



## Fish Passage Center

# Weekly Report #98 - 9

May 15, 1998

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### SUMMARY OF EVENTS:

**Water Supply.** Precipitation for the October through May period varied from 72% at Flathead to 121% at Klamath basin and 129% at Harney/Malheur basin. Most of the precipitation in the basin continues to fall in the 80% to 100% range. Precipitation distribution for May 1 through 12 shows high variations, with the highest precipitation at the Klamath Basin with 416% and in the Snake River plain at 299% and the lowest at Columbia above Coulee with 11%. The Snake River basin, Upper Deschutes/Crooked, are the areas with the highest precipitation, in the range of 130% to 290%. Precipitation in the Columbia above The Dalles was 65% of the average and the Snake River above Ice Harbor was 156% of the average.

The new May Midmonth Runoff Volume Forecast has been issued. In general, runoff volume forecast confirmed a decreasing trend at all major sites in the Columbia basin except at the Snake River Basin. The runoff volume forecast continued to decrease in the range of 1% to 5% compared to the May Final. The runoff volume forecasts at Lower Granite increased by 2% and at Brownlee by 10%, although Dworshak decreased by 2% compared to the May Final. The summary of results is shown in the following Table:

Location	Period	April 98 Final		May 98 Final		Mid Month May 98 Final	
		MAF	%	MAF	%	MAF	%
Libby	Apr-Sep	5.52	89	5.38	79	5.24	77
Hungry Horse	Apr-Sep	1.62	74	1.5	69	1.44	66
Grand Coulee	Jan-Jul	55.6	88	53.2	84	52.4	83
The Dalles	Jan-Jul	90.8	86	89.1	84	88.2	83
Lower Granite	Jan-Jul	25.0	84	25	84	25.7	86
Dworshak	Apr-Jul	1.75	65	1.73	64	1.67	62
Brownlee	Apr-Jul	4.78	82	4.54	78	5.12	88

**System Storage and Streamflow.** The flows in the system were at a seasonal peak during last week. Reservoirs will continue to refill toward June 30th full pool elevations, as required by the BiOp. 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] 5/14/98	Max. Reservoir Pool [ft]
Libby	2422.4	2459.0
Hungry Horse	3535.5	3560.0
Grand Coulee	1281.3	1290.0
Brownlee	2076.8	2077.0
Dworshak	1589.5	1600.0

- Libby was operated to provide 15 kcfs at Bonners Ferry during May 12 through 14, with increased outflow of 6 kcfs. It is expected that by Monday, May 18 the reservoir will be operated to support a request from USFWS for sturgeon spawning. The operation will start when water temperature at Bonners Ferry reaches 10 degrees Celsius. Outflow from Libby will be increased to the available full powerhouse capacity for three days.
- Hungry Horse continues to be at a minimum outflow of about 145 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 operate between 1281 to 1283 ft to support the average outflow at Priest Rapids of 135 kcfs.
- Brownlee is full. Increased precipitation in the Snake basin increased inflows to the reservoir up to near 50 kcfs. The reservoir is currently passing inflow.

- Dworshak will continue with outflows of 1.3 kcfs or higher to meet the flow objective of 94 kcfs at Lower Granite.

Upper Snake reservoirs:

Water from the system began to be withdrawn more intensely for irrigation demands. The May Midmonth Runoff Volume Forecast increased by 1% to 10%, compared to the May Final Runoff Volumes Forecast for the Snake River Basin. The runoff volumes for the major sites are now in the range of 89% to 95% of average.

Although the system is in the irrigation season, the outflow from the reservoirs is well beyond the irrigation demands because of the increased precipitation in the basin.

Jackson Lake is in slow refill with increased outflow up to 4.2 kcfs. Currently the reservoir is 86% full.

Palisades continues to pass inflow to the end of next week. Currently, the outflow is 12.52 kcfs and the reservoir is 63% full.

American Falls is full and is passing inflow of 16.3 kcfs.

Milner flow at the lowest point of the Upper Snake system is projected not to exceed 10 kcfs through the end of next week. Irrigation withdrawal upstream at Minidoka is about 6 kcfs.

The weekly average flows were peaking during last week. The summary of average weekly flows for the run of the river projects during the May 1 through 14 period is shown in the following Table:

Project	May 8-14	May 1-7
Priest Rapids	195.6 kcfs	164.01 kcfs
McNary	327.6 kcfs	282.23 kcfs
Lower Granite	125.6 kcfs	115.97 kcfs
Bonneville	343.9 kcfs	296.77 kcfs

**Spill:** In general, spill volumes were high during the beginning of the week, but declined toward the end of the week as flow levels receded. Spill at Lower Granite Dam over the past week averaged 31 kcfs per day. The increased river flow resulted in daytime spill at Little Goose and Lower Monumental dams, which decreased during the latter part of the week. Spill at Ice Harbor Dam continues on a 24-hour basis. The daytime spill limit of 45 kcfs for adult passage cannot always be met at the present flows because of limited powerhouse capacity.

High river flows have resulted in 24-hour spill at McNary and John Day dams. A 24-hour spill program is called for by the Biological Opinion at The Dalles and Bonneville dams, at amounts up to the 115/120% gas cap consistent with a system-wide approach to passage management. Spill averaged 154.7 kcfs at McNary Dam, 123 kcfs at John Day Dam, 164.1 kcfs at The Dalles Dam and 126.2 kcfs at Bonneville Dam over the past week. At present flows the COE is having difficulty operating the project to maintain the 75 kcfs daytime cap on spill at Bonneville Dam. At spill levels above 75 kcfs significant adult fallback occurs. Spill for fish passage is occurring at all the Mid-Columbia projects.

