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Fish Passage Center

Weekly Report #16–11

May 27, 2016

Summary of Events

Water Supply

Precipitation throughout the Columbia Basin has varied between 55% and 181% of average at individual sub-basins over May. Precipitation above The Dalles has been 105% of average over May. Over the 2016 water year, precipitation has ranged between 95% and 115% of average.

Table 1. Summary of May precipitation and cumulative October through May 26 precipitation with respect to average (1981–2010) at select locations within the Columbia and Snake River Basins.

Location	Water Year 2016 May 1–26, 2016		Water Year 2016 October 1, 2015 to May 26, 2016	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia above Coulee	2.81	114	28.9	103
Snake River above Ice Harbor	1.96	102	18.1	102
Columbia above The Dalles	2.06	105	22.2	104
Kootenai	2.75	112	28.5	105
Clark Fork	2.43	101	19.1	95
Flathead	5.05	181	30.5	115
Pend Oreille River Basin above Waneta Dam	3.38	132	25.8	105
Salmon River Basin	2.29	96	22.8	101
Upper Snake Tributaries	3.18	132	19.2	95
Clearwater	3.27	105	34.2	105
Willamette River above Portland	1.82	55	64.1	109

Snowpack within the Columbia Basin has been declining. Snowpack in the Columbia River for basins above the Snake River confluence is 45% of average. For Snake River Basins the snowpack is 49% of average. For lower Columbia Basins between McNary and Bonneville Dam snowpack is 26% of average.

Table 2 displays the May 26th ESP runoff volume forecasts for multiple reservoirs along with the May COE forecasts at Libby and Dworshak. The May 26th ESP forecast at The Dalles between April and August is 85,582 Kaf (98% of average).

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

Location	May 26, 2016 5-day QPF ESP	
	% Average (1981–2010)	Runoff Volume (Kaf)
The Dalles (Apr–Aug)	98	85,582
Grand Coulee (Apr–Aug)	102	57,693
Libby Res. Inflow, MT (Apr–Aug)	96 99*	5,643 5,831*
Hungry Horse Res. Inflow, MT (Apr–Aug)	101	1,949
Lower Granite Res. Inflow (Apr–July)	85	16,875
Brownlee Res. Inflow (Apr–July)	77	4,200
Dworshak Res. Inflow (Apr–July)	90 86*	2,181 2,090*

* Denotes COE May Forecast

Grand Coulee Reservoir is at 1,268.8 feet (5-26-16) and has refilled 7.2 feet over the last week. Outflows at Grand Coulee have ranged between 72.7 and 117.0 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2,417.2 feet (5-26-16) and has refilled 1.6 feet over the previous week. Daily average outflows at Libby Dam have been 26.5 Kcfs over the last week for the sturgeon pulse operation.

Hungry Horse is currently at an elevation of 3,547.4 feet (5-26-16) and has refilled 4.0 feet over the last week. Outflows at Hungry Horse have been 4.0–6.8 Kcfs over the last week.

Dworshak is currently at an elevation of 1,588.5 feet (5-26-16) and has refilled 6.9 feet over the last week. Outflows have been 1.6–2.2 Kcfs over the last week.

The Brownlee Reservoir was at an elevation of 2,071.2 feet on May 26, 2016, and has refilled 2.5 feet over the last week. Inflows at Brownlee have ranged between 21.0 and 23.1 Kcfs over the last week.

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 7, 2016), the flow objective this spring will be 96 Kcfs at Lower Granite. Flows at Lower Granite Dam have averaged 87.6 Kcfs last week and 93.8 Kcfs between April 3 and May 26, 2016.

Based on the April Final Water Supply Forecast, the Spring Biological Opinion Flow Objectives (which began April 10th) will be 243 Kcfs at McNary Dam and 135 Kcfs at Priest Rapids Dam. Over the last week, flows have averaged 231.2 Kcfs at McNary and 127.8 Kcfs at Priest Rapids. Between April 10 and May 26, 2016, flows at McNary Dam averaged 279.8 Kcfs and Priest Rapids Dam flows were 168.9 Kcfs.

Spill and River Temperature

No spill occurred at Dworshak Dam over the past week.

Spill for fish passage began on April 3rd at the Snake River projects. Spill for fish passage at the Snake River projects is to occur at the following amounts described in the 2016 FOP.

Project	Spill Level Day/Night
Lower Granite	20 Kcfs/20 Kcfs
Little Goose	30%/30%
Lower Monumental	Gas Cap/Gas Cap
Ice Harbor	April 3–April 28: 45 Kcfs/Gas Cap April 28–June 20: 30%/30% vs. 45 Kcfs/Gas Cap

This past week all Lower Snake River projects (Lower Granite, Little Goose, Lower Monumental and Ice Harbor dams) have spilled at, or above, the 2016 Fish Operations Plan (FOP) levels. A System Operational Requests (SOR 2016_1) calling for a change in the spill pattern at Lower Monumental from bulk spill to uniform spill, which would increase spill at this project without exceeding the TDG criteria, was implemented on May 13th. Spill at Lower Monumental Dam has varied between 40 and 47 Kcfs this week, a significant increase in the volume of spill.

Spill for fish passage began on April 10th at the middle Columbia River projects. Spill for fish passage at the middle Columbia River projects is to occur at the following amounts described in the 2016 FOP.

Project	Spill Level Day/Night
McNary	40%/40%
John Day	April 10-April 28: 30%/30% April 28-June 15: 30%/30% and 40%/40%
The Dalles	40%/40%
Bonneville	100 Kcfs/100 Kcfs

This past week all Middle Columbia River projects (McNary, John Day, The Dalles, and Bonneville dams) have spilled at the 2016 Fish Operations Plan (FOP) levels.

All sites were within TDG criteria over the past week, except for one day (5/21) at the Ice Harbor Dam forebay when TDG measured 116%.

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

Monitoring for signs of gas bubble trauma (GBT) occurred at Lower Granite, Little Goose, Lower Monumental, Rock Island, McNary, and Bonneville dams over the past week. No fish were observed with signs of GBT over the past week.

Temperature: At Lower Granite and Ice Harbor dams, the forebay temperatures continued to be at levels near the 10-year average. However, at McNary and Bonneville dams the forebay temperatures have been very similar to what was observed in 2015, and are several degrees above the 10-year average.

Smolt Monitoring

Smolt Monitoring Program (SMP) sampling is ongoing at all SMP bypass facilities and the Grande Ronde and Imnaha traps. Sampling at the Salmon River and Snake River traps was officially terminated this week.

Samples at Bonneville Dam (BON) were again dominated by sockeye this week. This week's daily average passage index for sockeye at BON was about 12,000 per day, which is a decrease from last week's daily average passage index of about 38,000 per day. Passage of yearling Chinook, steelhead, and coho also decreased this week. This week's daily average passage indices for these three species were about 7,200, 5,000, and 7,500 per day, respectively. Last week's daily average passage indices were about 30,000 for yearling Chinook, 9,000 for steelhead, and 15,000 for coho. Subyearling Chinook passage this week was similar to last week. This week's daily average passage index for subyearling Chinook at BON was about 3,400 per day, whereas for last week it was nearly 4,300 per day. No Pacific lamprey ammocoetes were sampled at BON this week. Pacific lamprey macropthalmia were encountered in four of this week's samples (May 22–25).

Sampling at John Day Dam (JDA) in 2016 is every-other-day for the entire SMP season. This is the first time every-other-day sampling has occurred at this site over the entire season. Sockeye dominated the collections at JDA this week, with a daily average passage index of about 10,250 fish per day. This week's daily average passage index for sockeye is a decrease from last week's daily average of about 18,600 per day. Passage of yearling Chinook, coho, and steelhead also decreased this week when compared to last week. This week's daily average passage indices for these three species were 6,100, 1,800, and 2,200 per day, respectively. Last week's daily average passage indices were 22,250 for yearling Chinook, 3,700 for coho, and 5,400 for sockeye. Subyearling chinook passage increased this week, when compared to last week. This week's daily average passage index for subyearling Chinook was 6,100 per day, whereas that for last week was about 3,100 per day. No Pacific lamprey ammocoetes were encountered in this week's samples but Pacific lamprey macropthalmia were collected in all four of this week's samples. This week's daily average collection for Pacific macropthalmia at JDA was about 960 per day.

As in recent years, sampling at McNary Dam (MCN) in 2016 will be every-other-day for the entire SMP season. Sockeye dominated the samples at MCN this week, with a daily average passage index of about 16,750 per day. This daily average passage index is a decrease from last week's daily average passage index of about 67,500 fish per day. Yearling Chinook, coho, and steelhead passage also decreased this week when compared to the previous week. This week's daily average passage indices were 12,400 for yearling Chinook, 6,500 for coho, and 8,300 for steelhead. Last week's daily average passage indices for these three species were 59,000, 14,700, and 20,550 per day, respectively. Passage of subyearling Chinook also decreased this week. This week's daily average passage index for subyearling Chinook was 8,600 per day, whereas that for last week was about 14,700 per day. Finally, Pacific lamprey macropthalmia were collected in all three of this week's samples, with a daily average collection of about 1,630 per day. No Pacific ammocoetes have been collected at MCN so far this year.

This week's samples at Lower Granite Dam (LGR) were again dominated by steelhead, with a daily average passage index of about 13,650 per day. This is a decrease over last week's daily average passage index of about 40,600 per day. Yearling Chinook and sockeye were the second most abundant salmonid species

this week, with daily average passage indices of about 4,400 and 3,850 per day, respectively. This week's daily average passage index for yearling Chinook represents a decrease from last week's daily average, while that for sockeye is an increase. Last week's daily average passage indices for these two species were 12,100 for yearling Chinook and nearly 900 for sockeye. Coho passage decreased again this week when compared to the previous week. This week's daily average passage index for coho was 1,000 per day, whereas that for last week was about 2,000 per day. Subyearling Chinook passage increased this week. This week's daily average passage index for subyearling Chinook at LGR was about 5,350 per day, whereas that for last week was about 1,150 per day. The first known hatchery origin subyearling Chinook (i.e., clipped fin or CWT) was collected in the May 21st sample at LGR. Finally, Pacific lamprey ammocoetes were encountered in only one of this week's samples (May 20th), and Pacific lamprey macropthalmia were not encountered this week.

