



Fish Passage Center

Weekly Report #98 - 5

April 17, 1998

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SUMMARY OF EVENTS:

Water Supply: Precipitation for the October-April period varied from 76% at Flathead to 119% at Klamath basin. Most of precipitation in the basin fell in the 80-100% range. Precipitation distribution for April 1-14 shows high variations with the highest precipitation in Harney/Malheur basin of 198% and lowest at NW Slope Washington Cascades. Klamath basin and lake County-Goose Lake and Owyhee/Malheur basin were the sites with the highest precipitation, in the range of 170-190%. Precipitation at Columbia above Coulee was 93% of average, Columbia above The Dalles was 108% of average and Snake River above Ice Harbor was 134% of average.

System Storage and Streamflow: The system was overdrafted earlier in the season for flood control purposes and for maintenance works. The Federal Operating Agencies implemented a reservoir operational strategy during this winter and fall that resulted in most of the major reservoirs being in refill until the end of April. Consequently, current flows in the system are low and spring/summer flow targets at Lower Granite and McNary may be jeopardized. Most of the major reservoirs will be below BiOp required flood control elevation on April 20.

All system operational requests of Fishery Agencies to prevent this situation earlier in the season had been rejected from the Federal Operating Agencies. Summary of actual elevations and required Flood Control elevations on the end of April is given in the following table:

Reservoir	Actual Elev. [ft] as of 4/15/98	Max. Reservoir Pool [ft]	End of April Flood Control Elev. [ft]
Libby	2392.6	2459.0	NA
Hungry Horse	3511.7	3560.0	3526.7
Grand Coulee	1271.4	1290.0	1281.2
Brownlee	2069.0	2077.0	2073.5
Dworshak	1558.01	1600.0	1595.4*

*required flood control elevation for April 15.

Libby continues releasing a minimum outflow of 4 kcfs to the end of April.

Hungry Horse is projected to be on minimum outflow of about 200 cfs, controlling the flow of 3.5 kcfs at Columbia Falls. It continues to refill to an end of April flood control elevation.

Grand Coulee is projected to continue with refill and to release minimum outflows of 65kcfs for Vernita Bar Agreement at Priest Rapids during next week and to refill to an end of April Flood Control elevation. The Salmon Managers requested a slower rate of refill and increase in outflows up to 72 kcfs for the coming week. This operational request would result in increased flows at mid Columbia and McNary. Federal Agencies will consider this operational request on special TMT meeting at the beginning of the coming week.

Brownlee is projected to refill to an end of April Flood Control Elevation. Currently it is passing the inflow in the range of 30-32 kcfs. Fishery Agencies requested to continue to pass the inflow at elevation of 2070 ft by the end of April. This operational strategy would improve flows at Lower Granite for 2-5 kcfs in the coming week. The operational request will be considered at the beginning of the coming week.

Dworshak is projected to remain at a minimum outflow of 1.3-1.6 kcfs through April 20 in an attempt to refill to BiOp required April 20 Flood Control Elevation.

The Salmon Managers requested to pass the inflow during next week, which would increase the flows at Lower Granite by 5-10 kcfs.

Upper Snake reservoirs:

Currently the system is already on the end of April required storage level. The reservoirs will continue to pass inflow through the end of April. The system was drafted to an end of April flood control storage level at the beginning of April. About 200 kaf of the flood control water, which might have been released in the period of April 15 through 30, was released during the last two weeks of March and spilled at Brownlee. This precluded the use of this water for improving flows at Lower Granite during April. The irrigation season may begin in the third week of April, depending on the weather conditions, which will decrease outflows from Milner, and consequently flows at Lower Granite.

Jackson Lake is projected to pass an inflow of 0.6 kcfs by the end of next week. Currently the reservoir is 76% full.

Palisades is projected to pass an inflow by the end of next week. Currently the outflow is 7.9 kcfs and the reservoir is 62% full.

American Falls is projected to pass an inflow of 12.3 kcfs by the end of next week.

Millner flow, at the lowest point of Upper Snake system, is projected not to exceed 11 kcfs through the end of April. The current outflow is 9.5 kcfs.

The summary of the average weekly flows for run-of the river projects during the April 3-15 period is given in the following Table:

Project	April 10-15	April 3-9
Priest Rapids	76.5 kcfs	71.8 kcfs
McNary	131.3 kcfs	138.9 kcfs
Lower Granite	58.4 kcfs	60.7 kcfs
Bonneville	151.8 kcfs	162.6 kcfs

Spill: Spill at Lower Granite to the 120% gas cap during nighttime hours began on April 10, 1998 and continued until April 12, 1998. Beginning April 13, 1998 spill at this project was reduced to 5.8 kcfs for 24 hours daily for the conduct of the surface bypass collector studies. Spill at Little Goose and Lower Monumental dams has been provided up to the 120% total dissolved gas cap from 1800 hours to 0600 hours. Spill at Ice Harbor Dam has been provided on a 24-hour basis. At the present flows, 100% of the flow is being spilled during nighttime hours.

The Salmon Managers requested that spill in the Lower Columbia River begin on April 20, 1998 based on the numbers of fish presently moving in the hydrosystem and the projected number of hatchery releases that were being timed to coincide with the April 20 date. 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. The request asked that spill be limited to 75 kcfs during daytime hours at Bonneville Dam because of adult passage concerns. However, the operating agencies have denied that request, and have established minimum generation flows of 50 kcfs for McNary, The Dalles and John Day dams, and 30 kcfs at Bonneville Dam. Spill will only occur above these minimum generation levels and at the current flows will generate gas levels well below the gas caps. The operating agencies would not consider an alternate operation of spilling 24 hours per day (rather than 12 hours) at McNary and John Day dams to offset the impact of the minimum generation flow requirement that they established.

Spill for fish passage was initiated at Wells, Rocky Reach and Rock Island dams on

April 15, 1998 and at Wanapum Dam on April 16, 1998.

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 well below the waivers at the other lower Snake projects. The gas levels in the lower Columbia are near 100% saturation, since no spill has occurred in this reach over the past week. Limited data is available for the Mid-Columbia sites at this time, but spill levels should generate gas well below the waivers. Gas bubble trauma monitoring has occurred at all sites over the past week. Few fish are showing signs at Bonneville, but the incidence appears unrelated to spill given the absence of spill in the river.

Smolt Monitoring: *Snake River Drainage.* Hatchery chinook dominated the trap collections this week from the lower Salmon (WTB), Imnaha, and Grande Ronde (GRN) rivers, and hatchery steelhead dominated the Lewiston Snake River trap (LEW) collections. Wild chinook collections in the tributary traps have been low this week compared to the levels observed during the latter part of March when stream flows were much higher. Lower Granite Dam passage indices of hatchery chinook and steelhead have risen above last week's level, while wild chinook and steelhead passage indices have seen less change. *Columbia River Drainage.* This week's collections at Rock Island Dam were dominated by wild Wenatchee sockeye (fork lengths mostly between 80 and 100 mm) and chinook fry (60 mm or less). The McNary Dam collections continued this week to be dominated by yearling chinook. Marked yearling fall chinook volitionally exiting Lyons Ferry Hatchery since April 1 began showing up at McNary Dam by April 13. PIT tagged hatchery chinook from the Umatilla River have been detected this week at John Day Dam. No sampling has taken place at Bonneville Dam Powerhouse 1 trap during most of this week due to repairs being made on the trap deployment system. Sampling

resumed April 16 at the Bonneville Dam trap with yearling chinook dominating the catch.

