



Fish Passage Center

Weekly Report #13 - 11

May 31, 2013

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Summary of Events:

Water Supply: Precipitation throughout the Columbia Basin has increased over the last week, but has generally been lower than average at most locations over May, varying between 48% and 128% of average at individual sub-basins over May. Precipitation above The Dalles has been 85% of average over May. Over the 2013 water year, precipitation has ranged between 71% and 105% of average.

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

Location	Water Year 2013 May 1–29, 2013		Water Year 2013 October 1, 2012 to May 29, 2013	
	Observed (inches)	% Average	Observed (inches)	% Average
	Columbia above Coulee	3.13	100	28.1
Snake River above Ice Harbor	1.25	58	13.6	75
Columbia above The Dalles	1.97	85	18.6	86
Kootenai	3.65	113	30.1	105
Clark Fork	2.18	75	16.2	78
Flathead	3.47	101	27.9	101
Pend Oreille Basin	2.79	89	22.6	89
Snake Basin above Hells Canyon	1.13	62	11.0	73
Salmon River Basin	1.36	49	15.9	71
Clearwater	1.77	48	29.0	87
Willamette River above Portland	4.70	128	53.1	91

Snowpack in the Columbia River for basins above the Snake River confluence are now at 89% of average. For Snake River Basins the average snowpack is now 42% of average, and for lower Columbia Basins between McNary and Bonneville Dam average snowpack is currently 43% of average.

Table 2 displays the April 7th and May 28th ESP runoff volume forecasts for multiple reservoirs. The May 28th forecast at The Dalles between January and July is 94,395 Kaf (96% of average).

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

Location	April 7, 2013 ESP		May 28, 2013 ESP	
	% Average (1971– 2000)	Runoff Volume (Kaf)	% Average (1971– 2000)	Runoff Volume (Kaf)
The Dalles (Jan–July)	93	94287	93	94395
Grand Coulee (Jan– July)	101	60415	103	61543
Libby Res. Inflow, MT (Apr–Aug)	102	6001 *6189	107	6277 *6535
Hungry Horse Res. Inflow, MT (Jan–July)	99	2084	105	2211
Lower Granite Res. Inflow (Apr–July)	83	16485	69	13647
Brownlee Res. Inflow (Apr–July)	62	3376	49	2694
Dworshak Res. Inflow (Apr–July)	96	2319 *2036	84	2038 *2296

* Denotes COE Forecast

Grand Coulee Reservoir is at 1276.7 feet (5-30-13) and refilled 5.4 feet over the last week. Outflows at Grand Coulee have ranged between 106.7 and 184.6 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2424.8 feet (5-30-13) and refilled 2.8 feet last week. Outflows at Libby Dam have ranged from 24.2 Kcfs to 26.8 Kcfs over the last week; inflows to Libby have ranged from 29.6 Kcfs to 43.3 Kcfs over the same period.

Hungry Horse is currently at an elevation of 3544.9 feet (5-30-13) and refilled 1.0 foot last week. Outflows at Hungry Horse Dam have ranged from 9.2 Kcfs to 12.2 Kcfs over the last week; inflows to Hungry Horse have ranged from 10.3 Kcfs to 14.8 Kcfs over the same period.

Dworshak is currently at an elevation of 1595.6 feet (5-30-13) and refilled 5.0 feet last week. Outflows from Dworshak were increased from 3.8 Kcfs to 7.3 Kcfs yesterday to augment flow in the lower Snake River; inflows to Dworshak ranged between 10.3 Kcfs to 14.8 Kcfs last week.

The Brownlee Reservoir was at an elevation of 2075.7 feet on May 30th, 2013, refilling 3.3 feet over the last week. Over the last week, inflows at Brownlee have ranged between 14.7 and 16.0 Kcfs.

The Biological Opinion flow period began on April 3rd in the lower Snake River (Lower Granite). According to the April Final Water Supply Forecast, the flow objective this spring is 85 Kcfs at Lower Granite. Flows at Lower Granite Dam have averaged 70.4 Kcfs from April 3rd–May 30th. Over the last week flows at Lower Granite have averaged 66.1 Kcfs and are currently 70.1 Kcfs.

Based on the April Final Water Supply Forecast, the Spring Biological Opinion Flow Objectives will be 226 Kcfs at McNary Dam (began April 10th) and 135 Kcfs at Priest Rapids Dam (began April 10th). Flows at McNary Dam have averaged 269.4 Kcfs between April 10th and May 30th. Over the last week flows at McNary have averaged 289.0 Kcfs and are currently 256.4 Kcfs. Flows at Priest Rapids Dam have averaged 188.6 Kcfs between April 10th and May 30th. Over the last week flows have averaged 210.2 Kcfs at Priest Rapids and are currently 160 Kcfs.

Spill: Spring spill for fish passage began on April 3rd at the lower Snake River projects.

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 kcf/Gas Cap

Flow in the Snake River continued to decrease over the past week, with a slight rise in flow yesterday as outflow at Dworshak Dam was increased to 7.4 Kcfs. Over the past week all the lower Snake River dams met the Court Order spill levels described in the table.

Spring spill for fish passage at the Lower Columbia projects began on April 10th.

Project	Spill Level Day/Night
McNary	40%/40%
John Day	Testing: 30%/30% vs. 40%/40%
The Dalles	40%/40%
Bonneville	100 Kcfs/100 Kcfs

Flow in the lower Columbia River decreased over the past week. At McNary dam spill exceeded the Court Order due to high flows until yesterday, when spill decreased to the 40% of instantaneous flow. At John Day Dam the COE implemented the test conditions of 30% versus 40%. At The Dalles Dam spill met the Court Order. At Bonneville Dam spill was reduced from 99 Kcfs on May 24th to a low of 88 Kcfs on May 30th, before increasing again to 100 Kcfs beginning at 2 P.M. on May 30th. The changes were made in response to the Cascade Island TDG monitor readings.

In the past week, most total dissolved gas (TDG) estimates were within a few tenths of the 115/120% TDG standards, with the exception of the Bonneville Dam forebay and tailwater monitors. Based on historic data collected since 1995 through the gas bubble trauma (GBT) monitoring program, we would not expect to see fish exhibit signs of GBT at the present TDG levels. Consistent with historic data, at McNary Dam two fish were sampled on May 24th and one fish on May 30th with minor signs of GBT. At Bonneville Dam one fish was sampled with minor signs of GBT on May 28th, and at Rock Island Dam one fish was sampled on May 26th.

Smolt Monitoring: Smolt monitoring is ongoing at all seven SMP dams (BON, JDA, MCN, RIS, LMN, LGS, and LGR). The Imnaha River Trap is the only trap that continues to operate for the 2013 season.

Yearling Chinook and sockeye dominated the bypass samples at BON this week. However, passage of these two species decreased this week, when compared to last week. This week's daily average passage indices for yearling Chinook and sockeye at BON were nearly 11,500 and 11,400, respectively. Last week's daily average passage indices were about 43,500 for yearling Chinook and nearly 32,000 for sockeye. Passage of subyearling Chinook, coho, and steelhead also decreased this week. This week's daily average passage indices were about 4,000 for subyearling Chinook, 9,000 for coho, and about 2,000 for steelhead. Descaling for sockeye was variable this

week, ranging from 4.1% on May 24th and May 30th to 14.4% on May 25th. On May 28th, all of the salmon managers, except NOAA Fisheries, submitted a System Operation Request (SOR 2013-3) that called for implementation of a change order for Bonneville Dam operations that had been developed over the past year by a technical subcommittee of the COE's Fish Passage Operations and Maintenance (FPOM) committee. The change order calls for the modification of BON second powerhouse turbine operations to not exceed the mid-range of the 1% efficiency curve. The change order may call for the additional water to be spilled once flow has been moved from the second powerhouse to the BON first powerhouse with units operating up to best operating point. This SOR was discussed at the Technical Management Team meeting on May 29th. During this meeting, the COE stated that they could only implement the SOR to the extent that it was "flow neutral." This is the same operation that the COE agreed to last week, which due to the inability to transfer enough water to BON first powerhouse in a "flow neutral" implementation resulted in significant periods of time when BON powerhouse two operated above the mid-range of the 1% efficiency curve. Since the afternoon of May 29th, river flows have decreased sufficiently such that the BON second powerhouse has not operated above the mid-range of the 1% efficiency curve. Finally, both pacific lamprey ammocoetes and macrophthalmia were collected at BON this week but in relatively low numbers. Pacific lamprey ammocoetes were collected on May 29th while pacific lamprey macrophthalmia were collected on May 28th and May 30th.

Yearling Chinook continued to dominate the bypass sample at JDA this week. This week's daily average passage index for yearling Chinook was about 18,225 per day, which is a decrease over last week's daily average passage index of nearly 45,200 per day. Passage of steelhead, sockeye, and coho also decreased this week. This week's daily average passage indices for steelhead, sockeye, and coho at JDA were about 4,750, 11,000, and 4,300 per day, respectively. Last week's daily average passage indices were about 17,200 for steelhead, 26,450 for sockeye, and 7,600 for coho. Passage of subyearling Chinook increased this week. This week's daily average passage index for subyearling Chinook at JDA was about 1,600 per day. Last week's daily average passage index for subyearling Chinook was only about 850 per day. As

with last week, many of the subyearling Chinook in this week's sample were clipped, which means they were likely from earlier hatchery releases of subyearling fall Chinook in the Snake River. Finally, only pacific lamprey macrophthalmia were sampled at JDA this week. Passage of pacific lamprey macrophthalmia increased this week, when compared to last week. The daily average collection for pacific lamprey macrophthalmia this week was about 6,700 per day. Last week's daily average collection was about 4,700 per day.

