



# Fish Passage Center

## Weekly Report #12 - 13

June 8, 2012

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### Summary of Events:

**Water Supply:** Precipitation throughout the Columbia Basin has varied between 48% and 130% of average at individual sub-basins over May. Precipitation above The Dalles has been 79% of average over May. Over the 2012 water year, precipitation has ranged between 84% and 111% of average.

**Table 1. Summary of May precipitation and cumulative October through May 28, 2012 precipitation with respect to average (1971-2000), at select locations within the Columbia and Snake River Basins.**

Location	Water Year 2012 May 1-28, 2012		Water Year 2012 October 1, 2011 to May 28, 2012	
	Observed (inches)	% Average	Observed (inches)	% Average
	Columbia Above Coulee	1.39	69	19.96
Snake River Above Ice Harbor	1.43	84	13.78	102
Columbia Above The Dalles	1.40	79	19.08	108
Kootenai	1.23	61	20.13	110
Clark Fork	1.43	77	13.47	111
Flathead	1.73	78	17.26	108
Pend Oreille/ Spokane	2.05	87	27.27	110
Central Washington	0.33	48	6.10	84
Snake River Plain	1.07	80	8.38	99
Salmon/Boise/ Payette	1.26	78	16.38	102
Clearwater	2.93	107	26.62	111
SW Washington Cascades/Cowlitz	4.44	130	63.38	102
Willamette Valley	3.70	116	57.57	108

Average snowpack in the Columbia River for basins above the Snake River confluence is 150% of average, for Snake River Basins the average snowpack is 44% of average, and for lower Columbia Basins between McNary

and Bonneville Dam average snowpack is 115% of average.

Table 2 displays the May 29<sup>th</sup> and June 6<sup>th</sup> Ensemble Streamflow Prediction (ESP) runoff volume forecasts for multiple reservoirs. The June 6<sup>th</sup> forecast at The Dalles between January and July is 121,849 Kaf (114% of average).

**Table 2. May 29<sup>th</sup> and June 6<sup>th</sup> ESP Runoff Volume Forecasts for various reservoirs within the Columbia and Snake River Basins.**

Location	May 29, 2012 ESP		June 6, 2012 ESP	
	% Average (1971 -2000)	Runoff Volume (Kaf)	% Average (1971 -2000)	Runoff Volume (Kaf)
The Dalles (Jan-July)	109	117424	114	121849
Grand Coulee (Jan-July)	113	71280	119	75140
Libby Res. Inflow, MT (Apr-Aug)	117	7281 7155*	129	8044 7240*
Hungry Horse Res. Inflow, MT (Jan-July)	103	2290	107	2387
Lower Granite Res. Inflow (Apr- July)	99	21410	102	21950
Brownlee Res. Inflow (Apr-July)	84	5275	88	5532
Dworshak Res. Inflow (Apr-July)	114	3024 3226*	118	3110 3236*

\* Denotes COE Forecast

Grand Coulee Reservoir is at 1265.6 feet (6-7-12) and refilled 10.6 feet over the last week. Grand Coulee is currently 24.4 feet from full (1290 feet). Outflows at Grand Coulee have ranged between 107.6 and 210.1 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2431.3 feet (6-7-12) and has refilled 10.5 feet last week. Libby is currently 27.7 feet from full (2459 feet). Outflows at Libby Dam have ranged between 13.1-29.9 Kcfs last week.

Hungry Horse is currently at an elevation of 3551.1 feet (6-7-12) and has refilled 6.6 feet last week. Hungry Horse is currently 8.9 feet from full (3560 feet). Outflows at Hungry Horse have been 6.4-7.9 Kcfs last week.

Dworshak is currently at an elevation of 1589.1 feet (6-7-12) and has refilled 9.2 feet last week. Dworshak is currently 10.9 feet from full (1600 feet). Outflows from Dworshak have been 2.2-9.6 Kcfs over the past week.

The Brownlee Reservoir was at an elevation of 2069.5 feet on June 6<sup>th</sup>, 2012 refilling 3.1 feet last week. Brownlee is currently 7.5 feet from full (2077 feet). Over the last week, outflows at Brownlee have ranged between 11.8 and 17.8 Kcfs.

The Biological Opinion flow period began on April 3<sup>rd</sup> 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 have averaged 106.5 Kcfs over the last week and 111.6 Kcfs over the spring period.

Based on the April Final Water Supply Forecast, the Spring Biological Opinion Flow Objectives are 260 Kcfs at McNary Dam (began April 10<sup>th</sup>) and 135 Kcfs at Priest Rapids Dam (began April 10<sup>th</sup>). Flows at McNary Dam have averaged 307.8 Kcfs over the last week and 336.0 Kcfs over the spring period. Flows at Priest Rapids Dam have averaged 194.8 Kcfs over the last week and 214.4 Kcfs over the spring period.

**Spill:**

Spring spill for fish passage began on April 3<sup>rd</sup> at the lower Snake River projects, and on April 10<sup>th</sup> at the lower Columbia River projects.

Snake River flows increased over the past few days due to rain. Consequently, at Lower Granite Dam spill met the Court Ordered 20 Kcfs for the first four days of the past week and was above 20 Kcfs on the last three days due to flows in excess of generation

needs and hydraulic capacity. At Little Goose Dam spill met the 30% of instantaneous flow level as specified in the Court Order until flows exceeded hydraulic capacity on June 5<sup>th</sup>. Spill ranged between 30 and 39.8% at this project. At Lower Monumental Dam spill ranged from 25.7 Kcfs when the COE could curtail spill for TDG management, and 48.5 Kcfs, with the higher amounts due to uncontrolled spill. At Ice Harbor Dam the Court Order “test-like” conditions are in place and have been met, with the exception of June 6<sup>th</sup> and part of June 7<sup>th</sup>.

<b>Project</b>	<b>Day/Night Spill</b>
Lower Granite	20 Kcfs/20 Kcfs
Little Goose	30%/30%
Lower Monumental	Gas Cap/Gas Cap
Ice Harbor	<b>“Test-Like”</b> : 45 Kcfs/gas cap vs. 30%/30%

Spill for fish passage at the Lower Columbia projects began on April 10<sup>th</sup>. Flows were relatively high in the lower Columbia River towards the end of the week. Spill at McNary Dam met, or exceeded, the Court Order as a result of flows in excess of hydraulic capacity due to unit outages. Spill at John Day Dam changed to the test levels of 30%/30% versus 40%/40%. For the most part, spill test levels were met at John Day during the first part of the week, but were higher than the 30% level towards the end of the week. At The Dalles Dam, spill generally met, or exceeded the 40%. Spill at Bonneville Dam was below the 100 Kcfs for four days for management of TDG to the Camas/Washougal Monitor, at the 100 Kcfs for one day, and then increased to above the 100 Kcfs on the last two days due to: higher flows, a reprioritization of the spill priority list for distribution of excess spill, and an attempt to operate Bonneville PH2 at the mid-range of the 1% efficiency range.

<b>Project</b>	<b>Day/Night Spill</b>
McNary	40%/40%
John Day	<b>Testing</b> : 30%/30% vs. 40%/40%
The Dalles	40%/40%
Bonneville	100 Kcfs/100 Kcfs

Gas bubble trauma samples were taken this

past week at Lower Granite, Little Goose, Lower Monumental, Rock Island, McNary and Bonneville dams. The most recent samples estimated fish with signs of GBT equal to: 0% at Lower Granite (6/7); 0% at Little Goose (6/4), 1% at Lower Monumental (5/30), 0% at McNary (6/6), 0% at Bonneville (6/5) and 0% at Rock Island (6/7). All the affected fish exhibited minor (Rank 1) signs of GBT. All observed signs were well below the action criteria of 15%.

#### **Smolt Monitoring:**

Smolt monitoring activities are ongoing at all seven SMP dams (BON, JDA, MCN, LGR, LGS, LMN, and RIS). The Imnaha River Trap is the only SMP trap that is still collecting juvenile salmonids for the 2012 season.

The passage indices for yearling Chinook, steelhead, and sockeye at BON all decreased this week, when compared to last week. The daily average passage index at BON for yearling Chinook this week was 5,473 per day, compared to over 18,800 per day last week. The daily average passage indices for steelhead and sockeye at BON this week were nearly 1,200 and 3,000 per day, respectively. Subyearling Chinook numbers continued to increase this week, with a daily average passage index of nearly 7,200 per day. The daily average passage index for subyearling Chinook last week was just over 6,000 per day. Passage of coho juveniles has also increased at BON this week. This week's daily average passage index for coho was just over 22,700 per day, compared to about 5,200 per day last week. This increase in coho passage is largely due to a release of over 1.0 million coho juveniles from Klickitat Hatchery on May 29<sup>th</sup> and 30<sup>th</sup>. The second powerhouse of BON has been operated at the mid-range (50%) of the 1% efficiency range all this week, in order to address increased mortality and descaling of sockeye juveniles seen in past weeks. This operation is expected to run through at least June 11<sup>th</sup>. Sockeye mortality at BON this week has ranged from 0.0% to 9.1% while descaling has ranged from 0.0% to 13.2%. Finally, pacific lamprey macrophthalmia continue to be the primary lamprey juveniles collected at BON this week. One pacific lamprey ammocoete was sampled on June 3<sup>rd</sup>. The daily average collection for pacific lamprey macrophthalmia was 70 per day.

