Fish Passage Center

Weekly Report #11 - 01

March 18, 2011

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Summary of Events:

Water Supply: Precipitation throughout the Columbia Basin has varied between 122% and 229% of average at individual sub-basins over the first one-half of March. Precipitation above The Dalles has been 183% of average over March. Over the 2011 water year, precipitation has ranged between 95% and 130% 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 2011 March 1-14, 2011		Water Year 2011 October 1, 2010 to March 14, 2011	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia Above Coulee	1.52	188	15.13	114
Snake River Above Ice Harbor	1.04	140	10.77	115
Columbia Above The Dalles	1.59	183	14.94	113
Kootenai	1.84	229	15.10	111
Clark Fork	0.66	122	10.00	120
Flathead	1.43	195	14.70	130
Pend Oreille/Spokane	2.12	170	20.73	111
Central Washington	0.62	164	5.16	95
Snake River Plain	0.74	144	6.62	121
Salmon/Boise/Payette	1.17	134	12.10	103
Clearwater	1.61	128	19.65	115
SW Washington Cascades/Cowlitz	5.75	180	49.82	100
Willamette Valley	4.68	162	41.17	99

Snowpack within the Columbia Basin has generally been near average but has seen increases with recent storms that have resulted in slightly better than average snowpack in most basins. Average snowpack in the Columbia River for basins above the Snake River confluence is 109% of average, for Snake River Basins the average snowpack is 103% of average, and for lower Columbia Basins between McNary and Bonneville Dam average snowpack is 100% of average.

Table 2 displays the March Final and March Mid-Month runoff volume forecasts for multiple reservoirs. The March Final forecast at The Dalles between January and July is 109000 Kaf (102% 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)	102	109000	104	112000
Grand Coulee (Jan-July)	104	65600	107	67600
Libby Res. Inflow, MT (Apr-Aug)	105	6550 7105*	114	7130
Hungry Horse Res. Inflow, MT (Jan-July)	123	2730	125	2790
Lower Granite Res. Inflow (Apr- July)	100	21600	104	22500
Brownlee Res. Inflow (Apr-July)	90	5690	96	6060
Dworshak Res. Inflow (Apr-July)	110	2900 3329*	110	2910

* Denotes COE Forecast

Grand Coulee Reservoir is at 1252.4 feet (3-17-11) and drafted 2.4 feet over the last week. The end of March FC Elevation at Grand Coulee is 1270.2 feet. Outflows at Grand Coulee have ranged between 87.0 and 134.8 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2376.0 feet (3-17-11) and has drafted 5.6 feet last week. The end of March FC Elevation at Libby is 2364.3 feet. Outflows at Libby Dam have been 17 Kcfs last week.

Hungry Horse is currently at an elevation of 3509.6 feet (3-17-11) and has drafted 3.2 feet last week. The end of March FC Elevation at Hungry Horse is 3503.4 feet. Outflows at Hungry Horse have been 6.3-8.3 Kcfs last week.

Dworshak is currently at an elevation of 1480.4 feet (3-17-11) and has drafted 7.6 feet last week. The end of March System Flood Control Elevation is 1445.0 feet, however the COE has approved a Flood Control deviation request to release 14 Kcfs and operate Dworshak to target an April 15 elevation of 1451.4 ft. Based on this target, the COE projects the March 31 elevation will likely be between 1460 and 1480 ft. Outflows from Dworshak have been 14 Kcfs last week.

The Brownlee Reservoir was at an elevation of 2039.1 feet on March 17th, 2011 refilling 7.5 feet last week. The end of March FC Elevation at Brownlee is 2038.7 feet. Over the last week, outflows at Brownlee have ranged between 19.6-27.0 Kcfs.

Spill:

Spill for fish passage is scheduled to begin on April 3rd at the lower Snake River projects, and on April 10th at the lower Columbia River projects. Some involuntary spill has occurred over the past week at McNary and Ice Harbor dams. Three units are presently out of operation at McNary Dam, limiting the hydraulic capacity of the project. At Bonneville Dam, a small amount of spill is being provided for attraction to the adult fishways.

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 January (Imnaha Trap) or the first week of March (Lewiston, Grande Ronde and Salmon River traps). New for 2011, the SMP has begun collecting species and life-stage data for juvenile lamprey that are sampled at the various dam and trap sites. There are three possible species/life-stages of lamprey juveniles that SMP crews will be using to categorize their samples: 1) pacific lamprey ammocoetes, 2) brook lamprey ammocoetes, and 3) pacific lamprey macropthalmia. A fourth category (unknown ammocoete) will also be used for those ammocoetes that are undistinguishable to species. Juvenile numbers presented in weekly reports will be for all species/life-stages combined, unless otherwise stated. On-line queries are available on the FPC website that allow users to query sample and collection counts for each of the species/life-stages for 2011 (http://www.fpc.org/smolt/currentsmpsubmitdata.html).

Bonneville Dam is the only SMP dam that has sampled so far this season. Chinook and coho fry were the primary fish in the Bonneville bypass samples early in the season. Over the past week Chinook fry sample counts have averaged nearly 260 per day. Small numbers of holdover fall Chinook, steelhead, and sockeye juveniles have been sampled at BON since sampling began in early March. The first hatchery yearling Chinook were captured in the March 17 sample. Over the past week, the combined yearling Chinook passage index has averaged about 17 fish per day. Over the past week, collection counts of juvenile lamprey have averaged nearly 150 per day. The vast majority of the lamprey juveniles sampled at BON so far this year were pacific lamprey macropthalmia.

The Grande Ronde Trap is operated by the Oregon Department of Fish and Wildlife and is located at river mile two in the Grande Ronde River. Sampling at the Grande Ronde Trap began on March 6 with the first sample worked up on March 7. The Grande Ronde Trap has sampled mostly yearling Chinook in the first few weeks of sampling. Collections of yearling Chinook over the past week have averaged 10 per day.

The Salmon River Trap is located at River km 103 and operated by Idaho Department of Fish and Game. Sampling at the Salmon River Trap began on March 6 with the first sample being worked up on March 7. The trap has captured mostly yearling Chinook to this point, with just a few steelhead and subyearling Chinook. A large number of hatchery yearling Chinook were collected in the March 17th sample. It is likely that these were hatchery spring Chinook from Rapid River Hatchery. However, relatively large numbers of unclipped yearling Chinook have also been captured at the trap, particularly in the March 17th sample.

