COLUMBIA BASIA SHERVAGENCIES MID

Fish Passage Center

Weekly Report #15-6

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April 24, 2015

Summary of Events

Water Supply

Precipitation throughout the Columbia Basin has varied between 23% and 64% of average at individual sub-basins over April. Precipitation above The Dalles has been 51% of average over April. Over the 2015 water year, precipitation has ranged between 63% and 109% of average.

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

	Water Ye April 1–2		Water Year 2015 October 1, 2014 to April 22, 2015			
Location	Observed (inches)	% Average	Observed (inches)	% Average		
Columbia Above Coulee	1.06	55	25.8	105		
Snake River above Ice Harbor	0.74	52	11.9	77		
Columbia above The Dalles	0.78	51	16.7	88		
Kootenai	1.18	61	26.8	109		
Clark Fork	0.40	23	14.3	82		
Flathead	0.84	39	23.9	102		
Pend Oreille River Basin above Waneta Dam	0.66	34	20.0	93		
Salmon River Basin	0.97	52	15.4	81		
Upper Snake Tributaries	0.96	55	11.4	63		
Clearwater	1.06	41	25.9	90		
Willamette River above Portland	2.45	64	45.3	85		

Snowpack within the Columbia Basin has been below average. Average snowpack in the Columbia River for basins above the Snake River confluence is 53% of average. For Snake River Basins the average snowpack is 41% of average. For lower Columbia Basins between McNary and Bonneville Dam average snowpack is 3% of average.

Table 2 displays the April 23rd ESP runoff volume forecasts for multiple reservoirs along with the April COE forecasts at Libby and Dworshak. The April 23rd ESP forecast at The Dalles between April and August is 67,636 Kaf (77% of average).

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

		3, 2015 QPF ESP
Location	% Average (1981–2010)	Runoff Volume (Kaf)
The Dalles (Apr–Aug)	77	67,636
Grand Coulee (Apr-Aug)	85	48,203
Libby Res. Inflow, MT (Apr–Aug)	85 99*	5,014 5,808*
Hungry Horse Res. Inflow, MT (Apr–Aug)	87	1,680
Lower Granite Res. Inflow (Apr–July)	62	12,313
Brownlee Res. Inflow (Apr–July)	50	2,739
Dworshak Res. Inflow (Apr–July)	69 70*	1,658 1,709*

^{*} Denotes COE April Forecast

Grand Coulee Reservoir is at 1,251.3 feet (4-23-15) and has drafted 0.6 feet over the last week. Outflows at Grand Coulee have ranged between 80.1 and 97.0 Kcfs over the last week. The April 30th FC Elevation is 1,281.8 feet at Grand Coulee. Grand Coulee is drafted below flood control for drum gate maintenance (1,255 feet).

The Libby Reservoir is currently at elevation 2,419.6 feet (4-23-15) and has drafted 0.4 feet over the previous week. Daily average outflows at Libby Dam have ranged from 8.1 Kcfs to 13.1 Kcfs over the last week. The April 30th FC Elevation at Libby is 2,428.6 feet.

Hungry Horse is currently at an elevation of 3,538.6 feet (4-23-15) and held steady over the last week. Outflows at Hungry Horse have ranged between 5.6 and 6.6 Kcfs over the last week. The April 30th FC Elevation at Hungry Horse is 3,548.4 feet.

Dworshak is currently at an elevation of 1,587.0 feet (4-23-15) and drafted 2.0 feet over the last week. Outflows have been 9.6 Kcfs over the last week. The April 30th FC elevation at Dworshak is 1,590.7 feet.

The Brownlee Reservoir was at an elevation of 2,054.9 feet on April 23, 2015, and has drafted 1.3 feet over the last week. The April 30th FC Elevation is 2,077 feet at Brownlee. Outflow from Hells Canyon have ranged between 7.7 and 9.5 Kcfs.

The Biological Opinion flow period began on April 3rd in the lower Snake River (Lower Granite). According to the April Final Water Supply Forecast (April 8, 2015), the flow objective this spring will be 85 Kcfs at Lower Granite. Flows at Lower Granite Dam have averaged 47.5 Kcfs over the last week and 47.9 Kcfs between April 3 and April 23, 2015.

Based on the April Final Water Supply Forecast, the Spring Biological Opinion Flow Objectives (which began April 10th) will be 220 Kcfs at McNary Dam and 135 Kcfs at Priest Rapids Dam. Over the last week, flows at McNary Dam averaged 158.0 Kcfs and Priest Rapids Dam flows were 106.1 Kcfs. Between April 10 and April 23, flows at McNary Dam averaged 166.5 Kcfs and Priest Rapids Dam flows were 113.1 Kcfs.

Spill

The 2015 fish spill program was implemented at the lower Snake River projects beginning on April 3rd, and beginning April 10th at the middle Columbia River projects.

All of the lower Snake River projects have spilled at the 2015 Fish Operations Plan (FOP) levels over the past week.

Project	Spill Level Day/Night
Lower Granite	20 Kcfs/20 Kcfs
Little Goose	30%/30%
Lower Monumental	Gas Cap/Gas Cap
Ice Harbor	45 Kcfs/Gas Cap

Since spill began on April 10th, spill for fish passage at the middle Columbia River projects occurred at the following amounts described in the 2015 FOP.

Project	Spill Level Day/Night
McNary	40%/40%
John Day	30%/30%
The Dalles	40%/40%
Bonneville	100 Kcfs/100 Kcfs

Total dissolved gas (TDG) measurements exceeded the waiver limits at some of the forebay monitors. However, it is unlikely that these occurrences are related to spill. TDG at Little Goose forebay exceeded the 115% on 4/21 while, at the time, the upstream gage was measuring about 111% and downstream was measuring 114%. Similarly at Ice Harbor Dam, the forebay gage over the last few days has been measuring higher than the upstream gage and higher than the downstream gage at the project. However, spill was reduced from 31 Kcfs to 28 Kcfs. Also, there were two days this past week when the Bonneville forebay gage was above 115%. **Note**: The State of Oregon and the State of Washington use different methodologies to estimate the 12-hour average TDG. For Oregon, the 12-hour average is based on the 12 highest hourly TDG measurements in a single calendar day (not necessarily consecutive). For Washington, the 12-hour average is based on 12-hour rolling averages. The highest of the rolling averages is what is reported as the 12-hour average for a given day. The location of a TDG monitor will dictate which of these methodologies is used for compliance monitoring. The Washington methodology will apply to all the lower Snake River projects, as well as the middle Columbia River forebay monitors. On any given day the compliance of the tailrace monitors at the middle Columbia River projects will be determined using either the Washington or Oregon methodology, whichever is the most restrictive, and spill will be decreased if needed.

Monitoring for signs of gas bubble trauma (GBT) occurred at Lower Granite, Little Goose, Lower Monumental, McNary and Rock Island dams over the past week. There was one fish in a sample of 99 observed with signs of GBT at Little Goose Dam on April 19th.

Smolt Monitoring

All Smolt Monitoring Program sites continued sampling for 2015 this week.

This week's samples at Bonneville Dam (BON) were dominated by yearling Chinook juveniles. In fact, yearling Chinook passage increased this week when compared to the previous week. This week's daily average passage index for yearling Chinook at BON was about 19,100 per day, whereas that for last week was only about 3,500 per day. Subyearling Chinook passage decreased substantially this week, when compared to last week. This indicates that the subyearling fall Chinook tules from Spring Creek NFH have mostly passed BON. This week's daily average passage index for subyearling Chinook at BON was 12,550 per day. Last week's daily average passage index was nearly 125,000 per day. Coho passage at BON decreased this week, with a daily average passage index of nearly 8,000 fish per day. Last week's daily average passage index for coho was about 10,300 fish per day. Steelhead passage increased slightly this week, with a daily average passage index of nearly 1,900 per day. Sockeye passage remained relatively low this week. Finally, no Pacific lamprey juveniles were encountered at BON this week.

Yearling Chinook continued to dominate this week salmonid collections at John Day Dam (JDA). The daily average passage index for yearling Chinook this week was about 6,300 fish per day, which is an increase over last week's daily average passage index of nearly 4,500. Coho and steelhead passage also increased this week, when compared to last week. This week's daily average passage indices for coho and steelhead were about 500 and 1,100, respectively. Last week's daily average passage indices were about 300 and 330, respectively. Sockeye passage remained low this week, with a daily average passage index of 20 fish per day. No subyearling Chinook fry were encountered in this week's samples. Finally, Pacific lamprey macropthalmia were encountered every day this week, with a daily average collection of nearly 90 per day, which is a decrease over last week's daily average collection of nearly 200 macropthalmia per day.

Since McNary Dam (MCN) is no longer a transportation site, sampling is every-other-day for the entire

SMP season. This week's samples at MCN were dominated by yearling Chinook, with a daily average passage index of about 10,200 fish per day. This is an increase over last week's daily average passage index of about 5,100 per day. Steelhead and sockeye passage also increased this week, when compared to the previous week. This week's daily average passage indices for steelhead and sockeye were about 5,100 and 1,070 per day, respectively. Last week's daily average passage indices for these two species were about 1,860 and 80 per day, respectively. Subyearling Chinook fry and coho were also encountered in this week's samples but in relatively low numbers. Finally, Pacific lamprey macropthalmia were encountered in two of the four samples this week. Including the days when no lamprey were encountered, the daily average collection for Pacific lamprey macropthalmia was 30.

Yearling Chinook continued to dominate the collections at Lower Granite Dam (LGR) this week. This week's daily average passage index for yearling Chinook at LGR was about 44,450 per day, which is a large increase over last week's daily average passage index of about 11,350 per day. Steelhead passage also increased this week when compared to last week. This week's daily average passage index for steelhead at LGR was about 21,000 per day, whereas that for last week was about 10,175. Passage of subyearling Chinook fry increased this week. This week's daily average passage index for subyearling Chinook fry was about 600 per day. LGR sampled its first coho of the 2015 season on April 20th and coho juveniles have been present in every sample since, with daily passage indices that have ranged from 177 to 524 per day. No sockeye or lamprey juveniles were encountered in this week's samples.

Sampling at Little Goose Dam (LGS) is limited to a 24-hour sample every other day until transportation begins. Yearling Chinook continued to dominate the samples at LGS this week. The daily average passage index for yearling Chinook at LGS was nearly 16,000 fish per day this week, which is an increase over last week's daily average of about 10,200 per day. Steelhead passage also increased this week, when compared to the previous week. This week's daily average passage index for steelhead at LGS was about 12,275 fish per day whereas that of last week was about 6,550 per day. Coho passage remained very low this week and

no subyearling Chinook, sockeye, or lamprey juveniles were encountered in this week's samples.

