



Fish Passage Center

Weekly Report #17-15

June 16, 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 36.8 to 42.5 Kcfs over the last four days. Flows at Hells Canyon are expected to be between 38 and 42 Kcfs over the next four days.

The 2017 spill for fish passage program at the lower Snake River projects began just after midnight on April 3rd. 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. 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 74% and 197% of average at individual sub-basins over June. Precipitation above The Dalles has been 107% of average over June. Over the 2017 water year, precipitation has ranged between 116% and 136% 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 1-14, 2017		Water Year 2017 October 1, 2016 to June 14, 2017	
	Observed (inches)	% Average	Observed (inches)	% Average
	Columbia Above Coulee	1.43	94	36.3
Snake River Above Ice Harbor	1.17	146	24.3	128
Columbia Above The Dalles	1.07	107	27.6	121
Kootenai	1.21	74	37.0	124
Clark Fork	2.63	197	25.0	114
Flathead	2.06	119	37.3	129
Pend Oreille River Basin above Waneta Dam	1.95	131	32.6	123
Salmon River Basin	1.85	162	32.5	134
Upper Snake Tributaries	0.97	109	27.7	128
Clearwater	1.34	91	40.0	116
Willamette River above Portland	1.55	121	82.2	136

Table 2 displays the June 15th ESP runoff volume forecasts for multiple reservoirs along with the June COE forecasts at Libby and Dworshak. The June 15th ESP forecast at The Dalles between April and August is 113,672 Kaf (130% of average).

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

Location	June 15, 2017 5-day QPF ESP	
	% Average (1981-2010)	Runoff Volume (Kaf)
The Dalles (Apr-Aug)	130	113,672
Grand Coulee (Apr-Aug)	122	68,989
Libby Res. Inflow, MT (Apr-Aug)	127 129*	7,492 7,594*
Hungry Horse Res. Inflow, MT (Apr-Aug)	115	2,227
Lower Granite Res. Inflow (Apr- July)	145	28,807
Brownlee Res. Inflow (Apr-July)	189	10,325
Dworshak Res. Inflow (Apr-July)	117 116*	2,836 2,838*

* Denotes COE June Forecast

Grand Coulee Reservoir is at 1,280.2 feet (6-15-17) and has refilled 5.4 feet over the last week. Outflows at Grand Coulee have ranged between 200.9 Kcfs and 218.1 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2,425.7 feet (6-15-17) and has refilled 10.1 feet over the past week. Daily average outflows at Libby Dam have been 19.8-25.0 Kcfs over the last week.

Hungry Horse is currently at an elevation of 3,549.7 feet (6-15-17) and has refilled 2.7 feet last week. Outflows at Hungry Horse have been 6.2 to 8.8 Kcfs over the last week.

Dworshak is currently at an elevation of 1,596.8 feet (6-15-17) and has refilled 4.5 feet over the last week. Dworshak outflows over the last week ranged between 5.0 and 6.2 Kcfs.

The Brownlee Reservoir was at an elevation of 2,072.5 feet on June 15, 2017, and refilled 5.2 feet last week. Outflows at Hells Canyon have ranged between 36.8

and 42.5 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 5th, 2017), the flow objective this spring will be 100 Kcfs at Lower Granite. Flows at Lower Granite Dam have averaged 135.0 last week and 141.7 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 10th) and 135 Kcfs at Priest Rapids Dam (began April 10th). Over the last week, flows at McNary were 406.0 Kcfs and 265.7 Kcfs at Priest Rapids. Over the spring season, flows at McNary Dam have been 394.8 Kcfs and Priest Rapids Dam flows were 248.4 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 5.1 Kcfs to 6.2 Kcfs and spill ranging from 0.8 to 1.9 Kcfs. Hells Canyon Complex flows have increased slightly, with outflows at Hells Canyon ranging near 38 to 42 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 3rd. However, due to the high river flows and turbine unit outages, significant 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	20 Kcfs/20 Kcfs
Little Goose	30%/30%
Lower Monumental	Gas Cap/Gas Cap
Ice Harbor	April 28-June 20: 30%/30% vs. 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, and ranged from 37.5 Kcfs to 65 Kcfs. At Little Goose Dam the Biological Opinion spill is 30% of flow but, as a consequence of the flow, unit outages and screen cleaning, spill ranged from 31.1% to 42.8% of average daily flow. Spill at Lower Monumental Dam ranged from 48 to 90.7 Kcfs. At Ice Harbor spill ranged from 73.2 Kcfs to 100.8 Kcfs.

Spill for fish passage began in the middle Columbia River on April 10th. Spill for fish passage began on April 10th at the lower 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	40%/40%
John Day	April 28-June 15: 30%/30% and 40%/40%
The Dalles	40%/40%
Bonneville	100 Kcfs/100 Kcfs

Spill that has occurred in the middle Columbia River over the past several weeks has also exceeded the planned spill for fish passage levels due to “involuntary” spill. At McNary Dam spill averaged 56% to 62% of daily average flow. At John Day Dam spill averaged between 35% and 42% of average daily flow. At The Dalles Dam spill ranged from 37% to 54% of average daily flow. Bonneville Dam spill was 179 to 240 Kcfs.

Similar to the Snake and Middle Columbia rivers, high spill levels are occurring at projects in the Upper Columbia River.

At Dworshak Dam, tailrace TDG levels have ranged from 106% to 108%, dependent on spill levels. TDG supersaturation at the Lower Granite Dam forebay monitor has ranged between 105% and 108% 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) ranged

from 117% to 123% at Lower Granite Dam; 117% to 126% at Little Goose Dam; 114% to 126% at Lower Monumental Dam; and, 119% to 126% at Ice Harbor Dam. TDG supersaturation levels have been high at the Middle Columbia projects, ranging from 121% to 126% at the tailwater of McNary Dam; 120% to 126% below John Day Dam; 116% to 123% at The Dalles Dam; and, 119% to 123% below Bonneville Dam. 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 115% yesterday in the forebay of Wells Dam. TDG downstream remained above 125% in the tailraces of Rocky Reach and Rock Island and Wanapum dams.

