



Fish Passage Center

Weekly Report #12 - 03

March 30, 2012

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Summary of Events:

Water Supply: Precipitation throughout the Columbia Basin has varied between 104% and 225% of average at individual sub-basins over March. Precipitation above The Dalles has been 169% of average over March. Over the 2012 water year, precipitation has ranged between 65% and 114% of average.

Table 1. Summary of March precipitation and cumulative October through March 26, 2012 precipitation with respect to average (1971-2000), at select locations within the Columbia and Snake River Basins.

Location	Water Year 2012 March 1-26, 2012		Water Year 2012 October 1, 2011 to March 26, 2012	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia Above Coulee	2.93	195	14.74	106
Snake River Above Ice Harbor	2.14	155	9.99	100
Columbia Above The Dalles	2.73	169	14.42	103
Kootenai	3.36	225	14.67	103
Clark Fork	1.76	175	10.06	114
Flathead	2.51	184	12.78	107
Pend Oreille/ Spokane	4.83	208	20.12	102
Central Washington	0.72	104	3.78	65
Snake River Plain	1.20	126	6.11	103
Salmon/Boise/ Payette	2.98	183	12.32	99
Clearwater	4.24	181	19.75	109
SW Washington Cascades/ Cowlitz	8.37	141	48.91	93
Willamette Valley	8.99	168	43.24	98

Snowpack within the Columbia Basin 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 110% of average, for Snake River Basins the average snowpack is 86% of average, and for lower Columbia Basins between McNary and Bonneville Dam average snowpack is 103% of average.

The NWRFC has eliminated the distribution of their Multiple Linear Regression Water Supply Forecasts as their "Official" forecast and are now producing ESP (Ensemble Streamflow Prediction) forecasts at least once per week. The "Official" March ESP forecast was produced on March 7, 2012.

Table 2 displays the March 7th and 26th ESP runoff volume forecasts for multiple reservoirs. The March 7th "Official" forecast at The Dalles between January and July is 99564 Kaf (93% of average).

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

Location	March 7, 2012 ESP		March 26, 2012 ESP	
	% Average (1971 -2000)	Runoff Volume (Kaf)	% Average (1971 -2000)	Runoff Volume (Kaf)
The Dalles (Jan-July)	93	99564	103	110123
Grand Coulee (Jan-July)	96	60617	106	66592
Libby Res. Inflow, MT (Apr-Aug)	103	6442 5635*	114	7114 5635*
Hungry Horse Res. Inflow, MT (Jan-July)	87	1937	99	2200
Lower Granite Res. Inflow (Apr- July)	89	19085	100	21633
Brownlee Res. Inflow (Apr-July)	82	5149	93	5845
Dworshak Res. Inflow (Apr-July)	96	2528 2585*	107	2821 2585*

* Denotes COE Forecast

Grand Coulee Reservoir is at 1260.3 feet (3-28-12) and drafted 6.6 feet over the last week. The end of March FC Elevation at Grand Coulee is 1270.1 feet. Outflows at Grand Coulee have ranged between 132.6 and 161.7 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2403.8 feet (3-28-12) and has drafted 3.1 feet last week. The end of March FC Elevation at Libby is 2435.7 feet. Outflows at Libby Dam have been 4.0-17.0 Kcfs last week.

Hungry Horse is currently at an elevation of 3529.1 feet (3-28-12) and has drafted 0.8 feet last week. The end of March FC Elevation at Hungry Horse is 3537.4 feet. Outflows at Hungry Horse have ranged between 1.2 and 5.5 Kcfs last week.

Dworshak is currently at an elevation of 1523.1 feet (3-28-12) and has drafted 2.2 feet last week. The end of March System Flood Control Elevation is 1522.8 feet. Outflows from Dworshak have ranged from 10.6 to 14.0 Kcfs over the past week.

The Brownlee Reservoir was at an elevation of 2041.7 feet on March 27th, 2012 drafting 2.9 feet since March 22nd, 2012. The end of March FC Elevation at Brownlee is 2042.9 feet. Over the last week, outflows at Brownlee have ranged between 29.6 and 33.4 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. Involuntary (excess hydraulic capacity or excess generation) spill has occurred over the past week at most projects in the hydro-system. This spill is a result of recent high flows from an increase in precipitation, and from increased outflow from storage reservoirs as they position for flood control.

Smolt Monitoring:

Smolt monitoring is ongoing at Bonneville Dam and the four SMP traps. Smolt monitoring activities began on March 25th at Lower Granite Dam, with the first sample available on March 26th. Sampling is scheduled to begin at Rock Island and John Day dams on April 1st. In addition, Lower Monumental and Little Goose dams are scheduled to begin condition sampling in early April. Little Goose Dam will do a condition sample from April 2 to April 5 and then every 5 days until the start of transportation. Lower Monumental Dam will begin condition sampling on April 3rd and continue condition sampling every 3 days until the start of transportation. McNary Dam is not scheduled to begin sampling until

mid-April when fish screens will be installed. Screen installation is being delayed again this year to facilitate juvenile lamprey passage at this site.

Compared to a week ago, the passage index for yearling Chinook at Bonneville Dam (BON) decreased. The daily average passage index at BON for yearling Chinook this week was 318 per day. Subyearling Chinook numbers (fry) remained high this week, with an average daily passage index of over 1,500 per day. Samples of coho fry and steelhead juveniles remained low this week. The collection counts of juvenile lamprey have increased over the past week, with a daily average collection of about 369 pacific macrophthalmia per day and very few pacific ammocoetes. From March 24th to March 26th, lamprey juvenile mortality was in the 13-25% range. The Corps of Engineers addressed this high mortality by cleaning the screens on March 26th. Lamprey mortality remained high through March 28th but most of the dead lamprey coming into the sample on March 27th and 28th were clearly old mortalities and had likely been washed into the sample from the screen cleaning activities on the 26th. By the March 29th sample, lamprey mortality was back down to less than 5%.

Lower Granite Dam (LGR) began sampling this week, with the first sample available on March 26th. The SMP crew at LGR experienced occasional malfunctions of the electronic counters on a couple days of sampling this week. These malfunctions may lead to a slight bias in the sample counts at LGR. The direction of the bias is unknown at this point. The passage index for yearling Chinook at LGR has been relatively high, particularly for this early in the season. This is likely due to a combination of the high flows in the Snake River Basin and hatchery releases this week, particularly in the Clearwater River and its tributaries. Over the four days of sampling at LGR, the average daily passage index for yearling Chinook juveniles is nearly 6,900 per day, with a passage index of nearly 12,000 yearling Chinook for the March 29 sample. LGR has also seen a relatively high number of steelhead over the past four days, with a daily passage index of 1,940 per day. There have been relatively few subyearling Chinook (fry), coho, and sockeye/kokanee passing LGR over the past four days. Finally, the collection counts of juvenile lamprey at LGR have averaged about 168 per day for pacific macrophthalmia and nearly 24 per day for pacific ammocoetes.

The Grande Ronde Trap continues to collect mostly yearling Chinook. The collection of yearling

Chinook increased this week, with a daily average of about 790 fish per day. The majority of the yearling Chinook collected over the past week are of hatchery origin and are likely from the releases from the Grande Ronde or Catherine Creek acclimation ponds. The Grande Ronde Trap continues to collect only a small number of subyearling Chinook fry and steelhead juveniles.

Yearling Chinook continue dominate the collection at the Salmon River Trap. This week's daily average collection for yearling Chinook was 1,110 fish per day. Approximately 45% of the yearling Chinook collected at the Salmon River Trap this week were unmarked.

