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Fish Passage Center

Weekly Report #17–18

July 7, 2017

This Week's Highlights

Water Supply

Precipitation throughout the Columbia Basin has varied between 0% and 11% of average at individual sub-basins over early July. Precipitation above The Dalles has been 3% of average over July. Over the 2017 water year, precipitation has ranged between 107% and 133% 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 2017 July 1-5, 2017		Water Year 2017 October 1, 2016 to July 5, 2017	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia Above Coulee	0.01	2	37.1	115
Snake River Above Ice Harbor	0.01	7	24.6	122
Columbia Above The Dalles	0.01	3	28.0	116
Kootenai	0.02	5	37.7	118
Clark Fork	0.00	0	25.4	107
Flathead	0.00	0	38.2	123
Pend Oreille River Basin above Waneta Dam	0.00	0	33.2	117
Salmon River Basin	0.02	8	32.8	127
Upper Snake Tributaries	0.02	11	28.4	124
Clearwater	0.01	2	40.8	112
Willamette River above Portland	0.00	0	82.6	133

Table 2 displays the July 6th ESP runoff volume forecasts for multiple reservoirs along with the June COE forecasts at Libby and Dworshak. The July 6th ESP forecast at The Dalles between April and August is 111,143 Kaf (127% of average).

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

Location	July 6, 2017 5-day QPF ESP	
	% Average (1981-2010)	Runoff Volume (Kaf)
The Dalles (Apr-Aug)	127	111,143
Grand Coulee (Apr-Aug)	118	66,981
Libby Res. Inflow, MT (Apr-Aug)	123 129*	7,231 7,594*
Hungry Horse Res. Inflow, MT (Apr-Aug)	108	2,087
Lower Granite Res. Inflow (Apr- July)	145	28,690
Brownlee Res. Inflow (Apr-July)	181	9,898
Dworshak Res. Inflow (Apr-July)	120 116*	2,908 2,838*

* Denotes COE June Forecast

Grand Coulee Reservoir is at 1287.4 feet (7-6-17) and has refilled 2.0 feet over the last week. Outflows at Grand Coulee have ranged between 114.6 Kcfs and 137.6 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2443.5 feet (7-6-17) and has refilled 3.3 feet over the past week. Daily average outflows at Libby Dam have been 10.0-11.0 Kcfs over the last week.

Hungry Horse is currently at an elevation of 3555.5 feet (7-6-17) and has refilled 0.4 feet last week. Outflows at Hungry Horse have been 2.3 Kcfs over the last week.

Dworshak is currently at an elevation of 1596.6 feet (7-6-17) and has drafted 2.7 feet over the last week. Dworshak outflows over the last week have increased from 7.0 to 10.1 Kcfs.

The Brownlee Reservoir was at an elevation of 2072.6 feet on July 6, 2017, and has drafted 3.4 feet last week. Outflows at Hells Canyon have ranged between 18.3 and 27.7 Kcfs over the last four days.

The Biological Opinion flow period began on April 3rd and ended on June 20th in the lower Snake River (Lower Granite). According to the April Final Water Supply Forecast (April 5th, 2017), the flow objective this spring was 100 Kcfs at Lower Granite. Flows at Lower Granite Dam averaged 140.5 Kcfs over the spring season.

The Summer Flow period began on June 21st at Lower Granite Dam, the flow objective this year is 55 Kcfs. Over the summer period, flows have averaged 87.4 Kcfs.

Based on the April Final Water Supply Forecast, the Spring Biological Opinion Flow Objectives were 260 Kcfs at McNary Dam (began April 10th and ended June 30) and 135 Kcfs at Priest Rapids Dam (began April 10th). Over the spring season, flows at McNary Dam have been 378.4 Kcfs and Priest Rapids Dam flows were 237.4 Kcfs.

The Summer Flow period began on July1st at McNary Dam, the flow objective this year is 200 Kcfs. Over the summer period through July 6, 2017, flows have averaged 242.8 Kcfs.

Spill

Flows in the Snake and Columbia rivers continued to decrease over the past week relative to the week prior. Dworshak Dam has begun its summer draft operation, with discharge over the week ranging from 7.0 Kcfs to 10.1 Kcfs and spill ranging from 2.7 to 5.8 Kcfs. Dworshak is expected to discharge cool water targeting tailrace gas levels no greater than 115% with the objective of maintaining temperatures below 65°F at Lower Granite Dam as long as possible. Hells Canyon Complex flows have decreased slightly this week, with outflows at Hells Canyon ranging from 21.2 to 24.1 Kcfs over the last four days. Current outflow projections show flow in the Snake River and in the middle Columbia continuing to decrease as seasonal runoff declines.

The 2017 summer spill for fish passage 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 2017 Fish Operations Plan (FOP).

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

Spill at Lower Granite Dam was maintained at the target 18 Kcfs over the past week. At Little Goose Dam the Biological Opinion spill of 30% of flow was met over the past week. Spill at Lower Monumental Dam also met the target 17 Kcfs over the past week. Finally, at Ice Harbor, spill generally met the 45 Kcfs/ gas cap or 30%/30% spill levels on their prescribed dates.

Summer spill for fish passage began on June 16th at the middle Columbia River projects. Spill for fish passage at the lower Columbia River projects at the following amounts described in the 2017 Fish Operations Plan.

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.

Spill that has occurred in the middle Columbia River over the past several weeks has decreased considerably. At McNary Dam, spill averaged 50% of daily average flow over the past week. At John Day Dam, the prescribed spill of 30%/30% or 40%/40% was met over the past week. Spill at The Dalles Dam was 40% of average daily flow over the past week. Finally,

at Bonneville Dam, the FOP spill levels of 85 Kcfs/121 Kcfs or 95 Kcfs/95 Kcfs were met over the last week.

At Dworshak Dam, tailrace TDG levels have ranged from105% to 117%, dependent on spill levels. TDG supersaturation at the Lower Granite Dam forebay monitor has ranged between 104% and 105% over the past week. Over the past week, the tailwater TDG supersaturation (average of 12 highest hourly levels in a calendar day) was below 120% at all the Snake and Mid-Columbia river projects. Similar to the federal hydrosystem, TDG supersaturation levels at the Upper Columbia River projects have generally been below 120% at the tailrace monitors.

Note: The State of Oregon TDG waiver only requires compliance 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.

Gas bubble trauma monitoring in smolts took place over the past week at Lower Granite, Little Goose, Lower Monumental, Bonneville, McNary, and Rock Island Dams. At Little Goose, Lower Monumental, McNary, and Bonneville dams, no fish were observed with signs of GBT this past week.

At Lower Granite Dam 1% of fish were observed with signs of GBT on 7/6/17. All signs of GBT were Rank 1 levels of GBT in the fins. At Rock Island Dam, the GBT exams on 7/5/17 and 7/6/17 showed minor signs of GBT (all at Rank1). However, the target sample size of 100 fish was not met on either of these dates. The inability to collect an adequate sample precludes the accurate estimation of the percentage of fish with GBT. The action criteria for interruption of the voluntary spill for fish passage program is defined as either 15 percent of examined fish showing signs of gas bubble trauma in their non-paired fins, or five percent of the fish examined show signs of gas bubble trauma in their non-paired fins where more than 25 percent of the surface area of the fin is occluded by gas bubbles, corresponding to ranks greater than 2. The observed signs of GBT are presently below the action criteria that would be in place during the voluntary spill for fish passage program.

Temperature

Forebay temperatures are now being reported for Lower Granite, Ice Harbor, McNary and Bonneville dams. At present water temperatures remain below the 68° F temperature standard at all the hydroelectric projects in the FCRPS. While cool weather prevailed over the region earlier this season, the recent warm temperatures have resulted in water temperatures at the project forebays that were above the ten-year average. At Lower Granite, the forebay temperature was 66.7°F on July 6th, which is about two degrees warmer than the ten-year average. The forebay temperature at Ice Harbor Dam was 67.1°F on July 6th, which is about 2.4°F warmer than the ten-year average for this site. At McNary and Bonneville dams, the forebay temperatures on July 6th were 66.6°F and 67.2°F, respectively. These forebay temperatures are about two degrees warmer than the current ten-year average.

Smolt Monitoring

Sampling for the Smolt Monitoring Program (SMP) is underway at all bypass facilities. This week's samples at the bypass facilities were dominated by subyearling Chinook. Passage of spring migrants (i.e., yearling Chinook, coho, sockeye, and steelhead) remained low at all bypass facilities this week. Passage of subyearling Chinook increased at all three of the mid-Columbia facilities (BON, JDA, and MCN) and two of the Snake River facilities (LGS and LMN) but decreased at Rock Island Dam on the Upper Columbia and Lower Granite Dam on the Snake River. The Imnaha River Trap is the only trap site that is currently sampling for the SMP.