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 5% of fish were detected with signs of GBT in the exam conducted on 6/12/17. At Lower Monumental Dam, no fish were detected with signs of GBT on 6/14/17.

At Bonneville Dam 1% of the sample on 6/12/17 was observed with Rank 1 levels of GBT in their fins. At McNary Dam no fish showed signs of GBT on exams taken on 6/13/17. At Rock Island Dam, the GBT exams

on 6/15/17 showed 11% of fish with signs of GBT (all at Rank1). 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. Thus far, reported temperatures continue near average based on the past ten years of data.

Smolt Monitoring

Sampling for the Smolt Monitoring Program (SMP) is underway at all bypass facilities. 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 14,000 per day, which is an increase over last week's daily average passage index of about 11,600. Passage of spring migrants (i.e., yearling Chinook, coho, sockeye, and steelhead) continued to decrease this week, when compared to the previous week. This week's daily average passage indices for yearling Chinook were 300, 200 for coho, 100 for sockeye, and 300 per day for steelhead. Last week's daily average passage indices for these four species were 1,200, 440, 300, and 700 per day, respectively. Finally, Pacific lamprey ammocoetes were not encountered in this week's samples while macrophthalmia were encountered every day this week. The daily average collection for macrophthalmia this week was 130 per day, which is a decrease compared to last week's daily average collection of 180 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 dominated by subyearling Chinook. This week's daily average passage index was about 26,500, which is an increase over last week's daily average

passage index of 23,500 per day. Passage of spring migrants decreased this week, when compared to the previous week. This week's daily average passage indices were 500 for yearling Chinook, 300 for coho, 30 for sockeye, and 1,000 for steelhead. Last week's daily average passage indices for these four species were 2,300, 1,600, 700, and 4,000 per day, respectively. Finally, both Pacific lamprey ammocoetes and macrophthalmia were encountered in this week's samples. Pacific ammocoetes were encountered in two samples while macrophthalmia were encountered in all three of this week's samples. This week's daily average collection for Pacific ammocoetes was about 70 per day, while that for macrophthalmia was about 2,000 per day. This week's daily average collection for macrophthalmia represented a small decrease compared to last week's daily average collection of 2,200 per day.

Sampling at McNary Dam (MCN) is also every-other-day. This week's samples at MCN were again dominated by subyearling Chinook. This week's daily average passage index for subyearling Chinook was about 66,000 per day, which is a substantial decrease compared to last week's daily average passage index of about 73,000 per day. 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 400 for yearling Chinook, 0 for coho, 350 for sockeye, and 2,300 for steelhead. Last week's daily average passage indices for these four species were 3,600, 1,000, 600, and 2,300 per day, respectively. Finally, no Pacific lamprey ammocoetes were encountered this week but Pacific macrophthalmia were collected in all three of this week's samples. This week's daily average collection for Pacific macrophthalmia was about 400 fish per day, which is decrease compared to last week's daily average of about 1,825 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 14,000 per day, which is a decrease from last week's daily average passage index of nearly 29,000 per day. Passage of spring migrants decreased this week, when compared to the previous week. This week's daily average passage indices for spring migrants were 400 for yearling Chinook, 100 for coho, 20 for sockeye, and 1,900 for steelhead. Last week's daily average passage indices for these four species

were 1,100, 500, 30, and 5,000 per day, respectively. Finally, both Pacific lamprey ammocoetes and macrophthalmia were collected at LGR this week. In all, 19 ammocoetes and two macrophthalmia were collected in this week's samples at LGR.

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 19,000 per day, which was an decrease compared to last week's daily average passage index of 58,600 per day. Passage of spring migrants (i.e., yearling Chinook, coho, sockeye, and steelhead) 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 one macrophthalmia was encountered in this week's samples.

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 dominated by subyearling Chinook. This week's daily average passage index for subyearling Chinook was about 17,600 per day, which is about half of last week's daily average passage index of about 34,600. Passage of spring migrants (i.e., yearling Chinook, coho, and sockeye) mostly decreased this week, when compared to last week. This week's daily average passage indices were about 600 for yearling Chinook, 150 for coho, 90 for sockeye, and 600 for steelhead. Finally, Pacific lamprey ammocoetes and macrophthalmia were each encountered in small numbers in this week's samples.

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 1,270 per day, which is a large increase over last week's daily average passage index of about 630 per day. Passage of spring migrants (i.e., yearling Chinook, coho, sockeye, and steelhead) decreased this week, when compared to last week. This week's daily average passage indices for these four species were 0, 140, 10 and 180 per day, respectively. Last week's daily average passage indices were 10 for yearling Chinook, 300 for coho, 30 for sockeye, and 190 for steelhead.

Finally, two total Pacific lamprey ammocoetes and one macrophthalmia were collected this week.

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 12th. 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 10th through June 12th. Although sampling was possible during this time, it was 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. Approximately 200,000 subyearling fall Chinook smolts were scheduled to be released from the Captain John Rapids Acclimation facility this week. This is the only release that was scheduled to occur in 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 28th. 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. However, one volitional release of approximately 107,000 coho to the Wenatchee River

was scheduled to end on or around June 10th. 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). Two releases totaling nearly 10.3 million subyearling fall Chinook smolts began this week. These two releases include a release of about 3.7 million subyearlings from Ringold Springs Hatchery and 6.9 million subyearlings from Priest Rapids Hatchery. Ringold Springs and Priest Rapids hatcheries are both located on the Columbia River, between McNary Dam and Priest Rapids Dam. Both of these releases were scheduled to begin this week and are anticipated to run through late June or early July. Of these 10.3 million subyearling Chinook smolts, approximately 36% are unclipped. No new releases are scheduled for this zone over the next two weeks.