Sampling at Lower Monumental Dam (LMN) was limited to a 24-hour sample every third day from April 4th to April 10th and then every other day until transportation begins. This week's samples at LMN were dominated by yearling Chinook, with a daily average passage index of about 8,850 fish per day. This represents an increase over last week's daily average passage index of about 2,375 yearling Chinook per day. Steelhead passage at LMN also increased this week when compared to last week. This week's daily average passage index for steelhead at LMN was nearly 3,300 per day, whereas that for last week was about 740 per day. Very few subyearling Chinook and sockeye and no coho were encountered in this week's samples at LMN. Finally, Pacific lamprey macropthalmia were encountered in the April 17th sample LMN.

This week's samples at Rock Island Dam (RIS) were dominated by yearling Chinook, with a daily average passage index of about 300 fish per day. This is an increase over last week's daily average passage index of only 40 yearling Chinook per day. Passage of subyearling Chinook and sockeye decreased this week. This week's daily average passage indices for subyearling Chinook and sockeye at RIS were about 70 for each species per day. Last week's daily average passage indices for subyearling Chinook and sockeye were about 330 and 150 per day, respectively. Coho passage remained very low this week. Finally, one Pacific lamprey macropthalmia was encountered in the sample from April 23rd.

The Grande Ronde Trap (GRN) is operated by the Oregon Department of Fish and Wildlife and is located at river kilometer two in the Grande Ronde River. Due to increased collections of subyearling Chinook fry (presumably fall Chinook), sampling at GRN was switched to no-sample mode after the sample on April 21st. This trap will remain in a no-sample mode through the weekend until subyearling Chinook passage can be reassessed on Monday, April 27th. The daily average collection for yearling Chinook for the period of April 17 to April 21 was 18 per day, which is a decrease from last week's daily average collection of 59 per day. Very few steelhead were collected during this same period. One reason for the low collections during

this period is the positioning of the trap. The trap has been positioned in a place where it is less efficient at catching fish, in an effort to reduce handling of listed hatchery Chinook when releases are thought to be passing through the area.

The Salmon River Trap at Whitebird (WTB) is located at river kilometer 103 and operated by Idaho Department of Fish and Game. Sampling at WTB in 2015 has been modified to weekdays only. Due to continued high numbers of hatchery yearling Chinook collections, trapping efforts remained modified this week in an effort to reduce handling of listed hatchery stocks. This reduction in effort involved remaining in an area of the river that is less efficient and reducing the sample period to 8 hours per day instead of the intended 24 hours. In addition, the sample for April 24th will not occur. Yearling Chinook dominated the collections at WTB this week, with a daily average collection of about 970 per day. Of all the yearling Chinook that were collected over this period, approximately 95% were of known hatchery origin. The daily average collection for steelhead this week was about 130 per day. This trap will likely maintain some level of reduced effort over the next week.

The Snake River Trap at Lewiston (LEW) is located at river kilometer 225 and operated by Idaho Department of Fish and Game. Steelhead continued to dominate the collections at the Snake River Trap this week. Catches in the late morning and early afternoon of April 22nd indicated that catch for the April 23rd sample was going to be high. In an effort to reduce handling of listed stocks, trapping for the April 23rd sample was terminated at 1500 on April 22nd. Even with the reduced effort from the April 23rd sample, the daily average collection for steelhead this week was nearly 150 fish per day, which is an increase over last week's daily average collection of about 50 fish per day. Collections of yearling Chinook remained low this week, with an average of 9 per day and a maximum of 15 in the sample from April 21st and 22nd. A few subyearling Chinook fry were encountered in this week's samples at this trap. Trapping at LEW will be terminated over the weekend (April 25 and 26) but will resume on April 26th for the April 27th sample. Catches on April 25th will be assessed to determine if the April 26th sample will be reduced to less than 24 hours.

The Imnaha River Trap (IMN) is located at river kilometer seven and is operated by the Nez Perce Tribe. Sampling at IMN is year-round, however the FPC typically receives data only from early March through June. Due to the remote nature of the trap, the Nez Perce Tribe is able to send collection data to the FPC only periodically. Therefore, data for IMN may be several days behind. To date, we have received data through April 17th. Over the last week of available data (April 11-17), collections at IMN have been dominated by yearling Chinook, with a daily average collection of just over 3,000 fish per day. This is an increase over the daily average collection of about 2,450 from the previous week (April 4-10). Since April 11th, approximately 96% of the yearling Chinook collection at IMN has been of known hatchery origin. Steelhead passage decreased over the April 11 to 17 period, when compared to the previous 7-day period. The average daily collection for steelhead during this time was about 120 per day. The average collection for the previous week (April 4-10) was about 1,550 fish per day.

Hatchery Release

Snake River Zone: The Snake River Zone encompasses the Snake River and its tributaries from its confluence with the Columbia River to Hells Canyon Dam. To date, the Fish Passage Center has not received complete preliminary hatchery release data from the Nez Perce Tribe for 2015 releases. Therefore, release estimates discussed for this zone are likely underestimates, as they do not include all releases conducted by the tribe. Release data from the Nez Perce Tribe will be entered into our database as soon as we receive them.

Nearly 184,000 yearling spring Chinook juveniles were scheduled for release to the Yankee Fork of the Salmon River this week. In addition to this new release, the volitional release of approximately 2.5 million yearling spring Chinook from Rapid River Hatchery was scheduled to end this week. The only other releases that were scheduled to begin this week were of summer steelhead juveniles. In all, nearly 2.2 million steelhead juveniles were scheduled for release throughout the Snake River Zone this week. This includes releases both above and below Lower Granite Dam. Releases above Lower Granite Dam

included releases to the Clearwater River (1.42 million), the Pahsimeroi River (192,500), and the Salmon River (477,000). There were two releases below Lower Granite Dam that totaled about 96,000 summer steelhead juveniles. Both of these releases took place on the Tucannon River.

Several volitional releases of summer steelhead that began in previous weeks are scheduled to end over the next 2 weeks. In addition to these older releases, four new releases of summer steelhead juveniles are scheduled for this zone over the next 2 weeks. In all, these four releases are expected to total about 685,400 steelhead juveniles and are scheduled for the Salmon (82%) and Wallowa (18%) rivers. The only other releases that are scheduled to begin over the next 2 weeks are of sockeye. In all, about 420,000 sockeye smolts are scheduled for release into Redfish Lake Creek, beginning on or around May 4th through May 7th.

Mid-Columbia Zone: The Mid-Columbia Zone encompasses the area of the Columbia River and its tributaries from McNary Dam to Chief Joseph Dam. To date, the Fish Passage Center has not received complete preliminary hatchery release data from the Colville Tribe for 2015 releases. Therefore, release estimates discussed for this zone are likely underestimates, as they do not include all releases conducted by the tribe, including releases from the new Chief Joseph Hatchery. Release data from the Colville Tribe will be entered into our database as soon as we receive them.

Three new releases of yearling spring Chinook juveniles were scheduled for this zone this week. These three releases were expected to total about 1.21 million juveniles and were scheduled for Wenatchee (98%) and Methow (2%) rivers. Two new releases of coho to the Methow River were scheduled to begin this week. These two new releases were expected to total about 355,000 coho juveniles. These new coho releases were in addition to the volitional releases that began over the past couple of weeks, which are expected to continue into May and June. Finally, two new releases of summer steelhead were scheduled for this week. Both of these releases were on the Touchet River and were expected to total about 133,000 steelhead juveniles.

Approximately 2.94 million subyearling fall Chinook juveniles are scheduled for release into the Yakima River over the next 2 weeks. Of these, about 42% are scheduled to be unclipped. In addition, about 540,000 yearling spring Chinook juveniles are scheduled for release into the Wenatchee River over the next 2 weeks. Approximately 561,000 coho juveniles are scheduled to be released into the Wenatchee (69%) and Methow (31%) rivers over the next 2 weeks. Finally, nearly 493,000 summer steelhead juveniles are scheduled to be released throughout this zone over the next 2 weeks.

Lower Columbia Zone: The Lower Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to McNary Dam. There were no new releases of juvenile salmonids scheduled to begin this week. Spring Creek NFH is scheduled to release about 4.0 million subyearling fall Chinook tules on April 27th. This release was originally planned for May 4th but was rescheduled to 1 week earlier due to an outbreak of Hexamita. Klickitat Hatchery is scheduled to release approximately 1.0 million coho juveniles into the Klickitat River, on or around May 1st. Finally, about 90,000 summer steelhead and 37,500 winter steelhead juveniles are scheduled to be released into this zone over the next 2 weeks. The summer steelhead are scheduled to be released into the Klickitat River while the winter steelhead are scheduled to be released into Hood River.

Adult Passage 4/24/2015

Bonneville Dam uses video counts from January 1st through March 31st and direct counting after this period. Bonneville Dam counts adult salmon and steelhead year-round. Lower Granite Dam uses video counts from March 1st through March 31st and direct counting after this period. Lower Granite Dam counts adult salmon and steelhead through December 30th each year. Willamette Falls also uses video counts and reports adult counts year-round.

Adult counts at Bonneville Dam have been updated through 4/23/15. The 2014 adult spring Chinook count at Bonneville Dam is 72,941, which is about 2.8 times greater than the 2014 count of 25,569 and 4.1 times greater than the 10-year average count of 17,546. The

2015 Bonneville Dam adult steelhead count of 3,915 has 354 more fish than the 2014 count of 3,561 and 727 more fish than the 10-year average count of 3,188.

At Willamette Falls 6,603 adult spring Chinook have been counted so far this season. The 2015 adult spring Chinook count is 3.5 times greater than the 2014 count of 1,887 and 5.1 times greater than the 10-year average count of 1,285. The 2015 Willamette Falls adult steelhead count of 3,999 is about 77.2% of the 2014 count of 5,182 and 68.5% of the 10-year average count of 5,837.

A total of 904 spring chinook have been counted at Lower Granite Dam as of April 23rd. This year's Lower Granite steelhead count of 8,683 is about 1.2 times greater than the 2014 count of 6,899 and about 1.1 times greater than the 10-year average count of 7,989.

Counting at Priest Rapids Dam began on April 15th. In the first 7 days of counting, 427 spring Chinook and 15 steelhead were observed.

