



## Fish Passage Center

# Weekly Report #14 - 15

June 27, 2014

847 NE 19th Ave., Suite 250  
Portland, OR 97232  
phone: (503) 833-3900  
fax: (503) 232-1259

### Summary of Events

#### Water Supply

Precipitation throughout the Columbia Basin has varied between 61% and 157% of average at individual sub-basins over June. Precipitation above The Dalles has been 80% of average over June. Over the 2014 water year, precipitation has ranged between 76% and 101% of average.

**Table 1.** Summary of June precipitation and cumulative October through June 26, 2014, precipitation with respect to average (1971-2000), at select locations within the Columbia and Snake River Basins.

Location	Water Year 2014		Water Year 2014	
	June 1-26, 2014		October 1, 2013 to June 26, 2014	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia above Coulee	2.80	100	29.5	94
Snake River above Ice Harbor	0.88	61	15.4	79
Columbia above The Dalles	1.45	80	19.8	83
Kootenai	2.64	84	31.3	98
Clark Fork	2.13	100	19.2	82
Flathead	4.27	157	30.8	101
Pend Oreille River Basin above Waneta Dam	3.03	125	25.3	90
Salmon River Basin	1.33	62	18.8	76
Upper Snake Tributaries	1.05	70	20.3	88
Clearwater	2.24	87	33.0	91
Willamette River above Portland	1.59	75	50.8	84

Table 2 displays the June 26<sup>th</sup> ESP runoff volume forecasts for multiple reservoirs along with the June COE forecasts at Libby and Dworshak. The June 26<sup>th</sup> ESP forecast at The Dalles between January and July is 107,747 Kaf (106% of average).

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

Location	June 26, 2014, 5-day QPF ESP	
	% Average (1981-2010)	Runoff Volume (Kaf)
The Dalles (Jan-July)	106	107747
Grand Coulee (Jan-July)	109	65041
Libby Res. Inflow, MT (Apr-Aug)	119	6981 7074*
Hungry Horse Res. Inflow, MT (Jan-July)	130	2734
Lower Granite Res. Inflow (Apr-July)	99	19664
Brownlee Res. Inflow (Apr-July)	63	3468
Dworshak Res. Inflow (Apr-July)	125	3012 2933*

\* Denotes COE June Forecast

Grand Coulee Reservoir is at 1286.8 feet (6-26-14) and has drafted 0.8 feet over the last week (3.2 feet from full). Outflows at Grand Coulee have ranged between 173.2 and 177.3 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2441.5 feet (6-26-14) and has refilled 7.0 feet over the previous week (17.5 feet from full). Libby Dam is projected to refill by late July or early August. The daily average outflows at Libby Dam have been 17.0 Kcfs over the last week.

Hungry Horse is currently at an elevation of 3554.7 feet (6-26-14) and has refilled 5.9 feet over the previous week (5.3 feet from full). Outflows at Hungry Horse have increased from 3.0 to 5.7 Kcfs over the last week.

Dworshak is currently at an elevation of 1599.5 feet (6-26-14) and has refilled 5.9 feet over the previous week (0.5 feet from full). Outflows at Dworshak have been 1.5 Kcfs over the last week.

The Brownlee Reservoir was at an elevation of 2076.3 feet on June 26, 2014 (0.7 feet from full). Inflows to Brownlee Dam have ranged between 14.8 and 16.3 Kcfs last week.

The Spring Biological Opinion flow period began on April 3<sup>rd</sup> and ended June 20<sup>th</sup> in the lower Snake River (Lower Granite). According to the April Final Water Supply Forecast (April 8, 2014), the flow objective this spring was 100 Kcfs at Lower Granite. Flows at Lower Granite Dam have averaged 91.8 Kcfs over the spring season.

The Summer Biological Opinion flow period began on June 21<sup>st</sup> in the lower Snake River (Lower Granite). According to the June Final Water Supply Forecast (June 6, 2014), the flow objective this summer is 52 Kcfs at Lower Granite. Flows at Lower Granite Dam have averaged 66.5 Kcfs over the beginning of the summer flow period.

Based on the April Final Water Supply Forecast, the Spring Biological Opinion Flow Objectives are 260 Kcfs at McNary Dam (which began April 10<sup>th</sup>) and 135 Kcfs at Priest Rapids Dam (which began April 10<sup>th</sup>). Flows at McNary Dam averaged 277.9 Kcfs over the last week and 286.4 over the spring period. Flows at Priest Rapids Dam have averaged 203.7 Kcfs over the last week and 184.9 Kcfs over the spring period.

**Spill**

The Snake River projects transitioned to the summer spill program on June 21<sup>st</sup>. At the lower Columbia projects summer spill was initiated on June 16<sup>th</sup>. Summer spill operations throughout the FCRPS will continue until August 31<sup>st</sup>.

Spill equal to 20 Kcfs occurred at Lower Granite Dam on June 20<sup>th</sup> and then was reduced to the summer volume of 18 Kcfs on June 21<sup>st</sup>. Spill at Little Goose Dam averaged close to the 30% of total flow volume as specified in the FOP. At Lower Monumental Dam

spill was 30 Kcfs on June 20<sup>th</sup> and reduced to the summertime 17 Kcfs on June 21<sup>st</sup>. The summertime “test-like” conditions, where spill alternates between 30% instantaneous and 45 Kcfs/Gas Cap, were initiated at Ice Harbor Dam on June 16<sup>th</sup> and will continue until July 13<sup>th</sup>. In general, the net effect of the “test-like” operation is an overall decrease in spill levels during the implementation period.

Project	Spill Level Day/Night
Lower Granite	20 Kcfs/20 Kcfs then 18 Kcfs/18 Kcfs on June 21 <sup>st</sup>
Little Goose	30%/30%
Lower Monumental	Gas Cap/Gas Cap then 17 Kcfs/17 Kcfs on June 21 <sup>st</sup>
Ice Harbor	June 16 to July 13: 30%/30% vs. 45 Kcfs/Gas Cap

At the Middle Columbia River projects, McNary Dam spilled 40% of daily average flow until June 16<sup>th</sup> when it increased to the 50% summer level. At John Day Dam the testing of the 30% and 40% spill levels occurred over the past week. Spill at The Dalles Dam averaged 40% of total daily flow. Bonneville Dam spilled an alternating 85 Kcfs/121 Kcfs and 95 Kcfs/95 Kcfs.

Project	Spill Level Day/Night
McNary	50%/50%
John Day	<b>Testing:</b> 30%/30% vs. 40%/40% until July 20 <sup>th</sup>
The Dalles	40%/40%
Bonneville	85 Kcfs/121 Kcfs and 95 Kcfs/95 Kcfs

New in 2014 is a change in the way the U.S. Army Corps of Engineers will assess whether a project is in compliance with the total dissolved gas variances in place. The States of Oregon and Washington use different methodologies to estimate the 12-hour average TDG. For Oregon, the 12-hour average is based on the 12 highest hourly TDG measurements in a single calendar day (not necessarily consecutive). For Washington, the 12-hour average is based on 12-hour rolling averages. The highest of the rolling averages is what is reported as the 12-hour average for a given day. In 2014, the location of a TDG monitor and/or type of monitor will dictate which of these methodologies is used for compliance monitoring. The Washington methodology will apply to all the lower Snake River projects, as well as the lower Columbia River forebay monitors (since Oregon does not have a forebay TDG

requirement). On any given day the compliance of the tailrace monitors at the lower Columbia River projects will be determined using either the Washington or Oregon methodology, whichever is the most restrictive, and spill may be decreased if needed.

Monitoring for signs of gas bubble trauma (GBT) occurred at Little Goose, Lower Monumental, McNary, Bonneville, and Rock Island dams over the past week. No sites reported GBT signs this past week. The action criterion for GBT is 15% of total fish with any signs of GBT in the fins, or 5% with severe signs (Rank 3 or greater).

### **Smolt Monitoring**

Smolt monitoring is ongoing at all seven SMP dams (BON, JDA, MCN, RIS, LMN, LGS, LGR). The Imnaha River Trap (IMN) is the only trap from the SMP that is still operating for the 2014 season.

Passage of spring migrants (e.g., yearling Chinook, steelhead, coho, and sockeye) was low at all of the SMP sites this week. Subyearling Chinook dominated the collections at all the SMP dam sites this week. When compared to last week, subyearling Chinook passage increased at the Lower Columbia River sites and decreased at the Snake River and Upper Columbia River sites this week.

At Bonneville Dam (BON), subyearling Chinook passage continued to increase this week. The daily average passage index for subyearling Chinook at BON this week was about 11,000 per day. Last week's daily average passage index was about 7,400 per day. Passage of spring migrants remained low this week. Finally, Pacific lamprey ammocoetes were collected on 2 days while macrophthalmia were collected every day this week. This week's daily average collection for Pacific lamprey macrophthalmia at BON was about 100 per day, which is a slight decrease over last week's daily average collection of about 120 per day.

