



Fish Passage Center

Weekly Report #17-17

June 30, 2017

This Week's Highlights

River Conditions

Flows in the Snake River have generally decreased over the last week; however remain high for this time of year. Hells Canyon Complex flows have ranged between 23.5 to 30.2 Kcfs over the last four days. Flows at Hells Canyon are expected to be between 19.0 and 30.0 Kcfs over the next four days. A decreasing trend in flow occurred in the middle Columbia river as well.

The 2017 spring spill for fish passage program at the lower Snake River projects began just after midnight on April 3rd and ended on June 20th. The spring spill program in the middle Columbia River began on April 10 and ended June 15th. The summer spill programs are now in place and will continue through August 31st. Due to relatively high river flows this year, involuntary spill has occurred at most of the mainstem federal projects, and at the Upper Columbia projects during the spring spill season. BPA has indicated that the involuntary spill that is occurring in the Federal Columbia River Power System is mostly in excess of hydraulic capacity, as several projects are presently operating with generation unit outages, limiting hydraulic capacity. Below is a list of unit outages at Snake River and Lower Columbia Dams:

1. Bonneville Dam (as of June 25, 2017): Units 5, 6, 7, 8 Out of Service.
2. The Dalles Dam (as of June 17, 2017): Units 1, 12, 15, 16, 22 Out of Service.
3. John Day Dam (as of June 30, 2017): Units 5, 6, 14 Out of Service.
4. McNary Dam (as of June 22, 2017): Units 5 and 6 Out of Service.
5. Ice Harbor Dam (as of June 22, 2017): Units 2 and 4 Out of Service.
6. Lower Monumental Dam (as of June 22, 2017): Units 1 and 5 Out of Service.

7. Little Goose Dam (as of June 22, 2017): Unit 5 and 6 Out of Service.

8. Lower Granite Dam (as of June 22, 2017): Unit 1 Out of service.

Water Supply

Precipitation throughout the Columbia Basin has varied between 57% and 112% of average at individual sub-basins over June. Precipitation above The Dalles has been 74% of average over June. Over the 2017 water year, precipitation has ranged between 109% and 133% of average.

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

Location	Water Year 2017		Water Year 2017	
	June 1-28, 2017		October 1, 2016 to June 28, 2017	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia Above Coulee	2.16	71	37.1	117
Snow River Above Ice Harbor	1.45	90	24.6	124
Columbia Above The Dalles	1.48	74	28.0	117
Kootenai	1.87	57	37.7	120
Clark Fork	2.99	112	25.4	109
Flathead	2.96	85	38.2	125
Pend Oreille River Basin above Waneta Dam	2.60	88	33.2	119
Salmon River Basin	2.15	94	32.8	129
Upper Snake Tributaries	1.61	90	28.4	125
Clearwater	2.11	71	40.8	113
Willamette River above Portland	1.97	70	82.6	133

Table 2 displays the June 18th ESP runoff volume forecasts for multiple reservoirs along with the June COE forecasts at Libby and Dworshak. The June 18th ESP forecast at The Dalles between April and August is 113,131 Kaf (129% of average).

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

Location	June 29, 2017 5-day QPF ESP	
	% Average (1981-2010)	Runoff Volume (Kaf)
The Dalles (Apr-Aug)	127	111,569
Grand Coulee (Apr-Aug)	119	67,332
Libby Res. Inflow, MT (Apr-Aug)	124 129*	7,297 7,594*
Hungry Horse Res. Inflow, MT (Apr-Aug)	110	2,130
Lower Granite Res. Inflow (Apr- July)	145	28,829
Brownlee Res. Inflow (Apr-July)	184	10,046
Dworshak Res. Inflow (Apr-July)	119 116*	2,884 2,838*

* Denotes COE June Forecast

Grand Coulee Reservoir is at 1,284.8 feet (6-29-17) and has refilled 1.3 feet over the last week. Outflows at Grand Coulee have ranged between 135.4 Kcfs and 157.7 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2,438.8 feet (6-29-17) and has refilled 4.7 feet over the past week. Daily average outflows at Libby Dam have been 11.0-14.0 Kcfs over the last week.

Hungry Horse is currently at an elevation of 3,554.8 feet (6-29-17) and has refilled 1.4 feet last week. Outflows at Hungry Horse have been 2.4-3.2 Kcfs over the last week.

Dworshak is currently at an elevation of 1,599.5 feet (6-29-17) and has held steady over the last week. Dworshak outflows over the last week ranged between 5.5-8.5 Kcfs.

The Brownlee Reservoir was at an elevation of 2,076.9 feet on June 29, 2017, and has held steady last week. Outflows at Hells Canyon have ranged between 23.5 and 30.2 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, the flow objective this year is 55 Kcfs. Between June 21-29, flows have averaged 101.2 Kcfs.

Based on the April Final Water Supply Forecast, the Spring Biological Opinion Flow Objectives will be 260 Kcfs at McNary Dam (began April 10th) and 135 Kcfs at Priest Rapids Dam (began April 10th). Over the last week, flows at McNary Dam were 285.9 Kcfs and Priest Rapids Dam flows were 181.6 Kcfs. Over the spring season, flows at McNary Dam have been 379.8 Kcfs and Priest Rapids Dam flows were 235.8 Kcfs.

Spill

Flows in the Snake and Columbia rivers have decreased considerably over the past week relative to the week prior. Dworshak Dam has completed its refill operation, with discharge over the week ranging from 5.5 Kcfs to 10.5 Kcfs and spill ranging from 1.2 to 6.3 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 also decreased, with outflows at Hells Canyon ranging near 25 to 28 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 exceeded the targeted 18 Kcfs through June 25th, but maintained the 18 Kcfs after that date. At Little Goose Dam the Biological Opinion spill of 30% of flow was met over the past week. Spill at Lower Monumental Dam also exceeded the 17 Kcfs early in the past week, but was 17 Kcfs over the past four days. At Ice Harbor spill generally met the 45 Kcfs/gas cap spill levels on those dates, but often exceeded the 30% spill levels.

