



# Fish Passage Center

## Weekly Report #10 - 08

May 7, 2010

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### Summary of Events:

**Water Supply:** Precipitation throughout the Columbia Basin has varied between 80% and 136% of average at individual sub-basins over April. Precipitation above The Dalles has been 108% of average over April. Over the 2010 water year, precipitation has ranged between 71% and 87% of average.

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

Location	Water Year 2010 April 1-26		Water Year 2010 October 1, 2009 to April 26, 2010	
	Observed (inches)	% Average	Observed (inches)	% Average
	Columbia Above Coulee	1.26	88	12.11
SNAKE RIVER ABOVE ICE HARBOR	1.57	124	9.69	84
Columbia Above The Dalles	1.54	108	12.88	82
Kootenai	1.21	80	12.88	80
Clark Fork	1.00	93	7.19	71
Flathead	1.41	103	10.87	80
Pend Oreille/Spokane	1.64	84	16.66	75
Central Washington	0.74	133	5.62	87
SNAKE RIVER PLAIN	1.22	136	6.01	86
Salmon/Boise/Payette	1.49	107	12.02	85
Clearwater	2.06	89	16.04	77
SW Washington Cascades/Cowlitz	4.49	97	18.53	84
Willamette Valley	5.18	123	42.25	85

Table 2 displays the April Final and May Final runoff volume forecasts for multiple reservoirs. The current forecast at The Dalles between January and July is 70900 Kaf (66% 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)	65	69700	66	70900
Grand Coulee (Jan-July)	73	46000	74	46400
Libby Res. Inflow, MT (Apr-Aug)	68 81*	4270 5103*	69 77*	4310 4887*
Hungry Horse Res. Inflow, MT (Jan-July)	69	1540	74	1640
Lower Granite Res. Inflow (Apr- July)	56	12000	58	12400
Brownlee Res. Inflow (Apr-July)	41	2590	44	2780
Dworshak Res. Inflow (Apr-July)	50 52*	1330 1398*	55 57*	1460 1526*

\* 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 85 Kcfs at Lower Granite. Flows at Lower Granite Dam have averaged 45.0 Kcfs from April 3 to May 6 and 59.0 Kcfs last week.

The Biological Opinion flow period began on April 10th in the mid and lower Columbia River (Priest Rapids and McNary Dams). According to the April Final Water Supply Forecast, the flow objective this spring is 220 Kcfs at McNary and 135 Kcfs at Priest Rapids. Flows from April 10 to May 6 have averaged 141.9 Kcfs at McNary Dam and 88.2 Kcfs at Priest Rapids Dam. Over the last week, flows have averaged 170.0 Kcfs at McNary Dam and 107.5 Kcfs at Priest Rapids Dam. Outflows from Grand Coulee have been increased in attempt to achieve flows of 110 Kcfs at Priest Rapids Dam, next week operators will attempt to achieve flows of 135 Kcfs at Priest Rapids Dam (as decided at the 5-5-10 TMT Meeting).

Grand Coulee Reservoir is at 1268.4 feet (5-6-10) and drafted 1.1 feet over the last week. Outflows at Grand Coulee have ranged between 72.5 and 106.1 Kcfs over the last week. The end of April FC elevation at Grand Coulee was 1283.3 feet.

The Libby Reservoir is currently at elevation 2408.4 feet (5-6-10) and has refilled 1.7 feet last week. Outflows at Libby are currently 4.0 Kcfs. The end of April FC Elevation at Libby was 2447.5 feet. At the 4-28-10 TMT Meeting, a decision was made to reduce VARQ outflows in early May to provide a higher reservoir elevation at Libby Dam in Late May/Early June. The higher reservoir elevation at Libby Dam will provide an increased likelihood that a spill test can be conducted this year for sturgeon operations. Outflows from Libby will be increased later in the spring period in an effort to have no impact on the spring volume of flow augmentation from Libby Dam. The COE released its May Final forecast at Libby Dam on May 7<sup>th</sup>, 2010 which was 4887 Kaf (April-August) which puts Libby in a Tier 2 sturgeon operation in 2010.

Hungry Horse is currently at an elevation of 3530.2 feet (5-6-10) and has refilled 1.0 feet last week. Outflows at Hungry Horse have been approximately 2.3-4.0 Kcfs last week. The end of April FC Elevation at Hungry Horse was 3555.1 feet.

Dworshak is currently at an elevation of 1556.3 feet (5-6-10) and has refilled approximately 8.2 feet last week. Over the last week outflows at Dworshak were 1.1-1.2 Kcfs. The end of April System FC Elevation at

Dworshak was 1597.4 feet.

The Brownlee Reservoir was at an elevation of 2069.9 feet on May 6, 2010 drafting 2.6 feet last week. The end of April FC Elevation at Brownlee was 2077 feet.

Over the last week, outflows at Brownlee have ranged between 13.9-23.4 Kcfs.

**Spill:**

The 2010 planned spring spill program at the lower Snake River Projects began on April 3 at 0001 hours. The following table shows the planned operations for spring 2010.

<b>Project</b>	<b>Day/Night Spill</b>
Lower Granite	20Kcfs/20Kcfs
Little Goose	30%/30%
Lower Monumental	Gas Cap/Gas Cap
Ice Harbor	April 3-April 28: 45 kcfs/Gas Cap April 29-June 20: 30%/30% vs. 45 kcfs/Gas Cap

Flows have remained level over the past week in the Snake River and, the planned spill levels were mostly achieved. Spill at Lower Granite Dam met the 20 Kcfs instantaneous level. Spill at Little Goose Dam achieved the 30% of instantaneous flow and has ranged from a daily average of 15.4 to 19.5 Kcfs. Spill to the gas cap at Lower Monumental Dam was met. Daily average spill at this project varied between 31.1 and 39.9 Kcfs over the past week. The Ice Harbor simulated test of 30% spill versus 45 Kcfs during daytime hours and gas cap spill during nighttime hours began on April 29. Spill at Ice Harbor Dam occurred as 45 Kcfs during daytime hours, and all flow in excess of that required to operate one turbine unit during nighttime hours, or as 30% spill in two day blocks.

The 2010 spill program at the lower Columbia River projects began at 0001 hours on April 10<sup>th</sup>. The following table shows the planned operations for spring 2010.

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

The planned spill levels have been met at McNary, The Dalles and Bonneville dams. At John Day Dam the testing of 30% spill versus 40% spill has begun and is occurring in two day blocks.

At present, GBT monitoring is being implemented at Lower Granite, Little Goose, Lower Monumental, McNary, Bonneville and Rock Island dams. One fish was reported at Lower Monumental Dam and one at Little Goose Dam with Rank 1 signs of fin GBT this past week.

All total dissolved gas levels have been below the waiver amounts over the past week at the monitoring sites, with the exception of one day at the Camas/Washougal monitor. However, the Camas/Washougal monitor is not a required point of compliance for the TDG waivers.

**Smolt Monitoring:**

Juvenile salmon collections at most dams have decreased at Lower Granite Dam, while collections at McNary Dam increased rapidly over the past week as the spring migrants appear to have stalled in the Snake River but are passing relatively well at McNary Dam. Every day sampling began this past week at Little Goose and Lower Monumental dams as transportation was initiated at those sites. At Bonneville Dam and Rock Island Dam smolt collections have been near normal or above normal for the past few weeks. At the SMP traps large numbers of smolts have been collected over the last few weeks at the Grande Ronde Trap, while at the Salmon River Trap yearling Chinook collections have fallen off as is expected this time of year.

The Salmon River Trap, located at River km 103, and operated by Idaho Department of Fish and Game, has collected fewer yearling Chinook and steelhead over the past week, as passage begins to wind down. This pattern of decreasing steelhead collection is typical of historic patterns of timing for the Salmon River Trap, and reflects the hatchery release timing

of the two species. The wild portion of the catch has increased since May 3, as hatchery fish move out, with 25% of the Chinook collected at the trap both unclipped and without coded wire tags—indicating wild origin. Over 90% of the steelhead collected in the past week were fin clipped. Flows dropped below historic median on May 1 and have continued to drop relative to historic median such that flows on May 7 were about 50% of normal for this date historically. Flows are projected to drop further over the next several days.

Collections at the Grande Ronde Trap, operated by the Oregon Department of Fish and Wildlife, have remained relatively high over the past week. Since May 1, collections of yearling Chinook and steelhead have increased. Based on collections over the past ten years, yearling Chinook numbers typically decrease rapidly at this point. Hatchery origin yearling Chinook continued to predominate in the catch over the past week, with more than 70% either adipose clipped or coded wire tagged. Flows in the Grande Ronde River have also decreased over the past week, with flows dropping well below historic median. Flows on May 7 were at 4200 cfs which is about 65% of historic median. Similar to the Salmon River, flows are projected to drop further over the next several days.

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. The Imnaha Trap has been collecting relatively large numbers of yearling Chinook and steelhead over the past two weeks. Steelhead collections exceeded yearling Chinook the past few days of sampling—which is typical for that site at this time of year. Based on past years, yearling Chinook collections have dropped to near zero by April 25; at the same time steelhead collections typically climb above 200 fish per day through most of May. Flows in the Imnaha dropped below historic median on May 1, and have continued to decline. May 7 flows were at 800 cfs which is 60% of historic median flows.

Collections of yearling Chinook at the Lewiston Trap, operated by IDFG, decreased substantially over the past week, while steelhead collection increased. Flows tapered off over the past week and so has collection at the trap. Snake River flows were averaging about 35 kcfs on May 7 as measured at Anatone Gage, and were forecast to stay relatively flat over the next week.

Collections of yearling Chinook and steelhead at Lower Granite Dam have steadily decreased over

the past week. Passage indices averaged 90,000 per day this week compared to over 100,000 for yearling Chinook, while steelhead passage indices dropped from over 70,000 per day last week to about 45,000 per day this week. Daily sampling began at Little Goose Dam on April 30 in support of smolt transportation, while sampling at Lower Monumental Dam began 3 days later, on May 2.

