



Fish Passage Center

Weekly Report #99 - 24

August 20, 1999

2501 SW First Ave., Suite 230
 Portland, OR 97201-4752
 phone: 503/230-4582
 fax: 503/230-7559

SUMMARY OF EVENTS:

Water Supply: Precipitation for the Columbia above Grand Coulee was 167% of normal and the Snake River above Ice Harbor was 113% of normal.

System Storage: Federal regulators continue to manage the system targeting minimum flows of 200 kcfs at McNary. Current weather conditions with higher precipitation are improving flows in the Upper and Mid Columbia basins, decreasing the necessity for draft of the reservoirs for flow augmentation. The fishery agencies requested drafting of the remaining flow augmentation volumes from the reservoirs later in the season during the fall to improve conditions for fall chinook spawners below Bonneville Dam in the area of Ives, Hamilton and Pierce islands. Drafting for flow augmentation from the Snake River basin continues to decrease as Biological Opinion reservoir draft limits dictate, affecting further decrease of the flows at Lower Granite. Flows at Lower Granite are already lower than the minimum required by Biological Opinion for migrating fall chinook.

- *Hungry Horse* continues drafting for flow augmentation. Flow forecasts are showing that the Biological Opinion reservoir draft for flow augmentation will not be met. The reservoir will be drafted to an elevation of about 3556 ft by the end of August, instead of an elevation of 3540 ft as required by the Biological Opinion. Current outflows for August 13 through 19 were in the range of 3.3 kcfs to 3.70 kcfs.
- *Libby* completed late refill on August 9, reaching an elevation of 2458.97 ft. Current outflow is in the range of 14.7 to 22.4 kcfs. High precipitation in the basin is resulting in elevated inflows in the range of 18 to 21 kcfs. The most recent COE projections are showing that the reservoir will be drafted to an elevation of about 2455 ft by the end

of August, instead of to an elevation of 2440 ft, as defined by the Biological Opinion.

- *Arrow* continues releasing outflows in the range of 74 kcfs to 85 kcfs. Late snow melt and high precipitation caused higher runoff than normal for this period of the year.
- *Grand Coulee* continues operating within the top two feet of the reservoir. Drafting for flow augmentation has not yet started due to the high outflows from the Upper Columbia. Current outflows are fluctuating from 134 kcfs on August 15 to 173.5 kcfs on August 13. Drafting for flow augmentation will commence, if inflows decrease, to achieve flows of 200 kcfs at McNary. The most current flow projections are showing that the reservoir will be drafted to an elevation of 1285 ft by the end of August instead of 1280 as required by the Biological Opinion.
- *Dworshak* reservoir commenced drafting for flow augmentation at Lower Granite on July 16. The reservoir was refilled to an elevation of 1593.35 ft as of July 16 instead of full pool elevation of 1600 ft as required by the Biological Opinion. The reservoir is currently drafting at a rate of about 12.5 kcfs through August 23, when it will decrease the outflow rate to 10 kcfs as the fishery agencies requested through August 29.
- *Brownlee* continues passing inflow in the range of 13.3 kcfs to 14.9 kcfs during August 13 through 19. It is projected that the reservoir will pass inflow during the rest of August.

A summary of the current elevations on August 19 is given in the following Table:

Reservoir	Actual elev. As of August 19	Max Reservoir pool [ft]
<i>Libby</i>	2458.29	2459
<i>Hungry Horse</i>	3557.9*	3560
<i>Grand Coulee</i>	1288.2	1290
<i>Brownlee</i>	2049.8*	2077
<i>Dworshak</i>	1542.24	1600

* as of August 18

Upper Snake reservoirs:

Flow augmentation to increase flow at Lower Granite began at the Upper Snake on July 1. The basin is experiencing dry conditions, as usual for this time of year, resulting in high irrigation withdrawals. It is anticipated by the BOR that flow augmentation will continue from Milner through the beginning of September at a rate of 1.5 kcfs. The limit at Milner is affecting late than summer flows at Lower Granite. The system is currently at 79% of capacity. The major draft for flow augmentation continues to be from American Falls reservoir, currently at 62% of full capacity. Two other major reservoirs in the system, Palisades and Jackson Lake, are at 93% of full capacity and 88% of full capacity.

Boise and Payette River Basins:

The Boise River system (Anderson Ranch, Arrowrock and Lucky Peak) is at 79% of capacity as of August 18. The daily average outflow from the Boise River system continues to be at a rate in the range of 1 kcfs to 1.5 kcfs, with a portion of flow augmentation of 400 cfs. Flow augmentation commenced about July 5 and it is anticipated that it will continue through August 29. The Payette River system (Cascade and Deadwood) is at 83% of capacity as of August 19. The daily average outflow from the Payette river system continues to be about 1.3 kcfs.

Streamflow: The Biological Opinion summer flow targets are: 53.96 kcfs at Lower Granite and 200 kcfs at McNary. Flows at Lower Granite fluctuated from 41.3 kcfs to 36.1 kcfs during the week of August 13 through 19. Weekly average flows in the

Snake River basin are projected to be in the range of 35 to 37 kcfs through the end of August. McNary daily average flows continued fluctuating during the past week from 190.2 kcfs on August 15 to 239.1 kcfs on August 14.

The weekly average discharges for the major run-of-river projects for August 6 through August 19 are given in the following Table:

Project	Average Discharge [kcfs]	
	August 6-12	August 13-19
<i>Priest Rapids</i>	163.9	176.1
<i>McNary</i>	212.2	223.04
<i>Lower Granite</i>	39.8	38.2
<i>Bonneville</i>	211.0	227.5

Spill: Biological Opinion spill for fish passage of summer migrants continued at Ice Harbor, John Day, The Dalles, and Bonneville dams. Spill occurred throughout the week at McNary Dam due to flows in excess of hydraulic capacity. Spill decreased at Dworshak Dam as outflows decreased from 14 kcfs to 12 kcfs throughout the week.

Spill rates at Priest and Wanapum dams have been increased from the 5% daytime spill to 15% daytime spill in accordance with the FERC order license conditions to spill to pass 50% of summer migrants via spill. Spill at these projects to date has been maintained below the Washington Department of Ecology total dissolved gas waiver limits.

Dissolved gas levels have been maintained below the state's water quality waiver limitations at mainstem Snake and Columbia River projects for the past week, as river flows have fluctuated between 230 kcfs and 190 kcfs.

