scheduled to be released into the Umatilla River this

week. And there are no other scheduled releases into this zone over the next two weeks.

Lower Columbia Zone:

The Lower Columbia Zone is defined as the Columbia River and its tributaries below Bonneville Dam. Approximately 3.4 million yearling spring Chinook were scheduled to be released into this zone over the past week. These releases were scheduled to occur in various Columbia River tributaries located below Bonneville Dam, including: 1.) the Willamette River and its tributaries (20%), 2.) the Sandy River (3%), 3.) Youngs Bay (19%), 4.) the Kalama River (11%), the Cowlitz River (37%), and the remaining 10% were released into the Lewis River over the past month (2/1-3/1). An additional, 46,000 coho were released into the Lewis River, and 55,000 cutthroat trout were released into the Cowlitz over the past week.

Nearly 2.5 million spring Chinook are scheduled to be released into this zone in the next two weeks. Of these, approximately 67% are scheduled to be released into the Santiam, McKenzie, Clackamas, and Mollala rivers, all tributaries of the Willamette River. The remaining were released into tributaries of the Columbia River below Bonneville Dam, 650,000 are scheduled for release in Gnat Creek, and another 150,000 into Blind Slough. Additionally, 25,000 winter Steelhead juveniles are scheduled to be released into the Clackamas River on March 16th.

Adult Passage

Bonneville Dam uses video counts from January 1st through March 31st and direct counting after this period. Bonneville Dam counts adult salmon and steelhead year round. Lower Granite Dam uses video counts from March 1st through March 31st and direct counting after this period. Lower Granite Dam counts adult salmon and steelhead through December 30th each year. Willamette Falls Dam also uses video counts and reports adult counts year round. Video counts can cause a delay in posting the count data to the web, because the counting staff at the projects have to review the tapes. The FPC collects the adult count data from projects several times a day and updates Adult Dam Count report linked on our homepage (<http://www.fpc.org/>). During the winter season at Bonneville Dam (from 1/1/2020 through 3/4/2020), 7 adult Chinook and 1,379 adult steelhead were counted. In 2019 for the same time frame, 0 adult Chinook and 264 adult steelhead

were counted. The 2020 Bonneville Dam winter season count of adult steelhead had 1,115 more fish than the 2019 count.

The Willamette Falls cumulative steelhead count from January 1st through March 3rd is 3,002. The 2020 Willamette Falls winter steelhead count has 2,484 more fish than the 2019 count of 518 while being about 1.8 times greater than the 10-year average count of 1,673. This year's Lower Granite steelhead count of 299 has 263 more fish than the 2019 count of 36 and has 88 more fish than the 10-year average count of 211.

This winter, based on estimates made by the Technical Advisory Committee (TAC) for U.S. v. Oregon, the spring Chinook run for 2020 is expected to be 135,800. The TAC reported that 109,808 spring Chinook had returned to the river in 2019 (see U.S. v. Oregon, Technical Advisory Committee's December 12, 2019, document *Columbia River Mouth Fish Returns* which displays 2019 actual and 2020 forecasts of spring Chinook, summer Chinook, sockeye, and steelhead counts from the Oregon and Washington Departments of Fish and Wildlife). This report is available at: https://www.dfw.state.or.us/fish/OSCRP/CRM/returns_and_expectations/docs/2019_returns_20_forecasts.pdf

Hatchery Releases Last Two Weeks

Hatchery Release Summary
From: **2/22/2020** to **03/06/20**

| Agency | Hatchery | Species | Race | MigYr | NumRel | RelStart | RelEnd | RelSite | RelRiver | Zone |
|--|------------------------|---------|------|-------|------------------|----------|----------|-----------------------|------------------|------|
| Oregon Dept. of Fish and Wildlife | Big Creek Hatchery | CH1 | SP | 2020 | 250,000 | 03-02-20 | 03-02-20 | Youngs Bay | Youngs River | LCOL |
| Oregon Dept. of Fish and Wildlife | Clackamas Hatchery | CH1 | SP | 2020 | 500,000 | 03-02-20 | 03-02-20 | Clackamas River | Clackamas River | LCOL |
| Oregon Dept. of Fish and Wildlife | Gnat Creek Hatchery | CH1 | SP | 2020 | 400,000 | 03-02-20 | 03-02-20 | Youngs Bay | Youngs River | LCOL |
| Oregon Dept. of Fish and Wildlife | Sandy Hatchery | CH1 | SP | 2020 | 100,000 | 03-06-20 | 03-06-20 | Bull Run Acclimation | Sandy River | LCOL |
| Oregon Dept. of Fish and Wildlife | Willamette Hatchery | CH1 | SP | 2020 | 234,000 | 03-02-20 | 03-02-20 | Dexter Pond | Willamette River | LCOL |
| Oregon Dept. of Fish and Wildlife Total | | | | | 1,484,000 | | | | | |
| Umatilla Tribe | Bonneville Hatchery | CH0 | FA | 2020 | 120,000 | 03-06-20 | 03-06-20 | Pendelton Acclim Pond | Umatilla River | MCOL |
| Umatilla Tribe | Bonneville Hatchery | CH0 | FA | 2020 | 780,000 | 03-02-20 | 03-02-20 | Pendelton Acclim Pond | Umatilla River | MCOL |
| Umatilla Tribe Total | | | | | 900,000 | | | | | |
| Washington Dept. of Fish and Wildlife | COOP | CO | NO | 2020 | 46,000 | 03-01-20 | 03-01-20 | Lewis River | Lewis River | LCOL |
| Washington Dept. of Fish and Wildlife | COOP | CT | UN | 2020 | 55,000 | 03-01-20 | 04-01-20 | Cowlitz River | Cowlitz River | LCOL |
| Washington Dept. of Fish and Wildlife | Cowlitz Salmon | CH1 | SP | 2020 | 445,603 | 03-01-20 | 03-01-20 | Cowlitz River | Cowlitz River | LCOL |
| Washington Dept. of Fish and Wildlife | Cowlitz Salmon | CH1 | SP | 2020 | 813,000 | 03-01-20 | 04-01-20 | Cowlitz River | Cowlitz River | LCOL |
| Washington Dept. of Fish and Wildlife | Fallert Creek Hatchery | CH1 | SP | 2020 | 368,800 | 03-01-20 | 03-01-20 | Kalama River | Kalama River | LCOL |
| Washington Dept. of Fish and Wildlife | Lewis River Hatchery | CH1 | SP | 2020 | 91,632 | 02-01-20 | 03-01-20 | Lewis River | Lewis River | LCOL |
| Washington Dept. of Fish and Wildlife | Lewis River Hatchery | CH1 | SP | 2020 | 112,500 | 02-01-20 | 03-01-20 | Lewis River | Lewis River | LCOL |
| Washington Dept. of Fish and Wildlife | Lewis River Hatchery | CH1 | SP | 2020 | 112,500 | 02-01-20 | 03-01-20 | Lewis River | Lewis River | LCOL |
| Washington Dept. of Fish and Wildlife Total | | | | | 2,045,035 | | | | | |
| Grand Total | | | | | 4,429,035 | | | | | |

