



Fish Passage Center

Weekly Report #11 - 10

May 20, 2011

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Summary of Events:

Water Supply: Precipitation throughout the Columbia Basin has varied between 70% and 325% of average at individual sub-basins over May. Precipitation above The Dalles has been 160% of average over May. Over the 2011 water year, precipitation has ranged between 108% and 130% 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 2011 May 1-16, 2011		Water Year 2011 October 1, 2010 to May 16, 2011	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia Above Coulee	1.25	109	20.20	118
SNAKE RIVER ABOVE ICE HARBOR	1.53	157	16.40	129
Columbia Above The Dalles	1.63	160	20.92	123
Kootenai	1.33	116	20.43	117
Clark Fork	0.98	93	13.74	122
Flathead	0.88	70	19.48	130
Pend Oreille/ Spokane	1.94	144	29.34	123
Central Washington	1.29	325	8.02	115
SNAKE RIVER PLAIN	1.10	145	10.16	128
Salmon/Boise/ Payette	1.42	154	17.60	115
Clearwater	2.28	146	29.42	129
SW Washington Cascades/Cowlitz	3.45	177	67.26	111
Willamette Valley	1.84	101	56.29	108

Snowpack in the Columbia River for basins above the Snake River confluence is 180% of average, for Snake River Basins snowpack is 188% of average, and for lower Columbia Basins between McNary and Bonneville Dam snowpack is 220% of average.

Table 2 displays the April Final and May Final runoff volume forecasts for multiple reservoirs. The May Final forecast at The Dalles between January and July is 128000 Kaf (119% of average).

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

Location	April Final		May Final	
	% Average (1971 -2000)	Probable Runoff Volume (Kaf)	% Average (1971 -2000)	Probable Runoff Volume (Kaf)
The Dalles (Jan-July)	109	117000	119	128000
Grand Coulee (Jan-July)	108	68200	117	73700
Libby Res. Inflow, MT (Apr-Aug)	109	6800 7191*	123	7660 8165*
Hungry Horse Res. Inflow, MT (Jan-July)	128	2840	149	3310
Lower Granite Res. Inflow (Apr- July)	116	25100	132	28400
Brownlee Res. Inflow (Apr-July)	119	7510	144	9060
Dworshak Res. Inflow (Apr-July)	116	3060 3387*	130	3440 3772*

* Denotes COE Forecast

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 100 Kcfs at Lower Granite. Flows at Lower Granite Dam have averaged 157.9 Kcfs over the last week and 110.3 Kcfs over the spring season.

Based on the April Final Water Supply Forecast, the Spring Biological Opinion Flow Objectives is 260 Kcfs at McNary Dam (began April 10th) and 135 Kcfs at Priest Rapids Dam (began April 10th). Flows at McNary Dam have averaged 376.6 Kcfs over the last week and 281.5 Kcfs over the spring season. Flows at Priest Rapids Dam have averaged 214.7 Kcfs over the last week and 164.0 Kcfs over the spring season.

Grand Coulee Reservoir is at 1224.8 feet (5-18-11) and has refilled 6.9 feet over the last week. Outflows at Grand Coulee have ranged between 138.9 and 198.0 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2344.4 feet (5-18-11) and has refilled 6.6 feet last week. Outflows at Libby Dam have been 16.0-20.0 Kcfs last week.

Hungry Horse is currently at an elevation of 3482.7 feet (5-18-11) and has refilled 9.9 feet last week. Outflows at Hungry Horse have been 8.0 Kcfs last week.

Dworshak is currently at an elevation of 1495.7 feet (5-18-11) and has refilled 29.0 feet last week. Outflows from Dworshak have ranged between 2.5 Kcfs last week.

The Brownlee Reservoir was at an elevation of 2042.6 feet on May 18th, 2011 refilling 17.0 feet last week. Over the last week, outflows at Brownlee have ranged between 38.0-54.4 Kcfs.

Spill:

Spill for fish passage began on April 3rd at the lower Snake River projects, and on April 10th at the lower Columbia River projects.

No spill occurred at Dworshak Dam this past week. High flows in the Snake River have resulted in higher spill levels. The hydraulic capacity at Lower Granite Dam remained limited due to an outage of one unit. Over the last week, daily average flows at Lower Granite Dam have ranged from 118.4 – 203.4 Kcfs and spill has ranged from 34.9 – 111.3 Kcfs. At Little Goose Dam, spill exceeded the 30% level as specified in the Court Order over the past week. Daily average spill at Lower Monumental Dam this week

has ranged from 27 to 93.2 Kcfs. Whenever possible, the COE restricts spill at this project to address TDG issues. However, as flows increase this operation is less likely.

Beginning April 28th, the Court Order spill operations at Ice Harbor called for an alternating schedule of 45 Kcfs spill during the day and gas cap spill at night versus 30% if instantaneous flow, on 2-day alternating blocks that will likely last until mid-July. For most of the week spill levels have exceeded the Court Order.

Project	Day/Night Spill
Lower Granite	20 Kcfs/20 Kcfs
Little Goose	30%/30%
Lower Monumental	Gas Cap/Gas Cap
Ice Harbor	April 3-April 27: 45 Kcfs/gas cap April 28~mid-July: 45 Kcfs/gas cap vs. 30%/30%

Spill for fish passage at the Lower Columbia projects began on April 10th. For the most part, spill at McNary Dam has been in excess of the Court Order as a result of spill in excess of hydraulic capacity due to unit outages. Spill has ranged between 58% and 69.4% of daily average flow at this project. The planned test at John Day Dam started on the evening of April 27th. Under this test, spill at John Day Dam alternates between 30% and 40% of instantaneous flow, roughly every two days. Spill levels at John Day have generally met, or exceeded the Court Order this week. However, due to TDG above 120% in the tailrace at John Day on the 16th and 17th, the 40% spill was not met. At The Dalles Dam, spill did not meet the 40% objective early in the week due to TDG at the Bonneville Dam forebay. However, later in the week, as flows increased, spill met or exceeded the 40%. Finally, at Bonneville Dam, spill met, or exceeded, the 100 Kcfs in the Court Order over the past week.

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

As of May 19th all points of compliance, with the exception of Lower Granite Dam forebay monitor, were exceeding the 115/120% TDG levels. Gas bubble trauma samples were taken this past week at Lower Granite, Little Goose, McNary, Rock Island and Bonneville dams. Over the past week, one fish was observed with Rank 1 signs of GBT at Bonneville Dam on each sample date. These GBT observations represented 1% of the sample at this project. The action criteria for GBT with Rank 1 signs of GBT is 15% of the population. A sample was supposed to be collected at Lower Monumental Dam yesterday, but did not occur since the project was operated in primary bypass. GBT sampling is planned for today at this project.

Smolt Monitoring:

All SMP traps have quit operating either temporarily or for the season due to high flows and debris. The two IDFG SMP traps at Salmon River and Snake River have ended sampling for the season. High flows and debris have either damaged the traps or made sampling impossible at those sites. At the Grande Ronde Trap sampling has been suspended due to high flows and debris. And at the Imnaha Trap sampling has been disrupted due to damage to the trap as well as high flow and debris. Collection for transportation was suspended for a few days this week at Lower Granite Dam and Lower Monumental Dam due to high flows making the loading docks inaccessible. Yearling Chinook smolt passage has begun to decrease at Lower Granite Dam as did steelhead passage. Steelhead passage in the Snake River has been well ahead of historic average and that early timing was a function of early hatchery releases in the Clearwater River Basin that coincided with unusually high flows. Again this week there were relatively large numbers of sockeye in the samples at Snake River sites, but unlike previous samples these were likely sockeye based on PIT-tag recaptures.

The Salmon River Trap, located at River km 103, and operated by Idaho Department of Fish and Game the trap was badly damaged by logs that jammed into the rotating screen on May 8. The trap will be out of service through the remainder of 2011 season. The Grande Ronde Trap, operated by the Oregon Department of Fish and Wildlife, located at river mile two in the Grande Ronde River has suspended sampling due to high flows and debris. The Imnaha River Trap, operated by the Nez Perce Tribe, has suspended sampling also. At the Lewiston Trap, operated by IDFG, located at River km 225 on the Snake River, just above the confluence with the Clearwater River, the trap has ended operations for the season due to high flows and debris concerns.

At Lower Granite Dam steelhead predominated in the sample in the past week. This week the average daily passage index was 136,000 per day for steelhead while the average index for yearling Chinook was 114,000. Sockeye in the sample are likely from the upper Salmon River based on PIT-tag recaptures. PIT-tag sockeye have begun arriving in large numbers in the past 3 days with the first detections on May 17. Nearly 1,200 PIT-tagged sockeye have been detected in the past 3 days. Subyearling Chinook passage indices have begun increasing rapidly with the index on May 18 rising to nearly 19,000. Transportation was suspended at Lower Granite during high flows in the past week. Juvenile fish were bypassed for the days May 16 to May 18 because the barge operator determined that conditions were unsafe for docking at the barge loading facility. Barge transportation resumed on May 19.

At Little Goose Dam collection for transportation began on May 5 with the first full sample of the season available on May 6. A high debris event occurred on May 19 causing orifices to be clogged resulting in between 400 and 500 juvenile salmon mortalities in the gatewells. In addition, a leaking transformer was serviced on May 20 for several hours, meaning the powerhouse was shutdown while repairs occurred.

Lower Monumental Dam collected fish for transportation beginning May 8, with the first barge transported on May 9. Just as at Lower Granite, there was a determination that barge loading was unsafe at Lower Monumental Dam, so transportation was suspended at this site from May 16 to May 18.

