Fish Passage Center

Weekly Report #10 - 01

March 19, 2010

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Summary of Events:

Water Supply: Precipitation throughout the Columbia Basin has varied between 40% and 89% of average at individual sub-basins over the first half of March. Precipitation above The Dalles has been 64% of average over the first half of March. Over the 2010 water year, precipitation has ranged between 68 and 85% of 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 2010 March 1-15		Water Year 2010 October 1, 2009 to March 15, 2010	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia Above Coulee	0.54	63	9.88	74
Snake River Above Ice Harbor	0.56	70	7.30	77
Columbia Above The Dalles	0.60	64	10.36	78
Kootenai	0.55	64	10.56	77
Clark Fork	0.37	64	5.65	68
Flathead	0.31	40	8.56	75
Pend Oreille/ Spokane	0.53	40	13.36	71
Central Washington	0.21	53	4.66	85
Snake River Plain	0.49	89	4.47	81
Salmon/Boise/ Payette	0.59	63	9.40	80
Clearwater	0.56	42	12.10	71
SW Washington Cascades/Cowlitz	2.28	67	39.45	79
Willamette Valley	2.04	66	32.61	78

Snowpack within the Columbia Basin has been well below average. Average snowpack in the Columbia River for basins above the Snake River confluence is 68% of average, for Snake River Basins the average snowpack is 64% of average, and for lower Columbia Basins between McNary and Bonneville Dam average snowpack is 56% of average.

Table 2 displays the March Final and March Mid-Month runoff volume forecasts for multiple reservoirs. In all cases, Water Supply Forecasts have decreased between the March Final and March Mid-Month forecasts. The current forecast at The Dalles between January and July is 69400 Kaf (65% of average).

Table 2. March Final and March Mid-Month Runoff Volume Forecasts for various reservoirs within the Columbia and Snake River Basins.

Location	March Final		March Mid-Month	
	% Average (1971 -2000)	Probable Runoff Volume (Kaf)	% Average (1971 -2000)	Probable Runoff Volume (Kaf)
The Dalles (Jan-July)	67	71800	65	69400
Grand Coulee (Jan-July)	75	47300	73	46200
Libby Res. Inflow, MT (Apr-Aug)	71 80*	4410 5084*	69	4330
Hungry Horse Res. Inflow, MT (Jan-July)	71	1570	67	1500
Lower Granite Res. Inflow (Apr- July)	56	12100	54	11700
Brownlee Res. Inflow (Apr-July)	39	2470	38	2370
Dworshak Res. Inflow (Apr-July)	53 59*	1410 1571*	50	1310

* Denotes COE Forecast

Grand Coulee Reservoir is at 1276.1 feet (3-18-10) and drafted 0.3 feet over the last week. Outflows at Grand Coulee have ranged between 49.9 and 75.6 Kcfs over the last week. The end of March FC elevation at Grand Coulee is 1283.3 feet.

The Libby Reservoir is currently at elevation 2404.3 feet (3-18-10) and has drafted 0.5 feet last week. Outflows at Libby are currently 4.0 Kcfs. The end of March FC Elevation at Libby is 2444 feet.

Hungry Horse is currently at an elevation of 3521.0 feet (3-18-10) and has drafted 1.0 foot last week. Outflows at Hungry Horse have been approximately 2.4-2.6 Kcfs last week. The end of March FC Elevation at Hungry Horse is 3553.9 feet.

Dworshak is currently at an elevation of 1520.6 feet (3-18-10) and has refilled approximately 0.9 foot last week. Over the last week outflows at Dworshak were 1.2-1.3 Kcfs. The end of March System FC Elevation at Dworshak is 1587.5 feet

The Brownlee Reservoir was at an elevation of 2065.0 feet on March 18, 2010 refilling 3.0 feet over last week. The end of March FC Elevation at Brownlee is 2077 feet.

Over the last week, outflows at Brownlee have ranged between 9.7-14.7 Kcfs.

Spill:

Steelhead kelt criteria of two fish on two consecutive days and a total of 20 fish total were met on March 13th. At 7:42 am on March 14th, the Bonneville Dam Corner Collector was opened. However, due to high levels of total dissolved gas at the Warrendale TDG gauge, the corner collector was closed at 10:40 am on March 16th. In order to facilitate downstream passage of steelhead kelt, while minimizing impacts of TDG, the corner collector will be opened daily around 8:00 am and will remain open for 4-6 hours.

Smolt Monitoring:

Smolt monitoring activities began at Bonneville Dam on March 1, with the first sample worked up on March 2. SMP traps in the Snake River basin began sampling in February (Imnaha Trap) or the first few weeks of March (Lewiston, Grande Ronde and Salmon River traps); with all SMP traps now sampling.

Bonneville Dam is the only SMP dam that has begun sampling. Chinook and coho fry were the primary fish in Bonneville bypass samples early in the season. Small numbers of holdover fall Chinook were also captured. The first hatchery yearling Chinook released from Klickitat Hatchery were captured in the March 12 sample. Over the past week Chinook fry continue to be captured in relatively large numbers with sample counts averaging over 80 per day. Hatchery yearling Chinook passage index, (fish likely released from Klickitat Hatchery) averaged about 600 fish per day.

The Grande Ronde Trap, operated by the Oregon Department of Fish and Wildlife, located at river mile two in the Grande Ronde River, began sampling March 7. Small numbers of juvenile salmonids have been captured at the Grande Ronde Trap in the first few weeks of sampling. Flows in the Grande Ronde River have been very low ranging around 1500 cfs over the past week compare do median historic flows of 3000 to 4000 cfs.

At the Salmon River Trap, located at River km 103, and operated by Idaho Department of Fish and Game, sampling began on March 7. The trap has captured yearling Chinook exclusively to this point. A large number of hatchery yearling Chinook have been collected in the past few days, beginning March 17, that were released from Rapid River Hatchery. PIT-tag recaptures at the trap confirm these fish were from the Rapid River release. However, relatively large numbers of wild origin yearling Chinook have also been captured at the trap. A few of the wild origin fish were previously PIT-tagged fish and indications from those tags, suggest these were spring Chinook from Lemhi River tributary marking as well as summer Chinook from South Fork Salmon River (e.g. Secesh River) locations. Flows in the Salmon River at White Bird, ranged between 3500 and 4300 cfs from March 12 to March 18; those flows were below the median for this time of year which ranged between 4500 and 5000 cfs for the same time period.

The Imnaha River Trap, operated by the Nez Perce Tribe, provides data to the SMP, on their fish collection. The trap has been operating since mid-February. The Imnaha Trap has been collecting relatively large numbers of yearling Chinook the past few days. The trap typically shows an early pulse of out-migrant yearling Chinook in March, so this year's increase is in line with other years. Flows in the Imnaha River were near 300 cfs, as measured at the gage at river mile 19.3. Those flow were 84% of normal for this time of year.

In the next few weeks more SMP sites will begin reporting data. Lower Granite Dam will begin sampling March 26 and other SMP dam sampling sites will also

begin sampling by the first week of April.

