



## Fish Passage Center

# Weekly Report #05 - 4

April 1, 2005

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### Summary of Events:

**Water Supply:** Precipitation throughout the Columbia Basin has been near or above average in March. Of the sites in Table 1, all recorded precipitation was greater than 84% of average over March, with most recording above average precipitation. Over the entire water year, precipitation remains below average.

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

| Location                          | Water Year 2005      |              | Water Year 2005                      |              |
|-----------------------------------|----------------------|--------------|--------------------------------------|--------------|
|                                   | March 1-28           |              | October 1, 2004 to<br>March 28, 2005 |              |
|                                   | Observed<br>(inches) | %<br>Average | Observed<br>(inches)                 | %<br>Average |
| Columbia Above Coulee             | 1.89                 | 117          | 11.46                                | 81           |
| SNAKE RIVER<br>Above Ice Harbor   | 1.60                 | 107          | 7.87                                 | 78           |
| Columbia Above<br>The Dalles      | 1.86                 | 107          | 10.55                                | 75           |
| Kootenai                          | 1.81                 | 113          | 11.23                                | 78           |
| Clark Fork                        | 1.35                 | 125          | 5.27                                 | 59           |
| Flathead                          | 2.55                 | 173          | 10.69                                | 89           |
| Pend<br>Oreille/Spokane           | 3.13                 | 125          | 15.75                                | 79           |
| Central<br>Washington             | 0.63                 | 84           | 3.51                                 | 60           |
| SNAKE RIVER<br>Plain              | 0.93                 | 92           | 5.10                                 | 85           |
| Salmon/Boise/<br>Payette          | 1.84                 | 105          | 7.98                                 | 63           |
| Clearwater                        | 2.73                 | 108          | 13.21                                | 72           |
| SW Washington<br>Cascades/Cowlitz | 6.06                 | 95           | 32.43                                | 61           |
| Willamette<br>Valley              | 5.62                 | 97           | 25.14                                | 56           |

Recent storms have increased snowpack within the Columbia Basin, however snow pack continues to be well below average. Average snowpack in the Columbia River for basins above the Snake River confluence is 51% of average (up 9% since 3-21-05), for Snake River Basins the average snowpack is 68% of average (up 12% since 3-21-05), and for lower Columbia Basins between McNary and Bonneville Dam average snowpack is 27% of average (up 8% since 3-21-05).

Water Supply Forecasts have increased somewhat in response to late March precipitation, increasing between three and eight percent of average between the March Final and the April Early-Bird Forecasts. Table 2 displays the March Final and the April Early-Bird runoff volume forecasts for multiple reservoirs along with runoff volumes that actually occurred in 2001 for comparison. All forecasts are currently above the actual runoff volumes recorded in 2001.

**Table 2. March Final and the April Early-Bird Runoff Volume Forecasts for various reservoirs within the Columbia and Snake River Basins along with 2001 actual runoff volumes over the same periods.**

| Location                                | March Final           |                              | April Early-Bird      |                              | Actual 2001                |
|---|-----------------------|------------------------------|-----------------------|------------------------------|----------------------------|
|   | % Average (1971-2000) | Probable Runoff Volume (Kaf) | % Average (1971-2000) | Probable Runoff Volume (Kaf) | Actual Runoff Volume (Kaf) |
| The Dalles (Jan-July)                   | 66                    | 70700                        | 70                    | 75100                        | 58200                      |
| Grand Coulee (Jan-July)                 | 80                    | 50500                        | 85                    | 53700                        | 37400                      |
| Libby Res. Inflow, MT (Jan-July)        | 77                    | 4860                         | 84                    | 5270                         | 3341                       |
| Hungry Horse Res. Inflow, MT (Jan-July) | 67                    | 1480                         | 72                    | 1600                         | 1300                       |
| Lower Granite Res. Inflow (Apr- July)   | 46                    | 9960                         | 53                    | 11500                        | 10300                      |
| Brownlee Res. Inflow (Apr-July)         | 28                    | 1740                         | 36                    | 2300                         | 1970*                      |
| Dworshak Res. Inflow (Apr-July)         | 56                    | 1470                         | 59                    | 1550                         | 1470                       |

Grand Coulee Reservoir is currently at an elevation of 1255.9 feet (March 31st 2005 midnight) as anticipated for drum gate maintenance.

The Libby Reservoir is currently well below its flood control elevations. Libby ended March 31st at an elevation of 2413.2 feet, 28.8 feet below its end of March Flood Control elevation of 2442 feet. Libby continues to release its minimum project outflow of 4.0 Kcfs.

The Hungry Horse Reservoir is currently at an elevation of 3548.6 feet, which was 7.0 feet below its end of March Flood Control elevation of 3555.6 feet. Hungry Horse has been releasing between 0.6 and 1.0 Kcfs over the past week.

The Dworshak reservoir is currently at an elevation of 1578.5. Dworshak was 9.0 feet below its end of March System Flood Control elevation of 1587.5 feet, however as a result of relatively high inflows did manage to refill 6.6 feet in the last week.

The Brownlee Reservoir was at an elevation of 2075.2 on March 31st, 2005. Out of all the major storage projects within the Columbia Hydroystem, Brownlee is the closest to its end of March Flood Control elevation (2077 feet).

**Spill:** The only spill that occurred in the system over the past week was at Bonneville Dam. This spill is part of adult attraction passage enhancement. In spite of the fact that projects are not spilling water, total dissolved gas levels throughout the hydrosystem are elevated. This is likely a result of physical and biological processes. Gas bubble trauma monitoring is scheduled to start in the Lower Columbia on April 11. Due to projected low flows no spill is planned at the Snake River transportation collector projects. Consequently, GBT monitoring is not planned at these projects.

**Smolt Monitoring:** Monitoring began at Lower Granite Dam this past week. With recent rains throughout the Snake River Basin yearling chinook are being captured in relatively large numbers at most Snake River Basin SMP traps. Small but increasing numbers of other species such as coho and steelhead are beginning to show up at dams where sampling is occurring. Sampling will begin at all other SMP dams this coming week.

At the Salmon River Trap there were nearly 3,700 yearling chinook captured on March 28. The trap catch has been predominantly hatchery origin fish and the numbers have increased with recent hatchery releases as well as with increases in flows. Flows in the Salmon River rose from 4,000 cfs on March 26 to 7,200 cfs on March 29 at the USGS gage at White Bird. Similar increases in flow were seen in the Grande Ronde and Imnaha rivers during this past week. The Imnaha Trap was not fished March 28 and 29 due to high flows and debris, while the Grande Ronde Trap experienced increased catch of yearling chinook and unfortunately some fish mortality during the freshet as debris caused equipment malfunction.

At the Snake River Trap at Lewiston, the catch has been limited due to low flows. And while the tributaries saw significant increases in discharge, it did not translate into high flows in the

Snake River above Lewiston. At the Anatone gage flows were still below normal despite the recent rains. As a result trap catch has still been low. But catch did increase this week. Unlike other traps the Lewiston Trap captured more steelhead than yearling chinook. Most of the steelhead captured there this past week were hatchery origin.

Sampling began March 26 at Lower Granite Dam in the Lower Snake River. The passage indices have been low this first week of sampling. Similar to the Snake River Trap steelhead have predominated in the catch this past week, with a few yearling chinook and sockeye also in the sample. Most of the yearling chinook appear to be holdovers both spring and fall chinook. One radio-tagged yearling fall chinook tagged by USGS over the winter above the dam, was captured in the sample.

At Bonneville Dam the catch was predominantly fry this past week. Subyearling chinook fry and coho fry were captured in large numbers this week. Likely these fish came from nearby tributaries, flushed out by recent high flows due to locally heavy rains. Subyearling indices reached 15,000 March 31 with nearly all of those fish unclipped fry. Smaller numbers of coho in the sample were all unclipped up until March 31, with 20% to 50% of those fish unbuttoned sack-fry. The few clipped coho that began arriving on March 31 are likely releases from Klickitat River and Umatilla River hatchery releases the past two weeks. Small numbers of yearling chinook continue to pass the project this last week again, predominantly hatchery origin fish likely from Klickitat River and Umatilla River hatchery releases.

**Hatchery Releases** - Releases of juvenile salmonids from Columbia River Basin hatcheries above Bonneville Dam are estimated near 83.8 million for the 2005 migration season. Supplemental and planned releases completed during the fall 2004 season are considered to be 2005 migrants. The Zone Release Report below summarizes "planned" hatchery releases from State, federal or Tribal hatcheries or acclimation ponds for this year's migration. These totals will be updated after release from the hatcheries and finalized through the year.

Hatchery Zone Release Report

|                  | Thursday 31-Mar-2005 |              |                |               |
|------------------|----------------------|--------------|----------------|---------------|
|                  | Snake River          | Mid-Columbia | Lower Columbia | Total Release |
| Fall Chinook     | 4,840,000            | 12,656,000   | 21,886,441     | 39,382,441    |
| Spring Chinook   | 9,029,934            | 4,679,961    | 5,038,495      | 18,748,390    |
| Summer Chinook   | 2,347,530            | 3,466,500    |                | 5,814,030     |
| Coho             | 825,000              | 2,449,119    | 5,149,974      | 8,424,093     |
| Sockeye          | 210,716              | 240,459      |                | 451,175       |
| Summer Steelhead | 9,120,524            | 1,240,151    | 522,500        | 10,883,175    |
| Winter Steelhead |                      |              | 118,300        | 118,300       |
| Total            | 26,373,704           | 24,732,190   | 32,715,710     | 83,821,604    |

Rain throughout the Region gave a boost to some of the rivers and streams where yearling and subyearling fish have been released from Hatcheries and Acclimation Ponds in the Columbia River basin. The spring migration is comprised mainly of yearling Chinook, Coho, Sockeye and Steelhead.

Hatchery releases initiated or completed during the past two weeks accounted for about 12.8 million fish liberated in the Columbia/Snake River basin. For the upcoming two weeks, about 18.7 million fish will be released from hatcheries, either directly into the streams or else released volitionally through time. See the Hatchery Release Summary Tables for details.

**Snake River** - About 2.0 million spring/summer Chinook were released mainly in the Clearwater River basin during the 2004 summer through December timeframe. Yearling chinook from the acclimation ponds located in the Grande Ronde River at Lostine R, Catherine Creek, and upper Grande Ronde began their volitional releases as well as volitional release from Rapid River Hatchery that will be ongoing for the next few weeks. The direct release of yearling spring/summer Chinook from McCall Hatchery was completed, as were several releases in the Clearwater River basin.

Yearling Coho salmon will be released in the Clearwater River basin with hatchery production releases to be about 825,000 for the 2005 season. Greater than 460,000 of the projected total has been released in the Clearwater River basin to date.

The projected release of hatchery Steelhead is about 9.1 million for the Snake River basin. B-Run Steelhead are released in the Clearwater

River basin exclusively with most other River basins having A-Run Steelhead. Steelhead releases are completed in the Hells Canyon area with releases ongoing or completed in the Little Salmon River. Generally, most Steelhead releases are scheduled for April through mid-May.

**Mid-Columbia** - The CleElum tribal facility began volitional release of about 825,000 yearling spring Chinook mid-March and will continue the release through early May or until the fish emigrate from the facilities. Spring Chinook were released from Ringold Hatchery pond by Friday March 18th. Most State, Tribal and Federal hatcheries will begin releasing their yearling spring Chinook in the upper Mid-Columbia from mid to late April.

