847 NE 19th Ave., Suite 250
Portland, OR 97232
(503) 833-3900

Fish Passage Center

Weekly Report #17–20

July 21, 2017

This Week's Highlights

Water Supply

Precipitation throughout the Columbia Basin has varied between 0% and 31% of average at individual sub-basins over July. Precipitation above The Dalles has been 10% of average over July. Over the 2017 water year, precipitation has ranged between 105% and 132% 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 1-19, 2017		Water Year 2017 October 1, 2016 to July 19, 2017	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia Above Coulee	0.17	13	37.2	113
Snake River Above Ice Harbor	0.6	11	24.6	120
Columbia Above The Dalles	0.08	10	28.1	113
Kootenai	0.23	17	37.9	115
Clark Fork	0.24	27	25.6	105
Flathead	0.07	6	38.3	120
Pend Oreille River Basin above Waneta Dam	0.14	14	33.4	114
Salmon River Basin	0.07	10	32.9	125
Upper Snake Tributaries	0.25	31	28.6	122
Clearwater	0.04	5	40.9	110
Willamette River above Portland	0.00	0	82.6	132

Table 2 displays the July 20th ESP runoff volume forecasts for multiple reservoirs along with the June COE forecasts at Libby and Dworshak. The July 20th ESP forecast at The Dalles between April and August is 110,000 Kaf (126% of average).

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

Location	July 20, 2017 5-day QPF ESP	
	% Average (1981-2010)	Runoff Volume (Kaf)
The Dalles (Apr-Aug)	126	110000
Grand Coulee (Apr-Aug)	116	61083
Libby Res. Inflow, MT (Apr-Aug)	121 129*	7110 7,594*
Hungry Horse Res. Inflow, MT (Apr-Aug)	108	2090
Lower Granite Res. Inflow (Apr- July)	144	28606
Brownlee Res. Inflow (Apr-July)	182	9964
Dworshak Res. Inflow (Apr-July)	119 116*	2881 2,838*

* Denotes COE June Forecast

Grand Coulee Reservoir is at 1,288.0 feet (7-19-17) and has refilled 1.4 feet over the last week. Outflows at Grand Coulee have ranged between 99.0 Kcfs and 140.4 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2,448.0 feet (7-19-17) and has refilled 1.4 feet over the past week. Daily average outflows at Libby Dam have been 9.0-9.7 Kcfs over the last week.

Hungry Horse is currently at an elevation of 3,555.7 feet (7-19-17) and has held steady last week. Outflows at Hungry Horse have been 2.0-2.1 Kcfs over the last week.

Dworshak is currently at an elevation of 1,585.1 feet (7-19-17) and has drafted 5.9 feet over the last week. Dworshak outflows over the last week have been 10.6 to 10.9 Kcfs.

The Brownlee Reservoir was at an elevation of 2,063.2 feet on July 19, 2017, and has drafted 3.6 feet last week. Outflows at Hells Canyon have ranged between 14.0 and 25.1 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 71.7 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 19, 2017, flows have averaged 213.0 Kcfs.

Spill

Flows in the Snake River decreased slightly over the past week. Decreased in flows on the Columbia River were a bit more pronounced this week than those in the Snake River. Dworshak Dam is currently in its summer draft operation, with an average discharge volume of 10.9 Kcfs and an average spill volume of 6.6 Kcfs over the last week. Dworshak operations are currently to discharge cool water targeting tailrace gas levels no greater than 121% with the objective of reducing temperatures at the Lower Granite Dam tailrace. However, due to the limited powerhouse capacity at Dworshak this year, total outflows at Dworshak are limited to approximately 10.5-11.0 Kcfs (6.0-6.7 Kcfs spill) in order to not exceed the 121% TDG criteria. Hells Canyon Complex flows have remained steady this week, with outflows at Hells Canyon Dam ranging from 15.1 to 19.9 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. Spill this week continued to occur through the traditional spillbays, with no spill through the Removable Spillway Weir. This operation was coordinated during the TMT conference call on July 12th, in an effort to reduce temperatures in the Lower Granite tailrace. After this operation was initiated on the afternoon of July 12th, temperatures in the Lower Granite tailrace remained above 68°F until July 19th. At Little Goose Dam the Biological Opinion spill of 30% of flow was met over the past week. Spill operations at Little Goose Dam also changed this week, with the termination of spill through the Temporary Spillway Weir. This modified operation began on the morning of July 19th. This modification was also coordinated at the TMT conference call on July 12th, with the goal of reducing temperatures below Little Goose Dam. Spill at Lower Monumental Dam met the target 17 Kcfs over the past week. Finally, at Ice Harbor, the spill operation for the remainder of the season is 45 Kcfs/gas cap. At current flows, spill to the gas cap is not possible. Instead, spill volumes during night-time hours are limited to flows minus minimum generation requirements. The 45 Kcfs/gas cap spill operation at Ice Harbor has been met over the last week.

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.

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. As of July 20th, the spill operation at John Day Dam will remain at the 30%/30% level for the remainder of the season. 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 spill levels of 6.5 to 6.7 Kcfs over the last week, tailrace TDG levels at Dworshak Dam ranged from 119.3% to 119.9%. TDG supersaturation at the Lower Granite Dam forebay monitor has ranged between 102.2% and 103.8% 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 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. No fish were observed with signs of GBT this week at Little Goose, Lower Monumental, and McNary dams.

Two gas bubble trauma samples were conducted at Bonneville Dam this week. In the first exam (July 15th), 1% of fish were observed with signs of GBT while in the second exam (July 18th), 0% of fish were observed with signs of GBT. All signs of GBT in the exam from July 15th were Rank 1 level in the fins. At Rock Island Dam, the GBT exams on July 17th and July 20th had 6% and 2% of fish with signs of GBT, respectively. All signs of GBT on these two days were Rank 1 in the fins, which are considered minor signs. In the July 20th exam at Lower Granite Dam, 1% of fish were observed with Rank 1 signs of GBT in the fins. 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. Over the past week, forebay water temperatures at these four projects were mostly above the 68° F temperature standard. In addition, the forebay water temperatures at these four projects are all above their respective ten-year averages. At Lower Granite, the forebay temperature exceeded the 68° F standard from July 11th to July 18th. The daily average temperature in the Lower Granite forebay on July 20th was 67.6° F, which is about 1.8 degrees warmer than the ten-year average for this date. The forebay temperature at Ice Harbor Dam has exceeded the 68° F standard since July 9th. The daily average temperature in the Ice Harbor forebay was nearly 71.0°F on July 20th, which is about 2.1°F warmer than the ten-year average for this site. The forebay temperatures at McNary and Bonneville dams have exceeded the 68° F standard since July 12th. The July 20th daily average forebay temperatures at these two projects were 68.2° F and 69.4° F, respectively. These forebay temperatures are about one degree warmer than their respective ten-

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 decreased at all bypass facilities, except Rock Island Dam..

This week's samples at Bonneville Dam (BON) were again dominated by subyearling Chinook. This week's daily average passage index for subyearling Chinook at BON was approximately 63,350 per day, which is a decrease over last week's daily average passage index of nearly 105,000. No spring migrants were collected in this week's samples at BON. In addition, no Pacific lamprey juveniles were encountered in this week's samples.

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 36,600, which is a decrease from last week's daily average passage index of about 52,200 per day. The only spring migrants that were collected in this week's samples were sockeye and that only occurred on one day (July 19th). Both Pacific lamprey ammocoetes and macropthalmia were encountered in this week's samples. Pacific ammocoetes were encountered in one sample (July 19th) while macropthalmia were encountered in all three of this week's samples. This week's daily average collection for Pacific macropthalmia was about 120 per day, which is a slight decrease from last week's daily average collection of about 150 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 52,600 per day, which is a decrease from last week's daily average passage index of about 84,400 per day. No spring migrants were collected in this week's samples. Finally, only Pacific lamprey macropthalmia were encountered in this week's samples. Macropthalmia were encountered in one of this week's four samples. Finally, the MCN juvenile fish facility has been under the high temperature sampling protocol since about July 12th. Under this protocol, sampling at MCN remains every-other-day (24-hour sample) but the target sample size is reduced to 100 fish per day. This protocol will remain in place until temperatures in the McNary Forebay drop below 68.0°F.

