



## Fish Passage Center

# Weekly Report #12 - 16

June 29, 2012

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### Summary of Events:

**Water Supply:** Precipitation throughout the Columbia Basin has varied between 45% and 243% of average at individual sub-basins over June. Precipitation above The Dalles has been 168% of average over June. Over the 2012 water year, precipitation has ranged between 90% and 122% of average.

**Table 1. Summary of June precipitation and cumulative October through June 25, 2012 precipitation with respect to average (1971-2000), at select locations within the Columbia and Snake River Basins.**

Location	Water Year 2012 June 1-25, 2012		Water Year 2012 October 1, 2011 to June 25, 2012	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia Above Coulee	3.99	200	24.28	121
Snake River Above Ice Harbor	0.92	75	14.81	100
Columbia Above The Dalles	2.50	168	21.72	112
Kootenai	4.55	222	25.06	122
Clark Fork	1.63	101	15.25	110
Flathead	3.92	178	21.68	118
Pend Oreille/Spokane	4.44	243	32.27	120
Central Washington	0.92	172	7.04	90
Snake River Plain	0.36	45	8.72	92
Salmon/Boise/Payette	0.77	63	17.38	100
Clearwater	2.81	135	29.49	112
SW Washington Cascades/Cowlitz	4.06	165	67.59	104
Willamette Valley	3.74	199	61.20	110

Table 2 displays the May 29<sup>th</sup> and June 27<sup>th</sup> Ensemble Streamflow Prediction (ESP) runoff volume forecasts for multiple reservoirs. The June 27<sup>th</sup> forecast at The Dalles between January and July is 128,752 Kaf (120% of average).

**Table 2. May 29<sup>th</sup> and June 27<sup>th</sup> ESP Runoff Volume Forecasts for various reservoirs within the Columbia and Snake River Basins.**

Location	May 29, 2012 ESP		June 27, 2012 ESP	
	% Average (1971 -2000)	Runoff Volume (Kaf)	% Average (1971 -2000)	Runoff Volume (Kaf)
The Dalles (Jan-July)	109	117424	120	128752
Grand Coulee (Jan-July)	113	71280	127	80092
Libby Res. Inflow, MT (Apr-Aug)	117	7281 7155*	139	8699 7240*
Hungry Horse Res. Inflow, MT (Jan-July)	103	2290	120	2676
Lower Granite Res. Inflow (Apr- July)	99	21410	106	22930
Brownlee Res. Inflow (Apr-July)	84	5275	89	5643
Dworshak Res. Inflow (Apr-July)	114	3024 3226*	126	3320 3236*

\* Denotes COE Forecast

Grand Coulee Reservoir is at 1287.4 feet (6-28-12) and refilled 3.3 feet over the last week. Grand Coulee is currently 2.6 feet from full (1290 feet). Outflows at Grand Coulee have ranged between 225.6 and 286.6 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2456.9 feet (6-28-12) and has refilled 7.5 feet last week. Libby is currently 2.1 feet from full (2459 feet). Outflows at Libby Dam have ranged between 34.0-46.0 Kcfs last week.

Hungry Horse is currently at an elevation of 3560.0 feet (6-28-12) and has refilled 0.9 feet last week. Hungry Horse is currently full (3560 feet). Outflows at Hungry Horse have been 13.5-17.5 Kcfs last week.

Dworshak is currently at an elevation of 1599.7 feet (6-28-12) and has refilled 1.2 feet last week. Dworshak is currently 0.3 feet from full (1600 feet). Outflows from Dworshak have been approximately 9.1-11.8 Kcfs over the past week.

The Brownlee Reservoir was at an elevation of 2073.4 feet on June 27<sup>th</sup>, 2012 drafting 2.1 feet last week. Brownlee is currently 3.6 feet from full (2077 feet). Over the last week, outflows at Brownlee have ranged between 19.1 and 21.0 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 portion of the summer period flows at Lower Granite have averaged 82.7 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 384.6 Kcfs over the last week and 341.2 Kcfs over the spring period. Flows at Priest Rapids Dam have averaged 312.6 Kcfs over the last week and 229.8 Kcfs over the spring period.

**Spill:**

The summer spill began on June 21<sup>st</sup> in the Snake River. Spring spill began on April 10<sup>th</sup> at the lower Columbia River projects and continues through June 30<sup>th</sup> at the lower River projects where dates were not modified for research purposes.

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 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 31.2% and 38.4% of daily average flow at this project. At Lower Monumental Dam daily average spill to the gas cap using bulk spill ranged from 17.4 to 22.8 Kcfs. 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.

Project	Day/Night Spill
Lower Granite	18 Kcfs/18 Kcfs
Little Goose	30%/30%
Lower Monumental	17 Kcfs/17 Kcfs
Ice Harbor	“Test-Like”: 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 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, the 30% 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.

Project	Day/Night Spill
McNary	50%/50%
John Day	Testing: 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 Little Goose, Lower Monumental, 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 coho, sockeye, and steelhead at BON continued to decrease this week, when compared to last week. The daily average passage index for yearling Chinook this week was very similar to that for last week. Subyearling Chinook numbers at BON increased substantially this week, with a daily average passage index of nearly 78,000 per day, compared to last week's daily average passage index of about 18,000. One likely explanation for the increased passage of subyearling Chinook at BON is the release of about 2.56 million subyearling fall Chinook from Little White Salmon NFH on June 26<sup>th</sup>. These subyearlings were released into the Little White Salmon River, which meets the Columbia River just above Bonneville Dam. The second powerhouse of BON continued to operate above the mid-range of the 1% efficiency range this week. Descaling rates for subyearling Chinook at BON ranged from 0.9% to 1.9% and mortality rates ranged from 0.6% to 4.8%. Finally, only pacific lamprey macrophthalmia were collected at BON this week. The daily average collection for pacific lamprey macrophthalmia was 109 per day this week, which is close to the daily average collection from last week.

The passage indices for yearling Chinook, steelhead, sockeye, and coho at JDA all continued to decrease this week. This week's daily average passage index for yearling Chinook at JDA was about 660 per day. The daily average passage indices for coho, sockeye, and steelhead this week were all below 500 per day. Passage of subyearling Chinook at JDA continued to increase this week. The daily average passage index for subyearling Chinook at JDA this week was 44,000 per day, compared to about 15,400 per day last week. Lamprey collections at JDA this week were consistent with those from last week. The daily average collection for pacific macrophthalmia at JDA this week was over 3,800 per day. The

daily collection of Pacific ammocoetes at JDA ranged between 0 and 36 per day this week.

