



Fish Passage Center

Weekly Report #13 - 02

March 29, 2013

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Summary of Events:

Water Supply: Precipitation throughout the Columbia Basin has varied between 55% and 157% of average at individual sub-basins over March. Precipitation above The Dalles has been 99% of average over March. Over the 2013 water year, precipitation has ranged between 82% and 120% of average.

Table 1. Summary of March precipitation and cumulative October through March 25, 2013 precipitation with respect to average (1971-2000), at select locations within the Columbia and Snake River Basins.

Location	Water Year 2013		Water Year 2013	
	March 1-25, 2013		October 1, 2012 to	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia Above Coulee	1.87	129	15.93	115
Snowpack				
Snake River Above Ice Harbor	0.89	67	9.49	95
Columbia Above The Dalles	1.53	99	14.23	102
Kootenai	2.25	157	17.16	120
Clark Fork	0.81	84	9.37	107
Flathead	1.10	84	13.61	115
Pend Oreille/Spokane	2.34	105	20.07	102
Central Washington	0.50	75	5.62	98
Snowpack				
Snake River Plain	0.50	55	4.82	82
Salmon/Boise/Payette	0.91	58	11.11	90
Clearwater	2.35	104	18.13	100
SW Washington Cascades/Cowlitz	4.39	77	50.58	97
Willamette Valley	3.29	64	44.82	102

Snowpack within the Columbia Basin has generally been slightly below average. Average snowpack in the Columbia River for basins above the Snake River confluence is 95% of average, for Snake River Basins the average snowpack is 83% of average, and for lower Columbia Basins between McNary and Bonneville Dam average snowpack is 92% of average.

Table 2 displays the March 7th (official forecast) and March 27th ESP runoff volume forecasts for multiple reservoirs. The March 7th "Official" forecast at The Dalles between January and July is 89675 Kaf (88% of average).

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

Location	March 7, 2013 ESP		March 27, 2013 ESP	
	% Average (1971-2000)	Runoff Volume (Kaf)	% Average (1971-2000)	Runoff Volume (Kaf)
	The Dalles (Jan-July)	88	89675	88
Grand Coulee (Jan-July)	91	54403	93	55478
Libby Res. Inflow, MT (Apr-Aug)	97	5727 *6315	94	5533
Hungry Horse Res. Inflow, MT (Jan-July)	92	1937	94	1977
Lower Granite Res. Inflow (Apr- July)	84	16612	79	15715
Brownlee Res. Inflow (Apr-July)	70	3834	66	3609
Dworshak Res. Inflow (Apr-July)	93	2239 *2128	89	2153

* Denotes COE Forecast

Grand Coulee Reservoir is at 1282.0 feet (3-28-13) and refilled 2.1 feet over the last week. The end of March Shifted FC Elevation at Grand Coulee is 1282.6

feet. Outflows at Grand Coulee have ranged between 45.7 and 108.5 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2394.1 feet (3-28-13) and has held steady last week. The end of March FC Elevation at Libby is 2405.8 feet. Outflows at Libby Dam have been 4.0 Kcfs last week.

Hungry Horse is currently at an elevation of 3536.4 feet (3-28-13) and has held steady last week. The end of March FC Elevation at Hungry Horse is 3537.2 feet. Outflows at Hungry Horse have ranged between 1.0 and 2.0 Kcfs last week.

Dworshak is currently at an elevation of 1559.2 feet (3-28-13) and has refilled 2.9 feet last week. The end of March Shifted (Local) Flood Control Elevation is 1563.7 feet. Outflows from Dworshak have been 1.6 Kcfs over the past week.

The Brownlee Reservoir was at an elevation of 2056.7 feet on March 28st, 2013 drafting 0.3 feet over the last week. The end of March FC Elevation at Brownlee is 2064.7 feet. Over the last week, inflows at Brownlee have ranged between 11.4 and 13.6 Kcfs.

Smolt Monitoring: This week marked the beginning of Smolt Monitoring Program activities at Lower Granite Dam (LGR). Monitoring at LGR began on March 25th, with the first sample worked up on March 26th. Monitoring at BON and the SMP traps continued this week.

Subyearling Chinook fry continued to dominate the bypass samples at Bonneville Dam this week. The daily average passage index for subyearling Chinook was about 280 per day, which a decrease from last week's daily average passage index of nearly 360 per day. The vast majority (~99%) of the subyearling Chinook sampled at BON this week were fry. Passage numbers for yearling Chinook at BON decreased this week, when compared to last week. The daily average passage index for yearling Chinook this week was about 50 per day. Last week's daily average passage index was about 345 per day. Samples of coho and steelhead juveniles at BON remained small this week. The daily average passage index for coho juveniles at BON this week was about 20 per day. All of the coho juveniles sampled this week were fry. As with last week, very few pacific lamprey ammocoetes were sampled this week at BON. However, the daily average collection for pacific lamprey macrophthalmia was about 50 per day this week, which is a slight decrease from last week's daily average collection of just over 60 per day.

Lower Granite Dam (LGR) began sampling

this week, with the first sample available on March 26th. Over the past three days, yearling Chinook have dominated the bypass sample with a daily average passage index of about 860 per day. Of the yearling Chinook juveniles collected so far at LGR, approximately 74% are of known hatchery origin, which means that they either had fin clips or were unclipped but had coded-wire-tags. Passage of subyearling Chinook (fry), coho, and sockeye/kokanee at LGR has been relatively low over the past three days. Finally, LGR has collected only pacific lamprey macrophthalmia so far this season.

The Grande Ronde Trap is operated by the Oregon Department of Fish and Wildlife and is located at river kilometer two in the Grande Ronde River. The Grande Ronde Trap continued to collect mostly yearling Chinook this week. There was a spike in yearling Chinook collections on March 23rd, followed by a rapid decrease in collections. The daily average collection for yearling Chinook for this week was about 825 per day, which is an increase from last week's daily average collection of 145 per day. Of the yearling Chinook that were collected at this trap this week, approximately 94% were of known hatchery origin, which means that they either had fin clips or were unclipped but had coded-wire-tags. These hatchery yearling Chinook are likely from the volitional releases at the Grande Ronde and/or Catherine Creek acclimation facilities, which began on March 20th and 21st, respectively. In addition to yearling Chinook, the Grande Ronde Trap sampled only a few subyearling Chinook fry and steelhead juveniles this week.

The Salmon River Trap is located at river kilometer 103 and operated by Idaho Department of Fish and Game. Yearling Chinook collections decreased this week, when compared to last week. The daily average collection for yearling Chinook this week was about 350 per day. Last week's daily average collection for yearling Chinook was nearly 880 per day. Of the yearling Chinook collected at the Salmon River Trap this week, approximately 92% were clipped. No subyearling Chinook fry or steelhead juveniles were collected at this trap this week.

