

## Fish Passage Center Weekly Report #08 - 06

April 11, 2008

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#### **Summary of Events:**

Water Supply: Precipitation throughout the Columbia Basin has varied between 19% and 91% of average at individual sub-basins over April. Precipitation above The Dalles has been 44% of average over April. Over the entire water year, precipitation has generally been near or above 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.

	Water Ye		Water Year 2008 October 1, 2007 to			
	April	1-7	April 1-7, 2008			
	Observed	%	Observed	%		
Location	(inches)	Average	(inches)	Average		
Columbia Above	0.19	49	15.19	104		
Coulee						
Snake River Above Ice Harbor	0.15	44	11.47	108		
Columbia Above The Dalles	0.17	44	15.30	104		
Kootenai	0.16	38	14.59	97		
Clark Fork	0.12	41	10.32	111		
Flathead	0.27	74	12.46	99		
Pend Oreille/Spokane	0.44	83	22.41	108		
Central Washington	0.03	19	4.59	76		
Snake River Plain	0.06	23	5.66	89		
Salmon/Boise/Payette	0.15	40	14.45	110		
Clearwater	0.50	80	20.44	106		
SW Washington	1.04	84	51.85	95		
Cascades/Cowlitz						
Willamette Valley	1.03	91	47.72	103		

Snowpack within the Columbia Basin is above average. Average snowpack in the Columbia River for basins above the Snake River confluence is 111% of average, for Snake River Basins the average snowpack is 113% of average, and for lower Columbia Basins between McNary and Bonneville Dam average snowpack is 184% of average.

Table 2 displays the March Final and April Final runoff volume forecasts for multiple reservoirs. Water Supply Forecasts generally were similar between the March Final and April Final forecasts, with the exception of Dworshak which increased 10%. The current forecast (April Final) at The Dalles between January and July is 101000 Kaf (94% of average).

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

	Marc	h Final	April Final			
	%	Probable	%	Probable		
	Average	Runoff	Average	Runoff		
	(1971-	Volume	(1971-	Volume		
Location	2000)	(Kaf)	2000)	(Kaf)		
The Dalles	96	103000	94	101000		
(Jan-July)						
Grand Coulee	99	62300	97	61200		
(Jan-July)						
Libby Res.	98	6190	96	6080		
Inflow, MT						
(Jan-July)						
Hungry Horse	94	2100	96	2140		
Res. Inflow,						
MT (Jan-July)						
Lower Granite	107	23000	108	23300		
Res. Inflow						
(Apr- July)						
Brownlee Res.	87	5500	86	5400		
Inflow						
(Apr-July)						
Dworshak Res.	110	2920	120	3160		
Inflow						
(Apr-July)						

The Biological Opinion flow period began on April 3rd in the lower Snake River (Lower Granite) and began on April 10th in the mid (Priest Rapids) and lower (McNary) Columbia River.

According to the April Final Water Supply Forecast, the flow objectives this spring are 100 Kcfs at Lower Granite, 260 Kcfs at McNary, and 135 Kcfs at Priest Rapids. Flows at Lower Granite Dam from April 3-10 have averaged 45.2 Kcfs, flows at Priest Rapids on April 10th were 63.8 Kcfs and at McNary were 112.5 Kcfs.

Grand Coulee Reservoir is at 1244.4 feet (4-10-08) and has drafted 2.2 feet in the last week. At the March 12, 2008 TMT Meeting the Salmon Managers and the Action agencies agreed to a DWR/GCL shift. The estimated Shifted April 10th (interpolated between the March 31st and April 15th Shifted Flood control elevations, using the March Forecast) elevation was 1244.5 feet at Grand Coulee. The end of April FC elevation at Grand Coulee based on the new April Final forecast is 1228.8 feet. Outflows at Grand Coulee have ranged between 32.4 and 98.7 Kcfs over the last week.

The Libby Reservoir is currently at elevation 2395.3 feet (4-10-08) and drafted 0.5 feet last week. The estimated April 10th elevation (based on the March Final Forecast) was 2399.8 feet at Libby, therefore Libby was 4.5 feet below April 10th Flood Control. It should be pointed out that Libby has been on minimum outflows of 4.0 Kcfs for over a month, so there was little opportunity to fill the few feet needed to reach April 10th flood control. The end of April FC elevation at Libby based on the new April Final forecast is 2402.2 feet.

Hungry Horse is currently at an elevation of 3504.2 ft (4-10-08) and has drafted 1.6 feet last week. The estimated April 10th elevation (based on the March Final Forecast) was 3528.3 feet at Hungry Horse, therefore Hungry Horse was 24.1 feet below April 10th Flood Control. It should be pointed out that Hungry Horse has been operated to meet the minimum flow at Columbia Falls for several months so there has been little opportunity to refill to reach the April 10th flood control. The end of April FC elevation at Hungry Horse based on the new April Final forecast is 3521.3 feet.

Dworshak is currently at an elevation of 1491.8 feet (4-10-08) and drafted 12.6 feet last week; outflows at Dworshak have been 15 Kcfs. The COE's April Flood Control elevations have varied in recent weeks; currently the end of April FC is 1493.7 feet. At the April 9th, 2008 TMT Meeting, the COE stated that outflows were going to remain at approximately 15 Kcfs despite the fact that Dworshak is already below the end of April FC elevation and inflows are still 2-3.5 Kcfs.

The Brownlee Reservoir was at an elevation of 2028.6 feet on April 10th, 2008, drafting 2.7 feet last week. The estimated April 10th elevation (based on the March Final Forecast) was 2037.3 feet at Brownlee, therefore Brownlee was 8.7 feet below April 10th Flood Control. Outflows at Brownlee Dam have been 13.5 to 17.9 Kcfs over the last week. The end of April FC elevation at Brownlee based on the new April Final forecast is 2033.8 feet.

**Spill:** Dworshak Dam has been spilling between 4 and 4.7 Kcfs over the past week as the project is drafted for flood control. In accordance with the Court Order, spill was initiated at the Snake River Projects at 0001 hours on April 3, 2007. The Court Order calls for the following spill levels at the Federal Snake River Projects:

Project	Day/Night Spill
Lower Granite	20Kcfs/20Kcfs
Little Goose	30%/30%
Lower Monumental	Gas Cap/Gas Cap
Ice Harbor	30%/30% vs 45Kcfs/Gas Cap Study

Spill at Lower Granite Dam has averaged an instantaneous 20 Kcfs and spill at Little Goose Dam is achieving the 30% over the 24 hour period. However, spill to the gas cap at Lower Monumental Dam has averaged only 28 Kcfs, but could be increased since the tailwater TDG and the Ice Harbor forebay TDG are well below the waiver limits. Spill at Ice Harbor Dam was equal to all flow in excess of that needed to operate one turbine unit last Saturday and Sunday.

However, beginning Monday the daytime spill was limited to 18.7 Kcfs in order to conduct RSW seal repairs as discussed in last week's report.

Court ordered spill at the lower Columbia projects began on April 10, 2007. The Court Order calls for the following spill levels at the Federal Lower Columbia River Projects

Project	Day/Night Spill
McNary	40%/40%
John Day	0/60%
The Dalles	40%/40%
Bonneville	100 Kcfs/100 Kcfs

Spill at McNary Dam, John Day and The Dalles dams all met the Court's Order on the first day of spill. Spill at Bonneville Dams is less than the Court's Order because of a restriction on the amount of water that can be spilled at the present forebay elevation.

Total dissolved gas at the federal hydroprojects was well under the waiver limits over the past week.

Gas bubble trauma (GBT) monitoring began this week at Lower Granite and Bonneville dams. No fish were observed with signs of GBT.

**Smolt Monitoring:** Relatively large numbers of smolts have been captured at SMP traps over the past week as hatchery releases and wild outmigrant numbers increased dramatically. Smolt passage began to pick up in the hydrosystem as well particularly at McNary Dam where hatchery yearling Chinook passed in relatively large numbers this past week after recent hatchery releases at Ringold?

At the Salmon River Trap over the past several days the catch was predominantly hatchery origin yearling Chinook and steelhead. Of the smolts captured at the trap, hatchery Chinook outnumbered wild fish about ten to one over the past week, while for steelhead virtually of the smolts captured were hatchery origin. Two PIT-tagged wild summer Chinook smolts were recaptured at the Salmon Trap since April 1; one each from the Pahsimeroi Trap and the Johnson Creek trap.

By comparison, over 200 PIT-tagged hatchery yearling Chinook were recaptured at the trap since April 1; primarily releases from McCall Hatchery (Knox Bridge releases) and Rapid River Hatchery.

At the Imnaha River Trap nearly 12,000 yearling Chinook were captured on April 9, with nearly of those fish, hatchery origin fish; those fish were releases from Looking Glass Hatchery, released at the Imnaha Acclimation Pond.

At the Grande Ronde Trap they have captured between 300 to 500 yearling Chinook per day over the past week; predominantly hatchery origin yearling Chinook. Only a few steelhead have been captured at the trap this season.

At the Lewiston Trap on the Snake River IDFG crews continued to catch small numbers of yearling Chinook and steelhead. The trap fishes best at higher flows, and flows to date have been well below normal, with discharge ranging between 20 and 30 Kcfs, while normal flows for this time of year average about 40 Kcfs.

At Lower Granite Dam increasing numbers (albeit small numbers) of smolts continue arriving at the project. The catch is predominantly yearling Chinook followed by steelhead and a smattering of coho and sockeye smolts as well. A few holdover fall chinook are included in the yearling Chinook counts, but on average only 1 to 2 per day have been seen in the sample. PIT-tagged wild yearling Chinook detected from April 3 to present were largely from the Imnaha River basin (137 of 167 detections) while only two PIT-tagged steelhead were detected in that time period.

A large pulse of hatchery yearling Chinook began passing McNary Dam this week with the passage index rising to 57,000 on April 7. At John Day and Bonneville dams increasing numbers of yearling Chinook and steelhead have been captured over the past week as the Spring migration continues to accelerate.

#### 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 450,000 yearling fall Chinook from Lyons Ferry Hatchery was scheduled to take place this week. A volitional release of approximately 360,000 yearling spring Chinook to the Imnaha River was scheduled to end this week. This release began in late March. In addition to this release, several releases of yearling spring Chinook were scheduled to begin over this past week. In all, these releases totaled around 1.4 million spring Chinook juveniles.

