



# Fish Passage Center

## Weekly Report #12 - 15

June 22, 2012

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### Summary of Events:

**Water Supply:** Precipitation throughout the Columbia Basin has varied between 89% and 472% of average at individual sub-basins over June. Precipitation above The Dalles has been 298% of average over June. Over the 2012 water year, precipitation has ranged between 91% and 124% of average.

**Table 1. Summary of June precipitation and cumulative October through June 19, 2012 precipitation with respect to average (1971-2000), at select locations within the Columbia and Snake River Basins.**

Location	Water Year 2012 June 1-19, 2012		Water Year 2012 October 1, 2011 to June 19, 2012	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia Above Coulee	3.19	364	23.49	124
Snake River Above Ice Harbor	0.84	157	14.74	104
Columbia Above The Dalles	1.96	298	21.17	114
Kootenai	3.46	384	23.97	123
Clark Fork	1.42	201	15.05	116
Flathead	3.42	354	21.18	123
Pend Oreille/ Spokane	3.79	472	31.61	122
Central Washington	0.74	314	6.86	91
Snake River Plain	0.31	89	8.67	97
Salmon/Boise/ Payette	0.71	132	17.32	104
Clearwater	2.73	299	29.41	117
SW Washington Cascades/Cowlitz	2.86	264	66.38	104
Willamette Valley	2.49	302	59.95	110

Average snowpack in the Columbia River for basins above the Snake River confluence is 223% of average, for

Snake River Basins the average snowpack is 41% of average, and for lower Columbia Basins between McNary and Bonneville Dam average snowpack is 81% of average.

Table 2 displays the May 29<sup>th</sup> and June 20<sup>th</sup> Ensemble Streamflow Prediction (ESP) runoff volume forecasts for multiple reservoirs. The June 20<sup>th</sup> forecast at The Dalles between January and July is 126,922 Kaf (118% of average).

**Table 2. May 29<sup>th</sup> and June 20<sup>th</sup> ESP Runoff Volume Forecasts for various reservoirs within the Columbia and Snake River Basins.**

Location	May 29, 2012 ESP		June 20, 2012 ESP	
	% Average (1971 -2000)	Runoff Volume (Kaf)	% Average (1971 -2000)	Runoff Volume (Kaf)
The Dalles (Jan-July)	109	117424	118	126922
Grand Coulee (Jan-July)	113	71280	125	78682
Libby Res. Inflow, MT (Apr-Aug)	117	7281 7155*	133	8299 7240*
Hungry Horse Res. Inflow, MT (Jan-July)	103	2290	116	2584
Lower Granite Res. Inflow (Apr- July)	99	21410	105	22558
Brownlee Res. Inflow (Apr-July)	84	5275	88	5579
Dworshak Res. Inflow (Apr-July)	114	3024 3226*	124	3273 3236*

\* Denotes COE Forecast

Grand Coulee Reservoir is at 1283.6 feet (6-21-12) and refilled 7.9 feet over the last week. Grand Coulee is currently 6.4 feet from full (1290 feet). Outflows at Grand Coulee have ranged between 186.9 and 229.1 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2448.6 feet (6-21-12) and has refilled 7.6 feet last week. Libby is currently 11.4 feet from full (2459 feet). Outflows at Libby Dam have ranged between 25.7-34.7 Kcfs last week.

Hungry Horse is currently at an elevation of 3559.0 feet (6-21-12) and has refilled 3.8 feet last week. Hungry Horse is currently 1.0 foot from full (3560 feet). Outflows at Hungry Horse have been 9.5-12.9 Kcfs last week.

Dworshak is currently at an elevation of 1598.2 feet (6-21-12) and has refilled 3.6 feet last week. Dworshak is currently 1.8 feet from full (1600 feet). Outflows from Dworshak have been approximately 7.4-11.0 Kcfs over the past week.

The Brownlee Reservoir was at an elevation of 2076.3 feet on June 20<sup>th</sup>, 2012 refilling 2.6 feet last week. Brownlee is currently 0.7 feet from full (2077 feet). Over the last week, outflows at Brownlee have ranged between 11.3 and 19.7 Kcfs.

The Biological Opinion flow period began on April 3<sup>rd</sup> and ended on June 20<sup>th</sup> in the lower Snake River (Lower Granite). The flow objective this spring was 100 Kcfs at Lower Granite. Flows at Lower Granite Dam have averaged 107.9 Kcfs over the spring season. The flow objective at Lower Granite over the summer period (June 21<sup>st</sup> to August 31<sup>st</sup>) is 52 Kcfs, over the first day of the summer period flows at Lower Granite were 82.3 Kcfs.

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 338.5 Kcfs over the last week and 337.1 Kcfs over the spring period. Flows at Priest Rapids Dam have averaged 253.2 Kcfs over the last week and 221.8 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 ended on June 20<sup>th</sup>. The transition to summer spill levels began on June 21<sup>st</sup> and are shown in the table below. Spring spill began on April 10<sup>th</sup> at the lower Columbia River projects and continues through the month at most of

the lower River projects.

Snake River flows have remained relatively constant over the past week and considerable excess generation spill has occurred. At Lower Granite Dam spill met, or exceeded, the Court Ordered 20 Kcfs spring spill level, or the summer spill level of 18 Kcfs. At Little Goose Dam spill met, or exceeded, the 30% of instantaneous flow level as specified in the Court Order and ranged between 29.8% and 42.9% of daily average flow at this project. At Lower Monumental Dam daily average spill to the gas cap using bulk spill ranged from 23.4 to 26 Kcfs, when the COE could curtail spill for TDG management. The summer spill level of 17 Kcfs began on June 21<sup>st</sup>. At Ice Harbor Dam the Court Order “test-like” conditions are in place and have been met or exceeded.

<b>Project</b>	<b>Day/Night Spill</b>
Lower Granite	18 Kcfs/18 Kcfs
Little Goose	30%/30%
Lower Monumental	17 Kcfs/17 Kcfs
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 for the past week. Spill at McNary Dam changed to the summer level early to accommodate research studies and met, or exceeded, the Court Order as a result of flows in excess of hydraulic capacity due to unit outages and due to spill in excess of generation needs. Spill at John Day Dam continued to the test levels of 30%/30% versus 40%/40%. For the most part, spill test levels were exceeded at John Day during the past week. At The Dalles Dam, spill generally met or was less than the 40%. Spill at Bonneville Dam switched to the summer test levels on June 17<sup>th</sup> comparing 95 Kcfs for 24 hours versus 85 Kcfs during daytime hours and gas cap spill at night. Spill generally exceeded these levels due to a reprioritization of the spill priority list for distribution of excess spill in an attempt to operate Bonneville PH2 at the mid-range of the 1% efficiency range.

Project	Day/Night Spill
McNary	50%/50%
John Day	<b>Testing:</b> 30%/30% vs. 40%/40%
The Dalles	40%/40%
Bonneville	95 Kcfs/95 Kcfs vs. 85 Kcfs/121 Kcfs

Gas bubble trauma samples were taken this past week at Lower Granite, Little Goose, Lower Monumental, Rock Island, McNary and Bonneville dams. There were no signs of GBT detected in the samples this past week.

**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 and coho at BON continued to decrease this week, when compared to last week. The passage index for steelhead and sockeye at BON remained fairly steady this week, when compared to last week. The daily average passage index at BON for yearling Chinook this week was about 1,900 per day, compared to nearly 2,400 per day last week. Subyearling Chinook numbers at BON continued to increase this week, with a daily average passage index of 11,000 per day, compared to last week's daily average passage index of nearly 10,000 per day. The second powerhouse of BON continued to operate without being restricted to the mid-range of the 1% efficiency range this week. Descaling rates for subyearling Chinook at BON ranged from 0.3% to 5.4% and mortality rates ranged from 0.6% to 4.3%. Finally, only pacific lamprey macrophthalmia were collected at BON this week. The daily average collection for pacific lamprey macrophthalmia was 76 per day this week, which is very close to the daily average collection from last week.

The passage indices for yearling Chinook, steelhead, sockeye, and coho all decreased at JDA this week, when compared to last week. The daily average passage index for yearling Chinook at JDA for this week was about 1,450 per day, compared to over 3,700 per day last week. The daily average passage index for steelhead this week was only 900 per day, compared to over 2,600 per day last week. Passage of subyearling

Chinook at JDA continued to increase this week. The daily average passage index for subyearling Chinook at JDA this week was over 15,000 per day, compared to just over 7,200 per day last week. Lamprey collections at JDA this week were very similar to what was collected last week. The daily average collection for pacific macrophthalmia at JDA this week was over 3,500 per day. The daily collection of Pacific ammocoetes at JDA ranged between 0 and 29 per day this week.