Hatchery Releases Last Two Weeks

Hatchery Release Summary From: 4/11/2015 04/24/15 to RelRiver Agency Hatchery Species Race MigYr NumRel RelStart RelEnd RelSite Okanogan River Colville Tribe Wells Hatchery 2015 2,000 04-15-15 04-20-15 Aneas Creek Colville Tribe Wells Hatchery ST SU 2015 19,984 04-15-15 04-20-15 Omak Creek Okanogan River Colville Tribe Wells Hatchery ST SU 2015 24,000 04-15-15 04-20-15 Omak Creek Okanogan River 30,000 04-15-15 04-20-15 Similkameen Acclim 2015 Okanogan River Colville Tribe Wells Hatchery ST SU Pd Colville Tribe Wells Hatchery ST SU 2015 40,000 04-15-15 04-20-15 Salmon Creek Okanogan River (Okanogan) Colville Tribe Total 115,984 Salmon River (ID) Idaho Dept. of Fish and Game Magic Valley Hatchery ST SU 2015 34.249 04-21-15 04-21-15 Little Salmon River Idaho Dept. of Fish and Game Magic Valley Hatchery ST SU 2015 96.177 04-23-15 04-24-15 Pahsimeroi River Pahsimeroi River Idaho Dept. of Fish and Game Magic Valley Hatchery ST SU 2015 96,347 04-21-15 04-22-15 Pahsimeroi River Pahsimeroi River 189,362 04-10-15 04-14-15 Salmon River (ID) Salmon River (ID) Idaho Dept. of Fish and Game Magic Valley Hatchery ST SU 2015 Idaho Dept. of Fish and Game Magic Valley Hatchery 192,861 04-24-15 05-04-15 Yankee Fk (Salmon R) Salmon River (ID) ST SU 2015 Magic Valley Hatchery 383,059 04-13-15 04-20-15 Little Salmon River Idaho Dept. of Fish and Game ST SU 2015 Salmon River (ID) Idaho Dept. of Fish and Game Niagara Springs ST SU 2015 250,000 04-21-15 04-27-15 Little Salmon River Salmon River (ID) Idaho Dept. of Fish and Game Pahsimeroi Hatchery 199,520 04-01-15 04-14-15 Pahsimeroi Hatchery Pahsimeroi River CH1 SU 2015 Idaho Dept. of Fish and Game Pahsimeroi Hatchery CH1 SU 2015 631,100 04-01-15 04-14-15 Pahsimeroi Hatchery Pahsimeroi River Idaho Dept. of Fish and Game Rapid River Hatchery SP 2,500,000 03-16-15 04-24-15 Rapid River Hatchery Little Salmon River CH₁ 2015 SP 183,800 04-20-15 04-20-15 Yankee Fk (Salmon R) Salmon River (ID) Idaho Dept. of Fish and Game Sawtooth Hatchery CH₁ 2015 Idaho Dept. of Fish and Game Total 4.756.475 SU 2015 252.000 04-17-15 04-21-15 Lolo Creek Clearwater River M F Nez Perce Tribe Dworshak NFH ST Nez Perce Tribe Lookingglass Hatchery CH₁ SP 2015 250,000 04-15-15 04-15-15 Lostine Accim Pond Wallowa River **Nez Perce Tribe Total** 502,000 Oregon Dept. of Fish and Wildlife Irrigon Hatchery Complex SU 2015 215,000 03-31-15 04-30-15 L Sheep Acclim Pond Imnaha River ST Oregon Dept. of Fish and Wildlife Lookingglass Hatchery CH₁ SP 2015 133,778 04-14-15 04-15-15 Imnaha River Imnaha River 5,500 04-15-15 04-15-15 Crooked River (OR) Deschutes River Oregon Dept. of Fish and Wildlife **Opal Springs Hatchery** ST SU 2015 Oregon Dept. of Fish and Wildlife **Opal Springs Hatchery** ST SU 2015 8,000 04-15-15 04-15-15 Crooked River (OR) Deschutes River Round Butte Hatchery SP 240,000 04-15-15 04-15-15 Deschutes River Deschutes River Oregon Dept. of Fish and Wildlife CH1 2015 Umatilla River Oregon Dept. of Fish and Wildlife **Umatilla Hatchery** ST SU 2015 50,000 04-16-15 04-29-15 Thornhollow Acclim Pond Oregon Dept. of Fish and Wildlife Wizard Falls Hatchery SP 5.000 04-15-15 04-15-15 Wychus Creek CH₁ 2015 Deschutes River Oregon Dept. of Fish and Wildlife Wizard Falls Hatchery CH₁ SP 2015 7,000 04-15-15 04-15-15 Metolius River Deschutes River Oregon Dept. of Fish and Wildlife Wizard Falls Hatchery CH₁ SP 2015 7,500 04-15-15 04-15-15 Crooked River (OR) Deschutes River Oregon Dept. of Fish and Wildlife Total 671,778 U.S. Fish and Wildlife Service Wind River Carson NFH CH1 SP 2015 1,179,871 04-15-15 04-15-15 Carson Hatchery Clearwater River M F U.S. Fish and Wildlife Service Dworshak NFH ST SU 2015 320,000 04-13-15 04-17-15 Clear Creek U.S. Fish and Wildlife Service Dworshak NFH ST SU 484,000 04-14-15 04-18-15 Redhouse (SFk S Fk Clearwater River 2015 ClearH20 R) U.S. Fish and Wildlife Service Dworshak NFH ST SU 2015 1,423,000 04-22-15 04-23-15 Dworshak Hatchery Clearwater River M F U.S. Fish and Wildlife Service 2015 417,995 04-13-15 04-13-15 Entiat Hatchery **Entiat River** Entiat Hatchery CH₁ SU Salmon River (ID) U.S. Fish and Wildlife Service Hagerman NFH ST SU 2015 1,347,000 04-06-15 04-30-15 Sawtooth Hatchery U.S. Fish and Wildlife Service Leavenworth NFH CH1 SP 2015 1,140,000 04-18-15 04-18-15 Icicle Creek Wenatchee River Little White Salmon NFH U.S. Fish and Wildlife Service SP Little White Salmon CH₁ 2015 1,000,000 04-16-15 04-16-15 Little White Salmon Hatchery River U.S. Fish and Wildlife Service Spring Creek NFH CH₀ FΑ 2015 6,690,340 04-13-15 04-13-15 Spring Creek Hatchery L Col R (D/s McN Dam) U.S. Fish and Wildlife Service Winthrop NFH CH1 SP 2015 403,000 04-15-15 04-21-15 Winthrop Hatchery Methow River U.S. Fish and Wildlife Service Winthrop NFH 20,000 04-15-15 05-15-15 Winthrop Hatchery Methow River ST SU 2015 U.S. Fish and Wildlife Service Winthrop NFH ST SU 2015 80,000 04-15-15 05-15-15 Winthrop Hatchery Methow River U.S. Fish and Wildlife Service Total 14.505.206 Umatilla Tribe Cascade Hatchery CO UN 2015 574,000 04-15-15 04-15-15 Pendelton Acclim Umatilla River Pond Umatilla Tribe Lookingglass Hatchery CH1 SP 2015 106,086 04-02-15 04-15-15 Grande Ronde Acclim Grande Ronde River Pond 146,310 03-19-15 04-15-15 Catherine Cr Acclim Grande Ronde River Umatilla Tribe Lookingglass Hatchery CH₁ SP 2015 Pond Umatilla Tribe **Umatilla Hatchery** 2015 50,000 04-16-15 04-20-15 Minthorn Acclimation Umatilla River ST SU Pond Umatilla Tribe Umatilla Hatchery ST 2015 50.000 04-16-15 04-20-15 Pendelton Acclim Umatilla River SU Pond **Umatilla Tribe Total** 926.396

Hatchery Releases Last Two Weeks

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
Washington Dept. of Fish and Wildlife	Chelan Hatchery	CH1	SU	2015	-,			Chelan Falls	Mid-Columbia River
Washington Dept. of Fish and Wildlife	Chelan Hatchery	CH1	SU	2015				Chelan Falls	Mid-Columbia River
Washington Dept. of Fish and Wildlife	Chelan Hatchery	CH1	SU	2015				Chelan Falls	Mid-Columbia River
Washington Dept. of Fish and Wildlife	Chelan Hatchery	CH1	SU	2015	,			Chelan Falls	Mid-Columbia River
Washington Dept. of Fish and Wildlife	Chiwawa Hatchery	CH1	SP	2015				Nason Creek	Wenatchee River
Washington Dept. of Fish and Wildlife	Chiwawa Hatchery	CH1	SP	2015				Chiwawa Hatchery	Wenatchee River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2015	,			Baileysburg Bridge	Touchet River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2015				Tucannon River	Tucannon River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2015	85,000	04-20-15	05-31-15	Dayton Acclim Pond	Touchet River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2015	,			Walla Walla River	Walla Walla River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2015				Lyons Ferry Hatchery	Snake River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2015	205,000	04-05-15	04-20-15	Cottonwood Acclim Pond	Grande Ronde River
Washington Dept. of Fish and Wildlife	Methow Hatchery	CH1	SP	2015	30.000	04-20-15	04-30-15	Twisp Acclim Pond	Methow River
Washington Dept. of Fish and Wildlife	Methow Hatchery	CH1	SP	2015	,			Methow Hatchery	Methow River
Washington Dept. of Fish and Wildlife	Methow Hatchery	CH1	SU	2015	,			Carlton Acclim Pond	Methow River
Washington Dept. of Fish and Wildlife	Methow Hatchery	ST	SU	2015				Twisp Acclim Pond	Methow River
Washington Dept. of Fish and Wildlife	Ringold Springs Hatchery	ST	SU	2015				Ringold Springs	Mid-Columbia River
	, , ,							Hatchery	
Washington Dept. of Fish and Wildlife	Similkameen Hatchery	CH1	SU	2015	20,000	04-15-15	05-15-15	Similkameen Acclim Pd	Okanogan River
Washington Dept. of Fish and Wildlife	Tucannon Hatchery	ST	SU	2015	46,000	04-20-15	04-20-15	Tucannon River	Tucannon River
Washington Dept. of Fish and Wildlife	Wells Hatchery	CH1	SU	2015	320,000	04-15-15	05-15-15	Wells Hatchery	Mid-Columbia River
Washington Dept. of Fish and Wildli	fe Total				2,347,744				
Yakama Tribe	Cascade Hatchery	СО	UN	2015	92,760	04-15-15	04-15-15	Leavenworth Hatchery	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2015	105,152	04-15-15	04-15-15	Leavenworth Hatchery	Wenatchee River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2015	215,311	03-15-15	05-15-15	Easton Pond	Yakima River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2015	216,338	03-15-15	05-15-15	Clark Flat Acclim Pond	Yakima River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2015	217,163	03-15-15	05-15-15	Jack Creek Acclim	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2015	98 105	04-15-15	06-01-15	Stiles Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2015	,			Holmes Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2015	-, -			Easton Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2015	,			Yakama River	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2015				Prosser Acclim Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2015				Lost Creek Acclim	Yakima River
								Pond	
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2015	,			Stiles Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2015				Prosser Acclim Pond	Yakima River
Yakama Tribe	Willard Hatchery	CO	UN	2015	,			Winthrop Hatchery	Methow River
Yakama Tribe	Willard Hatchery	CO	UN	2015				Leavenworth Hatchery	Wenatchee River
Yakama Tribe	Winthrop NFH	CO	NO	2015	265,922	04-20-15	04-20-15	Winthrop Hatchery	Methow River
Yakama Tribe Total					2,386,875				