Of these, approximately 59% were scheduled for release into the Clearwater River from the Nez Perce Tribal Hatchery and Kooskia National Fish Hatchery, beginning April 7th. Also beginning on April 7th was a volitional release of just over 132,000 yearling Chinook from the Grande Ronde Acclimation pond. Sawtooth Hatchery was scheduled to begin a release of approximately 174,000 yearling Chinook to the Salmon River on April 11th. Beginning April 10th, The Nez Perce Tribe was scheduled to begin a volitional release of about 131,500 yearling spring Chinook from the Lostine Acclimation Facility on the Wallowa River. Finally, the Tucannon Hatchery was scheduled to begin releasing approximately 184,000 spring Chinook juveniles on April 10th to the Tucannon River. Of these, approximately 58% were tagged with Elastomer tags.

Two releases of summer steelhead to this zone were scheduled to end this past week. One of these was a release of approximately 260,000 juveniles to the Salmon River and the other was a release of approximately 525,000 juveniles to the Snake River, below Hells Canyon Dam. In addition to these releases, several releases of summer Steelhead were scheduled to begin over this past week. In all, these releases totaled just over 3.0 million summer steelhead juveniles. Approximately 71% of these steelhead were scheduled for release into the Salmon and Little Salmon rivers. The remaining 29% of these steelhead releases were split between the Clearwater (16%), Wallow (12%), and Pahsimeroi (1%) rivers. Many of these releases of summer steelhead juveniles are expected to run through the end of April.

Three releases totaling about 460,000 yearling fall Chinook are scheduled to begin over

the next two weeks. These yearling fall Chinook will be released from acclimation facilities on the Clearwater (33%) and Snake rivers (67%). There is only one release of yearling spring Chinook scheduled to begin over the next two weeks. This is a release of about 24,000 captive broodstock spring Chinook juveniles from Lookingglass Hatchery to the Grande Ronde River. A release of 75.000 coho to the Clearwater River is scheduled to begin on April 15th. Finally, several releases totaling nearly 3.35 million summer steelhead are scheduled to begin over the next two weeks. Of these, the vast majority (76%) will be released to the Clearwater River and it's tributaries. About 17% of these steelhead releases will be spilt between the Grande Ronde (9%) and Imnaha (8%) rivers. Finally, approximately 4% of these steelhead are scheduled for release into the Snake River, below Lower Granite Dam from Tucannon (3%) and Lyons Ferry Hatchery (1%).

Mid-Columbia Zone: The Mid-Columbia Zone encompasses the area of the Columbia River and its tributaries from McNary Dam to Chief Joseph Dam. On April 8th, Ringold Hatchery completed its volitional release of 329,853 yearling spring Chinook to the Mid-Columbia River. This was the only release of anadromous salmonid juveniles to this zone scheduled for this week. Several releases of subyearling fall Chinook to the Yakima River are scheduled to begin over the next two weeks. In all, these release will total about 812,000 fall Chinook juveniles. Also scheduled to begin over the next two weeks are several releases of yearling spring Chinook.

In all, these releases will total nearly 3.4 million spring Chinook juveniles. Of these, about 63.8% are scheduled for release into the Wenatchee River, 28.6% are scheduled for release into the Methow River, and 7.6% are scheduled for release into the Okanogan River. In all, about 1.34 million yearling summer Chinook are planned for release into this zone, beginning April 14th. Of these, 45% will be released into the Okanogan River and 31% will be released into the Methow River. The remaining 24% will be released directly into the Mid-Columbia River from Wells Hatchery.

Over 1.8 million coho juveniles are scheduled for release into this zone over the next two weeks. These releases are part of the Yakama Tribal Program to re-establish Coho runs in the Yakima, Methow, and Wenatchee basins. Of these 1.8 million coho juveniles, approximately 49% are scheduled for release into the Yakima River. 32% are scheduled for release into the Wenatchee River, and 19% are scheduled for release into the Methow River. Many of these releases are volitional and are expected to run through early to mid-May. In all, approximately 2.5 million coho are scheduled for release as part of this program throughout April and May. Finally, nearly 1 million summer steelhead are scheduled for release into this zone over the next two weeks. These releases will be split between the Methow (43%), Okanogan (14%), Touchet (15%), and Walla Walla (10%) rivers. The remaining 18% will be released directly into the Mid-Columbia from Ringold Hatchery.

Lower Columbia Zone: The Lower Columbia Zone is defined as the Columbia River and its tributaries from Bonneville Dam to McNary Dam. The second release of subyearling fall Chinook Tules from Spring Creek NFH was completed this week on April 10th. In all, just over 4.0 million fall Chinook Tules were released. Approximately 530,000 yearling spring Chinook were scheduled for release into this zone over the past week. Of these, about 87% were scheduled for release into the Umatilla River, while 13% were scheduled for release into Hood River. Finally, approximately 162,000 summer steelhead were scheduled for release into the Deschutes River this week.

Several releases of yearling spring Chinook to this zone are scheduled to begin over the next two weeks. In all, these releases will total nearly 2.3 million spring Chinook juveniles. Of these, about 59% are scheduled for release into the Wind River from Carson Hatchery. The remaining 41% are scheduled for release into the Little White Salmon River.

Approximately 750,000 coho are scheduled for release from Pendleton Acclimation Pond into the Umatilla River, beginning April 15th. Also scheduled for release into the Umatilla River are 150,000 summer steelhead.

Approximately 500 summer steelhead will be released into a tributary of Lake Billy Chinook on the Deschutes River as part of the ongoing PGE passage study on April 15th. About 94,000 summer steelhead from Skamania Hatchery are scheduled for release into the Klickitat River, beginning in Mid-April. Skamania Hatchery will also be releasing about 24,750 summer steelhead and 21,000 winter steelhead to the White Salmon River, beginning in Mid-April. Finally, the Warm Spring Tribe is planning to release over 12,000 summer steelhead and nearly 27,000 winter steelhead to Hood River, beginning April 22nd.

#### **Adult Fish Passage**

The traditional or historical counting schedule at Bonneville began March 15th and continues through November 15th. This counting schedule allows for comparison of current year counts with historical data. The traditional counting schedule began on March 1st at Lower Granite Dam. Counting began on April 1st for The Dalles Dam, John Day Dam, McNary Dam, Ice Harbor Dam, Lower Monumental Dam, and Little Goose Dam. Willamette Falls Dam counts adult salmon throughout the entire year. The PUD dams in the Mid-Columbia River begin counting fish on April 15th except Wells Dam which starts counting on May 1st.

Adult counts at Bonneville Dam have been updated through April 10th. Between March 15th and April 10th, 1,421 adult spring Chinook had passed Bonneville Dam. Daily adult spring Chinook counts at Bonneville ranged from 71 to 509. The 2008 count was about 3.87 times larger than the 2007 adult spring Chinook count of 367 at Bonneville Dam but is only 8% of the ten year average. The Bonneville adult steelhead count for the same date range this year was 1,009 fish which was about 78.8% of the 2007 count of 1,279 fish. The 2008 wild steelhead count at Bonneville Dam was 394 fish as of April 10th. At Willamette Falls Dam, the 2008 count for steelhead was 2,354, as of April 9th. This year's steelhead count is about 51.1% of the 2007 count of 4,598 at Willamette Falls Dam.

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 the pools and will complete their trip to the spawning grounds in March through early May. Daily counts at Lower Granite ranged from 153 to 191 adult steelhead last week. The total steelhead count passing at Lower Granite Dam as of April 7th was 4,749. The 2008 count was about 54.8% of the 2007 count of 8,652 and about 83.3% of the 10-year average count of 5,697 at Lower Granite Dam. The 2008 wild steelhead at Lower Granite Dam as of April 7th was 1,075.

Daily Average Flow and Spill (in kcfs) at Mid-Columbia Project	S
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	Gr	and	Chi	ef	Rocky			Ro			Pr	iest		
	Co	ulee	Jose	ph	We	ells	Re	Reach Island		nd	Wanapum		Rapids	
Date	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
03/28/2008	72.3	0.0	68.6	0.0	76.4	0.0	78.0	0.0	80.5	0.0	101.5	0.0	94.5	0.0
03/29/2008	80.6	0.0	78.1	0.0	80.5	0.0	79.4	0.0	79.6	0.0	59.8	0.0	59.3	0.0
03/30/2008	58.9	0.0	57.5	0.0	65.2	0.0	66.3	0.0	67.9	0.0	74.8	0.0	71.3	0.0
03/31/2008	77.8	0.0	77.5	0.0	78.4	0.0	77.0	0.0	77.9	0.0	104.4	0.0	108.3	0.0
04/01/2008	88.8	0.0	91.9	0.0	80.6	0.0	72.1	0.0	72.1	0.0	88.5	0.0	89.4	0.0
04/02/2008	90.6	0.0	90.3	0.0	83.6	0.0	82.0	0.0	81.2	0.0	80.9	0.0	80.0	0.0
04/03/2008	95.7	0.0	98.9	0.0	99.9	0.0	99.3	0.0	96.2	0.0	87.6	0.0	81.3	0.0
04/04/2008	85.3	0.0	88.3	0.0	107.6	0.0	104.7	0.0	98.4	0.0	90.2	0.0	84.0	0.0
04/05/2008	52.9	0.0	47.1	0.0	50.7	0.0	54.3	0.0	56.1	0.0	101.9	0.0	102.7	0.0
04/06/2008	32.4	0.0	39.4	0.0	41.0	0.0	37.3	0.0	38.1	0.0	67.9	0.0	74.3	0.0
04/07/2008	82.3	0.0	74.2	0.0	82.7	0.0	85.6	0.0	86.4	0.0	78.9	1.2	67.2	0.0
04/08/2008	62.4	0.0	68.8	0.0	63.1	0.0	58.8	0.0	59.4	0.0	64.4	2.3	75.1	0.0
04/09/2008	75.7	0.0	72.3	0.0	63.0	0.0	59.2	0.0	60.4	0.0	56.3	0.0	58.6	0.0
04/10/2008	98.7	0.0	102.6	0.0	100.6	0.0	95.8	0.0	92.0	0.0	75.7	0.0	63.8	0.0

