



Fish Passage Center

Weekly Report #98 - 8

May 8, 1998

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SUMMARY OF EVENTS:

Water Supply: Precipitation for the October through the end of April period varied from 77% at Flathead to 113% at Klamath basin and 120% at Harney/Malheur basin. Most of the precipitation in the basin continues to fall in the 80% to 100% range. Precipitation distribution for April 1 through 30 shows high variations, with the highest precipitation in the Harney/Malheur basin at 167% and the lowest at NW Slope Washington Cascade with 41%. The Klamath, Upper Deschutes/Crooked, Okanogan and Owyhee/Malheur basins had high precipitation, in the range of 109%-162%. Precipitation in the Columbia above Coulee was 82% of average, the Columbia above The Dalles was 89% of average and the Snake River above Ice Harbor was 102% of average.

The new May Final Runoff Volume Forecast has been issued. In general, the runoff volume forecast decreased at all major sites in the Columbia basin. The runoff volume forecast decreased in the range of 1% to 5%. The summary of results is shown in the following Table:

Location	Period	March 98 Final		April 98 Final		May 98 Final	
		MAF	%	MAF	%	MAF	%
Libby	Apr-Sep	5.37	79	5.52	82	5.38	79
Hungry Horse	Apr-Sep	1.62	74	1.62	74	1.5	69
Grand Coulee	Jan-Jul	54.8	87	55.6	88	53.2	84
The Dalles	Jan-Jul	91.7	87	90.8	86	89.1	84
Lower Granite	Jan-Jul	26.4	89	25.0	84	25	84
Dworshak	Apr-Jul	2.0	74	1.75	65	1.73	64
Brownlee	Apr-Jul	5.25	91	4.78	82	4.54	78

System Storage and Streamflow: The system is passing perhaps the highest flows of the season. It is expected that a decrease in flows will follow this peak through the end of the season.

A summary of actual elevations is shown in the following table:

Reservoir	Actual Elev. [ft] 5/7/98	Max. Reservoir Pool [ft]
Libby	2411.22	2459.0
Hungry Horse	3528.12	3560.0
Grand Coulee	1279.8	1290.0
Brownlee	2074.75	2077.0
Dworshak	1576.87	1600.0

- Libby continues refill, with minimum outflow of 4 kcfs. USFWS may require, for sturgeon, a pulse of flow about May 15. When the water temperature at Bonners Ferry reaches 10 degrees Celsius, outflow from Libby will be increased to full powerhouse capacity for three days.
- Hungry Horse continues at a minimum outflow of about 200 cfs, controlling the flow of 3.5 kcfs at Columbia Falls. It continues to refill to the BiOp required end of June elevation.
- Grand Coulee will continue to pass currently high inflows with projected average outflows at Priest Rapids of 165 kcfs. The project has been operating to meet elevation 1283 on May 31 for flood control, that elevation may increase with the decreased volume forecast.
- Brownlee continued a slow refill during last week and will continue passing the inflow. The average outflow during last week was about 31 kcfs and it is expected that inflows during the coming week will be in the range

of 28 to 32 kcfs. The projected outflow is not planned to exceed 32 kcfs because of the fall chinook spawning and emergence requirements below Hells Canyon Dam.

- Dworshak will continue outflows of 1.3 kcfs to meet the flow objective of 100 kcfs at Lower Granite.

Upper Snake reservoirs:

Water from the system began to be withdrawn more intensively for irrigation demands. The May Final Runoff Volume Forecast decreased by 2% to 5%, compared to the May Early Runoff Volumes Forecast for the Snake River Basin. The runoff volumes for the major sites remained in the range of 78% to 95% of average.

Irrigation demands increased and expected to continue to increase depending on the weather condition.

Jackson Lake is projected to pass an inflow of 2.3 kcfs by the end of next week. Currently the reservoir is 82% full.

Palisades continues to pass inflow to the end of next week. Currently, the outflow is 12.06 kcfs and the reservoir is 61% full.

American Falls will continue to pass the inflow of 12.1 kcfs through the end of next week.

Milner flow at the lowest point of the Upper Snake system is projected not to exceed 5 kcfs through the end of next week. Current outflow is 3.4 kcfs because of the irrigation withdrawal of 6.8 kcfs at Minidoka.

The weekly average flows are increasing compared to the previous week and they are peaking. The summary of average weekly flows for run of the river projects during the April 24 through May 7 period is shown in the following Table:

Project	April 24-30	May 1-7
Priest Rapids	104 kcfs	164.01 kcfs
McNary	196 kcfs	282.23 kcfs
Lower Granite	88.4 kcfs	115.97 kcfs
Bonneville	218.6 kcfs	296.77 kcfs

Spill: In general, spill has increased as flow increased over the past week. Spill at Lower Granite Dam over the past week has averaged 31.2 kcfs per day. Total dissolved gas below the project has remained below the gas cap. Little Goose and Lower Monumental dams had been spilling to the 120% total dissolved gas cap from 1800 hours to 0600 hours. However, the recent increases in river flow have lead to 24-hour spill at these projects. Spill at Ice Harbor Dam continues on a 24-hour basis. The daytime spill limit of 45 kcfs for adult passage concerns cannot always be met at the present flows because of limited powerhouse capacity.

Spill in the Lower Columbia River was initiated on April 20, 1998. Spill was requested from 1800 to 0600 hours at McNary and John Day dams and for 24 hours per day at The Dalles and Bonneville dams, at amounts up to the 115/120% gas cap consistent with a system-wide approach to passage management. Recent high flows have resulted in 24-hour spill at the Lower Columbia projects as well. Spill has averaged 120.4 kcfs at McNary Dam, 105.6 kcfs at John Day Dam, 129 kcfs at The Dalles Dam and 92.8 kcfs at Bonneville Dam over the past week. At the present flows it has not been possible to maintain the 75 kcfs daytime cap on spill at Bonneville Dam. Spill for fish passage is occurring at all the Mid-Columbia projects.

Total Dissolved Gas Supersaturation and gas Bubble Trauma Monitoring: Total dissolved gas levels are being managed to the gas waivers below Little Goose and Lower Monumental dams, and are below the waivers at the other lower Snake projects. The gas levels in the lower Columbia are being managed as close to the gas waivers as possible. However, higher flows and spills have resulted in violations in both the Snake and lower Columbia rivers on occasion. Limited data is available for the Mid-Columbia sites at this time, but levels at the sites monitored show dissolved gas levels below the waivers. Gas bubble trauma monitoring has occurred at all sites over the past week. Few fish are showing signs throughout the system, with the percentage of signs remains well below the action criteria.

Smolt Monitoring. *Snake River Drainage.* This week has seen flows increase about 40% in the Snake River. Operation of the Salmon River (WTB) and Snake River (LEW) traps were curtailed during parts of this week due to the higher flows. All collections in the Imnaha River (IMN) since April 23 have been with one trap. Collections of all smolts have been lower this week than last at the Imnaha River trap. Yearling chinook collections in the Grande Ronde River (GRN) trap have remained low this week, while both hatchery and wild steelhead collections have increased greatly from last week's level. This week the Snake River (LEW) trap has seen increases in both hatchery chinook and steelhead from last week's level, and little change for their wild counterparts. New in the Snake River trap collections are coho since May 1 and hatchery sockeye since May 4. The coho were released into the Clearwater River drainage at Kooskia Hatchery this year. IDFG has observed higher numbers of migrating hatchery sockeye in the traps on the exit streams of Redfish and Alturus lakes to date this year than in the past. Passage indices rose again into the 90,000 range for hatchery chinook and to a peak of 26,000 for wild chinook at Lower Granite Dam (LGR) this week. The passage index for hatchery steelhead peaked at 500,000 this week at Lower Granite Dam, with most days this week seeing the index over 300,000 fish. Lower Granite Dam passage indices increased for coho and decreased for wild steelhead this week; hatchery sockeye began arriving in the May 6 collection. Little Goose (LGS) and Lower Monumental (LMN) dams also saw a rapid increase in hatchery steelhead passage this week.

