



## Fish Passage Center

# Weekly Report #17-16

June 23, 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 36 to 41 Kcfs over the last four days. Flows at Hells Canyon are expected to be between 36 and 38 Kcfs over the next four days. A decreasing trend in flow occurred in the middle and upper Columbia rivers as well.

The 2017 spring spill for fish passage program at the lower Snake River projects began just after midnight on April 3<sup>rd</sup> and ended on June 20<sup>th</sup>. The spring spill program in the middle Columbia River began on April 10 and ended June 15<sup>th</sup>. The summer spill programs are now in place and will continue through August 31<sup>st</sup>. 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 5, 2017): Units 3, 4, 7, 8, 16 Out of Service.
2. The Dalles Dam (as of June 3, 2017): Units 2, 12, 15, 16 Out of Service.
3. John Day Dam (as of June 8, 2017): Units 3, 5, 6, 9 Out of Service.
4. McNary Dam (as of June 1, 2017): All Units available.
5. Ice Harbor Dam (as of June 1, 2017): Units 2 and 4 Out of Service.
6. Lower Monumental Dam (as of June 1, 2017): Units 1 and 5 Out of Service.
7. Little Goose Dam (as of June 1, 2017): Unit 5 Out of Service.
8. Lower Granite Dam (as of June 1, 2017): Units 1 Out of service.

### Water Supply

Precipitation throughout the Columbia Basin has varied between 72% and 142% of average at individual sub-basins over June. Precipitation above The Dalles has been 92% of average over June. Over the 2017 water year, precipitation has ranged between 112% and 135% 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 June 1-21, 2017		Water Year 2017 October 1, 2016 to June 21, 2017	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia Above Coulee	2.04	90	36.9	119
SNAKE RIVER Above Ice Harbor	1.36	113	24.5	126
Columbia Above The Dalles	1.39	92	27.9	119
Kootenai	1.79	72	37.6	123
Clark Fork	2.84	142	25.2	112
Flathead	2.86	110	38.1	128
Pend Oreille River Basin above Waneta Dam	2.46	111	33.1	122
Salmon River Basin	1.98	115	32.6	132
Upper Snake Tributaries	1.42	106	28.2	127
Clearwater	2.05	92	40.8	115
Willamette River above Portland	1.96	102	82.6	135

Table 2 displays the June 18<sup>th</sup> ESP runoff volume forecasts for multiple reservoirs along with the June COE forecasts at Libby and Dworshak. The June 18<sup>th</sup> 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 18, 2017 5-day QPF ESP	
	% Average (1981-2010)	Runoff Volume (Kaf)
The Dalles (Apr-Aug)	129	113,131
Grand Coulee (Apr-Aug)	121	68,891
Libby Res. Inflow, MT (Apr-Aug)	127 129*	7,445 7,594*
Hungry Horse Res. Inflow, MT (Apr-Aug)	115	2,224
Lower Granite Res. Inflow (Apr- July)	144	28,518
Brownlee Res. Inflow (Apr-July)	184	10,047
Dworshak Res. Inflow (Apr-July)	118 116*	2,854 2,838*

\* Denotes COE June Forecast

Grand Coulee Reservoir is at 1,283.5 feet (6-21-17) and has refilled 3.2 feet over the last week. Outflows at Grand Coulee have ranged between 149.7 Kcfs and 200.9 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2,432.3 feet (6-21-17) and has refilled 6.4 feet over the past week. Daily average outflows at Libby Dam have been 14.0-17.0 Kcfs over the last week.

Hungry Horse is currently at an elevation of 3,552.7 feet (6-21-17) and has refilled 3.0 feet last week. Outflows at Hungry Horse have been 3.2-6.3 Kcfs over the last week.

Dworshak is currently at an elevation of 1,600.0 feet (6-21-17) and has refilled 3.2 feet over the last week. Dworshak outflows over the last week ranged between 3.4-9.9 Kcfs.

The Brownlee Reservoir was at an elevation of 2,076.9 feet on June 21, 2017, and refilled 4.5 feet last week. Outflows at Hells Canyon have ranged between 35.7 and 41.2 Kcfs over the last four days.

The Biological Opinion flow period began on April 3rd in the lower Snake River (Lower Granite). According to the April Final Water Supply Forecast (April 5<sup>th</sup>, 2017), the flow objective this spring will be 100 Kcfs at Lower Granite. Flows at Lower Granite Dam have averaged 124.1 last week and 140.5 Kcfs over the spring season.

Based on the April Final Water Supply Forecast, the Spring Biological Opinion Flow Objectives will be 260 Kcfs at McNary Dam (began April 10<sup>th</sup>) and 135 Kcfs at Priest Rapids Dam (began April 10<sup>th</sup>). Over the last week, flows at McNary were 351.0 Kcfs and 224.7 Kcfs at Priest Rapids. Over the spring season, flows at McNary Dam have been 390.7 Kcfs and Priest Rapids Dam flows were 245.9 Kcfs.

### Spill

Flows in the Snake River have decreased over the past week at Lower Granite, relative to the week prior. Dworshak Dam continues its refill operation, with discharge over the week ranging from 3.4 Kcfs to 10.8 Kcfs and spill ranging from 0.1 to 6.5 Kcfs. Hells Canyon Complex flows have remained steady, with outflows at Hells Canyon ranging near 36 to 40 Kcfs over the last four days. Current outflow projections show flow in the Snake River and in the Lower Columbia decreasing as seasonal runoff declines.

The 2017 spill for fish passage program at the lower Snake River projects began just after midnight on April 3<sup>rd</sup> and ended on June 20<sup>th</sup>. Summer spill began on June 21<sup>st</sup> and will continue through August 31<sup>st</sup>. 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). However, due to the high river flows and turbine unit outages, some involuntary spill has occurred at all of the mainstem federal projects, and at the Upper Columbia projects. 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 many projects are presently operating with generation unit outages, limiting hydraulic capacity.

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

While flow in the Snake River has decreased over the past week the levels are generally high enough that the projects continue to spill “involuntarily” above the Biological Opinion levels presently targeted for fish spill. Spill at Lower Granite Dam exceeded the targeted 20 Kcfs through June 20<sup>th</sup> and the 18 Kcfs through June 22<sup>nd</sup>, and ranged from 30.3 Kcfs to 37.7 Kcfs. At Little Goose Dam the Biological Opinion spill is 30% of flow but, as a consequence of the flow and unit outages, spill ranged from 29.7% to 35% of average daily flow. Spill at Lower Monumental Dam ranged from 39.4 to 50.1 Kcfs. At Ice Harbor spill ranged from 70 Kcfs to 82.7 Kcfs.