Grand Total 26,212,458

Hatchery Releases Next Two Weeks

Hatchery Release Summary From: 4/25/2015 5/7/2015 to Agency Hatchery Species Race MigYr NumRel RelStart RelEnd RelSite RelRiver Grant County PUD Little White Salmon NFH CH₁ SP 2015 65.000 05-01-15 05-07-15 White River Wenatchee River **Grant County PUD Total** 65.000 Magic Valley Hatchery ST SU 2015 192,861 04-24-15 05-04-15 Yankee Fk (Salmon R) Salmon River (ID) Idaho Dept. of Fish and Game Idaho Dept. of Fish and Game Magic Valley Hatchery ST SU 2015 294,000 04-28-15 05-05-15 Yankee Fk (Salmon R) Salmon River (ID) Idaho Dept. of Fish and Game Niagara Springs ST SU 2015 210,000 04-27-15 04-30-15 Little Salmon River Salmon River (ID) Idaho Dept. of Fish and Game Niagara Springs ST SU 2015 250,000 04-21-15 04-27-15 Little Salmon River Salmon River (ID) Idaho Dept. of Fish and Game Oxbow-Oregon SO UN 2015 76 000 05-07-15 05-07-15 Redfish Lake Creek Salmon River (ID) Idaho Dept. of Fish and Game Sawtooth Hatchery SO UN 2015 134,000 05-07-15 05-07-15 Redfish Lake Creek Salmon River (ID) Idaho Dept. of Fish and Game Springfield Hatchery SO UN 2015 210,000 05-04-15 05-08-15 Redfish Lake Creek Salmon River (ID) Idaho Dept. of Fish and Game Total 1,366,861 Oregon Dept. of Fish and Wildlife Wallowa River Irrigon Hatchery Complex ST SU 2015 120.000 05-04-15 05-04-15 Wallowa Acclim Pond Oregon Dept. of Fish and Wildlife Irrigon Hatchery Complex SU 2015 215.000 03-31-15 04-30-15 L Sheep Acclim Pond Imnaha River Oregon Dept. of Fish and Wildlife SU 2015 50,000 04-16-15 04-29-15 Thornhollow Acclim Umatilla River **Umatilla Hatchery** Oregon Dept. of Fish and Wildlife Total 385.000 U.S. Fish and Wildlife Service Hagerman NFH ST SU 2015 61,400 05-01-15 05-01-15 East Fk Salmon River Salmon River (ID) Salmon River (ID) U.S. Fish and Wildlife Service Hagerman NFH ST SU 2015 1,347,000 04-06-15 04-30-15 Sawtooth Hatchery U.S. Fish and Wildlife Service Spring Creek NFH CHO FΑ 2015 4,000,000 04-27-15 04-27-15 Spring Creek Hatchery L Col R (D/s McN Dam) U.S. Fish and Wildlife Service Total 5.408.400 Oak Springs Hatchery ST WI 2015 12,500 04-30-15 04-30-15 Parkdale Acclim Pond Hood River Warm Springs Tribe Warm Springs Tribe Oak Springs Hatchery ST WI 2015 25,000 04-30-15 04-30-15 E Fk Irrig Dist Sand Hood River Trap Warm Springs Tribe Total 37,500 Chiwawa Hatchery CH1 2015 144,000 04-15-15 04-30-15 Chiwawa Hatchery Wenatchee River Washington Dept. of Fish and Wildlife SP Washington Dept. of Fish and Wildlife Eastbank Hatchery CH1 SP 2015 475,000 04-30-15 04-30-15 Dryden Acclim Pond Wenatchee River Washington Dept. of Fish and Wildlife Eastbank Hatchery ST SU 2015 238.000 04-25-15 05-01-15 Chiwawa Hatchery Wenatchee River Washington Dept. of Fish and Wildlife Methow Hatchery CH₁ SP 2015 30,000 04-20-15 04-30-15 Twisp Acclim Pond Methow River 48,000 04-01-15 04-30-15 Twisp Acclim Pond Washington Dept. of Fish and Wildlife Methow Hatchery ST SU 2015 Methow River Washington Dept. of Fish and Wildlife Methow Hatchery SU 2015 95,000 04-30-15 05-05-15 Methow Hatchery Methow River ST Washington Dept. of Fish and Wildlife Skamania Hatchery ST SU 2015 90,000 04-25-15 05-01-15 Klickitat River Klickitat River SU 2015 Mid-Columbia River Washington Dept. of Fish and Wildlife Wells Hatchery ST 160.000 05-01-15 05-31-15 Wells Hatchery Washington Dept. of Fish and Wildlife Total 1.280.000 Yakama Tribe Cascade Hatchery CO UN 2015 55,432 05-01-15 05-01-15 Coulter Creek Wenatchee River Yakama Tribe Cascade Hatchery CO UN 2015 101,376 05-01-15 05-01-15 Wenatchee River Wenatchee River UN Yakama Tribe CO 2015 131,335 05-06-15 05-06-15 Butcher Creek Acclim. Wenatchee River Cascade Hatchery Pond Yakama Tribe Klickitat Hatchery CO NO 2015 1,000,000 05-01-15 05-01-15 Klickitat Hatchery Klickitat River Marion Drain Hatchery CH₀ FA 2015 111,000 04-30-15 04-30-15 Nelson Springs Yakima River Yakama Tribe Yakama Tribe Prosser Acclim. Pond CH₀ FΑ 2015 480,000 04-30-15 04-30-15 Prosser Acclim Pond Yakima River Prosser Acclim. Pond CH₀ FA 2015 600,000 05-01-15 05-01-15 Prosser Acclim Pond Yakima River Yakama Tribe Willard Hatchery UN 2015 42 184 05-06-15 05-06-15 Methow River Methow River Yakama Tribe CO Yakama Tribe Willard Hatchery CO UN 2015 48.824 05-06-15 05-06-15 Methow River Methow River Yakama Tribe Willard Hatchery CO UN 2015 82,777 05-06-15 05-06-15 Twisp Acclim Pond Methow River Yakama Tribe Willard Hatchery CO UN 2015 99,123 05-06-15 05-06-15 Rolfings Acclim Pond Wenatchee River

2.752.051

Grand Total 11,294,812

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

Yakama Tribe Total

	Daily Average Flow and S	Spill (in Kcfs) at Mid-Colu	mbia Projects
Grand	Chief	Rocky	Rock

	Gra	and	Chi	ef			Roo	cky	Ro	ck			Pri	est
	Cou	ulee	Jose	ph	We	lls	Rea	ach	Isla	and	Wana	apum	Rap	oids
Date	Flow	Spill												
04/10/2015	100.2	0.0	108.1	0.0	120.8	10.0	119.7	0.0	125.9	0.0	141.4	0.0	143.4	0.0
04/11/2015	102.2	0.0	103.0	0.0	109.0	10.0	98.7	0.0	108.7	0.0	106.4	0.0	116.0	0.0
04/12/2015	111.6	0.0	106.5	0.0	116.4	9.9	116.8	1.0	121.7	0.0	126.7	0.0	116.8	1.1
04/13/2015	116.4	0.0	107.1	0.0	121.5	9.0	118.3	0.0	123.5	0.0	127.6	0.0	134.1	0.6
04/14/2015	91.5	0.0	89.5	0.0	87.0	6.7	84.2	0.0	88.9	0.1	107.1	0.0	115.8	0.2
04/15/2015	102.9	0.0	106.8	0.0	108.3	8.0	107.9	0.0	110.7	0.0	104.1	0.0	100.7	2.3
04/16/2015	107.6	0.0	111.2	0.0	118.8	9.2	116.6	0.0	121.9	11.0	113.3	0.0	113.6	0.0
04/17/2015	96.2	0.0	92.8	0.0	110.0	8.8	110.6	0.0	116.8	11.5	120.3	0.0	116.1	0.0
04/18/2015	87.5	0.0	85.8	0.0	84.8	6.9	79.7	0.0	83.6	9.8	96.3	0.0	110.1	0.0
04/19/2015	81.6	0.0	84.8	0.0	90.4	7.7	90.5	0.0	95.0	9.8	108.4	10.1	105.8	11.7
04/20/2015	97.0	0.0	98.2	0.0	115.9	8.3	116.2	0.0	121.8	11.6	104.9	18.1	100.2	14.6
04/21/2015	88.7	0.0	88.3	0.0	99.1	7.2	97.3	0.0	104.3	11.3	116.3	18.8	118.4	26.7
04/22/2015	80.1	0.0	80.9	0.0	90.2	7.9	86.3	0.0	90.6	11.4	90.2	18.3	92.2	23.6
04/23/2015	95.2	0.0	95.8	0.0	104.3	7.3	100.0	0.0	104.5	11.0	99.8	18.5	99.8	26.5

				Hells	Lov	ver	Lit	tle	Lov	wer	lo	e
	Dwor	rshak	Brownlee	Canyon	Gra	nite	God	ose	Monu	mental	Har	bor
Date	Flow	Spill	Inflow	Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
04/10/2015	6.0	0.0		11.2	46.6	20.2	44.8	13.4	46.5	30.0	48.9	19.1
04/11/2015	6.0	0.0		11.0	45.0	20.1	44.3	13.2	44.0	30.0	45.0	13.4
04/12/2015	6.0	0.0		10.7	45.0	20.2	42.4	12.7	45.4	30.0	45.8	13.7
04/13/2015	6.1	0.0		11.2	42.7	20.2	39.6	11.9	40.9	26.3	40.4	12.4
04/14/2015	6.1	0.0		10.5	43.4	20.3	42.3	12.7	43.8	30.1	45.4	30.5
04/15/2015	6.0	0.0		10.6	43.6	20.2	40.8	12.2	43.7	30.6	45.5	35.2
04/16/2015	6.0	0.0		10.1	41.2	20.2	38.1	11.4	38.5	26.3	39.1	29.1
04/17/2015	9.6	0.0		9.3	43.0	20.2	40.6	12.1	41.1	29.2	43.3	33.3
04/18/2015	9.6	0.0		9.3	45.2	20.2	42.3	12.7	44.2	31.0	45.0	35.0
04/19/2015	9.6	0.0		9.3	43.2	20.2	43.1	12.9	44.4	29.4	46.0	35.7
04/20/2015	9.6	0.0		9.3	47.1	20.2	47.1	14.1	49.0	28.1	50.9	40.7
04/21/2015	9.6	0.0		9.3	47.3	20.3	43.5	13.0	45.1	28.0	47.7	37.5
04/22/2015	9.6	0.0		9.0	50.8	20.3	48.7	14.6	50.7	28.1	51.0	40.2
04/23/2015	9.6	0.0		8.3	56.1	20.4	54.9	16.4	57.1	28.0	58.0	46.2