Smolt Monitoring. In the Snake River, subyearling chinook passage indices at Lower Granite, Little Goose, and Lower Monumental dams dropped over 50% this week from last week's average. PIT tag detections at Lower Granite Dam are currently available only for the first five days of this week because of data transmission problems beginning 0900 August 18. The five-day averages were 4 fish per day for wild fall chinook tagged in the Snake River, 4 fish per day for hatchery fall chinook tagged at the Big Canyon Creek acclimation pond, and 3 fish per day for hatchery fall chinook tagged at the Captain Johns Rapids acclimation pond.

In the mid-Columbia River, subyearling chinook passage indices at Rock Island Dam decreased 33% this week from last week's average. In the lower Columbia River, this week's subyearling chinook passage indices at McNary and John Day dams increased slightly, less than 5% on average, above last week's level. Bonneville Dam's weekly average subyearling chinook passage index dropped over 60% from last week.

Adult Fish Passage: At Bonneville Dam, numbers of adult fall chinook continued increasing through the week with daily counts ranging between nearly 500 early in the week to 1,200 by the final two days of the counting week, August 13 – 19. The cumulative count was 9,714. Through August 19, the fall chinook run was lagging behind the 1998 and 10-year average at Bonneville Dam. At The Dalles Dam, the daily count of fall chinook increased to a high of 580 on August 19 with the cumulative total now 4,821. Adult fall chinook counts continue to climb at all Columbia River and Snake River projects as these fish move upstream.

The number of summer chinook counted at the Mid-Columbia projects showed a good increase in passage for the 1999 season compared to the 1998 and 10-year average. About 18,300 adult chinook were tallied at Rock Island this year with the 1998 and 10-year average only 11,500. As well, the number of jack summer chinook was about 30-50% higher than the 1998 and 10-year

average. As noted in previous Reports, the Snake River summer chinook passage was less than the 1998 count and 10-year average. It appeared from the count at Rock Island and Rocky Reach that greater than half of the fall chinook would be moving upstream to hatcheries and tributaries above Rocky Reach Dam with the remaining fish moving into the Wenatchee River basin.

Sockeye passage at upstream Mid-Columbia projects began reducing through the week, but still averaged near 150 per day at the upper three dams. Based on the sockeye counts [through August 10] at Rock Island and Rocky Reach dams, it appears that about 80% have continued past Rocky Reach Dam and are destined for Lake Osoyoos (Okanogan R basin). About 20% of the sockeye should be migrating up into the Wenatchee River and Wenatchee Lake basin.

At Lower Granite Dam, the sockeye count remained at 23 with these sockeye mainly comprised of adipose clipped fish (22 of 23) that were approximately 14-18 inches in length. Two sockeye arrived at the Sawtooth Weir during the past week and a half and others should be arriving during the next few weeks.

The A-Run steelhead counts leveled off through the week (8/13-8/19) at Bonneville Dam but overall daily tallies remained fairly high with counts that ranged between 2,600 and 3,800.

Through August 19, the cumulative count at Bonneville Dam was 117,901, well above the 1998 count of 77,669 and still exceeds the 10-year average count of 112,920. The count of wild steelhead ranged between 600 and 1,000 during the week with the season total now 40,852. About 35% of the steelhead count to date at Bonneville Dam have been "wild" fish based on the presence of the adipose fin. About 48% of The Dalles passage were tallied as "wild" steelhead. Daily steelhead counts began increasing through the week at lower Columbia River projects but were only about 1/2 to 1/3 of the Bonneville count. It appears that some steelhead must be moving into and holding in the tributary streams such as Little White Salmon, Deschutes due to higher river temperatures in the main Columbia River. Overall, water temperatures have been well below last season;

however a few of the projects are reporting at or near 70°F water temperature.

The steelhead count at Ice Harbor totaled 11,142 with daily counts averaging 340 for the week. The Snake River passage was about 70% greater than the 1998 total and about 96% of the 10-year average. The steelhead count at Priest Rapids Dam was 1,817 through August 16; however, daily counts rose to 100 per day for the week. The 1999 count was greater than the 1998 count and well below the 10-year average.

A few coho salmon are now passing Bonneville Dam with the season total at 22 through August 19. The number of coho salmon projected to return to the Columbia River mouth should show a good increase this season based on pre-season forecast by the Joint Staffs of WDFW and ODFW. The projected return of early run Coho is 235,300 (highest since 1991) with the late run Coho number projected to be 90,600 (highest since 1992).

Hatchery Releases: No releases were scheduled for the next two weeks. Numbers of juvenile hatchery fish released either in 1999 or late summer or fall 1998 that were expected to migrate in 1999 can be found in the FPC Web Page under 1999 Hatchery Release Schedule.

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
08/06/99	136.1	0.1	141.2	0.0	146.8	11.6	153.2	12.3	158.3	20.9	161.9	14.8	162.7	65.0
08/07/99	138.6	0.1	134.6	0.0	145.0	11.6	147.5	8.5	151.2	20.4	157.6	14.4	156.2	62.4
08/08/99	133.4	0.1	126.3	0.0	129.4	9.9	134.6	0.0	138.9	20.4	138.9	12.9	137.3	55.1
08/09/99	141.1	0.1	149.2	0.0	159.5	11.6	166.2	6.4	168.1	20.3	169.6	17.4	176.3	71.4
08/10/99	140.7	0.1	150.5	0.0	155.7	11.6	157.2	3.3	156.9	20.4	166.9	15.3	164.1	65.4
08/11/99	172.3	0.1	163.1	0.0	160.7	11.6	165.0	14.9	164.9	20.4	164.7	15.1	162.5	64.0
08/12/99	184.8	1.7	177.9	0.0	180.5	29.4	184.2	19.3	183.4	20.3	187.1	36.1	188.5	80.3
08/13/99	173.5	0.2	181.6	0.0	190.4	12.9	189.0	22.1	184.5	20.2	190.5	33.6	195.3	79.5
08/14/99	137.7	0.1	142.6	0.0	152.0	11.6	164.4	3.2	167.1	20.3	181.1	23.6	188.3	75.9
08/15/99	134.0	0.1	131.8	0.0	134.8	11.6	133.8	0.0	133.4	20.3	135.2	12.8	139.5	56.3
08/16/99	171.7	0.1	173.9	0.0	182.8	11.6	178.7	7.1	174.5	20.4	168.9	15.0	170.0	68.8
08/17/99	158.8	0.1	163.3	0.0	166.2	29.0	168.4	6.4	166.8	20.3	177.7	16.8	182.7	73.1
08/18/99	160.7	0.1	161.4	0.0	164.7	25.2	166.9	0.3	167.5	20.3	175.1	16.8	176.5	71.7
08/19/99	---	---	157.5	0.0	161.5	22.6	166.6	9.3	166.8	20.3	177.9	30.6	180.2	72.0