At Bonneville Dam the largest collections over the past week have been yearling Chinook. The average passage index was 59,000 per day for yearling Chinook compared to 28,000 last week. The average index for steelhead 15,000 per day compared to 3,200 per day last week. Increasing numbers of sockeye were captured over the past week. Sockeye collections peaked at over 1,000 fish on May 7.

At John Day Dam there continue to be unusual smolt mortalities in the sample. The numbers are of mortalities has been low, but the dead fish have come into the sample without heads. The COE has been flushing orifices and checking the bypass channel to determine the cause of these smolt decapitations. So far the cause remains unidentified.

At Rock Island Dam there are also some unusual mortalities in the sample. At that site, small numbers of hatchery coho mortalities have been collected. The coho morts have had unusually high degree of fungus and the fish appear to have arrived at the facility dead.

#### **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. About 1.0 million subyearling fall Chinook were scheduled for release into the Snake River, below Hells Canyon Dam, this week. These subyearlings were reared at Umatilla Hatchery and Oxbow Hatchery (Idaho). Approximately 179,000 sockeye smolts were scheduled to be released into the Salmon River (63%) and Redfish Lake Creek (37%), beginning on or around May 1<sup>st</sup>. Unlike past year's releases, these sockeye smolts are 100% unclipped but are tagged with coded-wire-tags. Finally, 573,338 summer steelhead juveniles from Haggerman NFH were released into tributaries of the Salmon River this week. Of these, about 356,589 were unclipped. However, of the unclipped steelhead, about 35% were tagged with coded-wire-tags.

About 730,000 subyearling fall Chinook juveniles are scheduled to be released in this zone over the next two weeks. Of these, 500,000 were reared at the Nez Perce Tribal Hatchery and are scheduled

for release into Lapwai Creek, a tributary of the Clearwater River. The remaining 230,000 are fall Chinook surrogates that will be released near Captain Johns Rapids from about May 11<sup>th</sup> to May 29<sup>th</sup>. These surrogates are 100% unclipped but are PIT-tagged. The only other release of juvenile salmonids to this zone that is scheduled to begin over the next two weeks is a release of 156,000 summer steelhead to the Grande Ronde River.

**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 150,000 yearling spring Chinook were scheduled to be released into Lake Wenatchee this week. These spring Chinook juveniles are 100% unmarked. Several releases of yearling summer Chinook that began weeks ago were scheduled to end this week. In all, these releases totaled about 1.96 million summer Chinook juveniles and took place in tributaries of the Methow, Okanogan, and Wenatchee rivers, as well as a direct release into the Mid-Columbia River.

Several volitional releases of coho to the Yakima, Methow, Wenatchee, and Mid-Columbia rivers that began in past weeks continued this week. In addition, several volitional releases of coho to the Wenatchee River began this week. These volitional releases total over 424,000 coho juveniles. All of the volitional coho releases for this year are expected to run through late May or early June and total nearly 2.5 million coho juveniles. Finally, several releases of summer steelhead that began in past weeks were scheduled to end this week. In all, these releases totaled about 285,000 juveniles and took place on the Methow and Okanogan River. In addition, approximately 415,000 summer steelhead were scheduled for release into the Wenatchee River this week. Approximately 62% of these summer steelhead were unclipped but had coded-wire-tags and green or pink Elastomer tags.

Approximately 484,000 subyearling summer Chinook are scheduled for release from Wells Hatchery into the mid-Columbia River, beginning May 10<sup>th</sup>. Several volitional releases of yearling spring Chinook that began over a month ago are scheduled to end this week. These volitional releases of yearling spring Chinook include over 851,000 juveniles that were being released into the Yakima River and 610,000 juveniles that were being released into the Wenatchee River. As mentioned above, the Yakama Tribal releases of coho juveniles to the Methow, Wenatchee, and Yakima rivers

are all on-going and likely will not end until late May or early June. Finally, a volitional release of about 50,000 summer steelhead to the Wenatchee River is scheduled to end next week. This release began back in April.

**Lower Columbia Zone:** The Lower Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to McNary Dam. Approximately 90,000 summer steelhead were scheduled for release into the Klickitat River this week. This is the only release of juvenile salmonids to this zone that was scheduled to begin this week.

Spring Creek NFH is scheduled to release about 4.6 million subyearling fall Chinook tules into the Lower Columbia River on May 10<sup>th</sup>. The only other release of juvenile salmonids to this zone that is scheduled to begin over the next two weeks is a release of 12,500 winter steelhead to Hood River.

**Adult Fish Passage:**

Adult counts at Bonneville Dam have been updated through May 6th. Daily adult spring Chinook counts at Bonneville Dam ranged from 4289 to 9184 adult salmon per day. Between March 15th and May 6th, 174330 spring Chinook have been counted at Bonneville Dam. In 2009, 51553 adult spring Chinook were counted at Bonneville Dam for the same time period. The 2010 adult spring Chinook count at Bonneville Dam is about 3.38 times greater than the 2009 count. The Bonneville spring Chinook adult count is about 1.45 times greater than the 10 year average of 119901. The 2010 Bonneville Dam spring Chinook jack count of 2566 is about 27.7% of the 2009 count of 9249 and about 64.2% of the 10 year average of 4000. The 2010 Willamette Falls Dam adult spring Chinook count of 16093 is about 3.27 times greater than the 2009 count of 4921. At The Dalles Dam the 2010 adult spring Chinook count is 114048 and at McNary Dam 73896 adult spring Chinook have been counted. The Dalles Dam 2010 adult spring Chinook count is about 4.7 times greater than the 2009 count of 24109 and is about 1.54 times greater than the 10 year average of 73852. The 2010 McNary Dam adult spring Chinook count is 9.4 times greater than the 2009 count of 7828 and 1.55 times greater than the 10 year average count of 47394. In the Snake River at Lower Granite Dam, the 2010 adult spring Chinook count of 23182 is about 33 times greater than the 2009 count of 703 and about 1.13 times greater than the 10 year average count of 20444. The Bonneville Dam 2010 steelhead count of 4757 is about 2 times greater than the 2009 count of 2339. The 2010 steelhead count is about 1.9 times greater than

the 10-year average of 2509. 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 18 to 76 adults per day last week. This year's Lower Granite steelhead count of 10175 is about 97.5% of the 2009 count of 10435 and 1.21 times greater than the 10 year average of 8383. The 2010 Lower Granite wild steelhead count as of May 6th was 3971. At Rock Island Dam, as of May 5th, 100 adult steelhead have been counted and at Rocky Reach Dam, 293 adult steelhead have been counted so far this season. At Willamette Falls Dam, the 2010 count for steelhead was 10387, as of May 4th. This year's steelhead count is about 2.62 times greater than the 2009 count of 3965 at Willamette Falls Dam for the same date range.

### Hatchery Releases Last Two Weeks

Hatchery Release Summary									
From:		4/23/2010	to	05/06/10					
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
Colville Tribe	Ringold Springs Hatchery	CH1	SU	2010	170,000	04-10-10	04-30-10	Bonaparte Acclimation Pond	Okanogan River
<b>Colville Tribe Total</b>					<b>170,000</b>				
Idaho Dept. of Fish and Game	Clearwater Hatchery	ST	SU	2010	144,900	04-15-10	04-26-10	Clear Creek	Clearwater River M F
Idaho Dept. of Fish and Game	Clearwater Hatchery	ST	SU	2010	176,400	04-15-10	04-26-10	S Fk Clearwater River Redhouse (SFK)	Clearwater River M F
Idaho Dept. of Fish and Game	Clearwater Hatchery	ST	SU	2010	186,600	04-15-10	04-26-10	ClearH2O R)	S Fk Clearwater River
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2010	95,023	04-29-10	04-29-10	Pahsimeroi River	Pahsimeroi River
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2010	117,883	04-27-10	04-28-10	McNabb/Salmon River	Salmon River (ID)
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2010	277,619	04-21-10	04-27-10	Squaw Cr Acclim Pond	Salmon River (ID)
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2010	830,000	04-12-10	05-03-10	Pahsimeroi River	Pahsimeroi River
Idaho Dept. of Fish and Game	Oxbow-Idaho	CH0	FA	2010	200,000	05-01-10	05-01-10	Hells Canyon Dam	Snake River
Idaho Dept. of Fish and Game	Oxbow-Oregon	SO	UN	2010	66,500	05-01-10	05-01-10	Redfish Lake Creek	Salmon River (ID)
Idaho Dept. of Fish and Game	Sawtooth Hatchery	SO	UN	2010	112,500	05-01-10	05-01-10	Salmon River (ID)	Salmon River (ID)
<b>Idaho Dept. of Fish and Game Total</b>					<b>2,207,425</b>				
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU	2010	182,000	04-27-10	04-27-10	L Sheep Acclim Pond	Imnaha River
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU	2010	332,000	04-29-10	04-29-10	Wallowa Acclim Pond	Wallowa River
Oregon Dept. of Fish and Wildlife	Round Butte Hatchery	CH1	SP	2010	212,760	04-13-10	06-01-10	Deschutes River	Deschutes River
Oregon Dept. of Fish and Wildlife	Umatilla Hatchery	CH0	FA	2010	800,000	05-01-10	05-01-10	Hells Canyon Dam	Snake River
Oregon Dept. of Fish and Wildlife	Umatilla Hatchery	ST	SU	2010	50,000	04-27-10	04-27-10	Meacham Creek	Umatilla River
<b>Oregon Dept. of Fish and Wildlife Total</b>					<b>1,576,760</b>				
U.S. Fish and Wildlife Service	Hagerman NFH	ST	SU	2010	125,068	05-03-10	05-04-10	East Fk Salmon River	Salmon River (ID)
U.S. Fish and Wildlife Service	Hagerman NFH	ST	SU	2010	216,749	05-05-10	05-13-10	Yankee Fk (Salmon R)	Salmon River (ID)
U.S. Fish and Wildlife Service	Hagerman NFH	ST	SU	2010	231,521	05-05-10	05-13-10	Yankee Fk (Salmon R)	Salmon River (ID)
U.S. Fish and Wildlife Service	Hagerman NFH	ST	SU	2010	797,070	04-13-10	04-30-10	Salmon River (ID)	Salmon River (ID)
U.S. Fish and Wildlife Service	Winthrop NFH	CH1	SP	2010	495,978	04-19-10	04-29-10	Winthrop Hatchery	Methow River
<b>U.S. Fish and Wildlife Service Total</b>					<b>1,866,386</b>				
Umatilla Tribe	Umatilla Hatchery	ST	SU	2010	54,750	04-20-10	04-27-10	Pendelton Acclim Pond	Umatilla River
Umatilla Tribe	Umatilla Hatchery	ST	SU	2010	54,780	04-20-10	04-27-10	Minthorn Acclimation Pond	Umatilla River
<b>Umatilla Tribe Total</b>					<b>109,530</b>				
Warm Springs Tribe	Carson NFH	CH1	SP	2010	45,000	04-26-10	04-26-10	Blackberry Acclim Pond	Hood River
Warm Springs Tribe	Oak Springs Hatchery	ST	WI	2010	12,500	04-30-10	04-30-10	Parkdale Acclim Pond	Hood River
Warm Springs Tribe	Oak Springs Hatchery	ST	WI	2010	25,000	04-30-10	04-30-10	E Fk Irrig Dist Sand	Hood River
Warm Springs Tribe	Parkdale Acclim. Pond	CH1	SP	2010	30,000	04-26-10	04-26-10	Parkdale Acclim Pond	Hood River
Warm Springs Tribe	Round Butte Hatchery	CH1	SP	2010	37,500	04-26-10	04-26-10	Blackberry Acclim Pond	Hood River
Warm Springs Tribe	Round Butte Hatchery	CH1	SP	2010	37,500	04-26-10	04-26-10	Parkdale Acclim Pond	Hood River
<b>Warm Springs Tribe Total</b>					<b>187,500</b>				