Passage of spring migrants at John Day Dam (JDA) remained low this week. Subyearling Chinook passage increased substantially this week. This week's daily average passage index for subyearling Chinook was about 33,700 per day. Last week's daily average

passage index for subyearling Chinook was only about 9,300 per day. Pacific lamprey ammocoetes were encountered in two of this week's samples while Pacific lamprey macrophthalmia were present every day this week. The daily average collection for Pacific lamprey macrophthalmia this week was about 400 per day, which is a decrease from last week's daily average collection of just over 1,000 per day.

Sampling at McNary Dam (MCN) is every-other-day for the entire 2014 SMP season. Subyearling Chinook passage increased substantially again this week when compared to the previous week. The daily average passage index for subyearling Chinook at MCN this week was about 231,000 per day. Last week's daily average passage index for subyearling Chinook was about 49,000. This increase in passage is largely due to the release of over 10 million hatchery subyearling fall Chinook from Priest Rapids and Ringold Springs hatcheries over the last couple of weeks. Passage of spring migrants decreased again this week. Pacific lamprey macrophthalmia were encountered every day this week. The daily average collection for Pacific lamprey macrophthalmia this week was about 2,800 per day, which is an increase from last week's daily average collection of about 400.

Subyearling Chinook passage at Lower Granite Dam (LGR) decreased this week when compared to last week. This week's daily average passage index for subyearling Chinook at LGR was about 11,300 per day. Last week's daily average passage index for subyearling Chinook was about 22,300 per day. Passage of spring migrants remained low this week. Pacific lamprey ammocoetes were encountered in two of this week's samples and no Pacific lamprey macrophthalmia were encountered at LGR this week.

This week's samples at Little Goose Dam (LGS) were again dominated by subyearling Chinook. This week's daily average passage index for subyearling Chinook was about 10,800 per day, which is a decrease over last week's daily average passage index of about 32,400 per day. Passage of spring migrants was low this week. Pacific lamprey ammocoetes were collected in four of this week's samples while macrophthalmia were collected in only two of this week's samples.

Subyearling Chinook passage also decreased at Lower Monumental Dam (LMN) this week. This week's daily average passage index for subyearling Chinook at LMN was 3,500 per day. Last week's daily average passage index was about 8,700 per day. As with all other SMP sites, passage of spring migrants at LMN was low this week. Only Pacific lamprey macrophthalmia have been collected so far this year at LMN. Pacific macrophthalmia were present in only two of this week's samples.

Subyearling Chinook passage at Rock Island Dam (RIS) decreased this week when compared to last week. This week's daily average passage index for subyearling Chinook was about 200 per day whereas that for last week was about 650 per day. Passage of spring migrants at RIS was very low this week. Finally, one Pacific lamprey macrophthalmia was encountered on each of 3 separate days this week.

The Imnaha River Trap (IMN) is located at river kilometer 7 and is operated by the Nez Perce Tribe. Sampling at IMN is year-round, however the FPC typically receives data only from early March through June. Due to the remote nature of the trap, the Nez Perce Tribe is able to send collection data to the FPC only periodically. Therefore, data for IMN may be several days behind. To date, we have received data through June 24<sup>th</sup>. Steelhead dominated the collections at IMN for the period of June 18<sup>th</sup> to June 24<sup>th</sup>, with a daily average collection of about 30 fish per day. The daily average collection for yearling Chinook during this same period was about 9 fish 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. Approximately 400,000 spring Chinook parr were scheduled for release this week into Meadow Creek, a tributary of the Selway River. Another 300,000 are scheduled to be released directly into the Upper Selway River next week. All of these spring

Chinook parr are 100% unmarked and are not expected to out-migrate until the spring of 2015.

**Mid-Columbia Zone:** The Mid-Columbia Zone encompasses the area of the Columbia River and its tributaries from McNary Dam to Chief Joseph Dam. The volitional release of about 3.45 million subyearling fall Chinook juveniles from Ringold Hatchery that began on June 16<sup>th</sup> was scheduled to end this week. All subyearling fall Chinook released from Ringold Hatchery were expected to be adipose fin clipped.

**Lower Columbia Zone:** The Lower Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to McNary Dam. There were no new releases scheduled for this zone this week. Approximately 6.6 million subyearling fall Chinook brights are scheduled for release into the Little White River beginning on or around July 1<sup>st</sup>. There are no other releases scheduled for this zone over the next 2 weeks.

### Adult Passage

The summer Chinook count began June 1<sup>st</sup> at Bonneville Dam. Daily passage numbers at Bonneville Dam ranged between 2,021 and 2,929 adult summer Chinook in the last week. The 2014 summer Chinook count of 64,526 is about 1.18 times greater than the 2013 count and 1.2 times greater than the 10-year average. The 2014 Bonneville Dam summer Chinook jack count of 12,212 is 74.2% of the 2013 count, while having 1,234 more fish than the 10-year average count. At McNary Dam 35,548 adult summer Chinook have been counted. The 2014 adult summer Chinook count at McNary Dam has 489 more fish than the 2013 count and is about 1.3 times greater than the 10-year average. The 2014 McNary Dam summer Chinook jack count of 5,290 is about 69.1% of the 2013 count, while being about 1.1 times greater than the 10-year average count. The 2014 adult summer Chinook count at Lower Granite Dam in the Snake River of 5,165 is about 1.9 times greater than the 2013 count, while being 81.8% of the 10-year average count. The 2014 Lower Granite



summer Chinook jack count of 1,973 is about 81% of the 2013 count, while having 59 more fish than the 10-year average count.

The 2014 Bonneville Dam adult steelhead count of 13,246 is about 2 times greater than the 2013 count of 6,365 and has 421 more fish than the 10-year average count of 12,825. The 2014 Bonneville Dam adult wild steelhead count of 4,222 is about 2.4 times greater than the 2013 count of 1,734 and has 544 more fish than the 10-year average count of 3,678. Daily adult steelhead counts at Lower Granite Dam ranged from 9 to 19 adults per day last week. This year's Lower Granite steelhead count of 7,725 has 210 more fish than the 2013 count of 7,515, while being about 86.2% of the 10-year average count of 8,963. The 2014 Lower Granite Dam adult wild steelhead count of 3,519 has 267 more fish than the 2013 count of 3,252 and is about 1.1 times greater than the 10-year average count of 3,174. At Willamette Falls, the 2014 count for steelhead was 19,081 as of June 22<sup>nd</sup>. This year's steelhead count is about 1.25 times greater than the 2013 count of 15,221, while being about 93% of the 10-year average count of 20,509.

Daily adult sockeye passage numbers at Bonneville Dam ranged between 14,506 and 30,262 last week. The 2014 adult sockeye count at Bonneville Dam of 224,679 is about 2.5 times greater than the 2013 count and about 2.1 times greater than the 10-year average count. The 2014 McNary Dam adult sockeye count of 78,415 is about 1.9 times greater than the 2013 count of 40,855 and about 2 times greater than the 10-year average count of 38,621. The Lower Granite Dam 2014 adult sockeye count of 16 has one more fish than the 2013 count of 15 and 14 more fish than the 10-year average. As of June 27<sup>th</sup> at Bonneville Dam, the adult shad count was 2,520,690. This year's shad count is about 69.1% of the 2013 count of 3,644,424 and 99.7% of the 10-year average count of 2,526,126.

## *Wanapum Dam Update*

At Wanapum Dam a significant crack (65-feet long by 2-inches wide) was discovered in a spillway monolith (#4) on February 27, 2014. This discovery has led to an emergency drawdown of the Wanapum pool to an elevation range of 541–545 feet, which is over 20 feet below its typical forebay elevation. Preliminary results of an investigation by Grant PUD and its consultants has determined that the primary contributing factor to a fracture developing within the dam's spillway was a mathematical error during the pre-construction design of Wanapum Dam.

The drawdown of Wanapum pool had caused the adult fishways at Wanapum Dam to not be operational. The adult fishways exits had been approximately 10 feet above the forebay water level. Grant County has designed adult fishway retrofits that involve the use of weir boxes and chutes to deliver adult fish into the forebay of Wanapum Dam. On April 15, 2014, the weir and chute retrofit was operational at the left bank fishway. A weir and chute has also been installed at the right bank fishway at Wanapum and was operational on April 26, 2014.

Visual observations of the exit retrofits have been promising. During Wanapum Dam site visits on May 7, May 21, June 4, and June 18, 2014, many fish have been seen passing the left bank fishway weir and chute. During these observations, fish generally pass the left bank weir quickly and there were no signs of stress or mortality upon entry into the forebay. Grant County PUD installed a spiral flume on the left bank fishway that reduces the elevation of the chute outflow from approximately 10 feet down to several feet. At the time of installing the spiral flume at the left bank fishway exit, Grant County also installed a ramp structure leading up to the weir and barriers to prevent jumping outside the structure. Grant PUD has also completed the installation of the spiral flume at the right bank fishway.

The drawdown of Wanapum pool has also had a significant impact on the adult fishways at Rock Island Dam, operated by Chelan PUD. With the lower than normal tailrace levels, Chelan PUD has constructed extensions or denils at several ladder entrances. Chelan County PUD currently has all three denils in place, two at the right bank fishway and one of the left bank fishway.