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. At John Day Dam spill averaged between 30% and 40% of average daily flow. At John Day Dam, two 30% spill days expected to occur this coming weekend were swapped with two 40% spill dates during this week. Flows are expected to decrease considerably this upcoming weekend and historically the lightest energy loads occur over Fourth of July weekend. According to BPA this operation is more “cost effective” for them with this switch. The Dalles Dam spill was near 40% of average daily flow. Bonneville Dam spill met the FOP levels.

At Dworshak Dam, tailrace TDG levels have ranged from 108% to 118%, dependent on spill levels. TDG supersaturation at the Lower Granite Dam forebay monitor has ranged between 106% and 108% 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 River projects. TDG supersaturation levels have been near the 120% in the tailraces at the Middle Columbia projects. Similar to the federal hydrosystem, TDG supersaturation levels decreased at the Upper Columbia projects over the last week, since both Grand Coulee and Chief Joseph dams have stopped spilling. The TDGS was 113% yesterday in the forebay of Wells Dam. TDG downstream was generally below the 120% in the tailraces of Rocky Reach and Rock Island and Wanapum dams by week’s end.

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 Lower Granite, Little Goose and Lower Monumental dams, no fish were observed with signs of GBT this past week.

At Bonneville Dam 4% of fish were observed with signs of GBT on 6/24/17, while 2% of the sample on 6/27/17 was observed with signs. All signs of GBT were Rank 1 levels of GBT in the fins. At McNary Dam no fish showed signs of GBT on exams taken on 6/25/17 and 6/27/17. At Rock Island Dam, the GBT exams on 6/27/17 showed 6% of fish with signs of GBT (all at Rank1) and 4% of fish with signs of GBT on 6/29/17. 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 near 63.9°F on June 29th. It is about a degree warmer downstream at Ice Harbor Dam, where the temperature was 64.6 on June 29th. At McNary and Bonneville dams the forebay temperatures were 64.1°F and 63.8°F at both dams on June 29th. These forebay temperatures are above the average values for the last ten years.

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), Rock Island Dam on the Upper Columbia, and Lower Granite Dam on the Snake River but decreased at the other two Snake River facilities (LGS and LMN). 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 50,000 per day, which is an increase over last week's daily average passage index of about 22,200. Passage of spring migrants remained low this week. This week's daily average passage indices for spring migrants were each less than 150 fish per day. Finally, no Pacific lamprey ammocoetes were encountered this week but macrophthalmia were encountered in five of this week's samples. The daily average collection for macrophthalmia this week was about 75 per day, which is lower than last week's daily average collection of about 120 per day.

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 nearly 46,000, which is an increase over last week's daily average passage index of 30,100 per day. Passage of spring migrants decreased again this week, when compared to the previous week. This week's daily average passage indices for spring migrants were all below 125 fish per day. Both Pacific lamprey ammocoetes and macrophthalmia were encountered in this week's samples. Pacific ammocoetes were encountered in one sample (June 25th) while macrophthalmia were encountered in all four of this week's samples. This week's daily average collection for Pacific macrophthalmia was about 575 per day, which is an increase from last week's daily average collection of about 410 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 nearly 75,000 per day, which is an increase over last week's daily average passage index of nearly 71,000 per day. Passage of spring migrants was low this week. This week's daily average passage indices for spring migrants were all below 150 fish per day. Finally, no Pacific lamprey ammocoetes were encountered in this week's samples but macrophthalmia were encountered in two of this week's three samples. This week's daily average collection for Pacific macrophthalmia was about 130 fish per day, which is lower than last week's daily average collection of 350 macrophthalmia 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 nearly 8,800 per day, which is an increase over last week's daily average passage index of about 7,700 per day. Passage of spring migrants decreased again this week, when compared to the previous week. With exception to steelhead, this week's daily average passage indices for spring migrants at LGR were all below 30 fish per day. The daily average passage index for steelhead at LGR was about 650 fish per day for the week. Finally, Pacific lamprey ammocoetes were encountered every day this week while macrophthalmia were not encountered this week. This week's total sample for Pacific lamprey ammocoetes at LGR was 51 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 7,750 per day, which is a decrease from last week's daily average passage index of nearly 10,000 per day. Passage of spring migrants remained low this week, with daily average passage indices that were nearly all below 50 fish per day. The one exception to this was steelhead, which had a daily average passage index of about 225 per day for the week. Finally, Pacific lamprey ammocoetes were encountered in six of this week's samples while no macrophthalmia were encountered this week. This week's daily average collection for Pacific ammocoetes at LGS was about 65 fish per day.

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 5,000 per day, which is a decrease from last week's daily average passage index of about 6,500. Passage of spring migrants remained low this week. This week's daily average passage indices for spring migrants were all at or below 300 fish per day. Finally, Pacific lamprey ammocoetes were encountered in one of this week's samples (June 28th) while no macrophthalmia 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 2,100 per day, which is an increase over last week's daily average passage index of nearly 1,750 per day. Passage of spring migrants was low this week, with daily average passage indices of less than 20 fish per day. Finally, one Pacific lamprey ammocoete and two macrophthalmia were encountered this week. The ammocoete was collected in the sample from June 28th while one macrophthalmia was collected on each of the samples on June 28th and June 29th.

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. Approximately 400,000 spring Chinook pre-smolts were scheduled to be released into the Selway River, a tributary of the Clearwater River, on or around June 28th. These pre-smolts were 100% unmarked and are not expected to out-migrate until spring of 2018. This was the only new release scheduled for this zone this week. No new releases are scheduled for this zone 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. In addition, no new releases are scheduled for this zone 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 scheduled for this zone this week. However, the release of approximately 3.4 million subyearling fall Chinook from Ringold Springs hatchery, which began in mid-June, was expected to end this week. Two new releases totaling nearly 6.1 million subyearling fall Chinook smolts are scheduled to begin in early July. Both of these releases are scheduled to occur on the Little White Salmon River, which empties into the Columbia River above Bonneville Dam. Of these 6.1 million subyearlings, 4.1 million are scheduled to be released from Willard NFH on or around July 1st and 2.0 million are scheduled to be released from Little White Salmon NFH on or around July 5th. In addition, the releases of 6.9 million subyearling fall Chinook from Priest Rapids Hatchery that began in mid-June is scheduled to end on or around July 1st.