**Hatchery Releases Last Two Weeks (Continued)**

Washington Dept. of Fish and Wildlife	Chelan Hatchery	CH1	SU	2010	200,000	04-01-10	04-30-10	Chelan Falls	Mid-Columbia River
Washington Dept. of Fish and Wildlife	Chiwawa Hatchery	CH1	SP	2010	610,000	04-15-10	05-15-10	Chiwawa River	Wenatchee River
Washington Dept. of Fish and Wildlife	Eastbank Hatchery	CH1	SP	2010	150,000	05-01-10	05-07-10	Lake Wenatchee	Wenatchee River
Washington Dept. of Fish and Wildlife	Eastbank Hatchery	CH1	SU	2010	350,000	04-10-10	05-05-10	Similkameen Acclim Pd	Okanogan River
Washington Dept. of Fish and Wildlife	Eastbank Hatchery	CH1	SU	2010	950,000	04-25-10	05-05-10	Dryden Acclim Pond	Wenatchee River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2010	50,000	04-12-10	04-26-10	Baileysburg Bridge	Touchet River
Washington Dept. of Fish and Wildlife	Methow Hatchery	CH1	SP	2010	79,000	04-20-10	04-30-10	Twisp Acclim Pond	Methow River
Washington Dept. of Fish and Wildlife	Methow Hatchery	CH1	SP	2010	202,000	04-20-10	04-30-10	Twisp River	Methow River
Washington Dept. of Fish and Wildlife	Methow Hatchery	CH1	SP	2010	260,000	04-20-10	04-30-10	Chewuch Acclim Pond	Methow River
Washington Dept. of Fish and Wildlife	Methow Hatchery	CH1	SU	2010	400,000	04-20-10	05-01-10	Carlton Acclim Pond	Methow River
Washington Dept. of Fish and Wildlife	Skamania Hatchery	ST	SU	2010	24,000	04-25-10	05-05-10	White Salmon River	White Salmon River
Washington Dept. of Fish and Wildlife	Skamania Hatchery	ST	SU	2010	90,000	05-01-10	05-07-10	Klickitat River	Klickitat River
Washington Dept. of Fish and Wildlife	Skamania Hatchery	ST	WI	2010	20,000	04-25-10	05-05-10	White Salmon River	White Salmon River
Washington Dept. of Fish and Wildlife	Tucannon Hatchery	ST	SU	2010	9,500	04-29-10	04-29-10	Tucannon Hatchery	Tucannon River
Washington Dept. of Fish and Wildlife	Turtle Rock Hatchery	CH1	SU	2010	257,000	04-25-10	05-05-10	Turtle Rock Hatchery	Mid-Columbia River
Washington Dept. of Fish and Wildlife	Turtle Rock Hatchery	ST	SU	2010	50,000	04-10-10	05-15-10	Wenatchee River	Wenatchee River
Washington Dept. of Fish and Wildlife	Turtle Rock Hatchery	ST	SU	2010	115,000	05-01-10	05-07-10	Chiwawa River	Wenatchee River
Washington Dept. of Fish and Wildlife	Turtle Rock Hatchery	ST	SU	2010	144,000	05-01-10	05-07-10	Nason Creek	Wenatchee River
Washington Dept. of Fish and Wildlife	Turtle Rock Hatchery	ST	SU	2010	156,000	05-01-10	05-07-10	Wenatchee River	Wenatchee River
Washington Dept. of Fish and Wildlife	Wells Hatchery	CH1	SU	2010	335,000	04-15-10	06-01-10	Wells Hatchery	Mid-Columbia River
Washington Dept. of Fish and Wildlife	Wells Hatchery	ST	SU	2010	105,000	04-20-10	05-05-10	Okanogan River	Okanogan River
Washington Dept. of Fish and Wildlife	Wells Hatchery	ST	SU	2010	180,000	04-20-10	05-05-10	Methow River	Methow River
<b>Washington Dept. of Fish and Wildlife Total</b>					<b>4,736,500</b>				
Yakama Tribe	Cascade Hatchery	CO	UN	2010	59,963	05-01-10	05-07-10	Coulter Creek Butcher Creek Acclim.	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2010	118,001	05-01-10	05-07-10	Pond	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2010	118,241	05-01-10	05-07-10	Wenatchee River	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2010	219,746	04-24-10	04-30-10	Icicle Creek	Wenatchee River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2010	280,960	03-15-10	05-14-10	Clark Flat Acclim Pond Jack Creek Acclim	Yakima River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2010	282,011	03-15-10	05-14-10	Pond	Yakima River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2010	288,342	03-15-10	05-14-10	Easton Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2010	15,846	04-07-10	06-01-10	Holmes Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2010	37,806	04-12-10	06-01-10	Boone Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2010	45,060	04-12-10	06-01-10	Prosser Acclim Pond Lost Creek Acclim	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2010	134,850	04-12-10	06-01-10	Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2010	135,086	04-12-10	06-01-10	Naches River	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2010	205,926	04-12-10	06-01-10	Easton Pond	Yakima River
Yakama Tribe	Entiat Hatchery	CO	UN	2010	209,754	04-24-10	04-30-10	Icicle Creek Lost Creek Acclim	Wenatchee River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2010	38,159	04-12-10	06-01-10	Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2010	74,342	04-07-10	06-01-10	Holmes Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2010	74,438	04-12-10	06-01-10	Naches River	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2010	137,659	04-12-10	06-01-10	Prosser Acclim Pond	Yakima River
Yakama Tribe	Wells Hatchery	CH0	SU	2010	202,000	04-29-10	04-29-10	Naches River	Yakima River
Yakama Tribe	Willard Hatchery	CO	UN	2010	10,060	05-01-10	05-07-10	Coulter Creek Butcher Creek Acclim.	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2010	29,189	05-01-10	05-07-10	Pond	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2010	59,101	04-29-10	04-29-10	Winthrop Hatchery	Methow River
Yakama Tribe	Willard Hatchery	CO	UN	2010	131,777	04-15-10	04-25-10	Wells Hatchery	Mid-Columbia River
Yakama Tribe	Willard Hatchery	CO	UN	2010	147,604	04-24-10	04-30-10	Icicle Creek	Wenatchee River
Yakama Tribe	Winthrop NFH	CO	UN	2010	89,213	04-24-10	04-30-10	Twisp Acclim Pond	Methow River
<b>Yakama Tribe Total</b>					<b>3,145,134</b>				
<b>Grand Total</b>					<b>13,999,235</b>				