Collections of yearling Chinook continued to increase at the Snake River Trap this week. Yearling Chinook continue to dominate the collections at the Snake River Trap. The daily average collection for yearling Chinook was 54 fish per day. Approximately 60% of the yearling Chinook collected at the Snake River trap this week were unmarked. To date, the Snake River Trap has collected 38 steelhead juveniles, of which approximately 82% were collected this week.

Yearling Chinook are the dominate species in the collections from the Imnaha Trap. Over the past 5 days, yearling Chinook collections have averaged 344 per day. The Imnaha Trap has collected some steelhead juveniles over the past five days, with a daily average collection of 26 per day. Prior to March 24th, all yearling Chinook and steelhead collected at the Imnaha Trap were unclipped. However, over the past five days, unclipped Chinook only made up about 32% of the total Chinook collection while unclipped steelhead made up about 55% of the total steelhead collection.

Adult Fish Passage

The historical counting schedule at Bonneville Dam began March 15th and continues through November 15th. This counting schedule allows for comparison of current year counts with historical data. The historical counting schedule begins, April 1st, for The Dalles Dam, John Day Dam, McNary Dam, Lower Monumental Dam and Little Goose Dam. Willamette Falls Dam counts adult salmon throughout the entire year, while Lower Granite Dam started counting on March 1st.

Adult counts at Bonneville Dam have been updated through March 28th. From March 15th through March 28th, daily adult spring Chinook counts at Bonneville Dam ranged from 0 to 3 adult

salmon per day. As of March 28th, using the historical counting schedule, 22 spring Chinook have been counted at Bonneville Dam. In 2011, 87 adult spring Chinook were counted at Bonneville Dam for the same time period. The 2012 adult spring Chinook count at Bonneville Dam is 25.3% of the 2011 count and only 1.8% of the 10 year average of 1,192. At Willamette Falls Dam 2 adult spring Chinook has been counted so far this year.

The Bonneville Dam 2012 steelhead count of 1,095 is about 1.8 times greater than the 2011 count of 611 and 1.76 times greater than the 10 year average count of 621. The 2012 Bonneville wild adult steelhead count of 352 is about 1.3 times greater than the 2011 count of 270 and about 2.7 times greater than the 10 year average count of 132. This year's Lower Granite steelhead count of 3,543 is about 87.6% of the 2011 count of 4,042 and 75.6% of the 10 year average of 4,685. The 2012 Lower Granite wild adult steelhead count of 1,145 is about 88.7% of the 2011 count, while being 1.25 times greater than the 10 year average. At Willamette Falls Dam, the 2012 adult steelhead count of 2,264 is about 49.5% of the 2011 count and 43.6% of the 10 year average count.

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. Several releases of yearling spring Chinook were scheduled to begin this week. In all, these releases were expected to total nearly 3.2 million juveniles. All 3.2 million yearling spring juveniles that were scheduled for release this week were scheduled to be released into the Clearwater River and its tributaries. In addition, about 206,000 yearling summer Chinook were scheduled to be released into the Crooked River, a tributary of the Clearwater River. This release was scheduled to begin on March 26th. This is the second year that yearling summer Chinook are being released into the Clearwater River basin. As with last year, these Clearwater summer Chinook are 100% unclipped but 100% are tagged with coded-wire-tags. Finally, about 830,000 summer steelhead were scheduled for release into the Pahsimeroi River this week on or around March 27th.

Several releases of yearling spring Chinook juveniles were scheduled to begin over the next two weeks. In all, these releases are expected to total just over 1.8 million juveniles. Of these, approximately 70% were scheduled for release into the Salmon River.

The remaining 30% were scheduled for release throughout this river zone, including: the Clearwater River (11%), the Grande Ronde River (8%), and the Tucannon River (11%), which meets the Snake River below Little Goose Dam. The Tucannon River releases are 100% unclipped but are tagged with coded-wire-tags and blue or purple Elastomer tags.

Approximately 1.03 million yearling summer Chinook are scheduled for release into this zone over the next two weeks. All of these yearling summer Chinook juveniles are scheduled to be released from Pahsimeroi Hatchery, into the Pahsimeroi River. In addition, about 940,000 yearling fall Chinook are scheduled for release into this zone, beginning on or around April 10th. These yearling fall Chinook are planned for release from acclimation ponds on the Snake (32%) and Clearwater (16%) rivers, as well as from Lyons Ferry Hatchery (52%). Nearly 50% of these yearling fall Chinook are unclipped but are tagged with coded-wire-tags.

Kooskia NFH plans to release about 300,000 coho juveniles to the Clearwater River in early April. Of these, 100% are unclipped but about 60,000 are tagged with coded-wire-tags. Finally, nearly 2.9 million summer steelhead are scheduled for release to this zone over the next two weeks. Of these, about 67% are scheduled for release into the Clearwater River and its tributaries. The remaining 33% are scheduled for release throughout this river zone, including: the Salmon River (14%), the Wallowa River (12%), the Grande Ronde River (6%), and the Tucannon River (2%). Of the 2.9 million steelhead juveniles that are scheduled for release over the next two weeks, nearly 22% are unmarked.

Mid-Columbia Zone: The Mid-Columbia Zone encompasses the area of the Columbia River and its tributaries from McNary Dam to Chief Joseph Dam. The volitional releases of about 800,000 spring Chinook juveniles from Cle Elem Hatchery acclimation sites that began last week continued this week. These releases are expected to run through mid-May. Other than the continuation of these volitional releases, there were no releases scheduled to begin this week in this zone.

Nearly 2.74 million yearling summer Chinook are scheduled for release into this zone over the next two weeks. These summer Chinook are scheduled for release throughout this river zone, including: the Mid-Columbia River (33%), the Wenatchee River (32%), the Okanogan River (21%),

and the Methow River (15%). Nearly 505,000 coho juveniles are scheduled for release into this zone over the next two weeks. These coho juveniles are part of the Yakama Tribal program to reintroduce coho to the Wenatchee, Methow, and Yakima rivers. The releases that are scheduled to begin over the next two weeks are scheduled to take place in the Methow River (64%), Wenatchee River (11%), and a direct release into the Mid-Columbia River (25%). All of these coho are unclipped but are tagged with coded-wire-tags. Finally, approximately 89,000 summer steelhead are scheduled for release into the Touchet River, beginning on or around April 10th.

Lower Columbia Zone: The Lower Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to McNary Dam. There were no releases scheduled to begin this week in this zone. Approximately 7.95 million subyearling fall Chinook tules are scheduled for release from Spring Creek NFH and Little White Salmon NFH on April 11th and 12th. This is the third year of fall Chinook tule releases under the Spring Creek Reprogramming MOA. Under the Spring Creek Reprogramming MOA, the March release of fall Chinook tules from Spring Creek NFH was eliminated by shifting rearing and release capacity of fall Chinook tules to Little White Salmon NFH and Bonneville Hatchery. The releases from Bonneville Hatchery do not take place until May.

In addition, about 706,000 yearling spring Chinook juveniles are scheduled for release into this zone over the next two weeks. Of these, approximately 68% are scheduled for release into the Deschutes River, 21% are scheduled for release into the Umatilla River, and 11% are scheduled for release into Hood River. All of the spring Chinook juveniles that are scheduled for release into the Umatilla River are 100% unclipped but are tagged with coded-wire-tags. Nearly 3.58 million coho juveniles are scheduled for release over the next two weeks. These coho juveniles are scheduled for release into the Klickitat (72%) and Umatilla (28%) rivers. Finally, 162,000 summer steelhead juveniles are scheduled for release into the Deschutes River on or around April 7th.