A little over a month ago, the WDFW had noticed an unusually large percentage of adult fish at the Wells Dam Trap with significant injuries. More recently, the significant injuries seen prior have diminished. The source of these injuries continues to be investigated.

### Hatchery Releases Last Two Weeks

Hatchery Release Summary									
From:	6/13/2014		to		06/26/14				
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH0	SP	2015	400,000	06-25-14	07-01-14	Meadow Creek - SELW	Selway River
<b>Nez Perce Tribe Total</b>					<b>400,000</b>				
Washington Dept. of Fish and Wildlife	Methow Hatchery	ST	SU	2014	100,000	05-05-14	06-15-14	Methow Hatchery	Methow River
Washington Dept. of Fish and Wildlife	Priest Rapids Hatchery	CH0	FA	2014	7,229,543	06-10-14	06-15-14	Priest Rapids Hatchery	Mid-Columbia River
Washington Dept. of Fish and Wildlife	Ringold Springs Hatchery	CH0	FA	2014	3,450,000	06-16-14	06-27-14	Ringold Springs Hatchery	Mid-Columbia River
<b>Washington Dept. of Fish and Wildlife Total</b>					<b>10,779,543</b>				
Yakama Tribe	Eagle Creek NFH	CO	UN	2014	72,750	04-15-14	06-15-14	Easton Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2014	92,105	04-15-14	06-15-14	Holmes Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2014	92,376	04-15-14	06-15-14	Stiles Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2014	94,680	04-15-14	06-15-14	Lost Creek Acclim Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2014	140,342	04-15-14	06-15-14	Easton Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2014	43,408	04-15-14	06-15-14	Yakama River	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2014	108,570	04-15-14	06-15-14	Stiles Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2014	221,567	04-15-14	06-15-14	Prosser Acclim Pond	Yakima River
<b>Yakama Tribe Total</b>					<b>865,798</b>				
<b>Grand Total</b>					<b>12,045,341</b>				

### Hatchery Releases Next Two Weeks

Hatchery Release Summary									
From:	6/27/2014		to		7/10/2014				
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
Nez Perce Tribe	Dworshak NFH	CH0	SP	2015	300,000	07-01-14	07-05-14	Selway River	Clearwater River M F
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH0	SP	2015	400,000	06-25-14	07-01-14	Meadow Creek - SELW	Selway River
<b>Nez Perce Tribe Total</b>					<b>700,000</b>				
U.S. Fish and Wildlife Service	Little White Salmon NFH	CH0	FA	2014	2,000,000	07-01-14	07-01-14	Little White Salmon Hatchery	Little White Salmon River
U.S. Fish and Wildlife Service	Little White Salmon NFH	CH0	FA	2014	2,500,000	07-01-14	07-01-14	Little White Salmon Hatchery	Little White Salmon River
U.S. Fish and Wildlife Service	Willard Hatchery	CH0	FA	2014	<b>2,145,000</b>	07-01-14	07-01-14	Willard Hatchery	Little White Salmon River
<b>U.S. Fish and Wildlife Service Total</b>					<b>6,645,000</b>				
Washington Dept. of Fish and Wildlife	Ringold Springs Hatchery	CH0	FA	2014	3,450,000	06-16-14	06-27-14	Ringold Springs Hatchery	Mid-Columbia River
<b>Washington Dept. of Fish and Wildlife Total</b>					<b>3,450,000</b>				
<b>Grand Total</b>					<b>10,795,000</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
06/13/2014	105.2	0.1	101.8	0.0	133.6	10.0	135.6	12.6	142.9	29.9	143.6	24.9	142.1	19.5
06/14/2014	107.2	0.1	106.5	0.0	123.7	10.0	116.4	12.4	123.2	28.8	124.7	20.0	138.3	20.9
06/15/2014	113.0	0.1	112.9	0.0	117.4	10.0	109.1	11.8	117.8	26.1	119.1	20.1	123.0	21.4
06/16/2014	131.4	0.1	126.9	0.0	141.6	10.0	137.6	13.1	144.3	29.2	132.1	9.4	135.7	23.8
06/17/2014	124.6	0.1	128.2	0.0	149.2	10.0	146.8	13.1	153.4	29.1	153.6	19.8	165.6	24.8
06/18/2014	158.4	0.1	154.9	17.5	171.0	11.2	161.4	24.2	166.1	34.1	155.0	22.2	167.5	25.9
06/19/2014	173.5	1.7	173.3	43.4	197.1	28.7	191.5	32.4	194.4	37.4	188.8	61.7	203.4	78.8
06/20/2014	177.2	2.6	174.2	50.2	193.6	21.4	187.2	23.8	191.0	36.8	180.3	60.4	190.9	73.9
06/21/2014	175.7	0.1	173.7	49.7	195.4	19.3	192.9	24.8	198.6	36.9	194.4	67.9	208.5	84.2
06/22/2014	175.8	0.1	180.8	49.8	199.1	16.1	191.8	17.8	196.4	36.8	191.4	69.8	204.9	80.0
06/23/2014	173.2	0.1	174.9	44.3	195.0	21.4	193.0	27.2	196.9	36.7	196.4	68.4	213.7	81.9
06/24/2014	177.3	6.2	173.6	47.9	183.2	10.0	184.4	17.8	190.6	38.3	188.1	61.9	204.3	76.1
06/25/2014	175.7	4.7	170.8	50.3	191.0	23.3	188.5	16.6	196.5	37.8	188.9	60.4	198.0	72.8
06/26/2014	175.8	0.1	178.1	47.6	195.3	30.2	186.2	16.4	195.9	38.9	191.7	60.4	205.9	75.4

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

Date	Dworshak		Brownlee		Hells Canyon		Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill	Inflow	Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
06/13/2014	1.5	0.0	12.5	9.1	88.5	20.3	85.5	25.6	85.6	24.6	88.1	41.4		
06/14/2014	1.6	0.0	12.1	8.8	82.0	20.2	78.4	23.4	78.3	25.4	80.1	24.3		
06/15/2014	1.5	0.0	13.3	9.1	72.9	20.3	72.0	21.6	72.9	26.2	74.3	46.3		
06/16/2014	1.5	0.0	14.1	14.1	70.1	20.3	66.9	20.1	67.3	28.8	69.0	53.6		
06/17/2014	1.5	0.0	15.8	14.8	72.2	20.4	69.3	20.8	72.4	29.6	76.1	32.2		
06/18/2014	1.5	0.0	15.9	18.1	74.9	20.4	71.5	21.7	71.3	30.0	73.2	24.1		
06/19/2014	1.5	0.0	16.4	17.6	68.6	20.3	66.1	19.7	66.5	29.4	67.7	42.2		
06/20/2014	1.5	0.0	16.3	15.9	67.0	20.5	63.5	19.1	63.0	30.0	64.8	51.2		
06/21/2014	1.5	0.0	16.3	16.0	64.3	19.8	63.9	19.1	63.1	17.6	65.9	29.2		
06/22/2014	1.5	0.0	16.0	16.9	67.8	18.8	67.9	20.3	67.5	17.0	68.6	20.6		
06/23/2014	1.5	0.0	15.8	17.7	67.1	18.8	65.0	19.4	65.8	16.9	69.5	44.2		
06/24/2014	1.5	0.0	15.6	16.4	68.1	18.8	66.5	19.9	63.9	16.9	66.0	48.8		
06/25/2014	1.5	0.0	15.4	15.4	66.0	19.0	64.1	19.1	65.4	16.7	68.8	30.8		
06/26/2014	1.5	0.0	14.8	14.3	65.5	18.8	63.3	19.0	63.8	17.0	65.1	19.4		

**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
06/13/2014	250.7	100.8	239.7	76.2	219.3	87.8	250.9	100.7	31.4	106.5
06/14/2014	243.8	97.7	241.9	96.7	229.2	91.5	244.5	100.0	30.0	102.0
06/15/2014	214.9	86.1	211.9	81.0	198.2	79.3	224.1	100.3	12.6	98.9
06/16/2014	207.4	103.9	208.4	62.2	190.5	76.3	205.2	96.7	1.6	94.5
06/17/2014	253.2	126.8	227.5	71.9	213.2	85.3	229.8	96.0	20.7	100.6
06/18/2014	259.3	129.7	263.9	105.5	250.2	100.2	265.8	91.1	56.4	105.9
06/19/2014	261.9	131.1	251.9	95.9	235.0	93.8	252.6	96.1	41.0	103.1
06/20/2014	260.4	130.5	239.1	72.1	222.2	89.1	245.9	100.3	31.5	101.6
06/21/2014	265.3	133.1	264.7	84.1	246.4	98.4	266.8	95.2	56.0	103.2
06/22/2014	299.0	149.5	299.4	119.4	285.2	113.6	285.4	91.6	74.2	107.1
06/23/2014	291.4	145.9	275.1	105.6	260.7	103.8	284.6	95.1	74.1	102.9
06/24/2014	279.8	140.1	270.0	81.1	253.3	106.6	264.7	99.5	50.1	102.7
06/25/2014	271.2	135.7	281.3	89.0	260.9	104.7	282.0	95.2	72.4	102.0
06/26/2014	278.3	139.3	260.7	104.0	246.2	98.0	266.8	90.9	62.5	100.9