Spill for fish passage began in the upper Columbia River on April 10<sup>th</sup>. Spill for fish passage began on April 10<sup>th</sup> at the middle Columbia River projects and ended on June 15<sup>th</sup>. Summer spill for fish passage began on June 16<sup>th</sup> 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 15<sup>th</sup> according to the COE’s Fish Operation Plan. The original period for the spring spill to end in the Middle Columbia River was June 30<sup>th</sup>. 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 15<sup>th</sup> 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, but still exceeded the planned spill for fish passage levels at some projects due to “involuntary” spill. At McNary Dam spill averaged 52% to 58% of daily average flow. At John Day Dam spill averaged between 36% and 41% of average daily flow. At The Dalles Dam spill ranged from 38% to 41% of average daily flow. Bonneville Dam spill was 118 to 177 Kcfs.

At Dworshak Dam, tailrace TDG levels have ranged from 102% to 118%, dependent on spill levels. TDG supersaturation at the Lower Granite Dam forebay monitor has ranged between 106% and 107% over the past week. The present decrease in uncontrolled spill over the last week resulted in decreased TDG supersaturation levels exceeding TDG criteria at projects in the Snake and Columbia rivers. 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, with the exception of Bonneville Dam where the TDG at Cascade Island ranged from 121 to 123%. Similar to the federal hydrosystem, TDG supersaturation levels decreased at the Upper Columbia projects over the last week, with Grand Coulee and Chief Joseph both spilling less water. The TDGS was 113% yesterday in the forebay of Wells Dam. TDG downstream remained above 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 Dam no fish were observed with signs of GBT. At Little Goose Dam 1% of fish were detected with signs of GBT in the exam conducted on 6/19/17. At Lower Monumental Dam sufficient fish were not captured to achieve an adequate sample size.

At Bonneville Dam no fish were observed with signs of GBT on 6/17/17, while 2% of the sample on 6/20/17 was observed with Rank 1 levels of GBT in their fins. At McNary Dam no fish showed signs of GBT on exams taken on 6/21/17. At Rock Island Dam, the GBT exams on 6/20/17 showed 13% of fish with signs of GBT (all at Rank1) and 2% of fish with signs of GBT on 6/22/17. 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. With the cool weather that prevailed over the region, the water temperatures at the project forebays were near average. At Lower Granite, the forebay temperature was near 61°F on June 22<sup>nd</sup>. It is about a degree cooler downstream at Ice Harbor Dam, where the temperature was 60.1 on

June 22<sup>nd</sup>. At McNary and Bonneville dams the forebay temperatures were 61.6°F at both dams on June 22<sup>nd</sup>. These forebay temperatures are close to 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) continued to decrease at all bypass facilities this week, when compared to the previous week. Passage of subyearling Chinook increased at all three of the mid-Columbia facilities (BON, JDA, and MCN) and Rock Island Dam on the Upper Columbia but decreased at the three Snake River facilities (LGR, 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 21,200 per day, which is an increase over last week's daily average passage index of about 14,000. Passage of spring migrants continued to decrease this week, when compared to the previous week. This week's daily average passage indices for spring migrants were each less than 200 fish per day. Finally, Pacific lamprey ammocoetes were encountered in one of this week's samples (June 18<sup>th</sup>) while macrophthalmia were encountered every day this week. The daily average collection for macrophthalmia this week was about 120 per day, which is similar to last week's daily average collection of 136 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 about 30,100, which is an increase over last week's daily average passage index of 26,500 per day. Passage of spring migrants was relatively low this week and, with exception to sockeye, decreased when compared to the previous week. This week's daily average passage indices for spring migrants were all below 550 fish per day. Both Pacific lamprey ammocoetes and macrophthalmia were encountered in this week's samples. Pacific ammocoetes were encountered in one sample (June 17<sup>th</sup>) while

macrophthalmia were encountered in all three of this week's samples. This week's daily average collection for Pacific macrophthalmia was about 400 per day, which is a decrease over last week's daily average collection of nearly 2,000 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 71,000 per day, which is an increase over last week's daily average passage index of about 66,500 per day. Passage of spring migrants was relatively low this week and, with exception to coho, decreased when compared to the previous week. This week's daily average passage indices for spring migrants were all below 200 fish per day. Finally, Pacific lamprey ammocoetes were encountered in one of this week's samples (June 18<sup>th</sup>) while macrophthalmia were encountered in all four of this week's samples. This week's daily average collection for Pacific macrophthalmia was about 350 fish per day, which is slightly lower than last week's daily average collection of 400 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 about 7,700 per day, which is a little over half of last week's daily average passage index of about 14,000 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 300 fish per day. This week's daily average passage index for steelhead at LGR was about 850 fish per day. 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 38 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 nearly 10,000 per day, which is just over half of last week's daily average passage index of 19,300 per day. Passage of spring migrants all decreased again this

week when compared to the previous 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 95 fish per day.

Similar to recent years, sampling at Lower Monumental Dam (LMN) was every-third-day from April 1<sup>st</sup> to April 16<sup>th</sup>, every-other-day from April 16<sup>th</sup> 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 6,500 per day, which is only about 40% of last week's daily average passage index of about 17,600. Passage of spring migrants decreased this week, when compared to the previous week. This week's daily average passage indices for spring migrants were all below 300 fish per day. Finally, Pacific lamprey ammocoetes were encountered in one of this week's samples (June 20<sup>th</sup>) while no macrophthalmia were encountered this week.

Due to an equipment failure, sampling at Rock Island Dam (RIS) was suspended on May 21<sup>st</sup>. All fish from this sample day were returned to the river without being enumerated. The equipment was repaired and sampling resumed for the sample on May 22<sup>nd</sup>. This week's collections at Rock Island Dam (RIS) were dominated by subyearling Chinook. This week's daily average passage index for subyearling Chinook was about 1,750 per day, which is an increase over last week's daily average passage index of nearly 1,300 per day. Passage of spring migrants was low this week, with daily average passage indices of less than 100 fish per day. Finally, no lamprey juveniles were encountered in this week's samples.

The Imnaha River Trap (IMN) is located at river kilometer 7 and is operated by the Nez Perce Tribe. Sampling at the Imnaha River Trap is year round. The FPC currently has data from IMN through June 12<sup>th</sup>. However, due to high flows in the Imnaha River over the last several weeks, sampling at IMN has been intermittent. The most recent days where sampling has been possible were June 10<sup>th</sup> through June 12<sup>th</sup>. Although sampling was possible during this time, it was often limited to about 10 hours per day. Over these three days, samples at IMN were dominated by steelhead, with a daily average collection of about 20

fish per day. Yearling and subyearling Chinook were also collected during this three day period but in very low numbers. Finally, no Pacific lamprey juveniles were collected over these three days.