Total Dissolved Gas Supersaturation and gas Bubble Trauma Monitoring: Total dissolved gas below Lower Granite Dam remained well below the gas cap. Total dissolved gas levels are being managed to the gas waivers below Little Goose and Lower Monumental dams to the extent possible, and remains below the waiver at Ice Harbor Dam. The gas levels in the lower Columbia are being managed as close to the gas waivers as possible. While the higher flows and spills have resulted in violations in both the Snake and lower Columbia rivers, the occasions have been few. Limited data is available for the Mid-Columbia sites at this time, but levels at the sites monitored show dissolved gas levels generally to the waiver limits, with some exceedences. Gas bubble trauma monitoring has occurred at all sites over the past week. Few juvenile fish are showing signs throughout the system, with the percentage of

signs remaining well below the action criteria. One adult chinook (out of 45 examined) was detected at Lower Granite Dam on May 6, 1998 exhibiting Rank 2 signs of GBT on its body and fins.

**Smolt Monitoring.** *Snake River Drainage.*

Hatchery steelhead dominated the collections in the traps on the Imnaha, Grande Ronde, and Snake rivers this week. Hatchery sockeye were the second most numerous fish collected in the Snake River trap. Two traps were again operated on the Imnaha River, while the trap on the Salmon River did not operate due to high flows. At Lower Granite Dam, daily average flows this week remained in the 120's kcfs range. Yearling chinook and steelhead passage indices began to decrease this week at Lower Granite Dam, while coho and hatchery sockeye passage indices were on an increase. Based on trapping operations through May 7, IDFG estimated that over 10,000 sockeye have exited Redfish Lake and over 7,500 sockeye have exited Alturus Lake. The cumulative hatchery sockeye passage index of nearly 39,000 hatchery sockeye to date at Lower Granite Dam is 4.6 times higher than the highest annual index of the past three years (which occurred in 1995).

Columbia River Drainage. The passage indices at Rock Island Dam of yearling chinook, steelhead, and sockeye continued this week at similar high levels to last week. Since arriving the middle of last week, coho have demonstrated fairly constant daily passage at Rock Island Dam. Daily average flows at Rock Island Dam stayed within the 150 to 200 kcfs range this week. In the lower Columbia River, daily average flows remained over 300 kcfs this week. Smolt passage indices at McNary, John Day, and Bonneville dams showed a steady movement of yearling chinook, steelhead, coho, and sockeye through the lower Columbia River this week. Compared to last week, most indices were higher this week at the lower Columbia River sites.

**Adult Fish Passage:** At Bonneville Dam, the daily count of adult spring chinook continued to decline through the week. with 356 counted on May 14. The cumulative count through May 14 was 33,171. The cumulative total was about a third of the 1997 count and half the 10-year average. Nearly 67% of the Bonneville count of adult spring chinook has passed The Dalles Dam this year. Approximately 15,000 adult spring chinook have been counted at McNary Dam, with 9,200 counted at Ice Harbor Dam and 2,200 counted at Priest Rapids Dam. Numbers of adult salmon that have returned to the Yakama River and Ringold Hatchery would account for additional fish that have passed McNary Dam. Returns of jack chinook salmon remain very low to date and this does not bode well for the next year's return of adult chinook.

**Hatchery Releases:** Almost all hatchery releases of yearling fish were completed for the year with final releases expected by the end of May. Hatchery steelhead was the main fish planted during the week. Coho will be volitionally released through the month and into early June at Klickitat Hatchery. Large numbers of juvenile subyearling summer and fall chinook will be released during the next month and a half from hatcheries and acclimation facilities. The final release of "Tule" fall chinook from Spring Creek Hatchery is tentatively scheduled for May 15, rather than May 18 as previously scheduled. Subyearling fall chinook will also be released in the Umatilla River during the upcoming two weeks.

**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
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
05/08/98	165.8	0.0	163.2	0.0	186.7	11.9	193.4	33.1	199.1	46.6	195.5	58.3	211.9	127.8
05/09/98	115.0	0.0	124.7	0.0	159.5	12.1	175.8	33.4	183.4	46.5	187.5	48.7	214.5	129.1
05/10/98	111.5	0.0	112.4	0.0	137.9	11.4	143.9	30.5	147.7	46.6	143.5	28.8	158.0	95.2
05/11/98	153.3	0.0	150.2	0.0	175.7	14.3	177.0	29.4	178.2	42.9	169.0	38.0	183.3	108.9
05/12/98	146.0	0.0	153.5	0.0	176.0	12.4	182.0	37.3	185.1	33.5	185.7	40.6	206.4	124.4
05/13/98	136.4	0.0	141.8	0.0	166.7	12.1	174.5	28.5	182.8	36.1	180.2	36.6	199.8	119.3
05/14/98	151.7	0.0	154.7	0.0	177.6	12.1	179.2	27.3	186.7	41.2	176.5	33.9	198.8	118.2