Collection was also suspended for two days on May 16 and 17 as fish were routed via primary bypass back to river. Collection resumed on May 18 for transport on May 19. Pelicans continue to be seen in relatively large numbers below the outfall at the site. With the operation reverting to primary bypass pelican numbers again increased to between 20 and 30 birds crowded below the pipe according to SMP staff at the site.

Sampling at McNary Dam is every other day in the spring. Normal sampling began on April 13. Yearling Chinook continued to predominate in passage at the site this past week, with the average passage index at 102,000 compared to 209,000 last week. For steelhead the index averaged 25,000 and for sockeye the index was at 20,000 per day this week compared to 23,000 per day last week. Increased numbers of coho, subyearling Chinook and lamprey were also passing the project. The subyearling index rose to nearly 27,000 on May 19 which is the highest to date for the site.

At John Day Dam relatively large numbers of yearling Chinook and steelhead have been collected over the past two weeks. Yearling Chinook predominated in the sample the past week with the passage index averaging 110,000 per day while steelhead averaged about 72,000 fish per day. Lamprey collections have increased over the past week. The lamprey collection averaged about 1,300 per day this week compared to less than 170 per day last week.

At Bonneville Dam the largest collections over the past week have been yearling Chinook. Yearling Chinook indices have continued to go up with the average index this week at 60,000 compared to 48,000 per day last week. Subyearling Chinook indices have declined rapidly over the past week, falling from 72,000 last week to an average of 2,000 per day this week. The steady decrease indicates that the latest Spring Creek NFH release has passed the project. Coho, steelhead and sockeye indices all increased in the past week at the site. The coho passage index averaged 22,000 per day this week, while steelhead averaged 7,700 per day and sockeye averaged 4,600.

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. Several releases of subyearling fall Chinook juveniles were scheduled to begin this

week. In all, these releases were expected to total over 2.3 million fall Chinook juveniles. Of these, approximately 34% were scheduled to be released into the Clearwater River and its tributaries while 57% were scheduled for release into the Snake River, above Lower Granite Dam. The remaining 9% were scheduled to be released from Lyons Ferry Hatchery, which is below Little Goose Dam. Of the over 2.3 million fall Chinook juveniles scheduled for release this week, at least 44% are unmarked. The only other release of juvenile salmonids that was scheduled to begin this week was a release of about 50,000 spring Chinook parr to Meadow Creek, a tributary of the Selway River. These spring Chinook parr are 100% unmarked and are not expected to out-migrate until spring of 2012.

In addition to the subyearling fall Chinook that were scheduled for release this week, approximately 1.3 million fall Chinook subyearlings are scheduled for release to this zone over the next two weeks. Of these, about 69% are scheduled for release into the Clearwater River and its tributaries while 31% are scheduled for release into the Grand Ronde River. About 31% of the subyearling fall Chinook juveniles that are scheduled for release over the next two weeks are expected to be unmarked. Finally, on or about June 1st, approximately 300,000 spring Chinook parr are scheduled for release into the Selway River. These spring Chinook parr are 100% unmarked and are not expected to out-migrate until spring 2012.

Mid-Columbia Zone: The Mid-Columbia Zone encompasses the area of the Columbia River and its tributaries from McNary Dam to Chief Joseph Dam. Approximately 686,000 subyearling summer Chinook were scheduled for release into this zone this week. Of these, 71% were scheduled for volitional release from Wells Hatchery. This volitional release is expected to run through about May 25th. The remaining 29% were scheduled to be released into the Yakima River, from Stiles Acclimation Pond. In addition, approximately 250,000 yearling summer Chinook were scheduled for release into the mid-Columbia River this week. Nearly 117,000 yearling spring Chinook were scheduled for release into the Wenatchee River basin this week. Of these, about 56% were scheduled for release into the White River while the remaining 44% are scheduled for release from the Lake Wenatchee Net Pens. Many releases of yearling spring Chinook and summer steelhead that began in prior weeks were scheduled to end this week. Finally, nearly 4,000 summer steelhead

juveniles were released into the Okanogan River on May 19th.

There are no new releases of juvenile salmonids scheduled for this zone over the next two weeks. However, several releases that began in past weeks are scheduled to end over the next two weeks. Most of the releases that are expected to end over the next two weeks are of coho juveniles to the Methow and Yakima rivers.

Lower Columbia Zone: The Lower Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to McNary Dam. There were no releases of juvenile salmonids that were scheduled to begin this week in this zone. However, there were three releases of summer steelhead that began in prior weeks that were scheduled to end this week. Approximately 4.6 million subyearling fall Chinook juveniles are scheduled for release into this zone over the next two weeks. Of these, about 87% are scheduled for release from the Klickitat Hatchery into the Klickitat River. The remaining 13% are scheduled for release into the Umatilla River. There are no other releases of juvenile salmonids scheduled for this zone over the next two weeks.

Adult Passage:

Adult counts at Bonneville Dam have been updated through May 19th. Daily adult spring Chinook counts at Bonneville Dam ranged from 912 to 4,979 adult salmon per day. Between March 15th and May 19th, 156,102 adult spring Chinook have been counted at Bonneville Dam. In 2010, 225,937 adult spring Chinook were counted at Bonneville Dam for the same time period. The 2011 adult spring Chinook count at Bonneville Dam is 69.0% of the 2010 count and about 99.4% of the 10 year average of 157,093. The 2011 spring Chinook jack count of 35,949 is about 3.48 times greater than the 2010 count of 10,329 and 2.73 times greater than the 10 year average count of 13,144. At Willamette Falls Dam 13,352 adult spring Chinook have been counted so far this year. At The Dalles Dam the 2011 adult spring Chinook is 113,100 and at McNary Dam 81,217 adult spring Chinook have been counted. The Dalles Dam 2011 adult spring Chinook count is only about 68.4% of the 2010 count of 165,378, while being 1.02 times greater than the 10 year average count of 111,155. The 2011 McNary Dam adult spring Chinook count is about 66.9% of the 2010 count, while being 1.01 times greater than the 10 year average count of 79,966. The 2011 McNary spring Chinook jack count of 14,081 is about 2.69

times greater than the 2010 count and 2.43 times greater than the 10 year average. The 2011 Lower Granite adult spring Chinook count of 23,691 is about 42% of the 2010 count and 59% of the 10 year average count. The Bonneville Dam 2011 steelhead count of 3,160 is about 48.5% of the 2010 count of 6,514 and about 86.9% of the 10 year average count of 3,638. 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 4 to 30 adults per day last week. This year's Lower Granite steelhead count of 12,202 is about 1.17 times greater than the 2010 count of 10,382 and 1.31 times greater than the 10 year average of 9,298. The 2011 Lower Granite wild steelhead count as of May 19th was 5,693. At Willamette Falls Dam, the 2011 count for steelhead was 11,200, as of May 18th. This year's steelhead count is about 61.1% of the 2010 count of 18,321 at Willamette Falls Dam for the same date range.