Daily Average Flow and Spill (in kcfs) at Snake Basin Pro	piects
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		•	J	Hells	Lo	Lower		Little		ver	Ice	
	Dwo	rshak	Brownlee	Canyon	Granite		Goose		Monumental		Harbor	
Date	Flow	Spill	Inflow	Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
03/28/2008	8.4	0.0	15.9	17.0	48.0	0.0	47.1	0.0	48.5	2.2	49.1	0.0
03/29/2008	8.4	0.0	15.4	20.1	41.3	0.0	43.1	0.0	45.6	1.6	44.9	0.0
03/30/2008	8.7	0.0	14.9	14.4	45.8	0.0	51.5	0.0	53.6	1.6	49.5	0.0
03/31/2008	10.9	0.0	13.6	18.3	37.6	0.0	43.2	0.0	44.2	0.8	44.7	0.0
04/01/2008	10.9	0.0	13.3	14.3	42.7	0.0	42.0	0.0	50.8	0.0	55.0	0.0
04/02/2008	15.1	4.1	12.8	14.4	38.9	0.0	39.3	0.0	41.1	0.0	41.4	0.0
04/03/2008	16.6	5.6	12.9	14.9	45.0	20.6	43.9	13.1	45.0	26.5	48.4	38.6
04/04/2008	15.5	4.7	13.0	16.8	42.5	20.4	40.8	12.2	39.6	26.5	42.1	32.5
04/05/2008	15.0	4.0	13.5	18.3	44.7	20.3	43.9	13.1	43.5	27.0	46.8	37.2
04/06/2008	15.0	3.9	13.1	15.5	45.3	20.3	44.7	13.4	43.0	29.6	46.6	37.0
04/07/2008	15.0	4.1	14.0	18.7	43.5	20.3	45.1	13.2	43.5	29.8	46.1	26.3
04/08/2008	14.9	4.4	13.8	17.4	47.8	20.3	47.1	14.0	44.1	27.8	49.3	29.0
04/09/2008	15.0	4.3	13.8	14.6	46.3	20.4	43.1	12.9	43.2	28.8	47.2	26.1
04/10/2008	15.0	4.2			46.1	20.3	45.2	13.5	42.7	28.9	46.2	24.1

Daily Average Flow a	nd Spill (in kcfs	s) at Lower Columbia Projects

	McI	Nary	John [	hn Day The Dalles Bonne			Bonneville			
Date	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	PH1	PH2
03/28/2008	158.9	0.0	156.0	0.1	159.6	0.0	187.4	1.4	85.4	89.6
03/29/2008	117.0	0.0	116.6	0.0	121.1	0.0	137.0	1.4	66.5	59.9
03/30/2008	121.5	0.0	125.2	0.0	129.6	0.0	128.0	1.4	41.9	73.4
03/31/2008	142.9	0.0	141.7	4.1	144.5	0.0	148.6	1.4	56.9	78.9
04/01/2008	149.2	0.0	148.7	17.6	150.5	0.0	172.5	1.4	70.7	89.1
04/02/2008	149.6	0.0	149.7	18.2	152.9	0.0	160.1	1.4	59.5	87.9
04/03/2008	122.4	0.0	139.5	16.8	144.1	0.0	160.5	1.4	55.2	92.4
04/04/2008	130.2	0.0	128.2	11.5	129.9	0.0	136.8	1.5	38.3	85.6
04/05/2008	120.3	0.0	99.4	0.0	103.2	0.0	119.4	1.6	24.4	82.0
04/06/2008	135.3	0.0	126.4	0.0	127.3	0.0	124.9	1.6	29.1	82.8
04/07/2008	116.5	0.0	128.9	0.0	135.3	0.0	149.4	1.6	49.6	86.9
04/08/2008	131.2	0.0	130.4	0.0	130.4	0.0	139.7	1.6	41.7	85.0
04/09/2008	113.2	6.5	128.2	0.0	130.2	0.0	149.3	1.6	47.2	89.1
04/10/2008	112.5	45.1	117.9	38.2	120.8	48.9	142.2	98.9	0.0	31.9

# Gas Bubble Trauma Monitoring Results from Representative Sites on the Snake River and Columbia River

									sh with I Highest	Fin GBT Rank
		Number of	Number w	Number w	% Fin	% Severe	Rank	Rank	Rank	Rank
Site Date	Species	Fish	GBT signs	Fin Signs	GBT	Fin GBT	1	2	3	4
	ranite Dam 8/08 Chinook + Steelhead	37	0	0	0.00%	0.00%	0	0	0	0
Bonnevil	le Dam 8/08 Chinook + Steelhead	35	0	0	0.00%	0.00%	0	0	0	0

#### HATCHERY RELEASE LAST TWO WEEKS

04/10/08

Hatchery Release Summary 3/28/2008 to

From:

	From:	3/28/2008	5	το	04/10/08	J4/10/08			
Agency	Hatchery	Species	Race	MigYr	NumRel	RelStart	RelEnd	RelSite	RelRiver
g ,	•	•		J				Crooked R Acclim	
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2008	141,700	03-26-08	03-31-08	Pond	S Fk Clearwater River
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2008	225,000	03-19-08	04-03-08	Powell Acclim Pond	Lochsa River
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2008	424,700	03-24-08	04-04-08	Red River	S Fk Clearwater River
Idaho Dept. of Fish and Game	Clearwater Hatchery	CH1	SP	2008	566,800	03-26-08	03-31-08	Crooked River	S Fk Clearwater River
Idaho Dept. of Fish and Game	Clearwater Hatchery	ST	SU	2008	83,000	04-07-08	04-18-08	Red River	S Fk Clearwater River
Idaho Dept. of Fish and Game	Clearwater Hatchery	ST	SU	2008	144,600	04-07-08	04-18-08	Crooked River	S Fk Clearwater River
·	•							Redhouse (SFk	
Idaho Dept. of Fish and Game	Clearwater Hatchery	ST	SU	2008	248,500	04-07-08	04-18-08	ClearH20 R)	S Fk Clearwater River
•	ŕ				,			,	
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2008	60,000	04-07-08	04-07-08	Squaw Cr Acclim Pond	Salmon River (ID)
Idaho Dept. of Fish and Game	Magic Valley Hatchery	ST	SU	2008	215.000	04-07-08	04-10-08	Little Salmon River	Salmon River (ID)
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2008	,			Little Salmon River	Salmon River (ID)
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2008	260.000	03-31-08	04-09-08	Little Salmon River	Salmon River (ID)
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2008				Hells Canyon Dam	Snake River
Idaho Dept. of Fish and Game	Niagara Springs	ST	SU	2008				Pahsimeroi River	Pahsimeroi River
Idaho Dept. of Fish and Game	Pahsimeroi Hatchery	CH1	SU	2008	,			Pahsimeroi River	Pahsimeroi River
Idaho Dept. of Fish and Game	Rapid River Hatchery	CH1	SP	2008				Rapid River Hatchery	Little Salmon River
	,		-		_,_,_,			,	
Idaho Dept. of Fish and Game Total					7,317,300				
Nez Perce Tribe	Clearwater Hatchery	CH1	SP	2008	309,300	04-02-08	04-03-08	Meadow Creek - SELW Hazard Creek/Little	Selway River
Nez Perce Tribe	Hagerman NFH	ST	SU	2008	40 000	03-31-08	04-02-08	Salmon R	Little Salmon River
Nez Perce Tribe	Hagerman NFH	ST	SU	2008	-,			Little Salmon River	Salmon River (ID)
Nez Perce Tribe	Lookingglass Hatchery	CH1	SP	2008	,			Lostine Accim Pond	Wallowa River
Nez Perce Tribe	Lookingglass Hatchery	CH1	SP	2008	,			Lostine Accim Pond	Wallowa River
Nez Feice Tibe	Lookingglass Hatchery	CIII	3F	2000	131,300	04-10-00	04-17-00	Nez Perce Tribal	Wallowa Kivel
Nez Perce Tribe	Nez Perce Tribal Hatchery	CH1	SP	2008	126 000	04-07-08	04 10 09		Clearwater River M F
	Nez Perce Tribai Hatchery	СПІ	SF	2006		04-07-06	04-10-06	пактегу	Clearwater River IVI F
Nez Perce Tribe Total	Irrigan Hataban, Campley	CT	CLI	2000	839,200	04.00.00	04.00.00	Mallawa Applim Dand	Wallowa River
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU SP	2008	,			Wallowa Acclim Pond	
Oregon Dept. of Fish and Wildlife	Lookingglass Hatchery	CH1		2008	,			Imnaha Acclim Pond	Imnaha River
Oregon Dept. of Fish and Wildlife	Oak Springs Hatchery	ST	SU	2008				Deschutes River	Deschutes River
Oregon Dept. of Fish and Wildlife	Round Butte Hatchery	ST	SU	2008	,			Deschutes River	Deschutes River
Oregon Dept. of Fish and Wildlife	Willard Hatchery	CH1	SP	2008	239,652	03-24-08	03-31-08	Walla Walla River	Walla Walla River
Oregon Dept. of Fish and Wildlife									
Total	5	0114	0.0		1,122,156			5	0 5
U.S. Fish and Wildlife Service	Dworshak NFH	CH1	SP	2008				Dworshak Hatchery	Clearwater River M F
U.S. Fish and Wildlife Service	Hagerman NFH	ST	SU	2008	,			Little Salmon River	Salmon River (ID)
U.S. Fish and Wildlife Service	Hagerman NFH	ST	SU	2008				Salmon River (ID)	Salmon River (ID)
U.S. Fish and Wildlife Service	Kooskia NFH	CH1	SP	2008	653,000	04-07-08	04-07-08	Kooskia Hatchery	Clearwater River M F
U.S. Fish and Wildlife Service	Spring Creek NFH	CH0	FA	2008	4,013,900	04-10-08	04-10-08		L Col R (D/s McN Dam)
								Warm Springs	
U.S. Fish and Wildlife Service	Warm Springs NFH	CH1	SP	2008	376,000	03-23-08	04-23-08	Hatchery	Deschutes River
U.S. Fish and Wildlife Service Total					6,874,900				
Umatilla Tribe	Cascade Hatchery	CO	UN	2008	,			Pendelton Acclim Pond	
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2008	116,887	03-24-08	04-14-08	Catherine Creek	Grande Ronde River
								Grande Ronde Acclim	
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2008	132,453	04-07-08	04-14-08	Pond	Grande Ronde River
Umatilla Tribe	Umatilla Hatchery	CH1	SP	2008	460,000	04-10-08	04-10-08	Imeques Acclim Pond	Umatilla River
Umatilla Tribe Total	-				959,340			•	
Warm Springs Tribe	Round Butte Hatchery	CH1	SP	2008	69,612	04-09-08	05-07-08	Blackberry Acclim Pond	Hood River
Warm Springs Tribe Total	,				69,612			, , , , , , , ,	
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	CH1	FA	2008	450.000	04-07-08	04-07-08	Lyons Ferry Hatchery	Snake River
3	, , ,				,			Ringold Springs	
Washington Dept. of Fish and Wildlife	Ringold Springs Hatchery	CH1	SP	2008	329 853	04-01-08	04-08-08		Mid-Columbia River
Washington Dept. of Fish and Wildlife	Tucannon Hatchery	CH1	SP	2008				Tucannon River	Tucannon River
Washington Dept. of Fish and Wildlife	Tucannon Hatchery	CH1	SP	2008	,			Tucannon River	Tucannon River
Washington Dept. of Fish and Wildlife	Washougal Hatchery	CO	NO	2008				Klickitat River	Klickitat River
Washington Dept. of Fish and	vasiougai i iatolici y		140	2000	۷,000,000	JU J 1-00	J- UU0	I MOMILIA INIVOI	Taiomat MVDI
Wildlife Total					3,513,853				
Tradite Foldi					J,J 1J,0J3				
Yakama Tribe	Cla Elam Hatabass	CH1	SP	2000	244.004	02.45.00	05.45.00	Clark Flat Acclim Pond	Vakima Piyor
ranama muc	Cle Elem Hatchery	OIII	Or-	2008	211,004	00-10-08	00-10-08	Jack Creek Acclim	I aniiila Nivel
Vakama Tribo	Clo Flom Hatchery	CH1	QD.	2000	247 446	02.15.00	05.15.00		Vakima Piyor
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2008		03-15-08			Yakima River
Yakama Triba	Cle Elem Hatchery	CH1	SP	2008	,			Easton Pond	Yakima River
Yakama Tribe	Willard Hatchery	СО	UN	2008		U4-U3-U8	04-03-08	Nason Creek	Wenatchee River
Yakama Tribe Total					679,873				
Grand Total					21,376,234				