### Hatchery Release

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

**Snake River Zone:** The Snake River Zone encompasses the Snake River and its tributaries from its confluence with the Columbia River to Hells Canyon Dam. No new releases were scheduled for this zone this week. Approximately 400,000 spring Chinook pre-smolts are scheduled to be released into the Selway River, a tributary of the Clearwater River, on or around June 28<sup>th</sup>. These pre-smolts are 100% unmarked and are not expected to out-migrate until spring of 2018.

**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. Two new releases totaling nearly 6.1 million subyearling fall Chinook smolts are scheduled to begin over the next two weeks. 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 1<sup>st</sup> and 2.0 million are scheduled to be released from Little White Salmon NFH on or around July 5<sup>th</sup>. In addition, two releases of subyearling fall Chinook from above McNary Dam that began in mid-June are scheduled to end over the next two weeks. These two releases were anticipated to total nearly 10.3 million fall Chinook smolts.

**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. In addition, no new releases are scheduled for this zone over the next two weeks.

### Adult Passage

The summer Chinook count began June 1st at Bonneville Dam. Daily passage numbers at Bonneville Dam ranged between 2,081 and 2,404 adult summer Chinook in the last week. The 2017 summer Chinook count of 37,434 is about 73.1% of the 2016 count and 80.8% of the 10-year average. The 2017 summer Chinook jack count of 5,120 has 466 more fish than the 2016 count, while being 50.8% of the 10- year average count. At Willamette Falls, 25,929 adult spring Chinook have been counted so far this year. In 2016, 22,781 adult spring Chinook were counted at Willamette Falls. This year's count is about 1.1 times greater than the 2016 count and 92.2% of the 10-year average count of 28,124. As of June 21st, a total of 15,135 adult summer Chinook have been counted at McNary Dam and 1,820 have been counted at Lower Granite Dam. The 2017 McNary Dam adult summer Chinook count is about 59.2% of the 2016 count and 74.1% the 10-year average count. The 2016 Lower Granite Dam adult summer Chinook count has 232 fewer fish than the 2016 count and 1,499 fewer fish than the 10-year average count.

The 2017 Bonneville Dam adult steelhead count of 4,346 is about 43.4% of the 2016 count of 10,007 and 44.1% of the 10-year average count of 9,846. The 2017 Bonneville Dam adult wild steelhead count of 1,392 has 2,319 fewer fish than the 2016 count of 3,711 and 1,463 fewer fish than the 10- year average count of 2,855. This year's Lower Granite steelhead count of 7,312 is about 1.3 times greater than the 2016 count of 5,543, while being 80.2% of the 10-year average count of 9,116. The 2017 Lower Granite Dam adult wild steelhead count of 3,056 has 119 fewer fish than the 2016 count of 3,175 and has 551 fewer fish than the 10-year average count of 3,607. At Willamette Falls, the 2017 count for steelhead was 2,079 as of June 20th. This year's steelhead count is about 10.5% of the 2016 count of 19,878 and 11.9% of the 10-year average count of 17,517.

Daily adult sockeye passage numbers at Bonneville Dam ranged between 2,118 and 4,673 last week. The 2017 adult sockeye count at Bonneville Dam of 27,597 is 18.2% of the 2016 count and 32% of

the 10-year average count. A total of 20,018 lampreys have been counted at Bonneville Dam so far this year. The Bonneville 2017 lamprey count is about 2.2 times greater than the 2016 count of 9,015 and 4.3 times greater than the 10-year average count of 4,664.

## Hatchery Releases Last Two Weeks

Hatchery Release Summary										
From:	6/10/2017		to		06/23/17					
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	Zone
Nez Perce Tribe	Lyons Ferry Hatchery	CH0	FA	2017	200,000	06-10-17	06-10-17	Cpt John Acclim Pond	Snake River	SNAK
<b>Nez Perce Tribe Total</b>					<b>200,000</b>					
Washington Dept. of Fish and Wildlife	Priest Rapids Hatchery	CH0	FA	2017	6,900,000	06-14-17	07-01-17	Priest Rapids Hatchery	McNary Pool	MCOL
Washington Dept. of Fish and Wildlife	Ringold Springs Hatchery	CH0	FA	2017	3,368,500	06-14-17	06-27-17	Ringold Springs Hatchery	McNary Pool	MCOL
<b>Washington Dept. of Fish and Wildlife Total</b>					<b>10,268,500</b>					
<b>Grand Total</b>					<b>10,468,500</b>					



## Hatchery Releases Next Two Weeks

Hatchery Release Summary										
From:	6/24/2017		to		7/7/2017					
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
<b>Nez Perce Tribe Total</b>					<b>400,000</b>					
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
<b>U.S. Fish and Wildlife Service Total</b>					<b>6,100,000</b>					
Washington Dept. of Fish and Wildlife	North Toutle Hatchery	CH0	FA	2017	1,400,000	06-01-17	07-01-17	Green River	Cowlitz River	LCOL
Washington Dept. of Fish and Wildlife	Priest Rapids Hatchery	CH0	FA	2017	6,900,000	06-14-17	07-01-17	Priest Rapids Hatchery	McNary Pool	MCOL
Washington Dept. of Fish and Wildlife	Ringold Springs Hatchery	CH0	FA	2017	3,368,500	06-14-17	06-27-17	Ringold Springs Hatchery	McNary Pool	MCOL
<b>Washington Dept. of Fish and Wildlife Total</b>					<b>11,668,500</b>					
<b>Grand Total</b>					<b>18,168,500</b>					

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
06/09/2017	216.6	11.1	228.3	133.6	256.1	81.9	265.3	109.6	266.6	123.2	289.3	163.1	289.4	188.4
06/10/2017	214.2	25.0	204.3	72.2	229.1	55.4	238.2	82.3	241.3	108.6	265.3	161.6	272.0	165.7
06/11/2017	215.0	22.3	215.5	99.3	243.6	67.5	251.0	92.9	249.8	114.5	270.2	150.5	266.1	165.3
06/12/2017	212.7	20.0	211.7	99.8	226.9	52.5	234.5	76.1	231.7	97.7	250.5	125.2	251.6	171.2
06/13/2017	213.1	15.5	217.4	99.5	235.0	66.3	246.3	95.2	242.3	108.3	269.1	162.4	268.7	168.1
06/14/2017	218.1	10.0	218.4	99.1	231.4	58.5	243.2	86.7	240.0	100.7	260.1	143.4	259.7	152.7
06/15/2017	200.9	3.4	200.8	71.4	221.3	51.3	230.7	74.8	233.5	90.6	251.4	124.6	252.4	145.6
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	164.0	18.3	165.0	23.5	172.4	35.8	180.5	43.0	172.8	58.1