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 1.2 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 1,776 and 2,892 adult summer Chinook in the last week. The 2017 summer Chinook count of 57,454 is about 77% of the 2016 count and 89% of the 10-year average. The 2017 summer Chinook jack count of 7,067 has 633 more fish than the 2016 count, while being 50% of the 10-year average count. At Willamette Falls, 27,883 adult spring Chinook have been counted so far this year. In 2016, 24,779 adult spring Chinook were counted at Willamette Falls. This year's count is about 1.1 times greater than the 2016 count and 94% of the 10-year average count of 29,526. As of June 29th, a total of 28,948 adult summer Chinook have been counted at McNary Dam and 3,993 have been counted at Lower Granite Dam. The 2017 McNary Dam adult summer Chinook count is about 68% of the 2016 count and 82% the 10-year average count. The 2017 Lower Granite Dam adult summer Chinook count has 1,508 fewer fish than the 2016 count and 5,256 fewer fish than the 10-year average count.

The 2017 Bonneville Dam adult steelhead count of 5,061 is about 36% of the 2016 count of 14,204 and 35% of the 10-year average count of 14,456. The 2017 Bonneville Dam adult wild steelhead count of 1,731 has 3,913 fewer fish than the 2016 count of 5,644 and 3,031 fewer fish than the 10-year average count of 4,762. This year's Lower Granite steelhead count of 7,313 is about 1.3 times greater than the 2016 count of 5,655, while being 79% of the 10-year average count of 9,230. The 2017 Lower Granite Dam adult wild steelhead count of 3,057 has 196 fewer fish than the 2016 count of 3,253 and has 576 fewer fish than the 10-year average count of 3,633. At Willamette Falls, the 2017 count for steelhead was 2,168 as of June 24th. This year's steelhead count is about 10% of the 2016 count of 21,588 and 12% of the 10-year average count of 18,374.

Daily adult sockeye passage numbers at

Bonneville Dam ranged between 3,264 and 4,467 last week. The 2017 adult sockeye count at Bonneville Dam of 58,968 is 21% of the 2016 count and 28% of the 10-year average count. A total of 34,055 lampreys have been counted at Bonneville Dam so far this year. The Bonneville 2017 lamprey count is about 2.1 times greater than the 2016 count of 11,558 and 3.9 times greater than the 10-year average count of 6,227.

Hatchery Releases Last Two Weeks

Hatchery Release Summary

From: **6/17/2017** to **06/30/17**

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					
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					3,368,500					
Grand Total					3,768,500					

Hatchery Releases Next Two Weeks

		Hatchery Release Summary								
From:		7/1/2017	to		7/14/2017					
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	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	Willard Hatchery	CH0	FA	2017	2,000,000	07-01-17	07-07-17	Willard Hatchery	Little White Salmon River	MCOL
U.S. Fish and Wildlife Service Total					6,100,000					
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 Total					8,300,000					
Grand Total					15,600,000					

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

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

Date	Grand Coulee		Chief Joseph		Wells		Rocky Reach		Rock Island		Wanapum		Priest Rapids	
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
06/16/2017	173.8	3.4	178.2	32.9	194.9	24.8	204.2	51.0	208.6	66.5	225.8	128.4	231.6	172.0
06/17/2017	169.3	0.2	174.3	23.9	189.5	16.7	195.2	37.9	193.3	49.8	213.4	109.5	210.5	118.9
06/18/2017	178.8	2.1	187.1	26.7	200.9	27.0	205.7	57.5	199.8	49.1	219.1	124.0	214.8	91.2
06/19/2017	176.3	0.0	159.3	14.7	176.4	15.2	183.7	40.6	189.3	49.7	208.1	98.4	209.6	86.8
06/20/2017	155.3	0.1	153.8	15.0	169.3	10.0	176.7	39.7	181.0	45.4	196.4	110.7	194.2	79.5
06/21/2017	149.7	0.1	147.0	10.5	157.4	16.7	165.8	19.2	177.6	36.7	186.3	77.5	187.1	71.4
06/22/2017	155.7	0.1	156.0	9.1	164.8	18.7	165.0	23.5	172.4	35.8	180.5	43.0	172.8	58.1
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

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

Date	Dworshak		Brownlee Inflow	Hells Canyon		Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill		Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	
06/16/2017	4.3	0.0	---	41.4	119.3	30.3	113.7	33.9	113.0	50.1	117.1	74.8	
06/17/2017	3.4	0.1	---	40.5	124.0	35.0	120.7	35.9	119.2	48.5	122.0	76.2	
06/18/2017	4.3	0.7	---	40.4	124.7	36.7	120.1	36.8	119.1	50.0	123.5	72.3	
06/19/2017	5.7	1.4	---	40.2	120.0	32.4	115.3	40.4	115.0	48.7	118.2	69.1	
06/20/2017	7.1	2.8	---	40.3	120.6	37.7	115.2	40.0	113.6	49.8	122.9	82.7	
06/21/2017	9.9	5.6	---	38.4	123.1	35.1	118.5	41.5	116.7	39.4	120.4	74.4	
06/22/2017	10.8	6.5	---	36.4	122.6	33.7	119.1	35.7	117.6	40.4	123.6	70.0	
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	

