



## Fish Passage Center

# Weekly Report #00 - 9

May 5, 2000

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### SUMMARY OF EVENTS:

**Water Supply:** Minor precipitation rises in North-western Washington basins occurred across North-western Oregon while Southwestern Oregon streams generally receded. Snowmelt responses, along with precipitation runoff responses, resulted in mixed moderate to sharp rises in the upper Kootenai and minor to moderate Clark Fork and Flathead river rises.

**Reservoir Operations:** Reservoirs continue to be operated for flood control and refill during the first week of May. A summary of actual elevations on May 4, actual elevations on April 30 and required flood control elevations on April 30 is shown in the following Table:

Reservoir	Required End of April Flood Control Elevation [ft]	Actual End of April Elevation [ft]	Actual May 4 elevation[ft]
<i>Libby</i>	2343.1	2355.06	2360.54
<i>Hungry Horse</i>	3503.2	3507.4	3510.09
<i>Grand Coulee</i>	1239.6	1243.4	1241.2
<i>Brownlee</i>	2056.2	2055.93	2056.92*
<i>Dworshak</i>	1510.4	1529.26	1531.22

\*elevation as of May 3

*Libby reservoir* continued to refill in order to meet the 95 BiOp and the sturgeon BiOp, which includes refill to full pool elevation by June 30 and sturgeon flow releases. The reservoir is at minimum outflows of 4 kcfs. Inflows were increasing during past period of April 28-May 4, from 14.5 kcfs to 23.8 kcfs.

*Hungry Horse* was operated toward the end of April flood control elevation. The reservoir was at a higher elevation than required by flood control because of limited project hydraulic capacity. Federal regulators operated the reservoir up to the maximum hydraulic capacity of 8 kcfs during the last week of

April, and avoided spill. Inflows were increasing during last week (April 28-May 4) from 8.76 kcfs to 16.44 kcfs.

*Grand Coulee* flood control elevations for the end of April were not achieved. Inflows were fluctuating between 152.5 kcfs and 161.5 kcfs during April 28-May 4 period. Outflows were also fluctuating in the range of 151.6 kcfs on April 29 to 167.2 kcfs on May 4. The actual end of April elevation was 3.8 ft higher than required end of April flood control elevation. It is projected that the reservoir will reach the end of April flood control elevation at the end of the first week of May.

*Brownlee* is in refill after reaching the end of April flood control elevation. Current inflows were in the range of 20.22 kcfs on May 3 to 25.2 kcfs on April 29. The outflows at Hells Canyon were in the range of 30.18 kcfs on April 28 to 11.84 kcfs on May 3. Flood control operations at the end of April were resulting in spill at Hells Canyon projects.

*Dworshak* continued with refill due to restriction in Total Dissolved Gas (TDG) standards in the tailrace of the dam. The reservoir was 18.9 ft above the end of April flood control elevation. Inflows were fluctuating between 14 kcfs on April 30 to 20.6 kcfs on May 4. Outflows were in the range of 14.9 kcfs to 15.2 kcfs during April 28-May 3. *Dworshak* refill was initiated at a higher rate on May 4 by decreasing outflow to 12.8 kcfs.

*Upper Snake reservoirs:* As of May 4, the Upper Snake system continued with refill, and it is at 91% of capacity. The irrigation season has been initiated. American Falls is full and Palisades and Jackson Lake are at 81% and 87% of capacity. Flow below American Falls is 9.1 kcfs.

Flow below Milner, which is the lowest point in the system is at minimum of 272 cfs.

*Boise and Payette River Basins:* As of May 4, the Boise River system continued with refill and is at 87% of capacity. Of the major reservoirs: Arrowrock is at 97% of full, Anderson Ranch is at 80% of full and Lucky Peak is at 87% of full. As of May 4, the Payette River system continued with refill and it is at 82% of capacity. The major reservoir, Cascade is at 82% of full capacity.

**Streamflow:** *Lower Granite:* Fishery agencies requested flows of 100 kcfs through the end of April and first week of May for yearling chinook passing this project. Flows were fluctuating between 88.8 kcfs and 98.7 kcfs during the April 28-May 4 period. The average flow for the period of April 28-May 4 was 94.7 kcfs. Limitation of outflows at Dworshak, and unwillingness of Idaho Power Company to continue with spilling at their projects were the main obstacle of reaching the required flows.

*Priest Rapids:* The BiOp required flow target is 135 kcfs, beginning on April 10. Daily average flow decreased abruptly from 207.5 kcfs to 173.4 kcfs from April 28 to April 29. The average flow for the period of April 28-May 4 was 190.2 kcfs.

*McNary:* The requested minimum spring target flow according to the 1995 BiOp is 260 kcfs, beginning on April 20. Flows were in the range of 268.9 kcfs on April 30 to 299.3 kcfs on April 28. The average flow for the period of April 28- May 4 was 284.5 kcfs.

**Spill:** Increased outflow from Dworshak Dam resulted in approximately 4.3 Kcfs spill for the first six days of last week, but decreased yesterday as project outflow began to decrease. Spill for fish passage continues at the Lower Snake projects as described by the NMFS and Action Agencies' Spill Plan. The System Operational Request submitted for 24-hour spill at Little Goose Dam to improve migration conditions for in-river smolts and to achieve a more equitable distribution of fish for the

spread-the-risk policy was denied by the National Marine Fisheries Service.

Spill for fish passage continues at the lower Columbia River projects. The NMFS and Action Agencies' Spill Plan modifies spill at the lower Columbia Projects. The Dalles spill is reduced from 64% to 40% for 24 hours each day. Nighttime spill as described in the 1998 Supplemental Biological Opinion will continue at John Day and Bonneville dams, but daytime spill will be studied at John Day and Bonneville dams. At John Day Dam daytime spill will vary between 0 and 30% in three-day blocks. At Bonneville Dam daytime spill will vary between the old 75 Kcfs spill level and the gas cap spill (120-150 Kcfs). Days of gas cap spill at Bonneville Dam will correspond to days of zero daytime spill at John Day Dam.

Spill volumes were decreased at some projects because of total dissolved gas levels produced. The lower spill levels adopted by the COE often produced dissolved gas that was considerably less than the gas waivers. A System Operational Request was submitted asking that spill be increased to the gas waiver at all projects where the 120% total dissolved gas levels were not being exceeded in the tailrace and the 115% TDGS levels were not being exceeded at the next downstream forebay. At this time some modifications have been made, but there remains room for improvement.

The FERC spill program continues at the Mid Columbia projects.

Total dissolved gas levels are limited to the 110% saturation level below Dworshak Dam since the State of Idaho has not provided a waiver for TDGS. Levels of total dissolved gas were near the allowable TDGS levels at most locations measured. Monitoring for signs of gas bubble trauma (GBT) on fish collected through the Smolt Monitoring Program was conducted this past week. One steelhead and one yearling chinook were detected with signs of GBT in their fins at Little Goose Dam, but no fish were detected at the other sites in the Federal hydrosystem. One yearling chinook with fin signs was also detected at Rock Island Dam. All detected fin bubbles were of the lowest ranking.

**Smolt Monitoring Program.** *Snake River basin:* Lower Granite Dam passage indices of yearling chinook and steelhead rose to over 100,000 fish per day again starting April 29 and reached highs of 177,000 yearling chinook on May 2 and 255,000 steelhead on May 3. Collections at traps show a continued large movement of yearling chinook and steelhead into the hydro system above Lower Granite Dam.