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

Date	Dworshak		Hells Canyon		Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill	Inflow	Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
08/06/99	19.0	9.0	12.1	9.9	41.5	0.0	40.8	0.0	42.1	0.0	44.5	34.6
08/07/99	19.0	9.0	12.4	12.4	41.7	0.5	42.0	0.0	45.2	0.0	48.9	41.7
08/08/99	19.0	9.0	11.8	14.2	42.3	0.0	42.8	0.0	45.2	0.0	50.7	40.5
08/09/99	17.1	7.2	12.3	10.0	39.4	0.1	37.8	0.5	38.9	0.0	38.4	31.6
08/10/99	17.1	7.0	12.9	8.7	40.3	1.3	40.1	0.0	42.8	0.0	46.1	38.4
08/11/99	15.5	5.5	13.0	8.3	37.2	0.7	36.2	0.0	37.9	0.0	40.9	33.2
08/12/99	15.0	5.0	12.6	13.9	36.3	1.3	36.1	0.7	38.2	0.4	42.0	34.2
08/13/99	14.2	4.1	13.4	11.1	41.1	1.0	40.0	0.0	41.5	0.0	42.2	32.3
08/14/99	12.9	3.0	13.8	11.7	36.3	0.5	34.7	0.0	35.7	0.0	37.9	30.8
08/15/99	13.2	3.0	13.9	13.7	38.5	1.0	39.5	0.0	41.9	0.0	45.0	37.7
08/16/99	13.0	2.8	14.9	19.4	37.9	0.4	37.5	0.0	38.3	0.0	42.8	34.1
08/17/99	12.8	3.2	14.3	11.4	41.3	0.5	41.4	0.0	42.3	0.0	43.1	35.7
08/18/99	12.9	2.7	13.6	12.8	36.1	1.3	36.8	0.0	39.1	0.0	42.8	35.3
08/19/99	12.6	2.3	---	---	36.2	0.0	35.0	0.0	36.5	0.0	39.3	28.3

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

Date	McNary		John Day		The Dalles		Bonneville		PH1	PH2
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill		
08/06/99	236.1	76.6	231.5	65.0	228.7	145.9	232.0	85.8	73.4	63.5
08/07/99	212.3	62.6	200.6	59.9	194.3	124.0	220.4	86.5	77.6	47.1
08/08/99	198.1	51.0	197.8	56.4	196.2	125.1	202.1	86.8	67.0	39.1
08/09/99	191.7	51.6	180.1	55.6	177.7	114.1	190.0	86.4	64.1	30.3
08/10/99	219.4	72.4	215.7	64.6	210.2	134.6	206.9	86.8	76.4	34.5
08/11/99	205.2	70.8	189.9	59.5	187.2	119.7	211.1	86.2	76.9	38.8
08/12/99	222.6	84.3	221.6	64.7	215.3	137.2	214.4	85.8	83.2	36.2
08/13/99	238.5	77.6	238.5	67.2	240.4	151.7	237.6	86.8	87.8	53.8
08/14/99	239.1	81.2	231.9	70.9	223.6	143.3	242.3	86.6	85.9	60.6
08/15/99	190.2	35.4	202.4	62.9	204.5	130.3	229.4	86.2	80.1	53.9
08/16/99	212.9	62.4	212.4	60.3	207.7	132.3	202.2	88.6	65.0	39.4
08/17/99	239.0	80.7	230.8	64.2	227.2	143.9	223.0	89.9	77.9	46.0
08/18/99	221.6	68.8	223.4	63.3	217.9	138.3	224.7	89.9	76.2	49.3
08/19/99	220.0	63.0	219.2	61.9	216.6	136.6	233.4	89.0	76.4	58.8

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

Total Dissolved Gas Saturation Data at Upper Columbia River Sites

Date	<u>Can. Boundary</u>			<u>Grand Coulee</u>			<u>Tlwtr G. Coulee</u>			<u>Chief Joseph</u>			<u>Tlwtr C. Joseph</u>							
	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#		
	Avg	Avg		High	Avg		Avg	High		Avg	Avg		High	Avg		Avg	High		Avg	Avg
8/6	125	125	126	21	117	117	117	21	113	114	114	21	114	114	115	15	114	114	115	15
8/7	125	126	127	19	116	116	116	19	113	113	113	19	114	114	114	16	113	113	114	16
8/8	124	124	125	24	115	116	116	24	112	113	113	24	113	113	113	23	112	113	114	23
8/9	124	125	128	24	116	116	116	24	112	113	113	24	113	114	114	23	112	112	113	23
8/10	116	117	118	24	116	117	117	24	113	114	114	24	113	114	114	23	113	114	115	23
8/11	117	118	119	24	116	116	117	24	113	113	113	24	113	114	114	23	112	113	114	23
8/12	118	119	119	24	116	116	116	24	112	112	112	24	113	113	113	23	111	112	113	22
8/13	116	116	117	23	116	116	116	23	112	112	112	23	112	112	113	24	111	112	113	24
8/14	115	115	116	23	116	116	117	23	111	112	112	23	112	112	114	22	113	115	---	22
8/15	116	117	118	22	116	116	116	22	112	112	113	22	112	112	112	19	114	115	119	19
8/16	120	121	122	24	115	115	116	24	111	112	112	24	111	111	111	23	111	112	113	22
8/17	121	121	122	24	115	115	116	24	111	112	112	24	112	112	113	23	111	112	113	23
8/18	121	121	122	24	116	116	117	24	112	113	114	24	113	113	113	23	112	113	113	22
8/19	119	120	121	15	116	116	116	24	112	113	113	24	113	113	113	23	112	113	114	23