Adult Fish Passage: At Bonneville Dam, the cumulative count of adult spring chinook was 8,935 through April 17. This total was 27% and 45% of the respective 1997 and 10-year average through April 17. This year's count remains well below the 1997 and 10-yr average. Part of the reason for the low return is the reduced number of 4-yr old fish in the run. Based on preliminary sampling at Bonneville Dam, it appears that greater than 50% of the fish are 5-yr old rather than the more typical 4-yr old. This low return of 4-yr old spring chinook was not totally unexpected based on the reduced number of jack spring chinook that were tallied at Bonneville Dam in 1997. Throughout the week, spring chinook counts ranged up to 900 with the final two count days near 700; counts still have not exceeded 1,000 per day. The spring chinook count at The Dalles Dam is near half the Bonneville Dam count with the McNary count approaching 800 fish.

Passage of adult spring chinook into the Snake River is slowly climbing; the Ice Harbor Dam count of spring chinook was about 230 through April 16. The cumulative count at Lower Granite Dam was 22. Counting has begun at Priest Rapids Dam with 8 adult spring chinook counted on Wednesday and 1 on Thursday, April 16.

Passage of adult steelhead decreased during the week at most projects. The Lower Granite Dam count of steelhead was less than 30 per day for the final two days of the counting week with the cumulative count for the spring season near 3,700.

As noted in previous reports, the WA shore fishway at Bonneville Dam continues to operate with one of the two fish turbines. The second turbine is scheduled to be back on-line May 22. This means that the WA shore fishway will be operated at reduced flows through nearly all of the spring chinook run for the 1998 passage season.

Hatchery Releases: For the season, most hatchery releases of yearling spring/summer chinook from IDFG, USFWS, ODFW, and WDFW hatcheries have been completed in the Snake River Basin. As well, the yearling fall chinook in the Snake Basin have been released for the 98 passage season. Steelhead were being released from most of the hatcheries in the Snake Basin and will continue to be released through mid-May. Coho plants are complete for the 1998 migration season. Nearly all of the sockeye planted in the upper Salmon River Basin were released last summer and fall.

The Mid-Columbia hatcheries began releasing yearling spring and summer chinook through the week with the spring chinook expected to be out by next Friday. Summer steelhead releases were initiated at Wells, Eastbank, and Turtle Rock hatcheries. Fish will be planted in the Okanogan drainage, Methow River and tributaries, Entiat River, and Wenatchee River and tributaries. Steelhead from Ringold Hatchery are planted in the main Columbia River from a small feeder stream that leads from the hatchery to the river. Sockeye releases made in Lake Wenatchee were completed in fall 97 while hatchery sockeye released in Lake Osoyoos are subyearling fish that will be liberated from net pens in May of each year. Coho were released in the Yakima Basin in late March with other releases scheduled for the Methow River again this year. Subyearling summer and fall chinook will be completed in June and early July.

In the stretch of river from McNary Dam to Bonneville Dam, next week will see the second release of subyearling tule fall chinook from Spring Creek Hatchery. Yearling spring chinook will also be released in the Hood, Wind, Little White Salmon, and Deschutes river basins next week. Summer and winter steelhead hatchery fish have been released and will continue through the next couple of weeks. Coho releases either have been or will be made in the Klickitat, Umatilla, and Little White Salmon Rivers through the 1998 passage season. No sockeye or summer chinook are released in this reach of river.

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
04/03/98	61.8	0.0	63.5	0.0	68.6	0.0	73.0	0.0	72.4	0.0	69.5	0.0	71.8	0.0
04/04/98	44.6	0.0	48.6	0.0	59.7	0.0	66.0	0.0	66.4	0.0	66.9	0.0	77.7	0.0
04/05/98	44.3	0.0	44.8	0.0	42.1	0.0	45.8	0.0	45.0	0.0	66.5	0.0	71.0	0.0
04/06/98	54.0	0.0	56.5	0.0	59.6	0.0	61.7	0.0	62.7	0.0	60.9	0.0	69.1	0.0
04/07/98	67.6	0.0	66.8	0.0	70.5	0.0	71.4	0.0	70.8	0.0	72.9	0.0	69.0	0.0
04/08/98	69.6	0.0	72.7	0.0	72.9	0.0	72.9	0.0	74.1	0.0	65.8	0.0	75.2	0.0
04/09/98	68.7	0.0	69.8	0.0	75.6	0.0	84.6	0.0	85.5	0.0	66.8	0.0	68.9	0.0
04/10/98	70.8	0.0	72.4	0.0	75.8	0.0	73.9	0.0	74.3	0.0	78.3	4.3	79.2	0.0
04/11/98	44.7	0.0	48.8	0.0	51.4	0.0	55.8	0.0	56.3	0.0	62.8	0.0	69.9	0.0
04/12/98	38.4	0.0	37.9	0.0	41.9	0.0	45.7	0.0	45.8	0.0	53.0	0.0	70.1	0.0
04/13/98	63.8	0.0	70.9	0.0	76.4	0.0	77.5	0.0	77.6	0.0	78.5	0.0	70.2	0.0
04/14/98	80.6	0.0	71.2	0.0	74.2	0.0	79.5	0.0	79.8	0.0	71.1	0.0	73.5	0.0
04/15/98	54.1	0.0	61.5	0.0	68.2	0.9	70.9	7.8	73.5	11.6	87.0	0.0	95.9	0.0
04/16/98	54.3	0.0	53.0	0.0	54.9	4.6	55.6	9.9	55.1	18.0	67.2	3.8	73.9	0.0

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
04/03/98	1.3	0.0	---	---	53.8	0.0	56.4	0.0	59.1	0.0	60.1	0.0
04/04/98	1.3	0.0	---	---	55.6	0.0	57.1	0.0	60.2	0.0	58.8	0.0
04/05/98	1.2	0.0	---	---	58.2	0.0	60.4	0.0	62.4	0.0	59.5	0.0
04/06/98	1.3	0.0	---	---	64.4	7.6	71.0	15.0	77.0	9.8	76.5	11.5
04/07/98	1.3	0.0	---	---	68.7	29.1	74.5	29.8	78.7	19.7	83.3	45.0
04/08/98	1.3	0.0	---	---	63.0	28.9	57.8	28.4	63.1	20.1	66.1	47.4
04/09/98	1.3	0.0	---	---	61.3	28.9	57.4	24.6	61.4	19.7	67.3	55.2
04/10/98	1.3	0.0	---	---	60.2	28.2	56.0	23.0	58.5	19.6	63.4	55.0
04/11/98	1.3	0.0	---	---	60.7	25.1	59.5	22.9	61.9	18.5	66.6	52.8
04/12/98	1.3	0.0	---	---	58.4	25.1	54.8	20.8	55.6	17.8	59.9	46.3
04/13/98	1.3	0.0	---	---	58.4	15.5	54.5	23.1	57.5	19.2	63.0	53.0
04/14/98	1.3	0.0	---	---	55.5	5.7	57.6	23.1	58.2	19.1	61.7	51.5
04/15/98	1.3	0.0	---	---	57.3	5.9	55.6	19.7	59.0	18.6	62.6	53.0
04/16/98	1.3	0.0	---	---	55.8	6.0	55.6	22.0	56.9	19.7	62.1	50.6

