



# Fish Passage Center

## Weekly Report #15–19

July 24, 2015

### Summary of Events

#### Water Supply

Precipitation throughout the Columbia Basin has varied between 23% and 178% of average at individual sub-basins over July. Precipitation above The Dalles has been 82% of average over July. Over the 2015 water year, precipitation has ranged between 73% and 93% of average.

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

Location	Water Year 2015		Water Year 2015	
	July 1–22, 2015		October 1, 2014 to July 22, 2015	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia above Coulee	0.93	51	31.2	93
Sneke River above Ice Harbor	1.04	146	16.7	81
Columbia above The Dalles	0.85	82	21.2	84
Kootenai	0.85	42	32.2	93
Clark Fork	0.66	58	18.1	73
Flathead	0.70	44	27.4	84
Pend Oreille River Basin above Waneta Dam	0.65	48	23.7	80
Salmon River Basin	0.98	90	20.3	77
Upper Snake Tributaries	1.89	178	19.8	81
Clearwater	0.81	63	30.1	79
Willamette River above Portland	0.16	23	48.8	79

Table 2 displays the July 23<sup>rd</sup> ESP runoff volume forecasts for multiple reservoirs along with the June COE forecasts at Libby and Dworshak. The July 23<sup>rd</sup> ESP forecast at The Dalles between April and August is 58,475 Kaf (67% of average).

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

Location	July 23, 2015 5-day QPF ESP	
	% Average (1981–2010)	Runoff Volume (Kaf)
The Dalles (Apr–Aug)	67	58,475
Grand Coulee (Apr–Aug)	74	41,939
Libby Res. Inflow, MT (Apr–Aug)	71 86*	4,195 5,090*
Hungry Horse Res. Inflow, MT (Apr–Aug)	64	1,236
Lower Granite Res. Inflow (Apr–July)	53	10,581
Brownlee Res. Inflow (Apr–July)	45	2,473
Dworshak Res. Inflow (Apr–July)	45 42*	1,080 1,113*

\* Denotes COE June Forecast

Grand Coulee Reservoir is at 1,289.2 feet (7-23-15) and has refilled 0.5 feet over the last week. Outflows at Grand Coulee have ranged between 79.4 and 110.7 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2,443.6 feet (7-23-15) and has drafted 0.4 feet over the previous week. Daily average outflows at Libby Dam have been 9.0 Kcfs over the last week.

Hungry Horse is currently at an elevation of 3,547.1 feet (7-23-15) and drafted 0.6 feet over the last week. Outflows at Hungry Horse have been 2.0–3.0 Kcfs over the last week.

Dworshak is currently at an elevation of 1,567.1 feet (7-23-15) and drafted 7.0 feet over the last week. Outflows have been 9.9 Kcfs for most of the last week and were reduced to 7.7 Kcfs on 7/24/15.

The Brownlee Reservoir was at an elevation of 2,068.4 feet on July 23, 2015, and has drafted 3.7 feet over the last week. Hells Canyon outflows have ranged between 8.5 and 22.2 Kcfs over the last four days.

The Summer Biological Opinion flow period began on June 21<sup>st</sup> with a flow objective of 50 Kcfs. Over the Summer Flow Period, flows at Lower Granite Dam have averaged 29.6 Kcfs and over the last week have averaged 30.7 Kcfs.

The Summer Biological Opinion Flow Objective (which began July 1<sup>st</sup>) is 200 Kcfs at McNary Dam. Over July, flows at McNary have averaged 141.5 Kcfs. Flows at McNary have averaged 141.1 Kcfs over the last week.

### Spill

The 2015 summer fish spill program was initiated at the lower Snake River projects 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 is planned as described in the 2015 Fish Operations Plan (2015 FOP). With the start of summer spill on June 21<sup>st</sup>, spill at Lower Granite Dam switched from 20 Kcfs to 18 Kcfs; Little Goose Dam continued as 30% of instantaneous flow; Lower Monumental Dam switched to 17 Kcfs; and Ice Harbor Dam continued the “test-like” conditions alternating between blocks of days with 30% spill and 45Kcgs/gas cap spill. However, low flow over this past week and changes in project operations caused changes from the planned operation from these spill levels at all the Snake River projects. Lower Granite Dam continued operating Unit 1, which is a fixed blade unit that operates at a higher capacity. The switch was made to aid adult passage, but at the same time both the RSW was switched off and juvenile spill was decreased. Spill at Little Goose Dam was changed from an instantaneous 30% level to a fixed spill volume on June 16<sup>th</sup>. The fixed spill volume was changed on 7/23 and 7/24 to a 16-hour daytime period with no spill, and a nighttime operation of 8 hours with spill in excess of powerhouse minimum. Daily spill over the past week ranged from 3.8 Kcfs to 11 Kcfs.

Summer spill volumes at Lower Monumental Dam were equal to all flow in excess of the amount needed to operate one turbine unit and ranged from 14.3 Kcfs to 17 Kcfs. The “test-like” conditions, where spill alternates between 30% instantaneous and 45 Kcfs/gas cap, were in place last week. The “test-like” period ended on July 13<sup>th</sup> and spill for the remainder of the summer is supposed to be 45 cfs/gas cap. Flows are sufficiently low that the 45 Kcfs/gas cap spill condition is not implementable and spill is occurring as all flow in excess of the amount needed to operate one turbine unit. Spill averaged from 17.4 Kcfs to 25.3 Kcfs at this project.

Project	Summer Spill Level (June 21–August 31) Day/Night
Lower Granite	18 Kcfs/18 Kcfs
Little Goose	30%/30%
Lower Monumental	17 Kcfs/17 Kcfs
Ice Harbor	<b>June 21–July 13:</b> 30%/30% vs. 45 Kcfs/Gas Cap <b>July 13–August 31:</b> 45 Kcfs/Gas Cap

All the middle Columbia River projects are currently spilling to summer spill levels as described in the 2015 FOP. At Bonneville Dam low flows at times are precluding the stated spill levels, particularly the 121 Kcfs during nighttime hours. During these times spill is equal to all flow in excess of that needed to meet minimum project operations.

Project	Summer Spill Level (June 16–August 31) Day/Night
McNary	50%/50%
John Day	<b>June 16–July 20:</b> 30%/30% and 40%/40% <b>July 20–August 31:</b> 30%/30%
The Dalles	40%/40%
Bonneville	<b>June 16–Aug 31:</b> 85 Kcfs/121 Kcfs and 95 Kcfs/95 Kcfs

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, Bonneville and Rock Island dams over the past week. Monitoring at Lower Granite Dam ended for the season due to low fish numbers. Monitoring at McNary Dam was suspended after July 15<sup>th</sup> due to high temperature concerns. 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 all four Smolt Monitoring Program traps has been terminated for the season.

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 all SMP bypass facilities this week.

The Bonneville Dam (BON) Juvenile Fish Facility continued to operate under the high temperature sampling protocol this week. Under the high temperature sampling protocol, SMP sampling at BON is modified from a daily 24-hour sample to an every-other-day 24-hour sample. The first non-sample day occurred on June 29<sup>th</sup>. This high temperature protocol will remain in place until the daily average temperature in the forebay falls below 69.5°F. Samples at BON continued to be dominated by subyearling Chinook. In fact, subyearling Chinook were the only target species encountered in this week's samples at BON. This

week's daily average passage index for subyearling Chinook was about 7,050 per day which was a decrease from last week's daily average passage index of nearly 50,000 per day.

Sampling at John Day Dam (JDA) is also under the high temperature sampling protocol. Under the high temperature sampling protocol, SMP sampling at JDA is modified from a daily 24-hour sample to a condition only sample (for up to 6 hours) every Monday and Thursday. The first condition only sample occurred on Monday, June 29<sup>th</sup>. This high temperature protocol will remain in place until the daily average temperature in the forebay falls below 69.5°F. Because the high temperature protocol calls for a partial day sample, it is not appropriate to use the passage index as a measure of the magnitude of juvenile passage. Subyearling Chinook continued to dominate the collections at John Day Dam (JDA) this week. As with last week, no spring migrants were encountered in this week's samples. In addition, no lamprey juveniles were encountered in this week's samples. Finally, both of this week's samples had mortality levels of 0.0% for subyearling Chinook.