At MCN, passage of yearling Chinook and coho continued to decrease this week. The daily average passage indices for sockeye and steelhead this week were similar to those from last week. Subyearling Chinook passage continued to increase this week, when compared to last week. The daily average passage index for subyearling Chinook at MCN this week was over 116,000 per day, compared to about 32,300 per day last week. Pacific lamprey macrophthalmia continue to be the only lamprey juveniles collected at MCN so far this year. The daily average collection for pacific lamprey macrophthalmia at MCN was 1,825 per day, compared to 1,267 per day last week.

Passage for all salmonid species decreased at LGR this week, compared to last week. The daily average passage indices for yearling Chinook and coho were both below 100 per day this week and there were several days when no yearling Chinook and/or coho juveniles were collected at LGR this week. In addition, no sockeye juveniles were collected at LGR this week. The daily average passage index for steelhead at LGR this week was 414 per day. This week's daily average passage index for subyearling Chinook at LGR was about 18,400, which was much lower than last week's daily average passage index of about 31,000 per day. Finally, both pacific lamprey ammocoetes and macrophthalmia were sampled throughout the week this week at LGR.

As with passage at LGR, passage of all salmonid species at LGS decreased this week. The daily average passage index for yearling Chinook at LGS this week was 203 per day, compared to over 758 per day last week. This week's daily average passage index for steelhead at LGS was 732 per day. Last week's daily average passage index for steelhead was about 2,350 per day. The daily average passage index for subyearling Chinook at LGS was about 20,000 per day this week, compared to about 43,400 last week. Both pacific lamprey ammocoetes and macrophthalmia were collected at LGS this week.

Passage of subyearling Chinook, yearling Chinook, sockeye, and steelhead at LMN all decreased this week. The daily average passage index for yearling Chinook at LMN this week was about 230, compared to about 350 per day last week. This week's daily average passage index for subyearling Chinook at LMN was about 9,000 per day, compared to about 12,400 per day last week. Coho passage numbers this week were very

similar to what was seen last week. Finally, only one pacific lamprey macrophthalmia was sampled at LMN this week, which resulted in a collection estimate of 50 macrophthalmia for the June 23<sup>rd</sup> sample.

Passage of subyearling Chinook at RIS decreased this week. The daily average passage index for subyearling Chinook this week was 208 per day, compared to 528 per day last week. Very few yearling Chinook and no sockeye were collected at RIS this week. Passage of coho and steelhead at RIS was very similar this week to what was encountered last week. Only Pacific lamprey macrophthalmia were collected at RIS this week.

Steelhead continued to dominate the collection at the Imnaha River Trap this week. However, daily collections of yearling Chinook and steelhead at this trap have decreased over the past couple of weeks. In recent days, the daily average collection for steelhead at this trap was 29 per day, whereas that for yearling Chinook was only 4 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. Releases of subyearling fall Chinook surrogates to the Clearwater River continued this week. 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 400,000 spring Chinook parr were scheduled for release into the Selway River this week. These spring Chinook parr are unclipped but are tagged with coded-wire-tags and are not expected to out-migrate until spring of 2013. There is only one new release of juvenile salmonids scheduled for this zone over the next two weeks. In mid-July, approximately 10,000 sockeye pre-smolts are going to be released into Redfish Lake. However, these sockeye pre-smolts 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. Last week, our preliminary data indicated that Ringold Springs Hatchery was going to begin their release of about 3.45 million subyearling fall Chinook brights on or around June 20<sup>th</sup>. However, we have since learned that this release did not begin until Wednesday, June 27<sup>th</sup>. This release is expected to run

through early to mid-July. This was the only release that was scheduled for this zone this week. No new releases of juvenile salmonids are scheduled to begin over the next two weeks either. However, several of the volitional releases of coho and summer steelhead juveniles to the Wenatchee and Yakima rivers that began in April and May are scheduled to end throughout the next several weeks.

**Lower Columbia Zone:** The Lower Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to McNary Dam. On Tuesday, June 26<sup>th</sup> just over 2.57 million subyearling fall Chinook brights were released from Little White Salmon NFH into the Little White Salmon River. In addition to the fall Chinook brights that were released this week, Little White Salmon NFH plans to release another 2.0 million fall Chinook brights into the Little White Salmon River on July 3<sup>rd</sup>. This July 3<sup>rd</sup> release is the only new release that is 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 1,307 and 1,522 adult summer Chinook in the last week. The 2012 summer Chinook count of 52,227 is about 77% of the 2011 count and 88.7% of the 10 year average count. The 2012 Bonneville Dam summer Chinook jack count of 6,121 is about 19.4% of the 2011 count and 56.9% of the 10 year average count. At McNary Dam 29,239 adult summer Chinook have been counted. The 2012 McNary adult summer Chinook is about 91.6% of the 2011 and 90.3% of the 10 average counts. The McNary jack summer Chinook count of 1,777 is about 13% of the 2011 count of 13,692 and about 33.7% of the 10 year average count of 5,274. The 2012 adult summer Chinook count at Lower Granite Dam in the Snake River of 6,942 is about 43.6% of the 2011 count and 77.3% of the 10 year average count. The 2012 Lower Granite summer Chinook jack count of 691 is about 11% of the 2011 count and 29.9% of the 10 year average count.

The Bonneville Dam 2012 steelhead count of 11,250 is 1.18 times greater than the 2011 count of 9,524, while being about 75.8% of the 10 year average count of 14,836. The 2012 Bonneville wild adult steelhead count of 3,465 is about 1.10 times greater than the 2011 count of 3,136, while having 74.2% of the 10 year average count of 4,668. In the Snake River, this year's Lower Granite steelhead count of 9,010 is about

72.9% of the 2011 count of 12,350 and 88.2% of the 10 year average of 10,216. The 2012 Lower Granite wild adult steelhead count of 3,964 is about 68.4% of the 2011 count of 5,793, while being about 1.24 times greater than the 10 year average count of 3,186. At Willamette Falls Dam, the 2012 count for steelhead was 26,098, as of June 27th. This year's steelhead count is about 1.18 times greater than the 2011 count of 22,037 and 1.10 times greater than the 10 year average count of 23,629.