The Snake River Trap is located at river kilometer 225 and operated by Idaho Department of Fish and Game. To date, the Snake River Trap has collected very few fish. To date, the small collections at this trap have been dominated by yearling Chinook and steelhead.

The Imnaha River Trap is located at river kilometer seven and is operated by the Nez Perce Tribe. To date, the Imnaha River Trap has collected mostly yearling Chinook. Over the past week, the daily average collection for yearling Chinook at this trap was about 40 per day. This is a decrease from last week's daily average collection of 130 per day. So far, all yearling Chinook collected at the Imnaha River Trap have been unclipped. In addition to yearling Chinook, the Imnaha River Trap has collected a few subyearling Chinook fry and steelhead.

Many additional SMP sites are scheduled to begin sampling next week. These sites include: Little Goose and Lower Monumental dams on the Snake River, Rock Island Dam on the Upper Columbia River, and John Day Dam on the Lower Columbia River. SMP sampling at McNary Dam is not scheduled to begin until Saturday, April 6th.

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 2.15 million yearling spring Chinook juveniles were scheduled for release into this zone this week. All of the releases of yearling spring Chinook that were scheduled for this week were scheduled for the Clearwater River and its tributaries. In addition to yearling spring Chinook releases, nearly 1.3 million yearling summer Chinook were scheduled for release in this zone this week. Of these, approximately 84% were scheduled for release into the Salmon River while 16% were scheduled for release into Crooked River, a tributary of the Clearwater River. This is the third year that yearling summer Chinook are being released into the Clearwater River basin. As with previous years, these Clearwater summer Chinook are 100% unclipped but are tagged with coded-wire-tags. Finally, just over 1.0 million summer steelhead were scheduled for release into this zone this week. Of these, about 79% were scheduled for release into the Pahsimeroi River while the remaining 21% were scheduled for release into the Clearwater River.

There are two releases of yearling fall Chinook scheduled for this zone over the next two weeks. The first of these is of approximately 150,000 yearling fall Chinook from Captain Johns Rapids Acclimation facility on April 1st. The second is of about 489,000 yearling fall Chinook from Lyons Ferry Hatchery, which is located below Little Goose Dam. There

several releases of yearling spring Chinook juveniles scheduled for this zone over the next two weeks. In all, these releases will total nearly 3.16 million spring Chinook juveniles. Of these, approximately 92% are scheduled for release above Lower Granite Dam. The releases above Lower Granite Dam are scheduled for the Clearwater River and its tributaries (64%), the Salmon River (25%), and the Grande Ronde River (3%). There is one release of yearling spring Chinook to the Tucannon River, which enters the Snake River below Little Goose Dam. This release is scheduled to begin on or around April 1st and is expected to total nearly 260,000 spring Chinook juveniles.

Nearly 2.16 million yearling summer Chinook are scheduled for release into this zone over the next two weeks. Of these, approximately 94% are scheduled for release into the Pahsimeroi River from Sawtooth and Pahsimeroi hatcheries. The remaining 6% are scheduled for release into Johnson Creek, a tributary of the South Fork Salmon River. There is one release of coho juveniles scheduled for this zone over the next two weeks. This release is scheduled for the Clearwater River and is expected to total about 323,000 juveniles. Finally, nearly 3.9 million summer steelhead are scheduled for release to this zone over the next two weeks. The releases of steelhead that are scheduled for this zone are scheduled throughout the Snake River Basin, including: the Salmon River (41%), the Clearwater River and its tributaries (35%), the Grande Ronde River (14%), the Wallowa River (9%), and the Snake River below Hells Canyon Dam (1%).

Mid-Columbia Zone: The Mid-Columbia Zone encompasses the area of the Columbia River and its tributaries from McNary Dam to Chief Joseph Dam. The volitional releases of about 770,000 spring Chinook juveniles from Cle Elem Hatchery acclimation sites continued this week. These volitional releases are expected to run through mid-May. There were no new releases of juvenile salmonids scheduled for this zone this week. There are only a few releases of juvenile salmonids scheduled for this zone over the next two weeks. The first is a release of about 250,000 yearling spring Chinook to the Walla Walla River on or around April 1st. The second is a release of about 322,000 coho juveniles from the Prosser Acclimation Pond on the Yakima River. These coho juveniles are part of the Yakama Tribal Program to reintroduce coho to the Yakama, Methow, and Wenatchee rivers and are 100% unmarked. Finally, about 270,000 summer steelhead are scheduled for release into this zone over the next

two weeks. Of these, approximately 69% are scheduled for release from Ringold Springs Hatchery into the Mid-Columbia River and 31% are scheduled for release into the Touchet River.

Lower Columbia Zone: The Lower Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to McNary Dam. On or around March 25th, approximately 1.0 million coho juveniles were scheduled to be released to the Umatilla River. Approximately 7.7 million subyearling fall Chinook tules are scheduled for release into this zone over the next two weeks. These fall Chinook tules are scheduled for release from Little White Salmon NFH on April 9th (22%) and Spring Creek NFH on April 11th (78%). In addition, over 1.4 million yearling spring Chinook are scheduled for release into this zone over the next two weeks. Of these, approximately 51% are scheduled for release into the Deschutes River, 41% are scheduled for release into the Umatilla River, and 5% are scheduled for release into Hood River. Klickitat Hatchery is scheduled to release about 2.55 million coho into the Klickitat River, on or around April 1st. Finally, about 162,000 summer steelhead are scheduled for release into the Deschutes River on or around April 8th.

Adult Fish Passage:

Bonneville Dam uses video counts from January 1st through March 31st and direct counting after this period. Bonneville Dam counts adult salmon and steelhead year round. Lower Granite Dam uses video counts from March 1st through March 31st and direct counting after this period. Lower Granite Dam counts adult salmon and steelhead through December 30th each year. Willamette Falls Dam also uses video counts and reports adult counts year round.

Adult counts at Bonneville Dam have been updated through 3/27. The 2013 adult spring Chinook count at Bonneville Dam is 168 which is 5 times greater than the 2012 count, while being only about 13.8% of the 10 year average count. At Willamette Falls Dam 17 adult spring Chinook have been counted so far this season.

