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Fish Passage Center

Weekly Report #16–15

June 24, 2016

Summary of Events

Water Supply

Precipitation throughout the Columbia Basin has varied between 31% and 74% of average at individual sub-basins over June. Precipitation above The Dalles has been 59% of average over June. Over the 2016 water year, precipitation has ranged between 88% and 107% of average.

Table 1. Summary of June precipitation and cumulative October through June 22nd precipitation with respect to average (1981–2010), at select locations within the Columbia and Snake River Basins.

Location	Water Year 2016 June 1–22, 2016		Water Year 2016 October 1, 2015 to June 22, 2016	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia above Coulee	1.70	71	31.1	100
Snake River above Ice Harbor	0.45	36	18.6	95
Columbia above The Dalles	0.92	59	23.4	99
Kootenai	1.65	64	30.9	100
Clark Fork	0.68	32	20.0	88
Flathead	1.24	46	32.1	107
Pend Oreille River Basin above Waneta Dam	0.97	42	27.0	99
Salmon River Basin	0.67	37	23.5	94
Upper Snake Tributaries	0.43	31	19.8	89
Clearwater	1.12	48	35.4	99
Willamette River above Portland	1.49	74	65.6	106

Table 2 displays the June 23rd ESP runoff volume forecasts for multiple reservoirs along with the June COE forecasts at Libby and Dworshak. The June 23rd ESP forecast at The Dalles between April and August is 79,618 Kaf (91% of average).

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

Location	June 23, 2016 5-day QPF ESP	
	% Average (1981–2010)	Runoff Volume (Kaf)
The Dalles (Apr–Aug)	91	79,618
Grand Coulee (Apr–Aug)	93	52,657
Libby Res. Inflow, MT (Apr–Aug)	88 110*	5,186 6,445*
Hungry Horse Res. Inflow, MT (Apr–Aug)	87	1,689
Lower Granite Res. Inflow (Apr–July)	83	16,532
Brownlee Res. Inflow (Apr–July)	74	4,032
Dworshak Res. Inflow (Apr–July)	87 86*	2,093 2,083*

* Denotes COE June Forecast

Grand Coulee Reservoir is at 1,288.0 feet (6-23-16) and has refilled 1.8 feet over the last week. Outflows at Grand Coulee have ranged between 79.3 and 135.6 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2,435.9 feet (6-23-16) and has refilled 1.4 feet over the previous week. Daily average outflows at Libby Dam have been 7.0 Kcfs over the last week.

Hungry Horse is currently at an elevation of 3,557.5 feet (6-23-16) and has refilled 1.0 feet over the last week. Outflows at Hungry Horse have been 2.1 Kcfs over the last week.

Dworshak is currently at an elevation of 1,599.6 feet (6-23-16) and has drafted 0.3 feet over the last week. Dworshak has been essentially passing inflows over the

last week with outflows ranging between 3.7 Kcfs to 4.3 Kcfs.

The Brownlee Reservoir was at an elevation of 2074.9 feet on June 23, 2016, and has drafted 1.7 ft. over the last week. Inflows at Brownlee have ranged between 12.7 and 14.8 Kcfs over the last week.

The Spring Biological Opinion flow period began on April 3rd and ended June 20th in the lower Snake River (Lower Granite). According to the April Final Water Supply Forecast (April 7, 2016), the flow objective this spring was 96 Kcfs at Lower Granite. Flows at Lower Granite Dam averaged 84.1 Kcfs over the spring flow period. The Summer Biological Opinion flow period began on June 21st with a flow objective of 50.4 Kcfs. Between June 21 and 23, 2016 flows at Lower Granite Dam were 44.4 Kcfs.

Based on the April Final Water Supply Forecast (which began April 10th), the Spring Biological Opinion Flow Objectives will be 243 Kcfs at McNary Dam and 135 Kcfs at Priest Rapids Dam. Over the last week, flows at McNary have averaged 191.2 Kcfs and 131.1 Kcfs at Priest Rapids. Between April 10 and June 23, 2016 flows at McNary Dam averaged 252.4 Kcfs and Priest Rapids Dam flows were 156.9 Kcfs.

Spill and River Temperature

No spill occurred at Dworshak Dam over the past week.

Spring spill for fish passage began on April 3rd at the Snake River projects and ended on June 20th. Summer spill began on June 21st and will continue through August 31st. Summer spill for fish passage at the Snake River projects is to occur at the following amounts described in the 2016 Fish Operations Plan (FOP).

Project	Spill Level Day/Night
Lower Granite	18 Kcfs/18 Kcfs
Little Goose	30%/30%
Lower Monumental	17 Kcfs/17 Kcfs
Ice Harbor	June 21-July 13: 30%/30% vs. 45 kcfs/Gas Cap July 13-August 31: 45 kcfs/Gas Cap

This past week all Lower Snake River projects (Lower Granite, Little Goose, Lower Monumental and Ice Harbor dams) have spilled at the 2016 FOP levels.

Summer spill for fish passage began on June 16th at the middle Columbia River projects. Spill for fish passage at the middle Columbia River projects is to occur at the following amounts described in the 2016 FOP.

Project	Spill Level Day/Night
McNary	June 16-Aug 31: 50%/50%
John Day	June 16-July 20: 30%/30% and 40%/40% July 20-August 31: 30%/30%
The Dalles	40%/40%
Bonneville	June 16 -Aug 31: 85Kcfs/121Kcfs and 95 Kcfs/95 Kcfs

The spring spill period ended on June 15th according to the COE's Fish Operation Plan. The original period for the spring spill to end in the Middle Columbia River was June 30th. Accommodations were made in past years to initiate summer spill earlier for testing purposes. This was done to assure adequate numbers of test fish were present to conduct the "performance tests". Since 2014 the earlier June 15th date has been included in the FOP as part of the roll-over operations associated with the FOP. The earlier start date for summer spill is also included in the 2014 Supplemental Biological Opinion.

This past week all Middle Columbia River projects (McNary, John Day and The Dalles dams) have spilled at the 2016 FOP levels. Bonneville Dam has spilled a constant 95 Kcfs rather that alternating days with 85 Kcfs/120 Kcfs to address the erosion identified near the Bradford Island B-Branch fish ladder.

All sites were within TDG criteria over the past week.

Note: The State of Oregon TDG waiver requires compliance only with 120% TDG in the tailrace, while the State of Washington requires compliance with both a 115% TDG forebay requirement and a 120% tailrace TDG requirement. The State of Oregon and the State

of Washington also 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 Lower Granite, Little Goose, Lower Monumental, McNary, Bonneville and Rock Island dams over the past week. One fish was observed with minor signs of GBT over the past week at Rock Island Dam on 6/23.

Temperature: At present water temperatures remain below the 68° F temperature standard at all the hydroelectric projects in the FCRPS. With the recent cool weather that prevailed over the region last week, the rate of increases in water temperature at the project forebays were slowed. At Lower Granite, the forebay temperatures decreased from 62.2°F on June 16th to 61.2 on June 23rd. It is about four degrees warmer downstream at Ice Harbor Dam, where the temperature increased nearly two degrees this past week, from 63.5°F on June 16th to 65.2°F on June 23rd. At McNary and Bonneville dams the forebay temperatures were 63.7°F and 64.0°F, respectively on June 23rd. These forebay temperatures are measuring 3 to 4 degrees Fahrenheit less than the levels measured at this time last year.

Smolt Monitoring

Smolt Monitoring Program (SMP) sampling is ongoing at all SMP bypass facilities and the Imnaha trap. Subyearling Chinook dominated this week's samples at all of the SMP bypass facilities. Subyearling Chinook passage increased at the three Lower Columbia sites (BON, JDA, and MCN) but decreased at the one Upper Columbia site (RIS) and all three Snake River sites (LGR, LGS, and LMN). Finally, passage of spring migrants (i.e., yearling Chinook, steelhead, coho, and sockeye) continued to decrease at all of the bypass facilities this week.

Samples at Bonneville Dam (BON) were again dominated by subyearling Chinook. This week's daily average passage index for subyearling Chinook at BON was about 10,400 per day, which is an increase over last week's daily average passage index of about 5,400 per day. Passage of spring migrants all continued to decrease this week, when compared to the previous week. This week's daily average passage indices for spring migrants were about 75 for yearling Chinook, 120 for steelhead, 280 for coho, and 35 for sockeye. No Pacific lamprey ammocoetes were encountered in this week's samples while Pacific macropthalmia were encountered in four of this week's samples.