Columbia River Drainage. This week has seen flows increase about 50% in the mid- and lower Columbia River. Smolt passage indices have continued to increase this week at Rock Island Dam (RIS) for yearling chinook and wild and hatchery steelhead; wild sockeye passage indices have continued to remain strong. Coho released from Winthrop Hatchery in the Methow River began arriving at Rock Island Dam during the May 4 sample period. This week has seen

increasing passage indices at McNary Dam (MCN) for yearling chinook, coho, hatchery and wild steelhead, and hatchery and wild sockeye compared to last week's level. The wild sockeye passage index magnitudes at McNary Dam this week are second only to that of yearling chinook. Likewise, this week has seen increasing passage indices at John Day Dam (JDA) for yearling chinook, coho, hatchery and wild steelhead, and hatchery and wild sockeye, compared to last week's level. Passage indices at Bonneville Dam (BO1) have changed only moderately for all species except coho this week; coho passage indices rose sharply on May 3. On May 6, the passage index of each species was noticeably higher at Bonneville Dam. Between 2200 and 2400 hour on May 6, the collection of each species rose dramatically in the Bonneville Dam Powerhouse 1 trap, apparently as a result of the large increase in total discharge to over 370 kcfs after 2000 hour moving fish accumulated in the forebay.

Adult Fish Passage: At Bonneville Dam, the cumulative count of adult spring chinook was 30,719 through May 7. As noted in previous reports, this total is below the normal return numbers reported in 1997 and for the 10-year average (See the Cumulative Adult Passage Table). The return of 4-year old fish remains very low with the 5-year old fish making up the greater portion of this year's run. This week's daily counts were over 1200 spring chinook adults at the beginning of the week, but dropped to about 600 adults per day by week's end. The upstream passage of these adult fish at The Dalles Dam was 19,802, about 64% of the current Bonneville Dam count. The tally at McNary Dam was 11,628 through April 30 with 6,900 counted at Ice Harbor Dam (Snake River component) and 1,375 at Priest Rapids Dam (Mid-Columbia component). Other portions of the McNary Dam count will be destined for the Yakima River and Ringold Hatchery located in the Hanford Reach of the Columbia River. Adult spring chinook continued to pass Ice Harbor during the past week, generally in the 300 to 600 fish per day range.

The adult steelhead run for the 1997/98 returns to the Snake River basin is nearly completed for the year, with daily totals of about 10 fish per day. The spring total counted at Lower Granite Dam was 4,108 through May 7, 1998.

Hatchery Releases: Approximately 11.3 million smolts have been released during the past two-week reporting period with hatchery steelhead accounting for about 7.6 million fish, hatchery coho accounting for about 2.5 million fish, and hatchery chinook accounting for about 1.1 million fish. During that same period there were 82,300 hatchery sockeye released into Redfish Lake Creek. During the next two-week reporting period releases of yearling migrants will include 253,000 hatchery steelhead, 435,000 hatchery chinook, and 220,000 hatchery coho. During the same upcoming period, there will be approximately 2.7 million subyearling fall chinook released from Thornhollow Acclimation Pond (Umatilla River) and 3.7 million subyearling tule fall chinook released from Spring Creek Hatchery.

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
04/24/98	77.0	0.0	83.4	0.0	86.5	7.6	82.8	20.9	85.6	29.7	78.5	15.8	75.0	44.0
04/25/98	54.4	0.0	60.3	0.0	82.1	7.0	89.0	14.4	93.7	23.5	77.3	15.8	87.6	52.4
04/26/98	76.6	0.0	74.7	0.0	76.6	5.3	78.6	13.0	80.4	20.3	71.2	14.2	79.1	48.1
04/27/98	91.5	0.0	93.6	0.0	97.7	7.6	102.8	15.5	103.8	27.0	100.0	19.5	108.5	65.2
04/28/98	107.2	0.0	107.1	0.0	114.9	9.7	118.5	13.0	120.6	30.3	101.8	20.3	113.6	67.9
04/29/98	103.8	0.0	106.4	0.0	123.7	10.3	126.6	17.5	129.9	30.3	113.0	23.2	128.3	77.2
04/30/98	89.8	0.0	96.3	0.0	111.0	9.5	115.1	20.0	120.2	30.4	129.8	30.1	135.9	82.4
05/01/98	120.4	0.0	117.6	0.0	126.3	10.6	129.7	20.4	138.8	38.4	105.8	27.0	121.5	72.9
05/02/98	95.0	0.0	100.1	0.0	123.2	9.9	126.7	18.9	138.3	41.2	131.2	32.8	133.4	79.3
05/03/98	75.3	0.0	78.9	0.0	107.9	9.1	119.1	20.3	134.4	26.5	145.7	35.9	160.0	95.7
05/04/98	137.6	0.0	134.6	0.7	149.6	10.5	140.7	19.8	148.5	35.4	137.4	34.2	149.3	90.6
05/05/98	123.1	0.0	125.9	0.0	161.3	11.6	171.1	23.0	181.1	41.0	170.3	42.5	177.3	106.7
05/06/98	166.3	0.0	154.8	0.0	182.4	12.0	183.6	33.6	193.6	37.9	182.2	48.4	196.5	117.2
05/07/98	142.5	0.0	145.9	0.0	175.4	11.9	184.0	31.0	195.4	44.8	193.3	56.8	210.1	127.7

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

Date	Dworshak		Brownlee		Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
04/24/98	9.9	0.0	---	---	86.0	19.0	84.7	23.0	88.7	19.6	90.4	60.5
04/25/98	9.9	0.0	---	---	98.6	32.1	94.4	22.9	101.2	18.1	103.5	65.8
04/26/98	9.9	0.0	---	---	93.6	26.7	87.6	22.4	91.4	18.4	95.6	65.6
04/27/98	9.9	0.0	---	---	84.1	17.3	80.4	23.0	81.7	17.5	86.8	59.8
04/28/98	9.9	0.0	---	---	82.1	15.4	81.8	23.0	87.6	18.4	89.8	61.0
04/29/98	9.9	0.0	---	---	83.6	16.8	81.1	22.8	84.2	17.9	87.7	62.4
04/30/98	9.9	0.0	---	---	90.8	24.0	86.0	23.0	89.1	16.9	93.8	64.8
05/01/98	4.4	0.0	---	---	100.8	34.0	94.7	22.8	98.6	17.3	103.2	65.4
05/02/98	1.3	0.0	---	---	102.2	31.3	97.0	22.8	101.0	17.2	105.7	65.4
05/03/98	1.3	0.0	---	---	111.7	26.7	97.0	22.8	113.2	22.9	114.1	70.6
05/04/98	1.3	0.0	---	---	119.3	31.3	114.2	27.4	118.6	25.0	125.3	69.1
05/05/98	1.3	0.0	---	---	124.5	31.0	119.7	31.8	121.9	28.5	126.6	72.5
05/06/98	1.3	0.0	---	---	126.7	32.9	120.8	31.3	125.2	26.6	127.9	71.4
05/07/98	1.3	0.0	---	---	126.6	31.3	122.2	30.2	125.8	25.0	129.7	68.1

