



Fish Passage Center

Weekly Report #11 - 09

May 13, 2011

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Summary of Events:

Water Supply: Precipitation throughout the Columbia Basin has varied between 73% and 188% of average at individual sub-basins over May. Precipitation above The Dalles has been 117% of average over May. Over the 2011 water year, precipitation has ranged between 102% and 132% 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 1-9, 2011		Water Year 2011 October 1, 2010 to May 9, 2011	
	Observed (inches)	% Average	Observed (inches)	% Average
Columbia Above Coulee	0.58	89	19.53	118
Snake River Above Ice Harbor	0.84	153	15.70	128
Columbia Above The Dalles	0.67	117	19.96	121
Kootenai	0.50	78	19.61	115
Clark Fork	0.60	101	13.36	123
Flathead	0.52	73	19.11	132
Pend Oreille/ Spokane	0.79	104	28.19	121
Central Washington	0.17	75	6.90	102
Snake River Plain	0.81	188	9.86	130
Salmon/Boise/ Payette	0.61	117	16.79	113
Clearwater	1.21	137	28.35	128
SW Washington Cascades/Cowlitz	1.18	107	64.98	108
Willamette Valley	0.86	84	55.32	108

Snowpack in the Columbia River for basins above the Snake River confluence is 174% of average, for Snake River Basins snowpack is 175% of average, and for lower Columbia Basins between McNary and Bonneville Dam snowpack is 198% 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 96.5 Kcfs over the last week and 101.9 Kcfs over the spring season.

Based on the April Final Water Supply Forecast, the Spring Biological Opinion Flow Objectives will be 260 Kcfs at McNary Dam (began April 10th) and 135 Kcfs at Priest Rapids Dam (began April 10th). Flows at McNary Dam have averaged 263.3 Kcfs over the last week and 261.7 Kcfs over the spring season. Flows at Priest Rapids Dam have averaged 164.0 Kcfs over the last week and 154.8 Kcfs over the spring season.

Grand Coulee Reservoir is at 1217.9 feet (5-12-11) and has refilled 0.2 feet over the last week. Outflows at Grand Coulee have ranged between 118.4 and 168.4 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2337.8 feet (5-12-11) and has drafted 4.0 feet last week. Outflows at Libby Dam have been 20.0-25.0 Kcfs last week.

Hungry Horse is currently at an elevation of 3472.8 feet (5-12-11) and has refilled 1.0 foot last week. Outflows at Hungry Horse have been 8.0 Kcfs last week.

Dworshak is currently at an elevation of 1466.7 feet (5-12-11) and has refilled 14.8 feet last week. Outflows from Dworshak have ranged between 2.5-8.1 Kcfs last week.

The Brownlee Reservoir was at an elevation of 2025.6 feet on May 12th, 2011 refilling 9.5 feet last week. Over the last week, outflows at Brownlee have ranged between 35.6-42.5 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.

The hydraulic capacity at Lower Granite Dam remains limited due to an outage of one unit. Earlier in the spill period, two units were out at Lower Granite causing forced spill at Lower Granite Dam that was in excess of the 20 Kcfs specified in the Court Order. Currently, there is still one unit out at Lower Granite Dam, which means that spill may be in excess of the Court Ordered 20 Kcfs when total flows exceed approximately 105 Kcfs. Over the last week, daily average flows at Lower Granite Dam have ranged

from 86.0-104.8 Kcfs and spill has ranged from 20.0-24.4 Kcfs. The remaining out of service unit at Lower Granite is expected to be back in service in mid May. At Little Goose Dam, spill has met or exceeded the 30% level as specified in the Court Order over the past week. On the afternoon of May 10th, spill at Little Goose ranged from 83-93% of instantaneous flow for about 5 hours, due to transformer repairs. Spill of 30% was restored by about 17:00 hours. During this time, hourly tailrace TDG levels reached as high as 121.6% but the 12-hour average for the day was 116.8%; below the 120% TDG waiver.

On May 6th, the RIOG issued a summary of decision for the Lower Monumental Dam SOR to change the spill pattern at flows above 100 Kcfs (SOR 2011-2). There was not unanimous support for this SOR among the members of the RIOG and, thus, SOR 2011-2 will not be implemented in 2011. The spill cap during this week has been 30 Kcfs, except for May 12th when the spill cap was reduced to 29 Kcfs. Daily average spill at Lower Monumental Dam this week has ranged from 27.1-29.9 Kcfs. With the implementation of transportation this week, spill levels may decrease substantially for a few hours each day as the barges are loaded. On May 6-9 and May 11th, the Ice Harbor forebay monitor exceeded the 115% TDG. In addition, the Lower Monumental tailrace monitor exceeded the 120% waiver on May 11th.

Beginning April 28th, the Court Order spill operations at Ice Harbor call for an alternating schedule of 45 Kcfs spill during the day and gas cap spill at night versus 30% if instantaneous flow. These operations will operate on 2-day alternating blocks and will likely last until mid-July. Spill levels have generally met or exceeded the Court Order this week but the provision of spill to the gas cap continues to be limited, at times, by the operation of one turbine unit during nighttime hours.

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 at the Court Ordered level of 40%; however, at times has been in excess of the Court Order as a result of spill in excess of hydraulic capacity due to unit outages. The planned test at John Day Dam started on the evening of April 27th. Under this test, spill at John Day Dam will alternate between 30% and 40% of instantaneous flow, roughly every two days. Spill levels at John Day have generally met the Court Order this week. However, due to a spill cap of 130 Kcfs, there were a few hours on May 10th and May 11th that 40% spill could not be met. During this time, TDG levels were well below the forebay and tailrace waivers. At The Dalles Dam, spill has generally met the 40% objective. However, due to a spill cap of 125 Kcfs, there were a few hours on May 10th and May 11th that 40% spill could not be met. During this time, TDG levels were well below the forebay and tailrace waivers. Finally, at Bonneville Dam, spill met the 100 Kcfs in the Court Order.

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

Gas bubble trauma samples were taken this past week at Lower Granite, Little Goose, Lower Monumental, McNary, Rock Island and Bonneville dams. Over the past week, one fish was observed with Rank 1 signs of GBT at Bonneville Dam and one fish with Rank 1 signs of GBT was observed at Rock Island Dam. These GBT observations represented 1% of the sample at these projects. The action criteria for GBT with Rank 1 signs of GBT is 15% of the sample.