Sampling at Little Goose Dam (LGS) was limited to a 24-hour sample every-other-day until transportation began, at which time sampling switched to daily. Steelhead again dominated this week's collections at LGS. This week's daily average passage index for steelhead at LGS was about 11,800 fish per day. This is a decrease from last week's daily average passage index of about 22,650 per day. Yearling Chinook and coho passage also decreased this week, when compared to last week. This week's daily average passage indices for these two species were about 5,100 and 1,500 per day, respectively. Last week's daily average passage indices were 18,600 for yearling Chinook and 3,275 for coho. Passage of sockeye and subyearling Chinook increased this week when compared to the previous week. This week's daily average passage indices for these two species were 3,100 and 1,260 per day, respectively. Last week's daily average passage indices were 160 for sockeye and 960 for subyearling Chinook. Finally, Pacific lamprey ammocoetes were encountered in only one of this week's samples. Pacific lamprey macropthalmia were encountered in four of this week's samples, with a daily average collection for the week of 150 per day.

Sampling at Lower Monumental Dam (LMN) was limited to a 24-hour sample every-third-day through the April 14th, every-other-day from April 16th to April 30th, and every day with the initiation of transportation. This week's samples at LMN were dominated by steelhead, with a daily average passage index of 8,500 per day. Last week's daily average passage index for steelhead at LMN was nearly 23,000 per day. Passage of yearling Chinook and coho decreased this week when compared to the previous week. This week's daily average passage indices were 6,800 and 950 per day, respectively. Last week's daily average passage indices were 41,450 for yearling Chinook and 1,800 for coho. Sockeye passage increased this week when compared to last week. This week's daily average passage index for sockeye at LMN was nearly 2,800 per day, whereas that for last week was only 30 per day. With a daily average passage index of about 500 per day, subyearling Chinook passage this week was similar to last week. Finally, Pacific lamprey macropthalmia were collected in five of this week's samples, with a daily average collection for the week of 50 per day. No Pacific lamprey ammocoetes have been collected at LMN so far this year.

Coho dominated this week's samples at Rock Island Dam (RIS), with a daily average passage index of about 450 per day. This week's daily average passage index for coho represents a decrease over the previous week, which was about 1,700 per day. Passage of yearling Chinook, steelhead, and sockeye also decreased this week when compared to last week. This week's daily average passage indices for these three species were about 40, 140, and 30 per day, respectively. Last week's daily average passage indices were 250 for yearling Chinook, 400 for steelhead, and about 280 for sockeye. Subyearling Chinook passage increased slightly this week, when compared to last week. This week's daily average passage index for subyearling Chinook at RIS was nearly 40 fish per day, whereas that for last week was 20 fish per day. Finally, Pacific lamprey macropthalmia were encountered in only one of this week's samples, May 20th.

The Grande Ronde Trap (GRN) is operated by the Oregon Department of Fish and Wildlife and is located at river kilometer 2 in the Grande Ronde River. This week's daily average collection for yearling Chinook was about 26 per day, which is very similar to last week's daily average collection of 30 per day. Steelhead collections decreased slightly this week,

when compared to the previous week. This week's daily average collection for steelhead was about 30 fish per day, whereas for last week it was about 40 fish per day. The only other salmonids that were encountered in this week's samples were subyearling Chinook, with a daily average collection of about 44 fish per day. Of the subyearling Chinook juveniles that were collected this week, about 23% were fry.

The Salmon River Trap at Whitebird (WTB) is located at river kilometer 103 and operated by Idaho Department of Fish and Game. Similar to 2015, sampling at the Salmon River Trap in 2016 is five days per week. Sampling at WTB was suspended for the April 21 sample due to unsafe river conditions associated with high flows. Unfortunately, river conditions never improved enough to resume sampling at this trap for 2016.

The Snake River Trap at Lewiston (LEW) is located at river kilometer 225 and is operated by Idaho Department of Fish and Game. Sampling this week was limited to only three samples, May 20th, May 23rd, and May 24th. Sampling on May 21st and 22nd was suspended in order to reduce handling of listed hatchery subyearling fall Chinook juveniles that were released above the trap earlier in the week. In anticipation of additional releases of listed hatchery subyearling fall Chinook above the trap, sampling at this trap was terminated for the season on May 24th. With that said, subyearling Chinook dominated the three samples from LEW this week. Yearling Chinook were absent in all three of this week's samples and sockeye and steelhead were sampled in low numbers.

The Imnaha River Trap (IMN) is located at river kilometer seven and is operated by the Nez Perce Tribe. Sampling at the Imnaha River Trap is year-round and, for 2016, the Fish Passage Center has been receiving data since the January 1, 2016, sample. However, due to the remote nature of the trap, the Nez Perce Tribe is able to send collection data to the FPC only periodically. Currently, the FPC has data from IMN through the sample on May 11th but has not received any new data since our last weekly report.

Hatchery Release

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 1.0 million subyearling fall Chinook were scheduled to be released into this zone this week. Of these, about 500,000 were scheduled to be released on May 24th from Captain John Landing Acclimation Facility on the Snake River. The remaining 500,000 were scheduled to be released on May 26th from Big Canyon Creek Acclimation Facility on the Clearwater River. Approximately 60% of the fall Chinook juveniles that were scheduled to be released into this zone this week are unmarked. There were no other releases scheduled for this zone this week.

Four separate releases of subyearling fall Chinook juveniles are scheduled for this zone over the next two weeks. In all, these releases are expected to total just over 1.1 million juveniles. The first is a release of about 200,000 (18%) on May 30th from Lyons Ferry Hatchery, which is located in the Lower Monumental pool. Next, 320,000 (29%) subyearling fall Chinook juveniles are scheduled to be released on May 31st into Lapwai Creek, a tributary of the Clearwater River. Also on May 31st, approximately 400,000 (36%) subyearling fall Chinook juveniles will be released into the Grande Ronde River. Finally, about 200,000 (18%) subyearling fall Chinook juveniles are scheduled to be released on June 10th from the Captain John Rapids Acclimation Facility on the Snake River. An unknown proportion of the subyearling fall Chinook juveniles that are scheduled for release over the next two weeks are going to be unmarked and, therefore, difficult to distinguish from wild/natural fish. These are the only new releases that are scheduled for this zone over the next two weeks.

Mid-Columbia Zone: The Mid-Columbia Zone encompasses the area of the Columbia River and its tributaries from McNary Dam to Chief Joseph Dam. Three releases of subyearling summer Chinook were scheduled for this zone this week. In all, these releases were expected to total approximately 946,000 summer Chinook juveniles. Of these, about 23% were scheduled to be released into the Okanogan River, 25% were scheduled to be released from Chief Joseph Hatchery just below Chief Joseph Dam, and 51% were

scheduled to be released from Wells Hatchery just below Wells Dam.

Several volitional releases from previous weeks are scheduled to end over the next two weeks. These volitional releases are comprised of fall Chinook, summer Chinook, coho, and steelhead. In addition, one new release is scheduled for this zone over the next two weeks. Approximately 7.0 million subyearling fall Chinook juveniles are scheduled to be released from Priest Rapids Hatchery, which is located just below Priest Rapids Dam. This release is scheduled to begin on or around June 10th and is expected to run through late June. Although all of these fish are marked with an otolith mark, approximately 3.3 million will be otherwise unmarked (i.e., no clip or CWT) and, therefore, difficult to distinguish from a wild/natural fish.

Lower Columbia Zone: The Lower Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to McNary Dam. There were no new releases scheduled for this zone this week. On or around June 1st, the Yakama Tribe is scheduled to release approximately 4.0 million subyearling fall Chinook from Klickitat Hatchery into the Klickitat River. Marking information on this release is unknown at this time. Based on past year's marking information, a large portion of this release is likely to be unmarked. This is the only release that is scheduled for this zone over the next two weeks.

Adult Passage

Adult counts at Bonneville Dam have been updated through 5/26/16. The 2016 adult spring Chinook count at Bonneville Dam of 130,555 is about 63% of the 2015 count of 206,445 and 94% of the 10-year average count of 139,150. The 2016 spring Chinook jack count of 10,411 is about 92% of the 2015 count of 11,294, while being 46% of the 10-year average count of 22,860. At Willamette Falls, 13,046 adult spring Chinook have been counted so far this year. In 2015, 36,916 adult spring Chinook were counted at Willamette Falls. This year's count is about 35% of the 2015 count and 69% of the 10-year average count of 18,989. As of May 26th, a total of 95,417 adult spring Chinook have been counted at The Dalles Dam and 68,906 have been counted at McNary Dam. The Dalles Dam 2016 adult spring Chinook count is about 54% of the 2015 count and 91% of the 10-year average count. The 2016 McNary Dam adult spring Chinook count is about 50% of the 2015 count and 90% of the 10-year average count. A total of 44,209 spring chinook have been counted at Lower Granite Dam as of May 26th. The 2016 Lower Granite Dam adult spring Chinook count is about 50% of the 2015 count, while being about 1.1 times greater than the 10-year average count.

The 2016 Bonneville Dam adult steelhead count of 4,946 has 6 fewer fish than the 2015 count of 4,952 and 182 fewer fish than the 10-year average count of 5,128. The 2016 Bonneville Dam adult wild steelhead count of 1,864 is about 75% of the 2015 count of 2,482, while having 380 more fish than the 10-year average count of 1,484. At upriver sites, adult steelhead continue to move through the hydrosystem to reach their tributaries and spawning sites. Daily adult steelhead counts at Lower Granite Dam ranged from 1 to 2 adults per day last week. This year's Lower Granite steelhead count of 5,468 is 60% of the 2015 count of 9,172 and 59% of the 10-year average count of 9,243. The 2016 Lower Granite Dam adult wild steelhead count of 3,113 is 72% of the 2015 count of 4,337 and is about 89% of the 10-year average count of 3,507. At Willamette Falls, the 2016 count for steelhead was 10,660 as of May 19th. This year's steelhead count is about 2 times greater than the 2015 count of 5,453, while having 366 more fish than the 10-year average count of 10,294.