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 7,700 per day, which is a slight decrease from last week's daily average passage index of about 8,550 per day. Passage of spring migrants remained low this week. It is worth mentioning that the sockeye that have been collected at LGR over the past few weeks are likely kokanee from Dworshak reservoir, as spill at Dworshak Dam has increased over the last few weeks. Finally, Pacific lamprey ammocoetes were encountered if five of this week's samples while macropthalmia were not encountered this week. This week's total sample for Pacific lamprey ammocoetes at LGR was 10 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 3,200 per day, which is a large decrease from last week's daily average passage index of about 6.900 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 30 fish. No Pacific lamprey macropthalmia were 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 4,200 per day, which is a decrease from last week's daily average passage index of about 5,900. Passage of spring migrants remained low this week. Finally, Pacific lamprey ammocoetes were encountered in two 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 675 per day, which is an increase over last week's daily average passage index of about 550 per day. Passage of spring migrants remained low this week. Finally, Pacific lamprey ammocoetes were encountered in two of this week's samples (July 18th and 19th) while macropthalmia were encountered in only one of this week's samples (July 17th). Collections of Pacific lamprey ammocoetes and macropthalmia were very low.

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). No new releases were schedule for this zone this week and no new releases are scheduled 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. Approximately 1.0 million subyearling fall Chinook smolts are scheduled to be released into Young's Bay, beginning on or around July 28th. This is the only new release that is scheduled to begin in this zone over the next two weeks.

Adult Passage

Daily passage numbers at Bonneville Dam ranged between 597 and 1,025 adult summer Chinook in the last week. The 2017 summer Chinook count of 82,784 is about 75.52% of the 2016 count and 91% of the 10-year average. The 2017 summer Chinook jack count of 9,931 has 201 more fish than the 2016 count and about 48.6% of the 10-year average count. At Willamette Falls, 33,149 adult spring Chinook have been counted so far this year. In 2016, 29,549 adult spring Chinook were counted at Willamette Falls. This year's count is about 1.12 times greater than the 2016, while being 98.1% of the 10-year average count of 33,777. As of July 20th, a total of 52,415 adult summer Chinook have been counted at McNary Dam and 7,928 have been counted at Lower Granite Dam. The 2017 McNary Dam adult summer Chinook count is about 71.4% of the 2016 count and 86.3% of the 10-year average count. The 2017 Lower Granite Dam adult summer Chinook count has 1,956 fewer fish than the 2016 count and 7,540 fewer fish than the 10-year average count.

The 2017 Bonneville Dam adult steelhead count of 11,690 is about 30.1% of the 2016 count of 38,811

and 20.8% of the 10-year average count of 56,204. The 2017 Bonneville Dam adult unclipped steelhead count of 5,603 is about 35.4% of the 2016 count of 15,848 and 21.6% of the 10-year average count of 25,894. Daily adult steelhead counts at Lower Granite Dam ranged from 4 to 12 adults per day last week. This year's Lower Granite steelhead count of 7,422 is about 1.1 times greater than the 2016 count of 6,900, while being 68.8% of the 10-year average count of 10,789. The 2017 Lower Granite Dam adult unclipped steelhead count of 3,126 has 820 fewer fish than the 2016 count of 3,946 and 1,127 fewer fish than the 10-year average count of 4,253. At Willamette Falls, the 2017 count for steelhead was 2,581 as of July 18th. This year's steelhead count is about 10% of the 2016 count of 25,703 and 12.1% of the 10-year average count of 21,318.

Daily adult sockeye passage numbers at Bonneville Dam ranged between 158 and 460 last week. The 2017 adult sockeye count at Bonneville Dam of 86,524 is about 25.6% of the 2016 count and 27.7% of the 10-year average count. The 2017 adult sockeye count at McNary Dam of 56,938 is about 22.1% of the 2016 count and 25.7% of the 10-year average count. The Lower Granite Dam 2017 adult sockeye count of 209 has 521 fewer fish than the 2016 count of 730 and 628 fewer fish than the 10-year average count of 837. As of July 20th at Bonneville Dam, the adult shad count was 3,070,608. This year's shad count is about 1.7 times greater than the 2016 count of 1,755,731 and 1.5 times greater than the 10-year average count of 2,038,005. A total of 63,576 lampreys have been counted at Bonneville Dam so far this year. The Bonneville 2017 lamprey count is about 2.4 times greater than the 2016 count of 26,019 and 4.7 times greater than the 10-year average count of 13,587.

Hatchery Releases Last Two Weeks

Hatchery Release Summary

From: 7/8/2017 to 07/21/17

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone
U.S. Fish and Wildlife Service	Willard Hatchery	CH0	FA	2017	2,000,000	07-12-17	07-12-17	Willard Hatchery	Little White Salmon River	MCOL
U.S. Fish and Wildlife Service Total					**2,000,000**					
Grand Total					**2,000,000**					

Hatchery Releases Next Two Weeks

Hatchery Release Summary

From: 7/22/2017 to 8/4/2017

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone
Oregon Dept. of Fish and Wildlife	Clatsop County Fisheries	CH0	FA	2017	1,000,000	07-28-17	07-28-17	Youngs Bay	Youngs River	LCOL
Oregon Dept. of Fish and Wildlife Total					**1,000,000**					
Grand Total					**1,000,000**					

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
07/07/2017	102.2	0.1	111.9	0.0	121.1	10.0	123.3	17.2	133.1	26.3	146.8	19.8	144.7	25.6
07/08/2017	108.3	0.1	104.5	0.0	119.2	8.9	117.6	12.1	124.8	24.7	141.5	18.7	135.3	25.4
07/09/2017	89.6	0.1	91.0	0.0	82.4	9.4	86.8	12.1	93.8	22.7	136.0	18.1	134.0	25.3
07/10/2017	141.8	0.1	132.9	0.0	133.1	15.3	123.5	15.1	126.2	30.9	107.3	17.2	97.7	24.9
07/11/2017	145.3	0.1	144.5	12.0	154.5	16.0	153.9	18.9	160.8	30.4	151.6	34.4	139.3	34.1
07/12/2017	138.7	0.1	140.9	0.0	152.1	10.0	153.3	18.2	158.4	27.7	167.1	38.3	162.2	34.9
07/13/2017	110.0	0.1	118.3	0.0	141.4	10.0	142.9	12.4	147.5	29.7	160.0	34.9	158.7	39.2
07/14/2017	140.4	0.1	133.1	0.0	124.6	12.5	118.0	12.3	122.7	28.2	143.8	19.3	142.2	25.9
07/15/2017	112.3	0.1	114.9	0.0	124.3	10.5	124.4	12.3	132.2	25.6	142.7	19.3	137.9	25.6
07/16/2017	99.0	0.1	103.2	0.0	108.0	9.8	106.0	9.7	110.9	21.6	128.3	18.6	122.9	24.6
07/17/2017	131.3	0.1	128.5	0.0	135.0	10.0	140.7	12.3	142.6	26.8	151.3	18.9	148.3	24.1
07/18/2017	131.5	0.1	121.9	0.0	130.1	10.0	128.5	12.3	133.1	26.8	146.4	18.7	143.9	21.2
07/19/2017	103.8	0.1	116.7	0.0	124.5	10.0	122.1	12.3	127.0	23.6	143.8	18.4	138.4	19.3
07/20/2017	98.0	0.1	94.7	0.0	111.1	8.6	108.1	12.0	110.2	22.8	131.2	15.6	126.3	19.0