Sampling at MCN for the 2013 season is every-other-day. Passage of all salmonid species decreased this week, when compared to last week. The largest decrease in passage was for sockeye. This week's daily average passage index for sockeye at MCN was just under 11,000 per day. Last week's daily average passage index for sockeye was nearly 60,000 per day. Pacific lamprey macrophthalmia continue to be the only species and life-stage of lamprey collected at MCN this season. This week's daily average collection for pacific lamprey macrophthalmia was about 3,500, which is a decrease from last week's daily average collection of about 8,000 per day. Finally, descaling at MCN has remained relatively high for much of this week, particularly for sockeye. This is likely due to high debris loads in the forebay.

Subyearling Chinook dominated the bypass samples at LGR this week. This week's daily average passage index for subyearling Chinook was about 7,300 per day, which is an increase over last week's daily average passage index of about 2,800 per day. Subyearling Chinook passage at LGR began to increase substantially on May 29th, indicating that the estimated 2.8 million hatchery subyearling fall Chinook that were released between May 17th and May 22nd are starting to arrive at this project. Passage of all other salmonid species decreased this week, when compared to last week. The largest decrease in passage was for sockeye. This week's daily average passage index for sockeye at LGR was about 35 per day, compared to last week's daily average passage index of nearly 4,100 per day. Only pacific lamprey macrophthalmia were collected at LGR this week. These pacific lamprey macrophthalmia were collected on May 29th and May 30th. Finally, due to the possible resampling of PIT-tagged research fish that are released into the gatewells, daily estimates of yearling Chinook and steelhead collection and passage indices may be inflated. The FPC is aware of this possible bias and is investigating ways to correct

these inflated estimates after the research has ended. However, the magnitude of this bias is relatively low and is unlikely to skew estimates of timing for these two species.

At this time, data from LGS are available only through May 29th. Passage of all salmonid species decreased this week, when compared to last week. As with LGR, the largest decrease in passage this week was for sockeye. The daily average passage index for sockeye this week was about 225 per day. Last week's daily average passage index for sockeye at LGS was nearly 4,300 per day. Finally, both pacific lamprey ammocoetes and macrophthalmia were collected at LGS this week. Pacific lamprey ammocoetes were collected only on May 28th. Pacific lamprey macrophthalmia were collected on May 25th, May 26th, and May 27th.

Similar to LGS, passage of all salmonid species at LMN decreased this week. The largest decreases in passage this week at LMN were of yearling Chinook and sockeye. This week's daily average passage indices for yearling Chinook and sockeye were about 660 and 120 per day, respectively. Last week's daily average passage indices were about 7,500 for yearling Chinook and 1,400 for sockeye. Only pacific lamprey macrophthalmia were collected at LMN this week. However, collections of pacific lamprey macrophthalmia were very low this week.

This week's collections at RIS continued to be dominated by coho. However, when compared to last week, coho passage decreased this week. This week's daily average passage index for coho at RIS was about 1,900 per day. Last week's daily average passage index for coho was about 2,700 per day. Passage of yearling Chinook and sockeye also decreased this week, when compared to last week. This week's daily average passage indices for yearling Chinook and sockeye at RIS were about 415 and 66 per day, respectively. Last week's daily average passage indices were about 890 for yearling Chinook and 1,460 for sockeye. Passage of steelhead and subyearling Chinook for this week was similar to last week. Finally, only pacific lamprey macrophthalmia were collected this week, two on May 25th and one on May 29th.

At this time, data from the Imnaha River Trap are available only through May 27th. Steelhead dominated the collections at this trap during the period of May 21-27. The daily average collection for steelhead during this time was nearly 240 per day. Yearling Chinook collections during this time averaged

about 10 per day. Finally, no lamprey juveniles were collected at the Imnaha River Trap during this May 21-27 period.

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. No new releases were scheduled for this zone this week.

Approximately 725,000 subyearling fall Chinook juveniles are scheduled for release into the Clearwater River, beginning on or around June 3rd. Of these, approximately 59% will be unmarked, which means that they will be indistinguishable from wild subyearling fall Chinook. Currently, there are no other new releases 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. There were no new releases scheduled to begin in this zone this week. However, there are several releases that began in past weeks that were scheduled to end this week. Approximately 6.7 million subyearling fall Chinook are scheduled for release from Priest Rapids Hatchery over the next two weeks. This release is currently scheduled to begin taking place on or around June 10th. Of these 6.7 million subyearling fall Chinook, approximately 50% are unclipped.

Lower Columbia Zone: The Lower Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to McNary Dam. No new releases were scheduled for this zone this week. There are no new releases scheduled for this zone over the next two weeks.

Adult Fish Passage

Adult counts at Bonneville Dam have been updated through May 30th. Daily adult spring Chinook counts at Bonneville Dam ranged from 787 to 1,013 adult salmon per day. As of May 30th, a total of 82,473 spring Chinook have been counted at Bonneville Dam. In 2012, 155,940 adult spring Chinook were counted at Bonneville Dam for the same time period. The 2013 adult spring Chinook count at Bonneville Dam is about 52.9% of the 2012 count and 59% of the of the 10-year average count of 139,645. The 2013 spring Chinook jack count of 33,537 is 4.5 times greater than the 2012

count of 7,449 and 1.7 times greater than the 10 year average count of 19,819. At Willamette Falls Dam 16,263 adult spring Chinook have been counted so far this year. In 2012, 18,039 adult spring Chinook were counted at Willamette. This year's count is 90.1% of the 2012 count and 53.5% of the 10-year average count of 30,396. As of May 30th, a total of 66,207 adult spring Chinook have been counted at The Dalles Dam and 45,874 have been counted at McNary Dam. The Dalles Dam 2013 adult spring Chinook count is 59.5% of the 2012 count and 64.8% of the 10-year average count. The 2013 McNary Dam adult spring Chinook count is about 50.5% 2012 count and 61.3% of the 10-year average count.

The 2013 Bonneville Dam adult steelhead count of 3,333 is about 57.3% of the 2012 count of 5,819 and 57.2% of the 10-year average count of 5,830. The 2013 Bonneville Dam adult wild steelhead count of 903 is about 50.5% of the 2012 count of 1,788 and 63.2% of the 10-year average count of 1,428. At upriver sites, adult steelhead continue to move through the hydro system to reach their tributaries and spawning sites. The majority of these fish over-wintered in pools and will complete their trip to their spawning grounds in March through early May. Daily adult steelhead counts at Lower Granite Dam ranged from 1 to 9 adults per day last week. This year's Lower Granite steelhead count of 7,437 is about 83.3% of the 2012 count of 8,926 and 77.2% of the 10-year average count of 9,635. The 2013 Lower Granite Dam adult wild steelhead count of 3,231 is about 82% of the 2012 count of 3,938, while having 30 more fish than the 10-year average count of 3,201. At Willamette Falls, the 2013 count for steelhead was 9,802 as of May 26th. This year's steelhead count is about 57.3% of the 2012 count of 17,118 and about 67.6% of the 10-year average count of 14,497.

Daily adult sockeye passage numbers at Bonneville Dam ranged between 0 and 13 last week. The 2013 adult sockeye count at Bonneville Dam of 43 has 5 fewer fish than the 2012 count, while having 13 more fish than the 10-year average count.