Sampling at John Day Dam (JDA) in 2016 is every-other-day for the entire SMP season. This is the first time every-other-day sampling has occurred at this site over the entire season. Subyearling Chinook continued to dominate the collections at JDA this week, with a daily average passage index of nearly 39,000 fish per day, which is a substantial increase over last week's daily average passage index of about 18,000 fish per day. Passage of spring migrants decreased this week when compared to last week, with one exception. Passage of yearling Chinook actually increased this week, when compared to last week. This week's daily average passage indices for spring migrants at JDA were 100 for yearling Chinook, 10 for coho, 120 for sockeye, and 30 for steelhead. No Pacific lamprey ammocoetes were encountered in this week's samples while Pacific lamprey macropthalmia were collected in three of this week's samples. This week's daily average collection for Pacific macropthalmia at JDA was about 60 per day, which is a decrease from last week's daily average collection of about 350 per day.

As in recent years, sampling at McNary Dam (MCN) in 2016 will be every-other-day for the entire SMP season. Subyearling Chinook again were the dominate species at MCN this week, with a daily average passage index of about 205,000 per day. This is a substantial increase over last week's daily average

passage index of about 48,000 subyearling Chinook per day. The increase in subyearling Chinook passage is at least partially due to the release of about 7.0 million hatchery subyearlings from Priest Rapids Hatchery that began on June 16th. PIT-tagged fish from this release were first detected at MCN on June 20th. The only spring migrants that were encountered in this week's samples were steelhead, which were only encountered in two of this week's samples. This week's daily average passage index for steelhead at MCN was about 410 per day. Finally, Pacific lamprey macropthalmia were only encountered in one of this week's samples (June 20th).

This week's samples at Lower Granite Dam (LGR) were again dominated by subyearling Chinook, with a daily average passage index of nearly 21,000 per day. This is a decrease over last week's daily average passage index of about 36,000 subyearling Chinook per day. Passage of spring migrants all decreased this week when compared to last week. In fact, steelhead were only encountered in three of this week's samples, yearling Chinook were encountered in only two of this week's samples, coho were only encountered in one of this week's samples, and sockeye were not encountered at all this week. Finally, Pacific lamprey ammocoetes were encountered in only one of this week's samples (June 18th) and Pacific lamprey macropthalmia were not encountered at all this week.

Sampling at Little Goose Dam (LGS) was limited to a 24-hour sample every-other-day until transportation began, at which time sampling switched to daily. Subyearling Chinook dominated this week's collections at LGS. This week's daily average passage index for subyearling Chinook at LGS was about 22,500 fish per day, which is a decrease over last week's daily average passage index of about 33,500 fish per day. Passage of yearling Chinook, coho, and steelhead all decreased this week when compared to last week. This week's daily average passage indices for these three species were about 85, 20, and 100 per day, respectively. Furthermore, for the second week in a row, no sockeye juveniles were encountered in this week's samples at LGS. Finally, Pacific lamprey ammocoetes were encountered in one of this week's samples (June 22nd) while Pacific lamprey macropthalmia were encountered in all seven of this week's samples. This week's daily average collection for Pacific lamprey macropthalmia was about 55 per day.

Sampling at Lower Monumental Dam (LMN) was limited to a 24-hour sample every-third-day through the April 14th, every-other-day from April 16th to April 30th, and every day with the initiation of transportation. This week's samples at LMN were dominated by subyearling Chinook, with a daily average passage index of about 3,550 per day, which is a decrease over last week's daily average passage index of nearly 18,800 per day. Yearling Chinook and steelhead passage all decreased this week, when compared to last week. This week's daily average passage indices for these two species were 75 and 50 per day, respectively. Coho were only encountered in one of this week's samples (June 19th) and sockeye were not encountered at all this week. Finally, Pacific lamprey macropthalmia were encountered every day this week, with a daily average collection of 15 fish per day.

Subyearling Chinook continued to dominate the samples at Rock Island Dam (RIS) this week. This week's daily average passage index for subyearling Chinook at RIS was just over 200 per day, which is a decrease over last week's daily average passage index of about 350 fish per day. Passage of spring migrants this week was very low. Finally, only one Pacific lamprey macropthalmia was encountered this week (June 21st).

The Imnaha River Trap (IMN) is located at river kilometer seven and is operated by the Nez Perce Tribe. Sampling at the Imnaha River Trap is year-round and, for 2016, the Fish Passage Center has been receiving data since the January 1, 2016 sample. However, due to the remote nature of the trap, the Nez Perce Tribe is able to send collection data to the FPC only periodically. Currently, the FPC has data from IMN through the June 13 sample. For the period of June 8-June 13, steelhead dominated the collections at IMN. The daily average collection for steelhead over this time period was about 30 per day. The daily average collection for yearling Chinook over this same period was about 10 fish per day. Daily average collections for steelhead and yearling Chinook collections over the June 8-13 period were both lower than the daily average collections for the previous week (May 31-June 6). Due to high flows, there was no sample on June 7th. The only other species of salmonid that was collected during the June 8-13 period was subyearling Chinook, but in very low numbers.

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 of juvenile salmonids were scheduled for this zone this week. Approximately 400,000 spring Chinook pre-smolts are scheduled to be released into the Selway River, a tributary of the Clearwater River, on or around July 1st. Although released in 2016, these pre-smolts are not expected to out-migrate until spring of 2017. No other releases are scheduled for this zone over the next two 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. The volitional release of 7.0 million subyearling fall Chinook juveniles from Priest Rapids Hatchery continued this week. This volitional release began on June 16th and was expected to run at least through June 24th. In addition, Ringgold Hatchery began a volitional release of about 3.5 million subyearling fall Chinook juveniles into the mainstem Columbia River on June 22nd. Ringgold Hatchery is located about 72 kilometers below Priest Rapids Dam. This volitional release is expected to end around July 6th. All of the fish released from Ringgold Hatchery are expected to be externally marked with an adipose clip. No other releases were scheduled for this zone this week. Finally, no new releases are scheduled for this zone over the next two weeks.

Lower Columbia Zone: The Lower Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to McNary Dam. No new releases were scheduled for this zone this week. Beginning on or around July 1st, Willard NFH will begin releases of subyearling fall Chinook brights into the Little White Salmon River. In all, approximately 2.0 million fall Chinook brights are expected to be released from Willard NFH. In addition, Little White Salmon NFH is scheduled to begin releasing its 4.1 million subyearling fall Chinook brights into the Little White Salmon River on or around July 5th. No other releases are scheduled for this zone over the next two weeks.

Adult Passage

The summer Chinook count began June 1st at Bonneville Dam. Daily passage numbers at Bonneville Dam ranged between 2,003 and 3,392 adult summer Chinook in the last week. The 2016 summer Chinook count of 57,828 is about 78.5% of the 2015 count, while being 1.1 times greater than the 10-year average. The 2016 summer Chinook jack count of 5,057 is about 58.9% of the 2015 count and 46.6% of the 10-year average count. At Willamette Falls, 20,655 adult spring Chinook have been counted so far this year. In 2015, 49,342 adult spring Chinook were counted at Willamette Falls. This year's count is about 41.9% of the 2015 count and 75% of the 10-year average count of 27,534. As of June 23rd, a total of 28,812 adult summer Chinook have been counted at McNary Dam and 2,938 have been counted at Lower Granite Dam. The 2016 McNary Dam adult summer Chinook count has 2,3297 fewer fish than the 2015 count, while being about 1.3 times greater than the 10-year average count. The 2016 Lower Granite Dam adult summer Chinook count has 726 fewer fish than the 2015 count and 1,762 fewer fish than the 10-year average count.

The 2016 Bonneville Dam adult steelhead count of 11,008 is 1.3 times greater than the 2015 count of 8,528 and has 427 more fish than the 10-year average count of 10,581. The 2016 Bonneville Dam adult wild steelhead count of 4,167 has 238 more fish than the 2015 count of 3,929 and 1,198 more fish than the 10-year average count of 2,969. Daily adult steelhead counts at Lower Granite Dam ranged from 5 to 14 adults per day last week. This year's Lower Granite steelhead count of 5,558 is about 60% of the 2015 count of 9,254 and 59.4% of the 10-year average count of 9,347. The 2016 Lower Granite Dam adult wild steelhead count of 3,182 is 72.8% of the 2015 count of 4,371 and is about 90.2% of the 10-year average count of 3,528. At Willamette Falls, the 2016 count for steelhead was 17,940 as of June 16th. This year's steelhead count is about 2.7 times greater than the 2015 count of 6,571 and about 1.1 times greater than the 10-year average count of 16,618.

