



Fish Passage Center

Weekly Report #11 - 04

April 8, 2011

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Summary of Events:

Water Supply: Precipitation throughout the Columbia Basin has varied between 133% and 209% of average at individual sub-basins over March. Precipitation above The Dalles has been 178% of average over March. Over the 2011 water year, precipitation has ranged between 100% and 131% 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 1-27, 2011		Water Year 2011 October 1, 2010 to March 27, 2011	
	Observed (inches)	% Average	Observed (inches)	% Average
	Columbia Above Coulee	2.47	158	16.07
Snake River Above Ice Harbor	2.71	188	12.44	123
Columbia Above The Dalles	2.98	178	16.33	116
Kootenai	2.74	176	16.00	111
Clark Fork	1.39	133	10.73	121
Flathead	2.36	166	15.63	131
Pend Oreille/Spokane	3.94	163	22.55	114
Central Washington	1.28	177	5.82	100
Snake River Plain	1.86	189	7.75	130
Salmon/Boise/Payette	3.54	209	14.47	116
Clearwater	3.26	134	21.30	117
SW Washington Cascades/Cowlitz	8.95	145	53.02	101
Willamette Valley	8.53	153	45.02	101

Snowpack in the Columbia River for basins above the Snake River confluence is 121% of average, for Snake River Basins snowpack is 116% of average,

and for lower Columbia Basins between McNary and Bonneville Dam snowpack is 119% of average.

Table 2 displays the March Final and April Final runoff volume forecasts for multiple reservoirs. The April Final forecast at The Dalles between January and July is 117000 Kaf (109% of average).

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

Location	March Final		April Final	
	% Average (1971 -2000)	Probable Runoff Volume (Kaf)	% Average (1971 -2000)	Probable Runoff Volume (Kaf)
The Dalles (Jan-July)	102	109000	109	117000
Grand Coulee (Jan-July)	104	65600	108	68200
Libby Res. Inflow, MT (Apr-Aug)	105	6550 7105*	109	6800 7191*
Hungry Horse Res. Inflow, MT (Jan-July)	123	2730	128	2840
Lower Granite Res. Inflow (Apr- July)	100	21600	116	25100
Brownlee Res. Inflow (Apr-July)	90	5690	119	7510
Dworshak Res. Inflow (Apr-July)	110	2900 3329*	116	3060 3387*

* Denotes COE Forecast

The Biological Opinion flow period began on April 3rd in the lower Snake River (Lower Granite). According to the April Final Water Supply Forecast, the flow objective this spring is 100 Kcfs at Lower Granite. Flows at Lower Granite Dam from April 3-7 have averaged 133.1 Kcfs.

Based on the April Final Water Supply Forecast, the Spring Biological Opinion Flow Objectives will be 260 Kcfs at McNary Dam (begins April 10th) and 135 Kcfs at Priest Rapids Dam (begins April 10th). On April 7th, 2011 day average flows were 306.5 Kcfs at McNary Dam and 131.0 Kcfs at Priest Rapids Dam.

Grand Coulee Reservoir is at 1242.5 feet (4-7-11) and drafted 6.5 feet over the last week. Drum gate maintenance is currently being performed at Grand Coulee which requires a maximum reservoir elevation of 1255 feet. The April 10th FC Elevation at Grand Coulee is 1258.4 feet (based on the March Final WSF). Outflows at Grand Coulee have ranged between 142.7 and 153.6 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2363.8 feet (4-7-11) and has drafted 0.8 feet last week. The April 10th FC Elevation at Libby is 2364.3 feet (based on the March Final WSF). Outflows at Libby Dam have been 4.5-14.0 Kcfs last week.

Hungry Horse is currently at an elevation of 3495.8 feet (4-7-11) and has drafted 2.7 feet last week. The April 10 FC Elevation at Hungry Horse is 3497.7 feet (based on the March Final WSF). Outflows at Hungry Horse have been 8.3-10.0 Kcfs last week.

Dworshak is currently at an elevation of 1470.0 feet (4-7-11) and has refilled 4.2 feet last week. The COE has approved a Flood Control deviation request to operate Dworshak to target an April 15 elevation of 1451.4 ft. Outflows from Dworshak have been 17.7-22.0 Kcfs last week. Inflows have ranged between 14.9 and 34.9 Kcfs last week.

The Brownlee Reservoir was at an elevation of 2020.8 feet on April 7th, 2011 refilling 5.8 feet last week. The April 10th FC Elevation at Brownlee is 2036.0 feet (based on the March Final WSF). Over the last week, outflows at Brownlee have ranged between 32.3-46.1 Kcfs.

Spill:

Spill has been occurring at Dworshak Dam over the past week as the project is drafted to flood control. Spill for fish passage began on April 3rd at the lower Snake River projects, and will begin on April 10th at the lower Columbia River projects. Involuntary, excess

generation spill occurred over last weekend, prior to the implementation of fish spill in the hydro system, due to weather conditions and the necessary drafting of reservoirs to meet flood control elevations.

At several hydro projects in the FCRPS, there are turbine units out of service limiting the hydraulic capacities of the projects. Presently, there are only two projects that have the full capacity available: Little Goose and Lower Monumental dams. Consequently, most projects are in uncontrolled spill operations and only Little Goose and Lower Monumental dams can be used to manage spill volumes for total dissolved gas (TDG) management.

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

There are presently two units out at Lower Granite Dam, limiting hydraulic capacity and causing forced spill that is in excess of the 20 Kcfs specified in the Court Order. The two units are expected out through April, and one unit will be out until mid May. The spill at Lower Granite Dam has resulted in tailrace total dissolved gas levels (TDG) exceeding the waiver criteria of 120% percent in six of the last seven days. At Little Goose Dam spill has been provided since April 3, but only to the 30% of instantaneous flow level as specified in the Court Order on the past two days. The tailrace TDG has consistently been around 115% to 116%, below the 120% TDG waiver. However, the COE has been increasing the spill slowly at Little Goose Dam to adjust for the high total dissolved gas entering from Lower Granite dam and expected to pass downstream. At Lower Monumental Dam the COE gradually increased the level of spill to the gas cap volume over four days. The project did not exceed the gas waivers through yesterday. At Ice Harbor Dam the Court Order calls for 45 Kcfs spill during the day and gas cap spill at night. Spill levels have generally been above the 45 Kcfs during the daytime due to unit

outages. There has been one unit out at this project and, consequently, uncontrolled spill at times has resulted in spill exceeding the gas waiver in the tailrace.

Spill for fish passage at the Lower Columbia projects is scheduled to begin on April 10th. However, spill has occurred at all the lower river projects over the past week as a result of unit outages and flow in excess of hydraulic capacity. There have been TDG measurements that exceed the waiver limits at these projects during this past week.

The first gas bubble trauma sample was taken this past week at Lower Monumental Dam and there were no fish observed with signs of GBT.

Smolt Monitoring:

Sampling is ongoing at all Smolt Monitoring Program sites except McNary Dam. Steelhead passage in the Snake River has been well ahead of historic average and that early timing was a function of early hatchery releases in the Clearwater River Basin that coincided with unusually high flows. There were also relatively large numbers of sockeye (likely kokanee) in the samples at Snake River sites this past week. Bonneville Dam had significant numbers of both yearling and subyearling Chinook passing during the past week. At the SMP traps large numbers of smolts have been collected over the past week as tributary flows increased due to regional increases in precipitation and runoff. High debris has also made it difficult to sample and traps on the Grande Ronde and Imnaha rivers have been unable to sample for at least a few days in the past week.

The Grande Ronde Trap, operated by the Oregon Department of Fish and Wildlife, located at river mile two in the Grande Ronde River, began sampling March 7. Over the past several days of sampling the numbers of yearling Chinook increased to over 100 fish per day with the highest collection to date of 255 occurring on April 5. These fish were about equally, unmarked and adipose-fin clipped fish, indicating that there were good numbers of both wild and hatchery fish. Flows in the Grande Ronde River have been very high ranging between 11000 and 16000 cfs over the past week compared to median historic flows between 4500 to 5000 cfs.

At the Salmon River Trap, located at River km 103, and operated by Idaho Department of Fish and Game, sampling began on March 6. The trap has captured almost all yearling Chinook to this point. A large number of hatchery and wild yearling Chinook have been collected in the past week. Of the 12,000

yearling Chinook collected in the past week about 3,200 of those fish were of wild origin. Flows in the Salmon River at White Bird, ranged between 8000 and 16000 cfs from April 1 to April 7; flows rose sharply to nearly 16,000 cfs on April 3. Historically median flows ranged between 6000 and 8000 cfs for the same time period.

The Imnaha River Trap, operated by the Nez Perce Tribe, provides data to the SMP, on their fish collection. The trap has been operating since mid-February. The Imnaha Trap collected 1,900 yearling Chinook and just over 700 steelhead in the past week. The yearling Chinook collections are *relatively* small numbers compared to historic sampling and that is likely due to the very high flows. The yearling Chinook were nearly all wild origin the previous week but have transitioned to largely hatchery origin fish in the past week. Flows in the Imnaha River began the week at about 1300 cfs—about 200% of average but then dropped back to 680 cfs by April 8 which is right at historic average flows for that date.

At the Lewiston Trap, operated by IDFG, located at River km 225 on the Snake River, just above the confluence with the Clearwater River, collections of yearling Chinook have been unusually high in the past week while steelhead collections have been low, which is normal for this site at this time of year. The total collection of nearly 4,000 yearling Chinook collected in the past week is about 20 times the historic average. The increased collection was due to the relatively high flows in the Snake River not only increasing the numbers of fish passing the trap but also making the trap fish more effectively. The Lewiston trap typically collects fish more effectively at higher flows and flows at the USGS gage at Anatone have been between 60 and 80 Kcfs over the past week which is 50% to 80% above historic average.