**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
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
05/08/98	1.3	0.0	---	---	128.9	32.5	125.3	31.7	128.0	27.1	132.9	75.8
05/09/98	1.3	0.0	---	---	131.3	34.7	126.8	34.8	134.6	33.4	139.7	79.0
05/10/98	1.3	0.0	---	---	129.8	33.1	124.8	32.5	128.9	28.7	131.5	73.6
05/11/98	1.3	0.0	---	---	123.7	29.2	118.1	42.6	124.1	24.5	128.8	66.6
05/12/98	1.3	0.0	---	---	122.5	29.2	116.6	26.8	118.7	22.0	124.2	66.7
05/13/98	1.3	0.0	---	---	125.4	29.3	124.1	33.5	129.0	27.5	132.6	68.7
05/14/98	1.3	0.0	---	---	117.3	29.2	112.3	25.1	115.1	20.5	118.5	65.8

**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
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
05/08/98	339.7	165.6	360.4	125.5	355.5	206.0	365.0	143.7	79.4	132.7
05/09/98	360.5	185.9	380.2	133.6	367.6	132.0	363.0	142.4	79.8	131.6
05/10/98	329.3	157.4	357.9	123.4	351.1	199.8	367.9	143.2	81.1	134.4
05/11/98	300.4	135.1	313.1	113.9	307.4	113.6	333.0	112.2	79.3	132.3
05/12/98	309.6	139.3	331.6	120.1	324.0	186.8	315.1	109.0	76.0	121.0
05/13/98	326.5	152.1	321.6	120.2	312.9	112.1	326.2	107.1	83.0	126.8
05/14/98	327.4	147.2	353.2	124.6	345.4	198.6	249.4	126.0	94.3	119.9

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

Site	Date	Species	Number of Fish	Number w GBT signs	Number w Fin Signs	% Fin GBT	% Severe Fin GBT	Number of Fish with Fin GBT Listed by Highest Rank				Fish with L. Line GBT	
								Rank 1	Rank 2	Rank 3	Rank 4	Num Fish	Avg. Rank
<b>Lower Granite Dam</b>													
	05/06/98	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
	05/08/98	Yearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/08/98	Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/11/98	Yearling Chinook	100	2	0	0.00%	0.00%	0	0	0	0	2	1
	05/11/98	Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/13/98	Yearling Chinook	100	1	0	0.00%	0.00%	0	0	0	0	1	1
	05/13/98	Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	0	0
<b>Little Goose Dam</b>													
	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
	05/07/98	Yearling Chinook	100	1	1	1.00%	0.00%	1	0	0	0	0	0
	05/07/98	Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/09/98	Yearling Chinook	100	2	2	2.00%	0.00%	2	0	0	0	0	0
	05/09/98	Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/12/98	Yearling Chinook	100	1	1	1.00%	0.00%	1	0	0	0	0	0
	05/13/98	Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	0	0
<b>Lower Monumental Dam</b>													
	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
	05/08/98	Yearling Chinook	100	1	0	0.00%	0.00%	0	0	0	0	1	1
	05/08/98	Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/11/98	Yearling Chinook	100	3	1	1.00%	0.00%	1	0	0	0	1	1
	05/11/98	Steelhead	100	1	1	1.00%	0.00%	1	0	0	0	0	0
	05/13/98	Yearling Chinook	100	2	2	2.00%	0.00%	2	0	0	0	0	0
	05/13/98	Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	0	0
<b>Ice Harbor Dam</b>													
	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
	05/08/98	Yearling Chinook	58	1	0	0.00%	0.00%	0	0	0	0	1	1
	05/08/98	Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/12/98	Yearling Chinook	77	1	0	0.00%	0.00%	0	0	0	0	1	1
	05/12/98	Steelhead	100	3	1	1.00%	0.00%	1	0	0	0	2	1

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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>McNary Dam</b>													
	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
	05/09/98	Yearling Chinook	100	2	0	0.00%	0.00%	0	0	0	0	2	1
	05/09/98	Steelhead	100	2	0	0.00%	0.00%	0	0	0	0	2	1
	05/12/98	Yearling Chinook	100	1	0	0.00%	0.00%	0	0	0	0	1	1
	05/12/98	Steelhead	100	1	0	0.00%	0.00%	0	0	0	0	1	1
	05/14/98	Yearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/14/98	Steelhead	100	1	0	0.00%	0.00%	0	0	0	0	1	1
<b>John Day Dam</b>													
	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
	05/09/98	Yearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/10/98	Steelhead	100	1	1	1.00%	0.00%	1	0	0	0	0	0
	05/12/98	Yearling Chinook	100	1	0	0.00%	0.00%	0	0	0	0	0	0
	05/13/98	Steelhead	100	1	0	0.00%	0.00%	0	0	0	0	1	1
	05/14/98	Yearling Chinook	100	3	0	0.00%	0.00%	0	0	0	0	0	0
	05/15/98	Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	0	0
<b>Bonneville Dam</b>													
	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
	05/08/98	Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/09/98	Yearling Chinook	100	1	0	0.00%	0.00%	0	0	0	0	0	0
	05/11/98	Steelhead	100	2	1	1.00%	0.00%	1	0	0	0	1	1
	05/12/98	Yearling Chinook	94	0	0	0.00%	0.00%	0	0	0	0	0	0
	05/13/98	Steelhead	100	2	0	0.00%	0.00%	0	0	0	0	1	1
	05/14/98	Yearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
<b>Rock Island Dam</b>													
	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
	05/08/98	Yearling Chinook	100	6	1	1.00%	0.00%	1	0	0	0	4	1
	05/08/98	Steelhead	100	6	0	0.00%	0.00%	0	0	0	0	6	1
	05/11/98	Yearling Chinook	100	4	2	2.00%	0.00%	2	0	0	0	2	1
	05/11/98	Steelhead	100	5	3	3.00%	0.00%	3	0	0	0	2	1
	05/13/98	Yearling Chinook	100	4	3	3.00%	0.00%	1	2	0	0	1	1
	05/13/98	Steelhead	100	3	3	3.00%	0.00%	3	0	0	0	0	0