Total Dissolved Gas Saturation Data at Mid Columbia River Sites

Date	<u>Wells</u>			<u>Rocky Reach</u>			<u>Tlwtr Rocky R.</u>			<u>Rock Island</u>			<u>Tlwtr Rock Isl</u>							
	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#		
	Avg	Avg		High	Avg		Avg	High		Avg	Avg		High	Avg		Avg	High		Avg	Avg
8/6	---	---	---	0	108	111	113	22	114	114	114	21	110	110	111	24	116	116	117	24
8/7	---	---	---	0	113	114	115	24	113	113	113	23	109	109	110	24	116	116	117	24
8/8	---	---	---	0	116	116	116	24	111	112	112	23	108	108	109	23	115	115	116	22
8/9	---	---	---	0	115	117	117	24	112	113	116	23	108	109	109	24	114	115	115	23
8/10	---	---	---	0	112	112	113	21	113	113	114	20	109	109	110	24	116	117	118	24
8/11	---	---	---	0	112	112	113	22	113	113	114	21	109	110	110	23	116	116	117	23
8/12	---	---	---	0	111	111	112	23	112	112	114	22	109	110	111	24	115	115	116	24
8/13	---	---	---	0	112	113	116	24	115	116	119	21	109	110	111	23	116	118	120	21
8/14	---	---	---	0	110	111	111	21	112	112	114	11	109	110	111	20	115	115	116	18
8/15	---	---	---	0	109	109	110	22	110	110	111	21	107	107	109	22	114	115	115	20
8/16	---	---	---	0	108	108	108	23	109	110	111	22	107	107	107	22	113	113	114	22
8/17	---	---	---	0	109	109	110	24	110	111	112	23	107	107	107	24	113	114	114	18
8/18	---	---	---	0	111	112	114	24	112	113	116	23	108	108	108	24	114	114	115	24
8/19	---	---	---	0	112	113	115	24	115	116	117	22	108	108	109	24	116	117	119	24

Total Dissolved Gas Saturation at Mid Columbia River Sites, and Dworshak

Date	<u>Wanapum</u>			<u>Dwns Wanapum</u>			<u>Priest Rapids</u>			<u>Dwns P Rapids</u>			<u>Dworshak</u>							
	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#		
	Avg	Avg		High	Avg		Avg	High		Avg	Avg		High	Avg		Avg	High		Avg	Avg
8/6	114	115	116	24	115	115	116	10	114	115	115	24	118	118	119	24	---	---	---	0
8/7	114	114	114	24	114	115	116	24	114	115	115	24	117	117	118	24	---	---	---	0
8/8	112	112	113	24	112	113	114	24	113	113	114	24	116	116	118	24	---	---	---	0
8/9	113	115	116	24	114	115	118	24	113	114	115	24	118	119	120	24	117	117	119	24
8/10	114	115	117	24	114	115	116	24	115	116	118	24	118	119	120	24	117	117	117	16
8/11	112	113	114	24	112	113	114	24	112	113	114	24	116	117	118	24	114	115	116	18
8/12	110	110	110	24	112	113	114	24	111	111	113	24	116	117	118	24	112	113	113	24
8/13	111	112	112	24	113	114	115	24	113	114	115	24	117	117	118	24	109	110	110	21
8/14	110	111	112	24	112	113	115	24	114	116	116	24	118	118	119	24	106	107	108	24
8/15	110	111	111	24	111	111	112	24	110	110	111	24	114	115	116	24	107	107	107	21
8/16	111	111	112	24	111	112	112	24	110	111	112	24	116	117	117	24	106	107	107	21
8/17	112	113	114	24	111	112	113	24	112	113	113	24	117	118	119	24	107	107	107	22
8/18	112	113	113	24	112	113	114	24	112	113	114	24	117	118	119	24	107	107	108	24
8/19	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	105	106	106	22

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

Total Dissolved Gas Saturation Data at Clearwater and Snake River Sites

Date	<u>Clearwater</u>			<u>Anatone</u>			<u>Snake-Lewiston</u>			<u>Lower Granite</u>			<u>Tlwr L. Granite</u>							
	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#		
	Avg	Avg		High	Avg		Avg	High		Avg	Avg		High	Avg		Avg	High		Avg	Avg
8/6	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
8/7	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
8/8	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
8/9	114	115	115	23	103	104	105	24	109	110	112	24	105	105	106	3	105	105	106	12
8/10	114	114	115	16	103	104	105	24	108	110	111	24	---	---	---	0	---	---	---	0
8/11	112	113	114	18	102	103	104	24	107	108	109	24	---	---	---	0	---	---	---	0
8/12	111	111	112	24	103	104	105	24	107	108	110	24	105	106	107	24	105	106	107	24
8/13	109	110	110	21	102	102	103	23	105	106	107	21	105	106	106	24	105	105	106	24
8/14	106	107	108	24	102	103	104	23	104	105	106	24	106	107	108	23	104	105	106	23
8/15	106	107	107	20	102	103	104	22	104	106	107	23	105	105	107	11	104	104	105	11
8/16	106	106	108	20	103	104	105	24	104	106	108	21	105	106	108	23	103	103	104	23
8/17	107	108	112	24	103	104	105	24	105	107	109	24	108	110	112	21	103	103	104	24
8/18	107	108	109	23	103	105	106	24	105	107	108	24	---	---	---	0	102	102	103	5
8/19	106	107	107	23	103	104	106	24	104	106	107	23	---	---	---	0	---	---	---	0

Total Dissolved Gas Saturation Data at Lower Snake River Sites

Date	<u>Little Goose</u>			<u>Tlwr L. Goose</u>			<u>L. Monumental</u>			<u>Tlwr L. Monum</u>			<u>Ice Harbor</u>							
	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#		
	Avg	Avg		High	Avg		Avg	High		Avg	Avg		High	Avg		Avg	High		Avg	Avg
8/6	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
8/7	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
8/8	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
8/9	105	107	112	24	102	102	103	24	101	102	103	24	100	101	101	24	103	103	104	24
8/10	107	110	113	24	102	102	103	24	106	110	115	24	100	101	102	24	102	103	105	24
8/11	104	106	111	24	102	102	103	24	102	102	104	24	99	99	100	24	100	101	102	24
8/12	102	102	103	24	102	102	104	23	102	102	103	24	99	100	101	24	99	100	100	22
8/13	102	103	104	21	101	101	102	21	102	102	102	23	100	100	101	24	99	100	100	18
8/14	102	102	103	24	102	102	103	24	101	102	102	23	100	101	101	24	99	99	100	24
8/15	101	101	102	19	101	101	102	19	101	101	101	15	100	100	101	16	99	99	100	22
8/16	101	102	103	21	100	100	101	21	101	101	101	21	99	100	100	21	99	99	99	13
8/17	100	101	102	13	100	100	101	13	101	101	102	13	99	99	101	13	99	99	100	13
8/18	106	107	109	24	102	103	103	24	103	104	105	19	101	101	101	20	101	101	101	24
8/19	102	103	103	23	102	102	103	23	102	103	104	23	100	101	101	23	100	101	102	23