The 2013 Bonneville Dam adult steelhead count of 1,386 is about 53.9% of the 2012 count of 2,569 and 63.2% of the 10 year average count. This year's Lower Granite steelhead count of 3,778 is about 1.2 times greater than the 2012 count of 3,217, while being 87.6% of the 10 year average count of 4,313. At Willamette Falls Dam, the 2013 count for steelhead was 3,474 as of March 26th. This year's steelhead count is about 80% of

the 2012 count of 4,342 and about 77.5% of the 10 year average count of 4,480.

Hatchery Releases Last Two Weeks

Hatchery Release Summary

Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
	From:					3/15/2013	to	03/28/13	
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2013	408,714	03-27-13	03-28-13	Powell Acclim Pond	Lochsa River
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2013	1,086,132	03-28-13	04-05-13	Red River Acclim Pond	S Fk Clearwater River
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SU	2013	208,573	03-26-13	03-26-13	Crooked River Redhouse (Sfk	S Fk Clearwater River
Idaho Dept. of Fish and Game	Clearwater Hatchery	ST	SU	2013	208,845	03-28-13	04-10-13	ClearH20 R)	S Fk Clearwater River
Idaho Dept. of Fish and Game	McCall Hatchery	CH1	SU	2013	253,000	03-25-13	03-29-13	Knox Bridge	Salmon River (ID)
Idaho Dept. of Fish and Game	McCall Hatchery	CH1	SU	2013	820,000	03-25-13	03-29-13	Knox Bridge	Salmon River (ID)
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2013	540,000	03-18-13	03-26-13	Hells Canyon Dam	Snake River
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2013	792,000	03-26-13	04-09-13	Pahsimeroi River	Pahsimeroi River
Idaho Dept. of Fish and Game	Rapid River Hatchery	CH1	SP	2013	2,500,000	03-11-13	04-26-13	Rapid River Hatchery	Little Salmon River
Idaho Dept. of Fish and Game					6,817,264				
Total					135,000				
Nez Perce Tribe	Lookingglass Hatchery	CH1	SP	2013	135,000	03-21-13	04-01-13	Lostine Accim Pond	Wallowa River
Nez Perce Tribe Total					135,000				
Umatilla Tribe	Cascade Hatchery	CO	UN	2013	1,000,000	03-25-13	04-22-13	Pendelton Acclim Pond Catherine Cr Acclim	Umatilla River
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2013	134,591	03-21-13	04-15-13	Pond Grande Ronde Acclim	Grande Ronde River
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2013	155,276	03-20-13	04-01-13	Pond	Grande Ronde River
Umatilla Tribe Total					1,289,867				
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2013	249,305	03-15-13	05-15-13	Easton Pond	Yakima River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2013	255,745	03-15-13	05-15-13	Clark Flat Acclim Pond Jack Creek Acclim	Yakima River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2013	266,311	03-15-13	05-15-13	Pond	Yakima River
Yakama Tribe Total					771,361				
Grand Total					9,013,492				