The Snake River Trap is located at River km 225 and operated by Idaho Department of Fish and Game. Sampling at the Snake River Trap began on March 6

with the first sample being worked up on March 7. The trap has captured only a few juvenile salmonids to this point in the season

The Imnaha River Trap is operated by the Nez Perce Tribe, which provides data to the SMP on their fish collection. The trap has been operating since early January. However, not all the data collected at the Imnaha Trap for 2011 have been received by the FPC to date. The Imnaha Trap has been collecting mostly yearling Chinook over the past few weeks, with a daily average collection of 15 per day over the past week.

In the next few weeks more SMP sites will begin reporting data. Lower Granite Dam will begin sampling on or around March 26 and other SMP dam sampling sites will begin sampling by the first week of April.

It's worth noting that bypass systems at Bonneville Dam and Lower Monumental Dam were watered up early in the year. At Bonneville Dam the bypass was watered up on February 11th, and had 34 holdover fall Chinook detected that day in the bypass. Similarly, Lower Monumental dam watered up on March 14th and 455 holdover fall Chinook were detected in the bypass that day. Either way, it should also be noted that most of these fish were released in late June to mid-July in 2010 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 (http://www.fpc.org/). During the winter season from 1/1/2011 through 3/14/2011 at Bonneville Dam, 49 adult Chinook and 1,419 adult steelhead were counted. In 2010 for the same time frame, 39 adult Chinook and 2,318 adult steelhead were counted. The 2011 Bonneville Dam winter season count of adult Chinook was 1.2 times greater than the 2010 count, while the 2011 adult steelhead count was about 61.2% of the 2010 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 0 to 9 adult salmon per day. As of March 17th, using the historical counting schedule, 10 spring Chinook have been counted at Bonneville Dam. In 2010, 24 adult spring Chinook were counted at Bonneville Dam for the same time period. The 2011 adult spring Chinook count at Bonneville Dam is 41.6% of the 2010 count and only 4.1% of the 10 year average of 246. At Willamette Falls Dam 1 adult spring Chinook has been counted so far this year.

The Bonneville Dam 2011 steelhead count of 116 is about 34.5% of the 2010 count of 336. The 2011 steelhead count has two more adult steelhead than the 10 year average count of 114. This year's Lower Granite steelhead count of 1,435 is about 1.05 times greater than the 2010 count of 1,367 and 66.1% of the 10 year average of 2,170. At Willamette Falls Dam, the 2011 count for steelhead was 3,744, as of March 15th. This year's steelhead count is about 1.13 times greater than the 2010 count of 3,321.

Based on estimates made by the Technical Advisory Committee (TAC) for US v. Oregon this winter, the upriver Spring Chinook run for 2011 is expected to be 198,400. The TAC reported that 315,300 upriver Spring Chinook had returned to the river in 2010 (TAC, 2011).

US v. Oregon Technical Advisory Committee (TAC). Columbia River Mouth Fish Returns 2010 Actual and 2011 Forecasts: Spring Chinook, Summer Chinook, Sockeye and Steelhead, March 1, 2011. Oregon and Washington Departments of Fish and Wildlife, Vancouver, WA. Available at http://wdfw.wa.gov/fishing/crc/2011/crc_2010_returns_2011_forecasts.pdf

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 a few releases of yearling spring Chinook scheduled to begin over the past week in this zone. In all, these releases total nearly 3.1 million spring Chinook juveniles. Of these, approximately 81% were scheduled for release into the Little Salmon River (from Rapid River Hatchery), 13% were scheduled for release into the Snake River (below Hells Canyon Dam), and 6% were scheduled for release into the Little Salmon River (at Pinehurst Bridge). Due to INH concerns, Kooskia Hatchery released approximately 100,000 coho juveniles on March 15th. The remainder of the juvenile coho that are scheduled for release from Kooskia Hatchery are scheduled for release the first week of April.

In addition to the releases that began this week, several releases of juvenile salmonids began in early March. Approximately 106,000 summer Chinook juveniles from McCall Hatchery were scheduled for release into Johnson Creek, beginning March 1st. These summer Chinook juveniles are all unclipped but have coded-wire and/or orange Elastomer tags. McCall Hatchery was scheduled to release 1.07 million summer Chinook juveniles into the South Fork Salmon River beginning on or around March 1st. Finally, approximately 211,000 coho juveniles were released into Clear Creek on March 11th and 172,000 coho juveniles were released into Lapwai Creek on March 9th. Of these coho juveniles, approximately 69% are unmarked (i.e., no fin clips and/or no CWT).

There are several releases of yearling spring Chinook juveniles scheduled to take place over the next two weeks. In all, these releases will total about 3.77 million spring Chinook juveniles. Of these, approximately 96% are scheduled for release into the Clearwater River and its tributaries by various hatcheries throughout the basin. Approximately 4% are scheduled for release into the Grande Ronde River, from the Grande Ronde and Catherine Creek acclimation facilities.

Approximately 1.27 million yearling summer Chinook are scheduled for release into this zone over the next two week. Of these, approximately 1.07 million will be released from Pahsimeroi Hatchery into the Pahsimeroi River. The remaining 204,000 are scheduled to be released into the Crooked River, a tributary of the Clearwater River. This is the first year that yearling summer Chinook will be released to the Clearwater River basin. These summer Chinook were transferred from McCall Hatchery to the Clearwater Hatchery for final rearing and release and are 100% CWT. Finally, nearly 2.8 million summer steelhead are scheduled for release to this zone over the next two weeks. Of these, nearly 78% are scheduled for release into the Clearwater River and its tributaries, nearly 19% are scheduled for release into the Snake River (below Hells Canyon Dam), and nearly 4% 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 about 835,000 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. Also, there are no scheduled releases of juvenile salmonids to this zone over the next two weeks.