## 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>											
	06/16/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/23/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>Lower Monumental Dam</b>											
	06/18/14	Chinook + Steelhead	50	0	0	0.00%	0.00%	0	0	0	0
	06/25/14	Chinook + Steelhead	38	0	0	0.00%	0.00%	0	0	0	0
<b>McNary Dam</b>											
	06/13/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/15/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/19/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/23/14	Chinook + Steelhead	100	1	0	0.00%	0.00%	0	0	0	0
<b>Bonneville Dam</b>											
	06/14/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/17/14	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
	06/21/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/24/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>Rock Island Dam</b>											
	06/17/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/19/14	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0

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

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

Date	<u>Hungry H. Dnst</u>			#	<u>Boundary</u>			#	<u>Grand Coulee</u>			#	<u>Grand C. Tlwr</u>			#	<u>Chief Joseph</u>			#			
	<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>
	<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>	
6/13	103.7	104.0	104.1	24	---	---	---	0	118.9	119.1	119.4	24	115.1	115.4	116.1	24	116.4	116.5	117.0	24			
6/14	103.2	103.3	103.4	24	---	---	---	0	118.8	118.9	119.3	24	115.2	115.6	116.0	24	116.1	116.5	116.7	24			
6/15	103.3	103.5	103.8	24	---	---	---	0	119.6	119.7	120.0	24	115.9	116.3	116.5	24	116.6	116.9	117.2	24			
6/16	103.5	103.8	104.0	24	---	---	---	0	119.4	119.6	119.9	24	115.8	116.0	116.7	24	115.9	116.1	116.3	24			
6/17	103.2	103.4	103.8	24	---	---	---	0	118.6	119.0	119.2	24	114.8	115.3	115.5	24	114.7	115.1	115.5	24			
6/18	104.0	104.2	104.6	24	---	---	---	0	119.0	119.5	119.7	24	115.2	115.6	116.0	24	115.1	115.8	116.1	24			
6/19	104.2	104.6	105.0	24	---	---	---	0	118.4	118.8	119.2	24	115.5	115.8	116.0	24	115.7	116.0	116.4	24			
6/20	104.3	104.8	105.2	24	---	---	---	0	118.7	119.1	119.3	24	115.7	116.0	116.1	24	115.2	115.3	115.5	24			
6/21	104.7	105.0	105.3	24	---	---	---	0	118.0	118.3	118.8	24	115.7	116.3	116.8	24	115.1	115.4	115.7	24			
6/22	104.8	105.2	105.6	24	---	---	---	0	118.2	118.8	119.0	24	115.7	116.2	116.4	24	115.8	116.5	117.1	24			
6/23	105.1	105.5	106.0	24	---	---	---	0	117.9	118.0	118.2	24	115.9	116.4	116.8	24	116.9	117.3	117.5	24			
6/24	105.5	105.7	106.2	24	---	---	---	0	118.1	118.6	118.8	24	115.8	116.1	116.4	24	116.4	116.6	117.0	24			
6/25	105.1	105.4	105.7	24	---	---	---	0	118.5	118.8	119.0	24	115.9	116.7	117.4	24	116.4	116.8	117.2	24			
6/26	105.6	105.7	105.9	23	---	---	---	0	118.8	119.0	119.4	23	116.7	117.2	117.6	23	116.8	116.9	117.1	23			

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

Date	<u>Chief J. Dnst</u>			#	<u>Wells</u>			#	<u>Wells Dwnstrm</u>			#	<u>Rocky Reach</u>			#	<u>Rocky R. Tlwr</u>			#			
	<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>
	<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>	
6/13	116.2	116.6	117.0	24	113.6	113.6	114.5	12	114.3	114.3	115.2	12	113.2	113.5	114.1	24	114.9	115.7	116.0	24			
6/14	115.2	115.6	116.6	24	113.6	113.8	114.2	18	114.2	114.5	114.9	18	112.2	112.4	112.6	24	113.8	114.6	115.0	24			
6/15	116.2	116.5	116.9	24	114.6	114.9	115.5	19	115.2	115.6	116.3	19	113.0	113.3	113.5	24	113.9	114.4	114.9	24			
6/16	115.3	115.6	116.3	24	113.7	113.7	114.2	13	114.6	114.7	115.3	13	112.6	112.9	113.2	24	114.9	115.9	116.3	24			
6/17	114.3	114.7	115.2	24	113.1	113.2	113.5	15	113.9	114.0	114.1	15	112.3	112.7	113.0	24	115.0	115.8	116.2	24			
6/18	113.9	115.0	115.7	24	113.7	114.1	114.5	18	114.7	115.1	115.6	18	113.0	113.3	113.6	24	117.1	118.2	119.2	24			
6/19	114.7	115.7	116.0	24	113.8	114.0	114.3	17	116.4	116.6	116.9	17	113.4	113.8	114.1	24	118.9	119.7	120.1	24			
6/20	115.8	116.1	116.3	24	114.0	114.2	114.4	18	115.9	116.5	117.2	18	114.5	114.8	115.0	24	119.0	119.7	120.4	24			
6/21	115.8	116.0	116.2	24	113.6	113.8	114.0	22	115.5	115.9	116.3	22	113.6	113.9	114.0	24	117.9	118.7	119.8	24			
6/22	115.9	116.1	116.3	24	114.3	114.5	115.3	16	115.8	116.1	117.2	16	114.6	115.3	115.6	24	117.5	118.2	118.7	24			
6/23	114.7	115.7	115.9	24	115.5	115.8	116.0	18	117.5	117.9	118.2	18	115.4	115.9	116.1	24	119.1	119.6	119.8	24			
6/24	115.3	115.9	116.1	24	115.0	115.1	115.8	14	115.7	115.8	116.6	14	116.0	116.3	116.4	24	118.7	118.9	119.1	24			
6/25	115.8	116.0	116.1	24	115.4	115.9	116.2	19	118.0	119.3	120.3	19	115.3	115.5	115.7	24	118.1	118.6	118.8	24			
6/26	115.4	115.9	116.2	23	116.0	116.2	116.3	17	118.5	118.7	119.5	17	116.5	117.2	117.6	23	118.7	119.4	119.8	23			

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

Date	<u>Rock Island</u>			#	<u>Rock I. Tlwr</u>			#	<u>Wanapum</u>			#	<u>Wanapum Tlwr</u>			#	<u>Priest Rapids</u>			#			
	<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>
	<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>	
6/13	111.9	112.2	112.6	24	110.0	114.9	115.5	24	110.0	110.6	112.3	24	110.6	111.9	120.0	24	110.7	112.0	113.6	24			
6/14	111.3	111.7	112.0	24	103.2	106.5	114.7	24	108.8	109.8	110.7	24	108.9	109.8	110.4	24	107.1	107.3	107.5	24			
6/15	111.4	111.8	112.1	24	100.0	100.0	100.1	24	110.5	111.4	112.3	24	110.1	110.7	111.5	24	107.8	108.2	108.4	24			
6/16	111.2	111.6	112.0	24	107.8	115.0	115.2	24	109.1	109.8	110.1	23	109.0	109.5	109.9	23	107.3	107.7	108.2	23			
6/17	111.4	111.7	112.1	24	114.2	115.2	115.6	24	110.9	111.9	112.3	24	110.6	111.5	111.8	24	107.6	108.4	109.2	24			
6/18	112.8	114.2	115.9	24	114.4	117.1	118.3	22	112.0	113.5	114.0	24	111.9	113.6	116.7	24	109.8	110.2	110.8	24			
6/19	113.5	114.8	116.0	24	116.7	118.6	119.1	24	113.8	115.1	115.7	24	117.2	117.8	118.3	24	114.2	117.0	118.4	24			
6/20	113.9	114.6	115.1	24	117.0	118.6	119.0	24	113.7	114.5	114.8	24	117.5	118.6	119.5	24	115.3	116.3	117.2	24			
6/21	113.7	114.8	116.0	24	116.9	118.7	119.6	24	113.9	115.5	115.9	24	117.6	118.7	118.9	24	115.2	116.5	118.2	24			
6/22	113.7	115.0	115.6	24	116.9	119.3	119.8	24	115.4	116.4	117.0	24	119.0	119.4	119.6	24	118.2	119.0	119.5	24			
6/23	115.1	115.8	116.2	24	117.3	119.6	119.9	24	115.6	116.8	117.7	24	119.2	119.8	120.4	24	118.2	118.8	119.1	24			
6/24	114.8	115.5	116.0	24	118.1	119.7	120.0	24	114.3	115.3	115.7	24	118.0	118.3	118.7	24	116.0	116.4	117.9	24			
6/25	114.7	115.4	115.8	24	116.4	117.0	119.2	24	116.2	117.5	117.8	24	118.7	119.4	119.8	24	116.9	118.2	119.2	24			
6/26	115.1	116.0	116.8	23	116.3	116.9	118.5	23	---	---	---	0	---	---	---	0	---	---	---	0			