Hatchery Releases Next Two Weeks

Hatchery Release Summary										
From:	3/29/2013		to		4/11/2013					
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2013	378,318	03-29-13	03-29-13	Kooskia Hatchery	Clearwater River M F	
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2013	1,086,132	03-28-13	04-05-13	Red River Acclim Pond	S Fk Clearwater River	
Idaho Dept. of Fish and Game	Clearwater Hatchery	ST	SU	2013	72,367	04-09-13	04-09-13	Meadow Creek - CLES	S Fk Clearwater River	
Idaho Dept. of Fish and Game	Clearwater Hatchery	ST	SU	2013	143,982	04-11-13	04-11-13	Meadow Creek - CLES	S Fk Clearwater River	
Idaho Dept. of Fish and Game	Clearwater Hatchery	ST	SU	2013	153,360	04-10-13	04-11-13	Meadow Creek - CLES Redhouse (SFk ClearH20 R)	S Fk Clearwater River	
Idaho Dept. of Fish and Game	Clearwater Hatchery	ST	SU	2013	208,845	03-28-13	04-10-13	ClearH20 R)	S Fk Clearwater River	
Idaho Dept. of Fish and Game	Clearwater Hatchery	ST	SU	2013	258,399	04-09-13	04-10-13	Meadow Creek - CLES	S Fk Clearwater River	
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2013	93,439	04-10-13	04-11-13	Salmon River (ID)	Salmon River (ID)	
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2013	93,731	04-09-13	04-10-13	Salmon River (ID)	Salmon River (ID)	
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2013	94,200	04-11-13	04-12-13	Salmon River (ID)	Salmon River (ID)	
Idaho Dept. of Fish and Game	McCall Hatchery	CH1	SU	2013	253,000	03-25-13	03-29-13	Knox Bridge	Salmon River (ID)	
Idaho Dept. of Fish and Game	McCall Hatchery	CH1	SU	2013	820,000	03-25-13	03-29-13	Knox Bridge	Salmon River (ID)	
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2013	57,000	04-10-13	04-10-13	Hells Canyon Dam	Snake River	
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2013	460,000	04-11-13	04-24-13	Little Salmon River	Salmon River (ID)	
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2013	792,000	03-26-13	04-09-13	Pahsimeroi River	Pahsimeroi River	
Idaho Dept. of Fish and Game	Pahsimeroi Hatchery	CH1	SU	2013	168,595	04-01-13	04-18-13	Pahsimeroi Hatchery	Pahsimeroi River	
Idaho Dept. of Fish and Game	Pahsimeroi Hatchery	CH1	SU	2013	847,203	04-01-13	04-18-13	Pahsimeroi Hatchery	Pahsimeroi River	
Idaho Dept. of Fish and Game	Rapid River Hatchery	CH1	SP	2013	2,500,000	03-11-13	04-26-13	Rapid River Hatchery	Little Salmon River	
Idaho Dept. of Fish and Game	Sawtooth Hatchery	CH1	SP	2013	134,200	04-05-13	04-05-13	Sawtooth Hatchery	Salmon River (ID)	
Idaho Dept. of Fish and Game	Sawtooth Hatchery	CH1	SP	2013	653,300	04-05-13	04-05-13	Sawtooth Hatchery	Salmon River (ID)	
Idaho Dept. of Fish and Game	Sawtooth Hatchery	CH1	SU	2013	1,014,000	04-01-13	04-15-13	Pahsimeroi River	Pahsimeroi River	
Idaho Dept. of Fish and Game Total					10,282,071					
Nez Perce Tribe	Clearwater Hatchery	CH1	SP	2013	426,900	04-01-13	04-07-13	Selway River	Clearwater River M F	
Nez Perce Tribe	Kooskia NFH	CH1	SP	2013	279,000	03-29-13	03-29-13	Kooskia Hatchery	Clearwater River M F	
Nez Perce Tribe	Kooskia NFH	CO	UN	2013	323,000	04-01-13	04-07-13	Clear Creek	Clearwater River M F	
Nez Perce Tribe	Lookingglass Hatchery	CH1	SP	2013	135,000	03-21-13	04-01-13	Lostine Accim Pond	Wallowa River	
Nez Perce Tribe	Lyons Ferry Hatchery	CH1	FA	2013	150,000	04-01-13	04-01-13	Cpt John Acclim Pond	Snake River	
Nez Perce Tribe	McCall Hatchery	CH1	SU	2013	130,000	04-01-13	04-05-13	Johnson Cr Idaho Nez Perce Tribal Hatchery	South Fork Salmon River	
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH1	SP	2013	205,000	04-01-13	04-13-13	Hatchery	Clearwater River M F	
Nez Perce Tribe Total					1,648,900					
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU	2013	320,000	04-11-13	05-08-13	Big Canyon Acclim.Pd (Grande Ronde)	Grande Ronde River	
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU	2013	360,000	04-10-13	04-10-13	Wallowa Acclim Pond	Wallowa River	
Oregon Dept. of Fish and Wildlife	Round Butte Hatchery	ST	SU	2013	162,000	04-08-13	04-08-13	Deschutes River	Deschutes River	
Oregon Dept. of Fish and Wildlife Total					842,000					
U.S. Fish and Wildlife Service	Dworshak NFH	CH1	SP	2013	1,380,000	04-01-13	04-02-13	Dworshak Hatchery	Clearwater River M F	
U.S. Fish and Wildlife Service	Dworshak NFH	ST	SU	2013	307,902	04-08-13	04-17-13	Clear Creek Redhouse (SFk ClearH20 R)	Clearwater River M F	
U.S. Fish and Wildlife Service	Dworshak NFH	ST	SU	2013	400,400	04-08-13	04-17-13	ClearH20 R)	S Fk Clearwater River	
U.S. Fish and Wildlife Service	Hagerman NFH	ST	SU	2013	843,890	04-11-13	04-25-13	S Fk Salmon River	Salmon River (ID)	
U.S. Fish and Wildlife Service	Little White Salmon NFH	CH0	FA	2013	1,700,000	04-09-13	04-09-13	Little White Salmon Hatchery	Little White Salmon River	
U.S. Fish and Wildlife Service	Spring Creek NFH	CH0	FA	2013	6,000,000	04-11-13	04-11-13	Spring Creek Hatchery Warm Springs	L Col R (D/s McN Dam)	
U.S. Fish and Wildlife Service	Warm Springs NFH	CH1	SP	2013	772,000	04-02-13	04-11-13	Hatchery	Deschutes River	
U.S. Fish and Wildlife Service Total					11,404,192					
Umatilla Tribe	Carson NFH	CH1	SP	2013	250,000	04-01-13	04-03-13	Walla Walla River	Walla Walla River	
Umatilla Tribe	Cascade Hatchery	CO	UN	2013	1,000,000	03-25-13	04-22-13	Pendelton Acclim Pond	Umatilla River	
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2013	100,000	04-06-13	04-15-13	Pond Catherine Cr Acclim	Grande Ronde River	
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2013	134,591	03-21-13	04-15-13	Pond Grande Ronde Acclim	Grande Ronde River	
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2013	155,276	03-20-13	04-01-13	Pond Grande Ronde Acclim	Grande Ronde River	
Umatilla Tribe	Umatilla Hatchery	CH1	SP	2013	178,400	04-08-13	04-15-13	Imeques Acclim Pond	Umatilla River	
Umatilla Tribe	Umatilla Hatchery	CH1	SP	2013	195,500	04-08-13	04-15-13	Pond Thornhollow Acclim	Umatilla River	
Umatilla Tribe	Umatilla Hatchery	CH1	SP	2013	225,000	04-08-13	04-15-13	Imeques Acclim Pond	Umatilla River	
Umatilla Tribe Total					2,238,767					
Warm Springs Tribe	Round Butte Hatchery	CH1	SP	2013	75,000	04-09-13	04-24-13	W Fk Hood River	Hood River	
Warm Springs Tribe Total					75,000					
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	CH1	FA	2013	489,000	04-10-13	04-15-13	Lyons Ferry Hatchery	Snake River	
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2013	84,000	04-10-13	04-20-13	Dayton Acclim Pond Cottonwood Acclim	Touchet River	
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2013	206,000	04-10-13	04-30-13	Pond Ringold Springs	Grande Ronde River	
Washington Dept. of Fish and Wildlife	Ringold Springs Hatchery	ST	SU	2013	186,153	04-10-13	04-20-13	Hatchery	Mid-Columbia River	
Washington Dept. of Fish and Wildlife	Tucannon Hatchery	CH1	SP	2013	260,000	04-01-13	04-27-13	Curl Lake Acclim Pond	Tucannon River	
Washington Dept. of Fish and Wildlife	Washougal Hatchery	CO	NO	2013	2,550,000	04-01-13	04-07-13	Klickitat River	Klickitat River	
Washington Dept. of Fish and Wildlife Total					3,775,153					
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2013	249,305	03-15-13	05-15-13	Easton Pond	Yakima River	
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2013	255,745	03-15-13	05-15-13	Clark Flat Acclim Pond Jack Creek Acclim	Yakima River	
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2013	266,311	03-15-13	05-15-13	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 Total					1,093,461					
Grand Total					31,359,544					

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
03/15/2013	71.1	0.0	72.3	0.0	73.8	0.0	72.2	0.0	79.5	0.0	79.2	0.0	70.7	0.0
03/16/2013	52.2	0.0	55.7	0.0	60.8	0.0	62.0	0.0	67.0	0.0	75.8	0.0	71.7	0.0
03/17/2013	46.7	0.0	46.3	0.0	51.2	1.2	49.1	1.1	55.0	1.1	68.8	1.1	71.7	1.2
03/18/2013	64.5	0.0	67.0	0.0	---	---	71.8	0.0	71.2	0.0	77.3	0.0	72.0	0.0
03/19/2013	84.9	0.0	70.9	0.0	75.6	0.0	76.3	0.0	82.2	0.0	83.1	0.0	74.5	0.0
03/20/2013	55.4	0.0	61.9	0.0	62.2	0.0	60.8	0.0	64.4	0.0	70.0	0.0	72.5	0.0
03/21/2013	66.3	0.0	62.4	0.0	67.0	0.0	68.7	0.0	74.3	0.0	76.3	0.0	71.5	0.0
03/22/2013	63.8	0.0	62.0	0.0	69.9	0.0	71.2	0.0	76.6	0.0	81.4	0.0	76.1	0.0
03/23/2013	56.9	0.0	60.1	0.0	61.6	0.0	59.8	0.0	66.6	0.0	78.2	0.0	75.9	0.0
03/24/2013	45.7	0.0	45.0	0.0	49.4	0.0	48.3	0.0	53.1	0.0	70.2	0.0	72.4	0.0
03/25/2013	67.7	0.0	69.7	0.0	72.4	0.0	74.2	0.0	77.2	0.0	74.8	0.0	71.4	0.0
03/26/2013	86.9	0.0	91.6	0.0	89.5	0.0	88.8	0.0	92.0	0.0	85.3	0.0	78.0	0.0
03/27/2013	102.3	0.0	100.5	0.0	98.4	0.0	95.5	0.0	99.6	0.0	97.5	0.0	91.3	0.0
03/28/2013	108.5	0.0	109.4	0.0	112.3	7.3	111.7	1.3	115.5	0.0	121.4	2.5	112.2	2.1