*Mid-Columbia River:* Yearling chinook and steelhead passage indices finally started rising at Rock Island Dam this week reaching over 1,000 yearling chinook and 400 steelhead on May 3.

*Lower Columbia River:* Yearling chinook, coho, and sockeye passage indices at McNary Dam were higher this week, while steelhead passage indices fluctuated a lot but changed little over time. Smolt passage indices at Bonneville Dam also have fluctuated greatly during this past two weeks with the passage trend going lower for yearling chinook, remaining relatively flat for coho and steelhead, and rising for sockeye.

**Adult Fish Passage:** Passage of adult spring chinook at Bonneville Dam through the week 4/28 through 5/4 ranged between 3,200 and 6,800. The cumulative count through May 4 was 142,489, approximately 6.1 times and 3.1 times greater than the respective 1999 count and 10-year average. The adult counts at other lower Columbia River projects were: The Dalles 73,101; John Day 53,866 [1 day count missing]; and McNary 35,096. About half of the fish counted at Bonneville have moved upstream past The Dalles Dam. Through April 30, about 1,226 adult spring chinook have been counted at 3-Mile Dam located on the Umatilla River and 1,783 counted at Prosser Dam on the Yakama River. Adult chinook at Ice Harbor Dam totaled 19,325 through May 4 and that was 3.8 times the 10-year average, and slightly above the Bonneville Dam ratio of year 2000 and 10-year average counts. The count at Priest Rapids Dam was 4,615 through May 1, with counts increasing at Rock Island and Rocky Reach dams through the week.

Numbers of jack chinook remain way above normal with Bonneville Dam reporting 9,425. The

jack count averaged greater than 900 per day for the past three days. The Bonneville Dam count of jack chinook is now 7.6 times and 12.4 times greater than the respective 1999 and 10-year average through May 4. About 52.1% of the Bonneville count of jack chinook have been counted at The Dalles Dam to date.

Steelhead counts at Bonneville Dam ranged between 16 and 38 for the week, with the cumulative count through May 4 of 2,019. Wild steelhead totaled 756 for the season.

As a matter of interest, at Lower Granite Dam the salmon that were sampled had few lesions or abrasions on them, only 3 of 554 were reported with head burn lesions.

**Hatchery Releases:** Approximately 15.4 million fish were released from Basin hatcheries during the past two weeks and about 5.8 million projected for the upcoming two weeks.

*Snake River:* Yearling chinook and sockeye juvenile salmon are completed for the year 2000 migration. Juvenile steelhead are being released into all the major river basins with fish being trucked from some hatcheries, released directly or volitionally from hatcheries or acclimation ponds at other sites. Several hatcheries, such as Dworshak and Clearwater, completed release of their steelhead during the week. Steelhead will be released until mid-May in the Grande Ronde and a few sites in the upper Salmon River. Subyearling fall chinook will be released into the Snake and Clearwater Rivers in June and July. Final plants of coho salmon will be completed in early May from the Nez Perce tribal release sites.

*Mid-Columbia:* (above McNary Dam) Yakama Tribal Supplementation Facilities at Clark Flat and Easton continued volitional release of yearling chinook in the upper Yakama River basin. Yearling spring chinook releases were completed during the past two weeks in the Wenatchee and Methow rivers. Juvenile steelhead releases continued in the Wenatchee, Methow, and Okanogan rivers during the week and some releases will continue into May from Mid-Columbia hatcheries. Release of summer chinook (yearling fish) were mostly completed during the week.

Subyearling summer and fall chinook are scheduled for release from late May to late June. A small group of subyearling fall chinook was released into the Yakama River two weeks ago. Coho salmon will be planted into the Yakama, Wenatchee, and Methow rivers during May.

*Lower Columbia:* (from above Bonneville Dam to below McNary Dam). Yearling spring chinook releases were nearly complete in the Reach with the Wind, Umatilla, Little White Salmon, Hood, and Deschutes rivers planted to date. Coho releases are complete in this Reach with exception of the volitional release from Klickitat Hatchery. Most of the juvenile steelhead have been or are presently being released in this Reach with the Hood, Umatilla, Klickitat and Deschutes rivers receiving most of the plants to date.

**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
04/21/00	186.2	1.3	180.4	9.3	178.5	22.3	184.4	36.6	188.6	13.5	197.4	63.0	186.6	29.5
04/22/00	181.8	2.3	194.8	19.7	207.1	38.8	213.5	88.8	220.6	32.3	240.6	111.4	232.9	83.8
04/23/00	183.8	0.0	178.6	19.8	182.9	14.6	186.5	66.2	195.9	30.8	218.1	95.3	206.8	68.4
04/24/00	202.3	0.0	200.1	19.8	213.0	41.4	207.4	58.9	208.9	30.9	200.4	85.3	201.8	124.2
04/25/00	183.1	0.0	193.0	5.5	209.3	71.3	210.9	73.7	219.3	33.0	244.9	116.9	239.9	147.3
04/26/00	162.5	0.0	164.7	0.0	171.9	16.5	179.5	37.9	184.0	30.6	193.4	75.8	196.8	120.0
04/27/00	186.6	0.0	183.9	8.6	187.8	23.0	187.5	37.6	188.8	30.9	199.5	88.4	196.4	118.0
04/28/00	160.1	0.0	168.1	0.0	175.1	12.0	188.5	32.6	193.5	31.5	213.9	84.7	207.5	123.5
04/29/00	151.6	0.0	155.7	0.0	163.3	10.0	167.5	29.0	168.9	30.7	165.9	63.8	173.4	97.8
04/30/00	153.5	0.0	159.1	0.0	165.7	10.0	174.5	29.3	177.6	30.9	195.3	74.1	189.1	105.4
05/01/00	176.3	0.0	174.3	8.7	173.9	16.8	175.6	24.1	180.1	30.8	190.6	75.2	189.4	106.4
05/02/00	166.6	0.0	169.3	0.0	172.6	10.8	190.7	30.4	193.7	30.9	202.8	75.3	196.9	111.2
05/03/00	162.1	0.0	167.9	0.2	168.7	13.6	172.0	33.0	175.3	30.9	189.0	74.4	188.1	105.1
05/04/00	167.2	0.0	165.1	0.0	173.0	13.6	182.5	32.7	186.0	30.9	188.8	73.4	186.7	104.1

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

Date	Dworshak		Brownlee Canyon		Hells Granite		Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill	Inflow	Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
04/21/00	15.4	4.7	30.8	32.3	104.4	25.9	101.7	29.4	106.6	32.3	114.2	75.4		
04/22/00	15.4	4.7	30.2	32.3	111.2	27.3	106.6	56.3	111.9	44.3	113.1	97.5		
04/23/00	15.4	4.7	32.4	32.2	115.4	49.7	107.9	58.6	112.4	42.4	117.2	103.0		
04/24/00	15.4	4.7	30.7	32.4	109.3	30.7	106.5	19.0	112.4	31.2	117.5	68.1		
04/25/00	15.4	4.7	28.4	32.3	102.5	24.2	100.1	22.4	104.9	30.8	106.4	68.1		
04/26/00	15.4	4.7	26.4	32.3	98.2	24.2	91.9	19.5	92.6	31.1	97.9	65.6		
04/27/00	15.4	4.7	25.9	32.4	90.4	22.2	89.5	18.9	92.6	28.3	94.7	61.3		
04/28/00	15.2	4.5	24.1	30.4	95.9	23.5	89.1	17.1	89.4	27.4	96.4	62.6		
04/29/00	15.0	4.3	25.2	24.5	98.7	24.6	99.4	20.1	103.5	23.1	109.7	69.1		
04/30/00	15.1	4.3	22.5	27.0	88.8	21.6	85.1	14.7	85.5	23.1	91.2	63.5		
05/01/00	15.1	4.3	21.8	23.9	92.4	22.6	90.0	14.2	92.8	23.1	95.4	62.9		
05/02/00	15.1	4.3	21.4	20.3	92.5	22.4	87.7	15.8	89.3	23.0	96.3	63.3		
05/03/00	14.9	4.2	20.2	11.8	97.7	23.4	94.5	18.4	95.2	25.6	100.0	63.5		
05/04/00	12.8	2.2	---	---	96.8	23.8	92.5	21.6	94.7	29.0	97.6	63.7		