Hatchery Releases Last Two Weeks

Hatchery Release Summary

From: 3/16/2012 to 03/29/12

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2012	234,000	03-22-12	03-23-12	Clear Creek	Clearwater River M F
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2012	408,000	03-28-12	03-29-12	Powell Acclim Pond	Lochsa River
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2012	1,123,000	03-28-12	04-06-12	Red River	S Fk Clearwater River
Idaho Dept. of Fish and Game	McCall Hatchery	CH1	SU	2012	241,000	03-22-12	03-25-12	Knox Bridge	Salmon River (ID)
Idaho Dept. of Fish and Game	McCall Hatchery	CH1	SU	2012	788,000	03-22-12	03-25-12	Knox Bridge	Salmon River (ID)
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2012	525,000	03-19-12	03-27-12	Hells Canyon Dam	Snake River
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2012	830,000	03-27-12	04-13-12	Pahsimeroi River	Pahsimeroi River
Idaho Dept. of Fish and Game	Rapid River Hatchery	CH1	SP	2012	200,000	03-23-12	03-23-12	Pinehurst Bridge	Little Salmon River
Idaho Dept. of Fish and Game	Rapid River Hatchery	CH1	SP	2012	418,000	03-19-12	03-22-12	Hells Canyon Dam	Snake River
Idaho Dept. of Fish and Game	Rapid River Hatchery	CH1	SP	2012	2,500,000	03-12-12	04-27-12	Rapid River Hatchery	Little Salmon River
Idaho Dept. of Fish and Game Total					7,267,000				
Nez Perce Tribe	Clearwater Hatchery	CH1	SP	2012	415,000	03-21-12	03-22-12	Selway River	Clearwater River M F
Nez Perce Tribe	Clearwater Hatchery	CH1	SU	2012	206,000	03-26-12	03-27-12	Crooked River	S Fk Clearwater River
Nez Perce Tribe	Kooskia NFH	CH1	SP	2012	620,000	03-26-12	03-26-12	Clear Creek	Clearwater River M F
Nez Perce Tribe	Lookingglass Hatchery	CH1	SP	2012	265,000	03-22-12	04-01-12	Lostine Accim Pond	Wallowa River
									South Fork Salmon River
Nez Perce Tribe	McCall Hatchery	CH1	SU	2012	106,000	03-14-12	04-05-12	Johnson Cr Idaho	River
Nez Perce Tribe Total					1,612,000				
U.S. Fish and Wildlife Service	Dworshak NFH	CH1	SP	2012	1,045,000	03-26-12	03-29-12	Dworshak Hatchery	Clearwater River M F
U.S. Fish and Wildlife Service Total					1,045,000				
Umatilla Tribe	Carson NFH	CH1	SP	2012	250,000	03-19-12	03-23-12	Walla Walla River	Walla Walla River
								Catherine Cr Acclim Pond	
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2012	106,884	03-22-12	04-16-12	Pond	Grande Ronde River
								Grande Ronde Acclim Pond	
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2012	146,605	03-21-12	04-01-12	Pond	Grande Ronde River
Umatilla Tribe Total					503,489				
Washington Dept. of Fish and Wildlife	Methow Hatchery	ST	SU	2012	50,000	03-15-12	03-31-12	Twisp Acclim Pond	Methow River
Washington Dept. of Fish and Wildlife Total					50,000				
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2012	264,721	03-15-12	05-15-12	Clark Flat Acclim Pond	Yakima River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2012	265,151	03-15-12	05-15-12	Easton Pond	Yakima River
								Jack Creek Acclim Pond	
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2012	267,107	03-15-12	05-15-12	Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2012	100,000	03-02-12	07-01-12	Prosser Acclim Pond	Yakima River
Yakama Tribe Total					896,979				
Grand Total					11,374,468				

Hatchery Releases Next Two Weeks

Hatchery Release Summary									
From:		3/30/2012	to	4/12/2012					
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2012	1,123,000	03-28-12	04-06-12	Red River	S Fk Clearwater River
Idaho Dept. of Fish and Game	Clearwater Hatchery	ST	SU	2012	120,000	04-11-12	04-12-12	Newsome Creek	S Fk Clearwater River
Idaho Dept. of Fish and Game	Clearwater Hatchery	ST	SU	2012	178,800	04-10-12	04-10-12	Meadow Creek - CLES Redhouse (SFk	S Fk Clearwater River
Idaho Dept. of Fish and Game	Clearwater Hatchery	ST	SU	2012	179,000	04-12-12	04-13-12	ClearH20 R)	S Fk Clearwater River
Idaho Dept. of Fish and Game	Clearwater Hatchery	ST	SU	2012	249,500	04-09-12	04-09-12	Meadow Creek - CLES	S Fk Clearwater River
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2012	90,000	04-09-12	04-09-12	Salmon River (ID)	Salmon River (ID)
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2012	90,000	04-10-12	04-10-12	Shoup Br (Salmon R)	Salmon River (ID)
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2012	90,000	04-11-12	04-11-12	Salmon River (ID)	Salmon River (ID)
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2012	120,000	04-12-12	04-13-12	McNabb/Salmon River	Salmon River (ID)
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2012	830,000	03-27-12	04-13-12	Pahsimeroi River	Pahsimeroi River
Idaho Dept. of Fish and Game	Pahsimeroi Hatchery	CH1	SU	2012	180,000	04-01-12	04-22-12	Pahsimeroi Hatchery	Pahsimeroi River
Idaho Dept. of Fish and Game	Pahsimeroi Hatchery	CH1	SU	2012	853,000	04-01-12	04-22-12	Pahsimeroi Hatchery	Pahsimeroi River
Idaho Dept. of Fish and Game	Rapid River Hatchery	CH1	SP	2012	2,500,000	03-12-12	04-27-12	Rapid River Hatchery	Little Salmon River
Idaho Dept. of Fish and Game	Sawtooth Hatchery	CH1	SP	2012	179,000	04-06-12	04-06-12	Sawtooth Hatchery	Salmon River (ID)
Idaho Dept. of Fish and Game	Sawtooth Hatchery	CH1	SP	2012	1,082,000	04-06-12	04-06-12	Sawtooth Hatchery	Salmon River (ID)
Idaho Dept. of Fish and Game Total					7,864,300				
Nez Perce Tribe	Dworshak NFH	CO	UN	2012	300,000	04-01-12	04-15-12	Kooskia Hatchery	Clearwater River M F
Nez Perce Tribe	Dworshak NFH	ST	SU	2012	40,000	04-02-12	04-02-12	Lolo Creek	Clearwater River M F
Nez Perce Tribe	Dworshak NFH	ST	SU	2012	160,000	04-02-12	04-02-12	Meadow Creek - CLES	S Fk Clearwater River
Nez Perce Tribe	Lookingglass Hatchery	CH1	SP	2012	265,000	03-22-12	04-01-12	Lostine Acclim Pond Big Canyon (Clearwater River)	Wallowa River
Nez Perce Tribe	Lyons Ferry Hatchery	CH1	FA	2012	150,000	04-10-12	04-20-12	Cpt John Acclim Pond	Clearwater River M F
Nez Perce Tribe	Lyons Ferry Hatchery	CH1	FA	2012	150,000	04-10-12	04-20-12	Pittsburg Landing Acclim Pond	Snake River
Nez Perce Tribe	Lyons Ferry Hatchery	CH1	FA	2012	150,000	04-10-12	04-20-12	Acclim Pond	Snake River South Fork Salmon River
Nez Perce Tribe	McCall Hatchery	CH1	SU	2012	106,000	03-14-12	04-05-12	Johnson Cr Idaho Nez Perce Tribal Hatchery	Clearwater River M F
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH1	SP	2012	195,058	04-01-12	04-15-12	Hatchery	Clearwater River M F
Nez Perce Tribe Total					1,516,058				
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU	2012	160,000	04-11-12	04-11-12	Big Canyon Acclim.Pd (Grande Ronde)	Grande Ronde River
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU	2012	360,000	04-10-12	04-10-12	Wallowa Acclim Pond	Wallowa River
Oregon Dept. of Fish and Wildlife	Round Butte Hatchery	ST	SU	2012	162,000	04-07-12	04-07-12	Deschutes River	Deschutes River
Oregon Dept. of Fish and Wildlife Total					682,000				
U.S. Fish and Wildlife Service	Dworshak NFH	ST	SU	2012	300,000	04-02-12	04-02-12	Clear Creek Redhouse (SFk ClearH20 R)	Clearwater River M F
U.S. Fish and Wildlife Service	Dworshak NFH	ST	SU	2012	400,000	04-02-12	04-02-12	ClearH20 R)	S Fk Clearwater River
U.S. Fish and Wildlife Service	Little White Salmon NFH	CH0	FA	2012	1,700,000	04-12-12	04-12-12	Little White Salmon Hatchery	Little White Salmon River
U.S. Fish and Wildlife Service	Spring Creek NFH	CH0	FA	2012	6,250,000	04-11-12	04-11-12	Spring Creek Hatchery Warm Springs Hatchery	L Col R (D/s McN Dam)
U.S. Fish and Wildlife Service	Warm Springs NFH	CH1	SP	2012	481,751	04-01-12	04-30-12	Hatchery	Deschutes River
U.S. Fish and Wildlife Service Total					9,131,751				
Umatilla Tribe	Cascade Hatchery	CO	UN	2012	1,000,000	04-05-12	04-05-12	Pendelton Acclim Pond Catherine Cr Acclim Pond	Umatilla River
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2012	106,884	03-22-12	04-16-12	Grande Ronde Acclim Pond	Grande Ronde River
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2012	145,000	04-06-12	04-16-12	Grande Ronde Acclim Pond	Grande Ronde River
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2012	146,605	03-21-12	04-01-12	Grande Ronde Acclim Pond	Grande Ronde River
Umatilla Tribe	Umatilla Hatchery	CH1	SP	2012	150,000	04-11-12	04-11-12	Corporation Guard Station	Umatilla River
Umatilla Tribe Total					1,548,489				
Warm Springs Tribe	Round Butte Hatchery	CH1	SP	2012	75,000	04-08-12	04-23-12	W Fk Hood River	Hood River
Warm Springs Tribe Total					75,000				
Washington Dept. of Fish and Wildlife	Chelan Hatchery	CH1	SU	2012	570,000	04-12-12	04-12-12	Chelan Falls	Mid-Columbia River
Washington Dept. of Fish and Wildlife	Eastbank Hatchery	CH1	SU	2012	584,000	04-12-12	05-05-12	Similkameen Acclim Pd	Okanogan River
Washington Dept. of Fish and Wildlife	Eastbank Hatchery	CH1	SU	2012	864,000	04-12-12	04-25-12	Dryden Acclim Pond	Wenatchee River

