



## Fish Passage Center

# Weekly Report #00 - 6

April 14, 2000

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### SUMMARY OF EVENTS:

**Water Supply:** The cumulative precipitation for the October-March period for the Columbia above Coulee is 60% of normal, for the Snake River above Ice Harbor is 26% of normal, and for the Columbia at The Dalles with 36% of normal.

The new April Final Runoff Volume Forecast has been issued. Runoff volumes are unchanged, or slightly increasing, 1%-3% for the Upper Columbia basin. The Runoff Volume Forecast for The Dalles remained 99% of normal. The Snake River basin decreased at all major sites by 2%-5%, compared to the March Final Runoff Volume Forecast, resulting in a decreased Lower Granite forecast from 93% to 90%.

The Summary of the Runoff Volume Forecasts are presented in the following Table:

Site	April Early Runoff Volume Forecast		March Final Runoff Volume Forecast		April Final Runoff Volume Forecast	
	Runoff Volume [KAF]	% of avg	Runoff Volume [KAF]	% of avg	Runoff Volume [KAF]	% of avg
Mica (April-Sept.)	13.1	103	12.8	101	13.1	103
Hungry Horse (April-Sept.)	2.19	100	2.1	96	2.09	96
Libby (April-Sept.)	7.01	104	7.1	105	7.29	108
Grand Coulee (Jan.-July)	65.5	104	65	103	65.8	104
The Dalles (Jan.-July)	105.0	99	105	99	105	99
Brownlee (April-July)	3.9	67	4.06	70	3.93	68
Dworshak (April-July)	2.69	100	2.8	104	2.67	99
Lower Granite (Jan.-July)	26.7	90	27.6	93	26.7	90
Heise NR-ID (April-July)	2.9	84	2.94	85	2.94	85
Weiser-ID (April-July)	3.6	66	3.77	69	3.62	66

**Reservoir Operations:** Reservoirs continue to be operated for power generation. A summary of actual elevations and required flood control elevations at the end of April is shown in the following Table:

Reservoir	Actual Elev. as of April 13, 2000 [ft]	Required End of April Flood Control Elevations [ft]	Max. Reservoir Pool [ft]
Libby	2341.01	2343.1	2459.0
Hungry Horse	3502.76	3503.2	3560.0
Grand Coulee	1254.9	1239.6	1290.0
Brownlee	2053.74*	2056.2	2077.0
Dworshak	1519.27	1510.4	1600.0

*Libby* reservoir continues 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 pulse. The reservoir is at minimum outflows of 4 kcfs.

*Hungry Horse* is drafted below required flood control elevations for power generation purposes. Current outflows are in the range of 2.4 kcfs to 4.74 kcfs for the period of April 7-13.

*Grand Coulee* is currently drafted for flood control purposes. Current outflows are in the range of 115 kcfs to 135.8 kcfs for the period of April 7-13.

*Brownlee* is currently operated for flood control.

*Dworshak* has been drafted for flood control operations through the April 12, when it commenced refill. Outflow rates are in the range of 15.4 kcfs-16 kcfs.

**Spill:** Increased outflow from Dworshak Dam resulted in approximately 5 Kcfs spill over the past week as the project releases water to achieve its end of April flood control elevation. Spill for fish passage was initiated at Lower Granite Dam last Friday evening, and continued at the levels described in the 1998 Supplemental Biological Opinion until the initiation of the surface bypass collector research on Monday, April 10th. During the conduct of the study spill will be provided as

20% of instantaneous flow on a 24-hour basis. Spill for fish passage was initiated at Little Goose Dam on Monday, April 10th. NMFS released its Spill Plan Agreement for the Federal Columbia River Power System, which will be included in the 2000 Biological Opinion. This Plan calls for no change in spill at Lower Granite, Little Goose or Ice Harbor dams, but does describe a new base spill operation for Lower Monumental. The Plan calls for 24-hour spill to the gas cap, which was implemented beginning April 14th.

Excess hydraulic capacity spill has occurred at McNary Dam throughout the past week. A System Operational Request was submitted to initiate fish spill (spill to the gas cap between 1800 and 0600 hours) beginning April 11th. Because of BPA scheduling issues the request could not be implemented until April 13th. No change is included in the Spill Plan Agreement for McNary Dam. Some excess capacity spill has occurred at The Dalles and Bonneville dams, and a very small amount at John Day over the past week. Spill for fish passage is expected to begin at these projects next week, based on fish movement through the hydrosystem. The Spill Plan Agreement modifies spill at the lower Columbia Projects. The Dalles spill will be 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.

Some intermittent spill has occurred at the Mid Columbia projects. It is anticipated that the FERC spill program will likely be initiated sometime next week.

The total dissolved gas waivers from the states of Oregon and Washington are in place for 2000. A similar waiver from the State of Idaho was conditioned on acceptance of a summer plan for reservoir releases. The conditions were not accepted by the NMFS and negotiations continue

regarding the issuance of a waiver. Meanwhile, total dissolved gas levels are limited to the 110% saturation level from Dworshak Dam. Levels of total dissolved gas were below the allowable TDGS levels at all locations measured. Monitoring for signs of gas bubble trauma (GBT) on fish collected through the Smolt Monitoring Program was conducted this past week. No fish were detected with gas bubbles in their fins, but some fish did exhibit bubbles in their lateral lines.

**Smolt Monitoring Program.** In the Snake River basin, daily collections of yearling chinook ranged mostly in the 100's this week at the traps on the Imnaha (IMN), Grande Ronde (GRN), and mainstem Snake (LEW), and above 600 fish at the Salmon River trap (WTB). Through most of the week steelhead collections were above 100 fish at GRN and by week's end they were over 100 fish at IMN. Passage indices at Lower Granite Dam (LGR) rose to around 14,000 fish for yearling chinook as well as steelhead.

In the mid-Columbia River, subyearling chinook still held a majority in the collections at Rock Island Dam (RIS).

In the lower Columbia River, passage indices rose during the week to over 7,000 yearling chinook at McNary Dam (MCN) and to 38,000 steelhead before dropping back to a mid 5,000 fish level. Yearling chinook passage indices reached around 5,000 fish during the latter part of this week at John Day Dam (JDA). Yearling chinook followed by coho dominated the collections at Bonneville Dam Powerhouse 2 (BO2) this week.

**Adult Fish Passage.** Passage of adult chinook at Bonneville Dam through the week (4/7-4/13) ranged between 1,100 and 5,300. The cumulative count through April 13 was 32,531 approximately 15.1 times and 3.4 times greater than the respective 1999 count and 10-year average. The adult counts at other lower Columbia River projects were: The Dalles 12,416; John Day 4,146; and McNary 1,339. Mid-Columbia projects will start counting April 15 except for Wells Dam where counting will begin on May 1. Fish should already be passing Priest Rapids Dam based on numbers of chinook present at McNary Dam. The first adult chinook

recorded at Prosser Dam (Yakama River) was on April 10. Adult chinook have also been counted in the Umatilla River. Numbers of jack chinook counted at Bonneville (326) are about 10 times greater than the 10-year average and again these jack salmon returns are a potential sign that survival of the 1999 migration from the upriver spring chinook stocks was excellent.

Steelhead counts at Bonneville Dam ranged between 34 and 49 for the week with the cumulative count through April 13 of 1,271, slightly below the 10-year average of 1,432. Wild steelhead totaled 589 for the season.