### Hatchery Releases Next Two Weeks

Hatchery Release Summary									
From:	5/7/2010		to		5/20/2010				
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
National Marine Fisheries Service	Lyons Ferry Hatchery	CH0	FA	2010	230,000	05-11-10	05-29-10	Couse Creek	Snake River
<b>National Marine Fisheries Service Total</b>					<b>230,000</b>				
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH0	FA	2010	500,000	05-15-10	05-15-10	Lapwai Creek	Clearwater River M F
<b>Nez Perce Tribe Total</b>					<b>500,000</b>				
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU	2010	156,000	05-10-10	05-10-10	Big Canyon Acclim.Pd (Grande Ronde)	Grande Ronde River
Oregon Dept. of Fish and Wildlife	Round Butte Hatchery	CH1	SP	2010	212,760	04-13-10	06-01-10	Deschutes River	Deschutes River
<b>Oregon Dept. of Fish and Wildlife Total</b>					<b>368,760</b>				
U.S. Fish and Wildlife Service	Hagerman NFH	ST	SU	2010	216,749	05-05-10	05-13-10	Yankee Fk (Salmon R)	Salmon River (ID)
U.S. Fish and Wildlife Service	Hagerman NFH	ST	SU	2010	231,521	05-05-10	05-13-10	Yankee Fk (Salmon R)	Salmon River (ID)
U.S. Fish and Wildlife Service	Spring Creek NFH	CH0	FA	2010	4,600,000	05-10-10	05-10-10	Spring Creek Hatchery	L Col R (D/s McN Dam)
<b>U.S. Fish and Wildlife Service Total</b>					<b>5,048,270</b>				
Warm Springs Tribe	Oak Springs Hatchery	ST	WI	2010	12,500	05-14-10	05-14-10	Parkdale Acclim Pond	Hood River
<b>Warm Springs Tribe Total</b>					<b>12,500</b>				
Washington Dept. of Fish and Wildlife	Chiwawa Hatchery	CH1	SP	2010	610,000	04-15-10	05-15-10	Chiwawa River	Wenatchee River
Washington Dept. of Fish and Wildlife	Eastbank Hatchery	CH1	SP	2010	150,000	05-01-10	05-07-10	Lake Wenatchee	Wenatchee River
Washington Dept. of Fish and Wildlife	Skamania Hatchery	ST	SU	2010	90,000	05-01-10	05-07-10	Klickitat River	Klickitat River
Washington Dept. of Fish and Wildlife	Turtle Rock Hatchery	ST	SU	2010	50,000	04-10-10	05-15-10	Wenatchee River	Wenatchee River
Washington Dept. of Fish and Wildlife	Turtle Rock Hatchery	ST	SU	2010	115,000	05-01-10	05-07-10	Chiwawa River	Wenatchee River
Washington Dept. of Fish and Wildlife	Turtle Rock Hatchery	ST	SU	2010	144,000	05-01-10	05-07-10	Nason Creek	Wenatchee River
Washington Dept. of Fish and Wildlife	Turtle Rock Hatchery	ST	SU	2010	156,000	05-01-10	05-07-10	Wenatchee River	Wenatchee River
Washington Dept. of Fish and Wildlife	Wells Hatchery	CH1	SU	2010	335,000	04-15-10	06-01-10	Wells Hatchery	Mid-Columbia River
Washington Dept. of Fish and Wildlife	Wells Hatchery	CH0	SU	2010	484,000	05-10-10	05-20-10	Wells Hatchery	Mid-Columbia River
<b>Washington Dept. of Fish and Wildlife Total</b>					<b>2,134,000</b>				
Yakama Tribe	Cascade Hatchery	CO	UN	2010	59,114	05-07-10	05-14-10	Rolfings Acclim Pond	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2010	59,963	05-01-10	05-07-10	Coulter Creek Butcher Creek Acclim.	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2010	118,001	05-01-10	05-07-10	Pond	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2010	118,241	05-01-10	05-07-10	Wenatchee River	Wenatchee River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2010	280,960	03-15-10	05-14-10	Clark Flat Acclim Pond Jack Creek Acclim	Yakima River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2010	282,011	03-15-10	05-14-10	Pond	Yakima River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2010	288,342	03-15-10	05-14-10	Easton Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2010	15,846	04-07-10	06-01-10	Holmes Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2010	37,806	04-12-10	06-01-10	Boone Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2010	45,060	04-12-10	06-01-10	Prosser Acclim Pond Lost Creek Acclim	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2010	134,850	04-12-10	06-01-10	Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2010	135,086	04-12-10	06-01-10	Naches River	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2010	205,926	04-12-10	06-01-10	Easton Pond Lost Creek Acclim	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2010	38,159	04-12-10	06-01-10	Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2010	74,342	04-07-10	06-01-10	Holmes Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2010	74,438	04-12-10	06-01-10	Naches River	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2010	137,659	04-12-10	06-01-10	Prosser Acclim Pond	Yakima River
Yakama Tribe	Willard Hatchery	CO	UN	2010	10,060	05-01-10	05-07-10	Coulter Creek Butcher Creek Acclim.	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2010	29,189	05-01-10	05-07-10	Pond	Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2010	29,446	05-07-10	05-14-10	Rolfings Acclim Pond	Wenatchee River
<b>Yakama Tribe Total</b>					<b>2,174,499</b>				
<b>Grand Total</b>					<b>10,468,029</b>				

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
04/23/2010	82.8	0.0	79.6	0.0	94.4	7.3	95.7	0.0	100.8	8.2	116.3	19.9	114.7	15.0
04/24/2010	64.4	0.0	68.0	0.0	76.8	6.0	76.4	0.0	79.4	8.2	86.1	19.3	84.8	24.5
04/25/2010	73.7	0.0	69.7	0.0	86.2	6.5	86.1	0.0	91.2	8.2	98.2	19.7	89.5	24.6
04/26/2010	101.6	0.0	99.7	0.0	112.5	8.1	111.2	0.0	112.0	9.4	116.1	19.6	115.0	26.7
04/27/2010	86.2	0.0	90.0	0.0	97.1	7.2	92.7	0.0	97.3	10.2	127.1	19.6	128.0	25.1
04/28/2010	74.0	0.0	82.5	0.0	95.3	7.1	95.1	0.0	99.5	11.4	106.1	18.0	99.6	24.3
04/29/2010	77.8	0.0	78.7	0.0	97.0	7.0	97.7	0.0	103.5	10.1	108.9	18.1	104.5	25.8
04/30/2010	72.5	0.0	75.2	0.0	80.1	6.6	75.9	0.0	81.6	9.6	102.0	17.5	107.5	26.4
05/01/2010	77.3	0.0	79.7	0.0	84.8	6.3	84.6	0.0	87.9	10.3	98.4	16.2	100.7	22.6
05/02/2010	84.0	0.0	74.6	0.0	83.2	6.0	76.5	0.0	84.2	9.2	101.6	15.2	99.3	22.3
05/03/2010	103.6	0.0	103.9	0.0	119.4	8.3	124.7	0.0	130.9	11.4	102.6	16.4	91.2	23.1
05/04/2010	106.1	0.0	110.2	0.0	113.2	8.0	106.4	0.0	112.4	10.6	111.2	17.9	115.5	25.1
05/05/2010	99.5	0.0	98.7	0.0	107.4	8.6	106.3	0.0	115.8	12.1	127.0	17.9	121.2	25.8
05/06/2010	101.9	0.1	99.7	0.0	113.3	8.1	107.9	0.0	113.2	11.6	116.9	17.8	117.1	24.0

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

Date	Dworshak		Hells Canyon		Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill	Inflow	Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
04/23/2010	1.2	0.0	22.3	18.3	76.2	20.4	74.1	22.3	73.6	24.0	75.4	49.1
04/24/2010	1.2	0.0	21.2	16.5	69.3	20.5	66.8	20.1	68.5	26.8	71.2	49.1
04/25/2010	1.2	0.0	19.9	15.2	61.6	20.5	60.3	18.1	60.8	26.9	64.6	47.0
04/26/2010	1.2	0.0	18.9	16.8	55.4	20.5	53.2	15.9	54.1	26.8	55.0	44.1
04/27/2010	1.3	0.0	18.0	16.8	53.0	20.6	51.6	15.4	52.7	25.3	53.8	43.8
04/28/2010	1.2	0.0	18.8	12.6	55.8	20.4	55.2	16.6	53.7	23.9	55.3	45.1
04/29/2010	1.1	0.0	19.7	18.8	60.3	20.3	58.1	17.3	58.3	25.1	59.6	49.4
04/30/2010	1.2	0.0	18.5	22.4	59.1	20.4	58.9	17.6	60.2	31.1	62.3	26.7
05/01/2010	1.2	0.0	17.1	24.1	65.7	20.5	65.3	19.5	65.3	35.9	66.3	19.8
05/02/2010	1.2	0.0	16.7	21.3	58.9	20.6	54.9	16.6	53.8	38.4	56.7	39.3
05/03/2010	1.2	0.0	16.5	22.6	58.8	20.4	59.9	18.0	61.3	39.9	62.9	46.0
05/04/2010	1.2	0.0	15.6	15.8	62.5	20.5	59.9	18.0	59.3	39.7	61.4	24.3
05/05/2010	1.1	0.0	15.2	15.7	55.3	20.3	53.6	16.0	54.6	37.5	56.2	16.8
05/06/2010	1.1	0.0	---	---	52.8	20.6	51.7	15.4	52.5	37.9	54.5	38.4

**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
04/23/2010	182.2	73.0	203.9	61.1	194.7	77.6	205.4	99.6	1.8	91.6
04/24/2010	173.9	69.7	171.9	51.6	163.4	65.6	187.2	99.5	0.5	74.7
04/25/2010	173.0	69.5	188.9	56.8	181.0	72.4	195.6	99.2	0.0	84.0
04/26/2010	168.8	68.1	176.5	52.8	168.3	67.2	178.4	99.3	0.0	68.7
04/27/2010	177.2	71.2	175.6	52.8	168.5	67.4	187.2	99.3	14.6	63.1
04/28/2010	165.8	66.6	162.0	48.7	151.7	60.8	170.5	99.4	0.0	58.7
04/29/2010	160.2	64.4	167.0	50.1	155.2	62.2	173.3	99.5	0.0	61.5
04/30/2010	155.7	62.6	161.8	60.7	152.9	61.1	174.5	99.3	0.0	62.7
05/01/2010	182.8	73.8	180.2	72.1	169.5	67.5	172.4	99.5	0.0	60.5
05/02/2010	154.5	61.9	173.9	69.5	164.2	65.7	181.0	99.7	0.0	68.9
05/03/2010	180.0	71.9	177.2	70.8	168.4	67.3	185.0	99.5	0.5	72.6
05/04/2010	174.4	70.3	186.5	59.1	176.3	70.5	199.1	99.5	6.6	80.5
05/05/2010	189.8	76.1	188.0	56.4	178.3	70.9	191.9	99.6	0.6	79.2
05/06/2010	153.2	61.6	162.2	61.4	149.9	60.1	170.3	99.1	0.0	58.8