Hatchery Releases Next Two Weeks

Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	CH1	FA	2012	490,000	04-10-12	04-15-12	Lyons Ferry Hatchery	Snake River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2012	89,000	04-10-12	04-30-12	Dayton Acclim Pond	Touchet River
Washington Dept. of Fish and Wildlife	Methow Hatchery	CH1	SU	2012	400,000	04-12-12	05-25-12	Carlton Acclim Pond	Methow River
Washington Dept. of Fish and Wildlife	Methow Hatchery	ST	SU	2012	50,000	03-15-12	03-31-12	Twisp Acclim Pond	Methow River
Washington Dept. of Fish and Wildlife	Tucannon Hatchery	CH1	SP	2012	101,000	04-01-12	04-30-12	Curl Lake Acclim Pond	Tucannon River
Washington Dept. of Fish and Wildlife	Tucannon Hatchery	CH1	SP	2012	101,000	04-01-12	04-30-12	Curl Lake Acclim Pond	Tucannon River
Washington Dept. of Fish and Wildlife	Tucannon Hatchery	ST	SU	2012	51,000	04-05-12	05-01-12	Tucannon Hatchery	Tucannon River
Washington Dept. of Fish and Wildlife	Washougal Hatchery	CO	NO	2012	2,575,000	04-01-12	04-05-12	Klickitat River	Klickitat River
Washington Dept. of Fish and Wildlife	Wells Hatchery	CH1	SU	2012	320,000	04-12-12	04-12-12	Wells Hatchery	Mid-Columbia River
Washington Dept. of Fish and Wildlife Total					6,195,000				
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2012	264,721	03-15-12	05-15-12	Clark Flat Acclim Pond	Yakima River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2012	265,151	03-15-12	05-15-12	Easton Pond Jack Creek Acclim Pond	Yakima River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2012	267,107	03-15-12	05-15-12	Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2012	100,000	03-02-12	07-01-12	Prosser Acclim Pond	Yakima River
Yakama Tribe	Willard Hatchery	CO	UN	2012	53,019	04-11-12	04-11-12	Winthrop Hatchery	Methow River
Yakama Tribe	Willard Hatchery	CO	UN	2012	57,474	04-06-12	05-01-12	Nason Wetlands	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2012	126,629	04-11-12	04-11-12	Wells Hatchery	Mid-Columbia River
Yakama Tribe	Winthrop NFH	CO	UN	2012	267,710	04-11-12	04-11-12	Winthrop Hatchery	Methow River
Yakama Tribe Total					1,401,811				
Grand Total					28,414,409				

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

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

Date	Grand Coulee		Chief Joseph		Wells		Rocky Reach		Rock Island		Wanapum		Priest Rapids	
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
03/16/2012	97.3	0.0	95.3	0.0	100.9	0.2	111.6	3.5	116.0	0.0	133.1	0.8	129.5	0.0
03/17/2012	78.8	0.0	80.1	0.0	87.6	0.0	88.7	0.0	93.5	0.0	114.5	0.0	112.3	0.0
03/18/2012	78.8	0.0	79.6	0.0	81.7	0.0	84.6	0.0	90.0	0.0	98.5	0.0	105.9	0.0
03/19/2012	115.2	0.0	114.4	0.0	107.2	0.0	104.2	0.0	104.3	0.0	100.3	0.0	93.1	0.0
03/20/2012	131.5	0.0	127.8	0.0	124.3	0.0	121.5	0.0	123.3	0.0	119.7	2.0	107.6	0.0
03/21/2012	134.8	0.0	139.0	0.0	142.0	0.5	138.8	1.2	141.2	0.0	149.5	24.7	138.0	0.0
03/22/2012	140.2	0.0	136.6	0.0	136.4	11.1	137.4	7.7	137.9	0.0	151.4	29.1	147.8	2.8
03/23/2012	138.0	0.0	136.4	0.0	141.0	11.3	141.9	2.8	142.6	0.0	153.3	35.3	151.3	3.2
03/24/2012	139.2	0.0	142.9	0.0	145.7	7.6	144.2	12.0	142.5	4.5	153.3	33.7	150.5	13.8
03/25/2012	132.6	0.0	129.8	0.0	140.1	6.9	144.1	16.6	144.9	0.0	158.9	26.7	162.4	5.9
03/26/2012	142.5	0.0	139.3	4.0	147.1	15.7	143.6	21.1	144.2	0.0	157.2	32.0	147.1	15.9
03/27/2012	161.4	0.0	159.6	44.3	158.3	4.9	151.8	11.3	150.5	1.6	157.0	31.7	152.6	9.9
03/28/2012	161.7	0.0	160.6	62.0	164.2	10.2	165.9	43.8	162.3	15.0	182.8	54.8	180.7	34.4
03/29/2012	159.1	0.0	151.8	34.1	155.1	7.2	155.0	15.2	156.5	8.8	168.6	47.2	174.6	28.7