This week's samples at Bonneville Dam (BON) were dominated by subyearling Chinook. This week's daily average passage index for subyearling Chinook at BON was about 62,500 per day, which is an increase over last week's daily average passage index of about 50,000. Passage of spring migrants remained

low this week. Pacific lamprey ammocoetes were encountered in only one of this week's samples (July 3rd) while macropthalmia were encountered in four of this week's samples. The daily average collection for macropthalmia this week was about 75 per day, which is similar to that from last week.

Similar to last year, sampling at John Day Dam (JDA) occurs every-other-day this year. This week's samples at JDA were again dominated by subyearling Chinook. This week's daily average passage index for subyearling Chinook was about 69,000, which is an increase over last week's daily average passage index of nearly 46,000 per day. Passage of spring migrants was extremely low this week. Both Pacific lamprey ammocoetes and macropthalmia were encountered in this week's samples. Pacific ammocoetes were encountered in two samples (July 1st and July 5th) while macropthalmia were encountered in all three of this week's samples. This week's daily average collection for Pacific macropthalmia was 300 per day, which is a decrease from last week's daily average collection of about 575 per day.

Sampling at McNary Dam (MCN) is also every-other-day. This week's samples at MCN were again dominated by subyearling Chinook. This week's daily average passage index for subyearling Chinook was about 141,500 per day, which is a substantial increase over last week's daily average passage index of about 75,000 per day. Passage of spring migrants was low this week. In fact, the only spring migrant species that were encountered in this week's samples were coho and sockeye. Finally, no Pacific lamprey ammocoetes were encountered in this week's samples but macropthalmia were encountered in all four of this week's samples. This week's daily average collection for Pacific macropthalmia was about 500 fish per day, which is higher than last week's daily average collection of about 130 macropthalmia per day.

This week's samples at Lower Granite Dam (LGR) were again dominated by subyearling Chinook. This week's daily average passage index for subyearling Chinook was about 8,000 per day, which is a decrease over last week's daily average passage index of about 8,800 per day. Passage of spring migrants decreased again this week, when compared to the previous week. Finally, Pacific lamprey ammocoetes were encountered every day this week while macropthalmia were not encountered this week. This week's total sample for Pacific lamprey ammocoetes at LGR was 67 fish.

Similar to recent years, sampling at Little Goose Dam (LGS) was every-other-day until the start of transportation, at which time sampling went to every day. This week's samples at LGS were again dominated by subyearling Chinook. This week's daily average passage index for subyearling Chinook was about 8,500 per day, which is an increase over last week's daily average passage index of about 7,750 per day. Passage of spring migrants remained low this week. Finally, Pacific lamprey ammocoetes were encountered every day this week, with a daily average collection of about 65 fish. Pacific lamprey macropthalmia were not encountered in this week's samples at LGS.

Similar to recent years, sampling at Lower Monumental Dam (LMN) was every-third-day from April 1st to April 16th, every-other-day from April 16th until transportation began, at which time sampling switched to every day. This week's samples at LMN were again dominated by subyearling Chinook. This week's daily average passage index for subyearling Chinook was about 8,300 per day, which is an increase over last week's daily average passage index of about 5,050. Passage of spring migrants remained low this week. Finally, Pacific lamprey ammocoetes were encountered in four of this week's samples while no macropthalmia were encountered this week.

This week's collections at Rock Island Dam (RIS) were again dominated by subyearling Chinook. This week's daily average passage index for subyearling Chinook was about 825 per day, which is a decrease from last week's daily average passage index of about 2,100 per day. Passage of spring migrants was extremely low this week. Finally, no juveniles were encountered in this week's samples.

The Imnaha River Trap (IMN) is located at river kilometer 7 and is operated by the Nez Perce Tribe. Sampling at the Imnaha River Trap is year round. The FPC currently has data from IMN through June 28th. However, due to high flows in the Imnaha River and/or equipment malfunctions/maintenance over the last several weeks, sampling at IMN has been intermittent. The most recent days where sampling has been possible were June 26th through June 28th. Over these three days, samples at IMN were dominated by steelhead, with a daily average collection of about 9 fish per day. Yearling and subyearling Chinook were also collected during this three day period but in very low numbers. Finally, no Pacific lamprey juveniles were collected over these three days.

Hatchery Release

Effective 2017, the FPC has reorganized our hatchery release zones in an effort to more closely match the geographical regions used by NOAA in their ESU designations. The new river zones are: 1) Lower Columbia, 2) Middle Columbia, 3) Upper Columbia, and 4) Snake River. In addition, the FPC now provides a summary of hatchery releases below Bonneville Dam (i.e., Lower Columbia River Zone) in the weekly report.

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 two weeks.

Upper Columbia Zone: The Upper Columbia Zone encompasses the area of the Columbia River and its tributaries from Priest Rapids Dam to Chief Joseph Dam. No new releases were scheduled for this zone this week and no new releases are scheduled over the next two weeks.

Middle Columbia Zone: The Middle Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to Priest Rapids Dam (excluding the Snake River). Approximately 4.1 million subyearling fall Chinook smolts were scheduled to be released from Little White Salmon NFH into the Little White Salmon River this week. No other new releases were scheduled for this zone this week. However, the release of approximately 6.9 million subyearling fall Chinook from Priest Rapids hatchery, which began in mid-June, was expected to end this week. Approximately 2.0 million subyearling fall Chinook smolts are scheduled to be released from Willard NFH into the Little White Salmon River on or around July 10th. This is the only release that is 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 below Bonneville Dam. No new releases were scheduled for this zone this week. However, a volitional release of approximately 1.4 million subyearling fall Chinook into the Green River, a tributary of the Cowlitz River, was scheduled to end this week. This volitional release began in early June. Approximately 1.2 million subyearling fall Chinook smolts are scheduled to be released into the Klaskanine River, beginning on or around July 14th. This is the only new release that is scheduled to begin in 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 1,240 and 2,182 adult summer Chinook in the last week. The 2017 summer Chinook count of 69,917 is about 78% of the 2016 count and 92% of the 10-year average. The 2017 summer Chinook jack count of 8,409 has 726 more fish than the 2016 count, while being 49% of the 10- year average count. At Willamette Falls, 30,246 adult spring Chinook have been counted so far this year. In 2016, 26,503 adult spring Chinook were counted at Willamette Falls. This year's count is about 1.1 times greater than the 2016 count and 96% of the 10-year average count of 31,449. As of July 6th, a total of 40,822 adult summer Chinook have been counted at McNary Dam and 6,160 have been counted at Lower Granite Dam. The 2017 McNary Dam adult summer Chinook count is about 72% of the 2016 count and 89% the 10-year average count. The 2017 Lower Granite Dam adult summer Chinook count has 851 fewer fish than the 2016 count and 6,303 fewer fish than the 10-year average count.

The 2017 Bonneville Dam adult steelhead count of 6,000 is about 30% of the 2016 count of 20,087 and 28% of the 10-year average count of 21,724. The 2017 Bonneville Dam adult wild steelhead count of 2,213 has 6,103 fewer fish than the 2016 count of 8,316 and 6,167 fewer fish than the 10- year average count of 8,380. This year's Lower Granite steelhead count of 7,335 is about 1.3 times greater than the 2016 count of 5,834, while being 77% of the 10-year average count of 9,491. The 2017 Lower Granite Dam adult wild steelhead count of 3,070 has 294 fewer fish than the 2016 count of 3,364 and has 643 fewer fish than the 10-year average count of 3,713. At Willamette Falls, the 2017 count for steelhead was 2,296 as of June 30th. This year's steelhead count is about 10% of the 2016 count of 22,931 and 12% of the 10-year average count of 19,557.

Daily adult sockeye passage numbers at Bonneville Dam ranged between 1,601 and 3,472 last week. The 2017 adult sockeye count at Bonneville Dam of 76,538 is 24% of the 2016 count and 28% of the 10-year average count. A total of 46,133 lampreys have been counted at Bonneville Dam so far this year. The Bonneville 2017 lamprey count is about 3.0 times greater than the 2016 count of 15,515 and 5.6 times greater than the 10-year average count of 8,172.