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
04/03/98	137.0	0.0	154.3	0.0	160.2	0.0	171.1	0.0	60.2	101.7
04/04/98	138.8	0.0	143.9	0.0	146.6	0.0	150.0	0.0	61.5	79.3
04/05/98	131.3	0.0	147.0	0.0	146.4	0.0	154.5	0.0	62.2	83.1
04/06/98	148.1	0.0	159.3	0.0	160.1	0.0	169.2	0.0	60.4	99.6
04/07/98	149.9	0.0	159.3	0.0	162.1	0.0	169.7	0.0	62.0	98.5
04/08/98	137.4	0.0	169.8	0.0	170.9	0.0	175.6	0.0	59.3	107.1
04/09/98	129.9	0.0	140.2	0.0	143.0	0.0	148.4	0.0	64.4	74.8
04/10/98	130.8	0.0	125.8	0.0	134.3	0.0	148.1	0.0	66.5	72.4
04/11/98	136.0	0.0	156.7	0.0	155.7	0.0	152.3	0.0	66.3	76.9
04/12/98	128.9	0.0	128.4	0.0	128.2	0.0	148.7	0.0	64.8	74.8
04/13/98	133.6	0.0	148.3	0.0	151.8	0.0	152.7	0.0	68.2	75.1
04/14/98	125.6	0.0	138.8	0.0	142.0	0.0	150.8	0.0	65.6	76.0
04/15/98	132.9	0.0	141.9	0.0	140.0	0.0	158.7	0.0	67.8	81.7
04/16/98	144.7	0.0	148.3	0.0	148.8	0.0	141.7	0.0	65.5	67.0

These data were obtained from the Corps of Engineers through their CAFE reports #96 and #71.

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

		Number of Fish with Fin GBT										
		Listed by Highest Rank								Lateral Line GBT		
	Number of Fish	Number w GBT signs	Number w Fin Signs	% Fin GBT	% Severe Fin GBT	Rank 1	Rank 2	Rank 3	Rank 4	Tot. Fish	Avg. Rank	
Lower Granite Dam												
04/06/98	Yearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
04/06/98	Steelhead	100	0	0	0.00%	0.00%	0	0	0	0	0	0
04/08/98	Yearling Chinook	64	2	1	1.56%	0.00%	1	0	0	0	1	1
04/08/98	Steelhead	100	3	0	0.00%	0.00%	0	0	0	0	3	1
04/10/98	Yearling Chinook	100	1	0	0.00%	0.00%	0	0	0	0	1	1
04/10/98	Steelhead	100	1	0	0.00%	0.00%	0	0	0	0	1	1
04/13/98	Yearling Chinook	100	1	0	0.00%	0.00%	0	0	0	0	1	1
04/13/98	Steelhead	100	1	0	0.00%	0.00%	0	0	0	0	1	1
04/15/98	Yearling Chinook	100	2	0	0.00%	0.00%	0	0	0	0	2	1
04/15/98	Steelhead	100	1	0	0.00%	0.00%	0	0	0	0	1	1
Little Goose Dam												
04/09/98	Yearling Chinook	8	0	0	0.00%	0.00%	0	0	0	0	0	0
04/09/98	Steelhead	35	0	0	0.00%	0.00%	0	0	0	0	0	0
04/14/98	Yearling Chinook	56	0	0	0.00%	0.00%	0	0	0	0	0	0
04/14/98	Steelhead	77	0	0	0.00%	0.00%	0	0	0	0	0	0
04/16/98	Yearling Chinook	100	1	1	1.00%	0.00%	1	0	0	0	0	0
04/16/98	Steelhead	100	2	2	2.00%	0.00%	2	0	0	0	0	0
Lower Monumental Dam												
04/06/98	Yearling Chinook	38	1	1	2.63%	0.00%	1	0	0	0	0	0
04/06/98	Steelhead	25	0	0	0.00%	0.00%	0	0	0	0	0	0
04/08/98	Yearling Chinook	33	1	0	0.00%	0.00%	0	0	0	0	1	1
04/08/98	Steelhead	34	0	0	0.00%	0.00%	0	0	0	0	0	0
04/10/98	Yearling Chinook	61	0	0	0.00%	0.00%	0	0	0	0	0	0
04/10/98	Steelhead	22	0	0	0.00%	0.00%	0	0	0	0	0	0
04/13/98	Yearling Chinook	89	3	0	0.00%	0.00%	0	0	0	0	3	1
04/13/98	Steelhead	56	3	3	5.35%	0.00%	3	0	0	0	0	0

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

		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				Lateral Line GBT	
							Rank 1	Rank 2	Rank 3	Rank 4	Tot. Fish	Avg. Rank
Lower Monumental Dam continued												
04/15/98	Yearling Chinook	100	5	0	0.00%	0.00%	0	0	0	0	5	1
04/15/98	Steelhead	55	1	0	0.00%	0.00%	0	0	0	0	1	1
McNary Dam												
04/07/98	Yearling Chinook	12	0	0	0.00%	0.00%	0	0	0	0	0	0
04/07/98	Steelhead	1	0	0	0.00%	0.00%	0	0	0	0	0	0
04/09/98	Yearling Chinook	108	2	0	0.00%	0.00%	0	0	0	0	2	1
04/09/98	Steelhead	5	1	0	0.00%	0.00%	0	0	0	0	1	1
04/11/98	Yearling Chinook	104	1	0	0.00%	0.00%	0	0	0	0	1	1
04/11/98	Steelhead	11	0	0	0.00%	0.00%	0	0	0	0	0	0
04/14/98	Yearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
04/14/98	Steelhead	10	0	0	0.00%	0.00%	0	0	0	0	0	0
Bonneville Dam												
04/06/98	Steelhead	10	0	0	0.00%	0.00%	0	0	0	0	0	0
04/07/98	Yearling Chinook	28	1	1	3.57%	0.00%	1	0	0	0	0	0
04/08/98	Steelhead	8	0	0	0.00%	0.00%	0	0	0	0	0	0
04/09/98	Yearling Chinook	50	1	0	0.00%	0.00%	0	0	0	0	1	1
04/14/98	Yearling Chinook	100	1	1	1.00%	0.00%	1	0	0	0	0	0
04/15/98	Steelhead	46	1	1	2.17%	0.00%	1	0	0	0	0	0
04/16/98	Yearling Chinook	92	5	5	5.43%	0.00%	3	2	0	0	0	0
Rock Island Dam												
04/06/98	Yearling Chinook	28	0	0	0.00%	0.00%	0	0	0	0	0	0
04/06/98	Steelhead	1	0	0	0.00%	0.00%	0	0	0	0	0	0
04/08/98	Yearling Chinook	19	1	0	0.00%	0.00%	0	0	0	0	1	1
04/08/98	Steelhead	3	0	0	0.00%	0.00%	0	0	0	0	0	0
04/10/98	Yearling Chinook	15	0	0	0.00%	0.00%	0	0	0	0	0	0
04/10/98	Steelhead	4	0	0	0.00%	0.00%	0	0	0	0	0	0