Hatchery Releases Last Two Weeks

Hatchery Release Summary
From: 5/14/2016 to 05/27/16

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
Colville Tribe	Chief Joseph Hatchery	CH0	SU	2016	222,000	05-25-16	05-29-16	Omak Pond	Okanogan River
Colville Tribe	Chief Joseph Hatchery	CH0	SU	2016	240,000	05-25-16	05-29-16	Chief Joseph Hatchery	Wells Pool
Colville Tribe Total					**462,000**				
Idaho Dept. of Fish and Game	Springfield Hatchery	SO	UN	2016	540,665	05-09-16	05-20-16	Redfish Lake Creek	Salmon River (ID)
Idaho Dept. of Fish and Game Total					**540,665**				
Nez Perce Tribe	Lyons Ferry Hatchery	CH0	FA	2016	400,000	05-20-16	05-20-16	Pittsburg Landing Acclim Pond	Snake River
Nez Perce Tribe	Lyons Ferry Hatchery	CH0	FA	2016	500,000	05-24-16	05-24-16	Cpt John Acclim Pond	Snake River
Nez Perce Tribe	Lyons Ferry Hatchery	CH0	FA	2016	500,000	05-26-16	05-26-16	Big Canyon (Clearwater River)	Clearwater River M F
Nez Perce Tribe Total					**1,400,000**				
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	CH0	FA	2016	1,000,000	05-16-16	05-20-16	Hells Canyon Dam	Snake River
Oregon Dept. of Fish and Wildlife Total					**1,000,000**				
U.S. Fish and Wildlife Service	Winthrop NFH	ST	SU	2016	130,700	04-15-16	05-15-16	Winthrop Hatchery	Methow River
U.S. Fish and Wildlife Service Total					**130,700**				
Umatilla Tribe	Umatilla Hatchery	CH0	FA	2016	545,360	05-16-16	05-16-16	Reith Bridge	Umatilla River
Umatilla Tribe Total					**545,360**				
WA Dept. of Fish and Wildlife	Methow Hatchery	CH1	SU	2016	171,500	05-01-16	05-15-16	Carlton Acclim Pond	Methow River
WA Dept. of Fish and Wildlife	Skamania Hatchery	ST	WI	2016	15,500	04-15-16	05-15-16	Rock Cr (Stevenson)	Bonneville Pool
WA Dept. of Fish and Wildlife	Wells Hatchery	CH0	SU	2016	484,000	05-25-16	06-07-16	Wells Hatchery	Rocky Reach Pool
WA Dept. of Fish and Wildlife Total					**671,000**				
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2016	220,000	03-15-16	05-15-16	Clark Flat Acclim Pond	Yakima River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2016	220,000	03-15-16	05-15-16	Easton Pond	Yakima River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2016	220,000	03-15-16	05-15-16	Jack Creek Acclim Pond	Yakima River
Yakama Tribe Total					**660,000**				
Grand Total					**5,409,725**				

Hatchery Releases Next Two Weeks

Hatchery Release Summary

From: 5/28/2016 to 6/10/2016

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
Colville Tribe	Chief Joseph Hatchery	CH0	SU	2016	222,000	05-25-16	05-29-16		Okanogan River
Colville Tribe	Chief Joseph Hatchery	CH0	SU	2016	240,000	05-25-16	05-29-16	Chief Joseph Hatchery	Wells Pool
Colville Tribe Total					**462,000**				
Nez Perce Tribe	Lyons Ferry Hatchery	CH0	FA	2016	200,000	06-10-16	06-10-16	Cpt John Acclim Pond	Snake River
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH0	FA	2016	319,580	05-31-16	05-31-16	Lapwai Creek	Clearwater River M F
Nez Perce Tribe Total					**519,580**				
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	CH0	FA	2016	400,000	05-31-16	05-31-16	Grande Ronde River	Grande Ronde River
Oregon Dept. of Fish and Wildlife	Round Butte Hatchery	CH1	SP	2016	240,000	04-15-16	05-31-16	Deschutes River	Deschutes River
Oregon Dept. of Fish and Wildlife Total					**640,000**				
WA Dept. of Fish and Wildlife	COOP	CH0	FA	2016	175	05-01-16	05-31-16	Wenatchee River	Wenatchee River
WA Dept. of Fish and Wildlife	COOP	CH0	FA	2016	1,025	05-01-16	05-31-16	Above McNary Dam	McNary Pool
WA Dept. of Fish and Wildlife	COOP	CH0	FA	2016	3,850	05-01-16	05-31-16	Above McNary Dam	McNary Pool
WA Dept. of Fish and Wildlife	COOP	CH0	FA	2016	3,975	05-01-16	05-31-16	Above McNary Dam	McNary Pool
WA Dept. of Fish and Wildlife	COOP	CH0	FA	2016	13,600	05-01-16	05-31-16	Yakama River	Yakima River
WA Dept. of Fish and Wildlife	COOP	CH0	SU	2017	225	05-01-16	05-31-16	Methow River	Methow River
WA Dept. of Fish and Wildlife	Eastbank Hatchery	CH1	SU	2016	535,000	04-25-16	05-30-16	Dryden Acclim Pond	Wenatchee River
WA Dept. of Fish and Wildlife	Eastbank Hatchery	ST	SU	2016	24,000	04-20-16	05-31-16	Blackbird Island Acc Pond	Wenatchee River
WA Dept. of Fish and Wildlife	Lyons Ferry Hatchery	CH0	FA	2016	200,000	05-30-16	05-30-16	Lyons Ferry Hatchery	Snake River
WA Dept. of Fish and Wildlife	Priest Rapids Hatchery	CH0	FA	2016	7,039,543	06-10-16	06-25-16	Priest Rapids Hatchery	McNary Pool
WA Dept. of Fish and Wildlife	Wells Hatchery	CH0	SU	2016	484,000	05-25-16	06-07-16	Wells Hatchery	Rocky Reach Pool
WA Dept. of Fish and Wildlife	Wells Hatchery	ST	SU	2016	160,000	04-20-16	05-31-16	Wells Hatchery	Rocky Reach Pool
WA Dept. of Fish and Wildlife Total					**8,465,393**				
Yakama Tribe	Cascade Hatchery	CO	UN	2016	68,020	05-01-16	05-31-16	Twisp Acclim Pond	Methow River
Yakama Tribe	Cascade Hatchery	CO	UN	2016	79,496	05-01-16	05-31-16	Coulter Creek	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2016	135,272	05-01-16	05-31-16	Butcher Creek Acclim. Pond	Wenatchee River
Yakama Tribe	Eagle Creek NFH	CO	UN	2016	95,939	04-15-16	06-01-16	Stiles Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2016	193,067	04-15-16	06-01-16	Holmes Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2016	215,045	04-15-16	06-01-16	Easton Pond	Yakima River
Yakama Tribe	Klickitat Hatchery	CH0	FA	2016	4,000,000	06-01-16	06-01-16	Klickitat Hatchery	Klickitat River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2016	74,227	04-15-16	06-01-16	Lost Creek Acclim Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2016	74,951	04-15-16	06-01-16	Stiles Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2016	76,167	04-15-16	06-01-16	Yakama River	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2016	299,959	04-15-16	06-01-16	Prosser Acclim Pond	Yakima River
Yakama Tribe	Willard Hatchery	CO	UN	2016	121,443	05-01-16	05-31-16	Rolfings Acclim Pond	Wenatchee River
Yakama Tribe Total					**5,433,586**				
Grand Total					**15,520,559**				

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

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

	Grand Coulee		Chief Joseph		Wells		Rocky Reach		Rock Island		Wanapum		Priest Rapids	
Date	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
05/13/2016	137.4	0.0	138.6	0.0	149.1	13.2	155.6	5.0	170.7	21.4	176.0	39.9	175.8	56.8
05/14/2016	109.2	0.0	112.1	0.0	129.7	13.2	131.1	0.0	147.0	14.4	155.0	20.3	156.0	27.4
05/15/2016	95.7	0.0	95.4	0.0	117.3	12.7	119.5	0.0	136.5	13.3	151.6	19.7	148.6	27.4
05/16/2016	111.5	0.0	116.8	0.0	131.1	13.2	132.7	0.0	145.6	15.6	151.1	19.1	153.2	26.2
05/17/2016	125.1	0.0	122.2	0.0	139.6	14.4	140.7	4.8	150.7	16.0	151.0	19.4	142.2	27.3
05/18/2016	96.6	0.0	99.5	0.0	124.1	11.4	135.0	3.8	146.8	14.5	152.3	20.2	150.3	28.4
05/19/2016	74.0	0.0	73.3	0.0	98.8	8.1	102.3	0.0	117.2	12.6	137.9	19.1	138.1	27.4
05/20/2016	92.7	0.0	91.5	0.0	112.5	7.6	113.4	0.0	125.0	12.3	137.0	17.9	137.3	22.5
05/21/2016	72.5	0.0	76.1	0.0	93.3	8.1	91.8	0.0	105.5	12.0	116.7	17.5	117.8	26.6
05/22/2016	83.2	0.0	81.3	0.0	80.5	6.6	70.3	0.0	77.8	9.9	94.9	18.0	92.8	23.6
05/23/2016	116.5	0.0	114.3	0.0	133.3	9.5	131.5	0.0	142.1	14.8	123.2	20.9	121.3	27.0
05/24/2016	117.0	0.0	119.4	0.0	140.1	10.0	139.7	0.0	153.1	13.4	147.9	19.0	139.5	26.7
05/25/2016	110.0	0.0	112.9	0.0	131.9	10.0	130.3	0.0	143.9	12.6	152.4	19.1	150.2	24.2
05/26/2016	115.9	0.0	115.7	0.0	127.0	9.5	118.4	0.0	130.1	12.6	136.7	18.5	135.9	25.9

