



# Fish Passage Center

## Weekly Report #15–15

June 26, 2015

### Summary of Events

#### Water Supply

Precipitation throughout the Columbia Basin has varied between 23% and 65% of average at individual sub-basins over June. Precipitation above The Dalles has been 47% of average over early June. Over the 2015 water year, precipitation has ranged between 75% and 97% of average.

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

Location	Water Year 2015		Water Year 2015	
	June 1–24, 2015		October 1, 2014 to June 24, 2015	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia above Coulee	1.55	60	29.9	96
SNAKE RIVER above Ice Harbor	0.49	38	15.6	80
Columbia above The Dalles	0.78	47	20.2	85
Kootenai	1.88	65	30.9	97
Clark Fork	0.57	29	17.3	75
Flathead	1.20	48	26.7	88
Pend Oreille River Basin above Waneta Dam	0.90	40	22.9	82
Salmon River Basin	0.77	39	19.2	78
Upper Snake Tributaries	0.80	58	17.8	77
Clearwater	0.75	31	29.2	81
Willamette River above Portland	0.46	23	48.6	81

Table 2 displays the June 24<sup>th</sup> ESP runoff volume forecasts for multiple reservoirs along with the June COE forecasts at Libby and Dworshak. The June 24<sup>th</sup> ESP forecast at The Dalles between April and August is 58,109 Kaf (66% of average).

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

Location	June 24, 2015 5-day QPF ESP	
	% Average (1981–2010)	Runoff Volume (Kaf)
The Dalles (Apr–Aug)	66	58,109
Grand Coulee (Apr–Aug)	74	41,826
Libby Res. Inflow, MT (Apr–Aug)	75 86*	4,389 5,090*
Hungry Horse Res. Inflow, MT (Apr–Aug)	66	1,276
Lower Granite Res. Inflow (Apr–July)	51	10,124
Brownlee Res. Inflow (Apr–July)	43	2,366
Dworshak Res. Inflow (Apr–July)	47 42*	1,132 1,113*

\* Denotes COE June Forecast

Grand Coulee Reservoir is at 1,282.1 feet (6-24-15) and has refilled 6.8 feet over the last week. Outflows at Grand Coulee have ranged between 72.8 and 88.3 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2,441.8 feet (6-24-15) and has refilled 1.2 feet over the previous week. Daily average outflows at Libby Dam have been 11.5 Kcfs over the last week.

Hungry Horse is currently at an elevation of 3,549.9 feet (6-24-15) and refilled 0.2 feet over the last week. Outflows at Hungry Horse have been 2.3 to 2.5 Kcfs over the last week.

Dworshak is currently at an elevation of 1,596.0 feet (6-24-15) and drafted 2.9 feet over the last week. Outflows have increased from 5.3 to 8.5 Kcfs over the last week.

The Brownlee Reservoir was at an elevation of 2,075.9 feet on June 24, 2015, and has held steady over the last week. Hells Canyon outflows have ranged between 7.2 and 14.1 Kcfs over the last 4 days.

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, 2015), the flow objective this spring was 85 Kcfs at Lower Granite. Flows at Lower Granite Dam averaged 53.3 Kcfs over the spring season and 32.1 Kcfs last week. The Summer Biological Opinion flow period began on June 21<sup>st</sup> with a flow objective of 50 Kcfs. Between June 21 and June 24, 2015, flows at Lower Granite Dam were 30.9 Kcfs.

Based on the April Final Water Supply Forecast, the Spring Biological Opinion Flow Objectives (which began April 10<sup>th</sup>) will be 220 Kcfs at McNary Dam and 135 Kcfs at Priest Rapids Dam. Over the spring season, flows at McNary Dam have averaged 174.2 Kcfs, and Priest Rapids Dam flows have averaged 114.9 Kcfs. Over the last week, flows at McNary have averaged 126.7 Kcfs and averaged 91.7 Kcfs at Priest Rapids.

### Spill

The 2015 spring fish spill program was implemented at the lower Snake River projects beginning on April 3<sup>rd</sup>, and beginning April 10<sup>th</sup> at the middle Columbia River projects. Spring spill at the Snake River projects ended on June 20<sup>th</sup>, with summer spill volumes being initiated on June 21<sup>st</sup>. At the middle Columbia River projects, summer spill was initiated on June 16<sup>th</sup> as part of rolled-over court ordered operations.

At the lower Snake River projects spill has been implemented according to the 2015 Fish Operations Plan (2015 FOP) over the past week. With the initiation of summer spill volumes at the Snake River projects on June 21<sup>st</sup>, spill at Lower Granite Dam switched from 20 Kcfs to 18 Kcfs. Due to low flow conditions, spill at Little Goose Dam was changed from an instantaneous 30% level to a fixed spill volume on June 16<sup>th</sup>. This

change is specified in the 2015 FOP. However, the 2015 FOP did not provide details as to when the fixed spill volume would switch between the specified 11, 9, and 7 Kcfs levels. A fixed spill volume of 11 Kcfs was provided from June 16<sup>th</sup> to June 22<sup>nd</sup>, at which time spill was reduced to 9 Kcfs. On June 23<sup>rd</sup>, spill was further reduced to 7 Kcfs and on June 24<sup>th</sup> spill fluctuated between 7, 9, and 11 Kcfs throughout the 24-hour period. These fluctuating spill levels were discussed at the June 24<sup>th</sup> Technical Management Team (TMT) meeting. On June 25<sup>th</sup>, the TMT met again and the Salmon Managers proposed criteria that clarified when the specified spill levels would be provided. These criteria were approved at the June 25<sup>th</sup> meeting and are as follows: (1) at daily average outflows of  $\geq 28$  Kcfs but  $< 32$  Kcfs, a constant 11 Kcfs spill will be provided, (2) at daily average outflows of  $\geq 24$  Kcfs but  $< 28$  Kcfs, a constant 9 Kcfs spill will be provided, (3) at daily average outflows of  $< 24$  Kcfs, a constant 7 Kcfs spill will be provided, and (4) when 7 Kcfs spill is not possible, spill will be total outflow minus powerhouse minimums. Daily average outflow will be based on the previous day's 24-hour average outflow at Little Goose Dam.

Summer spill volumes at Lower Monumental Dam are 17 Kcfs, which have been met throughout the past week. On April 28<sup>th</sup> the "test-like" conditions, where spill alternates between 30% instantaneous and 45 Kcfs/Gas Cap, were initiated at Ice Harbor Dam. The net effect of this operation is a decrease in spill levels during the "test-like" period. As flows continue to decrease in the Snake River, the spill operations specified for Lower Granite, Lower Monumental, and Ice Harbor dams will likely change to spilling all water above that needed to operate one turbine unit. This has already occurred sporadically at Lower Granite and Lower Monumental this week and routinely at Ice Harbor on 45 Kcfs/Gas Cap days.

Project	Spring Spill Level (April 3-June 20) Day/Night	Summer Spill Level (June 21-August 31) Day/Night
Lower Granite	20 Kcfs/20 Kcfs	18 Kcfs/18 Kcfs
Little Goose	30%/30%	30%/30%
Lower Monumental	Gas Cap/Gas Cap	17 Kcfs/17 Kcfs
Ice Harbor	April 3-27: 45 Kcfs/Gas Cap April 28-June 20: 30%/30% vs. 45 Kcfs/Gas Cap	June 21-July 13: 30%/30% vs. 45 Kcfs/Gas Cap July 13-August 31: 45 Kcfs/Gas Cap

Since spill began on April 10<sup>th</sup>, spill for fish passage at the middle Columbia River projects occurred as described in the 2015 FOP. All projects are currently spilling to summer spill levels.

Project	Spring Spill Level (April 10-June 15) Day/Night	Summer Spill Level (June 16-August 31) Day/Night
McNary	40%/40%	50%/50
John Day	April 10–April 28: 30%/30% April 29–June 15: 30%/30% and 40%/40%	June 16–July 20: 30%/30% and 40%/40% July 20–August 31: 30%/30%
The Dalles	40%/40%	40%/40%
Bonneville	April 10–June 15: 100 Kcfs/100 Kcfs	June 16–Aug 31: 85 Kcfs/121 Kcfs and 95 Kcfs/95 Kcfs

Due to anticipated increases in power demand, the spill schedules at John Day and Ice Harbor dams were changed this week. At Ice Harbor, two 2-day blocks of 45 Kcfs/Gas Cap spill were changed to 30%/30% spill. This effectively means that spill at Ice Harbor will be 30% for 10 consecutive days (June 25–July 5). The intended 45 Kcfs/Gas Cap spill will be shifted to later in July (July 7–9 and July 11–13), resulting in 8 consecutive days of 45 Kcfs/Gas Cap spill (July 5–13) before the operation at Ice Harbor becomes 45 Kcfs/Gas Cap for the rest of the spill season. At John Day, two 2-day blocks of 40% spill were changed to 30% spill. This effectively means that spill at John Day will be 30% for 10 consecutive days (June 22–July 2). The intended 40% spill will be shifted to later in July (July 4–6 and July 8–10), resulting in 10 consecutive days of 40% spill in July (July 2–12).