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

Hatchery Releases Next Two Weeks

Hatchery Release Summary
From: **3/7/2020** to **3/20/2020**

| Agency | Hatchery | Species | Race | MigYr | NumRel | RelStart | RelEnd | RelSite | RelRiver | Zone |
|--|------------------------|---------|------|-------|------------------|----------|----------|----------------------|---------------------|------|
| Idaho Dept. of Fish and Game | Clearwater Hatchery | CH1 | SU | 2020 | 791,284 | 03-11-20 | 03-14-20 | Powell Acclim Pond | Lochsa River | SNAK |
| Idaho Dept. of Fish and Game | Niagara Springs | ST | SU | 2020 | 555,000 | 03-16-20 | 03-27-20 | Hells Canyon Dam | Snake River | SNAK |
| Idaho Dept. of Fish and Game | Rapid River Hatchery | CH1 | SP | 2020 | 75,000 | 03-09-20 | 03-09-20 | Hells Canyon Dam | Snake River | SNAK |
| Idaho Dept. of Fish and Game | Rapid River Hatchery | CH1 | SP | 2020 | 2,500,000 | 03-16-20 | 04-24-20 | Rapid River | Little Salmon River | SNAK |
| Idaho Dept. of Fish and Game Total | | | | | 3,921,284 | | | | | |
| Oregon Dept. of Fish and Wildlife | Bonneville Hatchery | ST | SU | 2020 | 25,000 | 03-16-20 | 03-16-20 | Clackamas River | Clackamas River | LCOL |
| Oregon Dept. of Fish and Wildlife | Clackamas Hatchery | CH1 | SP | 2020 | 70,000 | 03-11-20 | 03-11-20 | Clackamas River | Clackamas River | LCOL |
| Oregon Dept. of Fish and Wildlife | Clackamas Hatchery | CH1 | SP | 2020 | 165,000 | 03-16-20 | 03-16-20 | Clackamas River | Clackamas River | LCOL |
| Oregon Dept. of Fish and Wildlife | Clackamas Hatchery | CH1 | SP | 2020 | 240,000 | 03-16-20 | 03-16-20 | Eagle Creek Hatchery | Eagle Creek | LCOL |
| Oregon Dept. of Fish and Wildlife | Gnat Creek Hatchery | CH1 | SP | 2020 | 150,000 | 03-16-20 | 03-16-20 | Blind Slough | Col R Bel. Bon Dam | LCOL |
| Oregon Dept. of Fish and Wildlife | Gnat Creek Hatchery | CH1 | SP | 2020 | 650,000 | 03-16-20 | 03-16-20 | Gnat Creek | Col R Bel. Bon Dam | LCOL |
| Oregon Dept. of Fish and Wildlife | Lookingglass Hatchery | CH1 | SP | 2020 | 210,000 | 03-16-20 | 03-16-20 | Imnaha River | Imnaha River | SNAK |
| Oregon Dept. of Fish and Wildlife | Marion Forks Hatchery | CH1 | SP | 2020 | 100,000 | 03-16-20 | 03-16-20 | Mollala River | Willamette River | LCOL |
| Oregon Dept. of Fish and Wildlife | Marion Forks Hatchery | CH1 | SP | 2020 | 704,000 | 03-16-20 | 03-16-20 | Santiam River & N Fk | Santiam River | LCOL |
| Oregon Dept. of Fish and Wildlife | McKenzie Hatchery | CH1 | SP | 2020 | 202,000 | 03-16-20 | 03-16-20 | McKenzie River | Willamette River | LCOL |
| Oregon Dept. of Fish and Wildlife | South Santiam Hatchery | CH1 | SP | 2020 | 170,000 | 03-09-20 | 03-09-20 | S Fk Santiam River | Santiam River | LCOL |
| Oregon Dept. of Fish and Wildlife Total | | | | | 2,686,000 | | | | | |
| Grand Total | | | | | 6,607,284 | | | | | |

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

Daily Average Flow and Spill (in Kcfs)

Date 3/6/2020 8:15:27 AM

Page 1 of 3

Upper 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 |
| 02/21/2020 | 117.2 | 0.0 | 117.5 | 0.0 | 114.0 | 0.0 | 116.6 | 0.7 | 124.8 | 0.0 | 143.6 | 0.0 | 136.8 | 0.0 |
| 02/22/2020 | 109.0 | 0.0 | 107.5 | 0.0 | 109.2 | 0.0 | 108.5 | 0.0 | 113.8 | 0.0 | 117.1 | 0.0 | 113.5 | 0.0 |
| 02/23/2020 | 102.8 | 0.0 | 104.5 | 0.0 | 99.8 | 0.0 | 90.8 | 0.0 | 96.5 | 0.0 | 105.4 | 0.0 | 104.7 | 0.0 |
| 02/24/2020 | 122.9 | 0.0 | 120.0 | 0.0 | 119.1 | 0.0 | 114.5 | 0.0 | 122.6 | 0.1 | 103.6 | 0.0 | 94.4 | 0.0 |
| 02/25/2020 | 130.0 | 0.0 | 129.0 | 0.0 | 132.5 | 5.6 | 129.0 | 3.7 | 133.6 | 0.0 | 138.5 | 0.0 | 128.1 | 0.0 |
| 02/26/2020 | 106.3 | 0.0 | 111.3 | 0.0 | 115.2 | 0.0 | 115.5 | 0.3 | 121.2 | 0.3 | 124.7 | 0.0 | 115.3 | 0.1 |
| 02/27/2020 | 118.0 | 0.0 | 114.1 | 0.0 | 123.0 | 0.0 | 119.2 | 0.0 | 125.9 | 0.0 | 143.1 | 0.0 | 137.0 | 0.0 |
| 02/28/2020 | 123.1 | 0.0 | 125.3 | 0.0 | 124.5 | 4.8 | 118.6 | 0.0 | 126.9 | 0.0 | 136.0 | 0.0 | 129.9 | 0.0 |
| 02/29/2020 | 102.5 | 0.0 | 99.0 | 0.0 | 101.3 | 0.0 | 107.2 | 0.0 | 115.3 | 0.2 | 121.5 | 0.9 | 116.9 | 0.0 |
| 03/01/2020 | 93.8 | 0.0 | 99.6 | 0.0 | 103.7 | 0.0 | 101.4 | 0.0 | 107.7 | 0.0 | 124.4 | 0.0 | 123.4 | 0.0 |
| 03/02/2020 | 103.0 | 0.0 | 99.5 | 0.0 | 98.1 | 0.0 | 91.5 | 0.0 | 95.8 | 0.0 | 101.3 | 0.0 | 97.3 | 0.1 |
| 03/03/2020 | 104.9 | 0.0 | 105.3 | 0.0 | 110.9 | 0.0 | 106.7 | 0.0 | 113.9 | 0.0 | 104.4 | 0.0 | 100.6 | 0.0 |
| 03/04/2020 | 95.8 | 0.0 | 95.8 | 0.0 | 98.2 | 0.0 | 99.5 | 0.0 | 110.3 | 0.0 | 120.0 | 0.0 | 106.6 | 0.0 |
| 03/05/2020 | 98.9 | 0.0 | 102.6 | 0.0 | 106.3 | 0.0 | 99.9 | 0.0 | 105.3 | 0.0 | 110.6 | 0.0 | 109.2 | 0.0 |

- Data not available or incorrect

These data were obtained from the Corps of Engineers...