Smolt Monitoring: Collection for transportation began May 1 at Lower Granite Dam. Yearling Chinook smolt passage has continued to increase at Lower Granite Dam and remains higher than steelhead which is atypical for this time of year. 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 (likely kokanee) in the samples at Snake River sites. At the SMP traps large numbers of smolts have been collected over the past week as tributary flows dropped back from early peak flows.

At 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, began sampling March 7. Over the past several days of sampling the numbers of yearling Chinook has remained relatively high. Typically yearling Chinook numbers gradually decline beginning about April 20. This past week's collection of Chinook was above historic average indicating late migrants are still passing. Steelhead collections increased with 594 fish sampled in the past week. Historically steelhead collections are above Chinook at this point in the season with late steelhead hatchery releases passing the trap at this point.

The Imnaha River Trap, operated by the Nez Perce Tribe, provides data to the SMP, on their fish collection. The trap has been operating since mid-February. Steelhead collection began to increase over 200 fish per day in the past week while yearling Chinook collections have dropped to fewer than 200 per day. Historically, steelhead collections begin to predominate by April 15, so this year's switch from Chinook to steelhead predominating in the sample is much later. But true to historic patterns yearling Chinook collections continued to decrease over the past week and steelhead collections increased with over 5600 steelhead collected at the trap over the past week.

At the Lewiston Trap, operated by IDFG, located at River km 225 on the Snake River, just above the confluence with the Clearwater River, collections of yearling Chinook have remained high over the past three weeks while steelhead collections have only begun to increase again this past week. Steelhead collections usually begin to increase above 200 fish per day by May 1. Over the past week steelhead collections averaged just over that mark at 215 per day. The total collection of 7,200 yearling Chinook in the past week was again well above historic average.

The collections of yearling Chinook have stayed high as flows in the Snake River have remained high. The Lewiston trap typically collects fish more effectively at higher flows and flows at the USGS gage at Anatone have been between 60 and 80 Kcfs over the past week which was 20% to 50% above historic median.

At Lower Granite Dam yearling Chinook have predominated in the sample in the past week. This week the yearling Chinook average daily passage index was 178,000 per day while steelhead averaged 108,000. Sockeye or rather kokanee in the sample are likely fish washing out from Dworshak Reservoir. Collection for full transportation began on May 1 at Lower Granite Dam.

At Little Goose Dam collection for transportation began on May 5 with the first full sample of the season available on May 6. Lower Monumental Dam collected fish for transportation beginning May 8, with the first barge load transported on May 9. There was a mortality event at Little Goose facility on May 11 when 70 yearling Chinook were washed out of a raceway when a closed slide gate caused water to over top the weir.

Sampling at McNary Dam is every other day in the spring. Normal sampling began on April 13. Yearling Chinook predominated in passage at the site this past week, with the average passage index at 209,000 compared to 30,000 for steelhead and 23,000 for sockeye. Small numbers of coho, subyearling Chinook and lamprey were also passing the project.

At John Day Dam sampling has been ongoing. 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 71,000 per day while steelhead averaged about 29,000 fish per day. Lamprey collections have declined over the past week. The lamprey collection averaged about 170 per day this week compared to over 1,100 per day two weeks ago. The site has been monitoring condition of lamprey as part of a pilot study to ascertain the relative condition of these fish using similar external measures of fish conditions that are being used to describe salmon smolts.

At Bonneville Dam the largest collections over the past week have been hatchery subyearling Chinook. Spring Creek NFH released 4.6 million fish on May 4 at about 10 am and the fish arrived in the sample that evening --with the index of 267,000 subyearling on May 5 and 270,000 on May 6 reflecting

the peak days of passage for those fish. Yearling Chinook predominated in the sample over the past four days. Yearling Chinook indices have continued to go up with the average index this week at 48,000 compared to 22,000 per day last week.

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. A release of approximately 500,000 subyearling fall Chinook to Lapwai Creek was scheduled to begin on or around May 10th. Of these subyearling Chinook, about 200,000 are unclipped and unmarked. Approximately 190,000 sockeye smolts were scheduled for release into the Salmon River Basin this week. Of these, about 72% were scheduled to be released into Redfish Lake Creek and 27% were scheduled to be released directly into the Salmon River. The majority (72%) of these sockeye smolts are adipose clipped and 100% are tagged with coded-wire tags. The only other release that was scheduled to begin this week is a release of about 168,000 summer steelhead juveniles to the Grande Ronde River, which was scheduled to begin on or around May 9th.

There are several releases of subyearling fall Chinook scheduled to begin over the next two weeks. In all, these releases are expected to total about 2.73 million subyearling fall Chinook. These releases are scheduled to take place throughout this river zone and include releases from acclimation ponds on the Snake River (33%) Couse Creek (16%), the Grande Ronde River (15%), and the Clearwater River (29%). A small proportion of these fall Chinook juveniles (7%) will be released from Lyons Ferry Hatchery, below Little Goose Dam. Of these 2.73 million fall Chinook juveniles, an estimated 56% will be released unmarked. Finally, about 50,000 spring Chinook parr are scheduled to be released into a tributary of the Selway River on or around May 20th. These spring Chinook parr are 100% unmarked and are not expected to out-migrate until spring of 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 484,000 subyearling summer Chinook were scheduled for release from Wells Hatchery this week. Releases of coho juveniles to the Yakima, Methow, Wenatchee, and Mid-Columbia rivers that began in past weeks continued this week. These

coho releases are part of a Yakama Tribal program to reintroduce coho to the Yakima, Methow, and Wenatchee rivers. In addition to those releases that began in past weeks, several releases of coho juveniles to the Methow and Wenatchee rivers began this week. In all, these new releases are expected to total about 386,000 coho juveniles. Of these, about 77% were scheduled for release into the Wenatchee River while the remaining 23% were scheduled for release into the Methow River.

Many releases that began several weeks ago are scheduled to end over the next two weeks. In addition to these releases, a few new releases are scheduled to begin over the next two weeks. Approximately 202,000 subyearling summer Chinook are scheduled for release into the Yakima River over the next two weeks. In addition, nearly 117,000 yearling spring Chinook are scheduled for release over the next two weeks. Of these, about 56% are scheduled for release into the White River while the remaining 44% are scheduled for release from the Lake Wenatchee Net Pens.

Lower Columbia Zone: The Lower Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to McNary Dam. There were only two releases of juvenile salmonids that were scheduled to begin this week in this zone. Both of these releases were scheduled to begin on or around May 10th. These two releases includes a release of just over 88,000 summer steelhead juveniles to the Klickitat River and a release of about 20,000 summer steelhead juveniles to the White Salmon River.