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

Date	McNary		John Day		The Dalles		Bonneville		PH1	PH2
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill		
04/21/00	291.9	128.3	295.6	103.5	289.8	158.4	324.9	99.2	94.1	121.2
04/22/00	334.4	188.4	343.8	138.0	336.0	204.2	323.7	142.0	88.0	83.3
04/23/00	359.3	190.3	379.7	127.2	375.1	208.3	387.1	143.8	96.4	136.5
04/24/00	327.0	164.6	352.4	89.5	347.4	151.8	365.1	130.1	90.7	133.9
04/25/00	323.4	150.8	318.4	76.1	314.9	125.6	334.8	124.1	86.3	113.9
04/26/00	325.6	154.1	341.3	108.5	329.9	130.5	328.7	100.9	90.2	127.2
04/27/00	282.2	112.0	290.4	105.9	300.1	120.1	325.7	91.8	90.6	132.8
04/28/00	299.3	127.1	297.3	102.2	281.3	110.1	289.3	90.7	84.8	103.4
04/29/00	282.1	110.0	309.3	56.3	302.1	115.0	308.0	119.1	86.4	92.1
04/30/00	268.9	106.8	280.6	57.8	274.5	109.6	280.0	118.5	82.7	68.5
05/01/00	281.2	109.3	285.9	58.1	276.4	101.3	289.1	112.3	79.1	87.3
05/02/00	281.9	111.0	288.7	60.6	290.5	103.3	300.0	103.7	96.4	89.4
05/03/00	285.7	118.5	287.0	64.5	283.6	98.6	300.8	95.3	92.5	102.7
05/04/00	292.2	120.7	299.8	680.0	294.0	104.7	304.4	95.1	199.0	0.0

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

Site	Date	Species	Number of Fish	Number w GBT signs	Number w Fin Signs	% Fin GBT	% Severe Fin GBT	Number of Fish with Fin GBT Listed by Highest Rank				Fish with L. Line GBT	
								Rank 1	Rank 2	Rank 3	Rank 4	Num Fish	Avg. Rank
<b>Lower Granite Dam</b>													
	05/01/00	Yearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/01/00	Steelhead	100	4	0	0.00%	0.00%	0	0	0	0	4	1
<b>Little Goose Dam</b>													
	04/26/00	Yearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	04/26/00	Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/03/00	Yearling Chinook	100	1	1	1.00%	0.00%	1	0	0	0	0	0
	05/03/00	Steelhead	100	1	1	1.00%	0.00%	1	0	0	0	0	0
<b>Lower Monumental Dam</b>													
	05/01/00	Yearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/01/00	Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	0	0
<b>Ice Harbor Dam</b>													
	04/25/00	Yearling Chinook	100	3	0	0.00%	0.00%	0	0	0	0	3	1
	04/25/00	Steelhead	100	1	0	0.00%	0.00%	0	0	0	0	1	1
	05/02/00	Yearling Chinook	46	1	0	0.00%	0.00%	0	0	0	0	1	1
	05/02/00	Steelhead	68	4	0	0.00%	0.00%	0	0	0	0	4	1
<b>McNary Dam</b>													
	04/28/00	Yearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	04/28/00	Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/01/00	Yearling Chinook	100	5	0	0.00%	0.00%	0	0	0	0	5	1
	05/01/00	Steelhead	100	3	0	0.00%	0.00%	0	0	0	0	3	1
	05/04/00	Yearling Chinook	100	1	0	0.00%	0.00%	0	0	0	0	1	1
	05/04/00	Steelhead	100	3	0	0.00%	0.00%	0	0	0	0	3	1
<b>Bonneville Dam</b>													
	04/27/00	Yearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	04/27/00	Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/01/00	Yearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/01/00	Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/04/00	Yearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/04/00	Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	0	0
<b>Rock Island Dam</b>													
	04/27/00	Yearling Chinook	51	8	7	13.72%	0.00%	6	1	0	0	1	1
	04/27/00	Steelhead	35	2	1	2.85%	0.00%	1	0	0	0	1	1
	05/01/00	Yearling Chinook	65	2	1	1.53%	1.53%	0	0	1	0	1	1
	05/01/00	Steelhead	95	1	0	0.00%	0.00%	0	0	0	0	1	1
	05/04/00	Yearling Chinook	100	10	1	1.00%	0.00%	1	0	0	0	9	1
	05/04/00	Steelhead	100	1	0	0.00%	0.00%	0	0	0	0	1	1

## 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		
4/21	99	99	99	16	120	120	122	20	109	110	110	24	106	108	111	24	105	106	106	23
4/22	99	99	99	24	118	121	122	24	109	110	110	24	107	108	111	24	106	106	106	23
4/23	98	98	99	24	118	120	121	24	108	108	109	24	105	105	106	24	106	107	108	23
4/24	97	97	98	24	119	119	120	24	107	107	108	24	105	105	106	24	106	106	107	23
4/25	97	97	98	24	119	119	120	24	108	109	109	24	105	106	106	24	105	106	106	23
4/26	97	98	99	24	119	120	122	24	108	109	110	24	105	106	107	24	105	105	107	24
4/27	98	99	99	24	118	121	123	24	110	111	111	24	108	111	140	24	106	107	107	24
4/28	98	99	99	24	118	120	121	24	109	109	110	24	106	107	107	24	106	107	107	23
4/29	98	98	98	24	119	120	121	24	108	108	109	24	105	106	106	24	105	105	106	23
4/30	98	98	98	24	119	120	121	24	109	110	110	24	106	107	107	24	106	106	107	23
5/1	98	98	99	24	120	122	124	24	110	110	111	24	107	108	108	24	107	107	107	23
5/2	98	98	99	24	122	124	125	24	111	111	112	24	107	108	109	24	107	107	107	23
5/3	99	99	100	24	121	122	122	24	111	112	112	24	108	108	109	24	107	107	108	11
5/4	99	99	99	24	122	123	124	24	111	111	111	24	108	108	108	24	107	107	107	23