Passage at JDA decreased for nearly all species this week, when compared to last week. The daily average passage index for yearling Chinook at JDA

for this week was nearly 7,200 per day, compared to just over 28,000 per day last week. The daily average passage index for steelhead this week was nearly 4,000 per day, compared to over 9,000 per day last week. The only species of juvenile salmonid that had an increase in passage at JDA this week was subyearling Chinook. The daily average passage index for subyearling Chinook at JDA this week was 1,228, compared to nearly 560 per day last week. Lamprey collections at JDA this week were dominated by pacific lamprey macrophthalmia. The daily average collection for pacific macrophthalmia at JDA this week was 1,558 per day. Pacific ammocoetes were only collected on one day this week (June 6).

Passage at MCN also decreased for nearly all species this week, except for subyearling Chinook. The daily average passage index for yearling Chinook at MCN this week was nearly 13,900, whereas that for last week was just over 34,500 per day. The daily average passage index for subyearling Chinook at MCN this week was nearly 3,400 per day, compared to almost 2,300 per day last week. Pacific lamprey macrophthalmia continue to be the only lamprey juveniles collected at MCN so far this year. Collections of pacific lamprey macrophthalmia at MCN decreased this week. The daily average collection for pacific lamprey macrophthalmia at MCN was 383 per day. Last week's daily average collection was 1,675 per day.

Yearling Chinook and steelhead passage at LGR continued to decrease this week. The daily average passage index for yearling Chinook at LGR this week was nearly 1,100 per day, compared to just over 6,200 per day last week. This week's daily average passage index for steelhead at LGR was nearly 5,700 per day. The daily passage index for steelhead at LGR last week was nearly 12,000 per day. Sockeye passage at LGR also continued to decrease this week. The daily average passage index for sockeye at LGR this week was 172 per day, compared to 525 per day last week. Coho passage at LGR also decreased this week. Subyearling Chinook passage continued to increase this week, with a daily average passage index of nearly 32,600 per day, compared to just over 8,500 per day last week. Finally, only pacific lamprey ammocoetes were sampled at LGR this week at LGR, with one ammocoete in the sample on each of June 1<sup>st</sup> and June 2<sup>nd</sup>.

Passage at LGS decreased for nearly all species this week, except for subyearling Chinook. The daily average passage indices for yearling Chinook and steelhead at LGS this week were just over 2,300 and



nearly 8,600 per day, respectively. The daily average passage index for subyearling Chinook at LGS this week was nearly 27,000 per day, compared to only 1,158 per day last week. Both pacific lamprey ammocoetes and macrophthalmia were collected at LGS this week. Passage of yearling Chinook, coho, sockeye, and steelhead at LMN continued to decrease this week. The daily average passage index for yearling Chinook at LMN this week was 1,270, compared to over 5,200 per day last week. Subyearling Chinook were the only salmonids that had an increase in passage at LMN this week. The daily average passage of subyearling Chinook at LMN for this week was over 8,500 per day, compared to only 146 per day last week. Lower Monumental Dam continued to collect pacific lamprey macrophthalmia this week. Over the past week, collection estimates have ranged from 0 to 100 per day. To date, no pacific lamprey ammocoetes have been collected at LMN.

Passage at RIS decreased for nearly all species this week, when compared to last week. Based on the passage index, coho continue to be the dominant species of salmonid passing RIS this week. The daily average passage index for coho at RIS this week was 490 per day. The daily passage index for coho last week was 904 per day. The only species that had an increase in passage this week, compared to last week, was subyearling Chinook. The daily average passage index for subyearling Chinook this week was 149 per day, compared to just 52 per day last week. Very few lamprey juveniles were collected at RIS this week. However, all lamprey juveniles that were collected at RIS this week were pacific lamprey macrophthalmia.

#### **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. The only new releases that were scheduled to begin this week were of subyearling fall Chinook. In all, about 700,000 subyearling fall Chinook smolts were scheduled to be released this week. Of these, approximately 500,000 were scheduled for release into the Clearwater River while about 200,000 were scheduled to be released into the Snake River, above Lower Granite Dam. Of the subyearling fall Chinook juveniles that were scheduled for release into the Clearwater River this week, approximately 40% are unmarked. Finally, the releases of Snake River subyearling fall Chinook surrogates were scheduled to end this week. In all,

230,000 Snake River surrogates were scheduled for release in 2012.

In addition to the 700,000 subyearling fall Chinook that were scheduled for release to this zone this week, about 498,000 fall Chinook subyearlings are scheduled for release in this zone over the next two weeks. All of these subyearling fall Chinook juveniles are scheduled for release into the Clearwater River or its tributaries. Approximately 20% of these subyearlings are Clearwater River surrogates, which are hatchery fish that are intentionally reared to a smaller size to more closely resemble wild subyearling fall Chinook. All of these surrogates are unmarked but do have PIT-tags. The remaining 80% are marked, either with an adipose clip and coded-wire-tag or with just a coded-wire tag. Finally, nearly 303,000 spring Chinook parr are scheduled for release into the Clearwater over the next two weeks. These spring Chinook parr are 100% unmarked but are not expected to out-migrate until spring of 2013.

**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 new releases of juvenile salmonids scheduled for this zone this week. However, some of the volitional releases of coho juveniles to the Methow and Wenatchee rivers that began in May were scheduled to end this week. In addition, approximately 10.15 million subyearling fall Chinook brights are scheduled for release into this zone over the next two weeks. All of these subyearling fall Chinook juveniles are scheduled for release into the Mid-Columbia River, below Priest Rapids Dam. These releases are going to take place from Priest Rapids (66%) and Ringold Springs (34%) hatcheries. In all, about 32% of these subyearling fall Chinook juveniles are unmarked.

**Lower Columbia Zone:** The Lower Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to McNary Dam. There were no new releases of juvenile salmonids scheduled for this zone this week. However, there is one change to the hatchery release database that is worth noting. Preliminary data indicated that Klickitat Hatchery was scheduled to release nearly 1.1 million coho juveniles into the Klickitat River in early May. However, the FPC recently received data indicating that this release did not begin until May 29<sup>th</sup>. Finally, there are no new releases of juvenile salmonids scheduled for this zone over the next two weeks.

Over the past week of available data from the

Imnaha River Trap, steelhead continued to dominate the collection. Over the most recent seven days, the daily average collection for steelhead at this trap was 170 per day, which is a decrease from the previous week. Passage of yearling Chinook at this trap also appears to be very low. The daily average collection for yearling Chinook at the Imnaha Trap over the past seven days of available data was 8 per day.

**Adult Fish Passage:**

The summer Chinook count began June 1st at Bonneville Dam. Daily passage numbers at Bonneville Dam ranged between 1,374 and 2,480 adult summer Chinook in the last week. The 2012 summer Chinook count of 12,984 is about 83.2% of the 2011 count while being 1.03 times greater than the 10 year average. The 2012 Bonneville Dam summer Chinook jack count of 899 is 12% of the 2011 count and 37.8% of the 10 year average count. At Willamette Falls 22,267 adult spring Chinook have been counted so far this year. The 2012 adult spring Chinook count at Willamette Falls is 1.16 times greater than the 2011 count of 19,127, while being 59.4% of the 10 year average count of 37,454. At McNary Dam 100,857 adult spring Chinook have been counted. The 2012 adult spring Chinook count at McNary Dam has 412 more fish than the 2011 count and is 1.18 times greater than the 10 year average. The 2012 McNary Dam spring Chinook jack count of 4,735 is about 15.3% of the 2011 count and 35.2% of the 10 year average count. The 2012 adult spring Chinook count at Rock Island Dam of 16,117 is about 1.45 times greater than the 2011 count and 1.28 times greater than the 10 year average. The 2011 adult spring Chinook count at Lower Granite Dam of 56,919 is about 1.09 times greater than the 2011 count and 1.25 times greater than the 10 year average. The 2011 Lower Granite spring Chinook jack count of 2,964 is about 19.3% of the 2011 count and 39.3% of the 10 year average count.

The Bonneville Dam 2012 steelhead count of 5,014 is 1.10 times greater than the 2011 count of 4,552, while being about 89% of the 10 year average count of 5,635. The 2012 Bonneville wild adult steelhead count of 1,462 has 20 fewer fish than the 2011 count of 1,482, while it has 16 more fish than the 10 year average count of 1,446. In the Snake River, daily adult steelhead counts at Lower Granite Dam ranged from 0 to 2 adults per day last week. This year's Lower Granite steelhead count of 8,932 is about 79.6% of the 2011 count of 12,303 and 89.3% of the

10 year average of 9,996. The 2012 Lower Granite wild adult steelhead count of 3,942 is about 96.7% of the 2011 count of 4,076, while being about 1.25 times greater than the 10 year average count of 3,150. At Willamette Falls Dam, the 2012 count for steelhead was 18,001, as of June 3rd. This year's steelhead count is about 1.19 times greater than the 2011 count of 15,119 and having 61 more fish than the 10 year average count of 17,940.

Daily adult sockeye passage numbers at Bonneville Dam ranged between 83 and 576 last week. The 2012 adult sockeye count at Bonneville Dam of 2,372 is about 15.8 times greater than the 2011 count of 150 and 2.71 times greater than the 10 year average count of 875.