Lower Columbia Zone: The Lower Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to McNary Dam. Approximately 1.0 million coho juveniles were scheduled for release into the Umatilla River this week. These coho juveniles were reared at Cascade Hatchery and released from the Pendleton Acclimation Pond on the Umatilla River. In addition, Klickitat Hatchery was scheduled to release about 600,000 yearling spring Chinook juveniles into the Klickitat River on or around March 15th. There were no other releases scheduled to begin this week. However, there were two releases of yearling fall Chinook to the Umatilla River that began on March 11th. These releases totaled about 500,000 yearling fall Chinook juveniles, which were released from the Pendleton Acclimation Ponds. There are no releases of juvenile salmonids to this zone over the next two weeks.

Hatchery Releases Last Two Weeks

Hatchery Release Summary

From: 3/4/2011 to 03/17/11

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
Idaho Dept. of Fish and Game	Rapid River Hatchery	CH1	SP	2011	400,000	03-14-11	03-17-11	Hells Canyon Dam	Snake River
Idaho Dept. of Fish and Game	Rapid River Hatchery	CH1	SP	2011	2,511,000	03-14-11	04-22-11	Rapid River Hatchery	Little Salmon River
Idaho Dept. of Fish and Game Total					**2,911,000**				
Nez Perce Tribe	Dworshak NFH	CO	UN	2011	313,000	03-15-11	04-08-11	Kooskia Hatchery	Clearwater River M F
Nez Perce Tribe	Eagle Creek NFH	CO	UN	2011	172,000	03-09-11	03-09-11	Lapwai Creek	Clearwater River M F
Nez Perce Tribe	Eagle Creek NFH	CO	UN	2011	211,000	03-11-11	03-11-11	Clear Creek	Clearwater River M F
Nez Perce Tribe Total					**696,000**				
U.S. Fish and Wildlife Service	Dworshak NFH	CH1	SP	2011	1,075,000	03-14-11	03-31-11	Dworshak Hatchery	Clearwater River M F
U.S. Fish and Wildlife Service Total					**1,075,000**				
Umatilla Tribe	Bonneville Hatchery	CH1	FA	2011	250,000	03-03-11	03-11-11	Pendelton Acclim Pond	Umatilla River
Umatilla Tribe	Bonneville Hatchery	CH1	FA	2011	250,000	03-03-11	03-11-11	Pendelton Acclim Pond	Umatilla River
Umatilla Tribe	Cascade Hatchery	CO	UN	2011	1,000,000	03-15-11	03-15-11	Pendelton Acclim Pond	Umatilla River
Umatilla Tribe Total					**1,500,000**				
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2011	273,539	03-15-11	05-14-11	Jack Creek Acclim Pond	Yakima River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2011	279,639	03-15-11	05-14-11	Clark Flat Acclim Pond	Yakima River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2011	282,335	03-15-11	05-14-11	Easton Pond	Yakima River
Yakama Tribe	Klickitat Hatchery	CH1	SP	2011	600,000	03-15-11	03-15-11	Klickitat Hatchery	Klickitat River
Yakama Tribe Total					**1,435,513**				
Grand Total					**7,617,513**				

Hatchery Releases Next Two Weeks

Hatchery Release Summary

From: 3/18/2011 to 3/31/2011

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2011	291,000	03-25-11	03-28-11	Clear Creek	Clearwater River M F
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2011	1,117,000	03-29-11	04-05-11	Red River	S Fk Clearwater River
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SU	2011	204,000	03-29-11	03-29-11	Crooked River	S Fk Clearwater River
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2011	100,000	03-31-11	04-05-11	Little Salmon River	Salmon River (ID)
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2011	525,000	03-30-11	03-31-11	Hells Canyon Dam	Snake River
Idaho Dept. of Fish and Game	Pahsimeroi Hatchery	CH1	SU	2011	1,067,000	03-31-11	04-12-11	Pahsimeroi Hatchery	Pahsimeroi River
Idaho Dept. of Fish and Game	Rapid River Hatchery	CH1	SP	2011	200,000	03-18-11	03-18-11	Pinehurst Bridge	Little Salmon River
Idaho Dept. of Fish and Game	Rapid River Hatchery	CH1	SP	2011	2,511,000	03-14-11	04-22-11	Rapid River Hatchery	Little Salmon River
Idaho Dept. of Fish and Game Total					**6,015,000**				
Nez Perce Tribe	Clearwater Hatchery	CH1	SP	2011	414,000	03-23-11	03-24-11	Selway River	Clearwater River M F
Nez Perce Tribe	Dworshak NFH	CO	UN	2011	313,000	03-15-11	04-08-11	Kooskia Hatchery	Clearwater River M F
Nez Perce Tribe	Dworshak NFH	ST	SU	2011	110,000	03-21-11	03-25-11	S Fk Clearwater River	Clearwater River M F
Nez Perce Tribe	Kooskia NFH	CH1	SP	2011	657,000	03-24-11	04-04-11	Kooskia Hatchery	Clearwater River M F
Nez Perce Tribe Total					**1,494,000**				
U.S. Fish and Wildlife Service	Dworshak NFH	CH1	SP	2011	1,075,000	03-14-11	03-31-11	Dworshak Hatchery	Clearwater River M F
U.S. Fish and Wildlife Service	Dworshak NFH	ST	SU	2011	400,000	03-21-11	03-25-11	Clear Creek	Clearwater River M F
U.S. Fish and Wildlife Service	Dworshak NFH	ST	SU	2011	450,000	03-21-11	03-25-11	Redhouse (SFk ClearH20 R)	S Fk Clearwater River
U.S. Fish and Wildlife Service	Dworshak NFH	ST	SU	2011	1,200,000	03-28-11	04-01-11	Dworshak Hatchery	Clearwater River M F
U.S. Fish and Wildlife Service Total					**3,125,000**				
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2011	50,275	03-21-11	03-29-11	Catherine Creek	Grande Ronde River
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2011	53,133	03-22-11	03-30-11	Grande Ronde Acclim Pond	Grande Ronde River
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2011	55,029	03-22-11	03-30-11	Grande Ronde Acclim Pond	Grande Ronde River
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2011	58,851	03-30-11	04-14-11	Catherine Creek	Grande Ronde River
Umatilla Tribe Total					**217,288**				
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2011	273,539	03-15-11	05-14-11	Jack Creek Acclim Pond	Yakima River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2011	279,639	03-15-11	05-14-11	Clark Flat Acclim Pond	Yakima River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2011	282,335	03-15-11	05-14-11	Easton Pond	Yakima River
Yakama Tribe Total					**835,513**				
Grand Total					**11,686,801**				