Sampling at McNary Dam (MCN) is also under the high temperature sampling protocol. Under the high temperature sampling protocol, sampling at MCN continues to be a 24-hour sample every other day but with a modified target sample size of 100 instead of 300–500 fish. The high temperature protocol went into effect on the afternoon of July 1<sup>st</sup> and will remain in effect until the daily average temperature in the MCN forebay falls below 69.5°F. This week's samples at MCN were dominated by subyearling Chinook. This week's daily average passage index for subyearling Chinook was about 5,400 per day, which is large decrease over last week's daily average passage index of nearly 36,100 per day. The only spring migrants that were encountered in this week's samples were sockeye and steelhead. Finally, Pacific lamprey macrophthalmia were encountered in two of this week's three samples. The daily average collection for Pacific lamprey macrophthalmia this week was about 50 fish per day. 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 4,700 per day, which was a decrease over last week's daily average passage index of nearly 12,000 fish per day. Very few spring migrants were encountered in this week's samples. Only one Pacific lamprey macrophthalmia was sampled this week (July 19<sup>th</sup>).

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 continued to dominate the samples at LGS this week. This week's daily average passage index for subyearling Chinook at LGS was about 1,700 fish per day, which is a substantial decrease from last week's daily average passage index of nearly 23,500 per day. No sockeye or yearling Chinook juveniles were encountered in this week's samples and coho were encountered in only one of this week's samples (July 23<sup>rd</sup>). Steelhead, however, were encountered in all of this week's samples, with a daily average passage index of about 65 per day. This is a decrease over last week's daily average passage index of about 160 per day. Finally, Pacific lamprey macrophthalmia were encountered in two of this week's samples. No Pacific lamprey ammocoetes were encountered at LGS this week.

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 240 per day. This is a decrease over last week's daily average passage index of about 850 per day. The only spring migrants that were encountered in this week's samples were steelhead, which were encountered only on two sample days (July 22<sup>nd</sup> and 23<sup>rd</sup>). Finally, Pacific lamprey macrophthalmia were encountered in one of this week's samples (July 22<sup>nd</sup>). 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 170 fish per day, which is a decrease over last week's daily average passage index of about 275 per day. Passage of spring migrants was extremely low this week. Finally, Pacific lamprey macrophthalmia were encountered in six of this week's samples. No Pacific lamprey ammocoetes were encountered in this week's samples.

## 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. No new releases were scheduled to begin in this zone this week. 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. Approximately 2.0 million subyearling fall Chinook juveniles were scheduled for release from Willard NFH beginning July 11<sup>th</sup>. This release was expected to end on or around July 20<sup>th</sup>. No new releases are scheduled for this zone over the next 2 weeks.

## Adult Passage

Daily passage numbers at Bonneville Dam ranged between 907 and 1,741 adult summer Chinook in the last week. The 2015 summer Chinook count of 150,212 is about 1.4 times greater than the 2014 count and 1.8 times greater than the 10-year average. The 2015 summer Chinook jack count of 16,541 is about 70.9% of the 2014 count and 86.8% of the 10-year average count. As of July 23<sup>rd</sup>, a total of 83,386 adult summer Chinook have been counted at McNary Dam and 12,676 have been counted at Lower Granite Dam. The 2015 McNary Dam adult summer Chinook count has 2,141 more fish than the 2014 count, while being



1.4 times greater than the 10-year average count. The 2015 Lower Granite Dam adult summer Chinook count has 648 fewer fish than the 2014 count and 2,104 fewer fish than the 10-year average count.

The 2015 Bonneville Dam adult steelhead count of 37,731 is 54.1% of the 2014 count of 69,659 and 59.2% of the 10-year average count of 69,280. The 2015 Bonneville Dam adult wild steelhead count of 21,211 is about 59.1% of the 2014 count of 35,705 and 67.2% of the 10-year average count of 31,447. Daily adult steelhead counts at Lower Granite Dam ranged from 19 to 44 adults per day last week. This year's Lower Granite steelhead count of 9,696 has 592 fewer fish than the 2014 count of 10,288 and 1,288 fewer fish than the 10-year average count of 10,984. The 2015 Lower Granite Dam adult wild steelhead count of 4,646 has 255 fewer fish than the 2014 count of 4,901, while having 613 more fish than the 10-year average count of 4,033.

Daily adult sockeye passage numbers at Bonneville Dam ranged between 1,541 and 2,363 last week. The 2015 adult sockeye count at Bonneville Dam of 504,352 is 82.8% of the 2014 count, while being 2.1 times greater than the 10-year average count. The 2015 adult sockeye count at McNary Dam of 270,103 is 50.3% of the 2014 count, while being 1.5 times greater than the 10-year average count. The Lower Granite Dam 2015 adult sockeye count of 339 has 1,857 fewer fish than the 2014 count and 471 fewer fish than the 10-year average. As of July 23rd at Bonneville Dam, the adult shad count was 1,811,263. This year's shad count is about 69.6% of the 2014 count of 2,600,488 and 72.4% of the 10-year average count of 2,501,863.

In the lower Snake River, adult passage has been variable. On July 7, 2014, the passage of sockeye at Lower Granite Dam fell to zero due to excessive water temperature. In addition, the Corps of Engineers (COE) expressed concern regarding an eddy at the southern powerhouse created by the focused spill of the RSW and minimal powerhouse flow. At the July 8, 2015, FPOM meeting, it was agreed to discontinue the use of the RSW and move to a uniform spill pattern. Passage did not improve likely due to the continuing high temperatures in the adult ladder. Early in the morning on July 13, 2015, operations at Lower Granite were modified by the COE to running Unit #1 (fixed blade

with 17–18 Kcfs discharge) and spilling the remainder of the project discharge in a uniform pattern without the RSW. At Lower Granite Dam, the COE has been using rental and auxiliary pumps that pull deeper and cooler water from the Lower Granite forebay into the fish ladder. Idaho Department of Fish and Game (IDFG) has implemented an emergency trap and haul operation for sockeye in the Snake River which began Monday July 13, 2015.

Over the last week, several FPOM and TMT meetings were held that focused on the passage of sockeye at both Lower Granite and Little Goose dams. At Lower Granite Dam, some salmon managers have questioned the priority operation of Unit #1, which limits juvenile protection by spill reductions. Based on daily count information, it appears fish passage is more related to ladder temperatures than the tailrace hydraulics created by either Unit #1 or Unit #2 (without the RSW in operation). This week several managers recommended returning to a Unit #2 priority at Lower Granite Dam. However, both the COE and NOAA felt that Unit #1 is a better operation for adult passage, due to it passing more discharge closer to the south entrance. They also feel that it may pull cooler water from the Lower Granite forebay. Others have stated that the outflow temperature is not drastically different between the Unit #1 and Unit #2 priority operations and the adult passage problem is more of a thermal rather than a hydraulic attraction issue. Restoring the Unit #2 priority would provide better juvenile passage conditions at Lower Granite. Currently, the COE has decided to remain with the Unit #1 priority at Lower Granite Dam. Adult sockeye counts have remained variable since the Unit #1 priority, ranging from 2 to 25 fish per day.

At Little Goose Dam, IDFG recommended modifying operations to attempt to pass adult salmonids. The proposed action was to operate with a powerhouse only operation from 0400 to 2000 and spill everything above minimum generation during the remaining nighttime hours for a two day period. This operation was discussed at both FPOM and TMT, with no regional consensus on an operation. The COE decided to implement this request primarily based on the support of NOAA fisheries, with the operation beginning at 0400 on 7/23/15 and ending at 0400 at 7/25/15.