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

McNary John Day The Dalles Bonnevi

	McN	Nary	John	Day	The D	alles		Bonn	eville	
Date	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	PH1	PH2
04/10/2015	187.9	75.4	178.6	53.4	166.7	66.4	192.9	99.5	0.2	80.8
04/11/2015	180.3	72.5	172.6	51.8	153.5	61.5	180.6	99.9	0.0	68.3
04/12/2015	171.5	69.1	177.3	53.4	164.7	65.9	166.4	100.6	0.0	53.4
04/13/2015	191.8	77.0	199.3	59.6	184.7	73.6	196.1	100.0	0.0	83.8
04/14/2015	182.6	73.3	172.8	51.9	160.7	64.3	187.2	99.0	1.3	74.5
04/15/2015	154.9	62.2	153.4	46.1	137.4	55.0	154.8	99.1	0.0	43.3
04/16/2015	156.3	62.6	159.3	47.9	149.7	59.7	162.8	99.8	0.0	50.6
04/17/2015	148.7	59.7	146.2	43.8	130.0	52.3	148.8	99.7	0.0	36.6
04/18/2015	151.7	60.8	145.6	43.7	131.8	52.8	146.7	100.5	0.0	33.7
04/19/2015	152.7	61.2	153.0	45.7	137.9	55.2	158.3	100.2	0.0	45.8
04/20/2015	162.8	65.4	166.5	50.0	154.1	61.5	185.2	99.5	0.0	73.3
04/21/2015	161.1	64.4	158.6	47.4	148.4	59.2	174.8	99.6	0.0	62.7
04/22/2015	162.3	65.0	159.0	47.8	141.9	56.7	155.7	99.9	0.0	43.4
04/23/2015	166.5	66.4	168.6	50.6	153.6	61.5	164.0	100.6	0.0	51.0

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

								Number of Fish with Fin GBT Listed by Highest Rank				
			Number of	Number w	Number w	% Fin	% Severe	Rank	Rank	Rank	Rank	
Site	Date	Species	Fish	GBT signs	Fin Signs	GBT	Fin GBT	1	2	3	4	
Low	er Gran	ite Dam										
	04/16/1	5 Chinook + Steelhead	75*	1	1			1	0	0	0	
	04/23/1	5 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	
Little	e Goose	e Dam										
	04/13/1	5 Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0	
	04/19/1	5 Chinook + Steelhead	99*	1	1			0	1	0	0	
Low	er Moni	umental Dam										
	04/17/1	5 Chinook + Steelhead	15*	0	0			0	0	0	0	
	04/22/1	5 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	
McN	lary Dar	n										
	04/14/1	5 Chinook + Steelhead	75*	0	0			0	0	0	0	
	04/16/1	5 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	
	04/20/1	5 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	
	04/23/1	5 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	
Bon	neville l	Dam										
	04/21/1	5 Chinook + Steelhead	59*	0	0			0	0	0	0	
Roc	k Island	Dam										
	04/17/1	5 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	
	04/21/1	5 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	
	04/23/1	5 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	

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

	Hungry H. Dnst				<u>Bound</u>	<u>dary</u>			<u>Grand</u>	Coule	<u>e</u>		<u>Grand</u>	C. Tiv	<u>vr</u>		<u>Chief</u>	<u>Josep</u>	<u>h</u>	
	<u>24 h</u>	12 h		<u>#</u>	<u>24 h</u>	12 h		<u>#</u>	<u>24 h</u>	12 h		<u>#</u>	<u>24 h</u>	12 h		<u>#</u>	<u>24 h</u>	12 h		<u>#</u>
<u>Date</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>
4/10	100.9	101.4	101.6	24				0	106.1	106.4	106.7	24	104.5	105.0	105.2	24	104.7	105.1	105.3	24
4/11	101.3	101.5	101.8	24				0	105.7	106.1	106.4	24	104.8	105.1	105.2	24	104.8	105.0	105.3	24
4/12	99.9	100.2	100.6	24				0	104.4	104.6	104.8	24	103.4	103.6	103.8	24	103.7	103.9	104.0	24
4/13	99.7	100.3	100.4	24				0	105.4	106.0	106.5	24	104.0	104.5	104.7	24	104.6	105.1	105.4	24
4/14	100.1	100.4	100.7	24				0	105.0	105.5	106.1	24	103.7	104.0	104.5	24	104.0	104.4	105.1	24
4/15	98.8	99.1	99.4	24				0	103.7	103.8	104.0	24	102.2	102.5	102.8	24	103.0	103.3	103.5	24
4/16	99.2	99.7	99.9	24				0	104.1	104.5	104.6	24	102.6	103.1	103.5	24	103.2	103.7	104.1	24
4/17	100.0	100.4	100.6	24				0	105.5	106.1	107.0	24	103.5	104.0	104.2	24	104.3	105.0	105.4	24
4/18	100.2	100.5	100.9	24				0	104.8	105.0	105.3	24	103.5	103.8	104.1	24	104.4	104.8	105.0	24
4/19	100.4	100.6	100.7	24				0	105.5	106.0	106.3	24	103.9	104.6	105.0	24	105.2	105.7	106.0	24
4/20	100.5	100.7	101.0	24				0	106.6	106.9	107.1	24	105.0	105.5	105.8	24	106.3	107.0	107.5	24
4/21	101.1	101.6	102.1	24				0	107.3	107.7	108.5	24	105.7	106.3	106.6	24	107.1	107.4	107.6	24
4/22	101.6	102.3	102.8	24				0	107.3	107.6	108.0	24	105.5	105.8	106.3	24	106.8	107.0	107.3	24
4/23	101.6	102.4	103.7	23				0	107.5	107.9	108.3	23	106.1	107.0	108.1	23	106.8	107.0	107.4	23

Total Dissolved Gas Saturation Data at Mid Columbia River Sites

	Chief J	. Dnst	ŀ		Wells				Wells	Dwnst	trm_		Rocky	Reac	<u>h</u>		Rocky	R. TI	<u>wr</u>	
	<u>24 h</u>	12 h		<u>#</u>	<u>24 h</u>	12 h		#	<u>24 h</u>	<u>12 h</u>		<u>#</u>	<u>24 h</u>	12 h		<u>#</u>	<u>24 h</u>	12 h		<u>#</u>
<u>Date</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>
4/10	104.6	105.2	106.3	24	104.6	105.0	105.2	24	106.4	106.8	107.1	24	105.0	105.8	106.5	24	105.5	106.1	107.1	24
4/11	104.8	105.2	105.7	24	104.3	104.7	105.0	24	106.3	106.6	106.9	24	106.2	106.4	106.7	24	106.5	106.7	107.1	24
4/12	103.4	103.7	104.3	24	103.0	103.3	103.6	24	105.3	105.6	105.9	24	105.0	105.2	105.7	24	105.8	106.1	108.1	24
4/13	104.5	105.0	105.5	24	103.9	104.4	104.6	24	105.4	106.2	106.5	24	105.6	106.2	106.7	24	105.9	106.4	106.8	24
4/14	104.3	104.9	105.6	24	103.4	103.8	104.1	24	105.2	105.6	105.8	24	105.0	105.5	106.2	24	105.4	105.8	106.4	24
4/15	103.1	103.8	104.4	24	102.4	102.8	103.2	24	104.5	104.7	105.2	24	103.8	104.0	104.1	24	104.3	104.5	104.7	24
4/16	103.0	103.5	104.1	24	103.5	104.2	104.7	24	105.3	105.9	106.5	24	104.4	105.1	105.5	24	104.8	105.4	105.9	24
4/17	104.4	104.9	105.4	24	104.2	105.0	105.5	24	106.1	106.8	107.4	24	105.7	106.1	106.3	24	105.9	106.2	106.5	24
4/18	104.3	104.8	105.1	24	104.2	104.9	105.4	22	105.8	106.3	107.3	22	106.0	106.3	106.4	24	106.3	106.5	106.8	24
4/19	104.9	105.6	106.7	24	105.5	106.3	106.8	24	107.1	107.6	107.9	24	106.8	107.4	107.7	24	106.8	107.5	107.8	24
4/20	105.6	106.2	106.4	24	106.4	107.1	107.7	24	108.2	108.7	109.3	24	107.9	108.5	108.8	24	108.2	108.8	109.4	24
4/21	106.6	107.2	107.8	24	106.8	107.4	107.8	24	107.9	108.5	108.9	24	108.8	109.0	109.3	24	108.7	109.0	109.1	24
4/22	106.7	107.1	107.7	21	106.1	106.4	106.6	23	107.3	107.5	107.9	23	107.7	108.0	108.5	24	107.7	107.9	108.1	24
4/23	106.5	107.1	107.8	23	106.2	106.7	107.1	21	107.6	108.0	108.3	21	107.5	107.7	107.9	23	107.7	107.9	108.2	23

Total Dissolved Gas Saturation at Mid Columbia River Sites

	Rock Is	sland			Rock	I. Tlwr			Wana	oum			Wana	pum T	<u>lwr</u>		Priest	Rapid	ls	
	<u>24 h</u>	12 h		<u>#</u>	<u>24 h</u>	12 h		<u>#</u>	<u>24 h</u>	12 h		<u>#</u>	<u>24 h</u>	12 h		<u>#</u>	<u>24 h</u>	12 h		#
<u>Date</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>
4/10	104.1	104.7	105.0	24	104.1	104.5	104.9	24	105.2	105.6	106.0	24	105.0	105.2	105.6	24	105.0	105.3	105.6	24
4/11	105.2	105.5	105.8	24	105.2	105.3	105.6	24	104.2	104.5	105.1	24	104.3	104.6	105.1	24	103.7	104.0	104.6	24
4/12	104.7	105.1	105.6	24	104.7	105.1	105.5	24	103.3	103.5	103.7	24	103.2	103.4	103.5	24	103.1	103.5	103.8	24
4/13	104.8	105.7	106.3	24	105.1	105.7	106.5	23	104.6	105.3	105.9	24	104.4	105.1	105.4	24	104.0	104.4	105.1	24
4/14	104.1	104.3	105.3	24	104.2	104.5	105.5	24	103.1	103.7	104.8	24	103.2	103.8	104.8	24	102.3	102.8	103.3	24
4/15	103.5	103.9	104.1	24	103.5	103.9	104.0	24	102.5	103.1	103.6	24	102.2	102.6	102.9	24	101.3	102.0	102.4	24
4/16	103.8	104.5	104.9	24	106.5	107.6	108.0	24	103.9	104.8	105.4	24	103.3	103.9	104.2	24	103.0	104.2	104.9	24
4/17	105.1	105.7	106.2	24	107.7	108.6	109.5	24	105.1	105.8	106.9	24	104.6	105.1	105.5	24	104.9	106.3	108.0	24
4/18	105.3	105.9	106.4	24	109.6	111.3	112.7	24	105.8	107.3	108.7	24	104.7	105.4	105.7	24	104.2	105.0	105.4	24
4/19	106.4	106.8	107.1	24	110.1	111.4	113.4	24	108.5	109.8	111.5	24	107.7	109.3	109.7	24	106.0	107.0	107.6	24
4/20	107.2	107.8	108.1	24	110.0	111.0	111.8	24	109.2	110.3	110.6	24	110.5	110.6	110.8	24	108.3	109.6	110.4	24
4/21	107.8	108.3	108.8	24	110.7	111.8	114.7	24	110.2	110.9	111.8	24	111.3	111.6	112.1	24	110.0	110.2	110.4	24
4/22	106.5	106.8	107.4	24	110.9	112.8	115.0	24	106.1	106.6	107.9	24	109.9	110.5	111.2	24	107.1	107.6	109.0	24
4/23	106.8	107.1	107.3	23	110.2	111.5	113.4	23				0				0				0