### Hatchery Releases Last Two Weeks

Hatchery Release Summary									
From:	5/25/2012		to		06/07/12				
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
National Marine Fisheries Service	Lyons Ferry Hatchery	CH0	FA	2012	230,000	05-21-12	06-08-12	Couse Creek	Snake River
<b>National Marine Fisheries Service Total</b>					<b>230,000</b>				
Nez Perce Tribe	Clearwater Hatchery	CH0	FA	2012	250,000	05-30-12	05-30-12	Lapwai Creek Nez Perce Tribal	Clearwater River M F
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH0	FA	2012	500,000	06-04-12	06-15-12	Hatchery	Clearwater River M F
<b>Nez Perce Tribe Total</b>					<b>750,000</b>				
Oregon Dept. of Fish and Wildlife	Round Butte Hatchery	CH1	SP	2012	211,920	04-17-12	06-01-12	Deschutes River	Deschutes River
<b>Oregon Dept. of Fish and Wildlife Total</b>					<b>211,920</b>				
Washington Dept. of Fish and Wildlife	Eastbank Hatchery	ST	SU	2012	25,000	05-12-12	06-30-12	Blackbird Island Acc Pond	Wenatchee River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	CH0	FA	2012	200,000	06-01-12	06-01-12	Lyons Ferry Hatchery	Snake River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	CH0	FA	2012	200,000	06-01-12	06-05-12	Couse Creek	Snake River
<b>Washington Dept. of Fish and Wildlife Total</b>					<b>425,000</b>				
Yakama Tribe	Cascade Hatchery	CO	UN	2012	65,537	05-14-12	07-01-12	Rolfings Acclim Pond Beaver Creek Acclim	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2012	65,564	05-13-12	07-14-12	Pond Butcher Creek Acclim.	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2012	65,662	05-02-12	06-30-12	Pond	Wenatchee River
Yakama Tribe	Chelan Hatchery	ST	SU	2012	25,000	05-02-12	07-01-12	Rolfings Acclim Pond	Wenatchee River
Yakama Tribe	Eagle Creek NFH	CO	UN	2012	64,114	04-16-12	07-01-12	Stiles Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2012	67,858	04-16-12	07-01-12	Stiles Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2012	78,892	04-16-12	07-01-12	Easton Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2012	82,621	04-16-12	07-01-12	Holmes Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2012	93,312	04-16-12	07-01-12	Easton Pond	Yakima River
Yakama Tribe	Klickitat Hatchery	CH0	FA	2012	3,300,000	06-01-12	06-01-12	Klickitat Hatchery	Klickitat River
Yakama Tribe	Klickitat Hatchery	CO	NO	2012	1,080,000	05-29-12	05-30-12	Klickitat Hatchery	Klickitat River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2012	91,112	04-20-12	07-01-12	Easton Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2012	97,073	04-20-12	07-01-12	Holmes Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2012	100,000	03-02-12	07-01-12	Prosser Acclim Pond Beaver Creek Acclim	Yakima River
Yakama Tribe	Willard Hatchery	CO	UN	2012	31,423	05-13-12	07-14-12	Pond	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2012	31,533	05-14-12	07-01-12	Rolfings Acclim Pond	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2012	86,994	05-14-12	06-02-12	Coulter Creek	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2012	95,257	05-11-12	06-11-12	Twisp Acclim Pond	Methow River
<b>Yakama Tribe Total</b>					<b>5,521,952</b>				
<b>Grand Total</b>					<b>7,138,872</b>				

### Hatchery Releases Next Two Weeks

Hatchery Release Summary									
From:	6/8/2012		to		6/21/2012				
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
National Marine Fisheries Service	Lyons Ferry Hatchery	CH0	FA	2012	98,000	06-21-12	07-06-12	Big Canyon (Clearwater River)	Clearwater River M F
National Marine Fisheries Service	Lyons Ferry Hatchery	CH0	FA	2012	230,000	05-21-12	06-08-12	Couse Creek	Snake River
<b>National Marine Fisheries Service Total</b>					<b>328,000</b>				
Nez Perce Tribe	Clearwater Hatchery	CH0	SP	2013	302,782	06-12-12	06-18-12	Selway River	Clearwater River M F
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH0	FA	2012	200,000	06-13-12	06-13-12	Cedar Flats Acclim.	Selway River
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH0	FA	2012	200,000	06-13-12	06-13-12	Lukes Gulch Acclim.	S Fk Clearwater River
								Nez Perce Tribal Hatchery	
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH0	FA	2012	500,000	06-04-12	06-15-12	Hatchery	Clearwater River M F
<b>Nez Perce Tribe Total</b>					<b>1,202,782</b>				
								Blackbird Island Acc Pond	
Washington Dept. of Fish and Wildlife	Eastbank Hatchery	ST	SU	2012	25,000	05-12-12	06-30-12		Wenatchee River
Washington Dept. of Fish and Wildlife	Priest Rapids Hatchery	CH0	FA	2012	6,700,000	06-15-12	06-25-12	Priest Rapids Hatchery	Mid-Columbia River
								Ringold Springs Hatchery	
Washington Dept. of Fish and Wildlife	Ringold Springs Hatchery	CH0	FA	2012	3,450,000	06-20-12	07-31-12		Mid-Columbia River
<b>Washington Dept. of Fish and Wildlife Total</b>					<b>10,175,000</b>				
Yakama Tribe	Cascade Hatchery	CO	UN	2012	65,537	05-14-12	07-01-12	Rolfings Acclim Pond	Wenatchee River
								Beaver Creek Acclim Pond	
Yakama Tribe	Cascade Hatchery	CO	UN	2012	65,564	05-13-12	07-14-12		Wenatchee River
								Butcher Creek Acclim. Pond	
Yakama Tribe	Cascade Hatchery	CO	UN	2012	65,662	05-02-12	06-30-12	Pond	Wenatchee River
Yakama Tribe	Chelan Hatchery	ST	SU	2012	25,000	05-02-12	07-01-12	Rolfings Acclim Pond	Wenatchee River
Yakama Tribe	Eagle Creek NFH	CO	UN	2012	64,114	04-16-12	07-01-12	Stiles Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2012	67,858	04-16-12	07-01-12	Stiles Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2012	78,892	04-16-12	07-01-12	Easton Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2012	82,621	04-16-12	07-01-12	Holmes Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2012	93,312	04-16-12	07-01-12	Easton Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2012	91,112	04-20-12	07-01-12	Easton Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2012	97,073	04-20-12	07-01-12	Holmes Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2012	100,000	03-02-12	07-01-12	Prosser Acclim Pond	Yakima River
								Beaver Creek Acclim Pond	
Yakama Tribe	Willard Hatchery	CO	UN	2012	31,423	05-13-12	07-14-12	Pond	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2012	31,533	05-14-12	07-01-12	Rolfings Acclim Pond	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2012	95,257	05-11-12	06-11-12	Twisp Acclim Pond	Methow River
<b>Yakama Tribe Total</b>					<b>1,054,958</b>				
<b>Grand Total</b>					<b>12,760,740</b>				

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
05/25/2012	190.5	0.0	195.2	74.3	221.7	63.5	216.1	37.6	220.2	28.3	230.3	121.5	230.6	124.9
05/26/2012	195.8	0.0	194.4	59.2	226.2	65.7	226.7	51.0	228.5	38.3	248.8	128.3	249.8	144.2
05/27/2012	156.2	0.0	158.1	14.1	185.2	25.9	185.2	22.1	193.1	20.2	214.0	109.6	219.3	142.8
05/28/2012	167.9	0.0	167.4	10.8	188.7	28.1	180.9	15.8	187.0	38.6	195.0	91.6	198.6	99.5
05/29/2012	177.2	0.0	177.5	14.6	202.1	37.1	197.7	20.0	203.2	41.6	211.5	114.9	214.5	100.9
05/30/2012	169.5	0.0	167.3	0.0	191.0	27.6	191.8	19.7	199.1	39.8	214.8	88.1	216.1	116.3
05/31/2012	164.0	0.0	169.4	0.0	189.3	30.8	188.3	16.0	195.8	36.4	207.6	94.9	209.4	97.4
06/01/2012	155.8	0.0	157.7	0.0	185.1	25.4	185.4	13.1	194.5	32.3	198.3	87.8	192.8	86.0
06/02/2012	107.6	0.0	105.2	0.0	136.1	10.0	146.9	14.4	164.2	33.1	174.7	48.3	177.3	52.3
06/03/2012	153.1	0.0	142.8	0.0	157.2	18.5	154.4	17.1	166.2	33.1	174.1	45.8	172.1	55.6
06/04/2012	138.2	0.0	139.7	0.0	164.2	14.3	169.7	17.8	183.1	37.1	198.0	67.1	203.8	75.7
06/05/2012	108.0	0.0	110.5	15.2	128.4	11.2	130.8	15.3	143.9	36.1	159.3	43.4	161.7	48.4
06/06/2012	191.9	0.0	185.3	71.7	211.9	49.6	210.7	46.3	218.6	46.8	217.3	97.9	199.8	97.1
06/07/2012	210.1	0.0	206.9	70.4	231.7	56.8	232.3	68.0	234.1	51.5	251.6	124.0	256.4	142.4