At MCN, passage for all salmonids, except subyearling Chinook, continued to decrease this week. The daily average passage index for yearling Chinook at MCN this week was nearly 2,000, compared to nearly 5,200 per day last week. The daily average passage index for subyearling Chinook at MCN this week was over 32,000 per day, compared to nearly 15,600 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 continued to increase this week. The daily average collection for pacific lamprey macrophthalmia at MCN was 1,267 per day, compared to only 988 per day last week.

Passage of yearling Chinook, coho, sockeye, and steelhead all decreased at LGR this week, compared to last week. The daily average passage index for yearling Chinook at LGR this week was about 134 per day, compared to 764 per day last week. This week's daily average passage index for steelhead at LGR was 1,275 per day. The daily average passage index for steelhead at LGR last week was nearly 4,500 per day. No sockeye juveniles were collected at LGR this week. Subyearling Chinook passage increased slightly this week, with a daily average passage index of over 31,000 per day, compared to just over 29,000 per day last week. Finally, only pacific lamprey ammocoetes were sampled at LGR this week.

Passage at LGS decreased for nearly all species this week, except for subyearling Chinook. The daily average passage index for yearling Chinook at LGS this week was 758 per day, compared to over 864 per day last week. This week's daily average passage index for steelhead at LGS was about 2,350 per day. Last week's daily average passage index for steelhead was nearly 8,000 per day. Passage of subyearling Chinook at LGS continued to increase this week. This week's daily average passage index for subyearling Chinook was over 43,000 per day, compared to nearly 30,000 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 354, compared to 964 per day last week. Passage of subyearling Chinook at LMN was similar this week to last week. The daily average passage index of subyearling Chinook at LMN this week was about 12,400 per day. Lower Monumental Dam collected only pacific lamprey macrophthalmia this week. Over the past week, daily collection estimates for pacific macrophthalmia have ranged from 0 to 150 per day.

Passage of yearling Chinook, coho, sockeye, and steelhead at RIS continued to decrease this week. Subyearling Chinook continued to be the dominant species of salmonid passing RIS this week. In fact, subyearling Chinook passage at RIS continued to increase this week, compared to last week. The daily average passage index for subyearling Chinook this week was 528 per day, compared to 169 per day last week. Only three Pacific lamprey macrophthalmia were collected at RIS this week, one on each of June 16<sup>th</sup>, June 17<sup>th</sup>, and June 19<sup>th</sup>. No other lamprey juveniles were collected at RIS this week.

Steelhead continued to dominate the collection at the Imnaha River Trap this week. Over the most recent seven days of available data, the daily average collection for steelhead at this trap was 139 per day, whereas that for yearling Chinook was only 13 per day.

#### **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. This week marked the beginning of the subyearling fall Chinook surrogate releases to the Clearwater River. In all, about 98,000 fall Chinook surrogates are scheduled for release into the Clearwater River this year. These releases are expected to run through early July. All of these surrogates are unmarked but do have PIT-tags. In addition, about 303,000 spring Chinook parr were scheduled for release into the Selway River this week. These spring Chinook parr were 100% unmarked and are not expected to out-migrate until spring of 2013. In addition to the spring Chinook parr that were scheduled for release this week, another 400,000 are scheduled for release into the Selway River, beginning on or around June 25<sup>th</sup>. These spring Chinook parr will be tagged with coded-wire-tags and 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 was only one new release of juvenile salmonids scheduled for this zone this week. On June 20<sup>th</sup>, Ringold Springs Hatchery was scheduled to begin releasing approximately 3.45 million subyearling fall Chinook brights. This release is expected to run through July. No new releases are scheduled to begin in this zone over the next two weeks. However, several of the volitional releases of coho juveniles to the Wenatchee and Yakima rivers that began in April and May are scheduled to end throughout the next several weeks. In addition, two releases of summer steelhead to the Wenatchee River that began in May are scheduled to end over the next two weeks.

**Lower Columbia Zone:** The Lower Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to McNary Dam. Approximately 3.3 million subyearling fall Chinook brights were scheduled for release from Klickitat Hatchery this week. No other releases were scheduled to begin in this zone this week. However, over the next two weeks, about 4.57 million subyearling fall Chinook brights are scheduled to be released from Little White Salmon NFH into the Little White Salmon River. Of these, about 56% are scheduled for release on June 26<sup>th</sup> and 44% are scheduled for release on July 3<sup>rd</sup>. These are the only releases that are scheduled for this zone over the next two weeks.

#### **Adult Fish Passage:**

The summer Chinook count began June 1st at Bonneville Dam. Daily passage numbers at Bonneville Dam ranged between 2,000 and 2,714 adult summer Chinook in the last week. The 2012 summer Chinook count of 42,188 is about 80.9% of the 2011 count and 96.8% of the 10 year average count. The 2012 Bonneville Dam summer Chinook jack count of 4,294 is about 19% of the 2011 count and 54.6% of the 10 year average count. At McNary Dam 17,150 adult summer Chinook have been counted. The 2012 McNary adult summer Chinook is about 87.8% of the 2011 and 88.7% of the 10 average counts. The McNary jack summer Chinook count of 706 is about 7.8% of the 2011 count of 9,000 and about 21.6% of the 10 year average count of 3,262. The 2012 adult summer Chinook count at Lower Granite Dam in the Snake River of 2,818 is about 69.4% of the 2011 count and 75.3% of the 10 year average count. The 2012 Lower Granite summer Chinook jack count of 237 is

about 11% of the 2011 count and 29.7% of the 10 year average count.

The Bonneville Dam 2012 steelhead count of 8,347 is 1.21 times greater than the 2011 count of 6,880, while being about 83.6% of the 10 year average count of 9,981. The 2012 Bonneville wild adult steelhead count of 2,479 is about 1.15 times greater than the 2011 count of 2,157, while having 90.8% of the 10 year average count of 2,731. In the Snake River, this year's Lower Granite steelhead count of 8,966 is about 72.7% of the 2011 count of 12,327 and 88.8% of the 10 year average of 10,096. The 2012 Lower Granite wild adult steelhead count of 3,948 is about 68.2% of the 2011 count of 5,789, while being about 1.25 times greater than the 10 year average count of 3,160. At Willamette Falls Dam, the 2012 count for steelhead was 23,502, as of June 18th. This year's steelhead count is about 1.18 times greater than the 2011 count of 19,823 and 1.08 times greater than the 10 year average count of 21,656.

Daily adult sockeye passage numbers at Bonneville Dam ranged between 6,831 and 22,164 last week. The 2012 adult sockeye count at Bonneville Dam of 137,925 is about 7 times greater than the 2011 count of 19,699 and about 3.49 times greater than the 10 year average count of 39,546. The 2012 McNary Dam adult sockeye count of 30,321 is about 24.1 times greater than the 2011 count of 1,259 and 3.9 times greater than the 10 year average count of 7,773.