Hatchery Releases Last Two Weeks

Hatchery Release Summary									
From:	5/17/2013		to		05/30/13				
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
Nez Perce Tribe	Lyons Ferry Hatchery	CH0	FA	2013	400,000	05-20-13	05-20-13	Pittsburg Landing Acclim Pond	Snake River
Nez Perce Tribe	Lyons Ferry Hatchery	CH0	FA	2013	500,000	05-22-13	05-22-13	Big Canyon (Clearwater River)	Clearwater River M F
Nez Perce Tribe Total					900,000				
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	CH0	FA	2013	401,273	05-21-13	05-21-13	Grande Ronde River	Grande Ronde River
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	CH0	FA	2013	1,000,000	05-20-13	05-24-13	Hells Canyon Dam	Snake River
Oregon Dept. of Fish and Wildlife	Round Butte Hatchery	CH1	SP	2013	207,941	04-15-13	06-01-13	Deschutes River	Deschutes River
Oregon Dept. of Fish and Wildlife Total					1,609,214				
U.S. Fish and Wildlife Service	Winthrop NFH	ST	SU	2013	55,500	04-15-13	05-24-13	Winthrop Hatchery	Methow River
U.S. Fish and Wildlife Service	Winthrop NFH	ST	SU	2013	59,300	04-15-13	05-24-13	Winthrop Hatchery	Methow River
U.S. Fish and Wildlife Service Total					114,800				
Washington Dept. of Fish and Wildlife	COOP	CH0	FA	2013	175	05-01-13	05-31-13	Wenatchee River	Wenatchee River
Washington Dept. of Fish and Wildlife	COOP	CH0	FA	2013	225	05-01-13	05-31-13	Above McNary Dam	Mid-Columbia River
Washington Dept. of Fish and Wildlife	COOP	CH0	FA	2013	4,500	05-01-13	05-31-13	Above McNary Dam	Mid-Columbia River
Washington Dept. of Fish and Wildlife	COOP	CH0	FA	2013	18,975	05-01-13	05-31-13	Yakama River	Yakima River
Washington Dept. of Fish and Wildlife	COOP	CH0	SU	2013	225	05-01-13	05-31-13	Methow River	Methow River
Washington Dept. of Fish and Wildlife	COOP	CH0	SU	2013	225	05-01-13	05-31-13	Similkameen Acclim Pd	Okanogan River
Washington Dept. of Fish and Wildlife	Eastbank Hatchery	ST	SU	2013	24,000	04-25-13	06-20-13	Blackbird Island Acc Pond	Wenatchee River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2013	205,913	04-08-13	05-20-13	Cottonwood Acclim Pond	Grande Ronde River
Washington Dept. of Fish and Wildlife	Wells Hatchery	CH0	SU	2013	484,000	05-15-13	05-31-13	Wells Hatchery	Mid-Columbia River
Washington Dept. of Fish and Wildlife	Wells Hatchery	ST	SU	2013	90,000	04-20-13	05-20-13	Okanogan River	Okanogan River
Washington Dept. of Fish and Wildlife	Wells Hatchery	ST	SU	2013	140,000	05-15-13	05-25-13	Wells Hatchery	Mid-Columbia River
Washington Dept. of Fish and Wildlife Total					968,238				
Yakama Tribe	Cascade Hatchery	CO	UN	2013	65,362	05-13-13	06-15-13	Rolfings Acclim Pond	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2013	130,722	04-22-13	06-15-13	Nason Wetlands	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2013	130,867	04-15-13	06-15-13	Icicle Creek	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2013	306,946	04-15-13	06-15-13	Icicle Creek	Wenatchee River
Yakama Tribe	Eagle Creek NFH	CO	UN	2013	102,975	04-15-13	07-01-13	Stiles Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2013	104,059	04-15-13	07-01-13	Holmes Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2013	237,043	04-15-13	07-01-13	Easton Pond	Yakima River
Yakama Tribe	Marion Drain Hatchery	CH0	FA	2013	102,000	05-18-13	05-18-13	Nelson Springs Lost Creek Acclim	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2013	124,425	04-15-13	07-01-13	Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2013	131,858	04-15-13	07-01-13	Stiles Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2013	322,100	04-01-13	07-01-13	Prosser Acclim Pond	Yakima River
Yakama Tribe	Wells Hatchery	CH0	FA	2013	102,000	05-24-13	05-24-13	Roza Acclim Pond	Yakima River
Yakama Tribe	Willard Hatchery	CO	UN	2013	30,343	04-15-13	06-15-13	Icicle Creek	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2013	35,838	05-01-13	06-15-13	Methow River	Methow River
Yakama Tribe	Willard Hatchery	CO	UN	2013	40,957	04-22-13	06-15-13	Winthrop Hatchery	Methow River
Yakama Tribe	Willard Hatchery	CO	UN	2013	56,507	05-15-13	06-15-13	Coulter Creek	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2013	59,798	05-13-13	06-15-13	Rolfings Acclim Pond	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2013	66,881	05-01-13	06-15-13	Biddle Pond	Methow River
Yakama Tribe	Willard Hatchery	CO	UN	2013	72,764	05-01-13	06-15-13	Twisp Acclim Pond	Methow River
Yakama Tribe	Willard Hatchery	CO	UN	2013	73,036	04-15-13	06-15-13	Icicle Creek	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2013	109,826	05-01-13	06-15-13	Wenatchee River	Wenatchee River
Yakama Tribe	Winthrop NFH	CO	UN	2013	253,485	04-15-13	06-15-13	Winthrop Hatchery	Methow River
Yakama Tribe Total					2,659,792				
Grand Total					6,252,044				

Hatchery Releases Next Two Weeks

Hatchery Release Summary									
From:	5/31/2013		to		6/13/2013				
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH0	FA	2013	725,000	06-03-13	06-14-13	Nez Perce Tribal Hatchery	Clearwater River M F
Nez Perce Tribe Total					725,000				
Oregon Dept. of Fish and Wildlife	Round Butte Hatchery	CH1	SP	2013	207,941	04-15-13	06-01-13	Deschutes River	Deschutes River
Oregon Dept. of Fish and Wildlife Total					207,941				
Washington Dept. of Fish and Wildlife	COOP	CH0	FA	2013	175	05-01-13	05-31-13	Wenatchee River	Wenatchee River
Washington Dept. of Fish and Wildlife	COOP	CH0	FA	2013	225	05-01-13	05-31-13	Above McNary Dam	Mid-Columbia River
Washington Dept. of Fish and Wildlife	COOP	CH0	FA	2013	4,500	05-01-13	05-31-13	Above McNary Dam	Mid-Columbia River
Washington Dept. of Fish and Wildlife	COOP	CH0	FA	2013	18,975	05-01-13	05-31-13	Yakama River	Yakima River
Washington Dept. of Fish and Wildlife	COOP	CH0	SU	2013	225	05-01-13	05-31-13	Methow River	Methow River
								Similkameen Acclim	
Washington Dept. of Fish and Wildlife	COOP	CH0	SU	2013	225	05-01-13	05-31-13	Pd	Okanogan River
								Blackbird Island Acc	
Washington Dept. of Fish and Wildlife	Eastbank Hatchery	ST	SU	2013	24,000	04-25-13	06-20-13	Pond	Wenatchee River
Washington Dept. of Fish and Wildlife	Priest Rapids Hatchery	CH0	FA	2013	6,700,000	06-10-13	06-20-13	Priest Rapids Hatchery	Mid-Columbia River
Washington Dept. of Fish and Wildlife	Wells Hatchery	CH0	SU	2013	484,000	05-15-13	05-31-13	Wells Hatchery	Mid-Columbia River
Washington Dept. of Fish and Wildlife Total					7,232,325				
Yakama Tribe	Cascade Hatchery	CO	UN	2013	65,362	05-13-13	06-15-13	Rolfings Acclim Pond	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2013	130,722	04-22-13	06-15-13	Nason Wetlands	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2013	130,867	04-15-13	06-15-13	Icicle Creek	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2013	306,946	04-15-13	06-15-13	Icicle Creek	Wenatchee River
Yakama Tribe	Eagle Creek NFH	CO	UN	2013	102,975	04-15-13	07-01-13	Stiles Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2013	104,059	04-15-13	07-01-13	Holmes Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2013	237,043	04-15-13	07-01-13	Easton Pond	Yakima River
								Lost Creek Acclim	
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2013	124,425	04-15-13	07-01-13	Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2013	131,858	04-15-13	07-01-13	Stiles Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2013	322,100	04-01-13	07-01-13	Prosser Acclim Pond	Yakima River
Yakama Tribe	Willard Hatchery	CO	UN	2013	30,343	04-15-13	06-15-13	Icicle Creek	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2013	35,838	05-01-13	06-15-13	Methow River	Methow River
Yakama Tribe	Willard Hatchery	CO	UN	2013	40,957	04-22-13	06-15-13	Winthrop Hatchery	Methow River
Yakama Tribe	Willard Hatchery	CO	UN	2013	56,507	05-15-13	06-15-13	Coulter Creek	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2013	59,798	05-13-13	06-15-13	Rolfings Acclim Pond	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2013	66,881	05-01-13	06-15-13	Biddle Pond	Methow River
Yakama Tribe	Willard Hatchery	CO	UN	2013	72,764	05-01-13	06-15-13	Twisp Acclim Pond	Methow River
Yakama Tribe	Willard Hatchery	CO	UN	2013	73,036	04-15-13	06-15-13	Icicle Creek	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2013	109,826	05-01-13	06-15-13	Wenatchee River	Wenatchee River
Yakama Tribe	Winthrop NFH	CO	UN	2013	253,485	04-15-13	06-15-13	Winthrop Hatchery	Methow River
Yakama Tribe Total					2,455,792				
Grand Total					10,621,058				

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

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

Date	Grand Coulee		Chief Joseph		Wells		Rocky Reach		Rock Island		Wanapum		Priest Rapids	
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
05/17/2013	161.0	0.0	162.5	21.5	196.0	40.6	194.3	40.9	199.7	40.5	217.9	80.5	217.0	85.4
05/18/2013	155.0	2.3	157.2	21.4	185.8	35.0	186.3	29.7	193.9	43.2	219.5	88.8	225.0	109.6
05/19/2013	176.1	13.3	176.8	21.2	204.2	43.7	203.6	34.1	207.0	47.0	222.0	95.8	223.8	106.2
05/20/2013	163.2	19.8	168.0	21.3	197.6	35.0	197.7	22.3	200.6	36.4	213.2	79.4	216.0	93.5
05/21/2013	173.4	20.0	174.7	21.4	197.3	31.3	196.1	22.0	202.2	20.4	206.5	84.1	206.7	86.1
05/22/2013	174.2	12.8	184.7	21.5	213.7	35.9	211.0	31.7	214.5	20.0	217.4	82.2	220.3	107.2
05/23/2013	167.4	2.9	167.5	21.1	193.4	20.0	193.8	29.7	201.3	20.0	223.6	81.5	222.9	104.9
05/24/2013	183.1	3.7	185.0	21.0	213.4	36.0	210.3	41.4	211.1	20.5	216.5	82.4	218.0	96.6
05/25/2013	184.6	5.0	183.6	21.0	212.6	37.4	208.8	45.7	211.0	19.8	226.5	88.7	227.2	105.2
05/26/2013	182.1	5.0	182.7	21.0	207.2	38.3	206.9	41.8	209.8	19.6	218.6	80.9	220.2	94.4
05/27/2013	189.7	5.0	189.5	21.0	211.1	38.5	210.2	38.6	210.3	21.4	217.6	75.6	220.0	90.6
05/28/2013	173.6	1.8	174.4	12.5	199.0	28.7	200.7	36.9	204.8	20.9	219.2	77.0	219.7	103.7
05/29/2013	148.7	0.1	152.6	0.0	181.4	19.2	178.1	16.7	184.6	21.0	201.4	61.0	206.1	69.6
05/30/2013	106.7	0.1	107.2	0.0	132.4	10.0	137.7	0.0	145.6	20.8	160.5	19.4	160.0	23.3