Daily adult sockeye passage numbers at Bonneville Dam ranged between 21,073 and 41,573 last week. On 6/26/2012, 41,573 adult sockeye crossed Bonneville Dam. This was the highest recorded daily adult sockeye count. The second highest daily adult sockeye count occurred on 6/23/2010 when 30,374 adult sockeye crossed Bonneville Dam. The 2012 accumulated total adult sockeye count at Bonneville Dam of 334,916, as of 6/28/2012, is about 4.90 times greater than the 2011 count of 70,293 and about 3.95 times greater than the 10 year average count of 87,212. The 2012 McNary Dam adult sockeye count of 128,197 is about 10.49 times greater than the 2011 count of 12,213 and 3.48 times greater than the 10 year average count of 36,878. The Lower Granite Dam 2012 adult sockeye count of 5 is 5 times greater than the 2011 count, while being 55.6% of the 10 year average. As of June 28<sup>th</sup> at Bonneville Dam, the adult shad count was 2,281,046. This year's shad count is about 3.14 times greater than the 2011 count of 725,348, while being 83.1% of the 10 year average count of 2,744,175.

### Hatchery Releases Last Two Weeks

Hatchery Release Summary									
From:		6/15/2012	to	06/28/12					
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
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 <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
U.S. Fish and Wildlife Service <b>U.S. Fish and Wildlife Service Total</b>	Little White Salmon NFH	CH0	FA	2012	2,573,802	06-26-12	06-26-12	Little White Salmon Hatchery	Little White Salmon River
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 <b>Washington Dept. of Fish and Wildlife Total</b>	Ringold Springs Hatchery	CH0	FA	2012	3,450,000	06-27-12	07-10-12	Ringold Springs Hatchery	Mid-Columbia River
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 <b>Yakama Tribe Total</b>	Willard Hatchery	CO	UN	2012	31,533	05-14-12	07-01-12	Rolfings Acclim Pond	Wenatchee River
<b>Grand Total</b>					<b>17,809,285</b>				

### Hatchery Releases Next Two Weeks

Hatchery Release Summary									
From:		6/29/2012	to	7/12/2012					
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
Idaho Dept. of Fish and Game	Eagle Hatchery	SO	UN	2013	10,000	07-12-12	07-12-12	Redfish Lake	Salmon River (ID)
<b>Idaho Dept. of Fish and Game Total</b>					<b>10,000</b>				
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	Nez Perce Tribal Hatchery	CH0	SP	2013	400,000	06-25-12	06-29-12	Meadow Creek - SELW	Selway River
<b>Nez Perce Tribe Total</b>					<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
<b>U.S. Fish and Wildlife Service Total</b>					<b>2,000,000</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	Ringold Springs Hatchery	CH0	FA	2012	3,450,000	06-27-12	07-10-12	Ringold Springs Hatchery	Mid-Columbia River
<b>Washington Dept. of Fish and Wildlife Total</b>					<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	Willard Hatchery	CO	UN	2012	31,533	05-14-12	07-01-12	Rolfings Acclim Pond	Wenatchee River
<b>Yakama Tribe Total</b>					<b>959,701</b>				
<b>Grand Total</b>					<b>6,942,701</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
06/15/2012	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
06/22/2012	225.6	17.7	234.8	65.0	259.9	89.5	267.9	91.2	261.4	75.4	282.6	164.7	285.6	181.5
06/23/2012	226.5	21.1	205.3	50.7	221.9	54.5	226.3	52.9	229.6	66.4	259.3	151.4	268.2	157.4
06/24/2012	246.1	33.2	246.0	80.4	267.3	82.0	269.6	83.6	263.6	72.8	296.1	191.0	304.1	220.3
06/25/2012	278.2	64.1	285.6	145.9	300.5	133.1	310.4	142.0	308.9	119.4	313.6	207.3	309.5	179.5
06/26/2012	283.5	70.0	280.3	147.9	295.3	141.6	308.7	166.0	323.1	137.1	341.4	234.0	354.5	244.8
06/27/2012	279.8	76.1	277.9	137.0	292.3	135.0	298.5	140.3	302.9	112.8	316.3	216.8	328.0	204.0
06/28/2012	286.6	67.0	289.5	144.9	300.7	144.8	311.7	163.2	318.9	135.2	336.4	219.9	338.1	217.2

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

Date	Dworshak		Brownlee Canyon		Hells Granite		Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill	Inflow	Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
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	17.8	20.3	82.3	20.5	81.3	24.2	80.9	17.5	82.6	35.9		
06/22/2012	9.4	0.6	16.8	21.3	81.2	34.5	79.0	30.1	78.5	21.9	80.1	48.5		
06/23/2012	9.5	0.8	18.0	21.9	83.6	34.3	83.9	30.0	83.7	21.6	85.7	67.7		
06/24/2012	9.4	0.8	16.8	20.0	86.1	29.4	85.7	28.7	85.5	20.0	87.0	65.0		
06/25/2012	9.5	0.0	17.2	21.7	83.9	21.1	79.8	25.5	80.8	17.5	84.6	36.1		
06/26/2012	11.4	2.8	16.8	18.9	82.7	38.1	82.0	31.5	82.4	22.8	85.0	62.6		
06/27/2012	11.8	2.4	16.6	21.5	86.4	25.2	84.5	26.8	84.6	18.0	86.0	56.6		
06/28/2012	9.1	0.0	---	---	75.0	19.7	72.4	22.6	72.0	17.4	74.8	55.5		

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

Date	McNary		John Day		The Dalles		Bonneville		PH1	PH2
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill		
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
06/22/2012	364.4	222.6	352.1	140.4	331.1	127.6	346.3	150.6	75.3	108.0
06/23/2012	353.6	216.2	362.5	142.3	344.9	127.9	367.2	169.0	75.6	110.2
06/24/2012	355.8	228.9	356.7	162.4	339.3	140.9	356.4	159.1	75.2	109.7
06/25/2012	394.3	277.9	416.8	173.5	402.0	196.2	409.0	212.3	74.3	110.0
06/26/2012	406.3	297.0	398.0	168.4	376.6	149.3	389.0	197.2	78.2	101.2
06/27/2012	414.4	303.2	432.2	181.9	414.5	179.3	421.0	215.7	73.9	119.0
06/28/2012	403.3	291.9	392.1	160.4	376.5	184.4	399.8	184.3	83.1	120.0