Hatchery Release Summary
Schedule for Last Two Weeks
From 04/02/98 to 04/16/98

Hatchery	Species	FPC LotID	Number Released	Release Dates		Release Site	River Name
				Begin	End		
IDFG							
Clearwater	SP Chinook	98002	206,000	04/07/98	04/10/98	Crooked R Accl Pd	S Fk Clearwater River
	SP Chinook	98003	51,530	04/07/98	04/09/98	Red River Acclim Pd	S Fk Clearwater River
	SP Chinook	98004	8,900	04/08/98	04/08/98	Selway R	Clearwater River, Main Fk
Magic Valley	SU Steelhead	98008	285,000	04/13/98	04/15/98	Little Salmon R	Salmon River
	SU Steelhead	98112	144,000	04/15/98	04/16/98	Mcnabb/Salmon R	Salmon River
	SU Steelhead	98113	150,000	04/16/98	04/17/98	Bruno/Salmon	Salmon River
McCall	SU Chinook	98009	369,816	03/31/98	04/09/98	S Fk Salmon R	Salmon River
	SU Chinook	98010	24,900	04/01/98	04/15/98	S Fk Salmon R	Salmon River
Niagara Springs	SU Steelhead	98120	653,276	03/23/98	04/05/98	Hells Canyon Dam	Snake River
	SU Steelhead	98122	31,160	04/06/98	04/06/98	Pine Bar/Salmon R	Salmon River
	SU Steelhead	98123	141,320	04/07/98	04/09/98	Hammer Cr	Salmon River
	SU Steelhead	98119	830,000	04/12/98	05/02/98	Pahsimeroi H	Pahsimeroi River
Pahsimeroi	SU Chinook	98011	65,100	04/15/98	04/25/98	Pahsimeroi H	Pahsimeroi River
Powell	SP Chinook	98001	244,900	04/06/98	04/08/98	Powell Acclim Pd	Lochsa River
Rapid River	SP Chinook	98007	896,250	03/16/98	04/10/98	Rapid River H	Little Salmon River
Sawtooth	SP Chinook	98012	43,200	04/10/98	04/22/98	Sawtooth H	Salmon River
	Agency Total:		4,145,352				
Nez Perce Tribe							
Lyons Ferry	FA Chinook	98042	147,585	04/01/98	04/15/98	Pittsburg Landing	Snake River
	FA Chinook	98043	76,571	04/01/98	04/15/98	Clearwater R	Clearwater River, Main Fk
	FA Chinook	98044	135,710	04/01/98	04/15/98	Cpt John Accl Pd	Snake River
	Agency Total:		359,866				
ODFW							
Big Canyon	SU Steelhead	98103	97,500	04/01/98	04/15/98	Big Canyon H	Grande Ronde River
Cascade	Coho	98054	1,000,000	04/01/98	04/10/98	Umatilla R	Umatilla River
Imnaha	SU Chinook	98098	93,109	04/06/98	04/07/98	Imnaha Acclim Pd	Imnaha River
Irrigon	SU Steelhead	98099	200,000	04/06/98	04/08/98	Grande Ronde R	Grande Ronde River
	SU Steelhead	98100	62,500	04/09/98	04/09/98	Catherine Cr	Grande Ronde River
Lookingglass	SP Chinook	98097	293,000	04/06/98	04/10/98	Lookingglass H	Grande Ronde River
Round Butte	SU Steelhead	98129	162,000	04/06/98	04/09/98	Bel. Pelton Dam	Deschutes River
	SP Chinook	98130	50,000	04/13/98	04/14/98	Bel. Pelton Dam	Deschutes River
Wallowa	SU Steelhead	98101	186,100	03/25/98	04/08/98	Wallowa Acclim Pd	Grande Ronde River
	Agency Total:		2,144,209				

Hatchery Release Summary
Schedule for Last Two Weeks
From 04/02/98 to 04/16/98

Umatilla Tribe

Bonifer	SU Steelhead	98051	50,000	04/10/98	04/20/98	Bonifer H	Umatilla River
Minthorn	SU Steelhead	98053	50,000	04/10/98	04/20/98	Minthorn Acclim Pd	Umatilla River
Thornhollow	FA Chinook	98046	225,000	04/10/98	04/20/98	Thornhollow Acclim Pd	Umatilla River
	SP Chinook	98050	100,000	04/10/98	04/20/98	Thornhollow Acclim Pd	Umatilla River
Agency Total:			425,000				

USFWS

Hagerman	SU Steelhead	98067	605,000	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
Spring Creek	SP Chinook	98057	150,000	04/16/98	04/16/98	White Salmon R	Columbia River
Willard	Coho	98077	1,800,000	04/15/98	04/15/98	Little White Salmon R	Columbia River
Winthrop	SP Chinook	98078	324,851	04/14/98	04/14/98	Winthrop H	Methow River
Warm Springs	SP Chinook	98076	665,000	03/25/98	04/15/98	Warm Springs R	Deschutes River
Agency Total:			3,965,851				

WDFW

Chewuch	SP Chinook	98025	92,500	04/06/98	04/20/98	Chewuch R	Methow River
East Bank	SU Chinook	98016	624,000	04/01/98	05/15/98	Dryden Accl Pd	Wenatchee River
	SP Chinook	98015	15,000	04/01/98	04/30/98	Chiwawa H	Wenatchee River
	SU Steelhead	98020	276,000	04/15/98	05/05/98	Wenatchee R	Wenatchee River
Lyons Ferry	FA Chinook	98041	450,000	04/01/98	04/15/98	Lyons Ferry H	Snake River
	SU Steelhead	98034	300,000	04/15/98	04/30/98	Cottonwood Accl Pd	Grande Ronde River
	SU Steelhead	98037	135,000	04/15/98	04/30/98	Walla Walla R	Walla Walla River
	SU Steelhead	98035	140,000	04/15/98	04/30/98	Dayton Acclim Pd	Wallowa River
	SU Steelhead	98033	80,000	04/15/98	04/30/98	Lyons Ferry H	Snake River
	SU Steelhead	98036	160,000	04/15/98	04/30/98	Tucannon R	Snake River
Methow	SP Chinook	98026	78,000	04/06/98	04/20/98	Twisp R	Methow River
	SP Chinook	98024	202,000	04/06/98	04/20/98	Methow H	Methow River
	SU Chinook	98017	340,000	04/10/98	04/10/98	Carlton Accl Pd	Methow River
Ringold	SP Chinook	98139	450,000	04/01/98	04/04/98	Ringold Springs H	Mid-Columbia River
	SU Steelhead	98141	180,000	04/15/98	04/30/98	Ringold Springs H	Mid-Columbia River
Tucannon	SP Chinook	98038	49,000	03/12/98	04/15/98	Curl Lake	Tucannon River
	SP Chinook	98039	15,000	03/12/98	04/15/98	Tucannon H	Tucannon River
	SP Chinook	98040	15,000	04/03/98	04/03/98	Tucannon R	Tucannon River
Turtle Rock	SU Chinook	98023	134,400	04/15/98	04/20/98	Turtle Rock H	Mid-Columbia River
Wells	SU Steelhead	98031	300,000	04/15/98	05/05/98	Methow R	Mid-Columbia River
	SU Steelhead	98030	50,000	04/15/98	05/05/98	Effy Bridge	Methow River
	SU Steelhead	98029	50,000	04/15/98	05/05/98	Okanogan R	Mid-Columbia River
	SU Steelhead	98028	50,000	04/15/98	05/05/98	Similkameen Acclim Pd	Okanogan River
	SU Chinook	98027	357,000	04/15/98	04/20/98	Wells H	Mid-Columbia River
Agency Total:			4,542,900				

HaWnHJy RH0aVH SuP P aUy
SFhHu0fRULaWtWR: HNV
FURP 04/02/98 WR 04/16/98

Warm Springs Tribe

Oak Springs	SU Steelhead	98133	60,000	04/08/98	04/10/98	Hood R	Hood River
	WI Steelhead	98131	30,000	04/13/98	04/19/98	E Fk Hood R	Hood River
Round Butte	SP Chinook	98134	62,000	04/06/98	04/13/98	Hood R	Hood River
	Agency Total:		152,000				