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
07/07/2017	10.1	5.8	---	21.8	63.3	18.7	60.2	18.0	60.5	16.6	61.3	24.9
07/08/2017	10.1	5.8	---	19.3	59.4	18.7	57.1	17.2	56.7	17.0	58.5	17.5
07/09/2017	10.0	5.7	---	18.2	57.4	18.6	55.4	16.7	56.7	16.8	58.4	41.0
07/10/2017	10.1	5.8	---	20.7	55.7	18.6	53.5	15.9	52.4	17.1	55.4	44.5
07/11/2017	10.5	6.2	---	18.1	55.7	18.5	54.0	16.3	53.8	16.6	57.1	23.7
07/12/2017	10.6	6.3	---	17.8	51.1	18.4	46.8	13.9	46.0	19.0	46.7	14.0
07/13/2017	10.6	6.3	---	16.7	51.0	18.1	47.9	14.2	48.8	16.5	50.2	34.8
07/14/2017	10.8	6.5	---	19.0	50.6	18.1	50.6	15.0	51.2	16.9	54.5	43.9
07/15/2017	11.0	6.7	---	17.3	49.9	18.2	47.5	14.1	47.8	16.7	49.9	39.3
07/16/2017	11.0	6.7	---	18.0	47.1	18.0	45.5	13.6	44.5	16.9	46.0	35.7
07/17/2017	11.0	6.6	---	15.1	48.4	18.1	45.2	13.5	45.7	16.5	47.6	37.1
07/18/2017	10.9	6.6	---	19.9	43.5	18.1	42.5	12.6	42.9	16.9	45.7	35.7
07/19/2017	10.9	6.6	---	19.4	47.9	18.2	44.6	13.3	45.2	16.7	46.2	36.0
07/20/2017	10.9	6.6	---	18.5	47.2	18.1	45.8	13.7	46.1	16.9	49.9	38.1

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
07/07/2017	231.9	116.2	213.2	85.2	203.5	81.1	219.7	95.0	20.3	92.1
07/08/2017	224.0	112.1	199.0	76.0	183.8	74.3	203.6	89.9	16.1	85.3
07/09/2017	202.0	101.1	193.1	57.7	185.7	73.8	200.2	95.2	0.9	91.7
07/10/2017	207.8	104.2	191.0	60.5	174.9	70.3	193.2	100.4	0.8	79.6
07/11/2017	199.1	99.8	189.4	75.6	175.2	69.8	186.8	95.2	4.7	74.5
07/12/2017	206.1	103.3	181.6	69.9	162.8	65.4	181.9	90.3	10.1	69.1
07/13/2017	216.2	108.3	187.9	56.3	173.7	69.5	187.1	95.3	0.9	78.5
07/14/2017	225.2	112.9	209.8	66.4	196.5	78.4	205.3	100.2	9.9	82.7
07/15/2017	190.6	95.7	180.6	72.2	168.6	67.7	188.5	95.7	1.2	79.2
07/16/2017	180.3	90.5	183.3	70.7	169.9	68.0	185.0	90.6	0.9	81.1
07/17/2017	192.3	96.2	176.7	52.7	162.1	64.7	180.2	95.0	1.3	71.4
07/18/2017	212.6	106.5	193.4	61.4	181.2	72.7	190.3	100.5	1.1	76.3
07/19/2017	199.5	99.9	195.9	78.2	184.6	73.8	196.5	96.2	1.0	86.9
07/20/2017	186.0	93.2	181.3	69.2	167.4	66.6	181.5	90.0	0.9	78.2

Gas Bubble Trauma Monitoring Results from Representative Sites on the Snake River and Columbia River

Site	Date	Species	Number of Fish	Number w GBT signs	Number w Fin Signs	% Fin GBT	% Severe Fin GBT	Number of Fish with Fin GBT Listed by Highest Rank: Rank 1	Rank 2	Rank 3	Rank 4
Lower Granite Dam											
	07/13/17	Chinook + Steelhead	50*	0	0			0	0	0	0
	07/20/17	Chinook + Steelhead	106	1	1	0.94%	0.00%	1	0	0	0
Little Goose Dam											
	07/10/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	07/17/17	Chinook + Steelhead	56*	0	0			0	0	0	0
Lower Monumental Dam											
	07/12/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	07/19/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
McNary Dam											
	07/09/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	07/11/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	07/17/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	07/19/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Bonneville Dam											
	07/08/17	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
	07/11/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	07/15/17	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
	07/18/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0

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

Total Dissolved Gas Saturation Data at Upper Columbia River Sites

	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
7/7	---	---	---	0	---	---	---	0	115.8	116.0	116.2	24	114.4	115.1	115.9	24	115.0	115.6	116.1	24
7/8	---	---	---	0	---	---	---	0	115.7	116.0	116.2	24	114.3	114.8	115.1	24	115.2	115.8	116.3	24
7/9	---	---	---	0	---	---	---	0	115.7	115.9	116.2	24	114.6	115.6	116.8	24	115.2	115.7	116.0	24
7/10	---	---	---	0	---	---	---	0	115.8	116.0	116.2	24	114.6	115.0	115.6	24	115.9	116.2	116.5	24
7/11	---	---	---	0	---	---	---	0	114.9	115.2	115.7	24	113.7	114.1	114.6	24	115.0	115.4	116.0	24
7/12	---	---	---	0	---	---	---	0	114.8	114.9	115.1	24	113.4	113.9	114.6	24	114.0	114.2	114.7	24
7/13	---	---	---	0	---	---	---	0	114.4	114.6	115.1	24	113.4	114.0	114.3	24	113.7	114.0	114.1	24
7/14	---	---	---	0	---	---	---	0	113.5	113.9	114.2	24	112.7	112.9	113.2	24	113.0	113.5	113.9	24
7/15	---	---	---	0	---	---	---	0	113.4	113.7	113.9	24	112.9	113.5	114.3	24	113.2	113.8	114.0	24
7/16	---	---	---	0	---	---	---	0	112.8	113.0	113.5	24	112.6	113.4	114.1	24	112.9	113.2	113.4	24
7/17	---	---	---	0	---	---	---	0	112.9	113.0	113.2	24	112.3	112.7	113.2	24	112.3	112.7	113.2	24
7/18	---	---	---	0	---	---	---	0	112.8	112.9	113.2	24	112.1	112.6	112.8	24	113.1	113.9	114.4	24
7/19	---	---	---	0	---	---	---	0	112.8	113.0	113.1	24	111.7	112.3	113.1	24	113.2	113.5	113.9	24
7/20	---	---	---	0	---	---	---	0	112.9	113.1	113.4	23	111.9	112.5	113.5	23	112.4	112.7	112.9	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
7/7	113.9	114.1	115.3	16	114.6	115.1	115.4	24	117.1	117.4	117.6	24	115.0	115.3	115.7	24	117.4	118.0	120.1	19
7/8	---	---	---	0	114.4	115.1	115.7	24	117.2	117.5	117.7	24	115.2	115.4	115.6	23	116.7	117.7	118.1	21
7/9	---	---	---	0	115.0	115.6	116.2	24	117.4	117.7	117.7	24	115.4	115.7	116.1	23	115.0	115.7	116.5	23
7/10	---	---	---	0	114.4	114.8	115.0	24	117.6	117.8	117.9	24	114.6	114.8	114.9	23	115.8	116.6	117.4	21
7/11	111.8	111.8	113.3	9	114.0	114.3	114.4	24	117.2	117.4	117.6	24	113.5	113.7	113.9	24	117.0	117.3	120.5	22
7/12	112.9	113.2	113.3	24	113.8	114.1	114.5	24	117.3	117.6	117.7	24	115.6	116.4	116.6	24	117.7	118.6	121.6	22
7/13	112.7	113.1	113.3	24	112.7	113.5	113.7	24	117.1	117.3	117.4	24	114.7	114.9	115.6	24	116.3	116.7	117.3	20
7/14	112.1	112.7	113.1	24	112.1	112.7	113.2	24	116.8	117.2	117.4	24	113.7	114.0	114.3	24	115.6	116.5	117.1	24
7/15	112.2	113.0	113.4	24	112.6	113.3	114.0	24	117.0	117.3	117.4	24	113.1	113.3	113.9	24	115.7	116.2	117.0	24
7/16	111.7	112.1	112.4	24	110.5	110.5	111.0	3	116.7	116.7	116.8	3	112.4	112.7	112.9	24	114.5	115.3	115.8	22
7/17	111.4	112.0	112.4	24	---	---	---	0	---	---	---	0	112.0	112.2	112.4	24	115.3	115.7	116.2	23
7/18	111.9	112.7	113.2	24	---	---	---	0	---	---	---	0	112.7	113.2	113.6	24	115.4	115.8	116.4	23
7/19	112.0	112.6	113.3	24	---	---	---	0	---	---	---	0	113.3	113.6	113.7	23	115.6	115.9	116.6	21
7/20	111.4	112.0	112.4	23	111.9	111.9	112.5	7	113.8	113.8	114.0	7	112.7	113.2	113.7	23	115.0	115.3	115.7	23