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

	Priest R. Dnst					<u>)</u>			<u>Dwors</u>	<u>shak</u>			<u>Clrwtr</u>	<u>-Peck</u>			<u>Anato</u>	<u>ne</u>		
	<u>24 h</u>	<u>12 h</u>		<u>#</u>	<u>24 h</u>	<u>12 h</u>		<u>#</u>	<u>24 h</u>	<u>12 h</u>		<u>#</u>	<u>24 h</u>	<u>12 h</u>		<u>#</u>	<u>24 h</u>	<u>12 h</u>		<u>#</u>
<u>Date</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	Avg	Avg	<u>High</u>	<u>hr</u>
4/10	104.8	105.1	105.3	24				0	99.6	100.1	100.7	24	101.1	101.9	102.4	24	103.4	104.8	106.4	24
4/11	103.7	104.0	104.4	24				0	99.4	99.7	100.4	24	100.4	100.9	101.4	24	102.4	103.2	104.4	24
4/12	103.2	103.5	104.7	24				0	98.7	99.0	99.5	24	99.8	100.5	101.1	24	102.3	104.0	105.4	24
4/13	104.1	104.5	104.9	24				0	99.4	100.0	100.5	24	100.6	101.6	102.2	24	103.6	105.3	106.9	24
4/14	102.6	103.1	103.7	24				0	99.2	99.6	99.9	24	99.8	100.3	100.9	24	102.2	103.1	104.1	24
4/15	101.8	102.5	105.5	24				0	98.5	98.8	99.2	24	99.5	100.4	101.1	24	102.5	104.4	105.9	24
4/16	102.8	103.6	103.8	24				0	98.9	99.5	100.3	24	100.4	101.5	102.4	24	103.4	105.3	107.2	24
4/17	104.4	105.1	105.3	24				0	95.2	95.6	95.9	24	99.3	100.1	100.6	24	103.1	104.2	107.9	20
4/18	104.3	104.8	105.1	24				0	94.8	95.1	95.5	24	98.7	99.5	100.3	24	103.2	105.0	106.9	24
4/19	107.4	109.0	111.8	24				0	95.0	95.5	95.9	24	99.0	100.0	100.7	24	103.1	105.0	106.6	24
4/20	109.5	112.0	112.3	24				0	96.0	96.5	96.8	24	99.4	100.3	101.1	24	103.3	104.8	106.1	23
4/21	112.4	112.7	113.3	24				0	96.7	97.1	97.6	24	99.6	100.5	101.3	24	101.5	101.5	103.5	12
4/22	110.8	111.2	111.5	24				0	96.3	96.6	96.9	24	98.4	99.0	99.4	24	102.9	103.1	104.3	14
4/23				0				0	97.2	97.8	98.2	23	99.6	100.9	101.3	23	103.9	106.3	108.8	23

Total Dissolved Gas Saturation Data at Snake River Sites

	Clrwtr-	Lewis	<u>ton</u>		Lower	r Gran	ite		L. Gra	nite TI	wr		Little (Goose			L. Go	ose TI	wr	
	<u>24 h</u>	12 h		<u>#</u>	<u>24 h</u>	12 h		<u>#</u>	<u>24 h</u>	12 h		<u>#</u>	<u>24 h</u>	12 h		<u>#</u>	<u>24 h</u>	12 h		<u>#</u>
<u>Date</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>
4/10	101.8	103.4	104.6	24	102.6	102.9	103.4	24	111.0	111.3	111.5	24	108.7	109.4	109.8	24	111.6	111.8	112.0	24
4/11	100.5	101.1	101.7	24	102.6	102.8	103.5	24	111.3	111.5	112.1	24	109.0	109.3	109.5	24	111.5	111.8	112.1	24
4/12	100.6	102.1	103.5	24	101.5	101.7	102.0	24	111.0	111.1	111.3	24	107.7	108.1	108.3	24	111.3	111.6	111.9	24
4/13	101.5	103.1	104.6	24	102.7	103.1	103.2	24	111.5	112.1	113.0	24	109.3	109.8	110.2	24	111.9	112.2	112.4	24
4/14	100.6	101.5	102.6	24	101.7	102.2	102.9	24	111.1	111.4	112.3	24	107.7	108.3	109.5	24	111.0	111.3	111.6	24
4/15	100.5	102.1	103.2	24	99.9	100.2	100.7	24	111.0	111.2	111.4	24	106.0	106.3	106.6	24	110.3	110.7	111.0	24
4/16	101.7	103.7	105.1	24	100.5	101.0	101.4	24	111.1	111.6	112.3	24	105.9	106.3	107.0	24	110.8	111.2	111.8	24
4/17	101.6	103.0	104.2	24	102.0	102.4	103.1	24	111.4	111.6	112.1	24	106.9	107.2	107.4	21	111.3	111.8	112.3	21
4/18	100.8	102.4	103.7	24	101.5	101.7	102.6	24	110.7	111.0	111.3	24	107.0	107.3	107.7	24	111.6	112.0	112.3	24
4/19	100.9	102.6	104.0	24	102.7	103.2	104.0	24	111.2	111.7	112.1	24	109.4	111.3	112.1	24	112.3	112.8	113.2	24
4/20	101.2	102.8	104.2	24	105.4	106.2	106.8	24	111.4	111.6	112.2	24	113.7	114.9	115.1	24	113.2	113.8	114.1	24
4/21	101.3	102.9	104.3	24	105.4	105.7	106.2	24	111.4	111.7	112.2	24	115.8	116.9	118.4	24	113.7	114.2	114.6	24
4/22	100.3	101.4	102.6	24	103.4	103.7	104.2	24	110.8	111.2	111.5	24	113.6	113.8	114.2	24	112.5	113.0	113.4	24
4/23	100.7	102.1	103.2	23	103.6	103.7	103.9	23	110.4	110.7	111.7	23	113.2	113.4	113.6	23	112.0	112.2	112.3	23

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

	Lower	Mon.			<u>L. Mo</u>	<u>n. Tlw</u>	<u>r</u>		Ice Ha	rbor			Ice Ha	rbor T	lwr		<u>McNa</u>	<u>ry-Ore</u>	<u>gon</u>	
	<u>24 h</u>	12 h		<u>#</u>	<u>24 h</u>	12 h		<u>#</u>	<u>24 h</u>	12 h		<u>#</u>	<u>24 h</u>	12 h		<u>#</u>	<u>24 h</u>	12 h		<u>#</u>
<u>Date</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>
4/10	108.8	109.1	109.3	24	118.4	118.9	119.9	24	114.8	115.3	115.7	24	112.6	112.8	113.1	24				0
4/11	109.8	110.0	110.2	24	118.7	119.0	119.8	24	115.0	115.5	115.9	24	112.3	112.6	113.1	24				0
4/12	108.9	109.1	109.2	24	118.3	118.6	118.7	24	113.0	113.1	113.4	24	111.8	112.1	112.6	24				0
4/13	109.7	110.0	110.2	24	118.0	119.1	119.5	24	113.5	113.8	114.0	24	111.9	112.4	112.6	24				0
4/14	108.4	109.0	109.7	24	118.2	118.5	118.7	24	111.8	112.4	113.5	24	112.1	112.7	113.5	24				0
4/15	107.0	107.2	107.4	24	118.2	118.6	118.8	24	110.5	110.9	111.1	24	112.8	113.5	114.2	24				0
4/16	107.8	108.2	108.4	24	117.1	118.7	119.0	24	111.8	112.4	112.5	24	112.8	113.3	114.1	24				0
4/17	108.7	108.9	109.1	24	117.4	119.4	119.7	24	113.0	113.6	114.1	24	113.1	113.5	113.8	24				0
4/18	108.7	109.2	109.8	24	119.0	119.2	119.4	24	114.7	115.5	116.2	24	112.8	113.3	113.7	24				0
4/19	111.2	112.1	112.5	24	118.4	118.9	119.3	24	117.3	118.3	118.6	24	113.3	113.7	114.2	24				0
4/20	112.8	113.0	113.1	24	118.0	118.5	119.1	24	119.0	119.4	119.7	24	113.4	113.9	114.2	24				0
4/21	113.4	113.6	113.8	24	118.4	118.7	119.0	24	120.1	120.3	120.6	24	114.0	114.3	114.9	24				0
4/22	113.3	113.5	113.7	24	118.0	118.2	118.6	24	118.7	119.1	119.7	24	114.0	114.7	115.5	24				0
4/23	114.0	114.1	114.3	23	118.3	118.7	119.3	23	117.7	117.8	118.0	23	115.0	115.6	116.4	23				0

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

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

	<u>McNar</u>	y-Wasl	<u>h</u>		McNa	ry Tlw	<u>r</u>		John I	<u>Day</u>			John	Day TI	<u>wr</u>		The D	alles		
	<u>24 h</u>	12 h		<u>#</u>	<u>24 h</u>	12 h		<u>#</u>	<u>24h</u>	<u>12h</u>		<u>#</u>	<u>24h</u>	<u>12h</u>		<u>#</u>	<u>24h</u>	<u>12h</u>		<u>#</u>
<u>Date</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>AVG</u>	<u>High</u>	<u>hr</u>
4/10	107.5	107.9	108.3	24	113.9	114.9	116.0	24	108.0	108.2	108.8	24	113.9	114.5	116.0	24	107.4	107.7	108.4	24
4/11	107.2	107.5	107.8	24	113.6	114.1	114.8	24	106.9	107.4	107.7	24	113.2	113.5	113.8	24	108.3	108.6	108.8	24
4/12	105.0	105.3	105.7	24	113.4	113.7	115.0	24	105.9	106.1	106.5	24	113.2	113.5	113.8	24	107.6	108.2	109.0	24
4/13	105.8	106.2	106.8	24	113.8	114.4	115.5	24	106.9	107.2	107.6	24	112.8	113.0	113.3	24	109.9	110.3	110.6	24
4/14	104.0	104.4	105.4	24	112.7	113.0	113.6	24	105.0	105.6	106.4	24	112.2	112.6	113.3	24	106.4	107.4	108.6	24
4/15	103.3	103.8	104.6	24	113.6	114.2	114.6	24	103.6	103.8	103.9	24	111.4	111.8	112.0	24	105.6	106.5	106.9	24
4/16	104.5	105.0	106.5	24	114.1	114.4	114.7	24	104.1	104.7	105.7	24	112.3	112.7	113.1	24	108.2	109.3	109.6	24
4/17	105.5	106.3	107.4	24	115.0	115.3	115.5	24	105.4	105.6	106.0	24	112.5	113.5	114.0	24	109.6	110.1	110.6	24
4/18	107.7	108.3	109.3	24	115.7	116.2	116.5	24	105.8	106.6	107.3	24	112.5	112.7	113.1	24	109.0	109.3	109.6	24
4/19	108.6	109.2	110.6	24	116.3	116.5	116.8	24	107.5	107.9	108.4	24	113.5	114.1	114.4	24	110.5	111.4	111.9	24
4/20	109.7	110.1	110.9	24	116.4	116.6	116.8	24	109.0	109.9	111.1	24	113.6	113.9	114.2	24	111.6	112.0	112.4	24
4/21	110.5	110.9	111.5	24	116.3	116.7	117.0	24	110.0	110.5	111.1	24	113.5	113.9	114.4	24	110.7	111.4	111.6	24
4/22	108.7	109.1	109.5	24	115.8	116.3	116.6	24	108.5	108.9	109.2	24	113.3	114.0	114.4	24	107.1	107.4	108.3	24
4/23	109.1	109.3	109.5	23	115.8	116.4	116.6	23	109.3	109.9	110.1	23	113.7	114.0	114.4	23	108.5	109.4	110.0	23