Hatchery Releases Last Two Weeks

Hatchery Release Summary

From: 6/24/2017 to 07/07/17

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH0	SP	2018	400,000	06-28-17	06-28-17	Meadow Creek - SELW	Selway River	SNAK
Nez Perce Tribe Total					**400,000**					
U.S. Fish and Wildlife Service	Little White Salmon NFH	CH0	FA	2017	4,100,000	07-05-17	07-05-17	Little White Salmon Hatchery	Little White Salmon River	MCOL
U.S. Fish and Wildlife Service Total					**4,100,000**					
Washington Dept. of Fish and Wildlife	North Toutle Hatchery	CH0	FA	2017	1,400,000	06-01-17	07-01-17	Green River	Cowlitz River	LCOL
Washington Dept. of Fish and Wildlife	Priest Rapids Hatchery	CH0	FA	2017	6,900,000	06-14-17	07-01-17	Priest Rapids Hatchery	McNary Pool	MCOL
Washington Dept. of Fish and Wildlife	Ringold Springs Hatchery	CH0	FA	2017	3,368,500	06-14-17	06-27-17	Ringold Springs Hatchery	McNary Pool	MCOL
Washington Dept. of Fish and Wildlife Total					**11,668,500**					
Grand Total					**16,168,500**					

Hatchery Releases Next Two Weeks

Hatchery Release Summary

From: 7/8/2017 to 7/21/2017

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone
Oregon Dept. of Fish and Wildlife	Klaskanine Hatchery	CH0	FA	2017	1,200,000	07-14-17	07-14-17	N Fk Klaskanine River	Klaskanine River	LCOL
Oregon Dept. of Fish and Wildlife Total					**1,200,000**					
U.S. Fish and Wildlife Service	Willard Hatchery	CH0	FA	2017	2,000,000	07-10-17	07-17-17	Willard Hatchery	Little White Salmon River	MCOL
U.S. Fish and Wildlife Service Total					**2,000,000**					
Grand Total					**3,200,000**					

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

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
06/23/2017	157.7	0.1	150.7	0.0	163.5	17.6	170.7	20.7	180.0	37.1	194.9	68.0	195.6	78.4
06/24/2017	144.4	0.1	145.3	0.0	164.5	14.0	171.8	35.5	179.4	34.9	188.0	64.7	183.0	55.0
06/25/2017	147.9	0.1	148.1	0.0	153.9	14.8	158.2	16.6	167.6	36.7	176.3	38.5	171.8	36.7
06/26/2017	150.5	0.1	147.0	0.0	160.1	14.5	165.9	21.8	175.1	37.3	186.3	52.5	182.5	61.2
06/27/2017	147.6	0.1	150.5	0.0	164.0	17.1	171.6	19.6	179.4	40.8	193.5	67.9	191.7	68.6
06/28/2017	135.9	0.1	140.4	0.0	157.5	11.6	160.4	16.5	169.4	34.3	177.3	39.4	170.8	68.8
06/29/2017	135.4	0.1	134.3	0.0	152.2	10.0	157.9	16.3	168.3	32.7	178.7	46.0	175.6	46.8
06/30/2017	136.4	0.1	139.5	0.0	143.2	9.8	144.0	15.3	152.9	32.5	162.2	31.7	158.9	28.7
07/01/2017	134.6	0.1	130.7	0.0	136.0	14.9	134.1	12.1	143.7	27.8	150.9	26.5	144.1	27.7
07/02/2017	137.6	0.1	136.9	0.0	145.8	18.6	147.2	18.2	155.0	29.3	164.5	31.7	158.3	49.1
07/03/2017	133.1	0.1	137.9	0.0	147.8	18.0	154.3	22.6	162.1	29.9	171.6	33.7	166.1	52.7
07/04/2017	126.1	0.1	123.1	0.0	130.3	10.4	137.0	13.4	146.1	25.1	168.4	40.8	167.2	36.1
07/05/2017	114.6	0.1	111.7	0.0	132.8	10.0	135.2	14.3	145.6	26.5	151.6	19.8	145.3	27.9
07/06/2017	121.0	0.1	116.2	0.0	137.5	9.3	133.4	18.4	140.8	28.2	145.3	20.0	139.1	27.5

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
06/23/2017	10.5	6.3	---	36.0	116.2	27.6	112.3	33.7	111.4	36.1	116.6	70.2
06/24/2017	8.5	4.2	---	36.4	106.8	19.6	104.5	31.2	102.6	28.6	107.1	70.1
06/25/2017	8.4	4.1	---	34.3	101.7	23.4	98.3	29.2	95.8	18.7	101.0	54.8
06/26/2017	5.9	1.6	---	25.0	89.8	18.3	88.3	26.2	87.4	17.6	91.5	40.3
06/27/2017	5.9	1.6	---	25.9	83.2	18.2	80.7	24.1	79.8	16.6	82.7	47.1
06/28/2017	5.7	1.4	---	28.0	83.1	18.2	79.7	23.8	79.4	16.9	82.2	55.2
06/29/2017	5.5	1.2	---	25.8	83.9	18.4	82.6	24.7	82.3	16.5	84.9	42.5
06/30/2017	5.3	1.0	---	26.7	78.1	18.3	74.8	22.6	73.3	16.9	73.7	25.7
07/01/2017	6.9	2.7	---	25.0	74.8	18.2	74.0	21.9	75.3	16.6	77.9	46.1
07/02/2017	9.0	4.7	---	23.6	71.2	18.3	69.1	20.7	69.2	17.1	71.9	53.5
07/03/2017	9.0	4.7	---	24.1	69.8	18.4	69.2	20.5	68.7	16.6	70.4	30.1
07/04/2017	8.9	4.6	---	21.6	65.8	18.4	63.4	19.0	62.7	17.1	63.4	19.0
07/05/2017	8.8	4.6	---	21.2	65.8	18.4	64.9	19.5	65.2	16.9	68.6	44.1
07/06/2017	10.1	5.8	---	22.0	62.3	18.6	59.7	18.0	59.3	17.1	60.9	46.4

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
06/23/2017	306.5	157.7	307.3	92.3	290.3	114.7	307.6	96.8	61.8	136.6
06/24/2017	310.5	159.5	295.2	93.8	281.8	109.9	308.6	100.7	62.5	133.0
06/25/2017	299.7	150.3	300.2	119.7	283.9	111.5	313.0	96.2	66.7	137.7
06/26/2017	277.4	139.0	268.9	103.1	253.4	101.6	279.0	92.2	53.2	121.2
06/27/2017	273.2	136.9	269.7	80.1	253.5	101.0	265.6	96.8	45.5	110.9
06/28/2017	267.9	134.3	258.2	77.6	243.6	97.1	265.8	101.2	51.6	100.6
06/29/2017	266.4	133.5	266.0	79.3	250.2	99.4	264.9	96.2	55.3	101.5
06/30/2017	262.9	131.7	256.7	81.5	244.4	97.5	269.5	90.8	68.1	98.2
07/01/2017	270.4	135.7	237.2	94.6	220.8	88.3	235.5	95.6	33.3	94.2
07/02/2017	245.0	123.1	234.1	93.2	219.1	88.0	238.9	100.0	32.7	93.8
07/03/2017	237.2	119.1	225.0	89.7	204.2	81.8	222.2	95.5	20.9	93.4
07/04/2017	251.0	126.0	222.3	84.1	204.3	81.9	218.6	89.6	---	---
07/05/2017	230.3	115.6	220.0	65.9	205.5	82.3	231.4	94.9	28.9	95.3
07/06/2017	222.8	111.9	205.4	66.1	194.4	78.1	200.6	100.0	1.6	86.6

Gas Bubble Trauma Monitoring Results from Representative Site
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 Listed by Highest Rank 1	Rank 2	Rank 3
Lower Granite Dam										
	06/29/17	Chinook + Steelhead	101	0	0	0.00%	0.00%	0	0	0
	07/06/17	Chinook + Steelhead	101	1	1	0.99%	0.00%	1	0	0
Little Goose Dam										
	06/26/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0
	07/03/17	Chinook + Steelhead	77*	0	0			0	0	0
Lower Monumental Dam										
	06/28/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0
	07/05/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0
McNary Dam										
	06/25/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0
	06/27/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0
	07/03/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0
	07/05/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0
Bonneville Dam										
	06/24/17	Chinook + Steelhead	100	4	4	4.00%	0.00%	4	0	0
	06/27/17	Chinook + Steelhead	100	2	2	2.00%	0.00%	2	0	0
	07/01/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0
	07/04/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0