Hatchery Releases Last Two Weeks

Hatchery Release Summary									
From:		5/6/2011	to	05/19/11					
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
Idaho Dept. of Fish and Game	Oxbow-Oregon	SO	UN	2011	27,000	05-11-11	05-11-11	Redfish Lake Creek	Salmon River (ID)
Idaho Dept. of Fish and Game	Oxbow-Oregon	SO	UN	2011	27,000	05-11-11	05-11-11	Salmon River (ID)	Salmon River (ID)
Idaho Dept. of Fish and Game	Sawtooth Hatchery	SO	UN	2011	26,000	05-11-11	05-11-11	Salmon River (ID)	Salmon River (ID)
Idaho Dept. of Fish and Game	Sawtooth Hatchery	SO	UN	2011	110,000	05-11-11	05-11-11	Redfish Lake Creek	Salmon River (ID)
Idaho Dept. of Fish and Game Total					190,000				
National Marine Fisheries Service	Lyons Ferry Hatchery	CH0	FA	2011	230,000	05-16-11	06-06-11	Couse Creek	Snake River
National Marine Fisheries Service Total					230,000				
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH0	FA	2011	500,000	05-10-11	05-25-11	Lapwai Creek	Clearwater River M F
Nez Perce Tribe Total					500,000				
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU	2011	166,614	04-26-11	05-09-11	Big Canyon Acclim.Pd (Grande Ronde)	Grande Ronde River
Oregon Dept. of Fish and Wildlife	Round Butte Hatchery	CH1	SP	2011	244,342	04-04-11	06-01-11	Deschutes River	Deschutes River
Oregon Dept. of Fish and Wildlife Total					410,956				
U.S. Fish and Wildlife Service	Hagerman NFH	ST	SU	2011	213,919	05-06-11	05-17-11	Yankee Fk (Salmon R)	Salmon River (ID)
U.S. Fish and Wildlife Service	Hagerman NFH	ST	SU	2011	220,419	05-06-11	05-17-11	Yankee Fk (Salmon R)	Salmon River (ID)
U.S. Fish and Wildlife Service Total					434,338				
Warm Springs Tribe	Oak Springs Hatchery	ST	SU	2011	25,000	04-30-11	05-14-11	Parkdale Acclim Pond	Hood River
Warm Springs Tribe Total					25,000				
Washington Dept. of Fish and Wildlife	Chiwawa Hatchery	CH1	SP	2011	440,000	04-20-11	05-16-11	Chiwawa River	Wenatchee River
Washington Dept. of Fish and Wildlife	Eastbank Hatchery	CH1	SP	2011	51,000	05-15-11	05-15-11	Lake Wenatchee	Wenatchee River
Washington Dept. of Fish and Wildlife	Eastbank Hatchery	CH1	SP	2011	65,897	05-15-11	05-15-11	White River	Wenatchee River
Washington Dept. of Fish and Wildlife	Eastbank Hatchery	CH1	SU	2011	820,000	04-26-11	05-09-11	Dryden Acclim Pond	Wenatchee River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2011	54,000	04-15-11	05-15-11	Baileysburg Bridge	Touchet River
Washington Dept. of Fish and Wildlife	Methow Hatchery	CH1	SU	2011	400,000	04-12-11	05-12-11	Carlton Acclim Pond	Methow River
Washington Dept. of Fish and Wildlife	Skamania Hatchery	ST	SU	2011	20,000	05-10-11	05-20-11	White Salmon River	White Salmon River
Washington Dept. of Fish and Wildlife	Skamania Hatchery	ST	SU	2011	88,300	05-10-11	05-20-11	Klickitat Hatchery	Klickitat River
Washington Dept. of Fish and Wildlife	Turtle Rock Hatchery	CH1	SU	2011	250,000	05-16-11	05-16-11	Turtle Rock Hatchery	Mid-Columbia River
Washington Dept. of Fish and Wildlife	Wells Hatchery	CH0	SU	2011	484,000	05-19-11	05-25-11	Wells Hatchery	Mid-Columbia River
Washington Dept. of Fish and Wildlife	Wells Hatchery	ST	SU	2011	3,960	05-19-11	05-19-11	Okanogan River	Okanogan River
Washington Dept. of Fish and Wildlife	Wells Hatchery	ST	SU	2011	62,190	04-27-11	05-16-11	Twisp River	Methow River
Washington Dept. of Fish and Wildlife	Wells Hatchery	ST	SU	2011	73,623	05-09-11	05-17-11	Similkameen Acclim Pd	Okanogan River
Washington Dept. of Fish and Wildlife	Wells Hatchery	ST	SU	2011	83,861	04-26-11	05-16-11	Chewuch River	Methow River
Washington Dept. of Fish and Wildlife	Wells Hatchery	ST	SU	2011	154,370	04-21-11	05-19-11	Methow River	Methow River
Washington Dept. of Fish and Wildlife Total					3,051,201				
Yakama Tribe	Cascade Hatchery	CO	UN	2011	69,223	05-07-11	06-16-11	Coulter Creek	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2011	69,322	05-07-11	06-12-11	Rolfings Acclim Pond Butcher Creek Acclim.	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2011	69,331	05-07-11	06-07-11	Pond Beaver Creek Acclim	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2011	69,339	04-29-11	06-07-11	Pond Jack Creek Acclim	Wenatchee River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2011	273,539	03-15-11	05-14-11	Pond	Yakima River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2011	279,639	03-15-11	05-14-11	Clark Flat Acclim Pond	Yakima River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2011	282,335	03-15-11	05-14-11	Easton Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2011	37,000	04-20-11	06-01-11	Boone Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2011	79,015	04-15-11	06-01-11	Holmes Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2011	88,175	04/20/11	06-01-11	Stiles Pond Lost Creek Acclim	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2011	88,942	04-20-11	06-01-11	Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2011	90,498	04-20-11	06-01-11	Easton Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2011	50,000	04-20-11	06-01-11	Stiles Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2011	100,000	04-20-11	06-01-11	Easton Pond Lost Creek Acclim	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2011	100,297	04-20-11	06-01-11	Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2011	100,671	04-15-11	06-01-11	Holmes Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2011	245,455	04-15-11	06-01-11	Prosser Acclim Pond	Yakima River
Yakama Tribe	Wells Hatchery	CH0	SU	2011	202,000	05-14-11	05-14-11	Stiles Pond	Yakima River
Yakama Tribe	Willard Hatchery	CO	UN	2011	27,365	05-07-11	06-12-11	Rolfings Acclim Pond Beaver Creek Acclim	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2011	29,279	04-29-11	06-07-11	Pond	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2011	49,379	04-29-11	06-14-11	Winthrop Hatchery Butcher Creek Acclim.	Methow River
Yakama Tribe	Willard Hatchery	CO	UN	2011	60,901	05-07-11	06-07-11	Pond	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2011	89,403	05-08-11	06-02-11	Twisp Acclim Pond	Methow River
Yakama Tribe Total					2,551,108				
Grand Total					7,392,603				

Hatchery Releases Next Two Weeks

Hatchery Release Summary									
From:		5/20/2011	to	6/2/2011					
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH0	SP	2012	300,000	06-01-11	06-01-11	Selway River	Clearwater River M F
Idaho Dept. of Fish and Game Total					300,000				
National Marine Fisheries Service	Lyons Ferry Hatchery	CH0	FA	2011	230,000	05-16-11	06-06-11	Couse Creek	Snake River
National Marine Fisheries Service Total					230,000				
Nez Perce Tribe	Kooskia NFH	CH0	SP	2012	50,000	05-20-11	05-20-11	Meadow Creek - SELW Pittsburg Landing	Selway River
Nez Perce Tribe	Lyons Ferry Hatchery	CH0	FA	2011	400,000	05-20-11	05-31-11	Acclim Pond Big Canyon (Clearwater River)	Snake River
Nez Perce Tribe	Lyons Ferry Hatchery	CH0	FA	2011	500,000	05-20-11	05-31-11	Cpt John Acclim Pond	Clearwater River M F
Nez Perce Tribe	Lyons Ferry Hatchery	CH0	FA	2011	500,000	05-20-11	05-31-11	Cpt John Acclim Pond	Snake River
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH0	FA	2011	200,000	06-01-11	06-15-11	Cedar Flats Acclim.	Selway River
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH0	FA	2011	200,000	06-01-11	06-15-11	Lukes Gulch Acclim.	S Fk Clearwater River
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH0	FA	2011	300,000	05-20-11	06-15-11	Clearwater River	Snake River
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH0	FA	2011	500,000	05-10-11	05-25-11	Lapwai Creek Nez Perce Tribal Hatchery	Clearwater River M F
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH0	FA	2011	500,000	06-01-11	06-15-11	Hatchery	Clearwater River M F
Nez Perce Tribe Total					3,150,000				
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	CH0	FA	2011	400,000	05-23-11	05-27-11	Grande Ronde River	Grande Ronde River
Oregon Dept. of Fish and Wildlife	Round Butte Hatchery	CH1	SP	2011	244,342	04-04-11	06-01-11	Deschutes River	Deschutes River
Oregon Dept. of Fish and Wildlife	Umatilla Hatchery	CH0	FA	2011	600,000	05-23-11	05-23-11	Umatilla River	Umatilla River
Oregon Dept. of Fish and Wildlife Total					1,244,342				
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	CH0	FA	2011	200,000	05-20-11	05-31-11	Couse Creek	Snake River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	CH0	FA	2011	200,000	05-20-11	05-31-11	Lyons Ferry Hatchery	Snake River
Washington Dept. of Fish and Wildlife	Skamania Hatchery	ST	SU	2011	20,000	05-10-11	05-20-11	White Salmon River	White Salmon River
Washington Dept. of Fish and Wildlife	Skamania Hatchery	ST	SU	2011	88,300	05-10-11	05-20-11	Klickitat Hatchery	Klickitat River
Washington Dept. of Fish and Wildlife	Wells Hatchery	CH0	SU	2011	484,000	05-19-11	05-25-11	Wells Hatchery	Mid-Columbia River
Washington Dept. of Fish and Wildlife Total					992,300				
Yakama Tribe	Cascade Hatchery	CO	UN	2011	69,223	05-07-11	06-16-11	Coulter Creek	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2011	69,322	05-07-11	06-12-11	Rolfings Acclim Pond Butcher Creek Acclim. Pond	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2011	69,331	05-07-11	06-07-11	Beaver Creek Acclim	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2011	69,339	04-29-11	06-07-11	Pond	Wenatchee River
Yakama Tribe	Eagle Creek NFH	CO	UN	2011	37,000	04-20-11	06-01-11	Boone Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2011	79,015	04-15-11	06-01-11	Holmes Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2011	88,175	04-20-11	06-01-11	Stiles Pond Lost Creek Acclim	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2011	88,942	04-20-11	06-01-11	Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2011	90,498	04-20-11	06-01-11	Easton Pond	Yakima River
Yakama Tribe	Klickitat Hatchery	CH0	FA	2011	4,000,000	06-01-11	06-01-11	Klickitat Hatchery	Klickitat River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2011	50,000	04-20-11	06-01-11	Stiles Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2011	100,000	04-20-11	06-01-11	Easton Pond Lost Creek Acclim	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2011	100,297	04-20-11	06-01-11	Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2011	100,671	04-15-11	06-01-11	Holmes Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2011	245,455	04-15-11	06-01-11	Prosser Acclim Pond	Yakima River
Yakama Tribe	Willard Hatchery	CO	UN	2011	27,365	05-07-11	06-12-11	Rolfings Acclim Pond Beaver Creek Acclim	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2011	29,279	04-29-11	06-07-11	Pond	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2011	49,379	04-29-11	06-14-11	Winthrop Hatchery Butcher Creek Acclim.	Methow River
Yakama Tribe	Willard Hatchery	CO	UN	2011	60,901	05-07-11	06-07-11	Pond	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2011	89,403	05-08-11	06-02-11	Twisp Acclim Pond	Methow River
Yakama Tribe Total					5,513,595				
Grand Total					11,430,237				