**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
05/25/2012	2.2	0.0	22.2	18.5	109.6	25.8	104.3	31.3	108.8	25.3	106.9	32.2
05/26/2012	2.2	0.0	19.6	17.5	96.1	20.2	91.3	27.3	94.6	25.2	95.6	30.4
05/27/2012	2.2	0.0	19.5	12.3	81.9	20.2	77.1	22.9	80.3	26.2	80.4	24.0
05/28/2012	2.3	0.0	19.8	16.1	77.5	20.1	74.1	22.2	76.1	26.5	78.6	48.3
05/29/2012	3.8	0.0	19.3	18.2	81.1	20.1	80.8	24.3	82.5	27.4	81.5	55.8
05/30/2012	4.4	0.0	19.7	21.1	81.6	20.1	78.0	23.4	78.9	27.4	82.7	58.2
05/31/2012	4.3	0.0	18.6	18.4	79.2	20.3	77.9	23.2	78.9	28.0	79.8	53.4
06/01/2012	2.2	0.0	17.9	19.8	80.0	20.3	77.4	23.1	78.2	26.8	79.7	31.8
06/02/2012	2.2	0.0	17.4	18.1	93.1	20.4	88.0	26.4	91.4	25.9	91.6	27.4
06/03/2012	2.2	0.0	18.8	17.0	103.0	20.4	99.0	29.8	101.1	25.7	101.6	52.3
06/04/2012	6.9	0.0	19.1	17.6	106.4	20.5	99.8	29.8	104.4	25.9	107.1	65.8
06/05/2012	9.6	0.7	18.8	13.8	121.1	35.8	114.3	36.8	117.1	31.7	117.1	67.6
06/06/2012	9.6	2.8	20.9	14.5	130.3	48.7	123.7	49.2	128.9	48.5	132.6	86.2
06/07/2012	9.6	0.0	---	---	111.5	34.5	107.1	37.8	109.5	29.2	112.2	61.1

**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	PH2	
05/25/2012	359.3	184.2	358.3	111.1	339.6	111.2	366.3	126.4	129.9	97.6
05/26/2012	330.2	161.4	342.0	132.0	330.5	112.0	371.7	133.7	127.6	98.1
05/27/2012	336.9	166.8	319.5	122.2	304.5	114.4	327.8	99.6	116.9	98.9
05/28/2012	297.5	125.6	316.9	94.6	300.6	119.6	319.2	99.6	109.9	97.2
05/29/2012	301.2	130.9	289.9	92.6	272.3	108.8	300.3	99.5	89.7	98.6
05/30/2012	295.0	121.2	310.6	124.2	297.8	119.2	320.4	99.4	108.8	99.8
05/31/2012	284.9	114.7	279.4	106.7	262.6	105.1	287.6	97.6	87.8	89.8
06/01/2012	282.1	113.3	277.9	83.9	260.3	104.1	292.8	95.3	92.5	92.5
06/02/2012	283.4	113.7	275.7	87.4	257.8	103.1	279.1	94.5	83.7	88.5
06/03/2012	279.5	112.2	285.0	113.8	271.0	108.4	288.3	94.5	85.9	95.5
06/04/2012	313.3	146.4	304.6	116.3	285.0	111.9	307.6	96.7	99.9	98.6
06/05/2012	311.2	157.6	298.6	108.6	281.1	121.6	313.0	99.0	106.9	94.7
06/06/2012	328.4	183.5	339.6	147.0	324.0	150.4	334.0	104.0	118.7	98.9
06/07/2012	356.8	193.0	347.6	149.3	333.1	133.3	363.5	128.3	119.4	103.4