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

Date	McNary		John Day		The Dalles		Bonneville			
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	PH1	PH2
04/24/98	194.1	75.3	207.8	66.5	205.5	118.7	212.4	85.5	70.6	47.2
04/25/98	180.3	69.9	209.4	64.9	208.9	75.7	233.3	85.5	76.0	62.6
04/26/98	184.6	70.1	198.5	60.1	192.9	111.3	193.6	84.4	71.4	28.6
04/27/98	200.1	69.9	213.7	64.5	205.5	74.0	223.6	85.5	74.9	54.0
04/28/98	198.5	70.0	213.9	65.6	207.9	121.6	220.6	85.6	80.2	45.6
04/29/98	196.9	70.0	199.6	61.6	196.1	72.5	214.2	82.9	69.4	52.7
04/30/98	217.2	64.0	230.1	68.7	229.9	128.2	232.4	80.2	72.1	70.9
05/01/98	230.7	69.9	240.5	75.5	236.8	85.7	257.9	77.4	71.1	100.2
05/02/98	225.4	74.9	230.8	69.8	229.4	130.2	240.9	74.7	80.0	76.9
05/03/98	278.8	120.1	275.2	94.6	266.6	99.3	279.0	74.4	79.0	116.4
05/04/98	279.0	119.1	299.2	106.9	297.1	169.7	302.3	89.2	78.6	125.2
05/05/98	295.9	130.8	317.1	120.3	306.0	106.3	311.9	89.8	77.5	135.4
05/06/98	328.0	164.2	329.8	129.4	321.6	185.5	324.7	107.3	79.0	129.3
05/07/98	337.8	163.5	364.0	143.0	348.9	126.3	360.7	136.7	80.2	134.6

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
Lower Granite Dam													
	04/29/98	Yearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	04/29/98	Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/01/98	Yearling Chinook	101	3	1	0.99%	0.00%	1	0	0	0	2	1
	05/01/98	Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/04/98	Yearling Chinook	100	2	1	1.00%	0.00%	1	0	0	0	1	1
	05/04/98	Steelhead	100	1	0	0.00%	0.00%	0	0	0	0	1	1
	05/06/98	Yearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/06/98	Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	0	0
Little Goose Dam													
	04/28/98	Yearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	04/28/98	Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	04/30/98	Yearling Chinook	100	1	1	1.00%	0.00%	1	0	0	0	0	0
	04/30/98	Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/02/98	Yearling Chinook	100	1	1	1.00%	0.00%	1	0	0	0	0	0
	05/02/98	Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/05/98	Yearling Chinook	50	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/05/98	Steelhead	50	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/06/98	Yearling Chinook	50	1	1	2.00%	0.00%	1	0	0	0	0	0
	05/06/98	Steelhead	50	0	0	0.00%	0.00%	0	0	0	0	0	0
Lower Monumental Dam													
	04/29/98	Yearling Chinook	100	2	0	0.00%	0.00%	0	0	0	0	1	1
	04/29/98	Steelhead	99	1	1	1.01%	0.00%	1	0	0	0	0	0
	05/01/98	Yearling Chinook	90	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/01/98	Steelhead	95	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/04/98	Yearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/04/98	Steelhead	101	1	0	0.00%	0.00%	0	0	0	0	0	0
	05/06/98	Yearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/06/98	Steelhead	100	1	0	0.00%	0.00%	0	0	0	0	1	1
Ice Harbor Dam													
	04/28/98	Yearling Chinook	99	0	0	0.00%	0.00%	0	0	0	0	0	0
	04/28/98	Steelhead	60	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/01/98	Yearling Chinook	100	3	0	0.00%	0.00%	0	0	0	0	3	1
	05/01/98	Steelhead	100	2	0	0.00%	0.00%	0	0	0	0	2	1
	05/05/98	Yearling Chinook	86	3	0	0.00%	0.00%	0	0	0	0	3	1
	05/05/98	Steelhead	94	4	1	1.06%	0.00%	1	0	0	0	3	1

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
McNary Dam													
	04/28/98	Yearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	04/28/98	Steelhead	97	0	0	0.00%	0.00%	0	0	0	0	0	0
	04/30/98	Yearling Chinook	100	1	0	0.00%	0.00%	0	0	0	0	1	1
	04/30/98	Steelhead	90	4	0	0.00%	0.00%	0	0	0	0	4	1
	05/02/98	Yearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/02/98	Steelhead	73	2	0	0.00%	0.00%	0	0	0	0	2	1
	05/05/98	Yearling Chinook	100	1	0	0.00%	0.00%	0	0	0	0	1	1
	05/05/98	Steelhead	100	3	0	0.00%	0.00%	0	0	0	0	3	1
	05/07/98	Yearling Chinook	100	4	0	0.00%	0.00%	0	0	0	0	4	1.2
	05/07/98	Steelhead	100	6	0	0.00%	0.00%	0	0	0	0	6	1
John Day Dam													
	04/28/98	Yearling Chinook	100	2	0	0.00%	0.00%	0	0	0	0	2	1
	04/29/98	Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	04/30/98	Yearling Chinook	100	1	0	0.00%	0.00%	0	0	0	0	1	1
	05/01/98	Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/02/98	Yearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/03/98	Steelhead	100	2	2	2.00%	0.00%	2	0	0	0	0	0
	05/05/98	Yearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/06/98	Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/07/98	Yearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/08/98	Steelhead	100	1	1	1.00%	0.00%	1	0	0	0	0	0
Bonneville Dam													
	04/28/98	Yearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	04/29/98	Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	04/30/98	Yearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/01/98	Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/02/98	Yearling Chinook	100	1	1	1.00%	0.00%	1	0	0	0	0	0
	05/04/98	Steelhead	100	5	1	1.00%	0.00%	1	0	0	0	0	0
	05/05/98	Yearling Chinook	100	1	0	0.00%	0.00%	0	0	0	0	1	1
	05/06/98	Steelhead	100	3	1	1.00%	0.00%	1	0	0	0	0	0
	05/07/98	Yearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
Rock Island Dam													
	04/29/98	Yearling Chinook	100	6	4	4.00%	0.00%	4	0	0	0	2	1
	04/29/98	Steelhead	100	1	0	0.00%	0.00%	0	0	0	0	1	1
	05/01/98	Yearling Chinook	100	3	1	1.00%	0.00%	0	1	0	0	2	1
	05/01/98	Steelhead	100	6	5	5.00%	0.00%	3	2	0	0	1	1
	05/04/98	Yearling Chinook	100	2	2	2.00%	0.00%	2	0	0	0	0	0
	05/04/98	Steelhead	100	1	1	1.00%	0.00%	1	0	0	0	0	0
	05/06/98	Yearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/06/98	Steelhead	100	2	2	2.00%	0.00%	2	0	0	0	0	0

Hatchery Release Summary Schedule for Last Two Weeks From 04/24/98 to 05/07/98

Hatchery	Species	FPC	Number	Release Dates		Release Site	River Name
		Lot/D	Released	Begin	End		
IDFG							
Clearwater	SU Steelhead	98083	5,200	04/24/98	04/24/98	Red R	S Fk Clearwater River
	SU Steelhead	98085	489,625	04/27/98	04/30/98	S Fk Clearwater R	Clearwater River, Main Fk
Eagle	Sockeye	98091	82,300	04/27/98	05/15/98	Redfish Lake Cr	Salmon River
Magic Valley	SU Steelhead	98115	335,000	04/24/98	04/28/98	E Fk Salmon R	Salmon River
	SU Steelhead	98117	180,000	04/27/98	05/02/98	Slate Cr	Salmon River
	SU Steelhead	98116	122,000	04/29/98	04/30/98	E Fk Salmon R	Salmon River
Niagara Springs	SU Steelhead	98119	830,000	04/12/98	05/02/98	Pahsimeroi H	Pahsimeroi River
	SU Steelhead	98121	69,000	05/03/98	05/05/98	Little Salmon R	Salmon River
Pahsimeroi	SU Chinook	98011	65,648	04/15/98	04/25/98	Pahsimeroi H	Pahsimeroi River
Sawtooth	SU Steelhead	98127	60,000	04/24/98	04/24/98	Sawtooth H	Salmon River
	SU Steelhead	98124	60,000	04/24/98	04/24/98	Sawtooth H	Salmon River
Agency Total:			2,298,773				
ODFW							
Wallowa	SU Steelhead	98106	200,000	05/05/98	05/05/98	Wallowa Acclim Pd	Grande Ronde River
	SU Steelhead	98105	200,000	05/06/98	05/20/98	Wallowa Acclim Pd	Grande Ronde River
Agency Total:			400,000				
USFWS							
Dworshak	SU Steelhead	98061	380,000	04/20/98	04/24/98	Kooskia H	Clearwater River, Main Fk
	SU Steelhead	98060	520,000	04/20/98	04/24/98	S Fk Clearwater R	Clearwater River, Main Fk
	SU Steelhead	98062	1,200,000	04/27/98	04/30/98	Dworshak H	Clearwater River, Main Fk
Hagerman	SU Steelhead	98067	565,000	03/31/98	04/30/98	Sawtooth H	Salmon River
	SU Steelhead	98065	60,000	03/31/98	04/30/98	Sawtooth H	Salmon River
	SU Steelhead	98068	361,000	04/13/98	04/30/98	Little Salmon R	Salmon River
	SU Steelhead	98066	60,000	04/24/98	04/24/98	Torrey S (Salmon R)	Salmon River
Agency Total:			3,146,000				