Daily Average Flow and Spill (in Kcfs)

Date 3/6/2020 8:15:28 AM

Page 2 of 3

Snake Basin Projects

| Date | Dworshak | | Brownlee | | Hells Canyon | | Lower Granite | | Little Goose | | Lower Monumental | | Ice Harbor | |
|------------|----------|-------|----------|--------|--------------|-------|---------------|-------|--------------|-------|------------------|-------|------------|-------|
| | Flow | Spill | Inflow | Inflow | Flow | Spill | Flow | Spill | Flow | Spill | Flow | Spill | Flow | Spill |
| 02/21/2020 | 1.6 | 0.0 | | | 26.9 | 0.0 | 25.9 | 0.0 | 26.7 | 0.0 | 26.3 | 0.0 | | |
| 02/22/2020 | 1.6 | 0.0 | | | 24.1 | 0.0 | 20.4 | 0.0 | 20.2 | 0.0 | 19.4 | 0.0 | | |
| 02/23/2020 | 1.6 | 0.0 | | | 26.3 | 0.0 | 23.9 | 0.0 | 24.1 | 0.0 | 23.8 | 0.0 | | |
| 02/24/2020 | 1.6 | 0.0 | | | 24.8 | 0.0 | 27.6 | 0.0 | 28.8 | 0.0 | 31.8 | 0.0 | | |
| 02/25/2020 | 1.8 | 0.0 | | | 27.5 | 0.0 | 26.4 | 0.8 | 28.8 | 0.0 | 28.2 | 0.0 | | |
| 02/26/2020 | 1.6 | 0.0 | | | 26.5 | 0.0 | 22.8 | 0.0 | 22.2 | 0.2 | 23.7 | 0.0 | | |
| 02/27/2020 | 1.6 | 0.0 | | | 23.7 | 0.0 | 23.5 | 0.0 | 24.1 | 0.0 | 24.4 | 0.0 | | |
| 02/28/2020 | 1.6 | 0.0 | | | 22.3 | 0.0 | 23.0 | 0.0 | 25.9 | 0.0 | 25.8 | 0.0 | | |
| 02/29/2020 | 1.6 | 0.0 | | | 22.7 | 0.0 | 20.8 | 0.0 | 22.2 | 0.0 | 22.4 | 0.0 | | |
| 03/01/2020 | 1.6 | 0.0 | | | 25.5 | 0.0 | 25.9 | 0.0 | 26.2 | 0.0 | 26.9 | 0.0 | | |
| 03/02/2020 | 1.6 | 0.0 | | | 27.3 | 0.0 | 24.0 | 0.0 | 24.6 | 0.0 | 23.8 | 0.0 | | |
| 03/03/2020 | 1.6 | 0.0 | | | 26.5 | 0.0 | 24.5 | 0.0 | 25.3 | 0.0 | 25.0 | 0.0 | | |
| 03/04/2020 | 1.6 | 0.0 | | | 28.6 | 0.0 | 27.0 | 0.0 | 27.7 | 0.0 | 29.1 | 0.0 | | |
| 03/05/2020 | 1.6 | 0.0 | | | 33.0 | 0.0 | 33.5 | 0.0 | 34.5 | 0.0 | 37.7 | 0.0 | | |

- Data not available or incorrect

These data were obtained from the Corps of Engineers...

Daily Average Flow and Spill (in Kcfs)

Date 3/6/2020 8:15:28 AM

Page 3 of 3

Mid - Columbia Projects

| Date | McNary | | John Day | | The Dalles | | Bonneville | | PH1 | PH2 |
|------------|--------|-------|----------|-------|------------|-------|------------|-------|------|------|
| | Flow | Spill | Flow | Spill | Flow | Spill | Flow | Spill | | |
| 02/21/2020 | 175.0 | 0.0 | 169.5 | 0.0 | 160.6 | 0.0 | 171.8 | 0.6 | 70.0 | 97.3 |
| 02/22/2020 | 146.0 | 0.0 | 150.3 | 0.0 | 151.2 | 0.0 | 163.9 | 0.6 | 62.0 | 97.4 |
| 02/23/2020 | 138.2 | 0.0 | 135.8 | 0.0 | 133.7 | 0.0 | 141.6 | 0.6 | 38.9 | 98.2 |
| 02/24/2020 | 131.1 | 0.0 | 137.4 | 0.0 | 136.3 | 0.0 | 144.7 | 0.6 | 49.4 | 90.8 |
| 02/25/2020 | 145.2 | 0.0 | 158.8 | 0.0 | 158.8 | 0.0 | 162.9 | 0.6 | 75.6 | 82.8 |
| 02/26/2020 | 155.1 | 0.0 | 159.5 | 0.0 | 157.0 | 0.0 | 173.3 | 0.6 | 82.0 | 86.7 |
| 02/27/2020 | 159.4 | 0.0 | 159.0 | 0.0 | 156.7 | 0.0 | 171.7 | 0.8 | 76.8 | 88.3 |
| 02/28/2020 | 162.5 | 0.0 | 162.3 | 0.0 | 158.6 | 0.0 | 163.3 | 1.2 | 65.4 | 89.3 |
| 02/29/2020 | 158.1 | 0.0 | 159.4 | 0.0 | 158.3 | 0.0 | 170.3 | 1.2 | 72.9 | 88.8 |
| 03/01/2020 | 150.7 | 3.1 | 154.1 | 0.0 | 150.2 | 0.0 | 162.2 | 1.2 | 65.2 | 88.4 |
| 03/02/2020 | 125.6 | 0.0 | 130.3 | 0.0 | 128.3 | 0.0 | 145.6 | 1.3 | 49.1 | 87.8 |
| 03/03/2020 | 133.4 | 1.6 | 133.2 | 0.0 | 131.9 | 0.0 | 139.5 | 1.3 | 43.5 | 87.3 |
| 03/04/2020 | 143.3 | 1.7 | 147.7 | 0.0 | 147.2 | 0.0 | 164.0 | 1.3 | 68.0 | 87.3 |
| 03/05/2020 | 148.6 | 1.1 | 154.8 | 0.0 | 150.3 | 0.0 | 164.1 | 1.3 | 67.8 | 87.6 |

- Data not available or incorrect

These data were obtained from the Corps of Engineers...

FISH PASSAGE CENTER

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

Date 3/6/2020 8:15:11 AM

Page 1 of 4

Total Dissolved Gas Data at Upper Columbia Sites

| Date | Hungry H. Dnst | | | | Boundary | | | | Grand Coulee | | | | Grand C. Tlwr | | | | Chief Joseph | | | | Chief J. Dnst | | | | 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 | 24 h Avg | 12 h Avg | High | # Hr | | | | | |
| 02/21 | | | | | | | | | 99.0 | 99.3 | 99.5 | 24 | 97.8 | 98.1 | 98.2 | 24 | | | | | | | | | | | | | 02/21 |
| 02/22 | | | | | | | | | 99.7 | 99.9 | 100.1 | 24 | 98.6 | 98.9 | 99.3 | 24 | | | | | | | | | | | | | 02/22 |
| 02/23 | | | | | | | | | 100.1 | 100.5 | 100.8 | 24 | 99.2 | 99.7 | 100.1 | 24 | | | | | | | | | | | | | 02/23 |
| 02/24 | | | | | | | | | 98.8 | 99.0 | 99.5 | 24 | 97.7 | 98.1 | 98.5 | 24 | | | | | | | | | | | | | 02/24 |
| 02/25 | | | | | | | | | 98.3 | 98.6 | 98.8 | 24 | 97.2 | 97.5 | 97.7 | 24 | | | | | | | | | | | | | 02/25 |
| 02/26 | | | | | | | | | 98.9 | 99.0 | 99.2 | 24 | 97.8 | 98.1 | 98.3 | 24 | 98.9 | 98.9 | 99.4 | 11 | 97.8 | 97.9 | 98.6 | 14 | | | | | 02/26 |
| 02/27 | | | | | | | | | 99.1 | 99.3 | 99.5 | 24 | 98.0 | 98.3 | 98.4 | 24 | 98.9 | 98.9 | 99.3 | 12 | 97.7 | 97.9 | 98.0 | 24 | | | | | 02/27 |
| 02/28 | | | | | | | | | 100.6 | 101.3 | 101.5 | 24 | 99.5 | 100.2 | 100.5 | 24 | 100.9 | 100.9 | 101.2 | 11 | 99.1 | 99.8 | 100.0 | 24 | | | | | 02/28 |
| 02/29 | | | | | | | | | 100.9 | 101.1 | 101.2 | 24 | 100.0 | 100.5 | 101.1 | 24 | 106.5 | 106.5 | 149.7 | 9 | 99.6 | 100.1 | 100.5 | 24 | | | | | 02/29 |
| 03/01 | | | | | | | | | 100.1 | 100.3 | 100.4 | 24 | 99.2 | 99.8 | 100.1 | 24 | 99.3 | 99.3 | 99.4 | 2 | 98.7 | 99.1 | 99.5 | 24 | | | | | 03/01 |
| 03/02 | | | | | | | | | 100.7 | 101.1 | 101.2 | 24 | 100.0 | 100.2 | 100.4 | 24 | 100.4 | 100.4 | 101.0 | 5 | 99.4 | 99.7 | 100.1 | 24 | | | | | 03/02 |
| 03/03 | | | | | | | | | 101.2 | 101.5 | 101.7 | 24 | 100.3 | 100.7 | 101.4 | 24 | 101.2 | 101.4 | 101.6 | 19 | 99.9 | 100.2 | 100.6 | 24 | | | | | 03/03 |
| 03/04 | | | | | | | | | 100.7 | 100.9 | 101.5 | 24 | 99.9 | 100.2 | 100.5 | 24 | 100.8 | 101.0 | 101.2 | 22 | 99.8 | 100.0 | 100.5 | 24 | | | | | 03/04 |
| 03/05 | | | | | | | | | 101.0 | 101.3 | 101.5 | 21 | 100.1 | 100.5 | 101.1 | 21 | 101.3 | 101.6 | 101.9 | 23 | 100.0 | 100.3 | 101.0 | 23 | | | | | 03/05 |