## 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>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>	
	<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>		
5/25	97.8	98.0	98.1	24	125.8	126.4	126.8	21	118.4	118.7	118.9	24	115.2	115.4	115.6	21	115.2	115.3	115.4	24
5/26	98.1	98.3	98.7	24	126.2	126.7	127.1	24	117.8	118.1	118.5	24	115.0	115.4	115.7	24	115.3	115.5	115.7	24
5/27	97.7	98.0	98.2	24	126.1	126.7	127.3	22	117.7	117.9	118.0	24	114.6	114.9	115.2	22	115.3	115.5	115.7	24
5/28	97.1	97.2	97.2	24	125.5	125.8	126.0	20	117.2	117.4	118.0	24	114.4	114.6	115.0	20	115.0	115.1	115.2	24
5/29	97.1	97.3	97.8	24	125.1	125.3	125.7	23	116.9	117.1	117.3	24	114.0	114.3	115.0	23	114.9	115.0	115.2	24
5/30	96.9	97.1	97.4	24	123.5	124.7	125.4	21	116.2	116.4	116.6	24	113.3	113.7	114.1	21	114.1	114.3	114.5	24
5/31	97.2	97.4	97.5	24	122.2	122.5	123.6	22	116.4	116.5	116.8	24	113.4	113.9	114.7	22	114.4	114.6	114.8	24
6/1	97.4	97.7	97.8	24	122.9	123.3	123.7	23	116.9	117.2	117.7	24	114.0	114.5	114.9	23	114.9	115.1	115.3	24
6/2	97.7	97.9	98.1	24	122.8	123.4	123.8	24	117.0	117.1	117.3	24	113.9	114.5	115.2	24	115.0	115.2	115.6	24
6/3	97.7	98.0	98.2	24	123.2	123.4	123.8	22	116.5	116.6	116.7	24	113.4	114.1	114.5	22	114.5	114.8	115.2	24
6/4	98.3	98.7	99.0	24	122.9	123.1	123.6	22	116.5	116.8	117.1	24	113.4	113.7	114.6	22	114.8	115.1	115.3	24
6/5	98.2	98.3	98.5	24	123.9	124.7	125.7	21	116.3	116.6	116.9	24	112.5	112.9	113.8	21	114.5	114.9	115.1	24
6/6	97.9	98.0	98.1	24	126.5	127.0	127.6	22	115.8	115.9	116.9	24	112.7	113.0	113.3	22	113.1	113.2	113.5	23
6/7	101.7	106.0	107.5	24	127.3	128.1	129.4	21	114.3	115.2	115.7	24	112.4	112.5	112.7	21	112.7	112.9	113.2	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>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>	
	<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>		
5/25	114.9	115.4	115.8	24	113.7	113.9	114.5	24	120.9	121.5	121.8	24	118.9	119.0	120.1	24	121.4	121.6	122.0	24
5/26	114.5	115.3	115.7	24	114.4	115.0	115.2	24	121.9	122.9	124.2	24	119.7	120.4	121.3	24	122.6	123.2	123.3	24
5/27	113.4	114.1	114.3	24	113.9	114.2	114.4	24	116.4	117.1	118.2	24	120.5	121.6	122.3	24	120.8	122.0	123.3	24
5/28	112.3	113.8	114.7	24	113.2	113.4	113.6	24	116.0	117.3	117.8	24	128.4	140.4	154.1	24	117.3	118.0	118.5	24
5/29	112.0	113.1	114.1	24	112.5	112.8	113.4	24	116.7	117.5	118.7	24	152.9	153.6	154.0	24	115.5	116.1	117.0	24
5/30	113.1	113.3	114.0	24	112.2	112.6	112.9	24	115.5	117.1	118.3	24	153.7	154.1	154.4	24	115.9	116.3	117.3	24
5/31	113.5	113.7	114.0	24	112.8	113.0	113.3	24	116.3	116.9	117.1	24	130.3	145.5	154.8	24	115.8	116.0	116.2	24
6/1	114.1	114.4	115.0	24	113.7	114.1	114.3	24	116.4	117.6	118.9	24	116.0	116.2	116.2	24	116.0	116.3	116.8	24
6/2	115.0	115.4	115.8	24	113.1	113.8	114.2	24	114.3	115.0	115.9	24	115.4	115.6	116.0	24	115.3	115.8	116.3	24
6/3	113.8	114.0	114.8	24	112.2	112.3	112.7	24	114.1	115.0	116.3	24	113.9	114.9	115.4	24	115.3	116.1	117.3	24
6/4	114.1	114.4	115.2	24	112.4	112.6	112.7	24	114.2	114.8	116.7	24	112.3	112.8	113.8	24	114.3	114.5	114.6	24
6/5	113.4	115.1	115.5	24	111.8	112.1	112.4	24	113.2	113.4	113.9	24	113.4	114.2	114.6	24	113.3	113.6	113.9	24
6/6	114.7	115.2	115.6	24	111.5	111.9	112.1	24	118.1	120.1	120.4	24	110.4	110.9	111.5	24	115.4	116.5	117.1	24
6/7	114.5	115.2	115.5	24	111.7	112.0	112.2	24	119.0	120.0	122.0	24	115.8	117.6	118.2	24	119.1	120.3	121.9	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>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>	
	<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>		
5/25	118.2	118.5	118.7	24	119.9	120.3	120.7	24	116.3	116.8	117.7	24	122.7	124.4	128.1	24	121.6	123.0	123.7	24
5/26	118.8	120.1	120.5	24	121.1	122.1	123.7	24	117.0	117.8	118.5	24	123.1	123.5	125.0	24	120.1	121.0	121.8	24
5/27	118.9	119.6	120.1	24	120.3	120.9	121.5	24	116.8	117.1	117.5	24	121.7	123.9	126.5	24	118.9	119.7	121.2	24
5/28	115.6	116.1	116.5	24	118.3	118.9	119.7	24	115.9	116.2	116.6	24	119.3	121.9	127.6	24	116.1	117.3	118.1	24
5/29	112.8	113.1	113.4	24	116.2	116.9	117.2	24	115.1	115.5	115.8	24	122.0	125.4	129.4	24	120.5	124.6	126.1	24
5/30	113.9	114.3	114.6	24	117.0	117.6	118.0	24	114.1	114.5	114.9	24	117.7	120.4	123.9	24	117.3	119.9	122.2	24
5/31	114.0	114.4	115.0	24	115.5	117.0	117.2	24	114.9	115.1	115.3	24	119.5	121.4	122.7	24	118.0	120.0	121.0	24
6/1	114.8	115.3	116.1	24	117.1	117.6	118.2	24	116.0	116.6	117.2	24	119.3	121.3	122.7	24	118.7	120.6	122.0	24
6/2	114.1	114.3	114.3	24	117.2	117.7	117.9	24	115.4	115.6	116.0	24	116.6	116.8	120.6	13	115.6	117.0	119.4	24
6/3	112.9	113.4	113.6	24	116.9	117.5	117.9	24	115.2	115.7	116.5	24	---	---	---	0	113.3	113.6	113.8	24
6/4	111.3	111.7	112.4	24	115.1	115.9	116.9	24	---	---	---	0	---	---	---	0	---	---	---	0
6/5	111.2	111.4	111.5	24	116.0	116.5	116.9	24	---	---	---	0	---	---	---	0	---	---	---	0
6/6	111.3	112.2	113.9	24	115.8	117.4	119.1	24	---	---	---	0	---	---	---	0	---	---	---	0
6/7	115.8	117.3	118.7	24	119.7	121.2	122.3	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>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>					
	Avg	Avg	hr	Avg	Avg	Avg	hr	Avg	Avg	Avg	hr	Avg	Avg	Avg	hr					
5/25	122.8	123.4	124.3	24	116.6	117.2	117.7	24	102.2	102.6	102.9	24	102.1	102.4	102.8	24	105.6	105.8	106.1	24
5/26	122.7	123.4	123.7	24	115.9	116.5	116.8	24	102.0	102.4	102.7	24	101.8	102.2	102.6	24	105.0	105.5	105.7	24
5/27	121.9	122.3	123.5	24	116.9	117.5	118.1	24	101.5	101.8	102.0	24	101.3	101.7	101.8	24	104.8	105.3	105.7	24
5/28	119.6	120.1	120.7	24	115.7	116.3	116.7	24	101.5	102.2	102.8	24	102.1	103.1	103.8	24	105.0	105.9	106.5	24
5/29	121.9	123.2	124.3	24	114.9	115.7	116.1	24	101.2	101.7	103.8	24	101.6	102.3	103.1	24	104.9	105.5	106.1	24
5/30	120.5	120.9	121.1	24	116.5	117.6	118.0	24	100.5	100.7	101.0	24	101.5	102.1	102.7	24	104.3	104.8	105.4	24
5/31	120.5	121.0	121.4	24	115.6	116.1	117.0	24	100.1	100.4	100.5	24	101.2	101.7	102.0	24	104.3	104.8	105.3	24
6/1	120.7	121.3	121.9	24	116.5	117.6	118.3	24	101.7	102.7	103.3	24	102.4	103.4	103.9	24	105.1	106.0	106.6	24
6/2	118.3	119.5	120.5	24	115.6	116.2	116.8	24	101.8	102.1	102.7	24	101.8	102.3	102.9	24	104.8	105.1	105.5	24
6/3	116.5	117.6	119.8	24	113.4	114.1	114.5	24	101.2	101.4	101.6	24	102.0	102.5	102.8	24	104.7	105.1	105.2	24
6/4	---	---	---	0	112.6	113.7	114.5	24	101.8	102.2	102.5	24	103.0	103.6	104.3	24	106.2	107.1	108.3	24
6/5	---	---	---	0	110.3	111.4	113.6	24	101.6	102.7	107.4	24	101.6	102.1	103.0	24	104.9	105.0	105.3	24
6/6	---	---	---	0	108.9	110.0	111.1	24	107.8	108.8	109.0	24	103.3	104.0	104.5	24	106.0	106.7	107.4	24
6/7	---	---	---	0	112.8	114.1	115.3	24	100.7	100.9	101.0	24	102.0	102.4	102.5	24	105.7	106.1	106.4	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>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>					
	Avg	Avg	hr	Avg	Avg	Avg	hr	Avg	Avg	Avg	hr	Avg	Avg	Avg	hr					
5/25	102.3	103.0	103.7	24	105.7	105.8	105.9	24	112.7	114.1	114.7	24	112.7	113.1	113.6	24	114.9	115.4	115.8	24
5/26	101.8	102.5	103.0	24	105.7	105.9	106.0	24	111.0	111.3	112.1	24	111.8	112.5	112.5	24	113.8	114.2	114.5	24
5/27	101.7	102.4	103.2	24	104.4	104.7	105.1	24	110.1	110.3	110.5	24	109.1	109.7	110.0	24	112.9	113.3	113.5	24
5/28	102.4	103.7	104.6	24	103.7	103.8	103.9	24	110.2	110.6	111.0	24	108.9	109.2	109.3	24	112.9	113.1	113.3	24
5/29	102.0	102.7	103.3	24	103.5	103.7	103.8	24	110.3	110.5	110.9	24	108.2	108.6	108.8	24	112.0	112.4	112.6	24
5/30	101.7	102.6	103.5	24	103.7	103.8	104.1	24	110.0	110.2	110.8	24	108.5	109.2	109.7	24	112.5	113.2	114.2	24
5/31	101.5	102.2	102.6	24	104.3	104.4	104.5	24	110.3	110.6	110.9	24	109.6	110.0	110.2	24	112.2	113.3	113.8	24
6/1	102.8	104.3	105.3	24	104.7	104.9	105.1	24	110.4	110.7	111.3	24	110.6	111.0	111.2	24	111.1	111.5	112.2	24
6/2	101.9	102.4	102.9	24	104.5	104.7	105.1	24	110.2	110.4	110.7	24	111.0	111.2	111.3	24	112.6	113.4	113.6	24
6/3	101.4	101.7	101.9	24	104.3	104.5	104.6	24	110.0	110.3	110.8	24	110.7	110.8	110.9	24	113.9	114.3	114.6	24
6/4	102.9	104.0	105.2	24	104.2	104.4	104.6	24	110.3	110.5	110.9	24	111.3	111.6	111.9	24	114.2	114.8	115.1	24
6/5	101.0	101.2	102.0	24	103.2	103.4	103.8	24	115.0	117.6	120.3	24	109.4	110.5	111.3	24	114.9	115.8	118.0	24
6/6	102.4	103.3	104.0	24	102.8	103.1	103.2	24	118.5	119.0	119.2	24	104.9	105.4	106.3	24	117.8	118.8	119.8	24
6/7	102.0	102.4	102.7	24	103.2	103.7	104.4	24	114.5	117.9	119.9	24	107.8	109.4	110.2	24	114.9	116.0	120.9	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>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>					
	Avg	Avg	hr	Avg	Avg	Avg	hr	Avg	Avg	Avg	hr	Avg	Avg	Avg	hr					
5/25	112.8	113.3	113.9	24	114.4	116.6	118.2	24	112.6	112.7	112.9	24	115.5	116.1	116.5	24	---	---	---	0
5/26	113.2	113.6	114.3	24	118.3	119.0	119.5	24	111.8	111.9	112.1	24	115.2	115.4	115.7	24	---	---	---	0
5/27	114.1	114.2	114.3	24	118.3	118.8	119.1	24	111.8	111.9	112.0	24	114.2	114.5	115.3	24	---	---	---	0
5/28	113.2	113.5	113.7	24	118.3	118.8	119.2	24	112.5	112.9	113.1	24	114.8	115.2	115.3	24	---	---	---	0
5/29	111.9	112.1	112.4	24	118.4	118.7	118.9	24	113.9	114.6	115.0	24	115.4	115.9	116.1	24	---	---	---	0
5/30	112.1	112.2	112.2	24	118.2	118.6	118.9	24	114.8	114.9	115.1	24	116.1	116.6	117.4	24	---	---	---	0
5/31	112.7	112.9	113.1	24	118.8	119.1	119.5	24	115.4	115.8	116.4	24	116.0	116.2	116.3	24	---	---	---	0
6/1	113.9	114.3	114.5	24	118.8	119.4	120.2	24	116.8	117.0	117.3	24	116.4	116.9	117.3	24	---	---	---	0
6/2	113.6	114.2	114.5	24	118.4	118.6	119.1	24	116.7	116.9	117.2	24	116.3	116.7	116.9	24	---	---	---	0
6/3	111.9	112.1	112.4	24	118.2	118.5	118.9	24	115.5	115.8	116.3	24	117.2	117.9	119.2	24	---	---	---	0
6/4	113.5	114.1	114.4	24	118.8	119.2	119.5	24	115.1	115.3	115.5	24	118.0	119.1	119.4	24	---	---	---	0
6/5	112.4	113.3	114.2	24	118.4	118.9	119.2	24	112.9	113.7	114.8	24	117.9	119.3	119.6	24	---	---	---	0
6/6	110.2	110.5	111.2	24	117.3	117.6	118.6	24	110.7	111.0	111.5	24	119.8	120.1	120.3	24	---	---	---	0
6/7	115.0	116.5	118.8	24	119.0	119.6	120.0	24	112.5	113.1	113.9	24	117.4	118.3	119.4	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>	
5/25	113.8	114.2	114.3	24	119.6	120.4	120.7	24	110.5	110.7	111.0	24	118.7	119.1	119.9	24	111.8	112.2	112.6	24
5/26	113.4	113.6	114.1	24	118.3	118.9	119.9	24	110.6	111.2	111.5	24	118.9	119.3	119.7	24	112.0	112.8	113.3	24
5/27	112.9	113.0	113.2	24	118.9	119.9	120.0	24	111.5	111.8	112.1	24	118.0	118.7	119.0	24	111.4	111.8	112.2	24
5/28	112.5	112.9	113.2	24	116.4	117.4	117.7	24	111.1	111.4	111.7	24	116.8	117.7	118.8	24	111.7	112.0	112.1	24
5/29	112.5	112.9	113.1	24	116.6	117.9	119.4	24	110.5	110.7	111.0	24	116.0	117.2	118.6	24	110.5	110.8	110.9	24
5/30	112.4	112.9	113.6	24	116.0	116.3	117.3	24	110.1	110.4	110.7	24	118.0	118.3	118.7	24	111.7	112.8	113.4	24
5/31	115.0	115.8	116.5	24	115.5	115.9	116.0	24	110.6	111.1	111.4	24	116.9	118.1	118.5	24	113.2	113.4	113.6	24
6/1	116.1	116.3	116.7	24	115.8	116.0	116.2	24	111.4	111.8	112.0	24	115.2	115.7	116.2	24	113.1	113.3	113.6	24
6/2	115.5	115.8	116.2	24	115.7	116.0	116.2	24	112.1	112.5	112.8	24	115.2	116.2	117.8	24	111.7	112.0	112.9	24
6/3	115.1	115.2	115.5	24	115.4	115.6	115.7	24	112.3	112.4	112.5	24	117.9	118.1	118.7	24	112.3	113.4	114.1	24
6/4	114.5	114.8	115.3	24	117.4	118.5	118.7	24	113.1	113.4	113.8	24	117.8	118.3	118.4	24	113.9	114.1	114.3	24
6/5	109.7	111.0	113.0	24	117.7	118.1	119.1	24	110.6	111.5	112.8	24	116.2	117.8	118.8	24	110.1	111.7	113.6	24
6/6	107.2	107.4	108.0	24	119.1	119.3	119.4	24	108.4	108.5	108.6	24	119.3	120.0	120.4	24	111.2	112.6	113.2	24
6/7	107.7	108.1	109.5	24	120.2	120.8	122.3	24	108.2	108.4	108.5	24	119.5	120.0	120.2	24	113.1	113.5	113.9	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>		
	<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>	
5/25	115.9	116.3	116.6	24	115.4	115.5	115.8	24	116.9	117.2	117.8	24	117.3	118.0	118.6	24	---	---	---	0
5/26	115.8	116.7	117.6	24	113.8	114.4	114.7	24	116.1	116.8	117.3	24	116.1	117.0	117.6	24	---	---	---	0
5/27	116.5	117.0	117.3	24	112.1	112.6	113.2	24	113.5	113.8	114.2	24	113.8	114.3	115.4	24	---	---	---	0
5/28	117.0	117.4	117.9	24	113.1	113.7	114.2	24	114.2	114.7	115.1	24	113.1	113.6	114.1	24	---	---	---	0
5/29	116.3	116.8	117.2	24	114.0	114.3	114.6	24	115.3	115.6	116.0	24	114.4	115.9	116.6	24	---	---	---	0
5/30	117.1	117.7	118.1	24	114.2	114.7	114.9	24	115.3	115.7	116.1	24	115.0	115.9	116.6	24	---	---	---	0
5/31	118.0	118.5	118.9	24	116.0	116.7	117.1	24	116.5	117.0	117.5	24	115.6	116.6	117.6	24	---	---	---	0
6/1	118.0	118.3	118.6	24	117.5	118.1	118.5	24	117.5	117.9	118.2	24	116.8	117.6	118.5	24	---	---	---	0
6/2	117.0	117.3	117.4	24	116.3	116.9	117.7	24	116.8	117.2	117.5	24	116.0	116.5	117.0	24	---	---	---	0
6/3	116.8	117.5	118.0	24	113.8	114.1	114.2	24	115.1	115.3	115.5	24	114.6	115.1	115.7	24	---	---	---	0
6/4	118.3	118.7	118.9	24	115.5	116.3	116.9	24	116.0	116.7	117.0	24	114.0	114.5	115.0	24	---	---	---	0
6/5	117.4	118.6	122.8	24	113.1	114.0	116.1	24	114.6	115.3	116.1	24	112.4	113.1	113.7	24	---	---	---	0
6/6	121.6	123.9	126.1	24	112.8	114.1	118.7	24	113.9	114.7	116.8	24	113.1	114.0	114.4	24	119.3	119.6	123.5	13
6/7	119.2	120.3	122.1	24	120.2	121.6	123.1	24	120.1	121.0	121.6	24	115.9	118.4	119.3	24	124.7	124.9	125.2	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)
05/25/2012	---	1	---	---	13,931	29,442	18,707	134	45,464	44,220	22,378
05/26/2012	*	13	---	---	13,034	15,185	6,183	120	---	44,791	20,753
05/27/2012	*	12	---	---	8,049	8,947	5,080	107	45,449	42,076	20,384
05/28/2012	*	8	---	---	3,759	7,327	2,152	102	---	23,543	18,168
05/29/2012	*	4	---	---	2,594	6,052	1,511	96	32,249	17,595	17,045
05/30/2012	*	5	---	---	1,193	8,102	1,606	46	---	14,350	20,696
05/31/2012	*	8	---	---	1,095	5,866	1,465	52	15,107	9,533	12,704
06/01/2012	*	5	---	---	908	2,574	786	0	---	8,768	8,253
06/02/2012	*	13	---	---	1,161	1,892	691	21	16,478	8,421	6,996
06/03/2012	*	13	---	---	1,173	1,684	924	40	---	7,411	6,933
06/04/2012	---	---	---	---	966	4,410	1,521	21	14,172	6,621	3,911
06/05/2012	*	---	---	---	684	2,862	2,350	20	---	8,254	4,563
06/06/2012	*	---	---	---	1,068	1,607	2,088	16	10,960	6,320	3,397
06/07/2012	*	---	---	---	1,726	1,132	536	19	---	4,505	4,262
06/08/2012	---	---	---	---	---	---	---	---	---	---	4,792
<b>Total:</b>	<b>0</b>	<b>82</b>	<b>0</b>	<b>0</b>	<b>51,341</b>	<b>97,082</b>	<b>45,600</b>	<b>794</b>	<b>179,879</b>	<b>246,408</b>	<b>175,235</b>
<b># Days:</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>7</b>	<b>14</b>	<b>15</b>
<b>Average:</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>3,667</b>	<b>6,934</b>	<b>3,257</b>	<b>57</b>	<b>25,697</b>	<b>17,601</b>	<b>11,682</b>
<b>YTD</b>	<b>58,098</b>	<b>10,626</b>	<b>26,417</b>	<b>13,494</b>	<b>4,035,662</b>	<b>2,252,724</b>	<b>740,065</b>	<b>25,684</b>	<b>2,149,125</b>	<b>4,242,515</b>	<b>2,509,740</b>