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
05/06/2011	136.6	0.0	145.7	0.0	147.6	10.0	143.7	0.0	146.3	14.4	147.0	18.6	147.1	28.7
05/07/2011	126.6	0.0	130.5	0.0	143.4	9.9	144.2	0.0	149.1	13.9	149.5	19.2	151.8	28.8
05/08/2011	118.4	0.0	116.4	0.0	140.7	9.7	145.4	0.0	150.3	14.2	160.4	22.2	161.1	24.4
05/09/2011	137.5	0.0	136.6	0.0	126.1	10.0	114.5	0.0	120.7	15.4	150.9	27.7	159.5	22.7
05/10/2011	160.3	1.0	162.1	2.6	163.4	10.0	162.3	0.0	159.0	16.0	145.2	32.0	129.6	23.8
05/11/2011	168.4	0.6	171.3	1.7	183.8	17.8	182.0	0.0	185.0	37.0	187.2	59.8	185.8	74.2
05/12/2011	159.7	0.0	161.8	0.0	189.7	26.7	184.5	0.0	189.1	40.0	207.8	72.8	213.4	100.0
05/13/2011	174.0	8.9	181.3	38.6	195.9	25.8	194.2	0.0	199.6	40.0	205.7	72.5	207.6	100.2
05/14/2011	171.4	15.2	170.3	69.5	194.0	32.9	194.6	0.0	200.2	42.9	203.8	70.9	211.1	105.6
05/15/2011	167.9	7.9	173.3	88.0	199.5	35.9	191.0	0.0	200.0	42.8	214.1	78.9	216.1	112.2
05/16/2011	138.9	1.8	143.0	36.6	182.1	23.1	186.1	6.0	199.2	43.2	212.3	77.0	216.3	83.4
05/17/2011	159.4	3.2	159.7	35.8	178.9	23.5	178.0	0.0	189.2	23.5	210.3	76.2	215.5	83.5
05/18/2011	198.0	14.9	195.3	86.0	213.8	43.6	215.8	14.9	218.4	24.8	219.0	87.2	222.6	111.1
05/19/2011	201.8	18.1	204.5	94.1	231.4	63.4	233.3	34.1	233.0	31.4	235.8	103.1	233.4	121.3

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

Date	Dworshak		Hells Brownlee Canyon		Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill	Inflow	Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
05/06/2011	8.1	0.0	42.5	43.1	86.0	20.1	84.9	25.4	87.2	29.9	87.1	49.9
05/07/2011	8.1	0.0	41.2	41.0	87.3	20.2	84.2	25.3	84.8	29.7	87.7	62.9
05/08/2011	5.3	0.0	41.8	40.9	95.3	23.8	91.4	27.4	92.8	29.6	94.3	41.7
05/09/2011	2.5	0.0	44.4	40.2	101.7	24.4	98.7	29.6	101.9	27.8	104.7	36.0
05/10/2011	2.5	0.0	44.5	38.2	101.1	20.1	96.8	38.8	100.0	28.1	99.3	34.7
05/11/2011	2.5	0.0	47.5	38.1	99.0	20.0	97.7	29.2	101.0	27.9	102.9	34.1
05/12/2011	2.5	0.0	51.5	39.1	104.8	22.2	101.8	32.7	103.6	27.1	104.9	54.1
05/13/2011	2.5	0.0	53.9	45.0	119.8	34.9	113.8	41.7	116.3	27.0	117.7	67.6
05/14/2011	2.5	0.0	56.5	49.7	140.2	49.9	134.2	62.8	139.0	28.7	143.2	72.0
05/15/2011	2.5	0.0	62.9	52.5	175.3	84.0	167.7	97.0	173.5	57.9	175.2	93.6
05/16/2011	2.5	0.0	66.3	51.6	203.4	111.3	195.4	124.7	209.7	93.2	213.8	131.0
05/17/2011	2.4	0.0	68.7	50.0	188.7	97.5	183.4	112.6	198.7	83.5	202.1	120.8
05/18/2011	2.4	0.0	65.8	55.1	173.0	83.7	164.3	93.1	173.2	64.7	178.7	97.0
05/19/2011	2.4	0.0	---	---	158.6	64.7	152.6	79.0	160.6	48.9	166.9	87.2

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
05/06/2011	249.1	99.9	260.4	103.9	254.7	102.0	261.3	99.2	58.1	91.6
05/07/2011	249.7	100.1	245.1	93.7	231.2	92.3	239.9	99.6	40.7	87.2
05/08/2011	249.3	99.8	250.1	75.1	238.6	95.5	252.5	99.6	51.9	88.6
05/09/2011	277.5	129.0	281.8	88.9	267.9	107.3	292.7	99.5	82.6	98.2
05/10/2011	265.6	118.9	299.0	117.6	289.3	112.0	301.6	99.5	82.7	107.0
05/11/2011	256.7	112.1	256.3	98.1	248.5	97.8	280.7	99.7	70.8	97.8
05/12/2011	295.4	151.1	293.1	88.2	270.3	108.3	284.6	99.6	71.8	100.8
05/13/2011	325.3	188.8	347.0	103.7	335.2	130.5	333.6	102.9	94.1	124.2
05/14/2011	347.3	209.8	351.8	105.3	338.0	130.7	358.8	129.2	92.9	124.3
05/15/2011	385.8	250.3	383.6	122.6	366.7	134.1	377.0	156.0	91.8	116.8
05/16/2011	422.9	293.5	438.6	148.7	423.5	163.9	430.3	214.7	90.3	112.8
05/17/2011	437.8	299.4	454.9	170.2	442.3	192.9	447.5	234.7	88.4	112.0
05/18/2011	422.0	279.6	457.9	187.1	445.0	201.2	454.3	241.3	94.1	106.5
05/19/2011	421.5	279.6	463.9	201.5	450.0	203.9	458.6	249.0	88.6	108.6

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

Total Dissolved Gas Saturation Data at Upper Columbia River Sites

Date	<u>Hungry H. Dnst</u>			<u>Boundary</u>			<u>Grand Coulee</u>			<u>Grand C. Tlwr</u>			<u>Chief Joseph</u>							
	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#					
	Avg	Avg		High	hr		Avg	Avg		High	hr		Avg	Avg		High	hr	Avg	Avg	High
5/6	98.1	98.3	98.5	21	110.5	111.5	113.7	21	110.6	111.3	111.7	23	109.2	109.4	109.7	21	108.2	108.4	108.6	24
5/7	98.5	98.9	99.1	24	111.1	111.8	112.5	22	111.0	111.3	111.9	24	109.8	110.2	110.7	22	108.2	108.4	108.6	24
5/8	99.3	99.5	99.7	24	112.6	113.2	113.7	23	110.8	111.0	111.6	24	109.8	110.3	110.7	23	107.8	108.1	108.4	24
5/9	99.4	101.0	112.2	24	113.8	114.8	116.6	20	110.4	110.6	110.8	24	110.0	110.2	110.5	20	107.7	108.2	108.6	24
5/10	98.1	98.7	99.0	24	116.9	117.7	120.0	23	110.8	111.4	112.6	24	110.9	112.1	116.7	23	108.3	108.8	109.3	24
5/11	99.1	99.5	99.7	22	117.6	119.1	120.1	20	112.0	112.5	113.0	24	111.2	111.8	115.0	20	108.6	108.7	108.9	24
5/12	98.9	99.2	99.3	23	116.6	117.3	118.3	22	110.1	110.5	111.2	24	109.1	109.4	109.6	22	108.4	109.0	109.4	24
5/13	98.3	98.7	99.0	24	118.0	119.0	119.5	24	110.0	110.5	110.8	24	115.7	117.3	118.8	24	108.0	108.3	108.4	24
5/14	99.7	100.6	100.9	24	119.8	120.8	121.2	24	110.9	111.1	111.5	24	120.3	121.4	122.1	24	109.3	110.6	114.3	24
5/15	101.8	102.4	102.7	24	120.8	122.0	125.2	23	111.1	111.3	111.6	24	118.2	118.7	120.4	23	115.2	116.2	117.5	24
5/16	101.9	102.2	102.5	24	121.4	122.0	122.3	21	110.4	110.6	110.8	24	114.4	116.6	118.6	21	116.7	117.4	117.8	24
5/17	101.7	101.8	101.9	23	122.4	123.1	123.6	20	110.5	110.9	111.4	24	113.1	114.7	116.5	20	114.7	114.9	115.1	24
5/18	101.3	101.6	101.9	23	123.1	124.1	124.9	22	110.8	111.1	111.6	24	119.2	121.5	122.4	22	111.5	113.0	114.5	24
5/19	100.3	100.7	100.9	22	124.4	125.2	126.4	21	110.1	110.2	110.3	24	120.2	121.3	123.5	21	113.7	115.1	116.1	24