About 2.4 million yearling Coho salmon will be released in the Wenatchee River basin, Methow River basin and the Yakima River basin, mostly from Tribal acclimation facilities. The majority of these Coho will be in-river by late April. Steelhead releases are tentatively scheduled for April through mid-May with no Steelhead released in the Mid-Columbia River to date.

**Lower Columbia** - Yearling fall Chinook and Coho salmon were released in late February in the Umatilla River with additional Coho were in March from Reith Bridge, near Pendleton, OR. About 800,000 yearling spring Chinook were released during the past two weeks from Imeques Pond, about 80 river miles from the mouth of the Umatilla River. All yearling Chinook and Coho have been planted in the Umatilla River. Yearling spring Chinook were released from Klickitat Hatchery on March 1-11 (600,000 total) with Warm Springs NFH beginning their volitional release in the Deschutes River basin from mid-March through early April. Volitional release of spring Chinook will be initiated in the Hood River during the upcoming week as well.

About 2.5 million yearling Coho salmon from Washougal Hatchery were trucked to and released at several sites in the Klickitat River during the week of March 21-25. The majority of Steelhead are projected for release in April to early May into various rivers and tributaries.

Juvenile Sockeye were released from net pens into Lake Wenatchee last summer and fall; the majority of these fish reside in the lake and then

migrate from the lake and to the ocean the next spring, in this case, April and May, 2005. In the Snake River basin, juvenile sockeye were released in Redfish, Alturas, and Pettit lakes last fall and will also begin their migration in the spring, usually late April and May from the lakes. My understanding is that there will be a release of sockeye from the Canada fisheries in the Okanogan River basin above Lake Osoyoos.

**Adult Fish Passage** - At Bonneville and upstream dams, calendar dates when official counting of adult fish will be initiated varies among the sites. Lower Granite Dam began reporting counts on March 1, Bonneville Dam on March 15th, and at the remaining mainstem COE projects, counting will begin on April 1. The PUD dams in the Mid-Columbia River normally begin counting adult fish near April 15 with Wells Dam starting on May 1. The Bonneville Dam counts from January through March 14 are listed in a small table below the normal Adult Table.

For the month of March (through 3/29), passage of adult spring Chinook has not yet broken into double figures with 23 adult Chinook counted from the 15th through the 29th of March. The 2005 count of 23 adult Chinook compares to 376 in 2004 and 2,127 for the 10-year average.

Regarding adult fish facilities at Bonneville Dam, the water supply to the main entrance gates and fish ladders have been operating at full criteria since March 1st. The New Powerhouse is primarily operated with flows shifted to the Old Powerhouse when flow is in excess of powerhouse capacity. Overall, passage conditions for adult fish at Bonneville should have been excellent for the month of March.

Marine Mammals have been observed in the vicinity of the fish ladders and main entrances.

Adult Steelhead continue moving through the hydro system to reach their tributaries and spawning sites. The majority of these fish counted this winter and spring have over-wintered in the pools (2004) and complete their trip to the spawning grounds in March through early May the following year (2005). Counts at Lower Granite total 3,158 for the season, presently less than the 2004 and 10-year average to date.

**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 |
| 03/18/05 | 90.3         | 0.0   | 91.2         | 0.0   | 98.9  | 0.0   | 102.5       | 0.3   | 106.4       | 0.0   | 112.1   | 0.0   | 100.0         | 0.0   |
| 03/19/05 | 86.9         | 0.0   | 89.4         | 0.0   | 96.7  | 0.0   | 98.3        | 0.0   | 100.9       | 0.0   | 99.2    | 0.0   | 90.0          | 0.0   |
| 03/20/05 | 64.8         | 0.0   | 68.1         | 0.0   | 74.3  | 0.0   | 72.9        | 0.0   | 76.0        | 0.0   | 102.8   | 0.0   | 105.1         | 0.0   |
| 03/21/05 | 109.1        | 0.0   | 114.9        | 0.0   | 105.3 | 0.0   | 103.9       | 0.0   | 105.8       | 0.0   | 102.5   | 0.0   | 99.5          | 0.0   |
| 03/22/05 | 110.0        | 0.0   | 109.8        | 0.0   | 115.1 | 0.0   | 111.8       | 0.0   | 113.7       | 0.2   | 112.5   | 0.0   | 108.1         | 0.0   |
| 03/23/05 | 102.7        | 0.0   | 103.8        | 0.0   | 108.2 | 0.0   | 106.8       | 0.0   | 109.0       | 1.7   | 114.2   | 0.0   | 113.7         | 0.0   |
| 03/24/05 | 95.0         | 0.0   | 99.7         | 0.0   | 103.5 | 0.0   | 101.8       | 0.0   | 103.5       | 0.7   | 109.0   | 0.0   | 113.9         | 0.0   |
| 03/25/05 | 69.4         | 0.0   | 69.1         | 0.0   | 73.8  | 0.0   | 73.4        | 0.0   | 75.8        | 0.0   | 103.8   | 0.0   | 101.9         | 0.0   |
| 03/26/05 | 62.0         | 0.0   | 66.2         | 0.0   | 68.6  | 0.0   | 67.2        | 0.0   | 69.1        | 0.0   | 85.4    | 0.0   | 77.4          | 0.0   |
| 03/27/05 | 42.4         | 0.0   | 39.6         | 0.0   | 49.1  | 0.0   | 51.5        | 0.0   | 54.2        | 0.0   | 71.7    | 0.0   | 70.0          | 0.0   |
| 03/28/05 | 93.3         | 0.0   | 89.1         | 0.0   | 77.6  | 0.0   | 72.7        | 0.0   | 74.4        | 0.0   | 58.6    | 0.0   | 69.7          | 0.0   |
| 03/29/05 | 76.2         | 0.0   | 81.4         | 0.0   | 86.0  | 0.0   | 84.8        | 0.0   | 85.3        | 0.0   | 80.8    | 0.0   | 69.1          | 0.0   |
| 03/30/05 | 105.1        | 0.0   | 102.7        | 0.0   | 106.5 | 0.0   | 102.1       | 0.0   | 104.4       | 0.0   | 85.3    | 0.0   | 82.7          | 0.0   |
| 03/31/05 | 101.7        | 0.0   | 101.8        | 0.0   | 104.1 | 0.0   | 104.4       | 0.0   | 107.8       | 0.0   | 111.8   | 0.0   | 111.8         | 0.0   |

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

| Date     | Dworshak |       | Hells Canyon |         | Lower Granite |       | Little Goose |       | Lower Monumental |       | Ice Harbor |       |
|----------|----------|-------|--------------|---------|---------------|-------|--------------|-------|------------------|-------|------------|-------|
|          | Flow     | Spill | Inflow       | Outflow | Flow          | Spill | Flow         | Spill | Flow             | Spill | Flow       | Spill |
| 03/18/05 | 1.6      | 0.0   | 10.0         | 11.2    | 26.0          | 0.0   | 25.0         | 0.0   | 24.9             | 0.0   | 27.4       | 0.0   |
| 03/19/05 | 1.6      | 0.0   | 11.6         | 10.7    | 22.7          | 0.0   | 23.4         | 0.0   | 19.8             | 0.0   | 18.2       | 0.0   |
| 03/20/05 | 1.6      | 0.0   | 10.2         | 12.4    | 26.2          | 0.0   | 26.2         | 0.0   | 25.0             | 0.0   | 23.5       | 0.0   |
| 03/21/05 | 1.6      | 0.0   | 11.9         | 12.7    | 22.3          | 0.0   | 23.9         | 0.0   | 24.9             | 0.0   | 23.8       | 0.0   |
| 03/22/05 | 1.6      | 0.0   | 10.5         | 11.4    | 22.6          | 0.0   | 24.0         | 0.0   | 25.8             | 0.0   | 27.7       | 0.0   |
| 03/23/05 | 1.6      | 0.0   | 13.0         | 11.7    | 25.6          | 0.0   | 27.3         | 0.0   | 26.2             | 0.0   | 25.8       | 0.0   |
| 03/24/05 | 1.6      | 0.0   | 11.7         | 12.5    | 20.1          | 0.0   | 21.6         | 0.0   | 21.9             | 0.0   | 21.6       | 0.0   |
| 03/25/05 | 1.6      | 0.0   | 11.4         | 12.5    | 21.8          | 0.0   | 17.1         | 0.0   | 16.6             | 0.0   | 16.2       | 0.0   |
| 03/26/05 | 1.6      | 0.0   | 11.8         | 12.7    | 24.3          | 0.0   | 24.7         | 0.0   | 25.4             | 0.0   | 24.9       | 0.0   |
| 03/27/05 | 1.6      | 0.0   | 13.2         | 11.7    | 25.0          | 0.0   | 25.9         | 0.0   | 26.6             | 0.0   | 26.5       | 0.0   |
| 03/28/05 | 1.6      | 0.0   | 17.7         | 13.6    | 34.7          | 0.0   | 39.7         | 0.0   | 41.4             | 0.0   | 44.1       | 0.0   |
| 03/29/05 | 1.6      | 0.0   | 21.5         | 19.6    | 48.0          | 0.0   | 53.1         | 0.0   | 59.1             | 0.0   | 56.7       | 0.0   |
| 03/30/05 | 1.6      | 0.0   | 19.4         | 19.6    | 43.5          | 0.0   | 43.7         | 0.0   | 48.3             | 0.0   | 49.9       | 0.0   |
| 03/31/05 | 1.5      | 0.2   | ---          | ---     | 41.6          | 0.0   | 41.2         | 0.0   | 39.0             | 0.0   | 35.6       | 0.2   |

**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   |
| 03/18/05 | 139.1  | 0.0   | 156.1    | 0.0   | 154.8      | 0.0   | 126.8      | 1.4   | 9.4  | 109.9 |
| 03/19/05 | 133.6  | 0.0   | 131.8    | 0.0   | 134.1      | 0.0   | 139.4      | 1.2   | 22.2 | 109.5 |
| 03/20/05 | 105.8  | 0.0   | 107.6    | 0.0   | 112.9      | 0.0   | 124.5      | 1.3   | 9.5  | 107.2 |
| 03/21/05 | 133.0  | 0.0   | 135.3    | 0.0   | 133.4      | 0.0   | 137.4      | 1.3   | 15.9 | 113.6 |
| 03/22/05 | 132.1  | 0.0   | 136.9    | 0.0   | 136.8      | 0.0   | 134.3      | 1.4   | 16.9 | 109.6 |
| 03/23/05 | 141.1  | 0.0   | 141.7    | 0.0   | 141.9      | 0.0   | 144.9      | 1.4   | 28.9 | 108.1 |
| 03/24/05 | 126.9  | 0.3   | 130.3    | 0.0   | 131.8      | 0.0   | 132.3      | 1.3   | 19.8 | 104.7 |
| 03/25/05 | 121.3  | 0.0   | 126.1    | 0.0   | 130.0      | 0.0   | 135.2      | 1.3   | 15.0 | 112.4 |
| 03/26/05 | 115.9  | 0.0   | 112.3    | 0.0   | 111.7      | 0.0   | 118.3      | 1.4   | 0.0  | 110.4 |
| 03/27/05 | 95.0   | 0.0   | 91.1     | 0.0   | 93.2       | 0.0   | 111.8      | 1.4   | 1.1  | 102.8 |
| 03/28/05 | 116.5  | 0.0   | 114.4    | 0.0   | 120.8      | 0.0   | 143.2      | 1.4   | 28.4 | 106.9 |
| 03/29/05 | 132.8  | 0.0   | 143.5    | 0.0   | 145.4      | 0.0   | 149.2      | 1.5   | 40.7 | 100.6 |
| 03/30/05 | 131.8  | 0.0   | 135.4    | 0.0   | 163.2      | 0.0   | 149.6      | 1.4   | 34.0 | 107.8 |
| 03/31/05 | 167.5  | 0.0   | 162.0    | 0.0   | ---        | ---   | 170.6      | 1.4   | 49.5 | 113.3 |