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

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

Date	Hungry H. Dnst			#	Boundary			#	Grand Coulee			#	Grand C. Tlwr			#	Chief Joseph			#
	24 h	12 h			24 h	12 h			24 h	12 h			24 h	12 h			24 h	12 h		
	Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High	
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
6/22	114.7	114.8	115.0	24	129.1	129.5	130.2	20	117.9	118.4	119.0	24	114.9	115.3	116.3	20	114.1	114.6	115.1	24
6/23	114.8	114.8	114.9	24	127.4	128.2	129.2	22	117.9	118.1	118.3	24	115.4	115.8	116.0	22	113.9	114.1	114.4	24
6/24	114.7	114.8	115.0	24	128.5	128.8	129.4	23	118.4	118.6	118.9	24	116.8	117.3	118.6	23	114.3	114.5	114.8	24
6/25	115.9	117.0	117.3	24	128.1	128.6	129.0	22	119.4	120.0	120.2	24	120.8	122.5	123.5	22	115.7	116.4	117.1	24
6/26	117.1	117.2	117.3	24	129.0	129.3	130.0	22	119.9	120.1	120.2	24	122.2	122.8	123.5	22	119.4	120.5	120.9	24
6/27	116.4	116.9	117.0	24	128.5	129.0	129.2	22	119.0	119.3	119.6	24	121.8	122.6	123.8	22	120.6	120.8	120.9	24
6/28	115.0	115.2	115.5	24	129.3	130.0	130.7	23	119.0	119.5	119.7	24	121.7	122.1	122.7	23	121.8	122.6	123.1	24

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

Date	Chief J. Dnst			#	Wells			#	Wells Dwnstrm			#	Rocky Reach			#	Rocky R. Tlwr			#
	24 h	12 h			24 h	12 h			24 h	12 h			24 h	12 h			24 h	12 h		
	Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High	
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
6/22	119.4	120.9	121.3	24	116.0	116.6	118.3	24	125.7	126.4	127.7	24	121.9	122.7	123.2	24	123.2	123.7	124.0	24
6/23	115.7	119.3	120.7	24	115.2	115.9	116.4	24	120.9	123.7	126.0	24	122.3	122.5	122.8	24	121.5	123.6	124.4	24
6/24	118.3	118.8	121.5	24	113.8	114.6	114.9	24	123.2	124.6	125.1	24	118.8	120.2	121.8	24	122.0	122.5	123.2	24
6/25	122.3	123.7	125.7	24	116.8	119.0	121.8	24	129.8	131.5	132.5	24	122.3	125.0	127.2	24	125.0	126.0	127.9	24
6/26	121.7	122.6	124.5	24	119.6	120.4	122.3	24	131.8	132.3	133.0	24	127.9	129.0	129.6	24	127.0	128.3	129.7	24
6/27	120.6	121.1	121.9	24	120.6	121.3	123.2	23	131.7	132.2	132.7	23	129.6	130.9	131.8	24	125.8	126.9	128.6	24
6/28	121.7	121.9	122.6	24	120.9	122.0	122.4	23	132.6	133.3	133.8	23	129.9	130.6	131.2	24	126.9	128.6	129.7	24

### Total Dissolved Gas Saturation at Mid Columbia River Sites

Date	Rock Island			#	Rock I. Tlwr			#	Wanapum			#	Wanapum Tlwr			#	Priest Rapids			#
	24 h	12 h			24 h	12 h			24 h	12 h			24 h	12 h			24 h	12 h		
	Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High	
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	114.5	115.8	116.2	24	127.0	128.9	131.1	24	122.1	124.0	129.1	24
6/21	120.4	121.5	122.6	24	124.6	125.4	126.0	24	118.9	121.2	121.8	24	125.3	126.8	133.0	24	125.7	129.0	130.9	24
6/22	120.9	121.3	121.8	24	125.3	125.9	126.3	24	120.6	121.2	121.6	24	128.3	130.3	134.7	24	123.8	127.0	130.4	24
6/23	121.6	122.7	123.4	24	125.0	126.0	126.2	24	119.7	120.1	120.9	24	127.3	129.6	132.3	24	124.8	128.0	130.4	24
6/24	119.1	119.8	120.4	24	123.2	123.9	124.9	24	119.9	120.9	121.5	24	129.3	130.9	135.6	24	121.1	124.0	125.3	24
6/25	122.9	124.2	125.4	24	127.9	129.0	130.1	24	119.7	120.4	120.8	24	131.1	135.0	138.4	24	128.6	133.1	135.8	24
6/26	127.7	128.2	128.6	24	131.3	131.7	132.2	24	121.1	121.8	123.3	24	134.9	138.5	140.6	24	127.5	131.2	134.2	24
6/27	127.8	128.2	129.0	24	130.7	131.0	131.6	24	125.5	127.3	128.1	24	133.7	137.0	139.6	24	130.9	133.7	135.6	24
6/28	128.8	129.4	129.9	24	131.8	132.2	132.8	24	---	---	---	0	---	---	---	0	---	---	---	0

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

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

Date	<u>Priest R. Dnst</u>			#	<u>Pasco</u>			#	<u>Dworshak</u>			#	<u>Clwrtr-Peck</u>			#	<u>Anatone</u>			#
	<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>		
	Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High	
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	123.8	125.3	126.2	24	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	125.1	126.0	127.0	24	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
6/22	124.8	125.6	126.8	24	118.9	119.8	121.6	24	104.1	105.5	108.8	24	103.2	103.9	104.6	24	104.5	105.2	105.8	24
6/23	125.1	126.1	127.2	24	117.3	117.8	118.3	24	104.0	105.5	107.7	24	103.0	104.2	105.4	24	103.8	104.4	105.2	24
6/24	124.0	125.4	126.4	24	118.1	118.4	118.9	24	103.9	105.6	107.8	24	102.9	103.4	103.8	24	103.8	104.5	105.1	24
6/25	127.1	128.1	129.4	24	119.4	120.6	121.4	24	102.0	102.4	102.6	24	102.5	103.2	103.9	24	104.2	104.9	105.7	24
6/26	126.7	127.4	128.4	24	118.8	119.5	120.3	24	106.6	108.8	109.4	24	103.3	104.7	105.2	24	103.0	103.5	103.6	24
6/27	127.8	128.6	130.1	24	120.8	122.2	122.9	24	106.3	109.8	110.3	24	104.0	104.7	105.2	24	103.8	105.0	105.8	24
6/28	---	---	---	0	121.7	122.3	122.8	24	101.7	102.1	102.4	24	102.3	103.1	103.9	24	104.2	105.0	105.8	24