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
03/15/2013	1.6	0.0	---	---	32.9	0.0	33.3	0.0	35.9	0.0	39.2	0.0
03/16/2013	1.6	0.0	---	---	35.9	0.0	34.7	0.0	37.7	0.0	37.0	0.0
03/17/2013	1.6	0.0	---	---	40.0	0.0	36.1	0.0	40.9	0.0	37.5	0.0
03/18/2013	1.6	0.0	---	---	40.1	0.0	39.6	0.0	44.9	0.0	47.4	0.0
03/19/2013	1.6	0.0	---	---	39.2	0.0	40.2	0.0	42.4	0.0	38.2	0.0
03/20/2013	1.6	0.0	---	---	32.5	0.0	33.9	0.0	36.3	0.0	42.0	0.0
03/21/2013	1.6	0.0	---	---	37.8	0.0	30.4	0.0	34.3	0.0	32.8	0.0
03/22/2013	1.6	0.0	---	---	39.7	0.0	37.7	0.0	38.6	0.0	35.9	0.0
03/23/2013	1.6	0.0	---	---	35.3	0.0	35.4	0.0	40.0	0.0	41.1	0.0
03/24/2013	1.6	0.0	---	---	34.8	0.0	32.1	0.0	33.0	0.0	34.3	0.0
03/25/2013	1.6	0.0	---	---	34.0	0.0	30.9	0.0	36.2	0.0	35.1	0.0
03/26/2013	1.6	0.0	---	---	34.0	0.0	30.9	0.0	30.9	0.0	27.7	0.0
03/27/2013	1.6	0.0	---	---	32.8	0.0	23.8	0.8	28.7	0.0	29.5	0.0
03/28/2013	1.6	0.0	---	---	26.8	0.0	25.9	0.0	25.3	0.0	26.0	0.0

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

Date	McNary		John Day		The Dalles		Bonneville			
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	PH1	PH2
03/15/2013	118.8	0.0	115.3	0.0	114.8	0.0	126.5	1.2	33.7	84.4
03/16/2013	109.4	0.0	106.7	0.0	105.7	0.0	127.2	1.2	33.8	84.8
03/17/2013	108.6	0.0	106.4	0.0	107.2	0.0	128.1	1.2	34.1	85.4
03/18/2013	124.1	0.0	138.4	0.0	135.1	0.0	131.2	1.2	35.3	87.3
03/19/2013	124.8	0.0	132.2	0.0	127.1	0.0	137.8	1.2	46.9	82.2
03/20/2013	115.5	0.0	102.8	0.0	102.4	0.0	129.7	1.2	37.7	83.4
03/21/2013	114.8	0.0	126.5	0.0	123.9	0.0	128.8	1.2	33.8	86.4
03/22/2013	107.7	0.0	125.0	0.0	126.2	0.0	138.2	1.3	40.3	86.7
03/23/2013	122.8	0.0	120.8	0.0	121.2	0.0	142.0	1.3	43.0	85.4
03/24/2013	111.0	0.0	123.1	0.0	120.8	0.0	141.6	1.3	42.4	85.5
03/25/2013	109.5	0.0	130.9	0.0	129.4	0.0	139.6	1.3	41.7	84.3
03/26/2013	105.4	0.4	119.7	0.0	117.0	0.0	140.7	1.2	44.7	82.3
03/27/2013	123.9	0.0	138.7	0.0	140.9	0.0	135.9	1.2	41.8	80.4
03/28/2013	118.5	0.0	125.1	0.0	120.6	0.0	138.1	1.2	34.5	89.9

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

Total Dissolved Gas Saturation Data at Upper Columbia River Sites

Date	Hungry H. Dnst				Boundary				Grand Coulee				Grand C. Tlwr				Chief Joseph			
	24 h		12 h		#	24 h		12 h		#	24 h		12 h		#	24 h		12 h		#
	Avg	Avg	High	hr		Avg	Avg	High	hr		Avg	Avg	High	hr		Avg	Avg	High	hr	
3/15	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/16	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/17	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/18	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/19	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/20	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/21	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/22	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/23	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
3/25	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	102.8	102.8	103.0	12
3/26	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	102.8	103.1	103.3	24
3/27	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	103.3	103.5	103.7	24
3/28	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	103.5	103.7	103.8	23

Total Dissolved Gas Saturation Data at Mid Columbia River Sites

Date	Chief J. Dnst				Wells				Wells Dwnstrm				Rocky Reach				Rocky R. Tlwr			
	24 h		12 h		#	24 h		12 h		#	24 h		12 h		#	24 h		12 h		#
	Avg	Avg	High	hr		Avg	Avg	High	hr		Avg	Avg	High	hr		Avg	Avg	High	hr	
3/15	---	---	---	0	---	---	---	0	---	---	---	0	103.7	103.9	104.0	22	103.2	103.3	103.5	22
3/16	---	---	---	0	---	---	---	0	---	---	---	0	104.2	104.6	104.8	24	103.7	104.1	104.5	24
3/17	---	---	---	0	---	---	---	0	---	---	---	0	104.0	104.2	104.5	22	103.7	104.1	106.2	22
3/18	---	---	---	0	---	---	---	0	---	---	---	0	103.5	103.6	103.8	20	102.5	103.1	103.2	19
3/19	---	---	---	0	---	---	---	0	---	---	---	0	103.3	103.6	104.1	23	102.5	103.3	103.7	23
3/20	---	---	---	0	---	---	---	0	---	---	---	0	104.7	104.9	105.1	23	104.4	104.7	104.9	23
3/21	---	---	---	0	---	---	---	0	---	---	---	0	103.1	103.4	103.8	22	102.9	103.2	103.5	22
3/22	---	---	---	0	---	---	---	0	---	---	---	0	102.3	102.5	102.7	22	102.1	102.3	102.4	22
3/23	---	---	---	0	---	---	---	0	---	---	---	0	101.7	101.9	102.0	23	101.5	101.7	101.9	23
3/24	---	---	---	0	---	---	---	0	---	---	---	0	102.0	102.3	102.8	22	101.8	102.0	102.1	22
3/25	103.9	104.0	107.6	13	---	---	---	0	---	---	---	0	102.8	103.2	103.5	22	102.6	102.9	103.2	21
3/26	103.4	104.1	105.3	24	---	---	---	0	---	---	---	0	103.8	104.3	104.6	24	103.5	104.0	104.2	24
3/27	103.6	104.2	104.9	24	---	---	---	0	---	---	---	0	104.5	104.6	104.7	24	104.1	104.3	104.3	24
3/28	102.1	103.9	104.4	23	---	---	---	0	---	---	---	0	104.1	104.3	104.4	23	104.2	104.4	106.7	23