**Hatchery Release Summary**  
**Schedule for Last Two Weeks**  
**From 05/02/97 to 05/15/97**

Hatchery	Species	FPC	Number	Release Dates		Release Site	River Name
		LotID	Released	Begin	End		
<b>IDFG</b>							
Magic Valley	SU Steelhead	98117	174,580	04/04/98	05/07/98	Slate Cr	Salmon River
	SU Steelhead	98116	126,920	04/30/98	05/01/98	E Fk Salmon R	Salmon River
Niagara Springs	SU Steelhead	98121	26,528	05/03/98	05/05/98	Little Salmon R	Salmon River
Sawtooth	Sockeye	98124	14,217	04/28/98	05/04/98	Redfish Lake Cr	Salmon River
	<b>Agency Total:</b>		342,245				
<b>Nez Perce Tribe</b>							
Kooskia	Coho	98138	220,000	05/11/98	05/22/98	Kooskia H	Clearwater River, Main Fk
	<b>Agency Total:</b>		220,000				
<b>ODFW</b>							
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
Bonneville	Sockeye	98151	24,365	04/28/98	05/04/98	Redfish Lake Cr	Salmon River
	Sockeye	98152	43,033	04/28/98	05/04/98	Sawtooth H	Salmon River
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
	<b>Agency Total:</b>		637,398				
<b>Umatilla Tribe</b>							
Bonifer	SU Steelhead	98052	50,000	05/10/98	05/20/98	Bonifer H	Umatilla River
	<b>Agency Total:</b>		50,000				
<b>USFWS</b>							
Entiat	SP Chinook	98064	160,000	05/14/98	05/15/98	Entiat H	Entiat River
	<b>Agency Total:</b>		160,000				
<b>WDFW</b>							
Klickitat	Coho	98095	1,000,000	04/20/98	06/10/98	Klickitat H	Klickitat River
Wells	SU Steelhead	98029	50,000	04/23/98	05/05/98	Okanogan R	Mid-Columbia River
	SU Steelhead	98031	320,000	04/23/98	05/05/98	Methow R	Mid-Columbia River
	SU Steelhead	98030	50,000	05/01/98	05/05/98	Effy Bridge	Methow River
	<b>Agency Total:</b>		1,420,000				
<b>Warm Springs Tribe</b>							
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
	<b>Agency Total:</b>		92,000				
<b>Yakama Tribe</b>							
	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
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
	<b>Agency Total:</b>		1,390,000				
	<b>Total Release:</b>		4,311,643				

**Hatchery Release Summary**  
**Schedule for Next Two Weeks**  
**From 5/15/98 to 05/28/98**

Hatchery	Species	FPC LotID	Number Released	Release Dates		Release Site	River Name
				Begin	End		
<b>Nez Perce Tribe</b>							
Lyons Ferry	FA Chinook	98087	51,500	05/28/98	07/06/98	Pittsburg Landing	Snake River
	<b>Agency Total:</b>		51,500				
<b>ODFW</b>							
Li Sheep	SU Steelhead	98110	33,000	05/19/98	05/19/98	L Sheep Acclim Pd	Imnaha River
	<b>Agency Total:</b>		33,000				
<b>Umatilla Tribe</b>							
Thornhollow	FA Chinook	98047	2,682,000	05/20/98	05/31/98	Thornhollow Acclim Pd	Umatilla River
	<b>Agency Total:</b>		2,682,000				
<b>USFWS</b>							
Spring Creek	FA Chinook	98075	3,700,000	05/15/98	05/15/98	Spring Creek H	Columbia River
	<b>Agency Total:</b>		3,700,000				
<b>WDFW</b>							
Klickitat	SP Chinook	98094	275,000	05/20/98	05/30/98	Upper Klickitat R	Klickitat River
	FA Chinook	98096	4,000,000	05/25/98	06/22/98	Klickitat H	Klickitat River
	<b>Agency Total:</b>		4,275,000				
	<b>Total Release:</b>		10,741,500				

## Total Dissolved Gas Saturation (%) - Average of 12 Highest Hours, 24 h Average and 24 h High<sup>2</sup>

### Total Dissolved Gas Saturation Data at Upper Columbia Sites

Date	Can. Boundary			Grand Coulee				Tlwr 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
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
5/8	115	115	118	9	107	107	108	8	107	107	108	12	108	109	109	23	106	106	107	15	108	108	109	23
5/9	116	118	119	24	108	108	108	24	107	107	108	24	108	108	108	23	106	106	107	22	107	108	108	23
5/10	117	118	119	24	108	108	108	24	107	107	108	24	108	109	109	23	107	107	107	14	106	107	108	23
5/11	117	118	120	24	108	109	109	24	107	108	108	24	109	109	110	23	107	107	108	21	108	109	110	22
5/12	117	119	120	24	109	109	109	24	108	108	109	15	109	109	110	23	108	108	108	20	110	110	111	23
5/13	116	118	119	24	109	109	109	24	---	---	---	0	109	109	110	23	107	108	108	22	110	110	110	22
5/14	113	115	119	24	111	116	134	23	108	108	109	8	108	108	109	23	107	107	108	12	109	109	109	23