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
7/7	114.7	115.3	116.4	23	118.2	118.6	119.4	19	116.3	117.4	118.6	24	115.0	115.4	115.8	24	112.9	113.5	114.2	24
7/8	114.1	115.0	115.8	23	117.5	118.1	118.7	21	115.6	117.3	119.0	24	113.8	114.4	114.8	24	111.3	111.7	112.5	24
7/9	113.6	114.1	114.5	24	117.0	117.3	118.0	23	113.3	113.9	115.0	24	113.6	113.8	114.4	24	110.9	111.4	112.8	24
7/10	112.8	113.4	113.9	22	116.3	117.0	117.5	21	110.6	111.0	111.2	24	111.5	111.8	112.7	24	108.9	109.4	110.1	24
7/11	112.9	114.5	115.5	23	116.7	117.5	118.0	21	110.2	111.3	112.5	24	112.1	113.2	115.5	24	107.5	109.0	112.3	24
7/12	113.9	115.0	116.7	22	117.2	118.1	119.5	21	111.6	113.0	114.1	24	112.9	113.4	114.8	24	110.1	111.4	112.0	24
7/13	114.2	114.9	116.0	23	117.3	117.7	119.1	18	111.4	111.7	112.1	24	113.1	113.5	114.1	24	110.6	111.4	112.1	24
7/14	113.2	113.7	114.2	24	117.3	117.7	118.1	24	113.1	114.6	115.4	24	112.9	113.5	113.9	24	110.7	111.3	112.6	24
7/15	112.7	113.0	113.4	24	116.7	117.1	117.8	24	112.5	112.9	114.0	24	113.1	113.3	113.6	24	110.5	111.2	111.9	24
7/16	111.5	112.1	112.3	23	115.7	116.1	116.5	21	110.0	110.4	111.0	24	110.8	111.2	112.0	24	109.1	109.5	109.9	24
7/17	111.7	112.5	113.0	24	115.9	116.7	117.1	21	111.6	113.9	115.0	24	110.9	111.6	111.9	24	108.9	109.9	110.7	24
7/18	112.2	113.0	113.7	23	114.8	116.6	117.3	23	113.4	114.4	115.8	24	111.9	112.5	112.7	24	110.5	111.5	112.1	24
7/19	112.8	113.4	113.9	22	116.0	116.6	117.2	20	111.5	112.1	112.5	24	111.6	112.1	112.4	24	110.4	110.8	111.3	24
7/20	111.5	112.3	112.7	23	115.5	116.0	116.2	21	109.5	110.1	111.5	24	109.9	110.3	111.7	24	108.2	108.7	108.9	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
7/7	---	---	---	0	---	---	---	0	118.6	119.0	119.4	24	113.6	114.8	115.6	24	103.4	104.3	105.3	24
7/8	---	---	---	0	---	---	---	0	118.6	119.0	119.4	24	114.0	115.3	116.1	24	103.3	104.4	105.4	24
7/9	---	---	---	0	---	---	---	0	118.7	119.2	119.7	24	114.2	115.5	116.5	24	103.2	104.3	105.7	24
7/10	---	---	---	0	---	---	---	0	118.7	119.1	119.6	24	114.1	115.3	116.3	24	103.1	104.3	105.7	24
7/11	---	---	---	0	---	---	---	0	119.1	119.3	119.5	24	114.5	115.4	116.1	24	102.9	103.9	105.5	23
7/12	---	---	---	0	---	---	---	0	119.2	119.3	119.9	22	114.8	115.8	116.5	24	103.3	104.9	107.1	24
7/13	---	---	---	0	---	---	---	0	119.4	119.8	120.1	24	115.2	116.5	117.4	24	103.4	104.9	107.5	24
7/14	---	---	---	0	---	---	---	0	118.8	119.3	119.7	24	115.3	116.7	117.8	24	103.6	105.5	108.0	24
7/15	---	---	---	0	---	---	---	0	119.2	119.6	119.9	24	115.5	116.6	117.7	24	103.1	104.6	107.7	24
7/16	---	---	---	0	---	---	---	0	119.0	119.4	119.8	23	115.5	116.8	117.7	24	103.0	105.0	108.2	24
7/17	---	---	---	0	---	---	---	0	119.1	119.6	120.1	24	115.4	116.7	117.7	24	103.5	106.0	109.9	24
7/18	---	---	---	0	---	---	---	0	119.3	119.7	120.1	24	115.5	116.9	117.9	24	103.0	104.9	109.7	21
7/19	---	---	---	0	---	---	---	0	119.5	119.9	120.2	24	115.7	117.1	118.1	24	103.1	104.6	106.6	23
7/20	---	---	---	0	---	---	---	0	119.1	119.4	119.7	23	115.6	116.9	117.9	23	103.2	104.6	106.5	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
7/7	107.8	110.2	111.9	24	104.0	104.1	104.3	24	111.9	112.3	112.7	24	108.5	108.9	109.5	24	110.9	111.2	111.4	24
7/8	107.9	110.5	112.2	24	104.2	104.4	105.0	24	112.2	112.7	113.5	24	107.3	107.9	108.4	24	111.2	111.7	112.1	24
7/9	108.0	110.5	112.3	24	104.4	104.8	105.0	24	112.3	112.8	113.3	24	108.1	108.5	108.9	24	111.1	111.5	111.7	24
7/10	107.7	110.1	111.9	24	103.8	104.2	104.6	24	112.2	112.7	113.1	24	108.6	108.9	109.5	24	111.7	112.0	112.4	24
7/11	107.8	110.5	112.3	24	103.6	103.8	104.1	24	111.5	112.0	114.3	24	108.3	108.7	109.1	24	110.9	111.2	111.6	24
7/12	108.1	110.8	112.5	24	102.9	103.2	103.3	24	111.6	112.6	114.3	24	106.7	107.1	107.5	24	111.1	111.6	112.1	24
7/13	108.2	110.9	112.6	24	102.2	102.3	102.4	24	110.1	110.3	110.5	24	106.4	106.8	107.2	24	110.8	111.2	111.4	24
7/14	108.4	111.0	112.6	24	101.8	102.2	102.4	24	110.3	110.7	110.9	24	108.5	110.1	110.4	24	111.5	112.6	113.1	24
7/15	107.9	110.1	111.8	24	102.7	103.2	103.3	24	110.4	110.7	111.2	24	110.3	110.6	110.9	24	112.7	113.0	113.2	24
7/16	108.2	110.7	112.4	24	102.4	102.7	102.8	24	109.8	110.3	110.4	24	109.5	109.9	110.7	24	112.1	112.5	112.8	24
7/17	108.1	110.8	112.5	24	103.4	103.8	104.0	24	110.1	110.5	110.9	24	109.1	109.5	113.4	24	112.2	112.6	112.9	24
7/18	108.2	110.9	112.6	24	102.5	102.8	103.6	24	107.8	109.9	110.3	24	108.0	108.2	108.4	24	111.9	112.2	112.6	23
7/19	108.2	110.7	112.8	23	102.1	102.3	102.6	24	109.6	110.2	110.4	24	107.0	107.2	107.8	24	110.3	111.0	111.3	24
7/20	108.3	110.6	112.5	23	102.3	102.6	102.7	23	108.5	109.7	110.0	23	106.6	106.8	107.3	23	108.9	109.3	109.8	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