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
03/04/2011	135.6	0.0	138.3	0.0	138.9	0.0	141.5	0.0	142.9	24.9	151.0	11.8	145.6	26.2
03/05/2011	123.0	0.0	127.1	0.0	129.1	0.0	127.1	0.0	131.3	5.0	137.8	5.7	139.9	36.2
03/06/2011	127.5	0.0	124.4	0.0	128.4	0.0	133.2	0.0	136.6	0.0	143.7	0.6	148.9	0.0
03/07/2011	123.8	0.0	123.2	0.0	123.0	0.0	122.4	0.0	126.1	0.0	141.6	0.0	141.7	0.0
03/08/2011	127.4	0.0	129.4	0.0	129.9	0.0	135.3	0.0	133.6	0.0	138.2	0.0	133.3	0.0
03/09/2011	132.1	0.0	134.8	0.0	134.7	0.0	134.7	0.0	141.8	0.0	145.0	5.1	141.5	0.0
03/10/2011	132.9	0.0	133.5	0.0	131.7	0.0	130.9	0.0	133.9	0.0	142.5	1.5	142.1	0.0
03/11/2011	133.4	0.0	140.3	0.0	137.5	0.0	134.0	0.0	138.9	0.0	144.3	5.2	141.8	0.0
03/12/2011	134.8	0.0	138.8	0.0	138.8	0.1	139.0	0.0	143.0	0.0	150.5	11.3	149.3	0.0
03/13/2011	128.8	0.0	124.7	0.0	127.8	0.0	132.4	0.0	135.8	0.0	145.2	5.2	144.6	0.0
03/14/2011	126.4	0.0	128.3	0.0	129.2	0.0	129.0	0.0	129.5	1.6	140.2	1.5	136.2	1.4
03/15/2011	116.7	0.0	120.4	0.0	122.8	0.0	124.3	0.0	129.0	0.0	136.1	0.5	136.5	0.1
03/16/2011	110.2	0.0	110.3	0.0	112.8	0.0	115.4	0.0	120.1	0.0	129.4	2.3	124.1	1.0
03/17/2011	87.0	0.0	90.8	0.0	98.3	0.0	101.3	0.0	104.4	0.0	124.9	0.0	130.9	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
03/04/2011	12.5	1.9	17.5	26.5	59.2	0.0	58.7	0.0	61.0	0.0	58.5	0.0
03/05/2011	12.5	1.8	18.9	25.7	49.4	0.0	46.0	0.0	49.9	0.0	51.2	0.0
03/06/2011	12.5	1.8	18.8	27.1	56.4	0.0	52.6	0.0	55.3	0.0	53.5	0.0
03/07/2011	12.6	1.9	21.0	24.4	58.4	0.0	54.2	0.0	58.5	0.0	59.4	0.0
03/08/2011	12.5	1.9	21.1	24.0	50.9	0.0	50.1	0.0	55.6	0.0	54.7	0.0
03/09/2011	12.6	1.9	19.4	21.9	53.8	0.0	52.3	0.0	57.9	0.0	59.1	0.0
03/10/2011	13.9	3.3	20.3	19.4	50.6	0.0	47.5	0.0	50.1	0.0	45.9	0.0
03/11/2011	14.1	3.4	20.8	19.4	56.3	0.0	59.9	0.0	68.7	0.0	67.9	0.0
03/12/2011	14.1	3.4	21.3	23.5	61.0	0.0	61.6	0.0	68.0	0.0	66.8	0.0
03/13/2011	13.9	3.3	21.9	22.3	48.9	0.0	34.0	0.0	41.6	0.0	43.1	0.0
03/14/2011	13.9	3.4	25.0	22.6	58.5	0.0	57.8	0.0	62.7	0.0	60.6	0.0
03/15/2011	14.0	3.4	27.7	25.0	61.0	0.0	60.2	0.0	68.1	0.0	70.0	0.0
03/16/2011	13.9	3.4	35.3	19.2	64.1	0.0	56.0	0.0	61.9	0.0	62.9	0.0
03/17/2011	13.9	3.4	---	---	74.6	0.0	75.8	0.0	88.1	0.0	88.4	12.5

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
03/04/2011	208.9	53.0	214.5	0.0	217.4	0.0	223.9	1.2	91.6	121.4
03/05/2011	208.7	52.7	183.9	0.0	186.5	0.0	202.7	1.3	86.7	107.7
03/06/2011	206.4	47.8	184.0	0.0	184.2	0.0	191.2	1.3	83.1	99.8
03/07/2011	207.0	47.8	211.9	0.0	214.1	3.8	215.5	1.5	90.8	116.2
03/08/2011	206.5	47.7	192.2	0.0	191.8	0.0	216.2	1.4	93.2	114.6
03/09/2011	208.8	47.7	226.5	0.0	224.6	0.0	222.5	1.4	93.6	120.5
03/10/2011	209.9	47.2	197.1	0.0	201.3	0.0	225.9	1.4	96.3	121.2
03/11/2011	199.4	38.9	203.7	0.0	204.0	0.0	235.0	1.4	101.8	124.8
03/12/2011	204.8	48.0	222.0	0.0	228.0	0.0	246.3	1.4	118.8	119.2
03/13/2011	205.0	50.1	187.2	0.0	185.5	0.0	202.3	1.4	88.2	105.6
03/14/2011	203.1	48.0	214.2	0.0	220.2	0.0	229.9	1.4	103.5	115.9
03/15/2011	217.7	62.3	209.5	0.0	209.2	0.0	226.6	1.4	96.2	117.0
03/16/2011	209.8	53.9	178.9	0.0	182.5	0.0	216.3	1.3	92.5	110.9
03/17/2011	229.4	70.9	222.9	0.0	224.3	0.0	243.5	1.4	107.3	122.8