## HATCHERY RELEASE LAST TWO WEEKS

### Hatchery Release Summary

From: 3/18/2005 to 03/31/05

| Agency   | Hatchery              | Species | Race | MigYr | NumRel            | RelStart | RelEnd   | RelSite                      | RelRiver             |
|--|-----------------------|---------|------|-------|-------------------|----------|----------|------------------------------|----------------------|
| Idaho Dept. of Fish and Game                       | Magic Valley Hatchery | ST      | SU   | 2005  | 90,000            | 03-14-05 | 04-01-05 | Little Salmon River          | Salmon River (ID)    |
| Idaho Dept. of Fish and Game                       | Magic Valley Hatchery | ST      | SU   | 2005  | 100,000           | 03-14-05 | 04-01-05 | Squaw Cr Acclim Pond         | Salmon River (ID)    |
| Idaho Dept. of Fish and Game                       | Magic Valley Hatchery | ST      | SU   | 2005  | 215,000           | 03-17-05 | 04-05-05 | Little Salmon River          | Salmon River (ID)    |
| Idaho Dept. of Fish and Game                       | McCall Hatchery       | CH1     | SU   | 2005  | 1,047,530         | 03-18-05 | 03-21-05 | Knox Bridge                  | Salmon River (ID)    |
| Idaho Dept. of Fish and Game                       | Niagara Springs       | ST      | SU   | 2005  | 445,000           | 03-24-05 | 03-31-05 | Hazard Creek/Little Salmon R | Little Salmon River  |
| Idaho Dept. of Fish and Game                       | Niagara Springs       | ST      | SU   | 2005  | 526,024           | 03-14-05 | 03-24-05 | Hells Canyon Dam             | Snake River          |
| Idaho Dept. of Fish and Game                       | Rapid River Hatchery  | CH1     | SP   | 2005  | 2,760,000         | 03-14-05 | 04-22-05 | Rapid River Hatchery         | Little Salmon River  |
| <b>Idaho Dept. of Fish and Game Total</b>          |                       |         |      |       | <b>5,183,554</b>  |          |          |                              |                      |
| Nez Perce Tribe                                    | Hagerman NFH          | ST      | SU   | 2005  | 40,000            | 03-28-05 | 04-11-05 | Hazard Creek/Little Salmon R | Little Salmon River  |
| Nez Perce Tribe                                    | Hagerman NFH          | ST      | SU   | 2005  | 160,000           | 03-28-05 | 04-11-05 | Little Salmon River          | Salmon River (ID)    |
| Nez Perce Tribe                                    | Lookingglass Hatchery | CH1     | SP   | 2005  | 69,200            | 03-28-05 | 04-14-05 | Lostine Accim Pond           | Wallowa River        |
| Nez Perce Tribe                                    | Lookingglass Hatchery | CH1     | SP   | 2005  | 95,400            | 03-11-05 | 03-20-05 | Lostine Accim Pond           | Wallowa River        |
| <b>Nez Perce Tribe Total</b>                       |                       |         |      |       | <b>364,600</b>    |          |          |                              |                      |
| Oregon Dept. of Fish and Wildlife                  | Lookingglass Hatchery | CH1     | SP   | 2005  | 437,000           | 03-26-05 | 04-15-05 | Imnaha Acclim Pond           | Imnaha River         |
| <b>Oregon Dept. of Fish and Wildlife Total</b>     |                       |         |      |       | <b>437,000</b>    |          |          |                              |                      |
| U.S. Fish and Wildlife Service                     | Hagerman NFH          | ST      | SU   | 2005  | 100,000           | 03-28-05 | 04-11-05 | Little Salmon River          | Salmon River (ID)    |
| U.S. Fish and Wildlife Service                     | Kooskia NFH           | CH1     | SP   | 2005  | 620,000           | 03-21-05 | 04-04-05 | Kooskia Hatchery             | Clearwater River M F |
| U.S. Fish and Wildlife Service                     | Warm Springs NFH      | CH1     | SP   | 2005  | 739,000           | 03-16-05 | 04-13-05 | Warm Springs Hatchery        | Deschutes River      |
| <b>U.S. Fish and Wildlife Service Total</b>        |                       |         |      |       | <b>1,459,000</b>  |          |          |                              |                      |
| Umatilla Tribe                                     | Cascade Hatchery      | CO      | UN   | 2005  | 797,883           | 03-14-05 | 03-21-05 | Pendelton Acclim Pond        | Umatilla River       |
| Umatilla Tribe                                     | Lookingglass Hatchery | CH1     | SP   | 2005  | 1,000             | 03-24-05 | 04-14-05 | Grande Ronde Acclim Pond     | Grande Ronde River   |
| Umatilla Tribe                                     | Lookingglass Hatchery | CH1     | SP   | 2005  | 98,023            | 03-18-05 | 03-29-05 | Lookingglass Hatchery        | Grande Ronde River   |
| Umatilla Tribe                                     | Lookingglass Hatchery | CH1     | SP   | 2005  | 104,300           | 03-24-05 | 04-14-05 | Grande Ronde Acclim Pond     | Grande Ronde River   |
| Umatilla Tribe                                     | Lookingglass Hatchery | CH1     | SP   | 2005  | 130,900           | 03-14-05 | 03-27-05 | Catherine Cr Acclim Pond     | Grande Ronde River   |
| <b>Umatilla Tribe Total</b>                        |                       |         |      |       | <b>1,132,106</b>  |          |          |                              |                      |
| Warm Springs Tribe                                 | Oak Springs Hatchery  | ST      | SU   | 2005  | 45,000            | 03-24-05 | 05-04-05 | Blackberry Acclim Pond       | Hood River           |
| Warm Springs Tribe                                 | Round Butte Hatchery  | CH1     | SP   | 2005  | 44,500            | 03-28-05 | 05-04-05 | Jones Creek Acclim Pond      | Hood River           |
| Warm Springs Tribe                                 | Round Butte Hatchery  | CH1     | SP   | 2005  | 46,500            | 03-28-05 | 05-04-05 | Blackberry Acclim Pond       | Hood River           |
| <b>Warm Springs Tribe Total</b>                    |                       |         |      |       | <b>136,000</b>    |          |          |                              |                      |
| Washington Dept. of Fish and Wildlife              | Eastbank Hatchery     | ST      | SU   | 2005  | 124,000           | 03-21-05 | 05-20-05 | Above Rock Island Dam        | Mid-Columbia River   |
| Washington Dept. of Fish and Wildlife              | Lyons Ferry Hatchery  | CH1     | FA   | 2005  | 450,000           | 03-25-05 | 04-01-05 | Lyons Ferry Hatchery         | Snake River          |
| Washington Dept. of Fish and Wildlife              | Lyons Ferry Hatchery  | ST      | SU   | 2005  | 160,000           | 03-25-05 | 03-31-05 | Cottonwood Acclim Pond       | Grande Ronde River   |
| Washington Dept. of Fish and Wildlife              | Washougal Hatchery    | CO      | NO   | 2005  | 2,499,530         | 03-21-05 | 03-25-05 | Klickitat River              | Klickitat River      |
| <b>Washington Dept. of Fish and Wildlife Total</b> |                       |         |      |       | <b>3,233,530</b>  |          |          |                              |                      |
| Yakama Tribe                                       | Cle Elem Hatchery     | CH1     | SP   | 2005  | 268,170           | 03-09-05 | 05-16-05 | Easton Pond                  | Yakama River         |
| Yakama Tribe                                       | Cle Elem Hatchery     | CH1     | SP   | 2005  | 273,870           | 03-09-05 | 05-16-05 | Clark Flat Acclim Pond       | Yakama River         |
| Yakama Tribe                                       | Cle Elem Hatchery     | CH1     | SP   | 2005  | 284,016           | 03-09-05 | 05-16-05 | Jack Creek Acclim Pond       | Yakama River         |
| <b>Yakama Tribe Total</b>                          |                       |         |      |       | <b>826,056</b>    |          |          |                              |                      |
| <b>Grand Total</b>                                 |                       |         |      |       | <b>12,771,846</b> |          |          |                              |                      |