At Lower Granite Dam steelhead predominated in the sample over the two weeks of sampling followed by yearling Chinook and sockeye. Hatchery steelhead have predominated in the sample and based on PIT-tag and hatchery release data it appears that releases from Clear Creek on the middle fork Clearwater River, releases from the south fork and direct releases from Dworshak hatchery have all been passing. Yearling Chinook have been mixture of wild and hatchery origin spring/summer Chinook but also a relatively small number of holdover fall Chinook released during June and July of 2010 particularly from Big Canyon Creek acclimation facility. The sockeye in the sample are likely kokanee washing out from Dworshak Reservoir.

The first research transport barge was loaded on April 7: an estimated 24,000 steelhead and 8,200 yearling Chinook were transported.

At Little Goose Dam, which is sampling for condition only, every 5 days, the first sample was predominated by steelhead—mirroring the pattern seen at Lower Granite Dam. Lower Monumental Dam also collected relatively large numbers of steelhead in that sites' first three days of sampling.

The start of sampling at McNary Dam has been delayed due to a motor failure on the debris removing brushes on the screens for water intake for the juvenile fish sampling facility. If the screens became loaded with debris the COE contends that the sampling facility could become dewatered stranding any fish in the sampling facility. Sampling is scheduled to begin April 17.

At John Day Dam sampling has been ongoing this week. Relatively large numbers of yearling Chinook, steelhead and lamprey have been collected over the past week. The collection of lamprey averaged over 2,300 over the past week with a peak collection of 4,800 on April 7. The site has been monitoring condition of lamprey as part of a pilot study to ascertain the relative condition of these fish using similar external measures of fish conditions that are being used to describe salmon smolts.

At Bonneville Dam the largest collections over the past week have been hatchery yearling Chinook. Based on PIT-tag data these fish are mainly fish released from the Klickitat Hatchery on March 15. Also in those yearling Chinook were a small number of holdover fall Chinook from releases above or at Lower Granite Dam in 2010. Subyearling Chinook collections were almost exclusively fry over the past week.

Hatchery Release:

Snake River Zone: The Snake River Zone encompasses the Snake River and its tributaries from its confluence with the Columbia River to Hells Canyon Dam. There were several releases of yearling spring Chinook scheduled to begin this week. In all, these releases were expected to total nearly 598,000 spring Chinook juveniles. Of these, approximately 69% were scheduled for release into the Lochsa River, a tributary of the Clearwater River. The remaining 31% were scheduled for release from the Catherine Creek and Grande Ronde acclimation facilities on the Grande Ronde River. Approximately 73% of the spring Chinook released to the Grande Ronde River this week are unclipped, but have coded-wire-tags. In addition

to the yearling spring Chinook releases that began this week, several large releases from previous weeks continued this week. These include releases from the Rapid River, Kooskia, and Clearwater hatcheries.

There were no new releases of summer Chinook to this zone scheduled to begin this week. However, a volitional release of nearly 1.07 million yearling summer Chinook from Pahsimeroi Hatchery that began last week continued this week. This release is expected to run through mid-April. The only other releases that were scheduled to begin this week were of steelhead juveniles. In all, approximately 675,000 steelhead juveniles were scheduled to be released this week. All of the summer steelhead scheduled for release into this zone this week were scheduled for release into the Salmon River and its tributaries. In addition, many releases of summer steelhead that began last week continued this week. These releases occurred throughout this river zone and are expected to total nearly 2.02 million steelhead juveniles.

There are several releases of yearling fall Chinook juveniles scheduled to take place over the next two weeks. In all, these releases are expected to total nearly 946,000 juveniles. Of these, approximately 49% are scheduled for release from Lyons Ferry Hatchery, which is below Little Goose Dam. The remaining 51% are scheduled for release from three acclimation facilities that are located above Lower Granite Dam. These acclimation facilities are the Captain Johns Rapids and Pittsburg Landing acclimation ponds on the Snake River and the Big Canyon Creek acclimation ponds on the Clearwater River. In addition to the yearling fall Chinook releases, there are two releases of yearling spring Chinook juveniles that are scheduled to begin over the next two weeks. In all, these releases are expected to total just over 1.4 million spring Chinook juveniles. Of these, nearly 96% are scheduled for release into the Salmon River while the remaining 4% are scheduled for release into the Wallowa River.

Finally, just over 4.3 million summer steelhead are scheduled for release to this zone over the next two weeks. These releases of summer steelhead are spread throughout this river zone, including releases to the Salmon (~33%), Clearwater (~30%), Pahsimeroi (~19%), Wallowa (~9%), Grande Ronde (~4%), Snake (below Hells Canyon Dam) (~4%), and Tucannon (~2%) rivers.

Mid-Columbia Zone: The Mid-Columbia Zone encompasses the area of the Columbia River

and its tributaries from McNary Dam to Chief Joseph Dam. There were no releases of juvenile salmonids scheduled to begin this week. However, volitional releases of yearling spring Chinook juveniles from Cle Elem Hatchery acclimation sites that began in mid-March continued this week. These volitional releases are expected to run through mid-May. In addition, two releases of summer steelhead that were scheduled to begin last week were expected to continue this week. These two releases include a release of approximately 145,500 juveniles to the mid-Columbia River and a release of about 85,000 juveniles to the Touchet River.

There are two releases of subyearling fall Chinook to the Yakima River scheduled for April 16th. In all, these releases are expected total about 1.3 million juveniles, all of which are 100% unmarked. In addition, there are several releases of yearling spring Chinook scheduled for this zone over the next two weeks. In all, these releases are expected to total over 3.3 million spring Chinook juveniles. Of these, approximately 50% are scheduled for release into the Wenatchee River and 31% are scheduled for release into the Methow River. The remaining 19% are scheduled for release into the Okanogan (12%) and Walla Walla (7%) rivers.

Approximately 2.8 million yearling summer Chinook are scheduled for release to this zone over the next two weeks. These releases are scheduled to take place throughout this river zone, including the Wenatchee (~42%), mid-Columbia (~27%), Methow (~18%), Okanogan (~8%), and Entiat (~7%) rivers. Over 1.33 million coho juveniles are scheduled for release over the next two weeks. All of these coho releases are part of a Yakama Tribal program to reintroduce coho to the Yakima, Methow, and Wenatchee rivers. Of the coho juveniles that are scheduled for release over the next two weeks, approximately 74% are to be released to the Yakima River, 22% to the Wenatchee River, and 4% to the mid-Columbia River. Finally, nearly 716,000 summer steelhead are scheduled for release into this zone over the next two weeks. Of these, approximately 60% are scheduled for release into the Methow River. The remaining 40% are scheduled for release into the Okanogan (~17%), Walla Walla (~14%), and Touchet (~10%), rivers.

Lower Columbia Zone: The Lower Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to McNary Dam. Approximately 730,000 yearling spring Chinook juveniles were scheduled for release to this zone this week. Of these,

approximately 74% were scheduled for release into the Deschutes River while the remaining 26% were scheduled for release into the Umatilla River. The spring Chinook juveniles that were released to the Umatilla River this week were 100% unclipped, but had coded-wire tags. In addition to the releases that were scheduled to begin this week, a volitional release of approximately 234,000 spring Chinook juveniles from the Thornhollow Acclimation Pond, on the Umatilla River, continued this week. Finally, a release of approximately 2.5 million coho juveniles to the Klickitat River that began last week continued this week.

Approximately 7.9 million subyearling fall Chinook tules are scheduled for release into this zone over the next two weeks. Specifically, 6.2 million will be released from Spring Creek NFH on or around April 12th and 1.7 million will be released from Little White Salmon NFH on or around April 14th. In addition, nearly 2.2 million yearling spring Chinook are scheduled for release into this zone over the next two weeks. These releases of yearling spring Chinook are spread throughout this river zone, including releases to the Wind River (~49%), Little White Salmon River (~46%), Hood (~4%), and Deschutes (~1%) rivers.

Adult Fish Passage:

The historical counting schedule at Bonneville 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 began on March 1st at Lower Granite Dam. Counting began on 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.

Adult counts at Bonneville Dam have been updated through April 7th. Daily adult spring Chinook counts at Bonneville Dam ranged from 14 to 72 adult salmon per day. Between March 15th and April 7th, 388 adult spring Chinook have been counted at Bonneville Dam. In 2010, 1,809 adult spring Chinook were counted at Bonneville Dam for the same time period. The 2011 adult spring Chinook count at Bonneville Dam is 21.4% of the 2010 count and only about 3.4% of the 10 year average of 11,250. At Willamette Falls Dam 33 adult spring Chinook have been counted so far this year. At The Dalles Dam the 2011 adult spring Chinook is 68 and at McNary Dam 37 adult spring Chinook have been counted.

The Bonneville Dam 2011 steelhead count of 1,432 is about 65.8% of the 2010 count of 2,177. The 2011 steelhead count is about 1.12 times greater than the 10-year average of 1,269. At upriver sites, adult steelhead continue to move through the hydro system to reach their tributaries and spawning sites. The majority of these fish over-wintered in pools and will complete their trip to their spawning grounds in March through early May. Daily adult steelhead counts at Lower Granite Dam ranged from 164 to 702 adults per day last week. This year's Lower Granite steelhead count of 7,467 is about 1.04 times greater than the 2010 count of 7,212 and 1.10 times greater than the 10 year average of 6,760. The 2011 Lower Granite wild steelhead count as of April 7th was 2,803. At Willamette Falls Dam, the 2011 count for steelhead was 6,043, as of April 7th. This year's steelhead count is about 1.05 times greater than the 2010 count of 5,759 at Willamette Falls Dam for the same date range.

At Bonneville Dam, daily counts of adult salmon and steelhead found on the separator and by passed are being tracked this year for the period of March 1st to April 20th. From March 15th to April 7th, daily adult steelhead by passed counts ranged from 1 to 7. A total of 73 adult steelhead have been bypassed so far this year.