Total Dissolved Gas Data at Upper Columbia Sites

| Date | Wells | | | | Wells Dwnstrm | | | | Rocky Reach | | | | Rocky R. Tlwr | | | | Rock Island | | | | Rock I. 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 | 24 h Avg | 12 h Avg | High | # Hr | | | | | |
| 02/21 | 97.4 | 97.9 | 98.1 | 24 | 97.5 | 98.1 | 98.4 | 24 | 98.0 | 98.3 | 98.5 | 24 | 99.8 | 100.5 | 107.1 | 24 | 99.0 | 99.6 | 100.8 | 24 | 99.1 | 99.6 | 101.1 | 24 | | | | | 02/21 |
| 02/22 | 98.3 | 98.5 | 98.9 | 24 | 98.4 | 98.7 | 99.3 | 24 | 98.8 | 98.9 | 99.1 | 24 | 100.1 | 100.4 | 100.8 | 24 | 98.9 | 99.2 | 99.3 | 24 | 98.8 | 99.1 | 99.3 | 24 | | | | | 02/22 |
| 02/23 | 98.9 | 99.3 | 99.9 | 24 | 98.9 | 99.4 | 100.0 | 24 | 99.3 | 99.5 | 99.7 | 24 | 100.5 | 100.8 | 101.2 | 24 | 99.3 | 99.5 | 99.7 | 24 | 99.2 | 99.3 | 99.6 | 24 | | | | | 02/23 |
| 02/24 | 97.5 | 97.8 | 98.1 | 24 | 97.6 | 98.0 | 98.4 | 24 | 98.1 | 98.3 | 98.7 | 24 | 99.6 | 99.9 | 100.4 | 24 | 98.1 | 98.4 | 98.8 | 24 | 98.1 | 98.3 | 98.8 | 24 | | | | | 02/24 |
| 02/25 | 97.0 | 97.2 | 97.3 | 24 | 98.6 | 100.2 | 104.8 | 24 | 97.8 | 98.2 | 98.4 | 24 | 101.1 | 103.1 | 110.6 | 24 | 97.8 | 98.3 | 98.8 | 24 | 97.9 | 98.3 | 98.7 | 23 | | | | | 02/25 |
| 02/26 | 97.7 | 97.9 | 98.3 | 24 | 98.0 | 98.4 | 98.9 | 24 | 98.6 | 98.9 | 99.3 | 24 | 100.1 | 100.8 | 103.6 | 24 | 99.0 | 99.6 | 101.1 | 24 | 99.3 | 100.0 | 101.3 | 24 | | | | | 02/26 |
| 02/27 | 97.9 | 98.2 | 98.3 | 23 | 98.0 | 98.3 | 98.5 | 23 | 100.0 | 100.6 | 101.1 | 24 | 101.2 | 101.5 | 101.9 | 24 | 99.5 | 100.2 | 101.2 | 24 | 99.7 | 100.3 | 101.3 | 24 | | | | | 02/27 |
| 02/28 | 99.4 | 100.0 | 100.3 | 24 | 100.8 | 102.8 | 108.8 | 24 | 100.5 | 101.0 | 101.4 | 24 | 101.6 | 101.9 | 102.2 | 24 | 100.7 | 101.1 | 101.3 | 24 | 101.0 | 101.3 | 101.5 | 24 | | | | | 02/28 |
| 02/29 | 99.7 | 100.1 | 100.3 | 24 | 99.8 | 100.2 | 100.5 | 24 | 100.5 | 100.7 | 100.9 | 24 | 101.6 | 102.1 | 102.8 | 24 | 100.1 | 100.3 | 100.5 | 24 | 100.4 | 100.6 | 101.2 | 24 | | | | | 02/29 |
| 03/01 | 98.8 | 99.1 | 99.2 | 24 | 98.8 | 99.3 | 99.6 | 24 | 100.7 | 100.9 | 101.6 | 24 | 101.8 | 102.6 | 103.6 | 24 | 100.2 | 101.4 | 101.7 | 24 | 100.3 | 101.4 | 101.7 | 24 | | | | | 03/01 |
| 03/02 | 99.6 | 100.2 | 100.4 | 24 | 99.8 | 100.3 | 100.7 | 24 | 100.5 | 100.7 | 100.9 | 24 | 101.4 | 101.7 | 102.3 | 24 | 100.3 | 100.7 | 101.1 | 24 | 100.6 | 101.0 | 101.5 | 24 | | | | | 03/02 |
| 03/03 | 100.1 | 100.4 | 100.8 | 24 | 100.2 | 100.6 | 101.1 | 24 | 100.7 | 101.0 | 101.2 | 24 | 101.8 | 102.1 | 102.4 | 24 | 100.5 | 100.9 | 101.1 | 24 | 100.7 | 101.1 | 101.2 | 24 | | | | | 03/03 |
| 03/04 | 99.7 | 99.9 | 100.3 | 24 | 99.7 | 100.0 | 100.4 | 24 | 100.5 | 100.6 | 101.1 | 24 | 101.7 | 102.0 | 102.3 | 24 | 100.2 | 100.5 | 101.1 | 24 | 100.4 | 100.7 | 101.3 | 24 | | | | | 03/04 |
| 03/05 | 100.1 | 100.6 | 101.1 | 21 | 100.1 | 100.7 | 101.1 | 22 | 100.9 | 101.2 | 101.4 | 23 | 102.3 | 102.6 | 103.0 | 23 | 100.6 | 101.0 | 101.3 | 23 | 100.7 | 101.1 | 101.5 | 23 | | | | | 03/05 |