### HATCHERY RELEASE NEXT TWO WEEKS

4/24/2008

Hatchery Release Summary 4/11/2008 to

From:

	From:	4/11/2008	•	το	4/24/2008			
Agency Colville Tribe Colville Tribe	Hatchery Entiat Hatchery Entiat Hatchery	Species CH1 CH1	Race SP SP	MigYr 2008 2008	40,000 04-15-08 215,000 04-15-08		Omak Creek	<b>RelRiver</b> Okanogan River Okanogan River
Colville Tribe Total Idaho Dept. of Fish and Game Idaho Dept. of Fish and Game	Clearwater Hatchery Clearwater Hatchery	ST ST	SU SU	2008 2008	<b>255,000</b> 83,000 04-07-08 144,600 04-07-08		Crooked River	S Fk Clearwater River S Fk Clearwater River
Idaho Dept. of Fish and Game Idaho Dept. of Fish and Game	Clearwater Hatchery Magic Valley Hatchery	ST ST	SU SU	2008 2008	248,500 04-07-08 30,000 04-11-08		Redhouse (SFk ClearH20 R) Pahsimeroi River	S Fk Clearwater River Pahsimeroi River
Idaho Dept. of Fish and Game Idaho Dept. of Fish and Game Idaho Dept. of Fish and Game	Magic Valley Hatchery Magic Valley Hatchery Magic Valley Hatchery	ST ST ST	SU SU SU	2008 2008 2008		04-27-08	Yankee Fk (Salmon R) Salmon River (ID) Squaw Creek	Salmon River (ID) Salmon River (ID) Salmon River (ID)
Idaho Dept. of Fish and Game	Magic Valley Hatchery Niagara Springs Niagara Springs Pahsimeroi Hatchery Rapid River Hatchery Sawtooth Hatchery	ST ST ST ST ST ST ST ST CH1 CH1	SU SU SU SU SU SP SP	2008 2008 2008 2008 2008 2008 2008 2008	80,000 04-11-08 120,000 04-11-08 120,000 04-11-08 120,000 04-11-08 191,000 04-11-08 225,000 04-11-08 55,000 04-01-08 830,000 04-03-08 1,038,000 03-31-08 2,500,000 03-17-08	04-27-08 04-27-08 04-27-08 04-27-08 04-27-08 04-27-08 04-24-08 04-21-08 04-15-08	East Fk Salmon River Little Salmon River Pahsimeroi River	Salmon River (ID) Pahsimeroi River Pahsimeroi River Little Salmon River (ID)
Idaho Dept. of Fish and Game Total Nez Perce Tribe	Cascade Hatchery	СО	UN	2008	<b>6,189,100</b> 75,000 04-15-08	04-15-08	Clear Creek	Clearwater River M F
Nez Perce Tribe	Clearwater Hatchery Clearwater Hatchery Clearwater Hatchery Clearwater Hatchery Clearwater Hatchery Dworshak NFH Dworshak NFH Lookingglass Hatchery	ST ST ST ST ST ST ST CH1	SU SU SU SU SU SU SU SP	2008 2008 2008 2008 2008 2008 2008 2008	31,400 04-13-08 45,600 04-13-08 72,100 04-13-08 163,500 04-13-08 100,000 04-14-08 100,000 04-14-08	04-19-08 04-19-08 04-19-08 04-19-08 04-18-08 04-18-08	Lolo Creek Crooked River Red River American River	S Fk Clearwater River S Fk Clearwater River Clearwater River M F S Fk Clearwater River S Fk Clearwater River S Fk Clearwater River S Fk Clearwater River Wallowa River
Nez Perce Tribe	Lyons Ferry Hatchery	CH1	FA	2008	150,000 04-16-08	04-17-08		Clearwater River M F
Nez Perce Tribe	Lyons Ferry Hatchery	CH1	FA	2008	155,000 04-14-08	04-15-08	Pittsburg Landing Acclim Pond	Snake River
Nez Perce Tribe	Lyons Ferry Hatchery	CH1	FA	2008	155,000 04-15-08	04-15-08	Cpt John Acclim Pond	Snake River
Nez Perce Tribe Nez Perce Tribe Total	Nez Perce Tribal Hatchery	СО	UN	2009	30,000 04-01-08 <b>1,240,500</b>	04-15-08	Orofino Creek	Clearwater River M F
Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex	ST	SU	2008	100,000 04-15-08	04-15-08		Imnaha River
Oregon Dept. of Fish and Wildlife Oregon Dept. of Fish and Wildlife	Irrigon Hatchery Complex Irrigon Hatchery Complex Lookingglass Hatchery Oak Springs Hatchery Umatilla Hatchery	ST ST CH1 ST ST	SU SP SU SU	2008 2008 2008 2008 2008	24,000 04-14-08 500 04-15-08	04-15-08 04-14-08 04-15-08	Big Canyon Acclim.Pd (Grande Ronde) L Sheep Acclim Pond Lookingglass Creek Deschutes River Meacham Creek	Grande Ronde River Imnaha River Grande Ronde River Deschutes River Umatilla River
<b>Total</b> U.S. Fish and Wildlife Service U.S. Fish and Wildlife Service	Carson NFH Dworshak NFH	CH1 ST	SP SU	2008 2008	<b>499,500</b> 1,335,000 04-15-08 300,000 04-14-08			Wind River Clearwater River M F
U.S. Fish and Wildlife Service	Dworshak NFH Dworshak NFH Hagerman NFH Leavenworth NFH Little White Salmon NFH	ST ST ST CH1	SU SU SP SP	2008 2008 2008 2008 2008	, ,	04-21-08 04-25-08 04-24-08	ClearH20 R) Dworshak Hatchery Salmon River (ID) Icicle Creek Little White Salmon River	S Fk Clearwater River Clearwater River M F Salmon River (ID) Wenatchee River Little White Salmon River
U.S. Fish and Wildlife Service U.S. Fish and Wildlife Service U.S. Fish and Wildlife Service	Warm Springs NFH Winthrop NFH Winthrop NFH	CH1 CH1 ST	SP SP SU	2008 2008 2008		04-18-08	Warm Springs Hatchery Winthrop Hatchery Winthrop Hatchery	Deschutes River Methow River Methow River
U.S. Fish and Wildlife Service Total					7,596,840			
Umatilla Tribe Umatilla Tribe	Cascade Hatchery Lookingglass Hatchery	CO CH1	UN SP	2008 2008	750,000 04-15-08 116,887 03-24-08			Umatilla River Grande Ronde River
Umatilla Tribe	Lookingglass Hatchery	CH1	SP	2008	132,453 04-07-08	04-14-08	Grande Ronde Acclim Pond Minthorn Acclimation	Grande Ronde River
Umatilla Tribe	Umatilla Hatchery	ST	SU	2008	50,000 04-15-08	04-15-08		Umatilla River
Umatilla Tribe Umatilla Tribe Total	Umatilla Hatchery	ST	SU	2008	50,000 04-15-08 <b>1,099,340</b>	04-15-08	Pendelton Acclim Pond	Umatilla River
Warm Springs Tribe Warm Springs Tribe	Oak Springs Hatchery Oak Springs Hatchery	ST ST	SU WI	2008 2008			Blackberry Acclim Pond Parkdale Acclim Pond	
Warm Springs Tribe Warm Springs Tribe Total	Round Butte Hatchery	CH1	SP	2008	69,612 04-09-08 <b>108,645</b>	05-07-08	Blackberry Acclim Pond	Hood River