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

Date	Dworshak		Hells Canyon		Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill	Inflow	Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
03/16/2012	8.1	0.0	26.7	24.3	66.7	0.0	63.6	0.0	69.4	0.0	68.5	0.0
03/17/2012	8.1	0.0	34.3	23.8	75.8	15.0	62.3	3.3	69.0	0.0	67.3	0.0
03/18/2012	8.1	0.0	33.0	23.9	69.9	11.0	56.9	4.1	63.9	0.0	69.4	0.0
03/19/2012	10.6	0.0	29.2	25.3	70.1	0.0	67.6	0.0	73.7	0.0	68.3	0.0
03/20/2012	10.6	0.0	26.6	31.0	68.2	0.0	65.4	0.0	71.3	0.0	68.5	6.6
03/21/2012	10.6	0.0	23.9	33.9	73.4	0.0	72.9	0.0	81.3	0.0	81.2	17.5
03/22/2012	10.6	0.0	25.2	34.0	73.9	0.0	69.6	0.0	75.7	0.0	82.0	10.9
03/23/2012	10.6	0.0	25.6	34.0	73.9	0.0	71.6	0.0	79.1	0.0	77.5	1.4
03/24/2012	10.6	0.0	28.3	34.0	75.0	0.0	69.6	0.0	75.8	0.0	79.6	5.9
03/25/2012	10.6	0.0	27.8	33.5	76.1	0.9	71.1	0.0	78.8	0.0	76.5	1.2
03/26/2012	10.6	0.0	30.0	31.8	86.8	12.8	79.0	10.0	82.6	8.2	79.4	12.9
03/27/2012	10.6	0.4	32.0	33.7	94.2	7.5	91.6	5.1	104.6	9.5	107.7	44.0
03/28/2012	11.6	1.5	32.0	33.7	88.3	5.3	87.8	6.6	97.0	8.0	100.1	38.0
03/29/2012	13.9	3.3	---	---	88.4	0.0	86.6	0.0	97.3	0.0	104.0	28.9

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

Date	McNary		John Day		The Dalles		Bonneville		PH1	PH2
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill		
03/16/2012	199.3	72.6	192.5	0.0	190.6	0.0	219.8	1.3	94.0	117.5
03/17/2012	214.7	76.4	188.4	0.0	190.1	0.0	222.9	1.2	93.4	121.3
03/18/2012	194.7	54.9	193.4	0.0	198.6	0.0	216.4	1.2	92.6	115.5
03/19/2012	197.8	46.5	208.1	0.0	202.9	0.0	224.7	1.3	99.2	113.6
03/20/2012	172.9	8.0	171.6	0.0	174.4	0.0	201.3	1.2	84.8	103.3
03/21/2012	213.1	35.8	224.4	0.0	219.3	0.0	233.8	1.2	97.6	122.8
03/22/2012	220.8	53.4	213.4	0.0	215.9	0.0	242.9	1.2	116.3	113.0
03/23/2012	245.2	76.2	222.7	0.0	224.0	0.0	232.5	1.2	109.0	109.9
03/24/2012	248.7	74.8	234.2	0.0	231.4	0.0	255.1	1.2	120.4	121.0
03/25/2012	249.5	72.6	237.0	0.0	235.1	0.0	259.8	1.3	128.9	117.2
03/26/2012	233.9	52.2	220.1	25.5	217.9	11.8	254.8	17.5	110.7	114.2
03/27/2012	257.9	62.7	241.6	53.5	238.6	13.2	241.4	40.0	92.3	96.7
03/28/2012	277.4	83.0	273.8	88.2	264.3	25.5	287.9	26.8	118.8	129.9
03/29/2012	290.3	96.2	287.3	112.8	275.9	45.1	293.9	34.8	126.6	120.0

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

Total Dissolved Gas Saturation Data at Upper Columbia River Sites

Date	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	#					
	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High					
3/16	99.2	99.7	99.9	24	105.8	106.2	106.6	22	102.8	103.0	103.2	24	101.6	102.0	102.8	22	---	---	---	0
3/17	100.1	100.2	100.4	23	106.5	106.8	107.3	21	103.4	103.6	103.8	23	102.8	103.3	104.4	21	---	---	---	0
3/18	100.2	100.3	100.7	22	105.8	106.1	107.0	17	102.8	103.0	103.3	19	102.1	102.3	102.8	17	---	---	---	0
3/19	99.7	99.7	99.9	10	104.5	104.5	105.3	10	102.3	102.3	102.5	9	101.5	101.5	101.8	10	---	---	---	0
3/20	99.7	100.0	100.4	24	105.2	105.5	106.0	21	102.8	103.1	103.2	24	101.5	101.9	102.2	21	---	---	---	0
3/21	99.5	99.7	100.0	20	104.3	104.3	104.7	11	102.1	102.1	102.2	14	100.7	100.9	101.2	21	101.5	101.5	102.3	11
3/22	99.4	99.6	99.7	21	104.3	104.3	104.3	1	102.1	102.2	102.5	14	100.8	101.0	101.5	18	101.2	101.3	101.6	24
3/23	99.1	99.3	99.7	23	104.4	104.7	105.6	16	102.1	102.2	102.3	24	100.5	100.7	100.9	21	100.9	101.0	101.2	24
3/24	99.1	99.4	99.7	24	104.2	104.7	105.2	24	102.1	102.4	102.6	24	100.3	100.7	101.0	24	101.0	101.3	101.4	24
3/25	99.4	99.7	100.0	24	105.1	105.8	106.4	22	103.2	103.6	104.0	24	101.3	101.8	102.1	22	102.0	102.4	102.6	24
3/26	98.7	98.8	99.1	18	105.1	105.2	107.1	16	103.4	103.5	103.6	18	101.6	101.6	102.1	16	102.1	102.3	102.4	24
3/27	97.7	97.9	98.1	24	105.9	107.1	107.6	23	103.5	104.3	107.3	24	100.8	101.0	101.5	22	101.5	101.6	101.7	24
3/28	96.9	97.1	97.2	24	107.4	107.7	108.1	24	103.5	103.7	103.9	24	101.3	101.5	101.7	24	101.6	101.8	101.9	24
3/29	97.4	97.7	97.9	24	107.5	107.9	108.3	22	103.7	104.2	104.5	24	101.6	102.2	102.5	22	102.0	102.3	102.4	24

Total Dissolved Gas Saturation Data at Mid Columbia River Sites

Date	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	#					
	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High					
3/16	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/17	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/18	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/19	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/20	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/21	99.9	99.9	105.2	12	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/22	100.3	100.7	101.4	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/23	101.3	101.7	101.8	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/24	100.7	101.1	101.5	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/25	102.2	102.8	103.0	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/26	103.4	104.7	107.7	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/27	118.5	125.1	128.0	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/28	128.7	129.3	132.2	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/29	114.3	121.0	132.8	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0