Lower Columbia Zone: The Lower Columbia Zone is defined as the Columbia River and its tributaries 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 15th at Bonneville Dam. Daily passage numbers at Bonneville Dam ranged between 1,401 and 1,811 adult Chinook in the last week. The 2017 summer Chinook count of 23,900 is about 67.5% of the 2016 count of 35,399 and about 75.3% of the 10-year average count of 31,720. The 2017 Bonneville Dam summer Chinook jack count of 3,582 has 708 more fish than the 2016 count, while having 3,199 fewer fish the 10-year average count. At Willamette Falls, 22,266 adult spring Chinook have been counted so far this year. In 2016, 20,076 adult spring Chinook were counted at Willamette Falls. This year's count has 2,190 more fish than the 2016 count and is about 85.6% the 10-year average count of 26,005. A total of 25,914 spring chinook have been counted at Lower Granite Dam as of June 15th. The 2017 Lower Granite Dam adult spring Chinook count is about 42.5% of the 2016 count and 42.9% of the 10-year average count.

The 2017 Bonneville Dam adult steelhead count of 3,906 is about 48.2% of the 2016 count of 8,099 and 49.5% of the 10-year average count of 7,888. The 2017 Bonneville Dam adult wild steelhead count of 1,204

has 1,768 fewer fish than the 2016 count of 2,972 and 1,055 fewer fish than the 10-year average count of 2,259. This year's Lower Granite steelhead count of 7,311 is about 1.3 times greater than the 2016 count of 5,496, while being 80.6% of the 10-year average count of 9,071. The 2017 Lower Granite Dam adult wild steelhead count of 3,055 has 78 fewer fish than the 2016 count of 3,133 and has 543 fewer fish than the 10-year average count of 3,598. At Willamette Falls, the 2017 count for steelhead was 1,796 as of June 14th. This year's steelhead count is about 10.3% of the 2016 count of 17,498 and 11.1% of the 10-year average count of 16,112.

Daily adult sockeye passage numbers at Bonneville Dam ranged between 411 and 1,502 last week. The 2017 adult sockeye count at Bonneville Dam of 7,448 is 14.5% of the 2016 count and 32.3% of the 10-year average count. A total of 12,948 lampreys have been counted at Bonneville Dam so far this year. The Bonneville 2017 lamprey count is about 1.9 times greater than the 2016 count of 6,922 and 3.9 times greater than the 10-year average count of 3,340.

Hatchery Releases Last Two Weeks

Hatchery Release Summary										
From:	6/3/2017		to		06/16/17					
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
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH0	FA	2017	225,000	06-06-17	06-06-17	Lukes Gulch Acclim.	S Fk Clearwater River	SNAK
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH0	FA	2017	322,000	06-08-17	06-08-17	Nez Perce Tribal Hatchery	Clearwater River M F	SNAK
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH0	FA	2017	640,000	06-07-17	06-07-17	Nez Perce Tribal Hatchery	Clearwater River M F	SNAK
Nez Perce Tribe Total					1,387,000					
Washington Dept. of Fish and Wildlife	Priest Rapids Hatchery	CH0	FA	2017	6,900,000	06-14-17	07-01-17	Priest Rapids Hatchery	McNary Pool	MCOL
Washington Dept. of Fish and Wildlife	Ringold Springs Hatchery	CH0	FA	2017	3,368,500	06-14-17	06-27-17	Ringold Springs Hatchery	McNary Pool	MCOL
Washington Dept. of Fish and Wildlife Total					10,268,500					
Grand Total					11,655,500					

Hatchery Releases Next Two Weeks

Hatchery Release Summary

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

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
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					

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
06/02/2017	186.1	7.1	188.3	92.8	226.5	46.0	241.2	83.4	246.1	108.6	261.5	147.9	266.7	148.6
06/03/2017	195.4	8.7	193.3	94.3	230.3	50.9	244.9	88.0	248.4	108.2	265.1	161.4	269.6	154.0
06/04/2017	199.9	0.0	195.9	86.0	225.7	47.0	243.6	86.1	245.7	103.2	259.8	159.2	266.1	165.4
06/05/2017	198.4	11.0	202.6	99.8	231.2	53.5	242.9	84.4	241.8	109.3	259.5	133.4	262.2	149.5
06/06/2017	212.0	25.2	211.0	127.4	234.4	59.0	249.2	90.7	246.6	104.4	258.4	134.6	259.2	144.5
06/07/2017	213.0	0.6	213.3	141.3	241.1	64.1	254.7	99.6	256.8	117.1	278.9	150.2	278.9	168.5
06/08/2017	213.3	5.1	220.8	130.3	242.5	70.0	255.0	98.9	256.0	117.0	279.7	162.1	283.7	173.4
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	---	---	221.3	51.3	230.7	74.8	233.5	90.6	251.4	124.6	252.4	145.6

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		
06/02/2017	4.4	0.0	---	36.7	179.2	87.6	178.8	94.3	179.4	101.4	183.4	128.4
06/03/2017	4.3	0.0	---	38.2	171.9	80.7	169.1	84.1	169.3	91.4	168.7	114.2
06/04/2017	4.4	0.7	---	38.1	168.4	77.4	165.2	80.5	165.6	88.4	170.1	118.2
06/05/2017	4.3	0.2	---	38.2	171.8	80.5	168.1	91.0	168.4	91.6	170.8	118.8
06/06/2017	2.2	0.0	---	38.1	163.7	73.5	160.8	84.6	161.5	103.0	163.1	117.0
06/07/2017	2.8	0.0	---	38.2	154.3	65.0	149.7	64.1	153.2	108.1	154.1	102.0
06/08/2017	6.5	2.2	---	38.0	154.4	65.4	150.8	65.0	155.2	112.8	153.7	100.7
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