### Hatchery Releases Last Two Weeks

Hatchery Release Summary									
From:	6/8/2012		to		06/21/12				
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
<b>National Marine Fisheries Service Total</b>					<b>98,000</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 Tribe	Nez Perce Tribal Hatchery	CH0	FA	2012	500,000	06-04-12	06-15-12	Nez Perce Tribal Hatchery	Clearwater River M F
<b>Nez Perce Tribe Total</b>					<b>1,202,782</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	Priest Rapids Hatchery	CH0	FA	2012	6,700,000	06-12-12	06-20-12	Priest Rapids Hatchery	Mid-Columbia River
Washington Dept. of Fish and Wildlife	Ringold Springs Hatchery	CH0	FA	2012	3,450,000	06-20-12	07-31-12	Ringold Springs Hatchery	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
Yakama Tribe	Cascade Hatchery	CO	UN	2012	65,564	05-13-12	07-14-12	Beaver Creek Acclim Pond	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2012	65,662	05-02-12	06-30-12	Butcher Creek Acclim. 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	06-18-12	06-18-12	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	Yakima River
Yakama Tribe	Willard Hatchery	CO	UN	2012	31,423	05-13-12	07-14-12	Beaver Creek Acclim 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>4,354,958</b>				
<b>Grand Total</b>					<b>15,830,740</b>				

### Hatchery Releases Next Two Weeks

Hatchery Release Summary									
From:	6/22/2012		to		7/5/2012				
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
National Marine Fisheries Service <b>National Marine Fisheries Service Total</b>	Lyons Ferry Hatchery	CH0	FA	2012	98,000	06-21-12	07-06-12	Big Canyon (Clearwater River)	Clearwater River M F
					<b>98,000</b>				
Nez Perce Tribe <b>Nez Perce Tribe Total</b>	Nez Perce Tribal Hatchery	CH0	SP	2013	400,000	06-25-12	06-29-12	Meadow Creek - SELW	Selway River
					<b>400,000</b>				
U.S. Fish and Wildlife Service	Little White Salmon NFH	CH0	FA	2012	2,000,000	07-03-12	07-03-12	Little White Salmon Hatchery	Little White Salmon River
U.S. Fish and Wildlife Service	Little White Salmon NFH	CH0	FA	2012	2,570,000	06-26-12	06-26-12	Little White Salmon Hatchery	Little White Salmon River
<b>U.S. Fish and Wildlife Service Total</b>					<b>4,570,000</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 <b>Washington Dept. of Fish and Wildlife Total</b>	Ringold Springs Hatchery	CH0	FA	2012	3,450,000	06-20-12	07-31-12	Ringold Springs Hatchery	Mid-Columbia River
					<b>3,475,000</b>				
Yakama Tribe	Cascade Hatchery	CO	UN	2012	65,537	05-14-12	07-01-12	Rolfings Acclim Pond	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2012	65,564	05-13-12	07-14-12	Beaver Creek Acclim Pond	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2012	65,662	05-02-12	06-30-12	Butcher Creek Acclim. 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
Yakama Tribe	Willard Hatchery	CO	UN	2012	31,423	05-13-12	07-14-12	Beaver Creek Acclim Pond	Wenatchee River
Yakama Tribe <b>Yakama Tribe Total</b>	Willard Hatchery	CO	UN	2012	31,533	05-14-12	07-01-12	Rolfings Acclim Pond	Wenatchee River
					<b>959,701</b>				
<b>Grand Total</b>					<b>9,502,701</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
06/08/2012	206.2	0.0	211.7	100.9	235.0	68.2	239.1	81.1	241.4	55.0	261.6	135.6	260.3	137.5
06/09/2012	201.1	2.7	199.1	104.5	223.7	45.5	226.1	61.0	226.3	47.0	247.2	125.7	250.5	160.9
06/10/2012	201.4	0.1	203.0	80.2	228.0	40.9	223.6	42.8	221.6	46.9	238.5	118.9	241.8	168.2
06/11/2012	205.7	0.1	204.2	80.1	228.4	42.9	228.5	45.3	225.6	47.0	239.3	113.5	244.1	142.3
06/12/2012	204.2	0.1	207.8	77.8	232.8	54.2	230.7	65.7	229.7	49.2	248.5	123.6	252.5	144.0
06/13/2012	203.3	4.9	204.3	67.6	233.9	50.4	226.8	55.7	227.0	50.3	248.4	125.6	250.5	148.9
06/14/2012	194.6	10.9	194.6	20.2	227.3	45.7	219.1	42.6	219.1	47.7	252.6	143.2	271.7	184.6
06/15/2012	194.0	10.8	196.0	20.2	234.4	52.6	227.3	46.6	225.0	54.8	246.4	120.7	241.4	136.0
06/16/2012	201.6	15.1	204.3	21.9	234.9	49.0	225.7	32.7	219.7	47.4	239.2	116.7	241.1	160.1
06/17/2012	189.4	15.0	197.7	19.1	223.8	41.3	222.2	39.6	222.4	48.1	244.3	126.0	255.6	183.8
06/18/2012	186.9	15.0	187.0	14.9	217.5	46.2	220.7	47.1	226.1	48.9	246.1	130.4	248.7	157.0
06/19/2012	199.8	17.1	196.3	45.6	221.6	37.4	216.4	31.4	220.2	48.1	239.8	127.3	245.6	138.5
06/20/2012	229.1	16.8	231.9	79.7	256.5	70.9	262.4	79.0	261.3	76.6	289.7	166.0	294.4	176.0
06/21/2012	225.5	15.1	226.7	74.4	256.5	66.3	257.2	73.0	252.1	78.7	254.7	138.1	245.9	126.5

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

Date	Dworshak		Brownlee Canyon		Hells Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill	Inflow	Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
06/08/2012	9.5	1.6	18.1	14.6	102.1	49.0	94.5	46.3	99.1	49.8	101.7	80.1
06/09/2012	9.4	2.8	17.2	12.9	91.8	56.9	86.3	52.6	92.2	60.8	92.7	81.7
06/10/2012	9.5	0.7	17.4	12.9	91.6	50.0	87.8	38.4	89.2	37.3	93.2	70.4
06/11/2012	9.6	0.0	16.4	13.8	90.5	31.2	88.4	30.8	91.5	29.0	92.7	61.2
06/12/2012	9.5	0.0	15.9	14.3	81.0	29.4	77.1	30.0	78.7	32.2	81.3	61.0
06/13/2012	9.4	2.1	16.6	17.3	83.7	51.1	82.5	45.2	81.8	53.0	85.0	74.4
06/14/2012	9.5	0.8	15.5	14.5	94.6	32.5	93.4	31.2	97.4	25.9	96.7	49.1
06/15/2012	9.5	0.0	16.6	14.9	89.1	25.9	85.9	28.2	87.7	24.7	91.0	60.6
06/16/2012	7.4	0.0	17.2	14.7	86.1	31.1	83.8	25.8	83.7	23.9	85.9	65.0
06/17/2012	7.4	0.0	17.1	11.3	84.3	41.4	82.4	34.1	82.5	23.4	85.1	74.3
06/18/2012	7.9	0.0	18.9	14.8	83.7	41.6	79.9	34.3	80.4	23.9	82.8	71.9
06/19/2012	11.0	1.5	22.0	17.0	93.9	37.6	94.6	34.1	97.1	24.6	101.5	74.1
06/20/2012	11.0	1.5	17.9	20.4	89.2	21.3	84.7	25.3	84.7	26.0	83.3	55.1
06/21/2012	9.5	0.0	---	---	82.3	20.5	81.3	24.2	80.9	17.5	82.6	35.9

**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
06/08/2012	354.7	198.5	352.8	148.9	332.7	132.7	346.0	115.6	115.2	102.8
06/09/2012	351.2	205.6	344.8	159.9	329.3	145.0	369.9	141.4	113.8	102.3
06/10/2012	339.3	178.4	354.0	143.7	335.4	123.6	353.6	128.8	111.0	101.5
06/11/2012	353.0	201.3	343.1	145.6	323.6	128.9	337.8	132.1	106.1	87.2
06/12/2012	330.1	181.8	340.8	142.5	328.3	141.4	349.1	148.6	115.3	72.8
06/13/2012	345.6	198.9	348.3	155.8	328.4	137.0	348.4	155.4	108.6	72.0
06/14/2012	339.5	190.2	340.9	133.5	319.6	124.4	344.3	136.1	88.5	107.3
06/15/2012	339.7	190.0	355.6	140.3	337.1	126.0	348.4	135.8	94.1	106.1
06/16/2012	308.3	160.7	293.9	114.0	281.8	114.7	321.6	112.4	94.5	102.3
06/17/2012	333.8	189.6	331.8	139.3	313.0	127.9	325.2	116.6	93.8	102.4
06/18/2012	331.1	201.2	325.2	139.7	305.8	128.1	329.0	139.0	75.8	101.8
06/19/2012	351.2	230.8	370.1	151.0	348.2	136.2	353.4	160.2	75.7	105.2
06/20/2012	353.8	233.3	357.0	139.8	337.6	130.2	362.5	170.9	75.6	103.7
06/21/2012	351.3	222.4	353.1	138.6	339.2	129.7	356.8	160.9	75.1	108.3