## HATCHERY RELEASE NEXT TWO WEEKS

### Hatchery Release Summary

From: 4/1/2005 to 4/14/2005

| Agency   | Hatchery                 | Species | Race | MigYr | NumRel           | RelStart | RelEnd   | RelSite                             | RelRiver                  |
|--|--------------------------|---------|------|-------|------------------|----------|----------|-------------------------------------|---------------------------|
| Idaho Dept. of Fish and Game                   | Clearwater Hatchery      | CH1     | SP   | 2005  | 400,000          | 04-06-05 | 04-11-05 | Red River Acclim Pond               | S Fk Clearwater River     |
| Idaho Dept. of Fish and Game                   | Clearwater Hatchery      | CH1     | SP   | 2005  | 700,000          | 04-01-05 | 04-04-05 | Crooked R Acclim Pond               | S Fk Clearwater River     |
| Idaho Dept. of Fish and Game                   | Clearwater Hatchery      | ST      | SU   | 2005  | 100,000          | 04-14-05 | 04-16-05 | Red River Acclim Pond               | S Fk Clearwater River     |
| Idaho Dept. of Fish and Game                   | Magic Valley Hatchery    | ST      | SU   | 2005  | 90,000           | 03-14-05 | 04-01-05 | Little Salmon River                 | Salmon River (ID)         |
| Idaho Dept. of Fish and Game                   | Magic Valley Hatchery    | ST      | SU   | 2005  | 100,000          | 03-14-05 | 04-01-05 | Squaw Cr Acclim Pond                | Salmon River (ID)         |
| Idaho Dept. of Fish and Game                   | Magic Valley Hatchery    | ST      | SU   | 2005  | 130,000          | 04-11-05 | 04-15-05 | Salmon River (ID)                   | Salmon River (ID)         |
| Idaho Dept. of Fish and Game                   | Magic Valley Hatchery    | ST      | SU   | 2005  | 215,000          | 03-17-05 | 04-05-05 | Little Salmon River                 | Salmon River (ID)         |
| Idaho Dept. of Fish and Game                   | Magic Valley Hatchery    | ST      | SU   | 2005  | 220,000          | 04-13-05 | 04-16-05 | Salmon River (ID)                   | Salmon River (ID)         |
| Idaho Dept. of Fish and Game                   | Niagara Springs          | ST      | SU   | 2005  | 830,000          | 04-02-05 | 04-08-05 | Pahsimeroi Hatchery                 | Pahsimeroi River          |
| Idaho Dept. of Fish and Game                   | Pahsimeroi Hatchery      | CH1     | SU   | 2005  | 975,000          | 04-01-05 | 04-14-05 | Pahsimeroi Hatchery                 | Pahsimeroi River          |
| Idaho Dept. of Fish and Game                   | Rapid River Hatchery     | CH1     | SP   | 2005  | 2,760,000        | 03-14-05 | 04-22-05 | Rapid River Hatchery                | Little Salmon River       |
| Idaho Dept. of Fish and Game                   | Sawtooth Hatchery        | CH1     | SP   | 2005  | 135,000          | 04-01-05 | 04-06-05 | Sawtooth Hatchery                   | Salmon River (ID)         |
| <b>Idaho Dept. of Fish and Game Total</b>      |                          |         |      |       | <b>6,655,000</b> |          |          |                                     |                           |
| Nez Perce Tribe                                | Clearwater Hatchery      | ST      | SU   | 2005  | 150,000          | 04-13-05 | 04-22-05 | Red River Acclim Pond               | S Fk Clearwater River     |
| Nez Perce Tribe                                | Dworshak NFH             | ST      | SU   | 2005  | 100,000          | 04-11-05 | 04-15-05 | American River                      | S Fk Clearwater River     |
| Nez Perce Tribe                                | Dworshak NFH             | ST      | SU   | 2005  | 100,000          | 04-11-05 | 04-15-05 | Newsome Creek                       | S Fk Clearwater River     |
| Nez Perce Tribe                                | Hagerman NFH             | ST      | SU   | 2005  | 40,000           | 03-28-05 | 04-11-05 | Hazard Creek/Little Salmon R        | Little Salmon River       |
| Nez Perce Tribe                                | Hagerman NFH             | ST      | SU   | 2005  | 160,000          | 03-28-05 | 04-11-05 | Little Salmon River                 | Salmon River (ID)         |
| Nez Perce Tribe                                | Lookingglass Hatchery    | CH1     | SP   | 2005  | 69,200           | 03-28-05 | 04-14-05 | Lostine Accim Pond                  | Wallowa River             |
| Nez Perce Tribe                                | Lyons Ferry Hatchery     | CH1     | FA   | 2005  | 140,000          | 04-01-05 | 04-10-05 | Big Canyon (Clearwater R)           | Clearwater River M F      |
| Nez Perce Tribe                                | Lyons Ferry Hatchery     | CH1     | FA   | 2005  | 150,000          | 04-01-05 | 04-10-05 | Pittsburg Landing Acclim Pond       | Snake River               |
| <b>Nez Perce Tribe Total</b>                   |                          |         |      |       | <b>909,200</b>   |          |          |                                     |                           |
| Oregon Dept. of Fish and Wildlife              | Irrigon Hatchery Complex | ST      | SU   | 2005  | 90,000           | 04-11-05 | 04-15-05 | Big Canyon Acclim.Pd (Grande Ronde) | Grande Ronde River        |
| Oregon Dept. of Fish and Wildlife              | Irrigon Hatchery Complex | ST      | SU   | 2005  | 160,000          | 04-11-05 | 04-15-05 | Big Sheep Creek                     | Imnaha River              |
| Oregon Dept. of Fish and Wildlife              | Irrigon Hatchery Complex | ST      | SU   | 2005  | 160,000          | 04-11-05 | 05-03-05 | L Sheep Acclim Pond                 | Imnaha River              |
| Oregon Dept. of Fish and Wildlife              | Irrigon Hatchery Complex | ST      | SU   | 2005  | 402,000          | 04-11-05 | 04-13-05 | Wallowa Acclim Pond                 | Wallowa River             |
| Oregon Dept. of Fish and Wildlife              | Lookingglass Hatchery    | CH1     | SP   | 2005  | 437,000          | 03-26-05 | 04-15-05 | Imnaha Acclim Pond                  | Imnaha River              |
| Oregon Dept. of Fish and Wildlife              | Round Butte Hatchery     | CH1     | SP   | 2005  | 320,000          | 04-01-05 | 04-15-05 | Bel. Pelton Ladder                  | Deschutes River           |
| Oregon Dept. of Fish and Wildlife              | Round Butte Hatchery     | ST      | SU   | 2005  | 160,000          | 04-01-05 | 04-08-05 | Bel. Pelton Ladder                  | Deschutes River           |
| <b>Oregon Dept. of Fish and Wildlife Total</b> |                          |         |      |       | <b>1,729,000</b> |          |          |                                     |                           |
| U.S. Fish and Wildlife Service                 | Dworshak NFH             | CH1     | SP   | 2005  | 1,070,000        | 04-01-05 | 04-08-05 | Dworshak Hatchery                   | Clearwater River M F      |
| U.S. Fish and Wildlife Service                 | Dworshak NFH             | ST      | SU   | 2005  | 300,000          | 04-11-05 | 04-15-05 | Clear Creek                         | Clearwater River M F      |
| U.S. Fish and Wildlife Service                 | Dworshak NFH             | ST      | SU   | 2005  | 300,000          | 04-11-05 | 04-15-05 | Redhouse (Sfk ClearH20 R)           | S Fk Clearwater River     |
| U.S. Fish and Wildlife Service                 | Hagerman NFH             | ST      | SU   | 2005  | 100,000          | 03-28-05 | 04-11-05 | Little Salmon River                 | Salmon River (ID)         |
| U.S. Fish and Wildlife Service                 | Hagerman NFH             | ST      | SU   | 2005  | 750,000          | 04-13-05 | 05-03-05 | Sawtooth Hatchery                   | Salmon River (ID)         |
| U.S. Fish and Wildlife Service                 | Kooskia NFH              | CH1     | SP   | 2005  | 620,000          | 03-21-05 | 04-04-05 | Kooskia Hatchery                    | Clearwater River M F      |
| U.S. Fish and Wildlife Service                 | Little White Salmon NFH  | CH1     | SP   | 2005  | 750,000          | 04-14-05 | 04-14-05 | Little White Salmon Hatchery        | Little White Salmon River |
| U.S. Fish and Wildlife Service                 | Warm Springs NFH         | CH1     | SP   | 2005  | 739,000          | 03-16-05 | 04-13-05 | Warm Springs Hatchery               | Deschutes River           |
| <b>U.S. Fish and Wildlife Service Total</b>    |                          |         |      |       | <b>4,629,000</b> |          |          |                                     |                           |
| Umatilla Tribe                                 | Little White Salmon NFH  | CH1     | SP   | 2005  | 250,000          | 04-05-05 | 04-06-05 | Walla Walla River                   | Walla Walla River         |
| Umatilla Tribe                                 | Lookingglass Hatchery    | CH1     | SP   | 2005  | 1,000            | 03-24-05 | 04-14-05 | Grande Ronde Acclim Pond            | Grande Ronde River        |
| Umatilla Tribe                                 | Lookingglass Hatchery    | CH1     | SP   | 2005  | 59,100           | 04-04-05 | 04-14-05 | Catherine Cr Acclim Pond            | Grande Ronde River        |
| Umatilla Tribe                                 | Lookingglass Hatchery    | CH1     | SP   | 2005  | 104,300          | 03-24-05 | 04-14-05 | Grande Ronde Acclim Pond            | Grande Ronde River        |
| <b>Umatilla Tribe Total</b>                    |                          |         |      |       | <b>414,400</b>   |          |          |                                     |                           |
| Warm Springs Tribe                             | Oak Springs Hatchery     | ST      | SU   | 2005  | 45,000           | 03-24-05 | 05-04-05 | Blackberry Acclim Pond              | Hood River                |
| Warm Springs Tribe                             | Oak Springs Hatchery     | ST      | WI   | 2005  | 39,500           | 04-08-05 | 05-02-05 | E Fk Irrig Dist Sand Trap           | Hood River                |
| Warm Springs Tribe                             | Oak Springs Hatchery     | ST      | WI   | 2005  | 39,800           | 04-07-05 | 05-04-05 | Parkdale Acclim Pond                | Hood River                |
| Warm Springs Tribe                             | Round Butte Hatchery     | CH1     | SP   | 2005  | 29,800           | 04-01-05 | 04-29-05 | Parkdale Acclim Pond                | Hood River                |
| Warm Springs Tribe                             | Round Butte Hatchery     | CH1     | SP   | 2005  | 44,500           | 03-28-05 | 05-04-05 | Jones Creek Acclim Pond             | Hood River                |
| Warm Springs Tribe                             | Round Butte Hatchery     | CH1     | SP   | 2005  | 46,500           | 03-28-05 | 05-04-05 | Blackberry Acclim Pond              | Hood River                |
| <b>Warm Springs Tribe Total</b>                |                          |         |      |       | <b>245,100</b>   |          |          |                                     |                           |