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
3/4	---	---	---	0	100.1	100.4	100.7	19	101.3	101.5	101.6	24	102.3	102.5	102.8	19	---	---	---	0
3/5	---	---	---	0	101.1	101.6	102.2	22	101.5	101.6	101.9	24	102.7	102.9	103.2	22	---	---	---	0
3/6	---	---	---	0	101.8	102.4	103.5	22	102.0	102.4	102.5	24	103.2	103.5	103.8	22	---	---	---	0
3/7	---	---	---	0	102.4	102.7	103.7	21	102.5	102.7	102.8	24	103.8	104.1	104.6	21	---	---	---	0
3/8	---	---	---	0	102.2	102.6	103.3	22	102.0	102.2	102.3	24	103.2	103.4	103.7	22	---	---	---	0
3/9	---	---	---	0	102.0	102.5	103.2	24	101.9	102.2	102.5	24	102.9	103.2	103.7	24	---	---	---	0
3/10	---	---	---	0	103.2	103.5	104.0	19	102.9	103.2	103.3	24	104.0	104.2	104.9	19	---	---	---	0
3/11	---	---	---	0	102.2	102.6	103.2	19	101.9	102.0	102.2	24	102.9	103.1	103.2	19	---	---	---	0
3/12	---	---	---	0	102.4	103.0	104.1	23	102.1	102.4	102.6	24	102.9	103.3	103.5	23	---	---	---	0
3/13	---	---	---	0	102.4	103.0	103.7	19	102.5	102.9	103.2	22	103.4	103.8	104.2	19	---	---	---	0
3/14	---	---	---	0	102.4	102.5	102.9	20	102.2	102.3	102.6	24	103.5	103.7	103.9	20	---	---	---	0
3/15	---	---	---	0	103.0	103.8	104.2	21	103.1	103.5	103.8	24	104.3	104.7	105.2	21	---	---	---	0
3/16	---	---	---	0	103.5	103.9	104.7	23	103.0	103.2	103.5	24	104.2	104.5	104.9	23	---	---	---	0
3/17	---	---	---	0	102.5	102.9	103.3	21	102.1	102.2	102.3	24	103.4	103.7	103.8	21	---	---	---	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
3/4	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/5	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/6	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/7	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/8	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/9	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/10	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/11	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/12	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/13	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/14	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/15	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/16	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/17	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	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
3/4	---	---	---	0	---	---	---	0	99.5	99.7	99.9	24	100.9	101.4	101.6	24	101.7	102.3	102.5	24
3/5	---	---	---	0	---	---	---	0	100.5	101.3	101.8	24	101.3	102.8	104.3	24	101.7	102.4	102.7	24
3/6	---	---	---	0	---	---	---	0	103.1	104.3	105.3	24	102.4	103.4	104.5	24	102.9	103.8	104.7	24
3/7	---	---	---	0	---	---	---	0	103.9	104.7	105.6	24	103.8	104.3	104.7	24	103.9	104.4	104.8	24
3/8	---	---	---	0	---	---	---	0	101.7	101.9	102.4	24	102.0	102.2	102.6	24	103.2	103.7	103.9	24
3/9	---	---	---	0	---	---	---	0	101.1	101.1	101.1	1	101.2	101.2	101.2	1	102.5	102.5	102.5	1
3/10	---	---	---	0	---	---	---	0	102.4	102.6	102.8	24	102.5	102.9	104.7	24	103.5	104.1	104.8	24
3/11	---	---	---	0	---	---	---	0	101.2	101.5	101.6	24	101.2	101.4	101.7	24	101.7	102.2	102.4	24
3/12	---	---	---	0	---	---	---	0	101.5	101.7	102.0	24	102.2	102.7	103.5	24	102.8	103.3	105.0	24
3/13	---	---	---	0	---	---	---	0	101.7	102.1	102.4	24	129.1	156.2	746.0	24	130.0	157.1	748.0	24
3/14	---	---	---	0	---	---	---	0	101.4	101.6	101.9	24	101.1	101.3	101.9	24	102.2	102.8	104.1	24
3/15	---	---	---	0	---	---	---	0	102.4	102.8	103.0	24	102.1	102.4	102.5	24	102.8	103.3	103.8	24
3/16	---	---	---	0	---	---	---	0	102.1	102.3	102.5	24	101.9	102.1	102.3	24	102.0	102.3	102.7	24
3/17	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0