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

Date	<u>Twtr Ice Har.</u>			<u>Pasco</u>			<u>McNary-Oregon</u>			<u>McNary-Wash.</u>			<u>Tlwr McNary</u>							
	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#	<u>24 h</u>	<u>12 h</u>	#		
	Avg	Avg		High	Avg		Avg	High		Avg	Avg		High	Avg		Avg	High		Avg	Avg
8/6	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
8/7	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
8/8	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
8/9	109	111	112	24	---	---	---	0	109	109	114	14	110	110	112	14	112	112	113	14
8/10	110	112	113	24	---	---	---	0	109	109	110	16	111	111	114	16	116	116	118	16
8/11	110	111	112	24	---	---	---	0	111	112	113	17	112	113	114	17	115	116	118	19
8/12	110	112	113	23	---	---	---	0	109	109	110	20	109	109	109	20	116	117	117	20
8/13	111	112	114	18	---	---	---	0	106	107	108	24	107	107	108	24	115	116	117	24
8/14	111	113	114	24	---	---	---	0	105	105	106	17	106	106	107	17	115	116	118	17
8/15	111	112	113	22	---	---	---	0	106	107	108	21	107	107	107	21	112	113	114	21
8/16	111	112	114	13	---	---	---	0	107	107	109	14	107	107	108	14	113	113	115	15
8/17	109	110	114	13	---	---	---	0	108	109	109	18	110	111	111	19	116	116	117	18
8/18	111	113	114	24	---	---	---	0	110	111	112	24	110	111	113	24	116	116	117	24
8/19	111	113	115	23	---	---	---	0	111	112	115	24	111	112	113	24	115	116	116	24

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

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

Date	<u>John Day</u>			<u>Tlwtr John Day</u>			<u>The Dalles</u>			<u>Dnstr T. Dalles</u>			<u>Bonneville</u>			#				
	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24h</u>	<u>12h</u>	<u>High</u>	<u>#</u>	<u>24h</u>	<u>12h</u>	<u>High</u>					
8/6	108	108	108	15	116	116	119	9	108	108	112	15	117	118	119	16	112	112	112	15
8/7	106	106	107	16	112	115	120	19	109	110	112	16	116	116	118	16	110	110	111	16
8/8	105	106	106	23	112	118	119	24	108	111	114	23	117	117	118	24	111	112	113	23
8/9	106	107	109	23	115	115	119	9	108	110	113	23	117	118	119	24	113	114	115	23
8/10	108	108	109	23	109	111	114	23	110	112	114	23	118	118	119	24	113	113	114	23
8/11	107	107	108	22	108	110	115	22	106	108	109	23	115	117	119	24	109	110	111	23
8/12	105	105	105	23	107	109	115	23	106	108	109	23	114	115	115	24	108	108	108	21
8/13	104	104	105	23	108	111	116	23	107	110	112	24	114	115	116	24	110	110	111	23
8/14	103	104	104	18	111	114	118	18	107	111	112	23	114	115	116	23	110	111	111	22
8/15	102	102	103	19	108	110	114	18	106	108	112	20	113	114	116	20	111	111	111	19
8/16	102	103	105	22	106	109	112	21	106	110	114	23	113	114	116	23	112	113	113	21
8/17	105	106	108	23	110	112	116	24	108	111	115	23	115	116	118	24	114	115	116	23
8/18	104	104	105	23	108	111	113	23	107	110	113	23	115	116	117	24	113	115	115	23
8/19	104	105	106	22	106	108	110	22	106	108	112	22	114	115	117	23	110	110	111	23

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

Date	<u>Warrendale</u>			<u>Skamania</u>			<u>CamasWash.</u>			#		
	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>High</u>	<u>#</u>	<u>24h</u>		<u>12h</u>	<u>High</u>
8/6	114	114	115	15	116	117	118	15	112	113	115	16
8/7	112	112	114	16	114	114	116	16	112	113	114	16
8/8	114	114	115	23	116	117	120	23	113	115	117	24
8/9	114	115	117	23	117	118	118	23	115	116	118	24
8/10	115	115	116	23	118	119	121	23	115	117	119	24
8/11	111	113	114	23	114	116	118	23	112	112	113	24
8/12	109	109	110	23	114	116	119	23	111	114	115	24
8/13	111	111	111	21	114	116	118	24	111	112	114	24
8/14	112	113	114	22	114	115	117	22	112	113	114	22
8/15	112	113	114	17	115	116	118	19	112	113	116	19
8/16	114	114	114	20	116	117	120	21	113	115	117	22
8/17	115	115	116	23	117	118	119	23	115	117	118	24
8/18	114	115	116	23	117	118	120	23	114	115	116	24
8/19	113	113	115	20	115	116	117	23	113	115	116	24

Total dissolved gas data derived from the Army Corps of Engineers and Grant Co. PUD.