About 600,000 subyearling fall Chinook are scheduled for release into the Umatilla River beginning on or around May 23rd. This is the only one release of juvenile salmonids that is scheduled for this zone over the next two weeks.

Adult Passage:

Adult counts at Bonneville Dam have been updated through May 12th. Daily adult spring Chinook counts at Bonneville Dam ranged from 4,625 to 10,131 adult salmon per day. Between March 15th and May 12th, 136,793 adult spring Chinook have been counted at Bonneville Dam. In 2010, 207,964 adult spring Chinook were counted at Bonneville Dam for the same time period. The 2011 adult spring Chinook count at Bonneville Dam is 65.8% of the 2010 count and about 96.3% of the 10 year average of 142,074. The 2011 spring Chinook jack count of 18,529 is about 2.79 times greater than the 2010 count of 6,629 and 2.47 times

greater than the 10 year average count of 7,488. At Willamette Falls Dam 9,976 adult spring Chinook have been counted so far this year. At The Dalles Dam the 2011 adult spring Chinook is 95,109 and at McNary Dam 50,317 adult spring Chinook have been counted. The Dalles Dam 2011 adult spring Chinook count is only about 64.9% of the 2010 count of 146,461 and 98.2% of the 10 year average count of 96,834. The 2011 McNary Dam adult spring Chinook count is about 48.5% of the 2010 count and about 75.5% of the 10 year average count of 66,642. The 2011 McNary spring Chinook jack count of 3,248 is about 1.43 times greater than the 2010 count and 1.39 times greater than the 10 year average. The 2011 Lower Granite spring Chinook count of 12,240 is about 39.4% of the 2010 count and 40.9% of the 10 year average count.

The Bonneville Dam 2011 steelhead count of 2,843 is about 50% of the 2010 count of 5,679 and about 90.4% of the 10 year average count of 3,145. 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 22 to 51 adults per day last week. This year's Lower Granite steelhead count of 12,081 is about 1.17 times greater than the 2010 count of 10,283 and 1.31 times greater than the 10 year average of 9,245. The 2011 Lower Granite wild steelhead count as of May 12th was 5,595. At Willamette Falls Dam, the 2011 count for steelhead was 9,667, as of May 11th. This year's steelhead count is about 61.5% of the 2010 count of 15,721 at Willamette Falls Dam for the same date range.

Hatchery Releases Last Two Weeks

Hatchery Release Summary										
From:	4/29/2011		to		05/12/11					
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver	
Colville Tribe	Cassimer Bar Hatchery	ST	SU	2011	12,290	04-15-11	04-30-11	Omak Creek	Okanogan River	
Colville Tribe	Cassimer Bar Hatchery	ST	SU	2011	20,118	04-15-11	04-30-11	Omak Creek	Okanogan River	
Colville Tribe Total					32,408					
Idaho Dept. of Fish and Game	Oxbow-Idaho	CH0	FA	2011	200,000	05-05-11	05-05-11	Hells Canyon Dam	Snake River	
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					390,000					
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	CH0	FA	2011	650,000	05-01-11	05-01-11	Hells Canyon Dam	Snake River	
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU	2011	127,297	04-24-11	05-06-11	Wallowa Acclim Pond	Wallowa River	
					Big Canyon Acclim.Pd					
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU	2011	168,000	05-09-11	05-09-11	(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					1,189,639					
U.S. Fish and Wildlife Service	Hagerman NFH	ST	SU	2011	38,283	05-03-11	05-03-11	East Fk Salmon River	Salmon River (ID)	
U.S. Fish and Wildlife Service	Hagerman NFH	ST	SU	2011	216,297	05-02-11	05-02-11	Yankee Fk (Salmon R)	Salmon River (ID)	
U.S. Fish and Wildlife Service	Hagerman NFH	ST	SU	2011	226,125	05-02-11	05-02-11	Yankee Fk (Salmon R)	Salmon River (ID)	
U.S. Fish and Wildlife Service	Spring Creek NFH	CH0	FA	2011	4,632,619	05-04-11	05-04-11	Spring Creek Hatchery	L Col R (D/s McN Dam)	
U.S. Fish and Wildlife Service	Winthrop NFH	ST	SU	2011	43,200	04-20-11	04-30-11	Winthrop Hatchery	Methow River	
U.S. Fish and Wildlife Service	Winthrop NFH	ST	SU	2011	64,000	04-20-11	04-30-11	Winthrop Hatchery	Methow River	
U.S. Fish and Wildlife Service Total					5,220,524					
					E Fk Irrig Dist Sand					
Warm Springs Tribe	Oak Springs Hatchery	ST	SU	2011	25,000	04-30-11	04-30-11	Trap	Hood River	
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					50,000					

Hatchery Releases Last Two Weeks - (Continued)

Washington Dept. of Fish and Wildlife	Chelan Hatchery	ST	SU	2011	25,000	05-02-11	05-06-11	Wenatchee River	Wenatchee River
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	524,521	04-13-11	05-05-11	Similkameen Acclim Pd	Okanogan 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	Eastbank Hatchery	ST	SU	2011	50,000	05-02-11	05-06-11	Wenatchee River	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	Skamania Hatchery	ST	WI	2011	20,000	04-25-11	05-05-11	White Salmon River	White Salmon River
Washington Dept. of Fish and Wildlife	Tucannon Hatchery	CH1	SP	2011	113,000	04-01-11	04-30-11	Curl Lake Acclim Pond	Tucannon River
Washington Dept. of Fish and Wildlife	Tucannon Hatchery	CH1	SP	2011	118,000	04-01-11	04-30-11	Curl Lake Acclim Pond	Tucannon River
Washington Dept. of Fish and Wildlife	Turtle Rock Hatchery	ST	SU	2011	81,000	05-02-11	05-06-11	Chiwawa River	Wenatchee River
Washington Dept. of Fish and Wildlife	Turtle Rock Hatchery	ST	SU	2011	91,000	05-02-11	05-06-11	Nason Creek	Wenatchee River
Washington Dept. of Fish and Wildlife	Turtle Rock Hatchery	ST	SU	2011	92,000	05-02-11	05-06-11	Wenatchee River	Wenatchee River
Washington Dept. of Fish and Wildlife	Wells Hatchery	CH0	SU	2011	484,000	05-10-11	05-25-11	Wells Hatchery	Mid-Columbia River
Washington Dept. of Fish and Wildlife	Wells Hatchery	ST	SU	2011	120,000	04-20-11	05-15-11	Okanogan River	Okanogan River
Washington Dept. of Fish and Wildlife	Wells Hatchery	ST	SU	2011	320,000	04-15-11	05-15-11	Methow River	Methow River
Washington Dept. of Fish and Wildlife Total					3,860,821				
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	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2011	69,331	05-07-11	06-07-11	Butcher Creek Acclim. Pond	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2011	69,339	04-29-11	06-07-11	Beaver Creek Acclim Pond	Wenatchee River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2011	273,539	03-15-11	05-14-11	Jack Creek Acclim 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	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2011	88,942	04-20-11	06-01-11	Lost Creek Acclim 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	Eastbank Hatchery	ST	SU	2011	20,000	05-02-11	05-06-11	Rolfings Acclim Pond	Wenatchee River
Yakama Tribe	Klickitat Hatchery	CO	NO	2011	1,000,000	05-01-11	05-01-11	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	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2011	100,297	04-20-11	06-01-11	Lost Creek Acclim 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	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2011	29,279	04-29-11	06-07-11	Beaver Creek Acclim Pond	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2011	49,379	04-29-11	06-14-11	Winthrop Hatchery	Methow River
Yakama Tribe	Willard Hatchery	CO	UN	2011	60,901	05-07-11	06-07-11	Butcher Creek Acclim. Pond	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2011	89,403	05-08-11	06-02-11	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					3,369,108				
Grand Total					14,612,500				