### 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		
4/21	107	109	109	23	106	106	107	24	111	113	116	24	111	111	112	24	113	114	118	24
4/22	113	117	125	23	106	107	107	24	112	116	122	24	110	111	112	24	116	118	122	24
4/23	114	117	119	23	106	106	107	24	108	109	113	24	111	112	114	23	115	117	118	23
4/24	110	114	128	23	106	107	107	24	112	115	131	24	107	108	109	24	111	114	123	21
4/25	107	110	127	23	106	107	109	24	119	124	131	24	111	112	118	22	117	119	125	22
4/26	105	106	112	24	105	106	108	24	108	110	117	24	116	119	121	24	118	122	123	24
4/27	109	112	120	24	106	107	107	24	109	111	117	24	111	113	114	24	113	114	117	23
4/28	107	107	109	23	106	107	107	24	108	109	115	24	108	109	110	24	110	111	115	24
4/29	105	106	107	23	105	106	106	24	107	107	107	24	108	109	110	24	110	111	113	23
4/30	106	107	109	24	106	106	107	24	107	107	108	24	107	108	108	24	109	109	110	23
5/1	109	112	120	23	107	107	108	24	109	110	115	24	108	108	109	21	109	110	110	21
5/2	107	108	109	23	108	108	108	24	109	110	116	24	109	109	110	23	110	111	113	20
5/3	108	108	110	22	106	107	108	24	109	110	113	24	110	111	112	20	112	112	114	18
5/4	107	107	108	23	106	107	107	24	109	109	113	24	108	108	109	20	110	111	113	19

### 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		
4/21	112	112	113	22	---	---	---	0	114	114	116	24	115	115	121	24	115	115	121	24
4/22	114	115	116	23	---	---	---	0	113	113	114	24	121	121	127	24	121	118	126	24
4/23	113	114	115	24	---	---	---	0	113	113	117	24	119	119	121	24	119	119	121	24
4/24	113	113	114	24	115	115	116	9	115	115	117	19	119	119	121	23	119	116	118	9
4/25	114	116	116	23	120	122	123	22	116	116	117	24	122	122	126	24	122	118	118	6
4/26	111	114	116	24	120	123	123	24	116	116	119	24	120	120	127	24	120	122	126	24
4/27	113	114	115	24	118	119	120	23	---	---	---	0	---	---	---	0	---	---	---	0
4/28	112	113	114	22	115	116	118	20	117	117	118	17	119	119	123	14	119	118	121	17
4/29	110	111	111	23	115	116	117	21	113	113	114	24	116	116	123	24	116	115	120	24
4/30	111	111	112	24	115	116	116	24	115	115	119	24	116	116	117	24	116	116	122	24
5/1	111	112	112	23	115	115	116	21	115	115	116	24	117	117	118	23	117	116	118	23
5/2	112	112	112	21	115	116	117	21	---	---	---	0	---	---	---	0	---	---	---	0
5/3	112	112	112	22	116	117	118	19	---	---	---	0	---	---	---	0	---	---	---	0
5/4	112	112	112	22	116	117	118	22	---	---	---	0	---	---	---	0	---	---	---	0

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

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

Date	<u>Priest R. Dnst</u>			<u>Pasco</u>			<u>Dworshak</u>			<u>Clwrtr-Peck</u>			<u>Anatone</u>							
	<u>24 h</u>	<u>12 h</u>	<u>High</u>	#	<u>24 h</u>	<u>12 h</u>	<u>High</u>	#	<u>24 h</u>	<u>12 h</u>	<u>High</u>	#	<u>24 h</u>	<u>12 h</u>	<u>High</u>	#	<u>24 h</u>	<u>12 h</u>	<u>High</u>	#
	<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>		
4/21	113	113	118	24	112	112	112	24	109	109	110	24	106	107	107	24	104	105	106	24
4/22	120	120	125	24	109	110	111	24	109	109	109	24	105	105	106	24	103	103	103	24
4/23	120	120	122	24	111	113	113	24	109	109	109	24	105	105	106	24	103	103	104	24
4/24	121	121	122	23	111	112	114	24	109	109	109	24	105	106	106	24	103	104	105	24
4/25	123	123	124	24	114	114	114	24	109	109	109	24	104	105	106	24	103	103	104	24
4/26	123	123	125	24	115	117	117	24	104	106	109	24	104	105	105	24	103	105	105	24
4/27	---	---	---	0	117	118	119	24	105	106	108	24	105	106	107	24	104	105	106	24
4/28	122	122	123	17	112	113	115	24	109	109	110	24	104	104	105	24	103	104	104	24
4/29	120	120	121	24	113	114	115	24	108	108	109	24	104	104	105	24	103	104	105	24
4/30	121	121	122	24	115	116	116	24	104	106	106	24	---	---	---	0	104	105	106	24
5/1	121	121	122	23	115	116	116	24	109	109	110	24	105	105	106	24	104	105	106	24
5/2	---	---	---	0	114	115	116	17	109	110	110	24	104	104	105	24	103	104	105	24
5/3	---	---	---	0	113	114	114	24	109	110	110	24	104	104	104	24	103	103	104	24
5/4	---	---	---	0	111	112	113	21	105	109	109	24	103	103	104	24	103	104	105	24

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

Date	<u>Clwrtr-Lewiston</u>			<u>Lower Granite</u>			<u>L. Granite Tlwr</u>			<u>Little Goose</u>			<u>L. Goose Tlwr</u>							
	<u>24 h</u>	<u>12 h</u>	<u>High</u>	#	<u>24 h</u>	<u>12 h</u>	<u>High</u>	#	<u>24 h</u>	<u>12 h</u>	<u>High</u>	#	<u>24 h</u>	<u>12 h</u>	<u>High</u>	#	<u>24 h</u>	<u>12 h</u>	<u>High</u>	#
	<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>		
4/21	104	105	106	24	106	107	108	24	111	112	112	24	110	111	115	23	114	118	125	24
4/22	103	103	104	24	105	105	105	24	111	112	117	24	109	109	111	24	120	124	128	24
4/23	103	104	104	24	104	104	104	24	117	120	122	24	107	107	108	24	120	125	125	24
4/24	103	104	105	24	102	103	103	24	112	114	119	24	107	108	111	24	110	113	116	21
4/25	103	103	104	24	104	104	105	24	110	110	111	24	112	113	113	24	115	116	117	17
4/26	103	105	106	24	105	106	108	24	110	110	111	24	110	111	112	24	113	115	117	24
4/27	105	106	108	24	105	106	108	24	110	110	111	24	108	109	109	24	112	115	116	24
4/28	103	104	105	24	105	105	106	24	110	111	111	24	106	106	107	24	110	113	116	24
4/29	103	105	106	24	104	105	107	24	110	110	111	24	105	105	107	24	109	111	112	24
4/30	104	106	107	23	105	107	108	24	109	110	110	23	108	110	114	24	109	112	113	24
5/1	104	106	107	24	106	107	108	24	110	110	111	24	109	111	114	24	111	113	113	24
5/2	104	104	105	24	107	107	108	24	110	110	110	24	109	109	110	24	111	113	114	24
5/3	103	104	104	24	106	107	107	24	110	110	111	24	109	109	109	24	112	115	116	24
5/4	103	103	104	24	105	105	105	24	110	110	111	24	108	108	109	24	113	117	118	24