Over the past week TDG measurements have been within all waiver limits at all of the TDG monitors. **Note:** The State of Oregon and the State of 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. The location of a TDG 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 middle Columbia River forebay monitors. On any given day the compliance of the tailrace monitors at the middle Columbia River projects will be determined using either the Washington or Oregon methodology, whichever

is the most restrictive, and spill will 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. Monitoring at Lower Granite Dam ended for the season due to low fish numbers. No fish were detected over the past week with signs of GBT.

### Smolt Monitoring

All Smolt Monitoring Program bypass facilities continued sampling this week. Sampling at the Snake River, Salmon River, and Grande Ronde River traps has been terminated for the season. Sampling at the Imnaha River Trap is ongoing.

Passage of spring migrants (i.e., 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 decreased at the Snake River sites, except Little Goose Dam. Subyearling Chinook passage increased at all three Lower Columbia River sites this week. At the Upper Columbia site (RIS), subyearling Chinook passage this week was similar to last week.

This week’s samples at Bonneville Dam (BON) were dominated by subyearling Chinook. This week’s daily average passage index was nearly 10,000 which was an increase over last week’s daily average passage index of about 7,800. With exception of steelhead, passage of spring migrants all decreased this week. This week’s daily average passage indices for yearling Chinook,

coho, and sockeye were 100, 150, and 50 per day, respectively. Last week's daily average passage indices were 340 for yearling Chinook, 600 for coho, and 110 for sockeye. This week's daily average passage index for steelhead at BON was nearly 400 per day, which is a slight increase over last week's daily average passage index of 300. Finally, Pacific lamprey macrophthalmia were encountered in four of the seven sample days this week. No ammocoetes were collected this week. Several days this week had relatively high levels of sample mortality for subyearling Chinook at BON. Among the highest mortality levels were 9.9% on June 21<sup>st</sup>, 5.4% on June 23<sup>rd</sup> and 4.9% on June 24<sup>th</sup>. The cause of the elevated mortality levels is unknown.

Subyearling Chinook continued to dominate the collections at John Day Dam (JDA) this week. This week's daily average passage index for subyearling Chinook was nearly 34,000 per day, which is an increase over last week's daily average passage index of about 26,000 per day. Passage of spring migrants continued to decrease this week, when compared to the previous week. This week's daily average passage indices for spring migrants were about 300 for yearling Chinook, 70 for coho, 40 for sockeye, and 40 for steelhead. Pacific lamprey macrophthalmia were encountered in five of this week's samples, with a daily average collection for the week of about 90 per day. This is a decrease over last week's daily average collection of nearly 400 macrophthalmia per day. Finally, mortality levels for subyearling Chinook at JDA remained elevated this week, ranging from 1.0% to 3.8%. The Corps of Engineers has continued to investigate the issue but no clear cause has been found.

Since McNary Dam (MCN) is no longer a transportation site, sampling takes place every other day for the entire SMP season. This week's samples at MCN were dominated by subyearling Chinook. This week's daily average passage index for subyearling Chinook was nearly 54,000, which is an increase over last week's daily average passage index of about 41,500. With exception to steelhead, passage of spring migrants decreased this week, when compared to the previous week. This week's passage index for steelhead was about 700 per day, which was very similar to the daily average passage index from last week. Finally, Pacific lamprey macrophthalmia were encountered in all three of this week's samples. The daily average

collection for lamprey macrophthalmia this week was about 400, which is an increase over last week's daily average collection of 325. To date, MCN has not sampled any pacific lamprey ammocoetes for 2015.

Samples at Lower Granite Dam (LGR) continued to be dominated by subyearling Chinook juveniles this week. This week's daily average passage index for subyearling Chinook at LGR was about 10,900, which was a slight decrease over last week's daily average passage index of nearly 12,500 fish per day. Passage of spring migrants was very low this week. Finally, Pacific lamprey macrophthalmia were encountered in three of this week's samples. Sample counts on these three days ranged from 2 to 5 fish per day.

Sampling at Little Goose Dam (LGS) was limited to a 24-hour sample every other day from April 2<sup>nd</sup> to April 30<sup>th</sup>. Little Goose Dam began collecting fish for transportation on May 1<sup>st</sup> and, therefore, collections at LGS are every day for the rest of the season. Subyearling Chinook dominated this week's samples at LGS. This week's daily average passage index for subyearling Chinook at LGS was nearly 20,000 fish per day, which is an increase from last week's daily average passage index of about 14,350 per day. Passage of spring migrants continued to decrease this week. The daily average passage indices of spring migrants were 40 for yearling Chinook, 20 for coho, and 270 for steelhead. No sockeye were encountered in this week's samples. Finally, both Pacific lamprey ammocoetes and macrophthalmia were encountered in at least some of this week's samples. Ammocoetes were encountered twice this week and macrophthalmia were encountered in five samples.

Sampling at Lower Monumental Dam (LMN) was limited to a 24-hour sample every third day from April 4<sup>th</sup> to April 13<sup>th</sup> and every other day from April 15<sup>th</sup> to May 1<sup>st</sup>. At 1500 on May 1<sup>st</sup>, LMN began collecting fish for transportation and, therefore, collections at LMN are every day for the rest of the season. As with the last several weeks, this week's samples at LMN were dominated by subyearling Chinook, with a daily average passage index of about 4,100 per day. This is a decrease over last week's daily average passage index of about 7,100 per day. Passage of spring migrants was very low this week. Finally, Pacific lamprey macrophthalmia were encountered in four of this week's

samples. No ammocoetes were encountered at LMN this week.

SMP samples at Rock Island Dam (RIS) continued to be dominated by subyearling Chinook juveniles this week. This week's daily average passage index was about 260 fish per day, which was similar to last week's daily average passage index of about 230 per day. Passage of spring migrants was extremely low this week. Finally, Pacific lamprey macropthalmia were encountered in five of this week's seven samples.

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 22<sup>nd</sup>. Over the last week of available data (June 16–22), collections at IMN were dominated by yearling Chinook, with a daily average collection of just over 100 fish per day. This is a decrease over the daily average collection from the previous week of data (June 9–15), which was about 150 per day. Steelhead passage over the June 16–22 period was very low. The daily average collection for the June 16–22 period was only four 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. No new releases were scheduled for this zone this week and no new releases are scheduled over the next 2 weeks.

**Mid-Columbia Zone:** The Mid-Columbia Zone encompasses the area of the Columbia River and its tributaries from McNary Dam to Chief Joseph Dam. One new release began this week. On June 22<sup>nd</sup>, Ringold Springs Hatchery began a volitional release of about 3.5 million subyearling fall Chinook. Previous week's weekly reports incorrectly reported this release as having started on June 10<sup>th</sup>. All of these subyearling Chinook from this Ringold Hatchery release are adipose clipped. This volitional release is

expected to run through early July. In addition to this new release, the volitional release of about 7.0 million subyearling fall Chinook from Priest Rapids Hatchery was scheduled to end this week. A large portion (55%) of the Priest Rapids Hatchery release were expected to have marks that are not externally visible (e.g., otolith and/or CWT), which means that they will not be distinguishable from wild fish. No new releases of juvenile salmonids are scheduled to begin in this zone over the next 2 weeks.

**Lower Columbia Zone:** The Lower Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to McNary Dam. No new releases were scheduled for this zone this week. Approximately 4.5 million subyearling fall Chinook are scheduled to be released from Little White Salmon NFH, beginning on or around July 2<sup>nd</sup>. No other releases of juvenile salmonids are scheduled for this zone over the next 2 weeks.

## Adult Passage

The summer Chinook count began June 1st at Bonneville Dam. Daily passage numbers at Bonneville Dam ranged between 2,605 and 4,649 adult summer Chinook in the last week. The 2015 summer Chinook count of 82,625 is about 1.3 times greater than the 2014 count and 1.6 times greater than the 10-year average. The 2015 summer Chinook jack count of 9,442 is about 81.5% of the 2014 count and 85.2% of the 10-year average count. At Willamette Falls, 49,805 adult spring Chinook have been counted so far this year. In 2014, 25,059 adult spring Chinook were counted at Willamette Falls. This year's count is about two times greater than the 2014 count and 1.7 times greater than the 10-year average count of 28,644. As of June 24th, a total of 34,731 adult summer Chinook have been counted at McNary Dam and 5,483 have been counted at Lower Granite Dam. The 2015 McNary Dam adult summer Chinook count has 1,367 more fish than the 2014 count, while being 1.3 times greater than the 10-year average count. The 2015 Lower Granite Dam adult summer Chinook count has 736 more fish than the 2014 count, while having 355 fewer fish than the 10-year average count.