Total Dissolved Gas Saturation at Mid Columbia River Sites

Date	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	#					
	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High					
3/16	---	---	---	0	---	---	---	0	102.0	102.3	102.6	24	101.9	102.1	102.4	24	102.4	102.7	103.1	24
3/17	---	---	---	0	---	---	---	0	102.3	102.5	102.7	24	102.3	102.5	102.7	24	102.7	103.2	103.4	24
3/18	---	---	---	0	---	---	---	0	101.9	102.1	102.3	24	101.6	101.8	101.9	24	102.1	102.7	103.0	24
3/19	---	---	---	0	---	---	---	0	101.5	101.7	101.9	24	101.2	101.4	101.6	24	101.1	101.6	101.9	24
3/20	---	---	---	0	---	---	---	0	101.9	102.3	102.5	24	101.8	102.2	103.1	24	101.8	102.0	102.1	24
3/21	---	---	---	0	---	---	---	0	101.3	101.5	101.7	24	104.7	107.0	109.2	24	101.2	101.6	102.6	24
3/22	---	---	---	0	---	---	---	0	101.4	101.6	101.8	24	105.5	106.2	108.0	24	106.3	107.0	108.4	24
3/23	---	---	---	0	---	---	---	0	101.4	101.5	101.8	24	107.6	109.5	116.3	24	106.3	106.7	107.1	24
3/24	---	---	---	0	---	---	---	0	101.9	102.4	102.5	24	107.0	108.5	109.4	24	107.9	109.4	114.5	24
3/25	---	---	---	0	---	---	---	0	103.8	104.3	104.4	24	107.6	109.7	109.9	24	109.9	111.2	111.6	24
3/26	---	---	---	0	---	---	---	0	105.3	106.0	106.7	24	108.4	109.5	112.2	24	107.5	108.9	111.1	24
3/27	---	---	---	0	---	---	---	0	107.1	107.3	107.5	24	109.4	109.7	110.1	24	108.7	109.5	110.3	24
3/28	---	---	---	0	---	---	---	0	105.9	106.0	106.2	24	110.7	112.3	114.6	24	110.5	111.6	112.6	24
3/29	---	---	---	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

Date	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		#
	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
3/16	102.4	102.6	103.1	24	102.6	103.4	103.9	24	98.0	98.3	98.4	24	99.7	100.1	100.8	24	102.3	102.5	102.9	24
3/17	102.9	103.2	103.2	24	102.8	103.1	103.8	24	97.9	98.1	98.2	24	100.0	100.3	101.0	22	101.7	101.9	102.1	24
3/18	102.2	102.6	103.0	24	101.6	102.0	102.4	24	97.6	98.0	98.3	24	99.7	99.8	100.0	19	101.3	101.4	101.8	22
3/19	101.3	101.6	101.9	24	100.9	101.5	102.0	20	96.5	96.7	96.9	20	99.0	99.3	99.5	20	101.6	101.6	102.7	12
3/20	101.9	102.3	102.5	24	100.9	101.2	101.5	24	96.0	96.3	96.9	24	98.5	98.9	99.0	24	101.5	101.7	101.8	24
3/21	101.4	101.8	102.6	24	100.2	100.8	101.2	24	95.8	95.8	95.8	13	97.9	98.0	98.3	22	102.3	103.1	103.3	24
3/22	105.6	106.6	107.1	24	101.1	101.9	102.3	24	194.1	194.1	979.8	9	98.7	98.9	99.2	20	102.8	103.1	103.4	19
3/23	105.9	106.8	108.7	24	103.8	104.5	104.9	24	95.5	95.7	96.0	24	98.7	98.9	99.0	24	102.3	102.5	102.9	22
3/24	108.4	110.4	112.3	24	104.3	104.8	105.0	24	96.1	96.3	96.5	24	99.0	99.4	99.6	24	103.0	103.6	104.0	24
3/25	109.8	110.5	111.8	24	106.9	108.1	109.1	24	96.8	97.1	97.6	24	100.2	100.8	101.2	23	103.8	104.5	105.4	24
3/26	109.0	110.4	112.1	24	106.2	106.8	108.2	24	96.8	97.6	100.5	24	99.2	99.8	100.6	23	102.7	102.9	103.6	18
3/27	108.9	109.9	110.5	24	105.0	105.4	105.9	24	97.9	99.1	101.5	24	99.0	99.8	100.4	24	102.7	103.5	104.0	24
3/28	112.3	113.2	113.8	24	105.8	106.5	106.8	24	101.9	104.6	104.9	24	99.9	100.3	100.8	24	102.7	103.0	103.5	24
3/29	---	---	---	0	108.3	109.3	109.7	24	105.0	105.6	106.0	24	101.3	102.2	102.6	24	102.9	103.6	103.9	24

Total Dissolved Gas Saturation Data at Snake River Sites

Date	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		#
	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
3/16	98.9	99.5	99.8	20	102.0	102.3	102.9	24	101.5	101.8	102.4	24	102.1	102.5	103.1	24	101.6	102.0	102.8	24
3/17	82.6	82.6	82.6	1	103.1	103.3	103.5	24	109.3	111.9	112.6	24	103.5	103.7	103.8	24	103.9	104.6	105.7	24
3/18	81.1	81.1	81.1	1	103.3	103.6	103.6	24	108.2	111.0	111.7	24	103.2	103.3	103.4	24	103.8	104.9	107.7	24
3/19	99.6	99.6	101.1	11	101.1	101.4	102.1	20	100.9	101.4	102.5	20	101.3	101.5	102.2	20	100.6	100.8	101.8	20
3/20	97.2	97.2	97.4	14	100.4	100.8	101.0	24	99.9	100.3	100.6	24	102.0	102.5	103.1	24	101.9	102.7	103.0	24
3/21	97.3	97.3	97.5	9	99.5	99.6	100.3	14	99.1	99.2	99.5	20	103.7	103.9	104.2	24	103.2	103.4	103.6	24
3/22	97.0	97.0	97.3	6	138.4	173.6	978.0	23	99.9	99.9	99.9	5	102.3	103.0	104.1	24	101.2	101.9	102.8	24
3/23	95.4	95.4	95.4	1	100.3	100.4	100.4	24	99.7	99.8	99.9	24	100.1	100.7	101.0	24	99.0	99.5	99.8	24
3/24	97.4	97.4	97.8	11	101.1	101.5	102.0	24	100.7	101.3	101.7	24	99.4	99.6	99.8	24	98.9	99.2	99.4	24
3/25	97.7	97.7	98.3	10	102.9	103.2	103.2	24	102.6	103.1	108.6	24	100.4	100.7	101.0	24	100.2	100.7	101.1	24
3/26	98.0	98.1	100.2	8	103.1	103.3	103.4	24	108.1	111.1	112.4	24	100.8	100.9	100.9	24	103.9	106.2	107.4	24
3/27	89.5	89.5	89.5	1	103.3	103.6	104.1	24	105.8	108.6	110.7	24	101.4	101.9	102.3	24	103.3	105.2	107.6	24
3/28	90.0	90.0	90.0	1	102.5	103.1	103.8	24	104.2	107.0	110.9	24	103.1	103.6	104.2	24	105.5	107.3	107.7	24
3/29	96.8	96.8	96.8	1	102.1	102.7	103.3	24	101.7	102.4	102.8	24	105.1	105.7	106.0	24	105.1	105.6	106.0	24