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

Date	<u>Lower Mon.</u>			<u>L. Mon. Tlwr</u>			<u>Ice Harbor</u>			<u>Ice Harbor Tlwr</u>			<u>McNary-Oregon</u>							
	<u>24 h</u>	<u>12 h</u>	<u>High</u>	#	<u>24 h</u>	<u>12 h</u>	<u>High</u>	#	<u>24 h</u>	<u>12 h</u>	<u>High</u>	#	<u>24 h</u>	<u>12 h</u>	<u>High</u>	#	<u>24 h</u>	<u>12 h</u>	<u>High</u>	#
	<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>			<u>Avg</u>	<u>Avg</u>		
4/21	114	115	118	24	119	120	124	24	116	117	118	24	118	121	124	24	112	114	117	24
4/22	114	116	118	24	121	124	126	24	115	116	117	24	120	120	122	24	113	113	114	24
4/23	117	119	120	24	122	124	125	24	114	115	115	24	121	123	124	24	109	109	111	24
4/24	118	120	121	24	119	120	120	24	114	114	116	14	117	118	119	24	110	112	114	24
4/25	118	119	120	14	118	119	119	22	116	116	116	19	116	118	118	22	113	113	113	24
4/26	112	115	116	24	116	117	118	24	115	117	118	24	115	117	118	24	114	115	117	24
4/27	115	117	119	24	116	117	118	24	116	117	118	24	114	116	118	24	115	117	118	24
4/28	112	113	114	24	115	117	118	24	113	114	116	24	114	115	116	24	113	114	115	24
4/29	109	110	111	24	115	115	116	24	111	112	113	24	115	117	118	24	112	113	115	24
4/30	111	114	118	24	114	115	116	24	113	114	115	24	114	116	118	24	113	114	116	24
5/1	111	113	114	24	115	116	116	24	114	115	116	24	114	115	118	24	116	118	120	24
5/2	111	112	113	24	115	116	116	24	114	115	115	24	115	116	118	24	116	117	119	17
5/3	111	112	113	24	115	116	117	24	114	114	114	24	115	116	117	24	115	116	116	24
5/4	111	112	114	24	116	117	118	24	112	113	113	24	115	116	117	24	115	115	118	21



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

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

Date	<u>McNary-Wash</u>			#	<u>McNary Tlwr</u>			#	<u>John Day</u>			#	<u>John Day Tlwr</u>			#	<u>The Dalles</u>			#
	<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24h</u>	<u>12h</u>	<u>High</u>		<u>24h</u>	<u>12h</u>	<u>High</u>		<u>24h</u>	<u>12h</u>	<u>High</u>	
4/21	113	116	117	24	121	121	122	21	112	112	113	23	121	121	122	24	113	113	114	23
4/22	113	115	116	24	123	124	127	24	111	111	112	23	122	122	123	24	112	113	115	23
4/23	109	109	109	24	123	124	124	24	111	111	112	23	122	123	123	24	111	112	113	23
4/24	111	113	114	24	122	123	123	24	110	111	111	23	120	121	122	23	111	111	112	23
4/25	113	113	114	24	122	123	124	24	110	111	111	23	118	120	121	24	110	111	112	23
4/26	114	115	119	24	122	124	125	24	111	112	114	24	120	121	122	24	111	112	113	24
4/27	115	117	117	24	119	120	120	22	114	115	116	24	119	120	121	24	113	113	114	24
4/28	113	113	114	24	119	119	120	24	113	113	114	23	119	120	120	24	111	111	112	23
4/29	111	112	114	24	118	118	119	24	112	113	116	23	115	118	119	23	111	112	113	23
4/30	113	116	117	24	118	119	119	24	113	113	116	20	115	118	118	24	113	114	115	24
5/1	117	119	120	24	119	119	120	24	111	111	112	23	114	118	119	24	112	113	115	23
5/2	116	116	118	17	118	118	119	17	113	114	115	23	115	118	119	24	111	113	114	23
5/3	115	116	117	24	119	119	120	24	114	115	115	24	117	119	120	24	112	113	114	24
5/4	114	114	115	21	119	119	120	21	113	113	114	23	116	119	119	24	113	114	115	23

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

Date	<u>The Dalles Dnst</u>			#	<u>Bonneville</u>			#	<u>Warrendale</u>			#	<u>Skamania</u>			#	<u>CamasWashugal</u>			#
	<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24h</u>	<u>12h</u>	<u>High</u>		<u>24h</u>	<u>12h</u>	<u>High</u>		<u>24h</u>	<u>12h</u>	<u>High</u>	
4/21	118	119	119	24	116	117	117	23	119	119	121	23	118	118	119	23	118	119	121	24
4/22	118	119	119	24	114	116	117	23	120	121	123	23	119	121	123	23	119	120	122	24
4/23	117	118	118	24	114	114	115	22	119	120	120	23	118	118	119	23	118	119	119	24
4/24	117	118	118	24	115	116	117	23	120	120	120	23	118	119	119	23	120	120	121	23
4/25	116	117	118	24	116	117	118	23	120	120	121	23	119	120	120	23	118	119	120	24
4/26	117	118	119	24	114	115	116	24	118	119	120	24	117	118	119	24	116	117	119	24
4/27	118	119	119	24	115	116	116	24	118	119	120	24	117	117	119	24	115	117	118	24
4/28	117	117	118	24	113	114	115	19	116	117	119	23	115	117	118	23	114	115	116	24
4/29	117	118	118	23	113	114	115	23	116	117	117	22	117	118	118	23	115	117	118	23
4/30	118	118	119	24	116	116	116	24	118	119	127	21	119	120	121	20	118	120	121	24
5/1	117	117	118	24	115	115	116	23	118	119	120	23	119	119	120	23	119	119	120	24
5/2	116	117	118	24	115	115	115	22	117	118	118	23	119	119	120	23	118	119	120	24
5/3	117	118	119	24	114	114	115	24	116	117	117	24	117	117	118	24	117	117	118	24
5/4	118	119	119	24	114	114	115	23	116	116	117	23	117	117	118	23	116	117	117	24

# Hatchery Release Summary

From 4/21/00 to 5/4/00

Hatchery	Species...	Migration Year	Number Released	...Release Dates... Begin...	...End	Release Site	River Name
<b>IDFG</b>							
<b>Clearwater</b>							
SU	Steelhead	2000	311,416	04/19/00	04/21/00	Redhouse (SFk)	Clearwater Rvr M F
<b>Magic Valley</b>							
SU	Steelhead	2000	52,000	04/03/00	05/12/00	Squaw Cr Acclim Pd	Salmon River
SU	Steelhead	2000	315,000	04/18/00	04/21/00	McNabb/Salmon R	Salmon River
SU	Steelhead	2000	250,000	04/24/00	05/09/00	Squaw Cr Acclim Pd	Salmon River
SU	Steelhead	2000	300,000	04/24/00	04/27/00	Little Salmon R	Salmon River
SU	Steelhead	2000	270,000	04/27/00	05/02/00	E Fk Salmon R	Salmon River
<b>Niagara Springs</b>							
SU	Steelhead	2000	180,000	05/02/00	05/05/00	Hammer Cr	Salmon River
<b>Pahsimeroi</b>							
SU	Chinook	2000	53,903	04/12/00	04/25/00	Pahsimeroi H	Pahsimeroi River
<b>Rapid River</b>							
SP	Chinook	2000	2,462,354	03/16/00	04/25/00	Rapid River H	Little Salmon River
<b>Sawtooth</b>							
SU	Steelhead	2000	606,925	04/10/00	04/26/00	Sawtooth H	Salmon River
<b>Agency Totals:</b>			<b>4,801,598</b>	.....			
<b>Nez Perce Tribe</b>							
<b>Clearwater</b>							
SU	Steelhead	2000	100,000	04/27/00	05/04/00	Crooked R Acclim Pd	S Fk Clearwater River
SU	Steelhead	2000	140,000	04/27/00	05/04/00	Red R	S Fk Clearwater River
<b>Kooskia</b>							
UN	Coho	2000	270,000	04/17/00	05/10/00	Kooskia H	Clearwater Rvr M F
<b>Magic Valley</b>							
SU	Steelhead	2000	100,000	05/03/00	05/03/00	Newsome Cr	S Fk Clearwater River
<b>Agency Totals:</b>			<b>610,000</b>	.....			
<b>ODFW</b>							
<b>Irrigon</b>							
SU	Steelhead	2000	100,000	04/19/00	04/21/00	Big Sheep Cr	Imnaha River
SU	Steelhead	2000	3,000	05/03/00	05/07/00	Deer Cr	Grande Ronde River
<b>Wallowa</b>							
SU	Steelhead	2000	108,750	05/03/00	05/03/00	Wallowa Acclim Pd	Wallowa River
SU	Steelhead	2000	108,750	05/04/00	05/18/00	Wallowa Acclim Pd	Wallowa River
<b>Agency Totals:</b>			<b>320,500</b>	.....			
<b>Umatilla Tribe</b>							
<b>Minthorn</b>							
SU	Steelhead	2000	50,000	04/20/00	04/30/00	Minthorn Acclim Pd	Umatilla River
<b>Agency Totals:</b>			<b>50,000</b>	.....			
<b>USFWS</b>							
<b>Dworshak</b>							
SU	Steelhead	2000	200,000	04/17/00	04/21/00	Clear Cr	Clearwater Rvr M F
SU	Steelhead	2000	600,000	04/17/00	04/21/00	Redhouse (SFk)	Clearwater Rvr M F
SU	Steelhead	2000	1,300,000	05/01/00	05/04/00	Dworshak H	Clearwater Rvr M F