Yakama Tribe

Lewis River	Coho	98143	138,000	04/15/98	04/30/98	Klickitat R	Klickitat River
	Agency Total:		138,000				
	Total Release:		15,873,178				

Hatchery Release Summary
Schedule for Next Two Weeks
From 04/17/98 to 04/30/98

Hatchery	Species	FPC LotID	Number Released	Release Dates		Release Site	River Name
				Begin	End		
IDFG							
Clearwater	SU Steelhead	98084	207,900	04/20/98	04/20/98	Clear Cr	Clearwater River, Main Fk
	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	98111	120,000	04/20/98	04/21/98	Lemhi R	Salmon River
	SU Steelhead	98114	292,000	04/21/98	04/23/98	N Fk Salmon R	Salmon River
	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
Sawtooth	SU Steelhead	98125	60,000	04/24/98	04/24/98	Sawtooth H	Salmon River
	SU Steelhead	98126	565,000	04/24/98	04/24/98	Sawtooth H	Salmon River
	SU Steelhead	98124	60,000	04/24/98	04/24/98	Torrey'S (Salmon R)	Salmon River
	SU Steelhead	98127	60,000	04/24/98	04/24/98	Sawtooth H	Salmon River
Agency Total:			2,579,025				
ODFW							
Li Sheep	SU Steelhead	98109	82,000	04/23/98	04/23/98	L Sheep Acclim Pd	Imnaha River
Round Butte	SP Chinook	98128	280,000	04/20/98	04/23/98	Bel. Pelton Dam	Deschutes River
Agency Total:			362,000				
USFWS							
Carson	SP Chinook	98059	1,733,500	04/19/98	04/21/98	Carson H	Wind River
Dworshak	SU Steelhead	98060	520,000	04/20/98	04/28/98	S Fk Clearwater R	Clearwater River, Main Fk
	SU Steelhead	98061	380,000	04/20/98	04/28/98	Kooskia H	Clearwater River, Main Fk
	SU Steelhead	98062	1,200,000	04/29/98	05/08/98	Dworshak H	Clearwater River, Main Fk
Hagerman	SU Steelhead	98066	60,000	04/24/98	04/24/98	Torrey'S (Salmon R)	Salmon River
Leavenworth	SP Chinook	98069	1,700,000	04/20/98	04/20/98	Leavenworth H	Wenatchee River
L White Salmon	SP Chinook	98070	1,070,000	04/20/98	04/20/98	Little White Salmon H	Little White Salmon River
Spring Creek	FA Chinook	98074	4,200,000	04/20/98	04/20/98	Spring Creek H	Columbia River
Agency Total:			10,863,500				
WDFW							
Klickitat	Coho	98095	1,000,000	04/20/98	06/10/98	Klickitat H	Klickitat River
Turtle Rock	SU Steelhead	98019	146,300	04/27/98	05/05/98	Wenatchee R	Wenatchee River
Agency Total:			1,146,300				
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				
Total Release:			15,042,825				

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				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	#	24 h	12 h	#			
4/3	109	112	113	24	106	106	107	23	104	104	106	23	105	106	106	24	---	---	---	0	105	105	106	22
4/4	104	104	108	24	106	107	108	23	105	105	106	23	106	106	107	22	---	---	---	0	106	106	106	23
4/5	103	103	104	15	106	106	108	16	104	105	105	16	105	105	106	16	---	---	---	0	---	---	---	0
4/6	104	104	104	24	107	108	108	24	104	105	106	24	106	107	107	23	---	---	---	0	107	107	108	19
4/7	104	105	111	24	107	108	109	24	104	104	105	24	106	106	107	24	---	---	---	0	107	107	108	23
4/8	108	112	114	24	106	106	107	24	103	103	104	24	105	106	106	24	---	---	---	0	106	107	108	23
4/9	108	112	114	20	106	107	108	20	103	104	105	20	106	107	107	22	---	---	---	0	108	108	109	23
4/10	110	114	115	24	107	108	108	24	105	105	105	24	106	107	108	24	---	---	---	0	108	109	109	23
4/11	109	110	111	24	108	108	108	24	105	106	107	24	106	107	108	24	---	---	---	0	109	110	110	23
4/12	107	110	115	24	107	107	108	24	105	106	107	24	105	106	108	22	---	---	---	0	110	110	111	23
4/13	105	106	109	24	106	107	108	24	104	105	105	24	104	105	106	22	---	---	---	0	107	108	109	23
4/14	104	104	106	24	106	107	108	24	104	104	105	24	105	106	106	22	---	---	---	0	108	108	108	23
4/15	104	105	107	24	105	106	107	24	104	105	105	24	104	104	105	22	---	---	---	0	108	108	109	22
4/16	103	103	104	24	105	105	107	24	103	104	104	24	104	104	105	22	107	107	107	17	107	108	108	22

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	#						
4/3	---	---	---	0	---	---	---	0	105	105	105	13	---	---	---	0	---	---	---	0	---	---	---	0
4/4	---	---	---	0	---	---	---	0	105	106	106	22	---	---	---	0	---	---	---	0	---	---	---	0
4/5	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
4/6	---	---	---	0	120	129	146	19	106	106	106	18	---	---	---	0	---	---	---	0	---	---	---	0
4/7	---	---	---	0	104	104	105	23	106	106	106	23	---	---	---	0	---	---	---	0	---	---	---	0
4/8	---	---	---	0	104	104	104	23	106	106	106	22	---	---	---	0	---	---	---	0	---	---	---	0
4/9	---	---	---	0	104	105	105	23	106	106	106	23	---	---	---	0	---	---	---	0	---	---	---	0
4/10	---	---	---	0	105	106	106	23	107	107	107	23	---	---	---	0	---	---	---	0	---	---	---	0
4/11	---	---	---	0	104	105	106	23	107	107	107	23	---	---	---	0	---	---	---	0	---	---	---	0
4/12	---	---	---	0	104	105	106	23	107	107	107	23	---	---	---	0	---	---	---	0	---	---	---	0
4/13	---	---	---	0	105	105	106	23	106	106	107	23	---	---	---	0	---	---	---	0	---	---	---	0
4/14	---	---	---	0	105	105	106	23	106	106	107	23	---	---	---	0	---	---	---	0	---	---	---	0
4/15	107	107	110	13	105	105	105	23	110	113	114	23	---	---	---	0	---	---	---	0	---	---	---	0
4/16	109	111	113	22	105	105	107	22	114	115	116	22	---	---	---	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	#						
4/3	---	---	---	0	109	109	110	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
4/4	---	---	---	0	108	109	109	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
4/5	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	104	104	104	24	102	102	103	24
4/6	---	---	---	0	109	109	111	22	---	---	---	0	---	---	---	0	105	105	107	23	105	108	114	23
4/7	---	---	---	0	101	101	101	24	---	---	---	0	101	102	103	24	104	104	105	24	109	111	113	24
4/8	---	---	---	0	101	102	103	24	---	---	---	0	102	103	105	24	103	105	106	24	109	109	110	24
4/9	---	---	---	0	108	109	110	24	101	101	101	14	101	101	102	12	104	105	105	24	108	109	109	24
4/10	---	---	---	0	101	102	102	24	---	---	---	0	102	103	104	24	105	105	106	24	109	111	112	24
4/11	---	---	---	0	101	102	103	24	---	---	---	0	101	101	102	11	105	105	106	24	108	112	113	24
4/12	---	---	---	0	110	111	112	24	101	101	102	24	---	---	---	0	104	104	105	24	108	112	112	24
4/13	---	---	---	0	110	110	111	23	101	102	102	24	101	102	104	24	104	104	105	23	105	107	111	22
4/14	---	---	---	0	109	110	110	23	101	101	101	24	102	102	104	24	103	103	104	24	103	104	104	24
4/15	---	---	---	0	109	110	111	24	101	102	102	24	102	103	104	24	102	102	102	10	103	103	104	15
4/16	---	---	---	0	109	110	111	24	101	101	102	24	102	103	104	24	102	102	102	15	103	103	103	14