7/7	111.1	111.3	111.6	24	115.4	116.0	116.7	24	113.9	114.0	114.1	24	113.8	115.1	116.4	24	---	---	---	0
7/8	110.8	111.1	111.3	24	115.7	116.0	116.4	24	114.1	114.4	114.6	24	113.4	115.0	115.8	24	---	---	---	0
7/9	111.0	111.3	111.4	24	114.9	115.7	116.2	24	114.4	114.5	114.6	24	114.1	114.8	115.6	24	---	---	---	0
7/10	111.1	111.3	111.5	24	113.4	113.9	114.7	24	113.9	114.0	114.3	24	113.7	114.4	115.0	24	---	---	---	0
7/11	110.4	110.7	111.2	24	113.5	114.4	115.4	24	113.0	113.1	113.4	24	113.3	114.3	114.8	24	---	---	---	0
7/12	109.8	110.0	110.3	24	116.4	117.2	119.0	24	112.2	112.4	112.7	24	111.3	111.8	112.4	24	---	---	---	0
7/13	109.6	110.0	110.2	24	115.3	115.6	116.0	24	111.7	111.8	112.0	24	112.6	113.3	113.6	24	---	---	---	0
7/14	109.8	110.2	110.9	24	115.6	116.2	117.0	24	111.5	111.9	112.2	24	113.9	114.7	115.0	24	---	---	---	0
7/15	110.1	110.2	110.4	24	115.7	116.2	116.6	24	111.9	112.1	112.3	24	113.3	114.0	114.7	24	---	---	---	0
7/16	109.8	110.3	110.8	24	116.1	116.6	117.0	24	111.9	112.2	112.5	24	112.8	113.3	113.7	24	---	---	---	0
7/17	110.7	110.9	111.1	24	116.0	116.4	117.2	24	112.6	112.8	113.1	24	112.7	113.3	113.6	24	---	---	---	0
7/18	110.2	110.4	110.8	24	116.1	116.5	117.1	24	112.8	112.9	113.1	24	113.2	114.0	114.5	24	---	---	---	0
7/19	110.1	110.7	111.2	24	115.8	116.2	116.4	24	112.7	112.9	113.1	24	112.8	113.4	113.6	24	---	---	---	0
7/20	109.9	110.1	110.6	23	115.7	116.0	116.4	23	112.5	112.6	112.8	23	113.0	113.9	114.9	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
7/7	113.2	113.4	113.6	24	116.1	117.4	119.1	24	110.3	110.5	110.7	24	114.3	115.8	116.7	24	110.3	110.7	111.1	24
7/8	113.1	113.3	114.1	24	115.6	116.5	117.2	24	110.0	110.5	110.9	24	113.6	114.9	115.8	24	110.0	110.7	111.3	24
7/9	112.4	113.0	113.3	24	115.0	115.3	115.5	24	109.5	109.7	110.1	24	113.9	114.1	114.3	24	109.4	110.2	111.1	24
7/10	111.3	111.7	111.9	24	114.9	115.2	115.5	24	108.0	108.3	108.8	24	113.2	113.4	113.5	24	107.2	107.5	107.8	24
7/11	109.7	110.2	110.9	24	114.9	116.3	116.7	23	106.6	106.9	107.2	24	113.7	115.1	116.3	24	106.6	107.5	108.6	24
7/12	110.2	110.8	112.2	24	116.2	116.6	116.8	24	105.9	106.1	106.4	24	112.6	112.9	113.2	24	108.5	108.8	109.3	24
7/13	109.5	110.0	110.9	24	116.2	117.1	117.5	24	105.1	105.5	105.7	24	112.7	112.9	113.0	24	107.6	108.0	108.5	24
7/14	109.2	109.5	110.2	24	116.7	118.0	119.2	24	104.4	104.7	105.1	24	113.0	113.4	113.5	24	106.7	107.3	107.8	24
7/15	110.1	110.4	110.5	24	115.6	116.0	116.4	24	103.5	103.8	104.4	24	112.3	112.6	113.2	24	106.8	107.3	108.0	24
7/16	109.6	109.9	110.1	24	114.9	115.5	115.7	24	102.7	103.0	103.4	24	111.8	112.2	112.4	24	106.5	107.1	107.5	24
7/17	110.0	110.3	110.6	24	115.9	116.2	116.5	24	103.4	104.1	104.7	24	112.9	113.4	113.7	24	107.4	107.7	108.1	24
7/18	110.6	111.4	112.8	24	116.3	116.6	116.7	24	104.2	104.5	104.9	24	113.4	113.6	113.8	24	107.6	107.7	108.3	24
7/19	110.9	111.3	112.0	24	115.9	116.3	116.8	24	104.5	105.4	105.9	24	112.9	113.2	113.6	24	107.0	107.6	107.8	24
7/20	109.4	109.6	110.0	23	115.0	115.3	115.5	23	104.5	104.7	104.8	23	113.1	113.6	114.2	23	107.3	107.6	108.0	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
7/7	113.8	114.4	115.2	24	110.6	111.3	112.4	24	114.5	114.8	115.7	24	112.7	113.5	114.9	24	116.4	116.6	116.7	24
7/8	113.3	113.8	114.2	24	109.2	109.6	109.9	24	113.4	114.0	114.2	24	112.5	113.9	114.8	24	114.9	115.6	116.7	24
7/9	113.3	113.6	114.2	24	109.2	109.4	109.6	24	114.0	114.7	116.1	24	112.0	113.9	115.5	24	115.2	115.9	117.5	24
7/10	111.9	112.3	112.5	24	108.3	108.5	108.7	24	114.5	115.0	116.1	24	111.3	112.8	114.2	24	116.1	116.5	117.2	24
7/11	111.7	112.8	113.1	24	106.8	107.1	107.9	24	112.8	114.1	115.0	24	111.1	113.5	115.1	24	116.2	116.4	116.8	24
7/12	112.2	113.0	113.3	24	106.9	107.5	107.8	24	112.0	112.8	113.6	24	111.5	112.9	113.7	24	114.5	115.0	116.2	24
7/13	111.9	112.4	113.0	24	107.1	107.6	107.9	24	112.7	113.8	115.7	24	111.1	113.3	114.9	24	114.7	115.3	116.3	24
7/14	112.0	112.9	113.5	24	108.0	108.5	108.8	24	113.2	114.0	115.6	24	111.9	114.3	116.3	24	116.1	116.3	116.6	24
7/15	111.6	111.7	112.2	24	107.9	108.3	108.5	24	108.2	111.6	113.2	24	110.6	111.6	112.3	24	115.4	115.6	116.1	24
7/16	111.4	111.8	112.0	24	106.5	106.9	107.2	24	109.6	112.0	113.2	24	109.8	111.0	111.9	24	114.2	114.7	116.1	24
7/17	111.8	112.5	112.9	24	107.1	107.6	108.2	24	112.1	113.7	114.5	24	111.4	114.3	116.4	24	114.4	115.1	116.4	24
7/18	112.4	113.2	113.7	24	108.7	109.4	109.6	24	115.5	116.4	117.5	24	111.9	113.8	115.6	24	115.6	115.8	116.0	24
7/19	112.2	112.6	113.0	24	108.2	108.4	108.5	24	114.5	115.0	115.3	24	111.1	112.7	113.8	24	115.9	116.3	116.8	24
7/20	111.9	112.4	112.8	23	106.9	107.3	107.8	23	113.8	114.3	114.5	23	110.3	111.5	112.6	23	114.8	115.2	117.0	23