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

Date	McNary		John Day		The Dalles		Bonneville		PH1	PH2
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill		
06/16/2017	348.3	203.6	354.1	141.0	334.1	135.2	365.2	177.1	62.4	113.2
06/17/2017	332.9	186.1	326.5	132.3	309.4	123.5	333.9	142.3	62.5	116.7
06/18/2017	335.0	185.5	337.0	136.2	317.7	128.2	334.1	141.6	61.3	118.8
06/19/2017	343.2	193.6	345.9	129.1	325.9	125.0	347.3	152.2	66.0	116.7
06/20/2017	316.1	172.8	312.8	112.7	290.2	116.3	315.8	124.4	59.2	119.7
06/21/2017	321.1	173.3	319.9	128.5	302.4	116.2	322.3	123.4	66.2	120.3
06/22/2017	315.8	165.6	320.2	122.6	303.4	119.4	323.1	117.8	64.7	128.2
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

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											
	06/22/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/29/17	Chinook + Steelhead	101	0	0	0.00%	0.00%	0	0	0	0
Little Goose Dam											
	06/19/17	Chinook + Steelhead	100	1	1	1.00%	0.00%	0	1	0	0
	06/26/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Lower Monumental Dam											
	06/21/17	Chinook + Steelhead	75*	2	2			2	0	0	0
	06/28/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
McNary Dam											
	06/21/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/25/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/27/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Bonneville Dam											
	06/17/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/20/17	Chinook + Steelhead	100	2	2	2.00%	0.00%	2	0	0	0
	06/24/17	Chinook + Steelhead	100	4	4	4.00%	0.00%	4	0	0	0
	06/27/17	Chinook + Steelhead	100	2	2	2.00%	0.00%	2	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

Date	<u>Hungry H. Dnst</u>			#	<u>Boundary</u>			#	<u>Grand Coulee</u>			#	<u>Grand C. Tlwr</u>			#	<u>Chief Joseph</u>			#
	<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>		
	<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>	
6/16	---	---	---	0	---	---	---	0	118.5	118.6	118.8	24	116.4	116.7	116.8	24	115.2	115.4	115.7	24
6/17	---	---	---	0	---	---	---	0	118.1	118.3	118.6	24	116.2	116.4	116.6	24	114.2	114.5	114.6	24
6/18	---	---	---	0	---	---	---	0	117.3	117.7	118.3	24	115.8	116.0	116.3	24	115.1	115.6	116.2	24
6/19	---	---	---	0	---	---	---	0	117.2	118.0	118.4	24	116.0	116.6	116.8	24	116.0	116.5	117.1	24
6/20	---	---	---	0	---	---	---	0	117.9	118.1	118.2	24	116.7	117.1	117.3	24	116.2	116.5	116.8	24
6/21	---	---	---	0	---	---	---	0	117.4	117.7	118.0	24	115.9	116.3	116.7	24	115.5	115.8	116.1	24
6/22	---	---	---	0	---	---	---	0	117.1	117.2	117.4	24	115.4	115.7	116.1	24	114.7	114.9	115.1	24
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	23	115.2	115.7	116.0	23	115.4	115.6	116.0	23

Total Dissolved Gas Saturation Data at Mid Columbia River Sites

Date	<u>Chief J. Dnst</u>			#	<u>Wells</u>			#	<u>Wells Dwnstrm</u>			#	<u>Rocky Reach</u>			#	<u>Rocky R. Tlwr</u>			#
	<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>		
	<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>	
6/16	112.5	113.6	115.5	24	112.8	113.2	114.1	24	116.0	116.9	117.8	24	118.4	119.4	120.3	23	123.2	123.9	124.6	21
6/17	111.2	111.4	111.8	24	111.6	112.0	112.3	24	113.9	114.8	115.6	24	114.5	115.1	116.2	24	120.2	121.4	123.0	22
6/18	111.6	111.9	112.1	24	111.8	112.1	112.5	24	115.0	116.1	117.1	24	113.1	113.5	113.9	24	122.0	122.8	123.8	21
6/19	112.4	113.2	114.6	24	113.8	114.3	114.6	24	115.6	116.1	117.1	24	114.4	115.4	116.2	24	120.5	121.9	124.3	20
6/20	111.3	111.6	112.1	24	114.1	114.4	114.8	24	115.4	115.7	115.9	24	115.7	116.4	116.8	24	120.8	121.8	123.5	20
6/21	110.9	111.4	112.1	24	112.5	112.8	113.3	24	114.7	115.5	117.0	24	113.3	113.6	113.7	23	117.8	118.1	119.4	17
6/22	111.2	111.9	113.0	24	112.5	112.8	113.2	24	113.3	115.7	116.6	24	112.7	113.5	114.1	24	117.6	119.1	121.6	24
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	22	113.4	113.6	113.8	23	116.6	116.8	116.9	23	114.6	115.0	115.4	22	117.7	118.1	118.5	21

Total Dissolved Gas Saturation at Mid Columbia River Sites

Date	<u>Rock Island</u>			#	<u>Rock I. Tlwr</u>			#	<u>Wanapum</u>			#	<u>Wanapum Tlwr</u>			#	<u>Priest Rapids</u>			#
	<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>		
	<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>	
6/16	118.7	119.4	120.3	23	124.3	125.4	126.2	21	121.7	122.5	123.2	24	125.4	126.0	127.5	24	119.3	120.9	122.6	24
6/17	115.2	115.9	117.0	23	121.3	121.8	122.6	21	119.4	119.8	120.2	24	122.7	125.2	126.4	24	119.6	120.1	120.5	24
6/18	114.6	115.2	116.3	22	120.7	121.2	121.8	19	118.6	118.9	119.1	24	124.1	124.7	126.7	24	122.7	123.1	123.5	24
6/19	115.6	116.1	116.8	24	121.3	121.5	121.9	18	119.6	120.9	122.0	23	121.2	125.0	127.7	23	124.3	126.0	126.9	24
6/20	115.6	116.5	117.0	23	120.4	121.5	123.0	20	116.9	117.7	118.3	24	123.1	123.8	124.6	24	117.5	119.3	120.6	24
6/21	112.8	113.4	114.6	24	117.3	118.0	119.3	16	113.8	114.1	114.6	24	118.5	122.2	124.0	24	117.5	118.8	119.6	24
6/22	111.8	112.8	113.4	24	116.5	117.8	118.4	22	115.0	116.2	118.5	24	113.0	113.3	113.8	20	112.1	113.0	115.7	24
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	---	---	---	0	---	---	---	0	---	---	---	0
6/29	113.9	114.5	114.9	22	117.9	119.4	119.9	21	---	---	---	0	---	---	---	0	---	---	---	0