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

Total Dissolved Gas Saturation Data at 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
3/4	105.0	107.2	107.8	24	---	---	---	0	92.3	92.5	92.7	24	---	---	---	0	---	---	---	0
3/5	107.6	108.5	108.9	24	---	---	---	0	92.8	92.9	92.9	24	---	---	---	0	---	---	---	0
3/6	103.1	104.0	106.0	24	---	---	---	0	93.3	93.5	93.7	24	---	---	---	0	---	---	---	0
3/7	103.7	104.2	104.5	24	---	---	---	0	96.0	98.0	99.1	23	---	---	---	0	---	---	---	0
3/8	103.0	103.4	103.6	24	---	---	---	0	97.9	98.1	98.6	24	---	---	---	0	---	---	---	0
3/9	101.7	101.7	101.7	1	---	---	---	0	98.1	98.3	98.4	24	---	---	---	0	---	---	---	0
3/10	103.2	103.8	105.6	24	102.7	103.0	103.5	14	103.7	103.7	104.0	16	---	---	---	0	---	---	---	0
3/11	101.5	101.8	102.2	24	102.0	103.1	103.8	24	103.8	104.1	104.5	24	---	---	---	0	---	---	---	0
3/12	102.3	102.6	104.0	24	102.4	102.9	103.5	24	104.2	104.8	105.0	24	---	---	---	0	---	---	---	0
3/13	102.7	103.0	103.7	23	102.6	103.2	103.5	22	104.4	104.7	104.9	22	---	---	---	0	---	---	---	0
3/14	101.8	102.2	103.2	24	102.4	103.1	103.3	24	103.8	104.3	104.9	24	---	---	---	0	---	---	---	0
3/15	102.9	103.3	105.1	24	103.3	103.5	103.8	24	104.9	104.9	105.3	12	---	---	---	0	---	---	---	0
3/16	102.2	102.5	104.4	24	102.1	102.4	102.7	24	104.9	105.1	105.9	14	---	---	---	0	101.4	101.5	102.0	15
3/17	---	---	---	0	101.8	102.7	103.2	24	103.9	104.2	104.4	24	102.1	102.2	103.6	14	101.3	101.9	102.4	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
3/4	---	---	---	0	---	---	---	0	99.8	100.2	100.9	24	---	---	---	0	98.7	99.0	99.4	23
3/5	---	---	---	0	---	---	---	0	100.6	100.8	101.0	24	---	---	---	0	99.3	99.5	99.7	24
3/6	---	---	---	0	---	---	---	0	101.4	101.7	101.8	24	---	---	---	0	100.2	100.6	100.7	24
3/7	---	---	---	0	---	---	---	0	101.8	102.0	102.5	24	---	---	---	0	101.0	101.2	101.4	24
3/8	---	---	---	0	---	---	---	0	101.6	101.8	102.4	24	101.6	101.7	102.0	14	100.8	101.2	102.1	24
3/9	---	---	---	0	---	---	---	0	102.0	102.9	108.4	24	101.6	102.0	102.4	24	100.6	101.0	101.5	24
3/10	---	---	---	0	---	---	---	0	101.6	102.1	102.8	24	102.6	102.7	102.8	24	101.4	101.7	102.0	24
3/11	---	---	---	0	---	---	---	0	100.0	100.1	100.3	24	101.3	101.5	101.6	24	100.3	100.5	100.8	24
3/12	---	---	---	0	---	---	---	0	100.7	101.0	101.4	24	101.7	101.9	102.3	24	100.8	101.1	101.3	24
3/13	---	---	---	0	---	---	---	0	101.2	101.5	101.7	22	102.1	102.4	102.9	22	101.2	101.6	101.9	22
3/14	---	---	---	0	---	---	---	0	100.5	100.8	101.1	24	101.6	101.8	102.1	24	100.6	100.7	101.1	24
3/15	---	---	---	0	103.4	103.4	103.6	12	102.2	102.9	103.5	24	102.3	102.5	102.8	24	101.3	101.5	101.8	24
3/16	---	---	---	0	102.9	103.1	103.3	24	102.3	102.6	102.8	24	102.1	102.3	102.5	24	101.2	101.5	103.4	24
3/17	102.1	102.1	105.9	12	101.9	102.0	102.3	24	101.3	101.5	101.6	24	101.4	101.6	102.3	24	100.5	100.6	100.8	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
3/4	---	---	---	0	98.6	98.9	99.0	24	---	---	---	0	97.6	97.8	98.0	24	---	---	---	0
3/5	---	---	---	0	99.1	99.3	99.4	24	---	---	---	0	98.3	98.6	98.7	24	---	---	---	0
3/6	---	---	---	0	99.9	100.3	100.5	24	---	---	---	0	99.2	99.6	99.7	24	---	---	---	0
3/7	---	---	---	0	100.5	100.6	100.7	24	---	---	---	0	99.7	99.9	100.0	24	---	---	---	0
3/8	---	---	---	0	100.5	100.7	101.6	24	---	---	---	0	99.6	99.9	100.1	24	---	---	---	0
3/9	101.3	101.3	101.8	13	101.0	101.4	104.2	24	101.0	101.0	101.5	10	99.8	100.2	100.7	24	---	---	---	0
3/10	102.1	102.2	102.3	24	101.9	102.2	103.0	24	101.4	101.6	101.7	24	100.9	101.3	103.5	24	---	---	---	0
3/11	101.3	101.6	101.7	24	101.1	101.2	101.3	23	100.6	100.9	101.1	24	100.1	100.4	100.7	24	---	---	---	0
3/12	101.9	102.1	102.3	24	101.6	101.8	102.1	24	101.4	101.5	101.7	24	100.7	101.0	101.4	24	---	---	---	0
3/13	102.1	102.4	102.8	22	101.9	102.3	102.8	21	102.0	102.4	103.0	22	101.5	101.9	102.2	22	---	---	---	0
3/14	101.9	102.0	102.3	24	101.8	102.0	102.3	24	101.8	102.0	102.3	24	101.3	101.5	101.6	24	---	---	---	0
3/15	102.9	103.3	103.5	24	103.1	103.5	104.0	24	103.1	103.5	103.8	24	102.4	102.8	103.1	24	---	---	---	0
3/16	102.5	102.8	103.0	24	102.7	103.0	103.4	24	102.7	102.9	103.1	24	102.1	102.3	102.5	24	---	---	---	0
3/17	101.5	101.6	101.8	24	101.7	101.9	102.1	24	101.9	102.1	102.3	24	105.1	107.6	107.7	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
3/4	---	---	---	0	109.2	109.5	110.0	24	---	---	---	0	101.4	101.8	102.0	24	---	---	---	0
3/5	---	---	---	0	109.9	110.2	110.4	24	---	---	---	0	102.6	103.2	103.4	24	---	---	---	0
3/6	---	---	---	0	110.0	110.2	110.3	24	---	---	---	0	104.7	105.4	105.7	24	---	---	---	0
3/7	---	---	---	0	110.3	110.5	110.7	24	---	---	---	0	105.6	105.8	106.2	24	---	---	---	0
3/8	---	---	---	0	110.7	111.0	111.3	24	---	---	---	0	104.9	105.2	106.1	24	---	---	---	0
3/9	---	---	---	0	110.1	110.4	110.6	24	---	---	---	0	105.4	105.9	106.5	24	---	---	---	0
3/10	103.7	103.7	104.4	11	109.8	110.0	110.2	24	---	---	---	0	106.4	106.7	106.9	24	---	---	---	0
3/11	103.1	103.3	103.6	24	108.6	110.1	110.3	24	---	---	---	0	105.5	105.9	106.1	24	---	---	---	0
3/12	102.8	103.2	103.5	24	109.7	110.0	110.4	24	---	---	---	0	106.0	106.2	106.3	24	---	---	---	0
3/13	103.0	103.4	103.9	22	110.1	110.5	112.3	22	---	---	---	0	106.6	107.0	107.6	22	---	---	---	0
3/14	102.6	102.9	103.4	24	109.7	109.9	110.0	24	---	---	---	0	106.2	106.3	106.5	24	---	---	---	0
3/15	103.8	104.0	104.4	24	112.3	112.9	113.2	24	---	---	---	0	106.1	106.1	106.5	9	---	---	---	0
3/16	103.4	103.5	103.7	24	110.5	110.7	111.0	24	---	---	---	0	105.5	105.7	106.0	19	---	---	---	0
3/17	102.8	102.9	103.3	24	112.6	114.1	114.2	24	---	---	---	0	105.3	105.7	105.8	24	---	---	---	0