## 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	
06/09/2017	6.2	1.9	---	38.0	155.1	65.0	150.5	64.7	149.8	90.7	153.8	100.8	
06/10/2017	6.0	1.7	---	37.8	149.5	58.7	147.0	61.8	151.2	92.4	151.5	98.4	
06/11/2017	5.9	1.6	---	37.9	137.6	47.4	132.7	46.9	133.5	74.7	138.7	85.5	
06/12/2017	5.9	1.7	---	37.6	126.3	37.5	120.9	38.6	122.5	64.1	127.6	79.3	
06/13/2017	5.7	1.8	---	37.4	116.4	38.9	111.7	40.1	110.2	50.3	110.0	73.2	
06/14/2017	5.8	1.7	---	40.8	132.9	43.1	129.9	44.5	129.7	51.6	134.7	80.8	
06/15/2017	5.1	0.8	---	41.9	127.4	38.2	124.3	38.6	122.8	48.0	130.1	80.0	
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	---	40.4	124.0	35.0	120.7	35.9	119.2	48.5	122.0	76.2	
06/18/2017	4.3	0.7	---	40.3	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	---	40.2	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	

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

Date	McNary		John Day		The Dalles		Bonneville			
	Flow	Spill	Flow	Spill	Flow	Spill	PH1	PH2		
06/09/2017	442.9	275.7	437.8	175.7	418.6	226.4	432.6	229.3	86.8	104.1
06/10/2017	435.0	267.5	451.3	187.3	426.6	219.0	442.6	239.8	87.4	103.0
06/11/2017	405.4	237.8	404.8	142.1	387.4	163.5	419.3	219.6	81.0	106.4
06/12/2017	396.2	227.4	390.0	139.6	371.6	147.4	389.5	218.2	64.2	94.7
06/13/2017	381.2	211.6	368.7	141.1	344.6	127.6	361.8	179.6	60.7	109.1
06/14/2017	390.0	219.6	399.9	159.1	379.6	148.4	391.9	217.3	62.6	99.6
06/15/2017	391.6	239.3	391.8	153.2	378.5	151.5	400.1	211.2	66.1	110.4
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

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

Site	Date	Species	Number of Fish	Number w/ GBT signs	Number w/ Fin Signs	% Fin GBT	% Severe Fin GBT	Number of Fish with Fin GBT Listed by Highest Rank			
								Rank 1	Rank 2	Rank 3	Rank 4
<b>Lower Granite Dam</b>											
	06/15/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/22/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>Little Goose Dam</b>											
	06/12/17	Chinook + Steelhead	100	5	5	5.00%	0.00%	5	0	0	0
	06/19/17	Chinook + Steelhead	100	1	1	1.00%	0.00%	0	1	0	0
<b>Lower Monumental Dam</b>											
	06/14/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/21/17	Chinook + Steelhead	75*	2	2			2	0	0	0
<b>McNary Dam</b>											
	06/11/17	Chinook + Steelhead	87*	0	0			0	0	0	0
	06/12/17	Chinook + Steelhead	13*	0	0			0	0	0	0
	06/13/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/15/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/21/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>Bonneville Dam</b>											
	06/10/17	Chinook + Steelhead	84*	3	3			2	1	0	0
	06/13/17	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
	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

## 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>24 h</u>	<u>12 h</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>
6/9	---	---	---	0	---	---	---	0	119.3	119.7	119.9	24	122.6	124.0	124.3	24	119.5	121.8	122.6	24
6/10	---	---	---	0	---	---	---	0	118.8	119.1	119.4	24	117.9	118.1	118.5	24	122.3	122.4	122.8	24
6/11	---	---	---	0	---	---	---	0	118.0	118.4	118.5	24	117.1	117.3	117.5	24	117.7	118.5	121.5	24
6/12	---	---	---	0	---	---	---	0	118.8	119.1	119.3	24	117.5	117.9	118.2	24	117.3	117.8	118.4	24
6/13	---	---	---	0	---	---	---	0	119.0	119.2	119.3	24	117.2	117.5	117.8	24	116.5	116.9	117.2	24
6/14	---	---	---	0	---	---	---	0	118.4	118.6	118.8	24	116.4	116.5	116.6	24	115.6	115.8	115.9	24
6/15	---	---	---	0	---	---	---	0	118.4	118.5	118.6	24	116.3	116.5	116.6	24	115.6	115.8	115.9	24
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	23	115.4	115.7	116.1	23	114.7	114.9	115.1	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>24 h</u>	<u>12 h</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>
6/9	117.7	118.0	118.6	24	116.6	117.4	117.8	24	124.6	125.6	126.5	24	122.7	123.8	124.1	24	129.1	129.6	130.8	23
6/10	116.7	117.5	118.3	24	117.3	117.5	117.8	24	122.3	124.5	126.7	24	122.6	123.3	124.1	23	127.0	129.1	130.2	23
6/11	116.9	117.1	117.3	24	117.0	117.3	117.5	24	122.8	123.3	123.9	24	120.9	122.6	123.2	23	127.4	127.8	128.3	22
6/12	117.0	117.3	117.6	24	115.9	116.2	116.5	24	120.8	122.0	123.8	24	121.8	122.5	123.0	23	126.8	127.5	128.5	21
6/13	117.0	117.2	117.4	24	114.9	115.3	116.2	23	122.6	124.6	131.2	23	118.7	120.0	121.0	23	127.6	127.9	128.7	20
6/14	117.0	117.2	117.5	24	114.1	114.6	114.9	24	121.3	122.8	129.5	24	119.2	120.6	122.6	24	127.0	127.4	128.5	21
6/15	115.9	116.3	116.8	24	114.3	114.5	114.7	24	119.9	121.2	125.1	24	119.8	120.5	122.6	23	126.2	126.9	128.0	20
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	111.1	111.7	112.9	23	112.4	112.7	112.9	22	113.1	115.5	116.6	22	112.7	113.4	114.1	23	117.5	118.9	121.6	23