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)
05/25/2012	---	0	---	---	2,897	418	229	34	2,724	168	5,787
05/26/2012	*	0	---	---	2,096	1,146	100	45	---	235	7,840
05/27/2012	*	0	---	---	9,135	1,073	293	31	2,698	884	5,429
05/28/2012	*	0	---	---	12,081	928	0	96	---	735	4,904
05/29/2012	*	0	---	---	16,249	537	151	59	2,730	771	5,129
05/30/2012	*	0	---	---	8,617	538	38	61	---	681	5,840
05/31/2012	*	0	---	---	8,530	3,469	214	37	1,018	433	7,384
06/01/2012	*	0	---	---	15,497	5,612	126	0	---	1,038	6,052
06/02/2012	*	0	---	---	14,435	3,785	1,381	29	1,699	1,244	6,612
06/03/2012	*	0	---	---	24,155	12,865	1,501	55	---	1,175	5,941
06/04/2012	---	---	---	---	43,579	58,279	5,134	155	2,884	723	8,038
06/05/2012	*	---	---	---	43,559	36,708	16,591	59	---	1,297	9,440
06/06/2012	*	---	---	---	47,063	40,300	20,694	348	5,536	1,196	6,996
06/07/2012	*	---	---	---	39,844	30,772	14,388	250	---	1,924	7,187
06/08/2012	---	---	---	---	---	---	---	---	---	---	7,616
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>287,737</b>	<b>196,430</b>	<b>60,840</b>	<b>1,259</b>	<b>19,289</b>	<b>12,504</b>	<b>100,195</b>
<b># Days:</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>7</b>	<b>14</b>	<b>15</b>
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>20,553</b>	<b>14,031</b>	<b>4,346</b>	<b>90</b>	<b>2,756</b>	<b>893</b>	<b>6,680</b>
<b>YTD</b>	<b>0</b>	<b>2</b>	<b>67</b>	<b>327</b>	<b>345,088</b>	<b>204,527</b>	<b>61,644</b>	<b>2,069</b>	<b>143,531</b>	<b>31,598</b>	<b>2,413,994</b>