Two-Week Summary of Passage Indices

Source: Fish Passage Center Updated: 7/21/2017 13:11

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)
07/07/2017	*	---	2	---	---	0	0	304	0	---	0	0
07/08/2017	*	---	---	---	---	0	0	316	0	0	---	0
07/09/2017		---	---	---	---	0	0	199	0	---	0	0
07/10/2017	*	---	1	---	---	0	0	121	0	0	---	0
07/11/2017		---	---	---	---	0	6	115	0	---	0	0
07/12/2017		---	---	---	---	0	0	33	0	0	---	0
07/13/2017		---	---	---	---	0	0	123	0	---	0	0
07/14/2017		---	---	---	---	0	0	90	0	0	---	0
07/15/2017		---	---	---	---	0	0	93	0	---	0	0
07/16/2017		---	---	---	---	0	0	64	0	0	---	0
07/17/2017		---	---	---	---	41	0	32	0	---	0	0
07/18/2017		---	---	---	---	0	0	132	0	0	---	0
07/19/2017		---	---	---	---	0	0	32	0	---	0	0
07/20/2017		---	---	---	---	0	0	0	0	0	---	0
07/21/2017		---	---	---	---	---	0	---	0	---	0	0
Total:		**0**	**3**	**0**	**0**	**41**	**6**	**1,654**	**0**	**0**	**0**	**0**
# Days:		**0**	**2**	**0**	**0**	**14**	**15**	**14**	**15**	**7**	**8**	**15**
Average:		**0**	**2**	**0**	**0**	**3**	**0**	**118**	**0**	**0**	**0**	**0**
YTD		**33,704**	**22,231**	**21,106**	**8**	**3,998,337**	**2,400,545**	**2,885,636**	**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)
07/07/2017	*	---	0	---	---	14,368	8,544	5,671	216	---	67,061	62,516
07/08/2017	*	---	---	---	---	10,856	8,077	7,028	217	80,072	---	63,248
07/09/2017		---	---	---	---	9,723	10,097	7,342	390	---	49,653	93,892
07/10/2017	*	---	0	---	---	7,724	7,719	5,904	559	57,181	---	145,260
07/11/2017		---	---	---	---	4,737	6,889	5,587	728	---	57,104	123,684
07/12/2017		---	---	---	---	4,811	5,348	4,227	901	115,983	---	132,632
07/13/2017		---	---	---	---	7,611	1,603	5,432	783	---	34,934	112,107
07/14/2017		---	---	---	---	5,964	2,617	7,956	704	75,053	---	109,492
07/15/2017		---	---	---	---	8,260	3,398	5,768	704	---	46,497	53,061
07/16/2017		---	---	---	---	8,569	4,217	3,343	693	51,450	---	64,439
07/17/2017		---	---	---	---	6,579	2,555	3,083	663	---	29,676	68,458
07/18/2017		---	---	---	---	10,316	2,705	3,695	661	38,385	---	68,032
07/19/2017		---	---	---	---	7,603	2,522	5,817	701	---	30,755	38,440
07/20/2017		---	---	---	---	6,845	4,473	0	587	45,421	---	41,558
07/21/2017		---	---	---	---	---	3,743	---	428	---	20,149	51,750
Total:		**0**	**0**	**0**	**0**	**113,966**	**74,507**	**70,853**	**8,935**	**463,545**	**335,829**	**1,228,569**
# Days:		**0**	**2**	**0**	**0**	**14**	**15**	**14**	**15**	**7**	**8**	**15**
Average:		**0**	**0**	**0**	**0**	**8,140**	**4,967**	**5,061**	**596**	**66,221**	**41,979**	**81,905**
YTD		**0**	**11**	**40**	**0**	**968,588**	**1,006,980**	**641,599**	**64,867**	**2,183,108**	**1,054,019**	**3,847,282**

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)
07/07/2017	*	---	0	---	---	0	0	0	0	---	0	0
07/08/2017	*	---	---	---	---	0	0	0	1	0	---	0
07/09/2017		---	---	---	---	0	0	0	1	---	0	0
07/10/2017	*	---	0	---	---	0	0	0	4	0	---	0
07/11/2017		---	---	---	---	0	0	0	1	---	0	0
07/12/2017		---	---	---	---	0	0	0	2	0	---	0
07/13/2017		---	---	---	---	0	0	0	1	---	0	0
07/14/2017		---	---	---	---	0	0	0	3	0	---	0
07/15/2017		---	---	---	---	0	0	0	1	---	0	0
07/16/2017		---	---	---	---	0	0	0	4	0	---	0
07/17/2017		---	---	---	---	0	0	0	1	---	0	0
07/18/2017		---	---	---	---	0	0	0	3	0	---	0
07/19/2017		---	---	---	---	0	0	0	1	---	0	0
07/20/2017		---	---	---	---	0	0	0	1	0	---	0
07/21/2017		---	---	---	---	---	0	---	0	---	0	0
Total:		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**24**	**0**	**0**	**0**
# Days:		**0**	**2**	**0**	**0**	**14**	**15**	**14**	**15**	**7**	**8**	**15**
Average:		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**
YTD		**0**	**0**	**2,232**	**0**	**128,502**	**86,636**	**69,601**	**35,297**	**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)
07/07/2017	*	---	1	---	---	73	29	0	4	---	0	0
07/08/2017	*	---	---	---	---	0	57	0	0	0	---	0
07/09/2017		---	---	---	---	0	0	28	4	---	0	0
07/10/2017	*	---	0	---	---	0	29	0	0	0	---	0
07/11/2017		---	---	---	---	0	59	0	6	---	0	0
07/12/2017		---	---	---	---	0	0	0	5	0	---	0
07/13/2017		---	---	---	---	0	0	31	6	---	0	0
07/14/2017		---	---	---	---	5	0	0	9	0	---	0
07/15/2017		---	---	---	---	39	0	31	4	---	0	0
07/16/2017		---	---	---	---	40	0	0	7	0	---	0
07/17/2017		---	---	---	---	0	14	0	5	---	0	0
07/18/2017		---	---	---	---	83	16	0	6	0	---	0
07/19/2017		---	---	---	---	83	0	0	3	---	0	0
07/20/2017		---	---	---	---	0	7	0	7	0	---	0
07/21/2017		---	---	---	---	---	0	---	3	---	0	0
Total:		**0**	**1**	**0**	**0**	**323**	**211**	**90**	**69**	**0**	**0**	**0**
# Days:		**0**	**2**	**0**	**0**	**14**	**15**	**14**	**15**	**7**	**8**	**15**
Average:		**0**	**1**	**0**	**0**	**23**	**14**	**6**	**5**	**0**	**0**	**0**
YTD		**7,117**	**15,917**	**7,614**	**1**	**4,065,090**	**1,853,055**	**2,517,489**	**32,125**	**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)
07/07/2017	*	---	0	---	---	108	0	0	3	---	0	0
07/08/2017	*	---	---	---	---	107	29	0	83	0	---	0
07/09/2017		---	---	---	---	74	0	0	4	---	0	0
07/10/2017	*	---	0	---	---	0	29	0	3	0	---	0
07/11/2017		---	---	---	---	0	1	0	3	---	0	0
07/12/2017		---	---	---	---	0	0	0	2	0	---	0
07/13/2017		---	---	---	---	0	29	0	1	---	0	0
07/14/2017		---	---	---	---	0	14	0	2	0	---	0
07/15/2017		---	---	---	---	39	11	0	0	---	0	0
07/16/2017		---	---	---	---	40	7	0	5	0	---	0
07/17/2017		---	---	---	---	41	0	0	4	---	0	0
07/18/2017		---	---	---	---	83	0	0	4	0	---	0
07/19/2017		---	---	---	---	42	0	0	1	---	76	0
07/20/2017		---	---	---	---	41	0	0	0	0	---	0
07/21/2017		---	---	---	---	---	34	---	5	---	0	0
Total:		**0**	**0**	**0**	**0**	**575**	**154**	**0**	**120**	**0**	**76**	**0**
# Days:		**0**	**2**	**0**	**0**	**14**	**15**	**14**	**15**	**7**	**8**	**15**
Average:		**0**	**0**	**0**	**0**	**41**	**10**	**0**	**8**	**0**	**10**	**0**
YTD		**6**	**0**	**0**	**0**	**61,155**	**24,455**	**34,028**	**11,155**	**155,874**	**117,048**	**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)
07/07/2017	*	---	0	---	---	7	60	0	2	---	200	0
07/08/2017	*	---	---	---	---	0	80	0	0	200	---	0
07/09/2017		---	---	---	---	4	80	0	0	---	200	0
07/10/2017	*	---	0	---	---	0	80	80	0	200	---	0
07/11/2017		---	---	---	---	1	20	20	1	---	100	0
07/12/2017		---	---	---	---	3	60	0	0	0	---	0
07/13/2017		---	---	---	---	1	40	0	1	---	200	143
07/14/2017		---	---	---	---	2	70	20	0	0	---	0
07/15/2017		---	---	---	---	3	32	20	0	---	188	0
07/16/2017		---	---	---	---	1	10	0	0	400	---	0
07/17/2017		---	---	---	---	1	20	0	1	---	63	0
07/18/2017		---	---	---	---	3	60	0	1	0	---	0
07/19/2017		---	---	---	---	0	16	0	1	---	250	0
07/20/2017		---	---	---	---	0	8	0	0	0	---	0
07/21/2017		---	---	---	---	---	16	---	0	---	150	0
Total:		**0**	**0**	**0**	**0**	**26**	**652**	**140**	**7**	**800**	**1,351**	**143**
# Days:		**0**	**2**	**0**	**0**	**14**	**15**	**14**	**15**	**7**	**8**	**15**
Average:		**0**	**0**	**0**	**0**	**2**	**43**	**10**	**0**	**114**	**169**	**10**
YTD		**0**	**3**	**4**	**0**	**272**	**6,943**	**2,950**	**56**	**32,405**	**62,323**	**42,204**