It's worth noting that bypass systems at Bonneville Dam, Little Goose Dam and Ice Harbor Dams were watered up early in the year. At Bonneville Dam the bypass was watered up on February 18, and had 14 holdover fall Chinook detected that day in the bypass. Similarly, Ice Harbor watered up on March 8 and 94 holdover fall Chinook were detected in the bypass that day. Also Little Goose Dam watered up to test new modifications in the bypass system on March 8; there too a substantial number (42) of PIT-tagged holdover fall Chinook were detected passing through the bypass system at the dam. It may be that these holdover fish were waiting in the forebay and entered the dam's bypass system at start up, but it appears likely that the pulse of fish could indicate the fish were in the gatewells of the dams and were flushed from those gatewells when the bypass systems were watered up. Either way, it should also be noted that most of these fish were released in late June to mid-July in 2009 and it is common for these late released fall Chinook to holdover.

Adult Fish Passage:

Historically counts began at Bonneville Dam on March 15th. Using the historical counting schedule allows comparison of current year counts with historical data. We use the historical counting schedule to generate our online Annual Adult Comparison table and our Adult Salmon Passage Graph. Both the comparison table and the graph include the 10 year average counts. The graph and table are available on the fpc.org at http://www.fpc.org/adultsalmon/adultqueries/Adult_Table_Species_Graph.html and http://www.fpc.org/adultsalmon/AdultCumulativeTable.asp .

The Lower Granite Dam historical counting schedule starts on March 1st. Lower Granite Dam uses video counts from March 1st through March 31st. Bonneville Dam uses video counts from January 1st through March 31st. Video counts are used during the winter months for counting adults. Video counts can cause a delay in posting the data to the web, because the COE staff at the projects have to review the tapes. Willamette Falls Dam also uses video counts and reports adult counts year round. We collect the adult count data from these projects throughout the day, continuously updating our Adult Dam Count report linked on our homepage (www.fpc.org). During the winter season, 1/1/2010 through 3/14/2010, 39 adult Chinook and 2318 adult steelhead were counted. In 2009 for the same time frame, only 19 adult Chinook and 321 adult steelhead were counted. The 2010 winter season count of adult Chinook was 2 times greater than the 2009 count and the adult steelhead count was 7 times greater than the 2009 adult steelhead count.

The following paragraphs describe the counts at Bonneville Dam (3/15 through 11/15), Willamette Falls Dam (1/1 through 12/31), and Lower Granite Dam (3/1 through 12/15) using the historical counting schedule. Adult counts at Bonneville Dam have been updated through March 17th. From March 15th through March 17th, daily adult spring Chinook counts at Bonneville Dam ranged from 6 to 11 adult salmon per day. As of March 17th, using the historical counting schedule, 24 spring Chinook have been counted at Bonneville Dam. In 2009, 7 adult spring Chinook were counted at Bonneville Dam for the same time period. The 2010 adult spring Chinook count at Bonneville Dam is 3.4 times greater than the 2009 count. The Bonneville spring Chinook adult count is only about 9.8% of the 10 year average of 245. At Willamette Falls Dam 35 adult spring Chinook have been counted so far this year. The Bonneville Dam 2010 steelhead count of 336 is about 7.5 times greater than the 2009 count of 45. The 2010 steelhead count is about 3.3 times greater than the 10-year average. This year's Lower Granite steelhead count of 1484 is about 1.14 times greater than the 2009 count of 1296 and 62.2% of the 10 year average of 2384. At Willamette Falls Dam, the 2010 count for steelhead was 1450, as of March 15th. This year's steelhead count has 56 more fish than the 2009 count of 1394.

Based on estimates made by the Technical Advisory Committee (TAC) for US v. Oregon this winter, the upriver Spring Chinook run for 2010 is expected to be 470,000. In 2009, the TAC forecasted 298,900 upriver Spring Chinook would return. TAC reported that 169,300 upriver Spring Chinook had returned to the river in 2009 (TAC, 2010).

A local news article by KGW staff on 3/10/2010, reported that Fish and Wildlife officials have killed six California sea lions so far this season at Bonneville Dam. Last year, officials received a federal waiver that stipulated how many sea lions could be euthanized or relocated to protect the endangered salmon population crossing Bonneville Dam. In 2009, 11 sea lions were euthanized and 4 others were transferred to zoos. Hazing remains the primary sea lion deterrent at Bonneville Dam. In an Associated Press article published on 3/10/2010 by Abby Haight, it was stated that the Columbia River Inter-tribal Fish Commission is using acoustic transmitters and cameras placed along the river to track sea lions' movements.

US v. Oregon Technical Advisory Committee (TAC). Columbia River Mouth Fish Returns 2009 Actual and 2010 Forecasts: Spring Chinook, Summer Chinook, Sockeye and Steelhead, February 8, 2009. Oregon and Washington Departments of Fish and Wildlife, Vancouver, WA. Available at http://wdfw.wa.gov/fish/forecasts/salmon/cr_species/springchin_2010forecasts.htm

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. There were several releases of yearling spring Chinook scheduled to begin over the past week in this zone. In all, these releases total approximately 853,000 spring Chinook juveniles. Of these, approximately 59% were scheduled for release into the Snake River (below Hells Canyon Dam), 27% were scheduled for release into the Little Salmon River (at Pinehurst Bridge), and 14% were scheduled for release into the Wallowa River (from the Lostine Acclimation Pond). In addition to the releases that began this week, a volitional release of about 2.5 million yearling spring Chinook juveniles from Rapid River Hatchery began in early March. Finally, approximately 50,000 summer Chinook juveniles were scheduled for release into Johnson Creek, beginning March 16th. These summer Chinook juveniles are all unclipped but have coded-wire and yellow Elastomer tags.

There are several releases of yearling spring Chinook juveniles to this zone scheduled to take place over the next two weeks. In all, these releases will total about 4.65 million spring Chinook juveniles. Of these, approximately 90% are being released into the Clearwater River and its tributaries by various hatcheries throughout the basin. Approximately 6% are scheduled for release into the Grande Ronde River, from the Grande Ronde and Catherine Creek acclimation facilities. Finally, the remaining 4% of these spring Chinook juveniles are scheduled for release into the Tucannon River. These Tucannon River spring Chinook releases are all unclipped but have coded-wire and Elastomer tags (blue or purple).

Approximately 2.2 million yearling summer Chinook are scheduled for release into this zone over the next two week. Of these, 53% will be released from the Pahsimeroi Hatchery into the Pahsimeroi River while the remaining 47% will be released from McCall Hatchery into the Salmon River. A release of about 350,000 coho juveniles from Kooskia NFH is currently scheduled to begin on or around April 1st. Finally, about 800,000 summer steelhead from Niagara Springs Hatchery are scheduled for release into the Snake River Zone over the next two weeks. Of these, 66% are scheduled for release into the Snake River (below Hells Canyon Dam) while the remaining 34% are scheduled for release into the Little Salmon River.