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			Tlwr L. Goose				Lower Mon.				Tlwr L. Mon				Ice Harbor			Tlwr 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	#	24 h	12 h	#			
	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	hr		
4/3	---	---	---	0	---	---	---	0	103	103	104	21	104	104	105	21	102	102	103	21	102	103	103	21
4/4	---	---	---	0	---	---	---	0	102	102	102	21	104	104	104	21	102	103	104	21	103	103	104	21
4/5	---	---	---	0	---	---	---	0	101	101	101	22	103	103	104	22	103	103	104	23	103	103	104	23
4/6	---	---	---	0	---	---	---	0	101	101	102	22	106	109	121	22	102	103	104	24	106	109	114	24
4/7	102	102	103	24	113	121	122	23	100	100	101	24	114	120	121	22	99	100	101	24	114	114	114	24
4/8	102	102	103	24	113	122	123	24	103	105	110	24	114	120	121	23	103	106	108	24	114	114	114	24
4/9	102	102	103	6	113	121	123	24	111	113	115	21	118	120	121	21	107	107	108	9	114	114	115	9
4/10	109	111	111	24	---	---	---	0	115	117	119	22	121	121	122	7	110	111	111	24	---	---	---	0
4/11	113	114	114	24	117	120	121	24	114	116	118	23	120	121	122	24	113	114	114	24	---	---	---	0
4/12	113	113	113	24	116	119	120	24	112	113	114	23	117	119	121	24	114	114	114	24	---	---	---	0
4/13	112	112	112	23	116	120	122	23	113	114	115	22	118	120	121	23	114	114	114	23	114	115	116	22
4/14	110	111	111	24	115	120	123	24	112	113	115	24	118	120	121	24	113	113	114	24	115	115	117	24
4/15	108	109	109	24	113	118	119	23	113	114	116	24	118	120	121	24	113	113	115	24	114	115	116	24
4/16	108	109	109	24	114	119	120	24	112	113	114	22	118	120	121	24	112	113	113	24	114	115	116	24

Total Dissolved Gas Saturation Data at Lower Columbia Sites

Date	McNary-Oregon			McNary-Wash.				Tlwr McNary				John Day				Tlwr 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	#	24 h	12 h	#			
	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	hr		
4/3	104	104	105	24	105	105	106	24	104	104	105	24	105	105	107	24	101	101	103	12	104	104	105	24
4/4	105	106	109	24	105	105	106	24	105	105	105	24	105	105	105	22	99	99	99	17	104	104	105	22
4/5	105	105	107	23	105	106	106	23	105	105	106	23	105	105	105	15	99	99	99	12	104	104	104	15
4/6	106	107	109	24	106	106	106	24	105	105	106	24	105	105	105	20	100	100	100	9	104	104	104	19
4/7	103	104	106	24	104	105	105	24	104	104	105	24	104	104	105	24	103	103	104	14	103	103	104	24
4/8	104	106	110	23	104	106	108	24	104	105	105	24	103	104	104	24	103	103	103	24	103	103	103	24
4/9	104	105	107	23	107	108	110	23	105	105	106	23	104	104	105	22	103	103	103	24	104	104	104	22
4/10	108	110	112	24	108	108	109	24	107	108	108	24	104	104	105	24	103	103	104	24	104	104	105	24
4/11	107	108	108	24	108	108	108	24	108	108	109	24	104	104	105	24	103	104	104	24	104	104	104	24
4/12	108	110	111	24	107	107	107	24	107	107	108	24	103	104	104	22	103	103	103	24	103	103	103	22
4/13	108	109	110	23	107	108	108	22	107	107	107	22	103	103	104	22	102	103	103	24	103	103	103	22
4/14	108	108	110	23	107	107	108	23	106	106	106	23	103	103	103	22	102	102	102	24	102	102	102	22
4/15	105	106	108	24	107	107	108	24	105	106	106	24	102	102	102	22	101	102	102	24	102	102	102	22
4/16	105	106	107	23	106	106	107	24	105	105	106	24	101	102	102	22	101	101	101	24	101	101	102	22

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	#	24 h	12 h	#			
	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	hr		
4/3	104	104	105	23	103	103	104	24	103	103	104	24	102	103	104	24	102	103	103	23	103	103	104	23
4/4	104	104	105	23	103	104	104	22	104	104	104	22	102	103	103	22	103	104	104	23	103	103	104	23
4/5	103	104	104	15	103	103	103	1	104	104	104	15	102	103	104	15	103	103	105	15	103	103	103	15
4/6	104	104	104	19	104	104	104	23	104	104	105	23	103	104	105	23	104	104	105	23	103	104	104	23
4/7	103	103	103	23	103	103	104	24	103	103	104	24	102	102	103	24	103	103	104	24	102	103	103	24
4/8	103	103	104	24	103	103	103	24	103	104	104	24	102	103	104	24	103	104	104	24	103	103	104	24
4/9	104	104	104	23	103	104	104	22	103	104	104	22	103	104	104	22	103	104	104	23	104	104	104	23
4/10	104	104	105	24	104	105	105	24	104	105	105	24	104	104	105	24	104	105	105	24	104	105	105	24
4/11	104	104	104	24	104	105	105	24	105	105	105	24	104	104	105	24	104	104	105	24	104	104	105	24
4/12	103	103	104	23	104	104	104	22	104	104	105	22	103	104	104	22	104	104	105	23	103	103	104	23
4/13	102	102	103	23	103	103	104	22	104	104	104	22	103	103	103	22	103	103	104	23	103	103	103	23
4/14	102	102	102	22	102	102	103	22	103	103	104	22	102	103	103	22	103	104	104	23	103	103	103	23
4/15	101	102	102	23	103	103	104	22	102	102	103	22	102	102	103	22	102	102	103	23	103	103	103	23
4/16	101	101	102	23	103	103	103	22	102	102	103	22	103	103	103	22	102	103	104	23	103	103	103	23