### Total Dissolved Gas Saturation at Mid Columbia River Sites

Date	<u>Rock Island</u>			<u>Rock I. Tlwr</u>			<u>Wanapum</u>			<u>Wanapum Tlwr</u>			<u>Priest Rapids</u>							
	<u>24 h</u>	<u>12 h</u>	#	<u>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>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>
6/9	122.3	123.5	124.3	24	128.5	129.3	129.9	22	122.2	123.2	124.0	24	128.3	129.8	132.3	24	124.5	126.1	126.9	24
6/10	121.5	122.6	123.3	23	127.4	128.4	129.1	22	122.0	122.9	124.0	24	129.8	134.5	135.2	24	127.3	128.9	130.0	24
6/11	121.2	121.5	121.7	24	128.3	128.6	129.0	22	123.8	125.0	125.7	24	127.0	128.5	130.0	24	123.7	126.3	127.9	24
6/12	121.0	121.7	122.3	22	128.3	128.6	128.9	20	121.0	122.5	123.6	24	124.7	126.1	127.3	24	120.7	122.0	122.8	24
6/13	118.9	119.6	120.0	22	126.0	127.7	128.2	21	116.4	117.1	117.9	24	127.8	130.7	132.7	24	119.8	122.0	124.7	24
6/14	120.5	121.2	122.7	21	127.5	128.1	129.0	21	118.9	120.8	121.8	24	125.4	126.6	128.0	24	122.1	123.1	123.7	24
6/15	120.1	120.7	121.6	22	126.9	127.5	128.5	19	122.7	123.4	123.8	24	124.5	127.6	130.8	24	124.1	126.0	127.1	24
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	112.7	113.4	23	116.4	117.7	118.4	21	115.0	116.2	118.5	24	113.0	113.3	113.8	20	112.1	113.0	115.7	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

Date	<u>Priest R. Dnst</u>			<u>Pasco</u>			<u>Dworshak</u>			<u>Clwrtr-Peck</u>			<u>Anatone</u>			#				
	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>					
	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>			<u>hr</u>	<u>Avg</u>	<u>Avg</u>	
6/9	---	---	---	0	---	---	---	0	107.8	108.1	109.3	24	102.8	103.4	104.1	24	109.1	109.5	110.2	24
6/10	---	---	---	0	---	---	---	0	106.8	107.0	107.6	24	102.5	103.0	103.4	24	108.6	109.0	109.4	24
6/11	---	---	---	0	---	---	---	0	106.5	106.9	107.4	24	102.9	104.1	104.6	24	108.4	109.1	109.7	24
6/12	---	---	---	0	---	---	---	0	107.5	108.0	109.1	24	103.3	104.0	104.8	24	108.2	108.6	109.2	24
6/13	---	---	---	0	---	---	---	0	107.4	108.1	109.5	24	102.1	102.4	102.7	24	107.1	107.6	107.9	24
6/14	---	---	---	0	---	---	---	0	106.2	106.7	107.3	24	103.0	104.0	104.5	24	108.3	109.3	109.6	24
6/15	---	---	---	0	---	---	---	0	103.8	105.9	106.8	24	102.2	102.5	103.1	24	108.4	108.7	108.9	24
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	23	106.5	107.0	107.6	23	104.6	104.9	105.1	23

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

Date	<u>Clwrtr-Lewiston</u>			<u>Lower Granite</u>			<u>L. Granite Tlwr</u>			<u>Little Goose</u>			<u>L. Goose Tlwr</u>			#				
	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>					
	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>			<u>hr</u>	<u>Avg</u>	<u>Avg</u>	
6/9	101.6	102.3	102.7	24	107.6	107.8	108.5	24	123.0	123.3	124.1	24	118.0	118.4	119.4	24	122.1	125.6	127.3	24
6/10	101.6	102.2	102.5	24	107.1	107.4	107.6	24	121.3	122.0	123.2	24	116.6	116.9	117.1	24	121.5	124.3	126.7	24
6/11	102.0	103.5	104.5	24	107.2	107.4	107.6	24	118.8	119.2	119.3	24	115.8	116.2	116.4	24	118.6	119.7	120.7	24
6/12	102.8	103.8	104.7	24	107.5	107.6	107.7	24	116.8	117.3	117.6	24	116.7	117.0	117.3	24	116.9	117.4	119.6	24
6/13	102.3	103.3	104.4	23	106.6	107.0	107.3	24	116.3	117.0	117.2	24	113.3	114.4	115.8	24	116.8	117.9	120.7	24
6/14	102.8	104.1	104.5	24	105.2	105.4	105.7	24	118.4	119.8	135.6	24	109.4	109.8	110.6	24	117.0	118.4	118.9	24
6/15	103.7	104.2	104.8	24	106.0	106.5	107.1	24	117.0	117.5	117.8	24	111.7	112.5	113.3	24	116.3	117.0	118.8	24
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	23	105.3	105.5	105.9	23	116.0	116.6	118.1	23	112.1	112.7	113.2	23	116.1	116.5	119.3	23

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

Date	<u>Lower Mon.</u>			<u>L. Mon. Tlwr</u>			<u>Ice Harbor</u>			<u>Ice Harbor Tlwr</u>			<u>McNary-Oregon</u>			#				
	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>					
	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>			<u>hr</u>	<u>Avg</u>	<u>Avg</u>	
6/9	122.8	124.3	125.5	24	124.3	126.0	126.5	24	123.0	123.4	123.9	24	123.4	126.1	126.4	24	---	---	---	0
6/10	122.5	124.0	125.3	24	120.0	123.6	126.6	24	120.1	120.7	122.4	24	122.3	124.6	126.3	24	---	---	---	0
6/11	121.9	123.4	124.1	24	115.2	116.0	116.7	24	120.0	120.7	121.7	24	120.2	120.9	124.0	24	---	---	---	0
6/12	122.0	123.3	124.0	24	113.7	114.2	114.8	24	121.6	121.9	122.1	24	119.3	119.6	120.2	24	---	---	---	0
6/13	117.1	118.7	119.7	24	116.1	119.2	120.1	24	117.4	118.4	119.8	24	118.3	119.0	119.4	24	---	---	---	0
6/14	114.6	115.5	116.4	24	120.2	120.4	120.7	24	114.0	114.4	114.8	24	119.6	119.8	120.1	24	---	---	---	0
6/15	116.8	117.3	117.8	24	119.8	120.0	120.1	24	115.6	116.2	116.6	24	119.6	120.2	124.7	24	---	---	---	0
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	117.2	117.8	119.0	23	117.6	119.3	120.7	23	116.2	116.5	116.8	23	119.0	120.1	120.9	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