Hatchery Releases Next Two Weeks

Hatchery Release Summary									
From:	5/13/2011		to		5/26/2011				
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
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					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 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	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	Clearwater River M F
Nez Perce Tribe Total					2,250,000				
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					1,244,342				
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	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	Lyons Ferry Hatchery	ST	SU	2011	54,000	04-15-11	05-15-11	Baileysburg Bridge	Touchet 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	05-10-11	05-25-11	Wells Hatchery	Mid-Columbia River
Washington Dept. of Fish and Wildlife	Wells Hatchery	ST	SU	2011	120,000	04-20-11	05-15-11	Okanogan River	Okanogan River
Washington Dept. of Fish and Wildlife	Wells Hatchery	ST	SU	2011	320,000	04-15-11	05-15-11	Methow River	Methow River
Washington Dept. of Fish and Wildlife Total					2,293,197				
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 Pond	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2011	69,339	04-29-11	06-07-11	Jack Creek Acclim Pond	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 Pond	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 Pond	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 Pond	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. Pond	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					8,593,647				

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
04/29/2011	125.8	0.0	130.2	0.0	138.4	9.8	139.4	0.0	140.9	13.6	149.1	20.4	149.3	27.6
04/30/2011	124.8	0.0	121.8	0.0	133.6	10.0	133.4	0.0	137.8	12.1	149.4	20.2	149.9	27.0
05/01/2011	139.1	0.0	144.6	0.0	149.0	10.0	144.4	0.0	149.7	12.1	149.5	20.1	149.0	26.7
05/02/2011	132.9	0.0	139.3	0.0	145.2	10.0	145.2	0.0	148.2	13.8	155.7	26.6	153.1	26.9
05/03/2011	113.0	0.0	118.3	0.0	132.9	10.0	132.9	0.0	136.9	13.3	149.6	20.3	155.0	25.0
05/04/2011	125.5	0.0	125.5	0.0	136.2	10.0	132.0	0.0	134.9	12.6	147.8	19.6	145.4	25.1
05/05/2011	122.4	0.0	122.5	0.0	126.0	9.3	123.5	0.0	128.2	14.0	148.4	18.9	147.8	25.1
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

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

Date	Dworshak		Brownlee Canyon		Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill	Inflow	Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
04/29/2011	11.9	1.6	47.2	47.0	92.0	20.2	88.3	26.5	90.9	29.9	91.9	27.4
04/30/2011	10.4	0.0	46.1	46.9	90.3	20.2	87.2	26.2	90.5	29.7	93.3	50.1
05/01/2011	10.4	0.0	48.0	46.9	88.5	20.2	86.6	26.0	88.3	29.6	90.5	61.5
05/02/2011	9.7	0.0	49.6	47.0	84.8	20.1	79.9	23.9	81.1	29.7	84.3	57.1
05/03/2011	8.0	0.0	48.9	47.6	86.0	20.2	83.4	25.0	83.4	29.8	84.1	56.7
05/04/2011	8.1	0.0	45.5	49.2	87.1	20.1	85.7	25.6	88.8	29.9	92.4	39.7
05/05/2011	8.1	0.0	43.5	46.8	90.0	20.1	86.3	25.8	88.5	29.9	89.8	27.1
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	---	---	104.8	22.2	101.8	32.7	103.6	27.1	104.9	54.1

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
04/29/2011	246.0	98.9	240.5	91.6	226.3	90.5	260.7	99.5	52.9	95.9
04/30/2011	230.6	92.6	229.3	69.0	219.3	87.8	231.6	99.6	26.8	92.9
05/01/2011	248.0	99.3	266.9	84.4	257.1	102.7	277.5	99.6	67.4	98.1
05/02/2011	255.9	106.9	250.8	100.2	241.9	96.7	262.0	99.6	56.8	93.2
05/03/2011	251.3	102.4	259.4	99.2	246.8	98.8	255.9	99.6	49.8	94.1
05/04/2011	248.6	99.4	261.4	78.7	250.2	99.9	271.0	99.5	67.1	91.9
05/05/2011	247.5	99.0	242.4	77.3	230.1	92.1	267.5	99.3	67.4	88.3
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

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>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High	
	Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg		
4/29	96.3	96.6	96.6	24	108.7	109.2	109.8	21	109.1	109.3	109.5	24	107.2	107.6	108.0	21	106.6	106.8	107.0	24
4/30	95.5	95.6	95.9	24	108.7	109.2	109.6	22	108.6	108.8	109.0	23	106.9	107.6	108.0	22	106.7	107.2	107.6	24
5/1	95.6	95.9	96.1	24	109.1	110.1	110.7	24	108.9	109.5	111.0	24	107.1	107.5	108.0	24	107.0	107.5	107.8	24
5/2	96.3	96.7	96.9	24	109.6	110.2	113.3	23	109.8	110.2	110.5	24	107.4	107.9	108.3	23	108.1	108.5	108.6	24
5/3	96.7	96.8	97.2	24	109.4	110.0	114.3	21	109.0	109.6	110.3	24	106.8	107.0	107.1	21	107.5	107.5	107.6	3
5/4	96.6	96.7	96.7	24	109.8	111.4	112.6	23	108.2	108.6	109.1	24	106.4	107.4	108.2	23	107.1	107.1	107.2	10
5/5	97.2	97.7	97.9	24	110.3	111.4	113.8	23	110.3	111.2	111.8	24	108.9	109.7	110.1	23	107.8	108.1	108.6	18
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