Mid-Columbia Zone: The Mid-Columbia Zone encompasses the area of the Columbia River and its tributaries from McNary Dam to Chief Joseph Dam. Volitional releases of just over 850,000 spring Chinook juveniles from Cle Elem Hatchery acclimation sites began this week. These releases are expected to run through mid-May. There were no other releases of juvenile salmonids scheduled to begin over the past week to the Mid-Columbia River Zone.

Approximately 250,000 yearling spring Chinook from Carson NFH are scheduled for release into the Walla Walla River on March 30th. Beginning on or around April 1st, about 200,000 yearling summer Chinook from Chelan Hatchery will be released into the Mid-Columbia River, at Chelan Falls. Finally, nearly 58,000 coho are scheduled for release into the Wenatchee River on or around April 1st. This coho release is part of the Yakama Tribal Program to re-establish Coho runs in the Yakima, Methow, and Wenatchee basins. In all, nearly 2.5 million coho juveniles are scheduled for release in 2010 as part of this program. The majority of these releases are scheduled to run from mid-April to mid-May.

Lower Columbia Zone: The Lower Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to McNary Dam. Nearly 252,000 yearling fall Chinook juveniles were release into the Umatilla River this week. These fall Chinook juveniles were reared at Bonneville Hatchery and released at the Thornhollow Acclimation Facility on the Umatilla River from March 11th through the 17th. There were no other releases of juvenile salmonids scheduled to begin over the past week to the Lower Columbia River Zone.

Warm Springs NFH is scheduled to release nearly 77,000 yearling spring Chinook to the Deschutes River on March 20th. On or around April 1st, Klickitat Hatchery will begin releasing nearly 1.9 million coho juveniles to the Klickitat River. Of these, about 59.3% are unclipped and unmarked. In addition to these Klickitat River releases, approximately 1.0 million coho juveniles are scheduled for release into the Umatilla River over the next two weeks. Unlike the

Klickitat River releases, the coho juveniles released to the Umatilla River are all adipose clipped. Finally, approximately 12,400 summer steelhead are scheduled for release into Lake Billy Chinook on or around April 1st. These summer steelhead are part of an ongoing PGE passage study on the Deschutes River.

Hatchery Releases Last Two Weeks

Hatchery Release Summary

From: 3/5/2010 to 03/18/10

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
Idaho Dept. of Fish and Game	Rapid River Hatchery	CH1	SP	2010	500,000	03-15-10	03-18-10	Hells Canyon Dam	Snake River
Idaho Dept. of Fish and Game	Rapid River Hatchery	CH1	SP	2010	2,500,000	03-05-10	04-23-10	Rapid River Hatchery	Little Salmon River
Idaho Dept. of Fish and Game Total					**3,000,000**				
Nez Perce Tribe	Lookingglass Hatchery	CH1	SP	2010	123,000	03-17-10	03-30-10	Lostine Accim Pond	Wallowa River
Nez Perce Tribe	McCall Hatchery	CH1	SU	2010	49,930	03-16-10	03-18-10	Johnson Cr Idaho	South Fork Salmon River
Nez Perce Tribe Total					**172,930**				
Umatilla Tribe	Bonneville Hatchery	CH1	FA	2010	231,071	03-03-10	03-10-10	Pendelton Acclim Pond	Umatilla River
Umatilla Tribe	Bonneville Hatchery	CH1	FA	2010	251,974	03-11-10	03-17-10	Thornhollow Acclim Pond	Umatilla River
Umatilla Tribe Total					**483,045**				
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2010	280,960	03-15-10	05-14-10	Clark Flat Acclim Pond	Yakima River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2010	282,011	03-15-10	05-14-10	Jack Creek Acclim Pond	Yakima River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2010	288,342	03-15-10	05-14-10	Easton Pond	Yakima River
Yakama Tribe Total					**851,313**				
Grand Total					**4,507,288**				

Hatchery Releases Next Two Weeks

Hatchery Release Summary

From: 3/19/2010 to 4/1/2010

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2010	229,600	03-23-10	04-14-10	Clear Creek	Clearwater River M F
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2010	413,300	03-23-10	04-14-10	Powell Acclim Pond	Lochsa River
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2010	1,209,150	03-23-10	04-14-10	Red River	S Fk Clearwater River
Idaho Dept. of Fish and Game	McCall Hatchery	CH1	SU	2010	1,038,000	03-23-10	03-26-10	S Fk Salmon River	Salmon River (ID)
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2010	275,000	04-01-10	04-08-10	Little Salmon River	Salmon River (ID)
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2010	525,000	03-22-10	04-01-10	Hells Canyon Dam	Snake River
Idaho Dept. of Fish and Game	Pahsimeroi Hatchery	CH1	SU	2010	1,174,000	03-31-10	03-31-10	Pahsimeroi Hatchery	Pahsimeroi River
Idaho Dept. of Fish and Game	Rapid River Hatchery	CH1	SP	2010	230,000	03-19-10	03-19-10	Pinehurst Bridge	Little Salmon River
Idaho Dept. of Fish and Game	Rapid River Hatchery	CH1	SP	2010	2,500,000	03-05-10	04-23-10	Rapid River Hatchery	Little Salmon River
Idaho Dept. of Fish and Game Total					**7,594,050**				
Nez Perce Tribe	Clearwater Hatchery	CH1	SP	2010	402,300	04-01-10	04-10-10	Meadow Creek - SELW	Selway River
Nez Perce Tribe	Kooskia NFH	CH1	SP	2010	633,000	03-24-10	04-04-10	Kooskia Hatchery	Clearwater River M F
Nez Perce Tribe	Kooskia NFH	CO	UN	2010	350,000	04-01-10	04-08-10	Kooskia Hatchery	Clearwater River M F
Nez Perce Tribe	Lookingglass	CH1	SP	2010	123,000	03-17-10	03-30-10	Lostine Accim Pond	Wallowa River
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH1	SP	2010	200,000	04-01-10	04-15-10	Nez Perce Tribal Hatchery	Clearwater River M F
Nez Perce Tribe Total					**1,708,300**				
Oregon Dept. of Fish and Wildlife	Oak Springs Hatchery	ST	SU	2010	12,400	04-01-10	04-01-10	Deschutes River	Deschutes River
Oregon Dept. of Fish and Wildlife Total					**12,400**				
U.S. Fish and Wildlife Service	Dworshak NFH	CH1	SP	2010	1,115,000	03-21-10	04-09-10	Dworshak Hatchery	Clearwater River M F
U.S. Fish and Wildlife Service	Warm Springs NFH	CH1	SP	2010	706,512	03-20-10	03-20-10	Warm Springs Hatchery	Deschutes River
U.S. Fish and Wildlife Service Total					**1,821,512**				
Umatilla Tribe	Carson NFH	CH1	SP	2010	249,500	03-30-10	03-31-10	Walla Walla River	Walla Walla River
Umatilla Tribe	Cascade Hatchery	CO	UN	2010	250,000	03-25-10	03-31-10	Pendelton Acclim Pond	Umatilla River
Umatilla Tribe	Cascade Hatchery	CO	UN	2010	750,000	04-01-10	04-01-10	Pendelton Acclim Pond	Umatilla River
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2010	35,000	03-29-10	04-13-10	Catherine Cr Acclim Pond	Grande Ronde River
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2010	112,000	03-29-10	04-13-10	Catherine Cr Acclim Pond	Grande Ronde River
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2010	126,000	03-22-10	03-22-10	Grande Ronde Acclim Pond	Grande Ronde River
Umatilla Tribe Total					**1,522,500**				
Washington Dept. of Fish and Wildlife	Chelan Hatchery	CH1	SU	2010	200,000	04-01-10	04-30-10	Chelan Falls	Mid-Columbia River
Washington Dept. of Fish and Wildlife	Tucannon Hatchery	CH1	SP	2010	86,000	04-01-10	04-15-10	Tucannon Hatchery	Tucannon River
Washington Dept. of Fish and Wildlife	Tucannon Hatchery	CH1	SP	2010	87,000	04-01-10	04-15-10	Tucannon Hatchery	Tucannon River
Washington Dept. of Fish and Wildlife	Washougal Hatchery	CO	NO	2010	1,892,000	04-01-10	04-07-10	Klickitat River	Klickitat River
Washington Dept. of Fish and Wildlife Total					**2,265,000**				
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2010	280,960	03-15-10	05-14-10	Clark Flat Acclim Pond	Yakima River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2010	282,011	03-15-10	05-14-10	Jack Creek Acclim Pond	Yakima River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2010	288,342	03-15-10	05-14-10	Easton Pond	Yakima River
Yakama Tribe	Willard Hatchery	CO	UN	2010	57,846	04-01-10	04-07-10	Nason Creek	Wenatchee River
Yakama Tribe Total					**909,159**				
Grand Total					**15,832,921**				