Daily adult sockeye passage numbers at Bonneville Dam ranged between 12,899 and 23,024 last week. The 2016 adult sockeye count at Bonneville Dam of 192,013 is about 96.7% of the 2015 count and 1.9 times greater than the 10-year average count. The 2016 adult

sockeye count at McNary Dam of 73,685 is 1.1 times greater than the 2015 count and 2.7 times greater than the 10-year average count. The Lower Granite Dam 2016 adult sockeye count of 8 has 19 fewer fish than the 2015 count of 27 while having 6 more fish than the 10-year average count. As of June 23rd at Bonneville Dam, the adult shad count was 1,318,895. This year's shad count is about 95.1% of the 2015 count of 1,387,309 and 69.4% of the 10-year average count of 1,901,527.

Hatchery Releases Last Two Weeks

Hatchery Release Summary

From: 6/11/2016 to 06/24/16

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
Washington Dept. of Fish and Wildlife	Priest Rapids Hatchery	CH0	FA	2016	7,039,543	06-16-16	06-24-16	Priest Rapids Hatchery	McNary Pool
Washington Dept. of Fish and Wildlife	Ringold Springs Hatchery	CH0	FA	2016	3,500,000	06-22-16	07-06-16	Ringold Springs Hatchery	McNary Pool
Washington Dept. of Fish and Wildlife Total					**10,539,543**				
Grand Total					**10,539,543**				

Hatchery Releases Next Two Weeks

Hatchery Release Summary

From: 6/25/2016 to 7/8/2016

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
Nez Perce Tribe	Dworshak NFH	CH1	SP	2017	400,000	07-01-16	07-01-16	Meadow Creek - SELW	Selway River
Nez Perce Tribe Total					**400,000**				
U.S. Fish and Wildlife Service	Little White Salmon NFH	CH0	FA	2016	4,100,000	07-05-16	07-05-16	Little White Salmon Hatchery	Little White Salmon River
U.S. Fish and Wildlife Service	Willard Hatchery	CH0	FA	2016	2,000,000	07-01-16	07-07-16	Willard Hatchery	Little White Salmon River
U.S. Fish and Wildlife Service Total					**6,100,000**				
Washington Dept. of Fish and Wildlife	Ringold Springs Hatchery	CH0	FA	2016	3,500,000	06-22-16	07-06-16	Ringold Springs Hatchery	McNary Pool
Washington Dept. of Fish and Wildlife Total					**3,500,000**				
Grand Total					**10,000,000**				

CH = Chinook, ST = Steelhead, CO = Coho, SO = Sockeye, CT = Cutthroat Trout, CM = Chum

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Daily Average Flow and Spill (in Kcfs) at Mid-Columbia Projects

	Grand Coulee		Chief Joseph		Wells		Rocky Reach		Rock Island		Wanapum		Priest Rapids	
Date	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
06/10/2016	104.2	0.1	100.6	0.0	114.0	8.4	112.9	11.1	127.0	26.4	135.0	19.3	131.4	27.4
06/11/2016	99.0	0.1	106.2	0.0	117.2	8.2	113.6	10.7	123.0	23.9	129.2	19.0	127.7	27.3
06/12/2016	121.3	0.1	118.4	0.0	127.6	9.4	125.3	9.5	135.8	22.3	136.3	19.2	132.1	27.7
06/13/2016	110.2	0.1	112.3	0.0	123.2	9.3	121.8	10.9	133.5	27.1	143.1	19.4	141.1	27.8
06/14/2016	119.3	0.1	117.1	0.0	120.1	8.6	114.4	11.9	122.9	27.5	119.9	19.1	115.9	27.5
06/15/2016	128.6	0.1	129.8	0.0	136.0	10.0	134.6	11.8	143.7	26.7	142.6	20.1	139.0	29.3
06/16/2016	116.8	0.1	122.0	0.0	128.7	9.4	124.4	10.6	132.7	22.7	142.2	20.0	138.9	28.9
06/17/2016	106.6	0.0	107.3	0.0	124.3	9.3	123.2	9.9	131.7	22.9	149.3	19.3	148.4	27.1
06/18/2016	79.3	0.1	80.4	0.0	87.4	6.6	85.5	9.0	92.0	19.9	107.0	17.9	109.8	25.2
06/19/2016	116.4	0.1	115.1	0.0	116.6	8.3	108.1	9.0	114.2	20.5	95.4	19.1	90.8	27.2
06/20/2016	110.0	0.1	112.1	0.0	119.7	8.5	118.2	11.9	128.7	24.5	137.1	19.7	132.2	18.5
06/21/2016	121.3	0.1	118.3	0.0	125.7	9.0	122.3	10.8	129.1	23.3	139.3	19.2	136.0	27.2
06/22/2016	135.6	0.2	135.8	0.0	149.1	9.5	150.1	11.7	158.4	27.8	148.7	27.3	150.0	23.9
06/23/2016	133.9	0.0	132.5	0.0	134.2	9.2	131.8	10.8	139.5	24.6	157.5	16.4	151.2	25.5

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

	Dworshak		Brownlee	Hells Canyon	Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
Date	Flow	Spill	Inflow	Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
06/10/2016	1.6	0.0	---	14.5	71.7	20.2	68.3	20.5	67.5	23.0	71.7	50.4
06/11/2016	1.6	0.0	---	9.8	61.2	20.4	57.4	17.2	56.6	24.0	61.5	48.7
06/12/2016	1.6	0.0	---	10.5	54.0	20.5	49.3	14.9	47.8	23.9	52.8	40.9
06/13/2016	3.5	0.0	---	16.4	54.8	20.4	52.5	15.7	50.9	24.5	53.0	20.3
06/14/2016	5.2	0.0	---	13.7	55.1	20.3	52.2	15.4	50.0	24.2	51.6	15.5
06/15/2016	5.7	0.0	---	12.9	56.0	20.5	53.5	16.0	53.4	25.0	57.8	36.4
06/16/2016	5.7	0.0	---	14.6	53.6	20.5	50.2	15.0	47.5	24.8	49.9	37.2
06/17/2016	4.3	0.0	---	15.3	54.1	20.6	47.7	14.3	47.1	26.4	50.8	21.6
06/18/2016	4.3	0.0	---	13.8	49.7	20.5	46.3	13.9	45.7	26.3	48.3	14.4
06/19/2016	4.3	0.0	---	15.3	48.9	20.5	46.5	14.0	46.2	26.6	50.3	35.3
06/20/2016	4.2	0.0	---	16.4	47.2	20.4	41.3	12.4	42.5	26.2	42.5	31.5
06/21/2016	4.2	0.0	---	16.0	45.5	18.6	43.5	13.1	42.8	17.0	45.7	17.3
06/22/2016	3.7	0.0	---	18.0	43.0	18.7	40.8	12.3	41.2	16.4	41.6	12.4
06/23/2016	3.7	0.0	---	15.5	44.8	18.9	42.4	12.8	42.8	17.0	44.1	29.9

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

	McNary		John Day		The Dalles		Bonneville			
Date	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	PH1	PH2
06/10/2016	213.4	85.7	199.7	80.0	181.8	73.0	204.0	99.2	1.0	91.4
06/11/2016	209.2	84.2	207.2	82.8	193.9	77.5	212.3	99.3	1.0	99.7
06/12/2016	193.2	77.8	192.0	76.7	178.1	71.3	200.3	99.6	1.0	87.3
06/13/2016	192.6	77.3	177.3	70.9	160.2	64.1	180.0	99.6	7.2	60.8
06/14/2016	200.4	80.3	195.0	75.9	182.7	73.3	194.6	100.3	10.1	71.7
06/15/2016	192.8	77.4	188.7	56.7	172.5	69.0	187.4	100.8	10.1	64.1
06/16/2016	196.2	98.3	190.6	60.5	173.3	69.3	192.6	96.5	12.7	70.9
06/17/2016	202.9	101.7	199.1	79.4	184.3	74.1	197.5	73.1	24.1	87.9
06/18/2016	201.1	100.9	176.0	67.6	163.3	65.1	186.1	95.7	9.9	68.0
06/19/2016	148.3	74.2	153.6	46.4	145.8	58.7	175.0	95.1	10.3	57.2
06/20/2016	192.2	96.3	192.6	61.6	180.2	72.3	178.9	94.9	10.3	61.4
06/21/2016	184.2	92.2	196.7	78.5	181.2	72.4	201.6	95.4	10.2	83.6
06/22/2016	201.7	101.1	188.5	72.2	169.8	68.2	188.5	95.2	4.9	76.0
06/23/2016	213.2	106.8	194.7	58.6	177.6	70.8	181.9	95.3	---	---