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>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High	
	Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg		
4/29	106.2	106.8	107.4	24	104.6	105.0	105.5	24	106.8	107.3	108.0	24	106.2	106.5	107.0	24	105.6	105.8	106.3	24
4/30	106.5	107.0	108.1	24	105.0	105.6	105.9	24	106.9	107.6	108.0	24	105.9	106.3	106.6	24	105.0	105.3	105.6	24
5/1	106.5	107.1	107.7	24	106.1	106.5	106.8	24	108.0	108.7	109.1	24	106.7	107.3	107.8	24	105.8	106.4	107.0	24
5/2	107.8	108.2	109.2	24	106.8	107.1	107.4	24	108.7	109.2	109.7	24	108.1	108.4	108.7	24	107.2	107.5	107.8	24
5/3	107.5	108.1	108.6	24	106.6	107.1	107.4	24	108.3	108.9	109.2	24	107.6	107.9	108.2	24	106.7	106.9	107.1	24
5/4	106.9	107.3	107.5	24	106.6	107.1	107.2	24	108.4	109.1	109.5	24	107.5	108.1	108.9	24	106.7	107.2	108.1	24
5/5	108.1	108.3	109.2	18	108.0	108.5	109.1	22	109.6	110.2	111.3	22	109.5	110.0	110.3	24	108.5	108.8	109.0	24
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	108.8	108.9	109.2	20	111.7	112.2	112.7	20	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	108.0	23	110.7	111.4	112.0	23	109.3	109.5	109.9	24	108.3	108.5	108.7	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>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High	
	Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg		
4/29	105.3	105.6	106.0	24	107.1	107.8	108.2	24	105.6	105.8	106.6	24	108.7	108.9	109.5	24	107.3	107.7	108.5	24
4/30	105.2	105.8	106.1	24	107.4	108.4	109.0	24	105.8	106.4	107.3	24	108.5	108.8	109.0	24	107.0	107.8	108.3	24
5/1	105.9	106.7	107.0	24	107.7	108.8	109.2	24	106.1	106.9	107.5	24	108.6	109.0	109.2	24	108.6	109.4	109.9	24
5/2	106.9	107.1	107.2	24	108.7	108.9	109.3	24	107.1	107.3	107.4	24	109.5	109.6	109.7	24	109.2	109.6	109.9	24
5/3	106.9	107.0	107.2	24	108.6	109.2	109.4	24	106.1	106.3	106.5	24	109.1	109.2	109.2	24	108.1	108.3	108.6	24
5/4	106.0	107.5	107.9	24	109.1	109.6	110.4	24	106.7	107.7	108.3	24	109.1	109.4	109.8	24	108.5	109.7	110.3	24
5/5	108.4	109.0	109.2	24	110.3	110.7	111.5	24	108.7	108.9	109.1	24	110.5	110.7	110.9	24	110.3	110.6	110.9	24
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

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			24 h	12 h			24 h	12 h	
	Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High
4/29	109.9	110.2	110.6	24	105.0	107.9	108.3	24	101.0	101.3	101.5	24	100.6	100.9	101.1	23	105.6	105.9	106.2	24			
4/30	109.5	110.0	110.2	24	107.8	108.9	109.6	24	97.9	98.1	98.5	24	100.0	100.5	101.1	23	106.1	106.8	107.2	24			
5/1	110.5	111.0	111.2	24	108.8	110.0	110.6	24	98.7	99.1	99.4	24	100.7	101.6	102.2	23	106.7	107.7	108.5	24			
5/2	111.3	111.5	111.8	24	108.7	109.5	109.8	24	100.0	100.5	101.0	24	100.8	101.3	101.9	23	106.3	106.7	107.2	24			
5/3	110.4	110.6	110.7	24	107.1	107.9	108.3	24	99.1	99.7	100.8	24	100.1	100.4	100.7	22	106.0	106.7	107.0	24			
5/4	110.3	111.1	111.6	24	108.6	109.9	110.6	24	100.0	100.5	102.2	24	101.2	102.2	102.9	23	107.0	108.2	108.9	24			
5/5	112.2	112.4	112.7	24	109.1	109.6	109.9	24	101.3	101.6	102.3	24	101.4	101.9	102.3	24	107.2	107.7	108.1	24			
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			

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			24 h	12 h			24 h	12 h	
	Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High
4/29	100.5	101.1	101.4	24	104.3	104.5	104.7	24	108.8	108.9	109.3	24	107.8	108.1	108.7	24	111.4	111.5	112.0	24			
4/30	101.2	102.0	103.0	22	103.3	103.5	103.8	24	108.5	108.7	108.9	24	106.5	106.9	107.3	24	110.7	111.0	111.4	24			
5/1	101.7	103.4	104.6	24	103.4	103.9	104.3	24	108.9	109.3	109.5	24	105.8	106.1	106.3	24	110.6	110.8	111.1	24			
5/2	101.1	101.7	102.5	22	105.3	105.6	105.7	24	108.7	109.0	109.6	24	107.2	107.7	108.1	24	111.3	111.7	112.0	24			
5/3	101.1	102.0	102.5	22	104.7	105.0	105.3	24	109.0	109.1	109.5	24	106.7	106.9	107.2	24	111.1	111.3	111.8	24			
5/4	102.0	103.7	104.8	23	104.2	104.5	105.0	24	109.1	109.6	110.0	24	106.3	106.6	106.9	24	110.9	111.0	111.4	24			
5/5	101.7	102.4	103.0	24	105.6	105.9	106.2	24	109.1	109.3	109.7	24	108.2	109.0	109.6	24	111.2	111.4	111.5	24			
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			

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			24 h	12 h			24 h	12 h	
	Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High
4/29	110.3	110.8	111.3	24	119.1	119.3	119.5	24	111.6	111.8	112.1	24	114.9	115.1	115.4	24	---	---	---	0			
4/30	109.6	109.8	109.9	24	118.9	119.1	119.6	24	111.5	112.0	112.4	24	115.7	116.3	116.7	24	---	---	---	0			
5/1	110.5	111.0	111.3	24	119.6	120.0	120.5	24	113.0	113.6	114.3	24	116.3	116.7	117.2	24	---	---	---	0			
5/2	111.9	112.2	112.5	24	119.7	120.1	120.4	24	114.7	114.9	115.1	24	115.9	116.3	117.5	24	---	---	---	0			
5/3	110.5	110.8	111.3	24	119.4	119.6	120.0	24	113.3	113.6	114.0	24	115.5	115.7	116.0	24	---	---	---	0			
5/4	109.8	110.2	110.8	24	119.4	119.6	120.0	24	112.8	113.5	114.2	24	115.7	116.4	119.4	24	---	---	---	0			
5/5	112.3	112.8	112.9	24	119.8	120.0	120.2	24	115.2	115.6	116.0	24	116.0	116.2	116.5	24	---	---	---	0			
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			