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

Date	Dworshak		Hells Canyon		Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill	Inflow	Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
05/17/2013	5.4	0.0	---	---	101.2	20.6	98.1	29.4	100.4	22.7	102.4	66.5
05/18/2013	5.4	0.5	---	---	97.6	26.7	94.7	31.0	96.2	24.1	97.8	67.2
05/19/2013	5.4	0.0	---	---	88.7	24.8	85.1	27.6	88.5	23.9	89.8	63.0
05/20/2013	5.4	0.0	---	---	83.7	20.8	82.2	24.8	82.2	23.0	83.6	35.7
05/21/2013	5.4	0.0	---	---	75.4	20.6	74.4	22.4	76.4	25.6	75.4	22.9
05/22/2013	3.9	0.0	---	---	77.6	20.5	76.8	23.2	78.6	25.7	79.5	47.1
05/23/2013	3.9	0.0	---	---	77.4	20.5	74.2	22.3	76.3	27.5	76.9	55.6
05/24/2013	3.9	0.0	---	---	71.0	20.5	69.1	20.8	70.8	28.1	73.4	31.8
05/25/2013	3.9	0.0	---	---	68.5	26.1	68.7	25.3	72.5	28.2	72.0	30.0
05/26/2013	3.9	0.0	---	---	63.8	20.4	63.1	18.9	64.9	28.2	62.7	18.8
05/27/2013	3.9	0.0	---	---	60.6	20.3	55.3	16.6	59.1	29.3	59.8	17.8
05/28/2013	3.9	0.0	---	---	65.1	20.4	65.0	19.5	67.0	28.7	66.5	43.0
05/29/2013	3.9	0.0	---	---	63.9	20.2	63.4	19.1	64.8	28.5	66.0	51.1
05/30/2013	7.4	0.0	---	---	70.1	20.1	69.2	20.7	71.1	28.3	70.9	51.8

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

Date	McNary		John Day		The Dalles		Bonneville			
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	PH1	PH2
05/17/2013	311.9	158.4	303.8	135.7	286.0	111.3	309.2	106.5	95.5	94.8
05/18/2013	333.1	174.7	333.8	133.7	318.9	114.2	328.9	120.0	98.0	98.6
05/19/2013	318.6	167.4	326.5	131.5	306.0	117.0	328.9	120.0	98.9	97.6
05/20/2013	313.4	173.1	312.5	143.6	294.2	117.0	317.3	110.0	97.7	97.2
05/21/2013	286.6	158.5	283.3	139.8	270.4	108.9	300.5	99.4	92.7	95.9
05/22/2013	283.2	170.9	287.3	94.6	264.2	105.3	279.0	98.6	82.7	85.4
05/23/2013	316.2	160.0	313.6	104.1	296.9	118.9	316.2	103.3	101.1	99.4
05/24/2013	299.3	144.1	292.8	117.2	277.1	110.7	307.9	98.8	100.5	96.2
05/25/2013	295.1	147.9	294.4	112.9	273.8	110.1	292.4	97.3	95.0	87.7
05/26/2013	297.7	139.2	299.4	90.1	282.5	112.9	307.7	95.5	106.4	93.4
05/27/2013	301.7	141.9	299.6	94.7	281.3	112.1	303.0	94.7	102.7	93.2
05/28/2013	292.6	133.7	297.9	119.0	276.1	109.4	300.3	93.1	95.1	99.7
05/29/2013	280.2	120.6	273.0	104.7	257.8	102.9	287.3	90.4	89.5	94.9
05/30/2013	256.4	103.6	254.9	76.1	238.9	95.7	260.1	93.1	65.7	88.9

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											
	05/21/13	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/28/13	Chinook + Steelhead	44	0	0	0.00%	0.00%	0	0	0	0
Little Goose Dam											
	05/20/13	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/27/13	Chinook + Steelhead	77	0	0	0.00%	0.00%	0	0	0	0
Lower Monumental Dam											
	05/22/13	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/29/13	Chinook + Steelhead	50	0	0	0.00%	0.00%	0	0	0	0
McNary Dam											
	05/20/13	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
	05/24/13	Chinook + Steelhead	100	2	2	2.00%	0.00%	2	0	0	0
	05/26/13	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/30/13	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
Bonneville Dam											
	05/18/13	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/21/13	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/25/13	Chinook + Steelhead	88	0	0	0.00%	0.00%	0	0	0	0
	05/28/13	Chinook + Steelhead	75	1	1	1.33%	0.00%	1	0	0	0
Rock Island Dam											
	05/17/13	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/18/13	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
	05/21/13	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/23/13	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/26/13	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0

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

Total Dissolved Gas Saturation Data at Upper Columbia River Sites

Date	<u>Hungry H. Dnst</u>			<u>Boundary</u>			<u>Grand Coulee</u>			<u>Grand C. Tlwr</u>			<u>Chief Joseph</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>		<u>High</u>	<u>Avg</u>		<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>		<u>High</u>	<u>Avg</u>		<u>Avg</u>	<u>High</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>
5/17	---	---	---	0	---	---	---	0	110.5	110.8	111.1	24	107.7	107.9	108.1	24	108.6	108.8	109.0	24
5/18	---	---	---	0	---	---	---	0	109.9	110.1	110.2	24	107.0	107.2	107.3	24	107.8	108.1	108.2	24
5/19	---	---	---	0	---	---	---	0	109.5	109.6	109.7	24	107.3	107.8	108.6	24	107.3	107.5	107.7	24
5/20	---	---	---	0	---	---	---	0	110.2	110.9	111.8	24	108.4	109.6	110.8	24	107.9	108.5	109.2	24
5/21	---	---	---	0	---	---	---	0	112.1	112.5	112.9	24	110.2	110.6	112.5	24	110.2	110.6	111.0	24
5/22	---	---	---	0	---	---	---	0	110.5	110.7	111.2	24	108.9	109.4	109.7	24	110.6	111.0	111.3	24
5/23	---	---	---	0	---	---	---	0	110.6	111.2	111.7	24	107.0	107.3	107.5	24	109.5	109.7	109.9	24
5/24	---	---	---	0	---	---	---	0	111.3	111.4	111.6	24	107.4	107.6	107.8	24	109.1	109.6	109.7	24
5/25	---	---	---	0	---	---	---	0	111.5	111.8	112.0	24	107.5	108.0	108.4	24	108.5	108.7	108.8	24
5/26	---	---	---	0	---	---	---	0	112.1	112.4	112.6	24	107.7	108.1	108.3	24	108.9	109.2	109.5	24
5/27	---	---	---	0	---	---	---	0	112.8	113.2	113.3	24	108.7	109.2	109.6	24	109.3	109.4	109.7	24
5/28	---	---	---	0	---	---	---	0	113.4	113.7	114.0	24	108.7	109.0	109.3	24	109.8	110.0	110.1	24
5/29	---	---	---	0	---	---	---	0	113.5	113.6	113.8	24	108.3	108.8	109.1	24	110.1	110.2	110.2	24
5/30	---	---	---	0	---	---	---	0	113.3	113.4	113.6	23	106.7	107.1	107.2	23	110.0	110.1	110.2	23

Total Dissolved Gas Saturation Data at Mid Columbia River Sites

Date	<u>Chief J. Dnst</u>			<u>Wells</u>			<u>Wells Dwnstrm</u>			<u>Rocky Reach</u>			<u>Rocky R. Tlwr</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>		<u>High</u>	<u>Avg</u>		<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>		<u>High</u>	<u>Avg</u>		<u>Avg</u>	<u>High</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>
5/17	110.1	110.3	110.6	24	108.1	108.3	108.9	24	113.9	114.4	115.7	24	110.6	111.5	112.2	24	117.8	118.5	119.0	24
5/18	109.9	110.1	110.2	24	107.5	107.8	108.1	21	113.0	114.9	116.8	21	111.9	112.3	112.4	24	117.8	118.0	118.9	24
5/19	109.6	109.8	110.0	24	106.9	107.1	107.4	22	113.5	114.3	115.0	22	111.8	112.7	113.4	24	118.4	118.7	119.3	24
5/20	109.9	110.1	110.3	24	107.5	108.0	108.7	23	113.1	113.6	114.3	23	112.9	113.2	113.4	24	117.6	119.1	119.4	24
5/21	110.2	110.3	110.4	24	108.3	108.5	108.9	18	113.3	113.8	114.5	17	113.6	114.4	114.9	24	118.2	118.6	119.1	24
5/22	110.3	110.5	110.6	24	107.7	107.8	108.0	18	112.6	112.8	113.4	19	111.5	112.1	112.4	24	118.4	118.9	119.0	24
5/23	110.0	110.2	110.4	24	108.0	108.2	108.4	22	111.2	112.2	113.0	22	111.4	111.6	112.0	24	118.1	118.4	118.9	24
5/24	110.0	110.2	110.2	24	108.5	108.7	109.1	23	113.2	113.9	115.1	23	111.0	112.0	112.3	24	118.6	119.1	119.3	24
5/25	109.9	110.1	110.3	24	107.9	108.1	108.2	22	113.1	113.7	115.0	22	112.0	112.5	113.0	24	119.4	119.6	119.7	24
5/26	110.0	110.2	110.3	24	108.1	108.4	108.5	24	113.4	113.8	114.1	24	112.3	112.6	113.0	24	119.2	119.4	119.6	24
5/27	110.2	110.3	110.5	24	108.3	108.5	108.7	21	113.5	113.9	114.2	21	112.7	112.9	113.0	24	119.6	119.8	119.9	24
5/28	109.6	109.9	110.4	24	108.8	109.2	109.5	21	113.1	114.0	114.4	21	112.7	113.0	113.2	24	119.3	120.0	121.0	24
5/29	109.5	109.7	110.1	24	108.7	108.9	109.3	20	111.3	112.1	112.3	20	112.5	113.0	113.2	24	116.5	118.6	118.9	24
5/30	109.8	110.1	110.6	23	107.9	108.1	108.4	20	109.5	109.8	110.1	20	110.3	110.4	110.6	23	109.8	110.0	110.4	23