### Total Dissolved Gas Saturation Data at Mid Columbia Sites

Date	Tlwr Rocky R.			Rock Island				Tlwr Rock Island				Wanapum				Tlwr 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
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
5/8	---	---	---	0	110	110	110	23	120	120	122	23	---	---	---	0	---	---	---	0	---	---	---	0
5/9	---	---	---	0	110	111	111	23	121	122	122	23	---	---	---	0	---	---	---	0	---	---	---	0
5/10	---	---	---	0	108	109	111	22	123	123	124	22	---	---	---	0	---	---	---	0	---	---	---	0
5/11	---	---	---	0	111	111	111	22	122	123	124	22	---	---	---	0	---	---	---	0	---	---	---	0
5/12	114	114	115	7	112	113	113	23	120	122	124	23	---	---	---	0	---	---	---	0	---	---	---	0
5/13	112	113	114	22	112	113	114	22	117	117	117	22	---	---	---	0	---	---	---	0	---	---	---	0
5/14	111	112	113	23	110	110	111	23	116	116	117	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				Tlwr 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
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
5/8	---	---	---	0	112	112	113	12	103	104	105	24	103	104	104	24	104	105	105	24	112	113	113	24
5/9	---	---	---	0	111	111	112	24	103	103	103	24	102	102	102	24	104	104	104	24	112	112	113	24
5/10	---	---	---	0	108	108	109	24	103	104	105	24	103	104	105	24	103	104	104	24	112	113	113	24
5/11	---	---	---	0	108	110	118	24	103	104	105	24	103	104	105	24	104	105	106	24	111	112	112	24
5/12	---	---	---	0	108	110	111	24	103	103	104	24	103	104	105	24	106	107	108	24	112	112	112	24
5/13	---	---	---	0	109	109	110	24	102	102	102	24	101	101	102	24	105	105	106	24	113	113	113	24
5/14	---	---	---	0	107	108	108	24	101	102	102	24	101	101	102	24	104	104	105	24	113	113	113	8

<sup>1</sup> Data provided by the Corps of Engineers.

<sup>2</sup> 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 High<sup>2</sup>

### 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	#
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
5/8	110	110	110	24	115	119	119	24	118	118	119	9	120	120	122	9	114	114	115	24	118	119	120	24
5/9	108	108	108	24	115	117	119	20	---	---	---	0	---	---	---	0	112	112	113	24	119	119	119	24
5/10	109	110	110	24	116	120	122	24	---	---	---	0	---	---	---	0	114	115	116	24	118	119	119	24
5/11	110	111	111	24	123	127	133	20	115	117	118	24	119	121	123	24	114	115	115	24	117	119	120	24
5/12	110	110	111	24	114	118	119	24	120	122	124	24	120	121	123	24	114	115	116	18	117	118	120	18
5/13	110	111	122	24	116	119	120	24	116	120	122	24	120	121	121	24	115	115	115	23	118	119	120	23
5/14	106	107	108	24	113	118	118	24	112	115	117	22	117	119	120	22	114	116	132	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	#
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
5/8	114	114	115	11	114	114	115	11	122	122	123	11	109	109	110	23	121	121	122	24	110	111	112	23
5/9	112	113	114	24	112	112	113	24	124	125	125	24	109	109	109	23	121	122	122	24	110	111	112	23
5/10	113	114	115	24	113	114	115	24	122	123	123	24	109	110	110	23	121	122	122	24	111	111	112	23
5/11	114	114	115	23	114	114	115	23	120	121	121	23	109	109	110	23	120	121	122	24	110	111	112	23
5/12	114	115	118	21	114	115	116	21	121	121	122	21	112	113	114	23	121	122	122	24	112	113	114	23
5/13	114	114	114	24	114	114	115	24	122	122	123	24	112	112	113	23	121	121	122	24	111	112	112	23
5/14	110	111	112	24	110	111	112	24	121	122	123	24	108	109	109	23	121	122	123	24	110	111	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	#
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
5/8	117	118	119	24	111	112	113	23	118	118	119	23	117	118	119	23	115	116	116	23	108	109	109	23
5/9	115	117	119	24	112	113	113	23	118	119	120	23	117	118	119	23	115	116	116	24	109	109	110	24
5/10	118	119	119	24	111	112	113	23	118	119	120	23	117	118	119	23	116	117	118	24	109	109	110	24
5/11	116	117	119	24	113	114	115	23	117	118	118	23	117	117	117	23	116	116	117	24	110	111	111	24
5/12	118	120	121	23	113	114	115	23	117	118	119	23	117	118	118	23	115	116	116	24	111	111	112	24
5/13	116	118	121	24	112	112	113	23	116	117	119	23	116	116	117	23	114	114	115	24	108	109	110	24
5/14	117	119	120	24	111	111	112	23	117	118	119	23	116	117	118	23	113	115	116	24	109	109	110	24

<sup>1</sup> Data provided by the Corps of Engineers.