## HATCHERY RELEASE NEXT TWO WEEKS

From: 4/1/2005 to 4/14/2005

| Agency   | Hatchery                 | Species | Race | MigYr | NumRel            | RelStart | RelEnd   | RelSite                  | RelRiver           |
|--|--------------------------|---------|------|-------|-------------------|----------|----------|--------------------------|--------------------|
| Washington Dept. of Fish and Wildlife              | COOP                     | CH1     | SP   | 2005  | 27,668            | 04-02-05 | 04-02-05 | O'Reilly Pond            | Methow River       |
| Washington Dept. of Fish and Wildlife              | Eastbank Hatchery        | CH1     | SU   | 2005  | 210,000           | 04-01-05 | 05-12-05 | Turtle Rock Hatchery     | Mid-Columbia River |
| Washington Dept. of Fish and Wildlife              | Eastbank Hatchery        | ST      | SU   | 2005  | 124,000           | 03-21-05 | 05-20-05 | Above Rock Island Dam    | Mid-Columbia River |
| Washington Dept. of Fish and Wildlife              | Lyons Ferry Hatchery     | CH1     | FA   | 2005  | 450,000           | 03-25-05 | 04-01-05 | Lyons Ferry Hatchery     | Snake River        |
| Washington Dept. of Fish and Wildlife              | Methow Hatchery          | CH1     | SP   | 2005  | 50,833            | 04-13-05 | 04-13-05 | Twisp Acclim Pond        | Methow River       |
| Washington Dept. of Fish and Wildlife              | Methow Hatchery          | CH1     | SP   | 2005  | 69,882            | 04-14-05 | 04-14-05 | Methow Hatchery          | Methow River       |
| Washington Dept. of Fish and Wildlife              | Methow Hatchery          | CH1     | SP   | 2005  | 75,714            | 04-13-05 | 04-13-05 | Twisp River              | Methow River       |
| Washington Dept. of Fish and Wildlife              | Methow Hatchery          | CH1     | SP   | 2005  | 130,308           | 04-14-05 | 04-30-05 | Chewuch Acclim Pond      | Methow River       |
| Washington Dept. of Fish and Wildlife              | Ringold Springs Hatchery | ST      | SU   | 2005  | 104,000           | 04-04-05 | 04-15-05 | Ringold Springs Hatchery | Mid-Columbia River |
| Washington Dept. of Fish and Wildlife              | Skamania Hatchery        | ST      | WI   | 2005  | 17,500            | 04-11-05 | 04-15-05 | Salmon Creek (WA)        | Columbia River     |
| Washington Dept. of Fish and Wildlife              | Tucannon Hatchery        | CH1     | SP   | 2005  | 65,000            | 04-01-05 | 04-20-05 | Curl Lake Acclim Pond    | Tucannon River     |
| Washington Dept. of Fish and Wildlife              | Tucannon Hatchery        | CH1     | SP   | 2005  | 125,000           | 04-01-05 | 04-20-05 | Curl Lake Acclim Pond    | Tucannon River     |
| Washington Dept. of Fish and Wildlife              | Wells Hatchery           | ST      | SU   | 2005  | 84,000            | 04-04-05 | 06-03-05 | Twisp River              | Methow River       |
| <b>Washington Dept. of Fish and Wildlife Total</b> |                          |         |      |       | <b>1,533,905</b>  |          |          |                          |                    |
| Yakama Tribe                                       | Cascade Hatchery         | CO      | UN   | 2005  | 350,000           | 04-04-05 | 04-15-05 | Lost Creek Acclim Pond   | Yakama River       |
| Yakama Tribe                                       | Cascade Hatchery         | CO      | UN   | 2005  | 350,000           | 04-04-05 | 04-15-05 | Yakama River             | Yakama River       |
| Yakama Tribe                                       | Cle Elem Hatchery        | CH1     | SP   | 2005  | 268,170           | 03-09-05 | 05-16-05 | Easton Pond              | Yakama River       |
| Yakama Tribe                                       | Cle Elem Hatchery        | CH1     | SP   | 2005  | 273,870           | 03-09-05 | 05-16-05 | Clark Flat Acclim Pond   | Yakama River       |
| Yakama Tribe                                       | Cle Elem Hatchery        | CH1     | SP   | 2005  | 284,016           | 03-09-05 | 05-16-05 | Jack Creek Acclim Pond   | Yakama River       |
| Yakama Tribe                                       | Eagle Creek NFH          | CO      | UN   | 2005  | 250,000           | 04-04-05 | 04-15-05 | Stiles Pond              | Yakama River       |
| Yakama Tribe                                       | Eagle Creek NFH          | CO      | UN   | 2005  | 250,000           | 04-04-05 | 04-15-05 | Yakama River             | Yakama River       |
| Yakama Tribe                                       | Prosser Acclim. Pond     | CH0     | FA   | 2005  | 415,000           | 04-11-05 | 05-10-05 | Prosser Acclim Pond      | Yakama River       |
| Yakama Tribe                                       | Yakama Hatchery          | CH0     | FA   | 2005  | 41,000            | 04-11-05 | 04-20-05 | Marion Drain             | Yakama River       |
| Yakama Tribe                                       | Yakama Hatchery          | CH0     | FA   | 2005  | 150,000           | 04-11-05 | 05-20-05 | Union Gap (Yakama R)     | Yakama River       |
| <b>Yakama Tribe Total</b>                          |                          |         |      |       | <b>2,632,056</b>  |          |          |                          |                    |
| <b>Grand Total</b>                                 |                          |         |      |       | <b>18,747,661</b> |          |          |                          |                    |



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

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

| Date | <u>Hungry H. Dnst</u> |             |     | <u>Boundary</u> |             |     | <u>Grand Coulee</u> |             |     | <u>Grand C. Tlwr</u> |             |    | <u>Chief Joseph</u> |             |     |             |             |     |     |     |
|------|-----------------------|-------------|-----|-----------------|-------------|-----|---------------------|-------------|-----|----------------------|-------------|----|---------------------|-------------|-----|-------------|-------------|-----|-----|-----|
|      | <u>24 h</u>           | <u>12 h</u> | #   | <u>24 h</u>     | <u>12 h</u> | #   | <u>24 h</u>         | <u>12 h</u> | #   | <u>24 h</u>          | <u>12 h</u> | #  | <u>24 h</u>         | <u>12 h</u> | #   | <u>24 h</u> | <u>12 h</u> | #   |     |     |
|      | Avg                   | Avg         |     | High            | Avg         |     | Avg                 | High        |     | Avg                  | Avg         |    | High                | Avg         |     | Avg         | High        |     | Avg | Avg |
| 3/18 | ---                   | ---         | --- | 0               | 105         | 105 | 107                 | 24          | 105 | 106                  | 106         | 24 | 104                 | 105         | 106 | 24          | ---         | --- | --- | 0   |
| 3/19 | ---                   | ---         | --- | 0               | 105         | 106 | 106                 | 24          | 106 | 106                  | 106         | 24 | 105                 | 105         | 107 | 24          | ---         | --- | --- | 0   |
| 3/20 | ---                   | ---         | --- | 0               | 103         | 103 | 104                 | 24          | 106 | 106                  | 106         | 24 | 105                 | 106         | 108 | 24          | ---         | --- | --- | 0   |
| 3/21 | ---                   | ---         | --- | 0               | 103         | 104 | 105                 | 24          | 104 | 104                  | 105         | 24 | 104                 | 104         | 106 | 24          | ---         | --- | --- | 0   |
| 3/22 | ---                   | ---         | --- | 0               | 103         | 105 | 105                 | 24          | 105 | 105                  | 106         | 24 | 104                 | 105         | 105 | 24          | ---         | --- | --- | 0   |
| 3/23 | ---                   | ---         | --- | 0               | ---         | --- | ---                 | 0           | --- | ---                  | ---         | 0  | ---                 | ---         | --- | 0           | ---         | --- | --- | 0   |
| 3/24 | ---                   | ---         | --- | 0               | 103         | 104 | 104                 | 24          | 104 | 104                  | 105         | 24 | 103                 | 104         | 105 | 24          | ---         | --- | --- | 0   |
| 3/25 | ---                   | ---         | --- | 0               | 102         | 103 | 103                 | 24          | 104 | 104                  | 105         | 24 | 103                 | 103         | 104 | 24          | ---         | --- | --- | 0   |
| 3/26 | ---                   | ---         | --- | 0               | ---         | --- | ---                 | 0           | --- | ---                  | ---         | 0  | ---                 | ---         | --- | 0           | ---         | --- | --- | 0   |
| 3/27 | ---                   | ---         | --- | 0               | 103         | 104 | 105                 | 24          | 106 | 106                  | 106         | 24 | 105                 | 107         | 108 | 24          | ---         | --- | --- | 0   |
| 3/28 | ---                   | ---         | --- | 0               | 105         | 106 | 106                 | 24          | 106 | 106                  | 107         | 24 | 105                 | 105         | 106 | 24          | ---         | --- | --- | 0   |
| 3/29 | ---                   | ---         | --- | 0               | 104         | 105 | 106                 | 24          | 106 | 106                  | 107         | 24 | 105                 | 105         | 105 | 24          | ---         | --- | --- | 0   |
| 3/30 | ---                   | ---         | --- | 0               | 103         | 104 | 106                 | 24          | 104 | 104                  | 105         | 24 | 103                 | 104         | 105 | 24          | ---         | --- | --- | 0   |
| 3/31 | ---                   | ---         | --- | 0               | 103         | 104 | 105                 | 24          | 104 | 104                  | 104         | 24 | 103                 | 104         | 104 | 24          | ---         | --- | --- | 0   |

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

| Date | <u>Chief J. Dnst</u> |             |     | <u>Wells</u> |             |     | <u>Wells Dwnstrm</u> |             |     | <u>Rocky Reach</u> |             |    | <u>Rocky R. Tlwr</u> |             |     |             |             |     |     |     |
|------|----------------------|-------------|-----|--------------|-------------|-----|----------------------|-------------|-----|--------------------|-------------|----|----------------------|-------------|-----|-------------|-------------|-----|-----|-----|
|      | <u>24 h</u>          | <u>12 h</u> | #   | <u>24 h</u>  | <u>12 h</u> | #   | <u>24 h</u>          | <u>12 h</u> | #   | <u>24 h</u>        | <u>12 h</u> | #  | <u>24 h</u>          | <u>12 h</u> | #   | <u>24 h</u> | <u>12 h</u> | #   |     |     |
|      | Avg                  | Avg         |     | High         | Avg         |     | Avg                  | High        |     | Avg                | Avg         |    | High                 | Avg         |     | Avg         | High        |     | Avg | Avg |
| 3/18 | ---                  | ---         | --- | 0            | ---         | --- | ---                  | 0           | --- | ---                | ---         | 0  | 107                  | 110         | 111 | 24          | 108         | 110 | 111 | 24  |
| 3/19 | ---                  | ---         | --- | 0            | ---         | --- | ---                  | 0           | --- | ---                | ---         | 0  | 109                  | 109         | 110 | 24          | 108         | 109 | 110 | 24  |
| 3/20 | ---                  | ---         | --- | 0            | ---         | --- | ---                  | 0           | --- | ---                | ---         | 0  | 107                  | 108         | 109 | 24          | 108         | 108 | 108 | 24  |
| 3/21 | ---                  | ---         | --- | 0            | ---         | --- | ---                  | 0           | --- | ---                | ---         | 0  | 104                  | 104         | 105 | 24          | 104         | 104 | 105 | 24  |
| 3/22 | ---                  | ---         | --- | 0            | ---         | --- | ---                  | 0           | --- | ---                | ---         | 0  | 104                  | 105         | 105 | 24          | 104         | 105 | 105 | 24  |
| 3/23 | ---                  | ---         | --- | 0            | ---         | --- | ---                  | 0           | --- | ---                | ---         | 0  | ---                  | ---         | --- | 0           | ---         | --- | --- | 0   |
| 3/24 | ---                  | ---         | --- | 0            | ---         | --- | ---                  | 0           | --- | ---                | ---         | 0  | 103                  | 103         | 104 | 24          | 104         | 104 | 104 | 24  |
| 3/25 | ---                  | ---         | --- | 0            | ---         | --- | ---                  | 0           | --- | ---                | ---         | 0  | 103                  | 103         | 103 | 24          | 103         | 103 | 103 | 24  |
| 3/26 | ---                  | ---         | --- | 0            | ---         | --- | ---                  | 0           | --- | ---                | ---         | 0  | ---                  | ---         | --- | 0           | ---         | --- | --- | 0   |
| 3/27 | ---                  | ---         | --- | 0            | ---         | --- | ---                  | 0           | --- | ---                | ---         | 0  | 106                  | 107         | 107 | 24          | 106         | 106 | 106 | 24  |
| 3/28 | ---                  | ---         | --- | 0            | ---         | --- | ---                  | 0           | --- | ---                | ---         | 0  | 107                  | 107         | 107 | 24          | 106         | 107 | 107 | 24  |
| 3/29 | ---                  | ---         | --- | 0            | ---         | --- | ---                  | 0           | --- | ---                | ---         | 0  | 106                  | 106         | 106 | 24          | 106         | 106 | 106 | 24  |
| 3/30 | ---                  | ---         | --- | 0            | ---         | --- | ---                  | 0           | --- | ---                | ---         | 0  | 103                  | 103         | 104 | 24          | 103         | 103 | 104 | 24  |
| 3/31 | ---                  | ---         | --- | 0            | 104         | 104 | 104                  | 14          | 104 | 104                | 104         | 14 | 102                  | 103         | 103 | 24          | 102         | 102 | 103 | 24  |