Total Dissolved Gas Saturation at Mid Columbia River Sites

Date	<u>Rock Island</u>			<u>Rock I. Tlwr</u>			<u>Wanapum</u>			<u>Wanapum Tlwr</u>			<u>Priest Rapids</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>		<u>High</u>	<u>Avg</u>		<u>Avg</u>	<u>High</u>		<u>Avg</u>	<u>Avg</u>		<u>High</u>	<u>Avg</u>		<u>Avg</u>	<u>High</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>
5/17	111.2	113.2	114.1	24	115.6	117.3	117.9	24	113.6	113.9	114.3	24	115.3	116.1	116.6	24	112.9	113.6	114.4	24
5/18	112.0	112.7	113.4	24	116.5	116.9	117.3	24	111.1	111.4	112.4	24	116.2	117.3	119.3	24	114.1	115.2	117.1	24
5/19	112.0	112.8	114.1	24	117.7	119.4	120.5	24	111.5	112.1	112.3	24	117.6	118.3	120.0	24	114.0	116.4	117.5	24
5/20	113.3	114.3	114.7	24	116.5	117.2	117.9	24	114.1	116.0	117.2	24	116.6	117.2	118.2	24	116.0	117.2	117.6	24
5/21	112.9	113.4	113.7	24	114.9	115.3	115.7	24	116.3	116.7	117.0	24	118.1	118.8	119.7	24	116.0	116.7	117.2	24
5/22	111.8	112.1	112.4	24	113.9	114.3	114.7	24	113.7	114.5	115.4	24	116.2	116.8	117.5	24	114.2	114.6	115.0	24
5/23	112.0	112.4	112.7	24	114.1	114.6	114.9	24	112.4	112.7	113.0	24	115.3	116.0	116.3	24	114.6	115.3	116.0	24
5/24	112.3	112.8	113.4	24	114.5	115.1	115.5	24	112.3	112.4	112.6	24	115.7	116.1	117.1	24	113.3	113.8	114.3	24
5/25	113.2	114.1	114.6	24	115.2	116.1	116.5	24	112.6	112.9	113.3	24	116.8	117.2	118.2	24	115.4	116.2	116.7	24
5/26	113.6	113.7	114.0	24	115.5	115.8	116.0	24	113.5	113.8	114.0	24	116.4	116.6	117.6	24	115.4	115.8	116.4	24
5/27	113.8	114.1	114.3	24	115.8	116.2	116.3	24	114.1	114.3	114.5	24	116.0	116.5	116.8	24	115.3	115.7	115.9	24
5/28	114.0	114.8	115.4	24	115.9	116.4	116.7	24	114.6	114.8	115.0	24	116.1	116.6	116.7	24	115.0	115.8	116.1	24
5/29	111.7	113.1	113.4	24	114.9	115.5	115.9	24	114.6	114.9	114.9	24	114.7	115.0	115.1	24	113.7	114.2	115.7	24
5/30	109.1	109.6	111.8	23	112.4	113.4	115.2	23	112.3	113.4	113.8	24	112.8	113.5	113.8	24	112.0	112.4	112.9	24

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

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

Date	<u>Priest R. Dnst</u>			<u>Pasco</u>			<u>Dworshak</u>			<u>Clwrtr-Peck</u>			<u>Anatone</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>					
	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High					
5/17	117.1	117.5	117.7	24	---	---	---	0	97.6	98.3	98.8	24	102.0	102.6	103.1	24	106.2	106.8	107.2	24
5/18	118.3	118.6	119.1	24	---	---	---	0	100.5	103.9	108.8	24	101.6	102.1	102.8	24	105.6	106.0	106.6	24
5/19	118.1	119.1	120.0	24	---	---	---	0	96.5	96.5	96.8	10	101.0	101.6	102.1	24	105.4	105.9	106.4	24
5/20	118.9	119.3	119.8	24	---	---	---	0	97.0	97.1	97.5	16	101.6	102.8	103.4	24	106.1	107.1	107.9	24
5/21	119.1	119.4	119.6	24	---	---	---	0	97.5	98.0	98.5	24	101.2	101.6	102.0	24	105.3	105.9	106.5	24
5/22	118.4	118.7	119.0	24	---	---	---	0	97.3	97.8	98.3	24	100.3	100.3	100.7	8	104.1	104.6	105.2	24
5/23	118.8	119.2	119.7	24	---	---	---	0	97.6	98.4	98.9	24	---	---	---	0	104.7	105.7	106.5	24
5/24	117.8	118.4	118.7	24	---	---	---	0	96.7	97.1	97.3	24	---	---	---	0	104.0	104.4	104.7	24
5/25	119.2	119.6	119.9	24	---	---	---	0	97.0	97.5	98.0	24	---	---	---	0	104.3	105.1	105.6	24
5/26	119.0	119.2	119.6	24	---	---	---	0	97.3	97.9	98.6	24	---	---	---	0	103.8	104.2	104.5	24
5/27	118.6	118.9	119.0	24	---	---	---	0	97.4	98.0	98.6	24	---	---	---	0	103.9	104.6	105.1	24
5/28	119.0	119.3	119.6	24	---	---	---	0	97.6	98.1	98.6	24	---	---	---	0	103.7	104.2	104.8	24
5/29	117.2	117.8	118.6	24	---	---	---	0	97.7	98.2	98.6	24	---	---	---	0	103.4	103.7	104.1	24
5/30	114.2	114.4	115.2	24	---	---	---	0	96.9	97.2	97.7	23	---	---	---	0	103.4	104.1	104.4	23

Total Dissolved Gas Saturation Data at Snake River Sites

Date	<u>Clwrtr-Lewiston</u>			<u>Lower Granite</u>			<u>L. Granite Tlwr</u>			<u>Little Goose</u>			<u>L. Goose Tlwr</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>					
	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High					
5/17	101.8	102.5	103.0	24	105.9	106.1	106.2	24	111.2	111.3	112.0	24	109.4	109.7	109.9	24	113.2	113.3	113.7	24
5/18	101.1	101.7	102.3	24	104.8	105.2	105.5	24	112.7	114.8	116.7	24	108.1	108.4	108.7	24	113.3	113.9	114.5	24
5/19	100.9	101.7	102.1	24	103.8	103.9	104.0	24	111.9	113.1	116.4	24	107.0	107.3	107.8	24	112.0	112.6	114.4	24
5/20	102.0	103.4	104.2	24	104.2	104.9	105.5	24	111.1	111.6	112.4	24	109.5	110.9	111.4	24	113.3	114.9	122.2	24
5/21	101.4	102.2	103.0	24	106.0	106.2	106.4	24	111.5	111.9	112.3	24	111.4	111.7	111.9	24	113.7	114.0	114.6	24
5/22	100.2	100.9	101.8	24	105.2	105.4	106.0	24	111.4	111.8	112.2	24	109.8	110.4	111.2	24	113.1	113.5	113.8	24
5/23	101.3	102.8	103.9	24	103.9	104.5	105.1	24	111.2	111.6	111.9	24	108.3	108.5	108.7	24	113.3	113.7	114.2	24
5/24	100.8	101.3	101.8	24	102.2	102.4	102.6	24	110.8	111.1	111.3	24	108.3	108.5	108.7	24	113.1	113.4	113.6	24
5/25	101.5	103.0	104.0	24	102.7	103.0	103.3	24	112.7	114.2	116.3	24	109.0	109.4	109.5	24	114.8	115.6	116.8	24
5/26	101.3	102.2	102.6	24	103.5	103.7	103.9	24	111.9	112.3	112.9	24	110.1	110.4	110.5	24	113.9	114.0	114.2	24
5/27	101.5	102.5	103.6	24	103.5	103.7	103.9	24	111.9	112.3	112.6	24	111.0	111.4	111.7	24	114.7	115.1	115.4	24
5/28	101.0	101.7	102.4	24	104.0	104.1	104.2	24	111.9	112.2	112.9	24	111.8	112.2	112.5	24	115.0	115.2	115.5	24
5/29	100.8	101.3	102.2	24	103.8	104.1	104.5	24	112.2	112.5	112.9	24	112.6	112.7	112.8	24	114.7	115.1	115.5	24
5/30	100.7	101.6	102.2	23	102.5	102.8	103.1	23	111.2	111.4	111.9	23	111.4	111.6	112.1	23	113.9	114.0	114.2	23