At Lower Granite Dam, the steelhead count totaled 1,902 through April 13 with about 27.8% of the steelhead reported as "wild". To date, the 2000 count of steelhead remains well below the 1999 and 10-year average.

**Hatchery Releases.** Snake River – Volitional release of yearling spring chinook continued at Rapid River Hatchery (Salmon R) with greater than 90% of the total estimated in the river. Volitional releases from ponds and hatcheries are ongoing at Imnaha Acclimation Pond (Imnaha R), Curl Lake Acclimation Pond (Tucannon R), Sawtooth Hatchery (upper Salmon R), Pahsimeroi Hatchery (Pahsimeroi R and Lostine Acclimation Pond (Grande Ronde R basin). Direct stream releases of yearling chinook are completed from Dworshak and Kooskia hatcheries (Clearwater R), McCall Hatchery (S.F Salmon R) and from the Clearwater Acclimation Ponds at Powell, Red River and Crooked River.

Juvenile steelhead from Snake River basin hatcheries will be released during the next four weeks, from mid-April through mid-May. Volitional release of juvenile steelhead continues or was initiated in the Grande Ronde, Touchet, Salmon River, with direct stream releases below Hells Canyon Dam from Niagara Springs H and into L. Salmon River (Hazard Cr) during the week. Wallowa and Big Canyon Acclimation Ponds released steelhead into the Grande Ronde R basin during the week.

The volitional release of yearling fall chinook (450,000 total) directly from Lyons Ferry H into the

Snake River continued with many of these fish now passing McNary Dam and into the John Day pool. The other releases of yearling fall chinook were completed during the week from the Pittsburg Landing, CPT John, and Big Canyon Acclimation ponds.

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 chinook have been released into the Entiat, Chiwawa, and Methow rivers. The remaining spring chinook will be released during the next two weeks from Methow and Leavenworth hatcheries.

Juvenile steelhead and coho salmon will be released in April and May from Mid-Columbia hatcheries. Steelhead plants into the Wenatchee and Methow rivers should begin next week from Wells and Eastbank hatcheries. Sockeye were released into Lake Wenatchee and the Okanogan R this past fall (1999) with no spring releases made into either Basin. Yearling summer chinook releases will occur during the upcoming 2 weeks with subyearling summer and fall chinook released from late May to late June.

Lower Columbia - (from above Bonneville Dam to below McNary Dam). Yearling spring chinook releases were completed in the Klickitat R; on going in the Warm Springs R (Deschutes basin). The Hood and Umatilla, and Deschutes rivers will be planted during the upcoming week. The Wind and Little White Salmon R basin hatcheries will begin their releases next week as well.

Coho releases should be completed in the Umatilla River. Approximately 2.5 million coho have been released at various sites in the Klickitat River during the previous week with only the volitional release from the hatchery remaining. Willard Hatchery will release their coho next week. The next large release of subyearling Tule fall chinook from Spring Creek NFH is scheduled for April 20. Juvenile steelhead are presently being released into the Hood, Umatilla and Klickitat rivers.

**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
03/31/00	86.9	0.0	86.0	0.0	86.3	0.0	85.8	0.0	88.4	0.0	107.2	0.0	111.1	0.0
04/01/00	74.9	0.0	76.7	0.0	79.4	0.0	82.0	0.0	83.3	0.0	73.9	0.0	77.9	0.0
04/02/00	81.6	0.0	81.1	0.0	81.6	0.0	83.1	0.0	84.5	0.0	84.1	0.0	88.4	0.0
04/03/00	110.9	0.0	115.6	0.0	118.0	0.0	125.7	0.0	127.1	0.0	113.4	3.0	112.0	0.0
04/04/00	103.9	0.0	104.3	0.0	105.0	0.0	108.4	0.0	111.4	0.0	124.8	0.4	135.2	0.0
04/05/00	91.1	0.0	93.8	0.0	95.4	0.0	98.4	0.0	103.7	0.0	118.7	0.0	120.2	0.0
04/06/00	91.1	0.0	96.8	0.0	101.5	0.6	102.1	0.0	102.6	0.0	111.1	0.0	116.1	0.0
04/07/00	115.0	0.0	122.5	0.0	122.8	1.6	129.4	0.0	126.2	0.0	110.3	0.0	111.7	0.0
04/08/00	120.6	0.0	114.9	0.0	115.8	1.7	119.3	0.0	123.6	0.0	121.9	0.0	124.4	0.0
04/09/00	128.6	0.0	124.4	0.0	124.4	2.9	124.0	1.5	125.5	0.0	119.7	1.7	124.0	0.0
04/10/00	121.0	0.0	129.3	3.2	133.6	1.7	141.4	4.6	146.8	0.0	149.3	13.5	150.5	0.0
04/11/00	131.9	0.0	134.7	0.0	137.2	1.7	138.5	2.1	139.7	0.0	142.3	2.9	144.6	0.0
04/12/00	126.7	0.0	128.5	0.0	135.0	8.6	139.6	3.3	145.5	0.0	147.5	4.9	153.5	0.7
04/13/00	135.8	0.0	137.5	0.0	137.1	9.4	140.7	2.4	143.8	0.0	146.0	4.2	152.4	0.0

**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
03/31/00	4.0	0.0	26.6	26.1	55.4	0.0	56.6	0.0	60.0	0.0	61.6	0.0	61.6	0.0
04/01/00	4.0	0.0	25.6	28.9	56.1	0.0	60.5	0.0	65.1	0.0	65.7	0.0	65.7	0.0
04/02/00	4.0	0.0	25.6	30.1	56.3	0.0	51.4	0.0	53.0	0.0	52.0	0.0	52.0	0.0
04/03/00	9.1	0.0	26.2	28.3	63.4	0.8	65.2	0.0	69.0	0.0	69.0	0.0	69.0	0.0
04/04/00	10.8	0.0	28.3	28.6	55.2	0.0	59.8	0.0	65.8	7.2	68.5	20.7	68.5	20.7
04/05/00	14.8	4.0	30.3	26.5	79.5	5.0	75.3	0.0	80.0	16.8	84.9	63.8	84.9	63.8
04/06/00	15.7	4.9	29.2	30.0	86.5	0.3	89.1	0.0	95.6	20.9	101.1	65.6	101.1	65.6
04/07/00	15.4	4.6	29.1	28.3	83.3	15.1	85.3	0.0	90.6	24.3	91.0	59.8	91.0	59.8
04/08/00	16.0	5.3	29.2	28.5	78.3	29.0	81.5	0.0	85.1	26.3	91.4	64.6	91.4	64.6
04/09/00	15.9	5.1	28.3	25.6	74.4	27.7	77.0	0.0	82.0	28.3	84.2	64.3	84.2	64.3
04/10/00	15.9	5.1	28.5	30.4	78.5	28.7	74.3	10.2	76.9	26.7	82.2	60.6	82.2	60.6
04/11/00	15.9	5.1	28.5	28.9	81.8	20.1	82.7	20.1	83.2	29.0	85.4	59.2	85.4	59.2
04/12/00	16.1	5.2	29.0	30.7	81.3	20.2	80.5	20.1	85.4	24.4	89.2	62.9	89.2	62.9
04/13/00	16.2	5.3	---	---	95.7	23.1	92.9	21.4	98.6	21.1	102.4	66.9	102.4	66.9