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		
06/02/2017	460.0	291.0	460.6	201.8	438.5	238.3	449.7	275.6	62.6	99.1
06/03/2017	450.8	280.2	457.2	191.4	440.3	250.5	454.4	279.3	62.9	99.8
06/04/2017	440.1	269.0	438.4	176.8	420.9	196.7	442.3	257.7	64.7	107.4
06/05/2017	448.8	277.4	453.4	209.6	431.8	234.3	448.2	261.5	64.8	109.5
06/06/2017	433.0	264.8	429.5	189.9	411.9	224.9	434.6	250.2	58.8	113.2
06/07/2017	421.4	254.8	424.5	189.3	405.4	226.0	428.5	238.7	64.2	113.1
06/08/2017	424.8	260.8	427.2	172.9	412.2	233.4	430.5	237.2	71.2	109.7
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

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	06/15/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Little Goose Dam	06/05/17	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
	06/12/17	Chinook + Steelhead	100	5	5	5.00%	0.00%	5	0	0	0
Lower Monumental Dam	06/07/17	Chinook + Steelhead	100	8	7	7.00%	0.00%	6	1	0	0
	06/14/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
McNary Dam	06/05/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	06/07/17	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	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
Bonneville Dam	06/03/17	Chinook + Steelhead	100	2	2	2.00%	0.00%	1	1	0	0
	06/06/17	Chinook + Steelhead	100	7	7	7.00%	0.00%	6	1	0	0
	06/10/17	Chinook + Steelhead	50*	2	2			1	1	0	0
	06/11/17	Chinook + Steelhead	34*	1	1			1	0	0	0
	06/13/17	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
Rock Island Dam	06/06/17	Chinook + Steelhead	100	22	22	22.00%	0.00%	21	1	0	0
	06/08/17	Chinook + Steelhead	100	31	31	31.00%	0.00%	24	7	0	0
	06/15/17	Chinook + Steelhead	100	11	11	11.00%	0.00%	10	1	0	0

*One or more sites had an incomplete sample

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	Hungry H. Dnst			#	Boundary			#	Grand Coulee			#	Grand C. Tlwr			#	Chief Joseph			#
	24 h	12 h			24 h	12 h			24 h	12 h			24 h	12 h			24 h	12 h		
	Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High	
6/2	---	---	---	0	---	---	---	0	117.4	118.1	118.3	24	123.2	123.7	125.1	24	127.2	128.2	129.2	24
6/3	---	---	---	0	---	---	---	0	118.4	118.7	118.8	24	124.4	125.4	125.7	24	123.7	124.2	124.9	24
6/4	---	---	---	0	---	---	---	0	118.4	118.6	118.9	24	116.9	117.3	118.5	24	122.9	123.4	123.8	24
6/5	---	---	---	0	---	---	---	0	117.6	118.1	118.4	24	122.9	125.2	126.2	24	119.8	122.1	122.9	24
6/6	---	---	---	0	---	---	---	0	118.2	118.7	118.9	24	129.2	130.2	130.6	24	118.0	120.5	123.3	24
6/7	---	---	---	0	---	---	---	0	119.7	120.2	120.6	24	119.4	120.7	130.7	24	126.4	128.5	130.0	24
6/8	---	---	---	0	---	---	---	0	120.8	121.3	121.5	24	124.0	124.8	125.0	24	124.4	129.0	130.2	24
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	23	116.3	116.5	116.6	23	115.6	115.8	115.9	23

Total Dissolved Gas Saturation Data at Mid Columbia River Sites

Date	Chief J. Dnst			#	Wells			#	Wells Dwnstrm			#	Rocky Reach			#	Rocky R. Tlwr			#
	24 h	12 h			24 h	12 h			24 h	12 h			24 h	12 h			24 h	12 h		
	Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High	
6/2	115.7	116.0	116.5	24	117.3	118.6	120.0	24	120.4	121.7	122.5	24	116.7	117.2	117.6	24	126.0	126.6	127.5	22
6/3	115.9	116.5	117.4	24	118.6	119.0	120.1	24	122.4	123.6	124.6	24	119.5	120.2	120.9	24	126.8	127.6	128.6	22
6/4	115.6	115.9	116.3	24	116.9	117.2	117.7	24	120.9	121.5	122.0	24	120.3	121.1	121.5	24	126.9	127.4	128.0	22
6/5	116.6	116.8	117.2	24	116.9	117.6	118.1	24	121.2	122.2	123.3	24	118.5	118.7	119.8	24	126.1	126.9	127.7	21
6/6	117.2	117.8	118.3	23	115.9	116.5	117.2	24	121.4	122.4	124.8	24	120.6	121.2	121.5	24	127.3	127.7	128.6	22
6/7	117.6	117.9	118.3	24	119.2	120.5	120.9	24	124.0	124.7	125.8	24	121.5	122.5	123.7	23	128.6	128.9	129.6	18
6/8	117.7	118.2	118.9	24	119.9	120.4	120.9	24	125.5	127.6	129.0	24	122.8	123.4	124.4	23	128.4	129.4	130.7	20
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	23	114.4	114.5	114.7	23	120.0	121.2	125.1	23	119.8	120.5	122.6	22	126.2	126.9	128.0	19