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
Little Goose Dam										
	06/13/16 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/20/16 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Lower Monumental Dam										
	06/15/16 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/22/16 Chinook + Steelhead	75*	0	0			0	0	0	0
McNary Dam										
	06/13/16 Chinook + Steelhead	103	0	0	0.00%	0.00%	0	0	0	0
	06/17/16 Chinook + Steelhead	102	0	0	0.00%	0.00%	0	0	0	0
	06/19/16 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/23/16 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Bonneville Dam										
	06/11/16 Chinook + Steelhead	86*	0	0			0	0	0	0
	06/12/16 Chinook + Steelhead	14*	0	0			0	0	0	0
	06/14/16 Chinook + Steelhead	45*	0	0			0	0	0	0
	06/18/16 Chinook + Steelhead	94*	0	0			0	0	0	0
	06/19/16 Chinook + Steelhead	6*	0	0			0	0	0	0
	06/21/16 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Rock Island Dam										
	06/14/16 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/16/16 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/21/16 Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/23/16 Chinook + Steelhead	100	1	1	1.00%	0.00%	1	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

	Hungry H. Dnst				Boundary				Grand Coulee				Grand C. Tlwr				Chief Joseph			
	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
6/10	104.5	104.9	105.3	24	---	---	---	0	108.7	109.0	109.1	24	107.2	107.5	107.7	24	107.6	107.7	108.1	24
6/11	103.7	103.9	104.1	24	---	---	---	0	107.7	107.9	108.3	24	106.0	106.2	106.4	24	106.7	107.0	107.1	24
6/12	103.6	104.0	104.2	24	---	---	---	0	107.4	107.6	107.8	24	105.8	106.1	106.2	24	106.6	107.0	107.3	24
6/13	104.4	104.9	105.0	24	---	---	---	0	108.4	108.8	108.9	24	106.9	107.2	107.3	24	107.4	107.8	108.1	24
6/14	104.0	104.3	104.4	24	---	---	---	0	108.7	108.8	108.9	24	107.0	107.1	107.3	24	107.1	107.3	107.5	24
6/15	103.8	104.2	104.3	24	---	---	---	0	108.4	108.6	108.7	24	106.8	107.0	107.1	24	106.3	106.7	107.1	24
6/16	103.5	103.7	104.1	24	---	---	---	0	108.3	108.5	108.7	24	106.2	106.8	107.0	24	106.0	106.2	106.4	24
6/17	103.2	103.6	103.7	24	---	---	---	0	107.5	107.7	107.9	24	105.8	106.3	106.7	24	105.8	106.4	106.8	24
6/18	103.5	103.8	104.1	24	---	---	---	0	106.2	107.2	107.7	24	105.9	106.4	106.9	24	105.6	105.9	106.1	24
6/19	102.9	103.1	103.2	24	---	---	---	0	106.3	106.5	106.8	24	104.9	105.4	105.6	24	105.1	105.5	105.7	24
6/20	103.4	104.1	104.3	24	---	---	---	0	107.1	107.4	107.6	24	105.8	106.3	106.8	24	105.9	106.3	106.7	24
6/21	103.6	103.9	104.1	24	---	---	---	0	107.1	107.5	108.0	24	106.1	106.4	106.6	24	106.4	106.7	106.9	24
6/22	103.9	104.3	104.6	24	---	---	---	0	106.8	107.1	107.5	24	106.2	106.7	106.8	24	106.8	107.4	107.6	24
6/23	104.7	105.0	105.5	22	---	---	---	0	107.5	107.7	108.0	20	106.7	106.9	107.2	20	107.3	107.5	107.7	20

Total Dissolved Gas Saturation Data at Mid Columbia River Sites

	Chief J. Dnst				Wells				Wells Dwnstrm				Rocky Reach				Rocky R. Tlwr			
	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
6/10	107.7	108.2	108.4	24	107.1	107.5	107.7	24	108.6	109.1	109.5	24	108.1	108.3	108.7	24	113.0	113.9	114.4	24
6/11	106.8	107.2	107.7	24	105.8	106.1	106.5	24	107.2	107.9	108.4	24	107.0	107.2	107.6	24	111.8	112.8	114.0	24
6/12	106.4	106.8	107.2	24	106.0	106.6	107.0	24	107.7	108.5	108.8	24	107.0	107.1	107.3	24	111.8	112.5	113.6	24
6/13	107.2	107.8	108.3	24	107.0	107.6	108.0	24	108.6	109.4	110.0	24	107.9	108.2	108.5	24	112.8	113.6	114.0	24
6/14	107.0	107.4	107.8	24	105.8	106.1	106.3	24	107.3	107.6	107.9	24	108.1	108.4	108.7	24	113.2	113.6	114.1	24
6/15	106.0	106.5	106.8	24	105.7	106.2	106.8	23	107.2	107.8	108.3	23	107.1	107.2	107.4	24	113.0	113.5	113.7	24
6/16	106.2	106.6	107.1	24	105.2	105.6	106.2	24	106.9	107.3	107.6	24	106.2	106.4	106.8	24	112.1	112.6	113.4	24
6/17	106.0	106.3	106.7	24	105.0	105.6	106.1	24	106.6	107.3	107.7	24	106.1	106.4	106.7	24	111.9	112.7	113.1	24
6/18	105.9	106.4	106.9	24	105.2	105.5	105.8	24	106.4	106.6	106.9	24	106.1	106.6	106.7	24	110.8	111.4	112.6	24
6/19	105.0	105.4	105.9	24	104.1	104.5	104.8	24	106.1	106.5	106.8	24	105.2	105.3	105.6	24	110.4	111.2	111.8	24
6/20	106.0	106.2	106.5	24	105.7	106.5	106.9	24	107.5	108.5	109.2	24	105.9	106.4	107.0	24	112.1	113.2	113.7	24
6/21	106.4	106.6	106.9	24	106.1	106.5	106.9	24	108.0	108.4	108.9	24	106.9	107.2	107.5	24	112.7	113.4	114.1	24
6/22	106.6	107.2	107.8	24	106.9	107.3	107.6	24	108.7	109.4	109.8	24	108.4	108.8	109.1	24	114.1	114.9	115.4	24
6/23	107.4	107.7	108.0	20	107.0	107.0	107.2	19	108.8	109.0	109.3	19	108.7	108.8	109.1	19	113.7	114.2	114.6	19

Total Dissolved Gas Saturation at Mid Columbia River Sites

	Rock Island				Rock I. Tlwr				Wanapum				Wanapum Tlwr				Priest Rapids			
	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
6/10	108.3	108.6	108.9	24	114.0	114.9	115.5	24	110.4	110.7	110.9	24	112.0	112.1	112.2	24	110.2	110.5	110.8	24
6/11	107.2	107.6	108.2	24	112.6	113.8	115.5	24	108.4	109.0	109.9	24	110.7	111.2	111.7	24	108.8	109.1	109.3	24
6/12	107.6	108.4	109.1	24	112.1	113.3	114.1	24	107.9	108.7	109.3	24	110.0	110.4	110.8	24	108.7	109.0	109.5	24
6/13	108.1	108.7	109.2	24	113.5	114.3	115.0	24	109.3	109.5	109.6	24	111.3	111.4	111.6	24	109.3	109.4	109.6	24
6/14	108.5	108.8	109.0	24	114.0	114.5	114.8	23	108.8	108.9	109.2	24	111.3	111.6	111.9	24	109.1	109.4	109.7	24
6/15	107.9	108.3	108.8	24	113.5	114.5	115.5	24	109.0	109.5	110.2	24	111.1	111.3	111.7	24	109.0	109.6	110.2	24
6/16	106.9	107.1	107.8	24	112.0	112.9	114.7	24	108.4	108.8	109.0	24	110.8	111.0	111.5	24	108.6	109.0	109.6	24
6/17	107.1	107.7	108.2	24	111.9	113.1	113.7	24	109.5	110.4	110.8	24	110.9	111.1	111.2	24	109.1	109.7	110.2	24
6/18	106.8	107.4	108.2	24	111.9	113.0	113.9	24	108.6	109.4	110.0	24	111.0	111.4	112.2	24	109.4	110.0	110.2	24
6/19	105.9	106.5	107.8	24	111.0	112.3	113.7	24	108.0	109.2	110.1	24	111.1	111.7	112.4	24	108.1	108.8	110.2	24
6/20	107.2	107.9	108.6	24	112.7	113.3	114.2	24	109.5	110.7	111.9	24	111.0	111.4	111.6	24	111.1	111.7	112.0	24
6/21	107.9	108.5	109.1	24	112.2	113.8	115.5	24	108.3	108.8	109.2	24	110.3	110.7	111.7	24	109.5	110.0	110.8	24
6/22	108.9	109.9	110.4	24	113.7	115.1	115.8	24	110.0	111.0	111.7	24	111.6	112.4	112.9	24	109.9	110.5	111.5	24
6/23	109.1	109.3	109.7	19	113.4	114.0	115.5	19	---	---	---	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