Gas Bubble Trauma Monitoring Results from Representative Sites for Steelhead and Subyearling chinook on the Columbia River

Site	Date	Species	Number of Fish	Number w GBT signs	Number w Fin Signs	% Fin GBT	% Severe Fin GBT	Number of Fish with Fin GBT Listed by Highest Rank				Fish with L. Line GBT	
								Rank 1	Rank 2	Rank 3	Rank 4	Num Fish	Avg. Rank
McNary Dam													
	08/12/99	Subyearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0.0
	08/16/99	Subyearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0.0
	08/19/99	Subyearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0.0
Bonneville Dam													
	08/12/99	Subyearling Chinook	100	1	0	0.00%	0.00%	0	0	0	0	1	1.0
	08/16/99	Subyearling Chinook	70	0	0	0.00%	0.00%	0	0	0	0	0	0.0
	08/19/99	Subyearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0.0
Rock Island Dam													
	08/12/99	Subyearling Chinook	100	4	4	4.00%	0.00%	4	0	0	0	0	0.0
	08/16/99	Subyearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0.0
	08/19/99	Subyearling Chinook	100	1	1	1.00%	0.00%	1	0	0	0	0	0.0

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)
08/06/99	---	---	---	---	10	16	0	0	87	0	0
08/07/99	---	---	---	---	0	5	0	0	0	0	0
08/08/99	---	---	---	---	5	0	4	0	44	0	0
08/09/99	---	---	---	---	0	12	0	1	0	0	---
08/10/99	---	---	---	---	0	16	0	0	0	0	0
08/11/99	---	---	---	---	0	11	---	0	29	0	0
08/12/99	---	---	---	---	4	8	0	0	0	0	0
08/13/99	---	---	---	---	0	10	0	0	0	0	0
08/14/99	---	---	---	---	0	5	0	0	0	0	0
08/15/99	---	---	---	---	0	2	0	0	0	0	0
08/16/99	---	---	---	---	0	0	0	0	0	0	0
08/17/99	---	---	---	---	0	1	0	0	0	0	0
08/18/99	---	---	---	---	0	4	0	0	0	0	0
08/19/99	---	---	---	---	0	3	---	0	0	0	0
Total:	0	0	0	0	19	93	4	1	160	0	0
# Days:	0	0	0	0	14	14	12	14	14	14	13
Average:	0	0	0	0	1	7	0	0	11	0	0

Wild Yearling Chinook

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)
08/06/99	---	---	---	---	0	8	0
08/07/99	---	---	---	---	0	20	8
08/08/99	---	---	---	---	0	32	0
08/09/99	---	---	---	---	0	36	8
08/10/99	---	---	---	---	0	13	0
08/11/99	---	---	---	---	0	10	---
08/12/99	---	---	---	---	0	18	0
08/13/99	---	---	---	---	0	5	0
08/14/99	---	---	---	---	0	7	0
08/15/99	---	---	---	---	0	8	0
08/16/99	---	---	---	---	0	5	0
08/17/99	---	---	---	---	0	0	0
08/18/99	---	---	---	---	0	0	0
08/19/99	---	---	---	---	0	0	---
Total:	0	0	0	0	0	162	16
# Days:	0	0	0	0	14	14	12
Average:	0	0	0	0	0	12	1

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

Combined Subyearling Chinook

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO1 (INDEX)
08/06/99	---	---	---	---	2,643	2,104	896	278	32,922	13,779	7,779
08/07/99	---	---	---	---	2,155	1,321	848	250	35,010	11,734	5,988
08/08/99	---	---	---	---	3,318	1,157	1,036	293	29,613	9,475	4,756
08/09/99	---	---	---	---	2,585	1,384	612	779	29,589	6,403	---
08/10/99	---	---	---	---	1,721	1,176	436	628	20,463	9,223	1,335
08/11/99	---	---	---	---	1,673	1,005	---	538	25,463	5,583	2,888
08/12/99	---	---	---	---	2,247	1,202	448	533	20,584	3,546	1,904
08/13/99	---	---	---	---	1,633	548	312	596	20,634	6,038	1,363
08/14/99	---	---	---	---	1,003	495	148	486	29,563	3,734	1,064
08/15/99	---	---	---	---	1,567	581	184	275	26,458	4,944	891
08/16/99	---	---	---	---	1,072	315	220	245	26,209	6,770	831
08/17/99	---	---	---	---	675	251	104	214	25,615	17,702	373
08/18/99	---	---	---	---	741	263	768	200	38,901	14,313	1,119
08/19/99	---	---	---	---	856	589	---	182	29,091	8,910	3,416
Total:	0	0	0	0	23,889	12,391	6,012	5,497	390,115	122,154	33,707
# Days:	0	0	0	0	14	14	12	14	14	14	13
Average:	0	0	0	0	1,706	885	501	393	27,865	8,725	2,593

All Coho

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO1 (INDEX)
08/06/99	---	---	---	---	10	0	0	0	0	0	0
08/07/99	---	---	---	---	0	12	0	0	0	0	0
08/08/99	---	---	---	---	0	0	0	0	0	0	0
08/09/99	---	---	---	---	15	4	4	1	0	0	---
08/10/99	---	---	---	---	5	3	0	0	0	0	0
08/11/99	---	---	---	---	0	0	---	0	0	0	0
08/12/99	---	---	---	---	0	0	0	0	0	0	10
08/13/99	---	---	---	---	0	11	0	2	0	0	0
08/14/99	---	---	---	---	0	8	0	0	30	0	0
08/15/99	---	---	---	---	4	0	0	0	0	0	0
08/16/99	---	---	---	---	0	2	0	0	0	0	12
08/17/99	---	---	---	---	0	5	0	0	0	0	0
08/18/99	---	---	---	---	0	1	4	0	0	0	0
08/19/99	---	---	---	---	8	1	---	0	0	0	0
Total:	0	0	0	0	42	47	8	3	30	0	22
# Days:	0	0	0	0	14	14	12	14	14	14	13
Average:	0	0	0	0	3	3	1	0	2	0	2

Definitions for Smolt Index Counts

WTB (Collection) = Salmon River Trap at Whitebird : Collection Counts IMN (Collection) = Imnaha River Trap : Collection Counts
 GRN (Collection) = Grande Ronde River Trap : Collection Counts LEW (Collection) = Snake River Trap at Lewiston : Collection Counts
 LGR (Index) = Lower Granite Dam Bypass Collection System : Passage Index Counts : Passage Index = (Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill) })
 LGS (Index) = Little Goose Bypass Collection System : Passage Index Counts : Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill) }
 LMN (Index) = Lower Monumental Dam Bypass Collection System : Passage Index Counts : Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill) }