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

Total Dissolved Gas Saturation Data at Upper Columbia River Sites

	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
6/23	---	---	---	0	---	---	---	0	116.9	117.1	117.4	24	115.2	115.7	116.0	24	114.9	115.3	115.7	24
6/24	---	---	---	0	---	---	---	0	116.6	116.8	117.0	24	115.4	115.8	116.0	24	115.6	116.0	116.3	24
6/25	---	---	---	0	---	---	---	0	117.4	117.8	118.0	24	115.9	116.5	116.7	24	116.5	117.1	117.5	24
6/26	---	---	---	0	---	---	---	0	118.1	118.3	118.5	24	116.6	116.9	117.2	24	117.2	117.6	117.9	24
6/27	---	---	---	0	---	---	---	0	118.1	118.3	118.5	24	116.5	116.8	117.1	24	116.8	117.0	117.3	24
6/28	---	---	---	0	---	---	---	0	118.0	118.1	118.4	24	116.1	116.7	117.1	24	116.1	116.4	116.6	24
6/29	---	---	---	0	---	---	---	0	116.9	117.1	117.2	24	115.2	115.7	116.0	24	115.4	115.6	116.0	24
6/30	---	---	---	0	---	---	---	0	117.0	117.4	117.5	24	115.2	115.6	115.7	24	115.7	116.1	116.3	24
7/1	---	---	---	0	---	---	---	0	117.5	117.6	117.9	24	115.5	115.8	116.6	24	116.4	116.8	117.4	24
7/2	---	---	---	0	---	---	---	0	117.1	117.3	117.6	24	115.2	115.5	115.7	24	116.0	116.3	116.7	24
7/3	---	---	---	0	---	---	---	0	116.8	117.0	117.1	24	114.8	115.1	115.3	24	115.4	115.5	115.7	24
7/4	---	---	---	0	---	---	---	0	116.3	116.7	116.9	24	114.4	114.8	115.3	24	115.3	115.6	115.9	24
7/5	---	---	---	0	---	---	---	0	115.9	116.4	116.6	24	114.3	115.0	115.8	24	115.2	116.0	116.3	24
7/6	---	---	---	0	---	---	---	0	115.9	116.1	116.3	23	114.3	115.0	116.6	23	115.1	115.5	115.9	23

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
6/23	113.4	113.7	113.8	24	113.5	113.7	113.8	24	114.1	116.2	116.6	24	113.9	114.7	115.2	24	117.9	118.4	119.9	23
6/24	113.9	114.2	114.5	24	114.2	114.4	114.5	24	116.0	116.3	116.8	24	115.2	115.6	115.9	24	119.8	120.8	122.2	22
6/25	114.6	115.0	115.2	24	115.3	115.7	115.9	24	116.7	117.5	117.6	24	116.4	116.8	117.1	24	118.6	118.9	119.3	21
6/26	115.5	115.9	116.2	24	115.9	116.2	116.4	24	117.8	118.2	118.4	24	116.5	117.0	117.3	24	119.1	119.5	120.8	23
6/27	115.0	115.2	115.3	24	115.3	115.4	115.6	24	117.6	117.8	117.9	24	116.3	116.5	116.7	23	118.7	119.0	119.3	22
6/28	114.4	114.8	115.0	24	114.8	115.5	115.5	24	117.4	117.7	117.9	24	116.4	117.0	117.4	24	118.7	119.2	120.5	22
6/29	113.8	114.1	114.5	23	113.4	113.6	113.8	24	116.6	116.8	116.9	24	114.6	115.0	115.4	23	117.7	118.1	118.5	22
6/30	114.4	114.8	115.1	24	114.8	115.3	115.8	24	117.0	117.4	117.6	24	114.5	115.2	115.4	24	117.6	117.9	118.3	21
7/1	115.0	115.5	115.9	24	115.2	115.7	116.2	24	117.4	117.7	117.7	24	115.2	115.8	116.1	23	117.4	118.2	118.7	22
7/2	114.7	115.1	115.3	24	115.0	115.4	116.0	24	117.4	117.6	117.7	24	115.3	115.8	116.0	24	118.2	118.8	120.6	23
7/3	114.3	114.6	114.9	24	114.4	114.8	115.1	23	117.1	117.3	117.4	23	115.0	115.3	115.6	24	118.2	118.9	121.6	24
7/4	114.0	114.5	114.8	24	114.6	115.1	115.4	24	117.1	117.5	117.6	24	115.5	116.0	116.4	24	117.6	118.6	121.5	21
7/5	114.0	114.5	115.0	24	114.3	115.0	115.4	24	117.2	117.5	117.6	24	115.6	115.8	116.4	24	118.0	118.3	118.5	22
7/6	113.8	114.2	114.5	23	114.2	115.1	115.6	23	117.0	117.3	117.4	23	114.9	115.3	115.8	23	116.4	118.0	118.2	21

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
6/23	113.7	114.3	114.8	23	117.8	118.7	119.1	23	115.4	116.7	118.3	24	115.8	115.8	116.4	3	114.6	115.9	117.3	24
6/24	115.4	117.0	118.4	24	119.4	120.7	122.1	21	117.1	118.8	120.1	24	116.8	118.4	120.5	20	115.2	117.2	120.1	24
6/25	115.2	116.0	117.1	22	120.0	120.4	121.6	19	119.0	121.1	122.8	24	115.7	116.2	117.4	19	117.0	117.9	118.9	24
6/26	115.3	115.6	116.0	24	119.5	120.2	120.6	22	---	---	---	0	---	---	---	0	---	---	---	0
6/27	115.1	115.9	116.4	23	119.6	119.9	120.1	21	---	---	---	0	---	---	---	0	---	---	---	0
6/28	114.3	115.4	116.1	24	118.1	119.3	119.8	20	114.7	114.7	114.7	1	---	---	---	0	115.5	115.5	115.5	1
6/29	113.9	114.6	114.9	23	118.0	119.6	119.9	22	115.1	116.4	118.3	24	114.0	114.5	115.6	24	111.4	112.9	114.2	24
6/30	114.1	114.6	115.1	23	118.6	119.9	120.5	20	117.2	119.3	121.2	24	114.4	115.0	115.2	24	112.6	113.0	114.7	24
7/1	114.0	114.4	114.8	23	117.1	118.2	120.2	23	116.2	116.9	117.7	24	115.2	115.6	116.1	24	112.9	113.4	114.0	24
7/2	114.4	115.0	115.4	24	117.9	118.6	119.0	22	115.5	116.6	118.3	24	115.2	116.2	119.5	24	113.0	113.7	114.7	24
7/3	114.1	114.7	115.3	24	117.7	118.3	118.8	24	112.5	113.1	113.6	24	113.4	113.7	115.6	24	111.3	112.0	113.2	24
7/4	114.7	115.3	115.8	23	117.6	118.3	119.0	19	115.0	116.9	118.5	24	115.8	117.4	120.4	24	112.6	115.8	118.1	24
7/5	114.7	115.4	116.0	23	118.1	118.7	119.1	20	116.3	117.7	119.2	24	114.7	115.0	115.5	24	112.2	112.8	113.1	24
7/6	114.3	115.0	115.9	22	117.8	118.5	119.1	20	116.2	117.7	119.2	24	114.7	115.2	115.5	24	111.7	112.5	113.1	24