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>				
6/9	116.0	116.3	117.1	24	124.6	125.9	126.6	24	119.4	119.8	120.3	24	123.3	125.6	126.8	24	118.6	120.0	121.1	24
6/10	115.4	115.7	116.0	24	124.1	124.9	125.8	24	116.4	116.8	118.0	24	124.9	125.8	126.3	24	117.5	118.4	119.0	24
6/11	115.5	116.2	117.5	24	122.6	123.3	123.5	24	115.1	115.5	115.7	24	120.1	121.4	123.8	24	115.5	116.0	116.4	24
6/12	117.1	117.4	117.5	24	122.3	123.1	123.5	24	114.0	114.2	115.0	24	119.9	120.1	120.3	24	112.4	113.3	114.5	24
6/13	112.9	113.8	115.1	24	120.8	121.3	121.5	24	111.5	112.0	113.3	24	119.3	119.5	120.1	24	111.1	111.3	111.6	24
6/14	110.8	111.5	112.5	24	121.5	121.6	121.8	24	109.7	110.0	110.6	24	121.0	121.3	121.5	24	112.7	113.5	113.7	24
6/15	114.3	115.6	116.1	24	122.6	123.3	123.4	24	109.4	109.6	109.8	24	120.5	120.9	121.4	24	113.1	113.3	113.6	24
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	23	118.6	118.9	120.0	23	113.9	114.4	114.9	22	117.9	118.2	118.4	22	114.1	115.7	116.6	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>				
6/9	121.7	122.6	123.8	24	121.3	122.0	122.5	24	124.6	124.9	125.2	24	123.0	123.4	123.8	24	116.4	124.7	124.9	24
6/10	120.9	121.6	122.5	24	121.1	121.6	122.1	24	124.8	125.1	125.4	24	123.5	124.0	124.5	24	125.7	126.0	126.8	24
6/11	119.5	120.0	120.9	24	119.9	120.1	120.2	24	123.4	124.0	124.3	24	123.2	123.9	124.6	24	124.2	125.0	125.6	24
6/12	117.2	118.4	119.2	24	115.7	117.1	119.1	24	122.1	122.6	123.1	24	120.1	120.5	121.1	24	124.1	124.9	125.3	24
6/13	115.2	115.5	115.8	24	112.0	112.7	113.6	24	118.4	118.8	120.0	24	117.8	119.0	120.0	24	122.5	122.7	123.0	24
6/14	116.8	117.9	118.6	24	114.1	115.3	116.3	24	121.4	122.9	126.3	24	117.6	119.2	119.8	24	123.5	124.5	126.5	24
6/15	118.2	118.6	119.5	24	118.4	119.1	119.4	24	123.0	123.2	123.4	24	121.1	122.0	124.4	24	123.1	123.2	123.3	24
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	118.5	119.1	23	114.0	115.6	117.4	23	116.2	116.7	117.1	23	114.7	116.0	116.8	23	120.5	121.0	121.1	23

## Two-Week Summary of Passage Indices

Source: Fish Passage Center

Updated: 6/23/2017 11:05

### 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/smolqueries/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)
06/09/2017	---	---	---	---	783	263	680	8	---	873	565
06/10/2017	*	---	1	---	598	177	522	3	536	---	353
06/11/2017	*	---	2	---	161	0	1,116	0	---	1,009	199
06/12/2017	*	---	6	---	449	153	323	0	5	---	323
06/13/2017	---	---	---	---	364	146	834	2	---	200	271
06/14/2017	---	---	---	---	371	238	419	2	703	---	228
06/15/2017	*	---	---	---	220	151	333	0	---	167	54
06/16/2017	---	---	---	---	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	---	---	---	---	---	---	---	---	---	153	0
<b>Total:</b>	<b>0</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>4,515</b>	<b>1,781</b>	<b>6,103</b>	<b>19</b>	<b>1,747</b>	<b>2,891</b>	<b>3,241</b>
<b># Days:</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>13</b>	<b>7</b>	<b>8</b>	<b>15</b>
<b>Average:</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>323</b>	<b>127</b>	<b>436</b>	<b>1</b>	<b>250</b>	<b>361</b>	<b>216</b>
<b>YTD</b>	<b>33,704</b>	<b>22,200</b>	<b>21,106</b>	<b>8</b>	<b>3,998,105</b>	<b>2,400,187</b>	<b>2,879,756</b>	<b>50,592</b>	<b>1,583,272</b>	<b>1,720,098</b>	<b>1,947,394</b>

COMBINED SUBYEARLING CHINOOK											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
06/09/2017	---	---	---	---	12,957	21,546	25,713	349	---	34,385	16,308
06/10/2017	*	---	0	---	24,246	22,767	23,636	684	86,325	---	13,414
06/11/2017	*	---	0	---	21,764	20,431	20,702	980	---	32,974	11,724
06/12/2017	*	---	4	---	15,303	20,890	17,897	1,180	59,729	---	14,765
06/13/2017	---	---	---	---	5,966	17,363	10,221	1,790	---	19,968	16,647
06/14/2017	---	---	---	---	7,051	9,405	14,189	1,579	53,313	---	12,185
06/15/2017	*	---	---	---	10,972	23,003	10,974	2,331	---	18,550	13,111
06/16/2017	---	---	---	---	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	---	---	---	---	---	---	---	---	---	55,345	52,474
<b>Total:</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>152,273</b>	<b>205,283</b>	<b>168,577</b>	<b>19,353</b>	<b>482,759</b>	<b>251,555</b>	<b>299,155</b>
<b># Days:</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>13</b>	<b>7</b>	<b>8</b>	<b>15</b>
<b>Average:</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>10,877</b>	<b>14,663</b>	<b>12,041</b>	<b>1,489</b>	<b>68,966</b>	<b>31,444</b>	<b>19,944</b>
<b>YTD</b>	<b>0</b>	<b>7</b>	<b>40</b>	<b>0</b>	<b>736,899</b>	<b>818,625</b>	<b>477,144</b>	<b>35,359</b>	<b>928,621</b>	<b>383,255</b>	<b>1,883,716</b>

## Two-Week Summary of Passage Indices

COMBINED COHO											
	WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date	(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
06/09/2017	---	---	---	---	87	0	0	290	---	1,142	170
06/10/2017	*	---	0	---	427	177	522	273	0	---	353
06/11/2017	*	---	0	---	0	168	372	196	---	252	169
06/12/2017	*	---	0	---	150	153	0	54	0	---	163
06/13/2017	---	---	---	---	146	220	104	88	---	100	53
06/14/2017	---	---	---	---	74	40	0	46	0	---	158
06/15/2017	*	---	---	---	37	38	0	38	---	501	108
06/16/2017	---	---	---	---	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	---	---	---	---	---	---	---	---	---	153	0
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,615</b>	<b>1,284</b>	<b>1,328</b>	<b>1,195</b>	<b>268</b>	<b>2,561</b>	<b>2,040</b>
<b># Days:</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>13</b>	<b>7</b>	<b>8</b>	<b>15</b>
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>115</b>	<b>92</b>	<b>95</b>	<b>92</b>	<b>38</b>	<b>320</b>	<b>136</b>
<b>YTD</b>	<b>0</b>	<b>0</b>	<b>2,232</b>	<b>0</b>	<b>128,310</b>	<b>86,294</b>	<b>69,471</b>	<b>35,232</b>	<b>85,404</b>	<b>96,464</b>	<b>355,886</b>