### HATCHERY RELEASE NEXT TWO WEEKS (Cont'd)

Washington Dept. of Fish and Wildlife	Chiwawa Hatchery	CH1	SP	2008	615,000 04-14-08	05-14-08	Chiwawa River	Wenatchee River
Washington Dept. of Fish and Wildlife	Eastbank Hatchery	CH1	SU	2008	606,000 04-14-08	05-14-08	Similkameen Acclim Pd	Okanogan River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2008	60,000 04-15-08	04-15-08	Lyons Ferry Hatchery	Snake River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2008	68.000 04-15-08	04-15-08	Baileysburg Bridge	Touchet River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2008	,		Dayton Acclim Pond	Touchet River
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2008	100,000 04-15-08		•	Tucannon River
•					•			
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2008	100,000 04-15-08	04-15-08	Walla Walla River	Walla Walla River
							Cottonwood Acclim	
Washington Dept. of Fish and Wildlife	Lyons Ferry Hatchery	ST	SU	2008	160,000 04-15-08			Grande Ronde River
Washington Dept. of Fish and Wildlife	Methow Hatchery	CH1	SP	2008	47,000 04-15-08	04-15-08	Twisp Acclim Pond	Methow River
Washington Dept. of Fish and Wildlife	Methow Hatchery	CH1	SP	2008	190.000 04-15-08	04-15-08	Chewuch Acclim Pond	Methow River
Washington Dept. of Fish and Wildlife	Methow Hatchery	CH1	SP	2008	210,000 04-15-08	04-15-08	Methow Hatchery	Methow River
Washington Dept. of Fish and Wildlife	Methow Hatchery	CH1	SU	2008			Carlton Acclim Pond	Methow River
Washington Dept. of Fish and Wholie	Welliow Halchery	OIII	30	2000	421,000 04-14-00	05-14-00		MEMIOW IZIVEI
	D: 110 : 11 : 1	O.T.	011		400 000 04 44 00	0.4.05.00	Ringold Springs	10101 11 51
Washington Dept. of Fish and Wildlife	Ringold Springs Hatchery	ST	SU	2008	180,000 04-14-08		•	Mid-Columbia River
Washington Dept. of Fish and Wildlife	Skamania Hatchery	ST	SU	2008			White Salmon River	White Salmon River
Washington Dept. of Fish and Wildlife	Skamania Hatchery	ST	SU	2008	94,000 04-15-08	05-15-08	Klickitat River	Klickitat River
Washington Dept. of Fish and Wildlife	Skamania Hatchery	ST	WI	2008	21,000 04-15-08	05-15-08	White Salmon River	White Salmon River
Washington Dept. of Fish and Wildlife	Tucannon Hatchery	CH1	SP	2008	78,000 04-10-08	04-24-08	Tucannon River	Tucannon River
Washington Dept. of Fish and Wildlife	Tucannon Hatchery	CH1	SP	2008	106,000 04-10-08			Tucannon River
Washington Dept. of Fish and Wildlife	Tucannon Hatchery	ST	SU	2008	57,000 04-15-08			Tucannon River
Washington Dept. of Fish and Wildlife	Wells Hatchery	CH1	SU	2008	313,000 04-14-08			Mid-Columbia River
•	•						•	
Washington Dept. of Fish and Wildlife	Wells Hatchery	ST	SU	2008	90,000 04-15-08		•	Methow River
Washington Dept. of Fish and Wildlife	Wells Hatchery	ST	SU	2008	110,000 04-15-08			Methow River
Washington Dept. of Fish and Wildlife	Wells Hatchery	ST	SU	2008	110,000 04-15-08	05-15-08	Methow River	Methow River
Washington Dept. of Fish and Wildlife	Wells Hatchery	ST	SU	2008	138,000 04-15-08	05-15-08	Okanogan River	Okanogan River
Washington Dept. of Fish and								
Wildlife Total					3,983,750			
Yakama Tribe	Cascade Hatchery	CO	UN	2008	149,312 04-21-08	04-25-08	Icicle Creek	Wenatchee River
Yakama Tribe	Cascade Hatchery	CO	UN	2008	224,773 04-21-08			Wenatchee River
ranama mbo	Caccado Hateriory	00	0.1	2000	221,770072700	012100	TOTOTO CTOOK	Tronatoneo ravoi
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2008	211 004 03-15-08	05-15-08	Clark Flat Acclim Pond	Vakima Pivor
Takama mbe	Cie Liem Hatchery	OIII	OI.	2000	211,004 05-15-00	03-13-00	Jack Creek Acclim	Takima Nivei
V 1	0. 5	0114	0.0		0.17.4.0.00.47.00	0= 4= 00		V 11 51
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2008	217,146 03-15-08			Yakima River
Yakama Tribe	Cle Elem Hatchery	CH1	SP	2008	219,470 03-15-08			Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2008	40,964 04-21-08	05-01-08	Prosser Acclim Pond	Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2008	100,000 04-21-08	05-01-08	Easton Pond	Yakima River
							Lost Creek Acclim	
Yakama Tribe	Eagle Creek NFH	CO	UN	2008	100,000 04-21-08			Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2008	100,000 04-21-08			Yakima River
Yakama Tribe	Eagle Creek NFH	CO	UN	2008	150,000 04-21-08			Yakima River
	-				,			
Yakama Tribe	Prosser Acclim. Pond	CH0	FA	2008	•		Prosser Acclim Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CH0	FA	2008			Prosser Acclim Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2008	,		Prosser Acclim Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2008	40,579 04-21-08	05-01-08	Boone Pond	Yakima River
							Lost Creek Acclim	
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2008	41,095 04-21-08	05-01-08	Pond	Yakima River
Yakama Tribe	Prosser Acclim, Pond	CO	UN	2008	42,447 04-21-08	05-01-08	Stiles Pond	Yakima River
Yakama Tribe	Prosser Acclim. Pond	CO	UN	2008	120,425 04-21-08			Yakima River
Yakama Tribe	Washougal Hatchery	CO	NO	2008	39,726 04-21-08			Yakima River
Yakama Tribe	- ·	CO	NO	2008	89,328 04-21-08			Yakima River
	Washougal Hatchery				,			
Yakama Tribe	Willard Hatchery	CO	UN	2008	71,946 04-21-08			Wenatchee River
Yakama Tribe	Willard Hatchery	CO	UN	2008	83,866 04-21-08			Methow River
Yakama Tribe	-			2000	400 700 04 04 00	04 24 00	Iniala Cunali	Manatakaa Diirar
ranama mbo	Willard Hatchery	CO	UN	2008	133,793 04-21-08	04-24-00	icicie Creek	Wenatchee River
Yakama Tribe	-	CO CO	UN UN	2008			Winthrop Hatchery	Methow River
	Willard Hatchery Winthrop NFH					04-25-08	Winthrop Hatchery	
Yakama Tribe	Willard Hatchery	CO	UN	2008	267,004 04-19-08 12,000 04-18-08	04-25-08	Winthrop Hatchery	Methow River
Yakama Tribe Yakama Tribe	Willard Hatchery Winthrop NFH	CO	UN	2008	267,004 04-19-08	04-25-08	Winthrop Hatchery	Methow River

## 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
i ulai Dissuiveu	Gas Saluration	Dala al UDDEI	Columbia River Sites

	Hung	ry H. I	<u> Dnst</u>		Boun	dary			Grand	d Coul	<u>ee</u>		Gran	d C. T	lwr		Chief	Jose	ph_	
	<u>24 h</u>	12 h		<u>#</u>	<u>24 h</u>	12 h		<u>#</u>	<u>24 h</u>	12 h		<u>#</u>	<u>24 h</u>	12 h		<u>#</u>	<u>24 h</u>	12 h		<u>#</u>
	Avg	Avg	High	<u>hr</u>	Avg	Avg	<u>High</u>	<u>hr</u>	Avg	Avg	<u>High</u>	<u>hr</u>	Avg	Avg	<u>High</u>	<u>hr</u>	Avg	Avg	<u>High</u>	<u>hr</u>
3/28	98	98	98	24	105	106	107	21	105	105	105	24	104	105	105	21				0
3/29	98	98	98	24	104	104	105	22	104	105	105	24	104	105	105	22				0
3/30	97	98	98	24	103	104	106	22	104	104	104	24	103	104	105	22				0
3/31	97	97	97	24	104	105	105	20	104	104	104	24	103	103	104	20				0
4/1	97	97	98	24	103	104	105	22	104	104	105	24	103	103	104	22				0
4/2	97	97	98	24	104	105	106	21	104	105	106	24	103	103	104	21				0
4/3	97	97	98	24	103	104	105	23	104	105	105	24	103	104	104	23				0
4/4	98	98	99	24	105	106	108	22	105	106	106	24	104	105	106	22				0
4/5	98	98	98	24	104	104	105	22	105	106	106	24	105	106	108	22				0
4/6	98	98	98	24	104	104	105	23	106	106	106	24	105	106	107	23				0
4/7	97	98	98	24	104	105	105	22	105	105	106	24	105	105	107	22				0
4/8	98	98	98	24	104	104	106	22	105	106	106	24	104	105	106	22				0
4/9	98	98	99	24	104	105	105	24	105	106	106	24	104	105	107	24				0
4/10	97	97	97	24	104	104	105	22	105	105	106	24	103	104	104	22				0

Total Dissolved Gas Saturation Data at Mid Columbia River Site
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	Chief	Wells				Wells	Dwns	<u>strm</u>		Rock	y Rea	<u>ch</u>		Rock	y R. T	<u>lwr</u>				
	<u>24 h</u>	12 h		<u>#</u>	<u>24 h</u>	12 h		<u>#</u>	<u>24 h</u>	<u>12 h</u>		#	<u>24 h</u>	12 h		<u>#</u>	<u>24 h</u>	12 h		<u>#</u>
<u>Date</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>
3/28				0	103	103	103	24	103	103	103	24				0				0
3/29				0	102	102	103	24	102	103	103	24				0				0
3/30				0	102	102	103	24	102	102	103	24				0				0
3/31				0	102	102	102	24	102	102	103	24				0				0
4/1				0	102	103	103	24	102	103	103	24	102	102	102	7	102	102	102	9
4/2				0	103	103	104	24	103	104	104	24	102	103	103	24	103	103	103	24
4/3				0	104	104	105	24	104	104	105	24	103	104	104	24	103	104	104	24
4/4				0	104	105	105	24	105	105	105	24	105	105	105	24	105	105	105	24
4/5				0	104	105	105	24	105	105	106	24	105	105	105	24	105	105	106	24
4/6				0	104	105	105	24	105	105	106	24	105	105	106	24	105	105	106	24
4/7				0	104	105	105	24	104	105	105	24	105	105	105	24	105	105	105	24
4/8				0	104	105	105	24	104	105	105	24	105	105	105	24	105	105	105	24
4/9				0	104	105	105	24	104	105	105	24	105	105	105	24	105	105	105	24
4/10				0	104	104	104	24	104	104	105	24	104	104	105	24	104	104	105	24