	Priest R. Dnst				Pasco				Dworshak				Clrwtr-Peck				Anatone			
	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
6/10	111.7	112.1	112.4	24	---	---	---	0	105.8	106.5	107.4	24	100.6	100.9	101.9	24	103.4	103.6	104.0	24
6/11	111.0	111.1	111.3	24	---	---	---	0	105.9	107.3	108.3	23	100.9	101.8	102.2	22	103.8	104.5	105.1	23
6/12	111.1	111.3	111.5	24	---	---	---	0	106.0	107.8	109.0	24	101.2	102.4	103.7	24	103.9	104.9	105.6	24
6/13	111.5	111.7	111.8	24	---	---	---	0	102.2	103.7	105.7	24	101.1	102.1	102.6	24	103.8	104.5	105.1	24
6/14	111.4	111.9	113.1	24	---	---	---	0	103.1	105.0	105.6	24	101.1	102.3	102.8	24	103.0	103.5	103.9	24
6/15	111.3	111.7	111.8	24	---	---	---	0	105.5	106.1	106.6	24	102.5	103.4	104.4	24	103.0	103.7	104.5	24
6/16	111.1	111.3	111.9	24	---	---	---	0	104.9	105.3	105.9	24	101.8	102.2	102.9	24	102.6	103.0	103.6	24
6/17	111.2	111.5	111.8	24	---	---	---	0	99.4	100.2	103.0	24	100.6	101.6	102.1	24	103.5	104.6	105.2	24
6/18	111.4	112.0	113.2	24	---	---	---	0	98.8	99.3	100.0	24	99.5	100.0	100.6	24	102.8	103.1	103.3	24
6/19	112.9	114.1	115.5	24	---	---	---	0	98.3	98.9	99.3	24	99.5	100.8	101.6	24	102.9	104.0	104.7	24
6/20	111.5	111.8	112.0	24	---	---	---	0	99.4	100.3	100.9	24	100.3	101.6	102.8	24	103.5	104.3	105.0	24
6/21	111.3	111.6	112.3	24	---	---	---	0	100.2	100.7	101.2	24	100.7	102.8	104.2	24	102.9	103.6	104.4	24
6/22	111.2	111.3	111.5	24	---	---	---	0	100.3	100.9	101.8	24	102.4	103.7	104.9	24	103.0	104.0	104.8	24
6/23	---	---	---	0	---	---	---	0	100.8	101.3	101.8	23	102.2	103.4	104.3	23	102.6	103.3	104.0	23

Total Dissolved Gas Saturation Data at Snake River Sites

	Clrwtr-Lewiston				Lower Granite				L. Granite Tlwr				Little Goose				L. Goose Tlwr			
	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
6/10	99.8	100.2	100.6	24	102.0	102.3	103.0	24	110.1	110.3	111.3	24	110.9	111.2	111.5	24	111.5	111.9	112.4	24
6/11	101.1	102.8	103.9	24	100.5	100.8	101.5	24	110.1	110.3	110.6	24	108.5	108.9	110.1	24	111.0	111.3	111.9	24
6/12	102.0	104.1	105.5	24	100.3	100.5	100.7	24	110.5	110.8	111.2	24	107.9	108.2	108.7	24	111.3	111.7	112.0	24
6/13	102.0	103.5	104.6	24	100.8	101.0	101.2	24	110.5	110.9	111.4	24	108.6	109.0	109.4	24	111.1	111.4	111.7	24
6/14	101.0	102.0	102.9	24	101.6	101.9	102.2	24	110.4	110.7	111.3	24	106.9	107.2	107.6	24	110.6	110.8	111.0	24
6/15	101.8	103.2	104.6	24	102.1	102.3	102.5	24	110.6	110.9	111.5	24	106.8	107.4	107.6	24	110.7	110.8	111.3	24
6/16	101.8	103.0	103.7	24	101.3	101.8	102.3	24	110.4	110.7	111.1	24	106.0	106.3	106.7	24	110.5	110.7	110.9	24
6/17	102.3	104.2	105.4	24	100.2	100.3	100.5	24	110.1	110.5	111.2	24	105.8	106.3	106.6	24	110.5	110.9	111.3	24
6/18	100.8	101.4	102.2	24	100.1	100.3	100.5	24	110.4	110.9	111.4	24	105.9	106.1	106.3	24	110.8	111.0	111.2	24
6/19	102.0	104.6	106.1	24	99.9	100.2	100.5	24	110.5	110.7	110.9	24	105.9	106.7	107.3	24	111.1	111.5	111.9	24
6/20	102.9	105.2	106.8	24	100.9	101.1	101.8	24	110.8	111.2	111.7	24	107.5	107.8	108.1	24	111.6	112.0	112.3	24
6/21	102.6	104.7	106.8	23	101.4	101.7	101.9	24	113.6	114.0	114.7	24	107.4	107.7	107.8	24	111.5	111.9	112.4	24
6/22	103.5	105.9	107.8	24	102.5	103.7	105.0	24	114.3	114.8	115.3	24	108.0	108.2	108.6	24	112.0	112.4	112.8	24
6/23	103.2	105.3	106.6	23	104.3	104.7	105.4	23	114.6	114.9	115.2	23	108.1	108.5	109.2	23	111.8	112.2	112.5	23

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

	Lower Mon.				L. Mon. Tlwr				Ice Harbor				Ice Harbor Tlwr				McNary-Oregon			
	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
6/10	111.7	112.0	112.9	24	116.6	117.2	117.3	24	114.7	115.1	115.7	24	115.5	116.0	116.3	24	---	---	---	0
6/11	110.1	110.3	110.6	24	115.7	115.9	116.2	24	113.0	113.2	113.7	24	115.0	115.4	115.7	24	---	---	---	0
6/12	110.1	110.5	110.7	24	116.6	117.1	117.3	24	112.9	113.1	113.3	24	113.8	114.8	115.3	24	---	---	---	0
6/13	111.2	111.5	111.8	24	117.7	118.0	118.1	24	113.6	113.9	114.3	24	112.9	113.5	114.6	24	---	---	---	0
6/14	110.3	110.6	111.1	24	117.4	117.9	117.9	24	113.7	113.9	114.1	24	112.4	113.0	114.9	24	---	---	---	0
6/15	109.3	109.4	109.6	24	117.1	117.7	117.8	24	112.7	113.0	113.4	24	113.8	115.6	116.3	24	---	---	---	0
6/16	107.7	108.1	108.9	24	116.6	116.9	117.5	24	111.2	111.8	113.0	24	114.0	114.6	115.8	24	---	---	---	0
6/17	107.8	108.3	108.8	24	116.7	117.0	117.1	24	111.6	112.5	113.8	24	112.8	114.0	115.8	24	---	---	---	0
6/18	107.8	108.5	108.9	24	116.5	117.0	117.0	24	112.3	113.1	114.1	24	111.2	111.5	111.9	24	---	---	---	0
6/19	107.0	107.6	108.0	24	116.2	117.0	117.5	24	110.6	111.2	112.7	24	112.8	114.1	115.4	24	---	---	---	0
6/20	108.3	108.5	108.7	24	117.5	117.9	118.2	24	112.7	112.8	113.1	24	113.4	114.1	115.3	24	---	---	---	0
6/21	108.4	109.0	109.7	24	115.6	116.3	116.8	24	111.6	111.9	112.4	24	111.8	112.2	112.9	24	---	---	---	0
6/22	110.4	111.0	112.2	24	115.1	115.7	116.1	24	112.7	113.3	113.7	24	112.1	112.8	113.5	24	---	---	---	0
6/23	111.1	111.4	112.1	23	115.2	115.5	115.8	23	114.4	114.7	115.0	23	112.4	112.7	113.1	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