During the first day of operation, sockeye counts totaled ten at Little Goose; whereas the previous day's sockeye count was seven at Little Goose. This operation will continue through Saturday at 0400 then revert back to the FOP operation until fisheries managers have an opportunity to review and discuss the operation on Monday July 27, 2015.

## Hatchery Releases Last Two Weeks

<b>Hatchery Release Summary</b>									
<b>From:</b>		<b>7/11/2015</b>		<b>to</b>		<b>07/24/15</b>			
<b>Agency</b>	<b>Hatchery</b>	<b>Species</b>	<b>Race</b>	<b>MigYr</b>	<b>NumRel</b>	<b>RelStart</b>	<b>RelEnd</b>	<b>RelSite</b>	<b>RelRiver</b>
U.S. Fish and Wildlife Service	Willard Hatchery	CH0	FA	2015	2,000,000	07-15-15	07-20-15	Willard Hatchery	Little White Salmon River
<b>U.S. Fish and Wildlife Service Total</b>					<b>2,000,000</b>				
<b>Grand Total</b>					<b>2,000,000</b>				

## Hatchery Releases Next Two Weeks

**Hatchery Release Summary**  
**From:** 7/25/2015 to 8/6/2015

No Releases Scheduled

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
07/10/2015	72.5	0.0	73.3	0.0	77.5	6.1	76.0	8.0	76.1	17.1	83.3	16.2	83.4	23.8
07/11/2015	66.9	0.0	66.1	0.0	68.3	5.7	68.9	7.9	68.3	17.0	72.6	15.8	71.8	24.3
07/12/2015	88.4	0.0	86.4	0.0	85.7	6.9	77.2	7.0	76.3	15.4	72.6	15.9	69.1	25.1
07/13/2015	96.7	0.0	95.3	1.8	101.5	8.0	98.5	8.4	99.7	19.6	109.9	14.1	110.2	26.1
07/14/2015	112.3	0.0	108.8	8.1	109.3	8.1	102.8	8.8	104.8	19.9	107.3	13.0	104.3	25.8
07/15/2015	112.9	0.0	109.7	0.0	113.5	8.8	107.6	8.0	110.3	19.9	112.0	18.0	109.8	20.8
07/16/2015	112.4	0.0	107.2	0.0	111.0	7.6	106.5	8.6	110.8	20.0	120.7	19.1	119.6	27.7
07/17/2015	110.7	0.0	110.8	0.0	114.9	8.2	110.3	8.7	114.9	20.1	122.3	18.4	119.9	27.6
07/18/2015	105.5	0.0	103.4	0.0	105.7	8.3	102.4	8.4	104.3	18.4	107.6	17.4	106.6	27.0
07/19/2015	98.4	0.0	107.7	0.0	111.3	8.2	106.3	8.5	108.2	18.4	113.0	18.4	112.8	27.7
07/20/2015	99.1	0.0	98.8	0.0	103.4	8.1	101.0	8.7	102.1	21.1	109.4	18.2	108.4	27.6
07/21/2015	79.4	0.0	81.9	0.0	87.6	6.7	87.1	9.4	89.4	20.8	99.6	18.2	100.8	26.3
07/22/2015	89.4	0.0	88.1	0.0	89.4	8.0	84.4	8.3	84.1	17.2	84.3	16.8	81.3	26.4
07/23/2015	102.2	0.0	93.7	0.0	96.6	7.7	93.8	8.4	94.8	18.6	105.1	17.4	104.6	27.0

**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
07/10/2015	12.5	2.8	---	7.6	32.0	18.0	31.6	9.3	31.2	16.8	30.9	21.2	
07/11/2015	12.2	2.6	---	8.2	30.5	17.5	28.8	11.2	28.8	15.7	30.0	11.9	
07/12/2015	12.6	2.8	---	10.0	30.0	17.0	28.7	11.2	27.4	15.0	27.7	8.3	
07/13/2015	10.5	0.9	---	7.7	33.4	16.4	31.6	11.2	31.0	16.4	31.4	19.9	
07/14/2015	7.5	0.0	---	9.2	26.9	8.1	27.9	11.0	28.0	15.8	29.5	20.0	
07/15/2015	7.6	0.0	---	10.3	25.5	6.8	25.2	9.3	24.1	11.7	22.8	13.1	
07/16/2015	9.1	0.0	---	10.0	26.7	8.1	26.0	9.1	25.2	12.8	25.1	15.5	
07/17/2015	9.7	0.0	---	11.3	30.3	11.8	28.2	9.2	27.2	14.9	28.2	18.6	
07/18/2015	9.8	0.0	---	12.7	31.0	12.3	31.0	10.9	29.9	17.0	29.9	20.2	
07/19/2015	9.8	0.0	---	11.8	31.0	12.5	30.4	11.0	30.2	16.4	32.2	22.6	
07/20/2015	9.8	0.0	---	12.2	29.3	10.5	29.0	11.0	27.6	15.3	28.0	17.5	
07/21/2015	9.9	0.0	---	12.6	29.8	11.2	27.5	11.0	27.4	14.3	27.4	17.4	
07/22/2015	9.9	0.0	---	14.7	32.3	13.8	30.8	9.3	29.8	14.3	29.2	19.3	
07/23/2015	9.8	0.0	---	14.4	31.2	12.5	31.8	3.8	32.8	16.4	35.4	25.3	

**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		
07/10/2015	125.6	62.7	111.8	35.0	101.9	41.0	124.3	79.1	0.9	31.8
07/11/2015	116.5	58.5	103.2	41.3	94.9	37.9	113.4	68.5	0.9	31.6
07/12/2015	112.9	56.6	103.9	39.8	98.3	39.4	109.8	65.3	0.9	31.2
07/13/2015	122.7	61.5	128.7	38.5	115.2	46.1	130.6	83.4	0.9	33.9
07/14/2015	158.8	79.7	148.6	47.1	135.4	54.4	147.4	91.5	0.9	42.6
07/15/2015	137.0	68.4	133.0	53.1	121.0	48.3	142.3	94.3	1.0	34.7
07/16/2015	147.8	74.0	131.1	50.1	115.6	46.2	132.6	87.7	0.9	31.6
07/17/2015	136.8	68.5	136.4	40.6	124.7	49.8	132.6	87.6	0.9	31.7
07/18/2015	151.6	75.9	144.4	45.4	130.8	52.2	141.6	91.7	0.9	36.6
07/19/2015	151.7	76.1	137.2	54.7	120.8	48.5	141.3	94.2	0.9	33.8
07/20/2015	151.5	75.7	141.1	54.2	127.0	50.7	134.3	88.9	0.9	32.1
07/21/2015	143.2	71.6	138.8	41.3	125.4	50.1	138.3	90.8	0.9	34.2
07/22/2015	127.9	63.9	129.7	38.9	116.3	46.6	140.2	95.1	0.8	31.9
07/23/2015	124.7	62.6	112.2	33.8	103.9	41.5	119.3	74.8	0.8	31.2



## 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>											
	07/13/15	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	07/20/15	Chinook + Steelhead	80*	0	0			0	0	0	0
<b>Lower Monumental Dam</b>											
	07/15/15	Chinook + Steelhead	91*	0	0			0	0	0	0
	07/22/15	Chinook + Steelhead	5*	0	0			0	0	0	0
<b>McNary Dam</b>											
	07/15/15	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>Bonneville Dam</b>											
	07/11/15	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	07/15/15	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	07/19/15	Chinook + Steelhead	23*	0	0			0	0	0	0
<b>Rock Island Dam</b>											
	07/14/15	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	07/16/15	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0