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

	Dworshak		Brownlee	Hells Canyon	Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
Date	Flow	Spill	Inflow	Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
05/13/2016	9.7	0.0	---	18.2	86.9	20.4	82.8	24.8	80.6	28.5	85.0	58.3
05/14/2016	9.7	0.0	---	19.9	91.8	20.3	86.6	26.0	85.2	35.8	89.8	44.1
05/15/2016	9.7	0.0	---	19.3	96.0	20.5	93.8	28.1	92.3	37.3	96.3	41.0
05/16/2016	9.6	0.0	---	18.8	102.6	20.4	97.3	29.2	97.3	41.0	102.6	58.6
05/17/2016	6.1	0.0	---	15.5	93.9	20.5	91.4	27.4	91.2	40.6	97.9	68.0
05/18/2016	5.4	0.0	---	20.7	89.6	20.4	85.1	25.5	82.0	40.3	86.2	58.1
05/19/2016	5.4	0.0	---	20.1	93.5	20.4	89.0	26.8	88.6	40.5	91.6	62.8
05/20/2016	4.4	0.0	---	19.7	107.0	20.4	102.1	30.8	102.2	40.8	106.1	59.9
05/21/2016	2.2	0.0	---	17.1	94.1	20.4	90.5	27.1	89.0	40.5	92.8	37.9
05/22/2016	2.2	0.0	---	16.5	89.9	20.4	85.9	25.8	85.0	40.3	89.8	52.9
05/23/2016	2.2	0.0	---	21.2	83.0	20.3	80.6	24.1	78.8	42.4	83.3	56.7
05/24/2016	1.6	0.0	---	23.7	84.1	20.4	81.0	24.3	79.0	45.0	81.7	37.9
05/25/2016	1.6	0.0	---	22.3	78.5	20.4	76.2	22.8	74.3	45.0	78.2	24.9
05/26/2016	1.6	0.0	---	21.9	76.6	20.5	73.8	22.1	71.9	47.1	74.3	22.2

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

	McNary		John Day		The Dalles		Bonneville			
Date	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	PH1	PH2
05/13/2016	284.0	113.8	270.9	103.8	256.7	103.3	272.2	99.9	47.5	112.5
05/14/2016	262.9	105.6	256.8	77.1	235.1	94.0	261.2	100.0	36.2	112.7
05/15/2016	260.4	104.3	246.2	78.4	229.2	91.9	252.1	100.8	26.9	112.0
05/16/2016	258.6	103.7	264.8	106.0	246.7	98.6	264.7	100.1	39.7	112.5
05/17/2016	271.3	108.9	271.7	104.2	254.0	102.1	276.9	99.7	50.6	114.2
05/18/2016	244.4	97.9	228.5	68.8	214.0	85.6	241.3	99.6	17.4	111.9
05/19/2016	240.9	96.5	236.7	75.2	218.2	87.6	237.1	99.7	13.2	111.7
05/20/2016	261.9	104.7	267.5	107.1	247.7	99.1	265.7	99.9	44.9	108.5
05/21/2016	241.4	96.8	231.6	89.5	216.8	86.9	252.7	99.5	29.9	110.8
05/22/2016	201.4	81.0	197.5	59.2	184.5	73.6	208.9	100.0	4.7	91.8
05/23/2016	214.9	86.0	213.2	67.4	197.0	78.5	207.8	100.6	0.9	93.9
05/24/2016	223.5	89.6	227.6	90.6	212.7	84.7	229.1	99.7	11.1	106.0
05/25/2016	237.4	95.3	227.3	86.8	209.4	83.5	232.6	100.2	14.5	105.5
05/26/2016	237.9	95.3	219.8	65.7	202.5	81.1	217.8	100.5	2.4	102.5

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

Site	Date	Species	Number of Fish	Number w GBT signs	Number w Fin Signs	% Fin GBT	% Severe Fin GBT	Number of Fish with Fin GBT Listed by Highest Rank: Rank 1	Rank 2	Rank 3	Rank 4
Lower Granite Dam											
	05/19/16	Chinook + Steelhead	101	0	0	0.00%	0.00%	0	0	0	0
	05/26/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Little Goose Dam											
	05/16/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/23/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Lower Monumental Dam											
	05/18/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
McNary Dam											
	05/16/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/20/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/22/16	Chinook + Steelhead	102	0	0	0.00%	0.00%	0	0	0	0
	05/26/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Bonneville Dam											
	05/14/16	Chinook + Steelhead	100	2	2	2.00%	0.00%	1	1	0	0
	05/17/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/21/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/24/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Rock Island Dam											
	05/17/16	Chinook + Steelhead	100	4	4	4.00%	0.00%	4	0	0	0
	05/19/16	Chinook + Steelhead	100	2	2	2.00%	0.00%	2	0	0	0
	05/24/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/26/16	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0

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

Total Dissolved Gas Saturation Data at Upper Columbia River Sites

	Hungry H. Dnst				Boundary				Grand Coulee				Grand C. Tlwr				Chief Joseph			
	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
5/13	102.7	103.0	103.2	24	---	---	---	0	110.0	110.4	111.1	24	108.2	108.6	108.8	24	107.9	108.4	108.8	24
5/14	103.2	103.8	104.0	24	---	---	---	0	110.3	110.6	110.8	24	108.7	109.1	109.3	24	108.5	108.9	109.0	24
5/15	104.1	104.3	104.6	24	---	---	---	0	110.6	110.8	111.1	24	108.6	108.9	109.3	24	108.6	108.7	108.9	24
5/16	104.2	104.6	104.8	24	---	---	---	0	109.9	110.1	110.3	24	108.2	108.6	109.0	24	108.2	108.4	108.9	24
5/17	104.2	104.5	104.8	24	---	---	---	0	109.9	110.2	110.7	24	108.1	108.4	108.7	24	108.1	108.7	109.0	24
5/18	105.2	105.9	106.2	24	---	---	---	0	110.8	111.2	111.5	24	109.2	110.0	110.3	24	109.3	110.0	110.2	24
5/19	105.8	106.0	106.1	24	---	---	---	0	111.0	111.2	111.4	24	109.1	109.7	110.4	24	109.5	109.7	109.9	24
5/20	105.2	105.4	105.5	24	---	---	---	0	110.7	110.9	111.1	24	109.3	109.9	110.5	24	109.4	109.8	110.5	24
5/21	105.1	105.3	105.6	24	---	---	---	0	110.8	111.0	111.3	24	109.7	110.1	110.4	24	109.4	109.6	109.9	24
5/22	104.9	105.2	105.3	24	---	---	---	0	110.8	110.9	111.1	24	109.4	109.8	110.3	24	109.4	109.7	110.0	24
5/23	104.0	104.2	104.3	24	---	---	---	0	110.6	110.8	111.0	24	109.0	109.1	109.6	24	109.4	109.6	109.8	24
5/24	103.4	103.5	103.7	24	---	---	---	0	110.2	110.4	110.5	24	108.6	108.8	109.3	24	109.2	109.5	109.9	24
5/25	103.3	103.5	103.8	24	---	---	---	0	109.9	110.0	110.2	24	108.0	108.2	108.5	24	108.8	109.1	109.5	24
5/26	103.8	104.0	104.6	23	---	---	---	0	109.9	110.1	110.2	23	108.0	108.3	108.6	23	108.6	109.1	109.5	23

Total Dissolved Gas Saturation Data at Mid Columbia River Sites

	Chief J. Dnst				Wells				Wells Dwnstrm				Rocky Reach				Rocky R. Tlwr			
	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
5/13	107.3	107.8	108.4	24	106.8	107.1	107.4	24	109.6	110.1	110.5	24	110.2	111.1	111.5	24	112.1	113.6	114.6	24
5/14	108.6	109.1	109.4	24	107.4	107.8	108.3	24	109.8	110.3	110.4	24	110.3	110.5	110.6	24	110.1	110.3	110.4	24
5/15	108.5	108.8	109.1	24	106.9	107.1	107.5	24	109.7	110.0	110.2	24	109.6	109.9	110.4	24	109.5	109.7	110.4	24
5/16	108.1	108.5	108.8	24	106.8	107.3	107.7	22	109.5	109.9	110.3	22	108.9	109.1	109.2	24	108.7	108.8	109.1	24
5/17	107.9	108.2	108.7	24	107.2	107.6	108.0	24	110.1	111.0	112.6	24	109.0	109.4	109.7	24	109.5	110.6	117.9	24
5/18	109.1	109.6	110.2	24	108.1	108.5	109.0	24	110.3	110.9	112.3	24	110.1	110.7	111.0	23	111.4	112.8	119.3	23
5/19	109.9	110.3	110.9	24	107.9	108.2	109.1	24	109.6	110.1	111.3	24	110.6	110.8	111.2	24	110.2	110.4	110.6	24
5/20	109.5	110.0	110.7	24	107.6	108.2	108.5	24	109.2	109.6	110.0	24	109.2	109.5	110.0	24	108.9	109.1	109.4	24
5/21	109.7	110.6	111.4	24	108.2	108.7	109.2	24	109.7	110.3	110.9	24	109.0	109.1	109.1	24	108.6	108.7	109.0	24
5/22	109.4	109.7	109.9	24	107.8	108.0	108.3	24	109.2	109.6	110.4	24	108.8	109.0	109.2	24	108.0	108.2	108.4	24
5/23	109.4	109.9	110.7	24	107.9	108.1	108.3	23	109.6	109.9	110.1	23	108.3	108.6	108.8	24	108.1	108.4	108.7	24
5/24	108.8	108.9	109.3	24	108.4	108.9	109.6	24	109.9	110.5	111.1	24	108.2	108.8	109.1	23	108.0	108.5	108.8	23
5/25	108.6	108.9	109.4	24	108.4	108.9	109.1	24	109.9	110.3	110.7	24	109.1	109.4	109.7	24	108.7	109.0	109.5	24
5/26	108.1	108.4	108.6	23	108.2	108.6	109.0	22	109.7	110.2	110.6	22	109.2	109.4	109.6	23	109.0	109.1	109.5	23