The 2015 Bonneville Dam adult steelhead count of 9,103 is 72.3% of the 2014 count of 12,587 and

78.5% of the 10-year average count of 11,599. The 2015 Bonneville Dam adult wild steelhead count of 4,159 has 273 more fish than the 2014 count of 3,886 and 945 more fish than the 10-year average count of 3,214. Daily adult steelhead counts at Lower Granite Dam ranged from 4 to 11 adults per day last week. This year's Lower Granite steelhead count of 9,271 is about 1.2 times greater than the 2014 count of 7,691 and has 339 more fish than the 10-year average count of 8,932. The 2015 Lower Granite Dam adult wild steelhead count of 4,373 is 1.2 times greater than the 2014 count of 3,499 and is about 1.3 times greater than the 10-year average count of 3,255. At Willamette Falls, the 2015 count for steelhead was 6,778 as of June 24th. This year's steelhead count is about 34.2% of the 2014 count of 19,827 and about 35.5% of the 10-year average count of 19,112.

Daily adult sockeye passage numbers at Bonneville Dam ranged between 13,692 and 31,880 last week. The 2015 adult sockeye count at Bonneville Dam of 244,344 is 1.3 times greater than the 2014 count and 2.2 times greater than the 10-year average count. The 2015 adult sockeye count at McNary Dam of 100,483 is 1.7 times greater than the 2014 count and 2.9 times greater than the 10-year average count. The Lower Granite Dam 2015 adult sockeye count of 36 has 25 more fish than the 2014 count of 11 and 35 more fish than the 10-year average. As of June 25th at Bonneville Dam, the adult shad count was 1,476,570. This year's shad count is about 59.1% of the 2014 count of 2,497,908 and 66.4% of the 10-year average count of 2,222,746.

## Hatchery Releases Last Two Weeks

Hatchery Release Summary										
From:		6/13/2015		to		06/26/15				
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	
Washington Dept. of Fish and Wildlife	Priest Rapids Hatchery	CH0	FA	2015	7,000,000	06-12-15	06-25-15	Priest Rapids Hatchery	Mid-Columbia River	
Washington Dept. of Fish and Wildlife	Ringold Springs Hatchery	CH0	FA	2015	3,500,000	06-22-15	07-03-15	Ringold Springs Hatchery	Mid-Columbia River	
<b>Washington Dept. of Fish and Wildlife Total</b>					<b>10,500,000</b>					
<b>Grand Total</b>					<b>10,500,000</b>					

## Hatchery Releases Next Two Weeks

Hatchery Release Summary										
From:		6/27/2015		to		7/9/2015				
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	
U.S. Fish and Wildlife Service	Little White Salmon NFH	CH0	FA	2015	4,500,000	07-02-15	07-02-15	Little White Salmon Hatchery	Little White Salmon River	
<b>U.S. Fish and Wildlife Service Total</b>					<b>4,500,000</b>					
Washington Dept. of Fish and Wildlife	Ringold Springs Hatchery	CH0	FA	2015	3,500,000	06-22-15	07-03-15	Ringold Springs Hatchery	Mid-Columbia River	
<b>Washington Dept. of Fish and Wildlife Total</b>					<b>3,500,000</b>					
<b>Grand Total</b>					<b>8,000,000</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
06/12/2015	106.2	0.1	102.1	0.0	104.7	7.4	100.5	10.1	104.1	21.5	100.6	19.4	96.8	28.3
06/13/2015	101.1	0.1	103.1	0.0	112.0	8.5	110.4	8.7	117.0	20.0	123.8	20.2	122.4	36.1
06/14/2015	98.2	0.1	97.9	0.0	107.0	7.4	105.5	8.8	109.3	20.0	118.4	19.9	117.6	29.1
06/15/2015	118.2	0.1	120.2	0.0	127.4	8.2	127.7	10.4	132.2	23.4	137.9	24.7	133.4	28.9
06/16/2015	93.2	0.1	96.0	0.0	112.2	8.1	109.5	10.6	113.0	25.1	138.4	19.2	142.1	26.8
06/17/2015	89.0	0.1	87.3	0.0	93.5	7.5	88.1	8.9	89.9	22.1	94.1	17.1	93.9	25.8
06/18/2015	89.8	0.1	87.9	0.0	91.2	7.4	87.0	9.4	88.9	20.8	83.7	15.8	82.3	27.8
06/19/2015	74.5	0.1	74.9	0.0	78.4	6.1	76.0	8.7	78.8	17.8	79.9	15.5	81.2	29.0
06/20/2015	79.3	0.1	81.0	0.0	86.1	6.1	84.6	8.1	85.6	17.7	83.4	18.5	80.4	29.2
06/21/2015	72.7	0.1	70.1	0.0	73.2	6.0	73.3	6.7	74.8	16.0	83.8	19.8	83.0	30.3
06/22/2015	88.3	0.1	90.4	0.0	93.4	7.6	89.3	11.9	90.2	20.3	91.4	19.5	89.9	30.3
06/23/2015	79.7	0.1	79.2	0.0	92.8	7.1	91.2	8.7	94.4	18.4	119.5	20.0	121.8	30.5
06/24/2015	79.7	0.0	78.6	0.0	86.9	6.6	84.5	8.6	86.9	19.1	101.3	17.3	103.3	26.4
06/25/2015	104.0	0.0	104.6	0.0	109.5	8.1	103.3	8.7	105.2	18.9	109.8	17.0	106.7	25.8

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

Date	Dworshak		Brownlee Inflow	Hells Canyon Outflow		Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill		Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
06/12/2015	3.1	0.0	---	9.1	44.3	20.2	44.2	13.2	45.8	20.0	46.5	36.8	
06/13/2015	2.9	0.0	---	8.8	43.6	20.3	40.6	12.1	41.8	19.4	42.7	16.4	
06/14/2015	3.0	0.0	---	8.5	38.3	20.5	35.0	10.5	34.2	18.6	34.3	11.0	
06/15/2015	3.0	0.0	---	8.5	34.4	20.4	31.8	9.3	31.5	18.6	30.5	17.2	
06/16/2015	3.0	0.0	---	8.4	35.4	20.6	35.3	10.7	35.6	21.0	36.1	26.5	
06/17/2015	5.3	0.0	---	7.3	33.3	20.5	29.9	10.7	31.1	18.6	32.5	12.2	
06/18/2015	5.3	0.0	---	8.2	34.4	20.4	33.8	10.7	32.9	19.5	32.8	10.6	
06/19/2015	5.3	0.0	---	8.1	33.1	20.4	31.5	10.6	29.4	16.7	29.6	19.7	
06/20/2015	5.3	0.0	---	8.4	33.2	20.3	29.7	10.6	30.6	17.7	31.9	22.3	
06/21/2015	5.3	0.0	---	8.3	30.9	18.3	28.8	10.6	29.5	16.4	30.7	11.1	
06/22/2015	5.3	0.0	---	8.9	30.7	17.7	31.2	9.5	30.8	15.9	31.4	10.4	
06/23/2015	7.4	0.0	---	9.2	30.2	17.4	29.0	8.6	27.4	13.6	26.5	16.4	
06/24/2015	7.4	0.0	---	8.6	31.9	18.2	30.8	9.4	30.6	17.0	31.3	21.5	
06/25/2015	8.6	0.0	---	7.9	31.3	18.2	30.6	9.3	29.8	16.5	30.9	11.8	

**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		
06/12/2015	173.4	69.5	154.5	49.3	141.3	56.5	157.4	100.0	0.9	44.0
06/13/2015	160.6	64.2	160.2	63.9	143.2	57.0	154.7	101.1	0.9	40.4
06/14/2015	151.7	60.7	151.4	58.0	135.4	53.9	147.9	99.5	0.9	35.1
06/15/2015	174.6	70.1	167.6	50.2	153.2	61.4	173.1	99.3	0.9	60.5
06/16/2015	173.7	86.8	167.2	53.1	154.9	61.9	172.3	95.4	0.9	63.6
06/17/2015	162.0	80.9	149.8	59.9	135.1	54.0	157.3	94.5	0.9	49.4
06/18/2015	132.6	66.3	124.4	47.6	111.3	44.5	132.6	87.4	0.9	32.0
06/19/2015	124.5	62.4	123.6	37.2	107.6	43.2	126.9	82.6	0.9	30.9
06/20/2015	124.3	62.5	111.8	35.5	101.6	40.4	119.8	75.5	0.9	31.0
06/21/2015	125.6	63.0	116.2	46.2	103.8	41.4	117.6	73.2	0.9	31.0
06/22/2015	111.5	55.7	111.9	42.7	101.2	40.4	112.2	68.2	0.8	30.8
06/23/2015	115.4	57.8	114.8	34.6	103.2	41.2	119.4	75.3	0.9	30.8
06/24/2015	153.0	76.5	133.3	39.9	120.4	48.2	131.3	86.7	0.9	31.4
06/25/2015	139.7	70.0	136.6	40.7	123.5	49.5	140.5	93.9	1.0	33.2



## 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>											
	06/15/15	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/22/15	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>Lower Monumental Dam</b>											
	06/17/15	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/24/15	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>McNary Dam</b>											
	06/15/15	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/17/15	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/23/15	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>Bonneville Dam</b>											
	06/13/15	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/17/15	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/20/15	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/23/15	Chinook + Steelhead	54*	0	0			0	0	0	0
<b>Rock Island Dam</b>											
	06/16/15	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/18/15	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/23/15	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/25/15	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0

\* Due to low fish numbers, sample size criteria were not met. Therefore, % fish with GBT not estimated for this sample day.