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)
05/25/2012	---	0	---	---	1,674	3,347	719	832	9,428	13,587	4,244
05/26/2012	*	---	0	---	1,310	1,575	568	797	---	12,045	5,811
05/27/2012	*	---	0	---	447	1,360	1,009	872	9,546	10,423	5,715
05/28/2012	*	---	0	---	470	1,069	1,230	1,023	---	6,335	5,466
05/29/2012	*	---	0	---	614	1,934	151	1,335	11,600	8,711	3,867
05/30/2012	*	---	0	---	597	1,219	385	559	---	9,059	5,290
05/31/2012	*	---	0	---	100	1,252	214	911	6,620	4,334	6,114
06/01/2012	*	---	0	---	134	1,001	157	0	---	4,930	7,545
06/02/2012	*	---	0	---	166	464	115	758	6,175	4,497	14,377
06/03/2012	*	---	0	---	254	788	79	1,058	---	3,015	30,510
06/04/2012	*	---	---	---	218	1,147	199	368	6,842	2,337	37,657
06/05/2012	*	---	---	---	249	429	541	225	---	5,139	28,476
06/06/2012	*	---	---	---	458	229	491	343	2,767	3,117	13,993
06/07/2012	*	---	---	---	235	646	81	192	---	1,924	26,492
06/08/2012	*	---	---	---	---	---	---	---	---	---	8,642
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>6,926</b>	<b>16,460</b>	<b>5,939</b>	<b>9,273</b>	<b>52,978</b>	<b>89,453</b>	<b>204,199</b>
<b># Days:</b>		<b>0</b>	<b>10</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>7</b>	<b>14</b>	<b>15</b>
<b>Average:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>495</b>	<b>1,176</b>	<b>424</b>	<b>662</b>	<b>7,568</b>	<b>6,390</b>	<b>13,613</b>
<b>YTD</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>80</b>	<b>68,092</b>	<b>76,237</b>	<b>18,478</b>	<b>47,744</b>	<b>136,597</b>	<b>647,650</b>

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)	
05/25/2012	---	274	---	---	29,394	75,024	9,811	207	4,842	17,209	1,543	
05/26/2012	*	---	243	---	11,920	11,313	13,335	284	---	9,978	1,384	
05/27/2012	*	---	253	---	13,351	8,372	13,949	183	2,490	12,059	3,625	
05/28/2012	*	---	318	---	11,276	7,505	10,147	182	---	7,747	2,170	
05/29/2012	*	---	245	---	7,237	8,094	4,381	140	4,435	5,768	1,105	
05/30/2012	*	---	131	---	6,563	6,668	3,437	88	---	5,666	1,735	
05/31/2012	*	---	181	---	3,518	5,757	1,923	131	2,729	5,386	1,509	
06/01/2012	*	---	74	---	2,343	8,544	1,383	0	---	4,307	1,493	
06/02/2012	*	---	86	---	2,489	4,928	1,525	76	3,314	4,115	1,691	
06/03/2012	*	---	154	---	5,104	7,240	1,957	119	---	3,833	1,491	
06/04/2012	*	---	---	---	3,710	8,073	2,161	120	2,458	4,395	797	
06/05/2012	*	---	---	---	8,761	8,445	2,839	87	---	4,359	629	
06/06/2012	*	---	---	---	7,628	4,205	6,511	62	2,435	2,775	1,519	
06/07/2012	*	---	---	---	9,726	18,643	4,658	75	---	4,111	585	
06/08/2012	*	---	---	---	---	---	---	---	---	---	1,284	
<b>Total:</b>		<b>0</b>	<b>1,959</b>	<b>0</b>	<b>123,020</b>	<b>182,811</b>	<b>78,017</b>	<b>1,754</b>	<b>22,703</b>	<b>91,708</b>	<b>22,560</b>	
<b># Days:</b>		<b>0</b>	<b>10</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>7</b>	<b>14</b>	<b>15</b>	
<b>Average:</b>		<b>0</b>	<b>196</b>	<b>0</b>	<b>8,787</b>	<b>13,058</b>	<b>5,573</b>	<b>125</b>	<b>3,243</b>	<b>6,551</b>	<b>1,504</b>	
<b>YTD</b>		<b>2,722</b>	<b>19,082</b>	<b>2,065</b>	<b>2,311</b>	<b>3,494,217</b>	<b>1,410,654</b>	<b>578,948</b>	<b>16,312</b>	<b>533,858</b>	<b>2,805,771</b>	<b>280,530</b>

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)	
05/25/2012	---	0	---	---	837	2,092	1,079	200	13,620	12,714	5,402	
05/26/2012	*	---	0	---	589	1,432	535	123	---	9,997	4,981	
05/27/2012	*	---	0	---	767	501	293	270	8,093	6,520	5,527	
05/28/2012	*	---	0	---	537	784	461	106	---	5,421	4,662	
05/29/2012	*	---	0	---	478	645	453	110	22,861	4,128	2,683	
05/30/2012	*	---	0	---	133	609	308	57	---	7,784	1,483	
05/31/2012	*	---	0	---	332	250	122	23	12,732	4,891	4,208	
06/01/2012	*	---	0	---	235	465	220	0	---	4,930	4,637	
06/02/2012	*	---	0	---	199	750	317	31	9,222	2,871	5,228	
06/03/2012	*	---	0	---	95	824	169	11	---	2,811	2,724	
06/04/2012	*	---	---	---	94	932	604	4	4,308	1,948	2,752	
06/05/2012	*	---	---	---	124	429	419	8	---	3,479	1,731	
06/06/2012	*	---	---	---	381	306	205	5	3,323	2,605	1,800	
06/07/2012	*	---	---	---	78	323	144	13	---	1,837	2,006	
06/08/2012	*	---	---	---	---	---	---	---	---	---	1,027	
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>4,879</b>	<b>10,342</b>	<b>5,329</b>	<b>961</b>	<b>74,159</b>	<b>71,936</b>	<b>50,851</b>	
<b># Days:</b>		<b>0</b>	<b>10</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>7</b>	<b>14</b>	<b>15</b>	
<b>Average:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>349</b>	<b>739</b>	<b>381</b>	<b>69</b>	<b>10,594</b>	<b>5,138</b>	<b>3,390</b>	
<b>YTD</b>		<b>5</b>	<b>0</b>	<b>0</b>	<b>475</b>	<b>42,902</b>	<b>36,112</b>	<b>17,705</b>	<b>46,633</b>	<b>1,123,042</b>	<b>832,845</b>	<b>767,191</b>

COMBINED LAMPREY JUVENILES												
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR <sup>†</sup> (Coll)	LGS (Coll)	LMN (Coll)	RIS (Coll)	MCN (Coll)	JDA (Coll)	BO2 (Coll)	
05/25/2012	---	0	---	---	0	0	75	0	2,400	5,518	50	
05/26/2012	*	---	0	---	0	0	100	0	---	3,054	100	
05/27/2012	*	---	0	---	0	0	0	0	1,100	5,203	200	
05/28/2012	*	---	0	---	0	8	0	0	---	6,421	125	
05/29/2012	*	---	0	---	0	125	200	0	2,200	3,271	200	
05/30/2012	*	---	0	---	0	50	75	1	---	2,254	149	
05/31/2012	*	---	0	---	0	50	40	0	1,000	2,185	150	
06/01/2012	*	---	0	---	25	25	0	0	---	2,100	75	
06/02/2012	*	---	0	---	25	25	0	0	300	1,700	50	
06/03/2012	*	---	0	---	0	25	0	0	---	1,533	72	
06/04/2012	*	---	---	---	0	0	0	2	300	1,100	50	
06/05/2012	*	---	---	---	0	50	50	0	---	1,200	150	
06/06/2012	*	---	---	---	0	50	100	0	550	2,175	0	
06/07/2012	*	---	---	---	0	100	0	0	---	1,125	100	
06/08/2012	*	---	---	---	---	---	---	---	---	---	50	
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>50</b>	<b>508</b>	<b>640</b>	<b>3</b>	<b>7,850</b>	<b>38,839</b>	<b>1,521</b>	
<b># Days:</b>		<b>0</b>	<b>10</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>7</b>	<b>14</b>	<b>15</b>	
<b>Average:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>36</b>	<b>46</b>	<b>0</b>	<b>1,121</b>	<b>2,774</b>	<b>101</b>	
<b>YTD</b>		<b>6</b>	<b>0</b>	<b>0</b>	<b>6,165</b>	<b>4,449</b>	<b>938</b>	<b>86</b>	<b>70,880</b>	<b>260,770</b>	<b>27,518</b>	

## 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.

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.

WTB and LEW data collected for the FPC by Idaho Dept. of Fish and Game.