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

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

	Grand Coulee		Chief Joseph		Wells		Rocky Reach		Rock Island		Wanapum		Priest Rapids	
Date	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
03/05/2010	61.6	0.0	66.0	0.0	70.2	0.0	70.8	0.0	72.1	0.0	73.1	0.0	69.0	0.0
03/06/2010	45.9	0.0	47.2	0.0	52.9	0.0	53.8	0.0	56.4	0.0	67.0	0.0	68.2	0.0
03/07/2010	35.7	0.0	40.3	0.0	34.4	0.0	32.4	0.0	33.7	0.0	56.8	0.0	63.9	0.0
03/08/2010	64.2	0.0	66.1	0.0	71.3	0.0	74.8	0.2	74.8	0.0	78.4	0.0	64.9	0.0
03/09/2010	90.9	0.0	90.4	0.0	88.0	0.0	84.0	0.0	83.7	0.0	72.7	0.0	69.7	0.0
03/10/2010	83.5	0.0	83.4	0.0	82.8	0.0	81.6	0.0	84.1	0.0	79.0	0.0	77.6	0.0
03/11/2010	79.2	0.0	79.8	0.0	81.0	0.0	82.3	0.0	83.1	0.0	82.4	0.0	78.8	0.0
03/12/2010	75.6	0.0	70.2	0.0	72.6	0.0	71.9	0.0	74.2	0.0	78.0	0.0	75.2	0.0
03/13/2010	49.9	0.0	53.5	0.0	60.4	0.0	61.8	0.0	63.7	0.0	71.7	0.0	70.3	0.0
03/14/2010	56.8	0.0	55.4	0.0	58.3	0.0	58.0	0.0	60.1	0.0	71.2	0.0	69.4	0.0
03/15/2010	64.0	0.0	68.7	0.0	63.4	0.0	61.7	0.0	62.1	0.0	73.6	0.0	74.5	0.0
03/16/2010	65.2	0.0	64.4	0.0	71.6	0.0	72.7	1.0	72.6	0.0	71.6	0.0	72.1	0.0
03/17/2010	60.2	0.0	63.3	0.0	55.1	0.0	52.7	0.3	54.2	0.0	73.8	0.0	66.6	0.0
03/18/2010	69.3	0.0	70.4	0.0	79.5	0.0	82.0	1.1	83.3	0.0	74.5	0.0	67.4	0.0

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

	Dworshak		Brownlee	Hells Canyon	Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
Date	Flow	Spill	Inflow	Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
03/05/2010	1.2	0.0	16.8	17.3	25.9	0.0	23.6	0.0	23.4	0.0	21.9	0.0
03/06/2010	1.2	0.0	16.9	15.7	26.9	0.0	26.9	0.0	29.1	0.0	30.9	0.0
03/07/2010	1.2	0.0	16.2	11.4	23.9	0.0	23.0	0.0	24.2	0.0	23.3	0.0
03/08/2010	1.2	0.0	17.4	16.3	22.4	0.0	22.6	0.0	24.5	0.0	26.7	0.0
03/09/2010	1.2	0.0	16.8	16.3	28.8	0.0	29.9	0.0	30.9	0.0	32.7	0.0
03/10/2010	1.2	0.0	15.4	15.7	24.3	0.0	22.1	0.0	23.3	0.0	20.8	0.0
03/11/2010	1.2	0.0	14.2	15.7	24.9	0.0	25.2	0.0	27.4	0.0	27.6	0.0
03/12/2010	1.2	0.0	14.8	13.2	24.5	0.0	24.4	0.0	24.9	0.0	24.4	0.0
03/13/2010	1.2	0.0	15.1	13.9	22.5	0.0	20.3	0.0	21.9	0.0	22.3	0.0
03/14/2010	1.2	0.0	15.3	11.4	21.7	0.0	20.0	0.0	22.1	0.0	22.7	0.0
03/15/2010	1.2	0.0	15.3	15.7	24.6	0.0	25.3	0.0	26.3	0.0	26.0	0.0
03/16/2010	1.3	0.0	13.7	11.2	24.4	0.5	23.2	0.0	23.0	0.0	21.3	0.0
03/17/2010	1.2	0.0	14.7	11.1	17.6	0.0	16.3	0.0	19.0	0.0	20.6	0.0
03/18/2010	1.2	0.0	16.1	13.8	22.4	0.0	20.6	0.0	20.1	0.0	20.4	0.0