## 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>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>				
6/12	107.1	107.5	107.7	24	---	---	---	0	107.4	107.7	107.9	24	105.7	106.1	106.7	24	107.2	107.4	107.8	24
6/13	106.3	106.7	107.1	24	---	---	---	0	106.8	107.0	107.2	24	105.1	105.7	106.0	24	106.6	106.9	107.1	24
6/14	105.8	106.2	106.6	24	---	---	---	0	106.6	106.6	106.7	24	105.4	106.1	106.5	24	106.4	106.8	107.0	24
6/15	105.6	105.9	106.1	24	---	---	---	0	106.7	106.9	107.0	24	106.3	106.9	107.2	24	106.6	107.0	107.4	24
6/16	105.8	106.4	106.9	24	---	---	---	0	106.8	107.1	107.6	24	106.1	106.9	107.7	24	106.9	107.4	107.8	24
6/17	106.0	106.3	106.5	24	---	---	---	0	107.5	108.0	109.0	24	106.5	107.3	108.5	24	107.3	107.6	108.1	24
6/18	106.5	106.9	107.4	24	---	---	---	0	108.2	108.5	108.7	24	106.2	106.8	107.3	24	107.1	107.3	107.5	24
6/19	105.7	106.0	106.6	24	---	---	---	0	107.8	108.0	108.4	24	105.7	106.1	106.8	24	106.9	107.2	107.5	24
6/20	105.3	105.6	105.9	24	---	---	---	0	107.5	107.5	108.0	17	105.6	106.3	106.7	24	107.0	107.5	108.1	24
6/21	105.4	106.0	106.4	24	---	---	---	0	---	---	---	0	106.1	106.6	107.5	24	106.8	107.3	107.8	24
6/22	105.3	105.7	106.0	24	---	---	---	0	---	---	---	0	105.9	106.5	107.6	24	106.5	106.9	107.0	24
6/23	105.2	105.6	106.2	24	---	---	---	0	107.7	107.7	107.9	13	105.9	106.7	107.6	24	106.9	107.5	108.0	24
6/24	104.9	105.3	105.6	24	---	---	---	0	107.8	108.0	108.3	24	106.0	106.7	107.1	24	107.0	107.4	107.8	24
6/25	105.0	105.3	105.6	23	---	---	---	0	107.6	107.8	108.1	23	105.8	106.4	106.8	23	106.7	106.9	107.0	24

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

Date	<u>Chief J. Dnst</u>			<u>Wells</u>			<u>Wells Dwnstrm</u>			<u>Rocky Reach</u>			<u>Rocky R. Tlwr</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>				
6/12	106.8	107.2	107.5	24	106.8	107.3	108.2	22	107.3	108.2	108.7	22	108.0	108.1	108.2	24	111.6	112.4	112.8	24
6/13	106.4	106.8	107.2	24	106.6	107.4	108.0	24	107.1	108.4	108.8	24	107.4	107.5	107.7	24	111.3	111.9	112.3	24
6/14	106.1	106.4	107.1	24	107.2	107.8	108.3	22	107.4	108.4	109.0	22	107.8	108.3	108.8	24	111.2	112.2	112.4	24
6/15	106.0	106.3	106.7	24	107.1	107.7	108.2	21	108.0	109.0	109.5	21	108.6	109.0	109.2	24	111.9	113.1	113.7	24
6/16	106.8	107.3	108.4	24	107.2	107.7	108.3	23	107.5	108.6	109.4	23	109.1	109.4	109.8	24	111.9	112.9	113.3	24
6/17	107.3	107.6	108.4	24	107.4	108.1	108.5	24	107.1	108.6	109.1	24	109.5	109.7	110.4	24	111.4	112.1	112.8	24
6/18	107.0	107.2	107.5	24	108.3	108.9	109.3	22	108.0	109.2	109.7	22	109.5	109.8	110.3	24	111.6	112.9	113.3	24
6/19	107.2	107.7	108.4	24	107.2	107.6	107.9	24	106.7	108.0	108.4	24	108.3	108.5	108.6	24	110.9	111.6	112.1	24
6/20	107.2	107.5	108.3	24	107.1	107.8	108.2	24	107.3	108.4	108.9	24	108.3	108.8	109.4	24	111.2	112.3	113.2	24
6/21	107.3	107.6	108.0	24	107.5	108.1	108.7	24	107.3	108.2	108.7	24	108.4	108.9	109.5	24	110.1	110.8	111.3	24
6/22	106.3	106.5	107.0	24	107.5	107.8	108.0	24	107.8	108.8	109.4	24	108.6	109.0	109.7	24	111.3	112.7	113.1	24
6/23	106.7	107.1	108.0	24	107.4	108.1	108.6	24	107.9	109.0	109.5	24	108.7	109.2	109.9	24	111.7	112.7	113.1	24
6/24	106.7	107.1	107.9	24	107.4	108.1	108.6	23	107.6	108.6	109.0	23	109.3	109.7	110.1	24	111.2	111.8	112.0	24
6/25	106.6	107.0	108.0	23	107.4	107.9	108.6	21	107.9	109.3	110.1	21	108.8	109.1	109.3	23	111.2	112.5	113.0	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>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>				
6/12	108.1	108.7	109.4	24	113.8	114.9	116.9	24	106.7	107.3	108.1	24	111.4	111.9	112.4	24	107.3	107.5	108.2	24
6/13	108.2	108.8	109.3	24	113.2	113.8	114.8	24	107.4	109.3	110.7	24	110.9	111.4	112.0	24	107.6	109.1	110.7	24
6/14	108.0	108.7	109.4	24	113.2	113.8	114.2	24	109.3	110.5	111.1	24	112.2	112.4	112.6	24	110.0	110.9	112.2	24
6/15	108.7	110.0	110.9	23	114.5	115.4	117.8	23	111.0	112.0	112.9	24	112.7	113.0	114.0	24	111.9	112.4	113.3	24
6/16	109.4	110.0	110.5	24	115.1	115.9	117.2	24	111.3	111.9	112.8	24	112.4	112.7	113.0	24	111.4	111.9	112.6	24
6/17	109.6	110.0	110.4	24	115.1	116.2	117.5	24	109.2	109.5	110.1	24	111.5	112.0	112.8	24	109.7	110.3	110.7	24
6/18	109.3	109.6	110.0	24	114.9	115.7	118.7	24	110.6	112.3	113.4	24	112.2	112.9	113.4	24	109.7	110.1	110.8	24
6/19	108.8	109.2	109.7	24	114.6	115.7	118.7	24	109.1	110.1	111.3	24	111.7	112.5	113.9	24	108.3	108.9	109.3	24
6/20	108.4	109.0	109.8	24	114.2	115.1	116.7	24	107.7	108.7	109.4	24	111.2	111.9	113.7	24	108.1	109.4	110.1	24
6/21	109.0	109.2	110.0	24	115.1	116.1	119.1	24	108.8	110.1	111.2	24	112.5	113.2	114.7	24	110.2	110.6	110.9	24
6/22	108.3	108.8	109.5	24	114.9	116.3	118.6	24	107.5	109.1	109.7	24	111.9	112.4	113.0	24	110.0	110.9	111.4	24
6/23	109.3	110.0	110.5	24	114.8	115.7	118.6	24	108.1	109.5	110.3	24	111.4	112.1	113.7	24	109.3	110.0	111.2	24
6/24	109.4	109.7	109.9	24	114.5	115.7	118.4	24	---	---	---	0	---	---	---	0	---	---	---	0
6/25	109.0	109.6	110.2	23	113.8	114.8	117.8	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			Clwrtr-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					
6/12	112.3	113.5	114.5	24	---	---	---	0	102.8	103.5	104.5	24	102.0	102.9	104.4	24	102.8	104.1	105.3	24
6/13	112.3	113.2	115.4	24	---	---	---	0	104.6	105.6	106.4	24	101.8	103.0	104.3	24	102.3	103.7	104.9	24
6/14	112.7	112.9	113.1	24	---	---	---	0	104.5	105.2	106.0	24	102.1	103.5	104.8	24	102.5	104.1	105.7	24
6/15	113.5	113.8	114.2	24	---	---	---	0	104.9	105.8	106.3	24	102.7	104.1	105.3	24	102.4	103.8	105.4	24
6/16	112.8	113.1	113.6	24	---	---	---	0	104.5	105.3	106.1	24	102.8	104.2	105.6	24	102.9	104.6	106.4	24
6/17	112.5	113.0	114.1	24	---	---	---	0	98.3	99.0	103.6	24	101.3	102.2	103.1	24	102.8	104.4	105.7	24
6/18	114.1	115.7	117.0	24	---	---	---	0	98.0	98.6	99.2	24	100.9	101.9	103.0	24	102.6	104.2	106.2	24
6/19	114.1	115.8	116.7	24	---	---	---	0	97.7	98.3	98.8	24	100.6	101.8	102.8	24	102.1	103.6	105.0	24
6/20	114.3	116.0	117.0	24	---	---	---	0	97.7	98.4	98.9	24	100.5	101.8	102.8	24	102.8	104.7	106.7	24
6/21	114.7	116.1	117.9	24	---	---	---	0	98.0	98.6	99.0	24	100.4	101.3	102.1	24	102.5	104.2	105.6	24
6/22	114.3	115.5	117.1	24	---	---	---	0	97.8	98.4	98.9	24	100.5	101.8	102.9	24	102.8	104.9	107.1	24
6/23	113.2	114.6	116.1	24	---	---	---	0	97.6	98.1	98.6	24	100.3	101.4	102.8	24	102.9	105.1	107.7	24
6/24	---	---	---	0	---	---	---	0	97.7	98.1	98.6	24	100.3	101.3	102.4	24	102.9	105.1	108.5	24
6/25	---	---	---	0	---	---	---	0	97.5	97.8	98.2	23	100.4	101.4	102.6	23	103.7	106.4	109.3	23