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)
04/03/98	36	0	0	4	1,820	49	20	102	430	---	183
04/04/98	---	---	---	---	3,226	92	120	57	5,230	---	110
04/05/98	---	---	---	---	4,740	80	80	40	28,961	---	280
04/06/98	172	0	0	4	7,050	113	110	32	30,453	---	318
04/07/98	529	0	0	33	3,983	73	294	23	19,518	---	300
04/08/98	225	870	205	30	5,113	123	784	21	7,695	---	382
04/09/98	585	3,929	2,237	36	3,744	106	1,163	11	4,760	2,397	493
04/10/98	134	2,886	1,135	4	4,735	88	554	20	9,429	1,149	---
04/11/98	---	2,638	---	---	5,052	111	907	15	4,762	3,986	---
04/12/98	---	2,980	---	---	5,762	246	398	11	4,833	1,374	---
04/13/98	479	1,426	46	17	7,239	242	817	16	4,312	4,194	---
04/14/98	228	1,390	33	46	7,237	428	696	39	2,655	5,140	---
04/15/98	294	733	15	42	18,800	529	949	24	6,432	3,662	---
04/16/98	---	327	4	---	12,767	952	1,438	20	6,781	4,176	882
Total:	2,682	17,179	3,675	216	91,268	3,232	8,330	431	136,251	26,078	2,948
# Days:	9	12	10	9	14	14	14	14	14	8	8
Average:	298	1,432	368	24	6,519	231	595	31	9,732	3,260	369

Wild Yearling Chinook

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)
04/03/98	22	63	12	4	2,200	21	0
04/04/98	---	---	---	---	3,761	34	120
04/05/98	---	---	---	---	5,300	30	50
04/06/98	18	101	4	0	6,210	47	30
04/07/98	50	43	2	9	3,895	65	46
04/08/98	33	59	0	9	3,055	47	83
04/09/98	53	23	3	8	2,416	19	58
04/10/98	23	3	0	2	3,118	93	5
04/11/98	---	18	---	---	3,067	86	35
04/12/98	---	24	---	---	2,521	145	25
04/13/98	16	72	1	1	2,657	144	45
04/14/98	7	104	1	2	2,278	262	63
04/15/98	6	110	1	6	6,863	340	65
04/16/98	---	94	0	---	4,932	599	63
Total:	228	714	24	41	52,273	1,932	688
# Days:	9	12	10	9	14	14	14
Average:	25	60	2	5	3,734	138	49

Wild Subyearling Chinook

LGR (INDEX)	LGS (INDEX)	LMN (INDEX)
0	0	0
0	0	0
20	0	0
10	0	0
26	0	0
0	0	14
0	0	0
38	0	0
0	0	0
0	0	17
0	0	0
22	0	0
0	0	0
0	0	0
116	0	31
14	14	14
8	0	2

Smolt Monitoring Program (SMP) site definitions: Juvenile salmonids are sampled for the SMP at 11 dams or traps. Passage values are reported here as either collection or index counts. Collection counts are expanded, if necessary, for sub-sampling effort. Index counts are further expanded to account for non-sampled flow volume. ODFW operates the Grande Ronde trap (GRN), and reports on data collected at Little Goose Dam (LGS). IDFG operates the Salmon River trap (LEW). The Nex Perce Tribe operates a trap on the Imnaha River (IMN). WDFW reports data from the collection facilities at Lower Granite Dam (LGR); Lower Monumental Dam (LMN); Rock Island Dam PH2 (RIS) and McNary Dam (MCN). NMFS samples at John Day Dam (JDA), and provides an index value based on 8 hour sampling at Bonneville PH1 (BON).

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)
04/03/98	0	0	0	0	0	0	0	17	380	---	129
04/04/98	---	---	---	---	0	0	0	29	30	---	42
04/05/98	---	---	---	---	0	0	0	68	320	---	103
04/06/98	0	0	0	0	0	0	0	115	50	---	85
04/07/98	0	0	0	0	0	0	0	166	150	---	10
04/08/98	0	0	0	0	0	0	0	449	60	---	67
04/09/98	0	0	0	0	0	0	0	112	0	38	52
04/10/98	0	0	0	0	0	0	0	110	20	9	---
04/11/98	---	0	---	---	0	0	0	131	20	48	---
04/12/98	---	0	---	---	0	0	0	106	30	0	---
04/13/98	0	0	0	0	0	0	0	177	50	48	---
04/14/98	0	0	0	0	0	0	0	139	54	48	---
04/15/98	0	0	0	0	0	0	0	94	30	348	---
04/16/98	---	0	0	---	0	0	0	162	50	8	32
Total:	0	0	0	0	0	0	0	1,875	1,244	547	520
# Days:	9	12	10	9	14	14	14	14	14	8	8
Average:	0	0	0	0	0	0	0	134	89	68	65

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)
04/03/98	0	0	0	0	20	0	0	0	80	---	161
04/04/98	---	---	---	---	14	0	0	0	80	---	144
04/05/98	---	---	---	---	20	0	0	0	120	---	103
04/06/98	0	0	0	0	0	0	0	0	0	---	53
04/07/98	0	0	0	0	0	8	0	0	50	---	41
04/08/98	0	0	0	0	0	0	14	0	30	---	22
04/09/98	0	0	0	0	38	0	0	0	80	6	130
04/10/98	0	0	0	0	38	0	0	0	120	0	---
04/11/98	---	0	---	---	39	0	0	0	110	4	---
04/12/98	---	0	---	---	0	0	0	0	120	2	---
04/13/98	0	0	0	0	33	0	0	0	160	6	---
04/14/98	0	0	0	0	0	0	0	0	96	2	---
04/15/98	0	0	0	0	0	0	0	0	210	4	---
04/16/98	---	0	0	---	56	0	9	0	180	12	324
Total:	0	0	0	0	258	8	23	0	1,436	36	978
# Days:	9	12	10	9	14	14	14	14	14	8	8
Average:	0	0	0	0	18	1	2	0	103	5	122

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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)
04/03/98	0	0	6	34	5,290	20	20	0	10	---	0
04/04/98	---	---	---	---	8,537	33	40	0	30	---	0
04/05/98	---	---	---	---	6,240	55	0	0	10	---	9
04/06/98	0	0	4	153	9,050	50	10	0	0	---	0
04/07/98	0	0	0	99	7,550	105	5	0	0	---	0
04/08/98	0	0	3	103	8,908	162	28	0	0	---	0
04/09/98	0	0	7	99	10,397	193	34	0	0	14	0
04/10/98	0	0	12	53	6,852	285	59	0	73	1	---
04/11/98	---	0	---	---	6,007	416	114	0	10	14	---
04/12/98	---	0	---	---	5,500	601	178	0	31	9	---
04/13/98	0	1	6	74	21,452	1,088	261	0	20	18	---
04/14/98	0	0	10	154	6,238	1,845	181	0	48	7	---
04/15/98	0	0	5	172	12,362	1,359	260	0	111	3	---
04/16/98	---	0	7	---	12,111	2,148	375	1	120	0	178
Total:	0	1	60	941	126,494	8,360	1,565	1	463	66	187
# Days:	9	12	10	9	14	14	14	14	14	8	8
Average:	0	0	6	105	9,035	597	112	0	33	8	23

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)
04/03/98	0	18	1	3	3,420	80	20	3	140	---	118
04/04/98	---	---	---	---	3,536	144	270	11	330	---	93
04/05/98	---	---	---	---	3,000	130	100	6	560	---	30
04/06/98	3	20	1	10	2,270	295	180	1	50	---	106
04/07/98	0	11	1	4	1,107	315	160	3	200	---	52
04/08/98	0	20	0	1	1,608	293	69	3	331	---	101
04/09/98	0	14	0	5	1,606	261	214	4	280	222	61
04/10/98	0	6	0	1	1,540	227	87	6	582	126	---
04/11/98	---	15	---	---	857	153	247	1	340	518	---
04/12/98	---	11	---	---	1,375	194	76	6	420	173	---
04/13/98	3	17	0	0	3,155	250	149	2	611	534	---
04/14/98	1	55	0	8	1,357	210	99	9	276	583	---
04/15/98	1	31	0	8	1,744	271	129	7	691	497	---
04/16/98	---	45	0	---	1,290	316	71	11	740	568	146
Total:	8	263	3	40	27,865	3,139	1,871	73	5,551	3,221	707
# Days:	9	12	10	9	14	14	14	14	14	8	8
Average:	1	22	0	4	1,990	224	134	5	397	403	88