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

### Total Dissolved Gas Saturation Data at Upper Columbia River Sites

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>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>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>	
6/8	107.2	107.4	107.7	23	127.6	128.2	129.2	20	115.4	116.0	116.4	24	112.7	112.9	113.1	20	112.5	112.6	112.8	24
6/9	107.2	107.3	107.4	24	127.7	128.2	129.1	21	116.1	116.4	116.6	24	113.0	113.3	113.8	21	112.1	112.3	112.4	24
6/10	107.0	107.0	107.1	24	127.4	127.8	128.1	23	116.2	116.3	116.5	24	112.9	113.3	113.7	23	112.3	112.6	113.1	24
6/11	105.7	106.3	107.0	23	127.2	127.8	128.3	21	115.4	115.6	115.8	24	112.7	113.0	113.3	21	113.0	113.7	113.9	24
6/12	105.9	106.2	106.6	24	126.3	127.1	127.9	21	115.7	116.0	116.3	24	113.4	113.8	114.1	22	113.9	114.3	114.7	24
6/13	105.9	106.1	106.5	24	125.9	126.5	128.3	24	115.9	116.1	116.3	24	113.3	113.6	113.9	21	113.6	113.9	114.2	24
6/14	106.2	106.6	107.1	24	126.2	126.8	127.3	24	115.9	116.1	116.5	24	113.0	113.2	113.4	24	113.2	113.4	113.6	24
6/15	106.6	107.4	107.8	24	126.3	126.8	127.2	24	115.2	115.3	115.6	24	112.3	112.9	113.3	24	112.7	113.0	113.4	24
6/16	107.4	107.5	107.8	24	126.6	127.1	127.9	20	115.2	115.5	115.9	24	112.4	113.0	113.6	20	113.2	113.7	114.0	24
6/17	107.7	107.9	108.2	24	127.0	127.6	128.2	22	116.0	116.1	116.2	24	112.8	113.7	114.2	22	113.9	114.1	114.6	24
6/18	107.5	107.7	107.9	24	126.8	127.1	127.5	22	115.7	116.0	116.2	24	112.1	112.5	113.5	22	113.4	113.7	113.9	24
6/19	110.1	111.8	111.9	24	129.0	129.4	129.9	23	114.5	115.3	115.9	24	111.2	111.2	112.1	10	112.2	112.4	112.7	24
6/20	112.8	113.4	113.6	24	128.5	128.6	129.2	20	114.7	115.2	115.4	24	112.7	112.7	113.2	11	112.2	112.7	113.0	24
6/21	114.0	114.6	114.8	24	128.6	129.0	129.5	22	116.1	116.7	117.1	24	113.8	114.3	114.7	22	113.5	114.1	114.4	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>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>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>	
6/8	116.1	116.8	117.2	24	112.5	112.8	113.3	24	122.0	124.4	128.3	24	118.4	119.1	120.8	24	122.6	122.9	123.3	24
6/9	116.4	117.8	119.0	24	113.5	113.8	114.2	24	118.1	118.7	119.8	24	118.8	120.0	121.4	24	122.1	122.4	122.6	24
6/10	115.2	115.6	115.7	24	112.6	112.9	114.0	24	116.6	117.0	117.3	24	114.9	115.3	115.8	24	119.9	120.3	121.2	24
6/11	118.3	119.8	120.0	24	113.5	114.7	117.0	24	117.4	118.9	120.1	24	115.4	116.0	116.5	24	120.1	120.7	121.1	24
6/12	117.6	118.8	119.7	24	117.2	117.6	118.1	19	121.6	122.1	125.5	19	117.0	118.0	119.1	24	121.7	122.3	122.7	24
6/13	115.3	117.5	119.1	24	114.4	114.6	116.0	20	118.9	120.3	124.5	20	119.5	120.1	120.8	24	122.5	123.0	123.3	24
6/14	110.5	110.8	110.9	24	112.4	113.1	114.3	18	116.3	116.8	117.4	18	117.0	117.8	118.8	24	121.0	121.4	121.8	24
6/15	110.3	110.5	110.6	24	111.0	111.7	111.9	24	116.3	117.2	117.8	24	114.7	115.1	115.9	24	119.8	120.5	121.2	24
6/16	111.4	111.9	115.2	24	112.0	112.7	112.8	24	116.3	117.1	117.3	24	115.7	116.1	116.5	24	118.4	119.5	119.9	24
6/17	111.1	111.3	111.6	24	112.8	113.0	113.3	24	117.0	118.3	118.8	24	116.0	116.2	116.2	24	120.0	120.7	121.1	24
6/18	110.8	111.3	111.7	24	112.0	112.3	112.6	24	117.5	119.8	122.3	24	114.3	115.4	116.1	24	118.6	119.1	119.6	24
6/19	113.7	117.9	118.7	24	110.8	111.0	111.1	24	114.7	116.0	118.0	24	114.2	115.2	116.1	24	117.0	117.5	117.9	24
6/20	118.8	119.5	120.4	24	113.7	114.9	115.3	24	121.9	123.7	126.1	24	114.6	116.4	118.9	24	120.1	121.3	122.2	24
6/21	119.0	120.0	120.3	24	116.3	117.0	118.4	24	122.7	124.5	125.3	24	120.8	121.5	122.2	24	122.0	122.9	123.4	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>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>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>	
6/8	119.7	120.0	120.5	24	122.8	123.2	123.4	24	115.0	116.0	116.5	24	123.2	124.2	125.6	24	120.9	122.4	123.7	24
6/9	118.6	119.2	119.5	24	121.6	122.0	122.8	24	116.2	116.8	117.3	24	121.6	122.0	122.5	24	117.4	118.4	119.9	24
6/10	115.7	116.2	117.3	24	119.3	120.0	121.6	24	114.7	115.3	115.9	24	120.9	122.2	122.5	24	116.2	117.9	119.3	24
6/11	116.0	116.8	117.6	24	119.4	120.7	121.4	24	117.3	118.3	118.7	24	120.7	122.5	122.9	24	119.4	122.0	122.7	24
6/12	117.5	118.4	119.0	24	120.8	122.0	122.6	24	117.7	118.2	118.5	24	122.3	123.8	124.7	24	119.9	122.0	123.0	24
6/13	119.1	119.3	119.7	24	122.4	122.9	123.3	24	115.6	116.6	118.1	24	122.2	123.4	124.5	24	118.7	119.7	120.3	24
6/14	116.9	117.2	118.2	24	120.6	121.5	122.4	24	116.7	117.7	118.4	24	121.2	123.7	125.5	24	119.4	122.7	124.8	24
6/15	116.0	116.4	116.7	24	120.0	120.4	121.0	24	116.9	117.9	118.7	24	121.5	124.3	125.6	24	120.4	124.1	125.3	24
6/16	115.3	116.4	117.0	24	119.1	120.6	121.3	24	118.0	119.1	120.3	24	121.5	123.3	124.0	24	117.8	118.6	119.2	24
6/17	116.3	117.0	117.4	24	119.9	120.9	121.2	24	116.1	117.0	118.2	24	122.7	123.0	123.9	24	118.4	118.9	119.6	24
6/18	114.7	115.0	115.6	24	118.8	119.7	120.2	24	113.3	113.7	114.1	24	123.0	124.0	125.5	24	117.9	119.7	120.4	24
6/19	113.3	114.3	115.1	24	117.5	119.1	119.7	24	112.1	112.6	113.1	24	122.8	124.1	125.1	24	118.0	119.6	120.9	24
6/20	115.9	117.7	118.9	24	121.3	123.1	123.8	24	---	---	---	0	---	---	---	0	---	---	---	0
6/21	120.4	121.5	122.6	24	124.6	125.4	126.0	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>Clrwr-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	
6/8	123.0	123.4	124.0	24	115.0	115.7	116.0	24	105.3	108.4	109.1	24	102.7	103.9	104.6	24	105.1	105.5	106.1	24
6/9	121.7	122.1	122.7	24	115.0	115.4	115.8	24	108.0	109.1	109.7	24	102.8	103.1	103.3	24	104.6	105.0	105.3	24
6/10	121.1	121.8	122.0	24	113.7	115.1	115.7	24	102.8	105.0	108.0	24	101.5	102.0	102.6	24	104.6	105.3	106.1	24
6/11	122.3	122.7	123.6	24	116.3	117.7	118.4	24	100.8	101.3	101.6	24	102.1	103.1	103.8	24	104.9	105.9	106.4	24
6/12	122.7	123.1	123.8	24	117.4	117.9	118.4	24	101.1	101.4	101.7	24	101.9	102.5	102.8	24	104.8	105.5	105.9	24
6/13	121.9	122.6	122.9	24	116.9	117.6	118.1	24	106.2	108.6	109.2	24	103.1	104.3	104.7	24	104.4	105.1	105.9	24
6/14	122.0	122.5	123.3	24	116.0	117.1	117.7	24	103.7	105.8	107.7	24	102.8	103.3	103.7	24	104.5	105.4	106.1	24
6/15	122.1	122.9	123.4	24	116.0	117.2	117.7	24	100.9	101.2	101.5	24	102.0	102.8	103.4	24	104.3	105.1	105.7	24
6/16	122.2	122.8	123.2	24	117.5	118.9	119.8	24	101.0	101.5	101.7	24	102.2	103.3	104.0	24	104.7	105.7	106.4	24
6/17	122.8	123.0	123.3	24	117.0	117.4	118.0	24	102.0	102.4	102.7	24	102.7	103.4	103.9	24	104.9	105.6	106.4	24
6/18	121.5	121.9	122.2	24	114.9	115.6	116.5	24	101.6	101.8	101.9	24	101.8	102.2	102.6	24	103.8	104.2	104.6	24
6/19	121.1	121.8	122.3	24	114.8	116.4	117.1	24	102.9	103.4	103.7	24	102.2	102.9	103.5	24	104.0	104.7	105.3	24
6/20	---	---	---	0	116.3	118.3	119.2	24	103.0	103.4	103.6	24	102.7	103.8	104.5	24	104.7	105.8	106.4	24
6/21	---	---	---	0	120.1	121.7	122.3	24	101.9	102.4	102.7	24	102.7	103.6	104.3	24	105.1	106.0	106.8	24