**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		
03/31/00	186.0	0.0	207.9	0.0	204.1	0.0	211.1	0.0	85.8	116.1
04/01/00	142.8	0.0	162.0	0.0	170.5	0.0	180.0	0.0	80.0	90.8
04/02/00	151.6	0.0	168.6	0.0	170.0	0.0	177.9	0.0	77.2	91.5
04/03/00	159.1	0.0	175.2	0.0	180.9	0.0	194.8	0.0	85.1	100.5
04/04/00	175.4	6.0	178.0	0.0	179.9	0.0	190.4	0.0	87.8	93.4
04/05/00	202.2	43.4	212.3	0.0	212.8	0.0	217.6	0.0	91.7	116.7
04/06/00	226.2	59.0	228.9	1.8	239.3	0.0	245.4	19.2	95.7	121.2
04/07/00	224.4	56.8	254.6	4.2	245.1	7.3	280.2	52.3	95.7	123.0
04/08/00	213.9	47.5	245.9	0.0	253.8	6.3	268.7	46.3	100.1	113.0
04/09/00	173.9	20.8	185.5	0.0	186.7	0.0	197.1	0.0	94.6	93.3
04/10/00	230.1	67.1	221.1	3.0	223.0	0.0	217.7	22.3	89.3	96.9
04/11/00	244.0	75.8	261.9	0.0	253.7	9.7	263.5	56.9	93.8	103.5
04/12/00	241.5	76.2	242.7	0.0	247.5	3.3	254.5	24.6	98.0	122.7
04/13/00	258.6	90.6	268.1	0.0	262.4	7.5	275.3	45.5	95.5	125.1

## 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		
3/31	96	96	96	24	102	103	103	24	104	105	109	24	102	103	104	24	103	103	103	23
4/1	97	97	98	24	103	104	105	24	105	106	107	24	103	104	104	24	104	104	104	21
4/2	96	96	97	23	103	103	104	15	105	105	105	23	103	103	104	23	104	104	105	22
4/3	97	97	97	24	---	---	---	0	106	107	108	24	103	104	104	24	105	106	106	23
4/4	99	101	129	21	---	---	---	0	106	107	108	22	104	105	107	24	105	106	106	22
4/5	97	98	98	20	105	105	106	6	105	106	108	24	104	104	106	24	104	105	105	23
4/6	98	98	98	15	105	106	107	24	105	106	106	24	104	104	106	24	104	105	105	23
4/7	100	100	100	23	104	105	105	24	104	104	104	24	102	102	103	24	103	103	103	23
4/8	100	100	100	24	106	109	112	24	105	106	107	24	103	103	104	24	104	105	105	23
4/9	100	100	100	24	107	110	113	24	106	106	108	24	104	104	104	24	105	105	105	23
4/10	100	100	100	24	108	111	112	24	106	106	107	24	103	104	104	24	104	104	105	23
4/11	99	100	100	23	108	111	113	24	107	107	109	24	104	104	105	24	104	105	105	23
4/12	98	99	99	24	107	110	114	24	107	107	107	24	104	105	105	24	105	105	105	23
4/13	98	98	99	20	111	116	120	24	108	109	110	24	105	106	106	24	106	106	106	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		
3/31	103	104	105	23	102	103	103	19	103	103	104	19	101	101	102	23	103	103	103	22
4/1	104	104	105	21	103	104	104	17	103	104	104	17	101	102	102	24	104	104	105	23
4/2	104	104	105	22	104	104	104	13	104	104	104	13	103	103	104	21	105	105	105	21
4/3	105	105	107	23	104	105	105	20	104	105	106	20	103	104	105	24	105	105	105	2
4/4	105	106	107	23	105	105	105	20	105	105	105	20	104	104	104	20	---	---	---	0
4/5	104	105	106	23	104	104	104	18	104	104	105	18	103	103	103	23	---	---	---	0
4/6	104	105	106	23	103	104	104	18	104	104	104	18	102	102	103	21	---	---	---	0
4/7	102	103	104	23	102	102	102	21	102	102	103	21	102	103	104	24	---	---	---	0
4/8	104	105	105	23	103	104	104	15	104	104	104	15	105	105	106	24	---	---	---	0
4/9	104	104	105	23	104	104	105	19	104	104	105	17	106	106	106	24	---	---	---	0
4/10	106	109	132	23	104	104	104	17	104	105	109	17	106	106	106	21	---	---	---	0
4/11	104	105	106	23	105	105	105	20	105	105	105	19	106	107	107	23	---	---	---	0
4/12	104	105	105	23	104	104	105	18	106	107	109	19	106	107	107	22	---	---	---	0
4/13	105	105	106	23	105	106	106	21	107	108	110	21	107	107	108	23	---	---	---	0

### 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		
3/31	102	102	103	23	---	---	---	0	104	104	107	24	103	103	104	24	103	104	106	23
4/1	103	104	104	24	104	105	105	13	104	104	105	24	104	104	104	24	104	104	105	24
4/2	103	103	104	21	105	105	106	19	104	104	107	23	103	103	103	23	103	104	105	23
4/3	104	105	105	24	106	106	107	23	108	108	112	24	105	105	106	24	105	106	109	24
4/4	105	105	105	24	106	106	106	24	106	106	106	24	105	105	106	24	105	106	107	24
4/5	104	104	104	22	105	105	106	22	105	105	106	23	104	104	105	24	104	105	107	24
4/6	104	104	104	23	105	105	106	23	104	104	105	23	104	104	105	22	104	104	105	23
4/7	102	102	103	24	103	104	104	23	105	105	107	24	103	103	104	24	103	104	106	24
4/8	103	103	104	24	104	105	105	24	106	106	107	24	104	104	104	24	104	105	106	24
4/9	104	104	105	23	105	105	106	22	106	106	108	24	104	104	105	24	104	105	107	24
4/10	105	105	105	24	106	106	109	22	105	105	107	24	106	106	110	24	106	105	107	24
4/11	104	105	105	24	106	106	107	23	105	105	107	24	104	104	108	24	104	106	110	24
4/12	105	106	106	23	106	107	108	23	107	107	109	24	106	106	108	24	106	107	110	24
4/13	106	106	107	23	108	108	108	21	---	---	---	0	---	---	---	0	---	---	---	0

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

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

Date	<u>Priest R. Dnst</u>			<u>Pasco</u>			<u>Dworshak</u>			<u>Clrwtr-Peck</u>			<u>Anatone</u>							
	<u>24 h</u>	<u>12 h</u>	<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>24 h</u>	<u>12 h</u>	<u>#</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>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>
3/31	104	104	105	23	103	104	104	24	96	96	96	11	100	101	102	24	---	---	---	0
4/1	105	105	106	24	104	104	105	18	96	96	97	19	101	102	103	22	103	104	105	15
4/2	104	104	105	23	105	105	106	23	96	96	97	24	101	101	102	24	102	103	104	23
4/3	105	105	106	24	106	106	107	24	97	98	99	22	100	101	102	24	103	104	105	24
4/4	106	106	107	24	105	106	106	21	98	98	99	23	100	101	102	22	102	103	104	23
4/5	105	105	106	24	103	103	104	22	106	109	110	24	103	105	106	24	101	102	103	24
4/6	105	105	105	22	103	103	104	21	109	110	110	24	104	105	105	24	101	101	102	24
4/7	105	105	106	24	102	102	104	17	108	108	108	24	104	105	106	24	102	103	103	24
4/8	105	105	105	24	104	105	106	16	110	110	111	24	106	107	108	24	102	103	104	24
4/9	106	106	106	24	105	105	105	5	110	110	110	24	106	107	107	24	102	103	104	24
4/10	106	106	109	24	105	105	105	15	109	109	110	24	106	106	107	24	102	103	104	24
4/11	105	105	107	24	105	105	106	24	109	109	109	23	106	106	107	24	102	103	104	24
4/12	107	107	109	24	106	107	107	24	109	110	110	24	106	106	107	24	102	103	104	24
4/13	---	---	---	0	106	107	107	24	110	110	110	24	105	105	106	24	102	102	103	24

