



## Fish Passage Center

# Weekly Report #99 - 23

August 13, 1999

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### SUMMARY OF EVENTS:

**Water Supply:** For the month of July precipitation for the Columbia above Coulee was 88% of normal and at the Snake River above Ice Harbor was 32% of normal.

**System Storage:** Federal regulators continue to manage the system targeting minimum flows of 200 kcfs at McNary. Drafting for flow augmentation from the Snake River reservoirs to implement the Biological Opinion flows at Lower Granite is decreasing, as Biological Opinion reservoir draft limits dictate. As a result, flows at Lower Granite are lower than Biological Opinion targets for migrating juvenile fall chinook.

- *Hungry Horse* continues drafting for flow augmentation at an average flow rate of 3.5 kcfs during the week. The most current flow projections are showing that the USBR is operating the reservoir according to the Integrated Rule Curves, defined by the State of Montana. 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 3555 ft by the end of August, instead of an elevation of 3540 ft as required by the Biological Opinion. Current outflows for the period August 5-12 were in the range of 1.69 kcfs to 3.47 kcfs.
- *Libby* completed late refill on August 9, reaching an elevation of 2458.97 ft. Current outflow is in the range of 20 to 22 kcfs. The most recent COE projections are showing that the reservoir will be drafted only to an elevation of about 2455 ft by the end of August, as defined by the Integrated Rule Curves defined by the State of Montana, instead of to an elevation of 2440 ft, as defined by the Biological Opinion.
- *Arrow* continues releasing outflows in the range of 80 kcfs to 94 kcfs. Late runoff caused higher

runoff than normal for this period of the year. Inflows to the reservoir were varying between 66.1 kcfs and 81 kcfs during August 7-12.

- *Grand Coulee* continues operating within the top two feet of the reservoir. Drafting for flow augmentation has not occurred. Current outflows are increased from 136.1 kcfs on August 6 to 183.2 kcfs on August 12. Drafting for flow augmentation will commence when inflows decrease, to achieve flows of 200 kcfs at McNary. The most current flow projections are showing that the reservoir will be drafted only to an elevation of 1283 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 only 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. Flow augmentation decreased from outflows of 19 kcfs on August 8 to outflows of 15 kcfs on August 12. The COE has decided to reduce outflows from Dworshak to 12 kcfs next week. The projected ending elevation is 1526 ft on August 31, instead of an elevation of 1520 ft as required by the Biological Opinion, resulting in lower than established target flows for sub-yearling chinook migrants.
- *Brownlee* has been passing inflow in the range of 11.7 to 12.8 kcfs during August 6-12. It is projected that the reservoir will be passing inflow during the rest of August.

A summary of the current elevations on August 12 is given in the following Table:

Reservoir	Actual elev. As of August 12	Max Reservoir pool [ft]
<i>Libby</i>	2458.45	2459
<i>Hungry Horse</i>	3559.05	3560
<i>Grand Coulee</i>	1289.4	1290
<i>Brownlee</i>	2050.0*	2077
<i>Dworshak</i>	1552.86	1600

\* as of August 11

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 period of the year, resulting in high irrigation withdrawals. It is anticipated by the BOR that flow augmentation will continue through the beginning of September at a rate of 1.5 kcfs from Milner. Although the limit at Milner will result in lower than target flows at Lower Granite. The system is currently at 81% of capacity. The major draft for flow augmentation continues to be from American Falls reservoir, currently at 65% of full capacity. Two other major reservoirs in the system, Palisades and Jackson Lake, are at 90% of full capacity and 95% of full capacity.

Boise and Payette River Basins:

The Boise River system (Anderson Ranch, Arrowrock and Lucky Peak) is at 80% of capacity (as of August 12). The daily average outflow from the Boise River system continues to be at 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 86% of capacity (as of August 12). 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 were receding from 42.3 kcfs to 36.3 kcfs during the week of August 6-12. Weekly average flows in the Snake River basin are projected to be in the range

of 34-36 kcfs through the end of August. McNary daily average flows continued fluctuating during the past week from 191.7 kcfs on August 9 to 236.1 kcfs on August 6.

The weekly average discharges for the major run-of-river projects for July 30 through August 12 are given in the following Table:

Project	Average Discharge [kcfs]	
	August 6-12	July 30-August 4
<i>Priest Rapids</i>	163.9	149.9
<i>McNary</i>	212.2	207.8
<i>Lower Granite</i>	39.8	47.05
<i>Bonneville</i>	211.0	207.9

**Spill:** Spill at Dworshak Dam decreased throughout the week from 9 kcfs to 5 kcfs as an outflow from the project decreased as the NMFS Biological Opinion reservoir draft limit is approached. Summer spill for fish passage continued at Ice Harbor, John Day, The Dalles and Bonneville dams. Spill at McNary Dam is occurring due to flows in excess of hydraulic capacity at the project. The mid-Columbia summer spill program continued at all of the mid-Columbia projects throughout the past week.

Dissolved gas levels did not exceed the water quality standards waiver limitation anywhere throughout the basin during the past week. There were no gas bubble trauma symptoms observed in Snake River or Lower Columbia River monitoring. Only a few minor gas bubble trauma symptoms were observed in monitoring at Rock Island Dam.

**Smolt Monitoring.** In the Snake River, subyearling chinook passage indices at Lower Granite, Little Goose, and Lower Monumental dams dropped 45-55% this week from last week's average. This week's Lower Granite Dam PIT tag detections of wild fall chinook tagged in the Snake River continued to average 7 fish per day, just like last week. As for hatchery fall chinook, Lower Granite Dam PIT tag detections averaged 11 fish per day (little changed from last week) for fish released from Big Canyon Creek acclimation pond and 4 fish per day (less than half of last week's

average) for fish released from Captain Johns Rapids acclimation pond.