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

Date	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		#
	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
3/16	102.1	102.5	103.5	24	101.5	102.0	102.6	24	102.2	102.5	103.1	24	101.5	101.9	102.4	24	---	---	---	0
3/17	103.0	103.3	103.7	24	102.4	102.6	103.6	24	102.8	103.0	103.2	24	102.0	102.3	102.5	24	---	---	---	0
3/18	102.2	102.4	102.5	24	101.5	101.7	102.2	24	102.2	102.3	102.4	24	101.6	101.8	102.1	24	---	---	---	0
3/19	101.4	101.6	102.1	20	101.1	101.4	101.7	20	101.5	101.7	101.9	20	101.0	101.2	102.2	20	---	---	---	0
3/20	102.2	102.4	102.6	24	101.5	101.7	102.0	24	101.4	101.8	101.9	24	103.5	106.1	109.9	24	---	---	---	0
3/21	101.2	101.4	101.6	24	100.6	100.7	102.2	13	100.7	100.9	101.3	23	107.8	112.1	112.3	23	---	---	---	0
3/22	100.6	101.1	101.6	24	101.3	101.3	101.5	4	100.9	101.2	101.4	24	106.3	108.9	112.4	24	---	---	---	0
3/23	101.9	102.0	102.1	24	102.1	102.3	103.3	24	100.6	100.8	101.1	24	100.6	101.1	106.5	24	---	---	---	0
3/24	102.0	102.2	102.3	24	101.2	101.4	101.6	24	101.0	101.4	101.9	24	103.7	106.4	109.1	24	---	---	---	0
3/25	101.5	101.6	101.9	24	100.7	100.8	101.1	24	102.9	103.5	103.8	24	102.8	103.5	106.4	24	---	---	---	0
3/26	100.8	101.0	101.3	24	105.4	110.2	113.5	24	103.0	103.4	103.7	24	107.8	111.7	112.8	24	---	---	---	0
3/27	100.8	101.3	102.0	24	109.6	113.9	116.5	24	102.0	102.4	103.0	24	115.2	117.1	117.6	24	---	---	---	0
3/28	102.3	102.6	102.9	24	108.5	112.7	115.8	24	102.9	103.1	103.3	24	114.4	116.7	117.3	24	---	---	---	0
3/29	103.3	104.0	104.9	24	103.5	104.4	104.7	24	104.6	105.4	105.8	24	114.2	114.6	117.6	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

Date	<u>McNary-Wash</u>			#	<u>McNary Tlwr</u>			#	<u>John Day</u>			#	<u>John Day Tlwr</u>			#	<u>The Dalles</u>			#
	<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24h</u>	<u>12h</u>			<u>24h</u>	<u>12h</u>			<u>24h</u>	<u>12h</u>		
	<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>High</u>	<u>hr</u>	<u>Avg</u>		<u>Avg</u>	<u>High</u>	<u>hr</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>	
3/16	102.4	102.9	103.6	24	114.6	115.3	115.5	24	104.4	105.0	105.7	24	103.8	104.3	104.7	24	104.0	104.6	105.1	24
3/17	103.1	103.3	103.7	24	113.5	114.9	115.1	24	105.0	105.3	105.7	24	104.2	104.4	104.7	24	104.4	104.8	105.3	24
3/18	103.0	103.1	103.2	24	110.3	110.6	112.1	24	104.1	104.3	104.4	22	103.4	103.7	103.9	22	103.6	103.8	104.0	22
3/19	101.9	102.1	102.3	20	108.4	109.0	110.9	20	103.4	103.4	103.9	12	102.9	102.9	103.4	12	102.8	102.8	103.2	12
3/20	101.8	102.2	102.3	24	103.2	105.0	106.2	24	103.8	104.1	104.3	24	103.5	103.7	103.9	24	102.9	103.4	103.5	24
3/21	101.0	101.2	101.6	24	110.8	114.2	115.2	24	103.5	103.5	103.6	13	103.7	104.0	104.4	24	102.9	103.3	104.0	24
3/22	101.2	101.6	102.0	22	108.1	114.2	115.1	24	104.2	104.4	104.7	16	103.9	104.1	104.2	24	103.5	103.8	104.0	24
3/23	101.8	102.3	102.7	24	114.8	115.2	115.6	24	104.4	104.5	104.6	24	103.9	104.0	104.2	24	103.7	103.9	104.1	24
3/24	102.5	102.9	103.6	24	115.3	115.6	115.7	24	104.8	105.0	105.1	24	103.9	104.1	104.4	24	103.8	104.0	104.2	24
3/25	105.3	106.3	107.0	24	114.9	116.2	116.4	24	105.1	105.2	105.3	24	103.8	104.1	104.3	24	104.0	104.2	104.4	24
3/26	105.9	106.3	106.9	24	112.5	112.7	112.9	24	104.5	104.7	104.9	24	111.0	113.3	115.0	24	103.4	103.8	104.4	24
3/27	106.5	106.8	107.0	24	115.2	115.9	116.1	24	105.7	106.4	106.9	24	115.3	116.1	119.9	24	106.1	106.8	107.0	24
3/28	106.4	106.7	107.0	24	115.7	116.1	116.2	24	107.3	107.5	107.7	24	119.3	119.5	119.7	24	108.3	109.1	109.7	24
3/29	106.6	107.1	107.4	24	116.6	116.6	116.8	24	108.6	109.0	109.2	24	119.9	120.1	120.4	24	112.0	113.0	114.8	24

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

Date	<u>The Dalles Dnst</u>			#	<u>Bonneville</u>			#	<u>Warrendale</u>			#	<u>Camas\Washougal</u>			#	<u>Cascade Island</u>			#
	<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24h</u>	<u>12h</u>			<u>24h</u>	<u>12h</u>			<u>24h</u>	<u>12h</u>		
	<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>High</u>	<u>hr</u>	<u>Avg</u>		<u>Avg</u>	<u>High</u>	<u>hr</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>	
3/16	103.8	104.3	104.6	24	104.5	105.4	106.2	24	104.8	105.7	106.2	24	104.1	105.4	106.2	24	107.0	108.4	109.2	24
3/17	104.1	104.4	104.6	24	104.8	105.2	106.1	24	105.1	105.4	106.3	24	104.7	105.2	105.4	24	107.5	108.0	108.3	24
3/18	103.3	103.6	103.7	22	103.9	104.1	104.3	22	104.3	104.5	104.8	22	104.0	104.2	104.5	22	107.0	107.5	108.0	22
3/19	102.3	102.3	102.5	12	103.2	103.2	103.4	12	103.7	103.7	104.0	12	103.5	103.5	104.1	12	106.8	106.8	107.8	12
3/20	102.6	103.0	103.3	24	102.9	103.3	103.5	24	103.5	104.0	104.4	24	102.9	103.1	103.4	24	105.8	106.1	106.6	24
3/21	102.4	102.6	103.3	19	101.9	102.2	102.4	24	102.4	102.5	102.9	13	102.1	102.5	102.9	24	105.7	106.6	107.4	22
3/22	103.2	103.4	103.6	24	102.3	102.8	103.0	24	---	---	---	0	102.1	102.9	103.3	23	105.7	105.8	106.9	13
3/23	103.4	103.5	103.6	24	103.5	103.9	104.2	24	104.1	104.7	105.0	21	103.3	104.1	104.7	24	107.1	108.1	108.8	24
3/24	103.4	103.6	103.7	24	104.1	104.6	104.8	24	104.8	105.2	105.4	24	103.9	104.4	105.0	24	107.7	108.6	109.1	24
3/25	103.8	104.0	104.1	24	104.5	104.6	104.8	24	104.9	105.1	105.3	24	104.8	105.0	105.3	24	107.9	108.6	109.0	24
3/26	103.9	104.7	106.2	24	104.0	104.2	104.5	24	106.4	108.1	111.2	24	106.1	108.4	111.2	24	112.4	116.2	120.1	24
3/27	106.3	107.0	108.0	24	104.6	105.4	105.9	24	108.1	109.8	111.3	24	105.5	106.6	108.7	24	119.9	125.9	133.3	24
3/28	109.0	110.0	111.3	24	105.2	105.8	106.2	24	106.1	106.5	107.6	24	106.2	107.0	109.2	24	112.2	113.7	116.1	24
3/29	113.3	114.2	115.1	24	108.5	109.4	110.8	24	108.7	109.8	110.1	24	106.5	107.4	108.9	24	113.9	115.2	116.2	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)
03/16/2012	*	800	---	68	1	---	---	---	---	---	112
03/17/2012	*	1,312	---	---	20	---	---	---	---	---	2,608
03/18/2012	*	1,472	---	---	40	---	---	---	---	---	4,403
03/19/2012	*	1,164	310	99	7	---	---	---	---	---	4,757
03/20/2012	*	1,811	312	126	12	---	---	---	---	---	2,977
03/21/2012	*	486	---	99	23	---	---	---	---	---	1,629
03/22/2012	*	512	---	119	82	---	---	---	---	---	1,424
03/23/2012	*	697	---	107	38	---	---	---	---	---	1,135
03/24/2012	*	605	701	422	20	---	---	---	---	---	761
03/25/2012	*	405	485	1,694	3	---	---	---	---	---	581
03/26/2012	*	1,046	295	1,378	14	2,876	---	---	---	---	409
03/27/2012	*	2,166	131	749	62	6,187	---	---	---	---	385
03/28/2012	*	1,356	109	745	101	6,669	---	---	---	---	600
03/29/2012	*	1,497	---	441	143	11,775	---	---	---	---	524
03/30/2012	*	---	---	---	---	---	---	---	---	---	---
Total:		15,329	2,343	6,047	566	27,507	0	0	0	0	22,305
# Days:		14	7	12	14	4	0	0	0	0	14
Average:		1,095	335	504	40	6,877	0	0	0	0	1,593
YTD		16,229	2,535	6,171	568	27,507	0	0	0	0	22,378