Total Dissolved Gas Saturation at Mid Columbia River Sites

Date	Rock Island			#	Rock I. Tlwr			#	Wanapum			#	Wanapum Tlwr			#	Priest Rapids			#
	24 h	12 h			24 h	12 h			24 h	12 h			24 h	12 h			24 h	12 h		
	Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High	
6/2	118.6	119.5	120.3	23	125.5	126.1	126.7	22	123.1	123.9	124.8	24	127.3	127.8	128.8	24	126.1	126.9	128.9	24
6/3	119.5	120.6	121.3	23	126.1	126.8	127.5	21	123.3	123.8	124.7	24	128.8	129.9	130.8	24	125.2	125.8	126.5	24
6/4	119.9	120.7	122.0	23	126.3	126.7	127.3	22	120.1	120.6	121.5	24	127.2	127.7	130.7	24	123.7	124.6	125.2	24
6/5	118.6	120.0	121.0	23	125.9	126.5	127.4	21	119.0	119.0	119.3	3	124.9	125.6	126.8	24	122.8	123.6	123.8	24
6/6	120.8	121.7	122.1	23	126.8	127.4	127.7	21	---	---	---	0	126.3	127.2	127.5	24	124.8	126.1	126.5	24
6/7	122.2	122.6	123.6	20	128.5	128.7	129.3	17	---	---	---	0	127.5	129.4	132.0	24	126.0	127.5	128.3	24
6/8	122.3	122.7	123.0	22	128.4	128.7	129.2	17	122.0	122.0	123.9	12	128.6	130.3	132.8	24	124.8	126.1	127.4	24
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	21	127.0	127.5	128.5	18	---	---	---	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	High		24 h	12 h	High		24 h	12 h	High		24 h	12 h	High		24 h	12 h	High	
	Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg		
6/2	123.5	123.8	123.9	24	---	---	---	0	101.6	102.3	103.0	24	103.3	104.3	104.9	24	110.8	111.7	112.2	24
6/3	123.7	124.1	124.2	24	---	---	---	0	102.1	103.0	103.7	24	103.5	104.5	105.3	24	111.2	111.7	112.2	24
6/4	122.6	122.8	123.6	24	---	---	---	0	105.0	108.5	110.5	24	102.9	103.2	103.8	24	110.0	110.3	110.7	24
6/5	122.2	122.5	123.4	21	---	---	---	0	102.8	104.5	107.9	24	102.9	104.0	104.7	24	110.5	111.6	112.1	24
6/6	124.2	125.5	127.7	24	---	---	---	0	102.2	103.5	104.7	24	102.9	103.9	104.6	24	111.0	111.5	112.0	24
6/7	131.4	131.4	152.5	7	---	---	---	0	103.1	104.3	105.7	24	103.1	104.1	104.9	24	110.8	111.5	112.0	24
6/8	---	---	---	0	---	---	---	0	109.1	110.1	111.4	24	103.0	103.3	104.1	24	109.2	109.6	110.5	23
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	103.9	105.9	106.8	23	102.2	102.5	103.1	23	108.4	108.7	108.9	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	High		24 h	12 h	High		24 h	12 h	High		24 h	12 h	High		24 h	12 h	High	
	Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg		
6/2	102.1	103.1	103.8	24	107.3	107.6	107.9	24	128.7	129.1	129.7	24	119.0	120.0	120.8	24	126.8	127.7	128.9	24
6/3	102.9	103.8	104.5	24	109.3	110.1	110.7	24	127.4	128.4	129.4	24	122.1	123.1	123.7	24	125.6	128.1	129.4	24
6/4	101.7	102.0	102.6	24	109.2	109.6	110.0	24	126.9	127.9	129.5	24	121.5	121.9	122.9	24	124.8	127.4	128.5	24
6/5	101.8	102.9	103.7	24	107.4	107.8	108.1	24	127.4	128.4	129.7	24	120.1	120.3	120.4	24	125.5	128.3	129.0	24
6/6	102.2	103.1	103.8	24	108.7	109.5	110.0	24	125.6	126.3	126.5	24	121.5	122.1	122.5	23	125.9	129.9	143.8	23
6/7	102.7	103.8	104.7	24	110.5	111.0	111.4	24	124.7	125.6	125.8	24	123.3	123.8	124.1	24	122.6	124.8	126.8	24
6/8	101.6	102.0	102.8	24	109.9	110.5	111.2	24	123.8	124.4	127.3	24	121.6	122.7	124.0	24	122.3	125.7	127.0	24
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	103.8	104.2	104.8	23	105.9	106.3	107.0	23	117.1	117.5	117.8	23	111.6	112.3	113.3	23	116.3	117.0	118.8	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	High		24 h	12 h	High		24 h	12 h	High		24 h	12 h	High		24 h	12 h	High	
	Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg		
6/2	127.0	128.1	128.9	24	126.4	126.6	127.3	24	122.8	123.7	124.4	24	127.4	127.9	128.4	24	---	---	---	0
6/3	129.7	130.3	130.9	24	124.8	126.5	127.3	24	125.1	125.4	125.7	24	125.2	127.8	131.0	24	---	---	---	0
6/4	127.3	128.3	129.5	24	125.0	127.2	128.1	24	123.2	123.6	124.8	24	125.9	128.9	131.4	24	---	---	---	0
6/5	126.2	127.7	128.6	24	124.5	126.4	127.5	24	121.9	123.0	124.0	24	125.5	128.2	133.1	24	---	---	---	0
6/6	129.0	130.9	131.8	24	124.9	126.3	126.9	24	124.3	125.5	126.3	24	126.1	128.7	133.4	24	---	---	---	0
6/7	130.1	132.3	132.9	24	126.8	128.8	130.7	24	126.3	127.2	128.0	24	123.4	125.1	127.4	24	---	---	---	0
6/8	126.3	128.0	131.4	24	125.0	126.0	126.3	24	126.2	126.8	127.9	24	123.1	125.3	126.4	23	---	---	---	0
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	117.2	117.8	23	119.8	120.0	120.1	23	115.6	116.2	116.6	23	119.6	120.2	124.7	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>					
	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	AVG	High	hr				
6/2	117.3	118.1	118.7	24	125.5	126.3	126.9	24	115.9	116.9	117.8	24	126.1	127.7	130.4	24	118.1	119.4	120.3	24
6/3	120.4	122.0	122.5	24	125.2	125.3	125.5	24	118.6	118.9	119.2	24	124.6	125.5	128.1	24	119.0	120.1	120.5	24
6/4	118.3	119.6	121.1	24	124.3	124.6	125.0	24	117.0	117.6	118.4	24	122.9	123.2	123.6	24	115.4	115.8	116.6	24
6/5	117.4	118.4	119.6	24	124.9	125.1	125.5	24	116.3	117.0	117.2	24	125.6	126.6	127.1	24	118.6	121.4	122.5	24
6/6	119.4	120.7	121.9	24	124.7	125.0	125.2	24	116.9	117.8	118.4	24	124.1	125.7	126.6	24	119.4	119.7	120.6	24
6/7	122.0	122.7	123.4	24	124.5	124.8	125.1	24	120.9	122.5	123.3	24	124.3	126.1	126.7	24	121.0	122.3	123.3	24
6/8	120.2	121.6	122.6	24	124.7	125.5	127.6	24	121.8	122.5	123.1	24	122.9	124.2	124.9	24	119.2	119.8	120.1	24
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	115.5	116.1	23	122.6	123.3	123.4	23	109.4	109.6	109.8	23	120.5	120.9	121.4	23	113.1	113.3	113.6	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>					
	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr				
6/2	121.1	122.1	122.6	24	121.2	122.2	122.5	24	128.2	129.0	129.6	24	126.4	127.7	128.6	24	126.1	126.3	126.6	24
6/3	121.6	122.1	122.7	24	120.7	121.8	122.9	24	128.3	129.1	129.7	24	126.6	127.1	127.7	24	119.3	123.4	126.4	24
6/4	119.4	119.9	120.4	24	117.7	118.1	118.8	24	125.3	125.6	126.4	24	123.7	124.3	126.0	24	110.0	111.1	112.7	24
6/5	121.8	123.4	124.1	24	119.2	121.1	122.9	24	126.4	127.5	128.1	24	123.8	125.3	125.9	24	107.4	107.6	108.0	24
6/6	123.2	123.7	124.1	24	124.1	125.1	125.8	24	128.2	128.5	129.2	24	126.0	126.7	127.2	24	106.6	106.8	107.2	24
6/7	123.8	124.3	124.7	24	123.7	124.6	125.1	24	127.3	128.0	128.2	24	126.4	127.0	127.6	24	105.6	105.7	105.8	24
6/8	122.3	122.7	123.2	24	121.7	122.4	122.7	24	125.9	126.9	127.6	24	123.8	124.4	125.2	24	104.9	105.3	105.6	24
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	118.4	118.7	23	118.4	119.0	119.4	23	123.0	123.2	123.4	23	121.1	122.0	124.4	23	123.1	123.2	123.3	23