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

	McNary		John Day		The Dalles				Bonneville	
Date	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	PH1	PH2
03/05/2010	104.3	0.0	107.7	0.0	107.4	0.0	116.8	1.3	7.4	100.9
03/06/2010	103.8	0.0	103.4	0.0	104.5	0.0	120.6	1.4	10.1	101.9
03/07/2010	101.9	0.0	105.4	0.0	107.0	0.0	120.7	1.4	13.7	98.7
03/08/2010	97.9	0.0	106.1	0.0	108.5	0.0	121.2	1.5	13.3	99.7
03/09/2010	118.7	0.0	123.2	0.0	124.3	0.0	126.2	1.4	16.3	101.7
03/10/2010	98.6	0.0	113.4	0.0	113.7	0.0	124.2	1.4	18.4	97.6
03/11/2010	106.2	0.0	109.6	0.0	112.0	0.0	122.7	1.5	16.4	98.0
03/12/2010	99.6	0.0	95.2	0.0	97.4	0.0	116.3	1.4	7.6	100.3
03/13/2010	90.4	0.0	92.4	0.0	93.2	0.0	115.3	1.3	1.9	105.1
03/14/2010	109.7	0.0	109.7	0.0	112.1	0.0	120.0	1.4	2.0	106.1
03/15/2010	105.2	0.0	111.5	0.0	111.2	0.0	120.4	0.0	8.0	100.4
03/16/2010	92.3	0.0	97.7	0.0	100.1	0.0	117.3	0.0	8.6	100.2
03/17/2010	95.4	0.0	92.9	0.0	92.4	0.0	112.7	0.0	3.1	100.4
03/18/2010	85.0	0.0	99.8	0.0	101.9	0.0	116.2	0.0	0.0	105.3

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

Total Dissolved Gas Saturation Data at Upper Columbia River Sites

	Hungry H. Dnst				Boundary				Grand Coulee				Grand C. Tlwr				Chief Joseph			
	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
3/5	---	---	---	0	103.6	104.2	104.5	23	101.5	101.6	101.8	24	99.9	100.2	100.5	23	---	---	---	0
3/6	---	---	---	0	103.6	104.3	105.1	22	101.9	102.3	102.5	24	99.9	100.7	101.2	22	---	---	---	0
3/7	---	---	---	0	103.8	104.5	104.9	24	102.8	103.1	103.2	24	100.6	101.1	101.4	24	---	---	---	0
3/8	---	---	---	0	102.8	103.2	103.7	20	102.6	102.9	103.2	24	101.5	102.0	102.3	20	---	---	---	0
3/9	---	---	---	0	102.7	103.7	104.0	22	102.3	102.6	102.8	24	101.5	101.8	102.2	22	---	---	---	0
3/10	---	---	---	0	102.6	103.5	104.7	24	102.3	102.4	102.8	24	101.4	101.7	102.0	24	---	---	---	0
3/11	---	---	---	0	102.5	103.1	103.6	23	102.5	102.6	102.8	24	101.7	102.1	102.5	23	---	---	---	0
3/12	---	---	---	0	103.2	104.0	104.6	20	103.2	103.4	103.8	24	102.6	103.2	104.1	20	---	---	---	0
3/13	---	---	---	0	101.9	102.5	103.4	21	101.8	102.2	102.9	24	99.7	100.2	101.5	21	---	---	---	0
3/14	---	---	---	0	102.1	103.1	103.8	20	100.9	101.1	101.4	22	98.7	99.0	99.2	20	---	---	---	0
3/15	96.4	96.4	99.4	11	102.5	103.6	104.2	24	101.2	101.4	101.6	23	99.1	99.4	99.6	24	---	---	---	0
3/16	96.0	96.3	96.6	23	103.0	103.7	104.3	21	101.9	102.1	102.3	24	100.3	101.0	101.5	21	---	---	---	0
3/17	96.1	96.3	96.7	23	102.3	102.7	103.0	20	101.7	101.9	102.2	24	100.4	101.0	101.9	20	---	---	---	0
3/18	96.0	96.3	96.7	24	102.3	103.3	104.1	22	101.5	101.6	101.9	24	100.6	101.0	101.3	22	---	---	---	0

Total Dissolved Gas Saturation Data at Mid Columbia River Sites

	Chief J. Dnst				Wells				Wells Dwnstrm				Rocky Reach				Rocky R. Tlwr			
	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
3/5	---	---	---	0	---	---	---	0	93.8	94.1	94.5	24	---	---	---	0	---	---	---	0
3/6	---	---	---	0	---	---	---	0	94.1	94.6	95.0	24	---	---	---	0	---	---	---	0
3/7	---	---	---	0	---	---	---	0	95.1	95.5	96.0	24	---	---	---	0	---	---	---	0
3/8	---	---	---	0	---	---	---	0	94.6	95.0	95.1	24	---	---	---	0	---	---	---	0
3/9	---	---	---	0	---	---	---	0	94.2	94.5	94.7	24	---	---	---	0	---	---	---	0
3/10	---	---	---	0	---	---	---	0	94.2	94.4	95.0	24	---	---	---	0	---	---	---	0
3/11	---	---	---	0	---	---	---	0	94.4	94.5	94.6	24	---	---	---	0	---	---	---	0
3/12	---	---	---	0	---	---	---	0	95.0	95.2	95.5	24	---	---	---	0	---	---	---	0
3/13	---	---	---	0	---	---	---	0	93.8	94.3	94.7	24	---	---	---	0	---	---	---	0
3/14	---	---	---	0	---	---	---	0	93.1	93.4	93.8	22	---	---	---	0	---	---	---	0
3/15	---	---	---	0	---	---	---	0	93.2	93.4	93.7	24	---	---	---	0	---	---	---	0
3/16	---	---	---	0	---	---	---	0	93.7	94.1	94.6	24	---	---	---	0	---	---	---	0
3/17	---	---	---	0	---	---	---	0	93.1	93.3	93.5	24	---	---	---	0	---	---	---	0
3/18	---	---	---	0	---	---	---	0	93.0	93.4	93.8	24	---	---	---	0	---	---	---	0

Total Dissolved Gas Saturation at Mid Columbia River Sites

	Rock Island				Rock I. Tlwr				Wanapum				Wanapum Tlwr				Priest Rapids			
	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
3/5	---	---	---	0	---	---	---	0	103.0	103.6	104.9	24	102.7	102.9	103.2	24	103.6	104.1	104.7	24
3/6	---	---	---	0	---	---	---	0	103.5	104.3	104.9	24	103.1	103.7	104.8	24	104.1	104.9	105.5	24
3/7	---	---	---	0	---	---	---	0	104.7	105.1	105.5	24	104.4	104.8	105.2	24	105.6	106.4	107.6	24
3/8	---	---	---	0	---	---	---	0	103.8	104.3	104.8	24	103.7	104.1	104.5	24	104.4	104.9	105.7	24
3/9	---	---	---	0	---	---	---	0	102.8	103.0	103.2	24	102.7	103.0	103.1	24	103.4	103.7	104.0	24
3/10	---	---	---	0	---	---	---	0	103.3	103.5	103.6	24	103.2	103.4	103.9	24	103.5	103.8	103.9	24
3/11	---	---	---	0	---	---	---	0	104.0	104.2	104.3	24	103.8	104.0	104.1	24	103.9	104.3	104.5	24
3/12	---	---	---	0	---	---	---	0	104.5	104.7	104.8	24	104.3	104.5	104.7	24	104.8	105.0	105.2	24
3/13	---	---	---	0	---	---	---	0	102.9	103.2	103.9	24	102.8	103.1	103.7	24	103.5	104.0	104.5	24
3/14	---	---	---	0	---	---	---	0	102.7	103.4	104.0	24	102.4	102.8	103.0	24	103.1	103.7	104.5	24
3/15	---	---	---	0	---	---	---	0	104.0	104.8	105.8	24	102.9	103.2	103.3	24	103.8	104.3	104.7	24
3/16	---	---	---	0	---	---	---	0	104.7	105.5	107.1	24	103.7	104.1	104.4	24	105.0	105.5	106.9	24
3/17	---	---	---	0	---	---	---	0	103.2	103.4	103.8	24	103.2	103.5	104.0	24	104.0	104.3	104.6	24
3/18	---	---	---	0	---	---	---	0	103.6	104.5	105.5	24	103.0	103.4	103.8	24	104.1	105.1	106.1	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 and Snake River Sites