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
6/23	104.4	104.7	104.9	24	---	---	---	0	115.9	116.3	116.7	24	106.7	107.7	108.4	24	103.4	105.4	106.2	24
6/24	104.5	104.9	105.1	24	---	---	---	0	110.6	111.6	115.6	24	104.9	106.1	106.8	24	98.1	99.9	102.1	15
6/25	104.4	104.7	105.0	24	---	---	---	0	111.6	112.4	113.4	24	105.7	107.0	108.0	24	106.4	107.0	107.6	24
6/26	---	---	---	0	---	---	---	0	106.3	106.9	108.0	24	104.0	105.0	105.9	24	104.9	105.3	106.1	24
6/27	---	---	---	0	---	---	---	0	106.1	106.6	107.1	24	103.9	104.9	105.7	24	104.3	104.9	105.4	24
6/28	---	---	---	0	---	---	---	0	105.4	106.0	106.5	24	103.6	104.5	105.3	24	104.0	104.6	105.1	24
6/29	---	---	---	0	---	---	---	0	104.4	104.9	105.4	24	103.2	104.2	105.1	24	103.6	104.3	104.7	24
6/30	---	---	---	0	---	---	---	0	104.1	104.7	105.2	24	103.5	104.8	105.7	24	104.7	105.7	106.4	24
7/1	---	---	---	0	---	---	---	0	105.2	105.7	106.3	22	103.7	104.7	105.4	24	104.3	104.9	105.3	24
7/2	---	---	---	0	---	---	---	0	114.0	114.7	115.0	24	107.9	109.4	110.2	24	104.1	104.9	105.7	24
7/3	---	---	---	0	---	---	---	0	114.8	115.5	116.6	24	108.8	110.0	110.6	24	103.9	104.6	105.4	24
7/4	---	---	---	0	---	---	---	0	116.9	117.3	117.8	24	111.0	112.1	113.1	24	103.5	104.4	105.5	24
7/5	---	---	---	0	---	---	---	0	116.9	117.4	117.8	24	111.3	112.6	113.5	24	103.7	104.6	105.6	24
7/6	---	---	---	0	---	---	---	0	118.4	118.9	119.3	23	113.1	114.4	115.4	23	103.6	104.6	105.5	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
6/23	110.8	116.0	118.9	24	105.7	105.8	106.2	24	114.2	114.3	114.5	24	111.9	112.8	113.3	24	116.1	116.3	116.5	24
6/24	104.4	105.9	107.1	24	106.4	106.5	106.5	24	109.9	110.6	113.6	24	112.8	113.1	113.8	24	115.6	116.0	116.2	24
6/25	104.5	106.6	107.9	24	107.2	107.5	107.6	24	111.6	114.0	115.4	24	112.6	113.0	113.4	24	114.6	114.9	115.2	24
6/26	103.7	105.1	107.3	24	107.5	107.7	107.9	24	109.4	109.6	109.7	24	112.0	112.6	113.0	24	114.1	114.4	114.6	24
6/27	103.7	105.8	107.2	24	106.6	106.8	107.1	24	109.4	109.6	109.8	24	109.6	110.2	110.9	24	113.4	113.7	114.0	24
6/28	103.3	105.3	106.8	24	105.5	105.9	106.3	24	109.1	109.3	109.6	24	109.4	109.8	110.5	24	113.5	113.7	114.1	24
6/29	103.2	105.4	106.8	24	103.8	104.1	104.4	24	108.7	108.9	109.2	24	107.7	107.9	108.3	24	112.3	113.1	113.2	24
6/30	103.7	106.2	107.8	24	104.2	104.5	104.7	24	108.7	108.9	109.8	24	108.0	108.5	108.9	24	111.2	111.7	112.0	24
7/1	103.6	105.7	107.3	24	104.6	104.8	105.1	24	108.8	109.1	109.7	24	108.4	108.7	108.9	24	110.9	111.1	111.3	24
7/2	104.5	107.4	109.0	24	104.9	105.2	105.3	24	109.0	109.4	110.0	24	108.0	108.2	108.6	24	110.7	111.1	111.5	24
7/3	105.2	107.5	109.0	24	104.4	104.7	105.3	24	108.9	109.2	109.9	24	108.1	108.5	108.9	24	110.5	110.8	111.2	24
7/4	106.0	108.7	110.1	24	104.1	104.4	104.7	24	109.5	110.0	111.6	24	108.1	108.5	108.8	24	111.0	111.7	112.0	24
7/5	106.7	109.1	110.7	24	104.9	105.4	106.4	24	109.5	109.9	110.9	24	108.1	108.8	109.3	24	110.9	111.2	111.5	24
7/6	107.1	109.8	111.4	23	103.9	104.2	104.9	23	110.7	111.9	112.8	23	107.8	108.3	108.7	23	110.7	111.1	111.7	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
6/23	117.3	117.6	118.0	24	117.1	118.2	119.8	24	117.2	117.5	117.7	24	118.8	119.2	119.7	24	---	---	---	0
6/24	116.4	116.8	117.5	24	115.0	115.8	116.1	24	117.3	117.7	118.3	24	118.3	118.6	119.0	24	---	---	---	0
6/25	117.7	118.1	118.6	24	114.3	115.0	115.4	24	117.5	117.9	118.9	24	117.0	117.5	118.5	24	---	---	---	0
6/26	117.2	117.7	118.6	24	116.4	117.9	118.7	24	117.5	117.7	118.4	24	116.2	116.6	117.2	24	---	---	---	0
6/27	114.7	115.1	116.1	24	117.7	118.2	118.4	24	116.8	116.8	116.9	3	116.0	116.4	117.0	24	---	---	---	0
6/28	112.9	113.5	114.2	24	117.3	117.6	117.7	24	109.6	109.9	110.9	24	116.0	116.3	116.7	24	---	---	---	0
6/29	111.5	111.7	111.9	24	116.5	117.4	117.6	24	112.9	112.9	113.0	12	115.4	115.9	116.5	24	---	---	---	0
6/30	112.3	112.6	113.4	24	116.8	117.3	117.8	24	113.2	113.5	113.8	24	115.2	115.9	116.3	24	---	---	---	0
7/1	113.4	113.7	113.9	24	117.0	117.5	117.6	24	114.1	114.4	114.6	24	115.7	116.0	116.3	24	---	---	---	0
7/2	112.0	112.2	112.4	24	115.7	116.1	116.4	24	114.6	114.7	114.8	24	115.3	115.5	115.9	24	---	---	---	0
7/3	111.3	111.5	111.8	24	114.4	115.4	115.9	24	114.3	114.4	114.5	24	114.7	115.3	115.6	24	---	---	---	0
7/4	111.1	111.2	111.4	24	115.0	115.6	116.2	24	114.2	114.4	114.6	24	114.5	115.3	115.9	24	---	---	---	0
7/5	110.8	110.9	111.1	24	115.6	116.1	116.7	24	114.1	114.2	114.4	24	114.9	115.6	115.8	24	---	---	---	0
7/6	110.9	111.2	111.4	23	115.5	115.8	116.2	23	113.4	113.6	113.7	23	114.7	115.3	115.5	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

	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
6/23	115.0	115.8	116.6	24	118.3	119.1	120.9	24	114.4	114.7	115.2	24	116.2	116.9	118.3	24	114.5	115.0	116.0	24
6/24	115.2	116.0	116.4	24	118.2	118.6	118.7	24	115.0	116.0	117.0	24	115.7	117.2	118.2	24	114.1	114.8	115.6	24
6/25	116.9	118.4	119.3	24	117.9	118.1	118.3	24	117.5	118.4	119.4	24	118.1	118.4	118.6	24	116.3	117.4	118.0	24
6/26	117.4	118.0	118.8	24	119.4	121.2	122.6	24	118.4	119.0	119.5	24	116.9	117.9	118.3	24	114.8	116.1	117.7	24
6/27	114.8	115.3	116.2	24	120.7	121.2	121.7	24	115.2	115.7	116.8	24	114.7	115.4	115.5	24	110.9	111.4	112.1	24
6/28	111.7	112.5	114.2	24	120.1	120.5	120.7	24	112.0	112.6	113.9	24	114.2	114.9	115.5	24	109.7	110.4	111.7	24
6/29	111.9	112.6	113.5	24	119.3	120.3	121.0	24	110.0	110.4	111.1	24	114.4	115.0	116.0	24	109.4	111.1	112.3	24
6/30	113.1	114.4	116.0	24	117.6	117.9	118.4	24	110.4	110.8	111.1	24	114.2	115.2	117.4	24	111.9	112.3	112.7	24
7/1	114.6	115.2	115.7	24	117.8	119.2	119.7	24	110.9	111.1	111.3	24	115.4	115.8	116.3	24	110.1	110.5	111.7	24
7/2	114.1	114.8	115.5	24	116.9	117.8	119.3	24	111.2	111.8	112.1	24	116.0	116.2	116.6	24	110.3	111.1	111.5	24
7/3	113.1	114.0	114.9	24	116.5	117.5	118.2	24	111.4	111.9	112.4	24	115.4	116.9	117.8	24	109.5	110.0	110.8	24
7/4	112.8	113.6	114.3	24	116.7	118.4	119.3	24	111.8	112.0	112.3	24	114.2	115.7	117.7	24	110.9	112.0	112.5	24
7/5	113.4	114.3	116.0	24	116.1	116.8	118.3	24	111.0	111.2	111.5	24	113.9	114.5	115.1	24	112.1	112.4	112.7	24
7/6	113.0	113.8	115.4	23	115.8	116.2	116.4	23	110.2	110.8	111.3	23	114.8	115.5	117.1	23	110.5	110.8	111.2	23

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
6/23	118.0	118.4	118.7	24	118.3	118.9	119.9	24	117.9	118.2	118.9	24	116.2	117.8	118.9	24	117.8	118.7	120.1	24
6/24	117.3	118.0	118.4	24	118.6	119.3	119.9	24	118.4	118.8	119.5	24	116.8	118.0	118.7	24	119.9	120.4	120.5	24
6/25	118.8	119.5	119.9	24	118.0	118.9	119.3	24	117.6	117.9	118.2	24	115.8	116.8	117.3	24	120.4	120.6	120.7	24
6/26	117.7	118.5	118.8	24	116.5	117.8	119.0	24	116.5	117.1	117.9	24	115.8	116.7	117.6	24	116.7	117.7	119.1	24
6/27	115.3	115.7	116.2	24	111.3	111.8	113.0	24	114.1	115.0	116.0	24	113.5	114.6	115.6	24	116.3	117.2	118.4	24
6/28	114.7	115.2	115.5	24	110.0	110.2	110.7	24	113.5	113.9	114.3	24	111.7	113.0	114.0	24	117.7	118.1	118.6	24
6/29	114.4	115.5	116.1	24	110.1	111.1	112.0	24	113.2	114.0	114.4	24	111.9	113.3	114.3	24	117.7	118.1	118.4	24
6/30	115.8	116.0	116.3	24	114.5	115.9	116.5	24	115.2	116.0	116.5	24	114.0	116.2	124.5	24	116.6	117.5	119.1	24
7/1	114.4	114.7	115.0	24	112.8	114.0	115.4	24	115.2	115.9	116.6	24	114.9	117.6	136.3	17	116.1	117.3	119.0	24
7/2	114.2	114.5	114.7	24	109.6	109.9	110.7	24	114.1	114.7	114.9	24	---	---	---	0	117.2	117.8	118.8	24
7/3	113.7	114.2	115.0	24	109.1	109.5	110.0	24	113.9	114.8	115.3	24	111.6	112.3	113.4	15	116.5	116.9	117.3	24
7/4	113.8	115.2	116.0	24	110.0	110.7	111.2	24	113.6	114.4	114.9	24	112.5	113.8	114.6	24	115.4	116.3	118.6	24
7/5	114.8	115.2	116.1	24	112.4	113.3	113.5	24	115.1	115.6	115.9	24	113.3	115.3	116.6	24	116.1	117.2	118.8	24
7/6	113.6	114.1	115.2	23	113.4	113.9	114.6	23	116.4	116.7	116.8	23	113.7	115.8	117.2	23	116.5	116.8	118.0	23