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

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

Date	Priest R. Dnst			Pasco			Dworshak			Clrwtr-Peck			Anatone							
	24 h Avg	12 h Avg	High	# hr	24 h Avg	12 h Avg	High	# hr	24 h Avg	12 h Avg	High	# hr	24 h Avg	12 h Avg	High	# hr				
6/13	111.2	111.6	112.6	24	---	---	---	0	104.9	105.6	106.4	24	102.0	102.4	102.7	24	104.5	105.0	105.8	24
6/14	109.2	109.6	110.5	24	---	---	---	0	104.5	104.9	105.2	24	101.9	102.2	102.5	24	104.5	105.0	105.6	24
6/15	109.8	110.4	110.5	24	---	---	---	0	105.7	106.8	107.8	24	102.4	102.9	103.5	24	104.8	105.4	105.9	22
6/16	109.7	110.1	110.6	23	---	---	---	0	106.0	106.8	107.6	24	101.8	102.2	102.5	24	104.1	104.5	105.2	24
6/17	109.7	110.1	110.5	24	---	---	---	0	105.0	105.4	105.7	24	101.1	101.5	101.6	24	103.4	103.8	104.0	24
6/18	110.9	111.1	111.4	24	---	---	---	0	105.5	106.3	107.0	24	101.8	102.3	102.6	24	104.0	104.6	104.9	24
6/19	116.4	116.9	117.3	24	---	---	---	0	106.2	107.5	108.5	24	102.3	103.3	104.1	24	104.4	105.3	106.1	24
6/20	117.0	117.6	118.1	24	---	---	---	0	106.1	107.4	108.6	24	102.3	103.2	103.9	24	103.8	104.4	104.8	24
6/21	117.3	117.9	118.1	24	---	---	---	0	106.1	107.5	108.6	24	102.3	103.3	103.9	24	103.6	104.4	105.2	24
6/22	118.5	118.9	119.1	24	---	---	---	0	106.2	107.6	108.6	24	102.5	103.5	104.2	24	103.7	104.6	105.2	24
6/23	118.9	119.2	119.4	24	---	---	---	0	106.4	107.7	109.0	24	102.6	103.5	104.3	24	103.7	104.6	105.2	24
6/24	117.5	117.8	118.2	24	---	---	---	0	106.1	107.1	108.4	24	102.2	103.0	103.6	24	103.4	104.0	104.5	24
6/25	117.4	117.9	118.6	24	---	---	---	0	106.3	107.5	108.5	24	102.5	103.2	103.7	24	103.5	104.2	104.6	24
6/26	---	---	---	0	---	---	---	0	106.5	107.4	108.3	23	101.9	102.2	102.6	23	103.0	103.4	103.9	23

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

Date	Clrwtr-Lewiston			Lower Granite			L. Granite Tlwr			Little Goose			L. Goose Tlwr							
	24 h Avg	12 h Avg	High	# hr	24 h Avg	12 h Avg	High	# hr	24 h Avg	12 h Avg	High	# hr	24 h Avg	12 h Avg	High	# hr				
6/13	101.8	102.4	103.3	24	104.0	104.2	104.4	24	110.3	110.5	110.9	24	107.8	108.1	108.7	24	112.7	113.0	113.3	24
6/14	101.6	102.1	102.5	24	103.0	103.2	103.5	24	109.9	110.2	110.6	24	106.3	106.4	106.6	24	112.3	112.6	113.1	24
6/15	102.5	103.5	104.1	24	103.0	103.3	103.5	24	110.9	111.4	111.9	24	105.9	106.2	106.3	24	113.4	113.7	114.5	24
6/16	102.0	102.7	103.4	24	103.0	103.1	103.4	24	111.7	112.1	112.8	24	105.9	106.1	106.2	24	112.7	113.6	114.0	24
6/17	100.9	101.2	101.5	24	102.6	102.7	102.8	24	110.7	111.0	111.5	24	105.5	105.7	105.9	24	111.5	112.0	112.1	24
6/18	102.1	103.3	104.5	24	102.6	102.6	102.7	24	110.7	111.0	111.4	24	106.0	106.3	106.8	24	111.5	112.3	114.9	24
6/19	102.9	104.4	105.4	24	102.3	102.4	102.6	24	110.9	111.1	111.6	24	107.5	108.3	108.5	24	110.9	111.4	113.6	24
6/20	102.4	103.5	104.2	24	102.7	103.1	103.4	24	110.7	111.1	113.1	24	108.5	108.7	109.0	24	111.1	111.4	111.7	24
6/21	102.2	103.6	104.6	24	103.6	103.9	104.6	24	114.1	114.9	117.8	24	108.6	109.0	109.1	24	111.2	111.5	112.0	24
6/22	102.4	103.8	104.8	24	104.1	104.2	104.4	24	113.5	114.0	114.4	24	109.4	110.0	110.2	24	111.0	111.2	111.3	24
6/23	102.5	103.9	105.0	24	103.8	104.1	104.4	24	113.0	113.7	115.3	24	110.9	111.5	111.8	24	111.5	111.8	112.3	24
6/24	102.0	102.9	103.6	24	103.0	103.2	103.7	24	112.7	113.5	116.2	24	111.9	112.3	112.7	24	111.8	112.1	112.4	24
6/25	102.4	103.6	104.3	24	103.5	103.7	104.0	24	113.3	113.9	115.1	24	113.4	114.0	114.4	24	112.4	113.0	113.5	24
6/26	101.7	102.3	103.2	23	103.3	103.6	103.9	23	113.3	113.8	114.5	23	114.4	114.7	115.1	23	112.6	112.7	112.9	23

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

Date	Lower Mon.			L. Mon. Tlwr			Ice Harbor			Ice Harbor Tlwr			McNary-Oregon							
	24 h Avg	12 h Avg	High	# hr	24 h Avg	12 h Avg	High	# hr	24 h Avg	12 h Avg	High	# hr	24 h Avg	12 h Avg	High	# hr				
6/13	112.4	113.2	114.0	24	116.5	116.8	117.1	24	113.0	113.5	114.2	24	115.5	116.3	117.8	24	---	---	---	0
6/14	110.5	110.7	111.1	24	117.1	117.3	117.6	24	110.8	111.0	111.6	24	114.0	114.4	115.1	24	---	---	---	0
6/15	110.7	111.0	111.3	24	118.1	118.9	119.4	24	111.1	111.5	111.9	24	115.2	115.9	116.1	24	---	---	---	0
6/16	110.6	110.8	111.0	24	119.4	120.0	121.0	24	111.7	111.9	112.1	24	115.5	115.9	116.1	24	---	---	---	0
6/17	109.8	110.0	110.3	24	119.6	120.2	120.5	24	111.2	111.4	111.9	24	114.3	114.8	115.9	24	---	---	---	0
6/18	109.4	109.6	109.7	24	119.5	120.0	120.5	24	111.7	112.4	113.0	24	114.3	114.9	116.1	24	---	---	---	0
6/19	109.4	109.6	109.8	24	119.2	119.8	120.3	24	113.5	114.1	114.7	24	115.2	115.6	115.9	24	---	---	---	0
6/20	109.9	110.0	110.2	24	119.1	119.5	119.9	24	114.2	114.4	114.6	24	115.4	115.7	115.9	24	---	---	---	0
6/21	109.8	110.0	110.1	24	115.5	115.9	116.9	24	114.0	114.3	114.4	24	114.8	115.7	116.0	24	---	---	---	0
6/22	110.7	111.1	111.3	24	115.5	115.8	116.0	24	114.8	115.3	115.7	24	115.4	115.9	116.2	24	---	---	---	0
6/23	111.9	112.3	112.6	24	115.8	116.3	117.0	24	115.1	115.4	115.5	24	115.5	115.7	116.0	24	---	---	---	0
6/24	112.1	112.3	112.5	24	115.6	115.9	116.2	24	114.0	114.2	114.3	24	115.0	115.7	116.1	24	---	---	---	0
6/25	112.6	113.0	113.2	24	115.6	116.2	116.9	24	114.6	115.0	115.2	24	115.5	115.7	115.9	24	---	---	---	0
6/26	113.1	113.4	113.6	23	115.5	115.8	116.1	23	115.1	115.2	115.4	23	115.7	115.9	116.1	23	---	---	---	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	McNary-Wash			#	McNary Tlwr			#	John Day			#	John Day Tlwr			#	The Dalles			#
	24 h	12 h	High		24 h	12 h	High		24h	12h	High		24h	12h	High		24h	12h	High	
	Avg	Avg	hr		Avg	Avg	hr		Avg	Avg	hr		Avg	Avg	hr		Avg	AVG	High	
6/13	108.5	109.4	110.1	24	116.2	116.3	116.5	24	111.8	112.5	112.8	24	113.1	113.9	114.9	24	109.2	109.3	109.7	24
6/14	106.2	106.4	106.7	24	116.0	116.1	116.4	24	109.1	109.4	109.9	24	114.8	115.4	116.0	24	108.5	109.2	109.5	24
6/15	106.6	106.7	106.9	24	115.5	116.0	116.2	24	107.8	108.2	108.5	24	113.1	113.5	114.2	24	109.2	109.4	109.6	24
6/16	105.9	106.1	106.6	24	115.8	116.1	116.4	24	105.3	105.9	106.7	24	111.5	111.8	112.4	24	107.5	108.3	108.5	24
6/17	105.6	105.7	105.8	24	117.4	118.2	118.9	24	102.9	103.1	103.7	24	111.9	112.8	114.4	24	104.9	105.2	105.5	24
6/18	106.0	106.5	107.2	24	117.5	118.1	118.8	24	102.6	102.9	103.1	24	115.4	116.7	117.4	24	106.3	108.0	109.1	24
6/19	107.1	107.4	107.7	24	117.9	118.4	118.6	24	103.1	103.6	103.9	24	113.9	115.7	116.3	24	109.0	109.5	110.1	24
6/20	108.3	108.4	108.6	24	117.6	117.9	118.3	24	103.7	104.0	104.2	24	110.9	111.3	112.6	24	107.9	108.9	109.6	24
6/21	109.4	110.6	111.8	24	117.9	118.5	118.6	24	105.0	105.7	106.1	24	112.6	113.6	116.4	24	107.5	108.5	109.0	24
6/22	112.0	112.5	113.3	24	118.7	118.9	119.0	24	107.3	108.2	109.0	24	116.0	116.5	116.7	24	110.3	112.1	113.1	24
6/23	113.5	114.0	114.5	24	118.4	118.8	119.1	24	109.4	110.0	110.4	24	115.6	116.9	118.6	24	112.0	112.5	113.0	24
6/24	114.2	114.6	115.0	24	118.8	119.1	119.8	24	109.6	110.1	110.5	24	114.5	115.2	115.9	24	109.9	110.4	111.4	24
6/25	114.5	115.1	115.4	24	118.8	119.0	119.4	24	111.4	112.4	113.0	24	115.6	116.3	118.6	24	111.4	112.5	112.9	24
6/26	114.8	115.1	115.7	23	118.8	119.1	119.6	23	112.2	112.5	112.8	23	116.8	117.6	117.7	23	112.0	112.4	112.8	23