Hatchery Releases Last Two Weeks

Hatchery Release Summary									
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	413,000	04-06-11	04-07-11	Powell Acclim Pond	Lochsa River
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	Magic Valley Hatchery	ST	SU	2011	90,000	04-06-11	04-06-11	Shoup Br (Salmon R)	Salmon River (ID)
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2011	120,000	04-04-11	04-06-11	Salmon River (ID)	Salmon River (ID)
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2011	120,000	04-06-11	04-08-11	Salmon River (ID)	Salmon River (ID)
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	345,000	04-06-11	05-04-11	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	2,511,000	03-14-11	04-22-11	Rapid River Hatchery	Little Salmon River
Idaho Dept. of Fish and Game Total					6,903,000				
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	Kooskia NFH	CH1	SP	2011	657,000	03-24-11	04-04-11	Kooskia Hatchery	Clearwater River M F
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH1	SP	2011	240,000	04-01-11	04-15-11	Nez Perce Tribal Hatchery	Clearwater River M F
Nez Perce Tribe Total					1,210,000				
Oregon Dept. of Fish and Wildlife	Lookingglass Hatchery	CH1	SP	2011	103,000	04-01-11	04-14-11	Lookingglass Creek	Grande Ronde River
Oregon Dept. of Fish and Wildlife	Lookingglass Hatchery	CH1	SP	2011	252,000	03-30-11	04-14-11	Imnaha Acclim Pond	Imnaha River
Oregon Dept. of Fish and Wildlife	Round Butte Hatchery	ST	SU	2011	177,866	03-30-11	03-31-11	Deschutes River	Deschutes River
Oregon Dept. of Fish and Wildlife Total					532,866				
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	1,200,000	03-28-11	04-01-11	Dworshak Hatchery	Clearwater River M F
U.S. Fish and Wildlife Service	Warm Springs NFH	CH1	SP	2011	538,388	04-04-11	04-27-11	Warm Springs Hatchery	Deschutes River
U.S. Fish and Wildlife Service Total					2,813,388				
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2011	50,182	03-21-11	03-29-11	Catherine Cr Acclim Pond	Grande Ronde River
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2011	50,239	04-05-11	04-14-11	Catherine Cr Acclim Pond	Grande Ronde River
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2011	53,114	03-22-11	03-30-11	Grande Ronde Acclim Pond	Grande Ronde River
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2011	54,883	03-22-11	03-30-11	Grande Ronde Acclim Pond	Grande Ronde River
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2011	58,786	03-30-11	04-14-11	Catherine Cr Acclim Pond	Grande Ronde River
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2011	134,509	04-06-11	04-14-11	Grande Ronde Acclim Pond	Grande Ronde River
Umatilla Tribe	Umatilla Hatchery	CH1	SP	2011	193,000	04-06-11	04-06-11	Umatilla River	Umatilla River
Umatilla Tribe	Umatilla Hatchery	CH1	SP	2011	234,000	03-31-11	04-08-11	Thornhollow Acclim Pond	Umatilla River
Umatilla Tribe Total					828,713				
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2011	85,000	04-01-11	04-15-11	Dayton Acclim Pond	Touchet River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2011	197,000	04-01-11	04-10-11	Cottonwood Acclim Pond	Grande Ronde River
Washington Dept. of Fish and Wildlife	Ringold Springs Hatchery	ST	SU	2011	145,500	04-01-11	04-15-11	Ringold Springs Hatchery	Mid-Columbia River
Washington Dept. of Fish and Wildlife	Tucannon Hatchery	CH1	SP	2011	113,000	04-01-11	04-30-11	Curl Lake Acclim Pond	Tucannon River
Washington Dept. of Fish and Wildlife	Tucannon Hatchery	CH1	SP	2011	118,000	04-01-11	04-30-11	Curl Lake Acclim Pond	Tucannon River
Washington Dept. of Fish and Wildlife	Washougal Hatchery	CO	NO	2011	2,500,000	04-01-11	04-07-11	Klickitat River	Klickitat River
Washington Dept. of Fish and Wildlife Total					3,158,500				
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					16,281,980				

Hatchery Releases Next Two Weeks

Hatchery Release Summary									
From:		4/8/2011		to		4/21/2011			
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
Idaho Dept. of Fish and Game	Clearwater Hatchery	ST	SU	2011	213,000	04-12-11	04-19-11	S Fk Clearwater River	Clearwater River M F
Idaho Dept. of Fish and Game	Clearwater Hatchery	ST	SU	2011	262,000	04-20-11	04-21-11	S Fk Clearwater River	Clearwater River M F
Idaho Dept. of Fish and Game	Clearwater Hatchery	ST	SU	2011	268,000	04-12-11	04-19-11	S Fk Clearwater River	Clearwater River M F
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2011	120,000	04-06-11	04-08-11	Salmon River (ID)	Salmon River (ID)
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2011	190,000	04-11-11	04-15-11	Little Salmon River	Salmon River (ID)
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2011	220,000	04-11-11	04-14-11	Little Salmon River	Salmon River (ID)
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2011	280,000	04-18-11	04-22-11	East Fk Salmon River	Salmon River (ID)
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2011	345,000	04-06-11	05-04-11	Little Salmon River	Salmon River (ID)
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2011	830,000	04-13-11	05-03-11	Pahsimeroi River	Pahsimeroi 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	2,511,000	03-14-11	04-22-11	Rapid River Hatchery	Little Salmon River
Idaho Dept. of Fish and Game	Sawtooth Hatchery	CH1	SP	2011	1,340,000	04-11-11	04-11-11	Salmon River (ID)	Salmon River (ID)
Idaho Dept. of Fish and Game Total					7,646,000				
Nez Perce Tribe	Clearwater Hatchery	ST	SU	2011	85,600	04-10-11	04-20-11	Crooked River	S Fk Clearwater
Nez Perce Tribe	Clearwater Hatchery	ST	SU	2011	135,000	04-11-11	04-13-11	Newsome Creek	S Fk Clearwater
Nez Perce Tribe	Clearwater Hatchery	ST	SU	2011	153,500	04-10-11	04-20-11	Red River	S Fk Clearwater
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	60,000	04-15-11	04-15-11	Lolo Creek	Clearwater River M F
Nez Perce Tribe	Dworshak NFH	ST	SU	2011	103,700	04-10-11	04-20-11	Newsome Creek	S Fk Clearwater
Nez Perce Tribe	Lookingglass Hatchery	CH1	SP	2011	63,110	04-19-11	04-19-11	Lostine Accim Pond	Wallowa River
Nez Perce Tribe	Lyons Ferry Hatchery	CH1	FA	2011	155,000	04-10-11	04-20-11	Cpt John Acclim Pond	Snake River
Nez Perce Tribe	Lyons Ferry Hatchery	CH1	FA	2011	164,000	04-10-11	04-20-11	Big Canyon (Clearwater River)	Clearwater River M F
Nez Perce Tribe	Lyons Ferry Hatchery	CH1	FA	2011	167,000	04-10-11	04-20-11	Pittsburg Landing Acclim Pond	Snake River
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH1	SP	2011	240,000	04-01-11	04-15-11	Nez Perce Tribal Hatchery	Clearwater River M F
Nez Perce Tribe Total					1,639,910				
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU	2011	168,000	04-12-11	04-12-11	Big Canyon Acclim.Pd (Grande Ronde)	Grande Ronde River
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU	2011	378,000	04-12-11	04-12-11	Wallowa Acclim Pond	Wallowa River
Oregon Dept. of Fish and Wildlife	Lookingglass Hatchery	CH1	SP	2011	103,000	04-01-11	04-14-11	Lookingglass Creek	Grande Ronde River
Oregon Dept. of Fish and Wildlife	Lookingglass Hatchery	CH1	SP	2011	252,000	03-30-11	04-14-11	Imnaha Acclim Pond	Imnaha River
Oregon Dept. of Fish and Wildlife	Wizard Falls Hatchery	CH1	SP	2011	7,500	04-15-11	04-15-11	Deschutes River	Deschutes River
Oregon Dept. of Fish and Wildlife	Wizard Falls Hatchery	CH1	SP	2011	12,000	04-15-11	04-15-11	Deschutes River	Deschutes River
Oregon Dept. of Fish and Wildlife Total					920,500				
U.S. Fish and Wildlife Service	Carson NFH	CH1	SP	2011	1,059,327	04-14-11	04-14-11	Carson Hatchery	Wind River
U.S. Fish and Wildlife Service	Entiat Hatchery	CH1	SU	2011	150,500	04-13-11	04-14-11	Entiat Hatchery	Entiat River
U.S. Fish and Wildlife Service	Hagerman NFH	ST	SU	2011	739,346	04-11-11	04-11-11	Salmon River (ID)	Salmon River (ID)
U.S. Fish and Wildlife Service	Leavenworth NFH	CH1	SP	2011	1,230,000	04-18-11	04-22-11	Leavenworth Hatchery	Wenatchee River
U.S. Fish and Wildlife Service	Little White Salmon NFH	CH0	FA	2011	1,700,000	04-14-11	04-14-11	Little White Salmon Hatchery	Little White Salmon River
U.S. Fish and Wildlife Service	Little White Salmon NFH	CH1	SP	2011	600,000	04-14-11	04-14-11	Little White Salmon Hatchery	Little White Salmon River
U.S. Fish and Wildlife Service	Spring Creek NFH	CH0	FA	2011	6,200,000	04-12-11	04-12-11	Spring Creek Hatchery	L Col R (D/s McN Dam)
U.S. Fish and Wildlife Service	Warm Springs NFH	CH1	SP	2011	538,388	04-04-11	04-27-11	Warm Springs Hatchery	Deschutes River
U.S. Fish and Wildlife Service	Willard Hatchery	CH1	SP	2011	400,000	04-14-11	04-14-11	Willard Hatchery	Little White Salmon River
U.S. Fish and Wildlife Service	Winthrop NFH	CH1	SP	2011	461,000	04-15-11	04-20-11	Winthrop Hatchery	Methow River
U.S. Fish and Wildlife Service	Winthrop NFH	ST	SU	2011	43,200	04-20-11	04-30-11	Winthrop Hatchery	Methow River
U.S. Fish and Wildlife Service	Winthrop NFH	ST	SU	2011	64,000	04-20-11	04-30-11	Winthrop Hatchery	Methow River
U.S. Fish and Wildlife Service Total					13,185,761				
Umatilla Tribe	Carson NFH	CH1	SP	2011	247,196	04-11-11	04-12-11	Walla Walla River	Walla Walla River
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2011	50,239	04-05-11	04-14-11	Catherine Cr Acclim Pond	Grande Ronde River
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2011	58,786	03-30-11	04-14-11	Catherine Cr Acclim Pond	Grande Ronde River
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2011	134,509	04-06-11	04-14-11	Grande Ronde Acclim Pond	Grande Ronde River
Umatilla Tribe	Umatilla Hatchery	CH1	SP	2011	234,000	03-31-11	04-08-11	Thornhollow Acclim Pond	Umatilla River
Umatilla Tribe Total					724,730				
Warm Springs Tribe	Carson NFH	CH1	SP	2011	44,604	04-21-11	04-21-11	Blackberry Acclim Pond	Hood River
Warm Springs Tribe	Round Butte Hatchery	CH1	SP	2011	37,500	04-09-11	04-09-11	W Fk Hood River	Hood River
Warm Springs Tribe Total					82,104				
Washington Dept. of Fish and Wildlife	Chelan Hatchery	CH1	SU	2011	185,000	04-20-11	04-30-11	Chelan Falls	Mid-Columbia River
Washington Dept. of Fish and Wildlife	Chiwawa Hatchery	CH1	SP	2011	446,000	04-15-11	05-15-11	Chiwawa River	Wenatchee River