Hatchery Release Summary
Schedule for Last Two Weeks
From 04/24/98 to 05/07/98

Hatchery	Species	FPC LotID	Number Released	Release Dates		Release Site	River Name
				Begin	End		
WDFW							
East Bank	SU Steelhead	98020	276,000	04/20/98	04/24/98	Wenatchee R	Wenatchee River
	SU Chinook	98016	624,000	04/28/98	04/28/98	Dryden Accl Pd	Wenatchee River
	SP Chinook	98015	15,000	04/29/98	04/29/98	Chiwawa H	Wenatchee River
Klickitat	Coho	98095	1,000,000	04/20/98	06/10/98	Klickitat H	Klickitat River
Lyons Ferry	SU Steelhead	98033	80,000	04/15/98	04/30/98	Lyons Ferry H	Snake River
	SU Steelhead	98034	300,000	04/15/98	04/30/98	Cottonwood Accl Pd	Grande Ronde River
	SU Steelhead	98035	140,000	04/15/98	04/30/98	Dayton Acclim Pd	Walla Walla River
	SU Steelhead	98036	160,000	04/15/98	04/30/98	Tucannon R	Snake River
	SU Steelhead	98037	135,000	04/15/98	04/30/98	Walla Walla R	Walla Walla River
Ringold	SU Steelhead	98141	180,000	04/15/98	04/30/98	Ringold Springs H	Mid-Columbia River
Turtle Rock	SU Steelhead	98019	146,300	04/27/98	04/30/98	Wenatchee R	Wenatchee River
Wells	SU Chinook	98027	357,000	04/15/98	04/24/98	Wells H	Mid-Columbia River
	SU Steelhead	98031	320,000	04/23/98	05/05/98	Methow R	Mid-Columbia River
	SU Steelhead	98029	50,000	04/23/98	05/05/98	Okanogan R	Mid-Columbia River
	SU Steelhead	98030	50,000	05/01/98	05/05/98	Effy Bridge	Methow River
Agency Total:			3,833,300				
Warm Springs Tribe							
Oak Springs	WI Steelhead	98132	30,000	04/24/98	05/04/98	E Fk Hood R	Hood River
Round Butte	SP Chinook	98135	62,000	04/20/98	05/02/98	Hood R	Hood River
Agency Total:			92,000				
Yakama Tribe							
	Coho	98149	200,000	04/20/98	05/10/98	Naches R	Yakama River
	Coho	98148	200,000	04/20/98	05/10/98	Naches R	Yakama River
Lewis River	Coho	98143	138,000	04/15/98	04/30/98	Klickitat R	Klickitat River
Lost Creek	Coho	98147	300,000	04/24/98	06/04/98	Naches R	Yakama River
Roza	Coho	98150	690,000	04/30/98	05/30/98	Roza Acclim Pd	Yakama River
Agency Total:			1,528,000				
Total Release:			11,298,073				

Hatchery Release Summary
Schedule for Next Two Weeks
From 05/08/98 to 05/21/98

Hatchery	Species	FPC LotID	Number Released	Release Dates		Release Site	River Name
				Begin	End		
Nez Perce Tribe							
Kooskia	Coho	98138	220,000	05/11/98	05/22/98	Kooskia H	Clearwater River, Main Fk
	Agency Total:		220,000				
ODFW							
Big Canyon	SU Steelhead	98108	85,000	05/12/98	05/12/98	Big Canyon H	Grande Ronde River
	SU Steelhead	98107	85,000	05/13/98	05/27/98	Big Canyon H	Grande Ronde River
Li Sheep	SU Steelhead	98110	33,000	05/19/98	05/19/98	L Sheep Acclim Pd	Imnaha River
	Agency Total:		203,000				
Umatilla Tribe							
Bonifer	SU Steelhead	98052	50,000	05/10/98	05/20/98	Bonifer H	Umatilla River
Thornhollow	FA Chinook	98047	2,682,000	05/20/98	05/31/98	Thornhollow Acclim Pd	Umatilla River
	Agency Total:		2,732,000				
USFWS							
Entiat	SP Chinook	98064	160,000	05/14/98	05/15/98	Entiat H	Entiat River
Spring Creek	FA Chinook	98075	3,700,000	05/18/98	05/18/98	Spring Creek H	Columbia River
	Agency Total:		3,860,000				
WDFW							
Klickitat	SP Chinook	98094	275,000	05/20/98	05/30/98	Upper Klickitat R	Klickitat River
	Agency Total:		275,000				
	Total Release:		7,290,000				

Total Dissolved Gas Saturation (%) - Average of 12 Highest Hours, 24 h Average and 24 h High²

Total Dissolved Gas Saturation Data at Upper Columbia Sites

Date	Can. Boundary			Grand Coulee			Tlwtr. G. Coulee			Chief Joseph			Wells			Rocky Reach			#					
	24 h	12 h	#	24 h	12 h	#	24 h	12 h	#	24 h	12 h	#	24 h	12 h	#	24 h	12 h	#						
	Avg	Avg High	hr	Avg	Avg High	hr	Avg	Avg High	hr	Avg	Avg High	hr	Avg	Avg High	hr	Avg	Avg High	hr						
4/24	110	114	115	24	109	110	111	24	105	106	106	24	107	107	107	22	107	107	109	23	110	110	111	22
4/25	113	117	118	24	105	105	107	24	104	105	106	24	106	106	106	22	106	106	106	23	109	109	110	23
4/26	114	115	116	24	105	107	108	24	103	104	104	24	105	105	106	22	105	105	105	3	108	108	109	22
4/27	114	116	118	19	106	107	107	24	104	104	105	24	105	106	106	22	105	105	106	2	109	109	110	23
4/28	---	---	---	0	106	106	106	24	104	105	105	24	106	106	106	22	105	105	106	17	109	109	110	17
4/29	112	112	113	14	107	108	110	24	104	105	106	24	106	107	107	22	105	105	105	8	109	110	110	22
4/30	113	114	115	24	108	109	110	24	105	105	106	24	107	107	108	22	105	105	106	15	109	109	110	22
5/1	114	115	116	24	108	109	111	24	105	106	106	24	107	107	107	22	105	105	106	13	109	110	110	23
5/2	114	115	117	20	110	110	112	24	106	107	107	24	107	108	108	22	106	106	107	10	109	110	110	23
5/3	114	114	116	13	109	109	110	12	106	106	107	12	107	108	108	22	106	106	107	15	109	110	110	23
5/4	117	118	119	24	108	109	110	24	106	107	108	24	107	108	108	22	106	107	107	17	109	110	110	23
5/5	117	118	118	24	108	108	108	24	107	108	109	24	108	108	109	23	106	106	107	23	109	110	115	23
5/6	117	118	119	24	107	107	108	24	107	108	108	24	108	109	109	23	106	106	107	15	108	109	110	23
5/7	118	119	120	24	107	107	107	24	107	108	108	24	108	109	109	23	107	107	107	16	109	109	110	22