# Hatchery Release Summary

From 4/21/00 to 5/4/00

Hatchery	Species...	Migration Year	Number Released	...Release Dates... Begin... ..End	Release Site	River Name
<b>Eagle Creek</b>						
	Coho	2000	500,000	04/19/00 04/25/00	Little Salmon R	Little Salmon River
<b>Hagerman</b>						
	SU Steelhead	2000	120,143	04/22/00 04/25/00	Sawtooth H	Salmon River
	SU Steelhead	2000	310,000	04/26/00 05/08/00	Little Salmon R	Salmon River
<b>Winthrop</b>						
	SU Steelhead	2000	105,000	04/12/00 05/31/00	Winthrop H	Methow River
<b>Agency Totals:</b>			<b>3,135,143</b>	.....		
<b>WDFW</b>						
<b>Chiwawa</b>						
	SU Steelhead	2000	30,600	04/17/00 04/24/00	Chiwawa H	Wenatchee River
	SU Steelhead	2000	43,400	04/26/00 05/15/00	Chiwawa H	Wenatchee River
	SU Steelhead	2000	25,600	04/26/00 05/15/00	Chiwawa H	Wenatchee River
<b>Dryden Pond</b>						
	SU Chinook	2000	651,000	05/01/00 05/01/00	Dryden Acclim Pd	Wenatchee River
<b>Klickitat</b>						
	Coho	2000	1,400,000	04/15/00 06/05/00	Klickitat H	Klickitat River
	SP Chinook	2000	150,000	05/01/00 05/05/00	Upper Klickitat R	Klickitat River
<b>Lyons Ferry</b>						
	SU Steelhead	2000	125,000	03/25/00 04/30/00	Dayton Acclim Pd	Touchet River
	SU Steelhead	2000	250,000	03/25/00 04/30/00	Cottonwood Acclim Pd	Grande Ronde River
	SU Steelhead	2000	175,000	04/17/00 04/30/00	Walla Walla R	Walla Walla River
	SU Steelhead	2000	160,000	04/17/00 04/30/00	Tucannon R	Tucannon River
<b>Methow</b>						
	SP Chinook	2000	218,500	04/18/00 04/21/00	Methow H	Methow River
	SP Chinook	2000	15,400	04/19/00 04/25/00	Twisp R	Methow River
<b>Skamania</b>						
	SU Steelhead	2000	100,000	04/27/00 05/01/00	Klickitat R	Klickitat River
	SU Steelhead	2000	20,000	04/27/00 05/01/00	Little White Salmon R	Little White Salmon River
	WI Steelhead	2000	20,000	04/27/00 05/01/00	White Salmon R	White Salmon River
<b>Wells</b>						
	SU Chinook	2000	293,000	04/13/00 04/26/00	Similkameen Acclim Pd	Okanogan River
	SU Chinook	2000	466,000	04/17/00 04/25/00	Wells H	Mid-Columbia River
	SU Steelhead	2000	140,000	04/17/00 04/30/00	Chewuch R	Methow River
	SU Steelhead	2000	140,000	04/17/00 04/30/00	Twisp R	Methow River
	SU Steelhead	2000	140,000	04/17/00 04/30/00	Methow R	Methow River
	SU Steelhead	2000	67,000	04/22/00 05/22/00	Bel. Wells Dam	Mid-Columbia River
	SU Steelhead	2000	68,000	04/25/00 04/25/00	Similkameen Acclim Pd	Okanogan River
	SU Steelhead	2000	88,000	04/26/00 05/10/00	Okanogan R	Okanogan River
	SU Chinook	2000	205,000	05/02/00 05/02/00	Carlton Acclim Pd	Methow River
<b>Agency Totals:</b>			<b>4,991,500</b>	.....		
<b>Warm Spgs Tribe</b>						
<b>Oak Springs</b>						
	SU Steelhead	2000	34,000	04/13/00 04/27/00	Blackberry Acclim Pd	Hood River
	WI Steelhead	2000	32,000	04/17/00 05/01/00	Parkdale Acclim Pd	Hood River

# Hatchery Release Summary

From 4/21/00 to 5/4/00

Hatchery	Species...	Migration Year	Number Released	...Release Dates... Begin...	...End	Release Site	River Name
<b>Round Butte</b>	WI Steelhead	2000	31,000	04/17/00	05/01/00	E Fk Irrig Dist Sand Trap	Hood River
	SP Chinook	2000	40,000	04/10/00	04/24/00	Jones Creek Acclim Pd	Hood River
	SP Chinook	2000	56,000	04/10/00	04/24/00	Blackberry Acclim Pd	Hood River
	SP Chinook	2000	30,500	04/10/00	04/25/00	Parkdale Acclim Pd	Hood River
<b>Agency Totals:</b>			<b>223,500</b>	.....			
<b>Yakima Tribe</b>							
<b>Clark Flat</b>							
SP Chinook	2000	229,000	03/15/00	06/01/00	Clark Flat Acclim Pd	Yakama River	
<b>Cle Elum Slough</b>							
Coho	2000	125,000	05/01/00	05/05/00	Cle Elum R	Yakama River	
<b>Easton Pond</b>							
SP Chinook	2000	236,800	03/15/00	06/01/00	Easton Pd	Yakama River	
Coho	2000	125,000	05/01/00	05/05/00	Easton Pd	Yakama River	
<b>Jack Creek Pond</b>							
SP Chinook	2000	137,500	03/31/00	06/01/00	Jack Creek Acclim Pd	Yakama River	
<b>Lost Creek</b>							
Coho	2000	125,000	05/01/00	05/05/00	Lost Creek Acclim Pd	Yakama River	
<b>Stiles Pond</b>							
Coho	2000	125,000	05/01/00	05/05/00	Naches R	Yakama River	
<b>Winthrop</b>							
UN Coho	2000	200,000	04/26/00	05/15/00	Winthrop H	Methow River	
<b>Agency Totals:</b>			<b>1,303,300</b>	.....			
<b>Total Release..</b>			<b>15,435,541</b>				