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

Date	<u>Clrwtr-Lewiston</u>			<u>Lower Granite</u>			<u>L. Granite Tlwr</u>			<u>Little Goose</u>			<u>L. Goose Tlwr</u>							
	<u>24 h</u>	<u>12 h</u>	<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>24 h</u>	<u>12 h</u>	<u>#</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>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>
3/31	102	103	105	24	101	102	104	24	100	101	101	24	101	101	101	24	100	101	101	24
4/1	102	103	105	22	102	102	103	22	101	102	102	22	102	102	102	24	101	102	102	24
4/2	102	104	105	24	102	103	104	23	102	102	102	23	102	103	105	24	102	102	102	24
4/3	102	103	105	23	105	106	108	24	104	105	106	24	105	106	108	24	104	105	105	24
4/4	101	102	104	23	105	105	106	23	105	105	105	24	104	105	106	24	104	104	104	24
4/5	101	103	104	23	104	104	104	23	105	107	111	24	102	102	103	17	102	102	103	17
4/6	103	103	104	23	103	104	104	24	103	104	104	24	103	103	103	24	103	103	103	24
4/7	103	105	106	24	101	102	103	24	106	111	121	24	103	104	108	24	102	103	103	24
4/8	104	106	108	24	103	104	106	24	112	121	122	24	104	104	106	24	103	104	104	24
4/9	104	106	107	24	104	104	105	24	112	119	120	24	103	103	104	24	103	103	104	24
4/10	104	105	107	23	105	105	106	24	112	115	119	24	108	112	114	24	108	113	117	24
4/11	104	105	106	24	105	105	106	24	110	110	110	24	112	114	115	24	114	117	119	24
4/12	104	105	106	24	105	105	106	24	110	110	111	24	114	115	116	24	116	119	119	24
4/13	103	104	104	24	105	105	106	24	110	110	111	24	111	112	113	24	114	117	119	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>#</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>	<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>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>
3/31	101	101	101	7	100	100	101	23	101	102	103	24	101	102	102	24	102	103	104	24
4/1	103	103	103	24	101	101	102	24	103	103	104	24	103	103	103	24	103	104	106	23
4/2	103	104	107	24	101	101	101	24	103	103	104	23	103	103	104	23	104	105	106	23
4/3	104	105	107	24	101	101	102	24	104	104	106	23	104	104	104	23	104	105	107	24
4/4	103	104	105	19	103	104	109	23	104	104	104	23	107	110	116	24	104	104	104	23
4/5	103	103	104	17	106	107	111	17	103	103	103	18	114	115	116	17	104	105	106	24
4/6	103	103	104	24	110	112	115	24	105	106	107	24	116	117	119	24	103	104	104	24
4/7	101	102	103	24	109	113	118	24	107	109	112	24	115	116	120	24	105	106	107	22
4/8	102	103	104	24	114	117	119	24	109	112	114	24	116	117	120	24	107	108	109	24
4/9	104	104	104	24	116	118	119	24	111	113	114	24	115	116	117	24	110	111	113	24
4/10	104	104	105	23	116	120	123	23	111	113	114	24	115	116	117	24	111	113	115	24
4/11	104	104	105	24	114	122	123	24	113	115	119	24	115	115	116	24	110	111	113	24
4/12	110	114	116	24	115	121	123	24	113	115	116	24	115	116	117	24	110	111	112	24
4/13	115	116	117	24	118	121	121	24	113	115	116	24	116	119	121	24	111	111	112	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>24 h</u>	<u>12 h</u>	#	<u>24h</u>	<u>12h</u>	#	<u>24h</u>	<u>12h</u>	#	<u>24h</u>	<u>12h</u>	#	<u>24h</u>	<u>12h</u>	#		
	Avg	Avg		High	Avg		Avg	High		Avg	Avg		High	Avg		Avg	High		Avg	AVG
3/31	104	105	106	24	103	103	104	24	102	103	104	23	101	101	102	23	102	102	102	24
4/1	106	107	107	24	104	105	106	24	102	103	103	21	102	102	102	22	103	103	103	21
4/2	107	107	109	23	105	105	106	23	104	106	107	23	102	102	103	23	103	103	103	23
4/3	108	109	110	24	106	107	107	24	104	105	105	23	103	103	103	24	103	104	104	23
4/4	107	108	108	23	107	108	111	23	104	104	104	21	103	103	103	23	104	104	104	23
4/5	106	106	107	17	114	114	114	17	103	103	104	23	103	103	104	24	103	103	103	22
4/6	104	105	106	24	113	114	114	24	103	103	103	23	104	104	111	22	102	103	103	23
4/7	104	105	107	22	114	115	117	22	102	103	104	23	104	107	111	24	102	103	103	23
4/8	106	108	109	24	114	115	116	24	103	104	104	23	103	103	104	24	103	103	103	23
4/9	107	108	108	24	111	113	114	24	103	103	103	23	103	103	103	24	103	103	103	23
4/10	110	112	115	24	115	117	117	24	103	104	105	23	104	105	111	24	102	103	104	23
4/11	109	110	111	24	116	117	117	24	105	106	108	23	105	105	106	23	103	104	104	23
4/12	110	110	110	24	116	117	120	24	107	108	115	23	107	108	108	22	105	105	106	23
4/13	110	111	111	24	118	119	121	24	109	109	109	23	108	108	109	24	107	107	107	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>Camas\Washugal</u>							
	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24h</u>	<u>12h</u>	#	<u>24h</u>	<u>12h</u>	#	<u>24h</u>	<u>12h</u>	#	<u>24h</u>	<u>12h</u>	#		
	Avg	Avg		High	Avg		Avg	High		Avg	Avg		High	Avg		Avg	High		Avg	AVG
3/31	101	102	102	23	101	101	102	24	101	102	102	24	102	103	104	24	102	104	104	23
4/1	103	103	104	22	102	102	102	21	103	103	104	21	103	104	104	21	104	105	106	22
4/2	103	103	104	23	102	102	103	23	103	103	104	23	103	104	105	23	104	105	106	23
4/3	104	104	105	24	103	104	104	23	104	105	105	23	104	106	107	23	105	106	107	24
4/4	104	104	104	24	103	103	104	23	104	104	105	23	104	104	104	20	104	104	105	24
4/5	103	104	104	24	102	102	102	22	103	103	104	23	103	103	104	23	104	105	105	24
4/6	103	103	104	24	102	102	102	23	104	105	107	23	103	104	105	23	103	103	104	24
4/7	103	104	106	24	101	101	102	22	107	107	107	23	105	106	107	23	105	106	107	23
4/8	104	105	106	24	102	103	103	23	107	108	108	23	106	107	108	23	106	107	107	24
4/9	103	103	103	24	104	105	105	23	105	105	106	23	105	105	106	23	106	106	107	24
4/10	102	103	104	24	102	102	103	23	103	104	109	23	104	105	110	23	105	106	107	24
4/11	104	105	108	24	103	103	103	23	108	110	112	23	109	112	115	23	109	113	117	24
4/12	105	106	109	24	103	104	104	23	106	108	109	23	106	107	107	23	108	109	110	24
4/13	108	109	109	24	105	105	106	23	108	109	110	23	108	109	109	23	107	108	110	24