### Total Dissolved Gas Saturation Data at Snake River Sites

Date	<u>Clrwr-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	
6/8	101.9	102.7	103.3	24	105.0	105.1	105.2	24	118.8	120.3	120.7	24	112.2	113.1	113.4	24	119.1	121.0	121.8	24
6/9	102.0	102.5	102.9	24	104.2	104.4	104.7	24	120.1	120.3	120.5	24	111.0	112.4	113.0	24	120.2	120.9	121.7	24
6/10	101.6	102.1	102.9	24	103.2	103.3	103.6	24	118.8	119.9	120.1	24	109.9	110.7	111.3	24	115.7	118.2	119.5	24
6/11	102.3	103.6	104.5	24	103.1	103.4	103.7	24	113.1	116.4	120.1	24	112.9	113.6	113.9	24	113.6	114.9	118.3	24
6/12	102.3	103.1	103.6	24	104.3	104.8	105.0	24	112.8	115.4	119.7	24	115.5	116.8	117.6	24	114.7	116.3	119.2	24
6/13	102.6	103.9	105.2	24	104.9	105.1	105.5	24	118.9	119.8	120.2	24	116.8	117.0	117.2	24	118.0	119.3	119.5	24
6/14	102.8	103.8	105.0	24	104.5	104.6	104.9	24	114.3	117.0	117.1	24	113.9	114.5	116.0	24	114.1	114.6	115.2	24
6/15	102.2	103.3	104.2	24	103.3	103.5	104.0	24	111.9	113.9	117.4	24	111.8	112.3	113.8	24	113.3	113.9	114.4	24
6/16	102.3	103.6	104.5	24	103.8	104.3	104.6	24	113.9	117.2	117.9	24	116.0	116.7	117.3	24	113.3	113.9	114.6	24
6/17	103.0	104.1	105.1	24	104.8	105.2	105.5	24	117.6	117.8	118.7	24	115.9	116.1	116.3	24	114.6	115.1	115.2	24
6/18	101.6	102.1	102.7	24	104.5	104.7	104.9	24	117.5	117.6	117.8	24	113.7	114.5	115.2	24	114.3	114.9	115.8	24
6/19	101.9	103.0	103.9	24	103.1	103.4	104.2	24	115.4	118.3	119.7	24	110.9	111.1	111.8	24	114.1	115.1	118.9	24
6/20	102.9	104.5	105.7	24	102.1	102.5	102.8	24	110.0	110.3	110.8	24	111.2	112.1	112.7	24	112.5	113.6	113.8	24
6/21	103.4	104.8	105.9	24	103.8	104.7	105.3	24	112.7	113.7	119.3	24	114.7	116.0	116.7	24	112.8	113.5	114.2	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	
6/8	115.2	116.6	119.1	24	117.3	117.9	118.7	24	113.6	113.8	114.0	24	118.3	119.1	119.3	24	---	---	---	0
6/9	115.2	116.2	116.7	24	117.1	117.8	118.7	24	113.6	113.8	114.0	24	118.3	119.5	120.0	24	---	---	---	0
6/10	115.9	116.2	116.4	24	117.9	118.9	119.3	24	113.4	113.7	114.3	24	117.6	118.2	119.3	24	---	---	---	0
6/11	118.3	119.0	119.6	24	119.5	119.9	120.4	24	115.1	115.6	116.1	24	117.0	117.6	119.0	24	---	---	---	0
6/12	117.9	118.4	119.6	24	119.0	119.8	122.5	24	117.2	117.8	118.2	24	116.4	116.8	117.5	24	---	---	---	0
6/13	115.3	115.9	117.3	24	117.8	118.3	119.2	24	117.6	117.9	118.2	24	116.4	116.7	116.9	24	---	---	---	0
6/14	114.9	115.3	116.2	24	119.1	119.5	120.1	24	116.6	117.0	117.4	24	116.9	117.1	117.6	24	---	---	---	0
6/15	116.8	117.2	117.8	24	117.1	119.2	119.9	24	116.3	116.5	117.2	24	116.6	116.9	117.2	24	---	---	---	0
6/16	115.4	115.7	116.1	24	114.5	114.8	115.4	24	116.6	117.5	118.2	24	116.7	117.3	118.1	24	---	---	---	0
6/17	115.8	116.0	116.0	24	114.1	114.3	115.0	24	117.5	118.0	118.3	24	117.6	118.2	119.3	24	---	---	---	0
6/18	114.3	114.9	115.2	24	113.9	114.1	114.8	24	114.9	115.7	116.3	24	116.7	117.5	117.9	24	---	---	---	0
6/19	112.4	112.6	112.9	24	115.7	117.3	118.9	24	112.1	112.4	113.2	24	117.7	118.2	119.3	24	---	---	---	0
6/20	112.8	113.5	114.7	24	119.1	119.5	119.9	24	112.0	112.6	113.2	24	116.1	117.1	118.7	24	---	---	---	0
6/21	115.3	115.6	115.9	24	116.1	116.6	117.4	24	114.8	115.7	116.5	24	116.1	116.7	117.0	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		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High	
6/8	110.4	111.1	111.4	24	121.8	123.2	123.9	24	106.6	106.8	107.0	24	119.2	119.7	120.1	24	111.8	112.3	112.8	24
6/9	111.1	111.3	111.6	24	121.4	122.9	123.4	24	107.4	107.6	107.8	24	119.7	120.4	120.6	24	110.3	110.7	110.9	24
6/10	110.9	111.8	112.6	24	119.0	119.5	119.8	24	108.1	108.6	108.9	24	119.1	119.2	119.6	24	111.2	112.0	112.3	24
6/11	112.6	113.8	115.3	24	120.6	121.5	122.7	24	109.4	110.3	110.6	24	119.1	119.5	120.2	24	112.8	113.8	114.4	24
6/12	115.8	116.5	116.9	24	120.2	120.3	120.3	24	111.1	111.5	111.7	24	118.8	119.1	119.6	24	114.0	114.4	114.8	24
6/13	114.7	115.0	115.7	24	120.5	121.1	122.0	24	111.2	111.5	111.7	24	119.2	119.7	120.1	24	112.8	113.4	114.2	24
6/14	114.1	114.9	115.6	24	120.3	120.6	121.1	24	111.5	111.9	112.1	24	118.6	119.0	119.3	24	112.1	112.8	113.5	24
6/15	114.8	115.5	116.3	24	120.3	120.8	121.0	24	111.3	111.6	112.0	24	118.9	119.2	119.6	24	113.1	115.0	115.8	24
6/16	116.1	116.9	117.7	24	119.6	119.9	120.0	24	112.3	113.1	113.4	24	117.5	118.4	118.9	24	113.9	114.3	114.9	24
6/17	116.2	116.9	117.5	24	120.1	120.2	120.3	24	114.1	114.4	114.7	24	118.6	118.9	119.0	24	113.4	113.9	115.0	24
6/18	112.5	113.2	114.3	24	120.3	120.8	121.5	24	112.3	113.2	114.0	24	118.5	118.6	118.8	24	112.1	112.5	112.8	24
6/19	111.3	111.6	111.8	24	121.5	122.1	122.5	24	108.8	109.2	109.9	24	119.5	120.4	120.8	24	111.2	111.9	112.1	24
6/20	113.0	114.5	115.8	24	121.7	122.3	122.6	24	107.6	108.0	108.4	24	119.0	119.6	120.2	24	112.6	113.3	114.3	24