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
3/4	101.5	101.7	101.8	24	---	---	---	0	102.1	102.3	102.6	24	---	---	---	0	---	---	---	0
3/5	102.3	102.5	102.5	24	---	---	---	0	102.6	102.9	103.1	24	---	---	---	0	---	---	---	0
3/6	103.5	104.0	104.2	24	---	---	---	0	103.7	104.1	104.3	24	---	---	---	0	---	---	---	0
3/7	105.0	105.5	108.5	24	---	---	---	0	104.3	104.5	105.0	24	104.4	104.4	104.9	13	---	---	---	0
3/8	104.9	105.1	105.3	24	---	---	---	0	104.4	104.6	104.9	24	103.7	104.0	104.5	24	---	---	---	0
3/9	104.9	105.1	105.6	24	---	---	---	0	105.5	105.7	106.1	24	104.5	105.3	105.8	24	---	---	---	0
3/10	105.6	106.0	106.1	24	---	---	---	0	105.7	106.0	106.3	24	105.1	105.5	105.9	24	---	---	---	0
3/11	104.9	105.1	105.4	24	---	---	---	0	104.7	105.1	105.4	24	104.5	105.1	105.6	24	112.4	112.5	119.5	13
3/12	105.4	105.7	105.8	24	---	---	---	0	105.2	105.3	105.4	24	104.5	104.7	105.0	24	111.3	111.7	111.9	24
3/13	105.7	106.0	106.5	22	---	---	---	0	105.6	105.9	106.6	22	104.5	104.8	105.2	22	111.0	111.2	111.5	22
3/14	105.4	105.6	106.1	24	---	---	---	0	104.8	105.2	105.9	24	104.4	105.1	105.6	24	110.7	111.2	111.6	24
3/15	106.4	106.6	106.9	24	---	---	---	0	106.4	106.7	107.0	24	105.4	105.7	106.0	24	111.3	111.8	112.1	24
3/16	105.2	105.5	105.7	24	---	---	---	0	105.9	106.0	106.2	24	105.0	105.2	105.3	24	110.6	110.8	111.1	24
3/17	104.7	105.1	105.3	24	---	---	---	0	105.3	105.6	105.7	24	105.2	105.8	106.3	24	111.0	111.6	112.7	24

Two-Week Summary of Passage Indices

				COMBINED YEARLING CHINOOK								
		WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date		(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
03/04/2011	*	---	3	---	---	---	---	---	---	---	---	0
03/05/2011		---	4	---	---	---	---	---	---	---	---	7
03/06/2011		---	7	---	---	---	---	---	---	---	---	14
03/07/2011	*	1	1	2	0	---	---	---	---	---	---	7
03/08/2011	*	1	5	2	0	---	---	---	---	---	---	7
03/09/2011		12	6	4	0	---	---	---	---	---	---	15
03/10/2011	*	3	3	2	0	---	---	---	---	---	---	7
03/11/2011	*	9	3	8	0	---	---	---	---	---	---	0
03/12/2011		3	11	10	0	---	---	---	---	---	---	15
03/13/2011		4	5	11	0	---	---	---	---	---	---	0
03/14/2011	*	5	10	8	0	---	---	---	---	---	---	14
03/15/2011	*	0	45	5	0	---	---	---	---	---	---	15
03/16/2011	*	42	30	20	0	---	---	---	---	---	---	23
03/17/2011	*	951	---	10	1	---	---	---	---	---	---	53
03/18/2011		---	---	---	---	---	---	---	---	---	---	---
Total:		**1,031**	**133**	**82**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**177**
# Days:		**11**	**13**	**11**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**14**
Average:		**94**	**10**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**13**
YTD		**1,031**	**471**	**82**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**206**

				COMBINED SUBYEARLING CHINOOK								
		WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date		(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
03/04/2011	*	---	0	---	---	---	---	---	---	---	---	242
03/05/2011		---	0	---	---	---	---	---	---	---	---	369
03/06/2011		---	0	---	---	---	---	---	---	---	---	296
03/07/2011	*	1	0	2	1	---	---	---	---	---	---	185
03/08/2011	*	0	0	0	0	---	---	---	---	---	---	294
03/09/2011		0	0	2	0	---	---	---	---	---	---	183
03/10/2011	*	0	0	1	0	---	---	---	---	---	---	439
03/11/2011	*	0	0	0	0	---	---	---	---	---	---	1,109
03/12/2011		0	0	0	0	---	---	---	---	---	---	3,273
03/13/2011		0	0	0	0	---	---	---	---	---	---	2,494
03/14/2011	*	0	0	0	1	---	---	---	---	---	---	1,268
03/15/2011	*	8	0	0	1	---	---	---	---	---	---	1,697
03/16/2011	*	0	0	0	0	---	---	---	---	---	---	1,574
03/17/2011	*	0	---	0	1	---	---	---	---	---	---	2,364
03/18/2011		---	---	---	---	---	---	---	---	---	---	---
Total:		**9**	**0**	**5**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**15,787**
# Days:		**11**	**13**	**11**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**14**
Average:		**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,128**
YTD		**9**	**0**	**5**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**16,028**

Two-Week Summary of Passage Indices

COMBINED COHO

Date		WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
03/04/2011	*	---	0	---	---	---	---	---	---	---	---	22
03/05/2011		---	0	---	---	---	---	---	---	---	---	14
03/06/2011		---	0	---	---	---	---	---	---	---	---	22
03/07/2011	*	0	0	0	0	---	---	---	---	---	---	37
03/08/2011	*	0	0	0	0	---	---	---	---	---	---	29
03/09/2011		0	0	0	0	---	---	---	---	---	---	15
03/10/2011	*	0	0	0	0	---	---	---	---	---	---	28
03/11/2011	*	0	0	0	0	---	---	---	---	---	---	79
03/12/2011		0	0	0	0	---	---	---	---	---	---	46
03/13/2011		0	0	0	0	---	---	---	---	---	---	88
03/14/2011	*	0	0	0	0	---	---	---	---	---	---	58
03/15/2011	*	0	0	0	1	---	---	---	---	---	---	23
03/16/2011	*	0	0	0	1	---	---	---	---	---	---	38
03/17/2011	*	0	---	0	2	---	---	---	---	---	---	30
03/18/2011		---	---	---	---	---	---	---	---	---	---	---
Total:		**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**529**
# Days:		**11**	**13**	**11**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**14**
Average:		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**38**
YTD		**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**566**