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

Site	Date	Species	Number of Fish	Number w GBT signs	Number w Fin Signs	% Fin GBT	% Severe Fin GBT	Number of Fish with Fin GBT Listed by Highest Rank				Fish with L. Line GBT	
								Rank 1	Rank 2	Rank 3	Rank 4	Num Fish	Avg. Rank
<b>Lower Granite Dam</b>													
	04/04/00	Yearling Chinook	12	4	0	0.00%	0.00%	0	0	0	0	4	1.5
	04/04/00	Steelhead	45	5	0	0.00%	0.00%	0	0	0	0	4	1
	04/10/00	Yearling Chinook	37	0	0	0.00%	0.00%	0	0	0	0	0	0
	04/10/00	Steelhead	101	2	0	0.00%	0.00%	0	0	0	0	2	1
<b>Little Goose Dam</b>													
	04/05/00	Yearling Chinook	5	1	1	20.00%	0.00%	1	0	0	0	0	0
	04/05/00	Steelhead	3	0	0	0.00%	0.00%	0	0	0	0	0	0
	04/12/00	Steelhead	4	0	0	0.00%	0.00%	0	0	0	0	0	0
<b>Lower Monumental Dam</b>													
	04/04/00	Yearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	04/04/00	Steelhead	13	0	0	0.00%	0.00%	0	0	0	0	0	0
	04/10/00	Yearling Chinook	62	0	0	0.00%	0.00%	0	0	0	0	0	0
	04/10/00	Steelhead	10	0	0	0.00%	0.00%	0	0	0	0	0	0
<b>Ice Harbor Dam</b>													
	04/11/00	Yearling Chinook	29	0	0	0.00%	0.00%	0	0	0	0	0	0
	04/11/00	Steelhead	3	0	0	0.00%	0.00%	0	0	0	0	0	0
<b>McNary Dam</b>													
	04/06/00	Yearling Chinook	68	1	0	0.00%	0.00%	0	0	0	0	1	1
	04/06/00	Steelhead	25	0	0	0.00%	0.00%	0	0	0	0	0	0
	04/10/00	Yearling Chinook	19	1	0	0.00%	0.00%	0	0	0	0	1	2
	04/10/00	Steelhead	100	3	0	0.00%	0.00%	0	0	0	0	3	1
	04/13/00	Yearling Chinook	76	1	0	0.00%	0.00%	0	0	0	0	1	1
	04/13/00	Steelhead	51	2	0	0.00%	0.00%	0	0	0	0	2	1
<b>Bonneville Dam</b>													
	04/06/00	Yearling Chinook	54	0	0	0.00%	0.00%	0	0	0	0	0	0
	04/06/00	Steelhead	11	0	0	0.00%	0.00%	0	0	0	0	0	0
	04/13/00	Yearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	04/13/00	Steelhead	34	0	0	0.00%	0.00%	0	0	0	0	0	0
<b>Rock Island Dam</b>													
	04/11/00	Yearling Chinook	8	1	0	0.00%	0.00%	0	0	0	0	1	1
	04/11/00	Steelhead	1	0	0	0.00%	0.00%	0	0	0	0	0	0
	04/13/00	Yearling Chinook	18	6	0	0.00%	0.00%	0	0	0	0	6	1
	04/13/00	Steelhead	10	1	0	0.00%	0.00%	0	0	0	0	1	1



# Hatchery Release Summary

From 3/31/00 to 4/13/00

Hatchery	Species...	Migration Year	Number Released	...Release Dates... Begin...	...End	Release Site	River Name
<b>IDFG</b>							
<b>Magic Valley</b>							
	SU Steelhead	2000	52,000	04/03/00	05/12/00	Squaw Cr Acclim Pd	Salmon River
	SU Steelhead	2000	100,000	04/10/00	04/11/00	Squaw Cr Acclim Pd	Salmon River
	SU Steelhead	2000	115,000	04/12/00	04/13/00	Little Salmon R	Salmon River
	SU Steelhead	2000	190,000	04/13/00	04/17/00	Lemhi R	Salmon River
<b>McCall</b>							
	SU Chinook	2000	821,000	04/03/00	04/06/00	S Fk Salmon R	Salmon River
	SU Chinook	2000	195,400	04/03/00	04/06/00	S Fk Salmon R	Salmon River
<b>Niagara Springs</b>							
	SU Steelhead	2000	600,000	03/27/00	04/08/00	Hells Canyon Dam	Snake River
	SU Steelhead	2000	190,000	04/09/00	04/12/00	Little Salmon R	Salmon River
	SU Steelhead	2000	830,000	04/13/00	05/01/00	Pahsimeroi H	Pahsimeroi River
<b>Pahsimeroi</b>							
	SU Chinook	2000	53,900	04/12/00	04/25/00	Pahsimeroi H	Pahsimeroi River
<b>Powell</b>							
	SP Chinook	2000	328,400	04/13/00	04/13/00	Powell Acclim Pd	Lochsa River
<b>Rapid River</b>							
	SP Chinook	2000	2,463,000	03/16/00	04/15/00	Rapid River H	Little Salmon River
<b>Sawtooth</b>							
	SP Chinook	2000	124,500	04/04/00	04/21/00	Sawtooth H	Salmon River
	<b>Agency Totals:</b>		<b>6,063,200</b>	.....			
<b>Nez Perce Tribe</b>							
<b>Lookingglass</b>							
	SP Chinook	2000	35,000	04/01/00	04/18/00	Lostine Accim Pd	Wallowa River
<b>Lyons Ferry</b>							
	FA Chinook	2000	150,000	04/08/00	04/12/00	Cpt John Acclim Pd	Snake River
	FA Chinook	2000	150,000	04/11/00	04/13/00	Big Canyon (Clearwater)	Clearwater Rvr M F
	FA Chinook	2000	150,000	04/11/00	04/13/00	Pittsburg Landing	Snake River
	<b>Agency Totals:</b>		<b>485,000</b>	.....			
<b>ODFW</b>							
<b>Big Canyon</b>							
	SU Steelhead	2000	174,000	04/12/00	04/14/00	Big Canyon H	Grande Ronde River
<b>Imnaha</b>							
	SP Chinook	2000	180,000	03/22/00	04/18/00	Imnaha Acclim Pd	Imnaha River
<b>Li Sheep</b>							
	SU Steelhead	2000	155,000	04/13/00	04/13/00	L Sheep Acclim Pd	Imnaha River
<b>Lookingglass</b>							
	SP Chinook	2000	38,000	04/01/00	04/18/00	Catherine Cr	Grande Ronde River
<b>Round Butte</b>							
	SU Steelhead	2000	161,000	04/04/00	04/14/00	Bel. Pelton Dam	Deschutes River
	SP Chinook	2000	300,000	04/12/00	04/20/00	Bel. Pelton Dam	Deschutes River
<b>Wallowa</b>							
	SU Steelhead	2000	348,000	04/05/00	04/07/00	Wallowa Acclim Pd	Wallowa River