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

Date	Clwrtr-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					
6/12	102.3	104.0	105.4	24	103.0	103.5	103.9	24	111.9	112.3	112.9	24	110.5	110.8	111.1	24	111.3	111.7	112.0	24
6/13	102.4	104.4	105.9	23	102.8	103.1	103.4	24	112.3	112.5	113.5	24	109.4	109.6	109.7	24	110.8	111.3	111.6	24
6/14	102.8	105.1	106.7	23	102.3	102.6	102.8	24	112.7	112.9	113.3	24	109.3	109.8	110.3	24	110.4	110.9	111.2	24
6/15	103.1	105.3	107.1	24	101.5	101.7	101.8	24	113.2	113.5	113.8	24	108.8	109.1	110.1	24	110.1	110.5	110.7	24
6/16	103.4	105.8	107.3	24	100.5	100.7	100.7	24	112.8	113.0	113.6	24	108.8	109.2	109.5	24	110.3	110.8	111.3	24
6/17	103.2	105.3	106.8	24	100.3	100.5	100.6	24	112.7	112.9	114.0	24	108.9	109.1	109.4	24	110.0	110.6	111.0	24
6/18	102.9	104.9	106.6	24	101.2	101.6	101.8	24	112.6	112.8	113.0	24	111.0	111.4	111.6	24	108.1	109.2	109.9	24
6/19	102.7	104.7	106.3	24	101.0	101.1	101.4	24	112.3	112.4	112.7	24	109.4	109.8	110.3	24	105.9	106.4	107.1	24
6/20	103.1	105.4	107.1	24	101.4	101.9	102.3	24	112.2	112.4	112.6	24	109.8	110.0	110.2	24	106.2	107.0	107.8	24
6/21	102.7	104.4	105.4	24	101.7	101.9	102.2	24	113.9	114.2	114.8	24	109.3	109.8	110.4	24	105.7	106.0	106.8	24
6/22	103.2	105.6	107.1	24	101.0	101.2	101.3	24	113.2	113.9	114.1	24	108.2	108.3	108.7	24	106.3	106.9	107.5	24
6/23	103.4	105.6	107.5	24	101.0	101.1	101.2	24	112.8	114.2	114.6	24	107.8	107.9	108.3	24	105.9	106.4	106.8	24
6/24	103.1	105.2	106.8	24	101.2	101.4	101.5	24	114.1	114.2	114.4	24	108.2	108.7	109.2	24	105.4	106.2	106.8	24
6/25	103.5	105.9	107.6	23	101.8	102.0	102.4	23	114.1	114.3	114.5	23	108.1	108.4	109.0	23	104.8	105.5	106.2	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					
6/12	111.4	111.7	111.9	24	113.7	114.2	114.7	24	116.2	116.6	116.9	24	112.8	113.5	114.2	24	---	---	---	0
6/13	110.5	110.6	110.8	24	114.1	114.7	115.2	24	114.4	114.7	115.1	24	111.7	112.0	112.1	24	---	---	---	0
6/14	109.8	110.0	110.2	24	114.3	115.5	116.0	24	112.6	112.8	113.3	24	111.1	111.8	112.3	24	---	---	---	0
6/15	110.1	110.6	111.5	24	115.0	115.8	116.2	24	112.0	112.1	112.3	24	110.9	111.3	111.7	24	---	---	---	0
6/16	111.6	112.0	112.4	24	115.6	115.9	116.3	24	112.4	112.9	113.3	24	113.2	114.0	114.9	24	---	---	---	0
6/17	111.2	111.5	111.7	24	114.9	115.9	116.3	24	112.7	112.9	113.0	24	112.8	113.2	113.7	24	---	---	---	0
6/18	111.5	111.7	112.1	24	115.6	116.2	116.4	24	113.6	113.8	114.0	24	112.5	113.2	113.7	24	---	---	---	0
6/19	110.8	110.9	111.1	24	114.2	115.5	116.5	24	113.6	113.8	114.0	24	111.3	112.1	113.0	24	---	---	---	0
6/20	110.6	110.8	110.9	24	114.8	115.6	115.9	22	113.8	114.0	114.2	24	112.5	113.5	114.4	24	---	---	---	0
6/21	110.5	110.6	110.8	24	115.1	115.8	116.3	23	113.7	113.8	113.9	24	111.7	112.7	113.0	24	---	---	---	0
6/22	109.2	109.6	109.9	24	114.7	115.4	115.8	24	112.8	113.0	113.2	24	112.1	112.9	113.2	24	---	---	---	0
6/23	108.0	108.2	108.4	24	128.5	138.6	140.4	24	112.3	112.4	112.8	24	111.8	113.0	114.2	24	---	---	---	0
6/24	108.7	108.9	109.1	24	125.2	134.9	139.2	24	113.0	113.1	113.3	24	113.4	113.8	114.5	24	---	---	---	0
6/25	108.2	108.4	108.8	23	115.7	116.3	116.6	23	113.1	113.4	113.8	23	113.0	113.5	114.1	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	<u>McNary-Wash</u>			#	<u>McNary Tlwr</u>			#	<u>John Day</u>			#	<u>John Day Tlwr</u>			#	<u>The Dalles</u>					
	<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24h</u>	<u>12h</u>			<u>24h</u>	<u>12h</u>			<u>24h</u>	<u>12h</u>				
	<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>AVG</u>
6/12	109.6	109.9	110.7	24	113.8	114.4	114.8	24	108.1	108.3	108.9	24	113.7	114.0	114.2	24	106.4	107.0	107.4	24		
6/13	108.3	108.6	109.2	24	113.8	114.1	114.5	24	107.5	107.9	108.3	24	111.7	112.2	112.7	24	106.5	107.7	109.4	24		
6/14	108.3	108.6	108.8	24	113.1	113.3	113.6	24	107.8	108.4	108.9	24	112.2	112.5	113.0	24	110.4	110.9	111.3	24		
6/15	108.8	109.4	111.7	23	114.7	115.7	116.3	24	107.7	108.0	108.6	24	112.4	112.8	113.4	24	111.0	111.5	112.0	24		
6/16	109.1	109.7	110.6	24	116.1	116.6	116.8	24	106.8	107.0	107.9	24	111.8	112.4	113.0	24	108.6	109.3	110.2	24		
6/17	109.9	110.2	110.5	24	115.8	116.2	116.6	24	105.9	106.3	106.7	24	111.5	111.9	112.4	24	106.9	107.1	107.5	24		
6/18	109.9	110.2	110.9	24	115.6	115.8	116.0	24	106.1	106.6	107.2	24	111.6	111.9	112.1	24	107.8	108.3	108.5	24		
6/19	108.5	108.8	109.6	24	115.0	115.6	115.9	24	105.6	105.8	106.0	24	111.3	111.7	112.0	24	106.7	106.9	107.1	24		
6/20	108.4	108.7	109.0	24	115.0	115.6	115.8	24	105.4	105.9	106.3	24	111.4	111.8	112.1	24	106.2	106.8	107.2	24		
6/21	108.2	108.7	109.3	24	115.0	115.4	115.8	24	105.9	106.2	106.7	24	111.9	112.3	112.6	24	108.2	109.0	109.3	24		
6/22	107.7	108.2	109.5	24	114.5	115.0	116.0	24	105.0	105.4	105.9	24	111.0	111.7	112.1	24	108.4	108.8	109.3	24		
6/23	107.2	107.6	108.0	24	114.2	114.7	115.1	24	104.7	105.0	105.5	24	109.4	109.8	110.1	24	107.6	108.0	108.5	24		
6/24	107.6	107.8	108.2	24	114.8	115.1	115.8	24	104.4	104.6	104.9	24	110.0	110.4	110.7	24	106.9	107.3	107.5	24		
6/25	107.6	108.0	108.7	23	114.3	115.3	116.2	23	104.6	105.1	105.3	23	110.9	111.8	112.3	23	106.9	107.4	107.8	23		