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

| Date | <u>Rock Island</u> |             |     | <u>Rock I. Tlwr</u> |             |     | <u>Wanapum</u> |             |     | <u>Wanapum Tlwr</u> |             |   | <u>Priest Rapids</u> |             |     |             |             |     |     |     |
|------|--------------------|-------------|-----|---------------------|-------------|-----|----------------|-------------|-----|---------------------|-------------|---|----------------------|-------------|-----|-------------|-------------|-----|-----|-----|
|      | <u>24 h</u>        | <u>12 h</u> | #   | <u>24 h</u>         | <u>12 h</u> | #   | <u>24 h</u>    | <u>12 h</u> | #   | <u>24 h</u>         | <u>12 h</u> | # | <u>24 h</u>          | <u>12 h</u> | #   | <u>24 h</u> | <u>12 h</u> | #   |     |     |
|      | Avg                | Avg         |     | High                | Avg         |     | Avg            | High        |     | Avg                 | Avg         |   | High                 | Avg         |     | Avg         | High        |     | Avg | Avg |
| 3/18 | 105                | 106         | 108 | 24                  | ---         | --- | ---            | 0           | --- | ---                 | ---         | 0 | ---                  | ---         | --- | 0           | ---         | --- | --- | 0   |
| 3/19 | 108                | 109         | 109 | 24                  | ---         | --- | ---            | 0           | --- | ---                 | ---         | 0 | ---                  | ---         | --- | 0           | ---         | --- | --- | 0   |
| 3/20 | 106                | 107         | 107 | 24                  | ---         | --- | ---            | 0           | --- | ---                 | ---         | 0 | ---                  | ---         | --- | 0           | ---         | --- | --- | 0   |
| 3/21 | 104                | 105         | 106 | 24                  | ---         | --- | ---            | 0           | --- | ---                 | ---         | 0 | ---                  | ---         | --- | 0           | ---         | --- | --- | 0   |
| 3/22 | 104                | 104         | 105 | 24                  | ---         | --- | ---            | 0           | --- | ---                 | ---         | 0 | ---                  | ---         | --- | 0           | ---         | --- | --- | 0   |
| 3/23 | ---                | ---         | --- | 0                   | ---         | --- | ---            | 0           | --- | ---                 | ---         | 0 | ---                  | ---         | --- | 0           | ---         | --- | --- | 0   |
| 3/24 | 103                | 103         | 104 | 24                  | ---         | --- | ---            | 0           | --- | ---                 | ---         | 0 | ---                  | ---         | --- | 0           | ---         | --- | --- | 0   |
| 3/25 | 103                | 103         | 103 | 24                  | ---         | --- | ---            | 0           | --- | ---                 | ---         | 0 | ---                  | ---         | --- | 0           | ---         | --- | --- | 0   |
| 3/26 | ---                | ---         | --- | 0                   | ---         | --- | ---            | 0           | --- | ---                 | ---         | 0 | ---                  | ---         | --- | 0           | ---         | --- | --- | 0   |
| 3/27 | 105                | 105         | 106 | 24                  | 106         | 106 | 107            | 13          | --- | ---                 | ---         | 0 | ---                  | ---         | --- | 0           | ---         | --- | --- | 0   |
| 3/28 | 105                | 106         | 106 | 24                  | 106         | 107 | 107            | 24          | --- | ---                 | ---         | 0 | ---                  | ---         | --- | 0           | ---         | --- | --- | 0   |
| 3/29 | 105                | 105         | 106 | 24                  | 106         | 106 | 107            | 24          | --- | ---                 | ---         | 0 | ---                  | ---         | --- | 0           | ---         | --- | --- | 0   |
| 3/30 | 103                | 103         | 104 | 24                  | 104         | 104 | 105            | 24          | --- | ---                 | ---         | 0 | ---                  | ---         | --- | 0           | ---         | --- | --- | 0   |
| 3/31 | 103                | 103         | 104 | 24                  | 104         | 104 | 105            | 24          | --- | ---                 | ---         | 0 | ---                  | ---         | --- | 0           | ---         | --- | --- | 0   |

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

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

| Date | <u>Priest R. Dnst</u> |             |      | # | <u>Pasco</u> |             |      | #  | <u>Dworshak</u> |             |      | #  | <u>Clrwtr-Peck</u> |             |      | #  | <u>Anatone</u> |             |      | #  |
|------|-----------------------|-------------|------|---|--------------|-------------|------|----|-----------------|-------------|------|----|--------------------|-------------|------|----|----------------|-------------|------|----|
|      | <u>24 h</u>           | <u>12 h</u> |      |   | <u>24 h</u>  | <u>12 h</u> |      |    | <u>24 h</u>     | <u>12 h</u> |      |    | <u>24 h</u>        | <u>12 h</u> |      |    | <u>24 h</u>    | <u>12 h</u> |      |    |
|      | Avg                   | Avg         | High |   | Avg          | Avg         | High |    | Avg             | Avg         | High |    | Avg                | Avg         | High |    | Avg            | Avg         | High |    |
| 3/18 | ---                   | ---         | ---  | 0 | ---          | ---         | ---  | 0  | 104             | 104         | 105  | 19 | ---                | ---         | ---  | 0  | ---            | ---         | ---  | 0  |
| 3/19 | ---                   | ---         | ---  | 0 | ---          | ---         | ---  | 0  | 105             | 106         | 108  | 24 | ---                | ---         | ---  | 0  | ---            | ---         | ---  | 0  |
| 3/20 | ---                   | ---         | ---  | 0 | ---          | ---         | ---  | 0  | 105             | 105         | 106  | 24 | ---                | ---         | ---  | 0  | ---            | ---         | ---  | 0  |
| 3/21 | ---                   | ---         | ---  | 0 | ---          | ---         | ---  | 0  | 103             | 104         | 105  | 24 | ---                | ---         | ---  | 0  | ---            | ---         | ---  | 0  |
| 3/22 | ---                   | ---         | ---  | 0 | ---          | ---         | ---  | 0  | 104             | 105         | 106  | 24 | ---                | ---         | ---  | 0  | ---            | ---         | ---  | 0  |
| 3/23 | ---                   | ---         | ---  | 0 | ---          | ---         | ---  | 0  | ---             | ---         | ---  | 0  | ---                | ---         | ---  | 0  | ---            | ---         | ---  | 0  |
| 3/24 | ---                   | ---         | ---  | 0 | ---          | ---         | ---  | 0  | 104             | 104         | 105  | 24 | 103                | 103         | 105  | 9  | 103            | 103         | 106  | 6  |
| 3/25 | ---                   | ---         | ---  | 0 | ---          | ---         | ---  | 0  | 103             | 103         | 104  | 24 | 101                | 101         | 102  | 24 | 102            | 102         | 103  | 24 |
| 3/26 | ---                   | ---         | ---  | 0 | ---          | ---         | ---  | 0  | ---             | ---         | ---  | 0  | ---                | ---         | ---  | 0  | ---            | ---         | ---  | 0  |
| 3/27 | ---                   | ---         | ---  | 0 | ---          | ---         | ---  | 0  | 104             | 105         | 105  | 24 | 101                | 101         | 102  | 24 | 102            | 103         | 104  | 24 |
| 3/28 | ---                   | ---         | ---  | 0 | ---          | ---         | ---  | 0  | 104             | 105         | 106  | 24 | 101                | 101         | 102  | 24 | 101            | 101         | 101  | 24 |
| 3/29 | ---                   | ---         | ---  | 0 | ---          | ---         | ---  | 0  | 104             | 105         | 105  | 23 | 100                | 101         | 101  | 23 | 101            | 101         | 102  | 24 |
| 3/30 | ---                   | ---         | ---  | 0 | ---          | ---         | ---  | 0  | 102             | 103         | 103  | 21 | 99                 | 100         | 100  | 21 | 101            | 101         | 102  | 24 |
| 3/31 | ---                   | ---         | ---  | 0 | 104          | 104         | 106  | 10 | 104             | 106         | 114  | 24 | 98                 | 99          | 100  | 24 | 101            | 102         | 103  | 24 |

### Total Dissolved Gas Saturation Data at Snake River Sites

| Date | <u>Clrwtr-Lewiston</u> |             |      | #  | <u>Lower Granite</u> |             |      | #  | <u>L. Granite Tlwr</u> |             |      | #  | <u>Little Goose</u> |             |      | #  | <u>L. Goose Tlwr</u> |             |      | #  |
|------|------------------------|-------------|------|----|----------------------|-------------|------|----|------------------------|-------------|------|----|---------------------|-------------|------|----|----------------------|-------------|------|----|
|      | <u>24 h</u>            | <u>12 h</u> |      |    | <u>24 h</u>          | <u>12 h</u> |      |    | <u>24 h</u>            | <u>12 h</u> |      |    | <u>24 h</u>         | <u>12 h</u> |      |    | <u>24 h</u>          | <u>12 h</u> |      |    |
|      | Avg                    | Avg         | High |    | Avg                  | Avg         | High |    | Avg                    | Avg         | High |    | Avg                 | Avg         | High |    | Avg                  | Avg         | High |    |
| 3/18 | ---                    | ---         | ---  | 0  | 105                  | 105         | 105  | 24 | 104                    | 105         | 105  | 24 | ---                 | ---         | ---  | 0  | ---                  | ---         | ---  | 0  |
| 3/19 | ---                    | ---         | ---  | 0  | 105                  | 105         | 106  | 24 | 105                    | 105         | 105  | 24 | ---                 | ---         | ---  | 0  | ---                  | ---         | ---  | 0  |
| 3/20 | ---                    | ---         | ---  | 0  | 105                  | 106         | 108  | 24 | 104                    | 104         | 105  | 24 | ---                 | ---         | ---  | 0  | ---                  | ---         | ---  | 0  |
| 3/21 | ---                    | ---         | ---  | 0  | 103                  | 103         | 104  | 24 | 102                    | 103         | 103  | 24 | ---                 | ---         | ---  | 0  | ---                  | ---         | ---  | 0  |
| 3/22 | ---                    | ---         | ---  | 0  | 104                  | 105         | 105  | 24 | 103                    | 104         | 104  | 24 | ---                 | ---         | ---  | 0  | ---                  | ---         | ---  | 0  |
| 3/23 | ---                    | ---         | ---  | 0  | ---                  | ---         | ---  | 0  | ---                    | ---         | ---  | 0  | ---                 | ---         | ---  | 0  | ---                  | ---         | ---  | 0  |
| 3/24 | 102                    | 102         | 103  | 11 | 102                  | 103         | 103  | 24 | 101                    | 101         | 102  | 24 | ---                 | ---         | ---  | 0  | ---                  | ---         | ---  | 0  |
| 3/25 | 100                    | 102         | 103  | 24 | 101                  | 102         | 102  | 24 | 101                    | 101         | 101  | 24 | 104                 | 105         | 108  | 14 | ---                  | ---         | ---  | 0  |
| 3/26 | ---                    | ---         | ---  | 0  | ---                  | ---         | ---  | 0  | ---                    | ---         | ---  | 0  | ---                 | ---         | ---  | 0  | ---                  | ---         | ---  | 0  |
| 3/27 | 101                    | 102         | 103  | 24 | 103                  | 103         | 103  | 24 | 103                    | 103         | 103  | 24 | 105                 | 105         | 105  | 24 | ---                  | ---         | ---  | 0  |
| 3/28 | 100                    | 101         | 102  | 24 | 103                  | 103         | 103  | 24 | 103                    | 103         | 103  | 24 | 104                 | 105         | 105  | 24 | 103                  | 103         | 104  | 9  |
| 3/29 | 100                    | 101         | 102  | 23 | 102                  | 102         | 102  | 24 | 102                    | 102         | 103  | 24 | 103                 | 104         | 104  | 24 | 103                  | 103         | 104  | 24 |
| 3/30 | 99                     | 100         | 101  | 21 | 100                  | 100         | 100  | 24 | 100                    | 100         | 100  | 24 | 101                 | 101         | 102  | 24 | 100                  | 101         | 101  | 24 |
| 3/31 | 101                    | 103         | 104  | 24 | 100                  | 101         | 101  | 24 | 100                    | 100         | 101  | 24 | 100                 | 101         | 101  | 24 | 100                  | 101         | 101  | 24 |