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

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

Date	Priest R. Dnst			Pasco			Dworshak			Clrwtr-Peck			Anatone			#				
	24 h	12 h	#	24 h	12 h	#	24 h	12 h	#	24 h	12 h	#	24 h	12 h	#					
	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High					
6/16	---	---	---	0	---	---	---	0	101.2	101.6	102.3	24	101.3	101.7	101.9	24	107.7	107.9	108.1	24
6/17	---	---	---	0	---	---	---	0	101.1	101.7	102.1	24	102.1	103.2	103.9	24	107.7	108.6	109.1	24
6/18	---	---	---	0	---	---	---	0	104.7	108.0	109.5	24	102.5	103.0	103.5	24	106.8	107.6	108.3	23
6/19	105.7	105.7	107.1	10	---	---	---	0	104.5	108.1	109.2	24	103.1	104.8	105.7	24	105.9	106.7	107.6	24
6/20	105.2	105.4	105.7	24	---	---	---	0	108.5	109.0	109.2	24	103.8	104.4	105.1	24	102.7	103.1	104.2	24
6/21	104.4	104.7	104.8	24	---	---	---	0	115.0	118.0	118.6	24	105.6	107.5	108.2	24	103.8	105.2	105.5	24
6/22	103.5	103.9	104.5	24	---	---	---	0	116.5	117.1	117.6	24	106.5	107.0	107.6	24	104.6	104.9	105.1	24
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	104.5	104.9	105.4	23	103.2	104.2	105.1	23	103.6	104.3	104.7	23

Total Dissolved Gas Saturation Data at Snake River Sites

Date	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	#					
	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High					
6/16	102.4	102.9	103.4	24	106.9	107.1	107.3	24	114.6	115.0	115.1	24	113.5	114.0	114.2	24	116.2	116.4	116.6	24
6/17	103.4	104.8	105.5	24	105.9	106.0	106.6	24	115.7	116.5	117.7	24	112.2	112.5	113.3	24	115.7	115.8	116.0	24
6/18	107.8	109.0	109.7	24	105.8	106.0	106.6	24	115.8	116.7	117.6	24	110.8	111.1	111.3	24	115.9	116.3	116.4	24
6/19	111.9	113.2	113.5	24	107.1	107.3	107.7	24	115.2	115.6	116.6	24	112.8	113.9	114.9	24	117.4	118.7	122.5	24
6/20	114.8	115.7	116.1	24	107.5	107.7	107.9	24	116.8	117.9	118.6	24	113.9	114.4	115.2	24	117.1	117.7	118.4	24
6/21	116.9	117.7	117.9	24	106.5	106.9	107.3	24	115.7	117.1	118.1	24	111.7	112.0	112.4	24	117.3	118.7	120.3	24
6/22	118.7	119.4	119.8	24	105.3	105.6	105.9	24	115.9	116.6	118.1	24	112.1	112.7	113.2	24	116.1	116.5	119.3	24
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	23	103.8	104.1	104.4	23	108.7	108.9	109.2	23	107.7	107.9	108.3	23	112.4	113.1	113.2	23

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

Date	Lower Mon.			L. Mon. Tlwr			Ice Harbor			Ice Harbor Tlwr			McNary-Oregon			#				
	24 h	12 h	#	24 h	12 h	#	24 h	12 h	#	24 h	12 h	#	24 h	12 h	#					
	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High					
6/16	116.6	117.7	118.3	24	119.6	119.9	120.8	24	116.4	116.6	116.6	24	118.4	118.6	119.0	24	---	---	---	0
6/17	114.7	115.2	115.6	24	119.8	120.3	121.1	24	115.5	115.8	116.0	24	118.8	119.7	119.9	24	---	---	---	0
6/18	115.7	115.8	116.0	24	119.7	119.9	120.0	24	116.4	116.7	116.9	24	119.0	119.2	119.5	24	---	---	---	0
6/19	116.4	117.1	117.6	24	119.7	120.0	120.3	24	117.6	118.2	118.4	24	118.6	119.1	119.4	24	---	---	---	0
6/20	118.0	118.6	119.6	24	119.7	119.8	120.0	24	118.1	118.3	118.4	24	119.0	119.2	119.4	24	---	---	---	0
6/21	116.7	117.2	118.1	24	117.4	119.8	121.5	24	116.9	117.1	117.4	24	118.9	119.8	121.1	24	---	---	---	0
6/22	117.3	117.9	119.0	24	117.7	119.3	120.7	24	116.2	116.5	116.8	24	119.1	120.1	120.9	24	---	---	---	0
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	111.3	112.6	116.9	24	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	23	116.5	117.4	117.6	23	110.9	112.6	113.0	21	115.5	115.9	116.5	23	---	---	---	0

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

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

Date	<u>McNary-Wash</u>			<u>McNary Tlwr</u>			<u>John Day</u>			<u>John Day Tlwr</u>			<u>The Dalles</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24h</u>	<u>12h</u>	<u>#</u>	<u>24h</u>	<u>12h</u>	<u>#</u>	<u>24h</u>	<u>12h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>AVG</u>	<u>High</u>	<u>hr</u>				
6/16	115.7	115.9	116.0	24	120.3	120.5	121.4	24	110.5	111.1	111.5	24	119.1	119.4	119.8	24	112.2	112.5	112.8	24
6/17	113.8	114.0	114.6	24	119.6	119.8	120.0	24	113.0	113.9	114.3	24	118.8	118.9	119.1	24	113.5	114.4	115.0	24
6/18	114.6	115.8	117.0	24	119.6	119.8	120.1	24	114.8	115.1	115.5	24	118.8	119.1	119.6	24	115.1	116.4	117.2	24
6/19	116.5	117.1	117.5	24	120.1	120.7	121.4	24	116.2	116.7	117.1	24	118.8	119.9	120.3	24	116.4	117.1	117.9	24
6/20	117.2	117.4	117.7	24	118.7	118.8	119.2	24	115.4	115.7	116.1	24	117.4	118.1	119.0	24	114.3	115.4	117.0	24
6/21	116.2	116.8	117.1	24	118.8	119.2	120.1	24	113.7	114.1	114.3	24	118.1	118.3	118.7	24	112.4	113.8	114.2	24
6/22	115.0	115.5	116.3	24	118.6	118.9	120.0	24	113.9	114.5	114.9	23	117.8	118.2	118.4	23	114.2	115.9	116.6	24
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	111.8	112.5	113.5	23	119.4	120.3	121.0	23	109.9	110.3	111.1	23	114.3	114.9	116.0	23	109.2	110.8	112.1	23