Total Dissolved Gas Saturation Data at Mid Columbia River Sites

Date	<u>Chief J. Dnst</u>			<u>Wells</u>			<u>Wells Dwnstrm</u>			<u>Rocky Reach</u>			<u>Rocky R. Tlwr</u>							
	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#					
	Avg	Avg		High	hr		Avg	Avg		High	hr		Avg	Avg		High	hr	Avg	Avg	High
5/6	108.5	108.8	109.3	24	108.4	108.6	108.8	24	110.2	110.8	111.2	24	110.0	110.2	110.3	24	109.1	109.2	109.5	24
5/7	108.6	108.8	109.0	24	108.5	108.7	108.9	24	110.4	110.9	111.3	24	110.0	110.3	110.6	24	109.0	109.3	109.5	24
5/8	108.2	108.4	108.6	24	108.0	108.4	109.2	24	109.7	110.3	111.5	24	109.9	110.2	110.4	24	108.8	109.0	109.2	24
5/9	107.8	108.1	108.4	24	107.7	108.1	108.6	24	109.2	110.0	110.5	24	109.3	109.5	109.7	24	108.2	108.5	108.9	24
5/10	108.7	109.7	110.9	24	108.3	108.7	108.9	23	110.5	111.2	111.6	23	109.7	110.0	110.3	24	108.9	109.3	109.6	24
5/11	110.3	110.5	110.8	24	108.7	108.9	109.2	21	111.7	112.2	112.7	21	110.3	110.7	111.2	24	109.2	109.7	110.2	24
5/12	108.9	109.1	109.5	24	107.0	107.3	107.8	24	110.8	111.4	112.0	24	109.3	109.5	109.9	24	108.3	108.5	108.7	24
5/13	113.8	116.0	118.9	24	109.0	110.3	111.5	24	112.2	113.8	114.9	24	110.6	111.6	112.4	24	109.2	110.0	110.8	24
5/14	116.8	118.8	120.2	24	110.7	112.2	115.1	23	114.6	115.5	116.8	23	112.7	113.3	114.2	24	111.1	111.5	112.1	24
5/15	119.0	119.7	120.3	24	113.7	115.6	117.0	22	117.2	118.7	119.9	22	114.2	114.9	115.3	24	112.6	112.8	113.4	24
5/16	116.6	117.7	118.6	24	115.0	115.5	116.9	22	117.1	118.2	119.6	22	114.9	115.6	116.0	24	113.2	113.8	114.1	24
5/17	116.0	116.9	120.2	24	114.4	114.7	115.4	24	117.1	117.9	119.1	24	116.1	116.6	116.7	24	114.2	114.6	114.9	24
5/18	118.5	120.1	121.9	24	114.3	114.9	115.9	22	118.9	119.4	120.0	22	115.6	116.1	116.9	24	115.7	116.1	116.5	24
5/19	119.4	120.6	121.9	24	114.3	115.0	116.5	19	121.1	121.6	123.5	19	117.4	117.8	118.3	24	119.8	120.9	121.2	24

Total Dissolved Gas Saturation at Mid Columbia River Sites

Date	<u>Rock Island</u>			<u>Rock I. Tlwr</u>			<u>Wanapum</u>			<u>Wanapum Tlwr</u>			<u>Priest Rapids</u>							
	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#					
	Avg	Avg		High	hr		Avg	Avg		High	hr		Avg	Avg		High	hr	Avg	Avg	High
5/6	109.2	109.7	110.1	24	111.0	111.3	111.8	24	108.9	109.3	109.8	24	110.7	110.9	111.1	24	109.7	110.2	110.6	24
5/7	109.1	109.3	109.5	24	110.6	111.2	111.6	24	109.7	110.1	110.5	24	111.5	111.8	111.9	24	110.4	110.7	111.0	24
5/8	108.8	109.0	109.2	24	110.6	111.0	111.3	24	109.6	110.0	110.8	24	111.2	111.4	111.6	24	109.9	110.2	110.5	24
5/9	108.3	108.7	109.1	24	110.2	110.8	111.7	24	109.2	109.8	110.7	24	111.2	111.8	112.9	24	110.4	111.8	113.6	24
5/10	108.7	109.5	110.0	24	110.6	111.4	111.9	24	108.8	109.8	111.0	24	112.1	113.7	123.3	24	110.1	111.3	112.5	24
5/11	109.2	109.7	110.4	24	113.7	114.6	115.3	24	110.6	111.2	112.3	24	114.5	116.6	119.8	24	113.8	116.8	119.9	24
5/12	108.0	108.8	109.1	24	113.4	114.0	114.5	24	---	---	---	0	---	---	---	0	---	---	---	0
5/13	109.4	110.5	110.9	24	114.4	115.1	115.5	24	110.4	111.3	111.7	24	114.8	115.3	115.5	24	113.7	114.6	115.2	24
5/14	111.2	111.6	111.9	24	116.1	116.5	116.9	24	112.1	112.7	112.9	24	115.6	115.9	116.1	24	114.7	115.1	115.4	24
5/15	112.5	112.8	113.0	24	116.5	116.6	116.8	24	112.3	112.5	113.0	24	116.7	116.9	117.5	24	114.4	114.8	115.0	24
5/16	112.2	112.5	113.1	24	116.4	116.6	117.0	24	110.7	111.1	111.7	24	115.9	118.5	119.1	24	115.8	117.6	119.0	24
5/17	114.3	115.0	115.3	24	116.3	116.9	117.1	24	---	---	---	0	---	---	---	0	---	---	---	0
5/18	113.7	114.5	114.9	24	115.7	116.2	116.8	24	---	---	---	0	---	---	---	0	---	---	---	0
5/19	116.2	117.3	117.7	24	118.2	119.4	120.1	24	---	---	---	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	<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>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>		
	Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High	
5/6	111.8	112.0	112.2	24	109.4	109.9	110.5	24	101.7	102.2	103.7	24	101.3	101.8	102.2	24	106.0	106.5	106.8	24
5/7	112.3	112.7	113.0	24	108.1	108.9	109.5	24	102.0	102.5	103.4	24	101.5	102.1	102.5	24	105.8	106.3	106.9	24
5/8	111.8	111.9	112.2	24	108.7	109.5	109.9	24	102.8	103.2	103.6	24	101.2	101.6	102.0	24	105.0	105.3	105.7	24
5/9	111.9	112.6	113.3	24	108.3	109.0	109.6	24	104.3	105.6	106.5	24	100.7	100.9	101.2	24	104.7	105.1	105.4	24
5/10	111.3	111.9	112.5	24	109.3	110.6	111.5	24	104.4	105.5	106.5	24	101.8	102.7	103.6	24	105.4	106.2	107.0	24
5/11	116.9	118.8	120.3	24	109.2	109.9	110.4	24	105.5	107.1	108.7	24	106.5	109.2	119.8	24	105.3	106.2	107.0	24
5/12	---	---	---	0	110.7	113.3	114.3	24	104.0	105.0	105.4	24	111.8	113.3	114.3	24	103.9	104.2	104.6	24
5/13	118.2	118.9	119.3	24	113.7	114.9	115.7	24	105.5	107.3	108.6	24	120.3	122.5	126.9	24	106.1	107.5	108.1	24
5/14	119.0	119.6	120.3	24	113.0	113.9	114.8	24	106.2	107.5	108.2	24	128.7	128.7	134.0	10	107.0	107.6	108.5	24
5/15	118.9	119.2	119.3	24	105.3	106.8	108.8	24	103.0	107.7	108.3	24	139.2	139.2	139.2	1	106.6	106.8	107.0	24
5/16	118.4	118.8	119.1	24	106.5	107.1	107.8	24	60.9	60.9	104.7	11	104.7	104.7	107.1	11	107.1	107.5	108.0	24
5/17	---	---	---	0	107.7	108.8	109.5	24	105.3	106.3	107.3	22	103.8	104.3	104.8	24	106.8	107.1	107.6	24
5/18	---	---	---	0	108.2	109.6	110.6	24	106.0	107.3	108.0	24	103.0	103.8	104.4	24	106.7	107.2	107.8	24
5/19	---	---	---	0	108.5	109.3	110.1	24	106.7	109.3	110.8	24	102.9	104.0	104.8	24	106.4	106.9	107.4	24

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>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>		
	Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High	
5/6	101.6	102.5	103.0	24	106.6	107.1	107.6	24	109.7	109.9	110.3	24	108.8	109.1	109.5	24	111.5	111.7	112.0	24
5/7	102.0	103.0	103.8	24	106.5	106.7	107.2	24	109.8	110.3	110.7	24	108.9	109.2	109.4	24	111.5	111.7	112.0	24
5/8	101.3	101.9	102.6	24	105.7	105.9	106.6	24	111.6	113.0	114.0	24	108.0	108.2	108.3	24	111.2	111.7	112.8	24
5/9	100.6	100.9	101.4	24	104.5	104.7	105.1	24	111.3	113.4	114.1	24	107.9	108.1	108.4	24	111.9	112.2	112.8	24
5/10	102.1	103.5	104.6	24	103.8	104.1	104.4	24	109.0	109.3	109.7	24	108.5	109.4	110.0	24	114.7	116.8	121.6	24
5/11	102.6	104.0	105.2	24	104.4	104.6	105.0	24	109.1	109.4	109.9	24	110.7	111.1	111.6	24	113.5	113.9	114.4	24
5/12	100.6	100.8	101.3	24	103.8	104.1	104.2	24	110.3	111.5	113.2	24	107.6	107.9	108.6	24	113.3	114.2	116.9	24
5/13	102.3	103.6	104.5	24	103.7	104.1	104.3	24	115.0	116.5	117.0	24	107.4	107.9	108.3	24	115.5	117.1	119.9	24
5/14	103.1	103.8	104.6	24	105.5	106.5	107.2	24	119.0	121.2	122.7	24	110.1	111.5	113.3	24	120.6	121.4	123.6	24
5/15	102.8	103.0	103.1	24	106.5	107.0	107.7	24	127.8	130.5	131.3	24	113.5	113.9	115.1	24	126.1	128.0	129.1	24
5/16	102.6	103.1	103.5	24	104.4	104.8	105.4	24	130.6	130.6	132.5	12	116.0	116.8	118.4	24	128.8	129.5	130.1	24
5/17	103.2	103.7	104.4	24	105.9	106.6	106.7	24	129.3	130.8	132.7	24	121.8	124.2	125.3	24	128.3	129.0	129.9	24
5/18	102.5	103.1	103.9	24	106.6	106.8	107.0	24	125.9	126.4	127.4	24	125.1	125.5	125.8	24	126.2	126.3	126.7	24
5/19	102.2	103.1	103.7	24	105.8	106.2	106.5	24	122.8	125.3	128.6	24	121.5	121.9	122.8	24	124.1	125.1	126.0	24