Total Dissolved Gas Saturation at Mid Columbia River Sites

	Rock Island				Rock I. Tlwr				Wanapum				Wanapum Tlwr				Priest Rapids			
	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
5/13	109.1	110.2	111.3	24	112.2	113.0	113.9	24	110.8	111.3	111.8	24	111.8	111.9	112.0	24	111.1	111.4	111.6	24
5/14	109.0	109.5	110.7	24	110.9	111.5	113.8	24	111.0	111.2	111.4	24	112.2	112.3	112.4	24	111.0	111.2	111.5	24
5/15	108.2	108.4	108.5	24	109.9	110.4	110.8	24	110.2	110.3	110.5	24	111.5	111.7	112.2	24	110.4	110.6	111.0	24
5/16	107.5	107.9	108.2	24	109.6	110.2	110.8	24	110.1	110.6	111.6	24	110.9	111.1	111.8	24	110.0	110.2	110.3	24
5/17	107.5	108.1	108.4	24	109.7	110.4	111.2	23	108.8	109.3	109.7	24	110.2	110.5	110.9	24	109.8	110.1	110.3	24
5/18	109.3	110.3	111.8	24	111.4	112.2	113.1	24	109.4	110.0	111.2	24	111.0	111.3	111.6	24	110.2	110.5	110.9	24
5/19	108.4	108.8	109.1	24	110.9	111.4	112.6	24	107.9	108.4	109.0	24	110.1	110.6	111.3	24	109.1	109.6	110.2	24
5/20	108.3	108.5	108.9	24	110.4	111.0	111.7	24	108.7	109.5	109.8	24	110.3	110.7	111.0	24	108.3	108.7	109.2	24
5/21	107.3	107.6	107.8	24	110.3	110.9	111.8	24	109.1	109.5	109.9	24	110.6	111.0	111.8	24	109.1	109.3	109.6	24
5/22	107.1	107.3	107.6	24	111.3	112.2	113.4	24	106.6	107.2	107.9	24	109.7	110.2	111.0	24	108.2	108.5	108.5	24
5/23	106.9	107.1	107.3	24	109.6	109.9	110.5	24	105.7	105.8	105.8	24	109.3	110.3	116.3	24	107.8	108.1	108.8	24
5/24	106.8	107.3	107.7	24	108.6	109.5	109.7	23	107.4	108.8	109.9	24	109.2	109.8	110.2	24	107.1	107.6	108.1	24
5/25	107.4	107.9	108.3	24	109.7	110.1	110.5	24	---	---	---	0	---	---	---	0	---	---	---	0
5/26	107.7	108.0	108.5	23	110.4	110.8	111.5	23	---	---	---	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

	Priest R. Dnst				Pasco				Dworshak				Clrwtr-Peck				Anatone			
	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
5/13	114.6	115.6	116.9	24	---	---	---	0	97.7	98.1	98.4	24	101.1	102.0	102.6	24	105.5	106.4	107.1	24
5/14	112.0	112.4	112.8	24	---	---	---	0	98.6	98.9	99.0	24	100.9	101.2	101.4	24	104.6	104.8	105.0	24
5/15	111.5	111.6	111.8	24	---	---	---	0	98.6	98.8	98.9	24	100.4	100.5	100.8	24	104.1	104.3	104.4	24
5/16	111.2	111.5	111.8	24	---	---	---	0	98.1	98.3	98.5	24	101.0	101.7	102.3	24	105.0	105.7	106.3	24
5/17	111.2	111.5	111.7	24	---	---	---	0	98.5	99.3	100.7	24	101.6	102.7	103.4	24	105.5	106.4	107.1	24
5/18	111.7	112.0	112.3	24	---	---	---	0	98.8	99.4	99.9	24	102.0	102.9	103.4	24	105.9	106.8	107.5	24
5/19	111.0	111.3	111.6	24	---	---	---	0	99.2	99.5	99.9	24	101.3	101.6	101.9	24	105.2	105.7	106.4	23
5/20	110.0	110.3	110.4	24	---	---	---	0	104.4	105.1	105.8	24	102.4	103.0	103.5	24	105.1	105.6	105.9	24
5/21	110.9	111.0	111.1	24	---	---	---	0	100.5	101.3	104.7	24	101.2	101.4	102.2	24	105.2	105.6	106.2	24
5/22	110.6	110.8	110.9	24	---	---	---	0	99.7	100.3	100.6	24	101.1	101.6	102.1	24	105.2	105.5	106.0	24
5/23	110.3	111.0	113.3	24	---	---	---	0	99.6	100.1	100.6	24	101.1	101.4	101.6	24	105.1	105.5	105.9	24
5/24	110.0	110.4	110.8	24	---	---	---	0	103.3	104.4	105.0	24	101.5	102.2	103.1	24	104.5	104.8	105.3	24
5/25	---	---	---	0	---	---	---	0	104.2	105.5	106.5	24	101.7	102.5	103.1	24	104.5	105.1	105.7	23
5/26	---	---	---	0	---	---	---	0	104.4	105.8	108.4	23	101.7	102.5	103.0	23	104.5	105.1	105.6	23

Total Dissolved Gas Saturation Data at Snake River Sites

	Clrwtr-Lewiston				Lower Granite				L. Granite Tlwr				Little Goose				L. Goose Tlwr			
	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
5/13	101.7	103.0	103.9	24	105.7	106.1	106.3	24	110.0	110.3	110.5	24	109.3	109.7	110.6	24	113.3	113.7	114.1	24
5/14	100.9	101.3	101.6	24	105.5	105.7	105.8	24	110.1	110.3	110.4	24	108.4	108.6	108.8	24	113.4	113.5	113.6	24
5/15	100.2	100.4	100.5	24	104.3	104.5	104.9	24	109.9	110.1	110.3	24	107.8	107.9	108.2	24	113.8	114.1	114.2	24
5/16	100.7	101.5	102.0	24	102.3	102.7	103.5	24	109.6	109.9	110.2	24	107.2	107.5	108.0	24	114.1	114.5	114.7	24
5/17	101.8	103.3	104.3	24	101.7	102.0	102.3	24	109.3	109.4	109.9	24	106.5	106.8	107.3	24	113.7	114.2	114.6	24
5/18	102.4	103.7	104.8	24	103.7	104.5	104.8	24	110.0	110.4	110.9	24	107.9	108.5	108.9	24	113.4	113.6	113.8	24
5/19	101.4	102.0	102.6	24	105.0	105.3	105.5	24	110.2	110.3	110.4	24	107.6	107.9	108.7	24	113.3	113.6	114.2	24
5/20	101.4	102.4	103.1	24	105.4	105.6	105.9	24	110.4	110.5	110.9	24	107.5	107.9	108.1	24	114.6	115.0	115.4	24
5/21	101.2	101.6	102.3	24	103.6	103.9	104.5	24	109.8	110.0	110.4	24	107.4	107.6	107.8	24	113.5	114.0	114.4	24
5/22	100.9	101.5	102.1	24	102.3	102.4	102.6	24	109.3	109.4	109.7	24	106.5	106.8	107.2	24	112.7	112.8	112.9	24
5/23	101.0	101.5	101.8	24	102.3	102.5	102.6	24	109.6	109.8	109.9	24	104.5	104.8	105.4	24	112.0	112.2	112.4	24
5/24	101.5	102.7	103.9	24	102.9	103.3	103.5	23	109.8	110.1	110.5	24	103.7	103.8	104.0	24	111.9	112.1	112.4	24
5/25	103.4	106.4	121.5	24	103.2	103.4	103.5	24	109.5	109.8	110.2	24	105.0	105.9	106.4	24	111.2	111.6	112.3	24
5/26	110.5	115.2	136.4	23	103.2	103.4	103.8	23	109.8	110.0	110.3	23	106.6	106.8	107.4	23	110.7	111.0	111.4	23

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

	Lower Mon.				L. Mon. Tlwr				Ice Harbor				Ice Harbor Tlwr				McNary-Oregon			
	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
5/13	114.4	114.7	114.9	24	118.5	119.7	120.4	24	115.3	115.8	116.3	24	116.1	116.6	117.5	24	---	---	---	0
5/14	113.9	114.8	115.2	24	117.0	117.3	117.5	24	115.4	115.7	116.3	24	116.5	116.9	117.7	24	---	---	---	0
5/15	112.3	112.4	112.6	24	117.8	117.9	118.1	24	113.6	114.0	114.9	24	116.1	116.4	116.7	24	---	---	---	0
5/16	112.6	113.2	113.8	24	118.1	118.3	118.5	24	113.1	113.3	113.7	24	117.5	118.8	119.9	24	---	---	---	0
5/17	113.5	113.9	114.3	24	117.8	118.2	118.5	24	114.7	115.7	116.4	24	117.8	118.5	119.9	24	---	---	---	0
5/18	115.3	115.9	116.1	24	117.7	118.1	118.3	24	117.1	117.8	118.2	24	116.6	117.3	118.5	24	---	---	---	0
5/19	114.9	115.4	116.1	24	117.9	118.4	119.3	24	117.2	117.5	118.1	24	117.0	117.6	118.9	24	---	---	---	0
5/20	112.9	113.2	113.8	24	118.1	118.4	118.6	24	115.5	115.7	116.2	24	118.8	119.1	119.7	24	---	---	---	0
5/21	113.8	113.9	114.1	24	117.8	118.0	118.2	24	115.2	115.4	115.5	24	117.0	118.3	118.8	24	---	---	---	0
5/22	113.0	113.4	113.8	24	117.5	117.8	117.9	24	113.3	113.7	114.3	24	115.7	116.1	117.8	24	---	---	---	0
5/23	110.9	111.2	111.8	24	117.2	117.5	117.7	24	111.7	111.9	112.2	24	116.0	116.3	116.7	24	---	---	---	0
5/24	110.6	110.7	110.8	24	117.0	117.2	117.4	24	112.1	112.7	113.3	24	115.2	115.9	116.7	24	---	---	---	0
5/25	111.0	111.4	111.7	24	116.8	117.0	117.7	24	114.2	114.8	115.2	24	115.5	116.0	116.8	24	---	---	---	0
5/26	111.4	111.5	111.6	23	116.9	117.1	117.3	23	115.1	115.3	115.6	23	115.4	115.7	116.1	23	---	---	---	0