# Hatchery Release Summary

From 3/31/00 to 4/13/00

Hatchery	Species...	Migration	Year	Number Released	...Release Dates... Begin... ..End	Release Site	River Name
<b>Agency Totals:</b>				<b>1,356,000</b>	.....		
<b>Umatilla Tribe</b>							
<b>Cascade</b>	Coho		2000	750,000	04/10/00 04/20/00	Umatilla R	Umatilla River
<b>Imeques</b>	SP Chinook		2000	275,000	04/10/00 04/20/00	Imeques Acclim Pd	Umatilla River
<b>Minthorn</b>	SU Steelhead		2000	50,000	04/03/00 04/10/00	Bonifer Acclim Pd	Umatilla River
	SU Steelhead		2000	50,000	04/03/00 04/10/00	Minthorn Acclim Pd	Umatilla River
<b>Thornhollow</b>	FA Chinook		2000	240,000	04/10/00 04/20/00	Thornhollow Acclim Pd	Umatilla River
<b>Agency Totals:</b>				<b>1,365,000</b>	.....		
<b>USFWS</b>							
<b>Dworshak</b>	SP Chinook		2000	1,030,000	03/22/00 04/06/00	Dworshak H	Clearwater Rvr M F
<b>Entiat</b>	SP Chinook		2000	363,000	04/04/00 04/04/00	Entiat H	Entiat River
<b>Hagerman</b>	SU Steelhead		2000	50,000	04/03/00 04/07/00	Hazard Cr	Little Salmon River
	SU Steelhead		2000	150,000	04/03/00 04/07/00	Little Salmon R	Salmon River
<b>Kooskia</b>	SP Chinook		2000	379,000	04/06/00 04/07/00	Kooskia H	Clearwater Rvr M F
	SP Chinook		2000	50,000	04/06/00 04/07/00	Clear Cr	Clearwater Rvr M F
<b>Winthrop</b>	SP Chinook		2000	376,500	04/12/00 04/12/00	Winthrop H	Methow River
	SU Steelhead		2000	105,000	04/12/00 05/31/00	Winthrop H	Methow River
<b>Warm Springs</b>	SP Chinook		2000	679,982	03/22/00 04/19/00	Warm Springs H	Deschutes River
<b>Agency Totals:</b>				<b>3,183,482</b>	.....		
<b>WDFW</b>							
<b>Chiwawa</b>	SP Chinook		2000	76,000	04/10/00 04/10/00	Chiwawa H	Wenatchee River
<b>Lyons Ferry</b>	FA Chinook		2000	450,000	03/22/00 04/15/00	Lyons Ferry H	Snake River
	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
<b>Ringold Springs</b>	SU Steelhead		2000	180,000	04/03/00 04/12/00	Ringold Springs H	Mid-Columbia River
<b>Tucannon</b>	SP Chinook		2000	128,000	03/10/00 04/20/00	Curl Lake	Tucannon River
<b>Washougal</b>	Coho		2000	2,500,000	03/27/00 04/04/00	Klickitat R	Klickitat River
<b>Wells</b>	SU Chinook		2000	293,000	04/13/00 04/21/00	Similkameen Acclim Pd	Okanogan River

# Hatchery Release Summary

From 3/31/00 to 4/13/00

Hatchery	Species...	Migration Year	Number Released	...Release Dates... Begin... ..End	Release Site	River Name
<b>Agency Totals:</b>			<b>4,002,000</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
<b>Round Butte</b>						
	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>160,500</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>Easton Pond</b>						
	SP	Chinook	2000	236,800	03/15/00 06/01/00	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>Agency Totals:</b>			<b>603,300</b>	.....		
<b>Total Release..</b>			<b>17,218,482</b>			

# Hatchery Release Summary

From 4/14/00 to 4/27/00

Hatchery	Species...	Migration Year	Number Released	...Release Dates... Begin... ..End	Release Site	River Name
<b>IDFG</b>						
<b>Clearwater</b>						
	SP Chinook	2000	159,000	04/14/00 04/14/00	Red River Acclim Pd	S Fk Clearwater River
	SP Chinook	2000	396,800	04/14/00 04/14/00	Crooked R Acclim Pd	S Fk Clearwater River
	SU Steelhead	2000	180,000	04/21/00 04/25/00	Clear Cr	Clearwater Rvr M F
	SU Steelhead	2000	300,000	04/24/00 04/28/00	Redhouse (SFk	Clearwater Rvr M F
<b>Magic Valley</b>						
	SU Steelhead	2000	40,000	04/15/00 04/25/00	Salmon R	Salmon River
	SU Steelhead	2000	60,000	04/15/00 04/25/00	N Fk Salmon R	Salmon River
	SU Steelhead	2000	120,000	04/17/00 04/18/00	Shoup Br (Salmon R)	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>Sawtooth</b>						
	SU Steelhead	2000	550,000	04/26/00 04/26/00	Sawtooth H	Salmon River
	<b>Agency Totals:</b>		<b>2,940,800</b>	.....		
<b>Nez Perce Tribe</b>						
<b>Kooskia</b>						
	Coho	2000	280,000	04/15/00 04/21/00	Kooskia H	Clearwater Rvr M F
	<b>Agency Totals:</b>		<b>280,000</b>	.....		
<b>ODFW</b>						
<b>Irrigon</b>						
	SU Steelhead	2000	100,000	04/19/00 04/21/00	Big Sheep Cr	Imnaha River
	<b>Agency Totals:</b>		<b>100,000</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>Carson</b>						
	SP Chinook	2000	1,420,000	04/20/00 04/20/00	Carson H	Wind River
<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
<b>Hagerman</b>						
	SU Steelhead	2000	150,000	04/26/00 05/08/00	Little Salmon R	Salmon River
	SU Steelhead	2000	200,000	04/26/00 04/26/00	Sawtooth H	Salmon River
<b>Leavenworth</b>						
	SP Chinook	2000	1,695,000	04/18/00 04/18/00	Leavenworth H	Wenatchee River
<b>L White Salmon</b>						
	SP Chinook	2000	1,100,000	04/20/00 04/20/00	Little White Salmon H	Little White Salmon River
	Coho	2000	550,000	04/20/00 04/20/00	Little White Salmon H	Little White Salmon River
<b>Spring Creek</b>						

# Hatchery Release Summary

From 4/14/00 to 4/27/00

Hatchery	Species...	Migration Year	Number Released	...Release Dates... Begin...	...End	Release Site	River Name
<b>Willard</b>	FA Chinook	2000	4,300,000	04/20/00	04/20/00	Spring Creek H	Columbia River
	Coho	2000	980,000	04/20/00	04/20/00	Willard H	Little White Salmon River
<b>Agency Totals:</b>			<b>11,195,00</b>	.....			