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

Date	<u>Clwrtr-Lewiston</u>			#	<u>Lower Granite</u>			#	<u>L. Granite Tlwr</u>			#	<u>Little Goose</u>			#	<u>L. Goose Tlwr</u>			#
	<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>		
	Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High	
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
6/22	103.2	104.7	105.9	24	105.5	105.8	106.1	24	117.6	120.0	120.1	24	115.5	116.3	116.5	24	114.3	115.9	116.4	24
6/23	102.4	103.6	104.6	24	105.1	105.3	105.5	24	117.8	120.0	120.2	24	111.5	111.7	112.6	24	113.3	114.5	114.9	24
6/24	103.1	104.4	105.7	24	103.3	103.7	104.6	24	115.8	119.5	120.1	24	110.8	111.3	112.8	24	113.3	114.5	115.0	24
6/25	102.7	103.9	105.0	24	102.8	103.0	103.1	24	112.5	113.7	119.4	24	113.3	113.8	114.4	24	113.1	114.1	116.1	24
6/26	101.5	102.3	103.2	24	102.3	102.6	103.0	24	118.3	119.4	119.7	24	113.1	113.7	114.5	24	114.0	114.9	115.1	24
6/27	104.3	106.0	107.4	24	101.8	102.0	102.2	24	114.2	116.7	120.0	24	110.6	111.0	111.9	24	112.7	113.7	114.8	24
6/28	103.1	104.8	106.0	24	101.5	101.6	101.8	24	112.2	113.2	118.8	24	110.0	110.3	110.8	24	111.4	111.9	114.7	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	
6/15	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
6/22	115.2	115.5	115.6	24	117.8	119.3	120.0	24	117.1	117.4	117.8	24	116.3	117.3	118.0	24	---	---	---	0
6/23	114.0	114.4	114.7	24	117.2	118.4	119.0	24	114.9	115.5	116.3	24	116.7	117.1	117.8	24	---	---	---	0
6/24	113.0	113.7	114.6	24	117.5	118.3	119.3	24	113.0	113.3	113.9	24	116.5	116.9	118.8	24	---	---	---	0
6/25	113.7	114.4	114.9	24	117.5	118.1	118.9	24	114.0	114.5	114.7	24	116.1	116.8	118.7	24	---	---	---	0
6/26	113.1	114.0	115.0	24	117.6	118.1	118.4	24	113.3	113.8	114.6	24	116.8	117.5	117.8	24	---	---	---	0
6/27	111.8	112.1	113.2	24	116.8	117.3	118.5	24	112.3	112.5	112.9	24	116.6	116.9	117.3	24	---	---	---	0
6/28	113.6	114.2	115.2	24	117.5	118.0	119.5	24	113.7	114.2	114.5	24	115.8	116.0	116.1	24	---	---	---	0

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

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

Date	<u>McNary-Wash</u>			# hr	<u>McNary Tlwr</u>			# hr	<u>John Day</u>			# hr	<u>John Day Tlwr</u>			# hr	<u>The Dalles</u>			# hr
	<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24h</u>	<u>12h</u>	High		<u>24h</u>	<u>12h</u>	High		<u>24h</u>	<u>12h</u>	High	
	Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg		
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
6/22	118.6	119.1	119.5	24	121.7	122.5	122.8	24	114.8	115.7	116.0	24	119.0	119.7	120.2	24	112.9	113.5	114.7	24
6/23	115.9	117.0	117.4	24	121.7	122.3	122.5	24	116.3	116.5	116.8	24	119.5	120.0	120.3	24	114.9	115.4	116.0	24
6/24	114.6	114.9	115.4	24	121.9	122.9	125.2	24	114.6	115.3	115.9	24	120.5	121.5	122.5	24	114.8	115.4	116.3	24
6/25	116.3	117.0	117.5	24	123.9	124.8	125.1	24	112.8	113.1	113.4	24	122.6	123.8	124.7	24	115.6	115.9	116.2	24
6/26	115.3	116.1	116.6	24	125.2	127.3	128.5	24	112.1	112.5	113.2	24	121.4	122.6	122.9	24	113.1	114.1	114.9	24
6/27	115.3	116.6	117.6	24	126.0	128.1	131.3	24	113.6	114.9	115.3	24	123.4	125.3	129.0	24	116.7	119.0	121.9	24
6/28	119.6	121.0	121.5	24	125.4	127.2	128.2	24	115.0	115.3	115.6	24	121.0	121.4	122.1	24	115.9	116.6	118.7	24