**Total Dissolved Gas Saturation at Mid Columbia River Sites** 

<u>Rock</u>	Island	<u>d</u>		<u>Rock</u>	<u>I. Tlw</u>	<u>r</u>		<u>Wana</u>	pum			<u>Wana</u>	pum	<u>Tlwr</u>		<u>Pries</u>	t Rapi	<u>ds</u>	
<u>24 h</u>	<u>12 h</u>		<u>#</u>	<u>24 h</u>	<u>12 h</u>		<u>#</u>	<u>24 h</u>	<u>12 h</u>		<u>#</u>	<u>24 h</u>	<u>12 h</u>		<u>#</u>	<u>24 h</u>	<u>12 h</u>		<u>#</u>
<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	High	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	hr
			0				0				0				0				0
			0				0				0				0				0
			0				0				0				0				0
			0				0				0				0				0
103	103	103	9	103	103	103	9				0				0				0
103	103	103	24	103	103	103	24				0				0				0
103	108	113	24	103	108	113	24				0				0				0
101	104	105	24	101	104	105	24				0				0				0
105	105	106	24	105	105	106	24				0				0				0
105	106	107	24	105	106	106	24				0				0				0
105	105	105	24	105	105	105	24				0				0				0
105	105	106	24	105	105	106	24				0				0				0
105	105	106	24	105	106	106	24				0				0				0
104	105	105	24	105	105	105	24				0				0				0
	24 h Avg 103 103 101 105 105 105 105 105	24 h	24 h         12 h           Avg         Avg         High                          103         103         103           103         103         103           103         103         103           103         103         103           103         103         103           103         103         103           104         105         105           105         105         105           105         105         106           105         105         106           105         105         106           105         105         106           105         105         106           105         105         106	24 h         12 h         #           Avg         Avg         High         hr             0             0             0             0             0           103         103         103         9           103         103         103         24           103         108         113         24           105         105         106         24           105         105         105         24           105         105         105         24           105         105         106         24           105         105         106         24           105         105         106         24           105         105         106         24           105         105         106         24           105         105         106         24           105         105         106         24           105         105         105         106           105	24 h         12 h         #         24 h           Avg         Avg         High         hr         Avg             0              0              0              0            103         103         9         103           103         103         24         103           103         108         113         24         103           101         104         105         24         101           105         105         106         24         105           105         105         105         24         105           105         105         105         24         105           105         105         106         24         105           105         105         106         24         105           105         105         106         24         105           105         105         106         24         105           105         105         106         24 <t< td=""><td>24 h         12 h         #         24 h         12 h           Avg         Avg         High         hr         Avg         Avg             0               0               0               0             103         103         103         9         103         103           103         103         103         24         103         103           103         108         113         24         103         108           101         104         105         24         101         104           105         105         106         24         105         105           105         105         105         24         105         105           105         105         106         24         105         105           105         105         106         24         105         105           105         105         106         24         105         105</td><td>24 h         12 h         #         24 h         12 h           Avg         Avg         High         hr         Avg         Avg         High             0                0                0                0              103         103         103         9         103         103         103           103         103         103         24         103         103         103           103         103         103         24         103         103         103           103         104         105         24         101         104         105           105         105         106         24         105         106         106           105         105         105         24         105         105         105           105         105         105         24         105         105         106           105&lt;</td><td>24 h         12 h         #         24 h         12 h         #           Avg         Avg         High         hr         Avg         Avg         High         hr             0           0             0           0             0           0             0           0           103         103         103         9         103         103         103         9           103         103         103         24         103         103         103         24           103         108         113         24         103         108         113         24           104         104         105         24         101         104         105         24           105         106         106         24         105         106         106         24           105         106         107         24         105         106         106         24           105         <t< td=""><td>24 h         12 h         #         24 h         12 h         #         24 h           Avg         Avg         High         hr         Avg         Avg         High         hr         Avg             0           0              0           0              0           0              0           0            103         103         103         9         103         103         103         9           103         103         103         24         103         103         103         24            103         103         103         24         103         103         103         24            103         108         113         24         103         108         113         24            103         108         113         24         103         108         113         24        </td><td>24 h         12 h         #         24 h         12 h         #         24 h         12 h           Avg         Avg         High         hr         Avg         Avg         High         hr         Avg         Avg                0           0               0            0</td><td>24 h         12 h         #         24 h         12 h         High         hr         Avg         High         hr            0            0                                </td><td>24 h         12 h         #         24 h         12 h         #         #         Avg         High         hr         Avg         Avg         High         Avg</td><td>24 h         12 h         #         24 h           Avg         High         hr         High         hr         High         hr         High         High         hr         High</td></t<><td>24 h         12 h         #         24 h         12 h         #         Avg         Avg         High         hr         Avg         Avg         High         hr         Avg         Avg         Avg         High         hr         Avg         Avg         Avg         Avg         Avg         High         hr         Avg         Avg<td>24 h         12 h         #         24 h         4</td><td>24 h         12 h         #         24 h         12 h         #         Avg         Avg         High         hr                0           0          0          0          0           0           0           0           0           0          </td></td></td></t<> <td>24 h         12 h         #         24 h         Avg         High         hr         Avg         High         High         Avg         High         High         Avg         High         High         High         Avg         <th< td=""><td>24 h         12 h         #         24 h         24 h</td><td>24 h         12 h         #         24 h         13 h         #         24 h         13 h         24 h         13 h</td></th<></td>	24 h         12 h         #         24 h         12 h           Avg         Avg         High         hr         Avg         Avg             0               0               0               0             103         103         103         9         103         103           103         103         103         24         103         103           103         108         113         24         103         108           101         104         105         24         101         104           105         105         106         24         105         105           105         105         105         24         105         105           105         105         106         24         105         105           105         105         106         24         105         105           105         105         106         24         105         105	24 h         12 h         #         24 h         12 h           Avg         Avg         High         hr         Avg         Avg         High             0                0                0                0              103         103         103         9         103         103         103           103         103         103         24         103         103         103           103         103         103         24         103         103         103           103         104         105         24         101         104         105           105         105         106         24         105         106         106           105         105         105         24         105         105         105           105         105         105         24         105         105         106           105<	24 h         12 h         #         24 h         12 h         #           Avg         Avg         High         hr         Avg         Avg         High         hr             0           0             0           0             0           0             0           0           103         103         103         9         103         103         103         9           103         103         103         24         103         103         103         24           103         108         113         24         103         108         113         24           104         104         105         24         101         104         105         24           105         106         106         24         105         106         106         24           105         106         107         24         105         106         106         24           105 <t< td=""><td>24 h         12 h         #         24 h         12 h         #         24 h           Avg         Avg         High         hr         Avg         Avg         High         hr         Avg             0           0              0           0              0           0              0           0            103         103         103         9         103         103         103         9           103         103         103         24         103         103         103         24            103         103         103         24         103         103         103         24            103         108         113         24         103         108         113         24            103         108         113         24         103         108         113         24        </td><td>24 h         12 h         #         24 h         12 h         #         24 h         12 h           Avg         Avg         High         hr         Avg         Avg         High         hr         Avg         Avg                0           0               0            0</td><td>24 h         12 h         #         24 h         12 h         High         hr         Avg         High         hr            0            0                                </td><td>24 h         12 h         #         24 h         12 h         #         #         Avg         High         hr         Avg         Avg         High         Avg</td><td>24 h         12 h         #         24 h           Avg         High         hr         High         hr         High         hr         High         High         hr         High</td></t<> <td>24 h         12 h         #         24 h         12 h         #         Avg         Avg         High         hr         Avg         Avg         High         hr         Avg         Avg         Avg         High         hr         Avg         Avg         Avg         Avg         Avg         High         hr         Avg         Avg<td>24 h         12 h         #         24 h         4</td><td>24 h         12 h         #         24 h         12 h         #         Avg         Avg         High         hr                0           0          0          0          0           0           0           0           0           0          </td></td>	24 h         12 h         #         24 h         12 h         #         24 h           Avg         Avg         High         hr         Avg         Avg         High         hr         Avg             0           0              0           0              0           0              0           0            103         103         103         9         103         103         103         9           103         103         103         24         103         103         103         24            103         103         103         24         103         103         103         24            103         108         113         24         103         108         113         24            103         108         113         24         103         108         113         24	24 h         12 h         #         24 h         12 h         #         24 h         12 h           Avg         Avg         High         hr         Avg         Avg         High         hr         Avg         Avg                0           0               0            0	24 h         12 h         #         24 h         12 h         High         hr         Avg         High         hr            0            0	24 h         12 h         #         #         Avg         High         hr         Avg         Avg         High         Avg	24 h         12 h         #         24 h           Avg         High         hr         High         hr         High         hr         High         High         hr         High	24 h         12 h         #         Avg         Avg         High         hr         Avg         Avg         High         hr         Avg         Avg         Avg         High         hr         Avg         Avg         Avg         Avg         Avg         High         hr         Avg         Avg <td>24 h         12 h         #         24 h         4</td> <td>24 h         12 h         #         24 h         12 h         #         Avg         Avg         High         hr                0           0          0          0          0           0           0           0           0           0          </td>	24 h         12 h         #         24 h         4	24 h         12 h         #         Avg         Avg         High         hr                0           0          0          0          0           0           0           0           0           0	24 h         12 h         #         24 h         Avg         High         hr         Avg         High         High         Avg         High         High         Avg         High         High         High         Avg <th< td=""><td>24 h         12 h         #         24 h         24 h</td><td>24 h         12 h         #         24 h         13 h         #         24 h         13 h         24 h         13 h</td></th<>	24 h         12 h         #         24 h         24 h	24 h         12 h         #         24 h         13 h         #         24 h         13 h         24 h         13 h

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

Tota	I Dissolved Ga	Saturation Data	at Lower Co	olumbia and 9	Snake River Sites

	Pries	t R. D	nst		Pasco	<u>)</u>			Dwor	<u>shak</u>			Clrwt	r-Pecl	<u>K</u>		Anato	<u>ne</u>		
	<u>24 h</u>	<u>12 h</u>		#	<u>24 h</u>	12 h		<u>#</u>	<u>24 h</u>	<u>12 h</u>		<u>#</u>	<u>24 h</u>	12 h		<u>#</u>	<u>24 h</u>	<u>12 h</u>		<u>#</u>
<u>Date</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>
3/28				0	102	103	104	24	95	95	95	10	98	99	99	24	102	103	104	24
3/29				0	101	102	102	24				0	98	98	99	24	102	103	103	24
3/30				0	102	102	103	24				0	97	98	100	24	102	103	104	24
3/31				0	102	103	103	24				0	96	97	97	24	102	103	104	24
4/1				0	102	103	104	23				0	96	98	99	24	102	104	105	24
4/2				0	104	105	105	24	105	108	110	24	102	105	106	24	102	103	104	24
4/3				0	104	105	106	24	109	110	111	24	106	107	108	24	102	104	105	24
4/4				0	104	104	105	24	108	110	110	24	105	106	107	24	102	103	103	24
4/5				0	103	104	105	24	105	106	106	24	103	104	105	24	102	103	104	24
4/6				0	104	105	105	24	106	106	107	24	103	104	105	24	102	103	104	24
4/7				0	103	103	103	24	106	107	108	24	104	105	106	24	102	103	104	24
4/8				0	103	104	105	24	107	108	108	24	105	106	107	24	102	104	105	24
4/9				0	104	105	105	24	107	107	108	24	104	105	106	24	102	103	104	24
4/10				0	104	105	105	24	106	107	107	24	104	104	105	24	102	102	103	24