Total Dissolved Gas Saturation Data at Mid Columbia Sites

Date	Tlwtr. Rocky R.			Rock Island			Tlwtr. Rock Island			Wanapum			Tlwtr. Wanapum			Priest Rapids			#					
	24 h	12 h	#	24 h	12 h	#	24 h	12 h	#	24 h	12 h	#	24 h	12 h	#	24 h	12 h	#						
	Avg	Avg High	hr	Avg	Avg High	hr	Avg	Avg High	hr	Avg	Avg High	hr	Avg	Avg High	hr	Avg	Avg High	hr						
4/24	---	---	---	0	108	109	110	21	117	118	119	21	---	---	---	0	---	---	---	0	---	---	---	0
4/25	---	---	---	0	108	108	108	23	115	116	118	23	---	---	---	0	---	---	---	0	---	---	---	0
4/26	---	---	---	0	106	106	107	23	113	113	114	23	---	---	---	0	---	---	---	0	---	---	---	0
4/27	---	---	---	0	107	108	109	23	115	116	117	23	---	---	---	0	---	---	---	0	---	---	---	0
4/28	---	---	---	0	108	109	109	18	116	117	117	16	---	---	---	0	---	---	---	0	---	---	---	0
4/29	---	---	---	0	109	110	110	23	117	118	119	23	---	---	---	0	---	---	---	0	---	---	---	0
4/30	---	---	---	0	109	110	110	22	118	119	121	22	---	---	---	0	---	---	---	0	---	---	---	0
5/1	---	---	---	0	110	110	111	23	119	119	119	23	---	---	---	0	---	---	---	0	---	---	---	0
5/2	---	---	---	0	109	110	110	23	119	120	121	23	---	---	---	0	---	---	---	0	---	---	---	0
5/3	---	---	---	0	109	110	110	23	116	118	120	23	---	---	---	0	---	---	---	0	---	---	---	0
5/4	---	---	---	0	109	110	110	23	116	118	118	23	---	---	---	0	---	---	---	0	---	---	---	0
5/5	---	---	---	0	109	110	110	23	117	118	118	23	---	---	---	0	---	---	---	0	---	---	---	0
5/6	---	---	---	0	111	111	112	22	117	118	119	22	---	---	---	0	---	---	---	0	---	---	---	0
5/7	---	---	---	0	111	112	112	23	119	121	121	23	---	---	---	0	---	---	---	0	---	---	---	0

Total Dissolved Gas Saturation at Mid Columbia, Clearwater and Snake Sites

Date	Dwnstr P Rapids			Dworshak			Clearwater			Snake-Lewiston			Lower Granite			Tlwtr L. Granite			#					
	24 h	12 h	#	24 h	12 h	#	24 h	12 h	#	24 h	12 h	#	24 h	12 h	#	24 h	12 h	#						
	Avg	Avg High	hr	Avg	Avg High	hr	Avg	Avg High	hr	Avg	Avg High	hr	Avg	Avg High	hr	Avg	Avg High	hr						
4/24	---	---	---	0	98	98	99	24	100	100	100	24	100	100	101	24	104	104	105	10	---	---	---	0
4/25	---	---	---	0	97	97	97	24	100	101	101	24	101	101	102	16	101	102	102	24	---	---	---	0
4/26	---	---	---	0	97	97	98	24	100	101	102	24	---	---	---	0	100	100	101	24	108	108	110	7
4/27	---	---	---	0	97	98	98	24	100	101	102	24	102	103	104	18	101	102	103	24	107	107	107	20
4/28	---	---	---	0	98	98	99	24	101	101	102	24	102	103	104	24	104	105	106	24	107	107	108	24
4/29	---	---	---	0	99	99	100	24	101	102	103	24	102	103	104	24	104	104	106	15	107	108	109	15
4/30	---	---	---	0	99	100	100	24	101	102	103	24	102	103	104	24	105	105	106	24	109	110	111	21
5/1	---	---	---	0	101	101	102	24	102	103	104	24	102	104	105	24	103	103	104	5	111	111	112	11
5/2	---	---	---	0	108	111	112	24	102	103	104	24	102	103	104	24	---	---	---	0	112	112	112	13
5/3	---	---	---	0	110	111	111	24	103	104	105	24	102	104	104	24	---	---	---	0	---	---	---	0
5/4	---	---	---	0	110	111	111	24	103	105	106	24	103	104	104	24	---	---	---	0	112	112	112	24
5/5	---	---	---	0	110	112	113	24	103	105	105	24	103	104	104	24	105	105	106	13	112	112	113	24
5/6	---	---	---	0	112	112	113	24	103	105	105	24	103	104	104	24	105	105	106	24	112	113	113	23
5/7	---	---	---	0	112	112	113	24	103	105	105	24	103	104	105	24	104	105	106	24	112	112	113	24

¹ Data provided by the Corps of Engineers.

² Dissolved gas readings and averages have been rounded to the nearest integer.

Total Dissolved Gas Saturation (%) - Average of 12 Highest Hours, 24 h Average and 24 h High²

Total Dissolved Gas Saturation Data at Snake Sites

Date	Little Goose			Tlwtr L. Goose				Lower Mon.				Tlwtr L. Mon				Ice Harbor				Tlwtr Ice Harbor				
	24 h		12 h	#	24 h		12 h	#	24 h		12 h	#	24 h		12 h	#	24 h		12 h	#	24 h		12 h	#
	Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High	
4/24	105	105	106	24	112	119	120	24	111	113	115	24	117	121	122	24	113	114	115	24	115	116	117	24
4/25	103	103	104	24	111	118	119	24	109	111	112	24	117	121	123	24	110	111	112	24	116	117	118	24
4/26	104	106	110	24	110	118	119	24	109	111	115	17	118	121	122	18	111	112	114	24	116	117	118	24
4/27	111	113	115	24	114	119	120	24	108	108	112	11	119	119	121	8	113	114	115	24	115	116	117	24
4/28	111	112	113	24	115	119	120	24	116	116	120	10	117	121	123	23	115	116	117	24	115	116	118	24
4/29	109	110	113	24	114	119	120	24	116	119	122	24	118	121	122	24	116	117	118	24	116	116	117	24
4/30	109	110	112	24	113	119	120	24	116	117	119	23	119	121	123	24	116	117	119	22	116	117	118	22
5/1	109	111	113	24	113	119	119	24	115	116	119	24	119	121	122	24	117	118	120	24	116	118	118	24
5/2	109	109	110	24	114	119	119	24	113	115	117	24	119	121	122	24	116	116	117	24	117	118	118	24
5/3	110	111	111	24	115	119	119	24	113	114	116	17	121	122	122	18	114	115	115	24	117	118	118	24
5/4	111	112	113	24	115	119	119	24	---	---	---	0	---	---	---	0	115	116	119	24	117	119	120	24
5/5	109	110	111	24	115	119	119	24	116	118	119	23	125	127	128	24	116	117	119	24	118	119	119	24
5/6	110	110	111	24	115	119	119	24	114	116	118	23	124	127	130	24	116	116	117	24	118	119	119	24
5/7	109	110	110	24	113	116	119	20	115	116	117	24	121	123	125	24	115	115	116	24	118	119	120	24