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>			# hr	<u>McNary Tlwr</u>			# hr	<u>John Day</u>			# hr	<u>John Day Tlwr</u>			# hr	<u>The Dalles</u>			# hr
	<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24h</u>	<u>12h</u>	High		<u>24h</u>	<u>12h</u>	High		<u>24h</u>	<u>12h</u>	High	
	Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg		
4/29	107.1	107.5	108.1	24	113.4	113.6	114.0	24	105.0	105.3	105.9	24	115.3	117.0	118.6	24	108.2	108.6	109.6	24
4/30	107.0	107.4	108.2	24	113.4	113.9	114.3	24	104.2	104.5	104.7	24	113.2	113.5	114.0	24	106.9	107.1	107.4	24
5/1	108.6	109.4	110.3	24	113.4	113.7	113.8	24	105.2	105.9	106.7	24	114.7	115.9	117.6	24	107.8	108.9	109.7	24
5/2	110.5	111.0	111.1	24	114.0	114.5	115.2	24	106.6	106.9	107.1	24	116.2	117.1	118.2	24	109.4	109.7	110.0	24
5/3	108.9	109.1	109.3	24	113.5	113.9	114.6	24	105.8	106.1	106.4	24	116.2	117.6	117.9	24	108.2	108.7	109.1	24
5/4	108.5	109.1	111.1	24	113.4	113.6	113.9	24	107.4	108.5	109.6	24	114.1	115.1	116.3	24	109.7	110.3	110.9	24
5/5	111.0	111.3	111.5	24	113.5	113.6	113.8	24	109.8	109.9	110.1	24	114.3	115.2	117.9	24	110.3	110.7	111.3	24
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

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

Date	<u>The Dalles Dnst</u>			# hr	<u>Bonneville</u>			# hr	<u>Warrendale</u>			# hr	<u>Camas\Washougal</u>			# hr	<u>Cascade Island</u>			# hr
	<u>24 h</u>	<u>12 h</u>	High		<u>24 h</u>	<u>12 h</u>	High		<u>24h</u>	<u>12h</u>	High		<u>24h</u>	<u>12h</u>	High		<u>24h</u>	<u>12h</u>	High	
	Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg		
4/29	114.8	115.4	116.4	24	111.3	111.9	112.4	24	114.1	114.3	114.7	24	112.1	112.5	113.2	24	117.9	118.1	118.2	24
4/30	114.3	114.6	115.1	24	110.2	110.5	110.9	24	114.3	114.8	115.0	24	112.3	113.3	114.1	24	117.2	117.2	117.3	24
5/1	115.2	115.9	116.3	24	112.0	113.2	114.0	24	114.5	114.9	115.2	24	113.1	114.4	114.9	24	118.1	118.5	118.7	24
5/2	115.9	116.3	116.9	24	114.0	114.3	114.4	24	115.4	115.6	115.9	24	112.7	113.1	113.7	24	118.2	118.4	118.5	24
5/3	115.2	115.6	116.0	24	111.7	112.1	112.7	24	114.6	115.1	115.4	24	113.1	114.2	115.0	24	117.7	118.0	118.2	24
5/4	116.3	116.9	117.6	24	112.6	113.9	114.9	24	114.8	115.3	115.6	24	113.3	114.5	114.9	24	118.3	118.6	118.7	24
5/5	116.5	116.9	117.5	24	115.2	115.7	116.0	24	116.0	116.2	116.3	24	114.0	114.7	115.2	24	118.3	118.5	118.7	24
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

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											
	05/05/11	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
Little Goose Dam											
	05/05/11	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/09/11	Chinook + Steelhead	99	0	0	0.00%	0.00%	0	0	0	0
Lower Monumental Dam											
	05/01/11	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/04/11	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
	05/11/11	Chinook + Steelhead	100	0	0	0%	0%	0	0	0	0
McNary Dam											
	05/06/11	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	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
Bonneville Dam											
	04/30/11	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/03/11	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	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
Rock Island Dam											
	05/03/11	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/05/11	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	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

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)	
04/29/2011	*	84	---	147	251	98,983	43,811	---	879	58,374	28,792	18,251
04/30/2011	*	98	112	204	360	109,430	---	---	660	---	26,701	16,157
05/01/2011	*	77	87	107	434	91,913	---	5,150	338	61,919	36,880	17,082
05/02/2011	*	70	173	80	120	85,244	---	---	420	---	31,538	27,515
05/03/2011	*	77	142	590	191	107,205	---	---	555	99,256	46,395	20,581
05/04/2011	*	106	256	496	308	135,066	---	5,132	675	---	44,565	25,408
05/05/2011	*	159	155	209	326	83,305	---	---	499	162,818	52,347	30,496
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	*	---	---	---	---	---	---	---	---	---	---	---
Total:		2,041	1,366	3,659	9,204	1,958,838	975,946	424,286	9,242	1,008,705	767,482	489,493
# Days:		10	9	14	14	14	8	8	14	7	14	14
Average:		204	152	261	657	139,917	121,993	53,036	660	144,101	54,820	34,964
YTD		31,090	29,875	11,532	18,836	2,809,713	1,079,813	435,093	12,671	1,170,286	951,049	809,091

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)	
04/29/2011	*	0	---	0	0	0	0	---	21	684	0	2,334
04/30/2011	*	0	0	0	4	0	---	---	41	---	0	2,874
05/01/2011	*	0	0	0	4	0	---	0	19	507	0	2,080
05/02/2011	*	0	0	0	2	0	---	---	20	---	0	1,867
05/03/2011	*	0	0	0	3	0	---	---	6	871	0	1,319
05/04/2011	*	0	0	0	5	0	---	0	26	---	52	716
05/05/2011	*	0	0	0	2	0	---	---	3	843	0	266,964
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	*	---	---	---	---	---	---	---	---	---	---	---
Total:		0	15	0	105	260	572	0	192	7,041	104	779,449
# Days:		10	9	14	14	14	8	8	14	7	14	14
Average:		0	2	0	8	19	72	0	14	1,006	7	55,675
YTD		9	27	11	163	3,099	582	0	572	12,410	2,970	2,619,547