Total Dissolved Gas Saturation at Mid Columbia River Sites

Date	Rock Island				Rock I. Tlwr				Wanapum				Wanapum Tlwr				Priest Rapids			
	24 h		12 h		#	24 h		12 h		#	24 h		12 h		#	24 h		12 h		#
	Avg	Avg	High	hr		Avg	Avg	High	hr		Avg	Avg	High	hr		Avg	Avg	High	hr	
3/15	103.1	103.2	103.3	23	103.3	103.4	103.6	23	103.9	104.0	104.1	24	104.4	104.8	105.3	24	103.7	104.0	104.2	24
3/16	103.5	103.7	103.9	24	103.8	104.1	104.3	24	104.5	104.9	105.1	24	104.9	105.3	105.7	24	104.6	104.9	105.1	24
3/17	102.8	103.0	103.2	24	103.6	104.1	108.2	24	103.8	104.1	104.6	24	104.6	105.2	108.0	24	103.6	104.0	104.7	24
3/18	102.7	103.0	103.9	20	103.0	103.4	104.4	18	103.2	103.4	103.6	24	103.5	104.0	104.7	24	103.2	103.3	103.4	24
3/19	102.4	102.9	103.4	24	101.7	103.1	103.6	24	102.9	103.5	104.1	24	102.9	103.4	103.6	24	103.2	103.8	104.3	24
3/20	103.9	104.2	104.4	24	104.2	104.6	104.8	24	104.5	104.8	105.0	24	104.5	105.3	105.7	24	104.7	105.0	105.1	24
3/21	102.3	102.4	102.7	23	102.5	102.7	103.0	22	103.1	103.2	103.5	24	103.1	103.4	103.6	24	102.9	103.1	103.6	24
3/22	101.7	101.8	102.1	22	101.9	102.1	102.3	22	102.3	102.6	102.9	24	102.2	102.7	103.2	24	102.0	102.3	102.8	24
3/23	101.2	101.3	101.5	23	101.5	101.6	101.9	23	101.6	101.7	101.9	24	101.5	102.0	102.6	24	101.8	102.2	102.6	24
3/24	101.4	101.7	102.0	23	101.8	102.1	102.4	22	101.9	102.3	102.5	24	101.9	102.5	102.8	24	102.2	102.7	103.0	24
3/25	102.0	102.5	102.7	22	102.3	102.7	102.9	21	103.0	103.7	104.1	24	102.8	103.4	103.9	24	103.0	103.4	103.6	24
3/26	102.8	103.1	103.6	24	103.1	103.4	103.9	24	103.8	104.3	104.7	24	103.3	103.8	104.1	24	103.9	104.3	104.5	24
3/27	103.6	103.7	103.8	24	103.8	103.9	104.0	24	104.0	104.1	104.5	24	103.7	103.9	104.4	24	104.4	104.7	105.0	24
3/28	103.4	103.6	103.7	23	103.6	103.8	103.9	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

Date	Priest R. Dnst				Pasco				Dworshak				Clrwr-Peck				Anatone			
	24 h		12 h		#	24 h		12 h		#	24 h		12 h		#	24 h		12 h		#
	Avg	Avg	High	hr		Avg	Avg	High	hr		Avg	Avg	High	hr		Avg	Avg	High	hr	
3/15	103.2	103.6	103.7	24	---	---	---	0	103.6	104.5	105.7	24	101.9	103.1	104.3	24	---	---	---	0
3/16	104.2	104.6	104.9	24	---	---	---	0	103.8	104.6	105.7	24	101.3	102.1	103.2	24	---	---	---	0
3/17	103.4	103.7	104.2	24	---	---	---	0	103.3	103.9	104.8	24	99.9	100.3	100.9	24	---	---	---	0
3/18	102.8	103.0	103.2	24	---	---	---	0	102.9	103.8	104.6	24	99.8	100.8	101.9	24	---	---	---	0
3/19	102.7	103.3	103.8	24	---	---	---	0	103.0	104.3	105.9	24	99.2	100.1	101.1	24	---	---	---	0
3/20	104.0	104.3	104.5	24	---	---	---	0	104.3	105.1	106.9	24	98.6	99.4	101.4	24	---	---	---	0
3/21	102.3	102.5	103.0	24	---	---	---	0	103.4	104.1	104.5	24	98.1	98.7	99.4	24	---	---	---	0
3/22	101.6	101.8	102.1	24	---	---	---	0	103.2	103.9	105.1	24	97.7	98.5	100.1	24	---	---	---	0
3/23	101.0	101.2	101.3	24	---	---	---	0	100.6	101.7	102.2	24	98.4	99.4	101.6	24	---	---	---	0
3/24	101.2	101.6	101.8	24	---	---	---	0	99.2	100.3	101.8	24	97.0	98.1	99.4	24	---	---	---	0
3/25	102.1	102.5	102.7	24	---	---	---	0	102.4	104.8	106.2	24	95.1	95.7	97.0	24	---	---	---	0
3/26	102.8	103.0	103.1	24	---	---	---	0	104.2	105.5	108.5	24	95.0	96.8	100.9	23	---	---	---	0
3/27	103.1	103.3	103.4	24	---	---	---	0	104.7	106.4	111.3	24	92.0	92.0	95.6	10	103.6	103.6	104.7	12
3/28	---	---	---	0	---	---	---	0	103.9	105.0	106.1	23	---	---	---	0	102.7	103.6	104.6	23