# Hatchery Release Summary

From 5/5/00 to 5/18/00

Hatchery	Species...	Migration Year	Number Released	...Release Dates...		Release Site	River Name	
				Begin...	...End			
<b>Nez Perce Tribe</b>								
<b>Magic Valley</b>								
	SU	Steelhead	2000	100,000	05/05/00	05/05/00	American R	S Fk Clearwater River
	SU	Steelhead	2000	25,000	05/08/00	05/08/00	Mill Cr	S Fk Clearwater River
	SU	Steelhead	2000	10,000	05/08/00	05/08/00	Red R	S Fk Clearwater River
	SU	Steelhead	2000	25,000	05/08/00	05/08/00	Meadow Cr	S Fk Clearwater River
		<b>Agency Totals:</b>		<b>160,000</b>	.....			
<b>ODFW</b>								
<b>Big Canyon</b>								
	SU	Steelhead	2000	65,250	05/10/00	05/20/00	Big Canyon H	Grande Ronde River
	SU	Steelhead	2000	65,250	05/11/00	05/25/00	Big Canyon H	Grande Ronde River
<b>Li Sheep</b>								
	SU	Steelhead	2000	75,000	05/11/00	05/22/00	L Sheep Acclim Pd	Imnaha River
<b>Round Butte</b>								
	SP	Chinook	2000	30,000	05/10/00	05/10/00	Bel. Pelton Dam	Deschutes River
		<b>Agency Totals:</b>		<b>235,500</b>	.....			
<b>USFWS</b>								
<b>Spring Creek</b>								
	FA	Chinook	2000	3,700,000	05/18/00	05/18/00	Spring Creek H	Columbia River
		<b>Agency Totals:</b>		<b>3,700,000</b>	.....			
<b>Yakima Tribe</b>								
<b>Prosser</b>								
	FA	Chinook	2000	1,700,000	05/15/00	06/07/00	Prosser Acclim Pd	Yakama River
		<b>Agency Totals:</b>		<b>1,700,000</b>	.....			
		<b>Total Release..</b>		<b>5,795,500</b>				

## 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)
04/21/00	421	254	186	258	53,228	27,443	13,290	214	10,985	11,584	20,186
04/22/00	---	151	---	---	125,476	36,817	17,078	121	13,565	8,135	91,137
04/23/00	---	---	---	---	93,455	38,874	17,912	212	13,543	12,096	68,262
04/24/00	213	204	131	589	80,939	74,969	33,283	84	15,743	11,036	74,418
04/25/00	260	136	172	369	59,642	70,087	39,862	83	14,291	14,727	36,045
04/26/00	247	107	108	358	141,908	123,058	25,958	80	16,107	14,295	38,299
04/27/00	216	92	78	258	59,231	47,059	18,922	99	19,037	13,682	52,328
04/28/00	84	191	81	146	56,120	32,749	15,946	54	20,089	10,119	37,404
04/29/00	---	169	---	---	117,149	42,933	17,114	53	22,903	9,787	32,768
04/30/00	---	---	---	---	124,397	53,382	20,407	187	26,128	16,431	33,277
05/01/00	172	110	153	133	128,593	41,709	14,547	121	25,977	23,459	35,661
05/02/00	107	41	152	117	177,440	67,123	21,070	360	26,257	34,022	12,250
05/03/00	133	70	249	109	141,058	77,124	20,867	1,140	22,864	24,964	28,111
05/04/00	134	52	302	200	164,757	103,981	26,583	719	31,685	27,598	30,917
<b>Total:</b>	<b>1,987</b>	<b>1,577</b>	<b>1,612</b>	<b>2,537</b>	<b>1,523,393</b>	<b>837,308</b>	<b>302,839</b>	<b>3,527</b>	<b>279,174</b>	<b>231,935</b>	<b>591,063</b>
<b># Days:</b>	<b>10</b>	<b>12</b>	<b>10</b>	<b>10</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>
<b>Average:</b>	<b>199</b>	<b>131</b>	<b>161</b>	<b>254</b>	<b>108,814</b>	<b>59,808</b>	<b>21,631</b>	<b>252</b>	<b>19,941</b>	<b>16,567</b>	<b>42,219</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)
04/21/00	0	0	0	2	929	0	0	23	630	20	113,815
04/22/00	---	2	---	---	0	0	0	24	842	177	339,636
04/23/00	---	---	---	---	0	0	0	15	1,541	0	57,117
04/24/00	0	0	0	9	0	0	0	61	438	123	31,076
04/25/00	0	0	0	7	0	0	0	39	1,638	434	14,580
04/26/00	0	0	0	2	197	0	0	52	1,773	773	4,681
04/27/00	0	1	0	0	0	0	0	17	2,565	444	4,746
04/28/00	0	0	0	3	198	154	0	76	454	412	3,479
04/29/00	---	0	---	---	201	0	0	24	681	112	2,194
04/30/00	---	---	---	---	0	0	0	14	252	125	2,230
05/01/00	0	0	0	5	0	0	137	5	695	119	1,754
05/02/00	0	0	0	6	200	0	0	5	149	520	865
05/03/00	0	0	0	16	197	0	0	3	352	391	3,632
05/04/00	0	0	0	8	199	0	17	4	416	351	664
<b>Total:</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>58</b>	<b>2,121</b>	<b>154</b>	<b>154</b>	<b>362</b>	<b>12,426</b>	<b>4,001</b>	<b>580,469</b>
<b># Days:</b>	<b>10</b>	<b>12</b>	<b>10</b>	<b>10</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>152</b>	<b>11</b>	<b>11</b>	<b>26</b>	<b>888</b>	<b>286</b>	<b>41,462</b>

\* See sampling comments <http://www.fpc.org/2000Daily/smpcomments.htm>

These data are preliminary and have been derived from various sources. For verification and/or origin of these data, contact the operators of the Fish Passage Data System at (503) 230-4099.

## Two-Week Summary of Passage Indices

### COMBINED COHO

	WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date	(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
04/21/00	0	0	0	1	0	130	0	0	57	247	4,768
04/22/00	---	0	---	---	0	0	0	0	133	531	12,366
04/23/00	---	---	---	---	0	0	0	7	62	989	12,073
04/24/00	0	0	0	9	249	0	0	0	88	1,017	17,173
04/25/00	0	0	0	3	196	294	0	0	76	1,223	6,885
04/26/00	0	0	0	7	786	629	0	2	116	1,499	4,255
04/27/00	0	0	0	4	400	0	142	0	114	1,328	8,519
04/28/00	0	0	0	11	0	461	0	6	202	609	9,941
04/29/00	---	0	---	---	201	289	0	11	104	1,470	11,654
04/30/00	---	---	---	---	795	150	133	11	336	1,192	8,233
05/01/00	0	0	0	2	794	0	137	11	497	2,312	7,795
05/02/00	0	0	0	5	200	143	135	33	248	3,004	20,465
05/03/00	0	0	0	3	592	732	0	87	151	1,374	10,265
05/04/00	0	0	0	0	1,791	309	34	48	208	3,003	9,592
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>45</b>	<b>6,004</b>	<b>3,137</b>	<b>581</b>	<b>216</b>	<b>2,392</b>	<b>19,798</b>	<b>143,984</b>
<b># Days:</b>	<b>10</b>	<b>12</b>	<b>10</b>	<b>10</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>429</b>	<b>224</b>	<b>42</b>	<b>15</b>	<b>171</b>	<b>1,414</b>	<b>10,285</b>