Hatchery Releases Next Two Weeks - (Continued)

Washington Dept. of Fish and Wildlife	Eastbank Hatchery	CH1	SP	2011	384,000	04-15-11	05-10-11	Similkameen Acclim Pd	Okanogan River
Washington Dept. of Fish and Wildlife	Eastbank Hatchery	CH1	SU	2011	175,000	04-15-11	05-10-11	Bonaparte Acclimation Pond	Okanogan River
Washington Dept. of Fish and Wildlife	Eastbank Hatchery	CH1	SU	2011	948,000	04-20-11	04-30-11	Dryden Acclim Pond	Wenatchee River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	CH1	FA	2011	460,000	04-10-11	04-20-11	Lyons Ferry Hatchery	Snake River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2011	6,400	04-10-11	04-20-11	Baileysburg Bridge	Touchet River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2011	8,000	04-10-11	04-20-11	Baileysburg Bridge	Touchet River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2011	54,000	04-15-11	05-15-11	Baileysburg Bridge	Touchet River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2011	85,000	04-01-11	04-15-11	Dayton Acclim Pond	Touchet River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2011	100,000	04-10-11	04-20-11	Walla Walla River	Walla Walla River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2011	160,000	04-10-11	04-20-11	Lyons Ferry Hatchery	Snake River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2011	197,000	04-01-11	04-10-11	Cottonwood Acclim Pond	Grande Ronde River
Washington Dept. of Fish and Wildlife	Methow Hatchery	CH1	SP	2011	67,300	04-15-11	04-20-11	Twisp Acclim Pond	Methow River
Washington Dept. of Fish and Wildlife	Methow Hatchery	CH1	SP	2011	90,100	04-15-11	04-20-11	Chewuch Acclim Pond	Methow River
Washington Dept. of Fish and Wildlife	Methow Hatchery	CH1	SP	2011	408,100	04-15-11	04-20-11	Methow Hatchery	Methow River
Washington Dept. of Fish and Wildlife	Methow Hatchery	CH1	SU	2011	400,000	04-15-11	04-25-11	Carlton Acclim Pond	Methow River
Washington Dept. of Fish and Wildlife	Ringold Springs Hatchery	ST	SU	2011	145,500	04-01-11	04-15-11	Ringold Springs Hatchery	Mid-Columbia River
Washington Dept. of Fish and Wildlife	Tucannon Hatchery	CH1	SP	2011	113,000	04-01-11	04-30-11	Curl Lake Acclim Pond	Tucannon River
Washington Dept. of Fish and Wildlife	Tucannon Hatchery	CH1	SP	2011	118,000	04-01-11	04-30-11	Curl Lake Acclim Pond	Tucannon River
Washington Dept. of Fish and Wildlife	Tucannon Hatchery	ST	SU	2011	77,000	04-10-11	04-20-11	Tucannon Hatchery	Tucannon River
Washington Dept. of Fish and Wildlife	Wells Hatchery	CH1	SU	2011	420,000	04-15-11	04-25-11	Wells Hatchery	Mid-Columbia River
Washington Dept. of Fish and Wildlife	Wells Hatchery	ST	SU	2011	120,000	04-20-11	05-15-11	Okanogan River	Okanogan River
Washington Dept. of Fish and Wildlife	Wells Hatchery	ST	SU	2011	320,000	04-15-11	05-15-11	Methow River	Methow River
Washington Dept. of Fish and Wildlife Total					5,487,400				
Yakama Tribe	Cascade Hatchery	CO	UN	2011	69,321	04-19-11	04-19-11	Icicle Creek	Wenatchee River
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	Eagle Creek NFH	CO	UN	2011	37,000	04-20-11	06-01-11	Boone Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2011	79,015	04-15-11	06-01-11	Holmes Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2011	88,175	04-20-11	06-01-11	Stiles Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2011	88,942	04-20-11	06-01-11	Lost Creek Acclim Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2011	90,498	04-20-11	06-01-11	Easton Pond	Yakima River
Yakama Tribe	Priest Rapids Hatchery	CH0	FA	2011	500,000	04-16-11	04-16-11	Prosser Acclim Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CH0	FA	2011	800,000	04-16-11	04-16-11	Prosser Acclim Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2011	50,000	04-20-11	06-01-11	Stiles Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2011	100,000	04-20-11	06-01-11	Easton Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2011	100,297	04-20-11	06-01-11	Lost Creek Acclim Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2011	100,671	04-15-11	06-01-11	Holmes Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2011	245,455	04-15-11	06-01-11	Prosser Acclim Pond	Yakima River
Yakama Tribe	Willard Hatchery	CO	UN	2011	51,854	04-21-11	04-21-11	Wells Hatchery	Mid-Columbia River
Yakama Tribe	Willard Hatchery	CO	UN	2011	229,620	04-19-11	04-20-11	Icicle Creek	Wenatchee River
Yakama Tribe Total					3,466,361				
Grand Total					33,152,766				

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
03/25/2011	124.6	0.0	123.8	0.0	130.5	0.0	131.3	0.0	133.7	0.0	145.7	0.0	141.5	0.0
03/26/2011	109.7	0.0	115.7	0.0	115.1	0.0	114.0	0.0	118.5	0.0	131.7	0.0	129.8	0.0
03/27/2011	94.2	0.0	93.6	0.0	98.7	0.0	101.0	0.0	104.1	0.0	118.7	0.0	122.9	0.0
03/28/2011	116.2	0.0	111.0	0.0	116.3	0.0	115.4	0.0	116.9	0.0	123.0	0.0	118.6	0.0
03/29/2011	140.5	0.0	144.8	0.0	140.4	0.0	133.5	0.0	135.7	0.0	134.2	0.0	131.1	0.0
03/30/2011	140.8	0.0	137.1	0.8	140.1	7.6	138.5	1.9	138.6	0.0	146.2	9.5	143.6	0.0
03/31/2011	142.7	0.0	142.8	10.1	145.8	8.0	141.3	1.8	146.9	9.7	155.2	17.4	149.3	13.2
04/01/2011	142.9	0.0	141.0	0.0	142.9	8.5	142.8	11.8	150.7	14.4	163.4	27.4	175.5	17.8
04/02/2011	142.7	0.0	145.6	17.0	150.5	6.2	150.1	6.9	156.6	22.0	170.2	60.0	160.4	59.3
04/03/2011	145.6	2.9	146.1	58.7	153.2	13.4	151.4	10.3	152.3	24.5	172.2	46.9	174.7	48.8
04/04/2011	143.8	0.8	143.7	14.6	151.7	8.5	157.3	10.3	162.4	20.7	192.2	59.4	200.5	65.8
04/05/2011	145.3	0.0	146.7	9.1	146.7	0.5	145.5	1.4	148.4	8.7	174.0	53.7	181.2	46.0
04/06/2011	153.6	2.9	152.8	39.4	152.8	1.3	149.2	0.0	153.1	0.0	170.3	45.4	168.9	56.9
04/07/2011	149.5	1.4	152.9	26.3	157.8	17.4	154.4	13.4	157.6	0.0	131.9	28.9	131.0	20.8