Two-Week Summary of Passage Indices

Source: Fish Passage Center Updated: 7/7/2017 10:40

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)
06/23/2017		---	---	---	---	0	200	149	2	---	153	0
06/24/2017		---	---	---	---	32	29	200	0	0	---	0
06/25/2017		---	---	---	---	61	29	204	2	---	0	0
06/26/2017	*	---	3	---	---	33	0	373	0	0	---	0
06/27/2017	*	---	0	---	---	0	34	560	0	---	0	0
06/28/2017	*	---	0	---	---	32	0	160	0	0	---	0
06/29/2017		---	---	---	---	0	0	532	0	---	143	167
06/30/2017		---	---	---	---	33	29	311	0	0	---	0
07/01/2017		---	---	---	---	0	0	796	0	---	0	0
07/02/2017		---	---	---	---	0	0	212	0	0	---	123
07/03/2017	*	---	---	---	---	0	0	134	0	---	0	0
07/04/2017		---	---	---	---	0	31	396	0	0	---	0
07/05/2017		---	---	---	---	0	0	88	0	---	0	226
07/06/2017		---	---	---	---	0	0	111	0	0	---	0
07/07/2017		---	---	---	---	---	---	---	---	---	---	0
Total:		**0**	**3**	**0**	**0**	**191**	**352**	**4,226**	**4**	**0**	**296**	**516**
# Days:		**0**	**3**	**0**	**0**	**14**	**14**	**14**	**14**	**7**	**7**	**15**
Average:		**0**	**1**	**0**	**0**	**14**	**25**	**302**	**0**	**0**	**42**	**34**
YTD		**33,704**	**22,221**	**21,106**	**8**	**3,998,296**	**2,400,539**	**2,883,982**	**50,596**	**1,583,272**	**1,720,241**	**1,947,910**

				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)
06/23/2017		---	---	---	---	8,340	8,433	5,883	2,294	---	55,345	52,474
06/24/2017		---	---	---	---	8,802	10,718	5,219	1,771	62,716	---	68,246
06/25/2017		---	---	---	---	7,937	10,999	6,322	1,105	---	50,333	50,000
06/26/2017	*	---	2	---	---	10,397	6,640	6,410	1,045	61,556	---	51,896
06/27/2017	*	---	0	---	---	11,353	4,899	3,183	1,064	---	37,081	50,687
06/28/2017	*	---	0	---	---	7,766	5,503	3,854	2,966	100,574	---	43,654
06/29/2017		---	---	---	---	6,978	7,109	4,532	4,547	---	40,519	33,243
06/30/2017		---	---	---	---	9,031	13,216	9,098	3,032	153,021	---	38,355
07/01/2017		---	---	---	---	7,770	10,812	16,170	829	---	70,025	49,779
07/02/2017		---	---	---	---	10,290	11,431	8,010	428	165,754	---	59,939
07/03/2017	*	---	---	---	---	7,375	4,608	4,328	574	---	75,311	64,564
07/04/2017		---	---	---	---	6,358	4,259	4,831	419	134,339	---	83,010
07/05/2017		---	---	---	---	7,884	6,319	5,430	218	---	61,666	93,502
07/06/2017		---	---	---	---	7,442	8,902	10,332	281	112,982	---	48,122
07/07/2017		---	---	---	---	---	---	---	---	---	---	62,516
Total:		**0**	**2**	**0**	**0**	**117,723**	**113,848**	**93,602**	**20,573**	**790,942**	**390,280**	**849,987**
# Days:		**0**	**3**	**0**	**0**	**14**	**14**	**14**	**14**	**7**	**7**	**15**
Average:		**0**	**1**	**0**	**0**	**8,409**	**8,132**	**6,686**	**1,470**	**112,992**	**55,754**	**56,666**
YTD		**0**	**10**	**40**	**0**	**854,622**	**932,473**	**570,746**	**55,932**	**1,719,563**	**718,190**	**2,681,229**

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)
06/23/2017		---	---	---	---	34	143	0	6	---	153	0
06/24/2017		---	---	---	---	0	29	29	8	0	---	0
06/25/2017		---	---	---	---	61	57	25	6	---	0	0
06/26/2017	*	---	0	---	---	65	28	25	2	406	---	0
06/27/2017	*	---	0	---	---	32	0	0	2	---	156	0
06/28/2017	*	---	0	---	---	0	14	25	8	0	---	0
06/29/2017		---	---	---	---	0	0	0	3	---	0	0
06/30/2017		---	---	---	---	0	0	26	3	0	---	128
07/01/2017		---	---	---	---	0	57	0	0	---	0	0
07/02/2017		---	---	---	---	0	0	0	1	0	---	12
07/03/2017	*	---	---	---	---	0	0	0	1	---	0	0
07/04/2017		---	---	---	---	0	0	0	1	820	---	0
07/05/2017		---	---	---	---	0	0	0	0	---	0	0
07/06/2017		---	---	---	---	0	14	0	0	0	---	0
07/07/2017		---	---	---	---	---	---	---	---	---	---	0
Total:		**0**	**0**	**0**	**0**	**192**	**342**	**130**	**41**	**1,226**	**309**	**140**
# Days:		**0**	**3**	**0**	**0**	**14**	**14**	**14**	**14**	**7**	**7**	**15**
Average:		**0**	**0**	**0**	**0**	**14**	**24**	**9**	**3**	**175**	**44**	**9**
YTD		**0**	**0**	**2,232**	**0**	**128,502**	**86,636**	**69,601**	**35,273**	**86,630**	**96,620**	**356,026**

				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)
06/23/2017		---	---	---	---	1,273	400	475	16	---	0	0
06/24/2017		---	---	---	---	1,161	516	257	13	421	---	444
06/25/2017		---	---	---	---	641	286	331	25	---	0	0
06/26/2017	*	---	7	---	---	521	114	497	8	0	---	223
06/27/2017	*	---	11	---	---	606	120	102	6	---	312	0
06/28/2017	*	---	9	---	---	160	57	164	23	0	---	243
06/29/2017		---	---	---	---	160	72	25	6	---	143	0
06/30/2017		---	---	---	---	139	143	26	18	0	---	0
07/01/2017		---	---	---	---	98	57	51	5	---	306	0
07/02/2017		---	---	---	---	34	86	27	7	0	---	0
07/03/2017	*	---	---	---	---	101	29	0	4	---	0	0
07/04/2017		---	---	---	---	34	17	79	0	0	---	0
07/05/2017		---	---	---	---	35	43	0	7	---	0	0
07/06/2017		---	---	---	---	35	14	0	4	0	---	0
07/07/2017		---	---	---	---	---	---	---	---	---	---	0
Total:		**0**	**27**	**0**	**0**	**4,998**	**1,954**	**2,034**	**142**	**421**	**761**	**910**
# Days:		**0**	**3**	**0**	**0**	**14**	**14**	**14**	**14**	**7**	**7**	**15**
Average:		**0**	**9**	**0**	**0**	**357**	**140**	**145**	**10**	**60**	**109**	**61**
YTD		**7,117**	**15,897**	**7,614**	**1**	**4,064,767**	**1,852,844**	**2,517,399**	**32,056**	**442,839**	**1,317,075**	**264,513**