Total Dissolved Gas Saturation Data at Lower Columbia Sites

Date	McNary-Oregon			McNary-Wash.				Tlwtr McNary				John Day				Tlwtr John Day				The Dalles				
	24 h		12 h	#	24 h		12 h	#	24 h		12 h	#	24 h		12 h	#	24 h		12 h	#	24 h		12 h	#
	Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High	
4/24	112	112	113	24	112	112	114	24	116	119	119	24	105	106	106	22	113	120	121	24	108	109	111	22
4/25	109	110	111	23	108	109	109	23	113	118	119	23	104	104	105	22	111	118	121	24	108	111	112	22
4/26	108	110	116	24	108	109	111	24	113	118	119	24	105	106	108	22	112	118	119	24	108	111	114	22
4/27	110	111	112	22	113	114	115	22	115	117	119	22	109	110	113	22	113	119	121	24	111	113	115	22
4/28	113	115	119	24	114	116	119	24	115	118	119	24	110	112	114	22	113	119	120	24	112	114	116	22
4/29	114	116	117	24	116	117	118	24	117	119	119	24	110	112	114	22	114	119	120	24	112	115	117	22
4/30	115	116	119	24	116	117	119	23	117	120	121	24	113	114	116	22	115	119	120	24	113	115	117	22
5/1	116	117	119	24	117	118	119	24	118	120	121	24	115	116	118	22	117	119	121	24	115	117	118	22
5/2	116	117	120	24	116	117	117	24	118	120	121	24	115	115	116	22	117	118	120	23	113	114	115	22
5/3	114	115	116	24	114	115	116	24	119	120	121	24	113	113	114	22	118	121	122	24	113	114	115	22
5/4	113	114	117	24	114	116	117	24	119	120	120	24	111	112	112	22	119	121	124	24	113	115	117	22
5/5	114	116	120	23	116	117	119	23	120	120	121	23	110	111	111	23	120	121	121	24	112	114	115	23
5/6	115	116	117	24	115	116	117	24	122	124	124	24	110	110	111	23	121	121	122	23	111	112	113	23
5/7	115	115	116	24	115	115	116	24	123	123	123	24	110	110	110	23	122	122	123	24	111	112	112	23

Total Dissolved Gas Saturation Data at Lower Columbia Sites

Date	Dnstr T. Dalles			Bonneville				Warrendale				Skamania				Camas/Wash.				Wauna Mill				
	24 h		12 h	#	24 h		12 h	#	24 h		12 h	#	24 h		12 h	#	24 h		12 h	#	24 h		12 h	#
	Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High		Avg	Avg	High	
4/24	115	116	117	23	111	111	112	22	114	115	116	22	116	118	121	22	113	114	116	23	107	107	108	23
4/25	113	115	117	23	109	110	110	22	112	113	115	21	114	116	117	22	113	114	116	23	108	108	109	23
4/26	115	116	119	23	112	113	114	22	115	115	116	22	118	118	120	22	113	117	118	23	108	109	109	23
4/27	115	117	119	23	112	113	114	22	115	115	116	10	117	118	120	22	116	117	118	23	109	110	111	23
4/28	118	119	120	23	116	117	117	22	117	117	118	20	118	119	121	22	116	118	120	23	110	111	112	23
4/29	116	118	120	23	116	117	117	22	117	118	118	22	119	120	121	22	117	118	119	23	113	114	115	23
4/30	118	119	120	23	118	119	120	22	119	119	120	22	120	120	121	22	117	119	120	23	114	114	115	23
5/1	118	119	120	23	118	118	119	22	118	119	120	22	119	119	120	22	118	118	119	23	114	115	116	23
5/2	118	119	119	23	116	117	118	22	117	118	118	22	118	118	119	22	116	117	118	23	112	113	113	23
5/3	116	118	119	23	113	113	114	22	115	115	116	22	115	115	115	22	114	114	115	23	112	112	112	23
5/4	119	120	121	23	114	115	115	22	116	117	118	22	116	117	118	22	115	116	117	23	111	112	113	23
5/5	117	118	120	24	114	114	115	23	116	117	118	23	116	117	118	23	114	115	116	24	110	111	111	24
5/6	118	119	120	24	113	114	115	23	117	118	119	23	117	117	118	23	115	116	116	24	109	110	111	24
5/7	116	118	120	24	112	112	113	23	117	118	119	23	116	117	118	23	114	115	115	24	109	109	109	24

¹ Data provided by the Corps of Engineers.

² Dissolved gas readings and averages have been rounded to the nearest integer.

Two-Week Summary of Passage Indices

Yearling Chinook

Date	Hatchery							Hatchery/Wild Combined			
	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO1 (INDEX)
04/24/98	342	0	107	1,188	63,971	17,073	11,134	321	21,131	6,957	15,751
04/25/98	---	---	---	---	94,248	45,867	19,069	241	18,692	12,701	12,384
04/26/98	---	---	---	---	98,127	37,601	27,517	227	28,527	15,671	6,560
04/27/98	84	9	9	3	81,081	46,522	24,288	149	38,242	14,586	10,792
04/28/98	46	11	6	116	79,337	45,299	19,306	182	49,644	10,360	12,072
04/29/98	20	13	5	43	44,742	50,801	15,479	222	44,371	13,142	11,343
04/30/98	6	12	6	63	59,155	23,706	12,492	373	25,289	12,307	9,256
05/01/98	6	12	16	135	58,524	33,624	11,099	470	27,370	13,664	14,796
05/02/98	---	---	---	---	96,866	26,260	14,493	523	49,972	17,124	9,148
05/03/98	---	---	---	---	92,130	45,685	17,796	405	69,150	18,806	12,705
05/04/98	---	0	10	116	94,689	48,428	17,956	295	98,565	18,081	14,575
05/05/98	4	3	3	197	94,630	69,561	20,405	513	93,214	12,620	9,804
05/06/98	---	2	15	248	74,628	47,448	22,051	779	70,976	31,750	17,458
05/07/98	---	2	6	---	59,350	53,317	29,701	476	45,384	30,705	7,275
Total:	508	64	183	2,109	1,091,478	591,192	262,786	5,176	680,527	228,474	163,919
# Days:	7	10	10	9	14	14	14	14	14	14	14
Average:	73	6	18	234	77,963	42,228	18,770	370	48,609	16,320	11,709

Wild Yearling Chinook

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)
04/24/98	73	0	79	186	6,648	4,456	2,986
04/25/98	---	---	---	---	10,815	11,815	5,583
04/26/98	---	---	---	---	11,001	9,396	5,627
04/27/98	51	4	69	4	10,946	8,046	1,666
04/28/98	19	21	10	52	12,001	8,413	2,007
04/29/98	6	19	12	23	9,282	9,537	1,484
04/30/98	1	14	19	35	8,482	3,088	1,758
05/01/98	6	16	17	25	6,646	5,399	1,655
05/02/98	---	---	---	---	15,762	3,040	1,510
05/03/98	---	---	---	---	26,293	6,464	2,342
05/04/98	---	0	21	37	19,618	8,797	2,083
05/05/98	1	1	42	33	13,369	12,311	1,864
05/06/98	---	1	30	55	15,155	7,311	1,461
05/07/98	---	3	25	---	8,934	11,125	2,268
Total:	157	79	324	450	174,952	109,198	34,294
# Days:	7	10	10	9	14	14	14
Average:	22	8	32	50	12,497	7,800	2,450

Wild Subyearling Chinook

LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	
109	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
1,300	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
Total:	1,409	0	0
# Days:	14	14	14
Average:	101	0	0

The data presented in the following passage index section is preliminary and has been derived from various sources. For verification and/or origin of data, contact the operators of the Fish Passage Data System at (503) 230-4099.

Smolt indices, wild & hatchery 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 sampling system. Collection counts may be constrained due to sampling effort or river flow. 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 hour period that spans two calendar days. In this report, the date shown corresponds with the sample end date.