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>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>			<u>24 h</u>	<u>12 h</u>		
	Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High	
5/6	113.1	113.2	113.5	24	119.8	120.0	120.5	24	115.5	115.7	116.0	24	116.1	116.9	117.7	24	---	---	---	0
5/7	112.4	112.6	112.7	24	119.9	120.0	120.2	24	114.9	115.1	115.6	24	116.5	117.4	119.6	24	---	---	---	0
5/8	112.0	112.0	112.2	24	120.0	120.2	120.6	24	113.9	114.1	114.6	24	116.3	117.6	119.8	24	---	---	---	0
5/9	111.5	111.7	111.9	24	119.0	119.8	120.5	24	113.8	114.2	114.6	24	115.9	116.3	116.5	24	---	---	---	0
5/10	112.0	112.3	112.8	24	119.3	120.2	121.3	24	114.3	114.7	115.1	24	116.2	117.0	118.8	24	---	---	---	0
5/11	113.3	113.6	114.0	24	120.3	121.1	121.4	24	115.0	115.3	115.7	24	115.9	116.2	116.8	24	---	---	---	0
5/12	113.8	114.5	116.9	24	114.1	119.3	119.9	24	113.7	114.0	114.3	24	117.0	118.0	119.9	24	---	---	---	0
5/13	112.9	113.5	114.4	24	119.2	120.0	121.0	23	115.1	116.4	116.9	24	118.6	119.9	120.5	24	---	---	---	0
5/14	117.1	118.0	120.5	24	120.4	121.2	121.6	24	116.4	116.7	117.1	24	120.2	120.8	121.4	24	---	---	---	0
5/15	122.3	123.0	124.4	24	122.0	124.3	125.3	24	116.1	116.3	116.6	24	122.8	123.8	126.5	24	---	---	---	0
5/16	126.2	127.0	127.8	24	126.0	126.8	128.7	24	117.4	118.1	119.0	24	128.3	129.5	129.9	24	---	---	---	0
5/17	131.5	132.7	133.1	24	124.9	126.0	127.7	24	123.0	124.7	125.3	24	127.1	128.6	130.1	24	---	---	---	0
5/18	130.2	130.9	131.9	24	122.5	123.2	127.4	24	124.5	124.8	125.3	24	123.5	124.0	125.3	24	---	---	---	0
5/19	127.8	128.1	128.3	24	120.8	122.7	124.1	24	122.9	123.1	123.5	24	121.9	123.0	124.5	24	---	---	---	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
5/6	111.5	111.6	111.8	24	113.6	113.8	114.0	24	109.1	109.2	109.4	24	116.8	118.0	118.2	24	110.0	111.0	111.4	24
5/7	110.4	110.7	111.3	24	113.5	113.7	113.9	24	109.1	109.6	109.9	24	115.7	117.6	118.7	24	111.3	111.4	111.6	24
5/8	110.2	110.3	110.7	24	113.5	113.8	114.1	24	109.4	109.6	109.7	24	114.3	114.9	115.9	24	110.1	110.8	111.7	24
5/9	110.2	110.9	111.7	24	116.0	117.3	117.9	24	108.1	108.3	108.8	24	115.6	116.8	117.8	24	108.5	108.8	109.0	24
5/10	110.9	111.3	111.5	24	116.1	116.9	117.3	24	107.9	108.4	108.7	24	117.8	118.4	118.8	24	109.7	111.5	112.7	24
5/11	111.8	112.0	112.6	24	115.4	116.1	117.2	24	108.5	108.8	109.4	24	115.9	118.1	118.8	24	111.3	111.8	112.1	24
5/12	110.9	111.2	111.7	24	117.4	118.1	119.6	24	107.7	108.0	108.4	24	115.8	116.8	117.5	24	109.1	109.7	110.1	24
5/13	112.0	113.8	115.1	24	119.6	120.2	120.4	24	110.3	111.8	112.7	24	117.8	118.6	118.9	24	110.9	112.1	113.0	24
5/14	115.5	116.1	116.9	24	120.6	120.8	121.1	24	113.4	113.7	114.2	24	118.1	118.8	119.1	24	112.7	113.1	113.5	24
5/15	114.5	115.1	115.3	24	122.7	123.9	125.2	24	112.9	113.1	113.3	24	118.9	120.0	120.3	24	111.5	111.9	112.3	24
5/16	110.7	111.1	112.0	24	124.6	125.9	126.5	24	111.8	112.0	112.4	24	120.8	121.8	122.8	24	111.6	112.2	112.6	24
5/17	114.9	117.4	119.0	24	125.4	126.0	126.4	24	111.5	111.8	111.9	24	122.1	122.5	122.9	24	114.2	114.9	115.6	24
5/18	117.9	118.3	118.8	24	124.1	124.3	124.5	24	112.3	113.0	114.3	24	123.9	124.2	124.4	24	113.9	114.9	115.5	24
5/19	116.0	116.5	116.8	24	124.2	124.5	125.3	24	117.5	119.5	120.3	24	125.2	125.7	127.1	24	116.6	118.3	118.8	24

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
5/6	116.3	116.9	117.6	24	113.6	113.8	114.1	24	115.4	116.0	116.4	24	114.5	114.8	115.0	24	117.9	118.3	118.6	24
5/7	117.0	117.5	118.1	24	113.8	114.2	114.4	24	115.7	116.2	116.5	24	113.5	113.8	114.1	24	117.8	118.0	118.6	24
5/8	116.2	116.4	116.8	24	113.8	114.3	114.5	24	115.7	116.2	116.4	24	114.0	114.8	115.5	24	118.0	118.3	118.6	24
5/9	115.4	115.8	116.2	24	111.5	111.8	112.5	24	113.6	114.0	114.7	24	112.7	113.0	113.8	24	118.8	119.3	119.7	24
5/10	115.7	116.5	117.6	24	111.4	112.1	112.4	24	113.5	113.8	114.2	24	112.7	113.8	114.6	24	119.1	120.1	120.5	24
5/11	117.0	117.7	118.7	24	112.7	113.1	113.5	24	114.2	114.6	114.8	24	112.6	112.9	113.4	24	118.7	119.2	120.1	24
5/12	115.8	116.6	117.0	24	112.2	112.6	112.9	24	114.3	114.7	115.3	24	112.5	113.8	114.6	24	118.7	119.5	119.9	24
5/13	117.4	117.9	118.3	24	114.9	116.1	117.5	24	115.6	116.6	118.2	24	113.5	114.5	114.9	24	119.8	120.8	124.5	24
5/14	118.1	118.7	119.4	24	117.1	118.0	118.4	24	118.4	118.9	119.2	24	116.4	117.7	118.1	24	123.2	124.4	124.7	24
5/15	116.8	117.9	119.7	24	114.3	114.7	115.3	24	117.5	118.1	118.9	24	115.4	115.9	116.6	24	123.7	125.0	125.6	24
5/16	116.9	117.7	119.4	24	113.5	114.7	115.3	24	120.2	120.8	122.7	24	117.3	119.0	120.1	24	124.1	124.7	125.3	24
5/17	119.1	119.9	120.7	24	117.3	118.6	119.3	24	123.9	124.5	124.9	24	121.0	122.4	122.7	24	125.6	125.6	125.7	11
5/18	118.9	119.4	119.9	24	118.4	118.9	119.2	24	124.6	124.8	124.9	24	122.9	123.6	124.2	24	125.8	125.8	126.2	8
5/19	120.3	121.0	121.6	24	117.1	117.3	117.9	24	124.1	124.5	125.2	24	122.5	123.3	123.6	24	---	---	---	0

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											
	05/12/11	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/19/11	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Little Goose Dam											
	05/09/11	Chinook + Steelhead	99	0	0	0.00%	0.00%	0	0	0	0
	05/16/11	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Lower Monumental Dam											
	05/11/11	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
McNary Dam											
	05/08/11	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/12/11	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/16/11	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
Bonneville Dam											
	05/07/11	Chinook + Steelhead	79	0	0	0.00%	0.00%	0	0	0	0
	05/10/11	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
	05/14/11	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
	05/17/11	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
Rock Island Dam											
	05/10/11	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/12/11	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
	05/17/11	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/19/11	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0