	McNary-Wash				McNary Tlwr				John Day				John Day Tlwr				The Dalles			
	24 h	12 h		#	24 h	12 h		#	24h	12h		#	24h	12h		#	24h	12h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	AVG	High	hr
6/10	108.7	109.3	110.0	24	115.7	116.4	116.9	24	110.0	110.5	111.3	24	114.0	115.5	116.5	24	110.6	111.3	112.2	24
6/11	106.7	106.9	107.3	24	115.2	115.5	115.6	24	107.6	107.8	108.4	24	114.3	115.1	115.2	24	109.1	109.2	109.3	24
6/12	107.0	107.5	107.9	24	114.7	114.9	115.1	24	106.6	106.9	107.1	24	113.6	113.8	114.2	24	109.4	110.4	110.8	24
6/13	108.2	108.6	108.8	24	114.4	114.7	115.0	24	106.2	106.4	106.6	24	113.4	114.4	114.8	24	109.4	110.4	110.8	24
6/14	107.1	107.5	108.1	24	114.8	115.5	115.8	24	105.2	105.4	105.7	24	114.3	115.2	115.7	24	107.8	108.5	108.7	24
6/15	105.7	105.9	106.1	24	114.7	115.5	116.5	24	104.5	104.7	104.9	24	113.8	114.2	114.7	24	108.3	108.6	109.0	24
6/16	104.7	104.9	105.3	24	116.0	116.6	117.4	24	103.7	103.8	104.1	24	114.0	114.4	115.0	24	106.4	107.0	107.8	24
6/17	106.0	107.1	107.3	24	116.1	116.4	116.7	24	104.1	104.5	105.0	24	114.4	115.3	115.9	24	107.1	107.9	109.0	24
6/18	106.5	106.8	106.9	24	116.0	116.2	116.6	24	103.3	103.9	104.2	24	112.9	113.4	114.0	24	108.7	109.6	110.2	24
6/19	105.7	106.1	106.5	24	114.6	115.2	116.0	24	102.9	103.8	105.3	24	113.1	113.8	114.5	24	107.1	107.8	108.3	24
6/20	106.5	106.8	107.1	24	115.9	116.6	117.0	24	104.3	104.7	105.0	24	113.1	113.6	114.5	24	108.1	108.5	109.0	24
6/21	106.4	107.3	108.4	24	115.7	116.1	116.8	24	104.1	104.8	105.2	24	113.6	115.7	116.7	24	107.0	107.7	108.6	24
6/22	109.8	110.4	110.9	24	117.2	117.8	118.6	24	106.0	106.7	106.9	24	113.9	115.4	116.0	24	109.4	109.7	110.3	24
6/23	109.4	109.6	110.1	20	117.5	118.4	120.3	20	106.1	106.3	106.5	20	112.8	113.1	113.3	20	108.8	109.2	109.4	20

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

	The Dalles Dnst				Bonneville				Warrendale				Camas\Washougal				Cascade Island			
	24 h	12 h		#	24 h	12 h		#	24h	12h		#	24h	12h		#	24h	12h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
6/10	114.7	115.0	115.4	24	110.3	110.5	110.9	24	115.1	115.4	115.7	24	110.2	110.8	111.3	24	116.8	117.0	117.3	24
6/11	113.8	114.0	114.7	24	109.8	110.1	110.4	24	114.9	115.2	115.5	24	110.3	111.5	112.1	24	116.8	116.9	117.1	24
6/12	113.9	114.4	114.6	24	110.9	111.1	111.3	24	115.5	116.1	116.4	24	112.3	113.7	114.5	24	116.7	116.8	116.9	24
6/13	114.1	114.4	114.5	24	110.6	110.8	111.0	24	115.4	115.6	116.0	24	111.4	111.7	112.5	24	116.5	116.6	116.8	24
6/14	113.2	113.6	113.9	24	109.7	109.9	110.1	24	114.8	115.1	116.4	24	110.4	110.8	111.2	24	116.8	117.0	117.5	24
6/15	113.5	114.4	115.1	24	110.9	111.3	111.7	24	116.2	116.6	116.8	24	111.8	114.0	115.2	24	116.9	117.2	117.6	24
6/16	112.4	112.9	113.6	24	110.0	110.2	110.7	24	115.6	116.0	116.4	24	112.8	114.0	115.0	24	116.7	116.9	117.0	24
6/17	112.9	113.6	113.8	24	110.0	110.2	110.9	24	114.0	115.1	115.5	24	112.0	112.6	113.6	24	115.7	116.8	117.3	24
6/18	113.4	113.9	114.1	24	110.0	110.8	111.3	24	114.9	115.1	115.3	24	110.7	110.9	111.2	24	116.5	116.6	116.9	24
6/19	112.8	113.4	113.9	24	110.0	110.7	111.1	24	115.5	116.0	116.3	24	111.4	112.8	113.6	24	116.4	116.5	116.6	24
6/20	114.0	114.7	115.7	24	111.9	112.5	113.1	24	115.6	116.1	116.6	24	112.9	114.2	115.3	24	116.5	116.6	116.6	24
6/21	112.9	113.6	114.1	24	110.5	111.0	111.4	24	115.1	115.5	115.8	24	112.5	113.8	114.6	24	116.6	116.9	117.2	24
6/22	114.1	115.1	115.5	24	110.2	110.3	110.6	24	115.4	115.8	116.0	24	113.0	114.2	115.3	24	116.5	116.6	116.8	24
6/23	113.7	114.1	114.8	20	109.4	109.7	110.0	19	115.1	115.4	115.8	19	111.1	111.6	112.8	19	116.5	116.6	116.8	19

Two-Week Summary of Passage Indices

Source: Fish Passage Center Updated: 6/24/2016 10:36

Two-Week Summary of Passage Indices

* One or more of the sites on this date had an incomplete or biased sample.
See Sampling Comments: http://www.fpc.org/currentDaily/smpcomments.htm
For clip information see: http://www.fpc.org/CurrentDaily/catch.htm
For sockeye and yearling chinook (Snake only) race information see: http://www.fpc.org/smoltqueries/currentsmpsubmitdata.asp

				COMBINED YEARLING CHINOOK								
		WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date		(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
06/10/2016	*	---	3	---	---	833	430	781	0	339	---	162
06/11/2016	*	---	6	---	---	1,125	430	241	1	---	33	137
06/12/2016	*	---	16	---	---	614	215	701	0	681	---	98
06/13/2016	*	---	27	---	---	164	215	302	0	---	83	150
06/14/2016	*	---	---	---	---	323	0	94	0	0	---	285
06/15/2016	*	---	---	---	---	242	143	108	0	---	31	24
06/16/2016	*	---	---	---	---	158	0	88	3	357	---	65
06/17/2016	*	---	---	---	---	842	86	61	0	---	227	48
06/18/2016	*	---	---	---	---	0	36	101	0	0	---	214
06/19/2016	*	---	---	---	---	0	0	77	0	---	0	89
06/20/2016	*	---	---	---	---	175	36	122	0	0	---	0
06/21/2016	*	---	---	---	---	0	180	89	0	---	76	112
06/22/2016	*	---	---	---	---	0	194	21	1	0	---	0
06/23/2016	*	---	---	---	---	0	58	51	0	---	79	59
06/24/2016	*	---	---	---	---	---	---	---	---	0	---	0
Total:		**0**	**52**	**0**	**0**	**4,476**	**2,023**	**2,837**	**5**	**1,377**	**529**	**1,443**
# Days:		**0**	**4**	**0**	**0**	**14**	**14**	**14**	**14**	**8**	**7**	**15**
Average:		**0**	**13**	**0**	**0**	**320**	**145**	**203**	**0**	**172**	**76**	**96**
YTD		**27,295**	**56,223**	**16,183**	**7,757**	**5,898,601**	**3,490,758**	**4,890,529**	**44,783**	**2,181,660**	**1,456,048**	**2,660,355**

				COMBINED SUBYEARLING CHINOOK								
		WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date		(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
06/10/2016	*	---	2	---	---	61,101	42,316	37,231	372	61,878	---	3,290
06/11/2016	*	---	0	---	---	52,891	59,482	23,437	265	---	9,318	3,994
06/12/2016	*	---	1	---	---	38,394	46,119	27,356	375	53,799	---	3,672
06/13/2016	*	---	3	---	---	18,677	34,625	16,001	375	---	25,207	3,736
06/14/2016	*	---	---	---	---	15,956	23,891	14,407	407	11,020	---	8,988
06/15/2016	*	---	---	---	---	13,317	17,776	7,789	357	---	19,352	4,538
06/16/2016	*	---	---	---	---	54,266	10,581	5,119	333	66,732	---	9,827
06/17/2016	*	---	---	---	---	57,754	23,925	3,975	141	---	29,657	8,163
06/18/2016	*	---	---	---	---	25,242	29,906	3,117	170	49,140	---	6,807
06/19/2016	*	---	---	---	---	18,814	40,634	3,318	66	---	34,084	10,500
06/20/2016	*	---	---	---	---	14,761	30,351	1,979	158	73,875	---	8,658
06/21/2016	*	---	---	---	---	11,747	7,616	3,085	291	---	39,399	11,724
06/22/2016	*	---	---	---	---	6,978	14,246	5,568	342	492,592	---	13,687
06/23/2016	*	---	---	---	---	10,341	10,726	3,831	319	---	52,368	12,986
06/24/2016	*	---	---	---	---	---	---	---	---	534,312	---	15,759
Total:		**0**	**6**	**0**	**0**	**400,239**	**392,194**	**156,213**	**3,971**	**1,343,348**	**209,385**	**126,329**
# Days:		**0**	**4**	**0**	**0**	**14**	**14**	**14**	**14**	**8**	**7**	**15**
Average:		**0**	**2**	**0**	**0**	**28,589**	**28,014**	**11,158**	**284**	**167,919**	**29,912**	**8,422**
YTD		**0**	**46**	**698**	**2,869**	**899,445**	**659,223**	**259,146**	**13,174**	**1,738,944**	**292,868**	**1,841,332**