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)
06/23/2017		---	---	---	---	0	0	0	2	---	0	0
06/24/2017		---	---	---	---	0	1	0	3	0	---	222
06/25/2017		---	---	---	---	0	0	0	3	---	0	0
06/26/2017	*	---	0	---	---	33	28	0	3	0	---	445
06/27/2017	*	---	0	---	---	64	0	0	0	---	156	0
06/28/2017	*	---	0	---	---	32	14	0	0	0	---	0
06/29/2017		---	---	---	---	64	0	0	3	---	0	0
06/30/2017		---	---	---	---	0	29	0	0	0	---	0
07/01/2017		---	---	---	---	0	0	0	2	---	153	0
07/02/2017		---	---	---	---	0	0	27	1	409	---	12
07/03/2017	*	---	---	---	---	0	0	0	0	---	0	0
07/04/2017		---	---	---	---	34	0	0	0	410	---	0
07/05/2017		---	---	---	---	70	14	0	0	---	0	0
07/06/2017		---	---	---	---	70	0	0	0	0	---	0
07/07/2017		---	---	---	---	---	---	---	---	---	---	0
Total:		**0**	**0**	**0**	**0**	**367**	**86**	**27**	**17**	**819**	**309**	**679**
# Days:		**0**	**3**	**0**	**0**	**14**	**14**	**14**	**14**	**7**	**7**	**15**
Average:		**0**	**0**	**0**	**0**	**26**	**6**	**2**	**1**	**117**	**44**	**45**
YTD		**6**	**0**	**0**	**0**	**60,580**	**24,301**	**34,028**	**11,035**	**155,874**	**116,972**	**144,970**

				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)
06/23/2017		---	---	---	---	5	0	0	0	---	600	0
06/24/2017		---	---	---	---	4	20	0	0	0	---	100
06/25/2017		---	---	---	---	7	80	0	0	---	400	100
06/26/2017	*	---	0	---	---	7	40	0	0	200	---	0
06/27/2017	*	---	0	---	---	15	80	0	0	---	300	100
06/28/2017	*	---	0	---	---	11	130	20	2	200	---	100
06/29/2017		---	---	---	---	2	100	0	1	---	1,100	133
06/30/2017		---	---	---	---	20	70	40	0	800	---	0
07/01/2017		---	---	---	---	3	140	0	0	---	500	350
07/02/2017		---	---	---	---	17	80	0	0	200	---	55
07/03/2017	*	---	---	---	---	9	40	0	0	---	200	117
07/04/2017		---	---	---	---	5	40	20	0	800	---	67
07/05/2017		---	---	---	---	9	30	20	0	---	400	0
07/06/2017		---	---	---	---	4	50	20	0	200	---	0
07/07/2017		---	---	---	---	---	---	---	---	---	---	0
Total:		**0**	**0**	**0**	**0**	**118**	**900**	**120**	**3**	**2,400**	**3,500**	**1,122**
# Days:		**0**	**3**	**0**	**0**	**14**	**14**	**14**	**14**	**7**	**7**	**15**
Average:		**0**	**0**	**0**	**0**	**8**	**64**	**9**	**0**	**343**	**500**	**75**
YTD		**0**	**3**	**4**	**0**	**246**	**6,291**	**2,810**	**49**	**31,605**	**60,972**	**42,061**

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.

Three 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: 7/7/17 10:41 AM

06/23/17 TO 07/07/17

		Species					
Site	Data	**CH0**	**CH1**	CO	ST	SO	**Grand Total**
LGR	Sum of NumberCollected	89,572	150	150	3,854	275	94,001
	Sum of NumberBarged	88,059	425	225	4,423	241	93,373
	Sum of NumberBypassed	26	0	0	0	0	26
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	63	0	0	1	0	64
	Sum of FacilityMorts	920	0	0	5	8	933
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	983	0	0	6	8	997
LGS	Sum of NumberCollected	79,584	246	240	1,366	61	81,497
	Sum of NumberBarged	76,726	316	274	1,798	58	79,172
	Sum of NumberBypassed	25	0	1	0	0	26
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	19	0	0	0	0	19
	Sum of FacilityMorts	152	0	0	4	3	159
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	171	0	0	4	3	178
LMN	Sum of NumberCollected	70,780	3,250	100	1,530	20	75,680
	Sum of NumberBarged	65,664	3,223	160	1,729	40	70,816
	Sum of NumberBypassed	0	0	0	0	0	0
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	13	0	0	1	0	14
	Sum of FacilityMorts	59	6	0	0	0	65
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	72	6	0	1	0	79
Total Sum of NumberCollected		239,936	3,646	490	6,750	356	251,178
Total Sum of NumberBarged		230,449	3,964	659	7,950	339	243,361
Total Sum of NumberBypassed		51	0	1	0	0	52
Total Sum of Numbertrucked		0	0	0	0	0	0
Total Sum of SampleMorts		95	0	0	2	0	97
Total Sum of FacilityMorts		1,131	6	0	9	11	1,157
Total Sum of ResearchMorts		0	0	0	0	0	0
Total Sum of TotalProjectMorts		1,226	6	0	11	11	1,254

YTD Transportation Summary

Source: Fish Passage Center Updated: 7/7/17 10:41 AM

TO: 07/07/17

		Species					
Site	Data	**CH0**	**CH1**	CO	SO	ST	**Grand Total**
LGR	Sum of NumberCollected	525,395	2,362,673	74,225	35,194	2,329,250	5,326,737
	Sum of NumberBarged	512,000	978,665	63,247	19,289	949,094	2,522,295
	Sum of NumberBypassed	3,972	1,381,285	10,900	15,645	1,379,868	2,791,670
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	178	90	5	11	53	337
	Sum of FacilityMorts	4,045	2,607	73	199	188	7,112
	Sum of ResearchMorts	12	26	0	0	22	60
	Sum of TotalProjectMorts	4,235	2,723	78	210	263	7,509
LGS	Sum of NumberCollected	525,882	1,337,942	43,198	13,608	1,064,843	2,985,473
	Sum of NumberBarged	516,921	495,702	39,946	9,949	313,058	1,375,576
	Sum of NumberBypassed	574	837,161	3,201	3,296	751,526	1,595,758
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	51	29	1	7	10	98
	Sum of FacilityMorts	2,149	5,050	40	356	240	7,835
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	2,200	5,079	41	363	250	7,933
LMN	Sum of NumberCollected	275,613	1,457,982	33,440	17,200	1,293,590	3,077,825
	Sum of NumberBarged	282,133	930,669	32,959	12,568	710,440	1,968,769
	Sum of NumberBypassed	600	489,493	800	4,597	560,085	1,055,575
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	24	37	2	5	31	99
	Sum of FacilityMorts	230	1,086	39	120	386	1,861
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	254	1,123	41	125	417	1,960
Total Sum of NumberCollected		1,326,890	5,158,597	150,863	66,002	4,687,683	11,390,035
Total Sum of NumberBarged		1,311,054	2,405,036	136,152	41,806	1,972,592	5,866,640
Total Sum of NumberBypassed		5,146	2,707,939	14,901	23,538	2,691,479	5,443,003
Total Sum of NumberTrucked		0	0	0	0	0	0
Total Sum of SampleMorts		253	156	8	23	94	534
Total Sum of FacilityMorts		6,424	8,743	152	675	814	16,808
Total Sum of ResearchMorts		12	26	0	0	22	60
Total Sum of TotalProjectMorts		6,689	8,925	160	698	930	17,402

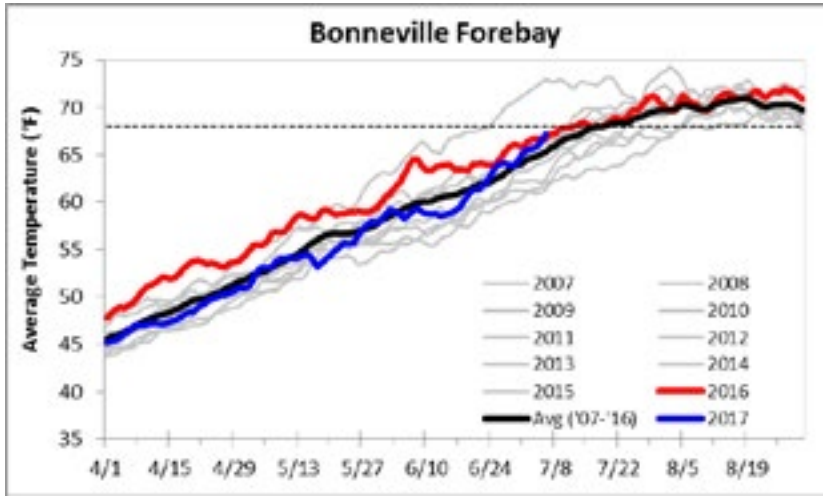
Cumulative Adult Passage at Mainstem Dams Through: 07/06