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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)
04/03/98	0	0	0	0	0	0	0	0	0	---	0
04/04/98	---	---	---	---	0	0	0	0	10	---	0
04/05/98	---	---	---	---	0	0	0	0	0	---	0
04/06/98	0	0	0	0	0	0	0	0	0	---	0
04/07/98	0	0	0	0	0	0	0	2	0	---	0
04/08/98	0	0	0	0	0	0	0	0	0	---	0
04/09/98	0	0	0	0	0	0	0	1	0	0	0
04/10/98	0	0	0	0	0	0	0	0	10	0	---
04/11/98	---	0	---	---	0	0	0	0	0	0	---
04/12/98	---	0	---	---	0	0	0	0	0	0	---
04/13/98	0	0	0	0	0	0	0	1	20	0	---
04/14/98	0	0	0	0	0	0	0	2	0	0	---
04/15/98	0	0	0	0	0	0	0	2	0	0	---
04/16/98	---	0	0	---	0	0	0	0	10	0	0
Total:	0	0	0	0	0	0	0	8	50	0	0
# Days:	9	12	10	9	14	14	14	14	14	8	8
Average:	0	0	0	0	0	0	0	1	4	0	0

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)
04/03/98	0	0	0	0	0	0	0	0	10	---	0
04/04/98	---	---	---	---	0	0	0	0	0	---	0
04/05/98	---	---	---	---	0	0	0	0	0	---	0
04/06/98	0	0	0	0	0	0	0	0	0	---	0
04/07/98	0	0	0	0	0	0	0	0	0	---	0
04/08/98	0	0	0	0	0	18	0	8	30	---	0
04/09/98	0	0	0	0	0	0	0	5	0	2	9
04/10/98	0	0	0	0	0	0	0	0	0	0	---
04/11/98	---	0	---	---	0	0	0	3	10	0	---
04/12/98	---	0	---	---	0	6	0	8	10	1	---
04/13/98	0	0	0	0	0	0	0	62	10	0	---
04/14/98	0	0	0	0	0	0	0	327	6	0	---
04/15/98	0	0	0	0	0	0	0	367	36	2	---
04/16/98	---	0	0	---	0	0	0	234	30	0	0
Total:	0	0	0	0	0	24	0	1,014	142	5	9
# Days:	9	12	10	9	14	14	14	14	14	8	8
Average:	0	0	0	0	0	2	0	72	10	1	1

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Cumulative Adult Passage at Mainstem Dams Through April 16, 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	8,935	12	33,089	4	19,873	95												
TDA	3,978	8	5,015	0	6,726	32												
JDA	1,825	6	752	0	2,416	23												
MCN	756	0	109	0	1,395	14												
IHR	231	2	25	0	423	1												
LMN	61	0	10	0	215	2												
LGS	24	0	4	0	na	na												
LWG	22	0	3	0	31	0												
PRD	9	0	0	0	7	0												
RIS	0	0	0	0	1	0												
RRH	0	0	0	0	0	0												
WEL																		

	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	0	976	2160	1,922
TDA	0	0	0	0	0	0	0	0	0	469	426	1,134
JDA	0	0	0	0	0	0	0	0	0	3,185	1320	1,852
MCN	0	0	0	0	0	0	0	0	0	1,090	721	1,810
IHR	0	0	0	0	0	0	0	0	0	1,405	799	2,141
LMN	0	0	0	0	0	0	0	0	0	1,143	736	1,898
LGS	0	0	0	0	na	na	0	0	na	1,569	879	na
LWG	0	0	0	0	0	0	0	0	0	3,705	3,173	4,573
PRD	0	0	0	0	0	0	0	0	0	2	0	1
RIS	0	0	0	0	0	0	0	0	0	0	2	5
RRH	0	0	0	0	0	0	0	0	0	13	14	3
WEL												

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 and LGS are based on video counts accumulated through April 15.

Adult count records at LGS have been maintained since 1993.

Transportation Summary Report
Two-Week Transportation Summary from 04/03/98 to 04/16/98

	Yearling	Subyearling	Steelhead	Coho	Sockeye	Total
	Chinook	Chinook				
LOWER GRANITE DAM						
Collected	115,301	90	119,223	184	0	234,798
Bypassed	30,321	33	14,372	14	0	44,740
Trucked	27,207	17	37,674	45	0	64,943
Barged	44,944	40	58,446	79	0	103,509
Total Transported	72,151	57	96,120	124	0	168,452
LITTLE GOOSE DAM						
Collected	3,176	0	6,958	5	14	10,153
Bypassed	0	0	0	0	0	0
Trucked	568	0	1,092	5	0	1,665
Barged	1,755	0	4,550	0	10	6,315
Total Transported	2,323	0	5,642	5	10	7,980
LOWER MONUMENTAL DAM						
Collected	6,398	22	2,557	16	0	8,993
Bypassed	1,903	10	435	10	0	2,358
Trucked	797	0	780	0	0	1,577
Barged	2,684	12	1,079	0	0	3,775
Total Transported	3,481	12	1,859	0	0	5,352
M McNARY DAM						
Collected	136,251	1,244	6,014	1,436	192	145,137
Bypassed	136,065	1,237	6,012	1,435	191	144,940
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	261,126	1,356	134,752	1,641	206	399,081
Bypassed	168,289	1,280	20,819	1,459	191	192,038
Trucked	28,572	17	39,546	50	0	68,185
Barged	49,383	52	64,075	79	10	113,599
Total Transported	77,955	69	103,621	129	10	181,784

Cumulative Transportation Summary through 04/16/98

	Yearling	Subyearling	Steelhead	Coho	Sockeye	Total
	Chinook	Chinook				
LOWER GRANITE DAM						
Collected	118,811	120	130,203	284	10	249,428
Bypassed	30,321	33	14,372	14	0	44,740
Trucked	29,484	46	45,304	119	10	74,963
Barged	44,944	40	58,446	79	0	103,509
Total Transported	74,428	86	103,750	198	10	178,472
LITTLE GOOSE DAM						
Collected	3,213	0	6,990	5	14	10,222
Bypassed	0	0	0	0	0	0
Trucked	568	0	1,092	5	0	1,665
Barged	1,755	0	4,550	0	10	6,315
Total Transported	2,323	0	5,642	5	10	7,980
LOWER MONUMENTAL DAM						
Collected	6,458	22	2,597	16	0	9,093
Bypassed	1,903	10	435	10	0	2,358
Trucked	797	0	780	0	0	1,577
Barged	2,684	12	1,079	0	0	3,775
Total Transported	3,481	12	1,859	0	0	5,352
M McNARY DAM						
Collected	136,335	1,514	6,158	1,454	198	145,659
Bypassed	136,148	1,506	6,156	1,453	197	145,460
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	264,817	1,656	145,948	1,759	222	414,402
Bypassed	168,372	1,549	20,963	1,477	197	192,558
Trucked	30,849	46	47,176	124	10	78,205
Barged	49,383	52	64,075	79	10	113,599
Total Transported	80,232	98	111,251	203	20	191,804