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

| Date | <u>Lower Mon.</u> |             |      | #  | <u>L. Mon. Tlwr</u> |             |      | #  | <u>Ice Harbor</u> |             |      | #  | <u>Ice Harbor Tlwr</u> |             |      | #  | <u>McNary-Oregon</u> |             |      | #  |
|------|-------------------|-------------|------|----|---------------------|-------------|------|----|-------------------|-------------|------|----|------------------------|-------------|------|----|----------------------|-------------|------|----|
|      | <u>24 h</u>       | <u>12 h</u> |      |    | <u>24 h</u>         | <u>12 h</u> |      |    | <u>24 h</u>       | <u>12 h</u> |      |    | <u>24 h</u>            | <u>12 h</u> |      |    | <u>24 h</u>          | <u>12 h</u> |      |    |
|      | Avg               | Avg         | High |    | Avg                 | Avg         | High |    | Avg               | Avg         | High |    | Avg                    | Avg         | High |    | Avg                  | Avg         | High |    |
| 3/18 | ---               | ---         | ---  | 0  | ---                 | ---         | ---  | 0  | 108               | 108         | 109  | 24 | 108                    | 109         | 109  | 24 | 106                  | 107         | 108  | 24 |
| 3/19 | ---               | ---         | ---  | 0  | ---                 | ---         | ---  | 0  | 109               | 109         | 110  | 24 | 109                    | 109         | 110  | 24 | 106                  | 107         | 107  | 24 |
| 3/20 | ---               | ---         | ---  | 0  | ---                 | ---         | ---  | 0  | 108               | 108         | 109  | 24 | 108                    | 109         | 109  | 24 | 105                  | 105         | 106  | 24 |
| 3/21 | ---               | ---         | ---  | 0  | ---                 | ---         | ---  | 0  | 106               | 106         | 107  | 24 | 106                    | 107         | 107  | 23 | 103                  | 104         | 105  | 24 |
| 3/22 | ---               | ---         | ---  | 0  | ---                 | ---         | ---  | 0  | 107               | 108         | 108  | 24 | 107                    | 108         | 108  | 24 | 104                  | 105         | 105  | 24 |
| 3/23 | ---               | ---         | ---  | 0  | ---                 | ---         | ---  | 0  | ---               | ---         | ---  | 0  | ---                    | ---         | ---  | 0  | ---                  | ---         | ---  | 0  |
| 3/24 | ---               | ---         | ---  | 0  | ---                 | ---         | ---  | 0  | 106               | 106         | 107  | 24 | 106                    | 107         | 107  | 24 | 103                  | 103         | 104  | 24 |
| 3/25 | ---               | ---         | ---  | 0  | ---                 | ---         | ---  | 0  | 106               | 106         | 107  | 24 | 107                    | 108         | 109  | 24 | 105                  | 106         | 108  | 20 |
| 3/26 | ---               | ---         | ---  | 0  | ---                 | ---         | ---  | 0  | ---               | ---         | ---  | 0  | ---                    | ---         | ---  | 0  | ---                  | ---         | ---  | 0  |
| 3/27 | ---               | ---         | ---  | 0  | ---                 | ---         | ---  | 0  | 107               | 107         | 108  | 24 | 108                    | 108         | 108  | 24 | 106                  | 107         | 108  | 24 |
| 3/28 | 105               | 105         | 106  | 13 | 105                 | 105         | 106  | 12 | 107               | 107         | 107  | 24 | 107                    | 108         | 109  | 24 | 105                  | 105         | 106  | 24 |
| 3/29 | 104               | 105         | 105  | 24 | 104                 | 105         | 106  | 24 | 106               | 107         | 107  | 24 | 106                    | 107         | 107  | 24 | 105                  | 105         | 106  | 24 |
| 3/30 | 101               | 102         | 103  | 24 | 102                 | 102         | 104  | 24 | 103               | 103         | 105  | 24 | 103                    | 103         | 104  | 24 | 102                  | 103         | 103  | 24 |
| 3/31 | 101               | 101         | 102  | 24 | 101                 | 101         | 102  | 24 | 103               | 103         | 104  | 24 | 103                    | 104         | 106  | 24 | 102                  | 103         | 104  | 24 |

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

### Total Dissolved Gas Saturation Data at Lower Columbia 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> |    |     |     |      |    |
|      | Avg                | Avg         | High     | hr                 | Avg         | Avg      | High            | hr         | Avg      | Avg                  | High       | hr       | Avg               | Avg        | High     | hr | Avg | AVG | High | hr |
| 3/18 | 106                | 106         | 106      | 24                 | 105         | 106      | 106             | 24         | ---      | ---                  | ---        | 0        | ---               | ---        | ---      | 0  | --- | --- | ---  | 0  |
| 3/19 | 106                | 107         | 107      | 24                 | 106         | 106      | 107             | 24         | ---      | ---                  | ---        | 0        | ---               | ---        | ---      | 0  | --- | --- | ---  | 0  |
| 3/20 | 105                | 105         | 106      | 24                 | 105         | 105      | 106             | 24         | ---      | ---                  | ---        | 0        | ---               | ---        | ---      | 0  | --- | --- | ---  | 0  |
| 3/21 | 103                | 103         | 103      | 24                 | 104         | 104      | 104             | 24         | ---      | ---                  | ---        | 0        | ---               | ---        | ---      | 0  | --- | --- | ---  | 0  |
| 3/22 | 104                | 104         | 105      | 24                 | 105         | 105      | 105             | 24         | 106      | 106                  | 106        | 11       | 105               | 105        | 106      | 9  | --- | --- | ---  | 0  |
| 3/23 | ---                | ---         | ---      | 0                  | ---         | ---      | ---             | 0          | ---      | ---                  | ---        | 0        | ---               | ---        | ---      | 0  | --- | --- | ---  | 0  |
| 3/24 | 103                | 103         | 103      | 24                 | 103         | 103      | 104             | 24         | 104      | 104                  | 105        | 24       | 104               | 104        | 104      | 24 | 104 | 104 | 104  | 24 |
| 3/25 | 103                | 103         | 104      | 24                 | 104         | 104      | 104             | 24         | 104      | 104                  | 104        | 24       | 104               | 104        | 105      | 24 | 103 | 103 | 103  | 6  |
| 3/26 | ---                | ---         | ---      | 0                  | ---         | ---      | ---             | 0          | ---      | ---                  | ---        | 0        | ---               | ---        | ---      | 0  | --- | --- | ---  | 0  |
| 3/27 | 105                | 105         | 106      | 24                 | 106         | 106      | 106             | 24         | 106      | 107                  | 107        | 24       | 107               | 107        | 108      | 24 | --- | --- | ---  | 0  |
| 3/28 | 105                | 105         | 105      | 24                 | 106         | 106      | 106             | 24         | 105      | 106                  | 107        | 24       | 105               | 106        | 107      | 24 | 106 | 106 | 106  | 14 |
| 3/29 | 105                | 105         | 106      | 24                 | 105         | 106      | 106             | 24         | 104      | 105                  | 106        | 24       | 104               | 105        | 107      | 24 | 105 | 105 | 106  | 24 |
| 3/30 | 102                | 103         | 104      | 24                 | 102         | 102      | 103             | 24         | 102      | 102                  | 103        | 24       | 102               | 102        | 103      | 24 | 102 | 103 | 103  | 24 |
| 3/31 | 102                | 103         | 104      | 24                 | 102         | 103      | 104             | 24         | 103      | 103                  | 104        | 24       | 103               | 103        | 103      | 24 | 103 | 103 | 104  | 24 |

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

| Date | <u>The Dalles Dnst</u> |             |          | <u>Bonneville</u> |             |          | <u>Warrendale</u> |            |          | <u>CamasWashugal</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> |     |     |      |    |
|      | Avg                    | Avg         | High     | hr                | Avg         | Avg      | High              | hr         | Avg      | Avg                  | High       | hr       | Avg | Avg | High | hr |
| 3/18 | ---                    | ---         | ---      | 0                 | 105         | 106      | 106               | 24         | 106      | 106                  | 107        | 24       | 106 | 107 | 108  | 23 |
| 3/19 | ---                    | ---         | ---      | 0                 | 106         | 106      | 106               | 24         | 107      | 107                  | 107        | 22       | 106 | 106 | 107  | 23 |
| 3/20 | ---                    | ---         | ---      | 0                 | 105         | 105      | 105               | 24         | 105      | 106                  | 106        | 24       | 105 | 105 | 106  | 23 |
| 3/21 | ---                    | ---         | ---      | 0                 | 104         | 104      | 105               | 24         | 105      | 105                  | 105        | 24       | 104 | 105 | 106  | 23 |
| 3/22 | ---                    | ---         | ---      | 0                 | 104         | 105      | 105               | 24         | 105      | 105                  | 105        | 24       | 104 | 104 | 105  | 23 |
| 3/23 | ---                    | ---         | ---      | 0                 | ---         | ---      | ---               | 0          | ---      | ---                  | ---        | 0        | --- | --- | ---  | 0  |
| 3/24 | 104                    | 104         | 105      | 23                | 103         | 104      | 104               | 24         | 104      | 105                  | 105        | 24       | 104 | 104 | 105  | 23 |
| 3/25 | 103                    | 104         | 104      | 23                | 104         | 104      | 104               | 24         | 105      | 105                  | 105        | 24       | 105 | 106 | 106  | 23 |
| 3/26 | ---                    | ---         | ---      | 0                 | ---         | ---      | ---               | 0          | ---      | ---                  | ---        | 0        | --- | --- | ---  | 0  |
| 3/27 | 106                    | 106         | 106      | 23                | 105         | 105      | 105               | 24         | 105      | 106                  | 106        | 24       | 105 | 105 | 106  | 19 |
| 3/28 | 105                    | 105         | 106      | 23                | 105         | 105      | 105               | 24         | 105      | 106                  | 106        | 24       | 104 | 105 | 105  | 23 |
| 3/29 | 104                    | 105         | 105      | 23                | 103         | 104      | 104               | 24         | 104      | 105                  | 105        | 24       | 104 | 104 | 105  | 23 |
| 3/30 | 102                    | 102         | 103      | 23                | 102         | 102      | 102               | 24         | 103      | 103                  | 104        | 24       | 102 | 103 | 104  | 23 |
| 3/31 | 102                    | 103         | 104      | 23                | 102         | 103      | 104               | 24         | 104      | 104                  | 105        | 24       | 103 | 104 | 105  | 23 |