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

Date	<u>The Dalles Dnst</u>			# hr	<u>Bonneville</u>			# hr	<u>Warrendale</u>			# hr	<u>Camas\Washougal</u>			# hr	<u>Cascade Island</u>			# hr
	<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24h</u>	<u>12h</u>	High		<u>24h</u>	<u>12h</u>	High		<u>24h</u>	<u>12h</u>	High	
	Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg		
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
6/22	118.5	119.4	120.4	24	115.2	116.3	118.1	24	118.7	119.6	120.7	24	118.4	119.0	119.3	24	123.2	123.6	123.9	24
6/23	118.6	119.5	120.2	24	115.3	115.6	115.9	24	119.8	120.3	120.6	24	116.7	117.9	118.7	24	123.3	123.5	123.6	24
6/24	120.1	121.0	121.5	24	115.7	116.1	116.5	24	119.0	119.2	119.7	24	117.3	117.8	118.1	24	123.4	123.7	124.1	24
6/25	121.2	121.6	122.3	24	117.7	118.2	118.3	24	123.4	124.6	125.2	24	119.1	120.6	121.7	24	124.9	125.8	126.8	24
6/26	119.1	119.5	121.0	24	117.0	117.5	118.3	24	122.1	122.8	123.4	24	120.2	121.0	122.1	24	123.8	124.7	125.2	24
6/27	121.2	122.6	124.3	24	118.2	120.2	121.4	23	124.1	125.3	125.9	24	121.4	122.5	123.4	24	125.3	125.7	128.7	24
6/28	122.3	122.8	123.5	24	121.4	121.7	121.8	24	123.8	125.2	125.8	24	122.7	123.4	123.9	24	123.9	124.5	125.3	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)	
06/15/2012	*	---	14	---	---	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	*	---	11	---	---	207	807	291	2	3,805	1,767	750
06/19/2012	*	---	9	---	---	93	577	213	0	---	1,935	1,068
06/20/2012	*	---	12	---	---	0	759	159	0	900	1,593	803
06/21/2012	*	---	10	---	---	67	143	143	0	---	736	587
06/22/2012	*	---	4	---	---	37	233	269	4	1,458	810	1,904
06/23/2012	*	---	---	---	---	211	117	157	0	---	727	422
06/24/2012		---	---	---	---	0	119	239	4	541	757	508
06/25/2012	*	---	2	---	---	144	261	145	0	---	656	220
06/26/2012	*	---	2	---	---	0	416	338	0	352	618	3,054
06/27/2012	*	---	7	---	---	45	276	149	0	---	706	1,122
06/28/2012		---	---	---	---	0	0	307	0	0	342	671
06/29/2012		---	---	---	---	---	---	---	---	---	---	0
<b>Total:</b>		<b>0</b>	<b>71</b>	<b>0</b>	<b>0</b>	<b>1,373</b>	<b>6,724</b>	<b>4,083</b>	<b>14</b>	<b>8,317</b>	<b>14,803</b>	<b>15,586</b>
<b># Days:</b>		<b>0</b>	<b>9</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>98</b>	<b>480</b>	<b>292</b>	<b>1</b>	<b>1,188</b>	<b>1,057</b>	<b>1,039</b>
<b>YTD</b>		<b>58,098</b>	<b>10,794</b>	<b>26,417</b>	<b>13,494</b>	<b>4,042,382</b>	<b>2,265,494</b>	<b>752,164</b>	<b>25,794</b>	<b>2,178,204</b>	<b>4,283,607</b>	<b>2,537,109</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)	
06/15/2012	*	---	0	---	---	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	*	---	0	---	---	21,211	15,363	7,043	536	31,743	21,942	14,499
06/19/2012	*	---	0	---	---	37,981	38,914	17,408	1,179	---	13,292	14,644
06/20/2012	*	---	0	---	---	31,796	36,066	17,465	923	39,200	17,385	19,512
06/21/2012	*	---	0	---	---	18,198	35,480	11,410	311	---	15,930	29,677
06/22/2012	*	---	0	---	---	13,603	12,808	3,242	201	63,706	17,900	39,926
06/23/2012	*	---	---	---	---	9,915	8,774	3,731	253	---	25,601	48,384
06/24/2012		---	---	---	---	17,601	17,012	7,473	226	125,297	34,673	67,038
06/25/2012	*	---	0	---	---	20,022	22,218	6,811	402	---	34,127	80,978
06/26/2012	*	---	0	---	---	23,183	28,066	12,670	255	181,125	48,016	103,507
06/27/2012	*	---	0	---	---	29,490	21,439	13,264	42	---	82,281	83,562
06/28/2012		---	---	---	---	14,810	30,159	16,014	78	94,465	65,409	121,475
06/29/2012		---	---	---	---	---	---	---	---	---	---	94,713
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>346,914</b>	<b>444,568</b>	<b>150,117</b>	<b>5,155</b>	<b>561,422</b>	<b>415,623</b>	<b>765,042</b>
<b># Days:</b>		<b>0</b>	<b>9</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>24,780</b>	<b>31,755</b>	<b>10,723</b>	<b>368</b>	<b>80,203</b>	<b>29,687</b>	<b>51,003</b>
<b>YTD</b>		<b>0</b>	<b>2</b>	<b>67</b>	<b>327</b>	<b>896,763</b>	<b>856,440</b>	<b>302,367</b>	<b>8,411</b>	<b>767,351</b>	<b>497,836</b>	<b>3,241,129</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)	
06/15/2012	*	---	0	---	---	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	---	---	0	89	17	55	711	904	1,500
06/19/2012	*	---	0	---	---	47	165	135	50	---	397	1,383
06/20/2012	*	---	0	---	---	0	76	71	23	299	368	1,480
06/21/2012	*	---	0	---	---	0	0	0	40	---	205	1,509
06/22/2012	*	---	0	---	---	0	0	0	33	263	562	1,608
06/23/2012	*	---	---	---	---	0	0	133	56	---	203	1,954
06/24/2012		---	---	---	---	43	0	82	59	541	205	644
06/25/2012	*	---	0	---	---	36	0	27	19	---	219	656
06/26/2012	*	---	0	---	---	36	38	3	11	0	236	367
06/27/2012	*	---	0	---	---	0	0	0	16	---	88	15
06/28/2012		---	---	---	---	0	0	1	8	0	0	336
06/29/2012		---	---	---	---	---	---	---	---	---	---	324
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>456</b>	<b>969</b>	<b>475</b>	<b>460</b>	<b>2,041</b>	<b>5,212</b>	<b>20,421</b>
<b># Days:</b>		<b>0</b>	<b>9</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>33</b>	<b>69</b>	<b>34</b>	<b>33</b>	<b>292</b>	<b>372</b>	<b>1,361</b>
<b>YTD</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>80</b>	<b>69,763</b>	<b>78,568</b>	<b>19,811</b>	<b>49,338</b>	<b>145,761</b>	<b>286,131</b>	<b>688,549</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)	
06/15/2012	*	---	286	---	---	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	*	---	364	---	---	1,452	1,077	163	23	358	848	750
06/19/2012	*	---	275	---	---	2,048	1,733	540	40	---	1,241	691
06/20/2012	*	---	70	---	---	1,310	987	1,497	13	299	756	616
06/21/2012	*	---	36	---	---	771	2,289	440	33	---	789	419
06/22/2012	*	---	4	---	---	475	1,242	154	16	657	330	402
06/23/2012	*	---	---	---	---	633	731	265	27	---	577	159
06/24/2012		---	---	---	---	812	797	416	15	541	410	644
06/25/2012	*	---	24	---	---	431	672	385	19	---	406	604
06/26/2012	*	---	33	---	---	213	189	319	24	0	316	367
06/27/2012	*	---	29	---	---	135	670	529	48	---	265	369
06/28/2012		---	---	---	---	197	824	399	18	768	342	336
06/29/2012		---	---	---	---	---	---	---	---	---	---	0
<b>Total:</b>		<b>0</b>	<b>1,121</b>	<b>0</b>	<b>0</b>	<b>11,820</b>	<b>21,571</b>	<b>8,061</b>	<b>363</b>	<b>3,420</b>	<b>8,987</b>	<b>8,657</b>
<b># Days:</b>		<b>0</b>	<b>9</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>125</b>	<b>0</b>	<b>0</b>	<b>844</b>	<b>1,541</b>	<b>576</b>	<b>26</b>	<b>489</b>	<b>642</b>	<b>577</b>
<b>YTD</b>		<b>2,722</b>	<b>21,552</b>	<b>2,065</b>	<b>2,311</b>	<b>3,537,438</b>	<b>1,488,102</b>	<b>609,774</b>	<b>16,999</b>	<b>542,830</b>	<b>2,833,134</b>	<b>295,204</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)	
06/15/2012	*	---	0	---	---	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	0	3	0	474	292	312
06/19/2012	*	---	0	---	---	0	82	0	0	---	50	189
06/20/2012	*	---	0	---	---	0	0	3	0	149	151	340
06/21/2012	*	---	0	---	---	0	0	0	0	---	29	84
06/22/2012	*	---	0	---	---	0	0	0	0	394	56	106
06/23/2012	*	---	---	---	---	0	0	1	0	---	117	0
06/24/2012		---	---	---	---	0	0	0	0	0	137	0
06/25/2012	*	---	0	---	---	0	0	26	0	---	73	436
06/26/2012	*	---	0	---	---	0	0	1	0	349	275	0
06/27/2012	*	---	0	---	---	0	0	0	0	---	441	369
06/28/2012		---	---	---	---	0	0	0	0	768	257	0
06/29/2012		---	---	---	---	---	---	---	---	---	---	0
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>383</b>	<b>116</b>	<b>2</b>	<b>2,134</b>	<b>3,202</b>	<b>3,014</b>	
<b># Days:</b>		<b>0</b>	<b>9</b>	<b>0</b>	<b>0</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>27</b>	<b>8</b>	<b>0</b>	<b>305</b>	<b>229</b>	<b>201</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>18,240</b>	<b>46,657</b>	<b>1,129,641</b>	<b>842,006</b>	<b>774,567</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)	
06/15/2012	*	---	0	---	---	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	---	---	0	300	102	0	1,300	6,494	40
06/19/2012	*	---	0	---	---	25	0	4	1	---	6,229	100
06/20/2012	*	---	0	---	---	50	0	0	0	1,400	2,100	8
06/21/2012	*	---	0	---	---	0	0	0	0	---	2,618	75
06/22/2012	*	---	0	---	---	25	100	0	1	800	3,053	158
06/23/2012	*	---	---	---	---	75	0	50	2	---	3,831	150
06/24/2012		---	---	---	---	0	0	0	1	1,700	4,440	16
06/25/2012	*	---	0	---	---	375	0	0	0	---	2,703	133
06/26/2012	*	---	0	---	---	0	0	0	1	1,200	5,139	100
06/27/2012	*	---	0	---	---	25	100	0	1	---	5,093	8
06/28/2012		---	---	---	---	0	50	0	1	3,600	2,700	200
06/29/2012		---	---	---	---	---	---	---	---	---	---	100
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>575</b>	<b>600</b>	<b>456</b>	<b>10</b>	<b>11,100</b>	<b>51,790</b>	<b>1,503</b>
<b># Days:</b>		<b>0</b>	<b>9</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>41</b>	<b>43</b>	<b>33</b>	<b>1</b>	<b>1,586</b>	<b>3,699</b>	<b>100</b>
<b>YTD</b>		<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6,865</b>	<b>5,649</b>	<b>2,144</b>	<b>97</b>	<b>85,930</b>	<b>337,436</b>	<b>29,497</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:

6/29/12 10:00 AM

		06/15/12	TO	06/29/12			
		Species					
Site	Data	CH0	CH1	CO	ST	SO	Grand Total
<b>LGR</b>	Sum of NumberCollected	221,350	875	300	7,253		229,778
	Sum of NumberBarged	220,763	1,044	375	8,765		230,947
	Sum of NumberBypassed	64	0	0	192		256
	Sum of Numbertrucked	0	0	0	0		0
	Sum of SampleMorts	67	1	0	1		69
	Sum of FacilityMorts	361	5	0	11		377
	Sum of ResearchMorts	0	0	0	4		4
	Sum of TotalProjectMorts	428	6	0	16		450
<b>LGS</b>	Sum of NumberCollected	293,290	4,331	625	14,164	250	312,660
	Sum of NumberBarged	287,154	4,584	765	16,269	270	309,042
	Sum of NumberBypassed	8	0	0	0	0	8
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	8	0	0	1	0	9
	Sum of FacilityMorts	141	6	0	18	0	165
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	149	6	0	19	0	174
<b>LMN</b>	Sum of NumberCollected	110,611	2,981	352	5,874	84	119,902
	Sum of NumberBarged	99,630	2,773	405	7,046	86	109,940
	Sum of NumberBypassed	5,566	15	0	33	0	5,614
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	20	1	0	0	0	21
	Sum of FacilityMorts	151	2	0	22	0	175
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	171	3	0	22	0	196
<b>MCN</b>	Sum of NumberCollected	184,962	3,318	800	1,252	700	191,032
	Sum of NumberBarged	0	0	0	0	0	0
	Sum of NumberBypassed	184,856	3,316	800	1,252	699	190,923
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	66	0	0	0	1	67
	Sum of FacilityMorts	40	2	0	0	0	42
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	106	2	0	0	1	109
Total Sum of NumberCollected		810,213	11,505	2,077	28,543	1,034	853,372
Total Sum of NumberBarged		607,547	8,401	1,545	32,080	356	649,929
Total Sum of NumberBypassed		190,494	3,331	800	1,477	699	196,801
Total Sum of Numbertrucked		0	0	0	0	0	0
Total Sum of SampleMorts		161	2	0	2	1	166
Total Sum of FacilityMorts		693	15	0	51	0	759
Total Sum of ResearchMorts		0	0	0	4	0	4
Total Sum of TotalProjectMorts		854	17	0	57	1	929