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)
03/16/2012	*	0	---	0	0	---	---	---	---	---	1,877
03/17/2012	*	0	---	---	0	---	---	---	---	---	2,252
03/18/2012	*	0	---	---	0	---	---	---	---	---	2,357
03/19/2012	*	0	0	1	1	---	---	---	---	---	705
03/20/2012	*	0	0	7	0	---	---	---	---	---	1,518
03/21/2012	*	0	---	15	0	---	---	---	---	---	1,501
03/22/2012	*	0	---	2	0	---	---	---	---	---	2,476
03/23/2012	*	0	---	0	0	---	---	---	---	---	2,399
03/24/2012	*	0	0	0	0	---	---	---	---	---	3,335
03/25/2012	*	0	0	0	0	---	---	---	---	---	2,424
03/26/2012	*	0	0	1	0	22	---	---	---	---	3,234
03/27/2012	*	0	0	1	0	11	---	---	---	---	2,951
03/28/2012	*	0	0	1	0	0	---	---	---	---	4,229
03/29/2012	*	0	---	0	0	0	---	---	---	---	3,095
03/30/2012	*	---	---	---	---	---	---	---	---	---	---
Total:		0	0	28	1	33	0	0	0	0	34,353
# Days:		14	7	12	14	4	0	0	0	0	14
Average:		0	0	2	0	8	0	0	0	0	2,454
YTD		0	0	30	2	33	0	0	0	0	41,918

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, pacific lamprey macrophthalmia, and unidentified lamprey species.

† 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 = $\text{Collection Counts} / \{ \text{Powerhouse Flow} / (\text{Powerhouse Flow} + \text{Spill}) \}$

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

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

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

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

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

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

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

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

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

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

BO2 (Index) = Bonneville Dam Second Powerhouse Bypass Collection System : Passage Index Counts

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

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

RIS data collected for the FPC by Chelan Co. PUD/Washington Dept. of Fish and Wildlife.

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

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

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

Cumulative Adult Passage at Mainstem Dams Through: 03/29

DAM	EndDate	Spring Chinook						Summer Chinook						Fall Chinook					
		2012		2011		10-Yr Avg.		2012		2011		10-Yr Avg.		2012		2011		10-Yr Avg.	
		Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	03/28	22	0	87	0	1,192	3	0	0	0	0	0	0	0	0	0	0	0	0
TDA	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
JDA	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MCN	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IHR	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LMN	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LGS	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LGR	03/27	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	03/27	2	0	8	0	68	0	0	0	0	0	0	0	0	0	0	0	0	0

DAM	Coho						Sockeye			Steelhead					
	2012		2011		10-Yr Avg.		2012	2011	10-Yr Avg.	2012	2011	10-Yr Avg.	Wild 2012	Wild 2011	10-Yr Avg.
BON	0	0	0	0	0	0	0	0	0	1,095	611	621	352	270	132
TDA	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
MCN	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
LMN	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
LGR	0	0	0	0	0	0	0	0	0	3,543	4,042	4,685	1,145	1,291	916
PRD	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
RRH	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
WFA	0	0	0	0	0	0	0	0	0	2,264	4,572	5,194	0	0	0

PRD does not post wild steelhead numbers.

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

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

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

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

Page last updated on: 03/16/12

BON counts from January 1, 2012 to March 13, 2012 (historical counts begin March 15):

Year	Chinook Adult	Chinook Jack	Steelhead	Wild Steelhead
2012	12	1	1,471	497
2011	47	0	1,370	580

Two Week Transportation Summary

Source: Fish Passage Center

Updated:

3/30/12 9:27 AM

03/16/12 TO 03/30/12

		Species						
Site	Data	CH0	CH1	CO	ST	SO	Grand Total	
LGR	Sum of NumberCollected	30	25,870		35	7,380	195	33,510
	Sum of NumberBarged	0	0		0	0	0	0
	Sum of NumberBypassed	30	25,859		35	7,380	193	33,497
	Sum of Numbertrucked	0	0		0	0	0	0
	Sum of SampleMorts	0	11		0	0	2	13
	Sum of FacilityMorts	0	0		0	0	0	0
	Sum of ResearchMorts	0	0		0	0	0	0
	Sum of TotalProjectMorts	0	11		0	0	2	13
Total Sum of NumberCollected		30	25,870		35	7,380	195	33,510
Total Sum of NumberBarged		0	0		0	0	0	0
Total Sum of NumberBypassed		30	25,859		35	7,380	193	33,497
Total Sum of Numbertrucked		0	0		0	0	0	0
Total Sum of SampleMorts		0	11		0	0	2	13
Total Sum of FacilityMorts		0	0		0	0	0	0
Total Sum of ResearchMorts		0	0		0	0	0	0
Total Sum of TotalProjectMorts		0	11		0	0	2	13

YTD Transportation Summary

Source: Fish Passage Center

Updated:

3/30/12 9:28 AM

TO: 03/30/12

		Species					
Site	Data	CH0	CH1	CO	SO	ST	Grand Total
LGR	Sum of NumberCollected	30	25,870	35	195	7,380	33,510
	Sum of NumberBarged	0	0	0	0	0	0
	Sum of NumberBypassed	30	25,859	35	193	7,380	33,497
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	11	0	2	0	13
	Sum of FacilityMorts	0	0	0	0	0	0
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	0	11	0	2	0	13
Total Sum of NumberCollected		30	25,870	35	195	7,380	33,510
Total Sum of NumberBarged		0	0	0	0	0	0
Total Sum of NumberBypassed		30	25,859	35	193	7,380	33,497
Total Sum of NumberTrucked		0	0	0	0	0	0
Total Sum of SampleMorts		0	11	0	2	0	13
Total Sum of FacilityMorts		0	0	0	0	0	0
Total Sum of ResearchMorts		0	0	0	0	0	0
Total Sum of TotalProjectMorts		0	11	0	2	0	13