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

Date	<u>The Dalles Dnst</u>			#	<u>Bonneville</u>			#	<u>Warrendale</u>			#	<u>Camas\Washougal</u>			#	<u>Cascade Island</u>					
	<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24h</u>	<u>12h</u>			<u>24h</u>	<u>12h</u>			<u>24h</u>	<u>12h</u>				
	<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>
6/12	113.3	113.6	113.8	24	104.9	105.3	105.7	24	114.5	115.4	116.0	24	110.3	111.6	112.3	24	116.4	116.9	117.0	24		
6/13	113.1	113.7	113.8	24	105.8	106.6	107.3	24	115.9	116.2	116.4	24	112.7	115.1	116.4	24	116.9	117.1	117.3	24		
6/14	115.4	116.2	116.6	24	107.6	109.0	109.5	24	117.0	117.7	118.1	24	114.6	116.8	118.1	24	116.9	117.1	117.2	24		
6/15	116.1	117.0	117.5	24	110.4	111.3	111.9	24	116.8	117.7	118.5	24	116.1	117.3	118.2	24	116.8	117.0	117.3	24		
6/16	114.8	115.2	115.5	24	109.9	110.3	110.7	24	115.2	115.9	116.5	24	112.5	113.6	114.2	24	116.5	116.8	117.1	24		
6/17	113.8	114.3	114.4	24	107.3	107.7	108.0	24	115.1	116.1	116.7	24	111.8	113.2	113.9	24	116.6	116.7	116.9	24		
6/18	113.5	114.0	114.3	24	106.8	107.2	107.4	24	115.1	115.7	115.9	24	113.3	114.0	114.8	24	114.2	114.8	117.1	24		
6/19	112.9	113.4	113.7	24	105.6	106.0	106.4	24	114.2	114.8	115.2	24	111.6	112.9	113.7	24	113.3	113.5	113.5	24		
6/20	113.1	113.6	114.0	24	106.6	107.2	107.4	24	115.0	115.6	116.2	24	113.1	114.6	115.0	24	113.0	113.1	113.2	24		
6/21	113.7	114.0	114.2	24	107.4	107.8	108.2	24	114.9	115.4	115.6	24	114.2	115.0	115.8	24	113.0	113.1	113.2	24		
6/22	113.6	114.0	114.5	24	107.4	107.6	107.8	24	115.3	115.9	116.6	24	113.1	114.3	114.8	24	113.0	113.2	113.4	24		
6/23	113.3	113.7	114.1	24	106.9	107.2	107.5	24	115.2	115.8	116.4	24	114.1	115.4	115.9	24	113.3	113.4	113.4	24		
6/24	113.6	114.0	114.4	24	107.0	107.4	107.6	24	116.0	116.5	117.3	24	114.7	115.8	116.4	24	114.8	116.1	116.3	24		
6/25	113.7	114.2	114.7	23	108.5	109.4	110.0	23	117.1	117.7	118.3	23	115.4	116.9	117.7	23	116.2	116.3	116.4	23		

## Two-Week Summary of Passage Indices

Source: Fish Passage Center

Updated: 6/26/2015 7:09

\* 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/currentsmppsubmitdata.asp>

<b>COMBINED YEARLING CHINOOK</b>												
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)	
06/12/2015	*	---	200	---	---	0	143	135	0	1,725	946	758
06/13/2015	*	---	196	---	---	187	143	0	0	---	773	402
06/14/2015		---	185	---	---	98	72	0	2	2,043	335	408
06/15/2015	*	---	144	---	---	0	36	0	0	---	438	130
06/16/2015	*	---	79	---	---	0	150	0	0	734	501	485
06/17/2015	*	---	131	---	---	0	30	0	0	---	304	165
06/18/2015		---	120	---	---	0	146	0	0	842	777	63
06/19/2015	*	---	113	---	---	0	0	0	1	---	195	157
06/20/2015		---	100	---	---	0	37	0	0	627	539	301
06/21/2015	*	---	94	---	---	0	40	0	0	---	193	7
06/22/2015		---	93	---	---	0	0	0	0	209	313	138
06/23/2015	*	---	---	---	---	0	75	20	0	---	390	140
06/24/2015	*	---	---	---	---	25	69	0	0	0	90	0
06/25/2015	*	---	---	---	---	0	73	---	0	---	449	0
06/26/2015		---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>1,455</b>	<b>0</b>	<b>0</b>	<b>310</b>	<b>1,014</b>	<b>155</b>	<b>3</b>	<b>6,180</b>	<b>6,243</b>	<b>3,154</b>
<b># Days:</b>		<b>0</b>	<b>11</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>13</b>	<b>14</b>	<b>7</b>	<b>14</b>	<b>14</b>
<b>Average:</b>		<b>0</b>	<b>132</b>	<b>0</b>	<b>0</b>	<b>22</b>	<b>72</b>	<b>12</b>	<b>0</b>	<b>883</b>	<b>446</b>	<b>225</b>
<b>YTD</b>		<b>40,054</b>	<b>67,791</b>	<b>7,458</b>	<b>1,081</b>	<b>1,768,992</b>	<b>1,156,848</b>	<b>1,126,457</b>	<b>16,455</b>	<b>1,340,101</b>	<b>664,378</b>	<b>1,712,363</b>

<b>COMBINED SUBYEARLING CHINOOK</b>												
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)	
06/12/2015	*	---	5	---	---	16,326	13,618	4,618	164	49,461	15,023	4,384
06/13/2015	*	---	0	---	---	19,393	13,520	1,088	342	---	18,695	3,977
06/14/2015		---	3	---	---	25,415	4,948	728	355	35,924	25,362	5,760
06/15/2015	*	---	3	---	---	9,577	12,707	5,458	207	---	29,188	6,138
06/16/2015	*	---	4	---	---	7,204	18,275	23,960	221	37,459	34,225	14,989
06/17/2015	*	---	3	---	---	2,890	16,247	10,230	155	---	32,633	10,737
06/18/2015		---	3	---	---	6,584	21,154	3,855	188	43,117	29,333	8,653
06/19/2015	*	---	2	---	---	8,915	23,746	2,189	140	---	19,275	10,233
06/20/2015		---	1	---	---	16,715	33,939	4,840	226	29,459	36,907	12,337
06/21/2015	*	---	3	---	---	16,179	19,942	3,783	403	---	35,138	11,157
06/22/2015		---	0	---	---	9,913	13,273	2,874	416	65,742	32,596	12,795
06/23/2015	*	---	---	---	---	6,250	11,828	2,963	319	---	37,188	6,510
06/24/2015	*	---	---	---	---	7,160	22,916	4,326	159	66,078	28,637	6,273
06/25/2015	*	---	---	---	---	11,014	14,160	---	144	---	45,901	10,498
06/26/2015		---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>27</b>	<b>0</b>	<b>0</b>	<b>163,535</b>	<b>240,273</b>	<b>70,912</b>	<b>3,439</b>	<b>327,240</b>	<b>420,101</b>	<b>124,441</b>
<b># Days:</b>		<b>0</b>	<b>11</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>13</b>	<b>14</b>	<b>7</b>	<b>14</b>	<b>14</b>
<b>Average:</b>		<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>11,681</b>	<b>17,162</b>	<b>5,455</b>	<b>246</b>	<b>46,749</b>	<b>30,007</b>	<b>8,889</b>
<b>YTD</b>		<b>1</b>	<b>111</b>	<b>1,292</b>	<b>2,077</b>	<b>828,615</b>	<b>602,898</b>	<b>255,735</b>	<b>11,904</b>	<b>404,543</b>	<b>514,319</b>	<b>1,685,589</b>