Two-Week Summary of Passage Indices

Date	Hatchery Subyearling Chinook							Combined Subyearling Chinook			
	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO1 (INDEX)
04/24/98	0	0	0	0	0	0	0	56	32	9	13,966
04/25/98	---	---	---	---	0	0	0	26	90	29	7,785
04/26/98	---	---	---	---	0	0	0	18	250	0	2,531
04/27/98	0	0	0	0	0	0	0	11	242	0	4,236
04/28/98	0	0	0	0	0	0	0	4	1,933	0	3,479
04/29/98	0	0	0	0	0	0	0	0	829	0	1,565
04/30/98	0	0	0	0	0	0	0	1	2,107	44	805
05/01/98	0	0	0	0	0	0	0	6	431	87	455
05/02/98	---	---	---	---	0	0	0	6	560	0	1,013
05/03/98	---	---	---	---	0	0	0	18	702	173	751
05/04/98	---	0	0	0	0	0	0	19	229	45	1,268
05/05/98	0	0	0	0	0	0	0	17	261	0	859
05/06/98	---	0	0	0	0	0	0	8	1,122	282	918
05/07/98	---	0	0	---	0	0	0	13	1,440	0	1,490
Total:	0	0	0	0	0	0	0	203	10,228	669	41,121
# Days:	7	10	10	9	14	14	14	14	14	14	14
Average:	0	0	0	0	0	0	0	15	731	48	2,937

Date	All Coho										
	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO1 (INDEX)
04/24/98	0	0	0	0	218	0	129	0	668	81	3,513
04/25/98	---	---	---	---	701	0	0	0	570	15	3,715
04/26/98	---	---	---	---	440	0	0	0	650	28	1,705
04/27/98	0	0	0	0	405	0	0	0	2,901	231	2,920
04/28/98	0	0	0	0	0	280	0	0	4,794	86	6,194
04/29/98	0	0	0	0	371	0	0	0	3,901	562	3,751
04/30/98	0	0	0	0	565	0	0	0	1,885	706	4,117
05/01/98	0	0	0	12	2,572	0	61	0	1,187	655	5,422
05/02/98	---	---	---	---	3,194	0	121	0	2,070	607	6,948
05/03/98	---	---	---	---	2,898	622	0	0	2,823	953	12,705
05/04/98	---	0	0	16	2,602	132	94	65	8,520	2,545	13,084
05/05/98	0	0	0	24	6,476	0	98	87	9,552	2,570	11,600
05/06/98	---	0	0	39	4,586	594	97	192	12,248	4,794	28,204
05/07/98	---	0	0	---	3,448	604	346	131	11,309	7,063	9,817
Total:	0	0	0	91	28,476	2,232	946	475	63,078	20,896	113,695
# Days:	7	10	10	9	14	14	14	14	14	14	14
Average:	0	0	0	10	2,034	159	68	34	4,506	1,493	8,121

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 : $\text{Passage Index} = \frac{\text{Collection Counts}}{\{\text{Powerhouse Flow} / (\text{Powerhouse Flow} + \text{Spill})\}}$
 LGS (Index) = Little Goose Bypass Collection System : Passage Index Counts : $\text{Passage Index} = \frac{\text{Collection Counts}}{\{\text{Powerhouse Flow} / (\text{Powerhouse Flow} + \text{Spill})\}}$
 LMN (Index) = Lower Monumental Dam Bypass Collection System : Passage Index Counts : $\text{Passage Index} = \frac{\text{Collection Counts}}{\{\text{Powerhouse Flow} / (\text{Powerhouse Flow} + \text{Spill})\}}$

Two-Week Summary of Passage Indices

Hatchery Steelhead

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO1 (INDEX)
04/24/98	195	0	281	1,505	29,970	5,300	7,084	75	6,377	2,415	1,065
04/25/98	---	---	---	---	73,063	16,428	12,797	123	4,260	6,733	2,565
04/26/98	---	---	---	---	186,866	13,966	20,406	242	4,104	8,344	1,188
04/27/98	195	782	49	93	293,311	32,769	14,207	293	6,285	9,748	2,948
04/28/98	98	405	17	245	267,184	26,066	7,932	220	4,098	5,572	2,399
04/29/98	109	399	12	180	192,147	32,046	7,346	322	3,549	6,442	3,190
04/30/98	125	391	16	145	172,955	27,464	8,223	387	3,881	6,088	2,879
05/01/98	17	300	29	199	170,856	29,662	7,642	530	6,705	5,981	3,743
05/02/98	---	---	---	---	304,012	30,128	15,097	488	8,528	5,376	4,198
05/03/98	---	---	---	---	488,183	69,695	24,633	544	6,655	3,770	4,132
05/04/98	---	0	407	371	501,673	86,061	27,581	574	11,884	5,402	4,809
05/05/98	23	89	564	352	339,085	143,092	41,889	689	15,243	5,500	1,484
05/06/98	---	35	666	614	300,699	119,512	45,436	931	17,844	12,309	7,111
05/07/98	---	35	292	---	298,660	121,480	49,008	776	18,237	20,008	4,164
Total:	762	2,436	2,333	3,704	3,618,664	753,669	289,281	6,194	117,650	103,688	45,875
# Days:	7	10	10	9	14	14	14	14	14	14	14
Average:	109	244	233	412	258,476	53,834	20,663	442	8,404	7,406	3,277

Wild Steelhead

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO1 (INDEX)
04/24/98	12	0	58	278	3,923	1,013	330	44	648	4,226	1,728
04/25/98	---	---	---	---	15,448	1,642	1,255	53	750	11,198	3,538
04/26/98	---	---	---	---	34,909	2,271	2,350	80	563	15,770	1,756
04/27/98	35	0	6	15	46,622	4,702	1,792	97	2,224	10,499	3,635
04/28/98	5	80	9	56	50,220	4,765	2,198	142	4,407	8,336	4,586
04/29/98	3	125	5	32	33,231	6,677	1,230	165	2,278	9,814	3,279
04/30/98	10	160	11	30	32,418	6,025	1,318	247	1,441	6,132	3,436
05/01/98	4	150	14	36	20,580	9,950	1,951	264	3,154	6,417	3,988
05/02/98	---	---	---	---	20,335	7,622	4,408	256	3,174	4,986	3,387
05/03/98	---	---	---	---	28,156	10,598	4,308	253	3,274	7,583	5,191
05/04/98	---	0	68	74	34,633	7,944	6,426	161	6,549	12,188	5,666
05/05/98	1	54	158	55	36,855	6,910	5,984	191	7,656	8,230	2,890
05/06/98	---	36	181	63	33,101	9,452	5,033	317	6,680	25,380	10,507
05/07/98	---	42	92	---	24,978	13,696	4,347	196	4,351	26,178	4,295
Total:	70	647	602	639	415,409	93,267	42,930	2,466	47,149	156,937	57,882
# Days:	7	10	10	9	14	14	14	14	14	14	14
Average:	10	65	60	71	29,672	6,662	3,066	176	3,368	11,210	4,134

Definitions for Smolt Index Counts.

RIS (Index) = Rock Island Dam Second Powerhouse Bypass Trap : Passage Index Counts : Passage Index = Collection Counts / {Powerhouse 2 Flow / (Powerhouses 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) }

BO1 (Index)= Bonneville Dam First Powerhouse Bypass Trap : Passage Index Counts : Passage Index = Collection Counts / {Powerhouse 1 Flow / (Powerhouses 1 & 2 +Flow + Spill)}

Two-Week Summary of Passage Indices

Hatchery Sockeye

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO1 (INDEX)
04/24/98	0	0	0	0	0	0	0	16	32	0	0
04/25/98	---	---	---	---	0	0	0	18	0	0	0
04/26/98	---	---	---	---	0	0	0	5	50	0	52
04/27/98	0	0	0	0	0	0	0	0	0	0	0
04/28/98	0	0	0	0	0	0	0	9	155	0	0
04/29/98	0	0	0	0	0	0	0	9	118	0	0
04/30/98	0	0	0	0	0	0	0	16	0	0	0
05/01/98	0	0	0	0	0	0	0	24	131	44	0
05/02/98	---	---	---	---	0	0	0	23	430	43	0
05/03/98	---	---	---	---	0	0	0	42	1,472	0	34
05/04/98	---	0	0	53	0	0	0	42	1,833	0	0
05/05/98	2	0	0	158	0	0	0	52	2,203	80	0
05/06/98	---	0	0	41	2,193	0	0	61	2,238	365	519
05/07/98	---	0	0	---	2,231	0	94	23	2,431	972	175
Total:	2	0	0	252	4,424	0	94	340	11,093	1,504	780
# Days:	7	10	10	9	14	14	14	14	14	14	14
Average:	0	0	0	28	316	0	7	24	792	107	56