Two-Week Summary of Passage Indices

Source: Fish Passage Center

Updated: 6/16/2017 11:42

Two-Week Summary of Passage Indices

* One or more of the sites on this date had an incomplete or biased sample.

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

For clip information see: <http://www.fpc.org/CurrentDaily/catch.htm>

For sockeye and yearling chinook (Snake only) race information see: <http://www.fpc.org/smoltqueries/currentsmpsubmitdata.asp>

Date	COMBINED YEARLING CHINOOK										
	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
06/02/2017	---	---	---	---	1,374	734	1,833	29	6,465	---	1,737
06/03/2017	---	---	---	---	2,338	1,550	109	12	---	3,439	1,368
06/04/2017 *	---	---	---	---	1,882	1,603	650	17	5,052	---	921
06/05/2017	---	---	---	---	736	288	435	10	---	3,301	1,250
06/06/2017	---	---	---	---	756	543	491	17	2,130	---	891
06/07/2017 *	---	0	---	---	180	214	0	2	---	1,399	1,286
06/08/2017	---	0	---	---	517	699	1,123	8	1,044	---	805
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	---	---	---	---	---	50
Total:	0	9	0	0	10,834	6,759	8,868	110	15,935	10,388	10,301
# Days:	0	5	0	0	15	14	14	14	7	7	15
Average:	0	2	0	0	722	483	633	8	2,276	1,484	687
YTD	33,704	22,200	21,106	8	3,996,641	2,399,534	2,877,880	50,588	1,582,769	1,719,456	1,946,196

Date	COMBINED SUBYEARLING CHINOOK										
	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
06/02/2017	---	---	---	---	31,897	85,106	53,964	547	50,915	---	9,107
06/03/2017	---	---	---	---	35,455	69,722	3,586	473	---	17,554	9,151
06/04/2017 *	---	---	---	---	35,764	33,347	25,128	746	81,863	---	7,329
06/05/2017	---	---	---	---	32,391	54,469	43,017	817	---	24,689	7,468
06/06/2017	---	---	---	---	30,979	72,715	25,557	995	93,677	---	13,167
06/07/2017 *	---	0	---	---	19,271	53,172	46,063	450	---	28,495	17,989
06/08/2017	---	0	---	---	15,178	41,440	44,917	386	64,702	---	17,301
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	---	---	---	---	---	11,683
Total:	0	4	0	0	310,468	545,376	365,564	13,307	490,524	176,615	191,349
# Days:	0	5	0	0	15	14	14	14	7	7	15
Average:	0	1	0	0	20,698	38,955	26,112	951	70,075	25,231	12,757
YTD	0	7	40	0	694,159	748,747	431,899	24,899	645,229	237,577	1,694,398

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)
06/02/2017	---	---	---	---	978	1,251	458	397	1,616	---	508
06/03/2017	---	---	---	---	779	722	87	339	---	2,651	435
06/04/2017 *	---	---	---	---	753	1,002	433	328	1,063	---	386
06/05/2017	---	---	---	---	184	577	869	323	---	1,719	256
06/06/2017	---	---	---	---	756	1,194	246	299	528	---	572
06/07/2017 *	---	0	---	---	0	0	0	247	---	1,031	500
06/08/2017	---	0	---	---	172	175	0	251	1,031	---	417
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	---	---	---	---	---	152
<hr/>											
Total:	0	0	0	0	4,613	5,717	3,091	3,169	4,238	7,396	4,400
# Days:	0	5	0	0	15	14	14	14	7	7	15
Average:	0	0	0	0	308	408	221	226	605	1,057	293
YTD	0	0	2,232	0	127,686	85,806	69,141	35,022	85,136	95,898	355,172