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

	Clrwt	r-Lew	<u>iston</u>		Lowe	r Grar	<u>ite</u>		L. Gra	anite T	<u>lwr</u>		Little	Goos	<u>e</u>		L. Go	ose T	<u>lwr</u>	
	<u>24 h</u>	<u>12 h</u>		<u>#</u>	<u>24 h</u>	<u>12 h</u>		<u>#</u>	<u>24 h</u>	<u>12 h</u>		<u>#</u>	<u>24 h</u>	<u>12 h</u>		<u>#</u>	<u>24 h</u>	<u>12 h</u>		<u>#</u>
<u>Date</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>
3/28	100	101	102	24	103	103	104	24	103	103	104	24	102	103	103	24	102	102	103	24
3/29	100	102	103	24	102	102	103	24	101	102	102	24	101	102	102	24	101	101	102	24
3/30	101	102	103	24	101	101	102	24	101	101	101	24	101	101	101	24	101	101	101	24
3/31	100	102	103	24	100	100	101	24	100	100	101	24	100	100	100	24	100	100	100	24
4/1	101	103	105	24	100	101	101	24	101	101	101	24	100	101	101	24	100	100	101	24
4/2	101	104	106	24	100	101	101	24	101	101	101	24	101	101	102	24	101	101	102	24
4/3	104	107	109	24	101	101	102	24	111	111	112	24	101	102	103	24	110	112	113	24
4/4	104	105	106	24	102	102	103	24	111	112	112	24	102	103	103	24	111	112	112	24
4/5	103	105	106	24	102	102	102	24	112	112	112	24	102	102	102	24	107	107	109	24
4/6	103	105	106	24	102	102	102	24	111	111	112	24	102	102	103	24	107	107	108	24
4/7	103	105	106	24	102	102	103	24	112	112	112	24	102	103	103	24	109	109	110	24
4/8	104	106	108	24	103	103	103	23	112	112	112	24	105	106	107	23	110	110	111	23
4/9	103	104	105	24	102	102	103	13	111	112	113	24	107	108	108	24	113	113	114	24
4/10	103	104	105	24	102	102	102	24	111	112	112	24	107	107	108	24	113	113	113	24

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

	Lowe	r Mor	<u>).</u>		L. Mo	n. Tlw	<u>/r</u>		Ice Ha	<u>arbor</u>			Ice H	arbor	<u>Tlwr</u>		<b>McNa</b>	ry-Or	<u>egon</u>	
	<u>24 h</u>	12 h		#	<u>24 h</u>	<u>12 h</u>		#	<u>24 h</u>	<u>12 h</u>		#	<u>24 h</u>	12 h		<u>#</u>	<u>24 h</u>	12 h		<u>#</u>
<u>Date</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>
3/28	102	103	103	24	104	107	110	24	103	104	105	24	103	104	104	24				0
3/29	101	102	102	24	103	105	110	24	103	103	104	24	103	103	104	24				0
3/30	101	101	101	24	102	104	107	24	102	102	103	24	102	103	103	24				0
3/31	100	100	100	24	101	102	105	24	101	102	102	24	102	102	102	24				0
4/1	100	100	100	24	100	101	101	24	101	102	102	24	102	102	103	24				0
4/2	100	101	101	24	101	101	102	24	102	102	103	24	102	103	103	24				0
4/3	101	101	102	24	117	118	118	24	102	102	103	24	113	115	116	24				0
4/4	102	102	102	24	117	118	118	24	103	103	103	24	114	114	115	24				0
4/5	102	102	102	24	117	117	118	24	103	103	104	24	115	115	116	24				0
4/6	104	105	106	24	117	117	118	24	107	108	109	24	115	116	117	24				0
4/7	106	106	107	24	116	116	118	24	110	110	111	24	112	114	116	24				0
4/8	106	106	106	24	116	116	117	24	111	112	113	24	114	116	117	24				0
4/9	105	106	106	24	117	117	118	24	113	113	113	24	113	115	117	24				0
4/10	105	106	106	24	116	116	118	24	113	114	114	24	113	114	116	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** 

	McNa	ry-Wa	<u>ish</u>		McNa	ry Tlw	<u>/r</u>		<u>John</u>	Day			John	Day T	lwr		The [	<u>Dalles</u>		
	<u>24 h</u>	12 h		#	<u>24 h</u>	12 h		#	<u>24h</u>	<u>12h</u>		#	<u>24h</u>	<u>12h</u>		<u>#</u>	<u>24h</u>	<u>12h</u>		<u>#</u>
<u>Date</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>AVG</u>	<u>High</u>	<u>hr</u>
3/28	103	104	104	24	104	104	104	24	104	105	105	24	104	104	105	24	104	104	104	24
3/29	102	102	103	24	102	103	103	24	104	104	104	24	102	102	103	24	103	103	103	23
3/30	102	102	102	24	102	103	103	24	103	103	103	24	102	103	103	24	102	103	103	24
3/31	101	101	101	24	101	101	102	24	102	103	103	24	104	105	108	24	102	102	103	24
4/1	102	102	104	23	101	101	102	23	103	104	104	24	109	111	112	24	103	103	104	24
4/2	103	103	104	24	102	102	103	24	104	104	104	24	109	111	112	24	106	107	108	24
4/3	104	104	105	24	103	103	104	24	104	104	104	24	108	110	112	24	106	107	109	24
4/4	105	105	105	24	104	104	104	24	104	104	104	24	107	109	112	24	106	107	108	24
4/5	104	104	105	24	104	104	104	24	104	104	104	24	102	103	104	24	105	106	107	24
4/6	105	106	106	24	104	105	105	24	104	104	104	24	103	104	104	24	104	104	105	24
4/7	105	105	106	24	104	105	105	24	103	104	104	24	103	103	103	24	103	103	104	24
4/8	105	105	106	24	104	105	105	24	104	104	105	24	103	103	103	24	104	104	105	24
4/9	105	106	106	24	107	110	113	24	104	104	104	24	103	104	104	24	104	104	104	24
4/10	105	105	105	24	115	115	116	24	103	103	104	24	111	116	117	24	103	103	104	24

Total	Dissolved	Gas	Saturation	Data at I	OWAT	Columbia	<b>River Sites</b>
TOLAL	Dissolved	uas	Saturation	Dala al I	LOWEI	Columbia	Kivei oiles

	The Dalles Dnst			Bonneville			Warre	endale	<u> </u>	Camas\Washougal				<u>l</u>	Cascade Island					
	<u>24 h</u>	<u>12 h</u>		#	<u>24 h</u>	12 h		#	<u>24h</u>	<u>12h</u>		#	<u>24h</u>	<u>12h</u>		<u>#</u>	<u>24h</u>	<u>12h</u>		<u>#</u>
<u>Date</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	Avg	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>
3/28	103	104	104	24	103	103	104	24	104	105	105	24	104	105	105	24	116	118	120	24
3/29	102	102	103	23	102	102	103	24	103	104	105	24	102	103	104	24	113	115	115	24
3/30	102	102	102	24	102	102	102	24	105	106	106	24	104	105	106	24	113	115	116	24
3/31	101	102	102	24	102	102	102	24	105	106	106	24	105	107	108	24	113	115	116	24
4/1	103	104	104	24	102	103	104	24	105	105	106	24	106	107	108	24	115	116	118	24
4/2	106	108	109	24	103	104	104	24	106	106	107	24	106	107	108	24	115	116	118	24
4/3	106	107	108	24	104	105	105	24	107	107	107	24	106	108	109	24	115	117	119	24
4/4	106	107	107	24	106	107	107	24	108	109	109	24	107	108	108	24	115	117	119	24
4/5	106	106	107	24	106	106	107	24	110	111	111	24	108	110	110	24	114	116	119	24
4/6	105	106	107	24	106	107	107	24	110	110	111	24	109	109	110	24	115	117	121	24
4/7	103	104	104	24	106	106	106	24	109	109	110	24	108	108	109	24	115	117	119	24
4/8	104	104	104	24	106	106	106	24	109	110	111	24	109	110	111	24	116	117	121	24
4/9	104	104	105	16	105	105	106	24	107	108	108	24	109	109	110	24	115	116	118	24
4/10	109	111	112	24	103	104	104	24	112	114	116	16	107	109	113	24	117	117	118	14

### **Two-Week Summary of Passage Indices**

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

See Sampling Comments:

http://www.fpc.org/currentDaily/smpcomments.htm

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

For sockeye and yearling chinook (Snake only) race information see: http://www.fpc.org/smoltqueries/currentsmpsubmitdata.asp

					COMB	INED YEAR						
		WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date		(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
03/28/2008		1,083	615	64	4	110						132
03/29/2008	*	676	1,289	236	4	290						98
03/30/2008		577	467	778	12	80						72
03/31/2008		569	285	458	3	110						80
04/01/2008	*	701	121	224	22	120		45				82
04/02/2008	*	681	125	105	3	170	0	87	0		459	0
04/03/2008	*	540	724	26	5	430		170	0	80	686	82
04/04/2008	*	405	4,657	32	17	810	0	93	1		422	106
04/05/2008	*	908	4,192	132	1	428	0	22	0	270	596	62
04/06/2008	*	741	4,709	522	1	785	0	25	0		285	65
04/07/2008	*	711	4,098	212	2	1,254	0	17	1	56,763	455	150
04/08/2008	*	311	6,740	468	10	1,404	20	23	7		605	151
04/09/2008	*	478	11,986	276	4	1,798	0	38	2	18,804	2,775	119
04/10/2008	*	422		462	5	1,857	62	34	3		5,356	160
04/11/2008												
Total:		8,803	40,008	3,995	93	9,646	82	554	14	75,917	11,639	1,359
# Days:		14	13	14	14	14	8	10	9	4	9	14
Average:		629	3,078	285	7	689	10	55	2	18,979	1,293	97
YTD		20,778	40,869	4,323	109	9,736	82	554	14	75,917	11,639	13,721

					COMBIN	IED SUBYE	<b>EARLING C</b>	HINOOK				
	Ħ	WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date		(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
03/28/2008		0	0	0	1	0						768
03/29/2008	*	0	0	0	0	0						1,508
03/30/2008		0	0	0	0	0						916
03/31/2008		0	0	0	1	0						586
04/01/2008	*	0	0	0	3	0		0				679
04/02/2008	*	0	0	0	0	0	0	0	0		0	0
04/03/2008	*	0	0	0	1	23		0	0	0	0	708
04/04/2008	*	0	0	0	1	0	0	0	20		0	548
04/05/2008	*	0	0	0	0	0	0	0	23	10	0	967
04/06/2008	*	0	0	0	2	0	0	0	14		0	411
04/07/2008	*	0	0	0	0	0	0	0	10	0	0	770
04/08/2008	*	0	0	0	0	0	0	0	12		0	673
04/09/2008	*	0	0	0	1	0	0	0	25	0	0	1,013
04/10/2008	*	0		0	0	0	0	0	13		0	993
04/11/2008												
Total:	Ш	0	·	0	10	23	0	·		10	0	10,540
# Days:	Ш	14	13	14	14	14	8	10	9	4	9	14
Average:	Ш	0	0	0	1	2	0	0	13	3	0	753
YTD		0	0	0	20	23	0	0	117	10	0	882,958