## Two-Week Summary of Passage Indices

<b>COMBINED COHO</b>												
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)	
06/12/2015 *	---	0	---	---	0	36	0	33	171	401	866	
06/13/2015 *	---	0	---	---	0	36	0	25	---	433	522	
06/14/2015	---	0	---	---	0	36	0	26	170	402	731	
06/15/2015 *	---	0	---	---	0	36	0	33	---	125	265	
06/16/2015 *	---	0	---	---	0	29	25	28	357	143	969	
06/17/2015 *	---	0	---	---	0	30	0	16	---	152	710	
06/18/2015	---	0	---	---	0	31	0	24	0	525	251	
06/19/2015 *	---	0	---	---	0	0	0	21	---	98	315	
06/20/2015	---	0	---	---	0	37	25	15	418	91	226	
06/21/2015 *	---	0	---	---	0	0	0	20	---	97	152	
06/22/2015	---	0	---	---	0	0	0	19	0	105	277	
06/23/2015 *	---	---	---	---	0	0	0	10	---	0	0	
06/24/2015 *	---	---	---	---	0	71	23	8	0	0	0	
06/25/2015 *	---	---	---	---	0	36	---	6	---	90	118	
06/26/2015	---	---	---	---	---	---	---	---	---	---	---	
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>378</b>	<b>73</b>	<b>284</b>	<b>1,116</b>	<b>2,662</b>	<b>5,402</b>	
<b># Days:</b>	<b>0</b>	<b>11</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>13</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>0</b>	<b>27</b>	<b>6</b>	<b>20</b>	<b>159</b>	<b>190</b>	<b>386</b>	
<b>YTD</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>47</b>	<b>40,131</b>	<b>60,091</b>	<b>37,631</b>	<b>14,603</b>	<b>65,409</b>	<b>69,670</b>	<b>692,697</b>	

<b>COMBINED STEELHEAD</b>												
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)	
06/12/2015 *	---	25	---	---	618	1,112	674	27	348	57	1,083	
06/13/2015 *	---	13	---	---	281	1,148	282	15	---	31	402	
06/14/2015	---	7	---	---	0	287	162	17	511	0	302	
06/15/2015 *	---	12	---	---	225	1,187	375	16	---	0	79	
06/16/2015 *	---	5	---	---	147	986	376	15	719	143	143	
06/17/2015 *	---	5	---	---	101	393	0	9	---	228	61	
06/18/2015	---	2	---	---	79	123	51	21	1,245	0	63	
06/19/2015 *	---	2	---	---	76	379	23	22	---	0	472	
06/20/2015	---	6	---	---	53	297	0	14	627	0	301	
06/21/2015 *	---	2	---	---	157	318	0	19	---	0	776	
06/22/2015	---	5	---	---	0	394	22	12	209	105	622	
06/23/2015 *	---	---	---	---	47	119	0	15	---	195	420	
06/24/2015 *	---	---	---	---	148	69	0	9	1,251	0	164	
06/25/2015 *	---	---	---	---	70	328	---	15	---	0	0	
06/26/2015	---	---	---	---	---	---	---	---	---	---	---	
<b>Total:</b>	<b>0</b>	<b>84</b>	<b>0</b>	<b>0</b>	<b>2,002</b>	<b>7,140</b>	<b>1,965</b>	<b>226</b>	<b>4,910</b>	<b>759</b>	<b>4,888</b>	
<b># Days:</b>	<b>0</b>	<b>11</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>13</b>	<b>14</b>	<b>7</b>	<b>14</b>	<b>14</b>	
<b>Average:</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>143</b>	<b>510</b>	<b>151</b>	<b>16</b>	<b>701</b>	<b>54</b>	<b>349</b>	
<b>YTD</b>	<b>2,567</b>	<b>40,576</b>	<b>672</b>	<b>11,678</b>	<b>1,298,373</b>	<b>1,062,017</b>	<b>575,292</b>	<b>12,536</b>	<b>452,561</b>	<b>200,728</b>	<b>1,021,147</b>	

## Two-Week Summary of Passage Indices

<b>COMBINED SOCKEYE</b>												
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)	
06/12/2015 *	---	0	---	---	0	0	0	3	0	172	325	
06/13/2015 *	---	0	---	---	0	0	0	5	---	0	40	
06/14/2015	---	0	---	---	0	0	0	1	341	0	18	
06/15/2015 *	---	0	---	---	0	0	0	0	---	125	28	
06/16/2015 *	---	0	---	---	0	0	0	0	0	143	127	
06/17/2015 *	---	0	---	---	0	0	0	0	---	0	104	
06/18/2015	---	0	---	---	0	0	0	1	0	190	125	
06/19/2015 *	---	0	---	---	0	0	0	0	---	0	79	
06/20/2015	---	0	---	---	0	0	0	4	0	0	226	
06/21/2015 *	---	0	---	---	0	0	0	3	---	0	0	
06/22/2015	---	0	---	---	0	0	0	0	0	0	0	
06/23/2015 *	---	---	---	---	47	0	0	3	---	98	0	
06/24/2015 *	---	---	---	---	0	0	0	1	0	0	0	
06/25/2015 *	---	---	---	---	0	0	---	1	---	179	57	
06/26/2015	---	---	---	---	---	---	---	---	---	---	---	
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>47</b>	<b>0</b>	<b>0</b>	<b>22</b>	<b>341</b>	<b>907</b>	<b>1,129</b>	
<b># Days:</b>	<b>0</b>	<b>11</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>13</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>3</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>49</b>	<b>65</b>	<b>81</b>	
<b>YTD</b>	<b>74</b>	<b>0</b>	<b>4</b>	<b>47</b>	<b>16,166</b>	<b>19,815</b>	<b>11,030</b>	<b>3,824</b>	<b>128,863</b>	<b>104,266</b>	<b>149,178</b>	

<b>COMBINED LAMPREY JUVENILES</b>												
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR† (Samp)	LGS (Coll)	LMN (Coll)	RIS (Coll)	MCN (Coll)	JDA (Coll)	BO2 (Coll)	
06/12/2015 *	---	0	---	---	0	100	60	2	200	540	50	
06/13/2015 *	---	0	---	---	0	375	160	1	---	1,060	10	
06/14/2015	---	0	---	---	0	250	140	2	600	120	60	
06/15/2015 *	---	0	---	---	1	150	10	1	---	80	0	
06/16/2015 *	---	0	---	---	1	75	100	2	200	250	7	
06/17/2015 *	---	0	---	---	0	90	100	4	---	600	50	
06/18/2015	---	0	---	---	0	120	40	1	300	125	20	
06/19/2015 *	---	0	---	---	0	50	0	2	---	63	40	
06/20/2015	---	0	---	---	2	200	20	0	300	250	20	
06/21/2015 *	---	0	---	---	0	0	30	1	---	125	21	
06/22/2015	---	0	---	---	5	75	0	1	100	125	0	
06/23/2015 *	---	---	---	---	2	25	0	0	---	63	20	
06/24/2015 *	---	---	---	---	0	0	20	2	800	0	0	
06/25/2015 *	---	---	---	---	0	50	---	1	---	0	0	
06/26/2015	---	---	---	---	---	---	---	---	---	---	---	
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>11</b>	<b>1,560</b>	<b>680</b>	<b>20</b>	<b>2,500</b>	<b>3,401</b>	<b>298</b>	
<b># Days:</b>	<b>0</b>	<b>11</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>13</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>1</b>	<b>111</b>	<b>52</b>	<b>1</b>	<b>357</b>	<b>243</b>	<b>21</b>	
<b>YTD</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>27</b>	<b>7,766</b>	<b>2,280</b>	<b>42</b>	<b>6,815</b>	<b>19,949</b>	<b>3,963</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 = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}

LGS (Index) = Little Goose Bypass Collection System : Passage Index Counts

Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}

LMN (Index) = Lower Monumental Dam Bypass Collection System : Passage Index Counts

Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}

RIS (Index) = Rock Island Dam Second Powerhouse Bypass Trap : Passage Index Counts

Passage Index = Collection Counts / {Powerhouse 2 Flow / (Powerhouse 1 & 2 Flow + Spill)}

MCN (Index) = McNary Dam Bypass Collection System : Passage Index Counts

Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}

JDA (Index) = John Day Dam Bypass Collection System : Passage Index Counts

Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}

BO2 (Index) = Bonneville Dam Second Powerhouse Bypass Collection System : Passage Index Counts

Passage Index = Collection Counts / {Powerhouse 2 Flow / (Powerhouse 1 & 2 Flow + Spill)}

JDA and BO2 data collected for the FPC by Pacific States Marine Fisheries Commission.

RIS data collected for the FPC by Chelan Co. PUD.

LGR, LMN, and MCN data collected for the FPC by Washington Dept. of Fish and Wildlife.