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)	
04/29/2011	*	0	---	0	4	1,038	143	---	25	1,877	1,896	2,193
04/30/2011	*	0	0	0	7	257	---	---	7	---	2,535	3,257
05/01/2011	*	0	0	0	8	259	---	0	20	2,537	1,433	3,005
05/02/2011	*	0	0	0	3	518	---	---	11	---	4,025	3,595
05/03/2011	*	0	0	0	6	1,054	---	---	29	4,529	2,667	1,781
05/04/2011	*	0	0	0	15	1,041	---	0	34	---	2,795	3,154
05/05/2011	*	0	0	0	7	1,041	---	---	22	3,206	5,425	3,489
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	*	---	---	---	---	---	---	---	---	---	---	---
Total:		0	0	0	121	24,719	21,057	1,875	1,056	27,228	61,371	78,441
# Days:		10	9	14	14	14	8	8	14	7	14	14
Average:		0	0	0	9	1,766	2,632	234	75	3,890	4,384	5,603
YTD		0	0	0	218	27,754	21,486	1,875	1,319	46,035	67,895	180,041

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)	
04/29/2011	*	16	---	41	57	78,162	29,147	---	61	49,717	34,424	2,334
04/30/2011	*	24	250	48	66	61,394	---	---	80	---	30,580	4,023
05/01/2011	*	20	159	21	57	40,649	---	1,723	64	28,081	28,185	8,675
05/02/2011	*	56	332	11	31	38,347	---	---	65	---	31,335	4,010
05/03/2011	*	35	472	49	44	38,457	---	---	85	27,707	34,115	5,937
05/04/2011	*	63	626	55	98	100,453	---	1,489	75	---	27,483	10,549
05/05/2011	*	56	581	23	64	30,198	---	---	125	33,565	30,404	3,984
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	*	---	---	---	---	---	---	---	---	---	---	---
Total:		532	8,060	842	1,923	1,142,435	506,378	150,717	2,563	229,060	418,337	84,963
# Days:		10	9	14	14	14	8	8	14	7	14	14
Average:		53	896	60	137	81,603	63,297	18,840	183	32,723	29,881	6,069
YTD		1,080	11,656	3,264	2,934	2,505,430	806,741	158,000	2,831	401,207	841,502	116,632

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)	
04/29/2011	*	0	---	0	0	2,076	143	---	167	2,220	614	495
04/30/2011	*	0	0	0	0	2,312	---	---	154	---	1,034	958
05/01/2011	*	0	0	0	0	777	---	30	188	5,920	1,194	1,338
05/02/2011	*	0	0	0	0	1,036	---	---	319	---	1,681	1,452
05/03/2011	*	0	0	0	0	1,054	---	---	159	7,487	1,889	1,385
05/04/2011	*	0	0	0	0	2,082	---	61	160	---	1,546	1,721
05/05/2011	*	0	0	0	0	1,041	---	---	174	20,580	2,104	1,986
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	*	---	---	---	---	---	---	---	---	---	---	---
Total:		0	0	0	0	17,141	9,472	3,746	2,921	103,728	40,448	25,983
# Days:		10	9	14	14	14	8	8	14	7	14	14
Average:		0	0	0	0	1,224	1,184	468	209	14,818	2,889	1,856
YTD		0	0	0	0	47,178	16,684	4,229	3,399	111,479	49,889	31,415

		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)	
04/29/2011	*	0	---	0	0	0	0	---	0	1,300	633	75
04/30/2011	*	0	0	0	0	0	---	---	1	---	600	50
05/01/2011	*	0	0	0	0	0	---	0	0	1,500	634	60
05/02/2011	*	0	0	0	0	0	---	---	1	---	300	25
05/03/2011	*	0	0	0	0	0	---	---	1	400	234	25
05/04/2011	*	0	0	0	0	0	---	0	0	---	87	35
05/05/2011	*	0	0	0	0	0	---	---	0	300	210	75
05/06/2011	*	0	0	0	0	0	200	---	1	---	250	0
05/07/2011	*	0	0	0	0	0	0	0	1	400	80	0
05/08/2011	*	0	---	0	0	0	0	0	0	---	94	40
05/09/2011	*	---	---	0	0	0	0	0	0	200	475	67
05/10/2011	*	---	0	0	0	0	0	0	0	---	34	67
05/11/2011	*	---	---	0	0	0	0	0	0	200	63	0
05/12/2011	*	---	---	0	0	0	0	0	0	---	188	0
05/13/2011	*	---	---	---	---	---	---	---	---	---	---	---
Total:		0	0	0	0	0	200	0	5	4,300	3,882	519
# Days:		10	9	14	14	14	8	8	14	7	14	14
Average:		0	0	0	0	0	25	0	0	614	277	37
YTD		0	0	0	0	3,527	2,891	0	41	23,010	124,047	18,575

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 = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill)}

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

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

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

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

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

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

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

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

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

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

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

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

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

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

5/13/11 9:38 AM

04/29/11 TO 05/13/11

		Species					
Site	Data	CH0	CH1	CO	ST	SO	Grand Total
LGR	Sum of NumberCollected	200	1,517,734	19,200	888,066	13,200	2,438,400
	Sum of NumberBarged	197	1,232,514	17,996	740,127	8,938	1,999,772
	Sum of NumberBypassed	0	283,822	1,200	147,807	3,998	436,827
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	47	0	10	10	67
	Sum of FacilityMorts	3	1,149	4	81	254	1,491
	Sum of ResearchMorts	0	202	0	41	0	243
	Sum of TotalProjectMorts	3	1,398	4	132	264	1,801
LGS	Sum of NumberCollected	400	667,250	14,500	341,402	6,513	1,030,065
	Sum of NumberBarged	398	636,407	14,400	321,042	6,397	978,644
	Sum of NumberBypassed	2	30,563	100	20,336	100	51,101
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	14	0	0	1	15
	Sum of FacilityMorts	0	266	0	24	15	305
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	0	280	0	24	16	320
LMN	Sum of NumberCollected		296,077	1,343	105,150	2,597	405,167
	Sum of NumberBarged		214,871	1,194	76,049	1,887	294,001
	Sum of NumberBypassed		80,997	149	29,022	657	110,825
	Sum of Numbertrucked		0	0	0	0	0
	Sum of SampleMorts		1	0	1	0	2
	Sum of FacilityMorts		204	0	77	53	334
	Sum of ResearchMorts		0	0	0	0	0
	Sum of TotalProjectMorts		205	0	78	53	336
MCN	Sum of NumberCollected	4,101	590,689	15,910	134,205	60,735	805,640
	Sum of NumberBarged	0	0	0	0	0	0
	Sum of NumberBypassed	4,100	590,192	15,900	134,158	60,697	805,047
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	34	0	4	3	41
	Sum of FacilityMorts	1	463	10	43	35	552
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	1	497	10	47	38	593
Total Sum of NumberCollected		4,701	3,071,750	50,953	1,468,823	83,045	4,679,272
Total Sum of NumberBarged		595	2,083,792	33,590	1,137,218	17,222	3,272,417
Total Sum of NumberBypassed		4,102	985,574	17,349	331,323	65,452	1,403,800
Total Sum of Numbertrucked		0	0	0	0	0	0
Total Sum of SampleMorts		0	96	0	15	14	125
Total Sum of FacilityMorts		4	2,082	14	225	357	2,682
Total Sum of ResearchMorts		0	202	0	41	0	243
Total Sum of TotalProjectMorts		4	2,380	14	281	371	3,050