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

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

	McNary-Wash				McNary Tlwr				John Day				John Day Tlwr				The Dalles			
	24 h	12 h		#	24 h	12 h		#	24h	12h		#	24h	12h		#	24h	12h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	AVG	High	hr
5/13	112.9	113.8	114.9	24	115.7	116.0	116.2	24	111.2	112.3	113.0	24	117.8	118.5	119.5	24	113.3	114.1	114.6	24
5/14	111.4	111.7	112.7	24	115.3	115.4	115.6	24	112.7	112.9	113.0	24	114.4	115.4	116.3	24	113.2	114.1	114.6	24
5/15	111.0	111.2	111.5	24	115.1	115.3	115.4	24	111.2	111.6	112.1	24	114.3	115.2	117.9	24	110.1	110.8	111.5	24
5/16	109.0	109.6	110.5	24	115.2	115.3	115.6	24	108.9	109.4	110.2	24	117.4	117.9	118.2	24	109.4	110.3	110.7	24
5/17	109.6	110.1	111.5	24	115.3	115.6	116.0	24	108.2	108.7	108.9	24	117.2	117.9	118.3	24	110.7	111.8	112.5	24
5/18	111.8	112.1	112.7	24	115.3	115.5	115.9	24	108.6	108.8	108.9	24	113.6	113.9	114.6	24	110.8	111.9	112.4	24
5/19	111.1	111.6	111.9	24	115.1	115.4	115.8	24	107.4	107.6	108.0	24	114.4	115.2	116.7	24	107.2	107.5	107.9	24
5/20	110.0	110.5	111.5	24	115.4	115.6	115.8	24	107.4	107.9	108.0	24	117.9	118.4	118.6	24	108.9	111.0	111.7	24
5/21	108.7	109.2	110.0	24	115.1	115.3	115.5	24	107.6	107.8	108.0	24	115.9	116.3	118.2	24	110.1	110.9	112.3	24
5/22	108.0	108.4	108.8	24	114.7	114.9	115.1	24	106.1	106.4	106.8	24	114.3	114.5	114.7	24	108.1	108.5	108.7	24
5/23	106.2	106.6	107.1	24	114.8	114.9	115.2	24	105.2	105.3	105.5	24	114.5	114.9	116.6	24	107.4	107.9	108.1	24
5/24	106.0	106.6	107.1	24	114.2	114.4	114.6	24	105.2	105.5	105.7	24	115.7	116.6	116.8	24	107.9	108.7	109.3	24
5/25	107.5	107.9	108.4	24	114.1	114.4	114.7	24	104.7	104.9	105.2	24	115.3	116.9	117.9	24	108.2	108.6	109.1	24
5/26	107.9	108.2	108.4	23	113.7	113.8	114.0	23	103.8	104.0	104.2	23	113.5	113.7	114.0	23	106.5	107.2	107.8	23

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

	The Dalles Dnst				Bonneville				Warrendale				Camas\Washougal				Cascade Island			
	24 h	12 h		#	24 h	12 h		#	24h	12h		#	24h	12h		#	24h	12h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
5/13	117.4	118.2	118.5	24	115.2	115.7	116.5	24	116.4	116.5	116.7	24	114.9	115.3	115.9	24	118.7	118.9	119.0	24
5/14	117.0	117.3	118.1	24	115.5	116.3	116.5	24	116.2	116.4	116.6	24	113.5	113.7	113.9	24	118.5	118.6	118.8	24
5/15	115.1	115.6	116.4	24	112.3	112.9	113.3	24	115.1	115.2	115.5	24	112.7	113.1	113.6	24	117.9	118.1	118.3	24
5/16	114.4	114.9	115.6	24	110.6	111.3	111.8	24	114.1	114.6	114.9	24	111.4	111.8	112.0	24	117.8	118.0	118.1	24
5/17	115.4	115.9	116.6	24	110.4	111.2	111.9	24	113.7	114.1	114.4	24	111.9	112.8	113.5	24	118.1	118.2	118.3	24
5/18	115.3	115.9	116.6	24	112.7	113.0	113.1	24	115.8	116.4	116.7	24	112.5	113.5	114.7	24	117.6	117.7	118.2	24
5/19	113.4	113.7	114.2	24	110.5	110.8	111.4	24	115.1	115.3	115.5	24	111.0	111.4	111.7	24	117.4	117.5	117.7	24
5/20	114.3	115.3	115.9	24	110.5	111.1	111.3	24	114.6	114.8	115.0	24	112.1	112.9	113.6	24	118.0	118.3	118.4	24
5/21	115.0	115.5	116.1	24	110.4	110.9	111.4	24	114.4	114.6	114.8	24	110.7	110.9	111.5	24	117.7	117.9	118.4	24
5/22	113.7	114.0	114.3	24	109.9	110.1	110.1	24	114.9	115.3	115.4	24	110.7	111.2	111.6	24	117.0	117.3	117.6	24
5/23	113.4	113.7	114.1	24	110.4	110.6	110.8	24	115.5	115.7	115.8	24	111.8	112.8	113.2	24	116.9	117.2	117.4	24
5/24	113.8	114.0	114.3	24	110.3	110.4	110.6	24	115.1	115.3	115.5	24	112.0	112.5	113.4	24	117.2	117.5	117.6	24
5/25	113.7	114.1	114.6	24	109.2	109.6	110.1	24	114.5	114.8	115.2	24	110.7	111.3	112.0	24	117.1	117.3	117.4	24
5/26	112.8	113.0	113.4	23	108.0	108.3	108.8	23	114.0	114.2	114.5	23	109.6	110.0	110.2	23	116.9	117.1	117.2	23

Two-Week Summary of Passage Indices

Source: Fish Passage Center Updated: 5/27/2016 6:59

* One or more of the sites on this date had an incomplete or biased sample.
See Sampling Comments: http://www.fpc.org/currentDaily/smpcomments.htm
For clip information see: http://www.fpc.org/CurrentDaily/catch.htm
For sockeye and yearling chinook (Snake only) race information see: http://www.fpc.org/smoltqueries/currentsmpsubmitdata.asp

COMBINED YEARLING CHINOOK

Date		WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
05/13/2016	*	---	---	17	12	19,164	28,641	64,324	667	94,199	---	43,041
05/14/2016	*	---	---	13	2	9,868	21,503	71,370	399	---	18,855	47,588
05/15/2016	*	---	---	27	14	22,044	17,624	46,754	277	58,194	---	40,816
05/16/2016	*	---	---	57	5	16,504	17,310	34,043	184	---	31,557	20,373
05/17/2016	*	---	---	59	10	8,510	22,439	29,354	140	56,599	---	16,607
05/18/2016	*	---	---	20	1	3,888	15,625	31,969	77	---	16,358	24,041
05/19/2016	*	---	---	18	2	4,635	7,309	12,345	43	26,720	---	15,222
05/20/2016	*	---	---	76	0	4,176	5,382	9,521	23	---	9,679	14,935
05/21/2016	*	---	---	37	---	4,465	6,108	9,265	30	19,321	---	8,232
05/22/2016	*	---	---	21	---	3,880	5,083	5,575	30	---	5,384	10,166
05/23/2016	*	---	---	16	0	5,358	8,161	7,878	45	12,655	---	7,204
05/24/2016	*	---	---	11	0	7,278	5,852	9,927	53	---	5,916	3,609
05/25/2016	*	---	---	16	---	3,458	3,009	3,249	52	5,163	---	3,646
05/26/2016	*	---	---	8	---	2,393	1,860	2,418	60	---	3,357	2,665
05/27/2016		---	---	---	---	---	---	---	---	---	---	---
Total:		**0**	**0**	**396**	**46**	**115,621**	**165,906**	**337,992**	**2,080**	**272,851**	**91,106**	**258,145**
# Days:		**0**	**0**	**14**	**10**	**14**	**14**	**14**	**14**	**7**	**7**	**14**
Average:		**0**	**0**	**28**	**5**	**8,259**	**11,850**	**24,142**	**149**	**38,979**	**13,015**	**18,439**
YTD		**27,295**	**55,690**	**16,182**	**7,757**	**5,881,822**	**3,470,344**	**4,883,050**	**44,588**	**2,161,269**	**1,448,888**	**2,651,348**

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)
05/13/2016	*	---	---	18	100	0	859	298	28	11,129	---	10,930
05/14/2016	*	---	---	9	40	519	1,720	0	17	---	2,883	3,329
05/15/2016	*	---	---	4	120	513	287	668	14	14,549	---	3,035
05/16/2016	*	---	---	9	101	508	286	0	14	---	2,994	3,042
05/17/2016	*	---	---	19	90	3,003	1,721	699	27	21,650	---	3,631
05/18/2016	*	---	---	15	20	1,814	718	602	27	---	3,366	2,995
05/19/2016	*	---	---	29	274	1,674	1,146	1,122	21	11,496	---	3,125
05/20/2016	*	---	---	22	108	757	646	429	14	---	5,838	3,576
05/21/2016	*	---	---	26	---	1,364	790	612	14	11,142	---	3,874
05/22/2016	*	---	---	22	---	3,363	859	577	33	---	3,043	3,303
05/23/2016	*	---	---	47	55	4,705	1,789	505	24	7,148	---	2,147
05/24/2016	*	---	---	55	252	7,410	1,434	718	38	---	9,046	3,538
05/25/2016	*	---	---	64	---	9,710	1,791	249	62	7,534	---	2,807
05/26/2016	*	---	---	72	---	10,119	1,517	495	76	---	6,636	4,774
05/27/2016		---	---	---	---	---	---	---	---	---	---	---
Total:		**0**	**0**	**411**	**1,160**	**45,459**	**15,563**	**6,974**	**409**	**84,648**	**33,806**	**54,106**
# Days:		**0**	**0**	**14**	**10**	**14**	**14**	**14**	**14**	**7**	**7**	**14**
Average:		**0**	**0**	**29**	**116**	**3,247**	**1,112**	**498**	**29**	**12,093**	**4,829**	**3,865**
YTD		**0**	**13**	**656**	**2,869**	**96,652**	**38,318**	**16,594**	**6,994**	**265,321**	**47,409**	**1,656,986**