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

Date	The Dalles Dnst			#	Bonneville			#	Warrendale			#	Camas\Washougal			#	Cascade Island			#
	24 h	12 h	High		24 h	12 h	High		24h	12h	High		24h	12h	High		24h	12h	High	
	Avg	Avg	hr		Avg	Avg	hr		Avg	Avg	hr		Avg	Avg	hr		Avg	AVG	High	
6/13	115.5	115.7	116.1	24	111.1	112.0	113.2	24	114.6	115.3	116.1	24	111.5	111.9	112.9	24	117.6	117.7	117.8	24
6/14	115.4	115.7	116.0	24	108.9	109.2	109.7	24	113.6	113.7	113.9	24	111.0	111.4	111.7	24	117.4	117.4	117.6	24
6/15	115.5	115.8	116.0	24	109.7	109.8	109.9	24	114.5	115.0	115.2	24	111.1	111.5	111.7	24	117.4	117.5	117.6	24
6/16	114.6	115.0	115.5	24	109.1	109.5	109.8	24	114.5	114.7	115.0	24	110.8	111.2	111.6	24	116.8	117.0	117.3	24
6/17	113.0	113.3	113.7	24	107.7	108.0	108.6	24	113.4	114.0	114.3	24	110.0	110.3	110.9	24	116.9	117.1	117.3	24
6/18	114.0	114.9	115.4	24	107.4	107.8	108.0	24	111.6	112.1	112.5	24	110.8	111.7	112.6	24	116.2	117.0	119.2	24
6/19	115.9	116.4	116.7	24	109.5	110.7	111.1	24	113.5	114.0	115.5	24	111.1	112.9	114.5	24	116.7	117.8	119.2	24
6/20	115.2	115.7	116.5	24	110.8	110.9	111.2	24	114.5	114.9	115.3	24	111.7	113.2	114.2	24	117.5	117.9	119.1	24
6/21	115.1	115.9	116.5	24	111.2	111.7	111.9	24	113.9	114.3	114.6	24	112.4	113.4	114.1	24	118.0	118.1	118.4	24
6/22	117.3	118.4	118.8	24	112.7	113.3	113.7	24	114.0	114.4	115.8	24	113.0	114.1	114.9	24	117.0	117.8	119.5	24
6/23	117.6	118.0	118.3	24	114.3	114.7	114.9	24	115.5	116.1	117.3	24	113.8	115.1	116.8	24	117.0	118.0	119.6	24
6/24	117.0	117.9	119.5	24	113.1	113.3	113.9	24	115.9	116.5	117.3	24	114.3	116.1	117.3	24	118.1	118.5	118.7	24
6/25	117.0	117.8	118.2	24	114.5	116.1	117.2	24	115.5	116.4	117.0	24	114.3	115.0	115.7	24	119.0	119.3	120.2	24
6/26	117.5	117.8	118.1	23	114.5	115.2	116.2	23	115.5	116.0	116.9	23	114.2	114.5	114.9	23	117.0	117.8	119.6	23