\* Sample size criteria not met, therefore no % fish with GBT 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>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>				
7/10	106.4	107.0	107.4	24	---	---	---	0	109.0	109.1	109.5	24	107.7	108.1	108.8	24	109.5	109.7	109.9	24
7/11	106.5	106.9	107.5	24	---	---	---	0	108.7	109.0	109.4	24	107.3	107.8	108.4	24	108.5	108.8	109.0	24
7/12	105.9	106.3	106.8	24	---	---	---	0	107.9	108.1	108.3	24	107.1	107.5	107.8	24	107.5	108.0	108.5	24
7/13	105.8	106.2	106.5	24	---	---	---	0	108.0	108.2	108.6	24	107.1	107.8	109.0	24	107.5	108.0	108.4	24
7/14	105.6	106.1	106.5	24	---	---	---	0	108.8	109.0	109.5	24	106.7	107.3	107.9	24	107.9	108.5	108.9	24
7/15	105.6	106.0	106.5	24	---	---	---	0	108.9	109.3	110.9	24	106.6	107.3	108.0	24	107.8	108.1	108.6	24
7/16	105.7	106.2	106.8	24	---	---	---	0	108.8	109.0	109.1	24	106.1	106.8	107.4	24	106.7	107.0	107.3	24
7/17	105.3	105.7	105.9	24	---	---	---	0	108.7	108.8	109.1	24	106.3	107.1	107.7	24	106.3	106.6	107.0	24
7/18	105.5	106.0	106.6	24	---	---	---	0	109.0	109.3	109.5	24	106.4	107.4	107.9	24	106.1	106.5	106.9	24
7/19	104.7	104.9	105.1	24	---	---	---	0	109.0	109.2	109.7	24	106.4	107.4	107.8	24	106.7	107.2	107.5	24
7/20	104.6	105.2	105.7	24	---	---	---	0	109.4	109.5	109.8	24	106.8	107.6	108.8	24	107.6	108.1	108.4	24
7/21	105.2	105.9	106.7	23	---	---	---	0	109.6	109.7	109.9	24	106.6	107.6	108.3	24	107.7	108.0	108.2	24
7/22	102.6	104.2	105.8	24	---	---	---	0	109.4	109.6	109.9	24	107.0	107.9	108.7	24	107.9	108.2	108.6	24
7/23	103.6	105.8	108.9	23	---	---	---	0	109.0	109.1	109.4	23	106.7	107.3	108.3	23	107.3	107.4	107.6	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>#</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>				
7/10	109.7	110.1	110.5	24	109.5	110.1	110.9	24	110.1	110.8	111.7	24	110.8	111.0	111.2	24	111.2	111.9	113.0	24
7/11	109.3	109.6	110.0	24	109.1	109.5	110.1	23	109.5	110.0	110.7	23	109.6	109.9	110.4	24	110.3	110.6	110.9	24
7/12	107.8	108.4	109.2	24	108.5	108.8	109.0	24	109.1	109.7	110.1	24	108.7	108.9	109.2	24	110.2	110.9	111.4	24
7/13	107.2	107.6	108.7	24	108.1	108.5	109.1	19	109.0	109.6	110.6	19	108.4	108.6	108.8	24	110.9	111.7	112.7	24
7/14	108.3	109.4	110.2	24	108.2	109.0	109.6	24	109.2	110.1	110.9	24	108.7	109.2	109.4	24	111.6	113.1	113.9	24
7/15	107.0	107.4	107.7	24	108.3	108.7	109.4	20	109.5	110.0	110.9	20	109.0	109.2	109.5	24	112.0	112.8	113.6	24
7/16	106.3	106.6	107.3	24	107.3	107.5	108.0	18	108.4	108.7	109.5	18	108.2	108.5	108.8	24	111.9	112.5	113.1	24
7/17	105.6	106.1	106.4	24	106.7	107.4	108.2	22	107.8	108.5	109.1	22	107.9	108.3	108.7	24	111.5	112.3	113.0	24
7/18	105.8	106.5	107.6	24	107.0	107.6	108.3	22	108.2	108.9	110.0	22	108.4	108.7	109.2	24	111.7	112.4	113.0	24
7/19	106.1	106.6	107.0	24	107.4	108.3	108.8	24	108.5	109.4	110.1	24	108.6	108.9	109.2	24	111.9	112.8	113.6	24
7/20	107.2	107.3	107.7	24	107.7	108.2	108.9	23	108.6	109.4	110.3	23	109.1	109.4	109.8	24	111.8	112.4	113.0	24
7/21	108.1	108.6	109.4	24	107.7	108.3	108.6	24	108.2	109.0	109.5	24	108.9	109.3	109.7	24	111.6	112.3	112.9	24
7/22	107.7	108.2	109.1	24	107.4	108.2	108.9	24	108.2	109.3	109.9	24	107.9	108.2	108.7	24	110.6	111.6	112.4	24
7/23	107.1	107.8	108.8	23	106.6	106.6	106.9	7	107.3	107.3	107.8	7	107.2	107.5	107.9	23	110.2	111.0	111.7	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>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>				
7/10	109.9	110.2	110.9	24	115.2	116.3	117.9	24	110.9	111.8	112.9	24	109.9	110.7	111.7	24	111.2	111.7	112.6	24
7/11	109.0	109.4	109.6	24	114.9	115.8	117.7	24	108.7	109.0	109.2	24	110.0	110.6	111.2	24	108.8	109.5	110.5	24
7/12	107.8	108.2	108.5	24	113.9	114.9	116.8	24	107.3	107.6	107.9	24	109.2	110.3	110.6	24	107.6	108.5	109.7	24
7/13	108.3	108.8	109.4	24	113.7	114.6	116.8	24	107.2	108.7	109.5	24	109.1	109.7	110.1	24	107.4	108.3	109.0	24
7/14	108.7	109.4	110.4	24	113.7	114.4	116.5	24	108.3	109.4	110.4	24	109.2	110.1	110.8	24	107.3	108.0	108.8	24
7/15	109.0	109.5	110.0	24	113.9	114.6	115.2	24	107.1	107.8	108.5	24	109.9	110.2	110.6	24	107.3	108.2	108.8	24
7/16	108.3	108.8	109.1	24	113.3	113.9	114.5	24	106.6	107.1	107.5	24	109.7	110.5	111.8	24	107.5	108.3	109.1	24
7/17	108.2	109.0	109.7	24	113.1	113.9	114.2	24	107.3	108.7	109.6	24	109.7	110.0	110.3	24	107.4	108.7	110.2	24
7/18	108.8	109.5	110.1	24	113.8	114.6	115.9	24	108.2	110.8	111.6	24	110.6	111.2	111.4	24	109.3	110.0	111.2	24
7/19	108.9	109.4	109.8	24	113.3	113.8	114.4	24	110.2	111.4	112.2	24	111.5	111.7	112.1	24	111.2	111.6	112.0	24
7/20	109.1	109.5	109.7	24	114.5	114.9	115.5	24	109.1	109.5	110.7	24	110.9	110.9	112.2	12	110.1	110.7	111.2	24
7/21	108.8	109.1	109.6	24	114.3	115.0	115.7	24	108.3	108.7	108.9	24	111.4	111.5	112.2	16	108.7	109.2	109.5	24
7/22	108.2	108.5	108.8	24	114.1	115.0	117.1	24	---	---	---	0	---	---	---	0	---	---	---	0
7/23	107.1	107.9	108.5	23	112.9	113.9	115.6	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	<u>Priest R. Dnst</u>			#	<u>Pasco</u>			#	<u>Dworshak</u>			#	<u>Clrwr-Peck</u>			#	<u>Anatone</u>			#
	<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>		
	<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>	
7/10	113.0	113.5	115.2	24	---	---	---	0	105.6	105.8	106.0	24	105.7	106.2	106.7	24	101.5	102.2	103.7	23
7/11	112.6	113.5	115.1	24	---	---	---	0	104.3	104.6	105.0	24	104.5	104.7	104.9	24	101.1	102.2	103.5	24
7/12	113.7	115.0	116.9	24	---	---	---	0	105.3	105.6	105.8	24	105.4	106.2	107.2	24	101.5	102.8	104.5	24
7/13	111.9	113.4	115.8	24	---	---	---	0	100.5	102.7	105.1	24	103.4	104.5	104.9	24	101.6	102.6	104.2	23
7/14	111.7	112.8	116.0	24	---	---	---	0	98.7	99.2	99.6	24	101.9	103.0	104.4	24	100.1	100.1	100.6	9
7/15	111.0	113.2	116.1	24	---	---	---	0	98.8	99.2	99.7	24	101.8	103.0	104.4	24	103.1	103.1	104.8	11
7/16	111.5	112.9	115.6	24	---	---	---	0	98.4	98.6	98.8	24	101.0	102.0	102.6	24	101.3	102.1	102.5	24
7/17	111.8	113.0	116.2	24	---	---	---	0	98.6	99.0	99.4	24	100.7	101.7	102.8	24	101.1	102.0	102.7	24
7/18	113.4	115.0	116.9	24	---	---	---	0	98.4	98.8	99.0	24	100.6	101.6	102.8	24	102.0	103.2	104.4	24
7/19	113.7	114.6	117.2	24	---	---	---	0	98.5	98.9	99.2	24	100.8	101.9	103.2	24	102.2	103.5	104.5	24
7/20	113.4	114.5	116.9	24	---	---	---	0	98.8	99.3	99.7	24	101.2	102.4	103.7	24	102.5	103.9	105.4	22
7/21	111.9	112.6	115.8	24	---	---	---	0	99.1	99.5	99.9	24	101.5	102.7	104.1	23	102.5	104.0	105.4	24
7/22	---	---	---	0	---	---	---	0	99.2	99.5	99.8	24	101.4	102.4	103.6	24	102.2	103.2	104.3	24
7/23	---	---	---	0	---	---	---	0	98.8	99.2	99.6	23	101.1	102.0	103.2	23	101.9	102.9	103.9	23