## WDFW

<b>Chewuch</b>	SP Chinook	2000	218,000	04/15/00	04/25/00	Chewuch R	Methow River
<b>Chiwawa</b>	SU Steelhead	2000	43,400	04/17/00	04/24/00	Chiwawa H	Wenatchee River
	SU Steelhead	2000	30,600	04/17/00	04/24/00	Chiwawa H	Wenatchee River
	SU Steelhead	2000	25,600	04/17/00	04/24/00	Chiwawa H	Wenatchee River
<b>Dryden Pond</b>	SU Chinook	2000	651,000	04/27/00	04/30/00	Dryden Acclim Pd	Wenatchee River
<b>East Bank</b>	SU Steelhead	2000	30,000	04/18/00	04/20/00	Wenatchee R	Wenatchee River
	SU Steelhead	2000	45,000	04/18/00	04/20/00	Wenatchee R	Wenatchee River
<b>Klickitat</b>	Coho	2000	1,400,000	04/15/00	06/05/00	Klickitat H	Klickitat River
<b>Lyons Ferry</b>	SU Steelhead	2000	20,179	04/15/00	04/15/00	Lyons Ferry H	Snake River
	SU Steelhead	2000	160,000	04/15/00	04/15/00	Tucannon R	Tucannon River
	SU Steelhead	2000	175,000	04/15/00	04/30/00	Walla Walla R	Walla Walla River
<b>Methow</b>	SP Chinook	2000	216,000	04/15/00	04/25/00	Methow H	Methow River
	SP Chinook	2000	15,200	04/15/00	04/25/00	Twisp R	Methow River
<b>Skamania</b>	WI Steelhead	2000	20,000	04/27/00	05/01/00	White Salmon R	White Salmon River
	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
<b>Turtle Rock</b>	SU Chinook	2000	218,000	04/17/00	04/21/00	Turtle Rock H	Mid-Columbia River
<b>Wells</b>	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 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	Methow R	Methow River
	SU Chinook	2000	205,000	04/19/00	04/30/00	Carlton Acclim Pd	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
	<b>Agency Totals:</b>			<b>4,701,979</b>	.....		

## Warm Spgs Tribe

<b>Oak Springs</b>	WI Steelhead	2000	31,000	04/17/00	05/01/00	E Fk Irrig Dist Sand Trap	Hood River
	WI Steelhead	2000	32,000	04/17/00	05/01/00	Parkdale Acclim Pd	Hood River

**Agency Totals: 63,000** .....  
**Total Release.. 19,330,779**

## 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)
04/01/00	---	834	---	---	588	---	---	0	540	---	703
04/02/00	---	339	---	---	440	185	3,920	0	462	---	614
04/03/00	164	943	31	15	532	390	6,290	0	624	---	602
04/04/00	569	305	92	46	790	415	8,365	1	1,636	250	2,046
04/05/00	1,790	721	122	14	633	314	4,997	19	2,395	585	307*
04/06/00	2,877	250	98	57	1,738	339	4,382	49	4,407	1,015	831*
04/07/00	1,951	759	103	67	2,493	311	4,620	82	2,983	1,920	1,587
04/08/00	---	176	---	---	3,139	733	3,324	50	3,084	3,430	2,373
04/09/00	---	149	---	---	1,285	616	1,459	22	4,024	3,132	1,944
04/10/00	655	171	71	229	1,041	1,102	530	12	2,595	1,638	1,693
04/11/00	814	158	92	112	4,119	546	1,012	12	5,353	5,054	2,628
04/12/00	676	140	101	90	8,322	738	614	41	5,490	4,312	3,260
04/13/00	750	221	117	127	13,912	773	2,066	25	7,340	4,980	4,142
04/14/00	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>	<b>10,246</b>	<b>5,166</b>	<b>827</b>	<b>757</b>	<b>39,032</b>	<b>6,462</b>	<b>41,579</b>	<b>313</b>	<b>40,933</b>	<b>26,316</b>	<b>21,592</b>
<b># Days:</b>	<b>9</b>	<b>13</b>	<b>9</b>	<b>9</b>	<b>13</b>	<b>12</b>	<b>12</b>	<b>13</b>	<b>13</b>	<b>10</b>	<b>13</b>
<b>Average:</b>	<b>1,138</b>	<b>397</b>	<b>92</b>	<b>84</b>	<b>3,002</b>	<b>539</b>	<b>3,465</b>	<b>24</b>	<b>3,149</b>	<b>2,632</b>	<b>1,963</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)
04/01/00	---	0	---	---	0	---	---	78	80	---	931
04/02/00	---	0	---	---	0	0	0	67	54	---	850
04/03/00	0	0	0	51	0	0	0	63	150	---	824
04/04/00	0	0	0	2	0	0	0	52	106	0	1,328
04/05/00	0	1	0	12	4	0	0	242	75	0	201*
04/06/00	0	0	0	6	79	0	0	57	46	0	674*
04/07/00	0	0	0	2	0	0	0	94	222	12	768
04/08/00	---	0	---	---	198	0	0	84	445	44	1,009
04/09/00	---	0	---	---	248	0	0	128	269	12	927
04/10/00	0	0	0	13	0	0	0	116	280	8	661
04/11/00	0	0	0	2	0	0	0	98	338	0	657
04/12/00	0	0	0	0	0	0	0	48	128	0	914
04/13/00	0	2	0	2	0	0	0	15	450	15	232
04/14/00	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>90</b>	<b>529</b>	<b>0</b>	<b>0</b>	<b>1,142</b>	<b>2,643</b>	<b>91</b>	<b>9,101</b>
<b># Days:</b>	<b>9</b>	<b>13</b>	<b>9</b>	<b>9</b>	<b>13</b>	<b>12</b>	<b>12</b>	<b>13</b>	<b>13</b>	<b>10</b>	<b>13</b>
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>41</b>	<b>0</b>	<b>0</b>	<b>88</b>	<b>203</b>	<b>9</b>	<b>827</b>

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.

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 table 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 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 COHO