## 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		
4/23	99.4	100.0	100.9	23	106.1	107.0	107.9	21	104.7	105.0	105.4	24	104.8	105.1	105.6	21	105.5	105.8	106.1	24
4/24	99.0	99.4	99.9	24	105.8	106.2	106.7	23	104.8	105.3	107.2	24	104.4	104.7	105.3	23	105.0	105.2	105.4	24
4/25	98.6	99.1	99.9	23	105.1	106.1	107.3	21	103.5	103.9	104.2	24	103.3	103.4	103.5	21	104.7	105.1	105.4	24
4/26	99.2	100.0	100.7	23	107.5	109.6	111.7	22	105.9	107.1	107.8	24	105.0	105.9	106.5	22	105.4	105.7	105.9	24
4/27	99.8	100.3	100.7	24	107.2	107.6	108.3	22	109.5	110.0	110.1	24	107.3	107.9	108.5	22	106.2	106.4	106.6	24
4/28	99.9	100.0	100.2	24	106.5	106.8	107.0	23	108.6	109.3	109.7	24	106.3	106.7	107.2	23	105.6	105.9	105.9	24
4/29	100.2	100.6	101.0	23	105.7	105.9	106.3	22	106.1	106.6	107.1	24	105.0	105.5	106.3	22	104.8	105.0	105.4	24
4/30	97.3	98.1	98.8	24	105.3	105.7	106.1	23	104.9	105.0	105.1	24	103.6	104.0	104.5	23	104.5	105.1	105.3	24
5/1	96.7	97.0	97.3	24	105.7	106.5	107.6	23	105.4	105.5	105.5	24	104.7	105.7	107.0	23	104.9	105.3	105.6	24
5/2	96.4	96.6	96.9	24	105.1	105.9	106.5	22	104.9	105.1	105.5	24	104.1	104.8	105.6	22	104.5	104.8	105.0	24
5/3	97.7	98.5	99.3	24	106.3	106.7	107.4	21	105.7	106.1	106.4	24	105.0	105.5	106.5	21	104.6	104.9	105.2	24
5/4	96.4	96.6	97.0	23	104.5	104.9	105.5	22	103.6	103.9	104.4	24	103.0	103.7	104.5	22	103.3	103.5	103.6	24
5/5	96.7	96.8	96.9	19	104.7	105.3	106.6	21	104.0	104.5	104.7	24	102.4	102.8	103.1	21	103.2	103.4	103.5	24
5/6	96.3	96.7	96.9	24	104.2	105.0	105.8	22	104.1	104.3	104.7	24	102.8	103.0	103.5	22	102.4	102.6	102.9	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		
4/23	105.4	105.9	106.6	24	106.0	106.4	106.6	24	107.4	107.9	108.4	24	108.0	108.5	108.8	24	107.4	107.7	108.0	24
4/24	104.7	105.5	106.8	24	104.7	105.0	105.4	24	106.1	106.5	107.0	24	107.7	107.9	108.2	24	107.1	107.3	107.6	24
4/25	104.6	105.8	106.3	24	104.4	104.9	105.5	24	106.1	106.6	107.3	24	106.9	107.2	107.4	24	106.4	106.7	107.0	24
4/26	105.0	105.9	106.5	24	105.6	106.4	106.7	24	107.0	107.7	107.9	24	107.4	107.8	108.3	24	107.0	107.3	107.8	24
4/27	106.5	107.3	107.9	24	107.0	107.2	107.5	24	108.1	108.5	109.0	24	109.0	109.1	109.2	24	108.4	108.7	108.9	24
4/28	106.7	107.2	107.6	24	105.8	106.1	106.6	23	106.9	107.2	107.7	23	108.2	108.3	108.5	24	107.6	107.9	108.1	24
4/29	105.6	106.0	106.4	24	104.6	105.0	105.3	24	105.7	106.2	106.7	24	106.5	107.2	107.8	24	106.0	106.6	107.1	24
4/30	105.0	105.7	106.1	24	103.6	104.1	104.6	24	104.7	105.5	106.0	24	104.8	104.9	105.0	24	104.8	105.3	105.7	24
5/1	105.4	105.8	106.8	24	104.3	104.8	105.2	24	105.3	105.9	106.1	24	105.4	105.7	105.8	24	105.1	105.3	105.4	24
5/2	104.9	105.3	106.2	24	104.0	104.4	104.6	24	105.5	106.0	106.2	24	105.0	105.4	105.8	24	104.7	105.0	105.6	24
5/3	104.5	104.9	105.4	24	104.3	104.9	105.2	24	105.8	106.3	106.5	24	105.4	105.8	106.1	24	104.9	105.7	106.3	24
5/4	103.2	103.8	104.3	24	102.2	102.5	102.7	24	104.0	104.4	104.7	24	104.2	104.5	104.6	24	103.9	104.1	104.4	24
5/5	103.1	103.3	103.7	24	102.7	103.4	104.2	24	104.2	105.0	106.1	24	104.4	104.5	104.6	24	103.8	103.9	104.0	24
5/6	102.7	103.2	103.5	24	102.7	103.2	103.8	24	104.3	104.9	105.8	24	104.5	104.7	104.8	24	103.4	104.0	104.4	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		
4/23	107.7	108.2	108.6	24	110.2	111.3	113.0	24	107.3	107.8	108.1	24	111.5	112.7	114.7	24	---	---	---	0
4/24	107.0	107.4	108.2	24	111.1	112.6	114.8	24	106.9	107.4	107.6	34	112.0	112.8	113.0	34	109.6	110.1	110.4	24
4/25	106.7	107.0	107.4	24	109.9	111.2	112.8	24	106.2	107.0	107.5	34	111.4	112.9	113.6	34	109.6	110.8	112.3	24
4/26	107.7	108.1	108.3	24	110.2	111.2	112.6	24	108.9	110.1	110.6	24	111.6	112.1	112.7	24	112.9	113.6	113.9	24
4/27	108.6	109.0	109.2	24	111.6	112.2	113.9	24	110.8	111.1	111.5	34	113.1	114.0	114.7	34	112.6	113.0	113.2	34
4/28	107.6	107.8	108.2	24	110.9	111.8	114.9	24	109.0	109.4	110.3	24	111.5	112.2	113.2	24	110.0	110.3	110.6	24
4/29	106.3	106.6	107.5	24	109.8	111.3	114.8	24	105.5	106.6	107.8	24	109.3	110.5	112.0	24	107.8	108.7	109.5	24
4/30	104.9	105.2	105.5	24	109.5	110.6	112.9	24	103.6	104.0	104.5	24	108.4	108.9	110.1	24	104.9	105.4	106.0	24
5/1	105.3	105.5	105.8	24	109.6	110.5	113.0	24	104.5	104.7	105.0	24	108.6	109.7	110.3	24	106.6	107.1	107.3	24
5/2	104.9	105.1	105.4	24	108.7	109.8	112.1	24	103.6	103.8	103.9	24	107.5	108.0	109.5	24	105.5	106.0	106.5	24
5/3	98.7	106.6	114.2	23	108.5	110.1	116.1	24	---	---	---	0	---	---	---	0	---	---	---	0
5/4	104.1	104.9	107.5	24	107.3	108.1	109.7	24	---	---	---	0	---	---	---	0	---	---	---	0
5/5	103.7	104.4	104.7	24	107.6	108.4	111.0	24	---	---	---	0	---	---	---	0	---	---	---	0
5/6	103.8	104.1	104.5	24	107.7	108.4	111.5	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	<u>Priest R. Dnst</u>			#	<u>Pasco</u>			#	<u>Dworshak</u>			#	<u>Clrwtr-Peck</u>			#	<u>Anatone</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		
4/23	107.7	111.4	112.5	24	104.6	105.4	106.0	24	105.1	105.6	106.3	18	98.1	98.3	98.7	24	102.0	102.9	103.7	24
4/24	111.4	112.0	112.2	34	104.6	105.6	106.0	24	105.8	106.9	107.6	24	98.3	98.5	98.8	24	101.9	102.3	102.8	24
4/25	111.3	112.4	112.5	34	107.3	108.8	109.2	24	105.4	106.3	107.1	24	98.7	99.6	100.3	23	102.1	103.0	103.7	24
4/26	113.8	114.6	114.9	24	109.7	111.0	111.4	24	106.2	107.2	109.5	24	100.3	101.3	101.7	22	102.9	103.8	104.4	24
4/27	114.2	114.7	114.9	34	110.7	111.5	112.5	24	106.1	107.2	108.5	24	100.2	100.6	101.4	21	102.3	102.7	103.0	24
4/28	111.6	112.2	113.2	24	107.2	107.7	108.3	24	116.9	126.1	129.9	24	98.7	99.2	99.8	21	101.6	102.3	103.1	24
4/29	109.5	110.1	110.5	24	105.3	105.7	106.2	24	106.2	106.6	107.4	24	100.2	101.1	101.4	24	101.3	101.5	101.7	24
4/30	108.2	108.8	109.3	24	104.5	105.3	105.8	24	105.0	105.2	105.6	24	101.0	101.4	101.6	24	101.6	101.9	102.2	24
5/1	109.6	110.0	110.6	24	105.6	106.3	106.8	24	105.5	106.2	106.7	24	101.7	102.1	102.7	24	102.0	102.5	102.8	24
5/2	108.9	109.6	109.8	24	104.7	105.5	106.2	24	105.4	105.9	106.4	24	101.7	102.5	103.0	24	102.1	102.9	103.4	24
5/3	---	---	---	0	104.1	104.8	105.2	24	106.1	106.6	107.3	24	101.7	102.0	102.4	24	102.0	102.4	102.8	24
5/4	---	---	---	0	102.1	103.4	104.4	24	105.7	106.4	107.0	24	101.1	102.1	102.6	23	101.1	102.0	102.6	24
5/5	---	---	---	0	106.0	107.0	107.8	24	105.5	105.8	106.1	24	101.7	102.2	102.8	24	101.5	102.0	102.3	24
5/6	---	---	---	0	106.9	108.0	108.5	24	104.8	105.2	105.7	24	101.7	102.4	103.1	24	101.1	101.7	101.9	24