Two-Week Summary of Passage Indices

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)	
05/06/2011	*	199	252	237	201	95,345	80,811	---	577	---	52,817	31,551
05/07/2011	*	732	146	373	709	122,460	135,012	62,653	481	258,725	60,134	36,416
05/08/2011	*	439	---	353	610	182,136	144,432	60,371	703	---	56,081	32,481
05/09/2011	*	---	---	392	1,833	165,093	152,992	60,079	953	221,767	72,067	38,714
05/10/2011	*	---	43	178	1,667	217,928	132,369	65,994	623	---	104,703	49,483
05/11/2011	*	---	---	108	1,144	215,353	140,196	79,163	947	145,846	84,071	80,658
05/12/2011	*	---	---	185	1,050	249,377	146,323	85,744	932	---	70,391	64,700
05/13/2011	*	---	---	298	---	146,247	225,379	87,719	752	95,034	63,892	93,442
05/14/2011	*	---	---	117	---	168,831	239,839	100,844	1,118	---	82,098	109,058
05/15/2011	*	---	---	162	---	137,049	120,477	161,218	1,224	96,695	98,019	74,674
05/16/2011	*	---	---	---	---	123,530	218,528	214,898	1,044	---	155,052	47,933
05/17/2011	*	---	---	---	---	118,908	141,253	---	941	112,347	161,808	39,900
05/18/2011	*	---	---	---	---	70,193	178,540	---	585	---	120,146	26,760
05/19/2011	*	---	---	24	---	31,469	---	52,422	727	103,868	91,125	26,300
05/20/2011	*	---	---	---	---	---	---	---	---	---	---	---
Total:		1,370	441	2,427	7,214	2,043,919	2,056,151	1,031,105	11,607	1,034,282	1,272,404	752,070
# Days:		3	3	11	7	14	13	11	14	7	14	14
Average:		457	147	221	1,031	145,994	158,165	93,737	829	147,755	90,886	53,719
YTD		31,090	29,875	12,133	18,836	3,605,940	2,203,829	1,052,194	19,062	1,578,230	1,723,189	1,227,158

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)	
05/06/2011	*	0	1	0	2	260	286	---	7	---	0	270,166
05/07/2011	*	0	9	0	4	0	0	0	4	339	0	117,530
05/08/2011	*	0	---	0	5	0	0	0	3	---	0	45,172
05/09/2011	*	---	---	0	5	0	0	0	10	2,038	0	30,702
05/10/2011	*	---	5	0	21	0	0	0	15	---	52	17,271
05/11/2011	*	---	---	0	21	0	0	0	6	1,759	0	11,263
05/12/2011	*	---	---	0	27	0	286	0	11	---	0	9,191
05/13/2011	*	---	---	0	---	266	0	0	5	2,213	57	4,467
05/14/2011	*	---	---	0	---	1,126	0	378	23	---	57	3,821
05/15/2011	*	---	---	0	---	2,284	0	0	22	9,043	498	1,725
05/16/2011	*	---	---	---	---	3,645	1,008	760	187	---	3,854	335
05/17/2011	*	---	---	---	---	13,512	567	---	290	16,405	0	1,544
05/18/2011	*	---	---	---	---	18,664	2,967	---	140	---	1,619	325
05/19/2011	*	---	---	0	---	12,044	---	224	101	26,617	2,120	2,840
05/20/2011	*	---	---	---	---	---	---	---	---	---	---	---
Total:		0	15	0	85	51,801	5,114	1,362	824	58,414	8,257	516,352
# Days:		3	3	11	7	14	13	11	14	7	14	14
Average:		0	5	0	12	3,700	393	124	59	8,345	590	36,882
YTD		9	27	11	163	54,640	5,124	1,362	1,340	66,688	11,175	2,634,604

Two-Week Summary of Passage Indices

		COMBINED COHO										
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)	
05/06/2011	*	0	0	0	7	1,562	2,289	---	46	---	1,914	4,732
05/07/2011	*	0	0	0	6	2,071	3,726	0	57	8,471	5,011	4,140
05/08/2011	*	0	---	0	8	2,887	3,438	222	65	---	5,024	5,409
05/09/2011	*	---	---	0	12	2,183	2,577	210	164	2,377	7,346	6,482
05/10/2011	*	---	0	0	0	2,784	4,009	617	101	---	6,101	9,509
05/11/2011		---	---	0	19	1,508	2,012	0	229	4,231	9,259	10,575
05/12/2011	*	---	---	0	19	6,516	2,863	826	246	---	5,940	17,120
05/13/2011		---	---	0	---	2,392	1,800	197	412	6,199	9,349	18,986
05/14/2011	*	---	---	0	---	4,784	2,344	188	742	---	11,367	30,285
05/15/2011	*	---	---	0	---	3,589	1,979	409	705	6,718	15,257	29,950
05/16/2011	*	---	---	---	---	1,620	6,048	1,771	1,649	---	13,896	16,760
05/17/2011	*	---	---	---	---	4,054	7,937	---	1,503	6,827	16,859	21,725
05/18/2011	*	---	---	---	---	2,840	8,900	---	1,208	---	21,281	15,762
05/19/2011		---	---	0	---	1,943	---	896	875	8,469	15,066	20,417
05/20/2011		---	---	---	---	---	---	---	---	---	---	---
Total:		0	0	0	71	40,733	49,922	5,336	8,002	43,292	143,670	211,852
# Days:		3	3	11	7	14	13	11	14	7	14	14
Average:		0	0	0	10	2,910	3,840	485	572	6,185	10,262	15,132
YTD		0	0	0	218	48,976	50,494	5,336	8,413	74,248	170,970	333,926

		COMBINED STEELHEAD										
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)	
05/06/2011	*	138	1,789	16	59	90,108	22,914	---	119	---	25,107	3,550
05/07/2011	*	101	3,080	62	113	59,806	39,843	24,364	145	42,713	21,581	5,379
05/08/2011	*	23	---	79	98	76,634	48,138	19,158	222	---	22,320	4,679
05/09/2011	*	---	---	167	431	75,588	75,928	27,729	355	26,868	23,667	10,678
05/10/2011	*	---	771	132	353	87,829	82,756	22,409	279	---	39,535	6,016
05/11/2011		---	---	52	191	150,521	120,047	23,057	487	20,409	38,835	10,102
05/12/2011	*	---	---	86	261	214,289	87,605	30,788	401	---	30,766	5,047
05/13/2011		---	---	219	---	180,846	109,235	38,833	571	16,871	27,681	11,542
05/14/2011	*	---	---	153	---	161,796	100,164	40,716	941	---	33,616	8,081
05/15/2011	*	---	---	172	---	110,944	68,500	48,958	1,110	17,324	40,622	9,658
05/16/2011	*	---	---	---	---	150,666	108,485	107,831	1,735	---	66,705	4,693
05/17/2011	*	---	---	---	---	133,321	146,282	---	1,280	21,532	130,341	6,135
05/18/2011	*	---	---	---	---	137,141	211,619	---	706	---	125,303	7,225
05/19/2011		---	---	43	---	78,479	---	103,721	539	42,345	84,140	6,694
05/20/2011		---	---	---	---	---	---	---	---	---	---	---
Total:		262	5,640	1,181	1,506	1,707,968	1,221,516	487,564	8,890	188,062	710,219	99,479
# Days:		3	3	11	7	14	13	11	14	7	14	14
Average:		87	1,880	107	215	121,998	93,963	44,324	635	26,866	50,730	7,106
YTD		1,080	11,656	3,851	2,934	3,458,623	1,551,026	498,059	9,713	499,279	1,349,910	170,660

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)	
05/06/2011	*	0	0	0	0	521	2,003	---	205	---	2,756	395
05/07/2011	*	0	0	0	0	1,812	1,435	232	219	23,731	2,539	2,068
05/08/2011	*	0	---	0	0	1,575	1,146	1,113	238	---	2,950	1,223
05/09/2011	*	---	---	0	0	1,092	1,721	1,471	202	25,483	4,408	953
05/10/2011	*	---	0	0	0	759	3	0	231	---	8,012	2,328
05/11/2011		---	---	0	0	503	1,006	633	274	18,307	4,366	5,896
05/12/2011	*	---	---	0	0	501	2,015	206	231	---	5,355	3,785
05/13/2011		---	---	0	---	266	1,206	592	326	15,060	6,786	7,259
05/14/2011	*	---	---	0	---	844	1,005	943	451	---	7,083	4,884
05/15/2011	*	---	---	0	---	979	430	821	214	18,864	12,373	7,071
05/16/2011	*	---	---	---	---	405	18	1,012	451	---	13,432	3,352
05/17/2011	*	---	---	---	---	1,351	1,134	---	740	19,129	14,298	4,129
05/18/2011	*	---	---	---	---	1,217	504	---	1,039	---	16,584	2,888
05/19/2011		---	---	0	---	1,166	---	224	612	26,024	13,021	2,836
05/20/2011		---	---	---	---	---	---	---	---	---	---	---
Total:		0	0	0	0	12,991	13,626	7,247	5,433	146,598	113,963	49,067
# Days:		3	3	11	7	14	13	11	14	7	14	14
Average:		0	0	0	0	928	1,048	659	388	20,943	8,140	3,505
YTD		0	0	0	0	53,406	20,981	7,821	7,232	190,556	133,466	63,834

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)	
05/06/2011	*	0	0	0	0	200	---	1	---	250	0	
05/07/2011	*	0	0	0	0	0	0	1	400	80	0	
05/08/2011	*	0	---	0	0	0	0	0	---	94	40	
05/09/2011	*	---	---	0	0	0	0	0	200	475	67	
05/10/2011	*	---	0	0	0	0	0	0	---	34	67	
05/11/2011		---	---	0	0	0	0	0	200	63	0	
05/12/2011	*	---	---	0	0	0	0	0	---	188	0	
05/13/2011		---	---	0	---	200	0	0	400	258	0	
05/14/2011	*	---	---	0	---	200	0	0	---	100	0	
05/15/2011	*	---	---	0	---	600	0	0	100	86	20	
05/16/2011	*	---	---	---	---	0	200	0	14	---	0	
05/17/2011	*	---	---	---	---	600	1,000	---	140	200	3,000	0
05/18/2011	*	---	---	---	---	200	3,600	---	60	---	4,214	0
05/19/2011		---	---	0	---	0	---	298	10	5,700	1,228	350
05/20/2011		---	---	---	---	---	---	---	---	---	---	---
Total:		0	0	0	0	1,800	5,000	298	226	7,200	10,070	544
# Days:		3	3	11	7	14	13	11	14	7	14	14
Average:		0	0	0	0	129	385	27	16	1,029	719	39
YTD		0	0	0	0	5,327	7,691	298	265	29,410	132,933	18,945

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, and pacific lamprey macrophthalmia.