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: 7/21/17 1:12 PM

07/07/17 TO 07/21/17

		Species				
Site	Data	**CH0**	**CH1**	ST	SO	**Grand Total**
LGR	Sum of NumberCollected	73,997	25	204	375	74,601
	Sum of NumberBarged	73,996	23	226	390	74,635
	Sum of NumberBypassed	0	0	0	0	0
	Sum of Numbertrucked	0	0	0	0	0
	Sum of SampleMorts	44	0	0	0	44
	Sum of FacilityMorts	971	2	3	10	986
	Sum of ResearchMorts	0	0	0	0	0
	Sum of TotalProjectMorts	1,015	2	3	10	1,030
LGS	Sum of NumberCollected	51,926	4	147	108	52,185
	Sum of NumberBarged	52,069	4	148	77	52,298
	Sum of NumberBypassed	5,711	0	5	22	5,738
	Sum of Numbertrucked	0	0	0	0	0
	Sum of SampleMorts	36	0	0	3	39
	Sum of FacilityMorts	297	0	3	6	306
	Sum of ResearchMorts	0	0	0	0	0
	Sum of TotalProjectMorts	333	0	3	9	345
LMN	Sum of NumberCollected	49,140	1,140	60		50,340
	Sum of NumberBarged	54,392	1,198	61		55,651
	Sum of NumberBypassed	0	0	0		0
	Sum of Numbertrucked	0	0	0		0
	Sum of SampleMorts	20	0	0		20
	Sum of FacilityMorts	62	3	0		65
	Sum of ResearchMorts	0	0	0		0
	Sum of TotalProjectMorts	82	3	0		85
Total Sum of NumberCollected		175,063	1,169	411	483	177,126
Total Sum of NumberBarged		180,457	1,225	435	467	182,584
Total Sum of NumberBypassed		5,711	0	5	22	5,738
Total Sum of Numbertrucked		0	0	0	0	0
Total Sum of SampleMorts		100	0	0	3	103
Total Sum of FacilityMorts		1,330	5	6	16	1,357
Total Sum of ResearchMorts		0	0	0	0	0
Total Sum of TotalProjectMorts		1,430	5	6	19	1,460

YTD Transportation Summary

Source: Fish Passage Center Updated: 7/21/17 1:12 PM

TO: 07/21/17

		Species					
Site	Data	**CH0**	**CH1**	CO	SO	ST	**Grand Total**
LGR	Sum of NumberCollected	599,392	2,362,698	74,225	35,569	2,329,454	5,401,338
	Sum of NumberBarged	585,996	978,688	63,247	19,679	949,320	2,596,930
	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	222	90	5	11	53	381
	Sum of FacilityMorts	5,016	2,609	73	209	191	8,098
	Sum of ResearchMorts	12	26	0	0	22	60
	Sum of TotalProjectMorts	5,250	2,725	78	220	266	8,539
LGS	Sum of NumberCollected	577,808	1,337,946	43,198	13,716	1,064,990	3,037,658
	Sum of NumberBarged	568,990	495,706	39,956	10,026	313,206	1,427,884
	Sum of NumberBypassed	6,285	837,161	3,201	3,318	751,531	1,601,496
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	87	29	1	10	10	137
	Sum of FacilityMorts	2,446	5,050	40	362	243	8,141
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	2,533	5,079	41	372	253	8,278
LMN	Sum of NumberCollected	324,753	1,459,122	33,440	17,200	1,293,650	3,128,165
	Sum of NumberBarged	336,525	931,867	32,959	12,568	710,501	2,024,420
	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	44	37	2	5	31	119
	Sum of FacilityMorts	292	1,089	39	120	386	1,926
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	336	1,126	41	125	417	2,045
Total Sum of NumberCollected		1,501,953	5,159,766	150,863	66,485	4,688,094	11,567,161
Total Sum of NumberBarged		1,491,511	2,406,261	136,162	42,273	1,973,027	6,049,234
Total Sum of NumberBypassed		10,857	2,707,939	14,901	23,560	2,691,484	5,448,741
Total Sum of NumberTrucked		0	0	0	0	0	0
Total Sum of SampleMorts		353	156	8	26	94	637
Total Sum of FacilityMorts		7,754	8,748	152	691	820	18,165
Total Sum of ResearchMorts		12	26	0	0	22	60
Total Sum of TotalProjectMorts		8,119	8,930	160	717	936	18,862

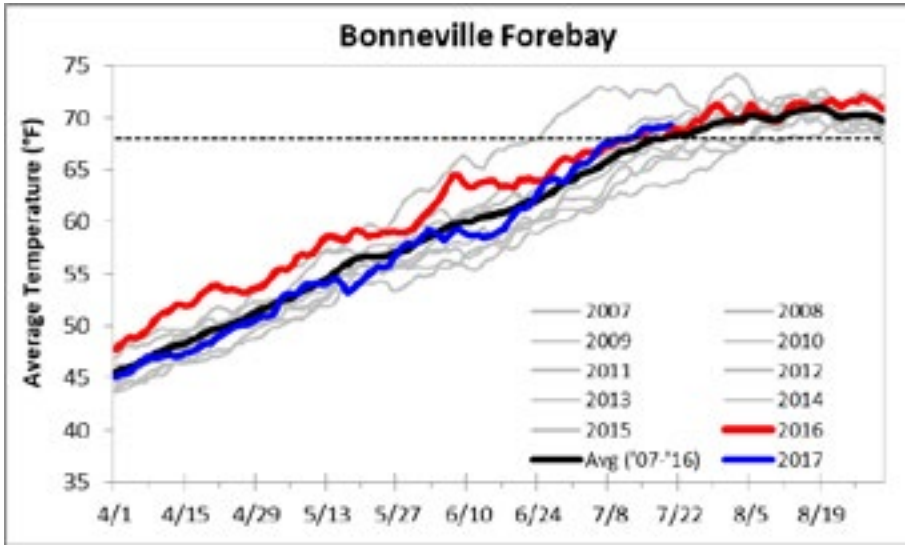
Cumulative Adult Passage at Mainstem Dams Through: 07/20