COMBINED STEELHEAD

Date		WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
03/04/2011	*	---	2	---	---	---	---	---	---	---	---	0
03/05/2011		---	0	---	---	---	---	---	---	---	---	0
03/06/2011		---	0	---	---	---	---	---	---	---	---	0
03/07/2011	*	0	0	0	0	---	---	---	---	---	---	0
03/08/2011	*	0	0	0	0	---	---	---	---	---	---	0
03/09/2011		0	0	0	0	---	---	---	---	---	---	7
03/10/2011	*	0	0	0	0	---	---	---	---	---	---	0
03/11/2011	*	0	0	0	0	---	---	---	---	---	---	0
03/12/2011		0	0	0	0	---	---	---	---	---	---	23
03/13/2011		0	0	0	1	---	---	---	---	---	---	16
03/14/2011	*	0	0	0	0	---	---	---	---	---	---	7
03/15/2011	*	0	1	0	0	---	---	---	---	---	---	0
03/16/2011	*	0	0	2	0	---	---	---	---	---	---	0
03/17/2011	*	3	---	2	1	---	---	---	---	---	---	0
03/18/2011		---	---	---	---	---	---	---	---	---	---	---
Total:		**3**	**3**	**4**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**53**
# Days:		**11**	**13**	**11**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**14**
Average:		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**
YTD		**3**	**24**	**4**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**53**

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)
03/04/2011	*	---	0	---	---	---	---	---	---	---	---	0
03/05/2011		---	0	---	---	---	---	---	---	---	---	0
03/06/2011		---	0	---	---	---	---	---	---	---	---	22
03/07/2011	*	0	0	0	0	---	---	---	---	---	---	0
03/08/2011	*	0	0	0	0	---	---	---	---	---	---	0
03/09/2011		0	0	0	0	---	---	---	---	---	---	7
03/10/2011	*	0	0	0	0	---	---	---	---	---	---	21
03/11/2011	*	0	0	0	0	---	---	---	---	---	---	7
03/12/2011		0	0	0	0	---	---	---	---	---	---	0
03/13/2011		0	0	0	0	---	---	---	---	---	---	0
03/14/2011	*	0	0	0	0	---	---	---	---	---	---	7
03/15/2011	*	0	0	0	0	---	---	---	---	---	---	8
03/16/2011	*	0	0	0	0	---	---	---	---	---	---	8
03/17/2011	*	0	---	0	0	---	---	---	---	---	---	8
03/18/2011		---	---	---	---	---	---	---	---	---	---	---
Total:		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**88**
# Days:		**11**	**13**	**11**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**14**
Average:		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**
YTD		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**88**

				COMBINED LAMPREY JUVENILES								
		WTB	IMN	GRN	LEW	LGR†	LGS	LMN	RIS	MCN	JDA	BO2
Date		(Coll)	(Coll)	(Coll)	(Coll)	(Coll)	(Coll)	(Coll)	(Coll)	(Coll)	(Coll)	(Coll)
03/04/2011	*	---	0	---	---	---	---	---	---	---	---	100
03/05/2011		---	0	---	---	---	---	---	---	---	---	104
03/06/2011		---	0	---	---	---	---	---	---	---	---	80
03/07/2011	*	0	0	0	0	---	---	---	---	---	---	112
03/08/2011	*	0	0	0	0	---	---	---	---	---	---	92
03/09/2011		0	0	0	0	---	---	---	---	---	---	112
03/10/2011	*	0	0	0	0	---	---	---	---	---	---	172
03/11/2011	*	0	0	0	0	---	---	---	---	---	---	248
03/12/2011		0	0	0	0	---	---	---	---	---	---	144
03/13/2011		0	0	0	0	---	---	---	---	---	---	192
03/14/2011	*	0	0	0	0	---	---	---	---	---	---	120
03/15/2011	*	0	0	0	0	---	---	---	---	---	---	208
03/16/2011	*	0	0	0	0	---	---	---	---	---	---	72
03/17/2011	*	0	---	0	0	---	---	---	---	---	---	52
03/18/2011		---	---	---	---	---	---	---	---	---	---	---
Total:		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,808**
# Days:		**11**	**13**	**11**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**14**
Average:		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**129**
YTD		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,896**

Two-Week Summary of Passage Indices

* See sampling comments http://www.fpc.org/currentDaily/smpcomments.htm

Smolt indices, clipped & unclipped or combined, are presented in the following order: yearling chinook (chinook 1's,) subyearling chinook (chinook 0's), steelhead, coho, sockeye, and lamprey juveniles. Two classes of fish counts are shown in these tables:
Two classes of fish counts are shown in these tables:
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, and pacific lamprey macropthalmia.
† Caution should be used with interpreting lamprey juvenile collection counts at LGR because of the possibility that lamprey may escape the sample tank before being sampled

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 Through: 03/17

		Spring Chinook						Summer Chinook						Fall Chinook					
		2011		2010		10-Yr Avg.		2011		2010		10-Yr Avg.		2011		2010		10-Yr Avg.	
DAM	EndDa	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	**03/17**	**10**	**0**	**24**	**2**	**246**	**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	**03/15**	**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**	**1**	**0**	**35**	**0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0**	**0**	**0**	**0**	**-**	**-**

	Coho						Sockeye			Steelhead			
	2011		2010		10-Yr Avg.				10-Yr			10-Yr	Wild
DAM	Adult	Jack	Adult	Jack	Adult	Jack	2011	2010	Avg.	2011	2010	Avg.	2011
BON	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**116**	**336**	**114**	**55**
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**	**1435**	**1367**	**2170**	**411**
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**	**-**	**-**	**-**	**-**	**-**	**3744**	**3321**	**-**	**-**

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.

Page last updated on: 03/17/11

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

Year	Chinook Adult	Chinook Jack	Steelhead	Wild Steelhead
2011	49	1	1,419	600
2010	39	0	2,318	657