YTD Transportation Summary

Source: Fish Passage Center

Updated:

5/13/11 9:38 AM

TO: 05/13/11

		Species					
Site	Data	CH0	CH1	CO	SO	ST	Grand Total
LGR	Sum of NumberCollected	2,075	2,100,669	21,159	34,189	1,747,935	3,906,027
	Sum of NumberBarged	454	1,296,185	18,258	10,571	809,100	2,134,568
	Sum of NumberBypassed	1,612	802,950	2,896	23,251	938,645	1,769,354
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	6	77	1	60	29	173
	Sum of FacilityMorts	3	1,255	4	307	120	1,689
	Sum of ResearchMorts	0	202	0	0	41	243
	Sum of TotalProjectMorts	9	1,534	5	367	190	2,105
LGS	Sum of NumberCollected	407	739,883	14,800	11,660	559,709	1,326,459
	Sum of NumberBarged	398	636,407	14,400	6,397	321,042	978,644
	Sum of NumberBypassed	2	103,168	400	5,227	238,633	347,430
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	18	0	4	4	26
	Sum of FacilityMorts	7	290	0	32	30	359
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	7	308	0	36	34	385
LMN	Sum of NumberCollected		303,633	1,343	2,927	110,242	418,145
	Sum of NumberBarged		214,871	1,194	1,887	76,049	294,001
	Sum of NumberBypassed		88,552	149	987	34,113	123,801
	Sum of NumberTrucked		0	0	0	0	0
	Sum of SampleMorts		2	0	0	2	4
	Sum of FacilityMorts		204	0	53	77	334
	Sum of ResearchMorts		0	0	0	0	0
	Sum of TotalProjectMorts		206	0	53	79	338
MCN	Sum of NumberCollected	7,044	680,524	26,355	64,968	227,371	1,006,262
	Sum of NumberBarged	0	0	0	0	0	0
	Sum of NumberBypassed	7,032	679,864	26,339	64,904	227,287	1,005,426
	Sum of NumberTrucked	0	0	0	0	0	0
	Sum of SampleMorts	8	54	1	3	8	74
	Sum of FacilityMorts	4	606	15	61	76	762
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	12	660	16	64	84	836
Total Sum of NumberCollected		9,526	3,824,709	63,657	113,744	2,645,257	6,656,893
Total Sum of NumberBarged		852	2,147,463	33,852	18,855	1,206,191	3,407,213
Total Sum of NumberBypassed		8,646	1,674,534	29,784	94,369	1,438,678	3,246,011
Total Sum of NumberTrucked		0	0	0	0	0	0
Total Sum of SampleMorts		14	151	2	67	43	277
Total Sum of FacilityMorts		14	2,355	19	453	303	3,144
Total Sum of ResearchMorts		0	202	0	0	41	243
Total Sum of TotalProjectMorts		28	2,708	21	520	387	3,664

Cumulative Adult Passage at Mainstem Dams Through: 05/12

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	05/12	136793	18529	207964	6629	142074	7488	0	0	0	0	0	0	0	0	0	0	0	0
TDA	05/12	95109	11335	146461	4409	96834	4840	0	0	0	0	0	0	0	0	0	0	0	0
JDA	05/12	67968	7012	133614	4110	78759	3872	0	0	0	0	0	0	0	0	0	0	0	0
MCN	05/12	50317	3248	103659	2264	66642	2341	0	0	0	0	0	0	0	0	0	0	0	0
IHR	05/12	33075	1371	67374	1994	42965	1209	0	0	0	0	0	0	0	0	0	0	0	0
LMN	05/12	23173	827	53094	917	37901	758	0	0	0	0	0	0	0	0	0	0	0	0
LGS	05/12	16813	689	34719	953	32009	601	0	0	0	0	0	0	0	0	0	0	0	0
LGR	05/12	12240	300	31053	452	29915	472	0	0	0	0	0	0	0	0	0	0	0	0
PRD	05/10	2264	10	15585	26	10496	23	0	0	0	0	0	0	0	0	0	0	0	0
RIS	05/11	838	31	12246	169	6490	72	0	0	0	0	0	0	0	0	0	0	0	0
RRH	05/11	96	0	3279	10	2036	3	0	0	0	0	0	0	0	0	0	0	0	0
WEL	05/11	9	0	1584	68	772	7	0	0	0	0	0	0	0	0	0	0	0	0
WFA	05/11	9976	167	26243	421	-	-	-	-	-	-	-	-	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	6	2	0	2843	5679	3145	1050
TDA	0	0	0	0	0	0	0	2	0	1276	2128	1255	723
JDA	0	0	0	0	0	0	0	0	0	2616	2359	2557	1698
MCN	0	0	0	0	0	0	0	0	0	2498	2115	2021	1554
IHR	0	0	0	0	0	0	0	0	0	2961	2950	2446	1175
LMN	0	0	0	0	0	0	0	0	0	3720	3865	2838	2098
LGS	0	0	0	0	0	0	0	0	0	6027	2982	2843	3203
LGR	0	0	0	0	0	0	0	0	0	12081	10283	9245	5595
PRD	0	0	0	0	0	0	0	0	0	29	76	17	0
RIS	0	0	0	0	0	0	0	0	0	55	103	59	37
RRH	0	0	0	0	0	0	0	0	0	419	309	203	375
WEL	0	0	0	0	0	0	0	0	0	50	37	28	38
WFA	0	0	0	0	-	-	-	-	-	9667	15721	-	-

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

Page last updated on: 05/12/11

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