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

Date	<u>Lower Mon.</u>			<u>L. Mon. Tlwr</u>			<u>Ice Harbor</u>			<u>Ice Harbor Tlwr</u>			<u>McNary-Oregon</u>							
	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>					
	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High					
5/17	114.9	115.0	115.4	24	116.0	116.9	117.5	24	116.0	116.3	116.6	24	118.4	119.6	120.1	24	---	---	---	0
5/18	113.6	114.0	114.4	24	115.5	116.5	116.9	24	113.6	114.2	115.0	24	117.7	118.6	119.6	24	---	---	---	0
5/19	111.3	111.5	112.1	24	114.0	114.5	115.9	24	111.9	112.1	112.5	24	116.8	117.4	118.3	24	---	---	---	0
5/20	112.5	113.1	114.0	24	115.4	117.0	119.5	24	113.0	113.9	114.7	23	115.6	115.9	116.2	24	---	---	---	0
5/21	114.5	114.9	115.1	24	118.7	119.2	119.7	24	114.9	115.2	115.4	24	115.2	115.5	116.1	24	---	---	---	0
5/22	112.7	113.2	113.5	24	118.2	118.6	118.7	24	112.6	113.1	113.9	24	115.4	116.0	116.1	24	---	---	---	0
5/23	111.2	111.4	111.9	24	118.6	119.1	119.3	24	111.1	111.3	111.6	24	116.0	116.2	116.3	24	---	---	---	0
5/24	111.3	111.4	111.5	24	118.1	118.7	119.2	24	112.2	112.7	113.2	24	114.8	115.3	116.1	24	---	---	---	0
5/25	111.6	111.9	112.3	24	118.0	119.1	119.4	24	113.7	114.0	114.2	24	115.4	115.9	116.9	24	---	---	---	0
5/26	111.8	111.9	112.0	24	117.7	118.6	119.4	24	114.4	114.7	114.9	24	114.7	115.2	115.5	24	---	---	---	0
5/27	113.5	114.3	114.7	24	119.2	120.1	120.9	24	115.3	115.6	115.7	24	113.3	114.4	116.0	24	---	---	---	0
5/28	113.4	113.6	114.0	24	119.6	120.3	120.9	24	115.6	115.9	116.0	24	114.6	115.8	116.1	24	---	---	---	0
5/29	113.1	113.3	113.4	24	118.9	119.6	120.4	24	116.1	116.2	116.5	24	115.6	116.2	116.7	24	---	---	---	0
5/30	112.1	112.2	112.5	23	118.4	119.1	119.4	23	114.7	115.1	115.7	23	115.5	115.8	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

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>24 h</u>	<u>12 h</u>			<u>24h</u>	<u>12h</u>			<u>24h</u>	<u>12h</u>			<u>24h</u>	<u>12h</u>		<u>24h</u>	<u>12h</u>	<u>AVG</u>	<u>High</u>
	<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>High</u>	<u>hr</u>	<u>Avg</u>		<u>Avg</u>	<u>High</u>	<u>hr</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>AVG</u>	<u>High</u>
5/17	114.0	114.4	115.1	24	118.4	118.8	119.4	24	113.2	113.5	114.0	24	118.0	118.1	118.4	24	112.3	112.9	113.6	24			
5/18	111.6	112.2	112.9	24	118.3	118.5	118.8	24	111.4	111.7	112.3	24	117.8	118.0	118.2	24	112.9	112.9	113.2	11			
5/19	110.1	110.8	111.4	24	118.4	118.5	118.7	24	109.7	110.0	110.3	24	117.7	117.9	118.3	24	---	---	---	0			
5/20	113.1	114.8	116.6	24	118.6	119.0	119.8	24	109.8	110.5	111.1	24	118.6	119.1	119.9	24	115.0	115.5	116.9	14			
5/21	115.2	115.7	116.3	24	118.3	119.0	120.0	24	110.8	111.1	111.4	24	118.7	119.2	119.5	24	113.9	115.1	117.0	24			
5/22	111.2	112.4	113.5	24	118.5	118.9	119.4	24	110.0	110.3	110.8	24	116.4	117.0	118.5	24	111.7	112.0	112.5	24			
5/23	108.7	109.2	110.0	24	117.8	118.0	119.2	24	110.6	111.1	111.4	24	117.1	117.9	119.0	24	111.4	111.7	112.0	24			
5/24	111.2	111.9	112.2	24	117.6	117.9	118.1	24	109.8	110.4	111.0	24	117.9	118.1	118.5	24	112.8	113.3	113.5	24			
5/25	112.4	112.9	113.5	24	117.1	117.7	119.2	24	108.6	109.1	109.6	24	117.7	118.1	118.5	24	112.4	112.8	113.3	24			
5/26	112.5	113.0	113.7	24	117.2	117.4	117.5	24	111.0	111.5	111.7	24	116.0	116.3	116.8	24	112.4	112.9	113.4	24			
5/27	114.2	114.5	114.7	24	117.1	117.4	117.6	24	111.5	111.7	112.0	24	116.3	117.0	118.6	24	112.1	112.3	112.5	24			
5/28	113.3	113.4	114.1	24	117.1	117.5	117.7	24	112.1	112.6	113.1	24	118.3	118.6	118.8	24	112.5	113.1	113.7	24			
5/29	112.3	112.6	112.8	24	116.3	116.4	116.7	24	112.9	113.3	113.4	24	117.6	118.5	119.4	24	113.5	113.9	114.0	24			
5/30	110.7	110.9	111.0	23	114.5	114.9	116.0	23	110.5	110.9	111.5	23	114.6	115.0	115.2	23	110.6	111.0	111.8	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>24 h</u>	<u>12 h</u>			<u>24h</u>	<u>12h</u>			<u>24h</u>	<u>12h</u>			<u>24h</u>	<u>12h</u>		<u>24h</u>	<u>12h</u>	<u>High</u>	<u>hr</u>
	<u>Avg</u>	<u>Avg</u>	<u>High</u>		<u>hr</u>	<u>Avg</u>	<u>Avg</u>		<u>High</u>	<u>hr</u>	<u>Avg</u>		<u>Avg</u>	<u>High</u>	<u>hr</u>		<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>
5/17	117.3	117.7	118.2	24	115.2	116.0	116.7	24	115.9	116.7	117.6	24	116.3	116.9	117.2	24	116.6	120.1	122.7	24			
5/18	116.7	117.0	117.3	24	113.5	113.7	113.9	24	115.0	115.1	115.3	24	113.6	113.9	114.2	24	120.5	120.5	120.7	24			
5/19	116.6	116.9	117.4	24	113.1	113.3	113.6	24	114.8	115.0	115.2	24	113.6	114.0	114.4	24	119.8	120.3	120.4	24			
5/20	118.0	119.5	120.5	24	114.9	116.1	117.2	24	115.8	116.3	116.7	24	115.0	116.5	117.3	24	120.4	120.5	120.7	24			
5/21	118.8	119.6	120.5	24	115.6	116.7	117.2	24	115.8	116.4	116.9	24	114.2	114.8	115.4	24	120.0	120.5	120.6	24			
5/22	117.5	117.9	118.2	24	112.7	113.1	113.7	24	114.2	114.5	115.0	24	111.2	111.5	111.7	24	118.7	118.8	119.1	24			
5/23	117.2	117.4	117.8	24	114.4	115.3	115.7	24	115.3	115.8	116.2	24	112.1	113.0	113.9	24	119.9	120.5	120.8	24			
5/24	117.9	118.5	118.8	24	115.2	115.4	115.4	24	115.8	115.9	116.0	24	113.4	114.3	114.5	23	119.9	120.5	120.8	24			
5/25	117.8	118.2	118.6	24	115.6	116.3	116.6	24	116.0	116.4	116.7	24	115.3	116.3	117.0	24	119.1	119.4	120.4	24			
5/26	118.0	118.4	119.2	24	116.3	116.4	116.5	24	116.4	116.5	116.6	24	115.3	115.7	115.9	24	120.7	121.1	121.3	24			
5/27	117.8	118.1	118.3	24	115.9	116.2	116.4	24	116.2	116.5	116.6	24	114.8	115.1	115.3	24	120.4	121.1	121.4	24			
5/28	117.6	118.1	118.7	24	115.5	115.7	116.0	24	115.8	116.0	116.2	24	114.5	115.0	115.3	24	120.7	120.8	121.3	24			
5/29	118.3	118.7	119.0	24	115.0	115.5	115.8	24	115.2	115.7	116.1	24	113.4	114.2	115.0	24	119.4	120.5	120.7	24			
5/30	116.4	116.9	117.4	23	113.3	113.6	113.9	23	114.7	114.9	115.1	23	112.5	113.2	113.6	23	117.5	118.1	118.5	23			

Two-Week Summary of Passage Indices

Source: Fish Passage Center

Updated: 5/31/2013 12:17

Two-Week Summary of Passage Indices

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

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

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

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

COMBINED YEARLING CHINOOK											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR ^{††} (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)
05/17/2013 *	---	12	25	---	23,648	23,530	20,924	1,468	79,452	75,838	87,600
05/18/2013 *	---	12	17	---	9,472	20,378	9,317	1,009	---	61,340	57,451
05/19/2013 *	---	16	22	---	12,532	15,506	8,625	877	57,259	61,711	45,067
05/20/2013 *	---	20	12	---	8,258	16,955	4,634	1,091	---	39,037	34,787
05/21/2013 *	---	18	13	---	6,316	7,948	2,339	846	52,065	30,953	40,089
05/22/2013 *	---	3	---	---	4,533	5,603	4,085	451	---	22,528	25,446
05/23/2013 *	---	16	---	---	4,702	6,112	2,605	470	27,414	24,970	13,735
05/24/2013 *	---	8	---	---	2,475	3,874	1,865	397	---	28,355	17,672
05/25/2013 *	---	9	---	---	1,938	1,965	416	340	31,572	22,283	19,387
05/26/2013 *	---	4	---	---	665	1,561	687	318	---	14,739	9,085
05/27/2013 *	---	10	---	---	967	1,219	525	284	21,752	13,750	11,064
05/28/2013 *	---	---	---	---	511	1,021	288	350	---	15,330	7,624
05/29/2013	---	---	---	---	2,264	1,290	508	632	24,280	19,116	7,853
05/30/2013 *	---	---	---	---	1,518	---	315	585	---	13,995	7,691
05/31/2013	---	---	---	---	---	---	---	---	---	---	---
Total:	0	128	89	0	79,799	106,962	57,133	9,118	293,794	443,945	384,551
# Days:	0	11	5	0	14	13	14	14	7	14	14
Average:	0	12	18	0	5,700	8,228	4,081	651	41,971	31,710	27,468
YTD	50,632	55,212	26,301	2,797	2,596,928	1,489,247	607,968	26,278	1,934,085	1,958,892	1,815,514