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

Date	<u>The Dalles Dnst</u>			<u>Bonneville</u>			<u>Warrendale</u>			<u>Camas\Washougal</u>			<u>Cascade Island</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24h</u>	<u>12h</u>	<u>#</u>	<u>24h</u>	<u>12h</u>	<u>#</u>	<u>24h</u>	<u>12h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>AVG</u>	<u>High</u>	<u>hr</u>				
6/16	117.2	118.1	121.7	24	117.2	117.8	118.8	24	120.7	121.6	122.7	24	119.4	120.0	120.3	24	123.0	123.2	123.5	24
6/17	117.6	118.2	118.7	24	116.3	116.6	116.8	24	118.7	118.9	119.5	24	117.8	118.4	118.8	24	122.1	122.3	123.3	24
6/18	118.3	118.9	119.6	24	117.4	118.2	118.7	24	119.2	119.8	120.1	24	117.9	119.1	119.8	24	121.9	122.1	122.2	24
6/19	118.8	119.1	119.4	24	119.4	120.0	120.3	24	120.8	121.4	121.7	24	119.2	120.2	120.9	24	123.0	123.5	123.6	24
6/20	118.1	119.1	119.6	24	116.7	117.9	119.5	24	118.4	119.4	121.0	24	118.3	119.1	119.9	24	120.3	121.1	123.4	24
6/21	115.9	117.1	117.5	24	113.2	113.8	114.9	24	116.1	116.5	116.7	24	114.7	115.9	116.7	24	120.3	120.9	121.1	24
6/22	117.5	118.6	119.1	24	114.2	115.9	117.6	24	116.3	116.8	117.9	24	114.7	116.1	116.8	24	120.5	121.0	121.1	24
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	115.4	116.1	23	110.0	110.9	111.7	23	113.2	113.9	114.4	23	111.9	113.2	114.3	23	117.7	118.0	118.4	23

Two-Week Summary of Passage Indices

Source: Fish Passage Center

Updated: 6/30/2017 11:46

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/currentsmppsubmitdata.asp>

COMBINED YEARLING CHINOOK											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
06/16/2017 *	---	4	---	---	105	71	343	2	273	---	50
06/17/2017	---	---	---	---	369	107	533	0	---	271	169
06/18/2017	---	---	---	---	143	36	168	0	230	---	306
06/19/2017	---	---	---	---	176	87	364	0	---	63	236
06/20/2017	---	---	---	---	206	35	85	2	0	---	116
06/21/2017	---	---	---	---	177	211	284	---	---	155	20
06/22/2017	---	---	---	---	393	106	99	0	0	---	351
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	---	---	0	---	0
Total:	0	7	0	0	1,760	974	4,054	8	503	785	1,415
# Days:	0	4	0	0	15	15	14	13	8	7	15
Average:	0	2	0	0	117	65	290	1	63	112	94
YTD	33,704	22,221	21,106	8	3,998,296	2,400,508	2,881,934	50,596	1,583,272	1,720,241	1,947,561

COMBINED SUBYEARLING CHINOOK											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
06/16/2017 *	---	0	---	---	11,274	18,642	9,251	1,572	77,622	---	11,683
06/17/2017	---	---	---	---	9,295	12,621	9,231	1,697	---	14,369	9,208
06/18/2017	---	---	---	---	8,061	8,208	12,286	2,287	55,802	---	14,201
06/19/2017	---	---	---	---	9,268	9,834	4,546	2,033	---	29,593	18,216
06/20/2017	---	---	---	---	5,775	8,868	3,756	1,276	77,587	---	30,106
06/21/2017	---	---	---	---	3,618	6,327	2,165	---	---	46,371	33,173
06/22/2017	---	---	---	---	6,723	5,378	4,010	1,595	72,381	---	31,940
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	---	---	153,021	---	38,355
Total:	0	2	0	0	124,618	137,395	80,648	25,252	661,259	273,611	537,082
# Days:	0	4	0	0	15	15	14	13	8	7	15
Average:	0	1	0	0	8,308	9,160	5,761	1,942	82,657	39,087	35,805
YTD	0	10	40	0	807,503	886,142	512,547	50,151	1,306,488	511,188	2,219,797

Two-Week Summary of Passage Indices

COMBINED COHO											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
06/16/2017 *	---	0	---	---	70	142	86	67	268	---	152
06/17/2017	---	---	---	---	201	0	0	63	---	68	214
06/18/2017	---	---	---	---	36	71	84	40	0	---	244
06/19/2017	---	---	---	---	106	145	0	10	---	190	77
06/20/2017	---	---	---	---	103	31	0	11	0	---	174
06/21/2017	---	---	---	---	71	31	61	---	---	155	5
06/22/2017	---	---	---	---	107	68	99	19	0	---	0
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	---	---	0	---	128
Total:	0	0	0	0	886	759	434	245	674	722	994
# Days:	0	4	0	0	15	15	14	13	8	7	15
Average:	0	0	0	0	59	51	31	19	84	103	66
YTD	0	0	2,232	0	128,502	86,565	69,575	35,267	85,810	96,620	356,014