Total Dissolved Gas Saturation Data at Snake River Sites

Date	Clrwr-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		#
	Avg	Avg	High	hr		Avg	Avg	High	hr		Avg	Avg	High	hr		Avg	Avg	High	hr	
3/15	101.5	103.0	105.0	24	103.2	103.4	103.5	24	102.4	102.6	102.7	24	---	---	---	0	104.5	104.7	104.9	24
3/16	96.6	97.5	98.5	24	104.3	104.7	104.8	24	103.6	104.1	106.4	24	---	---	---	0	104.7	105.1	106.1	24
3/17	92.6	94.0	94.5	24	103.9	104.2	104.5	24	103.2	103.3	103.4	24	---	---	---	0	103.6	103.7	103.9	24
3/18	88.0	88.6	89.4	24	103.2	103.4	103.4	24	102.6	102.8	103.2	24	103.4	103.4	104.0	11	103.3	103.6	103.9	24
3/19	88.0	88.9	89.3	24	102.8	103.4	103.8	24	102.3	102.8	103.1	24	102.8	103.2	103.6	24	103.1	103.6	103.9	24
3/20	85.1	85.5	86.0	24	103.9	104.3	104.5	24	103.2	103.7	104.2	24	103.7	104.1	104.5	24	103.8	104.3	104.7	24
3/21	83.3	83.6	83.8	24	101.5	101.8	102.6	24	100.9	101.2	101.8	24	101.9	102.0	102.4	24	102.3	102.9	104.3	24
3/22	84.1	84.5	85.0	24	100.5	100.7	100.9	24	99.8	100.0	100.2	24	101.2	101.3	101.5	24	101.0	101.2	101.4	24
3/23	83.8	84.1	84.7	24	100.1	100.2	100.5	24	99.3	99.5	100.0	24	100.7	101.0	101.4	24	100.5	100.7	101.2	24
3/24	84.3	84.9	85.2	23	100.9	101.3	101.7	24	99.9	100.4	100.6	24	100.8	100.9	101.0	24	100.6	101.1	101.4	24
3/25	---	---	---	0	101.9	102.1	102.2	24	100.9	101.2	101.6	24	101.3	101.8	102.1	24	101.6	102.1	102.4	24
3/26	---	---	---	0	101.8	101.8	101.9	24	101.1	101.2	101.5	24	101.9	102.2	102.7	24	102.0	102.5	103.1	24
3/27	---	---	---	0	101.5	101.7	101.8	24	100.9	101.2	101.6	24	102.7	103.0	103.4	24	103.8	106.2	114.2	24
3/28	---	---	---	0	101.9	102.0	102.2	23	101.4	101.6	101.9	23	102.6	102.9	103.1	23	102.6	103.7	107.2	23

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

Date	Lower Mon.				L. Mon. Tlwr				Ice Harbor				Ice Harbor Tlwr				McNary-Oregon			
	24 h		12 h		#	24 h		12 h		#	24 h		12 h		#	24 h		12 h		#
	Avg	Avg	High	hr		Avg	Avg	High	hr		Avg	Avg	High	hr		Avg	Avg	High	hr	
3/15	104.0	104.3	104.8	24	103.3	103.6	103.9	19	---	---	---	0	104.3	104.7	105.0	24	---	---	---	0
3/16	105.3	105.9	106.0	24	104.6	105.3	107.1	24	---	---	---	0	104.9	105.3	105.5	24	---	---	---	0
3/17	105.2	105.4	105.7	24	104.1	104.3	104.7	23	---	---	---	0	103.5	103.9	104.2	24	---	---	---	0
3/18	104.4	104.7	104.8	24	103.4	103.7	104.4	24	---	---	---	0	103.2	103.5	103.8	24	---	---	---	0
3/19	103.9	104.3	105.1	24	103.0	103.5	103.9	24	---	---	---	0	103.1	103.7	103.9	24	---	---	---	0
3/20	104.8	105.2	105.4	24	103.7	104.3	105.3	24	---	---	---	0	104.1	104.6	105.0	24	---	---	---	0
3/21	102.6	102.8	103.1	24	101.8	102.2	103.9	24	103.1	103.3	103.5	15	102.7	103.5	105.5	24	---	---	---	0
3/22	102.0	102.2	102.4	24	101.4	101.6	102.2	24	102.7	102.9	103.0	24	102.7	102.9	103.1	24	---	---	---	0
3/23	101.3	101.4	101.7	24	100.8	101.0	101.4	24	102.1	102.3	102.5	24	102.3	102.7	103.2	24	---	---	---	0
3/24	101.4	101.7	101.9	24	100.7	101.1	101.7	24	102.1	102.3	102.5	24	102.2	102.6	103.1	24	---	---	---	0
3/25	101.8	101.9	102.4	24	101.3	101.7	101.9	24	102.7	103.0	103.2	24	102.9	103.6	104.3	24	---	---	---	0
3/26	102.0	102.2	102.5	24	101.7	102.0	102.5	24	103.3	103.5	103.8	24	103.6	104.2	105.1	24	---	---	---	0
3/27	101.9	102.1	102.5	24	101.8	102.2	102.8	24	103.8	104.0	104.3	24	104.2	104.8	106.0	24	---	---	---	0
3/28	101.9	102.1	102.3	23	102.1	102.7	103.6	23	103.5	103.7	104.1	23	104.2	104.6	105.2	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>	#					
	Avg	Avg		High	hr		Avg	Avg		High	hr		Avg	Avg		High	hr	Avg	AVG	High
3/15	---	---	---	0	103.8	104.2	104.6	24	---	---	---	0	103.0	103.3	103.9	24	---	---	---	0
3/16	---	---	---	0	104.5	104.9	105.2	24	---	---	---	0	104.0	104.5	105.0	24	---	---	---	0
3/17	---	---	---	0	104.2	104.7	105.3	24	---	---	---	0	102.6	102.7	102.9	24	---	---	---	0
3/18	---	---	---	0	102.7	103.1	103.3	24	---	---	---	0	102.6	102.8	103.3	24	---	---	---	0
3/19	---	---	---	0	102.2	102.7	103.2	24	---	---	---	0	103.0	103.5	103.7	24	---	---	---	0
3/20	---	---	---	0	103.4	103.5	103.6	24	103.9	103.9	104.5	9	104.8	105.7	112.5	24	---	---	---	0
3/21	---	---	---	0	101.5	102.0	102.8	24	102.8	102.9	103.3	24	102.9	103.3	103.8	24	102.0	102.0	102.4	14
3/22	---	---	---	0	101.1	101.5	101.9	24	102.2	102.3	102.5	24	102.2	102.6	103.0	24	101.6	101.9	102.4	24
3/23	---	---	---	0	100.7	101.1	101.4	24	101.8	102.0	102.2	24	101.6	101.9	102.4	24	101.6	102.1	102.4	24
3/24	---	---	---	0	101.0	101.2	101.6	24	102.3	102.8	103.0	24	102.1	102.4	102.9	24	102.3	102.9	103.2	24
3/25	---	---	---	0	101.8	102.1	103.1	24	103.6	104.2	104.9	24	103.3	103.7	104.0	24	103.1	103.7	104.1	24
3/26	104.4	104.7	105.5	16	103.0	103.4	104.1	24	104.0	104.2	104.5	24	103.8	104.1	104.4	24	103.7	104.1	104.4	24
3/27	105.4	105.8	106.5	24	104.3	104.6	105.2	24	104.3	104.6	105.3	24	103.9	104.3	104.8	24	103.9	104.3	104.8	24
3/28	105.2	105.8	106.8	23	104.6	104.8	105.1	23	103.9	104.0	104.5	23	103.4	103.6	104.1	23	104.1	104.4	104.6	23