<sup>2</sup> 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)
05/01/98	6	12	16	135	58,524	33,624	11,099	0	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	19,351	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	117	59,350	53,317	29,701	476	45,384	30,705	7,275
05/08/98	---	0	8	87	33,354	38,586	29,754	852	43,283	51,090	7,618
05/09/98	---	---	---	---	51,033	55,448	35,580	549	32,437	21,888	11,350
05/10/98	---	---	---	---	56,917	40,108	26,181	250	40,183	33,493	10,261
05/11/98	---	0	2	7	24,101	39,932	18,801	425	40,434	26,138	5,717
05/12/98	---	5	16	40	19,213	21,282	11,565	643	64,241	23,411	4,248
05/13/98	---	4	3	38	21,693	22,713	18,550	879	28,259	29,434	5,656
05/14/98	---	0	1	22	23,080	21,142	15,933	850	40,966	35,976	14,647
<b>Total:</b>	10	28	80	1,007	800,208	563,534	289,865	7,439	744,434	370,911	145,258
<b># Days:</b>	2	10	10	10	14	14	14	14	14	14	14
<b>Average:</b>	5	3	8	101	57,158	40,252	20,705	531	53,174	26,494	10,376

## Wild Yearling Chinook

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)
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	27	8,934	11,125	2,268
05/08/98	---	0	9	20	7,380	11,682	1,174
05/09/98	---	---	---	---	10,968	12,693	6,060
05/10/98	---	---	---	---	10,890	8,757	4,494
05/11/98	---	2	3	5	5,729	8,861	2,397
05/12/98	---	6	21	21	5,138	5,460	3,223
05/13/98	---	18	11	20	4,930	6,512	3,054
05/14/98	---	20	8	10	4,347	5,621	2,819
<b>Total:</b>	7	67	187	253	155,159	114,033	36,404
<b># Days:</b>	2	10	10	10	14	14	14
<b>Average:</b>	4	7	19	25	11,083	8,145	2,600

## Wild Subyearling Chinook

LGR (INDEX)	LGS (INDEX)	LMN (INDEX)
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
598	0	0
203	0	0
205	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
1,006	0	0
14	14	14
72	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)
05/01/98	0	0	0	0	0	0	0	0	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	0	13	1,440	0	1,490
05/08/98	---	0	0	0	0	0	0	16	1,805	164	2,017
05/09/98	---	---	---	---	0	0	0	5	1,205	464	4,478
05/10/98	---	---	---	---	0	0	0	5	4,060	0	1,637
05/11/98	---	0	0	0	0	0	0	6	1,797	0	939
05/12/98	---	0	0	0	0	0	0	3	1,588	133	886
05/13/98	---	0	0	0	0	0	0	2	912	239	769
05/14/98	---	0	0	0	0	0	0	4	1,638	47	2,448
<b>Total:</b>	0	0	0	0	0	0	0	122	17,750	1,634	19,928
<b># Days:</b>	2	10	10	10	14	14	14	14	14	14	14
<b>Average:</b>	0	0	0	0	0	0	0	9	1,268	117	1,423

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)
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	3,941	11,600
05/06/98	---	0	0	39	4,586	594	97	192	12,248	4,794	28,204
05/07/98	---	0	0	16	3,448	604	346	131	11,309	7,063	9,817
05/08/98	---	0	0	13	6,383	200	192	164	10,684	16,428	12,458
05/09/98	---	---	---	---	9,331	201	391	117	7,548	11,207	14,232
05/10/98	---	---	---	---	5,959	1,244	1,563	49	7,202	16,632	13,446
05/11/98	---	0	0	4	6,519	1,226	1,100	111	5,070	13,893	8,983
05/12/98	---	0	0	2	5,907	1,418	569	132	5,506	15,548	5,556
05/13/98	---	0	0	10	12,424	585	758	130	2,222	13,370	8,193
05/14/98	---	0	0	9	14,900	1,554	858	136	3,049	16,528	12,582
<b>Total:</b>	0	0	0	145	87,199	8,380	6,248	1,314	88,990	124,164	163,230
<b># Days:</b>	2	10	10	10	14	14	14	14	14	14	14
<b>Average:</b>	0	0	0	15	6,229	599	446	94	6,356	8,869	11,659

**Definitions for Smolt Index Counts**

WTB (Collection) = Salmon River Trap at Whitebird : Collection Counts  
 GRN (Collection) = Grande Ronde River Trap : 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 :  $\text{Passage Index} = \frac{\text{Collection Counts}}{\{\text{Powerhouse Flow} / (\text{Powerhouse Flow} + \text{Spill})\}}$   
 IMN (Collection) = Imnaha River Trap : Collection Counts  
 LEW (Collection) = Snake River Trap at Lewiston : Collection Counts