6/21	116.5	117.9	119.3	24	121.7	122.3	122.7	24	110.1	111.4	112.2	24	119.0	119.5	119.9	24	113.1	114.0	115.2	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		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High	
6/8	117.9	118.7	119.9	24	117.2	117.7	118.3	24	117.8	118.1	118.8	24	116.6	117.4	118.4	24	121.2	122.3	124.8	24
6/9	118.1	118.7	120.1	24	113.8	114.5	115.8	24	116.4	117.0	117.8	24	115.1	115.4	115.5	24	122.8	123.8	124.9	24
6/10	116.9	117.7	119.0	24	112.3	113.0	114.1	24	114.5	115.1	115.7	24	114.7	115.1	115.4	24	120.9	121.7	124.0	24
6/11	118.7	119.8	120.4	24	114.8	115.4	116.6	24	116.7	117.2	117.7	24	115.5	116.7	117.4	24	122.3	123.4	124.0	24
6/12	120.1	120.5	121.3	24	117.1	117.5	118.0	24	118.7	118.9	119.2	24	117.1	117.9	118.4	24	123.8	124.1	124.3	24
6/13	118.8	119.6	120.1	24	115.7	116.3	117.0	24	118.3	118.5	118.7	24	117.4	117.7	118.0	24	122.9	123.2	123.5	24
6/14	117.5	118.0	118.3	24	113.8	114.3	114.8	24	116.7	117.1	117.4	24	116.6	117.0	117.4	24	123.0	123.4	123.5	24
6/15	117.8	118.8	119.3	24	114.3	115.1	116.1	24	116.4	117.4	117.9	24	115.0	115.8	116.4	24	122.8	124.0	124.1	24
6/16	119.2	119.9	121.8	24	117.3	117.8	118.1	24	118.0	118.4	119.0	24	117.6	119.1	120.4	24	121.5	123.1	124.3	24
6/17	119.4	120.4	122.3	24	116.0	116.9	117.8	24	117.1	117.4	117.5	24	115.9	116.3	116.8	24	121.3	122.0	122.8	24
6/18	118.4	119.1	120.4	24	113.6	114.2	114.8	24	116.7	117.2	117.5	24	114.0	114.5	114.9	24	122.4	123.1	123.3	24
6/19	117.5	118.0	118.6	24	113.4	113.9	114.8	24	117.6	119.2	120.8	24	114.7	115.1	116.1	24	122.7	123.6	124.0	24
6/20	118.4	119.1	119.5	24	116.4	117.5	118.5	24	120.5	121.0	121.3	24	118.5	119.5	120.0	24	123.8	124.0	124.2	24
6/21	118.7	119.1	119.7	24	118.8	119.1	119.3	24	121.2	121.5	121.9	24	119.6	120.9	121.7	24	124.1	124.2	124.3	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)
06/08/2012	---	23	---	---	1,591	592	634	29	8,184	5,769	4,792
06/09/2012	*	10	---	---	1,920	306	410	23	---	4,789	2,098
06/10/2012	---	0	---	---	531	923	857	15	5,894	4,994	1,910
06/11/2012	*	5	---	---	515	1,899	3,562	19	---	2,960	2,662
06/12/2012	*	7	---	---	283	501	704	6	3,713	2,957	1,707
06/13/2012	*	33	---	---	120	1,314	529	2	---	2,201	1,898
06/14/2012	*	10	---	---	387	508	50	2	2,971	2,619	1,508
06/15/2012	*	---	---	---	304	1,292	607	2	---	1,226	1,564
06/16/2012	---	---	---	---	265	576	697	2	1,261	1,751	1,494
06/17/2012	*	---	---	---	0	1,148	369	0	---	1,179	1,419
06/18/2012	---	---	---	---	207	807	291	2	3,805	1,767	750
06/19/2012	*	---	---	---	93	577	213	0	---	1,935	1,068
06/20/2012	---	---	---	---	0	759	159	0	900	1,593	803
06/21/2012	*	---	---	---	67	143	143	0	---	736	587
06/22/2012	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>	<b>0</b>	<b>88</b>	<b>0</b>	<b>0</b>	<b>6,283</b>	<b>11,345</b>	<b>9,225</b>	<b>102</b>	<b>26,728</b>	<b>36,476</b>	<b>24,260</b>
<b># Days:</b>	<b>0</b>	<b>7</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>14</b>
<b>Average:</b>	<b>0</b>	<b>13</b>	<b>0</b>	<b>0</b>	<b>449</b>	<b>810</b>	<b>659</b>	<b>7</b>	<b>3,818</b>	<b>2,605</b>	<b>1,733</b>
<b>YTD</b>	<b>58,098</b>	<b>10,723</b>	<b>26,417</b>	<b>13,494</b>	<b>4,041,945</b>	<b>2,264,072</b>	<b>750,560</b>	<b>25,786</b>	<b>2,175,853</b>	<b>4,278,991</b>	<b>2,529,208</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)
06/08/2012	---	0	---	---	32,311	32,742	11,382	241	11,754	2,666	7,616
06/09/2012	*	0	---	---	55,885	41,062	11,153	132	---	3,840	7,468
06/10/2012	---	0	---	---	30,252	31,130	21,533	468	19,443	4,193	7,738
06/11/2012	*	0	---	---	22,350	32,133	18,415	97	---	6,574	9,440
06/12/2012	*	0	---	---	19,956	27,400	10,373	53	17,189	7,844	10,897
06/13/2012	*	0	---	---	19,246	13,385	5,950	43	---	12,530	13,063
06/14/2012	*	0	---	---	24,761	29,493	10,484	153	14,012	12,968	13,487
06/15/2012	*	---	---	---	40,359	63,285	9,576	409	---	11,012	14,923
06/16/2012	---	---	---	---	38,564	68,147	14,160	156	25,886	15,968	16,284
06/17/2012	*	---	---	---	30,181	46,837	9,850	184	---	12,087	15,920
06/18/2012	---	---	---	---	21,211	15,363	7,043	536	31,743	21,942	14,499
06/19/2012	*	---	---	---	37,981	38,914	17,408	1,179	---	13,292	14,644
06/20/2012	---	---	---	---	31,796	36,066	17,465	923	39,200	17,385	19,512
06/21/2012	*	---	---	---	18,198	35,480	11,410	311	---	15,930	29,677
06/22/2012	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>423,051</b>	<b>511,437</b>	<b>176,202</b>	<b>4,885</b>	<b>159,227</b>	<b>158,231</b>	<b>195,168</b>
<b># Days:</b>	<b>0</b>	<b>7</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>14</b>
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>30,218</b>	<b>36,531</b>	<b>12,586</b>	<b>349</b>	<b>22,747</b>	<b>11,302</b>	<b>13,941</b>
<b>YTD</b>	<b>0</b>	<b>2</b>	<b>67</b>	<b>327</b>	<b>768,139</b>	<b>715,964</b>	<b>239,162</b>	<b>6,954</b>	<b>302,758</b>	<b>189,829</b>	<b>2,601,546</b>