### COMBINED STEELHEAD

	WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date	(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
04/21/00	85	1,013	168	279	40,220	21,955	10,021	24	8,259	8,189	4,463
04/22/00	---	759	---	---	149,103	20,450	21,816	27	12,632	9,019	6,871
04/23/00	---	---	---	---	288,135	22,147	16,899	62	10,094	10,803	3,251
04/24/00	45	586	386	668	219,408	55,505	20,668	56	10,830	16,780	6,951
04/25/00	105	259	182	275	219,516	92,060	41,718	44	10,457	15,467	1,215
04/26/00	73	199	174	560	194,779	181,057	39,958	71	7,822	15,530	5,106
04/27/00	250	128	236	613	77,841	58,043	61,889	104	16,016	12,998	11,074
04/28/00	253	358	311	1,496	81,106	43,019	42,819	124	7,924	9,387	9,941
04/29/00	---	468	---	---	156,867	46,900	42,786	124	9,007	13,356	7,952
04/30/00	---	---	---	---	103,134	36,069	38,147	165	11,425	10,034	6,004
05/01/00	257	298	51	809	109,939	42,765	32,663	168	17,233	14,286	6,236
05/02/00	109	121	53	437	173,634	44,703	45,516	279	10,599	20,303	8,791
05/03/00	26	1,141	124	452	255,088	26,956	20,064	419	8,611	13,936	5,054
05/04/00	78	1,262	212	332	182,864	35,875	24,828	360	13,216	14,843	11,290
<b>Total:</b>	<b>1,281</b>	<b>6,592</b>	<b>1,897</b>	<b>5,921</b>	<b>2,251,634</b>	<b>727,504</b>	<b>459,792</b>	<b>2,027</b>	<b>154,125</b>	<b>184,931</b>	<b>94,199</b>
<b># Days:</b>	<b>10</b>	<b>12</b>	<b>10</b>	<b>10</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>
<b>Average:</b>	<b>128</b>	<b>549</b>	<b>190</b>	<b>592</b>	<b>160,831</b>	<b>51,965</b>	<b>32,842</b>	<b>145</b>	<b>11,009</b>	<b>13,209</b>	<b>6,729</b>

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.

## Two-Week Summary of Passage Indices

### COMBINED SOCKEYE

	WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date	(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
04/21/00	0	0	0	0	0	268	0	45	572	61	0
04/22/00	---	0	---	---	0	0	0	58	665	88	0
04/23/00	---	---	---	---	0	0	46	84	985	152	464
04/24/00	0	0	0	1	0	177	107	44	1,842	213	0
04/25/00	0	0	0	0	0	0	109	104	2,019	732	0
04/26/00	0	0	0	0	0	0	146	135	1,965	1,087	0
04/27/00	0	0	0	0	0	157	0	24	3,078	1,143	608
04/28/00	0	0	0	0	0	0	0	23	3,735	413	621
04/29/00	---	0	---	---	201	0	0	53	3,189	1,585	274
04/30/00	---	---	---	---	0	0	0	92	2,772	1,944	686
05/01/00	0	0	0	0	0	0	0	41	2,632	3,006	779
05/02/00	0	0	0	0	0	0	0	21	3,627	2,907	721
05/03/00	0	---	0	0	0	0	0	27	1,762	946	790
05/04/00	---	---	---	---	---	---	---	---	2,705	---	---
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>201</b>	<b>602</b>	<b>408</b>	<b>751</b>	<b>31,548</b>	<b>14,277</b>	<b>4,943</b>
<b># Days:</b>	<b>9</b>	<b>10</b>	<b>9</b>	<b>9</b>	<b>13</b>	<b>13</b>	<b>13</b>	<b>13</b>	<b>14</b>	<b>13</b>	<b>13</b>
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>15</b>	<b>46</b>	<b>31</b>	<b>58</b>	<b>2,253</b>	<b>1,098</b>	<b>380</b>

#### 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)}

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

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.



**Cumulative Adult Passage at Mainstem Dams Through 05/04**

DAM	Spring Chinook						Summer Chinook						Fall Chinook					
	2000		1999		10-Yr Avg.		2000		1999		10-Yr Avg.		2000		1999		10-Yr Avg.	
	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	142,489	9,425	23,459	1,247	45,586	762	0	0	0	0	0	0	0	0	0	0	0	0
TDA	73,101	4,906	7,792	435	22,858	310	0	0	0	0	0	0	0	0	0	0	0	0
JDA	53,866	2,965	4,468	205	15,305	221	0	0	0	0	0	0	0	0	0	0	0	0
MCN	35,096	2,301	2,094	143	12,134	167	0	0	0	0	0	0	0	0	0	0	0	0
IHR	19,325	1,507	590	44	5,119	39	0	0	0	0	0	0	0	0	0	0	0	0
LMN	14,080	1,052	196	15	3,563	29	0	0	0	0	0	0	0	0	0	0	0	0
LGS	9,191	659	115	9	**	**	0	0	0	0	**	**	0	0	0	0	**	**
LWG	10,844	767	80	5	1,966	9	0	0	0	0	0	0	0	0	0	0	0	0
PRD	4615*	1	224	0	1,524	3	0	0	0	0	0	0	0	0	0	0	0	0
RIS	814	12	12	0	290	0	0	0	0	0	0	0	0	0	0	0	0	0
RRH	137	3	3	4	35	0	0	0	0	0	0	0	0	0	0	0	0	0
WEL	0	0					0	0					0	0				

DAM	Coho						Sockeye			Steelhead			
	2000		1999		10-Yr Avg.		10-Yr Avg.			10-Yr Avg.			Wild
	Adult	Jack	Adult	Jack	Adult	Jack	2000	1999	Avg.	2000	1999	Avg.	2000
BON	0	0	0	0	0	0	0	0	0	2,019	1,250	2,486	756
TDA	0	0	0	0	0	0	0	0	0	481	298	1,252	214
JDA	0	0	0	0	0	0	0	0	0	2,650	2,815	2,616	1,069
MCN	0	0	0	1	0	0	0	0	0	615	283	1,899	219
IHR	0	0	0	0	0	0	0	0	0	738	745	2,269	359
LMN	0	0	0	0	0	0	0	0	0	861	571	2,239	479
LGS	0	0	0	0	**	**	0	0	**	828	861	**	429
LWG	0	0	0	0	0	0	0	0	0	2,385	2,972	5,101	816
PRD	0	0	0	0	0	0	0	3	0	2*	6	19	***
RIS	0	0	0	0	0	0	0	0	0	17	16	38	17
RRH	0	0	0	0	0	0	0	0	0	57	35	34	20
WEL	0	0	0	0	0	0	0	0	0	0			0

\*PRD data was obtained from Grant Co. PUD's website and have not yet been added to our database.

RIS and RRH are through 04/30, PRD is through 05/01, LGS and LMN are through 05/03.

Note: LMN is missing 4/8, JDA has a partial count on 4/16, LGS is missing 04/28 and 04/29.

These numbers were collected from the COE's Running Sums text files.

Wild steelhead numbers are included in the total.

\*\*Adult count records at Little Goose Dam have been maintained since 1991, visual counts were not conducted at Little Goose Dam between 1982 and 1990.

\*\*\*PRD is not reporting Wild Steelhead numbers.

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.