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

Date	<u>The Dalles Dnst</u>			<u>Bonneville</u>			<u>Warrendale</u>			<u>Camas\Washougal</u>			<u>Cascade Island</u>							
	<u>24 h</u>	<u>12 h</u>	#	<u>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>	#					
	Avg	Avg		High	hr		Avg	Avg		High	hr		Avg	Avg		High	hr	Avg	AVG	High
3/15	103.6	103.9	104.1	24	---	---	---	0	105.6	105.9	106.1	24	105.8	106.6	107.2	24	107.5	107.8	108.0	24
3/16	104.1	104.6	104.9	24	---	---	---	0	105.3	105.6	105.9	24	105.5	105.9	106.1	24	107.3	107.7	108.1	24
3/17	103.0	103.2	103.7	24	---	---	---	0	103.7	104.0	104.5	24	103.1	103.5	104.2	24	106.4	106.8	107.5	24
3/18	102.5	102.7	102.9	24	---	---	---	0	103.3	103.8	104.2	24	103.4	104.2	104.8	24	106.1	106.4	106.6	24
3/19	103.0	103.7	104.1	24	---	---	---	0	104.2	104.7	105.0	24	102.7	103.1	103.9	24	106.6	106.9	107.2	24
3/20	104.2	104.6	106.0	22	---	---	---	0	104.5	105.1	105.5	24	102.6	102.9	103.2	24	106.4	107.3	107.9	24
3/21	102.6	102.9	103.3	24	101.7	101.7	101.8	11	102.8	103.0	103.1	24	101.8	102.4	102.7	24	105.8	106.0	106.2	24
3/22	102.0	102.3	102.5	24	101.5	101.7	101.8	24	103.4	104.2	104.9	24	102.3	103.0	103.5	24	105.6	106.1	107.3	24
3/23	102.0	102.5	102.9	24	102.1	102.5	102.9	24	105.8	106.6	107.4	24	104.0	105.7	106.5	24	106.9	107.7	108.6	24
3/24	102.6	103.2	103.5	24	102.7	102.9	103.1	24	106.1	106.4	106.8	24	104.6	105.0	105.6	24	108.0	108.3	108.4	24
3/25	103.4	103.9	104.4	24	103.5	103.9	104.2	24	106.6	107.5	108.0	24	104.5	105.3	105.8	24	108.5	108.8	109.1	24
3/26	103.9	104.3	104.6	24	104.4	104.7	105.1	24	107.3	107.7	108.1	24	106.1	107.2	107.9	24	108.6	108.9	109.3	24
3/27	104.1	104.4	104.8	24	105.1	105.3	105.5	24	108.2	108.8	109.5	24	107.6	108.6	109.1	24	108.6	109.1	109.7	24
3/28	104.2	104.7	105.0	23	104.9	105.3	105.5	23	108.2	108.5	108.8	23	108.0	108.8	109.4	23	108.5	109.1	109.6	23

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.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Two Week Transportation Summary

Source: Fish Passage Center

Updated:

3/29/13 8:27 AM

03/15/13 TO 03/29/13

Site	Data	Species					Grand Total
		CH0	CH1	CO	ST	SO	
LGR	Sum of NumberCollected	10	2,590	10	150	10	2,770
	Sum of NumberBarged	0	0	0	0	0	0
	Sum of NumberBypassed	10	2,587	10	150	10	2,767
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	3	0	0	0	3
	Sum of FacilityMorts	0	0	0	0	0	0
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	0	3	0	0	0	3
Total Sum of NumberCollected		10	2,590	10	150	10	2,770
Total Sum of NumberBarged		0	0	0	0	0	0
Total Sum of NumberBypassed		10	2,587	10	150	10	2,767
Total Sum of Numbertrucked		0	0	0	0	0	0
Total Sum of SampleMorts		0	3	0	0	0	3
Total Sum of FacilityMorts		0	0	0	0	0	0
Total Sum of ResearchMorts		0	0	0	0	0	0
Total Sum of TotalProjectMorts		0	3	0	0	0	3

Cumulative Adult Passage at Mainstem Dams Through: 03/29

DAM	ENDDATE	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	03/27	168	2	33	1	1214	0	0	0	0	0	0	0	0	0	0	0	0	0
TDA	02/28	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
JDA		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MCN	02/28	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IHR	03/27	4	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0
LMN		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LGS		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LGR	03/25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PRD		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WAN		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RIS		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RRH		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEL		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WFA	03/26	17	0	2	0	58	0	0	0	0	0	0	0	0	0	0	0	0	0

DAM	ENDDATE	Coho						Sockeye			Steelhead						Lamprey		
		2013		2012		10-Yr Avg.		2013	2012	10-Yr	10-Yr		Wild	Wild	10-Yr	2013	2012	10-Yr	
		Adult	Jack	Adult	Jack	Adult	Jack				Avg.	2013							2012
BON	03/27	0	0	0	0	0	0	0	0	1386	2569	2192	393	846	472	-1	0	0	
TDA	02/28	0	0	0	0	0	0	0	0	79	0	160	38	0	47	0	0	0	
JDA		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
MCN	02/28	1	0	0	0	0	0	0	0	224	0	0	86	0	0	0	0	0	
IHR	03/27	0	0	0	0	0	0	0	0	1364	0	2502	363	0	522	0	0	0	
LMN		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
LGS		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
LGR	03/25	0	0	0	0	0	0	0	0	3778	3217	4313	1364	1027	911	0	0	0	
PRD		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
WAN		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
RIS		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
RRH		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
WEL		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
WFA	03/26	2	0	0	0	0	0	0	0	3474	4342	4480	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.