Two-Week Summary of Passage Indices

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)	
08/06/99	---	---	---	---	140	20	0	0	44	0	12	
08/07/99	---	---	---	---	65	0	4	0	90	0	0	
08/08/99	---	---	---	---	81	8	20	1	44	0	0	
08/09/99	---	---	---	---	85	20	0	1	117	0	---	
08/10/99	---	---	---	---	40	25	0	1	88	0	0	
08/11/99	---	---	---	---	88	20	---	1	59	0	0	
08/12/99	---	---	---	---	67	23	12	1	96	0	0	
08/13/99	---	---	---	---	61	15	0	0	32	0	0	
08/14/99	---	---	---	---	57	10	0	0	90	0	0	
08/15/99	---	---	---	---	57	14	4	0	91	0	0	
08/16/99	---	---	---	---	74	20	8	0	141	0	0	
08/17/99	---	---	---	---	45	11	4	0	0	0	0	
08/18/99	---	---	---	---	28	20	4	0	0	0	0	
08/19/99	---	---	---	---	12	23	---	0	42	0	0	
Total:	0	0	0	0	900	229	56	5	934	0	12	
# Days:	0	0	0	0	14	14	12	14	14	14	13	
Average:	0	0	0	0	64	16	5	0	67	0	1	

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)	
08/06/99	---	---	---	---	0	0	0	0	0	0	0	
08/07/99	---	---	---	---	0	0	0	0	0	0	0	
08/08/99	---	---	---	---	5	0	0	0	0	0	0	
08/09/99	---	---	---	---	0	4	0	0	0	0	---	
08/10/99	---	---	---	---	0	0	0	0	0	0	0	
08/11/99	---	---	---	---	5	3	---	1	0	0	0	
08/12/99	---	---	---	---	0	3	0	0	0	0	0	
08/13/99	---	---	---	---	8	0	0	2	0	0	0	
08/14/99	---	---	---	---	4	3	0	5	0	0	0	
08/15/99	---	---	---	---	8	0	0	3	0	0	0	
08/16/99	---	---	---	---	0	0	0	0	0	0	0	
08/17/99	---	---	---	---	4	0	0	1	0	0	0	
08/18/99	---	---	---	---	0	0	0	2	0	0	0	
08/19/99	---	---	---	---	4	0	---	3	0	0	0	
Total:	0	0	0	0	38	13	0	17	0	0	0	
# Days:	0	0	0	0	14	14	12	14	14	14	13	
Average:	0	0	0	0	3	1	0	1	0	0	0	

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)	
08/06/99	---	---	---	---	0	0	0	0	44	0	0	
08/07/99	---	---	---	---	0	0	0	0	0	0	0	
08/08/99	---	---	---	---	0	0	0	0	0	0	0	
08/09/99	---	---	---	---	0	0	0	0	0	0	---	
08/10/99	---	---	---	---	0	0	0	0	0	0	0	
08/11/99	---	---	---	---	0	0	---	0	0	0	0	
08/12/99	---	---	---	---	0	0	0	0	0	0	0	
08/13/99	---	---	---	---	0	0	0	0	0	0	0	
08/14/99	---	---	---	---	4	3	0	0	0	0	0	
08/15/99	---	---	---	---	0	0	0	0	0	0	0	
08/16/99	---	---	---	---	0	0	0	0	0	0	0	
08/17/99	---	---	---	---	0	0	0	0	0	0	0	
08/18/99	---	---	---	---	4	0	0	0	0	0	0	
08/19/99	---	---	---	---	0	1	---	0	0	0	0	
Total:	0	0	0	0	8	4	0	0	44	0	0	
# Days:	0	0	0	0	14	14	12	14	14	14	13	
Average:	0	0	0	0	1	0	0	0	3	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)	
08/06/99	---	---	---	---	0	0	0	0	0	0	0	
08/07/99	---	---	---	---	0	0	0	0	45	0	11	
08/08/99	---	---	---	---	10	4	0	0	0	0	29	
08/09/99	---	---	---	---	0	8	0	0	0	0	---	
08/10/99	---	---	---	---	5	0	0	0	0	0	0	
08/11/99	---	---	---	---	5	0	---	0	29	0	0	
08/12/99	---	---	---	---	0	3	0	0	0	0	0	
08/13/99	---	---	---	---	0	0	0	0	0	0	10	
08/14/99	---	---	---	---	0	0	0	2	0	0	33	
08/15/99	---	---	---	---	0	0	0	0	30	0	0	
08/16/99	---	---	---	---	0	0	0	0	0	0	0	
08/17/99	---	---	---	---	0	2	0	0	0	21	0	
08/18/99	---	---	---	---	0	1	0	0	45	0	0	
08/19/99	---	---	---	---	0	0	---	0	0	0	0	
Total:	0	0	0	0	20	18	0	2	149	21	83	
# Days:	0	0	0	0	14	14	12	14	14	14	13	
Average:	0	0	0	0	1	1	0	0	11	2	6	

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 August 19, 1999

DAM	Spring Chinook						Summer Chinook						Fall Chinook					
	1999		1998		10-Yr Avg.		1999		1998		10-Yr Avg.		1999		1998		10-Yr Avg.	
	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	38,669	8,691	38,342	775	66,606	2,467	26,169	4,022	21,433	2,678	20,784	2,653	9,714	1,392	9,266	683	10,496	852
TDA	17,563	6,180	25,225	518	39,635	1,617	21,730	3,207	15,462	1,444	17,039	1,868	4,821	1,336	2,291	306	5,040	443
JDA	15,409	5,089	21,820	378	31,309	1,325	22,210	2,504	16,246	1,534	15,357	1,707	3,140	287	1,045	203	2,637	276
MCN	9,260	3,972	19,415	337	30,860	1,525	19,275	2,343	16,226	1,408	16,460	1,733	1,648	196	698	191	2,050	234
IHR	5,351	2,657	12,434	130	16,094	620	3,910	1,311	5,473	304	4,420	406	72	1	54	5	59	5
LMN	3,924	2,726	10,598	131	15,276	682	3,372	1,357	4,290	301	4,196	434	19	5	24	0	23	3
LGS	3,445	2,690	10,512	118	**	**	3,273	1,582	4,298	334	**	**	8	5	14	2	**	**
LWG	3,296	2,507	9,854	109	13,146	573	3,231	1,582	4,355	328	4,213	426	11	6	7	0	9	0
PRD	4,139	761	4,124	37	9,804	151	22,195	526	13,387	601	13,946	595	532	18	217	29	268	33
RIS	3,309	915	3,187	54	7,271	160	18,308	1,489	11,586	1,141	11,540	905	0	0	0	0	0	0
RRH	1,389	233	762	54	1,670	39	10,058	832	6,490	317	4,430	349	0	0	0	0	0	0
WEL	141	199	6	24	902	41	6,209	396	2,931	693	2,533	277	0	0	0	0	0	0