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

Date	Dworshak		Brownlee Canyon		Hells Granite		Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill	Inflow	Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
03/25/2011	16.1	5.5	27.2	40.2	81.8	0.0	78.2	0.0	88.8	0.0	86.4	12.0		
03/26/2011	14.4	3.8	27.6	40.2	82.7	0.0	74.0	0.0	81.8	0.0	85.9	11.1		
03/27/2011	14.4	3.8	28.2	40.3	77.3	0.0	74.6	0.0	77.0	0.0	77.7	1.9		
03/28/2011	14.4	3.8	28.2	40.3	79.7	0.0	71.8	0.0	83.2	0.0	79.8	8.9		
03/29/2011	14.4	3.8	26.0	42.9	77.9	0.0	74.0	0.0	78.7	0.0	81.3	15.3		
03/30/2011	14.4	3.8	26.1	45.3	88.9	9.5	83.0	4.2	88.0	3.7	82.3	25.2		
03/31/2011	17.4	7.1	28.3	40.3	108.7	19.9	100.1	12.6	111.8	11.6	112.9	49.0		
04/01/2011	17.7	7.2	30.7	34.1	123.9	50.6	113.9	10.6	130.2	16.1	132.8	107.0		
04/02/2011	18.0	7.7	37.6	34.2	130.6	57.4	123.3	31.2	136.8	28.2	137.7	87.1		
04/03/2011	17.8	7.6	46.3	35.2	137.8	64.3	130.7	31.5	143.3	31.2	149.3	91.1		
04/04/2011	18.8	8.4	47.9	39.7	124.3	51.2	118.3	32.8	125.9	26.4	125.1	72.4		
04/05/2011	21.0	10.4	44.6	45.4	138.6	65.2	129.7	37.8	138.5	27.6	141.9	79.6		
04/06/2011	21.7	11.2	42.8	45.4	137.4	64.5	132.4	40.0	144.3	33.3	147.0	87.7		
04/07/2011	22.0	11.4	---	---	127.3	54.8	121.8	36.5	131.5	29.8	136.1	74.8		

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

Date	McNary		John Day		The Dalles		Bonneville			
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	PH1	PH2
03/25/2011	234.6	59.5	226.0	0.0	225.3	0.0	235.1	1.4	106.6	114.7
03/26/2011	233.5	60.4	211.3	0.0	213.6	0.0	233.9	1.4	102.2	117.8
03/27/2011	233.5	57.1	240.3	0.0	242.8	0.0	252.3	1.5	117.4	121.0
03/28/2011	210.2	47.7	205.4	0.0	208.5	0.0	235.9	1.4	101.7	120.9
03/29/2011	224.7	55.4	222.8	0.0	225.2	0.0	225.6	1.4	97.4	115.9
03/30/2011	235.1	59.4	221.3	4.3	228.2	3.3	245.7	3.0	111.6	118.7
03/31/2011	245.6	70.7	241.9	21.2	244.4	25.4	276.4	40.4	100.9	122.8
04/01/2011	307.3	158.3	303.1	88.5	293.2	32.9	288.8	52.7	93.4	130.3
04/02/2011	319.7	170.9	330.9	108.8	319.5	77.1	331.4	99.8	92.2	127.0
04/03/2011	345.3	196.5	359.2	121.1	354.2	108.8	375.1	147.0	91.6	124.1
04/04/2011	336.5	187.7	359.9	127.7	351.3	125.7	369.1	142.1	90.5	124.1
04/05/2011	349.8	206.0	385.6	154.3	374.8	167.6	390.5	166.8	91.0	120.4
04/06/2011	332.4	193.3	350.2	122.6	348.1	127.8	367.4	148.0	91.2	115.8
04/07/2011	306.5	164.5	305.0	72.7	303.6	66.1	337.8	116.7	91.8	117.0

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	<u>Hungry H. Dnst</u>			<u>Boundary</u>			<u>Grand Coulee</u>			<u>Grand C. Tlwr</u>			<u>Chief Joseph</u>							
	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>				
	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>			<u>hr</u>	<u>Avg</u>	<u>Avg</u>	
3/25	96.1	96.1	96.3	14	103.5	103.5	103.8	13	104.3	104.5	104.6	24	102.9	102.9	103.4	13	102.8	102.9	103.0	24
3/26	---	---	---	0	---	---	---	0	104.3	104.6	104.9	24	---	---	---	0	102.8	102.9	103.0	24
3/27	---	---	---	0	---	---	---	0	104.3	104.4	104.6	24	---	---	---	0	102.7	102.8	103.0	24
3/28	96.3	96.3	96.5	18	103.1	103.4	104.1	16	103.4	103.6	103.9	24	102.4	102.5	103.3	16	102.2	102.3	102.5	24
3/29	96.3	96.4	96.5	24	103.2	103.7	104.0	22	103.5	103.7	103.7	24	102.2	102.4	102.6	22	102.6	102.8	103.0	24
3/30	96.4	96.5	96.5	22	103.5	103.7	104.3	18	103.8	103.9	104.0	24	102.7	103.0	103.9	18	102.8	103.0	103.2	24
3/31	97.7	98.6	100.0	24	103.7	104.0	104.4	24	104.1	104.2	104.4	24	102.7	103.0	103.3	24	102.9	103.1	103.2	24
4/1	102.5	103.6	104.3	24	104.2	105.5	106.8	22	104.6	105.2	105.6	24	103.1	103.7	104.1	22	103.2	103.5	103.5	24
4/2	105.4	106.0	106.5	24	104.1	104.7	106.0	24	105.4	105.7	105.9	24	103.8	104.1	104.4	24	103.5	103.8	103.9	24
4/3	107.6	108.0	108.3	24	104.8	106.7	108.4	22	104.1	104.3	104.8	24	107.0	109.6	111.2	22	102.6	102.9	103.1	24
4/4	108.8	109.0	109.3	24	110.7	113.9	115.4	21	105.1	105.6	106.0	24	105.2	106.2	110.7	21	103.3	103.7	104.9	24
4/5	107.3	109.4	109.7	24	112.8	113.4	114.0	22	105.6	105.8	106.0	24	104.1	104.3	104.5	22	107.4	108.5	109.3	24
4/6	105.5	105.7	105.8	23	113.2	113.7	114.3	21	105.9	106.1	106.9	24	107.3	109.4	111.8	21	105.8	106.7	107.3	24
4/7	109.0	111.9	112.1	23	114.7	116.0	117.2	21	105.5	105.7	105.8	24	107.4	108.5	110.9	21	103.4	103.6	103.8	24

Total Dissolved Gas Saturation Data at Mid Columbia River Sites

Date	<u>Chief J. Dnst</u>			<u>Wells</u>			<u>Wells Dwnstrm</u>			<u>Rocky Reach</u>			<u>Rocky R. Tlwr</u>							
	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>				
	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>			<u>hr</u>	<u>Avg</u>	<u>Avg</u>	
3/25	103.1	103.7	104.5	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/26	97.9	98.7	103.0	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/27	99.9	100.2	100.8	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/28	101.0	101.4	102.2	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/29	102.3	102.6	103.5	23	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/30	102.7	103.1	104.8	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/31	106.1	109.1	109.7	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
4/1	103.0	103.4	103.7	24	---	---	---	0	---	---	---	0	107.1	107.4	108.2	16	107.7	107.9	110.5	16
4/2	107.7	112.1	115.8	24	---	---	---	0	---	---	---	0	106.6	107.4	108.4	24	109.1	110.7	113.4	24
4/3	110.1	115.4	119.2	24	---	---	---	0	---	---	---	0	104.8	105.0	105.1	24	106.6	108.4	113.0	24
4/4	101.0	104.7	113.6	24	---	---	---	0	---	---	---	0	106.0	106.9	107.0	24	109.7	111.8	114.2	24
4/5	104.6	106.1	111.1	24	---	---	---	0	---	---	---	0	110.0	111.5	111.9	24	109.0	110.0	110.4	24
4/6	110.4	115.6	117.3	24	---	---	---	0	---	---	---	0	108.5	109.4	111.2	24	108.2	108.9	110.0	24
4/7	109.7	113.1	115.5	24	112.9	113.2	113.9	19	108.9	110.1	114.2	19	106.0	106.6	106.9	24	108.6	110.6	115.3	24

Total Dissolved Gas Saturation at Mid Columbia River Sites

Date	<u>Rock Island</u>			<u>Rock I. Tlwr</u>			<u>Wanapum</u>			<u>Wanapum Tlwr</u>			<u>Priest Rapids</u>							
	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>				
	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>			<u>hr</u>	<u>Avg</u>	<u>Avg</u>	
3/25	---	---	---	0	---	---	---	0	104.1	104.3	104.6	24	104.3	104.4	104.6	24	104.6	104.8	104.9	24
3/26	---	---	---	0	---	---	---	0	104.2	104.4	104.5	24	104.3	104.5	104.6	24	104.4	104.6	104.7	24
3/27	---	---	---	0	---	---	---	0	103.9	104.1	104.1	24	104.1	104.3	104.3	24	104.2	104.3	104.4	24
3/28	---	---	---	0	---	---	---	0	102.8	103.1	103.3	24	103.1	103.3	103.6	24	103.1	103.3	103.6	24
3/29	---	---	---	0	---	---	---	0	102.8	102.9	103.0	24	103.1	103.2	103.8	24	103.3	103.3	103.4	24
3/30	---	---	---	0	---	---	---	0	102.8	102.9	103.0	24	103.9	104.8	108.3	24	103.4	103.6	104.0	24
3/31	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
4/1	107.4	108.0	109.5	16	109.3	110.4	114.2	16	---	---	---	0	---	---	---	0	---	---	---	0
4/2	106.7	107.2	108.0	24	110.1	111.8	113.4	24	---	---	---	0	---	---	---	0	---	---	---	0
4/3	104.3	105.2	106.6	24	107.7	110.4	111.2	24	---	---	---	0	---	---	---	0	---	---	---	0
4/4	107.0	108.3	109.4	24	110.0	111.5	113.5	24	---	---	---	0	---	---	---	0	---	---	---	0
4/5	107.2	109.0	110.7	24	108.6	109.6	110.7	24	---	---	---	0	---	---	---	0	---	---	---	0
4/6	109.0	110.1	111.0	24	109.1	110.3	111.2	24	---	---	---	0	---	---	---	0	---	---	---	0
4/7	106.3	107.6	110.1	24	106.5	107.9	110.5	24	---	---	---	0	---	---	---	0	---	---	---	0