Two-Week Summary of Passage Indices

				COMBINED COHO								
		WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date		(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
06/10/2016	*	---	0	---	---	278	0	0	9	0	---	746
06/11/2016	*	---	0	---	---	0	143	0	6	---	17	393
06/12/2016	*	---	0	---	---	0	215	100	6	0	---	320
06/13/2016	*	---	0	---	---	0	144	0	3	---	0	319
06/14/2016	*	---	---	---	---	0	215	0	4	0	---	482
06/15/2016	*	---	---	---	---	0	0	0	3	---	63	216
06/16/2016	*	---	---	---	---	0	0	0	3	0	---	249
06/17/2016	*	---	---	---	---	0	86	0	1	---	38	262
06/18/2016	*	---	---	---	---	0	36	0	3	0	---	228
06/19/2016	*	---	---	---	---	0	0	26	0	---	0	215
06/20/2016	*	---	---	---	---	0	0	0	3	0	---	86
06/21/2016	*	---	---	---	---	0	0	0	3	---	0	410
06/22/2016	*	---	---	---	---	0	0	0	0	0	---	259
06/23/2016	*	---	---	---	---	36	0	0	0	---	0	529
06/24/2016	*	---	---	---	---	---	---	---	---	0	---	565
Total:		**0**	**0**	**0**	**0**	**314**	**839**	**126**	**44**	**0**	**118**	**5,279**
# Days:		**0**	**4**	**0**	**0**	**14**	**14**	**14**	**14**	**8**	**7**	**15**
Average:		**0**	**0**	**0**	**0**	**22**	**60**	**9**	**3**	**0**	**17**	**352**
YTD		**0**	**0**	**0**	**316**	**198,028**	**147,635**	**60,079**	**45,343**	**154,245**	**58,662**	**801,973**

				COMBINED STEELHEAD								
		WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date		(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
06/10/2016	*	---	11	---	---	2,779	2,439	546	18	339	---	908
06/11/2016	*	---	16	---	---	2,532	1,648	803	20	---	116	1,041
06/12/2016	*	---	9	---	---	1,536	1,506	601	11	0	---	820
06/13/2016	*	---	5	---	---	655	718	201	12	---	116	469
06/14/2016	*	---	---	---	---	161	287	281	9	0	---	175
06/15/2016	*	---	---	---	---	0	428	125	10	---	0	156
06/16/2016	*	---	---	---	---	555	358	0	18	357	---	119
06/17/2016	*	---	---	---	---	842	229	183	12	---	38	143
06/18/2016	*	---	---	---	---	0	36	25	1	822	---	158
06/19/2016	*	---	---	---	---	171	180	51	4	---	0	164
06/20/2016	*	---	---	---	---	262	108	24	6	0	---	0
06/21/2016	*	---	---	---	---	0	37	20	8	---	76	73
06/22/2016	*	---	---	---	---	0	0	33	6	412	---	89
06/23/2016	*	---	---	---	---	0	58	0	5	---	0	235
06/24/2016	*	---	---	---	---	---	---	---	---	0	---	169
Total:		**0**	**41**	**0**	**0**	**9,493**	**8,032**	**2,893**	**140**	**1,930**	**346**	**4,719**
# Days:		**0**	**4**	**0**	**0**	**14**	**14**	**14**	**14**	**8**	**7**	**15**
Average:		**0**	**10**	**0**	**0**	**678**	**574**	**207**	**10**	**241**	**49**	**315**
YTD		**755**	**26,481**	**3,377**	**9,186**	**3,955,194**	**2,294,254**	**1,837,724**	**17,548**	**735,162**	**502,665**	**621,827**

Two-Week Summary of Passage Indices

				COMBINED SOCKEYE								
		WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date		(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
06/10/2016	*	---	0	---	---	0	0	0	1	0	---	227
06/11/2016	*	---	0	---	---	0	0	0	0	---	250	68
06/12/2016	*	---	0	---	---	0	0	0	1	0	---	49
06/13/2016	*	---	0	---	---	0	0	0	0	---	166	94
06/14/2016	*	---	---	---	---	0	0	0	1	339	---	44
06/15/2016	*	---	---	---	---	0	0	0	0	---	31	0
06/16/2016	*	---	---	---	---	0	0	0	0	357	---	65
06/17/2016	*	---	---	---	---	0	0	0	1	---	76	48
06/18/2016	*	---	---	---	---	0	0	0	0	0	---	65
06/19/2016	*	---	---	---	---	0	0	0	0	---	78	38
06/20/2016	*	---	---	---	---	0	0	0	0	0	---	86
06/21/2016	*	---	---	---	---	0	0	0	0	---	152	0
06/22/2016	*	---	---	---	---	0	0	0	0	0	---	10
06/23/2016	*	---	---	---	---	0	0	0	0	---	157	0
06/24/2016	*	---	---	---	---	---	---	---	---	411	---	0
Total:		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**1,107**	**910**	**794**
# Days:		**0**	**4**	**0**	**0**	**14**	**14**	**14**	**14**	**8**	**7**	**15**
Average:		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**138**	**130**	**53**
YTD		**1**	**0**	**0**	**133**	**43,851**	**32,770**	**24,148**	**56,601**	**860,948**	**303,137**	**800,130**

				COMBINED LAMPREY JUVENILES								
		WTB	IMN	GRN	LEW	LGR†	LGS	LMN	RIS	MCN	JDA	BO2
Date		(Coll)	(Coll)	(Coll)	(Coll)	(Samp)	(Coll)	(Coll)	(Coll)	(Coll)	(Coll)	(Coll)
06/10/2016	*	---	0	---	---	1	0	50	1	1,200	---	56
06/11/2016	*	---	0	---	---	1	200	0	0	---	490	72
06/12/2016	*	---	0	---	---	0	200	0	0	400	---	116
06/13/2016	*	---	0	---	---	1	50	0	0	---	130	88
06/14/2016	*	---	---	---	---	0	400	0	0	200	---	16
06/15/2016	*	---	---	---	---	0	250	0	0	---	440	24
06/16/2016	*	---	---	---	---	0	110	0	1	400	---	8
06/17/2016	*	---	---	---	---	0	120	10	0	---	100	10
06/18/2016	*	---	---	---	---	1	50	30	0	0	---	0
06/19/2016	*	---	---	---	---	0	50	10	0	---	100	14
06/20/2016	*	---	---	---	---	0	50	30	0	400	---	29
06/21/2016	*	---	---	---	---	0	50	10	1	---	50	0
06/22/2016	*	---	---	---	---	0	75	5	0	0	---	25
06/23/2016	*	---	---	---	---	0	40	10	0	---	0	0
06/24/2016	*	---	---	---	---	---	---	---	---	200	---	0
Total:		**0**	**0**	**0**	**0**	**4**	**1,645**	**155**	**3**	**2,800**	**1,310**	**458**
# Days:		**0**	**4**	**0**	**0**	**14**	**14**	**14**	**14**	**8**	**7**	**15**
Average:		**0**	**0**	**0**	**0**	**0**	**118**	**11**	**0**	**350**	**187**	**31**
YTD		**0**	**4**	**1**	**0**	**165**	**34,165**	**29,575**	**89**	**34,143**	**25,700**	**9,908**

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:
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 macropthalmia, 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: 6/24/16 10:47 AM