## Two-Week Summary of Passage Indices

| Date            | COMBINED SOCKEYE |               |               |               |                |                |                |                |                |                |                |
|-----------------|------------------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
|                 | WTB<br>(Coll)    | IMN<br>(Coll) | GRN<br>(Coll) | LEW<br>(Coll) | LGR<br>(INDEX) | LGS<br>(INDEX) | LMN<br>(INDEX) | RIS<br>(INDEX) | MCN<br>(INDEX) | JDA<br>(INDEX) | BO2<br>(INDEX) |
| 03/18/2005      | 0                | 0             | 0             | 0             | ---            | ---            | ---            | ---            | ---            | ---            | 0              |
| 03/19/2005      | ---              | 0             | 0             | ---           | ---            | ---            | ---            | ---            | ---            | ---            | 0              |
| 03/20/2005      | ---              | 0             | 0             | ---           | ---            | ---            | ---            | ---            | ---            | ---            | 0              |
| 03/21/2005      | 0                | 0             | 0             | 0             | ---            | ---            | ---            | ---            | ---            | ---            | 0              |
| 03/22/2005      | 0                | 0             | 0             | 0             | ---            | ---            | ---            | ---            | ---            | ---            | 0              |
| 03/23/2005      | 0                | 0             | 0             | 0             | ---            | ---            | ---            | ---            | ---            | ---            | 0              |
| 03/24/2005      | 0                | 0             | 0             | 0             | ---            | ---            | ---            | ---            | ---            | ---            | 0              |
| 03/25/2005      | 0                | 0             | 0             | 0             | ---            | ---            | ---            | ---            | ---            | ---            | 0              |
| 03/26/2005      | ---              | 0             | 0             | ---           | 30             | ---            | ---            | ---            | ---            | ---            | 0              |
| 03/27/2005      | ---              | 0             | 0             | ---           | 40             | ---            | ---            | ---            | ---            | ---            | 5              |
| 03/28/2005 *    | 0                | ---           | 0             | 0             | 40             | ---            | ---            | ---            | ---            | ---            | 0              |
| 03/29/2005 *    | 0                | ---           | 0             | 1             | 30             | ---            | ---            | ---            | ---            | ---            | 6              |
| 03/30/2005      | 0                | ---           | 0             | 0             | 30             | ---            | ---            | ---            | ---            | ---            | 0              |
| 03/31/2005      | 0                | ---           | 0             | 0             | 10             | ---            | ---            | ---            | ---            | ---            | 7              |
| 04/01/2005      | ---              | ---           | ---           | ---           | 0              | ---            | ---            | ---            | ---            | ---            | 0              |
| <hr/>           |                  |               |               |               |                |                |                |                |                |                |                |
| <b>Total:</b>   | <b>0</b>         | <b>0</b>      | <b>0</b>      | <b>1</b>      | <b>180</b>     | <b>0</b>       | <b>0</b>       | <b>0</b>       | <b>0</b>       | <b>0</b>       | <b>18</b>      |
| <b># Days:</b>  | <b>10</b>        | <b>10</b>     | <b>14</b>     | <b>10</b>     | <b>7</b>       | <b>0</b>       | <b>0</b>       | <b>0</b>       | <b>0</b>       | <b>0</b>       | <b>15</b>      |
| <b>Average:</b> | <b>0</b>         | <b>0</b>      | <b>0</b>      | <b>0</b>      | <b>26</b>      | <b>0</b>       | <b>0</b>       | <b>0</b>       | <b>0</b>       | <b>0</b>       | <b>1</b>       |
| <b>YTD</b>      | <b>0</b>         | <b>0</b>      | <b>0</b>      | <b>1</b>      | <b>180</b>     | <b>0</b>       | <b>0</b>       | <b>0</b>       | <b>0</b>       | <b>0</b>       | <b>18</b>      |

\* 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, and sockeye. Two classes of fish counts are shown in these tables: collection counts, which account for sample rates but are not adjusted for flow; and passage indices, 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.

### 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)}
- BO1 (Index) = Bonneville Dam First Powerhouse Bypass Collection System : Passage Index Counts  
Passage Index = Collection Counts / {Powerhouse 1 Flow / (Powerhouse 1 & 2 Flow + Spill)}

JDA and BO2 data collected for the FPC by Pacific States Marine Fisheries Commission.  
 RIS data collected for the FPC by Chelan Co. PUD/Washington Dept. of Fish and Wildlife.  
 LGR, LMN, and MCN data collected for the FPC by Washington Dept. of Fish and Wildlife.  
 LGS and GRN data collected for the FPC by Oregon Dept. of Fish and Wildlife.  
 IMN data collected for the FPC by the Nez Perce Tribe.

**Cumulative Adult Passage at Mainstem Dams Through: 03/29**

| DAM | Spring Chinook |      |       |      |            |      | Summer Chinook |      |       |      |            |      | Fall Chinook |      |       |      |            |      |
|-----|----------------|------|-------|------|------------|------|----------------|------|-------|------|------------|------|--------------|------|-------|------|------------|------|
|     | 2005           |      | 2004  |      | 10-Yr Avg. |      | 2005           |      | 2004  |      | 10-Yr Avg. |      | 2005         |      | 2004  |      | 10-Yr Avg. |      |
|     | Adult          | Jack | Adult | Jack | Adult      | Jack | Adult          | Jack | Adult | Jack | Adult      | Jack | Adult        | Jack | Adult | Jack | Adult      | Jack |
| BON | 23             | 0    | 376   | 0    | 2,127      | 3    | 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 | 0              | 0    | 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    |
| LWG | 0              | 0    | 1     | 0    | 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    |
| RIS | 0              | 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 | 274            | 1    | 235   | 0    | n/a        | n/a  | ---            | ---  | ---   | ---  | ---        | ---  | ---          | 0    | 0     | 0    | 0          | n/a  |

| DAM | Coho  |      |       |      |            |      | Sockeye |      |            | Steelhead |       |            |           |
|-----|-------|------|-------|------|------------|------|---------|------|------------|-----------|-------|------------|-----------|
|     | 2005  |      | 2004  |      | 10-Yr Avg. |      | 2005    | 2004 | 10-Yr Avg. | 2005      | 2004  | 10-Yr Avg. | Wild 2005 |
|     | Adult | Jack | Adult | Jack | Adult      | Jack |         |      |            |           |       |            |           |
| BON | 0     | 0    | 0     | 0    | 0          | 0    | 0       | 0    | 0          | 46        | 1,057 | 681        | -34       |
| TDA | 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         |
| MCN | 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         |
| LMN | 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         |
| LWG | 0     | 0    | 0     | 0    | 0          | 0    | 0       | 0    | 0          | 3,158     | 4,398 | 3,477      | 794       |
| PRD | 0     | 0    | 0     | 0    | 0          | 0    | 0       | 0    | 0          | 0         | 0     | 0          | n/a       |
| RIS | 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         |
| WEL | 0     | 0    | 0     | 0    | 0          | 0    | 0       | 0    | 0          | 0         | 0     | 0          | 0         |
| WFA | 0     | 0    | 0     | 0    | n/a        | n/a  | 0       | 0    | n/a        | 3,663     | 8,849 | n/a        | n/a       |

BON is through 03/29; LGR is through 03/28.

WFA is through 03/30.

\*PRD is not posting wild steelhead numbers.

These numbers were collected from the COE's Running Sums text files, except where otherwise noted.

Wild steelhead numbers are included in the total. Wild Steelhead are defined as unclipped fish.

Historic counts (pre-1996) were obtained from CRITFC and compiled by the FPC.

Historic counts 1997 to present were obtained from the Corps of Engineers.

Page last updated on: 04/01/05

BON counts from January 1, 2005 to March 14, 2005 (our traditional counts begin March 15):

| Chinook Adult | Chinook Jack | Steelhead | Wild Steelhead |
|---------------|--------------|-----------|----------------|
| 15            | 0            | 256       | -74            |

### Two Week Transportation Summary

Source: Fish Passage Center

Updated:

4/1/05 10:23 AM

|                                |                          | 03/19/05 | TO  | 04/01/05 |             |
|--------------------------------|--------------------------|----------|-----|----------|-------------|
|                                |                          | Species  |     |          |             |
| Site                           | Data                     | CH1      | SO  | ST       | Grand Total |
| <b>LGR</b>                     | Sum of NumberCollected   | 1,710    | 180 | 2,250    | 4,140       |
|                                | Sum of NumberBarged      | 0        | 0   | 0        | 0           |
|                                | Sum of NumberBypassed    | 1        | 0   | 0        | 1           |
|                                | Sum of Numbertrucked     | 1,242    | 175 | 1,698    | 3,115       |
|                                | Sum of SampleMorts       | 1        | 2   | 0        | 3           |
|                                | Sum of FacilityMorts     | 19       | 3   | 2        | 24          |
|                                | Sum of ResearchMorts     | 0        | 0   | 0        | 0           |
|                                | Sum of TotalProjectMorts | 20       | 5   | 2        | 27          |
| Total Sum of NumberCollected   |                          | 1,710    | 180 | 2,250    | 4,140       |
| Total Sum of NumberBarged      |                          | 0        | 0   | 0        | 0           |
| Total Sum of NumberBypassed    |                          | 1        | 0   | 0        | 1           |
| Total Sum of Numbertrucked     |                          | 1,242    | 175 | 1,698    | 3,115       |
| Total Sum of SampleMorts       |                          | 1        | 2   | 0        | 3           |
| Total Sum of FacilityMorts     |                          | 19       | 3   | 2        | 24          |
| Total Sum of ResearchMorts     |                          | 0        | 0   | 0        | 0           |
| Total Sum of TotalProjectMorts |                          | 20       | 5   | 2        | 27          |

### YTD Transportation Summary

Source: Fish Passage Center

Updated:

4/1/05 10:23 AM

|                                |                          | TO:     | 04/01/05 |       |             |
|--------------------------------|--------------------------|---------|----------|-------|-------------|
|                                |                          | Species |          |       |             |
| Site                           | Data                     | CH1     | SO       | ST    | Grand Total |
| <b>LGR</b>                     | Sum of NumberCollected   | 1,710   | 180      | 2,250 | 4,140       |
|                                | Sum of NumberBarged      | 0       | 0        | 0     | 0           |
|                                | Sum of NumberBypassed    | 1       | 0        | 0     | 1           |
|                                | Sum of NumberTrucked     | 1,242   | 175      | 1,698 | 3,115       |
|                                | Sum of SampleMorts       | 1       | 2        | 0     | 3           |
|                                | Sum of FacilityMorts     | 19      | 3        | 2     | 24          |
|                                | Sum of ResearchMorts     | 0       | 0        | 0     | 0           |
|                                | Sum of TotalProjectMorts | 20      | 5        | 2     | 27          |
| Total Sum of NumberCollected   |                          | 1,710   | 180      | 2,250 | 4,140       |
| Total Sum of NumberBarged      |                          | 0       | 0        | 0     | 0           |
| Total Sum of NumberBypassed    |                          | 1       | 0        | 0     | 1           |
| Total Sum of NumberTrucked     |                          | 1,242   | 175      | 1,698 | 3,115       |
| Total Sum of SampleMorts       |                          | 1       | 2        | 0     | 3           |
| Total Sum of FacilityMorts     |                          | 19      | 3        | 2     | 24          |
| Total Sum of ResearchMorts     |                          | 0       | 0        | 0     | 0           |
| Total Sum of TotalProjectMorts |                          | 20      | 5        | 2     | 27          |