FISH PASSAGE CENTER

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

Date 3/6/2020 8:15:12 AM

Page 2 of 4

Total Dissolved Gas Data at Upper and Mid-Columbia Sites

| Date | Wanapum | | | | Wanapum Tlwr | | | | Priest Rapids | | | | Priest R. Dnstr | | | | Pasco | | | | 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 | | |
| 02/21 | | | | | | | | | | | | | | | | | | | | | 02/21 | |
| 02/22 | | | | | | | | | | | | | | | | | | | | | | 02/22 |
| 02/23 | | | | | | | | | | | | | | | | | | | | | | 02/23 |
| 02/24 | | | | | | | | | | | | | | | | | | | | | | 02/24 |
| 02/25 | | | | | | | | | | | | | | | | | | | | | | 02/25 |
| 02/26 | | | | | | | | | | | | | | | | | | | | | | 02/26 |
| 02/27 | | | | | | | | | | | | | | | | | | | | | | 02/27 |
| 02/28 | | | | | | | | | | | | | | | | | | | | | | 02/28 |
| 02/29 | | | | | | | | | | | | | | | | | | | | | | 02/29 |
| 03/01 | | | | | | | | | | | | | | | | | | | | | | 03/01 |
| 03/02 | | | | | | | | | | | | | | | | | | | | | | 03/02 |
| 03/03 | | | | | | | | | | | | | | | | | | | | | | 03/03 |
| 03/04 | | | | | | | | | | | | | | | | | | | | | | 03/04 |
| 03/05 | | | | | | | | | | | | | | | | | | | | | | 03/05 |

Total Dissolved Gas Data at Snake and Clearwater Sites

| Date | Dworshak | | | | Clrwr Peck | | | | Anatone | | | | Clrwr-Lewiston | | | | Lower Granite | | | | Lower G. 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 | 24 h Avg | 12 h Avg | High | # Hr | |
| 02/21 | 104.4 | 105.0 | 105.9 | 24 | | | | | 115.4 | 117.7 | 119.5 | 24 | | | | | | | | | 100.4 | 100.7 | 100.9 | 24 | 02/21 |
| 02/22 | 104.7 | 105.2 | 106.0 | 24 | | | | | 121.1 | 122.1 | 122.9 | 24 | | | | | | | | | 100.9 | 101.0 | 101.1 | 24 | 02/22 |
| 02/23 | 104.8 | 105.4 | 106.3 | 24 | | | | | 123.4 | 124.0 | 124.3 | 24 | | | | | | | | | 100.8 | 101.1 | 101.6 | 24 | 02/23 |
| 02/24 | 103.7 | 104.1 | 104.6 | 24 | | | | | 124.1 | 124.4 | 126.4 | 24 | | | | | | | | | 99.6 | 99.7 | 99.9 | 24 | 02/24 |
| 02/25 | 101.2 | 102.9 | 103.4 | 24 | | | | | 126.2 | 126.2 | 126.9 | 13 | | | | | | | | | 99.6 | 100.0 | 100.3 | 24 | 02/25 |
| 02/26 | 104.0 | 104.4 | 105.1 | 24 | | | | | | | | 0 | | | | | | | | | 100.8 | 101.2 | 102.1 | 24 | 02/26 |
| 02/27 | 104.0 | 104.5 | 105.2 | 24 | | | | | 127.7 | 127.9 | 129.2 | 14 | | | | | | | | | 101.1 | 101.4 | 101.8 | 24 | 02/27 |
| 02/28 | 105.3 | 106.2 | 106.9 | 24 | | | | | 131.1 | 131.9 | 132.8 | 24 | | | | | | | | | 102.7 | 103.2 | 103.4 | 24 | 02/28 |
| 02/29 | 105.2 | 105.6 | 106.2 | 24 | | | | | 130.1 | 130.8 | 132.5 | 24 | | | | | | | | | 102.7 | 103.0 | 103.7 | 24 | 02/29 |
| 03/01 | 104.5 | 105.0 | 105.7 | 24 | | | | | 129.5 | 130.0 | 130.8 | 24 | | | | | | | | | 101.3 | 101.5 | 102.4 | 24 | 03/01 |
| 03/02 | 104.6 | 104.9 | 105.1 | 24 | | | | | 131.3 | 131.8 | 132.1 | 24 | | | | | | | | | 101.6 | 101.8 | 102.0 | 24 | 03/02 |
| 03/03 | 105.3 | 105.9 | 106.6 | 24 | | | | | 130.9 | 132.1 | 133.3 | 24 | | | | | | | | | 102.2 | 102.5 | 102.7 | 24 | 03/03 |
| 03/04 | 105.0 | 105.3 | 105.9 | 24 | | | | | 133.3 | 133.6 | 134.1 | 24 | | | | | | | | | 102.2 | 102.4 | 102.9 | 24 | 03/04 |
| 03/05 | 105.7 | 106.5 | 107.1 | 23 | | | | | 133.5 | 133.9 | 134.5 | 23 | | | | | | | | | 102.6 | 102.8 | 103.0 | 19 | 03/05 |

FISH PASSAGE CENTER

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

Date 3/6/2020 8:15:12 AM

Page 3 of 4

Total Dissolved Gas Data at Lower Snake Sites

| Little Goose | | | | L. Goose Tlwr | | | | Lower Mon. | | | | Lwr. Mon. Tlwr | | | | Ice Harbor | | | | Tlwr Ice Harbor | | | | Date | |
|--------------|----------|----------|------|---------------|----------|----------|-------|------------|----------|----------|------|----------------|----------|----------|-------|------------|----------|----------|------|-----------------|----------|----------|-------|------|-------|
| 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 | 24 h Avg | 12 h Avg | High | # Hr | Date |
| 02/21 | | | | | 99.8 | 99.8 | 100.0 | 4 | | | | | | | | 0 | | | | | 99.2 | 99.7 | 100.1 | 24 | 02/21 |
| 02/22 | | | | | 100.0 | 100.2 | 100.4 | 24 | | | | | 100.2 | 100.4 | 101.3 | 21 | | | | | 99.8 | 100.3 | 100.7 | 24 | 02/22 |
| 02/23 | | | | | 100.3 | 100.6 | 101.2 | 24 | | | | | 100.1 | 100.5 | 100.8 | 24 | | | | | 99.9 | 100.3 | 100.7 | 24 | 02/23 |
| 02/24 | | | | | 99.0 | 99.2 | 99.4 | 24 | | | | | 99.1 | 99.5 | 100.2 | 24 | | | | | 98.8 | 99.1 | 99.6 | 24 | 02/24 |
| 02/25 | | | | | 99.5 | 100.5 | 101.3 | 24 | | | | | 98.6 | 98.9 | 99.6 | 24 | | | | | 98.8 | 99.4 | 99.8 | 24 | 02/25 |
| 02/26 | | | | | 99.5 | 99.6 | 99.8 | 24 | | | | | 99.7 | 100.7 | 104.6 | 24 | | | | | 99.4 | 99.8 | 100.1 | 24 | 02/26 |
| 02/27 | | | | | 99.6 | 99.9 | 100.1 | 24 | | | | | 99.6 | 100.0 | 100.6 | 24 | | | | | 99.8 | 100.4 | 100.6 | 24 | 02/27 |
| 02/28 | | | | | 101.0 | 101.5 | 101.8 | 24 | | | | | 101.0 | 101.5 | 102.5 | 24 | | | | | 101.0 | 101.6 | 102.0 | 24 | 02/28 |
| 02/29 | | | | | 100.8 | 101.1 | 101.2 | 24 | | | | | 101.2 | 101.6 | 104.1 | 24 | | | | | 100.9 | 101.3 | 101.7 | 24 | 02/29 |
| 03/01 | | | | | 99.9 | 100.1 | 100.3 | 24 | | | | | 100.0 | 100.2 | 100.4 | 24 | | | | | 100.3 | 100.5 | 101.0 | 24 | 03/01 |
| 03/02 | | | | | 100.3 | 100.5 | 100.6 | 24 | | | | | 100.9 | 101.3 | 102.2 | 24 | | | | | 100.7 | 101.0 | 101.2 | 24 | 03/02 |
| 03/03 | | | | | 100.7 | 101.0 | 101.2 | 24 | | | | | 101.4 | 101.8 | 102.5 | 24 | | | | | 101.3 | 101.7 | 102.6 | 21 | 03/03 |
| 03/04 | | | | | 100.5 | 100.7 | 101.0 | 24 | | | | | 101.0 | 101.2 | 101.5 | 24 | | | | | 101.2 | 101.4 | 101.7 | 24 | 03/04 |
| 03/05 | | | | | 101.0 | 101.4 | 101.6 | 23 | | | | | 101.3 | 101.6 | 101.8 | 23 | | | | | 101.7 | 102.2 | 103.2 | 23 | 03/05 |