COMBINED STEELHEAD											
	WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date	(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
06/09/2017	---	---	---	---	3,478	1,756	1,497	230	---	1,545	735
06/10/2017	*	---	19	---	2,390	1,685	784	276	1,072	---	586
06/11/2017	*	---	15	---	2,490	1,764	992	203	---	1,514	119
06/12/2017	*	---	25	---	2,020	689	431	152	5	---	327
06/13/2017	---	---	---	---	800	741	417	144	---	598	162
06/14/2017	---	---	---	---	1,484	872	13	125	9	---	74
06/15/2017	*	---	---	---	881	682	83	125	---	1,086	54
06/16/2017	---	---	---	---	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	---	---	---	---	---	---	---	---	---	0	0
<b>Total:</b>	<b>0</b>	<b>59</b>	<b>0</b>	<b>0</b>	<b>19,537</b>	<b>12,217</b>	<b>6,249</b>	<b>1,613</b>	<b>1,854</b>	<b>6,321</b>	<b>3,204</b>
<b># Days:</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>13</b>	<b>7</b>	<b>8</b>	<b>15</b>
<b>Average:</b>	<b>0</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>1,396</b>	<b>873</b>	<b>446</b>	<b>124</b>	<b>265</b>	<b>790</b>	<b>214</b>
<b>YTD</b>	<b>7,117</b>	<b>15,768</b>	<b>7,614</b>	<b>1</b>	<b>4,059,769</b>	<b>1,850,890</b>	<b>2,515,365</b>	<b>31,914</b>	<b>442,418</b>	<b>1,316,314</b>	<b>263,603</b>



## Two-Week Summary of Passage Indices

Date	COMBINED SOCKEYE										
	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
06/09/2017	---	---	---	---	87	0	272	18	---	269	225
06/10/2017 *	---	0	---	---	0	89	131	10	536	---	176
06/11/2017 *	---	0	---	---	0	2	124	7	---	84	241
06/12/2017 *	---	0	---	---	0	153	0	9	488	---	110
06/13/2017	---	---	---	---	0	73	104	14	---	0	53
06/14/2017	---	---	---	---	0	0	0	0	0	---	104
06/15/2017 *	---	---	---	---	37	0	0	5	---	0	54
06/16/2017	---	---	---	---	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
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>194</b>	<b>385</b>	<b>957</b>	<b>88</b>	<b>1,258</b>	<b>781</b>	<b>1,527</b>
<b># Days:</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>13</b>	<b>7</b>	<b>8</b>	<b>15</b>
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>28</b>	<b>68</b>	<b>7</b>	<b>180</b>	<b>98</b>	<b>102</b>
<b>YTD</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>60,213</b>	<b>24,215</b>	<b>34,001</b>	<b>11,018</b>	<b>155,055</b>	<b>116,663</b>	<b>144,291</b>

Date	COMBINED LAMPREY JUVENILES										
	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR <sup>†</sup> (Samp)	LGS (Coll)	LMN (Coll)	RIS (Coll)	MCN (Coll)	JDA (Coll)	BO2 (Coll)
06/09/2017	---	---	---	---	4	150	100	1	---	2,120	271
06/10/2017 *	---	0	---	---	3	150	0	1	400	---	171
06/11/2017 *	---	0	---	---	1	100	100	1	---	800	175
06/12/2017 *	---	0	---	---	3	100	0	0	600	---	114
06/13/2017	---	---	---	---	6	200	0	0	---	3,751	100
06/14/2017	---	---	---	---	1	0	0	0	200	---	79
06/15/2017 *	---	---	---	---	3	175	50	0	---	1,200	43
06/16/2017	---	---	---	---	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	---	---	---	---	---	---	---	---	---	600	0
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>59</b>	<b>1,540</b>	<b>300</b>	<b>5</b>	<b>2,700</b>	<b>9,751</b>	<b>1,785</b>
<b># Days:</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>13</b>	<b>7</b>	<b>8</b>	<b>15</b>
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>110</b>	<b>21</b>	<b>0</b>	<b>386</b>	<b>1,219</b>	<b>119</b>
<b>YTD</b>	<b>0</b>	<b>3</b>	<b>4</b>	<b>0</b>	<b>128</b>	<b>5,391</b>	<b>2,690</b>	<b>46</b>	<b>28,705</b>	<b>58,072</b>	<b>40,939</b>

## Two-Week Summary of Passage Indices

\* See sampling comments

<http://www.fpc.org/currentDaily/smpcomments.htm>

Smolt indices, clipped & unclipped or combined, are presented in the following order: yearling chinook (chinook 1's), subyearling chinook (chinook 0's), steelhead, coho, sockeye, and lamprey juveniles.

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 = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**Two Week Transportation Summary**

Source: Fish Passage Center

Updated:

6/23/17 11:06 AM

		<b>06/09/17 TO 06/23/17</b>					
		Species					
Site	Data	CH0	CH1	CO	ST	SO	Grand Total
<b>LGR</b>	Sum of NumberCollected	100,365	2,975	1,075	12,735	125	117,275
	Sum of NumberBarged	103,239	2,985	1,097	11,430	91	118,842
	Sum of NumberBypassed	380	0	0	1,555	1	1,936
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	49	0	1	0	0	50
	Sum of FacilityMorts	662	4	2	4	9	681
	Sum of ResearchMorts	12	8	0	20	0	40
	Sum of TotalProjectMorts	723	12	3	24	9	771
<b>LGS</b>	Sum of NumberCollected	131,671	1,138	835	7,684	246	141,574
	Sum of NumberBarged	151,295	1,466	889	8,436	232	162,318
	Sum of NumberBypassed	27	0	0	0	0	27
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	8	0	0	0	0	8
	Sum of FacilityMorts	417	1	1	2	14	435
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	425	1	1	2	14	443
<b>LMN</b>	Sum of NumberCollected	81,649	2,998	600	2,918	440	88,605
	Sum of NumberBarged	91,153	3,224	540	3,513	419	98,849
	Sum of NumberBypassed	0	0	0	0	0	0
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	7	0	0	0	0	7
	Sum of FacilityMorts	45	15	0	5	1	66
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	52	15	0	5	1	73
Total Sum of NumberCollected		313,685	7,111	2,510	23,337	811	347,454
Total Sum of NumberBarged		345,687	7,675	2,526	23,379	742	380,009
Total Sum of NumberBypassed		407	0	0	1,555	1	1,963
Total Sum of Numbertrucked		0	0	0	0	0	0
Total Sum of SampleMorts		64	0	1	0	0	65
Total Sum of FacilityMorts		1,124	20	3	11	24	1,182
Total Sum of ResearchMorts		12	8	0	20	0	40
Total Sum of TotalProjectMorts		1,200	28	4	31	24	1,287