	Priest R. Dnst				Pasco				Dworshak				Clrwtr-Peck				Anatone			
	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
3/5	102.2	102.5	102.7	24	---	---	---	0	103.0	103.9	104.8	24	---	---	---	0	---	---	---	0
3/6	102.7	103.3	103.7	24	---	---	---	0	102.4	103.9	105.4	24	---	---	---	0	---	---	---	0
3/7	104.0	104.5	104.7	24	---	---	---	0	103.1	104.2	105.3	24	---	---	---	0	---	---	---	0
3/8	103.8	104.2	104.5	24	---	---	---	0	102.3	102.8	103.1	24	---	---	---	0	---	---	---	0
3/9	102.5	102.7	102.8	24	---	---	---	0	101.3	102.3	103.5	24	---	---	---	0	---	---	---	0
3/10	102.5	102.7	103.0	24	---	---	---	0	100.7	101.7	102.6	24	---	---	---	0	---	---	---	0
3/11	102.9	103.5	103.8	24	---	---	---	0	101.6	102.6	103.8	24	---	---	---	0	---	---	---	0
3/12	103.9	104.2	104.6	24	---	---	---	0	103.2	105.8	107.7	24	---	---	---	0	---	---	---	0
3/13	102.6	103.0	103.3	24	---	---	---	0	95.9	97.2	100.5	24	---	---	---	0	---	---	---	0
3/14	101.9	102.3	102.5	24	---	---	---	0	101.5	107.3	109.1	22	---	---	---	0	---	---	---	0
3/15	102.6	103.1	103.4	24	---	---	---	0	105.3	107.3	108.9	24	---	---	---	0	---	---	---	0
3/16	103.7	104.1	104.6	24	---	---	---	0	106.3	108.0	110.3	24	---	---	---	0	---	---	---	0
3/17	103.1	103.4	103.8	24	---	---	---	0	106.2	107.0	109.1	24	---	---	---	0	104.5	104.5	106.7	6
3/18	102.7	103.1	103.4	24	---	---	---	0	105.6	107.5	109.8	24	104.0	104.0	104.7	12	102.6	103.8	105.4	24

Total Dissolved Gas Saturation Data at Snake River Sites

	Clrwtr-Lewiston				Lower Granite				L. Granite Tlwr				Little Goose				L. Goose Tlwr			
	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
3/5	---	---	---	0	---	---	---	0	101.7	101.9	102.1	24	---	---	---	0	102.4	102.6	102.7	24
3/6	---	---	---	0	---	---	---	0	101.9	102.3	102.5	24	---	---	---	0	102.4	102.8	103.1	24
3/7	---	---	---	0	---	---	---	0	102.7	103.0	103.2	24	---	---	---	0	103.1	103.5	103.7	24
3/8	---	---	---	0	---	---	---	0	102.2	102.5	102.7	24	---	---	---	0	102.0	102.5	102.9	24
3/9	---	---	---	0	---	---	---	0	101.4	101.6	101.9	24	102.4	102.4	102.5	12	101.6	102.0	102.9	24
3/10	---	---	---	0	---	---	---	0	101.0	101.2	101.6	24	102.1	102.3	102.5	24	101.6	101.8	102.1	24
3/11	---	---	---	0	---	---	---	0	100.8	101.0	101.2	24	102.2	102.4	102.6	24	101.7	101.9	102.2	24
3/12	---	---	---	0	---	---	---	0	101.4	101.7	101.9	24	102.9	103.0	103.4	24	102.5	102.8	103.2	24
3/13	---	---	---	0	---	---	---	0	100.0	100.4	100.9	24	101.5	101.8	102.5	24	101.1	101.5	102.0	24
3/14	---	---	---	0	---	---	---	0	99.3	99.5	99.8	22	100.7	100.9	101.0	22	100.6	100.9	101.3	22
3/15	---	---	---	0	---	---	---	0	99.4	99.5	99.8	24	101.0	101.2	102.1	24	100.9	101.4	101.6	24
3/16	---	---	---	0	---	---	---	0	99.6	100.1	100.9	24	102.8	103.0	103.3	24	101.4	101.8	102.3	24
3/17	---	---	---	0	100.2	100.2	100.8	11	99.2	99.9	100.6	24	101.0	101.2	101.4	24	100.2	100.5	100.9	24
3/18	104.4	104.4	107.0	6	100.0	100.2	100.3	24	99.8	100.1	100.9	24	101.3	101.6	102.4	24	100.2	100.6	101.0	24

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

	Lower Mon.				L. Mon. Tlwr				Ice Harbor				Ice Harbor Tlwr				McNary-Oregon			
	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
3/5	---	---	---	0	102.5	102.6	102.8	24	---	---	---	0	102.7	103.1	103.8	24	---	---	---	0
3/6	---	---	---	0	103.0	103.5	103.6	24	---	---	---	0	103.1	103.7	104.0	24	---	---	---	0
3/7	---	---	---	0	103.6	104.0	104.1	24	---	---	---	0	104.3	105.0	105.5	24	---	---	---	0
3/8	---	---	---	0	103.0	103.2	103.6	24	---	---	---	0	103.6	104.0	104.4	24	---	---	---	0
3/9	---	---	---	0	102.9	103.3	104.0	24	---	---	---	0	103.5	103.9	104.2	24	---	---	---	0
3/10	103.7	103.7	104.5	12	102.9	103.1	103.4	24	103.0	103.0	103.2	9	103.7	104.1	104.2	24	---	---	---	0
3/11	103.6	103.9	104.2	24	102.4	102.6	102.7	24	103.7	104.0	104.1	24	104.1	104.3	104.6	24	---	---	---	0
3/12	103.7	104.0	104.1	24	102.8	103.1	103.5	24	103.9	104.2	104.4	24	104.2	104.7	104.9	24	---	---	---	0
3/13	101.9	102.3	103.0	24	101.0	101.4	101.9	24	101.8	102.3	103.0	24	102.5	102.9	103.4	24	---	---	---	0
3/14	100.8	100.9	101.1	22	100.2	100.6	101.2	22	101.0	101.1	101.3	22	101.7	102.0	102.4	22	---	---	---	0
3/15	100.8	101.1	101.4	24	100.4	100.8	101.0	24	101.3	101.7	102.1	24	102.0	102.4	102.8	24	---	---	---	0
3/16	101.1	101.4	101.8	24	101.0	101.5	102.0	24	102.4	102.7	103.1	24	102.8	103.4	104.0	24	---	---	---	0
3/17	100.3	100.7	101.4	24	100.1	100.5	100.8	24	101.1	101.3	101.5	24	102.0	102.5	103.2	24	---	---	---	0
3/18	100.7	100.9	101.1	24	100.5	100.9	101.6	24	101.3	101.6	101.7	24	102.4	103.2	104.1	24	---	---	---	0