Total Dissolved Gas Data at Mid-Columbia Sites

| McNary-Wash. | | | | Tlwr McNary | | | | John Day | | | | Tlwr John Day | | | | The Dalles | | | | Dnstr T. Dalles | | | | Date | |
|--------------|----------|----------|------|-------------|----------|----------|-------|----------|----------|----------|------|---------------|----------|----------|-------|------------|----------|----------|------|-----------------|----------|----------|-------|------|-------|
| 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 | 24 h Avg | 12 h Avg | High | # Hr | Date |
| 02/21 | | | | | 103.0 | 103.3 | 103.8 | 24 | | | | | 100.2 | 100.5 | 100.8 | 24 | | | | | 100.0 | 100.3 | 100.5 | 24 | 02/21 |
| 02/22 | | | | | 102.6 | 103.0 | 103.3 | 24 | | | | | 100.7 | 100.9 | 101.1 | 24 | | | | | 100.5 | 100.8 | 100.9 | 24 | 02/22 |
| 02/23 | | | | | 102.0 | 102.5 | 102.9 | 24 | | | | | 101.0 | 101.5 | 101.9 | 24 | | | | | 100.4 | 100.7 | 101.1 | 24 | 02/23 |
| 02/24 | | | | | 100.3 | 100.4 | 100.6 | 24 | | | | | 99.5 | 99.7 | 99.9 | 24 | | | | | 99.3 | 99.4 | 99.5 | 24 | 02/24 |
| 02/25 | | | | | 100.5 | 101.0 | 101.1 | 24 | | | | | 99.5 | 100.0 | 100.3 | 24 | | | | | 99.5 | 99.9 | 100.1 | 24 | 02/25 |
| 02/26 | | | | | 101.2 | 101.3 | 101.4 | 24 | | | | | 100.4 | 100.6 | 100.8 | 24 | | | | | 100.0 | 100.2 | 100.5 | 24 | 02/26 |
| 02/27 | | | | | 101.5 | 101.9 | 102.1 | 24 | | | | | 101.1 | 101.6 | 101.8 | 24 | | | | | 100.6 | 101.1 | 101.2 | 24 | 02/27 |
| 02/28 | | | | | 103.1 | 103.6 | 104.0 | 24 | | | | | 102.6 | 103.0 | 103.4 | 24 | | | | | 102.1 | 102.6 | 103.0 | 24 | 02/28 |
| 02/29 | | | | | 102.8 | 103.0 | 103.1 | 24 | | | | | 102.2 | 102.4 | 102.5 | 24 | | | | | 101.9 | 102.1 | 102.1 | 24 | 02/29 |
| 03/01 | | | | | 103.0 | 104.4 | 105.8 | 24 | | | | | 101.9 | 102.1 | 102.4 | 24 | | | | | 101.5 | 101.7 | 101.8 | 24 | 03/01 |
| 03/02 | | | | | 101.5 | 101.7 | 101.8 | 24 | | | | | 101.8 | 102.0 | 102.1 | 24 | | | | | 102.2 | 102.6 | 102.7 | 24 | 03/02 |
| 03/03 | | | | | 102.6 | 103.6 | 105.9 | 24 | | | | | 102.1 | 102.4 | 102.6 | 24 | | | | | 102.7 | 103.1 | 103.3 | 24 | 03/03 |
| 03/04 | | | | | 102.3 | 103.1 | 106.1 | 23 | | | | | 101.8 | 102.0 | 102.2 | 24 | | | | | 102.7 | 102.8 | 103.0 | 24 | 03/04 |
| 03/05 | | | | | 103.7 | 104.5 | 107.0 | 23 | | | | | 102.3 | 102.6 | 103.2 | 23 | | | | | 103.1 | 103.4 | 103.7 | 23 | 03/05 |

FISH PASSAGE CENTER

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

Date 3/6/2020 8:15:12 AM

Page 4 of 4

Total Dissolved Gas Data at Mid-Columbia Sites

| Bonneville | | | | | Warrendale | | | | Camas\Washug. | | | | Cascade Isld. | | | | Date |
|------------|----------|----------|------|------|------------|----------|-------|------|---------------|----------|------|------|---------------|----------|------|------|-------|
| 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 | Date |
| 02/21 | | | | | 100.2 | 100.6 | 100.9 | 24 | | | | | | | | | 02/21 |
| 02/22 | | | | | 100.6 | 101.0 | 101.2 | 24 | | | | | | | | | 02/22 |
| 02/23 | | | | | 100.7 | 101.2 | 101.6 | 24 | | | | | | | | | 02/23 |
| 02/24 | | | | | 99.7 | 99.7 | 99.9 | 24 | | | | | | | | | 02/24 |
| 02/25 | | | | | 100.2 | 100.5 | 100.6 | 24 | | | | | | | | | 02/25 |
| 02/26 | | | | | 100.6 | 100.8 | 100.9 | 24 | | | | | | | | | 02/26 |
| 02/27 | | | | | 101.2 | 101.7 | 102.0 | 24 | | | | | | | | | 02/27 |
| 02/28 | | | | | 102.3 | 102.8 | 103.0 | 24 | | | | | | | | | 02/28 |
| 02/29 | | | | | 102.0 | 102.3 | 102.5 | 24 | | | | | | | | | 02/29 |
| 03/01 | | | | | 101.6 | 101.7 | 101.8 | 24 | | | | | | | | | 03/01 |
| 03/02 | | | | | 101.7 | 102.0 | 102.1 | 24 | | | | | | | | | 03/02 |
| 03/03 | | | | | 102.6 | 103.0 | 103.3 | 24 | | | | | | | | | 03/03 |
| 03/04 | | | | | 103.0 | 103.4 | 103.5 | 24 | | | | | | | | | 03/04 |
| 03/05 | | | | | 103.8 | 104.2 | 104.6 | 23 | | | | | | | | | 03/05 |

Hours used in calculating values:

| | | | | | | | | | | | | | | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|---|---|---|---|---|---|---|---|
| 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|---|---|---|---|---|---|---|---|