### Total Dissolved Gas Saturation Data at Snake River Sites

Date	<u>Clrwtr-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>	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		
4/23	101.8	103.2	104.2	22	100.7	100.9	101.5	24	109.5	109.8	110.3	24	108.2	108.6	108.8	24	111.0	111.4	111.8	24
4/24	101.6	102.4	103.4	24	99.3	99.8	100.4	24	109.6	109.9	110.5	24	106.6	107.1	107.9	24	110.2	110.4	110.8	24
4/25	102.2	104.0	105.3	22	98.7	99.0	99.4	24	109.4	109.8	110.3	24	105.7	106.3	106.6	24	109.7	110.0	110.3	24
4/26	102.9	104.7	106.0	24	101.5	102.7	103.7	24	110.2	110.8	111.7	24	106.7	107.2	108.0	24	111.4	112.1	112.6	24
4/27	102.0	102.7	103.0	24	104.0	104.2	104.5	24	111.3	111.5	111.7	24	108.0	108.1	108.3	24	112.3	112.5	112.7	24
4/28	101.2	102.2	103.3	22	103.3	103.5	103.8	24	110.5	110.8	111.1	24	106.7	106.9	107.2	24	110.7	111.0	111.6	24
4/29	99.8	99.9	100.2	18	102.6	102.9	103.3	24	109.9	110.2	110.5	24	105.7	106.2	106.5	24	109.4	109.6	110.0	24
4/30	100.6	101.3	101.9	23	100.7	101.0	101.8	24	109.9	110.2	110.5	24	104.3	104.5	104.6	24	108.6	108.8	109.0	24
5/1	101.4	102.2	103.2	19	100.0	100.2	100.3	24	109.8	110.1	110.2	24	104.0	104.1	104.3	24	109.0	109.2	109.3	24
5/2	101.3	102.5	103.2	22	99.8	100.1	100.5	24	110.1	110.6	110.7	24	103.5	103.8	104.0	24	108.3	108.6	108.8	24
5/3	100.8	101.3	101.6	24	101.2	101.5	101.6	24	109.8	110.2	110.8	24	104.3	104.7	105.1	24	108.9	109.4	109.6	24
5/4	99.7	101.1	101.9	23	100.3	100.5	100.8	24	109.4	109.8	111.2	24	102.8	103.1	103.3	24	107.8	108.1	108.3	24
5/5	100.8	101.3	101.8	21	101.0	101.2	101.4	24	110.1	110.4	110.5	24	103.5	103.8	104.5	24	108.5	108.7	108.8	24
5/6	100.6	101.5	102.1	23	100.1	100.4	101.0	24	110.5	110.8	111.2	24	103.5	103.8	104.2	24	108.7	109.0	109.2	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>	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		
4/23	109.4	109.7	110.0	24	116.9	118.7	119.1	24	111.2	111.5	112.0	24	115.5	115.9	116.5	24	---	---	---	0
4/24	108.9	109.2	109.8	24	118.1	118.4	118.6	24	111.0	111.2	111.4	24	114.8	115.5	115.7	24	---	---	---	0
4/25	108.8	109.6	110.0	24	118.6	118.9	119.2	24	110.5	111.0	111.7	24	114.7	115.2	115.5	24	---	---	---	0
4/26	110.0	110.9	111.4	24	119.0	119.5	119.9	24	112.8	113.6	114.7	24	114.2	114.6	114.9	24	---	---	---	0
4/27	111.4	111.7	111.9	24	116.5	119.1	119.5	24	115.3	115.6	116.1	24	113.9	114.6	115.2	24	---	---	---	0
4/28	109.8	110.2	111.2	24	112.9	113.1	113.8	24	114.4	114.9	115.5	24	114.1	114.4	114.7	24	---	---	---	0
4/29	107.1	107.7	108.5	24	114.5	116.4	117.9	24	111.6	112.4	113.2	24	114.6	115.2	115.7	24	---	---	---	0
4/30	105.1	105.3	105.7	24	116.3	117.6	117.9	24	107.9	108.2	109.6	24	112.3	114.0	115.5	24	---	---	---	0
5/1	105.4	105.8	106.3	24	114.6	114.9	115.1	24	107.9	108.2	108.5	24	111.9	112.8	113.1	24	---	---	---	0
5/2	105.8	106.2	106.5	24	115.2	115.9	116.1	24	108.3	108.8	109.1	24	113.6	114.4	114.8	24	---	---	---	0
5/3	106.0	106.7	106.8	24	115.9	116.3	116.5	24	109.5	109.9	110.4	24	114.0	114.5	115.9	24	---	---	---	0
5/4	104.1	104.4	104.6	24	115.4	115.8	116.2	24	107.7	107.9	108.3	24	111.5	112.8	113.4	24	---	---	---	0
5/5	104.7	104.9	105.0	24	115.0	115.7	115.9	24	107.6	107.8	108.1	24	110.8	111.7	112.8	24	---	---	---	0
5/6	104.7	105.1	106.0	24	114.8	115.3	115.5	24	109.0	110.1	111.0	24	112.9	114.3	114.8	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	McNary-Wash			#	McNary Tlwr			#	John Day			#	John Day Tlwr			#	The Dalles			#
	24 h	12 h			24 h	12 h			24h	12h			24h	12h			24h	12h		
	Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	AVG	High	
4/23	107.1	107.5	108.4	24	115.3	115.8	116.2	24	105.1	105.7	106.4	24	113.4	113.8	114.1	24	107.4	108.5	109.2	24
4/24	106.1	106.4	107.2	24	115.7	116.2	116.9	24	104.9	105.2	105.7	24	113.6	113.9	114.0	24	107.8	108.5	109.4	24
4/25	105.4	105.8	106.3	24	115.6	116.1	116.7	24	104.5	105.1	105.7	24	113.5	113.8	114.0	24	108.1	109.2	110.0	24
4/26	108.0	108.9	109.5	24	115.7	116.3	116.9	24	106.0	106.8	107.2	24	113.7	114.0	114.3	24	110.8	111.0	111.3	24
4/27	109.8	110.6	111.1	24	115.1	115.9	116.6	24	107.0	107.2	107.7	24	113.7	114.1	114.3	24	110.4	110.8	110.9	24
4/28	109.8	110.3	110.9	24	116.1	116.5	116.7	24	105.8	106.1	106.4	24	113.4	113.8	114.2	24	108.1	108.5	109.0	24
4/29	106.4	107.2	108.3	24	115.6	116.2	116.5	24	104.6	105.0	105.5	24	113.0	113.3	113.5	24	106.0	106.4	107.0	24
4/30	104.1	104.3	104.9	24	115.9	116.2	116.6	24	103.1	103.4	103.6	24	112.0	112.6	113.0	24	104.7	105.0	105.3	24
5/1	104.3	104.4	104.5	24	114.4	115.0	116.1	24	103.1	103.4	103.6	24	112.3	112.8	113.7	24	106.3	107.1	107.5	24
5/2	103.8	104.2	104.6	24	115.1	115.5	116.6	24	101.9	102.1	102.4	24	111.0	111.6	112.4	24	106.6	107.3	107.9	24
5/3	104.4	104.9	105.1	24	114.2	115.5	116.5	24	101.8	102.2	102.4	24	112.6	113.3	113.8	24	107.2	107.8	108.0	24
5/4	102.5	102.7	102.9	24	113.3	113.6	114.3	24	100.5	100.8	101.2	24	111.2	111.6	111.8	24	105.3	106.0	106.4	24
5/5	103.1	103.3	103.5	24	113.8	114.6	115.5	24	100.9	101.1	101.2	24	111.1	111.4	111.7	24	105.6	106.0	106.4	24
5/6	102.9	103.2	103.4	24	115.7	116.6	117.0	24	100.8	101.1	101.3	24	110.6	111.1	111.5	24	105.3	105.8	106.0	24

### Total Dissolved Gas Saturation Data at Lower Columbia River Sites

Date	The Dalles Dnst			#	Bonneville			#	Warrendale			#	Camas\Washougal			#	Cascade Island			#
	24 h	12 h			24 h	12 h			24h	12h			24h	12h			24h	12h		
	Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	AVG	High	
4/23	114.0	114.7	115.3	24	106.1	107.0	107.6	24	114.1	114.4	114.8	24	111.5	113.2	114.3	24	116.5	116.9	117.0	24
4/24	113.9	114.3	114.5	24	107.8	108.2	108.7	24	114.3	114.8	115.2	24	110.2	111.0	111.3	24	116.3	116.4	117.0	24
4/25	114.3	115.3	115.6	24	110.1	111.3	112.1	24	115.7	116.1	116.5	24	113.0	115.0	116.0	24	116.6	116.9	117.0	24
4/26	116.1	116.5	116.8	24	112.2	112.8	114.0	24	116.3	116.7	117.1	24	110.9	111.9	114.2	24	117.0	117.1	117.5	24
4/27	115.7	116.3	116.6	24	115.2	115.6	115.8	24	116.7	116.9	117.2	24	113.9	115.1	115.6	24	117.0	117.1	117.4	24
4/28	114.0	114.5	115.0	24	111.9	112.8	114.1	24	116.1	116.4	116.6	24	113.2	113.8	114.2	24	116.6	116.8	117.0	24
4/29	112.5	112.9	113.2	24	108.0	108.6	109.6	24	115.0	115.4	115.8	24	112.4	112.9	113.5	24	116.2	116.3	116.4	24
4/30	111.4	111.7	111.9	24	106.2	106.6	106.8	24	114.6	115.0	115.3	24	112.3	113.6	114.4	24	116.1	116.1	116.2	24
5/1	112.1	112.8	113.0	24	106.1	106.4	106.7	24	114.6	115.1	115.3	24	112.0	112.5	112.8	24	116.3	116.5	116.8	24
5/2	112.2	112.4	113.1	24	106.4	107.3	107.8	24	114.4	115.0	115.4	24	111.7	112.8	113.3	24	116.3	116.5	116.9	24
5/3	112.3	112.9	113.5	24	106.6	107.0	107.8	24	114.1	115.1	116.1	24	110.3	110.9	112.1	24	116.6	116.9	117.3	24
5/4	111.1	112.0	112.1	24	106.6	107.5	108.1	24	113.9	114.3	114.9	24	109.7	111.8	113.7	24	116.6	116.9	117.1	24
5/5	111.1	111.4	111.6	24	108.3	108.5	108.7	24	114.4	114.7	115.1	24	111.4	112.1	112.9	24	116.3	116.5	116.9	24
5/6	110.2	111.2	112.2	24	108.4	108.8	109.3	24	115.6	116.3	116.8	24	113.1	115.2	116.6	24	116.5	116.7	116.9	24