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

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

	McNary-Wash				McNary Tlwr				John Day				John Day Tlwr				The Dalles			
	24 h	12 h		#	24 h	12 h		#	24h	12h		#	24h	12h		#	24h	12h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	AVG	High	hr
3/5	---	---	---	0	103.3	103.5	103.8	24	---	---	---	0	103.3	103.5	104.0	24	---	---	---	0
3/6	---	---	---	0	104.2	104.7	105.2	24	---	---	---	0	103.8	104.5	104.8	24	---	---	---	0
3/7	---	---	---	0	104.9	105.2	105.5	24	---	---	---	0	105.1	105.3	105.9	24	---	---	---	0
3/8	---	---	---	0	103.9	104.2	104.5	24	---	---	---	0	103.7	104.2	105.3	24	---	---	---	0
3/9	---	---	---	0	103.3	103.7	103.9	24	---	---	---	0	103.2	103.6	104.0	24	---	---	---	0
3/10	---	---	---	0	103.2	103.4	103.5	24	---	---	---	0	103.2	103.4	103.6	24	---	---	---	0
3/11	103.6	103.6	104.0	12	103.3	103.6	103.7	24	---	---	---	0	103.5	103.7	104.1	24	---	---	---	0
3/12	104.0	104.4	104.6	24	103.7	104.1	104.3	24	---	---	---	0	104.1	104.4	104.5	24	103.7	104.1	104.5	13
3/13	101.8	102.2	103.0	24	101.8	102.2	102.6	24	---	---	---	0	102.4	102.9	103.4	24	102.3	102.6	103.0	24
3/14	101.5	101.8	102.5	22	101.3	101.7	101.9	22	---	---	---	0	101.9	102.2	102.3	23	102.1	102.6	103.0	22
3/15	102.0	102.2	102.8	24	101.7	102.2	102.5	24	101.2	101.2	101.6	11	102.8	103.7	106.8	24	102.7	103.3	103.7	24
3/16	101.8	102.0	102.1	24	101.9	102.3	102.8	24	100.7	101.5	102.4	24	103.2	103.7	104.2	24	103.1	103.4	103.8	24
3/17	101.8	102.4	103.0	24	101.5	102.0	102.3	24	99.1	99.7	100.4	24	102.1	102.3	102.6	24	102.4	102.9	103.3	24
3/18	102.5	102.8	103.2	24	102.4	102.9	103.3	24	98.3	99.2	101.6	24	102.3	102.9	103.5	24	102.8	103.2	103.5	24

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

	The Dalles Dnst				Bonneville				Warrendale				Camas\Washougal				Cascade Island			
	24 h	12 h		#	24 h	12 h		#	24h	12h		#	24h	12h		#	24h	12h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
3/5	102.7	103.1	103.7	24	---	---	---	0	104.5	104.9	105.5	24	104.5	105.1	105.6	24	109.9	110.5	110.7	24
3/6	102.9	103.5	104.0	24	---	---	---	0	104.4	105.2	105.8	24	103.9	104.6	105.1	24	109.5	110.0	110.7	24
3/7	103.8	104.1	104.4	24	---	---	---	0	104.8	105.2	105.5	24	104.3	105.1	105.8	24	109.9	110.7	111.3	24
3/8	102.8	103.0	103.6	24	---	---	---	0	104.3	104.6	105.2	24	103.9	104.3	104.6	24	109.6	110.6	111.2	24
3/9	102.9	103.3	103.7	24	---	---	---	0	104.2	104.7	105.4	24	104.0	105.1	105.9	24	109.5	110.2	110.6	24
3/10	103.2	103.5	103.8	24	---	---	---	0	104.4	105.3	105.6	24	103.7	104.2	104.6	24	109.4	110.0	110.5	24
3/11	104.0	104.4	104.6	24	---	---	---	0	105.7	105.9	106.2	24	103.3	103.4	103.6	24	109.4	110.1	110.8	24
3/12	104.4	104.7	104.9	24	---	---	---	0	106.2	106.8	107.2	24	103.8	104.4	104.9	24	109.7	110.4	111.3	24
3/13	102.9	103.3	103.7	24	---	---	---	0	104.3	104.7	104.9	24	103.5	104.0	104.2	24	109.1	109.6	109.9	24
3/14	102.6	103.1	103.5	22	---	---	---	0	105.6	107.1	108.2	22	102.9	103.5	103.8	22	109.3	109.6	109.9	22
3/15	103.2	103.8	104.2	24	---	---	---	0	107.6	108.1	108.5	24	104.3	105.0	105.6	24	112.4	113.2	113.4	24
3/16	103.8	104.4	104.7	24	---	---	---	0	105.9	107.0	108.2	24	104.0	104.4	104.7	24	113.5	113.8	114.1	24
3/17	103.5	103.8	104.0	24	104.0	104.0	105.1	11	105.3	107.5	108.5	24	104.9	105.6	106.3	24	114.9	117.1	121.0	24
3/18	104.0	104.5	104.8	24	104.1	104.5	104.7	24	108.0	108.6	109.2	24	106.2	107.6	108.7	24	117.0	117.6	117.9	24

Two-Week Summary of Passage Indices

COMBINED YEARLING CHINOOK

Date		WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
03/05/2010		---	1	---	---	---	---	---	---	---	---	9
03/06/2010		---	4	---	---	---	---	---	---	---	---	13
03/07/2010		---	0	---	---	---	---	---	---	---	---	5
03/08/2010		0	12	0	0	---	---	---	---	---	---	0
03/09/2010		5	25	0	0	---	---	---	---	---	---	0
03/10/2010	*	6	27	1	0	---	---	---	---	---	---	19
03/11/2010		22	13	0	0	---	---	---	---	---	---	14
03/12/2010		18	20	0	0	---	---	---	---	---	---	9
03/13/2010		44	29	0	0	---	---	---	---	---	---	21
03/14/2010		18	16	0	0	---	---	---	---	---	---	273
03/15/2010	*	18	15	1	0	---	---	---	---	---	---	1,005
03/16/2010		29	38	0	0	---	---	---	---	---	---	1,040
03/17/2010	*	805	73	0	0	---	---	---	---	---	---	1,154
03/18/2010		1,092	---	1	0	---	---	---	---	---	---	716
03/19/2010		---	---	---	---	---	---	---	---	---	---	---
Total:		**2,057**	**273**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4,278**
# Days:		**11**	**13**	**11**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**14**
Average:		**187**	**21**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**306**
YTD		**2,057**	**280**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4,282**