### **Two-Week Summary of Passage Indices**

						COMBINE						
		WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date		(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)						
03/28/2008		0	0	0	0	0						0
03/29/2008	*	0	0	0	0	10						6
03/30/2008		0	0	0	0	20						8
03/31/2008		0	0	0	0	0						7
04/01/2008	*	0	0	0	0	0		0				0
04/02/2008	*	0	0	0	0	0	0	0	0		6	
04/03/2008	*	0	0	0	0	12		0	0	10	6	
04/04/2008	*	0	0	0	0	18	0	0	0		0	37
04/05/2008	*	0	0	0	0	0	0	0	0	30	11	30
04/06/2008	*	0	0	0	0	0	0	0	0		0	27
04/07/2008	*	0	0	0	0	0	0	0	0	170	5	66
04/08/2008	*	0	0	0	0	18	0	0	0		0	119
04/09/2008	*	0	0	0	0	0	0	0	0	200	10	172
04/10/2008	*	0		0	0	18	0	0	1		17	264
04/11/2008												
Total:		0	0	0	0	96	0	0	1	410	55	766
# Days:		14	13	14	14	14	8	10	9	4	9	14
Average:		0	0	0	0	7	0	0	0	103	6	55
YTD		0	0	0	2	96	0	0	1	410	55	1,198

					С	OMBINED :	STEELHEA	\D				
	П	WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date	П	(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
03/28/2008		0	5	0	1	0						0
03/29/2008	*	0	2	0	9	50						2
03/30/2008		0	5	0	4	20						8
03/31/2008		0	0	0	7	50						0
04/01/2008	*	0	0	0	7	30		7				7
04/02/2008	*	0	1	0	4	220	0	10	0		23	0
04/03/2008	*	18	1	0	12	244		21	0	71	23	3
04/04/2008	*	40	13	0	8	522	0	17	0		80	12
04/05/2008	*	73	34	1	12	428	0	8	0	70	16	3
04/06/2008	*	83	49	0	33	621	0	0	0		25	16
04/07/2008	*	93	20	0	11	598	0	0	1	100	30	150
04/08/2008	*	83	22	1	12	486	108		0		35	365
04/09/2008	*	68	45	0	11	590	0	12	1	0	30	311
04/10/2008	*	156		1	30	679	161	25	0		87	433
04/11/2008												
Total:	Ц	614	197	3	161	4,538	269		2	241	349	1,310
# Days:	Ц	14	13	14	14	14	8	10	9	4	9	14
Average:		44	15	0	12	324	34	10	0	60	39	94
YTD		616	226	6	167	4,548	269	103	2	241	349	1,367

### Two-Week Summary of Passage Indices

					(							
		WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date		(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)						
03/28/2008		0	0	0	0	0						0
03/29/2008	*	0	0	0	0	10						0
03/30/2008		0	0	0	0	0						0
03/31/2008		0	0	0	0	0						0
04/01/2008	*	0	0	0	0	0		0				0
04/02/2008	*	0	0	0	0	0	0	0	0		0	0
04/03/2008	*	0	0	0	0	0		2	0	0	0	0
04/04/2008	*	0	0	0	0	0	0	0	0		0	0
04/05/2008	*	0	0	0	0	0	0	0	0	0	0	2
04/06/2008	*	0	0	0	0	0	0	0	0		0	0
04/07/2008	*	0	0	0	0	0	0	0	0	0	0	0
04/08/2008	*	0	0	0	0	0	0	0	0		0	0
04/09/2008	*	0	0	0	0	73	0	0	0	0	0	0
04/10/2008	*	0		0	0	18	0	0	0		0	0
04/11/2008												
Total:		0	0	0	0	101	0	2	0	0	0	2
# Days:		14	13	14	14	14	8	10	9	4	9	14
Average:		0	0	0	0	7	0	0	0	0	0	0
YTD		0	0	0	0	111	0	2	0	0	0	2

<sup>\*</sup> 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 Updated:

Source: Fish Passage Center

4/11/08 11:24 AM

Source	: Fish Passage Center	03/28/08	<b> </b>	то	04/11/08	Upda	ateu.	4/ 1	1/08 11:24 AM
Site	Data	Species CH0	CH1	1	СО	SO	S	т	Grand Total
LGR	Sum of NumberCollected		20	5,804		70	60	2,713	
	Sum of NumberBarged		0	2,376		21	39	655	
	Sum of NumberBypassed		20	4,125		58	21	2,298	·
	Sum of Numbertrucked		0	7,120		0	0	2,230	0,022
	Sum of SampleMorts		0	2		0	0	3	5
	Sum of FacilityMorts		0	3		0	0	0	3
	Sum of ResearchMorts		0	0		0	0	0	]
			0	5		_		3	
LGS	Sum of TotalProjectMorts Sum of NumberCollected		0	57		0	0	<u>3</u> 188	_
LGS									
	Sum of NumberBarged			0				0	0
	Sum of NumberBypassed			57				187	244
	Sum of Numbertrucked			0				0	0
	Sum of SampleMorts			0				1	1
	Sum of FacilityMorts			0				0	0
	Sum of ResearchMorts			0				0	0
	Sum of TotalProjectMorts			0				1	1
LMN	Sum of NumberCollected			323			1	52	376
	Sum of NumberBarged			0			0	0	0
	Sum of NumberBypassed			322			1	50	373
	Sum of Numbertrucked			0			0	0	0
	Sum of SampleMorts			1			0	0	1
	Sum of FacilityMorts			0			0	2	2
	Sum of ResearchMorts			0			0	0	0
	Sum of TotalProjectMorts			1			0	2	3
MCN	Sum of NumberCollected		10	75,917	41	0		241	76,578
	Sum of NumberBarged		0	0		0		0	0
	Sum of NumberBypassed		10	75,889	41			240	
	Sum of Numbertrucked		0	0		0		0	0
	Sum of SampleMorts		0	8		0		0	8
	Sum of FacilityMorts Sum of ResearchMorts		0 0	20 0		0		1	21 0
	Sum of TotalProjectMorts		0	28		0		1	29
Total S	Sum of NumberCollected		30	82,101	48		61	3,194	
	Sum of NumberBarged		0	2,376	2	21	39	655	
	Sum of NumberBypassed		30	80,393	46		22	2,775	
	Sum of Numbertrucked		0	0		0	0	0	
	Sum of SampleMorts		0	11		0	0	4	
	Sum of FacilityMorts Sum of ResearchMorts		0	23 0		0	0	3	
	Sum of TotalProjectMorts		0	34		0	0	7	
· otal C	an or rotal rojectivierts		•	J-T		•	U		

#### **YTD Transportation Summary**

Total Sum of ResearchMorts

Total Sum of TotalProjectMorts

Source: Fish Passage Center Updated: 4/11/08 11:24 AM TO: 04/11/08 Species Site CH0 CH1 CO SO ST **Grand Total** Data LGR Sum of NumberCollected 5,894 2,723 8,777 Sum of NumberBarged 2,376 3,091 2,308 Sum of NumberBypassed 4,215 6,632 Sum of NumberTrucked Sum of SampleMorts Sum of FacilityMorts Sum of ResearchMorts Sum of TotalProjectMorts LGS Sum of NumberCollected Sum of NumberBarged Sum of NumberBypassed Sum of NumberTrucked Sum of SampleMorts Sum of FacilityMorts Sum of ResearchMorts Sum of TotalProjectMorts LMN Sum of NumberCollected Sum of NumberBarged Sum of NumberBypassed Sum of NumberTrucked Sum of SampleMorts Sum of FacilityMorts Sum of ResearchMorts Sum of TotalProjectMorts MCN Sum of NumberCollected 75,917 76,578 Sum of NumberBarged 76,549 Sum of NumberBypassed 75,889 Sum of NumberTrucked Sum of SampleMorts Sum of FacilityMorts Sum of ResearchMorts Sum of TotalProjectMorts Total Sum of NumberCollected 82,191 3,204 85,976 Total Sum of NumberBarged 2,376 3,091 Total Sum of NumberBypassed 80,483 2,785 83,798 Total Sum of NumberTrucked Total Sum of SampleMorts Total Sum of FacilityMorts 

#### Cumulative Adult Passage at Mainstem Dams Through: 04/10

				Spring	Chinook				5	Summer	Chinoo	k				Fall Ch	inook		
		200	08	20	07	10-Y	r Avg.	200	08	200	)7	10-Y	r Avg.	20	800	20	07	10-Yr	Avg.
DAM	EndDate	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	04/10	1421	0	367	3	17855	41	0	0	0	0	0	0	0	0	0	0	0	0
TDA	04/10	402	6	55	1	7452	9	0	0	0	0	0	0	0	0	0	0	0	0
JDA	04/10	210	0	35	0	4119	1	0	0	0	0	0	0	0	0	0	0	0	0
MCN	04/09	34	-2	3	1	1512	3	0	0	0	0	0	0	0	0	0	0	0	0
IHR	04/09	23	0	3	0	661	0	0	0	0	0	0	0	0	0	0	0	0	0
LMN	04/10	2	0	0	0	475	0	0	0	0	0	0	0	0	0	0	0	0	0
LGS	04/09	1	0	3	0	119	0	0	0	0	0	0	0	0	0	0	0	0	0
LGR	04/07	0	0	2	0	21	0	0	0	0	0	0	0	0	0	0	0	0	0
PRD	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RIS	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RRH	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEL	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WFA	04/09	35	0	320	1	-	•	0	0	0	0	-	-	0	0	0	0	-	-

			Col	10			S	ockeye			Steelhead			
	20	800	20	007	10-Yr	Avg.			10-Yr			10-Yr	Wild	
DAM	Adult	Jack	Adult	Jack	Adult	Jack	2008	2007	Avg.	2008	2007	Avg.	2008	
BON	0	0	0	0	0	0	0	0	0	1009	1279	1279	394	
TDA	0	0	0	0	0	0	0	0	0	463	772	494	176	
JDA	-1	0	0	0	0	0	0	0	0	967	1030	1393	361	
MCN	0	0	0	0	0	0	0	0	0	842	1036	844	343	
IHR	0	0	0	0	0	0	0	0	0	1203	1333	1015	359	
LMN	0	0	0	0	0	0	0	0	0	918	1307	1125	327	
LGS	0	0	0	0	0	0	0	0	0	608	1187	1048	187	
LGR	0	0	0	0	0	0	0	0	0	4749	8652	5697	1075	
PRD	0	0	0	0	0	0	0	0	0	0	0	0	0	
RIS	0	0	0	0	0	0	0	0	0	0	0	0	0	
RRH	0	0	0	0	0	0	0	0	0	0	0	0	0	
WEL	0	0	0	0	0	0	0	0	0	0	0	0	0	
WFA	0	0	2	0	-	-	0	0	-	2354	4598	-	-	

BON and LGR have switched to video counts so the data is delayed.

\*PRD is not posting 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: 04/11/08

BON counts from January 1, 2008 to March 14, 2008 (our traditional counts begin March 15):

Year	Chinook Adult	Chinook Jack	Steelhead	Wild Steelhead
2008	42	0	578	278
2007	22	0	1,677	517