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)
05/17/2013 *	---	0	13	---	1,478	0	893	18	2,127	0	6,362
05/18/2013 *	---	0	0	---	2,977	590	266	63	---	257	5,682
05/19/2013 *	---	0	6	---	3,269	4,174	270	43	1,280	1,448	6,092
05/20/2013 *	---	0	0	---	2,032	1,724	545	50	---	959	4,638
05/21/2013 *	---	0	1	---	2,687	2,875	585	22	854	808	5,859
05/22/2013 *	---	0	---	---	3,316	2,586	771	7	---	1,348	2,339
05/23/2013 *	---	0	---	---	3,680	3,523	383	5	1,923	1,141	4,682
05/24/2013 *	---	0	---	---	1,650	2,941	487	14	---	2,350	5,720
05/25/2013 *	---	0	---	---	6,008	3,223	500	8	999	2,010	5,173
05/26/2013 *	---	0	---	---	4,026	908	172	12	---	776	2,963
05/27/2013 *	---	0	---	---	2,929	1,076	659	16	1,690	1,862	2,709
05/28/2013 *	---	---	---	---	3,712	949	126	14	---	839	3,644
05/29/2013	---	---	---	---	11,452	1,405	272	89	1,390	1,670	4,108
05/30/2013 *	---	---	---	---	21,290	---	374	50	---	1,564	3,628
05/31/2013	---	---	---	---	---	---	---	---	---	---	---
Total:	0	0	20	0	70,506	25,974	6,303	411	10,263	17,032	63,599
# Days:	0	11	5	0	14	13	14	14	7	14	14
Average:	0	0	4	0	5,036	1,998	450	29	1,466	1,217	4,543
YTD	2	41	195	2,668	87,505	28,313	13,652	1,483	24,446	17,617	2,037,062

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)	
05/17/2013	*	---	0	0	---	1,478	4,015	638	2,776	5,103	5,834	25,936
05/18/2013	*	---	0	0	---	1,353	5,903	799	1,559	---	5,133	25,569
05/19/2013	*	---	0	0	---	1,090	2,981	809	4,420	7,679	8,196	26,235
05/20/2013	*	---	0	0	---	1,901	1,437	136	4,330	---	5,748	22,860
05/21/2013	*	---	0	0	---	470	1,148	0	2,221	4,673	7,806	22,511
05/22/2013	*	---	0	---	---	414	790	692	1,219	---	7,702	20,488
05/23/2013	*	---	0	---	---	273	935	77	2,432	3,846	12,699	11,550
05/24/2013	*	---	0	---	---	34	430	0	1,651	---	8,460	9,566
05/25/2013	*	---	0	---	---	78	472	0	1,977	3,997	3,853	7,971
05/26/2013	*	---	0	---	---	111	0	0	1,987	---	3,568	12,992
05/27/2013	*	---	0	---	---	30	72	123	1,708	2,627	3,724	7,659
05/28/2013	*	---	---	---	---	45	57	10	2,118	---	3,203	6,073
05/29/2013	*	---	---	---	---	59	158	27	2,545	4,354	3,756	8,534
05/30/2013	*	---	---	---	---	72	---	119	1,571	---	3,362	9,940
05/31/2013	*	---	---	---	---	---	---	---	---	---	---	---
Total:		0	0	0	0	7,408	18,398	3,430	32,514	32,279	83,044	217,884
# Days:		0	11	5	0	14	13	14	14	7	14	14
Average:		0	0	0	0	529	1,415	245	2,322	4,611	5,932	15,563
YTD		0	0	0	107	60,761	51,449	9,861	45,136	60,471	165,008	676,930

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)	
05/17/2013	*	---	648	17	---	53,209	57,939	26,666	525	10,639	25,523	8,811
05/18/2013	*	---	602	14	---	35,451	44,571	23,027	462	---	18,736	17,046
05/19/2013	*	---	610	23	---	19,887	36,371	18,058	553	6,399	23,141	8,417
05/20/2013	*	---	391	7	---	14,681	23,277	10,767	531	---	14,370	10,933
05/21/2013	*	---	564	22	---	16,528	14,160	9,650	489	7,672	16,418	11,718
05/22/2013	*	---	287	---	---	12,183	12,714	13,586	304	---	13,093	5,052
05/23/2013	*	---	407	---	---	7,837	10,785	4,214	453	4,807	9,132	6,243
05/24/2013	*	---	181	---	---	6,016	8,895	5,595	431	---	8,146	3,013
05/25/2013	*	---	106	---	---	7,016	8,255	2,832	458	3,214	5,864	2,368
05/26/2013	*	---	45	---	---	5,060	4,720	3,863	507	---	4,655	1,791
05/27/2013	*	---	60	---	---	5,264	5,235	2,834	636	1,895	4,440	1,541
05/28/2013	*	---	---	---	---	4,418	2,333	1,535	465	---	3,737	1,396
05/29/2013	*	---	---	---	---	5,876	6,121	1,618	273	2,503	3,172	2,015
05/30/2013	*	---	---	---	---	4,148	---	1,548	159	---	3,284	1,741
05/31/2013	*	---	---	---	---	---	---	---	---	---	---	---
Total:		0	3,901	83	0	197,574	235,376	125,793	6,246	37,129	153,711	82,085
# Days:		0	11	5	0	14	13	14	14	7	14	14
Average:		0	355	17	0	14,112	18,106	8,985	446	5,304	10,979	5,863
YTD		3,789	39,333	3,547	9,925	1,999,512	1,657,738	598,652	13,827	436,735	705,120	422,983

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)
05/17/2013 *	---	0	0	---	10,839	7,170	255	2,510	74,438	35,245	35,727
05/18/2013 *	---	0	0	---	7,848	5,313	2,795	2,859	---	34,392	32,198
05/19/2013 *	---	0	0	---	6,538	9,838	1,887	2,185	68,337	31,339	37,469
05/20/2013 *	---	0	0	---	1,704	4,023	1,908	1,523	---	31,134	33,130
05/21/2013 *	---	0	0	---	806	1,292	292	536	62,570	13,997	32,996
05/22/2013 *	---	0	---	---	622	1,006	1,998	250	---	19,255	34,053
05/23/2013 *	---	0	---	---	136	1,294	766	376	33,664	19,833	17,481
05/24/2013 *	---	0	---	---	34	287	405	203	---	23,969	31,813
05/25/2013 *	---	0	---	---	78	314	250	138	12,393	11,560	22,618
05/26/2013 *	---	0	---	---	0	508	0	65	---	12,102	7,554
05/27/2013 *	---	0	---	---	30	0	67	24	11,641	9,167	7,819
05/28/2013 *	---	---	---	---	15	115	55	9	---	6,102	3,514
05/29/2013	---	---	---	---	29	129	18	20	8,907	7,429	2,868
05/30/2013 *	---	---	---	---	58	---	34	3	---	6,959	3,555
05/31/2013	---	---	---	---	---	---	---	---	---	---	---
Total:	0	0	0	0	28,737	31,289	10,730	10,701	271,950	262,483	302,795
# Days:	0	11	5	0	14	13	14	14	7	14	14
Average:	0	0	0	0	2,053	2,407	766	764	38,850	18,749	21,628
YTD	1	0	0	326	54,115	32,438	11,115	24,579	596,094	389,725	380,069

COMBINED LAMPREY JUVENILES											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR† (Coll)	LGS (Coll)	LMN (Coll)	RIS (Coll)	MCN (Coll)	JDA (Coll)	BO2 (Coll)
05/17/2013 *	---	0	0	---	400	17,200	6,400	1	1,800	1,429	0
05/18/2013 *	---	0	0	---	200	5,600	7,200	2	---	1,286	0
05/19/2013 *	---	0	0	---	0	3,002	3,900	0	6,400	5,143	0
05/20/2013 *	---	0	0	---	0	1,400	5,800	0	---	4,143	0
05/21/2013 *	---	0	0	---	50	501	4,200	0	9,600	4,429	0
05/22/2013 *	---	0	---	---	50	50	2,000	0	---	9,400	0
05/23/2013 *	---	0	---	---	0	200	300	0	14,000	7,200	0
05/24/2013 *	---	0	---	---	0	50	0	0	---	10,900	0
05/25/2013 *	---	0	---	---	0	300	50	2	5,700	11,200	0
05/26/2013 *	---	0	---	---	0	50	0	0	---	6,300	0
05/27/2013 *	---	0	---	---	0	25	12	0	3,600	6,100	0
05/28/2013 *	---	---	---	---	0	20	15	0	---	4,300	75
05/29/2013	---	---	---	---	20	0	10	1	1,300	3,800	25
05/30/2013 *	---	---	---	---	10	---	5	0	---	4,050	25
05/31/2013	---	---	---	---	---	---	---	---	---	---	---
Total:	0	0	0	0	730	28,398	29,892	6	42,400	79,680	125
# Days:	0	11	5	0	14	13	14	14	7	14	14
Average:	0	0	0	0	52	2,184	2,135	0	6,057	5,691	9
YTD	0	8	0	0	4,872	50,811	59,452	82	51,410	111,843	2,937

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:
Two classes of fish counts are shown in these tables:

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.