† 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/Washington Dept. of Fish and Wildlife.

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.

Two Week Transportation Summary

Source: Fish Passage Center

Updated:

5/20/11 9:48 AM

		05/06/11	TO	05/20/11			
		Species					
Site	Data	CH0	CH1	CO	ST	SO	Grand Total
LGR	Sum of NumberCollected	25,800	1,448,896	27,600	1,150,104	8,600	2,661,000
	Sum of NumberBarged	9,988	1,266,249	23,775	948,198	7,087	2,255,297
	Sum of NumberBypassed	15,801	181,254	3,816	201,761	1,305	403,937
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	1	47	0	8	2	58
	Sum of FacilityMorts	10	1,214	9	114	206	1,553
	Sum of ResearchMorts	0	132	0	23	0	155
	Sum of TotalProjectMorts	11	1,393	9	145	208	1,766
LGS	Sum of NumberCollected	2,200	1,199,786	26,800	668,562	8,645	1,905,993
	Sum of NumberBarged	2,195	1,199,056	26,800	668,462	8,578	1,905,091
	Sum of NumberBypassed	5	0	0	0	0	5
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	24	0	0	2	26
	Sum of FacilityMorts	0	706	0	100	65	871
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	0	730	0	100	67	897
LMN	Sum of NumberCollected	896	714,685	3,580	333,038	5,076	1,057,275
	Sum of NumberBarged	448	512,940	2,384	242,268	3,758	761,798
	Sum of NumberBypassed	448	200,735	1,193	90,459	1,176	294,011
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	1	0	2	0	3
	Sum of FacilityMorts	0	1,005	5	309	142	1,461
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	0	1,006	5	311	142	1,464
MCN	Sum of NumberCollected	20,506	513,937	19,009	87,288	67,744	708,484
	Sum of NumberBarged	0	0	0	0	0	0
	Sum of NumberBypassed	20,498	513,402	19,000	87,248	67,696	707,844
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	2	32	0	3	4	41
	Sum of FacilityMorts	6	503	9	37	44	599
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	8	535	9	40	48	640
Total Sum of NumberCollected		49,402	3,877,304	76,989	2,238,992	90,065	6,332,752
Total Sum of NumberBarged		12,631	2,978,245	52,959	1,858,928	19,423	4,922,186
Total Sum of NumberBypassed		36,752	895,391	24,009	379,468	70,177	1,405,797
Total Sum of Numbertrucked		0	0	0	0	0	0
Total Sum of SampleMorts		3	104	0	13	8	128
Total Sum of FacilityMorts		16	3,428	23	560	457	4,484
Total Sum of ResearchMorts		0	132	0	23	0	155
Total Sum of TotalProjectMorts		19	3,664	23	596	465	4,767

YTD Transportation Summary

Source: Fish Passage Center

Updated:

5/20/11 9:49 AM

TO: 05/20/11

		Species					
Site	Data	CH0	CH1	CO	SO	ST	Grand Total
LGR	Sum of NumberCollected	27,675	2,579,303	33,559	37,589	2,308,601	4,986,727
	Sum of NumberBarged	10,245	1,622,888	26,837	12,609	1,173,427	2,846,006
	Sum of NumberBypassed	17,413	954,468	6,712	24,556	1,134,934	2,138,083
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	7	95	1	61	32	196
	Sum of FacilityMorts	10	1,650	9	363	167	2,199
	Sum of ResearchMorts	0	202	0	0	41	243
	Sum of TotalProjectMorts	17	1,947	10	424	240	2,638
LGS	Sum of NumberCollected	2,207	1,302,986	27,200	13,892	907,205	2,253,490
	Sum of NumberBarged	2,195	1,199,056	26,800	8,578	668,462	1,905,091
	Sum of NumberBypassed	5	103,168	400	5,227	238,633	347,433
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	29	0	5	4	38
	Sum of FacilityMorts	7	733	0	82	106	928
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	7	762	0	87	110	966
LMN	Sum of NumberCollected	896	729,007	3,580	5,466	340,244	1,079,193
	Sum of NumberBarged	448	512,940	2,384	3,758	242,268	761,798
	Sum of NumberBypassed	448	215,056	1,193	1,566	97,664	315,927
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	2	0	0	3	5
	Sum of FacilityMorts	0	1,006	5	142	309	1,462
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	0	1,008	5	142	312	1,467
MCN	Sum of NumberCollected	25,150	828,144	36,556	93,282	262,007	1,245,139
	Sum of NumberBarged	0	0	0	0	0	0
	Sum of NumberBypassed	25,130	827,310	36,539	93,202	261,911	1,244,092
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	10	74	1	5	9	99
	Sum of FacilityMorts	10	760	16	75	87	948
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	20	834	17	80	96	1,047
Total Sum of NumberCollected		55,928	5,439,440	100,895	150,229	3,818,057	9,564,549
Total Sum of NumberBarged		12,888	3,334,884	56,021	24,945	2,084,157	5,512,895
Total Sum of NumberBypassed		42,996	2,100,002	44,844	124,551	1,733,142	4,045,535
Total Sum of NumberTrucked		0	0	0	0	0	0
Total Sum of SampleMorts		17	200	2	71	48	338
Total Sum of FacilityMorts		27	4,149	30	662	669	5,537
Total Sum of ResearchMorts		0	202	0	0	41	243
Total Sum of TotalProjectMorts		44	4,551	32	733	758	6,118

Cumulative Adult Passage at Mainstem Dams Through: 05/19

DAM	EndDate	Spring Chinook						Summer Chinook						Fall Chinook					
		2011		2010		10-Yr Avg.		2011		2010		10-Yr Avg.		2011		2010		10-Yr Avg.	
		Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	05/19	156102	35949	225937	10329	157093	13144	0	0	0	0	0	0	0	0	0	0	0	0
TDA	05/19	113100	24946	165378	8724	111155	9588	0	0	0	0	0	0	0	0	0	0	0	0
JDA	05/19	91308	22195	152350	8693	92036	8036	0	0	0	0	0	0	0	0	0	0	0	0
MCN	05/19	81217	14081	121447	5232	79966	5801	0	0	0	0	0	0	0	0	0	0	0	0
IHR	05/19	55076	5989	79452	3423	52091	3324	0	0	0	0	0	0	0	0	0	0	0	0
LMN	05/19	47006	3984	73504	2606	48405	2190	0	0	0	0	0	0	0	0	0	0	0	0
LGS	05/19	31383	3053	64570	2116	42479	1991	0	0	0	0	0	0	0	0	0	0	0	0
LGR	05/19	23691	1214	56388	1705	40101	1959	0	0	0	0	0	0	0	0	0	0	0	0
PRD	05/18	7499	378	22633	210	14764	200	0	0	0	0	0	0	0	0	0	0	0	0
RIS	05/18	3818	165	20077	340	10489	263	0	0	0	0	0	0	0	0	0	0	0	0
RRH	05/18	1147	37	5798	65	3476	37	0	0	0	0	0	0	0	0	0	0	0	0
WEL	05/18	338	49	4196	160	1811	25	0	0	0	0	0	0	0	0	0	0	0	0
WFA	05/18	13352	265	39466	816	-	-	-	-	-	-	-	-	0	0	0	0	-	-

DAM	Coho						Sockeye			Steelhead			
	2011		2010		10-Yr Avg.		2011	2010	10-Yr Avg.	2011	2010	10-Yr Avg.	Wild 2011
	Adult	Jack	Adult	Jack	Adult	Jack							
BON	0	0	0	0	0	0	7	4	0	3160	6514	3638	1134
TDA	0	0	0	0	0	0	0	3	0	1356	2264	1341	738
JDA	0	0	0	0	0	0	0	0	0	2724	2485	2703	1732
MCN	0	0	0	0	0	0	0	0	0	2572	2213	2085	1576
IHR	0	0	0	0	0	0	0	0	0	3040	3006	2463	1200
LMN	0	0	0	0	0	0	0	0	0	3809	3969	2872	2159
LGS	0	0	0	0	0	0	0	0	0	6135	3058	2882	3279
LGR	0	0	0	0	0	0	0	0	0	12202	10382	9298	5693
PRD	0	0	0	0	0	0	0	0	0	38	81	21	0
RIS	0	0	0	0	0	0	0	0	1	60	109	64	42
RRH	0	0	0	0	0	0	0	0	0	482	328	217	430
WEL	0	0	0	0	0	0	0	0	0	95	61	40	73
WFA	0	0	0	0	-	-	-	-	-	11200	18321	-	-

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.

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BON counts from January 1, 2009 to March 15, 2010 (historical counts begin March 15):

Year	Chinook Adult	Chinook Jack	Steelhead	Wild Steelhead
2011	49	1	1,419	600
2010	39	0	2,318	657