Two-Week Summary of Passage Indices

COMBINED COHO												
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)	
06/08/2012	---	0	---	---	226	338	261	277	3,250	1,704	8,642	
06/09/2012	*	0	---	---	427	204	26	176	---	2,373	3,356	
06/10/2012	---	0	---	---	133	132	7	139	2,673	3,015	2,935	
06/11/2012	*	0	---	---	103	165	297	194	---	1,950	6,502	
06/12/2012	*	0	---	---	40	167	93	144	725	1,569	3,711	
06/13/2012	*	0	---	---	120	82	10	140	---	1,384	2,353	
06/14/2012	*	0	---	---	166	274	80	64	475	1,690	1,621	
06/15/2012	*	---	---	---	76	304	3	51	---	1,044	3,888	
06/16/2012	---	---	---	---	132	144	3	31	227	402	2,737	
06/17/2012	*	---	---	---	86	153	0	8	---	379	2,020	
06/18/2012	---	---	---	---	0	89	17	55	711	904	1,500	
06/19/2012	*	---	---	---	47	165	135	50	---	397	1,383	
06/20/2012	---	---	---	---	0	76	71	23	299	368	1,480	
06/21/2012	*	---	---	---	0	0	0	40	---	205	1,509	
06/22/2012	---	---	---	---	---	---	---	---	---	---	---	
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,556</b>	<b>2,293</b>	<b>1,003</b>	<b>1,392</b>	<b>8,360</b>	<b>17,384</b>	<b>43,637</b>	
<b># Days:</b>	<b>0</b>	<b>7</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>14</b>	
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>111</b>	<b>164</b>	<b>72</b>	<b>99</b>	<b>1,194</b>	<b>1,242</b>	<b>3,117</b>	
<b>YTD</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>80</b>	<b>69,648</b>	<b>78,530</b>	<b>19,565</b>	<b>49,136</b>	<b>144,957</b>	<b>284,618</b>	<b>682,645</b>	

COMBINED STEELHEAD												
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)	
06/08/2012	---	60	---	---	6,939	11,139	2,958	76	1,848	3,627	1,284	
06/09/2012	*	62	---	---	8,106	8,582	3,762	74	---	3,581	1,091	
06/10/2012	---	0	---	---	3,980	10,420	3,045	44	2,127	3,627	1,194	
06/11/2012	*	42	---	---	2,781	10,581	3,177	33	---	2,804	1,486	
06/12/2012	*	87	---	---	3,157	6,263	1,882	28	1,221	1,629	705	
06/13/2012	*	275	---	---	2,072	3,613	2,544	39	---	1,704	613	
06/14/2012	*	386	---	---	4,366	5,277	2,262	30	356	1,404	928	
06/15/2012	*	---	---	---	1,070	4,558	1,118	39	---	1,044	1,608	
06/16/2012	---	---	---	---	893	2,664	1,059	34	797	1,158	634	
06/17/2012	*	---	---	---	1,380	3,138	777	14	---	505	1,058	
06/18/2012	---	---	---	---	1,452	1,077	163	23	358	848	750	
06/19/2012	*	---	---	---	2,048	1,733	540	40	---	1,241	691	
06/20/2012	---	---	---	---	1,310	987	1,497	13	299	756	616	
06/21/2012	*	---	---	---	771	2,289	440	33	---	789	419	
06/22/2012	---	---	---	---	---	---	---	---	---	---	---	
<b>Total:</b>	<b>0</b>	<b>912</b>	<b>0</b>	<b>0</b>	<b>40,325</b>	<b>72,321</b>	<b>25,224</b>	<b>520</b>	<b>7,006</b>	<b>24,717</b>	<b>13,077</b>	
<b># Days:</b>	<b>0</b>	<b>7</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>14</b>	
<b>Average:</b>	<b>0</b>	<b>130</b>	<b>0</b>	<b>0</b>	<b>2,880</b>	<b>5,166</b>	<b>1,802</b>	<b>37</b>	<b>1,001</b>	<b>1,766</b>	<b>934</b>	
<b>YTD</b>	<b>2,722</b>	<b>20,431</b>	<b>2,065</b>	<b>2,311</b>	<b>3,534,542</b>	<b>1,482,977</b>	<b>607,307</b>	<b>16,832</b>	<b>540,864</b>	<b>2,830,488</b>	<b>292,323</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)
06/08/2012	---	0	---	---	75	169	91	0	2,224	1,399	1,027
06/09/2012	*	---	0	---	107	102	20	2	---	690	1,007
06/10/2012	---	0	---	---	0	132	18	2	1,276	1,084	829
06/11/2012	*	---	0	---	103	83	87	12	---	849	773
06/12/2012	*	---	0	---	0	0	100	6	846	784	355
06/13/2012	*	---	0	---	40	0	25	0	---	532	875
06/14/2012	*	---	0	---	0	39	3	0	119	621	523
06/15/2012	*	---	---	---	0	152	3	0	---	331	716
06/16/2012	---	---	---	---	0	72	6	2	0	656	65
06/17/2012	*	---	---	---	0	77	73	0	---	337	397
06/18/2012	---	---	---	---	0	0	3	0	474	292	312
06/19/2012	*	---	---	---	0	82	0	0	---	50	189
06/20/2012	---	---	---	---	0	0	3	4	149	151	340
06/21/2012	*	---	---	---	0	0	0	10	---	29	84
06/22/2012	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>325</b>	<b>908</b>	<b>432</b>	<b>38</b>	<b>5,088</b>	<b>7,805</b>	<b>7,492</b>
<b># Days:</b>	<b>0</b>	<b>7</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>14</b>
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>23</b>	<b>65</b>	<b>31</b>	<b>3</b>	<b>727</b>	<b>558</b>	<b>535</b>
<b>YTD</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>475</b>	<b>43,227</b>	<b>37,020</b>	<b>18,212</b>	<b>46,671</b>	<b>1,128,130</b>	<b>840,650</b>	<b>773,656</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)
06/08/2012	---	0	---	---	50	50	0	0	250	2,500	50
06/09/2012	*	---	0	---	0	0	250	1	---	4,350	25
06/10/2012	---	0	---	---	50	250	150	0	700	6,025	104
06/11/2012	*	---	0	---	0	50	100	0	---	3,155	129
06/12/2012	*	---	0	---	25	100	50	0	1,950	3,103	14
06/13/2012	*	---	0	---	0	100	200	0	---	2,600	118
06/14/2012	*	---	0	---	0	50	0	0	1,050	3,143	86
06/15/2012	*	---	---	---	0	50	150	0	---	2,200	57
06/16/2012	---	---	---	---	0	0	0	1	1,100	2,615	306
06/17/2012	*	---	---	---	0	0	150	1	---	2,575	52
06/18/2012	---	---	---	---	0	300	102	0	1,300	6,494	40
06/19/2012	*	---	---	---	25	0	4	1	---	6,229	100
06/20/2012	---	---	---	---	50	0	0	0	1,400	2,100	8
06/21/2012	*	---	---	---	0	0	0	0	---	2,618	75
06/22/2012	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>200</b>	<b>950</b>	<b>1,156</b>	<b>4</b>	<b>7,750</b>	<b>49,707</b>	<b>1,164</b>
<b># Days:</b>	<b>0</b>	<b>7</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>14</b>
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>68</b>	<b>83</b>	<b>0</b>	<b>1,107</b>	<b>3,551</b>	<b>83</b>
<b>YTD</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6,365</b>	<b>5,399</b>	<b>2,094</b>	<b>90</b>	<b>78,630</b>	<b>310,477</b>	<b>28,632</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 = 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.

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:

6/22/12 9:53 AM

		06/08/12 TO 06/22/12						
		Species						
Site	Data	CH0	CH1	CO	ST	SO	Grand Total	
<b>LGR</b>	Sum of NumberCollected	243,450	3,429	850	21,874	175	269,778	
	Sum of NumberBarged	242,547	3,420	849	20,774	173	267,763	
	Sum of NumberBypassed	67	0	0	1,078	0	1,145	
	Sum of Numbertrucked	0	0	0	0	0	0	
	Sum of SampleMorts	64	0	0	1	0	65	
	Sum of FacilityMorts	772	9	1	17	2	801	
	Sum of ResearchMorts	0	0	0	4	0	4	
	Sum of TotalProjectMorts	836	9	1	22	2	870	
<b>LGS</b>	Sum of NumberCollected	310,815	6,765	1,340	40,615	520	360,055	
	Sum of NumberBarged	310,631	6,753	1,340	40,576	520	359,820	
	Sum of NumberBypassed	5	0	0	0	0	5	
	Sum of Numbertrucked	0	0	0	0	0	0	
	Sum of SampleMorts	6	0	0	3	0	9	
	Sum of FacilityMorts	173	12	0	36	0	221	
	Sum of ResearchMorts	0	0	0	0	0	0	
	Sum of TotalProjectMorts	179	12	0	39	0	230	
<b>LMN</b>	Sum of NumberCollected	111,312	5,779	652	14,308	263	132,314	
	Sum of NumberBarged	105,589	5,774	652	14,189	262	126,466	
	Sum of NumberBypassed	5,542	4	0	87	0	5,633	
	Sum of Numbertrucked	0	0	0	0	0	0	
	Sum of SampleMorts	17	1	0	0	1	19	
	Sum of FacilityMorts	164	0	0	32	0	196	
	Sum of ResearchMorts	0	0	0	0	0	0	
	Sum of TotalProjectMorts	181	1	0	32	1	215	
<b>MCN</b>	Sum of NumberCollected	64,068	11,262	3,525	2,942	2,150	83,947	
	Sum of NumberBarged	0	0	0	0	0	0	
	Sum of NumberBypassed	64,015	11,254	3,525	2,941	2,150	83,885	
	Sum of Numbertrucked	0	0	0	0	0	0	
	Sum of SampleMorts	30	3	0	0	0	33	
	Sum of FacilityMorts	23	5	0	1	0	29	
	Sum of ResearchMorts	0	0	0	0	0	0	
	Sum of TotalProjectMorts	53	8	0	1	0	62	
Total Sum of NumberCollected		729,645	27,235	6,367	79,739	3,108	846,094	
Total Sum of NumberBarged		658,767	15,947	2,841	75,539	955	754,049	
Total Sum of NumberBypassed		69,629	11,258	3,525	4,106	2,150	90,668	
Total Sum of Numbertrucked		0	0	0	0	0	0	
Total Sum of SampleMorts		117	4	0	4	1	126	
Total Sum of FacilityMorts		1,132	26	1	86	2	1,247	
Total Sum of ResearchMorts		0	0	0	4	0	4	
Total Sum of TotalProjectMorts		1,249	30	1	94	3	1,377	



### YTD Transportation Summary

Source: Fish Passage Center

Updated:

6/22/12 9:53 AM

TO: 06/22/12

		Species					
Site	Data	CH0	CH1	CO	SO	ST	Grand Total
<b>LGR</b>	Sum of NumberCollected	496,730	2,693,044	47,560	30,545	2,350,657	5,618,536
	Sum of NumberBarged	483,828	988,612	39,360	29,055	946,920	2,487,775
	Sum of NumberBypassed	11,414	1,702,758	8,165	1,422	1,403,470	3,127,229
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	126	177	2	9	58	372
	Sum of FacilityMorts	1,362	1,422	33	59	174	3,050
	Sum of ResearchMorts	0	75	0	0	35	110
	Sum of TotalProjectMorts	1,488	1,674	35	68	267	3,532
<b>LGS</b>	Sum of NumberCollected	449,361	1,497,249	53,241	25,639	966,479	2,991,969
	Sum of NumberBarged	448,981	1,108,264	51,638	24,944	678,799	2,312,626
	Sum of NumberBypassed	106	388,249	1,601	689	287,507	678,152
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	15	30	0	1	14	60
	Sum of FacilityMorts	259	706	2	5	159	1,131
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	274	736	2	6	173	1,191
<b>LMN</b>	Sum of NumberCollected	155,617	540,585	14,092	13,372	435,952	1,159,618
	Sum of NumberBarged	147,995	528,489	14,063	13,349	425,679	1,129,575
	Sum of NumberBypassed	7,369	11,566	19	13	9,809	28,776
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	28	60	0	3	34	125
	Sum of FacilityMorts	225	470	10	7	133	845
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	253	530	10	10	167	970
<b>MCN</b>	Sum of NumberCollected	130,201	1,038,879	72,575	552,689	247,138	2,041,482
	Sum of NumberBarged	0	0	0	0	0	0
	Sum of NumberBypassed	130,136	1,038,702	72,575	552,615	247,112	2,041,140
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	41	43	0	27	10	121
	Sum of FacilityMorts	24	134	0	47	16	221
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	65	177	0	74	26	342
Total Sum of NumberCollected		1,231,909	5,769,757	187,468	622,245	4,000,226	11,811,605
Total Sum of NumberBarged		1,080,804	2,625,365	105,061	67,348	2,051,398	5,929,976
Total Sum of NumberBypassed		149,025	3,141,275	82,360	554,739	1,947,898	5,875,297
Total Sum of NumberTrucked		0	0	0	0	0	0
Total Sum of SampleMorts		210	310	2	40	116	678
Total Sum of FacilityMorts		1,870	2,732	45	118	482	5,247
Total Sum of ResearchMorts		0	75	0	0	35	110
Total Sum of TotalProjectMorts		2,080	3,117	47	158	633	6,035

Cumulative Adult Passage at Mainstem Dams Through: 06/22

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	06/21	158075	7591	167097	50945	152015	20110	42188	4294	52114	22565	43560	7857	0	0	0	0	0	0
TDA	06/21	117071	7173	124164	40146	112195	16495	29326	2938	31648	14675	32014	5296	0	0	0	0	0	0
JDA	06/21	107655	6755	103401	39823	94492	15370	22112	2330	25451	12480	25112	4545	0	0	0	0	0	0
MCN	06/21	102763	4787	101245	31750	86252	13687	17150	706	19524	9000	19335	3262	0	0	0	0	0	0
IHR	06/21	71957	2905	69306	18161	60108	8392	6751	521	11100	3507	8906	1591	0	0	0	0	0	0
LMN	06/20	68608	2891	69832	18094	58469	7193	6027	378	10480	3386	7434	1051	0	0	0	0	0	0
LGS	06/21	68247	3449	67321	23492	54053	8198	4341	372	6884	3303	5512	1068	0	0	0	0	0	0
LGR	06/21	66366	3525	59342	22063	54084	9639	2818	237	4058	2149	3741	798	0	0	0	0	0	0
PRD	06/19	19495	1015	15246	6030	16630	1325	1883	102	1471	658	2729	128	0	0	0	0	0	0
RIS	06/18	19881	800	13089	8394	14658	2236	481	15	136	218	278	50	0	0	0	0	0	0
RRH	06/18	6564	450	6872	3434	5481	810	0	0	0	0	0	0	0	0	0	0	0	0
WEL	06/20	4902	655	3715	3366	3451	718	0	0	0	0	0	0	0	0	0	0	0	0
WFA	06/18	27937	959	30853	912	42932	840	-	-	-	-	-	-	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	137925	19699	39546	8347	6880	9981	2479	2157	2731
TDA	0	0	0	0	0	0	75301	8318	24515	1989	1964	3234	646	861	1113
JDA	0	0	0	0	0	0	54154	5977	17963	2618	3206	4568	1530	1845	1749
MCN	-1	0	0	0	0	0	30321	1259	7773	2346	2933	3134	1119	1614	1157
IHR	0	0	0	0	0	0	4	17	6	2703	3166	2959	1120	1222	983
LMN	0	0	0	0	0	0	0	3	0	3776	3963	3369	1953	2179	1492
LGS	0	0	0	0	0	0	2	1	1	3996	6270	3456	2317	2182	1509
LGR	0	0	0	0	0	0	0	0	0	8966	12327	10096	3948	5789	3160
PRD	0	0	0	0	0	0	1141	60	1083	152	54	70	0	0	0
RIS	0	0	0	0	0	0	63	5	127	225	73	95	145	50	59
RRH	0	0	0	0	0	0	22	7	65	762	554	303	628	491	208
WEL	0	0	0	0	0	0	16	1	32	132	127	69	105	98	42
WFA	0	0	0	0	0	0	-	-	-	23502	19823	21656	-	-	-

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: 06/22/12

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>											
	06/14/12	Chinook + Steelhead	3	0	0	0.00%	0.00%	0	0	0	0
<b>Little Goose Dam</b>											
	06/11/12	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/18/12	Chinook + Steelhead	99	0	0	0.00%	0.00%	0	0	0	0
<b>Lower Monumental Dam</b>											
	06/13/12	Chinook + Steelhead	83	0	0	0.00%	0.00%	0	0	0	0
	06/20/12	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>McNary Dam</b>											
	06/11/12	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
	06/15/12	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/17/12	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/21/12	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>Bonneville Dam</b>											
	06/09/12	Chinook + Steelhead	29	0	0	0.00%	0.00%	0	0	0	0
	06/12/12	Chinook + Steelhead	79	0	0	0.00%	0.00%	0	0	0	0
	06/16/12	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/19/12	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>Rock Island Dam</b>											
	06/11/12	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
	06/15/12	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/17/12	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/21/12	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0