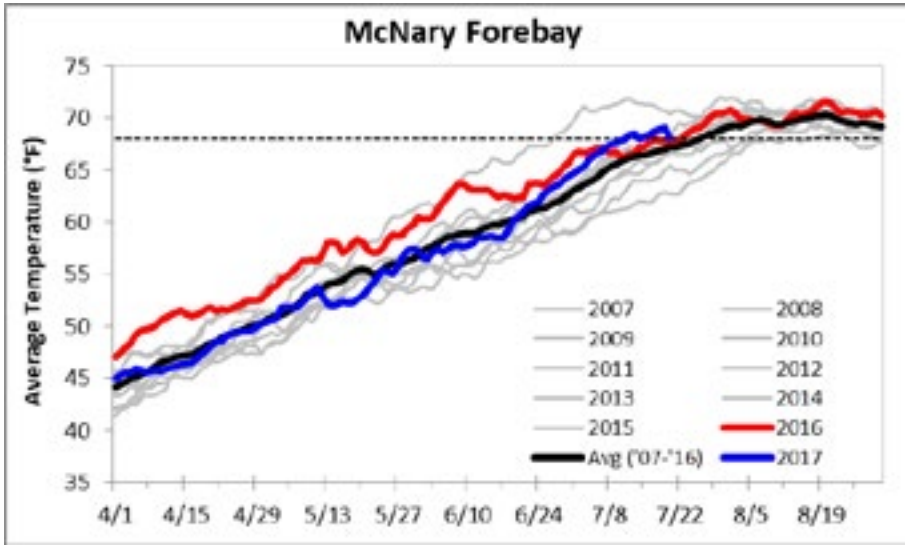
		Spring Chinook						Summer Chinook						Fall Chinook					
		2017		2016		10-Yr Avg.		2017		2016		10-Yr Avg.		2017		2016		10-Yr Avg.	
dam	enddate	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	07/20	83624	18110	137215	11145	150783	25708	82784	9931	109607	9730	91000	20446	0	0	0	0	0	0
TDA	07/20	58308	12497	105504	9999	118766	22002	64748	8475	86281	7676	74665	16010	0	0	0	0	0	0
JDA	07/20	46675	12475	93659	8262	103450	20515	56567	6506	81607	6603	66044	15249	0	0	0	0	0	0
MCN	07/20	44292	7020	87191	7374	93925	16835	52415	4046	73438	5496	60746	11326	0	0	0	0	0	0
IHR	07/20	28306	6949	67484	5029	68114	11248	8714	1995	12172	1360	17644	4636	0	0	0	0	0	0
LMN	07/20	28545	8270	66115	6266	68087	10905	7622	3167	10645	2063	18536	5436	0	0	0	0	0	0
LGS	07/20	26598	8335	62597	6365	63765	12007	8360	3510	10539	1748	17463	5891	0	0	0	0	0	0
LGR	07/20	27357	8256	62050	5480	62403	13092	7928	3317	9884	1780	15468	6167	0	0	0	0	0	0
PRD	07/19	7268	783	16843	1003	17901	1826	45696	1101	65712	3457	44781	1705	0	0	0	0	0	0
WAN	07/19	6612	484	17164	919	17602	2161	42055	894	62828	2708	41648	1416	0	0	0	0	0	0
RIS	07/19	8080	564	18646	715	18006	2748	45433	685	59840	1782	40314	3007	0	0	0	0	0	0
RRH	07/19	5864	406	9449	351	7849	1209	32239	391	39944	1150	28263	1819	0	0	0	0	0	0
WEL	07/19	6589	820	11789	833	8215	1601	19029	361	25304	941	18805	1345	0	0	0	0	0	0
WFA	07/18	33149	2305	29549	2060	33777	1365	0	0	0	0	0	0	0	0	0	0	0	0

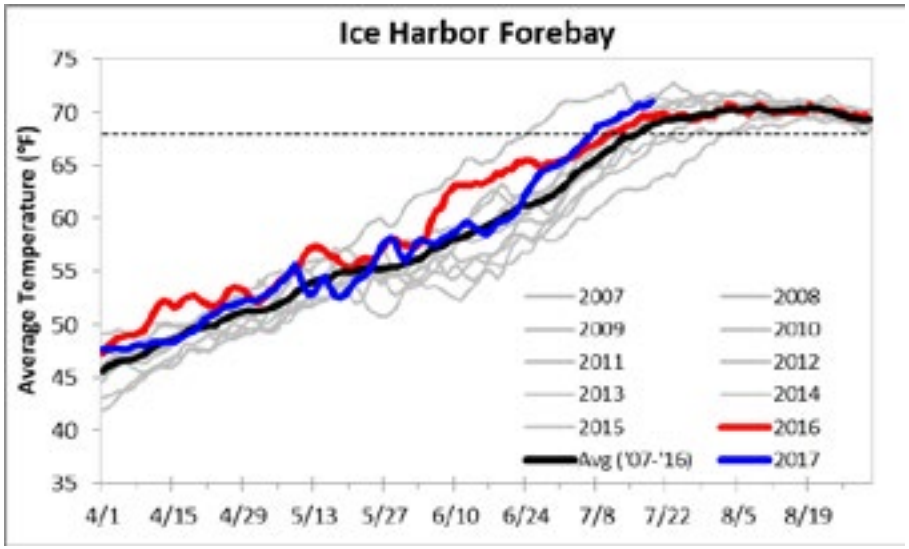
		Coho						Sockeye			Steelhead						Lamprey		
		2017		2016		10-Yr Avg.				10-Yr			10-Yr	Unclipped	Unclipped	10-Yr			10-Yr
DAM	ENDDATE	Adult	Jack	Adult	Jack	Adult	Jack	2017	2016	Avg.	2017	2016	Avg.	2017	2016	Avg.	2017	2016	Avg.
BON	07/20	0	0	0	0	0	0	86524	338035	312151	11690	38811	56204	5603	15848	25894	63576	26019	13587
TDA	07/20	0	0	0	0	0	0	63022	284908	265301	3635	14893	29747	1807	7149	14288	20851	5181	3204
JDA	07/20	0	0	0	0	0	1	64976	285388	255598	2160	9254	23674	1440	5026	10480	13638	4533	2147
MCN	07/20	0	0	0	0	1	0	56938	257904	221332	3320	7395	17248	1218	3832	6433	739	478	267
IHR	07/20	0	0	0	0	0	0	379	858	852	1571	4836	11046	747	2309	3185	379	344	79
LMN	07/20	0	0	0	0	0	0	339	948	990	1882	4448	13109	950	2570	4383	127	74	12
LGS	07/20	0	0	0	0	0	0	263	875	887	1672	5198	7333	774	2977	3373	218	54	5
LGR	07/20	0	0	0	0	0	0	209	730	837	7422	6900	10789	3126	3946	4253	61	16	0
PRD	07/19	0	0	0	1	0	0	63468	302516	251262	251	1133	1218	0	0	0	3599	1378	494
WAN	07/19	0	0	0	0	0	0	71894	310425	218526	226	1038	1195	0	0	0	1533	603	218
RIS	07/19	0	0	0	0	0	0	66170	295010	231769	182	617	779	91	325	415	339	109	35
RRH	07/19	0	0	0	0	0	0	40610	222665	187420	180	391	710	56	159	384	161	58	17
WEL	07/19	0	0	0	0	0	0	34667	198689	166240	130	268	262	101	117	147	11	1	0
WFA	07/18	0	0	0	0	0	0	0	0	0	2581	25703	21318	0	0	0	0	0	0

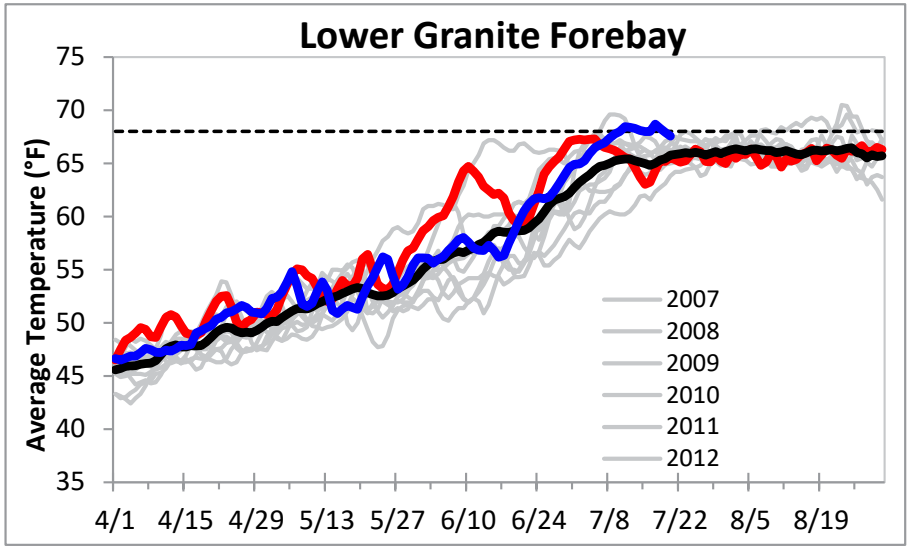
PRD does not post wild steelhead numbers.
These numbers were collected from USACE, Grant PUD, Douglas PUD, Chelan PUD, ODFW and DART.
Wild steelhead numbers are included in the total. Wild Steelhead are defined as unclipped fish.
Historic counts (pre-1996) were obtained from CRITFC and compiled by the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

Page last updated on: 07/21/17


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