Wild Sockeye

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO1 (INDEX)
04/24/98	0	0	0	0	0	0	0	528	223	0	0
04/25/98	---	---	---	---	0	0	0	1,275	360	15	0
04/26/98	---	---	---	---	0	0	0	546	1,450	0	0
04/27/98	0	0	0	0	0	0	0	195	1,886	0	29
04/28/98	0	0	0	0	0	0	0	289	3,016	0	0
04/29/98	0	0	0	0	0	0	0	144	2,010	86	0
04/30/98	0	0	0	0	0	0	0	250	3,437	44	0
05/01/98	0	0	0	0	0	0	0	317	4,530	0	0
05/02/98	---	---	---	---	0	0	0	360	17,228	87	58
05/03/98	---	---	---	---	0	0	0	456	35,001	260	0
05/04/98	---	0	0	0	0	0	0	465	43,184	759	0
05/05/98	0	0	0	1	0	0	0	622	44,519	1,650	0
05/06/98	---	0	0	3	0	0	0	488	43,121	10,003	320
05/07/98	---	0	0	---	0	0	0	259	50,178	11,925	614
Total:	0	0	0	4	0	0	0	6,194	250,143	24,829	1,021
# Days:	7	10	10	9	14	14	14	14	14	14	14
Average:	0	0	0	0	0	0	0	442	17,867	1,774	73

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

JDA and BO1 data collected for the FPC by National Marine Fisheries Service.

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 May 07, 1998

	Spring Chinook						Summer Chinook						Fall Chinook					
	1998		1997		10-Yr Avg.		1998		1997		10-Yr Avg.		1998		1997		10-Yr Avg.	
	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	30,719	256	81,833	275	58,265	1,313												
TDA	19,802	158	37,118	38	32,007	597												
JDA	15,882	74	25,388	15	22,190	474												
MCN	11,628	64	14,634	7	18,500	351												
IHR	6,900	19	8,917	7	8,171	102												
LMN	4,498	5	6,326	36	6,841	86												
LGS	3,821	2	5,108	10	na	na												
LWG	3,379	5	2,821	0	4,043	36												
PRD	1,375	0	228	0	4,125	10												
RIS	355	0	38	0	1,658	4												
RRH	97	0	7	0	291	0												
WEL	0	0	1	3	74	0												

	Coho						Sockeye			Steelhead		
	1998		1997		10-Yr Avg.		1998	1997	10-Yr Avg.	1998	1997	10-Yr Avg.
	Adult	Jack	Adult	Jack	Adult	Jack						
BON	0	0	0	0	0	0	0	0	1,574	3,169	3,313	
TDA	0	0	0	0	0	0	0	0	664	721	1,667	
JDA	0	0	0	0	0	0	0	0	5,939	2,314	2,698	
MCN	0	0	0	0	0	0	0	0	1,380	1,323	2,576	
IHR	0	0	0	0	0	0	0	0	1,775	1,302	3,005	
LMN	0	0	0	0	0	0	0	0	1,452	1,126	2,665	
LGS	0	0	0	0	na	na	0	0	1,964	1,298	na	
LWG	0	0	0	0	0	0	0	0	4,108	3,549	5,825	
PRD	0	0	0	0	0	0	0	0	9	8	38	
RIS	0	0	0	0	0	0	0	2	22	26	93	
RRH	0	0	0	0	1	0	0	0	67	49	54	
WEL	0	0	0	0	0	0	0	0	0	23	12	

Historic counts (pre-1996) were obtained from CRITFC and compiled by the FPC.
 1996, 1997, and 1998 counts were obtained from the Corps of Engineers.
 1998 totals at LMN, RIS, and RRH are based on video counts accumulated through May 06.
 1998 totals at LGS are based on video counts accumulated through May 05.
 Adult count records at LGS have been maintained since 1993.

Transportation Summary Report

Two-Week Transportation Summary from 4/24/98 to 05/07/98

	Yearling Chinook	Subyrlg Chinook	Steelhead	Coho	Sockeye	Total
LOWER GRANITE DAM						
Collected	942,069	1,150	2,989,100	20,800	3,300	3,956,419
Bypassed	50,775	0	92,968	1,411	0	145,154
Trucked	0	0	0	0	0	0
Barged	757,329	1,050	2,802,601	18,686	3,300	3,582,966
Total Transported	757,329	1,050	2,802,601	18,686	3,300	3,582,966
LITTLE GOOSE DAM						
Collected	510,270	0	619,158	1,585	0	1,131,013
Bypassed	0	0	0	0	0	0
Trucked	0	0	0	0	0	0
Barged	505,469	0	618,867	1,582	0	1,125,918
Total Transported	505,469	0	618,867	1,582	0	1,125,918
LOWER MONUMENTAL DAM						
Collected	237,066	0	263,465	750	75	501,356
Bypassed	590	0	599	0	0	1,189
Trucked	0	0	0	0	0	0
Barged	236,062	0	262,776	750	75	499,663
Total Transported	236,062	0	262,776	750	75	499,663
M McNARY DAM						
Collected	413,560	6,306	98,745	36,335	147,501	702,447
Bypassed	412,943	6,271	98,678	36,305	146,618	700,815
Trucked	0	0	0	0	0	0
Barged	0	0	0	0	0	0
Total Transported	0	0	0	0	0	0
PROJECT TOTALS						
Collected	2,102,965	7,456	3,970,468	59,470	150,876	6,291,235
Bypassed	464,308	6,271	192,245	37,716	146,618	847,158
Trucked	0	0	0	0	0	0
Barged	1,498,860	1,050	3,684,244	21,018	3,375	5,208,547
Total Transported	1,498,860	1,050	3,684,244	21,018	3,375	5,208,547

Cumulative Transportation Summary through 05/07/98

	Yearling Chinook	Subyrlg Chinook	Steelhead	Coho	Sockeye	Total
LOWER GRANITE DAM						
Collected	1,212,933	1,260	3,183,933	21,164	3,310	4,422,600
Bypassed	93,933	33	107,927	1,425	0	203,318
Trucked	24,303	46	33,352	93	10	57,804
Barged	1,037,106	1,090	2,995,232	19,014	3,300	4,055,742
Total Transported	1,061,409	1,136	3,028,584	19,107	3,310	4,113,546
LITTLE GOOSE DAM						
Collected	539,358	0	636,307	1,590	14	1,177,269
Bypassed	0	0	0	0	0	0
Trucked	568	0	1,097	5	0	1,670
Barged	533,791	0	634,890	1,582	14	1,170,277
Total Transported	534,359	0	635,987	1,587	14	1,171,947
LOWER MONUMENTAL DAM						
Collected	277,765	22	281,726	766	85	560,364
Bypassed	2,786	10	1,320	10	0	4,126
Trucked	797	0	780	0	0	1,577
Barged	273,552	12	279,529	756	85	553,934
Total Transported	274,349	12	280,309	756	85	555,511
M McNARY DAM						
Collected	615,171	7,980	157,611	39,229	148,204	968,195
Bypassed	614,292	7,937	157,528	39,198	147,320	966,275
Trucked	0	0	0	0	0	0
Barged	0	0	0	0	0	0
Total Transported	0	0	0	0	0	0
PROJECT TOTALS						
Collected	2,645,227	9,262	4,259,577	62,749	151,613	7,128,428
Bypassed	711,011	7,980	266,775	40,633	147,320	1,173,719
Trucked	25,668	46	35,229	98	10	61,051
Barged	1,844,449	1,102	3,909,651	21,352	3,399	5,779,953
Total Transported	1,870,117	1,148	3,944,880	21,450	3,409	5,841,004