## Two-Week Summary of Passage Indices

Source: Fish Passage Center

Updated: 6/27/2014 7:10

### Two-Week Summary of Passage Indices

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

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

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

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

COMBINED YEARLING CHINOOK											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
06/13/2014 *	---	9	---	---	450	143	632	4	---	474	573
06/14/2014 *	---	25	---	---	720	501	430	10	1,374	479	737
06/15/2014 *	---	40	---	---	438	645	78	5	---	294	293
06/16/2014 *	---	34	---	---	489	718	129	0	903	187	216
06/17/2014 *	---	26	---	---	348	1,077	169	3	---	174	235
06/18/2014 *	---	18	---	---	210	429	86	0	204	305	427
06/19/2014 *	---	10	---	---	483	937	133	2	---	406	346
06/20/2014 *	---	6	---	---	360	358	97	2	410	157	513
06/21/2014 *	---	5	---	---	111	143	69	0	---	126	310
06/22/2014 *	---	---	---	---	210	286	27	4	0	346	183
06/23/2014 *	---	4	---	---	379	143	27	0	---	125	157
06/24/2014 *	---	8	---	---	386	185	14	0	1,222	312	315
06/25/2014 *	---	---	---	---	35	158	40	2	---	477	21
06/26/2014	---	---	---	---	175	201	14	0	0	598	53
06/27/2014	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>	<b>0</b>	<b>185</b>	<b>0</b>	<b>0</b>	<b>4,794</b>	<b>5,924</b>	<b>1,945</b>	<b>32</b>	<b>4,113</b>	<b>4,460</b>	<b>4,379</b>
<b># Days:</b>	<b>0</b>	<b>11</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>17</b>	<b>0</b>	<b>0</b>	<b>342</b>	<b>423</b>	<b>139</b>	<b>2</b>	<b>588</b>	<b>319</b>	<b>313</b>
<b>YTD</b>	<b>65,404</b>	<b>63,498</b>	<b>25,420</b>	<b>10,159</b>	<b>4,806,339</b>	<b>2,838,181</b>	<b>1,968,716</b>	<b>26,423</b>	<b>2,020,009</b>	<b>2,314,380</b>	<b>2,148,877</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)
06/13/2014 *	---	0	---	---	16,224	9,098	8,076	312	---	8,715	6,591
06/14/2014 *	---	0	---	---	17,253	45,593	11,929	272	31,152	9,875	11,969
06/15/2014 *	---	0	---	---	26,864	18,492	13,022	352	---	9,058	5,542
06/16/2014 *	---	2	---	---	17,464	27,293	12,303	510	55,354	6,238	6,822
06/17/2014 *	---	0	---	---	16,284	39,046	5,745	543	---	11,562	7,176
06/18/2014 *	---	0	---	---	29,320	45,376	5,167	1,359	60,611	9,554	6,882
06/19/2014 *	---	1	---	---	32,808	41,869	4,660	1,225	---	9,912	6,913
06/20/2014 *	---	0	---	---	15,554	16,044	5,504	393	73,499	14,691	8,861
06/21/2014 *	---	0	---	---	11,359	11,041	8,031	313	---	24,740	10,137
06/22/2014 *	---	---	---	---	10,862	11,273	4,667	206	107,689	24,399	7,722
06/23/2014 *	---	0	---	---	6,995	11,692	2,082	51	---	20,744	14,804
06/24/2014 *	---	0	---	---	9,151	9,905	1,031	102	229,356	28,010	11,700
06/25/2014 *	---	---	---	---	8,751	6,358	1,636	161	---	42,534	10,004
06/26/2014	---	---	---	---	16,635	9,510	1,275	221	515,033	80,677	13,749
06/27/2014	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>235,524</b>	<b>302,590</b>	<b>85,128</b>	<b>6,020</b>	<b>1,072,694</b>	<b>300,709</b>	<b>128,872</b>
<b># Days:</b>	<b>0</b>	<b>11</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>16,823</b>	<b>21,614</b>	<b>6,081</b>	<b>430</b>	<b>153,242</b>	<b>21,479</b>	<b>9,205</b>
<b>YTD</b>	<b>0</b>	<b>22</b>	<b>4</b>	<b>332</b>	<b>727,538</b>	<b>788,146</b>	<b>275,663</b>	<b>16,003</b>	<b>1,272,066</b>	<b>476,775</b>	<b>2,047,770</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)	
06/13/2014	*	---	0	---	---	32	0	0	94	---	117	669
06/14/2014	*	---	0	---	---	0	64	0	93	678	211	1,013
06/15/2014	*	---	0	---	---	0	0	0	75	---	147	619
06/16/2014	*	---	0	---	---	0	0	0	65	1,068	93	173
06/17/2014	*	---	0	---	---	0	0	0	50	---	150	206
06/18/2014	*	---	0	---	---	70	72	0	23	612	349	191
06/19/2014	*	---	0	---	---	0	0	0	56	---	42	494
06/20/2014	*	---	0	---	---	0	0	0	31	613	156	752
06/21/2014	*	---	0	---	---	0	0	0	13	---	72	587
06/22/2014	*	---	---	---	---	0	0	0	13	204	115	325
06/23/2014	*	---	0	---	---	0	36	0	16	---	42	523
06/24/2014	*	---	0	---	---	0	0	0	11	0	39	577
06/25/2014	*	---	---	---	---	0	29	0	24	---	191	291
06/26/2014	*	---	---	---	---	0	0	0	28	0	0	374
06/27/2014	*	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>102</b>	<b>201</b>	<b>0</b>	<b>592</b>	<b>3,175</b>	<b>1,724</b>	<b>6,794</b>
<b># Days:</b>		<b>0</b>	<b>11</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>7</b>	<b>14</b>	<b>0</b>	<b>42</b>	<b>454</b>	<b>123</b>	<b>485</b>
<b>YTD</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>267</b>	<b>74,133</b>	<b>59,431</b>	<b>27,309</b>	<b>66,331</b>	<b>146,639</b>	<b>224,722</b>	<b>775,136</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)	
06/13/2014	*	---	68	---	---	1,574	1,289	632	24	---	298	764
06/14/2014	*	---	103	---	---	3,339	1,116	466	21	1,359	38	322
06/15/2014	*	---	75	---	---	1,313	1,003	504	18	---	189	487
06/16/2014	*	---	52	---	---	978	1,148	686	17	1,070	202	173
06/17/2014	*	---	44	---	---	1,253	1,731	591	41	---	150	89
06/18/2014	*	---	45	---	---	1,894	2,149	221	14	1,022	372	273
06/19/2014	*	---	47	---	---	898	1,955	222	31	---	167	148
06/20/2014	*	---	32	---	---	504	716	390	19	1,633	137	342
06/21/2014	*	---	25	---	---	518	789	364	6	---	127	859
06/22/2014	*	---	---	---	---	701	1,218	80	7	1,020	220	640
06/23/2014	*	---	22	---	---	620	395	94	18	---	167	366
06/24/2014	*	---	11	---	---	456	384	41	4	819	39	630
06/25/2014	*	---	---	---	---	796	752	148	9	---	96	747
06/26/2014	*	---	---	---	---	734	574	41	6	407	228	428
06/27/2014	*	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>524</b>	<b>0</b>	<b>0</b>	<b>15,578</b>	<b>15,219</b>	<b>4,480</b>	<b>235</b>	<b>7,330</b>	<b>2,430</b>	<b>6,268</b>
<b># Days:</b>		<b>0</b>	<b>11</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>48</b>	<b>0</b>	<b>0</b>	<b>1,113</b>	<b>1,087</b>	<b>320</b>	<b>17</b>	<b>1,047</b>	<b>174</b>	<b>448</b>
<b>YTD</b>		<b>2,080</b>	<b>43,377</b>	<b>4,243</b>	<b>12,842</b>	<b>3,373,073</b>	<b>1,971,986</b>	<b>1,181,894</b>	<b>27,307</b>	<b>582,801</b>	<b>1,031,691</b>	<b>455,900</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)
06/13/2014 *	---	0	---	---	32	0	0	9	---	289	382
06/14/2014 *	---	0	---	---	98	0	36	10	508	306	644
06/15/2014 *	---	0	---	---	34	72	0	8	---	189	372
06/16/2014 *	---	0	---	---	0	0	0	5	1,780	156	259
06/17/2014 *	---	0	---	---	0	0	0	3	---	212	178
06/18/2014 *	---	0	---	---	140	147	0	4	1,022	131	209
06/19/2014 *	---	0	---	---	69	72	44	8	---	84	148
06/20/2014 *	---	0	---	---	72	215	49	4	408	98	239
06/21/2014 *	---	0	---	---	0	0	0	4	---	90	142
06/22/2014 *	---	---	---	---	35	107	13	2	408	154	234
06/23/2014 *	---	0	---	---	34	36	0	0	---	167	52
06/24/2014	---	0	---	---	35	36	14	4	0	78	105
06/25/2014 *	---	---	---	---	35	86	0	2	---	143	145
06/26/2014	---	---	---	---	105	0	41	4	0	304	107
06/27/2014	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>689</b>	<b>771</b>	<b>197</b>	<b>67</b>	<b>4,126</b>	<b>2,401</b>	<b>3,216</b>
<b># Days:</b>		<b>0</b>	<b>11</b>	<b>0</b>	<b>0</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>49</b>	<b>55</b>	<b>14</b>	<b>5</b>	<b>589</b>	<b>172</b>	<b>230</b>
<b>YTD</b>		<b>0</b>	<b>0</b>	<b>2</b>	<b>181,455</b>	<b>87,909</b>	<b>69,454</b>	<b>37,833</b>	<b>1,492,494</b>	<b>576,506</b>	<b>586,374</b>

COMBINED LAMPREY JUVENILES											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR <sup>†</sup> (Samp)	LGS (Coll)	LMN (Coll)	RIS (Coll)	MCN (Coll)	JDA (Coll)	BO2 (Coll)
06/13/2014 *	---	0	---	---	0	100	50	0	---	1,066	120
06/14/2014 *	---	0	---	---	0	100	125	2	500	1,338	280
06/15/2014 *	---	0	---	---	2	200	0	0	---	938	61
06/16/2014 *	---	0	---	---	0	0	0	0	300	1,050	100
06/17/2014 *	---	0	---	---	2	0	0	0	---	1,136	100
06/18/2014 *	---	0	---	---	0	50	0	0	600	1,086	116
06/19/2014 *	---	0	---	---	1	4,650	0	2	---	675	80
06/20/2014 *	---	0	---	---	0	1,150	0	0	1,500	575	143
06/21/2014 *	---	0	---	---	0	250	0	1	---	463	180
06/22/2014 *	---	---	---	---	2	125	0	0	300	450	124
06/23/2014 *	---	0	---	---	1	0	10	1	---	325	60
06/24/2014	---	0	---	---	0	0	10	1	8,200	525	120
06/25/2014 *	---	---	---	---	0	25	0	0	---	200	68
06/26/2014	---	---	---	---	0	0	0	0	1,200	300	60
06/27/2014	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>6,650</b>	<b>195</b>	<b>7</b>	<b>12,600</b>	<b>10,127</b>	<b>1,612</b>
<b># Days:</b>		<b>0</b>	<b>11</b>	<b>0</b>	<b>0</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>1</b>	<b>475</b>	<b>14</b>	<b>1</b>	<b>1,800</b>	<b>723</b>	<b>115</b>
<b>YTD</b>		<b>1</b>	<b>3</b>	<b>0</b>	<b>104</b>	<b>19,513</b>	<b>29,412</b>	<b>35</b>	<b>40,855</b>	<b>87,138</b>	<b>16,656</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:

Sample counts (Samp) are provided for juvenile lamprey at LGR. See note below for details †.

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.

† In 2013 it was confirmed that juvenile lamprey can escape the sample tank at LGR which would lead to unreliable estimates of collection.

Therefore, only sample counts are provided in this report.