## Two Week Transportation Summary

Source: Fish Passage Center

Updated:

6/8/12 10:46 AM

		05/25/12	TO	06/08/12			
Site	Data	Species					Grand Total
		CH0	CH1	CO	ST	SO	
<b>LGR</b>	Sum of NumberCollected	212,550	39,097	5,225	92,551	3,675	353,098
	Sum of NumberBarged	211,952	38,044	5,216	87,358	3,663	346,233
	Sum of NumberBypassed	42	1,002	2	5,137	0	6,183
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	54	3	1	7	4	69
	Sum of FacilityMorts	502	33	6	43	8	592
	Sum of ResearchMorts	0	15	0	6	0	21
	Sum of TotalProjectMorts	556	51	7	56	12	682
<b>LGS</b>	Sum of NumberCollected	132,954	68,213	11,500	127,450	7,225	347,342
	Sum of NumberBarged	132,858	68,135	11,499	127,416	7,225	347,133
	Sum of NumberBypassed	3	0	0	0	0	3
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	9	5	0	4	0	18
	Sum of FacilityMorts	84	73	1	30	0	188
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	93	78	1	34	0	206
<b>LMN</b>	Sum of NumberCollected	42,725	33,175	4,139	54,841	3,798	138,678
	Sum of NumberBarged	40,834	32,903	4,139	54,640	3,794	136,310
	Sum of NumberBypassed	1,819	251	0	357	0	2,427
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	11	0	0	5	0	16
	Sum of FacilityMorts	61	22	0	19	4	106
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	72	22	0	24	4	122
<b>MCN</b>	Sum of NumberCollected	10,012	94,485	28,750	12,233	40,805	186,285
	Sum of NumberBarged	0	0	0	0	0	0
	Sum of NumberBypassed	10,011	94,451	28,750	12,228	40,796	186,236
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	5	0	1	4	10
	Sum of FacilityMorts	1	29	0	4	5	39
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	1	34	0	5	9	49
Total Sum of NumberCollected		398,241	234,970	49,614	287,075	55,503	1,025,403
Total Sum of NumberBarged		385,644	139,082	20,854	269,414	14,682	829,676
Total Sum of NumberBypassed		11,875	95,704	28,752	17,722	40,796	194,849
Total Sum of Numbertrucked		0	0	0	0	0	0
Total Sum of SampleMorts		74	13	1	17	8	113
Total Sum of FacilityMorts		648	157	7	96	17	925
Total Sum of ResearchMorts		0	15	0	6	0	21
Total Sum of TotalProjectMorts		722	185	8	119	25	1,059



### YTD Transportation Summary

Source: Fish Passage Center

Updated:

6/8/12 10:46 AM

TO: 06/08/12

		Species					
Site	Data	CH0	CH1	CO	SO	ST	Grand Total
<b>LGR</b>	Sum of NumberCollected	253,280	2,689,615	46,710	30,370	2,328,783	5,348,758
	Sum of NumberBarged	241,281	985,192	38,511	28,882	926,146	2,220,012
	Sum of NumberBypassed	11,347	1,702,758	8,165	1,422	1,402,392	3,126,084
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	62	177	2	9	57	307
	Sum of FacilityMorts	590	1,413	32	57	157	2,249
	Sum of ResearchMorts	0	75	0	0	31	106
	Sum of TotalProjectMorts	652	1,665	34	66	245	2,662
<b>LGS</b>	Sum of NumberCollected	138,546	1,490,482	51,901	25,119	925,863	2,631,911
	Sum of NumberBarged	138,350	1,101,509	50,298	24,424	638,222	1,952,803
	Sum of NumberBypassed	101	388,249	1,601	689	287,507	678,147
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	9	30	0	1	11	51
	Sum of FacilityMorts	86	694	2	5	123	910
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	95	724	2	6	134	961
<b>LMN</b>	Sum of NumberCollected	43,333	533,868	13,378	13,054	419,329	1,022,962
	Sum of NumberBarged	41,434	521,778	13,349	13,032	409,652	999,245
	Sum of NumberBypassed	1,827	11,562	19	13	9,722	23,143
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	11	59	0	2	34	106
	Sum of FacilityMorts	61	470	10	7	101	649
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	72	529	10	9	135	755
<b>MCN</b>	Sum of NumberCollected	66,133	1,027,617	69,050	550,539	244,196	1,957,535
	Sum of NumberBarged	0	0	0	0	0	0
	Sum of NumberBypassed	66,121	1,027,448	69,050	550,465	244,171	1,957,255
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	11	40	0	27	10	88
	Sum of FacilityMorts	1	129	0	47	15	192
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	12	169	0	74	25	280
Total Sum of NumberCollected		501,292	5,741,582	181,039	619,082	3,918,171	10,961,166
Total Sum of NumberBarged		421,065	2,608,479	102,158	66,338	1,974,020	5,172,060
Total Sum of NumberBypassed		79,396	3,130,017	78,835	552,589	1,943,792	5,784,629
Total Sum of NumberTrucked		0	0	0	0	0	0
Total Sum of SampleMorts		93	306	2	39	112	552
Total Sum of FacilityMorts		738	2,706	44	116	396	4,000
Total Sum of ResearchMorts		0	75	0	0	31	106
Total Sum of TotalProjectMorts		831	3,087	46	155	539	4,658

Cumulative Adult Passage at Mainstem Dams Through: 06/08

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	06/07	158075	7591	167097	50945	152015	20110	12984	899	15605	7473	12591	2376	0	0	0	0	0	0
TDA	06/07	117071	7173	124164	40146	112195	16495	6460	490	5247	3583	5744	1060	0	0	0	0	0	0
JDA	06/07	107655	6755	103401	39823	94492	15370	2962	177	2455	1839	2356	474	0	0	0	0	0	0
MCN	06/07	100857	4735	100445	30995	85097	13437	0	0	0	0	0	0	0	0	0	0	0	0
IHR	06/07	68052	2711	66856	16372	57336	7781	0	0	0	0	0	0	0	0	0	0	0	0
LMN	06/07	64016	2657	66151	16071	53838	6384	0	0	0	0	0	0	0	0	0	0	0	0
LGS	06/07	60898	3053	62716	19135	48064	6912	0	0	0	0	0	0	0	0	0	0	0	0
LGR	06/06	56919	2964	51980	15371	45487	7531	0	0	0	0	0	0	0	0	0	0	0	0
PRD	06/05	17598	900	13587	4858	15003	1134	0	0	0	0	0	0	0	0	0	0	0	0
RIS	06/03	15395	642	10639	4389	12257	1512	0	0	0	0	0	0	0	0	0	0	0	0
RRH	06/03	5260	296	4802	1493	4525	476	0	0	0	0	0	0	0	0	0	0	0	0
WEL	06/05	4006	407	2740	1522	2818	437	0	0	0	0	0	0	0	0	0	0	0	0
WFA	06/03	22267	788	19127	490	37454	690	-	-	-	-	-	-	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.
	Adult	Jack	Adult	Jack	Adult	Jack									
BON	0	0	0	0	0	0	2372	150	875	5014	4552	5635	1462	1482	1446
TDA	0	0	0	0	0	0	1063	24	397	1054	1528	1824	411	769	675
JDA	0	0	0	0	0	0	669	4	252	2042	2874	3155	1299	1761	1372
MCN	-1	0	0	0	0	0	51	1	68	1819	2674	2414	996	1585	1011
IHR	0	0	0	0	0	0	0	0	0	2439	3075	2681	1094	1205	953
LMN	0	0	0	0	0	0	0	0	0	3643	3924	3156	1930	2193	1471
LGS	0	0	0	0	0	0	0	0	0	3936	6232	3341	2304	3338	1494
LGR	0	0	0	0	0	0	0	0	0	8932	12303	9996	3942	4076	3150
PRD	0	0	0	0	0	0	0	2	1	99	43	39	0	0	0
RIS	0	0	0	0	0	0	0	0	1	173	72	77	119	49	47
RRH	0	0	0	0	0	0	1	0	0	706	548	285	590	486	197
WEL	0	0	0	0	0	0	0	0	0	106	125	61	83	97	39
WFA	0	0	0	0	0	0	-	-	-	18001	15119	17940	-	-	-

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: 06/08/12

BON counts from January 1, 2012 to March 14, 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

## 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
<b>Lower Granite Dam</b>											
	05/31/12	Chinook + Steelhead	23	0	0	0.00%	0.00%	0	0	0	0
	06/07/12	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>Little Goose Dam</b>											
	05/28/12	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/04/12	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>Lower Monumental Dam</b>											
	05/30/12	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/06/12	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
<b>McNary Dam</b>											
	05/30/12	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/01/12	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
	06/03/12	Chinook + Steelhead	100	2	1	1.00%	0.00%	1	0	0	0
	06/07/12	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>Bonneville Dam</b>											
	05/26/12	Chinook + Steelhead	99	1	1	1.01%	0.00%	1	0	0	0
	05/29/12	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
	06/02/12	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/05/12	Chinook + Steelhead	25	0	0	0.00%	0.00%	0	0	0	0
<b>Rock Island Dam</b>											
	05/29/12	Chinook + Steelhead	100	5	4	4.00%	0.00%	4	0	0	0
	05/31/12	Chinook + Steelhead	85	2	2	2.35%	0.00%	2	0	0	0
	06/05/12	Chinook + Steelhead	52	3	3	5.77%	0.00%	3	0	0	0
	06/07/12	Chinook + Steelhead	42	0	0	0.00%	0.00%	0	0	0	0