# 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)
05/01/98	17	300	29	199	170,856	29,662	7,642	0	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	8,433	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	261	298,660	121,480	49,008	776	18,237	20,008	4,164
05/08/98	---	25	233	142	250,734	142,005	86,940	691	18,527	26,284	5,825
05/09/98	---	---	---	---	207,396	106,702	74,484	701	16,476	27,716	7,670
05/10/98	---	---	---	---	116,093	92,380	65,647	504	14,848	35,088	6,281
05/11/98	---	65	35	98	133,936	70,461	55,835	574	19,088	34,144	7,105
05/12/98	---	146	206	237	142,841	75,477	34,317	708	22,519	25,889	7,288
05/13/98	---	155	135	282	80,658	41,715	49,763	892	6,775	23,455	10,251
05/14/98	---	161	151	389	141,074	44,514	30,151	591	16,667	32,020	12,284
<b>Total:</b>	40	1,011	2,718	2,945	3,475,900	1,172,884	608,423	8,663	199,996	265,875	86,345
<b># Days:</b>	2	10	10	10	14	14	14	14	14	14	14
<b>Average:</b>	20	101	272	295	248,279	83,777	43,459	619	14,285	18,991	6,168

## 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)
05/01/98	4	150	14	36	20,580	9,950	1,951	0	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	12,619	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	38	24,978	13,696	4,347	196	4,351	26,178	4,295
05/08/98	---	34	91	28	25,931	11,621	6,743	256	3,156	32,527	3,182
05/09/98	---	---	---	---	20,529	7,842	9,970	242	2,750	23,527	3,724
05/10/98	---	---	---	---	17,671	8,701	8,792	91	2,025	17,999	4,821
05/11/98	---	29	21	20	19,162	10,621	8,247	122	2,991	21,428	3,430
05/12/98	---	75	55	39	15,212	4,956	3,982	158	3,755	12,867	4,208
05/13/98	---	84	29	35	10,058	3,509	7,341	203	2,171	6,840	6,113
05/14/98	---	93	26	27	16,678	5,404	6,006	77	2,377	10,501	3,023
<b>Total:</b>	5	597	735	415	323,879	118,826	83,538	2,523	54,063	221,040	64,425
<b># Days:</b>	2	10	10	10	14	14	14	14	14	14	14
<b>Average:</b>	3	60	74	42	23,134	8,488	5,967	180	3,862	15,789	4,602

**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)
05/01/98	0	0	0	0	0	0	0	0	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	123	0
05/06/98	---	0	0	41	2,193	0	0	61	2,238	365	519
05/07/98	---	0	0	29	2,231	0	94	23	2,431	972	175
05/08/98	---	0	0	119	2,194	0	0	43	4,088	2,628	448
05/09/98	---	---	---	---	7,302	1,004	0	31	2,973	927	532
05/10/98	---	---	---	---	1,644	414	0	14	2,777	1,139	265
05/11/98	---	0	0	123	4,741	817	0	21	1,528	0	490
05/12/98	---	0	0	269	6,695	707	190	34	2,439	1,751	624
05/13/98	---	0	0	211	5,916	584	632	60	1,338	1,586	1,310
05/14/98	---	0	0	184	6,077	1,653	490	14	2,030	1,318	979
<b>Total:</b>	2	0	0	1,187	38,993	5,179	1,406	460	27,911	10,896	5,376
<b># Days:</b>	2	10	10	10	14	14	14	14	14	14	14
<b>Average:</b>	1	0	0	119	2,785	370	100	33	1,994	778	384

## 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)
05/01/98	0	0	0	0	0	0	0	0	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	2,530	0
05/06/98	---	0	0	3	0	0	0	488	43,121	10,003	320
05/07/98	---	0	0	3	0	0	0	259	50,178	11,925	614
05/08/98	---	0	0	0	0	0	0	366	89,200	32,855	2,106
05/09/98	---	---	---	---	0	0	0	281	34,726	33,265	5,143
05/10/98	---	---	---	---	0	0	0	153	40,764	42,834	5,750
05/11/98	---	0	0	3	198	0	0	360	25,616	25,667	8,616
05/12/98	---	0	0	8	0	0	0	624	41,027	13,218	6,704
05/13/98	---	0	0	2	0	0	0	732	98,367	24,603	6,238
05/14/98	---	0	0	1	392	0	0	389	24,237	26,793	11,752
<b>Total:</b>	0	0	0	21	590	0	0	5,555	591,698	224,799	47,301
<b># Days:</b>	2	10	10	10	14	14	14	14	14	14	14
<b>Average:</b>	0	0	0	2	42	0	0	397	42,264	16,057	3,379

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 14, 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	33,171	414	100,483	624	66,156	2,083												
TDA	22,092	266	52,511	126	37,352	1,154												
JDA	18,553	158	42,506	73	27,477	891												
MCN	15,081	127	33,105	67	24,737	762												
IHR	9,219	49	20,663	15	11,671	253												
LMN	7,278	29	15,732	70	10,359	230												
LGS	6,548	20	13,201	31	na	na												
LWG	5,977	15	9,760	2	7,111	118												
PRD	2,185	1	1,365	1	6,755	29												
RIS	795	1	437	9	3,756	12												
RRH	184	1	51	0	668	1												
WEL	1	0	6	13	301	5												

	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	3	0	1,821	3,779	3,985	
TDA	0	0	0	0	0	0	0	0	794	810	1,806	
JDA	0	0	0	0	0	0	1	0	6,472	2,554	2,839	
MCN	0	0	0	0	0	0	0	0	1,449	1,422	2,697	
IHR	0	0	0	0	0	0	0	0	1,788	1,345	3,065	
LMN	0	0	0	0	0	0	0	0	1,414	1,165	2,734	
LGS	0	0	0	0	na	na	0	0	2,000	1,363	na	
LWG	0	0	0	0	0	0	1	0	4,139	3,612	5,896	
PRD	0	0	0	0	0	0	0	0	10	7	48	
RIS	0	0	0	0	0	0	1	2	25	35	112	
RRH	0	0	0	0	1	0	0	0	78	55	65	
WEL	0	0	0	0	0	0	0	0	1	33	21	

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 13.