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

Date	<u>Clrwr-Lewiston</u>			#	<u>Lower Granite</u>			#	<u>L. Granite Tlwr</u>			#	<u>Little Goose</u>			#	<u>L. Goose Tlwr</u>			#
	<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>		
	<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>	
7/10	104.5	106.1	107.2	24	101.9	102.3	102.7	24	109.9	110.7	111.1	24	110.8	111.0	111.3	24	110.0	110.2	110.5	24
7/11	104.1	105.2	106.7	24	101.4	101.5	101.8	24	110.2	110.6	111.0	24	110.0	110.1	110.3	24	109.8	110.2	110.9	24
7/12	105.1	107.5	109.0	24	101.4	101.6	101.7	24	109.5	110.2	111.1	24	109.4	109.6	110.0	24	109.7	110.1	110.6	24
7/13	105.0	107.2	108.7	24	101.2	101.3	101.4	24	108.6	109.7	110.1	24	108.7	109.0	109.2	24	109.8	110.1	110.7	24
7/14	104.5	107.4	109.6	24	101.1	101.4	101.7	24	104.6	105.3	105.9	24	107.5	107.8	108.7	24	109.6	110.1	110.6	24
7/15	104.5	107.2	109.1	24	101.8	102.2	102.5	24	104.6	104.8	105.1	24	106.4	107.0	107.4	24	108.3	108.7	109.1	24
7/16	103.8	105.9	107.7	24	102.6	102.8	103.0	24	104.9	105.6	108.0	24	106.6	106.7	107.0	24	108.1	108.5	108.9	24
7/17	103.9	106.5	108.2	24	101.8	102.5	102.7	24	105.9	107.0	107.4	24	105.9	106.1	106.7	24	108.2	108.6	109.0	24
7/18	104.0	106.7	108.5	24	101.9	102.4	102.6	24	105.5	106.6	108.7	24	105.9	106.1	106.4	24	108.4	109.0	109.6	24
7/19	104.1	106.7	108.5	24	102.0	102.1	102.4	24	107.3	109.3	110.7	24	104.1	104.9	105.6	24	107.7	108.1	108.7	24
7/20	104.4	107.0	108.9	24	101.3	101.6	101.8	24	106.4	108.2	110.2	24	102.9	103.3	104.2	24	107.5	108.0	109.4	24
7/21	104.3	106.8	108.7	24	101.7	101.9	102.2	24	108.0	109.9	111.0	24	104.8	105.2	105.9	24	107.9	108.3	108.6	24
7/22	103.9	106.4	108.2	24	102.5	103.1	103.7	24	109.0	111.6	112.0	24	105.0	105.3	105.6	24	107.4	107.9	108.6	24
7/23	103.7	106.0	107.8	23	103.2	103.3	103.7	23	109.8	111.1	111.5	23	105.7	106.0	106.3	23	105.7	106.4	107.5	23