### YTD Transportation Summary

Source: Fish Passage Center

Updated: 6/29/12 10:00 AM

TO: 06/29/12

		Species					
Site	Data	CH0	CH1	CO	SO	ST	Grand Total
<b>LGR</b>	Sum of NumberCollected	580,080	2,693,319	47,635	30,545	2,352,507	5,704,086
	Sum of NumberBarged	555,664	988,884	39,435	29,055	948,614	2,561,652
	Sum of NumberBypassed	11,437	1,702,758	8,165	1,422	1,403,470	3,127,252
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	153	178	2	9	58	400
	Sum of FacilityMorts	1,546	1,424	33	59	180	3,242
	Sum of ResearchMorts	0	75	0	0	35	110
	Sum of TotalProjectMorts	1,699	1,677	35	68	273	3,752
<b>LGS</b>	Sum of NumberCollected	542,239	1,498,176	53,266	25,639	969,835	3,089,155
	Sum of NumberBarged	520,728	1,109,186	51,663	24,944	681,575	2,388,096
	Sum of NumberBypassed	112	388,249	1,601	689	287,507	678,158
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	20	30	0	1	14	65
	Sum of FacilityMorts	314	711	2	5	165	1,197
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	334	741	2	6	179	1,262
<b>LMN</b>	Sum of NumberCollected	203,581	541,791	14,278	13,394	437,820	1,210,864
	Sum of NumberBarged	181,202	529,457	14,248	13,371	427,230	1,165,508
	Sum of NumberBypassed	10,229	11,578	19	13	9,816	31,655
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	41	60	0	3	34	138
	Sum of FacilityMorts	297	472	10	7	141	927
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	338	532	10	10	175	1,065
<b>MCN</b>	Sum of NumberCollected	277,259	1,039,735	72,875	553,139	247,788	2,190,796
	Sum of NumberBarged	0	0	0	0	0	0
	Sum of NumberBypassed	277,136	1,039,558	72,875	553,064	247,762	2,190,395
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	79	43	0	28	10	160
	Sum of FacilityMorts	44	134	0	47	16	241
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	123	177	0	75	26	401
Total Sum of NumberCollected		1,603,159	5,773,021	188,054	622,717	4,007,950	12,194,901
Total Sum of NumberBarged		1,257,594	2,627,527	105,346	67,370	2,057,419	6,115,256
Total Sum of NumberBypassed		298,914	3,142,143	82,660	555,188	1,948,555	6,027,460
Total Sum of NumberTrucked		0	0	0	0	0	0
Total Sum of SampleMorts		293	311	2	41	116	763
Total Sum of FacilityMorts		2,201	2,741	45	118	502	5,607
Total Sum of ResearchMorts		0	75	0	0	35	110
Total Sum of TotalProjectMorts		2,494	3,127	47	159	653	6,480

Cumulative Adult Passage at Mainstem Dams Through: 06/29

DAM	EndDate	Spring Chinook						Summer Chinook						Fall Chinook					
		2012		2011		10-Yr Avg.		2012		2011		10-Yr Avg.		2012		2011		10-Yr Avg.	
		Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	06/28	158075	7591	167097	50945	152015	20110	52887	6121	68709	31505	59601	10750	0	0	0	0	0	0
TDA	06/28	117071	7173	124164	40146	112195	16495	39222	4291	44282	21365	46898	7704	0	0	0	0	0	0
JDA	06/28	107655	6755	103401	39823	94492	15370	31506	3822	38323	18417	39741	7213	0	0	0	0	0	0
MCN	06/28	102763	4787	101245	31750	86252	13687	29239	1777	31903	13692	32378	5274	0	0	0	0	0	0
IHR	06/28	71957	2905	69306	18161	60108	8392	10245	884	17342	6414	13220	2681	0	0	0	0	0	0
LMN	06/28	68608	2891	69832	18094	58469	7193	10492	786	18398	6951	12950	2202	0	0	0	0	0	0
LGS	06/28	68247	3449	67321	23492	54053	8198	8056	716	24949	8591	10927	2525	0	0	0	0	0	0
LGR	06/28	66366	3525	59342	22063	54084	9639	6942	691	15919	6238	8980	2309	0	0	0	0	0	0
PRD	06/26	19495	1015	15246	6030	16630	1325	5200	187	3769	1079	10440	352	0	0	0	0	0	0
RIS	06/25	19881	800	13089	8394	14658	2236	2670	62	1603	1669	3997	455	0	0	0	0	0	0
RRH	06/25	6641	459	6989	3491	5643	822	368	20	752	382	1408	101	0	0	0	0	0	0
WEL	06/27	5219	697	4095	3931	4446	806	0	0	0	0	0	0	0	0	0	0	0	0
WFA	06/27	31795	1085	36487	1054	46701	913	-	-	-	-	-	-	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	344916	70293	87212	11250	9524	14836	3465	3136	4668
TDA	0	0	0	0	0	0	221082	39941	65371	3093	2697	5489	951	1106	2023
JDA	0	0	0	0	0	0	177354	31880	59569	3428	3664	6644	1854	2003	2458
MCN	-1	0	0	0	0	0	128197	12213	36878	3233	3224	4156	1377	1668	1458
IHR	0	0	0	0	0	0	41	38	46	3091	3230	3402	1196	1228	1078
LMN	0	0	0	0	0	0	19	9	33	4040	4052	3765	2015	2129	1569
LGS	0	0	0	0	0	0	31	7	16	4080	6336	3631	2335	3368	1549
LGR	0	0	0	0	0	0	5	1	9	9010	12350	10216	3964	5793	3186
PRD	0	0	0	0	0	0	12785	1132	10371	200	59	127	0	0	0
RIS	0	0	0	0	0	0	2018	197	2035	247	77	125	156	53	81
RRH	0	0	0	0	0	0	493	103	925	788	565	323	645	499	222
WEL	0	0	0	0	0	0	285	64	698	147	127	79	112	98	47
WFA	0	0	0	0	0	0	-	-	-	26098	22037	23629	-	-	-

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: 06/29/12

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>											
<b>Little Goose Dam</b>											
	06/18/12	Chinook + Steelhead	99	0	0	0.00%	0.00%	0	0	0	0
	06/25/12	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>Lower Monumental Dam</b>											
	06/20/12	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/27/12	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>McNary Dam</b>											
	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
	06/25/12	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>Bonneville Dam</b>											
	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
	06/23/12	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/26/12	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>Rock Island Dam</b>											
	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
	06/25/12	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0