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)
05/13/2016	*	---	---	0	5	1,811	4,582	3,276	3,241	15,175	---	18,448
05/14/2016	*	---	---	0	0	3,895	4,300	2,706	2,832	---	3,818	10,650
05/15/2016	*	---	---	0	3	2,307	2,579	1,336	1,763	15,227	---	14,741
05/16/2016	*	---	---	0	5	2,793	3,576	1,433	1,543	---	3,532	17,636
05/17/2016	*	---	---	0	1	1,001	4,445	1,747	734	15,218	---	9,008
05/18/2016	*	---	---	0	1	1,296	2,580	803	1,086	---	3,757	20,424
05/19/2016	*	---	---	0	0	901	860	1,309	718	13,199	---	16,432
05/20/2016	*	---	---	0	0	757	1,291	1,029	373	---	2,381	12,831
05/21/2016	*	---	---	0	---	1,364	2,154	1,136	639	7,759	---	9,684
05/22/2016	*	---	---	0	---	776	1,789	769	592	---	1,873	8,546
05/23/2016	*	---	---	0	0	523	1,932	1,212	384	6,114	---	6,588
05/24/2016	*	---	---	0	0	2,514	1,577	1,316	387	---	1,527	6,249
05/25/2016	*	---	---	0	---	665	573	498	406	5,502	---	4,500
05/26/2016	*	---	---	0	---	479	1,288	714	378	---	1,522	3,935
05/27/2016		---	---	---	---	---	---	---	---	---	---	---
Total:		**0**	**0**	**0**	**15**	**21,082**	**33,526**	**19,284**	**15,076**	**78,194**	**18,410**	**159,672**
# Days:		**0**	**0**	**14**	**10**	**14**	**14**	**14**	**14**	**7**	**7**	**14**
Average:		**0**	**0**	**0**	**2**	**1,506**	**2,395**	**1,377**	**1,077**	**11,171**	**2,630**	**11,405**
YTD		**0**	**0**	**0**	**316**	**192,641**	**140,289**	**58,268**	**44,133**	**141,789**	**55,038**	**778,136**

				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)
05/13/2016	*	---	---	17	25	68,653	24,630	27,099	702	25,319	---	5,466
05/14/2016	*	---	---	21	24	41,032	32,683	41,943	709	---	6,389	6,658
05/15/2016	*	---	---	31	84	66,645	18,770	26,382	487	29,774	---	10,486
05/16/2016	*	---	---	116	44	40,372	17,453	24,009	349	---	4,223	5,779
05/17/2016	*	---	---	48	32	22,276	35,200	14,328	221	16,618	---	6,723
05/18/2016	*	---	---	20	23	31,103	19,063	16,612	210	---	5,635	12,574
05/19/2016	*	---	---	18	14	14,163	10,748	10,287	167	10,485	---	15,020
05/20/2016	*	---	---	94	6	23,221	14,853	9,864	129	---	2,996	6,731
05/21/2016	*	---	---	46	---	18,851	13,214	14,859	164	10,523	---	6,779
05/22/2016	*	---	---	23	---	14,099	9,015	8,651	174	---	2,497	4,667
05/23/2016	*	---	---	12	21	12,285	10,236	7,979	127	8,393	---	3,984
05/24/2016	*	---	---	11	0	10,719	22,762	6,937	135	---	1,603	4,929
05/25/2016	*	---	---	3	---	8,912	8,382	8,213	143	5,844	---	3,880
05/26/2016	*	---	---	4	---	7,452	3,950	3,188	93	---	1,874	3,605
05/27/2016		---	---	---	---	---	---	---	---	---	---	---
Total:		**0**	**0**	**464**	**273**	**379,783**	**240,959**	**220,351**	**3,810**	**106,956**	**25,217**	**97,281**
# Days:		**0**	**0**	**14**	**10**	**14**	**14**	**14**	**14**	**7**	**7**	**14**
Average:		**0**	**0**	**33**	**27**	**27,127**	**17,211**	**15,739**	**272**	**15,279**	**3,602**	**6,949**
YTD		**755**	**21,822**	**3,376**	**9,186**	**3,890,770**	**2,250,510**	**1,820,536**	**16,795**	**715,861**	**497,329**	**597,099**

Two-Week Summary of Passage Indices

				COMBINED SOCKEYE								
		WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date		(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
05/13/2016	*	---	---	0	3	0	0	0	713	92,726	---	57,046
05/14/2016	*	---	---	0	3	0	0	0	637	---	19,478	39,934
05/15/2016	*	---	---	0	5	0	0	0	206	70,375	---	58,995
05/16/2016	*	---	---	0	10	508	143	0	127	---	10,058	28,885
05/17/2016	*	---	---	0	14	751	287	0	79	49,376	---	15,665
05/18/2016	*	---	---	0	10	1,814	0	201	116	---	26,299	39,695
05/19/2016	*	---	---	0	9	3,090	716	0	68	57,480	---	23,891
05/20/2016	*	---	---	0	6	5,934	2,511	515	26	---	17,974	28,607
05/21/2016	*	---	---	0	---	3,969	5,816	3,933	55	24,288	---	17,916
05/22/2016	*	---	---	0	---	4,139	5,653	5,575	52	---	10,379	15,174
05/23/2016	*	---	---	0	2	3,659	2,436	4,141	29	14,265	---	6,896
05/24/2016	*	---	---	0	9	3,176	2,799	2,272	33	---	7,481	5,069
05/25/2016	*	---	---	0	---	2,527	573	2,243	20	11,681	---	6,285
05/26/2016	*	---	---	0	---	3,555	1,689	769	18	---	5,152	3,152
05/27/2016		---	---	---	---	---	---	---	---	---	---	---
Total:		**0**	**0**	**0**	**71**	**33,122**	**22,623**	**19,649**	**2,179**	**320,191**	**96,821**	**347,210**
# Days:		**0**	**0**	**14**	**10**	**14**	**14**	**14**	**14**	**7**	**7**	**14**
Average:		**0**	**0**	**0**	**7**	**2,366**	**1,616**	**1,404**	**156**	**45,742**	**13,832**	**24,801**
YTD		**1**	**0**	**0**	**133**	**36,908**	**26,012**	**20,469**	**56,506**	**842,472**	**292,195**	**789,124**

				COMBINED LAMPREY JUVENILES								
		WTB	IMN	GRN	LEW	LGR†	LGS	LMN	RIS	MCN	JDA	BO2
Date		(Coll)	(Coll)	(Coll)	(Coll)	(Samp)	(Coll)	(Coll)	(Coll)	(Coll)	(Coll)	(Coll)
05/13/2016	*	---	---	0	0	0	1,200	2,200	0	600	---	143
05/14/2016	*	---	---	0	0	4	3,400	2,200	0	---	650	0
05/15/2016	*	---	---	0	0	0	1,300	5,600	0	2,000	---	429
05/16/2016	*	---	---	0	0	8	900	8,200	0	---	1,150	0
05/17/2016	*	---	---	0	0	2	1,400	2,600	0	1,400	---	0
05/18/2016	*	---	---	0	0	3	500	800	0	---	700	0
05/19/2016	*	---	---	0	0	0	400	1,200	0	2,800	---	0
05/20/2016	*	---	---	0	0	1	0	50	1	---	1,550	0
05/21/2016	*	---	---	0	---	0	500	0	0	1,800	---	0
05/22/2016	*	---	---	0	---	0	150	50	0	---	1,050	100
05/23/2016	*	---	---	0	0	0	0	50	0	2,900	---	133
05/24/2016	*	---	---	0	0	0	0	200	0	---	775	67
05/25/2016	*	---	---	0	---	0	500	0	0	200	---	67
05/26/2016	*	---	---	0	---	0	100	20	0	---	450	0
05/27/2016		---	---	---	---	---	---	---	---	---	---	---
Total:		**0**	**0**	**0**	**0**	**18**	**10,350**	**23,170**	**1**	**11,700**	**6,325**	**939**
# Days:		**0**	**0**	**14**	**10**	**14**	**14**	**14**	**14**	**7**	**7**	**14**
Average:		**0**	**0**	**0**	**0**	**1**	**739**	**1,655**	**0**	**1,671**	**904**	**67**
YTD		**0**	**4**	**1**	**0**	**158**	**31,450**	**28,790**	**84**	**27,643**	**20,829**	**8,483**

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.

Two classes of fish counts are shown in these tables:
Sample counts (Samp) are provided for juvenile lamprey at LGR. See note below for details †.
Collection counts (Coll), which account for sample rates but are not adjusted for flow;
Passage indices (INDEX), which are collection counts divided by the proportion of water passing through the sampled powerhouse.
Passage indices are not population estimates, but are used to adjust collection counts for daily fluctuations in the site's or project's operations.

The classes of counts presented in the report are defined below for each site. Most samples occur over a 24-hr period that spans two calendar days. In this report, the date shown corresponds with the sample end date.

Combined lamprey juvenile collection counts are provided for all sites. Combined lamprey juveniles is a combination of pacific lamprey ammocoetes, brook lamprey ammocoetes, unknown lamprey ammocoetes, pacific lamprey macropthalmia, and unidentified lamprey species.