06/10/16 TO 06/24/16

		Species				
Site	Data	**CH0**	**CH1**	CO	ST	**Grand Total**
LGR	Sum of NumberCollected	257,571	2,977	220	6,425	267,193
	Sum of NumberBarged	283,886	3,674	300	9,358	297,218
	Sum of NumberBypassed	21	0	0	345	366
	Sum of Numbertrucked	0	0	0	0	0
	Sum of SampleMorts	19	0	0	2	21
	Sum of FacilityMorts	870	2	0	12	884
	Sum of ResearchMorts	12	1	0	2	15
	Sum of TotalProjectMorts	901	3	0	16	920
LGS	Sum of NumberCollected	273,249	1,410	585	5,601	280,845
	Sum of NumberBarged	296,434	2,018	600	6,852	305,904
	Sum of NumberBypassed	14	0	0	0	14
	Sum of Numbertrucked	0	0	0	0	0
	Sum of SampleMorts	12	0	0	0	12
	Sum of FacilityMorts	381	2	17	7	407
	Sum of ResearchMorts	0	0	0	0	0
	Sum of TotalProjectMorts	393	2	17	7	419
LMN	Sum of NumberCollected	86,548	1,533	60	1,624	89,765
	Sum of NumberBarged	91,926	1,645	110	2,054	95,735
	Sum of NumberBypassed	277	8	0	14	299
	Sum of Numbertrucked	0	0	0	0	0
	Sum of SampleMorts	15	0	0	2	17
	Sum of FacilityMorts	68	0	0	4	72
	Sum of ResearchMorts	0	0	0	0	0
	Sum of TotalProjectMorts	83	0	0	6	89
Total Sum of NumberCollected		617,368	5,920	865	13,650	637,803
Total Sum of NumberBarged		672,246	7,337	1,010	18,264	698,857
Total Sum of NumberBypassed		312	8	0	359	679
Total Sum of Numbertrucked		0	0	0	0	0
Total Sum of SampleMorts		46	0	0	4	50
Total Sum of FacilityMorts		1,319	4	17	23	1,363
Total Sum of ResearchMorts		12	1	0	2	15
Total Sum of TotalProjectMorts		1,377	5	17	29	1,428

YTD Transportation Summary

Source: Fish Passage Center Updated: 6/24/16 10:47 AM

TO: 06/24/16

		Species					
Site	Data	**CH0**	**CH1**	CO	SO	ST	**Grand Total**
LGR	Sum of NumberCollected	614,611	4,509,776	150,390	33,350	2,985,095	8,293,222
	Sum of NumberBarged	574,876	1,402,985	117,235	31,849	1,109,030	3,235,975
	Sum of NumberBypassed	31,765	3,104,914	33,069	650	1,875,866	5,046,264
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	62	94	1	16	35	208
	Sum of FacilityMorts	1,931	1,361	65	830	97	4,284
	Sum of ResearchMorts	202	422	0	5	67	696
	Sum of TotalProjectMorts	2,195	1,877	66	851	199	5,188
LGS	Sum of NumberCollected	459,875	2,437,987	104,326	22,898	1,599,930	4,625,016
	Sum of NumberBarged	449,045	1,022,026	90,670	22,682	670,041	2,254,464
	Sum of NumberBypassed	2,869	1,415,436	13,600	7	929,747	2,361,659
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	24	23	1	22	12	82
	Sum of FacilityMorts	496	462	55	187	90	1,290
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	520	485	56	209	102	1,372
LMN	Sum of NumberCollected	148,521	3,509,389	40,560	11,370	1,285,223	4,995,063
	Sum of NumberBarged	143,358	1,896,538	34,321	11,348	630,320	2,715,885
	Sum of NumberBypassed	2,254	1,612,342	6,238	0	654,785	2,275,619
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	18	127	0	5	23	173
	Sum of FacilityMorts	81	352	1	18	95	547
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	99	479	1	23	118	720
Total Sum of NumberCollected		1,223,007	10,457,152	295,276	67,618	5,870,248	17,913,301
Total Sum of NumberBarged		1,167,279	4,321,549	242,226	65,879	2,409,391	8,206,324
Total Sum of NumberBypassed		36,888	6,132,692	52,907	657	3,460,398	9,683,542
Total Sum of NumberTrucked		0	0	0	0	0	0
Total Sum of SampleMorts		104	244	2	43	70	463
Total Sum of FacilityMorts		2,508	2,175	121	1,035	282	6,121
Total Sum of ResearchMorts		202	422	0	5	67	696
Total Sum of TotalProjectMorts		2,814	2,841	123	1,083	419	7,280

Cumulative Adult Passage at Mainstem Dams Through: 06/23

		Spring Chinook						Summer Chinook						Fall Chinook					
		2016		2015		10-Yr Avg.		2016		2015		10-Yr Avg.		2016		2015		10-Yr Avg.	
DAM	ENDDATE	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	06/23	137215	11145	220480	13314	146704	24884	57828	5057	73646	8587	50427	10849	0	0	0	0	0	0
TDA	06/23	105504	9999	194116	12307	114381	21222	41868	3221	49770	5899	36939	7501	0	0	0	0	0	0
JDA	06/23	93659	8262	166015	11514	99110	19896	36594	2590	40875	4094	29581	6516	0	0	0	0	0	0
MCN	06/23	82626	7237	156151	8767	89797	16347	28812	2000	31141	3086	23013	4454	0	0	0	0	0	0
IHR	06/23	67484	5029	116462	5745	63912	10829	7202	688	10924	1497	9436	2143	0	0	0	0	0	0
LMN	06/23	66115	6268	111511	8697	63840	10328	5799	906	7978	1686	9201	1997	0	0	0	0	0	0
LGS	06/23	62597	6365	105124	8553	59587	11445	4210	659	6213	1397	6910	1837	0	0	0	0	0	0
LGR	06/23	62050	5480	104873	8379	58449	12640	2938	515	3664	916	4700	1381	0	0	0	0	0	0
PRD	06/22	16843	1003	27716	1570	17080	1731	11634	617	11456	598	6100	293	0	0	0	0	0	0
WAN	06/22	17164	919	25982	1077	16645	2069	9741	567	10501	298	4947	363	0	0	0	0	0	0
RIS	06/21	18646	715	31748	1092	17101	2726	4496	78	5476	73	2074	228	0	0	0	0	0	0
RRH	06/21	9449	351	15244	609	7441	1202	974	4	1677	46	530	42	0	0	0	0	0	0
WEL	06/22	7226	784	13469	1290	5524	1413	0	0	0	0	0	0	0	0	0	0	0	0
WFA	06/16	20655	1307	49342	1937	27534	911	0	0	0	0	0	0	0	0	0	0	0	0

		Coho						Sockeye			Steelhead						Lamprey		
		2016		2015		10-Yr Avg.				10-Yr			10-Yr	Wild	Wild	10-Yr			10-Yr
DAM	ENDDATE	Adult	Jack	Adult	Jack	Adult	Jack	2016	2015	Avg.	2016	2015	Avg.	2016	2015	Avg.	2016	2015	Avg.
BON	06/23	0	0	0	0	0	0	192013	198475	101583	11008	8528	10581	4167	3929	2969	9392	9276	4693
TDA	06/23	0	0	0	0	0	0	136016	141746	64806	1886	1634	4107	945	634	1368	1322	3893	579
JDA	06/23	0	0	0	0	0	1	123106	111440	50492	1301	1559	6469	817	725	2258	919	2121	297
MCN	06/23	-1	0	13	5	1	0	73685	67020	27293	973	1473	6424	613	581	2013	85	235	25
IHR	06/23	0	0	0	0	0	0	88	88	24	1614	1608	5582	859	808	1600	12	77	4
LMN	06/23	-2	0	0	0	0	0	33	74	11	1707	3739	8762	1157	1915	2865	7	12	0
LGS	06/23	0	0	0	0	0	0	13	64	8	3505	1586	3267	2044	1028	1513	1	9	0
LGR	06/23	0	0	0	0	0	0	8	27	2	5558	9254	9347	3182	4371	3528	1	1	0
PRD	06/22	0	1	0	0	0	0	29901	33636	6841	138	115	97	0	0	0	310	225	31
WAN	06/22	0	0	0	0	0	0	20442	24159	4364	112	96	159	0	0	0	194	133	13
RIS	06/21	0	0	0	0	0	0	8295	9216	1524	74	142	145	42	92	72	17	7	0
RRH	06/21	0	0	0	0	0	0	4745	5528	801	102	122	356	36	81	237	3	1	0
WEL	06/22	0	0	0	0	0	0	3288	3761	476	90	62	88	40	43	59	1	0	0
WFA	06/16	0	0	1	0	0	0	0	0	0	17940	6571	16618	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.

Page last updated on: 06/24/16

Columbia/Snake Project Forebay Temperatures