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)
06/02/2017	---	---	---	---	7,826	5,419	3,093	221	2,424	---	1,186
06/03/2017	---	---	---	---	6,039	7,016	370	139	---	6,162	843
06/04/2017 *	---	---	---	---	9,600	8,216	3,899	159	2,658	---	903
06/05/2017	---	---	---	---	2,392	6,153	1,738	180	---	4,745	545
06/06/2017	---	---	---	---	3,400	3,286	2,949	172	3,192	---	445
06/07/2017 *	---	4	---	---	3,782	1,072	4,217	210	---	4,050	460
06/08/2017	---	3	---	---	2,070	2,096	2,994	233	1,042	---	518
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	---	---	---	---	---	255
<hr/>											
Total:	0	66	0	0	49,928	41,447	23,477	2,569	10,402	19,700	7,212
# Days:	0	5	0	0	15	14	14	14	7	7	15
Average:	0	13	0	0	3,329	2,961	1,677	184	1,486	2,814	481
YTD	7,117	15,768	7,614	1	4,055,051	1,846,862	2,513,333	31,556	441,650	1,314,736	262,711

Two-Week Summary of Passage Indices

COMBINED SOCKEYE											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
06/02/2017	---	---	---	---	0	521	0	58	1,616	---	381
06/03/2017	---	---	---	---	0	316	22	30	---	1,290	399
06/04/2017 *	---	---	---	---	0	4	217	30	266	---	447
06/05/2017	---	---	---	---	0	0	0	36	---	688	449
06/06/2017	---	---	---	---	189	2	246	32	528	---	254
06/07/2017 *	---	0	---	---	0	217	0	22	---	442	151
06/08/2017	---	0	---	---	0	5	0	18	0	---	160
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	---	---	---	---	---	50
Total:	0	0	0	0	313	1,382	1,116	289	3,434	2,773	3,254
# Days:	0	5	0	0	15	14	14	14	7	7	15
Average:	0	0	0	0	21	99	80	21	491	396	217
YTD	6	0	0	0	60,143	24,147	33,675	10,993	154,821	116,235	143,777

COMBINED LAMPREY JUVENILES											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR† (Samp)	LGS (Coll)	LMN (Coll)	RIS (Coll)	MCN (Coll)	JDA (Coll)	BO2 (Coll)
06/02/2017	---	---	---	---	2	0	50	2	2,100	---	210
06/03/2017	---	---	---	---	2	0	0	3	---	1,720	204
06/04/2017 *	---	---	---	---	3	0	0	1	600	---	128
06/05/2017	---	---	---	---	4	100	0	2	---	3,800	128
06/06/2017	---	---	---	---	1	100	0	1	1,400	---	184
06/07/2017 *	---	0	---	---	0	200	100	0	---	1,320	236
06/08/2017	---	0	---	---	4	100	0	0	3,200	---	211
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	---	---	---	---	0	---	---	---	---	---	157
Total:	0	0	0	0	37	1,375	400	12	8,500	14,711	2,411
# Days:	0	5	0	0	15	14	14	14	7	7	15
Average:	0	0	0	0	2	98	29	1	1,214	2,102	161
YTD	0	3	4	0	90	4,726	2,640	44	27,205	56,192	40,264

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:

6/16/17 8:25 AM

06/02/17 TO 06/16/17

		Species					
Site	Data	CH0	CH1	CO	ST	SO	Grand Total
LGR	Sum of NumberCollected	168,750	5,952	2,475	27,049	175	204,401
	Sum of NumberBarged	166,981	5,873	2,472	23,721	165	199,212
	Sum of NumberBypassed	338	63	0	3,317	1	3,719
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	46	0	1	0	0	47
	Sum of FacilityMorts	1,375	16	2	11	9	1,413
	Sum of ResearchMorts	10	0	0	0	0	10
	Sum of TotalProjectMorts	1,431	16	3	11	9	1,470
LGS	Sum of NumberCollected	285,492	3,503	2,900	21,470	711	314,076
	Sum of NumberBarged	284,258	3,497	2,899	21,462	667	312,783
	Sum of NumberBypassed	15	0	0	0	0	15
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	12	0	0	0	1	13
	Sum of FacilityMorts	1,207	6	1	8	43	1,265
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	1,219	6	1	8	44	1,278
LMN	Sum of NumberCollected	147,474	3,752	1,340	9,044	460	162,070
	Sum of NumberBarged	162,194	4,172	1,699	10,565	544	179,174
	Sum of NumberBypassed	0	0	0	0	0	0
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	5	0	0	0	0	5
	Sum of FacilityMorts	125	30	1	9	6	171
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	130	30	1	9	6	176
Total Sum of NumberCollected		601,716	13,207	6,715	57,563	1,346	680,547
Total Sum of NumberBarged		613,433	13,542	7,070	55,748	1,376	691,169
Total Sum of NumberBypassed		353	63	0	3,317	1	3,734
Total Sum of Numbertrucked		0	0	0	0	0	0
Total Sum of SampleMorts		63	0	1	0	1	65
Total Sum of FacilityMorts		2,707	52	4	28	58	2,849
Total Sum of ResearchMorts		10	0	0	0	0	10
Total Sum of TotalProjectMorts		2,780	52	5	28	59	2,924

YTD Transportation Summary

Source: Fish Passage Center

Updated:

6/16/17 8:25 AM

TO: 06/16/17

		Species					
Site	Data	CH0	CH1	CO	SO	ST	Grand Total
LGR	Sum of NumberCollected	397,208	2,361,398	73,575	34,869	2,321,111	5,188,161
	Sum of NumberBarged	390,248	977,399	62,597	19,024	941,282	2,390,550
	Sum of NumberBypassed	3,895	1,381,285	10,900	15,645	1,379,595	2,791,320
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	92	90	5	11	52	250
	Sum of FacilityMorts	2,963	2,606	73	189	180	6,011
	Sum of ResearchMorts	10	18	0	0	2	30
	Sum of TotalProjectMorts	3,065	2,714	78	200	234	6,291
LGS	Sum of NumberCollected	398,508	1,337,258	42,623	13,502	1,060,749	2,852,640
	Sum of NumberBarged	396,077	495,018	39,382	9,851	308,977	1,249,305
	Sum of NumberBypassed	527	837,161	3,200	3,296	751,526	1,595,710
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	26	29	1	7	10	73
	Sum of FacilityMorts	1,878	5,050	40	348	236	7,552
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	1,904	5,079	41	355	246	7,625
LMN	Sum of NumberCollected	178,374	1,453,636	33,140	16,990	1,290,850	2,972,990
	Sum of NumberBarged	192,473	926,414	32,659	12,358	707,702	1,871,606
	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	5	37	2	5	30	79
	Sum of FacilityMorts	146	1,075	39	120	385	1,765
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	151	1,112	41	125	415	1,844
Total Sum of NumberCollected		974,090	5,152,292	149,338	65,361	4,672,710	11,013,791
Total Sum of NumberBarged		978,798	2,398,831	134,638	41,233	1,957,961	5,511,461
Total Sum of NumberBypassed		5,022	2,707,939	14,900	23,538	2,691,206	5,442,605
Total Sum of NumberTrucked		0	0	0	0	0	0
Total Sum of SampleMorts		123	156	8	23	92	402
Total Sum of FacilityMorts		4,987	8,731	152	657	801	15,328
Total Sum of ResearchMorts		10	18	0	0	2	30
Total Sum of TotalProjectMorts		5,120	8,905	160	680	895	15,760

Cumulative Adult Passage at Mainstem Dams Through: 06/15

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	06/15	83624	18110	137215	11145	150783	25708	23900	3582	35399	2874	31720	6781	0	0	0	0	0	0
TDA	06/15	58308	12497	105504	9999	118766	22002	15719	2472	23533	1708	21195	4275	0	0	0	0	0	0
JDA	06/15	46675	12475	93659	8262	103450	20515	11234	1571	19797	1296	15855	3156	0	0	0	0	0	0
MCN	06/15	44292	7020	87191	7374	93925	16835	6784	815	13016	914	10372	1988	0	0	0	0	0	0
IHR	06/15	28306	6949	67484	5029	68114	11248	2247	546	3065	250	3325	685	0	0	0	0	0	0
LMN	06/14	28545	8270	66115	6266	68087	10905	592	192	650	77	681	145	0	0	0	0	0	0
LGS	06/15	26598	8335	62597	6365	63601	11952	0	0	0	0	0	0	0	0	0	0	0	0
LGR	06/15	25914	7872	60913	5327	60371	12495	0	0	0	0	0	0	0	0	0	0	0	0
PRD	06/14	7268	783	16843	1003	17901	1826	137	8	932	69	533	45	0	0	0	0	0	0
WAN	06/14	6612	484	17164	919	17602	2161	146	7	489	3	425	47	0	0	0	0	0	0
RIS	06/14	7627	548	16516	680	16566	2571	0	0	0	0	0	0	0	0	0	0	0	0
RRH	06/14	5428	379	6886	328	6682	1117	0	0	0	0	0	0	0	0	0	0	0	0
WEL	06/14	3520	656	4564	723	4691	1297	0	0	0	0	0	0	0	0	0	0	0	0
WFA	06/14	22266	1483	20076	1252	26005	996	0	0	0	0	0	0	0	0	0	0	0	0

DAM	ENDDATE	Coho						Sockeye			Steelhead						Lamprey		
		2017		2016		10-Yr Avg.		10-Yr			10-Yr Unclipped		Unclipped		10-Yr		10-Yr		
		Adult	Jack	Adult	Jack	Adult	Jack	2017	2016	Avg.	2017	2016	Avg.	2017	2016	Avg.	2017	2016	Avg.
BON	06/15	0	0	0	0	0	0	7448	51206	23059	3906	8099	7888	1204	2972	2259	12948	6922	3340
TDA	06/15	0	0	0	0	0	0	3412	30416	12787	1342	924	3317	463	502	1222	82	833	378
JDA	06/15	0	0	0	0	0	1	3105	28397	9365	555	714	5771	355	485	2207	425	627	201
MCN	06/15	0	0	0	0	1	0	1026	12081	3864	2533	657	6797	751	420	2166	27	65	8
IHR	06/15	0	0	0	0	0	0	1	28	2	1082	1473	5746	504	774	1577	13	8	1
LMN	06/14	0	0	0	0	0	0	0	2	0	1457	1517	8374	699	1041	2828	5	5	0
LGS	06/15	0	0	0	0	0	0	0	1	0	1504	3441	5118	658	1998	2546	0	0	0
LGR	06/15	0	0	0	0	0	0	0	0	0	7311	5496	9071	3055	3133	3598	0	1	0
PRD	06/14	0	0	0	0	0	0	53	3135	646	56	53	66	0	0	0	122	238	26
WAN	06/14	0	0	0	0	0	0	31	1624	358	44	44	122	0	0	0	43	161	11
RIS	06/14	0	0	0	0	0	0	18	896	151	70	56	132	22	28	62	0	16	0
RRH	06/14	0	0	0	0	0	0	13	285	58	128	97	339	31	33	220	0	2	0
WEL	06/14	0	0	0	0	0	0	1	78	19	43	80	82	29	35	53	0	1	0
WFA	06/14	0	0	0	0	0	0	0	0	0	1796	17498	16112	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.