COMBINED STEELHEAD											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
06/16/2017 *	---	44	---	---	1,276	783	86	126	538	---	255
06/17/2017	---	---	---	---	1,107	393	266	55	---	542	214
06/18/2017	---	---	---	---	896	535	337	60	230	---	203
06/19/2017	---	---	---	---	705	567	182	51	---	570	80
06/20/2017	---	---	---	---	584	488	512	47	0	---	291
06/21/2017	---	---	---	---	568	587	320	---	---	466	104
06/22/2017	---	---	---	---	858	675	329	19	0	---	0
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	---	---	0	---	0
Total:	0	71	0	0	10,655	5,736	3,883	455	1,189	2,033	2,057
# Days:	0	4	0	0	15	15	14	13	8	7	15
Average:	0	18	0	0	710	382	277	35	149	290	137
YTD	7,117	15,897	7,614	1	4,064,430	1,852,598	2,517,216	32,011	442,839	1,316,769	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)	(INDEX)
06/16/2017	*	---	0	---	---	0	0	0	7	0	---	50
06/17/2017		---	---	---	---	34	0	0	6	---	68	0
06/18/2017		---	---	---	---	0	0	0	10	0	---	81
06/19/2017		---	---	---	---	0	29	91	0	---	127	80
06/20/2017		---	---	---	---	0	0	171	0	234	---	99
06/21/2017		---	---	---	---	0	39	31	---	---	233	254
06/22/2017		---	---	---	---	36	0	33	2	0	---	0
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
<hr/>												
Total:		0	0	0	0	263	140	326	39	234	584	1,231
# Days:		0	4	0	0	15	15	14	13	8	7	15
Average:		0	0	0	0	18	9	23	3	29	83	82
YTD		6	0	0	0	60,406	24,287	34,001	11,032	155,055	116,819	144,958

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)	(Coll)
06/16/2017	*	---	0	---	---	3	50	0	0	500	---	157
06/17/2017		---	---	---	---	5	150	0	0	---	600	71
06/18/2017		---	---	---	---	5	150	0	0	200	---	167
06/19/2017		---	---	---	---	12	75	0	0	---	280	43
06/20/2017		---	---	---	---	4	145	50	0	200	---	94
06/21/2017		---	---	---	---	6	0	0	---	---	400	167
06/22/2017		---	---	---	---	3	95	0	2	600	---	133
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	---	---	800	---	0
<hr/>												
Total:		0	0	0	0	109	1,185	70	5	2,700	3,680	1,365
# Days:		0	4	0	0	15	15	14	13	8	7	15
Average:		0	0	0	0	7	79	5	0	338	526	91
YTD		0	3	4	0	199	5,911	2,710	49	29,905	59,872	41,472

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 macrophthalmia, and unidentified lamprey species.

† In 2013 it was confirmed that juvenile lamprey can escape the sample tank at LGR which would lead to unreliable estimates of collection. Therefore, only sample counts are provided in this report.

Definitions for Smolt Index Counts

WTB (Collection) = Salmon River Trap at Whitebird : Collection Counts

IMN (Collection) = Imnaha River Trap : Collection Counts

GRN (Collection) = Grande Ronde River Trap : Collection Counts

LEW (Collection) = Snake River Trap at Lewiston : Collection Counts

LGR (Index) = Lower Granite Dam Bypass Collection System : Passage Index Counts

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Fall (post SMP season) trapping at the Imnaha River Fish Trap (IMN) is funded by the Lower Snake River Compensation Program (LSRCP)

WTB and LEW data collected for the FPC by Idaho Dept. of Fish and Game.

Two Week Transportation Summary

Source: Fish Passage Center

Updated:

6/30/17 11:47 AM

		06/16/17	TO	06/30/17			
		Species					
Site	Data	CH0	CH1	CO	ST	SO	Grand Total
LGR	Sum of NumberCollected	93,487	1,275	650	7,889	200	103,501
	Sum of NumberBarged	85,936	1,249	650	7,482	196	95,513
	Sum of NumberBypassed	73	0	0	293	0	366
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	48	0	0	1	0	49
	Sum of FacilityMorts	525	1	0	6	4	536
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	573	1	0	7	4	585
LGS	Sum of NumberCollected	94,995	662	525	3,922	96	100,200
	Sum of NumberBarged	85,558	642	524	3,819	70	90,613
	Sum of NumberBypassed	43	0	1	0	0	44
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	13	0	0	0	0	13
	Sum of FacilityMorts	173	0	0	3	6	182
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	186	0	0	3	6	195
LMN	Sum of NumberCollected	53,342	2,783	280	2,600	190	59,195
	Sum of NumberBarged	53,295	2,778	280	2,598	190	59,141
	Sum of NumberBypassed	0	0	0	0	0	0
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	8	0	0	1	0	9
	Sum of FacilityMorts	38	5	0	1	0	44
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	46	5	0	2	0	53
Total Sum of NumberCollected		241,824	4,720	1,455	14,411	486	262,896
Total Sum of NumberBarged		224,789	4,669	1,454	13,899	456	245,267
Total Sum of NumberBypassed		116	0	1	293	0	410
Total Sum of Numbertrucked		0	0	0	0	0	0
Total Sum of SampleMorts		69	0	0	2	0	71
Total Sum of FacilityMorts		736	6	0	10	10	762
Total Sum of ResearchMorts		0	0	0	0	0	0
Total Sum of TotalProjectMorts		805	6	0	12	10	833

YTD Transportation Summary

Source: Fish Passage Center

Updated:

6/30/17 11:47 AM

TO: 06/30/17

		Species					
Site	Data	CH0	CH1	CO	SO	ST	Grand Total
LGR	Sum of NumberCollected	490,695	2,362,673	74,225	35,069	2,329,000	5,291,662
	Sum of NumberBarged	476,184	978,640	63,247	19,220	948,764	2,486,055
	Sum of NumberBypassed	3,966	1,381,285	10,900	15,645	1,379,868	2,791,664
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	140	90	5	11	53	299
	Sum of FacilityMorts	3,488	2,607	73	193	186	6,547
	Sum of ResearchMorts	12	26	0	0	22	60
	Sum of TotalProjectMorts	3,640	2,723	78	204	261	6,906
LGS	Sum of NumberCollected	493,503	1,337,920	43,148	13,598	1,064,671	2,952,840
	Sum of NumberBarged	481,635	495,660	39,906	9,921	312,796	1,339,918
	Sum of NumberBypassed	570	837,161	3,201	3,296	751,526	1,595,754
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	39	29	1	7	10	86
	Sum of FacilityMorts	2,051	5,050	40	354	239	7,734
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	2,090	5,079	41	361	249	7,820
LMN	Sum of NumberCollected	231,716	1,456,419	33,420	17,180	1,293,450	3,032,185
	Sum of NumberBarged	245,768	929,192	32,939	12,548	710,300	1,930,747
	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	13	37	2	5	31	88
	Sum of FacilityMorts	184	1,080	39	120	386	1,809
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	197	1,117	41	125	417	1,897
Total Sum of NumberCollected		1,215,914	5,157,012	150,793	65,847	4,687,121	11,276,687
Total Sum of NumberBarged		1,203,587	2,403,492	136,092	41,689	1,971,860	5,756,720
Total Sum of NumberBypassed		5,136	2,707,939	14,901	23,538	2,691,479	5,442,993
Total Sum of NumberTrucked		0	0	0	0	0	0
Total Sum of SampleMorts		192	156	8	23	94	473
Total Sum of FacilityMorts		5,723	8,737	152	667	811	16,090
Total Sum of ResearchMorts		12	26	0	0	22	60
Total Sum of TotalProjectMorts		5,927	8,919	160	690	927	16,623

Cumulative Adult Passage at Mainstem Dams Through: 06/29

dam	enddate	Spring Chinook						Summer Chinook						Fall Chinook					
		2017		2016		10-Yr Avg.		2017		2016		10-Yr Avg.		2017		2016		10-Yr Avg.	
		Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	06/29	83624	18110	137215	11145	150783	25708	57454	7067	74709	6434	64269	14142	0	0	0	0	0	0
TDA	06/29	58308	12497	105504	9999	118766	22002	42556	5568	56005	4420	49851	10447	0	0	0	0	0	0
JDA	06/29	46675	12475	93659	8262	103450	20515	35139	3966	51192	3576	42088	9348	0	0	0	0	0	0
MCN	06/29	44292	7020	87191	7374	93925	16835	28948	2833	42453	2996	35165	6610	0	0	0	0	0	0
IHR	06/28	28306	6949	67484	5029	68114	11248	6135	1526	8690	941	12353	3023	0	0	0	0	0	0
LMN	06/29	28545	8270	66115	6266	68087	10905	5490	1953	7530	1302	12897	3172	0	0	0	0	0	0
LGS	06/29	26598	8335	62597	6365	63765	12007	5527	2037	6203	1056	11180	3281	0	0	0	0	0	0
LGR	06/29	27357	8256	62050	5480	62403	13092	3993	1652	5501	1001	9249	3012	0	0	0	0	0	0
PRD	06/27	7268	783	16843	1003	17901	1826	12816	382	22463	1262	12558	628	0	0	0	0	0	0
WAN	06/27	6612	484	17164	919	17602	2161	10587	253	20328	818	10262	593	0	0	0	0	0	0
RIS	06/28	8080	564	18646	715	18006	2748	9593	113	18337	348	8925	647	0	0	0	0	0	0
RRH	06/28	5864	406	9449	351	7849	1209	5029	39	9501	168	4517	180	0	0	0	0	0	0
WEL	06/28	6589	820	11789	833	8215	1601	0	0	0	0	0	0	0	0	0	0	0	0
WFA	06/24	27883	1907	24779	1609	29526	1132	0	0	0	0	0	0	0	0	0	0	0	0

DAM	ENDDATE	Coho						Sockeye			Steelhead						Lamprey		
		2017		2016		10-Yr Avg.		2017	2016	10-Yr Avg.	10-Yr Unclipped		Unclipped		10-Yr Avg.	2017	2016	Avg.	
		Adult	Jack	Adult	Jack	Adult	Jack				2017	2016	2017	2016					
BON	06/29	0	0	0	0	0	0	58968	276491	208544	5061	14204	14456	1731	5644	4762	34055	11558	6227
TDA	06/29	0	0	0	0	0	0	37373	222051	160404	1566	3524	6127	573	1763	2283	3889	2020	1006
JDA	06/29	0	0	0	0	0	1	37103	216971	142736	691	2333	8203	461	1430	3043	1145	1660	575
MCN	06/29	0	0	0	0	1	0	27382	179637	100939	2595	1616	8099	776	959	2528	42	139	50
IHR	06/28	0	0	0	0	0	0	90	200	108	1123	1822	6290	521	987	1686	24	24	9
LMN	06/29	0	0	0	0	0	0	20	187	108	1494	1900	8931	722	1260	2933	8	12	0
LGS	06/29	0	0	0	0	0	0	2	78	61	1510	3641	5339	664	2129	2593	1	0	0
LGR	06/29	0	0	0	0	0	0	2	57	29	7313	5655	9230	3057	3253	3633	0	2	0
PRD	06/27	0	0	0	0	0	0	8218	97341	34528	118	269	158	0	0	0	339	392	75
WAN	06/27	0	0	0	0	0	0	5469	80803	24813	80	193	201	0	0	0	221	229	27
RIS	06/28	0	0	0	0	0	0	3576	68600	19338	88	137	180	31	79	90	7	31	1
RRH	06/28	0	0	0	0	0	0	1743	42894	11871	146	127	369	37	47	234	0	4	0
WEL	06/28	0	0	0	0	0	0	824	22408	6174	61	102	99	42	43	63	1	1	0
WFA	06/24	0	0	0	0	0	0	0	0	0	2168	21588	18374	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.