### 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.

Fall (post SMP season) trapping at the Imnaha River Fish Trap (IMN) is funded by the Lower Snake River Compensation Program (LSRCP)

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

## Two Week Transportation Summary

Source: Fish Passage Center

Updated:

6/27/14 7:09 AM

**06/13/14 TO 06/27/14**

		Species						
Site	Data	CH0	CH1	CO	ST	SO	Grand Total	
<b>LGR</b>	Sum of NumberCollected	170,650	3,500		75	11,425	500	186,150
	Sum of NumberBarged	164,470	4,206		74	11,672	423	180,845
	Sum of NumberBypassed	721	0		0	204	0	925
	Sum of Numbertrucked	0	0		0	0	0	0
	Sum of SampleMorts	48	2		0	1	1	52
	Sum of FacilityMorts	647	15		1	14	2	679
	Sum of ResearchMorts	0	0		0	0	0	0
	Sum of TotalProjectMorts	695	17		1	15	3	731
<b>LGS</b>	Sum of NumberCollected	211,072	4,131		140	10,616	538	226,497
	Sum of NumberBarged	214,123	4,140		140	11,144	533	230,080
	Sum of NumberBypassed	17	0		0	0	0	17
	Sum of Numbertrucked	0	0		0	0	0	0
	Sum of SampleMorts	20	0		0	1	0	21
	Sum of FacilityMorts	460	1		0	19	5	485
	Sum of ResearchMorts	0	0		0	0	0	0
	Sum of TotalProjectMorts	480	1		0	20	5	506
<b>LMN</b>	Sum of NumberCollected	54,085	1,280			2,813	125	58,303
	Sum of NumberBarged	61,314	1,469			3,260	95	66,138
	Sum of NumberBypassed	75	0			13	0	88
	Sum of Numbertrucked	0	0			0	0	0
	Sum of SampleMorts	3	0			0	0	3
	Sum of FacilityMorts	48	1			12	0	61
	Sum of ResearchMorts	0	0			0	0	0
	Sum of TotalProjectMorts	51	1			12	0	64
<b>Total Sum of NumberCollected</b>		<b>435,807</b>	<b>8,911</b>		<b>215</b>	<b>24,854</b>	<b>1,163</b>	<b>470,950</b>
<b>Total Sum of NumberBarged</b>		<b>439,907</b>	<b>9,815</b>		<b>214</b>	<b>26,076</b>	<b>1,051</b>	<b>477,063</b>
<b>Total Sum of NumberBypassed</b>		<b>813</b>	<b>0</b>		<b>0</b>	<b>217</b>	<b>0</b>	<b>1,030</b>
<b>Total Sum of Numbertrucked</b>		<b>0</b>	<b>0</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total Sum of SampleMorts</b>		<b>71</b>	<b>2</b>		<b>0</b>	<b>2</b>	<b>1</b>	<b>76</b>
<b>Total Sum of FacilityMorts</b>		<b>1,155</b>	<b>17</b>		<b>1</b>	<b>45</b>	<b>7</b>	<b>1,225</b>
<b>Total Sum of ResearchMorts</b>		<b>0</b>	<b>0</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total Sum of TotalProjectMorts</b>		<b>1,226</b>	<b>19</b>		<b>1</b>	<b>47</b>	<b>8</b>	<b>1,301</b>

### YTD Transportation Summary

Source: Fish Passage Center

Updated:

6/27/14 7:09 AM

TO: 06/27/14

		Species					
Site	Data	CH0	CH1	CO	SO	ST	Grand Total
<b>LGR</b>	Sum of NumberCollected	516,650	3,441,562	52,697	130,600	2,402,184	6,543,693
	Sum of NumberBarged	491,762	1,938,549	48,966	70,433	1,324,303	3,874,013
	Sum of NumberBypassed	11,679	1,501,375	3,722	59,638	1,077,085	2,653,499
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	133	134	1	44	56	368
	Sum of FacilityMorts	1,190	1,300	8	411	109	3,018
	Sum of ResearchMorts	2	79	0	0	107	188
	Sum of TotalProjectMorts	1,325	1,513	9	455	272	3,574
<b>LGS</b>	Sum of NumberCollected	561,441	1,951,345	41,832	60,872	1,367,130	3,982,620
	Sum of NumberBarged	553,648	1,767,863	40,932	54,527	1,146,579	3,563,549
	Sum of NumberBypassed	300	182,657	890	6,109	220,102	410,058
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	34	34	1	13	16	98
	Sum of FacilityMorts	824	651	9	223	163	1,870
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	858	685	10	236	179	1,968
<b>LMN</b>	Sum of NumberCollected	192,318	1,325,613	19,900	48,143	791,259	2,377,233
	Sum of NumberBarged	189,566	1,137,962	17,500	44,851	685,284	2,075,163
	Sum of NumberBypassed	209	177,066	0	2,568	89,946	269,789
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	5	25	0	1	16	47
	Sum of FacilityMorts	199	962	0	299	189	1,649
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	204	987	0	300	205	1,696
Total Sum of NumberCollected		1,270,409	6,718,520	114,429	239,615	4,560,573	12,903,546
Total Sum of NumberBarged		1,234,976	4,844,374	107,398	169,811	3,156,166	9,512,725
Total Sum of NumberBypassed		12,188	1,861,098	4,612	68,315	1,387,133	3,333,346
Total Sum of NumberTrucked		0	0	0	0	0	0
Total Sum of SampleMorts		172	193	2	58	88	513
Total Sum of FacilityMorts		2,213	2,913	17	933	461	6,537
Total Sum of ResearchMorts		2	79	0	0	107	188
Total Sum of TotalProjectMorts		2,387	3,185	19	991	656	7,238

Cumulative Adult Passage at Mainstem Dams Through: 06/26

DAM	END DATE	Spring Chinook						Summer Chinook						Fall Chinook					
		2014		2013		10-Yr Avg.		2014		2013		10-Yr Avg.		2014		2013		10-Yr Avg.	
		Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	06/26	188083	26094	83345	33820	130283	22257	64526	12212	54390	16448	51870	10978	0	0	0	0	0	0
TDA	06/26	143142	21080	69202	32311	99813	18973	48395	8145	46231	12313	40440	7853	0	0	0	0	0	0
JDA	06/26	123224	19103	56991	28957	87036	17743	41725	6784	38976	10556	33210	7312	0	0	0	0	0	0
MCN	06/26	107147	16033	52176	22279	79413	14950	35548	5290	35059	7651	26590	4960	0	0	0	0	0	0
IHR	06/26	79298	12428	38017	18611	54814	9602	8498	2352	6478	3787	10464	2439	0	0	0	0	0	0
LMN	06/26	79942	14020	36470	19053	54458	8539	7348	3277	5910	4140	10591	2156	0	0	0	0	0	0
LGS	06/26	77966	13649	35072	19443	49920	9660	5992	2533	3209	2934	8237	2209	0	0	0	0	0	0
LGR	06/26	79167	13732	35031	19940	49728	11001	5165	1973	2750	2435	6313	1914	0	0	0	0	0	0
PRD	06/25	23742	2649	13725	1298	14700	1468	14152	485	15416	399	8544	344	0	0	0	0	0	0
WAN		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RIS	06/24	23247	2934	13345	3100	13890	2468	8807	202	6564	343	3433	413	0	0	0	0	0	0
RRH	06/24	12376	2377	6841	2101	5576	1020	3842	82	2302	86	1064	83	0	0	0	0	0	0
WEL	06/25	12201	2431	5333	2849	4091	1115	0	0	0	0	0	0	0	0	0	0	0	0
WFA	06/22	24598	999	24844	1324	34521	848	0	0	0	0	0	0	0	0	0	0	0	0

DAM	END DATE	Coho						Sockeye			Steelhead						Lamprey		
		2014		2013		10-Yr Avg.		2014	2013	10-Yr Avg.	2014	2013	10-Yr Avg.	Wild 2014	Wild 2013	10-Yr Avg.	2014	2013	10-Yr Avg.
		Adult	Jack	Adult	Jack	Adult	Jack												
BON	06/26	5	-2	0	0	0	0	224679	89166	108827	13246	6365	12825	4222	1734	3678	9377	6837	6684
TDA	06/26	0	0	0	0	0	0	161479	62687	74761	3507	2045	5220	1183	675	1782	889	741	418
JDA	06/26	0	1	0	0	0	0	129728	54124	63426	5040	2306	7517	1876	925	2340	411	320	205
MCN	06/26	0	0	1	0	1	0	78415	40855	38621	2275	2308	6914	758	882	2164	26	50	35
IHR	06/26	0	0	0	0	0	0	59	112	37	2684	4601	5195	900	1625	1458	12	14	1
LMN	06/26	0	0	0	0	0	0	38	55	22	2514	2945	7261	1068	1440	2916	3	6	1
LGS	06/26	0	0	0	0	0	0	33	44	11	1959	2326	6959	1089	1207	2356	0	4	0
LGR	06/26	0	0	0	0	0	0	16	15	2	7725	7515	8963	3519	3252	3174	1	1	0
PRD	06/25	0	0	0	0	0	0	19136	11716	9420	165	138	142	0	0	0	38	68	35
WAN		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RIS	06/24	0	0	0	0	0	0	5725	2902	1744	326	147	151	179	112	94	1	1	0
RRH	06/24	0	0	0	0	0	0	2044	1481	756	273	184	408	166	157	299	0	0	0
WEL	06/25	0	0	0	0	0	0	959	876	422	150	86	85	90	76	57	0	0	2
WFA	06/22	9	0	2	0	0	0	0	0	0	19081	15221	20509	0	0	0	0	0	0

PRD does not post wild steelhead numbers.  
 These numbers were collected from USACE, Grant PUD, Douglas PUD, Chelan PUD, ODFW and DART.  
 Wild steelhead numbers are included in the total. Wild Steelhead are defined as unclipped fish.  
 Historic counts (pre-1996) were obtained from CRITFC and compiled by the FPC.  
 Historic counts 1997 to present were obtained from the Corps of Engineers.