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

Date	<u>Lower Mon.</u>			#	<u>L. Mon. Tlwr</u>			#	<u>Ice Harbor</u>			#	<u>Ice Harbor Tlwr</u>			#	<u>McNary-Oregon</u>			#
	<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>		
	<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>	
7/10	108.1	108.6	109.2	24	114.8	115.3	115.7	24	111.2	111.6	112.0	24	112.0	113.2	113.7	24	---	---	---	0
7/11	107.4	107.8	108.4	24	113.7	114.4	114.8	24	109.6	109.9	110.3	24	111.2	112.0	112.5	24	---	---	---	0
7/12	106.6	107.0	107.8	24	113.3	113.7	114.1	24	108.6	109.2	109.7	24	110.3	110.9	111.6	24	---	---	---	0
7/13	106.4	106.7	106.9	24	114.8	115.5	115.9	24	107.2	107.4	107.7	24	111.9	113.3	113.8	24	---	---	---	0
7/14	106.1	106.2	106.5	24	115.0	115.8	116.2	24	106.4	106.8	107.0	24	112.9	113.6	114.3	24	---	---	---	0
7/15	106.0	106.2	106.7	24	112.0	112.5	112.9	24	106.8	107.1	107.4	24	110.3	111.1	111.9	24	---	---	---	0
7/16	106.1	106.5	106.7	24	112.5	113.3	114.0	24	107.7	108.3	109.0	24	110.2	111.1	111.7	24	---	---	---	0
7/17	106.9	107.2	107.4	24	114.2	114.7	115.0	24	108.7	109.4	110.2	24	112.2	113.4	114.3	24	---	---	---	0
7/18	106.6	106.9	107.4	24	115.5	116.1	116.5	24	109.8	110.2	110.8	24	112.9	113.8	114.3	24	---	---	---	0
7/19	105.7	106.0	106.2	24	115.1	115.6	115.8	24	110.0	110.2	110.5	24	113.2	113.9	114.3	24	---	---	---	0
7/20	104.8	105.1	106.0	24	113.9	114.7	115.1	24	108.9	109.4	110.0	24	112.2	113.3	113.7	24	---	---	---	0
7/21	105.8	106.3	106.7	24	114.4	115.3	116.0	24	110.2	110.7	111.5	24	111.9	113.2	114.1	24	---	---	---	0
7/22	105.2	105.5	106.1	24	113.9	115.0	115.8	24	110.7	111.1	111.6	24	111.3	112.4	113.2	24	---	---	---	0
7/23	104.8	105.1	105.5	23	114.8	115.3	115.8	23	110.6	111.0	111.8	23	113.0	113.6	114.5	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>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24h</u>	<u>12h</u>	<u>#</u>	<u>24h</u>	<u>12h</u>	<u>#</u>	<u>24h</u>	<u>12h</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>				
7/10	109.3	109.6	110.3	24	114.1	114.8	115.4	24	108.0	108.3	109.1	24	112.2	113.0	113.4	24	107.7	108.7	109.5	24
7/11	108.2	108.6	109.0	24	112.9	113.1	113.6	24	105.8	106.3	107.1	24	111.3	112.3	112.6	24	104.5	104.7	105.6	24
7/12	105.4	105.8	106.6	24	112.6	113.0	113.4	24	104.1	104.3	104.6	24	111.2	112.5	113.1	24	104.6	105.5	106.0	24
7/13	103.6	103.9	104.4	24	112.9	113.6	116.3	24	103.3	103.5	103.7	24	111.2	111.7	112.2	24	107.1	108.3	108.8	24
7/14	103.6	104.1	104.7	24	115.4	116.8	117.3	24	102.9	103.2	103.5	24	111.4	112.4	113.0	24	106.7	107.1	107.7	24
7/15	104.0	104.5	105.0	24	113.6	114.6	115.3	24	102.4	102.7	102.9	24	110.8	111.3	111.8	24	105.6	106.1	106.3	24
7/16	105.2	105.9	106.4	24	114.7	115.0	115.4	24	101.5	101.7	102.0	24	109.4	109.8	110.7	24	104.1	104.4	104.6	24
7/17	106.2	106.4	107.0	24	114.3	114.6	115.3	24	101.1	101.4	101.7	24	107.9	108.5	109.0	24	104.7	105.9	106.5	24
7/18	106.2	106.3	106.5	24	115.3	116.4	117.0	24	101.3	101.7	102.8	24	108.8	110.1	111.1	24	107.0	107.5	107.8	24
7/19	106.5	106.8	107.3	24	115.6	116.0	117.0	24	102.6	102.9	103.2	24	108.1	108.3	108.6	24	107.2	107.6	108.0	24
7/20	107.7	107.9	108.2	24	115.1	115.6	116.1	24	102.4	102.9	103.2	24	108.0	108.4	109.2	24	106.4	106.8	107.0	24
7/21	107.9	108.1	108.4	24	114.9	115.4	115.9	24	102.9	103.3	103.7	24	110.7	114.0	114.4	24	105.3	105.5	106.5	24
7/22	106.5	106.8	107.2	24	113.8	114.3	114.7	24	103.0	103.3	103.6	24	112.6	113.1	113.7	24	104.3	104.5	104.7	24
7/23	105.7	105.8	106.1	23	113.4	113.8	114.2	23	102.8	103.0	103.3	22	111.6	111.9	112.1	22	103.5	103.8	104.1	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>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24h</u>	<u>12h</u>	<u>#</u>	<u>24h</u>	<u>12h</u>	<u>#</u>	<u>24h</u>	<u>12h</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>				
7/10	112.0	113.0	114.6	24	105.0	105.4	106.2	24	115.4	115.9	116.5	24	111.4	112.9	114.1	24	114.6	116.0	117.9	24
7/11	109.5	109.8	110.0	24	103.5	104.0	104.6	24	114.4	114.8	115.3	24	111.2	111.9	113.1	24	113.2	113.4	113.6	24
7/12	110.0	110.7	111.1	24	102.7	103.1	103.4	24	114.8	115.4	115.6	24	111.8	113.1	114.1	24	113.1	113.2	113.3	24
7/13	111.7	112.2	112.5	24	103.5	104.1	104.7	24	114.3	114.6	114.8	24	112.1	113.0	113.8	24	113.9	114.2	114.3	24
7/14	112.5	113.0	114.0	24	105.1	105.7	106.1	24	114.7	115.5	115.9	24	111.1	112.3	113.2	24	116.3	116.9	117.2	24
7/15	111.3	111.9	112.6	24	105.1	105.3	105.5	24	114.5	115.2	115.8	24	110.0	111.1	112.0	24	116.7	116.8	116.8	24
7/16	109.9	110.1	110.6	24	104.1	104.3	104.6	24	114.2	114.5	115.1	24	109.8	111.3	112.6	24	114.6	115.3	116.6	24
7/17	111.1	111.8	112.0	24	104.2	104.9	105.6	24	115.0	115.6	116.4	24	111.2	112.8	113.7	24	114.5	115.0	116.6	24
7/18	112.3	113.1	113.6	24	106.0	107.2	108.2	24	116.0	117.0	117.8	24	113.1	114.3	114.8	24	116.0	117.1	117.2	24
7/19	112.3	113.0	113.5	24	109.5	110.3	110.7	24	116.4	117.0	117.4	24	114.3	115.4	116.5	24	117.0	117.1	117.2	24
7/20	111.6	111.9	112.1	24	108.1	108.4	109.3	24	115.6	116.1	116.4	24	113.6	114.7	115.5	24	114.6	115.4	117.0	24
7/21	110.9	111.3	112.0	24	105.3	105.7	107.1	24	114.8	115.4	116.0	24	111.6	112.6	113.3	24	114.6	115.4	117.0	24
7/22	110.6	111.2	111.6	24	103.7	103.9	104.5	24	115.7	116.2	116.4	24	110.6	112.1	113.1	24	116.3	116.8	117.0	24
7/23	109.6	110.1	110.8	23	103.1	103.3	103.6	23	114.8	115.1	115.5	23	112.1	113.1	113.9	23	113.1	113.2	113.3	23