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

	The Da	lles D	<u>nst</u>		Bonne	eville			<u>Warre</u>	ndale			Cama	s\Was	<u>hougal</u>		Casca	ide Isl	<u>and</u>	
	<u>24 h</u>	<u>12 h</u>		<u>#</u>	<u>24 h</u>	<u>12 h</u>		<u>#</u>	<u>24h</u>	<u>12h</u>		<u>#</u>	<u>24h</u>	<u>12h</u>		<u>#</u>	<u>24h</u>	<u>12h</u>		<u>#</u>
<u>Date</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>
4/10	112.7	113.9	114.6	24	107.0	107.4	107.8	24	114.3	114.5	115.0	14	108.4	110.3	112.0	24	116.5	116.7	116.9	24
4/11	113.7	114.2	115.0	24	105.9	106.3	106.9	24	113.7	114.0	114.3	24	109.8	110.4	111.1	24	116.2	116.4	117.1	24
4/12	113.6	114.1	114.5	24	108.5	109.4	110.1	24	115.4	116.0	116.5	24	111.6	114.1	115.9	24	116.5	116.7	117.0	24
4/13	114.9	115.6	116.6	24	111.2	111.9	112.4	24	115.7	116.1	116.4	24	112.2	113.6	114.8	24	117.0	117.2	117.5	24
4/14	112.8	113.4	113.9	24	109.4	110.0	111.3	24	114.7	115.0	115.6	24	110.7	111.7	112.8	24	116.5	116.8	117.2	24
4/15	112.1	112.7	113.0	24	108.2	108.6	108.8	24	115.8	116.5	117.0	24	112.5	114.5	115.5	24	116.7	117.0	117.1	24
4/16	113.9	114.9	115.2	24	109.7	110.3	110.6	24	116.2	116.4	116.7	24	115.3	116.7	118.0	24	117.0	117.2	117.5	24
4/17	114.7	115.5	116.1	24	111.6	112.5	112.8	24	116.6	117.2	117.8	24	114.1	115.9	116.9	24	117.2	117.4	117.5	24
4/18	114.5	114.9	115.3	24	113.0	113.9	114.4	24	117.2	117.9	118.5	24	116.5	118.3	119.1	24	117.2	117.4	117.5	24
4/19	115.3	116.2	116.6	24	113.8	114.5	114.8	24	117.5	118.1	118.7	24	118.2	119.4	120.0	24	117.2	117.4	117.5	24
4/20	116.2	116.8	117.2	24	115.3	115.9	116.4	24	117.1	117.7	118.2	24	117.7	118.6	119.0	24	117.0	117.2	117.4	24
4/21	115.7	116.2	116.8	24	114.3	115.3	115.6	24	115.9	116.3	116.6	24	114.4	115.3	117.0	24	116.6	116.7	116.9	24
4/22	113.6	114.1	114.5	24	109.4	109.8	110.7	24	115.1	115.6	116.1	24	112.6	114.2	115.2	24	116.6	116.9	117.2	24
4/23	114.4	115.3	115.8	23	108.6	109.0	109.3	23	115.2	115.4	115.6	23	113.4	114.3	115.2	23	116.6	117.1	117.3	23

Source: Fish Passage Center Updated: 4/24/2015 7:12

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

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

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

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

					СОМВ	INED YEA	RLING CHI	NOOK				
		WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date		(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
04/10/2015	*	2,194	2,115	91	16	5,719	8,538	2,186	6		4,110	2,012
04/11/2015	*		1,145	48	9	7,940			2	3,394	3,960	2,735
04/12/2015	*		1,301	41	13	8,694	10,830		8		4,528	2,611
04/13/2015	*	688	1,261	79	11	11,488		3,701	6	5,391	3,659	2,881
04/14/2015	*	1,848	680	97	22	12,962	10,252		9		3,524	2,888
04/15/2015	*	400	501	17	14	15,724		1,238	9	6,722	6,510	6,858
04/16/2015	*	429	7,192	40	7	16,944	11,191		240		5,178	4,587
04/17/2015	*	257	9,112	59	5	17,328		1,880	179	3,955	3,661	3,110
04/18/2015	*			11	2	30,687	11,691		75		4,861	15,677
04/19/2015	*			3	12	29,498		870	216	6,942	4,638	12,090
04/20/2015	*	721		6	9	40,625	16,528		179		5,438	23,332
04/21/2015	*	870		11	15	49,113		12,250	298	15,489	5,847	29,730
04/22/2015	*	1,114		0	15	49,100	19,380		613		9,568	21,631
04/23/2015	*	1,165		0	4	95,570		20,437	504	14,426	10,217	28,485
04/24/2015												
Total:		9,686	23,307	503	154	391,392	88,410	42,562	2,344	56,319	75,699	158,627
# Days:		10	8	14	14	14	7	7	14	7	14	14
Average:		969	2,913	36	11	27,957	12,630	6,080	167	8,046	5,407	11,331
YTD		37,703	46,244	6,847	332	605,392	111,620	43,681	2,398	58,199	95,594	195,177

					COMBIN	ED SUBYE	ARLING C	HINOOK				
		WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date		(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
04/10/2015	*	0	12	0	0	0	0	0	110		0	335
04/11/2015	*		0	9	2	176	I		63	238	0	380
04/12/2015	*		0	10	0	555	0		80		0	337
04/13/2015	*	0	0	1	2	91	I	0	299	273	0	169
04/14/2015	*	0	0	3	6	0	0		931		11	784
04/15/2015	*	0	1	1	0	192	-	0	668	102	0	552,547
04/16/2015	*	0	0	44	1	186	0		145		0	318,949
04/17/2015	*	0	3	57	3	608	ł	31	51	717	0	50,268
04/18/2015	*			67	0	365	0		81		0	16,082
04/19/2015	*			123	3	540	1	0	22	238	0	9,787
04/20/2015	*	0		27	3	378	0		34		0	4,319
04/21/2015	*	0		94	4	177		233	50	307	0	3,833
04/22/2015	*	0		0	3	1,573	0		108		0	1,805
04/23/2015	*	0		0	2	652	-	0	124	204	0	1,759
04/24/2015												
Total:		0	16	436	29	5,493	0	264	2,766	2,079	11	961,354
# Days:		10	8	14	14	14	7	7	14	7	14	14
Average:		0	2	31	2	392	0	38	198	297	1	68,668
YTD		1	34	476	291	10,484	20	264	4,278	2,618	11	994,000

						COMBINE	ED COHO					
		WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date		(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)						
04/10/2015	*	0	0	0	0	0	0	0	0		191	3,399
04/11/2015	*		0	0	0	0			0	587	234	7,987
04/12/2015	*		0	0	0	0	0		3		416	9,769
04/13/2015	*	0	0	0	0	0		0	1	426	373	10,224
04/14/2015	*	0	0	0	0	0	0		2		275	13,029
04/15/2015	*	0	0	0	0	0		0	7	306	471	19,299
04/16/2015	*	0	0	0	0	0	0		2		287	8,663
04/17/2015	*	0	0	0	0	0		0	3	171	413	6,630
04/18/2015	*			0	0	0	143		1		444	3,071
04/19/2015	*			0	0	0		0	6	306	472	2,467
04/20/2015	*	0		0	0	378	0		2		698	4,762
04/21/2015	*	0		0	1	177		0	1	341	538	10,102
04/22/2015	*	0		0	0	524	0		6		574	16,585
04/23/2015	*	0		0	0	326		0	2	289	459	12,148
04/24/2015												
Total:		0	0	0	1	1,405	143	0	36	2,426	5,845	128,135
# Days:		10	8	14	14	14	7	7	14	7	14	14
Average:		0	0	0	0	100	20	0	3	347	418	9,153
YTD		0	0	0	1	1,405	172	0	42	2,791	7,403	149,314

					C	OMBINED	STEELHEA	\D				
		WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date		(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX) (INDEX)		(INDEX)	(INDEX)
04/10/2015	*	21	112	37		3,859	5,020	500 5			312	286
04/11/2015	*		105	10	21	7,411		-	7	1,021	305	496
04/12/2015	*		101	14	60	7,121	2,725		3		129	449
04/13/2015	*	30	207	5	20	20 21,608 1,184	5	3,020	115	367		
04/14/2015	*	124	122	10	19	11,028	10,654		5		538	425
04/15/2015	*	51	129	17	96	9,204		531	7	1,544	505	73
04/16/2015	*	43	109	6	49	10,986	7,749		10		413	1,020
04/17/2015	*	70	55	1	121	13,416		1,915	13	1,814	485	206
04/18/2015	*			1	35	8,768	12,695		10		903	970
04/19/2015	*			0	271	8,813		1,914	24	4,968	859	493
04/20/2015	*	166		0	146	11,337	9,202		22		1,127	1,273
04/21/2015	*	141		2	126	25,793		6,300	21	7,323	898	1,838
04/22/2015	*	94		0	275	32,675	14,929		18		1,861	3,423
04/23/2015	*	126		0	48	46,317		3,027	21	6,403	1,550	5,027
04/24/2015												
Total:		866	940	103	1,396	218,336	62,974	15,371	171	26,093	10,000	16,346
# Days:		10	8	14	14	14	7	7	14	7	14	14
Average:		87	118	7	100	15,595	8,996	2,196	12	3,728	714	1,168
YTD		943	12,335	408	2,526	307,971	80,263	16,528	189	26,398	12,799	18,339

					C	OMBINED	SOCKEYE					
		WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date		(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)						
04/10/2015	*	0	0	0	0	0	0	26	46		0	49
04/11/2015	*		0	0	0	0			182	77	0	68
04/12/2015	*		0	0	0	0	0		155		0	28
04/13/2015	*	0	0	0	0	0		0	64	68	14	28
04/14/2015	*	0	0	0	0	0	1		116		0	90
04/15/2015	*	0	0	0	0	0		0	245	102	11	0
04/16/2015	*	0	0	0	0	0	0		283		11	0
04/17/2015	*	0	0	0	0	0		31	83	239	19	0
04/18/2015	*			0	0	0	0		66		0	0
04/19/2015	*			0	0	0		0	91	306	29	82
04/20/2015	*	0		0	0	0	0		105		54	0
04/21/2015	*	0		0	0	0		0	43	1,125	19	59
04/22/2015	*	0		0	0	0	0		49		19	23
04/23/2015	*	0		0	0	0		0	70	2,602	0	84
04/24/2015												
Total:		0	0	0	0	0	1	57	1,598	4,519	176	511
# Days:		10	8	14	14	14	7	7	14	7	14	14
Average:		0	0	0	0	0	0	8	114	646	13	37
YTD		0	0	0	0	199	41	76	1,741	4,549	223	1,416