Two-Week Summary of Passage Indices

COMBINED YEARLING CHINOOK											
	WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date	(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
04/23/2010 *	1,860	---	1,449	829	116,972	---	159	58	8,464	3,757	33,656
04/24/2010 *	1,051	---	1,006	885	121,282	---	---	94	---	6,900	26,036
04/25/2010 *	617	338	552	116	94,213	---	---	78	16,312	5,933	22,430
04/26/2010 *	1,731	374	343	89	40,962	24,903	70	165	---	10,636	22,786
04/27/2010 *	584	174	121	31	89,222	---	---	160	17,081	12,601	28,082
04/28/2010 *	624	---	201	20	166,210	---	---	140	---	11,164	29,277
04/29/2010 *	816	---	349	72	117,551	---	116	151	36,798	12,285	31,546
04/30/2010 *	585	327	965	87	75,832	---	---	276	---	15,839	38,013
05/01/2010 *	697	317	193	63	143,359	91,656	---	271	75,318	22,904	40,889
05/02/2010 *	335	233	230	40	125,913	131,801	---	279	---	17,971	60,931
05/03/2010 *	101	218	352	50	58,766	58,215	450	273	96,350	20,174	55,098
05/04/2010 *	70	173	335	43	93,251	60,565	5,130	260	---	31,650	65,097
05/05/2010 *	64	319	632	30	66,306	27,813	7,313	232	156,583	29,499	84,691
05/06/2010 *	60	---	697	25	79,316	19,630	5,050	247	---	25,351	67,519
05/07/2010	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>	<b>9,195</b>	<b>2,473</b>	<b>7,425</b>	<b>2,380</b>	<b>1,389,155</b>	<b>414,583</b>	<b>18,288</b>	<b>2,684</b>	<b>406,906</b>	<b>226,664</b>	<b>606,051</b>
<b># Days:</b>	<b>14</b>	<b>9</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>7</b>	<b>7</b>	<b>14</b>	<b>7</b>	<b>14</b>	<b>14</b>
<b>Average:</b>	<b>657</b>	<b>275</b>	<b>530</b>	<b>170</b>	<b>99,225</b>	<b>59,226</b>	<b>2,613</b>	<b>192</b>	<b>58,129</b>	<b>16,190</b>	<b>43,289</b>
<b>YTD</b>	<b>55,598</b>	<b>77,265</b>	<b>23,273</b>	<b>3,905</b>	<b>1,447,354</b>	<b>414,845</b>	<b>18,596</b>	<b>3,086</b>	<b>413,067</b>	<b>232,681</b>	<b>706,031</b>

COMBINED SUBYEARLING CHINOOK											
	WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date	(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
04/23/2010 *	0	---	0	16	282	---	0	46	34	0	6,780
04/24/2010 *	0	---	0	3	2,492	---	---	10	---	0	5,379
04/25/2010 *	0	9	0	2	1,454	---	---	11	102	0	3,764
04/26/2010 *	0	6	0	2	308	0	0	9	---	0	3,592
04/27/2010 *	0	2	0	2	1,932	---	---	3	0	0	2,504
04/28/2010 *	0	---	0	3	1,343	---	---	3	---	0	1,050
04/29/2010 *	0	---	0	1	309	---	0	3	256	0	2,365
04/30/2010 *	0	4	0	1	300	---	---	14	---	0	2,412
05/01/2010 *	0	0	0	0	607	0	---	4	86	0	1,855
05/02/2010 *	0	0	0	0	0	0	---	11	---	0	2,018
05/03/2010 *	0	0	0	2	0	0	0	13	171	0	1,342
05/04/2010 *	0	0	0	0	0	0	0	21	---	0	2,115
05/05/2010 *	0	0	0	1	0	0	0	10	170	0	919
05/06/2010 *	0	---	0	0	0	0	0	9	---	0	1,751
05/07/2010	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>	<b>0</b>	<b>21</b>	<b>0</b>	<b>33</b>	<b>9,027</b>	<b>0</b>	<b>0</b>	<b>167</b>	<b>819</b>	<b>0</b>	<b>37,846</b>
<b># Days:</b>	<b>14</b>	<b>9</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>7</b>	<b>7</b>	<b>14</b>	<b>7</b>	<b>14</b>	<b>14</b>
<b>Average:</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>645</b>	<b>0</b>	<b>0</b>	<b>12</b>	<b>117</b>	<b>0</b>	<b>2,703</b>
<b>YTD</b>	<b>0</b>	<b>38</b>	<b>3</b>	<b>195</b>	<b>10,473</b>	<b>0</b>	<b>0</b>	<b>1,360</b>	<b>881</b>	<b>58</b>	<b>966,912</b>

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)	
04/23/2010	*	0	---	0	0	0	---	0	10	392	22	11,342
04/24/2010	*	0	---	0	25	0	---	---	18	---	43	16,999
04/25/2010	*	0	0	0	4	0	---	---	7	581	0	11,593
04/26/2010	*	0	0	0	3	308	0	0	11	---	119	11,635
04/27/2010	*	0	0	0	1	322	---	---	16	2,049	57	11,319
04/28/2010	*	0	---	0	3	336	---	---	13	---	57	9,607
04/29/2010	*	0	---	0	4	0	---	0	15	598	526	10,364
04/30/2010	*	0	0	0	4	0	---	---	26	---	482	7,046
05/01/2010	*	0	0	0	6	304	0	---	40	428	399	9,366
05/02/2010	*	0	0	0	6	594	573	---	64	---	614	11,539
05/03/2010	*	0	0	0	4	304	576	0	58	256	954	6,865
05/04/2010	*	0	0	0	2	917	0	0	47	---	1,774	11,045
05/05/2010	*	0	0	0	3	304	287	105	62	1,022	1,933	9,484
05/06/2010	*	0	---	0	2	1,290	287	0	26	---	1,296	12,003
05/07/2010		---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>67</b>	<b>4,679</b>	<b>1,723</b>	<b>105</b>	<b>413</b>	<b>5,326</b>	<b>8,276</b>	<b>150,207</b>
<b># Days:</b>		<b>14</b>	<b>9</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>7</b>	<b>7</b>	<b>14</b>	<b>7</b>	<b>14</b>	<b>14</b>
<b>Average:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>334</b>	<b>246</b>	<b>15</b>	<b>30</b>	<b>761</b>	<b>591</b>	<b>10,729</b>
<b>YTD</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>79</b>	<b>4,679</b>	<b>1,723</b>	<b>105</b>	<b>478</b>	<b>5,600</b>	<b>8,309</b>	<b>175,606</b>

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)	
04/23/2010	*	73	---	189	1,002	36,879	---	273	84	4,256	2,108	1,972
04/24/2010	*	183	---	179	189	61,749	---	---	186	---	4,071	4,088
04/25/2010	*	67	566	80	101	76,766	---	---	119	5,686	5,127	2,631
04/26/2010	*	133	404	26	70	89,623	46,238	219	153	---	8,294	1,816
04/27/2010	*	156	274	7	93	70,980	---	---	170	8,288	8,677	2,330
04/28/2010	*	190	---	22	134	94,018	---	---	189	---	4,276	4,693
04/29/2010	*	207	---	75	311	77,027	---	334	153	11,099	5,871	5,182
04/30/2010	*	321	528	180	312	35,968	---	---	199	---	7,738	2,782
05/01/2010	*	460	614	145	480	40,092	38,385	---	259	22,119	13,244	3,335
05/02/2010	*	138	524	190	261	47,217	133,510	---	237	---	14,177	7,545
05/03/2010	*	114	359	66	301	44,455	34,612	4,056	211	36,646	15,921	11,133
05/04/2010	*	99	574	49	645	61,819	25,256	15,384	272	---	20,510	13,395
05/05/2010	*	109	594	166	321	48,665	20,355	15,149	202	59,151	24,487	24,052
05/06/2010	*	43	---	240	445	38,046	37,398	10,613	172	---	27,583	42,012
05/07/2010		---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>2,293</b>	<b>4,437</b>	<b>1,614</b>	<b>4,665</b>	<b>823,304</b>	<b>335,754</b>	<b>46,028</b>	<b>2,606</b>	<b>147,245</b>	<b>162,084</b>	<b>126,966</b>
<b># Days:</b>		<b>14</b>	<b>9</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>7</b>	<b>7</b>	<b>14</b>	<b>7</b>	<b>14</b>	<b>14</b>
<b>Average:</b>		<b>164</b>	<b>493</b>	<b>115</b>	<b>333</b>	<b>58,807</b>	<b>47,965</b>	<b>6,575</b>	<b>186</b>	<b>21,035</b>	<b>11,577</b>	<b>9,069</b>
<b>YTD</b>		<b>2,945</b>	<b>9,658</b>	<b>2,178</b>	<b>5,148</b>	<b>848,997</b>	<b>336,480</b>	<b>46,126</b>	<b>2,823</b>	<b>153,640</b>	<b>164,844</b>	<b>134,171</b>

## Two-Week Summary of Passage Indices

Date	COMBINED SOCKEYE											
	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO2 (INDEX)	
04/23/2010	*	0	---	0	0	0	---	0	517	306	0	0
04/24/2010	*	0	---	0	0	0	---	---	201	---	0	108
04/25/2010	*	0	0	0	0	0	---	---	89	1,600	0	0
04/26/2010	*	0	0	0	0	0	0	0	514	---	0	185
04/27/2010	*	0	0	0	0	0	---	---	154	1,537	0	174
04/28/2010	*	0	---	0	0	0	---	---	74	---	0	91
04/29/2010	*	0	---	0	0	0	---	0	25	7,085	168	90
04/30/2010	*	0	0	0	0	0	---	---	27	---	120	465
05/01/2010	*	0	0	0	0	0	0	---	48	18,990	148	556
05/02/2010	*	0	0	0	0	0	0	---	348	---	670	328
05/03/2010	*	0	0	0	0	0	0	0	435	18,338	1,077	481
05/04/2010	*	0	0	0	0	0	0	0	119	---	2,217	705
05/05/2010	*	0	0	0	0	0	0	0	18	38,764	3,938	465
05/06/2010	*	0	---	0	0	0	0	0	28	---	5,473	250
05/07/2010		---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2,597</b>	<b>86,620</b>	<b>13,811</b>	<b>3,898</b>
<b># Days:</b>		<b>14</b>	<b>9</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>7</b>	<b>7</b>	<b>14</b>	<b>7</b>	<b>14</b>	<b>14</b>
<b>Average:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>186</b>	<b>12,374</b>	<b>987</b>	<b>278</b>
<b>YTD</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>17</b>	<b>0</b>	<b>0</b>	<b>5,269</b>	<b>86,733</b>	<b>13,850</b>	<b>4,026</b>

\* 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, and sockeye. Two classes of fish counts are shown in these tables: collection counts, which account for sample rates but are not adjusted for flow; and passage indices, 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.