## Two-Week Summary of Passage Indices

Source: Fish Passage Center

Updated: 7/24/2015 7:00

\* 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)
07/10/2015 *	---	---	---	---	0	0	0	0	0	0	0
07/11/2015 *	---	---	---	---	0	0	0	0	---	---	---
07/12/2015 *	---	---	---	---	0	0	0	0	0	---	0
07/13/2015 *	---	---	---	---	0	0	9	1	---	---	---
07/14/2015 *	---	---	---	---	0	0	0	0	0	0	0
07/15/2015 *	---	---	---	---	0	0	0	0	---	---	---
07/16/2015 *	---	---	---	---	0	0	0	0	0	---	0
07/17/2015 *	---	---	---	---	0	0	0	0	---	0	---
07/18/2015 *	---	---	---	---	34	0	0	0	0	---	0
07/19/2015 *	---	---	---	---	34	0	0	0	---	---	---
07/20/2015 *	---	---	---	---	0	0	0	0	0	---	0
07/21/2015 *	---	---	---	---	0	0	0	0	---	0	---
07/22/2015 *	---	---	---	---	0	0	0	0	0	---	0
07/23/2015 *	---	---	---	---	0	0	0	0	---	---	---
07/24/2015	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>68</b>	<b>0</b>	<b>9</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b># Days:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>7</b>	<b>4</b>	<b>7</b>
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>YTD</b>	<b>40,054</b>	<b>68,276</b>	<b>7,458</b>	<b>1,081</b>	<b>1,769,194</b>	<b>1,156,885</b>	<b>1,126,664</b>	<b>16,457</b>	<b>1,340,101</b>	<b>664,378</b>	<b>1,712,479</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)
07/10/2015 *	---	---	---	---	8,314	20,175	1,173	289	97,393	11,031	59,024
07/11/2015 *	---	---	---	---	19,528	28,256	327	198	---	---	---
07/12/2015 *	---	---	---	---	26,820	35,112	227	203	20,129	---	86,274
07/13/2015 *	---	---	---	---	14,611	32,244	1,170	207	---	---	---
07/14/2015 *	---	---	---	---	8,029	24,314	1,392	315	14,803	5,625	39,003
07/15/2015 *	---	---	---	---	4,238	12,832	1,210	297	---	---	---
07/16/2015 *	---	---	---	---	2,198	11,403	446	410	12,062	---	12,717
07/17/2015 *	---	---	---	---	2,282	4,043	254	243	---	2,051	---
07/18/2015 *	---	---	---	---	5,797	1,802	337	269	4,571	---	16,232
07/19/2015 *	---	---	---	---	7,814	1,345	366	181	---	---	---
07/20/2015 *	---	---	---	---	6,907	1,277	287	190	8,654	---	2,016
07/21/2015 *	---	---	---	---	3,902	1,168	197	87	---	909	---
07/22/2015 *	---	---	---	---	2,780	1,015	139	100	3,068	---	2,922
07/23/2015 *	---	---	---	---	3,456	971	102	93	---	---	---
07/24/2015	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>116,676</b>	<b>175,957</b>	<b>7,627</b>	<b>3,082</b>	<b>160,680</b>	<b>19,616</b>	<b>218,188</b>
<b># Days:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>7</b>	<b>4</b>	<b>7</b>
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8,334</b>	<b>12,568</b>	<b>545</b>	<b>220</b>	<b>22,954</b>	<b>4,904</b>	<b>31,170</b>
<b>YTD</b>	<b>1</b>	<b>114</b>	<b>1,292</b>	<b>2,077</b>	<b>1,067,633</b>	<b>945,440</b>	<b>329,492</b>	<b>20,147</b>	<b>1,554,772</b>	<b>822,735</b>	<b>2,177,703</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)	
07/10/2015 *	---	---	---	---	0	0	0	0	0	0	0	
07/11/2015 *	---	---	---	---	0	0	0	5	---	---	---	
07/12/2015 *	---	---	---	---	0	0	0	0	0	---	0	
07/13/2015 *	---	---	---	---	0	0	0	0	---	---	---	
07/14/2015 *	---	---	---	---	0	0	0	2	0	0	0	
07/15/2015 *	---	---	---	---	139	86	0	0	---	---	---	
07/16/2015 *	---	---	---	---	0	0	0	1	0	---	0	
07/17/2015 *	---	---	---	---	0	2	0	5	---	0	---	
07/18/2015 *	---	---	---	---	17	0	0	1	0	---	0	
07/19/2015 *	---	---	---	---	17	0	0	0	---	---	---	
07/20/2015 *	---	---	---	---	0	0	0	0	0	---	0	
07/21/2015 *	---	---	---	---	0	0	0	0	---	0	---	
07/22/2015 *	---	---	---	---	0	0	0	4	0	---	0	
07/23/2015 *	---	---	---	---	19	1	0	0	---	---	---	
07/24/2015	---	---	---	---	---	---	---	---	---	---	---	
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>192</b>	<b>89</b>	<b>0</b>	<b>18</b>	<b>0</b>	<b>0</b>	<b>0</b>	
<b># Days:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>7</b>	<b>4</b>	<b>7</b>	
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>6</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	
<b>YTD</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>47</b>	<b>40,372</b>	<b>60,297</b>	<b>37,631</b>	<b>14,703</b>	<b>66,238</b>	<b>70,099</b>	<b>692,863</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)	
07/10/2015 *	---	---	---	---	0	153	45	4	0	0	0	
07/11/2015 *	---	---	---	---	0	145	35	3	---	---	---	
07/12/2015 *	---	---	---	---	0	167	9	3	0	---	0	
07/13/2015 *	---	---	---	---	0	80	9	5	---	---	---	
07/14/2015 *	---	---	---	---	0	239	0	9	0	0	0	
07/15/2015 *	---	---	---	---	139	0	0	9	---	---	---	
07/16/2015 *	---	---	---	---	0	325	20	6	103	---	0	
07/17/2015 *	---	---	---	---	60	152	0	6	---	0	---	
07/18/2015 *	---	---	---	---	34	2	0	1	0	---	0	
07/19/2015 *	---	---	---	---	84	91	0	2	---	---	---	
07/20/2015 *	---	---	---	---	66	50	0	1	83	---	0	
07/21/2015 *	---	---	---	---	62	68	0	0	---	0	---	
07/22/2015 *	---	---	---	---	0	66	9	0	41	---	0	
07/23/2015 *	---	---	---	---	168	33	8	0	---	---	---	
07/24/2015	---	---	---	---	---	---	---	---	---	---	---	
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>613</b>	<b>1,571</b>	<b>135</b>	<b>49</b>	<b>227</b>	<b>0</b>	<b>0</b>	
<b># Days:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>7</b>	<b>4</b>	<b>7</b>	
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>44</b>	<b>112</b>	<b>10</b>	<b>4</b>	<b>32</b>	<b>0</b>	<b>0</b>	
<b>YTD</b>	<b>2,567</b>	<b>40,594</b>	<b>672</b>	<b>11,678</b>	<b>1,299,866</b>	<b>1,073,147</b>	<b>576,003</b>	<b>12,753</b>	<b>456,517</b>	<b>201,076</b>	<b>1,021,904</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)	
07/10/2015	*	---	---	---	---	0	0	0	0	0	0	
07/11/2015	*	---	---	---	---	0	0	0	0	---	---	
07/12/2015	*	---	---	---	---	0	0	0	1	0	---	
07/13/2015	*	---	---	---	---	0	0	0	2	---	---	
07/14/2015	*	---	---	---	---	0	0	0	4	0	0	
07/15/2015	*	---	---	---	---	0	0	0	0	---	---	
07/16/2015	*	---	---	---	---	0	0	0	0	0	0	
07/17/2015	*	---	---	---	---	0	0	0	1	---	0	
07/18/2015	*	---	---	---	---	0	0	0	1	0	---	
07/19/2015	*	---	---	---	---	0	0	0	2	---	---	
07/20/2015	*	---	---	---	---	0	0	0	1	0	---	
07/21/2015	*	---	---	---	---	0	0	0	4	---	0	
07/22/2015	*	---	---	---	---	0	0	0	3	41	---	
07/23/2015	*	---	---	---	---	0	0	0	5	---	---	
07/24/2015	*	---	---	---	---	---	---	---	---	---	---	
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>24</b>	<b>41</b>	<b>0</b>	<b>0</b>	
<b># Days:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>7</b>	<b>4</b>	
<b>Average:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>6</b>	<b>0</b>	<b>0</b>	
<b>YTD</b>		<b>74</b>	<b>0</b>	<b>4</b>	<b>47</b>	<b>16,228</b>	<b>19,851</b>	<b>11,030</b>	<b>3,893</b>	<b>128,904</b>	<b>104,372</b>	

<b>COMBINED LAMPREY JUVENILES</b>												
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)	
07/10/2015	*	---	---	---	---	0	0	0	3	0	0	
07/11/2015	*	---	---	---	---	0	50	4	5	---	---	
07/12/2015	*	---	---	---	---	0	0	0	6	400	---	
07/13/2015	*	---	---	---	---	0	100	4	6	---	---	
07/14/2015	*	---	---	---	---	0	0	0	3	0	0	
07/15/2015	*	---	---	---	---	0	0	0	1	---	---	
07/16/2015	*	---	---	---	---	0	50	0	2	50	---	
07/17/2015	*	---	---	---	---	0	0	0	2	---	0	
07/18/2015	*	---	---	---	---	0	0	0	0	0	---	
07/19/2015	*	---	---	---	---	1	0	0	2	---	---	
07/20/2015	*	---	---	---	---	0	10	0	4	100	---	
07/21/2015	*	---	---	---	---	0	0	0	4	---	0	
07/22/2015	*	---	---	---	---	0	0	4	1	40	---	
07/23/2015	*	---	---	---	---	0	10	0	1	---	---	
07/24/2015	*	---	---	---	---	---	---	---	---	---	---	
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>220</b>	<b>12</b>	<b>40</b>	<b>590</b>	<b>0</b>	
<b># Days:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>7</b>	<b>4</b>	
<b>Average:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>16</b>	<b>1</b>	<b>3</b>	<b>84</b>	<b>0</b>	
<b>YTD</b>		<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>29</b>	<b>8,136</b>	<b>2,330</b>	<b>110</b>	<b>8,605</b>	<b>19,949</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:

7/24/15 7:01 AM

		07/10/15	TO	07/24/15			
		Species					
Site	Data	CH0	CH1	CO	ST	Grand Total	
<b>LGR</b>	Sum of NumberCollected	58,510	40	130	380	59,060	
	Sum of NumberBarged	58,239	39	129	376	58,783	
	Sum of NumberBypassed	0	0	0	0	0	
	Sum of Numbertrucked	0	0	0	0	0	
	Sum of SampleMorts	41	0	1	0	42	
	Sum of FacilityMorts	230	1	0	4	235	
	Sum of ResearchMorts	0	0	0	0	0	
	Sum of TotalProjectMorts	271	1	1	4	277	
<b>LGS</b>	Sum of NumberCollected	111,150		52	998	112,200	
	Sum of NumberBarged	110,280		50	978	111,308	
	Sum of NumberBypassed	0		0	0	0	
	Sum of Numbertrucked	0		0	0	0	
	Sum of SampleMorts	39		0	1	40	
	Sum of FacilityMorts	831		2	19	852	
	Sum of ResearchMorts	0		0	0	0	
	Sum of TotalProjectMorts	870		2	20	892	
<b>LMN</b>	Sum of NumberCollected	3,426	4		62	3,492	
	Sum of NumberBarged	3,276	4		60	3,340	
	Sum of NumberBypassed	96	0		0	96	
	Sum of Numbertrucked	0	0		0	0	
	Sum of SampleMorts	15	0		1	16	
	Sum of FacilityMorts	39	0		1	40	
	Sum of ResearchMorts	0	0		0	0	
	Sum of TotalProjectMorts	54	0		2	56	
Total Sum of NumberCollected		173,086	44	182	1,440	174,752	
Total Sum of NumberBarged		171,795	43	179	1,414	173,431	
Total Sum of NumberBypassed		96	0	0	0	96	
Total Sum of Numbertrucked		0	0	0	0	0	
Total Sum of SampleMorts		95	0	1	2	98	
Total Sum of FacilityMorts		1,100	1	2	24	1,127	
Total Sum of ResearchMorts		0	0	0	0	0	
Total Sum of TotalProjectMorts		1,195	1	3	26	1,225	

**YTD Transportation Summary**

Source: Fish Passage Center

Updated:

7/24/15 7:01 AM

**TO: 07/24/15**

		Species					
Site	Data	CH0	CH1	CO	SO	ST	Grand Total
<b>LGR</b>	Sum of NumberCollected	632,640	1,150,138	26,300	10,910	826,574	2,646,562
	Sum of NumberBarged	622,702	473,291	22,790	10,480	363,127	1,492,390
	Sum of NumberBypassed	8,362	676,470	3,499	160	463,116	1,151,607
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	176	43	1	7	30	257
	Sum of FacilityMorts	1,400	318	10	256	261	2,245
	Sum of ResearchMorts	0	16	0	7	40	63
	Sum of TotalProjectMorts	1,576	377	11	270	331	2,565
<b>LGS</b>	Sum of NumberCollected	635,296	807,530	42,060	13,866	748,579	2,247,331
	Sum of NumberBarged	632,728	545,396	40,314	13,819	535,108	1,767,365
	Sum of NumberBypassed	136	261,966	1,720	40	213,220	477,082
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	111	21	0	2	12	146
	Sum of FacilityMorts	2,321	147	26	5	272	2,771
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	2,432	168	26	7	284	2,917
<b>LMN</b>	Sum of NumberCollected	172,832	642,436	22,120	6,690	322,620	1,166,698
	Sum of NumberBarged	171,530	581,534	21,816	6,640	285,443	1,066,963
	Sum of NumberBypassed	617	60,572	300	30	36,797	98,316
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	62	45	2	0	39	148
	Sum of FacilityMorts	623	315	2	20	341	1,301
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	685	360	4	20	380	1,449
Total Sum of NumberCollected		1,440,768	2,600,104	90,480	31,466	1,897,773	6,060,591
Total Sum of NumberBarged		1,426,960	1,600,221	84,920	30,939	1,183,678	4,326,718
Total Sum of NumberBypassed		9,115	999,008	5,519	230	713,133	1,727,005
Total Sum of NumberTrucked		0	0	0	0	0	0
Total Sum of SampleMorts		349	109	3	9	81	551
Total Sum of FacilityMorts		4,344	780	38	281	874	6,317
Total Sum of ResearchMorts		0	16	0	7	40	63
Total Sum of TotalProjectMorts		4,693	905	41	297	995	6,931

**Cumulative Adult Passage at Mainstem Dams Through: 07/23**

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	07/23	220480	13314	188083	26094	132065	23978	150212	16541	105010	23337	83544	19063	0	0	0	0	0	0
TDA	07/23	194116	12307	143142	21080	101070	20309	112312	14069	91261	17514	70564	14852	0	0	0	0	0	0
JDA	07/23	166015	11514	123224	19103	88117	19021	96354	9588	80625	15661	62664	14851	0	0	0	0	0	0
MCN	07/23	156151	8767	107147	16033	79364	15788	83386	7567	81245	14864	58451	10886	0	0	0	0	0	0
IHR	07/23	116462	5745	79298	12428	55061	10384	19980	2680	16260	4274	16318	4440	0	0	0	0	0	0
LMN	07/23	111511	8697	79942	14020	55282	9560	16247	4435	14540	7699	17832	4985	0	0	0	0	0	0
LGS	07/23	105124	8553	77966	13649	51473	10681	13791	4074	15291	6999	16674	5564	0	0	0	0	0	0
LGR	07/23	104873	8379	79167	13732	50576	11930	12676	3576	13324	6604	14780	5927	0	0	0	0	0	0
PRD	07/22	27716	1570	23742	2649	15720	1631	58061	2729	68194	2661	44622	1354	0	0	0	0	0	0
WAN	07/22	25982	1077	0	0	15431	2202	55709	1460	0	0	40416	1155	0	0	0	0	0	0
RIS	07/21	31749	1092	23247	2934	15126	2669	58906	1546	64305	2825	39350	3177	0	0	0	0	0	0
RRH	07/21	15244	609	12376	2377	6372	1183	46561	1057	44776	1843	27237	1982	0	0	0	0	0	0
WEL	07/22	19971	1520	15377	2544	5959	1398	31521	1721	35152	2386	18651	1387	0	0	0	0	0	0
WFA	07/21	50020	1994	29240	1427	33132	1111	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	07/23	0	0	5	-2	0	0	504352	608867	240125	37731	69659	69280	21121	35705	31447	24958	23557	14089
TDA	07/23	0	0	0	0	0	0	419801	580350	205646	12786	38182	37164	7580	21038	17762	8697	5977	3040
JDA	07/23	0	0	0	1	0	1	354101	548766	203582	7417	26006	29332	4303	13211	12455	5686	4240	2226
MCN	07/23	13	5	0	0	1	0	270103	536664	179565	6201	20116	19590	3205	10202	7370	982	445	363
IHR	07/23	0	0	0	0	0	0	933	2195	710	4132	10409	11681	1924	3787	3439	386	121	48
LMN	07/23	0	0	0	0	0	0	817	2524	852	5577	13210	12830	2851	4973	4066	100	35	6
LGS	07/23	0	0	0	0	0	0	512	2422	801	2263	6072	5865	1442	3254	2421	82	22	1
LGR	07/23	0	0	0	0	0	0	339	2196	810	9696	10288	10984	4646	4901	4033	19	11	0
PRD	07/22	0	0	0	0	0	0	287297	579946	207737	1351	2003	1359	0	0	0	2731	503	247
WAN	07/22	0	0	0	0	0	0	280265	0	182544	1018	0	1429	0	0	0	1548	0	101
RIS	07/21	0	-2	0	0	0	0	250829	525019	194533	732	982	857	481	584	483	0	30	19
RRH	07/21	0	0	0	0	0	0	203689	427895	160304	407	537	799	263	303	458	0	15	1
WEL	07/22	0	0	0	0	0	0	175897	416406	150025	213	322	303	137	183	167	0	0	2
WFA	07/21	1	0	9	0	0	0	0	0	0	6863	24973	22451	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.