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

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

Date	<u>Priest R. Dnst</u>			#	<u>Pasco</u>			#	<u>Dworshak</u>			#	<u>Clwrtr-Peck</u>			#	<u>Anatone</u>			#
	<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>		
	Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High	
3/25	104.3	104.4	104.5	24	103.8	104.1	104.4	24	112.3	112.9	113.5	24	106.3	106.7	107.7	24	105.2	105.7	106.1	24
3/26	104.3	104.6	104.8	24	103.2	103.7	104.1	24	107.5	108.0	108.5	24	104.0	104.8	105.7	24	105.5	106.2	106.8	24
3/27	104.0	104.2	104.3	24	102.7	103.2	103.6	24	107.1	107.4	108.1	24	103.5	104.1	105.0	24	105.4	106.0	106.6	24
3/28	103.0	103.2	103.4	24	102.3	103.2	103.6	24	106.2	106.6	107.0	24	102.8	103.2	103.8	24	104.9	105.3	105.8	24
3/29	103.1	103.3	103.4	24	102.6	102.8	103.0	24	106.2	106.6	107.1	24	102.9	103.3	103.8	24	105.3	105.7	106.3	24
3/30	103.4	103.7	104.3	24	102.7	103.2	103.5	24	106.3	106.8	107.6	24	102.7	103.0	103.5	24	105.8	106.2	106.4	24
3/31	---	---	---	0	103.3	104.0	104.4	24	114.2	114.6	115.8	24	105.2	105.8	106.2	24	104.7	105.1	105.3	24
4/1	---	---	---	0	106.5	107.9	109.5	24	114.6	115.1	115.4	24	104.8	105.6	105.8	24	103.3	103.9	104.3	24
4/2	---	---	---	0	107.2	108.4	109.5	24	115.4	115.6	116.2	24	104.3	104.7	105.5	24	102.4	102.8	103.1	24
4/3	---	---	---	0	107.3	108.9	109.4	24	114.0	114.4	114.9	24	103.7	104.1	104.4	24	102.3	102.8	103.2	24
4/4	---	---	---	0	108.9	109.8	110.1	24	115.3	116.4	117.1	24	104.9	105.7	106.2	24	103.2	103.6	103.8	24
4/5	---	---	---	0	109.0	109.6	110.2	24	117.6	118.2	118.5	24	105.7	106.0	106.2	24	103.6	103.9	104.4	24
4/6	---	---	---	0	108.1	108.9	109.3	24	118.4	118.5	118.6	24	106.3	106.6	106.8	24	103.7	103.9	104.1	24
4/7	---	---	---	0	108.8	110.4	111.1	24	118.3	118.5	118.7	24	107.3	108.3	108.5	24	103.9	104.3	104.8	24

Total Dissolved Gas Saturation Data at Snake River Sites

Date	<u>Clwrtr-Lewiston</u>			#	<u>Lower Granite</u>			#	<u>L. Granite Tlwr</u>			#	<u>Little Goose</u>			#	<u>L. Goose Tlwr</u>			#
	<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>		
	Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High	
3/25	103.3	104.3	105.4	24	104.6	104.8	104.9	24	104.0	104.1	104.2	24	102.8	103.0	103.4	24	102.0	102.2	102.3	24
3/26	102.6	103.2	103.9	24	105.0	105.2	105.4	24	104.4	104.7	104.9	24	103.1	103.4	103.6	24	102.2	102.5	102.7	24
3/27	102.0	103.1	104.2	24	104.5	104.8	105.1	24	104.0	104.1	104.4	24	102.9	103.1	103.4	24	102.0	102.1	102.2	24
3/28	101.3	102.0	102.5	24	103.7	104.0	104.6	24	103.1	103.3	103.8	24	102.3	102.5	102.7	24	101.4	101.5	101.8	24
3/29	101.4	102.0	102.6	24	103.4	103.6	103.7	24	102.9	103.0	103.1	24	102.7	102.8	102.9	24	102.1	102.6	104.4	24
3/30	101.1	101.2	101.3	24	103.8	103.9	104.1	24	102.5	109.8	113.1	24	102.8	102.9	103.0	24	104.1	105.6	107.1	24
3/31	102.5	103.5	104.0	24	104.4	104.5	104.7	24	108.3	108.6	108.9	24	103.0	103.1	103.3	24	107.0	107.2	107.4	24
4/1	103.7	104.6	105.2	24	105.2	106.0	106.7	24	118.9	121.0	122.5	24	104.5	105.9	106.8	24	107.4	110.6	113.9	24
4/2	103.2	103.4	104.0	15	105.9	106.5	107.0	24	120.7	122.5	126.2	24	107.2	108.0	111.5	24	113.5	115.3	117.2	24
4/3	102.4	102.8	103.0	23	102.6	103.2	104.4	24	121.9	123.1	123.6	24	111.2	111.5	112.0	24	114.6	115.4	116.2	24
4/4	103.2	103.5	103.9	20	102.8	103.4	104.3	24	118.7	119.3	119.9	24	113.3	114.6	116.2	24	115.1	115.7	116.3	24
4/5	103.5	103.8	104.1	19	104.0	104.2	104.3	24	122.3	123.6	123.8	24	115.1	115.5	115.9	24	115.9	116.1	116.6	24
4/6	104.0	104.2	104.6	22	104.4	104.5	104.6	15	123.2	123.5	124.2	24	114.0	114.4	115.2	24	115.8	116.2	117.1	24
4/7	104.3	105.0	105.4	24	105.0	105.0	105.2	11	120.9	121.2	122.7	24	116.2	116.7	117.0	24	116.0	116.2	116.6	24

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

Date	<u>Lower Mon.</u>			#	<u>L. Mon. Tlwr</u>			#	<u>Ice Harbor</u>			#	<u>Ice Harbor Tlwr</u>			#	<u>McNary-Oregon</u>			#
	<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>		
	Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High	
3/25	102.8	102.9	103.0	24	103.1	103.3	103.5	24	103.1	103.3	103.5	24	108.0	109.1	110.2	24	---	---	---	0
3/26	102.7	102.8	102.9	24	102.8	103.0	103.3	24	102.8	103.0	103.1	24	107.5	110.7	110.9	24	---	---	---	0
3/27	102.4	102.5	102.5	24	102.6	102.7	103.2	24	102.5	102.7	102.8	24	102.6	103.2	107.1	24	---	---	---	0
3/28	101.5	101.7	102.1	24	101.7	101.9	102.3	24	101.4	101.6	102.1	24	105.1	108.3	109.9	24	---	---	---	0
3/29	101.7	101.8	101.9	24	101.5	101.8	102.3	24	101.5	101.6	101.6	24	107.8	108.9	109.0	24	---	---	---	0
3/30	102.1	102.2	102.3	24	103.2	104.9	106.0	24	101.8	101.9	102.0	24	110.8	112.7	115.1	24	---	---	---	0
3/31	102.6	102.7	102.9	24	106.6	107.2	107.5	24	102.3	102.5	102.7	24	116.5	117.1	117.6	24	---	---	---	0
4/1	104.1	105.0	105.7	24	109.2	112.5	115.6	24	103.8	104.8	105.5	24	124.0	126.3	126.9	24	---	---	---	0
4/2	105.2	105.7	106.6	24	113.5	116.5	123.2	24	105.2	105.4	105.6	24	119.7	121.4	124.6	24	---	---	---	0
4/3	108.0	109.0	110.9	24	117.1	118.1	118.6	24	105.6	106.5	108.1	24	120.3	121.0	123.5	24	---	---	---	0
4/4	112.4	113.0	113.4	24	117.6	117.9	118.1	24	110.2	110.9	111.4	24	118.7	119.6	120.0	24	---	---	---	0
4/5	113.2	113.4	113.7	24	118.6	119.3	119.7	24	111.3	111.4	111.5	24	119.2	120.2	121.1	24	---	---	---	0
4/6	114.3	114.6	114.9	24	119.7	120.0	120.2	24	111.9	112.2	112.5	24	120.3	121.0	121.4	24	---	---	---	0
4/7	114.4	114.7	115.0	24	119.8	120.0	120.1	24	113.2	113.6	113.9	24	118.8	119.2	120.1	24	---	---	---	0