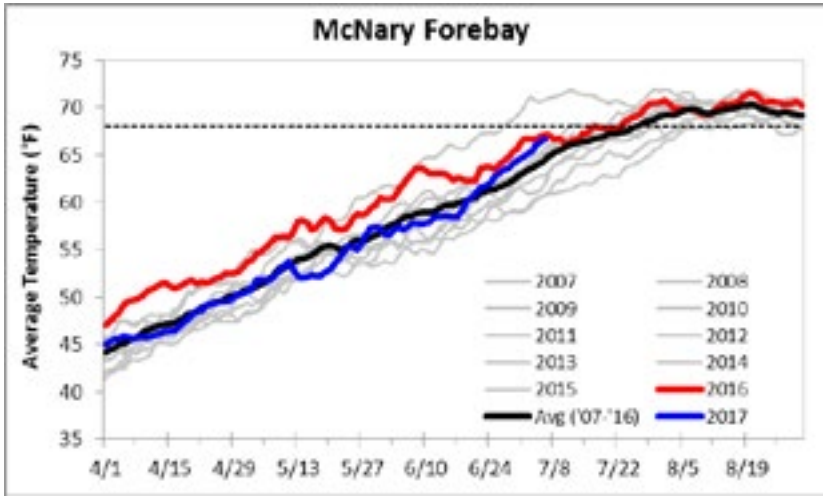
		Spring Chinook						Summer Chinook						Fall Chinook					
		2017		2016		10-Yr Avg.		2017		2016		10-Yr Avg.		2017		2016		10-Yr Avg.	
dam	enddate	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	07/06	83624	18110	137215	11145	150783	25708	69917	8409	90128	7683	76124	17070	0	0	0	0	0	0
TDA	07/06	58308	12497	105504	9999	118766	22002	53817	6892	70304	5530	61317	12837	0	0	0	0	0	0
JDA	07/06	46675	12475	93659	8262	103450	20515	45717	5155	65535	4778	53199	11930	0	0	0	0	0	0
MCN	07/06	44292	7020	87191	7374	93925	16835	40822	3466	56576	3934	46669	8601	0	0	0	0	0	0
IHR	07/06	28306	6949	67484	5029	68114	11248	7347	1786	10702	1192	15379	3961	0	0	0	0	0	0
LMN	07/06	28545	8270	66115	6266	68087	10905	6418	2524	9122	1705	15859	4276	0	0	0	0	0	0
LGS	07/06	26598	8335	62597	6365	63765	12007	6785	2671	7987	1405	14249	4506	0	0	0	0	0	0
LGR	07/06	27357	8256	62050	5480	62403	13092	6160	2539	7011	1356	12463	4414	0	0	0	0	0	0
PRD	07/04	7268	783	16843	1003	17901	1826	23114	601	39686	1975	24658	977	0	0	0	0	0	0
WAN	07/04	6612	484	17164	919	17602	2161	22376	442	36144	1188	20747	848	0	0	0	0	0	0
RIS	07/05	8080	564	18646	715	18006	2748	21964	239	36519	856	19719	1252	0	0	0	0	0	0
RRH	07/05	5864	406	9449	351	7849	1209	13172	151	22067	534	11607	507	0	0	0	0	0	0
WEL	07/05	6589	820	11789	833	8215	1601	4957	79	10282	232	5319	282	0	0	0	0	0	0
WFA	06/30	30246	2031	26503	1794	31449	1206	0	0	0	0	0	0	0	0	0	0	0	0

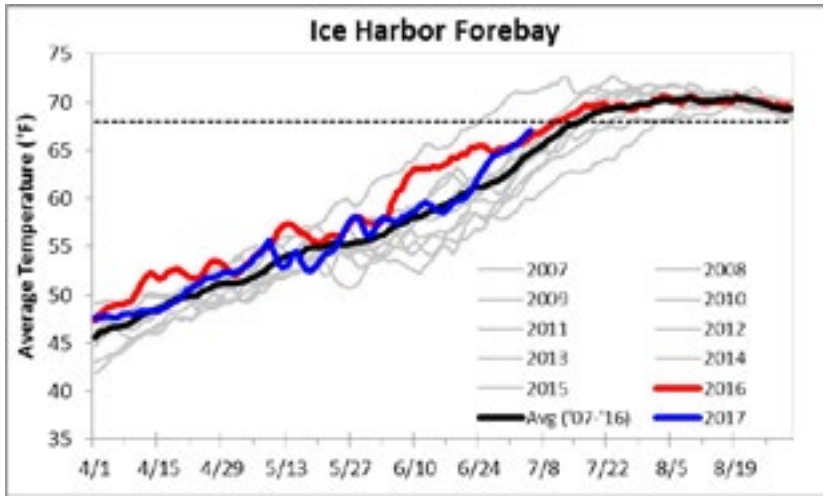
		Coho						Sockeye			Steelhead						Lamprey		
		2017		2016		10-Yr Avg.				10-Yr			10-Yr	Unclipped	Unclipped	10-Yr			10-Yr
DAM	ENDDATE	Adult	Jack	Adult	Jack	Adult	Jack	2017	2016	Avg.	2017	2016	Avg.	2017	2016	Avg.	2017	2016	Avg.
BON	07/06	0	0	0	0	0	0	76538	318186	274393	6000	20087	21724	2213	8316	8380	46133	15515	8172
TDA	07/06	0	0	0	0	0	0	53951	266803	223134	1797	6432	9951	702	3148	4163	9820	2929	1478
JDA	07/06	0	0	0	0	0	1	54929	265470	208220	911	4381	10987	614	2505	4259	5539	2772	999
MCN	07/06	0	0	0	0	1	0	45392	233185	168213	2687	3191	9766	836	1820	3126	134	249	95
IHR	07/06	0	0	0	0	0	0	241	607	412	1198	2636	7242	543	1348	1929	52	161	31
LMN	07/06	0	0	0	0	0	0	116	612	415	1573	2398	9690	767	1563	3145	15	27	1
LGS	07/06	0	0	0	0	0	0	50	452	319	1536	3927	5683	676	2297	2701	2	5	0
LGR	07/06	0	0	0	0	0	0	49	306	238	7335	5834	9491	3070	3364	3713	2	5	0
PRD	07/04	0	0	0	0	0	0	29978	229605	126833	145	512	378	0	0	0	481	558	138
WAN	07/04	0	0	0	0	0	0	31102	216391	96131	116	439	396	0	0	0	349	314	53
RIS	07/05	0	0	0	0	0	0	24876	206948	87897	106	261	278	43	152	145	42	52	5
RRH	07/05	0	0	0	0	0	0	11910	144691	59288	149	186	420	39	80	256	5	20	0
WEL	07/05	0	0	0	0	0	0	6981	108719	38565	71	127	119	49	55	74	3	1	0
WFA	06/30	0	0	0	0	0	0	0	0	0	2296	22931	19557	0	0	0	0	0	0

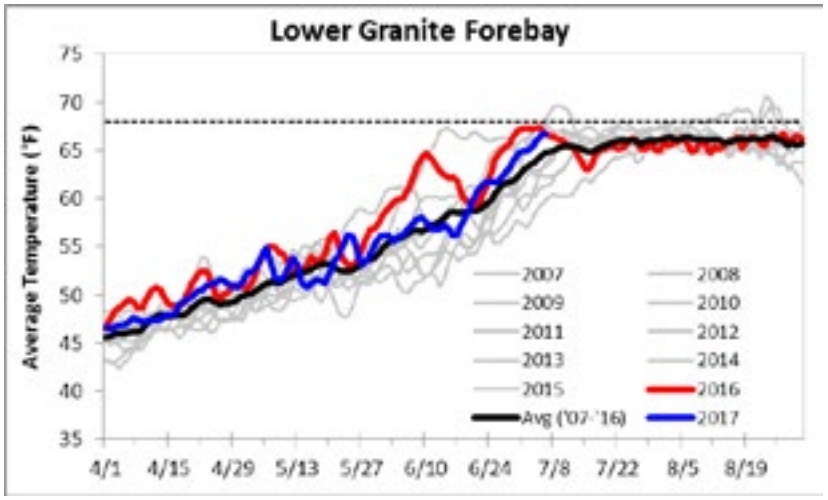
PRD does not post wild steelhead numbers.
These numbers were collected from USACE, Grant PUD, Douglas PUD, Chelan PUD, ODFW and DART.
Wild steelhead numbers are included in the total. Wild Steelhead are defined as unclipped fish.
Historic counts (pre-1996) were obtained from CRITFC and compiled by the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

Page last updated on: 07/07/17


Bonneville Forebay
Average Temperature (°F)
75
70
65
60
55
50
45
40
35
4/1
4/15
4/29
5/13
5/27
6/10
6/24
7/8
7/22
8/5
8/19
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
Avg ('07-'16)
2017


McNary Forebay
Average Temperature (°F)
75
70
65
60
55
50
45
40
35
4/1
4/15
4/29
5/13
5/27
6/10
6/24
7/8
7/22
8/5
8/19
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
Avg ('07-'16)
2017


Ice Harbor Forebay
Average Temperature (°F)
75
70
65
60
55
50
45
40
35
4/1
4/15
4/29
5/13
5/27
6/10
6/24
7/8
7/22
8/5
8/19
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
Avg ('07-'16)
2017


Lower Granite Forebay
Average Temperature (°F)
75
70
65
60
55
50
45
40
35
4/1
4/15
4/29
5/13
5/27
6/10
6/24
7/8
7/22
8/5
8/19
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
Avg ('07-'16)
2017