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

Definitions for Smolt Index Counts

WTB (Collection) = Salmon River Trap at Whitebird : Collection Counts
IMN (Collection) = Imnaha River Trap : Collection Counts
GRN (Collection) = Grande Ronde River Trap : Collection Counts
LEW (Collection) = Snake River Trap at Lewiston : Collection Counts
LGR (Index) = Lower Granite Dam Bypass Collection System : Passage Index Counts
Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}
LGS (Index) = Little Goose Bypass Collection System : Passage Index Counts
Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}
LMN (Index) = Lower Monumental Dam Bypass Collection System : Passage Index Counts
Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}
RIS (Index) = Rock Island Dam Second Powerhouse Bypass Trap : Passage Index Counts
Passage Index = Collection Counts / {Powerhouse 2 Flow / (Powerhouse 1 & 2 Flow + Spill)}
MCN (Index) = McNary Dam Bypass Collection System : Passage Index Counts
Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}
JDA (Index) = John Day Dam Bypass Collection System : Passage Index Counts
Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}
BO2 (Index) = Bonneville Dam Second Powerhouse Bypass Collection System : Passage Index Counts
Passage Index = Collection Counts / {Powerhouse 2 Flow / (Powerhouse 1 & 2 Flow + Spill)}

JDA and BO2 data collected for the FPC by Pacific States Marine Fisheries Commission.
RIS data collected for the FPC by Chelan Co. PUD.
LGR, LMN, and MCN data collected for the FPC by Washington Dept. of Fish and Wildlife.
LGS and GRN data collected for the FPC by Oregon Dept. of Fish and Wildlife.
IMN data collected for the FPC by the Nez Perce Tribe.
Fall (post SMP season) trapping at the Imnaha River Fish Trap (IMN) is funded by the Lower Snake River Compensation Program (LSRCP)
WTB and LEW data collected for the FPC by Idaho Dept. of Fish and Game.

Two Week Transportation Summary

Source: Fish Passage Center Updated: 5/27/16 7:00 AM

05/13/16 TO 05/27/16

		Species					
Site	Data	**CH0**	**CH1**	CO	ST	SO	**Grand Total**
LGR	Sum of NumberCollected	34,500	89,876	16,350	295,426	25,600	461,752
	Sum of NumberBarged	26,966	85,085	15,991	282,147	22,722	432,911
	Sum of NumberBypassed	29	3,067	0	8,592	0	11,688
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	2	1	0	4	2	9
	Sum of FacilityMorts	59	72	9	18	297	455
	Sum of ResearchMorts	60	120	0	0	0	180
	Sum of TotalProjectMorts	121	193	9	22	299	644
LGS	Sum of NumberCollected	10,861	115,793	23,400	168,139	15,784	333,977
	Sum of NumberBarged	9,781	114,443	22,497	165,354	14,581	326,656
	Sum of NumberBypassed	17	0	0	0	1	18
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	1	3	1	5	7	17
	Sum of FacilityMorts	2	49	3	21	18	93
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	3	52	4	26	25	110
LMN	Sum of NumberCollected	3,630	195,709	10,760	124,231	9,730	344,060
	Sum of NumberBarged	3,449	194,629	10,500	122,776	9,445	340,799
	Sum of NumberBypassed	1	145	0	270	0	416
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	7	0	4	2	13
	Sum of FacilityMorts	0	52	0	21	8	81
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	0	59	0	25	10	94
Total Sum of NumberCollected		48,991	401,378	50,510	587,796	51,114	1,139,789
Total Sum of NumberBarged		40,196	394,157	48,988	570,277	46,748	1,100,366
Total Sum of NumberBypassed		47	3,212	0	8,862	1	12,122
Total Sum of Numbertrucked		0	0	0	0	0	0
Total Sum of SampleMorts		3	11	1	13	11	39
Total Sum of FacilityMorts		61	173	12	60	323	629
Total Sum of ResearchMorts		60	120	0	0	0	180
Total Sum of TotalProjectMorts		124	304	13	73	334	848

YTD Transportation Summary

Source: Fish Passage Center Updated: 5/27/16 7:00 AM

TO: 05/27/16

		Species					
Site	Data	**CH0**	**CH1**	CO	SO	ST	**Grand Total**
LGR	Sum of NumberCollected	74,090	4,498,141	146,620	28,450	2,939,974	7,687,275
	Sum of NumberBarged	35,108	1,390,338	113,137	24,913	1,061,654	2,625,150
	Sum of NumberBypassed	31,403	3,104,468	33,069	650	1,873,503	5,043,093
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	14	94	1	2	33	144
	Sum of FacilityMorts	121	1,350	63	306	69	1,909
	Sum of ResearchMorts	60	360	0	0	50	470
	Sum of TotalProjectMorts	195	1,804	64	308	152	2,523
LGS	Sum of NumberCollected	26,861	2,423,747	99,200	18,184	1,569,408	4,137,400
	Sum of NumberBarged	22,958	1,006,613	84,697	16,980	636,829	1,768,077
	Sum of NumberBypassed	2,833	1,415,436	13,600	2	929,747	2,361,618
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	3	21	1	7	10	42
	Sum of FacilityMorts	7	379	3	18	63	470
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	10	400	4	25	73	512
LMN	Sum of NumberCollected	10,830	3,506,003	39,780	10,330	1,277,695	4,844,638
	Sum of NumberBarged	8,619	1,892,338	33,281	10,044	621,756	2,566,038
	Sum of NumberBypassed	1,830	1,612,321	6,238	0	654,677	2,275,066
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	127	0	2	16	145
	Sum of FacilityMorts	1	341	1	10	86	439
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	1	468	1	12	102	584
Total Sum of NumberCollected		111,781	10,427,891	285,600	56,964	5,787,077	16,669,313
Total Sum of NumberBarged		66,685	4,289,289	231,115	51,937	2,320,239	6,959,265
Total Sum of NumberBypassed		36,066	6,132,225	52,907	652	3,457,927	9,679,777
Total Sum of NumberTrucked		0	0	0	0	0	0
Total Sum of SampleMorts		17	242	2	11	59	331
Total Sum of FacilityMorts		129	2,070	67	334	218	2,818
Total Sum of ResearchMorts		60	360	0	0	50	470
Total Sum of TotalProjectMorts		206	2,672	69	345	327	3,619

Cumulative Adult Passage at Mainstem Dams Through: 05/26

		Spring Chinook						Summer Chinook						Fall Chinook					
	End	2016		2015		10-Yr Avg.		2016		2015		10-Yr Avg.		2016		2015		10-Yr Avg.	
Dam	Date	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	05/26	130,555	10,411	206,445	11,294	139,150	22,860	0	0	0	0	0	0	0	0	0	0	0	0
TDA	05/26	95,417	8,846	177,574	9,844	104,461	18,533	0	0	0	0	0	0	0	0	0	0	0	0
JDA	05/26	82,922	7,065	149,374	8,946	88,573	16,791	0	0	0	0	0	0	0	0	0	0	0	0
MCN	05/26	68,906	5,755	138,521	6,478	76,686	12,551	0	0	0	0	0	0	0	0	0	0	0	0
IHR	05/26	56,353	3,815	102,593	3,778	52,781	7,652	0	0	0	0	0	0	0	0	0	0	0	0
LMN	05/26	54,105	4,560	96,710	5,210	50,117	6,281	0	0	0	0	0	0	0	0	0	0	0	0
LGS	05/26	49,332	4,404	90,803	5,055	43,903	6,383	0	0	0	0	0	0	0	0	0	0	0	0
LGR	05/26	44,209	3,249	89,286	4,212	40,768	6,345	0	0	0	0	0	0	0	0	0	0	0	0
PRD	05/25	11,298	561	19,524	864	12,251	873	0	0	0	0	0	0	0	0	0	0	0	0
WAN	05/25	11,849	399	18,845	485	11,841	863	0	0	0	0	0	0	0	0	0	0	0	0
RIS	05/25	10,873	354	21,236	571	10,774	970	0	0	0	0	0	0	0	0	0	0	0	0
RRH	05/25	4,427	185	8,331	269	4,145	352	0	0	0	0	0	0	0	0	0	0	0	0
WEL	05/25	3,082	223	6,841	387	2,720	284	0	0	0	0	0	0	0	0	0	0	0	0
WFA	05/19	13,046	462	36,916	1,236	18,989	430	0	0	0	0	0	0	0	0	0	0	0	0

		Coho						Sockeye			Steelhead						Lamprey		
	End	2,016		2,015		10-Yr Avg.				10-Yr			10-Yr	Wild	Wild	10-Yr			10-Yr
Dam	Date	Adult	Jack	Adult	Jack	Adult	Jack	2,016	2,015	Avg.	2,016	2,015	Avg.	2016	2015	Avg.	2,016	2,015	Avg.
BON	05/26	0	0	0	0	0	0	55	14	2	4,946	4,952	5,128	1,864	2,482	1,484	2,431	180	505
TDA	05/26	0	0	0	0	0	0	3	7	0	341	403	2,495	181	173	945	13	14	0
JDA	05/26	0	0	0	0	0	1	0	7	0	380	580	4,852	254	332	1,843	310	69	29
MCN	05/26	-1	0	0	0	1	0	1	5	0	458	699	5,562	290	402	1,868	37	19	3
IHR	05/26	0	0	0	0	0	0	0	0	0	1,359	1,099	5,143	705	685	1,546	3	8	0
LMN	05/26	-2	0	0	0	0	0	0	0	0	1,428	3,422	8,366	989	1,840	2,818	0	2	0
LGS	05/26	0	0	0	0	0	0	0	0	0	3,405	1,482	3,115	1,971	991	1,496	0	1	0
LGR	05/26	0	0	0	0	0	0	0	4	0	5,468	9,172	9,243	3,113	4,337	3,507	-1	0	0
PRD	05/25	0	0	0	0	0	0	2	0	0	18	35	49	0	0	0	125	21	0
WAN	05/25	0	0	0	0	0	0	1	1	0	26	52	98	0	0	0	69	15	0
RIS	05/25	0	0	0	0	0	0	1	3	0	38	117	113	19	82	61	0	0	0
RRH	05/25	0	0	0	0	0	0	1	0	0	84	112	318	26	77	219	0	0	0
WEL	05/25	0	0	0	0	0	0	0	0	0	58	35	62	25	28	46	1	0	0
WFA	05/19	0	0	1	0	0	0	0	0	0	10,660	5,453	10,294	0	0	0	0	0	0

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

Page last updated on: 05/27/16

Columbia/Snake Project Forebay Temperatures