					COMBI	NED LAMI	PREY JUVE	ENILES				
		WTB	IMN	GRN	LEW	LGR [†]	LGS LMN		RIS	RIS MCN		BO2
Date		(Coll)	(Coll)	(Coll)	(Coll)	(Samp)	(Coll)	(Coll)	(Coll)	(Coll)	(Coll)	(Coll)
04/10/2015	*	0	0	0	0	0	50	0	0		175	43
04/11/2015	*		0	0	0	0			0	35	138	20
04/12/2015	*		0	0	0	0	0		0		180	40
04/13/2015	*	0	0	0	0	0		0	0	100	140	0
04/14/2015	*	0	0	0	0	0	0		0		352	10
04/15/2015	*	0	0	0	0	0		0	0	40	224	143
04/16/2015	*	0	0	0	0	0	0		0		152	143
04/17/2015	*	0	0	0	0	0		10	0	20	125	0
04/18/2015	*			0	0	0	0	-	0		70	0
04/19/2015	*			0	0	0		0	0	0	40	0
04/20/2015	*	0		0	0	0	0		0		100	0
04/21/2015	*	0		0	0	0		0	0	0	100	0
04/22/2015	*	0		0	0	0	0		0		25	0
04/23/2015	*	0		0	0	0		0	1	100	160	0
04/24/2015												
Total:		0	0	0	0	0	50	10	1	295	1,981	399
# Days:	Ш	10	8	14	14	14	7	7	14	7	14	14
Average:		0	0	0	0	0	7	1	0	42	142	29
YTD		0	1	0	0	10	3,080	140	5	315	3,147	2,793

* See sampling comments

http://www.fpc.org/currentDaily/smpcomments.htm

Smolt indices, clipped & unclipped or combined, are presented in the following order: yearling chinook (chinook 1's,)

subyearling chinook (chinook 0's), steelhead, coho, sockeye, and lamprey juveniles. Two classes of fish counts are shown in these tables: Two classes of fish counts are shown in these tables:

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

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

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

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

The classes of counts presented in the report are defined below for each site. Most samples occur over a 24-hr period

that spans two calendar days. In this report, the date shown corresponds with the sample end date.

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

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

Therefore, only sample counts are provided in this report.

Definitions for Smolt Index Counts

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

IMN (Collection) = Imnaha River Trap: Collection Counts

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

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

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

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

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

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

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

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

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

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

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

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

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

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

BO2 (Index) = Bonneville Dam Second Powerhouse Bypass Collection System: Passage Index Counts Passage Index = Collection Counts / {Powerhouse 2 Flow / (Powerhouse 1 & 2 Flow + Spill)}

Passage Index = Collection Counts / {Powerhouse 2 Flow / (Powerhouse 1 & 2 Flow + Spil

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

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

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

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

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

Fall (post SMP season) trapping at the Imnaha River Fish Trap (IMN) is funded by the Lower Snake River Compensation Program (LSRCP) WTB and LEW data collected for the FPC by Idaho Dept. of Fish and Game.

Two Week Transportation Summary Updated:

Source: Fish Passage Center Updated: 4/24/15 7:09 AM

		04/10/15	то	04/24/15			
		Species					
Site	Data	CH0	CH1	CO	ST	SO	Grand Total
LGR	Sum of NumberCollected	3,050	220,528	800	122,532		346,910
	Sum of NumberBarged	392	27,182	124	17,362		45,060
	Sum of NumberBypassed	2,655	193,305	676	105,161		301,797
	Sum of Numbertrucked	0	0	0	0		0
	Sum of SampleMorts	3	7	0	3		13
	Sum of FacilityMorts	0	34	0	6		40
	Sum of ResearchMorts	0	0	0	0		0
	Sum of TotalProjectMorts	3	41	0	9		53
LGS	Sum of NumberCollected		61,622	100	43,887	1	105,610
	Sum of NumberBarged		0	0	0	0	0
	Sum of NumberBypassed		61,613	100	43,885	1	105,599
	Sum of Numbertrucked		0	0	0	0	0
	Sum of SampleMorts		4	0	1	0	5
	Sum of FacilityMorts		5	0	1	0	6
	Sum of ResearchMorts		0	0	0	0	0
	Sum of TotalProjectMorts		9	0	2	0	11
LMN	Sum of NumberCollected	110	18,108		6,017	20	24,255
	Sum of NumberBarged	0	0		0	0	0
	Sum of NumberBypassed	110	18,106		6,015	20	24,251
	Sum of Numbertrucked	0	0		0	0	0
	Sum of SampleMorts	0	2		2	0	4
	Sum of FacilityMorts	0	0		0	0	0
	Sum of ResearchMorts	0	0		0	0	0
	Sum of TotalProjectMorts	0	2		2	0	4
	um of NumberCollected	3,160	300,258		172,436	21	476,775
	um of NumberBarged	392	27,182		17,362	0	45,060
	um of NumberBypassed	2,765	273,024		155,061	21	431,647
	um of Numbertrucked	0	0	-	0	0	0
	um of SampleMorts	3	13		6	0	
	um of FacilityMorts	0	39		7	0	
	um of ResearchMorts	0	0		0	0	
Total S	um of TotalProjectMorts	3	52	0	13	0	68

YTD Transportation Summary

Source: Fish Passage Center Updated: 4/24/15 7:09 AM

TO: 04/24/15

		Species	04/24/13				
Site	Data	CH0	CH1	CO	SO	ST	Grand Total
LGR	Sum of NumberCollected	7,690	403,708	800	160	194,292	606,650
	Sum of NumberBarged	392	27,182	124	0	17,362	45,060
	Sum of NumberBypassed	7,285	376,465	676	160	176,918	561,504
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	13	26	0	0	6	45
	Sum of FacilityMorts	0	35	0	0	6	41
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	13	61	0	0	12	86
LGS	Sum of NumberCollected	20	78,203	120	41	56,214	134,598
	Sum of NumberBarged	0	0	0	0	0	0
	Sum of NumberBypassed	20	78,190	120	41	56,205	134,576
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	7	0	0	1	8
	Sum of FacilityMorts	0	6	0	0	8	14
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	0	13	0	0	9	22
LMN	Sum of NumberCollected	110	18,638		30	6,547	25,325
	Sum of NumberBarged	0	0		0	0	0
	Sum of NumberBypassed	110	18,625		30	6,545	25,310
	Sum of NumberTrucked	0	0		0	0	0
	Sum of SampleMorts	0	2		0	2	4
	Sum of FacilityMorts	0	1		0	0	1
	Sum of ResearchMorts	0	0		0	0	0
	Sum of TotalProjectMorts	0	3		0	2	5
	um of NumberCollected	7,820	500,549	920	231	257,053	
	um of NumberBarged	392	27,182	124	0	17,362	
	um of NumberBypassed	7,415	473,280	796	231	239,668	721,390
	um of NumberTrucked	0	0	0	0	0	0
	um of SampleMorts	13	35	0	0	9	-
	um of FacilityMorts	0	42	0	0	14	56
	um of ResearchMorts	0	0	0	0	0	
Total S	um of TotalProjectMorts	13	77	0	0	23	113

Cumulative Adult Passage at Mainstem Dams Through: 04/23

				Spring (Chinook					Summer	Chinook		Fall Chinook						
	END	2015		2014		10-Yr Avg.		20	2015		2014		10-Yr Avg.		15	2014		10-Yı	r Avg.
DAM	DATE	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	04/23	72941	465	25569	148	17546	103	0	0	0	0	0	0	0	0	0	0	0	0
TDA	04/23	49792	396	10161	79	8583	39	0	0	0	0	0	0	0	0	0	0	0	0
JDA	04/23	36739	272	5988	83	5947	45	0	0	0	0	0	0	0	0	0	0	0	0
MCN	04/23	17465	176	2101	31	2829	17	0	0	0	0	0	0	0	0	0	0	0	0
IHR	04/23	8159	10	998	7	1393	3	0	0	0	0	0	0	0	0	0	0	0	0
LMN	04/23	3689	59	635	5	699	0	0	0	0	0	0	0	0	0	0	0	0	0
LGS	04/23	1742	21	331	7	384	14	0	0	0	0	0	0	0	0	0	0	0	0
LGR	04/23	904	13	174	1	140	1	0	0	0	0	0	0	0	0	0	0	0	0
PRD	04/22	427	3	36	0	114	0	0	0	0	0	0	0	0	0	0	0	0	0
WAN	04/22	133	1	0	0	72	0	0	0	0	0	0	0	0	0	0	0	0	0
RIS	04/22	70	0	2	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0
RRH	04/22	14	0	0	0	1	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	04/20	6603	29	1887	7	1285	4	0	0	0	0	0	0	0	0	0	0	0	0

				Co	ho				Sockeye				Stee	lhead			Lamprey			
	END	2015		2014		10-Yr	r Avg.	10-Yr		10-Yr	10-Yr				10-Yr	10-1				
DAM	DATE	Adult	Jack	Adult	Jack	Adult	Jack	2015	2014	Avg.	2015	2014	Avg.	Wild 2015	Wild 2014	Avg.	2015	2014	Avg.	
BON	04/23	0	0	5	-2	0	0	1	3	0	3915	3561	3188	2136	1118	950	0	1	0	
TDA	04/23	0	0	0	0	0	0	0	0	0	196	297	2052	133	125	823	0	0	0	
JDA	04/23	0	0	0	1	0	1	-1	0	0	366	2711	4431	256	1070	1528	2	0	-1	
MCN	04/23	0	0	0	0	1	0	-1	0	0	519	451	4906	331	286	1608	4	3	0	
IHR	04/23	0	0	0	0	0	0	0	0	0	803	1275	4560	516	622	1347	2	0	0	
LMN	04/23	0	0	0	0	0	0	0	1	0	3029	4600	6024	1566	1313	1790	0	0	0	
LGS	04/23	0	0	0	0	0	0	0	0	0	1110	1006	2417	723	679	1056	0	0	0	
LGR	04/23	0	0	0	0	0	0	0	0	0	8683	6899	7989	3981	3080	2723	0	0	0	
PRD	04/22	0	0	0	0	0	0	0	0	0	15	39	17	0	0	0	3	0	0	
WAN	04/22	0	0	0	0	0	0	0	0	0	23	0	47	0	0	0	0	0	0	
RIS	04/22	0	0	0	0	0	0	0	0	0	44	124	47	22	77	27	0	0	0	
RRH	04/22	0	0	0	0	0	0	0	0	0	51	96	146	29	67	107	0	0	0	
WEL		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
WFA	04/20	1	0	9	0	0	0	0	0	0	3999	5182	5837	0	0	0	0	0	0	

PRD does not post wild steelhead numbers.

These numbers were collected from USACE, Grant PUD, Douglas PUD, Chelan PUD, ODFW and DART.

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

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

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

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04/24/15