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

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

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>	#					
	Avg	Avg		High	hr		Avg	Avg		High	hr		Avg	Avg		High	hr	Avg	AVG	High
3/25	104.4	104.5	104.6	24	111.6	111.7	111.9	24	---	---	---	0	106.0	106.1	106.3	24	---	---	---	0
3/26	104.4	104.5	104.6	24	111.6	111.7	111.8	24	---	---	---	0	105.4	105.5	105.6	24	---	---	---	0
3/27	104.0	104.1	104.2	24	111.4	111.9	112.1	24	---	---	---	0	105.2	105.4	105.6	24	---	---	---	0
3/28	102.6	102.9	103.6	24	109.3	109.5	109.6	24	---	---	---	0	104.3	104.4	104.8	24	---	---	---	0
3/29	102.5	102.6	102.7	24	110.4	111.4	112.1	24	105.0	105.0	106.5	9	104.5	104.6	104.7	24	104.1	104.1	104.2	11
3/30	103.1	103.3	103.5	24	111.1	111.2	111.5	24	104.8	104.9	105.0	24	105.8	107.0	110.5	24	103.9	104.0	104.1	24
3/31	103.6	103.8	104.0	24	112.6	114.1	115.1	24	104.6	104.8	104.9	24	110.6	111.5	112.6	24	104.5	104.8	105.0	24
4/1	105.1	106.4	107.4	24	120.5	121.3	121.6	24	105.7	106.7	107.1	24	118.1	120.5	120.7	24	106.5	107.8	110.3	24
4/2	106.4	106.8	107.4	24	120.8	121.0	121.7	24	105.2	105.8	106.4	24	119.8	120.2	120.6	24	109.5	110.2	110.9	24
4/3	105.2	106.0	106.6	24	122.1	122.4	122.6	24	103.5	103.8	104.0	24	120.6	120.7	120.8	24	108.0	109.3	110.5	24
4/4	107.5	108.3	109.7	24	121.7	122.2	123.8	24	106.1	107.4	107.8	24	121.0	121.6	123.9	24	110.7	111.6	112.1	24
4/5	108.4	109.1	110.0	24	122.8	123.2	123.7	24	107.6	108.0	109.0	24	122.5	123.3	123.9	24	113.3	114.1	114.5	24
4/6	108.5	109.1	109.4	24	122.4	122.8	123.1	24	110.9	111.5	111.9	24	121.3	123.2	124.4	24	114.8	116.4	117.1	24
4/7	109.7	110.1	110.7	24	120.8	121.1	121.4	24	111.6	111.8	112.0	24	117.8	119.5	121.1	24	112.0	112.6	112.9	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>	#					
	Avg	Avg		High	hr		Avg	Avg		High	hr		Avg	Avg		High	hr	Avg	Avg	High
3/25	105.4	105.7	105.9	24	---	---	---	0	106.1	106.3	106.4	24	105.3	105.8	106.1	24	111.1	111.6	111.8	24
3/26	105.0	105.3	105.5	24	---	---	---	0	106.1	106.3	106.6	24	105.8	106.1	106.8	24	111.0	111.5	111.8	24
3/27	104.2	104.4	104.7	24	---	---	---	0	105.2	105.4	105.7	24	105.0	105.2	105.3	24	110.5	111.3	111.8	24
3/28	103.6	103.8	103.9	24	---	---	---	10	103.6	104.0	104.7	24	103.6	104.0	104.3	24	109.3	110.0	110.6	24
3/29	104.2	104.4	104.5	24	---	---	---	24	103.9	104.0	104.2	24	103.4	103.5	103.7	24	109.4	109.9	110.2	24
3/30	104.0	104.2	105.0	24	103.6	103.7	103.7	24	103.9	104.1	104.2	24	103.2	103.4	103.6	24	109.0	109.7	111.3	24
3/31	105.9	106.5	107.2	24	103.6	103.8	104.1	24	105.5	106.1	106.7	24	104.3	105.2	106.0	24	113.0	113.9	114.9	24
4/1	107.6	109.4	111.2	24	106.1	107.4	108.0	24	107.6	109.5	110.1	24	106.0	106.8	107.1	24	114.9	116.9	117.6	24
4/2	112.5	114.3	115.9	24	106.2	106.9	107.8	24	110.2	110.6	110.9	24	107.6	108.0	108.8	24	117.7	118.0	118.4	24
4/3	112.1	113.4	114.4	24	109.5	110.0	110.4	24	115.0	115.7	116.0	24	111.1	114.1	115.1	24	121.4	121.7	122.8	24
4/4	115.3	116.6	119.0	24	112.4	113.6	114.1	24	116.4	116.6	117.0	24	114.7	115.1	115.6	24	121.2	121.5	122.0	24
4/5	119.1	119.8	120.2	24	114.1	114.6	115.8	24	117.9	118.3	118.9	24	114.9	115.8	116.1	24	122.1	122.3	122.6	24
4/6	118.7	119.5	120.2	24	117.7	118.7	118.9	24	119.5	119.8	120.8	24	116.7	117.7	118.2	24	121.7	122.4	122.8	24
4/7	114.4	115.5	116.0	24	116.9	117.8	118.8	24	118.3	119.6	120.3	24	117.7	118.3	118.8	24	121.1	122.7	129.1	24

Two-Week Summary of Passage Indices

Source: Fish Passage Center

Updated: 4/8/2011 8:40

Two-Week Summary of Passage Indices

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

See Sampling Comments:

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

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

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

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)
03/25/2011 *	42	18	15	18	---	---	---	---	---	---	2,706
03/26/2011	1,293	30	15	7	380	---	---	---	---	---	3,080
03/27/2011 *	1,181	42	13	16	700	---	---	---	---	---	2,574
03/28/2011 *	534	51	67	17	1,190	---	---	---	---	---	1,910
03/29/2011	190	42	78	13	3,110	---	---	---	---	---	707
03/30/2011 *	558	85	89	21	5,138	---	---	---	---	---	458
03/31/2011 *	581	163	107	99	5,023	---	---	---	---	---	540
04/01/2011 *	1,928	124	1	822	4,361	---	52	3	---	314	661
04/02/2011 *	1,661	---	35	772	5,172	---	0	4	---	491	770
04/03/2011 *	1,546	---	---	269	9,297	---	0	5	---	566	939
04/04/2011 *	2,240	845	---	300	19,508	1,676	29	9	---	1,301	1,126
04/05/2011 *	2,936	452	255	658	23,869	---	---	3	---	1,722	912
04/06/2011 *	1,004	473	---	492	18,275	---	---	12	---	1,571	1,100
04/07/2011 *	852	---	123	283	28,321	---	31	5	---	1,555	937
04/08/2011 *	---	---	---	---	---	---	---	---	---	---	---
Total:	16,546	2,325	798	3,787	124,344	1,676	112	41	0	7,520	18,420
# Days:	14	11	11	14	13	1	5	7	0	7	14
Average:	1,182	211	73	271	9,565	1,676	22	6	0	1,074	1,316
YTD	19,532	3,190	1,039	3,815	124,344	1,676	112	41	0	7,520	29,209

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)
03/25/2011 *	0	0	0	3	---	---	---	---	---	---	1,387
03/26/2011	0	0	1	1	10	---	---	---	---	---	1,125
03/27/2011 *	0	0	0	2	20	---	---	---	---	---	1,434
03/28/2011 *	0	0	0	0	30	---	---	---	---	---	1,406
03/29/2011	0	0	0	1	20	---	---	---	---	---	1,232
03/30/2011 *	0	0	3	8	0	---	---	---	---	---	1,508
03/31/2011 *	0	1	1	12	32	---	---	---	---	---	1,310
04/01/2011 *	0	0	0	2	65	---	0	34	---	4	2,550
04/02/2011 *	0	---	0	0	172	---	0	18	---	0	2,451
04/03/2011 *	0	---	---	0	0	---	0	12	---	0	2,985
04/04/2011 *	0	2	---	1	361	0	0	16	---	6	1,821
04/05/2011 *	0	0	0	0	0	---	---	15	---	0	1,315
04/06/2011 *	0	0	---	1	231	---	---	9	---	7	1,931
04/07/2011 *	0	---	0	0	0	---	0	6	---	22	1,725
04/08/2011 *	---	---	---	---	---	---	---	---	---	---	---
Total:	0	3	5	31	941	0	0	110	0	39	24,180
# Days:	14	11	11	14	13	1	5	7	0	7	14
Average:	0	0	0	2	72	0	0	16	0	6	1,727
YTD	9	5	10	38	941	0	0	110	0	39	48,982

Two-Week Summary of Passage Indices

COMBINED COHO												
	WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2	
Date	(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
03/25/2011	*	0	0	0	1	---	---	---	---	---	---	15
03/26/2011		0	0	0	0	50	---	---	---	---	---	16
03/27/2011	*	0	0	0	1	50	---	---	---	---	---	23
03/28/2011	*	0	0	0	0	60	---	---	---	---	---	16
03/29/2011		0	0	0	0	30	---	---	---	---	---	29
03/30/2011	*	0	0	0	0	0	---	---	---	---	---	79
03/31/2011	*	0	0	0	1	63	---	---	---	---	---	311
04/01/2011	*	0	0	0	16	33	---	0	3	---	4	1,305
04/02/2011	*	0	---	0	3	172	---	0	4	---	12	1,005
04/03/2011	*	0	---	---	1	291	---	0	12	---	0	538
04/04/2011	*	0	0	---	2	0	0	0	7	---	24	168
04/05/2011	*	0	0	0	0	341	---	---	9	---	6	95
04/06/2011	*	0	0	---	1	463	---	---	0	---	13	166
04/07/2011	*	0	---	0	2	0	---	0	3	---	14	2,034
04/08/2011	*	---	---	---	---	---	---	---	---	---	---	---
Total:		0	0	0	28	1,553	0	0	38	0	73	5,800
# Days:		14	11	11	14	13	1	5	7	0	7	14
Average:		0	0	0	2	119	0	0	5	0	10	414
YTD		0	0	0	43	1,553	0	0	38	0	73	6,627

COMBINED STEELHEAD												
	WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2	
Date	(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
03/25/2011	*	0	4	0	0	---	---	---	---	---	---	8
03/26/2011		0	1	0	0	260	---	---	---	---	---	8
03/27/2011	*	0	2	0	0	810	---	---	---	---	---	39
03/28/2011	*	0	7	0	0	1,760	---	---	---	---	---	8
03/29/2011		0	1	0	0	8,550	---	---	---	---	---	29
03/30/2011	*	0	1	0	0	11,525	---	---	---	---	---	24
03/31/2011	*	2	44	22	2	9,759	---	---	---	---	---	41
04/01/2011	*	2	10	35	31	25,514	---	57	0	---	103	42
04/02/2011	*	1	---	7	17	72,670	---	0	7	---	209	47
04/03/2011	*	6	---	---	23	311,390	---	0	5	---	495	32
04/04/2011	*	6	404	---	12	76,588	182,492	352	4	---	968	84
04/05/2011	*	2	133	38	15	77,063	---	---	2	---	1,644	249
04/06/2011	*	0	168	---	22	47,198	---	---	4	---	2,534	409
04/07/2011	*	0	---	36	8	34,941	---	235	14	---	3,752	320
04/08/2011	*	---	---	---	---	---	---	---	---	---	---	---
Total:		19	775	138	130	678,028	182,492	644	36	0	9,705	1,340
# Days:		14	11	11	14	13	1	5	7	0	7	14
Average:		1	70	13	9	52,156	182,492	129	5	0	1,386	96
YTD		23	818	148	134	678,028	182,492	644	36	0	9,705	1,439