1998 totals at LGS are based on video counts accumulated through May 12.

Adult count records at LGS have been maintained since 1993.

## Transportation Summary Report

### Two-Week Transportation Summary from 05/01/98 to 05/14/98

	Yearling Chinook	Subyrig Chinook	Steelhead	Coho	Sockeye	Total
<b>LOWER GRANITE DAM</b>						
Collected	697,606	750	2,792,850	65,100	29,850	3,586,156
Bypassed	39,212	0	96,006	1,411	0	136,629
Trucked	0	0	0	0	0	0
Barged	657,322	748	2,696,129	63,681	29,845	3,447,725
<b>Total Transported</b>	<b>657,322</b>	<b>748</b>	<b>2,696,129</b>	<b>63,681</b>	<b>29,845</b>	<b>3,447,725</b>
<b>LITTLE GOOSE DAM</b>						
Collected	496,674	0	944,764	5,970	3,751	1,451,159
Bypassed	0	0	0	0	0	0
Trucked	0	0	0	0	0	0
Barged	490,062	0	942,539	5,945	3,750	1,442,296
<b>Total Transported</b>	<b>490,062</b>	<b>0</b>	<b>942,539</b>	<b>5,945</b>	<b>3,750</b>	<b>1,442,296</b>
<b>LOWER MONUMENTAL DAM</b>						
Collected	257,490	0	544,766	4,950	1,125	808,331
Bypassed	601	0	599	0	0	1,200
Trucked	0	0	0	0	0	0
Barged	256,425	0	540,719	4,950	4,275	806,369
<b>Total Transported</b>	<b>256,425</b>	<b>0</b>	<b>540,719</b>	<b>4,950</b>	<b>4,275</b>	<b>806,369</b>
<b>MCNARY DAM</b>						
Collected	413,831	9,312	137,940	47,428	332,237	940,748
Bypassed	412,845	9,191	137,827	47,377	330,636	937,876
Trucked	0	0	0	0	0	0
Barged	0	0	0	0	0	0
<b>Total Transported</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>PROJECT TOTALS</b>						
Collected	1,865,601	10,062	4,420,320	123,448	366,963	6,786,394
Bypassed	452,658	9,191	234,432	48,788	330,636	1,075,705
Trucked	0	0	0	0	0	0
Barged	1,403,809	748	4,179,387	74,576	37,870	5,696,390
<b>Total Transported</b>	<b>1,403,809</b>	<b>748</b>	<b>4,179,387</b>	<b>74,576</b>	<b>37,870</b>	<b>5,696,390</b>

### Cumulative Transportation Summary through 05/14/98

	Yearling Chinook	Subyrig Chinook	Steelhead	Coho	Sockeye	Total
<b>LOWER GRANITE DAM</b>						
Collected	1,421,350	2,010	4,084,533	67,514	29,860	5,605,267
Bypassed	99,944	33	115,141	1,425	0	216,543
Trucked	24,303	46	33,352	93	10	57,804
Barged	1,238,889	1,838	3,887,998	65,359	29,845	5,223,929
<b>Total Transported</b>	<b>1,263,192</b>	<b>1,884</b>	<b>3,921,350</b>	<b>65,452</b>	<b>29,855</b>	<b>5,281,733</b>
<b>LITTLE GOOSE DAM</b>						
Collected	758,195	0	1,092,191	6,175	3,765	1,860,326
Bypassed	0	0	0	0	0	0
Trucked	568	0	1,097	5	0	1,670
Barged	748,602	0	1,088,769	6,145	3,764	1,847,280
<b>Total Transported</b>	<b>749,170</b>	<b>0</b>	<b>1,089,866</b>	<b>6,150</b>	<b>3,764</b>	<b>1,848,950</b>
<b>LOWER MONUMENTAL DAM</b>						
Collected	418,815	22	634,126	5,067	1,135	1,059,165
Bypassed	3,092	10	1,624	11	0	4,737
Trucked	797	0	780	0	0	1,577
Barged	414,029	12	628,257	5,056	4,285	1,051,639
<b>Total Transported</b>	<b>414,826</b>	<b>12</b>	<b>629,037</b>	<b>5,056</b>	<b>4,285</b>	<b>1,053,216</b>
<b>MCNARY DAM</b>						
Collected	765,614	14,597	227,107	60,352	341,255	1,408,925
Bypassed	764,293	14,463	226,967	60,300	339,651	1,405,674
Trucked	0	0	0	0	0	0
Barged	0	0	0	0	0	0
<b>Total Transported</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>PROJECT TOTALS</b>						
Collected	3,363,974	16,629	6,037,957	139,108	376,015	9,933,683
Bypassed	867,329	14,506	343,732	61,736	339,651	1,626,954
Trucked	25,668	46	35,229	98	10	61,051
Barged	2,401,520	1,850	5,605,024	76,560	37,894	8,122,848
<b>Total Transported</b>	<b>2,427,188</b>	<b>1,896</b>	<b>5,640,253</b>	<b>76,658</b>	<b>37,904</b>	<b>8,183,899</b>