FISH PASSAGE CENTER

Smolt Monitoring Program Two Week Passage Index Report

Date 3/5/2020 2:16:24 PM

Page 1 of 7

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) |
|-----------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 02/20/2020 | | 0 | | | | | | | | | |
| 02/21/2020 | | 0 | | | | | | | | | |
| 02/22/2020 | | 0 | | | | | | | | | |
| 02/23/2020 | | 0 | | | | | | | | | |
| 02/24/2020 | | 1 | | | | | | | | | |
| 02/25/2020 | | 0 | | | | | | | | | |
| 02/26/2020 | | 0 | | | | | | | | | |
| 02/27/2020 | | 0 | | | | | | | | | |
| 02/28/2020 | | 0 | | | | | | | | | |
| 02/29/2020 | | 0 | | | | | | | | | |
| 03/01/2020 | | 0 | | | | | | | | | |
| 03/02/2020 | 0 | 0 | | 0 | 0 | | | | 8 | | |
| 03/03/2020 | 0 | 1 | | 0 | 0 | | | | | | 22 |
| 03/04/2020 | 0 | 0 | | 0 | 2 | | | | 0 | | 8 |
| 03/05/2020 | 0 | | | 0 | 1 | | | | | | 0 |
| Total: | 0 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 8 | 0 | 30 |
| # Days: | 4 | 14 | 0 | 4 | 4 | 0 | 0 | 0 | 2 | 0 | 3 |
| Average: | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 10 |
| YTD: | 0 | 7 | 0 | 0 | 3 | 0 | 0 | 0 | 8 | 0 | 30 |

Number of hours sampled:

- No data available or no sample conducted

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|

FISH PASSAGE CENTER

Smolt Monitoring Program Two Week Passage Index Report

Date 3/5/2020 2:16:24 PM

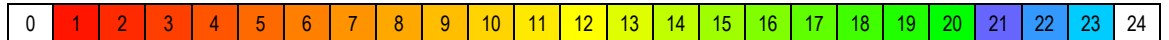
Page 2 of 7

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) |
|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 02/20/2020 | | 0 | | | | | | | | | |
| 02/21/2020 | | 0 | | | | | | | | | |
| 02/22/2020 | | 0 | | | | | | | | | |
| 02/23/2020 | | 0 | | | | | | | | | |
| 02/24/2020 | | 0 | | | | | | | | | |
| 02/25/2020 | | 0 | | | | | | | | | |
| 02/26/2020 | | 0 | | | | | | | | | |
| 02/27/2020 | | 0 | | | | | | | | | |
| 02/28/2020 | | 0 | | | | | | | | | |
| 02/29/2020 | | 0 | | | | | | | | | |
| 03/01/2020 | | 0 | | | | | | | | | |
| 03/02/2020 | 0 | 0 | | 0 | 0 | | | | 12 | | |
| 03/03/2020 | 0 | 0 | | 0 | 0 | | | | | | 229 |
| 03/04/2020 | 0 | 0 | | 0 | 0 | | | | 4 | | 196 |
| 03/05/2020 | 0 | 0 | | 0 | 0 | | | | | | 426 |
| Total: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 851 |
| # Days: | 4 | 14 | 0 | 4 | 4 | 0 | 0 | 0 | 2 | 0 | 3 |
| Average: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 284 |
| YTD: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 851 |

Number of hours sampled:

- No data available or no sample conducted



FISH PASSAGE CENTER

Smolt Monitoring Program Two Week Passage Index Report

Date 3/5/2020 2:16:24 PM

Page 3 of 7

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) |
|-----------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 02/20/2020 | | 0 | | | | | | | | | |
| 02/21/2020 | | 0 | | | | | | | | | |
| 02/22/2020 | | 0 | | | | | | | | | |
| 02/23/2020 | | 0 | | | | | | | | | |
| 02/24/2020 | | 0 | | | | | | | | | |
| 02/25/2020 | | 0 | | | | | | | | | |
| 02/26/2020 | | 0 | | | | | | | | | |
| 02/27/2020 | | 0 | | | | | | | | | |
| 02/28/2020 | | 0 | | | | | | | | | |
| 02/29/2020 | | 0 | | | | | | | | | |
| 03/01/2020 | | 0 | | | | | | | | | |
| 03/02/2020 | 0 | 0 | | 0 | 0 | | | | 0 | | |
| 03/03/2020 | 0 | 0 | | 0 | 0 | | | | | | 15 |
| 03/04/2020 | 0 | 0 | | 0 | 0 | | | | 0 | | 8 |
| 03/05/2020 | 0 | | | 0 | 0 | | | | | | 9 |
| Total: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 |
| # Days: | 4 | 14 | 0 | 4 | 4 | 0 | 0 | 0 | 2 | 0 | 3 |
| Average: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| YTD: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 |

Number of hours sampled:

- No data available or no sample conducted

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|

FISH PASSAGE CENTER

Smolt Monitoring Program Two Week Passage Index Report

Date 3/5/2020 2:16:24 PM

Page 4 of 7

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) |
|-----------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 02/20/2020 | | 0 | | | | | | | | | |
| 02/21/2020 | | 0 | | | | | | | | | |
| 02/22/2020 | | 0 | | | | | | | | | |
| 02/23/2020 | | 0 | | | | | | | | | |
| 02/24/2020 | | 0 | | | | | | | | | |
| 02/25/2020 | | 0 | | | | | | | | | |
| 02/26/2020 | | 0 | | | | | | | | | |
| 02/27/2020 | | 1 | | | | | | | | | |
| 02/28/2020 | | 0 | | | | | | | | | |
| 02/29/2020 | | 0 | | | | | | | | | |
| 03/01/2020 | | 1 | | | | | | | | | |
| 03/02/2020 | 0 | 0 | | 0 | 0 | | | | 0 | | |
| 03/03/2020 | 0 | 1 | | 0 | 4 | | | | | | 0 |
| 03/04/2020 | 0 | 0 | | 0 | 1 | | | | 0 | | 0 |
| 03/05/2020 | 0 | | | 0 | 1 | | | | | | 0 |
| Total: | 0 | 3 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| # Days: | 4 | 14 | 0 | 4 | 4 | 0 | 0 | 0 | 2 | 0 | 3 |
| Average: | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| YTD: | 0 | 11 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |

Number of hours sampled:

- No data available or no sample conducted

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|

FISH PASSAGE CENTER

Smolt Monitoring Program Two Week Passage Index Report

Date 3/5/2020 2:16:24 PM

Page 5 of 7

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) |
|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 02/20/2020 | | 0 | | | | | | | | | |
| 02/21/2020 | | 0 | | | | | | | | | |
| 02/22/2020 | | 0 | | | | | | | | | |
| 02/23/2020 | | 0 | | | | | | | | | |
| 02/24/2020 | | 0 | | | | | | | | | |
| 02/25/2020 | | 0 | | | | | | | | | |
| 02/26/2020 | | 0 | | | | | | | | | |
| 02/27/2020 | | 0 | | | | | | | | | |
| 02/28/2020 | | 0 | | | | | | | | | |
| 02/29/2020 | | 0 | | | | | | | | | |
| 03/01/2020 | | 0 | | | | | | | | | |
| 03/02/2020 | 0 | 0 | | 0 | 0 | | | | 0 | | |
| 03/03/2020 | 0 | 0 | | 0 | 0 | | | | | | 0 |
| 03/04/2020 | 0 | 0 | | 0 | 0 | | | | 0 | | 0 |
| 03/05/2020 | 0 | | | 0 | 0 | | | | | | 0 |
| Total: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| # Days: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Average: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| YTD: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Number of hours sampled:

- No data available or no sample conducted

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|

FISH PASSAGE CENTER

Smolt Monitoring Program Two Week Passage Index Report

Date 3/5/2020 2:16:24 PM

Page 6 of 7

COMBINED LAMPREY JUVENILES

| Date | WTB (Coll) | IMN (Coll) | GRN (Coll) | LEW (Coll) | LGR* (Sample) | LGS (Coll) | LMN (Coll) | RIS (Coll) | MCN (Coll) | JDA (Coll) | BO2 (Coll) |
|-----------------|------------|------------|------------|------------|---------------|------------|------------|------------|------------|------------|------------|
| 02/20/2020 | | 0 | | | | | | | | | |
| 02/21/2020 | | 0 | | | | | | | | | |
| 02/22/2020 | | 0 | | | | | | | | | |
| 02/23/2020 | | 0 | | | | | | | | | |
| 02/24/2020 | | 0 | | | | | | | | | |
| 02/25/2020 | | 0 | | | | | | | | | |
| 02/26/2020 | | 0 | | | | | | | | | |
| 02/27/2020 | | 0 | | | | | | | | | |
| 02/28/2020 | | 0 | | | | | | | | | |
| 02/29/2020 | | 0 | | | | | | | | | |
| 03/01/2020 | | 0 | | | | | | | | | |
| 03/02/2020 | 0 | 0 | | 0 | 1 | | | | 216 | | |
| 03/03/2020 | 0 | 0 | | 0 | 2 | | | | | | 120 |
| 03/04/2020 | 0 | 0 | | 0 | 20 | | | | 532 | | 115 |
| 03/05/2020 | 0 | | | 0 | 7 | | | | | | 135 |
| Total: | 0 | 0 | 0 | 0 | 30 | 0 | 0 | 0 | 748 | 0 | 370 |
| # Days: | 4 | 14 | 0 | 4 | 6 | 0 | 0 | 0 | 3 | 0 | 4 |
| Average: | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 249 | 0 | 93 |
| YTD: | | | | | 30 | | | | 748 | | 370 |

- No data available or no sample conducted

- 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.

Number of hours sampled:

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|

Smolt Monitoring Program Two Week Passage Index Report

Date 3/5/2020 2:16:24 PM

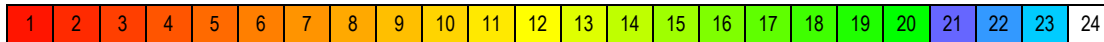
Page 7 of 7

Smolt Monitoring Program Sites and Agency Collaborations:

- 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
- LGS (Index) - Little Goose Bypass Collection System : Passage Index Counts
- LMN (Index) - Lower Monumental Dam Bypass Collection System : Passage Index Counts
- RIS (Index) - Rock Island Dam Second Powerhouse Bypass Trap : Passage Index Counts
- MCN (Index) - McNary Dam Bypass Collection System : Passage Index Counts
- JDA (Index) - John Day Dam Bypass Collection System : Passage Index Counts
- BO2 (Index) - Bonneville Dam Second Powerhouse Bypass Collection System : Passage Index Counts

- No data available or no sample conducted

Number of hours sampled:



Important Information About this Report:

- For clip information see: <http://www.fpc.org/currentdaily/smpcomments.htm>
- Three 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. Equations for passage index are provided below for each site.
 - LGR, LGS, LMN, MCN, JDA (Index) = Lower Granite Dam Bypass Collection System : Passage Index Counts Passage Index = Collection Counts / (Powerhouse Flow / (Powerhouse Flow + Spill))
 - RIS, BO2 (Index) = Rock Island Dam Second Powerhouse Bypass Trap : Passage Index Counts Passage Index = Collection Counts / (Powerhouse 2 Flow / (Powerhouse 1 & 2 Flow + Spill))
- 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.
- 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.

FISH PASSAGE CENTER

Two Week Transportation Summary Report

2/20/2020 12:00:00 AM TO 3/5/2020 12:00:00 AM

Date 3/5/2020 2:18:13 PM

Page 1 of 2

Lower Granite Dam

| Data | Chinook Subyearlings | Chinook Yearlings | Coho | Sockeye | Steelhead | Grand Total |
|---------------------------|----------------------|-------------------|------|---------|-----------|-------------|
| Sum of Number Collected | 0 | 3 | 0 | 0 | 6 | 9 |
| Sum of Number Barged | 0 | 0 | 0 | 0 | 0 | 0 |
| Sum of Number Bypassed | 0 | 3 | 0 | 0 | 6 | 9 |
| Sum of Number Trucked | 0 | 0 | 0 | 0 | 0 | 0 |
| Sum of Sample Morts | 0 | 0 | 0 | 0 | 0 | 0 |
| Sum of Facility Morts | 0 | 0 | 0 | 0 | 0 | 0 |
| Sum of Reseach Morts | 0 | 0 | 0 | 0 | 0 | 0 |
| Sum of Total Project Mort | 0 | 0 | 0 | 0 | 0 | 0 |

Little Goose Dam

| Data | Chinook Subyearlings | Chinook Yearlings | Coho | Sockeye | Steelhead | Grand Total |
|---------------------------|----------------------|-------------------|------|---------|-----------|-------------|
| Sum of Number Collected | 0 | 0 | 0 | 0 | 0 | 0 |
| Sum of Number Barged | 0 | 0 | 0 | 0 | 0 | 0 |
| Sum of Number Bypassed | 0 | 0 | 0 | 0 | 0 | 0 |
| Sum of Number Trucked | 0 | 0 | 0 | 0 | 0 | 0 |
| Sum of Sample Morts | 0 | 0 | 0 | 0 | 0 | 0 |
| Sum of Facility Morts | 0 | 0 | 0 | 0 | 0 | 0 |
| Sum of Reseach Morts | 0 | 0 | 0 | 0 | 0 | 0 |
| Sum of Total Project Mort | 0 | 0 | 0 | 0 | 0 | 0 |

Cumulative Adult Passage at Mainstem Dams Through: 03/05

| dam | enddate | Spring Chinook | | | | | | Summer Chinook | | | | | | Fall Chinook | | | | | |
|-----|---------|----------------|------|-------|------|------------|------|----------------|------|-------|------|------------|------|--------------|------|-------|------|------------|------|
| | | 2020 | | 2019 | | 10-Yr Avg. | | 2020 | | 2019 | | 10-Yr Avg. | | 2020 | | 2019 | | 10-Yr Avg. | |
| | | Adult | Jack | Adult | Jack | Adult | Jack | Adult | Jack | Adult | Jack | Adult | Jack | Adult | Jack | Adult | Jack | Adult | Jack |
| BON | 03/04 | 7 | -1 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TDA | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| JDA | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MCN | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IHR | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| LMN | 02/29 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| LGS | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| LGR | 03/04 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PRD | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| WAN | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| RIS | 02/13 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| RRH | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| WEL | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| WFA | 03/03 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| DAM | ENDDATE | Coho | | | | | | Sockeye | | | Steelhead | | | | | | Lamprey | | | |
|-----|---------|-------|------|-------|------|------------|------|---------|------|------|------------|-----------------|------|-----------|------|------------|---------|------|------|------------|
| | | 2020 | | 2019 | | 10-Yr Avg. | | 2020 | | 2019 | 10-Yr Avg. | 10-Yr Unclipped | | Unclipped | | 10-Yr Avg. | 2020 | | 2019 | 10-Yr Avg. |
| | | Adult | Jack | Adult | Jack | Adult | Jack | 2020 | 2019 | Avg. | 2020 | 2019 | Avg. | 2020 | 2019 | Avg. | 2020 | 2019 | Avg. | |
| BON | 03/04 | 129 | 30 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 1379 | 264 | 919 | 611 | 136 | 343 | 0 | -37 | 0 | |
| TDA | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| JDA | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| MCN | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| IHR | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| LMN | 02/29 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 493 | 0 | 1663 | 107 | 0 | 608 | -2 | 0 | 0 | |
| LGS | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| LGR | 03/04 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 299 | 36 | 211 | 103 | 8 | 70 | 0 | 0 | 0 | |
| PRD | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| WAN | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| RIS | 02/13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | |
| RRH | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| WEL | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| WFA | 03/03 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 3002 | 518 | 1673 | 2974 | 518 | 111 | 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.