Two-Week Summary of Passage Indices

COMBINED SOCKEYE											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
03/25/2011 *	0	0	0	0	---	---	---	---	---	---	23
03/26/2011	0	0	0	0	740	---	---	---	---	---	8
03/27/2011 *	0	0	0	0	570	---	---	---	---	---	16
03/28/2011 *	0	0	0	0	550	---	---	---	---	---	8
03/29/2011	0	0	0	0	660	---	---	---	---	---	15
03/30/2011 *	0	0	0	0	1,725	---	---	---	---	---	0
03/31/2011 *	0	0	0	0	694	---	---	---	---	---	0
04/01/2011 *	0	0	0	0	1,204	---	71	0	---	9	0
04/02/2011 *	0	---	0	0	1,293	---	0	0	---	0	9
04/03/2011 *	0	---	---	0	2,034	---	0	0	---	12	21
04/04/2011 *	0	0	---	0	2,890	2,351	35	0	---	18	0
04/05/2011 *	0	0	0	0	2,046	---	---	0	---	19	0
04/06/2011 *	0	0	---	0	1,388	---	---	0	---	60	38
04/07/2011 *	0	---	0	0	736	---	21	0	---	36	12
04/08/2011 *	---	---	---	---	---	---	---	---	---	---	---
Total:	0	0	0	0	16,530	2,351	127	0	0	154	150
# Days:	14	11	11	14	13	1	5	7	0	7	14
Average:	0	0	0	0	1,272	2,351	25	0	0	22	11
YTD	0	0	0	0	16,530	2,351	127	0	0	154	306

COMBINED LAMPREY JUVENILES											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR [†] (Coll)	LGS (Coll)	LMN (Coll)	RIS (Coll)	MCN (Coll)	JDA (Coll)	BO2 (Coll)
03/25/2011 *	0	0	0	0	---	---	---	---	---	---	80
03/26/2011	0	0	0	0	10	---	---	---	---	---	88
03/27/2011 *	0	0	0	0	0	---	---	---	---	---	76
03/28/2011 *	0	0	0	0	0	---	---	---	---	---	100
03/29/2011	0	0	0	0	30	---	---	---	---	---	148
03/30/2011 *	0	0	0	0	0	---	---	---	---	---	160
03/31/2011 *	0	0	0	0	27	---	---	---	---	---	104
04/01/2011 *	0	0	0	0	50	---	0	4	---	636	120
04/02/2011 *	0	---	0	0	100	---	0	10	---	376	116
04/03/2011 *	0	---	---	0	0	---	0	1	---	1,392	68
04/04/2011 *	0	0	---	0	0	550	0	3	---	2,400	60
04/05/2011 *	0	0	0	0	400	---	---	4	---	4,760	40
04/06/2011 *	0	0	---	0	710	---	---	2	---	2,128	96
04/07/2011 *	0	---	0	0	1,000	---	0	0	---	4,819	60
04/08/2011 *	---	---	---	---	---	---	---	---	---	---	---
Total:	0	0	0	0	2,327	550	0	24	0	16,511	1,316
# Days:	14	11	11	14	13	1	5	7	0	7	14
Average:	0	0	0	0	179	550	0	3	0	2,359	94
YTD	0	0	0	0	2,327	550	0	24	0	16,511	3,849

* 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 macrophthalmia.

† 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

Two-Week Summary of Passage Indices

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: 04/07

DAM	EndDate	Spring Chinook						Summer Chinook						Fall Chinook					
		2011		2010		10-Yr Avg.		2011		2010		10-Yr Avg.		2011		2010		10-Yr Avg.	
		Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	04/07	388	0	1809	18	11250	13	0	0	0	0	0	0	0	0	0	0	0	0
TDA	04/07	68	0	724	0	3390	2	0	0	0	0	0	0	0	0	0	0	0	0
JDA	04/07	61	0	436	2	1939	0	0	0	0	0	0	0	0	0	0	0	0	0
MCN	04/07	37	0	151	2	919	1	0	0	0	0	0	0	0	0	0	0	0	0
IHR	04/07	21	0	72	-1	402	0	0	0	0	0	0	0	0	0	0	0	0	0
LMN	04/07	3	0	27	0	133	0	0	0	0	0	0	0	0	0	0	0	0	0
LGS	04/07	1	0	6	0	59	0	0	0	0	0	0	0	0	0	0	0	0	0
LGR	04/07	4	0	7	0	20	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	04/07	33	0	339	0	-	-	-	-	-	-	-	-	0	0	0	0	-	-

DAM	Coho						Sockeye			Steelhead			
	2011		2010		10-Yr Avg.		2011	2010	10-Yr Avg.	2011	2010	10-Yr Avg.	Wild 2011
	Adult	Jack	Adult	Jack	Adult	Jack							
BON	0	0	0	0	0	0	0	0	0	1432	2177	1269	619
TDA	0	0	0	0	0	0	0	0	0	632	491	430	372
JDA	0	0	0	0	0	0	0	0	0	1354	599	879	830
MCN	0	0	0	0	0	0	0	0	0	1058	460	767	649
IHR	0	0	0	0	0	0	0	0	0	1191	953	938	421
LMN	0	0	0	0	0	0	0	0	0	881	1040	990	408
LGS	0	0	0	0	0	0	0	0	0	1500	717	905	567
LGR	0	0	0	0	0	0	0	0	0	7467	7212	6760	2803
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	-	-	-	-	-	6043	5759	-	-

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: 04/08/11

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

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

Site	Date	Species	Number of Fish	Number w GBT signs	Number w Fin Signs	% Fin GBT	% Severe Fin GBT	Number of Fish with Fin GBT Listed by Highest Rank			
								Rank 1	Rank 2	Rank 3	Rank 4
Lower Monumental Dam											
	04/07/10	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0

Two Week Transportation Summary

Source: Fish Passage Center

Updated:

4/8/11 8:45 AM

		03/25/11 TO 04/08/11						
		Species						
Site	Data	CH0	CH1	CO	ST	SO	Grand Total	
LGR	Sum of NumberCollected	575	75,555	959	388,349	11,489	476,927	
	Sum of NumberBarged	48	8,222	160	24,063	667	33,160	
	Sum of NumberBypassed	523	67,312	798	364,271	10,760	443,664	
	Sum of Numbertrucked	0	0	0	0	0	0	
	Sum of SampleMorts	4	12	1	13	44	74	
	Sum of FacilityMorts	0	9	0	2	18	29	
	Sum of ResearchMorts	0	0	0	0	0	0	
	Sum of TotalProjectMorts	4	21	1	15	62	103	
LGS	Sum of NumberCollected		1,250		136,101	1,753	139,104	
	Sum of NumberBarged		0		0	0	0	
	Sum of NumberBypassed		1,250		136,100	1,749	139,099	
	Sum of Numbertrucked		0		0	0	0	
	Sum of SampleMorts		0		0	1	1	
	Sum of FacilityMorts		0		1	3	4	
	Sum of ResearchMorts		0		0	0	0	
	Sum of TotalProjectMorts		0		1	4	5	
LMN	Sum of NumberCollected		94		513	108	715	
	Sum of NumberBarged		0		0	0	0	
	Sum of NumberBypassed		94		513	108	715	
	Sum of Numbertrucked		0		0	0	0	
	Sum of SampleMorts		0		0	0	0	
	Sum of FacilityMorts		0		0	0	0	
	Sum of ResearchMorts		0		0	0	0	
	Sum of TotalProjectMorts		0		0	0	0	
Total Sum of NumberCollected		575	76,899	959	524,963	13,350	616,746	
Total Sum of NumberBarged		48	8,222	160	24,063	667	33,160	
Total Sum of NumberBypassed		523	68,656	798	500,884	12,617	583,478	
Total Sum of Numbertrucked		0	0	0	0	0	0	
Total Sum of SampleMorts		4	12	1	13	45	75	
Total Sum of FacilityMorts		0	9	0	3	21	33	
Total Sum of ResearchMorts		0	0	0	0	0	0	
Total Sum of TotalProjectMorts		4	21	1	16	66	108	

YTD Transportation Summary

Source: Fish Passage Center

Updated:

4/8/11 8:45 AM

TO: 04/08/11

		Species					
Site	Data	CH0	CH1	CO	SO	ST	Grand Total
LGR	Sum of NumberCollected	575	75,555	959	11,489	388,349	476,927
	Sum of NumberBarged	48	8,222	160	667	24,063	33,160
	Sum of NumberBypassed	523	67,312	798	10,760	364,271	443,664
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	4	12	1	44	13	74
	Sum of FacilityMorts	0	9	0	18	2	29
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	4	21	1	62	15	103
LGS	Sum of NumberCollected		1,250		1,753	136,101	139,104
	Sum of NumberBarged		0		0	0	0
	Sum of NumberBypassed		1,250		1,749	136,100	139,099
	Sum of NumberTrucked		0		0	0	0
	Sum of SampleMorts		0		1	0	1
	Sum of FacilityMorts		0		3	1	4
	Sum of ResearchMorts		0		0	0	0
	Sum of TotalProjectMorts		0		4	1	5
LMN	Sum of NumberCollected		94		108	513	715
	Sum of NumberBarged		0		0	0	0
	Sum of NumberBypassed		94		108	513	715
	Sum of NumberTrucked		0		0	0	0
	Sum of SampleMorts		0		0	0	0
	Sum of FacilityMorts		0		0	0	0
	Sum of ResearchMorts		0		0	0	0
	Sum of TotalProjectMorts		0		0	0	0
Total Sum of NumberCollected		575	76,899	959	13,350	524,963	616,746
Total Sum of NumberBarged		48	8,222	160	667	24,063	33,160
Total Sum of NumberBypassed		523	68,656	798	12,617	500,884	583,478
Total Sum of NumberTrucked		0	0	0	0	0	0
Total Sum of SampleMorts		4	12	1	45	13	75
Total Sum of FacilityMorts		0	9	0	21	3	33
Total Sum of ResearchMorts		0	0	0	0	0	0
Total Sum of TotalProjectMorts		4	21	1	66	16	108