DAM	Coho						Sockeye			Steelhead			
	1999		1998		10-Yr Avg.		10-Yr		10-Yr			Wild	
	Adult	Jack	Adult	Jack	Adult	Jack	1999	1998	Avg.	1999	1998	Avg.	1999
BON	22	2	50	6	62	29	17,868	13,213	44,488	117,901	77,669	112,920	40,852
TDA	0	0	0	0	4	1	13,708	8,812	35,454	52,037	15,981	40,857	23,209
JDA	0	0	8	5	1	0	14,802	9,796	36,708	40,928	19,578	26,072	14,284
MCN	0	1	0	0	0	0	11,742	9,362	38,674	21,680	10,614	22,807	5,606
IHR	0	0	0	0	0	0	5	5	7	11,142	6,613	11,578	2,305
LMN	0	0	0	0	0	0	9	1	6	7,167	5,085	9,488	1,473
LGS	0	0	0	0	**	**	17	5	**	5,499	3,746	**	1,489
LWG	0	18	0	0	0	0	14	2	5	6,594	5,899	8,592	1,545
PRD	37	4	13	0	2	0	16,395	10,745	43,296	1,817	1,256	2,426	***
RIS	0	0	0	0	2	0	17,327	9,285	37,611	810	915	1,711	420
RRH	22	0	0	0	0	0	13,786	5,598	18,572	514	752	1,041	132
WEL	0	0	0	0	0	0	11,910	4,309	17,317	325	413	751	70

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

Wild steelhead numbers are included in the total.

RIS, RRH are through 8/15, PRD is through 8/16, LMN is through 8/17, and LGS, WEL are through 8/18.

*WEL - WDFW was trapping Spring Chinook on both fish ladders.

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

***PRD is not reporting Wild Steelhead numbers.

Bonneville and Lower Granite were doing video counts only until April 1, 1999. These counts were 8 hour daytime video counts.

Historic counts (pre-1996) were obtained from CRITFC and compiled by the FPC.

Historic counts 1997 to present were obtained from the Corps of Engineers.

No Video counts at Lower Granite Dam on 3/1/99 and 3/2/99.

Transportation Summary Report
Two-Week Transportation Summary
from 08/06/99 to 08/19/99

	Yearling Chinook	Subyearling Chinook	Steelhead	Coho	Sockeye	Total
LOWER GRANITE DAM						
Collected	19	23,546	925	42	28	24,560
Bypassed	0	20	0	0	0	20
Trucked	17	26,081	921	44	27	27,090
Barged	0	0	0	0	0	0
Total Transported	17	26,081	921	44	27	27,090
LITTLE GOOSE DAM						
Collected	255	12,351	242	47	22	12,917
Bypassed	0	0	0	0	0	0
Trucked	265	14,185	243	50	20	14,763
Barged	0	0	0	0	0	0
Total Transported	265	14,185	243	50	20	14,763
LOWER MONUMENTAL DAM						
Collected	20	6,468	64	8	0	6,560
Bypassed	0	0	0	0	0	0
Trucked	32	7,416	72	8	0	7,528
Barged	0	0	0	0	0	0
Total Transported	32	7,416	72	8	0	7,528
M McNARY DAM						
Collected	110	268,840	660	20	130	269,760
Bypassed	0	0	0	0	0	0
Trucked	109	266,410	657	19	129	267,324
Barged	0	0	0	0	0	0
Total Transported	109	266,410	657	19	129	267,324
PROJECT TOTALS						
Collected	404	311,205	1,891	117	180	313,797
Bypassed	0	20	0	0	0	20
Trucked	423	314,092	1,893	121	176	316,705
Barged	0	0	0	0	0	0
Total Transported	423	314,092	1,893	121	176	316,705

**Transportation Summary Report
Cumulative Transportation Summary
through 08/19/99**

	Yearling Chinook	Subyearling Chinook	Steelhead	Coho	Sockeye	Total
LOWER GRANITE DAM						
Collected	2,173,459	229,441	3,354,861	78,524	17,584	5,853,869
Bypassed	115,918	63	266,363	14,608	1,640	398,592
Trucked	32,272	132,621	34,338	1,399	1,495	202,125
Barged	2,011,776	94,052	3,053,028	62,315	14,012	5,235,183
Total Transported	2,044,048	226,673	3,087,366	63,714	15,507	5,437,308
LITTLE GOOSE DAM						
Collected	3,532,347	187,722	3,135,460	117,345	21,030	6,993,904
Bypassed	19,783	0	158,018	4,195	299	182,295
Trucked	8,513	105,092	4,138	990	598	119,331
Barged	3,481,142	77,971	2,969,994	111,937	18,954	6,659,998
Total Transported	3,489,655	183,063	2,974,132	112,927	19,552	6,779,329
LOWER MONUMENTAL DAM						
Collected	1,892,443	128,068	1,978,735	51,159	12,870	4,063,275
Bypassed	148,537	1	251,013	7,795	596	407,942
Trucked	5,482	94,325	2,198	124	214	102,343
Barged	1,736,425	33,327	1,724,869	43,237	12,032	3,549,890
Total Transported	1,741,907	127,652	1,727,067	43,361	12,246	3,652,233
MCNARY DAM						
Collected	2,104,577	4,002,749	537,654	140,758	782,804	7,568,542
Bypassed	2,098,392	801,225	532,579	137,083	781,069	4,350,348
Trucked	236	571,490	945	38	306	573,015
Barged	3,490	2,589,486	3,896	3,544	836	2,601,252
Total Transported	3,726	3,160,976	4,841	3,582	1,142	3,174,267
PROJECT TOTALS						
Collected	9,702,826	4,547,980	9,006,710	387,786	834,288	24,479,590
Bypassed	2,382,630	801,289	1,207,973	163,681	783,604	5,339,177
Trucked	46,503	903,528	41,619	2,551	2,613	996,814
Barged	7,232,833	2,794,836	7,751,787	221,033	45,834	18,046,323
Total Transported	7,279,336	3,698,364	7,793,406	223,584	48,447	19,043,137