**YTD Transportation Summary**

Source: Fish Passage Center

Updated:

6/23/17 11:06 AM

**TO: 06/23/17**

		Species					
Site	Data	CH0	CH1	CO	SO	ST	Grand Total
<b>LGR</b>	Sum of NumberCollected	435,823	2,362,523	74,075	34,919	2,325,396	5,232,736
	Sum of NumberBarged	423,941	978,240	63,022	19,048	944,671	2,428,922
	Sum of NumberBypassed	3,946	1,381,285	10,900	15,645	1,379,868	2,791,644
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	115	90	5	11	52	273
	Sum of FacilityMorts	3,125	2,607	73	191	183	6,179
	Sum of ResearchMorts	12	26	0	0	22	60
	Sum of TotalProjectMorts	3,252	2,723	78	202	257	6,512
<b>LGS</b>	Sum of NumberCollected	446,298	1,337,696	42,958	13,547	1,063,477	2,903,976
	Sum of NumberBarged	440,195	495,386	39,672	9,891	311,260	1,296,404
	Sum of NumberBypassed	549	837,161	3,200	3,296	751,526	1,595,732
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	32	29	1	7	10	79
	Sum of FacilityMorts	1,997	5,050	40	353	236	7,676
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	2,029	5,079	41	360	246	7,755
<b>LMN</b>	Sum of NumberCollected	204,833	1,454,732	33,340	17,180	1,292,060	3,002,145
	Sum of NumberBarged	216,469	927,446	32,799	12,528	708,711	1,897,953
	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	11	37	2	5	30	85
	Sum of FacilityMorts	171	1,080	39	120	386	1,796
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	182	1,117	41	125	416	1,881
Total Sum of NumberCollected		1,086,954	5,154,951	150,373	65,646	4,680,933	11,138,857
Total Sum of NumberBarged		1,080,605	2,401,072	135,493	41,467	1,964,642	5,623,279
Total Sum of NumberBypassed		5,095	2,707,939	14,900	23,538	2,691,479	5,442,951
Total Sum of NumberTrucked		0	0	0	0	0	0
Total Sum of SampleMorts		158	156	8	23	92	437
Total Sum of FacilityMorts		5,293	8,737	152	664	805	15,651
Total Sum of ResearchMorts		12	26	0	0	22	60
Total Sum of TotalProjectMorts		5,463	8,919	160	687	919	16,148

**Cumulative Adult Passage at Mainstem Dams Through: 06/22**

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	06/21	83624	18110	137215	11145	150783	25708	37434	5120	51228	4654	46317	10078	0	0	0	0	0	0
TDA	06/21	58308	12497	105504	9999	118766	22002	25797	3835	37787	2931	33426	6857	0	0	0	0	0	0
JDA	06/21	46675	12475	93659	8262	103450	20515	20397	2610	32949	2275	26835	5726	0	0	0	0	0	0
MCN	06/21	44292	7020	87191	7374	93925	16835	15135	1663	25534	1742	20425	3877	0	0	0	0	0	0
IHR	06/21	28306	6949	67484	5029	68114	11248	4525	1069	6505	621	8337	1840	0	0	0	0	0	0
LMN	06/21	28545	8270	66115	6266	68087	10905	3715	1180	5086	747	7958	1685	0	0	0	0	0	0
LGS	06/21	26598	8335	62597	6365	63765	12007	3371	1077	2877	470	5219	1294	0	0	0	0	0	0
LGR	06/21	27357	8256	62050	5480	62403	13092	1820	655	2052	342	3319	891	0	0	0	0	0	0
PRD	06/20	7268	783	16843	1003	17901	1826	3620	135	8777	461	4749	263	0	0	0	0	0	0
WAN	06/20	6612	484	17164	919	17602	2161	2361	110	6731	421	3999	331	0	0	0	0	0	0
RIS	06/21	8080	564	18646	715	18006	2748	1522	42	4496	78	2446	232	0	0	0	0	0	0
RRH	06/21	5864	406	9449	351	7849	1209	449	4	974	4	609	42	0	0	0	0	0	0
WEL	06/22	4044	775	7226	784	5901	1469	0	0	0	0	0	0	0	0	0	0	0	0
WFA	06/20	25929	1750	22781	1515	28124	1085	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		10-Yr Unclipped	10-Yr Avg.	2017	2016	10-Yr Avg.		
		Adult	Jack	Adult	Jack	Adult	Jack				2017	2016						2017	2016
BON	06/21	0	0	0	0	0	0	27597	151637	86159	4346	10007	9846	1392	3711	2855	20018	9015	4664
TDA	06/21	0	0	0	0	0	0	15339	103262	52599	1405	1593	3986	495	830	1433	331	1219	598
JDA	06/21	0	0	0	0	0	1	13372	88379	40393	576	1096	6410	372	719	2390	475	837	329
MCN	06/21	0	0	0	0	1	0	5909	51988	21414	2555	866	7128	756	550	2244	29	76	21
IHR	06/21	0	0	0	0	0	0	47	68	19	1090	1556	5931	508	829	1608	16	8	2
LMN	06/21	0	0	0	0	0	0	1	17	6	1460	1656	8560	702	1118	2854	8	7	0
LGS	06/21	0	0	0	0	0	0	0	5	6	1505	3483	5179	659	2028	2555	0	1	0
LGR	06/21	0	0	0	0	0	0	0	6	1	7312	5543	9116	3056	3175	3607	0	1	0
PRD	06/20	0	0	0	0	0	0	522	17608	5374	88	105	88	0	0	0	202	285	42
WAN	06/20	0	0	0	0	0	0	320	9624	3131	58	75	143	0	0	0	96	181	17
RIS	06/21	0	0	0	0	0	0	241	8295	2345	78	74	145	24	42	68	0	17	0
RRH	06/21	0	0	0	0	0	0	86	4745	1271	134	102	351	32	36	227	0	3	0
WEL	06/22	0	0	0	0	0	0	31	3288	804	48	90	91	32	40	59	1	1	0
WFA	06/20	0	0	0	0	0	0	0	0	0	2079	19878	17517	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.