LGS and GRN data collected for the FPC by Oregon Dept. of Fish and Wildlife.

IMN data collected for the FPC by the Nez Perce Tribe.

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:

6/26/15 7:10 AM

		06/12/15	TO	06/26/15			
		Species					
Site	Data	CH0	CH1	CO	ST	SO	Grand Total
<b>LGR</b>	Sum of NumberCollected	73,670	160		950	20	74,800
	Sum of NumberBarged	73,267	160		692	19	74,138
	Sum of NumberBypassed	45	0		242	0	287
	Sum of Numbertrucked	0	0		0	0	0
	Sum of SampleMorts	37	0		0	0	37
	Sum of FacilityMorts	321	0		16	1	338
	Sum of ResearchMorts	0	0		0	0	0
	Sum of TotalProjectMorts	358	0		16	1	375
<b>LGS</b>	Sum of NumberCollected	162,370	695	261	4,893		168,219
	Sum of NumberBarged	161,999	694	256	4,909		167,858
	Sum of NumberBypassed	59	0	0	0		59
	Sum of Numbertrucked	0	0	0	0		0
	Sum of SampleMorts	17	0	0	1		18
	Sum of FacilityMorts	295	1	5	16		317
	Sum of ResearchMorts	0	0	0	0		0
	Sum of TotalProjectMorts	312	1	5	17		335
<b>LMN</b>	Sum of NumberCollected	30,090	90	30	970		31,180
	Sum of NumberBarged	27,965	90	20	963		29,038
	Sum of NumberBypassed	212	0	0	0		212
	Sum of Numbertrucked	0	0	0	0		0
	Sum of SampleMorts	14	0	0	1		15
	Sum of FacilityMorts	105	0	0	6		111
	Sum of ResearchMorts	0	0	0	0		0
	Sum of TotalProjectMorts	119	0	0	7		126
Total Sum of NumberCollected		266,130	945	291	6,813	20	274,199
Total Sum of NumberBarged		263,231	944	276	6,564	19	271,034
Total Sum of NumberBypassed		316	0	0	242	0	558
Total Sum of Numbertrucked		0	0	0	0	0	0
Total Sum of SampleMorts		68	0	0	2	0	70
Total Sum of FacilityMorts		721	1	5	38	1	766
Total Sum of ResearchMorts		0	0	0	0	0	0
Total Sum of TotalProjectMorts		789	1	5	40	1	836

**YTD Transportation Summary**

Source: Fish Passage Center

Updated:

6/26/15 7:10 AM

**TO: 06/26/15**

		Species					
Site	Data	CH0	CH1	CO	SO	ST	Grand Total
<b>LGR</b>	Sum of NumberCollected	517,760	1,150,038	26,150	10,880	825,774	2,530,602
	Sum of NumberBarged	508,351	473,193	22,642	10,450	362,334	1,376,970
	Sum of NumberBypassed	8,358	676,470	3,499	160	463,116	1,151,603
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	107	43	0	7	30	187
	Sum of FacilityMorts	944	316	9	256	254	1,779
	Sum of ResearchMorts	0	16	0	7	40	63
	Sum of TotalProjectMorts	1,051	375	9	270	324	2,029
<b>LGS</b>	Sum of NumberCollected	415,380	807,504	41,932	13,841	741,278	2,019,935
	Sum of NumberBarged	414,797	545,370	40,191	13,796	527,868	1,542,022
	Sum of NumberBypassed	134	261,966	1,720	40	213,220	477,080
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	22	21	0	2	9	54
	Sum of FacilityMorts	427	147	21	3	214	812
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	449	168	21	5	223	866
<b>LMN</b>	Sum of NumberCollected	138,280	642,332	22,120	6,690	322,287	1,131,709
	Sum of NumberBarged	135,870	581,430	21,806	6,640	285,128	1,030,874
	Sum of NumberBypassed	345	60,572	300	30	36,794	98,041
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	21	45	2	0	37	105
	Sum of FacilityMorts	250	315	2	20	328	915
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	271	360	4	20	365	1,020
Total Sum of NumberCollected		1,071,420	2,599,874	90,202	31,411	1,889,339	5,682,246
Total Sum of NumberBarged		1,059,018	1,599,993	84,639	30,886	1,175,330	3,949,866
Total Sum of NumberBypassed		8,837	999,008	5,519	230	713,130	1,726,724
Total Sum of NumberTrucked		0	0	0	0	0	0
Total Sum of SampleMorts		150	109	2	9	76	346
Total Sum of FacilityMorts		1,621	778	32	279	796	3,506
Total Sum of ResearchMorts		0	16	0	7	40	63
Total Sum of TotalProjectMorts		1,771	903	34	295	912	3,915

**Cumulative Adult Passage at Mainstem Dams Through: 06/25**

DAM	END DATE	Spring Chinook						Summer Chinook						Fall Chinook					
		2015		2014		10-Yr Avg.		2015		2014		10-Yr Avg.		2015		2014		10-Yr Avg.	
		Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	06/25	220480	13314	188083	26094	132065	23978	82625	9442	61658	11581	50866	11082	0	0	0	0	0	0
TDA	06/25	194116	12307	143142	21080	101070	20309	55888	6763	46004	7707	39112	7864	0	0	0	0	0	0
JDA	06/25	166015	11514	123224	19103	88117	19021	45633	4612	39403	6382	31708	7070	0	0	0	0	0	0
MCN	06/25	156151	8767	107147	16033	79364	15788	34731	3449	33364	4991	25671	4876	0	0	0	0	0	0
IHR	06/25	116462	5745	79298	12428	55061	10384	12396	1687	8037	2231	9987	2339	0	0	0	0	0	0
LMN	06/25	111511	8697	79942	14020	55282	9560	9313	1992	6903	2975	10089	2188	0	0	0	0	0	0
LGS	06/25	105124	8553	77966	13649	51473	10681	7236	1695	5890	2444	7595	2121	0	0	0	0	0	0
LGR	06/25	104873	8379	79167	13732	50576	11930	5483	1369	4747	1758	5838	1787	0	0	0	0	0	0
PRD	06/24	27716	1570	23742	2649	15720	1631	13480	723	14132	443	7697	312	0	0	0	0	0	0
WAN	06/24	25982	1077	0	0	15431	2202	13453	377	0	0	5625	445	0	0	0	0	0	0
RIS	06/23	31749	1092	23247	2934	15126	2669	9254	167	7148	164	3133	326	0	0	0	0	0	0
RRH	06/23	15244	609	12376	2377	6372	1183	3980	63	2533	57	976	67	0	0	0	0	0	0
WEL	06/24	15120	1336	11569	2417	4744	1328	0	0	0	0	0	0	0	0	0	0	0	0
WFA	06/24	49805	1980	25059	1031	28644	903	0	0	0	0	0	0	0	0	0	0	0	0

DAM	END DATE	Coho						Sockeye			Steelhead						Lamprey		
		2015		2014		10-Yr Avg.		2015	2014	10-Yr Avg.	2015	2014	10-Yr Avg.	Wild 2015	Wild 2014	10-Yr Avg.	2015	2014	10-Yr Avg.
		Adult	Jack	Adult	Jack	Adult	Jack												
BON	06/25	0	0	5	-2	0	0	244344	194417	109377	9103	12587	11599	4159	3886	3214	9932	9232	5069
TDA	06/25	0	0	0	0	0	0	190490	131341	72806	1942	3126	4643	772	985	1564	4208	796	323
JDA	06/25	0	0	0	1	0	1	157321	107385	59330	1758	4860	7064	825	1787	2298	2294	375	153
MCN	06/25	13	5	0	0	1	0	100483	58568	34762	1614	2107	6441	640	698	1997	279	25	12
IHR	06/25	0	0	0	0	0	0	161	36	31	1702	2615	5501	836	889	1589	98	11	0
LMN	06/25	0	0	0	0	0	0	114	23	13	3812	6077	7117	1932	1717	2199	17	3	0
LGS	06/25	0	0	0	0	0	0	87	25	8	1605	1943	3271	1034	1085	1470	11	0	0
LGR	06/25	0	0	0	0	0	0	36	11	1	9271	7691	8932	4373	3499	3255	1	1	0
PRD	06/24	0	0	0	0	0	0	46478	17853	7230	135	168	113	0	0	0	265	38	21
WAN	06/24	1	0	0	0	0	0	37112	0	3695	108	0	180	0	0	0	139	0	4
RIS	06/23	0	0	0	0	0	0	18480	3650	1333	164	322	150	107	175	76	0	0	0
RRH	06/23	0	0	0	0	0	0	10179	1278	577	126	273	390	83	166	272	0	0	0
WEL	06/24	3	0	0	0	0	0	7656	397	271	63	148	91	43	89	60	0	0	2
WFA	06/24	1	0	9	0	0	0	0	0	0	6778	19827	19112	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.