†† Passage index for yearling Chinook and steelhead at LGR may be inflated in 2013 due to possible resampling of PIT-tagged research fish

† Caution should be used with interpreting lamprey juvenile collection counts at LGR because of the possibility that lamprey may escape the sample tank before being sampled

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:

5/31/13 12:17 PM

05/17/13 TO 05/31/13

Site	Data	Species					Grand Total
		CH0	CH1	CO	ST	SO	
LGR	Sum of NumberCollected	49,220	60,213	5,590	147,746	22,015	284,784
	Sum of NumberBarged	48,348	56,290	5,587	139,878	22,000	272,103
	Sum of NumberBypassed	775	3,879	0	7,847	1	12,502
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	20	9	0	4	0	33
	Sum of FacilityMorts	76	22	3	11	14	126
	Sum of ResearchMorts	1	13	0	6	0	20
	Sum of TotalProjectMorts	97	44	3	21	14	179
LGS	Sum of NumberCollected	17,770	73,595	12,600	161,669	21,420	287,054
	Sum of NumberBarged	17,757	73,552	12,600	161,647	21,420	286,976
	Sum of NumberBypassed	10	0	0	0	0	10
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	3	4	0	0	0	7
	Sum of FacilityMorts	0	39	0	22	0	61
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	3	43	0	22	0	68
LMN	Sum of NumberCollected	4,142	41,855	2,456	89,205	7,594	145,252
	Sum of NumberBarged	4,108	41,774	2,456	89,050	7,590	144,978
	Sum of NumberBypassed	26	12	0	129	0	167
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	1	0	4	0	5
	Sum of FacilityMorts	8	68	0	22	4	102
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	8	69	0	26	4	107
MCN	Sum of NumberCollected	4,954	140,641	15,551	17,587	127,739	306,472
	Sum of NumberBarged	0	0	0	0	0	0
	Sum of NumberBypassed	4,952	140,451	15,549	17,585	127,590	306,127
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	10	1	0	11	22
	Sum of FacilityMorts	2	180	1	2	138	323
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	2	190	2	2	149	345
Total Sum of NumberCollected		76,086	316,304	36,197	416,207	178,768	1,023,562
Total Sum of NumberBarged		70,213	171,616	20,643	390,575	51,010	704,057
Total Sum of NumberBypassed		5,763	144,342	15,549	25,561	127,591	318,806
Total Sum of Numbertrucked		0	0	0	0	0	0
Total Sum of SampleMorts		23	24	1	8	11	67
Total Sum of FacilityMorts		86	309	4	57	156	612
Total Sum of ResearchMorts		1	13	0	6	0	20
Total Sum of TotalProjectMorts		110	346	5	71	167	699

YTD Transportation Summary

Source: Fish Passage Center

Updated: 5/31/13 12:17 PM

TO: 05/31/13

Site	Data	Species					Grand Total	
		CH0	CH1	CO	SO	ST		LU
LGR	Sum of NumberCollected	62,355	1,858,011	47,350	42,265	1,419,223	3,429,204	
	Sum of NumberBarged	60,111	1,547,489	47,083	42,198	1,064,567	2,761,448	
	Sum of NumberBypassed	2,125	308,258	210	52	354,346	664,991	
	Sum of NumberTrucked	0	0	0	0	0	0	
	Sum of SampleMorts	25	152	0	0	28	205	
	Sum of FacilityMorts	93	2,063	57	15	239	2,467	
	Sum of ResearchMorts	1	51	0	0	42	94	
	Sum of TotalProjectMorts	119	2,266	57	15	309	2,766	
LGS	Sum of NumberCollected	19,371	1,018,954	35,000	22,220	1,134,234	2,229,779	
	Sum of NumberBarged	19,152	971,691	34,800	22,220	1,067,930	2,115,793	
	Sum of NumberBypassed	215	46,698	200	0	66,201	113,314	
	Sum of NumberTrucked	0	0	0	0	0	0	
	Sum of SampleMorts	3	13	0	0	5	21	
	Sum of FacilityMorts	1	552	0	0	98	651	
	Sum of ResearchMorts	0	0	0	0	0	0	
	Sum of TotalProjectMorts	4	565	0	0	103	672	
LMN	Sum of NumberCollected	10,050	467,006	7,556	7,896	452,116	1	944,625
	Sum of NumberBarged	9,602	465,415	7,556	7,890	450,870	0	941,333
	Sum of NumberBypassed	36	1,062	0	2	1,039	16	2,155
	Sum of NumberTrucked	0	0	0	0	0	0	0
	Sum of SampleMorts	0	12	0	0	10	0	22
	Sum of FacilityMorts	14	517	0	4	197	0	732
	Sum of ResearchMorts	0	0	0	0	0	0	0
	Sum of TotalProjectMorts	14	529	0	4	207	0	754
MCN	Sum of NumberCollected	12,326	990,111	29,483	293,983	235,827	1,561,730	
	Sum of NumberBarged	0	0	0	0	0	0	
	Sum of NumberBypassed	12,320	989,322	29,479	293,746	235,780	1,560,647	
	Sum of NumberTrucked	0	0	0	0	0	0	
	Sum of SampleMorts	2	50	1	25	4	82	
	Sum of FacilityMorts	4	739	3	212	43	1,001	
	Sum of ResearchMorts	0	0	0	0	0	0	
	Sum of TotalProjectMorts	6	789	4	237	47	1,083	
Total Sum of NumberCollected		104,102	4,334,082	119,389	366,364	3,241,400	1	8,165,338
Total Sum of NumberBarged		88,865	2,984,595	89,439	72,308	2,583,367	0	5,818,574
Total Sum of NumberBypassed		14,696	1,345,340	29,889	293,800	657,366	16	2,341,107
Total Sum of NumberTrucked		0	0	0	0	0	0	0
Total Sum of SampleMorts		30	227	1	25	47	0	330
Total Sum of FacilityMorts		112	3,871	60	231	577	0	4,851
Total Sum of ResearchMorts		1	51	0	0	42	0	94
Total Sum of TotalProjectMorts		143	4,149	61	256	666	0	5,275

Cumulative Adult Passage at Mainstem Dams Through: 05/31

DAM	ENDD	Spring Chinook						Summer Chinook						Fall Chinook					
		2013		2012		10-Yr Avg.		2013		2012		10-Yr Avg.		2013		2012		10-Yr Avg.	
		Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	05/30	82473	33537	155940	7449	139645	19819	0	0	0	0	0	0	0	0	0	0	0	0
TDA	05/30	66207	31280	111092	6739	102145	15762	0	0	0	0	0	0	0	0	0	0	0	0
JDA	05/30	52955	27438	98479	6041	85825	14341	0	0	0	0	0	0	0	0	0	0	0	0
MCN	05/30	45874	20278	90754	4171	74826	11618	0	0	0	0	0	0	0	0	0	0	0	0
IHR	05/30	33278	16037	60749	2258	50497	6536	0	0	0	0	0	0	0	0	0	0	0	0
LMN	05/30	30821	15415	56954	2195	47530	5066	0	0	0	0	0	0	0	0	0	0	0	0
LGS	05/30	27765	15119	54651	2528	40716	5243	0	0	0	0	0	0	0	0	0	0	0	0
LGR	05/30	26808	14832	50069	2293	38994	5791	0	0	0	0	0	0	0	0	0	0	0	0
PRD	05/29	9858	1050	15514	666	12274	893	0	0	0	0	0	0	0	0	0	0	0	0
WAN	05/29	10156	1382	16211	603	12655	1300	0	0	0	0	0	0	0	0	0	0	0	0
RIS	05/24	6603	1568	9753	167	8934	635	0	0	0	0	0	0	0	0	0	0	0	0
RRH	05/24	3131	1120	3194	83	2916	151	0	0	0	0	0	0	0	0	0	0	0	0
WEL	05/29	2358	1652	2987	227	2124	220	0	0	0	0	0	0	0	0	0	0	0	0
WFA	05/26	16263	697	18039	551	30396	532	0	0	0	0	0	0	0	0	0	0	0	0

DAM	ENDD	Coho						Sockeye			Steelhead						Lamprey		
		2013		2012		10-Yr Avg.		2013	2012	10-Yr Avg.	2013	2012	10-Yr Avg.	Wild	Wild	10-Yr	2013	###	10-Yr
		Adult	Jack	Adult	Jack	Adult	Jack												
BON	05/30	0	0	0	0	0	0	43	48	30	3333	5819	5830	903	1788	1428	1202	###	689
TDA	05/30	0	0	0	0	0	0	15	3	5	844	1826	2844	353	939	949	0	0	0
JDA	05/30	0	0	0	0	0	0	19	0	2	943	1915	6459	481	1252	2008	24	2	100
MCN	05/30	1	0	0	0	0	0	0	1	0	1449	4756	6307	706	2209	2093	21	5	0
IHR	05/30	0	0	0	0	0	0	0	0	0	3843	2374	5257	1509	1074	1516	8	0	0
LMN	05/30	0	0	0	0	0	0	0	0	0	2497	3607	9741	1377	1921	3009	2	3	0
LGS	05/30	0	0	0	0	0	0	0	0	0	2207	3924	9545	1185	2304	3059	2	1	0
LGR	05/30	0	0	0	0	0	0	0	0	0	7437	8926	9635	3231	3938	3201	2	0	0
PRD	05/29	0	0	0	0	0	0	1	0	0	52	89	44	0	0	0	7	3	4
WAN	05/29	0	0	0	0	0	0	0	0	0	113	147	117	0	0	0	1	1	0
RIS	05/24	0	0	0	0	0	0	0	0	1	86	161	83	61	111	49	0	0	0
RRH	05/24	0	0	0	0	0	0	0	0	0	150	717	331	126	606	250	0	0	0
WEL	05/29	0	0	0	0	0	0	0	0	0	59	100	64	52	78	42	0	0	0
WFA	05/26	2	0	0	0	0	0	0	0	0	9802	17118	14497	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.