	WTB	IMN	GRN	LEW	LGR	LGS	LMN	RIS	MCN	JDA	BO2
Date	(Coll)	(Coll)	(Coll)	(Coll)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)	(INDEX)
04/01/00	---	0	---	---	0	---	---	0	20	---	158
04/02/00	---	0	---	---	0	0	10	0	12	---	217
04/03/00	0	0	0	1	0	0	0	0	0	---	106
04/04/00	0	0	0	0	0	0	0	0	0	0	465
04/05/00	0	0	0	0	12	7	0	1	20	5	96*
04/06/00	0	0	0	0	4	0	0	6	0	20	569*
04/07/00	0	0	0	1	20	0	0	1	32	18	1,048
04/08/00	---	0	---	---	30	0	0	4	17	10	2,085
04/09/00	---	0	---	---	0	0	0	0	69	34	1,198
04/10/00	0	0	0	3	16	0	0	0	20	16	950
04/11/00	0	0	0	0	0	0	0	0	23	0	1,162
04/12/00	0	0	0	1	53	0	0	1	0	0	2,159
04/13/00	0	0	0	0	27	0	0	0	45	30	1,297
04/14/00	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>162</b>	<b>7</b>	<b>10</b>	<b>13</b>	<b>258</b>	<b>133</b>	<b>10,845</b>
<b># Days:</b>	<b>9</b>	<b>13</b>	<b>9</b>	<b>9</b>	<b>13</b>	<b>12</b>	<b>12</b>	<b>13</b>	<b>13</b>	<b>10</b>	<b>13</b>
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>12</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>20</b>	<b>13</b>	<b>986</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)
04/01/00	---	0	---	---	612	---	---	1	260	---	35
04/02/00	---	0	---	---	530	16	70	0	115	---	38
04/03/00	0	0	12	8	1,148	156	120	1	181	---	27
04/04/00	1	2	79	15	2,280	93	373	1	272	80	378
04/05/00	0	58	259	24	1,814	95	227	6	347	115	86*
04/06/00	9	18	201	37	5,301	229	104	14	593	200	166*
04/07/00	9	24	108	36	8,446	301	97	8	645	788	280
04/08/00	---	16	---	---	9,722	1,068	229	4	941	1,726	211
04/09/00	---	7	---	---	6,285	1,188	208	1	1,765	2,326	271
04/10/00	12	8	84	57	8,361	3,655	107	7	6,235	867	351
04/11/00	15	17	120	44	14,473	2,658	184	1	38,094	1,654	1,061
04/12/00	13	15	116	64	10,083	3,129	159	10	13,875	1,356	997
04/13/00	32	143	172	54	14,549	4,341	831	13	5,448	2,805	793
04/14/00	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>	<b>91</b>	<b>308</b>	<b>1,151</b>	<b>339</b>	<b>83,604</b>	<b>16,929</b>	<b>2,709</b>	<b>67</b>	<b>68,771</b>	<b>11,917</b>	<b>4,442</b>
<b># Days:</b>	<b>9</b>	<b>13</b>	<b>9</b>	<b>9</b>	<b>13</b>	<b>12</b>	<b>12</b>	<b>13</b>	<b>13</b>	<b>10</b>	<b>13</b>
<b>Average:</b>	<b>10</b>	<b>24</b>	<b>128</b>	<b>38</b>	<b>6,431</b>	<b>1,411</b>	<b>226</b>	<b>5</b>	<b>5,290</b>	<b>1,192</b>	<b>404</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)}

## 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)
04/01/00	---	0	---	---	12	---	---	0	0	---	0
04/02/00	---	0	---	---	20	0	10	0	6	---	0
04/03/00	0	0	0	0	16	4	0	0	6	---	9
04/04/00	0	0	0	0	20	12	0	0	4	0	29
04/05/00	0	0	0	0	37	5	0	0	7	5	0*
04/06/00	0	0	0	0	25	6	0	0	0	0	0*
04/07/00	0	0	0	0	32	20	0	0	8	0	21
04/08/00	---	0	---	---	76	18	0	3	25	0	22
04/09/00	---	0	---	---	77	24	30	5	0	12	0
04/10/00	0	0	0	0	49	0	0	13	7	8	0
04/11/00	0	0	0	0	67	0	0	0	0	0	0
04/12/00	0	0	0	0	53	0	0	14	0	0	0
04/13/00	0	0	0	0	80	15	0	8	0	15	39
04/14/00	---	---	---	---	---	---	---	---	---	---	---
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>564</b>	<b>104</b>	<b>40</b>	<b>43</b>	<b>63</b>	<b>40</b>	<b>120</b>
<b># Days:</b>	<b>9</b>	<b>13</b>	<b>9</b>	<b>9</b>	<b>13</b>	<b>12</b>	<b>12</b>	<b>13</b>	<b>13</b>	<b>10</b>	<b>13</b>
<b>Average:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>43</b>	<b>9</b>	<b>3</b>	<b>3</b>	<b>5</b>	<b>4</b>	<b>11</b>

#### Definitions for Smolt Index Counts

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 04/13**

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	33,967	337	2,156	9	9,490	34	0	0	0	0	0	0	0	0	0	0	0	0
TDA	12,416	1153*	200	2	2,866	12	0	0					0	0				
JDA	4,146	18	54	0	1,161	12	0	0					0	0				
MCN	1,339	17	16	0	576	7	0	0					0	0				
IHR	436	14	7	0	153	0	0	0					0	0				
LMN	123	5	2	0	54	0	0	0					0	0				
LGS	36	1	3	0	**	**	0	0			**	**	0	0			**	**
LWG	35	4	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0
PRD	0	0	0	0	0	0	0	0					0	0				
RIS	0	0					0	0					0	0				
RRH	0	0					0	0					0	0				
WEL	0	0					0	0					0	0				

DAM	Coho						Sockeye			Steelhead			
	2000		1999		10-Yr Avg.		10-Yr			10-Yr			Wild
	Adult	Jack	Adult	Jack	Adult	Jack	2000	1999	Avg.	2000	1999	Avg.	2000
BON	0	0	0	0	0	0	0	0	0	1,271	698	1,432	589
TDA	0	0					0			254	124	798	123
JDA	0	0					0			1,658	1,379	1,509	620
MCN	0	0					0			353	96	1,242	102
IHR	0	0					0			483	419	1,524	219
LMN	0	0					0			520	377	1,440	278
LGS	0	0			**	**	0		**	220	577	**	577
LWG	0	0	0	0	0	0	0	0	0	1,902	2,699	4,252	528
PRD	0	0					0			0	0	0	***
RIS	0	0					0			0			0
RRH	0	0					0			0			0
WEL	0	0					0			0			0

\* The data entered on 04/07 is most likely off by 1000, the correct count is likely 153.

LMN and LGS are through 04/12.

Note: LMN is missing 04/08, LGS is missing 04/01 and 04/03 to 04/09, IHR is missing 04/02.

Note: LGR's fish ladder was out of service on 03/22 and 03/23; partial counts were collected.

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.

**TRANSPORTATION SUMMARY FOR THE PAST TWO WEEKS**

March 31 through April 13, 2000

Site	Data	Species Age		Sockeye	Steelhead	Coho	Grand Total
		Chinook age 0	Chinook age 1				
LGR	Collected	210	28,830	244	44,532	90	73,906
	Number By Passed	527	2,439	0	5,963	0	8,929
	Number Trucked	3,963	4,531	80	6,170	0	14,744
	Number Barged	2,268	20,221	308	46,829	110	69,736
	Sum of Total Transported	6,231	24,752	388	52,999	110	84,480
LGS	Collected		3,139	8	5,385		8,532
	Number By Passed		0	0	0		0
	Number Trucked		6,944	8	4,212		11,164
	Number Barged		847	0	4,397		5,244
	Sum of Total Transported	0	7,791	8	8,609	0	16,408
LMN	Collected		15,650	10	845	10	16,515
	Number By Passed		13	0	159	0	172
	Number Trucked		18,969	10	12,815	10	31,804
	Number Barged		1,632	0	1,005	0	2,637
	Sum of Total Transported	0	20,601	10	13,820	10	34,441
MCN	Collected	1,995	31,117	52	48,472	191	81,827
	Number By Passed	2,258	30,218	90	48,318	191	81,075
	Number Trucked	0	0	0	0	0	0
	Number Barged	0	0	0	0	0	0
	Sum of Total Transported	0	0	0	0	0	0
Total Collected		2,205	78,736	314	99,234	291	180,780
Total Number By Passed		2,785	32,670	90	54,440	191	90,176
Total Number Trucked		3,963	30,444	98	23,197	10	57,712
Total Number Barged		2,268	22,700	308	52,231	110	77,617
Total Sum of Total Transported		6,231	53,144	406	75,428	120	135,329

Fish Passage Center

04/14/00

Numbers reported are preliminary. Call FPC Data Center Staff at (503)230-4099 for more information