COMBINED SUBYEARLING CHINOOK

Date		WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
03/05/2010		---	0	---	---	---	---	---	---	---	---	526
03/06/2010		---	0	---	---	---	---	---	---	---	---	620
03/07/2010		---	0	---	---	---	---	---	---	---	---	328
03/08/2010		0	0	0	0	---	---	---	---	---	---	452
03/09/2010		0	0	0	0	---	---	---	---	---	---	440
03/10/2010	*	0	0	0	2	---	---	---	---	---	---	234
03/11/2010		0	0	0	1	---	---	---	---	---	---	251
03/12/2010		0	0	0	1	---	---	---	---	---	---	208
03/13/2010		0	0	0	1	---	---	---	---	---	---	293
03/14/2010		0	0	0	1	---	---	---	---	---	---	414
03/15/2010	*	0	0	0	3	---	---	---	---	---	---	276
03/16/2010		0	0	0	6	---	---	---	---	---	---	472
03/17/2010	*	0	0	0	0	---	---	---	---	---	---	433
03/18/2010		0	---	0	1	---	---	---	---	---	---	404
03/19/2010		---	---	---	---	---	---	---	---	---	---	---
Total:		**0**	**0**	**0**	**16**	**0**	**0**	**0**	**0**	**0**	**0**	**5,351**
# Days:		**11**	**13**	**11**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**14**
Average:		**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**382**
YTD		**0**	**0**	**0**	**16**	**0**	**0**	**0**	**0**	**0**	**0**	**7,104**

Two-Week Summary of Passage Indices

				COMBINED COHO								
		WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date		(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
03/05/2010		---	0	---	---	---	---	---	---	---	---	9
03/06/2010		---	0	---	---	---	---	---	---	---	---	13
03/07/2010		---	0	---	---	---	---	---	---	---	---	18
03/08/2010		0	0	0	0	---	---	---	---	---	---	18
03/09/2010		0	0	0	0	---	---	---	---	---	---	32
03/10/2010	*	0	0	0	0	---	---	---	---	---	---	0
03/11/2010		0	0	0	0	---	---	---	---	---	---	10
03/12/2010		0	0	0	0	---	---	---	---	---	---	9
03/13/2010		0	0	0	0	---	---	---	---	---	---	51
03/14/2010		0	0	0	0	---	---	---	---	---	---	37
03/15/2010	*	0	0	0	0	---	---	---	---	---	---	9
03/16/2010		0	0	0	0	---	---	---	---	---	---	36
03/17/2010	*	0	0	0	1	---	---	---	---	---	---	87
03/18/2010		0	---	0	0	---	---	---	---	---	---	42
03/19/2010		---	---	---	---	---	---	---	---	---	---	---
Total:		**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**371**
# Days:		**11**	**13**	**11**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**14**
Average:		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**27**
YTD		**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**412**

				COMBINED STEELHEAD								
		WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date		(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
03/05/2010		---	0	---	---	---	---	---	---	---	---	0
03/06/2010		---	0	---	---	---	---	---	---	---	---	0
03/07/2010		---	1	---	---	---	---	---	---	---	---	5
03/08/2010		0	2	0	0	---	---	---	---	---	---	0
03/09/2010		0	1	0	0	---	---	---	---	---	---	5
03/10/2010	*	0	0	0	0	---	---	---	---	---	---	0
03/11/2010		0	0	0	0	---	---	---	---	---	---	0
03/12/2010		0	0	0	0	---	---	---	---	---	---	0
03/13/2010		0	1	0	0	---	---	---	---	---	---	4
03/14/2010		0	0	0	0	---	---	---	---	---	---	8
03/15/2010	*	0	1	0	0	---	---	---	---	---	---	9
03/16/2010		0	1	0	0	---	---	---	---	---	---	0
03/17/2010	*	0	1	0	1	---	---	---	---	---	---	0
03/18/2010		0	---	0	1	---	---	---	---	---	---	4
03/19/2010		---	---	---	---	---	---	---	---	---	---	---
Total:		**0**	**8**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**35**
# Days:		**11**	**13**	**11**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**14**
Average:		**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**
YTD		**0**	**9**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**40**

Two-Week Summary of Passage Indices

				COMBINED SOCKEYE								
		WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date		(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
03/05/2010		---	0	---	---	---	---	---	---	---	---	0
03/06/2010		---	0	---	---	---	---	---	---	---	---	0
03/07/2010		---	0	---	---	---	---	---	---	---	---	0
03/08/2010		0	0	0	0	---	---	---	---	---	---	0
03/09/2010		0	0	0	0	---	---	---	---	---	---	0
03/10/2010	*	0	0	0	0	---	---	---	---	---	---	0
03/11/2010		0	0	0	0	---	---	---	---	---	---	0
03/12/2010		0	0	0	0	---	---	---	---	---	---	0
03/13/2010		0	0	0	0	---	---	---	---	---	---	0
03/14/2010		0	0	0	0	---	---	---	---	---	---	4
03/15/2010	*	0	0	0	0	---	---	---	---	---	---	0
03/16/2010		0	0	0	0	---	---	---	---	---	---	0
03/17/2010	*	0	0	0	0	---	---	---	---	---	---	0
03/18/2010		0	---	0	0	---	---	---	---	---	---	0
03/19/2010		---	---	---	---	---	---	---	---	---	---	---
Total:		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**
# Days:		**11**	**13**	**11**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**14**
Average:		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
YTD		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**

* 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)}

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

		Spring Chinook						Summer Chinook						Fall Chinook					
		2010		2009		10-Yr Avg.		2010		2009		10-Yr Avg.		2010		2009		10-Yr Avg.	
DAM	EndDate	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	**03/17**	**24**	**2**	**7**	**0**	**245**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TDA	**--**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
JDA	**--**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
MCN	**--**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
IHR	**--**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
LMN	**--**	**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**
LGR	**03/16**	**0**	**0**	**0**	**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	**03/15**	**35**	**0**	**5**	**0**	-	-	-	-	-	-	-	-	**0**	**0**	**0**	**0**	-	-

	Coho						Sockeye			Steelhead			
	2010		2009		10-Yr Avg.				10-Yr			10-Yr	Wild
DAM	Adult	Jack	Adult	Jack	Adult	Jack	2010	2009	Avg.	2010	2009	Avg.	2010
BON	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**336**	**45**	**95**	**103**
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**
LGR	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1484**	**1296**	**2384**	**435**
PRD	**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**
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**	-	-	-	-	-	**1450**	**1394**	-	-

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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BON counts from January 1, 2009 to March 14, 2010 (historical counts begin March 15):

Year	Chinook Adult	Chinook Jack	Steelhead	Wild Steelhead
2010	39	0	2,318	657
2009	19	-1	321	109