### 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:

5/7/10 8:53 AM

		04/23/10	TO	05/07/10			
		Species					
Site	Data	CH0	CH1	CO	ST	SO	Grand Total
<b>LGR</b>	Sum of NumberCollected	6,000	914,752	3,000	539,148		1,462,900
	Sum of NumberBarged	5,931	806,217	2,997	520,499		1,335,644
	Sum of NumberBypassed	51	107,695	0	18,596		126,342
	Sum of Numbertrucked	0	0	0	0		0
	Sum of SampleMorts	1	18	0	2		21
	Sum of FacilityMorts	17	688	3	43		751
	Sum of ResearchMorts	0	134	0	8		142
	Sum of TotalProjectMorts	18	840	3	53		914
<b>LGS</b>	Sum of NumberCollected		289,128	1,200	234,187		524,515
	Sum of NumberBarged		207,895	1,200	175,209		384,304
	Sum of NumberBypassed		81,195	0	58,966		140,161
	Sum of Numbertrucked		0	0	0		0
	Sum of SampleMorts		6	0	0		6
	Sum of FacilityMorts		32	0	12		44
	Sum of ResearchMorts		0	0	0		0
	Sum of TotalProjectMorts		38	0	12		50
<b>LMN</b>	Sum of NumberCollected		5,479	30	13,998		19,507
	Sum of NumberBarged		4,346	30	9,396		13,772
	Sum of NumberBypassed		1,131	0	4,596		5,727
	Sum of Numbertrucked		0	0	0		0
	Sum of SampleMorts		0	0	0		0
	Sum of FacilityMorts		2	0	6		8
	Sum of ResearchMorts		0	0	0		0
	Sum of TotalProjectMorts		2	0	6		8
<b>MCN</b>	Sum of NumberCollected	480	238,533	3,121	86,329	50,776	379,239
	Sum of NumberBarged	0	0	0	0	0	0
	Sum of NumberBypassed	480	238,455	3,119	86,286	50,760	379,100
	Sum of Numbertrucked	0	0	0	0	0	0
	Sum of SampleMorts	0	33	1	8	9	51
	Sum of FacilityMorts	0	45	1	35	7	88
	Sum of ResearchMorts	0	0	0	0	0	0
	Sum of TotalProjectMorts	0	78	2	43	16	139
Total Sum of NumberCollected		6,480	1,447,892	7,351	873,662	50,776	2,386,161
Total Sum of NumberBarged		5,931	1,018,458	4,227	705,104	0	1,733,720
Total Sum of NumberBypassed		531	428,476	3,119	168,444	50,760	651,330
Total Sum of Numbertrucked		0	0	0	0	0	0
Total Sum of SampleMorts		1	57	1	10	9	78
Total Sum of FacilityMorts		17	767	4	96	7	891
Total Sum of ResearchMorts		0	134	0	8	0	142
Total Sum of TotalProjectMorts		18	958	5	114	16	1,111

### YTD Transportation Summary

Source: Fish Passage Center

Updated:

5/7/10 8:54 AM

TO: 05/07/10

		Species						
Site	Data	CH0	CH1	CO	SO	ST	Grand Total	
<b>LGR</b>	Sum of NumberCollected	6,758	948,699	3,000		10	553,706	1,512,173
	Sum of NumberBarged	6,039	812,505	2,997		0	523,677	1,345,218
	Sum of NumberBypassed	700	135,314	0		10	29,975	165,999
	Sum of NumberTrucked	0	0	0		0	0	0
	Sum of SampleMorts	2	31	0		0	3	36
	Sum of FacilityMorts	17	715	3		0	43	778
	Sum of ResearchMorts	0	134	0		0	8	142
	Sum of TotalProjectMorts	19	880	3		0	54	956
<b>LGS</b>	Sum of NumberCollected		289,311	1,200			234,694	525,205
	Sum of NumberBarged		207,895	1,200			175,209	384,304
	Sum of NumberBypassed		81,373	0			59,473	140,846
	Sum of NumberTrucked		0	0			0	0
	Sum of SampleMorts		11	0			0	11
	Sum of FacilityMorts		32	0			12	44
	Sum of ResearchMorts		0	0			0	0
	Sum of TotalProjectMorts		43	0			12	55
<b>LMN</b>	Sum of NumberCollected		5,650	30			14,052	19,732
	Sum of NumberBarged		4,346	30			9,396	13,772
	Sum of NumberBypassed		1,300	0			4,649	5,949
	Sum of NumberTrucked		0	0			0	0
	Sum of SampleMorts		0	0			0	0
	Sum of FacilityMorts		2	0			6	8
	Sum of ResearchMorts		0	0			0	0
	Sum of TotalProjectMorts		2	0			6	8
<b>MCN</b>	Sum of NumberCollected	520	242,155	3,281	50,841		90,106	386,903
	Sum of NumberBarged	0	0	0	0		0	0
	Sum of NumberBypassed	520	242,072	3,279	50,825		90,062	386,758
	Sum of NumberTrucked	0	0	0	0		0	0
	Sum of SampleMorts	0	35	1	9		9	54
	Sum of FacilityMorts	0	48	1	7		35	91
	Sum of ResearchMorts	0	0	0	0		0	0
	Sum of TotalProjectMorts	0	83	2	16		44	145
Total Sum of NumberCollected		7,278	1,485,815	7,511	50,851		892,558	2,444,013
Total Sum of NumberBarged		6,039	1,024,746	4,227	0		708,282	1,743,294
Total Sum of NumberBypassed		1,220	460,059	3,279	50,835		184,159	699,552
Total Sum of NumberTrucked		0	0	0	0		0	0
Total Sum of SampleMorts		2	77	1	9		12	101
Total Sum of FacilityMorts		17	797	4	7		96	921
Total Sum of ResearchMorts		0	134	0	0		8	142
Total Sum of TotalProjectMorts		19	1,008	5	16		116	1,164

## 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
<b>Lower Granite Dam</b>											
	04/26/10	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/03/10	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>Little Goose Dam</b>											
	05/03/10	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
<b>Lower Monumental Dam</b>											
	04/29/10	Chinook + Steelhead	90	1	1	1.11%	0.00%	1	0	0	0
	05/05/10	Chinook + Steelhead	100	1	1	1.00%	0.00%	1	0	0	0
<b>McNary Dam</b>											
	04/26/10	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	04/30/10	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/06/10	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
<b>Bonneville Dam</b>											
	04/27/10	Chinook + Steelhead	109	0	0	0.00%	0.00%	0	0	0	0
	05/04/10	Chinook + Steelhead	109	0	0	0.00%	0.00%	0	0	0	0
<b>Rock Island Dam</b>											
	04/27/10	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	04/29/10	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0
	05/06/10	Chinook + Steelhead	100	0	0	0.00%	0.00%	0	0	0	0

Cumulative Adult Passage at Mainstem Dams Through: 05/06

DAM	EndDate	Spring Chinook						Summer Chinook						Fall Chinook					
		2010		2009		10-Yr Avg.		2010		2009		10-Yr Avg.		2010		2009		10-Yr Avg.	
		Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	05/06	174330	2566	51553	9249	119901	4000	0	0	0	0	0	0	0	0	0	0	0	0
TDA	05/05	114048	1396	24109	3632	73852	1774	0	0	0	0	0	0	0	0	0	0	0	0
JDA	05/06	105046	1611	19393	3535	59749	1522	0	0	0	0	0	0	0	0	0	0	0	0
MCN	05/06	73896	1064	7828	987	47394	965	0	0	0	0	0	0	0	0	0	0	0	0
IHR	05/06	48116	952	4935	366	30148	501	0	0	0	0	0	0	0	0	0	0	0	0
LMN	05/06	36308	451	3406	231	26556	348	0	0	0	0	0	0	0	0	0	0	0	0
LGS	05/05	26017	709	959	36	21081	246	0	0	0	0	0	0	0	0	0	0	0	0
LGR	05/06	23182	264	703	36	20444	213	0	0	0	0	0	0	0	0	0	0	0	0
PRD	05/05	10402	4	149	7	7411	7	0	0	0	0	0	0	0	0	0	0	0	0
RIS	05/05	7839	80	20	0	3626	15	0	0	0	0	0	0	0	0	0	0	0	0
RRH	05/05	1688	2	3	0	984	1	0	0	0	0	0	0	0	0	0	0	0	0
WEL	05/05	282	10	0	0	185	0	0	0	0	0	0	0	0	0	0	0	0	0
WFA	05/04	16093	191	4921	40	-	-	-	-	-	-	-	-	0	0	0	0	0	-

DAM	Coho						Sockeye			Steelhead			
	2010		2009		10-Yr Avg.		2010	2009	10-Yr Avg.	2010	2009	10-Yr Avg.	Wild 2010
	Adult	Jack	Adult	Jack	Adult	Jack							
BON	0	0	0	0	0	0	0	0	0	4757	2339	2509	1400
TDA	0	0	0	0	0	0	0	0	0	1992	1024	1038	1030
JDA	0	0	0	0	0	0	0	0	0	2255	2645	2528	1329
MCN	0	0	0	0	0	0	0	0	0	2055	2255	1832	1121
IHR	0	0	0	0	0	0	0	0	0	2857	2988	2212	1177
LMN	0	0	0	0	0	0	0	0	0	3792	4469	2498	2035
LGS	0	0	0	0	0	0	0	0	0	2910	5025	2554	1432
LGR	0	0	0	0	0	0	0	0	0	10175	10435	8383	3971
PRD	0	0	0	0	0	0	0	0	0	72	27	6	0
RIS	0	0	0	0	0	0	0	0	0	100	65	47	65
RRH	0	0	0	0	0	0	0	0	0	293	324	162	215
WEL	0	0	0	0	0	0	0	0	0	21	18	17	18
WFA	0	0	0	0	-	-	-	-	-	10387	3965	-	0

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

Page last updated on: 05/07/10

BON counts from January 1, 2009 to March 14, 2010 (historical counts begin March 15):

Year	Chinook Adult	Chinook Jack	Steelhead	Wild Steelhead
2010	39	0	2,318	657
2009	19	-1	321	109