In the mid-Columbia River, subyearling chinook passage indices at Rock Island Dam increased 33% this week over last week's average. Most of the increase occurred during the latter four days of this week when daily passage indices averaged double that of earlier in the week. As stated last week, there still remains a substantial presence of subyearling chinook at Rock Island Dam this week.

In the lower Columbia River, subyearling chinook passage indices at McNary and John Day dams dam dropped an average of 20% and 35%, respectively, from last week's level. Although Bonneville Dam's weekly average subyearling chinook passage index remained little changed from last week's average, the daily passage indices for the last three days of this week averaged less than half of that which occurred earlier in the week.

**Adult Fish Passage:** At Bonneville Dam, numbers of adult fall chinook began increasing through the week with daily counts ranging between 290 and 830 for the week of August 6 – 12; the cumulative count was 4,552. Through August 12, the fall chinook run was lagging behind the 1998 and 10-year average at Bonneville Dam. At The Dalles Dam, the fall chinook daily count increased to a high of 336 on August 12 with the cumulative total now 1,994. Fall chinook that pass The Dalles Dam and continue upstream are considered to be a component of the up-river "bright" fall chinook. The Joint Columbia River Staff (ODFW & WDFW) forecasted that the fall chinook run is projected to be reduced from the previous year, including most upriver bright stocks. The Bonneville pool hatchery fall chinook on the other hand, are forecasted to be at their highest return rate since 1982. The Bonneville pool fall chinook are considered as "Tule" fall chinook and return mainly to Spring Creek NFH.

The number of summer chinook counted at the Mid-Columbia projects remained fairly high with adult counts generally ranging between 100 to 300 per day through the week. As noted in previous Reports, the Snake River summer chinook

passage was less than the 1998 count and 10-year average, while the Mid-Columbia count surpassed the 1998 and 10-year average at Priest Rapids and Rock Island dams by about 60%. It appeared from the count at Rock Island and Rocky Reach that about one 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 declining 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 is now 23, with these sockeye mainly comprised of adipose clipped fish (22 of 23) that were approximately 14-18 inches in length. These sockeye are off spring of hatchery sockeye released in fall 1997 and spring 1998 from the upper Salmon River lakes, i.e., Red Fish Lake, Alturas Lake, or Pettit Lake.

The A-Run steelhead counts increased through the week (8/6-8/12) at Bonneville Dam with daily tallies ranging between 2,700 and 4,200. Through August 12, the cumulative count at Bonneville Dam was 94,513, surpassing the 1998 count of 66,242 and the 10-year average count of 94,513. The counts of wild steelhead ranged between 900 and 1,200 during the past week with the season total now 35,183. About 37% of the steelhead count to date at Bonneville Dam have been "wild" fish based on the presence of the adipose fin. About 50.6% of The Dalles passage was tallied as "wild" steelhead. Daily steelhead numbers reduced through the week at lower Columbia River projects except for Bonneville. Normally in late July and August, steelhead begin moving into the tributary streams such as Little White Salmon, Deschutes due to higher river temperatures in the main Columbia River. It appeared from the counts at The Dalles and up-

stream projects that a large percentage of the steelhead are following that pattern now. Overall, water temperatures have been well below last season.

The steelhead count at Ice Harbor totaled 8,761 with daily counts averaging over 300 for the week. The steelhead count at Priest Rapids Dam remains fairly low to date with daily counts about 60 plus per day for the past week. Overall, the 1999 steelhead count at Priest Rapids was 1,254 and that total was greater than the 1998 count and well below the 10-year average.

Only seven coho salmon have been counted at Bonneville Dam through August 12.

**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
07/30/99	116.7	0.1	121.4	0.0	129.5	10.2	134.5	15.6	138.0	20.3	139.8	11.6	138.7	57.1
07/31/99	106.8	0.1	106.1	0.0	114.7	10.1	118.9	9.8	123.2	20.4	131.4	12.6	134.9	54.4
08/01/99	105.1	0.1	106.2	0.0	111.8	9.3	116.0	0.0	121.6	20.4	123.7	11.7	128.3	51.1
08/02/99	155.6	0.1	150.1	0.0	152.6	11.6	154.8	2.7	154.2	22.8	151.1	13.2	137.8	55.5
08/03/99	139.8	0.1	148.1	0.0	158.3	11.9	166.1	2.0	169.2	20.4	172.7	16.4	177.1	70.8
08/04/99	160.4	0.1	156.2	0.0	164.4	11.6	165.1	13.9	167.8	14.7	172.3	15.8	182.4	72.2
08/05/99	142.9	0.1	148.0	0.0	155.6	11.6	165.7	12.3	165.3	21.6	170.1	15.7	166.3	67.3
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	183.2	0.2	177.9	0.0	180.5	29.4	184.2	19.3	183.4	20.3	187.1	36.1	188.5	80.3

**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
07/30/99	12.6	3.0	10.9	18.9	44.6	0.0	46.4	0.0	48.9	0.0	52.5	45.2
07/31/99	18.2	8.6	11.7	18.8	48.3	0.0	48.6	0.0	50.0	0.0	51.8	43.3
08/01/99	19.0	9.3	12.1	18.9	47.9	0.0	47.1	0.0	48.6	0.0	52.5	42.9
08/02/99	19.0	9.3	11.9	18.4	48.8	0.0	48.3	0.0	49.8	0.2	53.2	43.2
08/03/99	18.9	9.2	12.1	14.8	46.7	0.3	47.9	0.0	51.7	0.0	55.5	46.6
08/04/99	19.1	9.2	12.5	13.3	46.0	0.0	45.4	0.0	42.9	13.6	44.4	36.9
08/05/99	19.0	9.0	11.1	10.1	44.7	0.1	43.2	0.0	47.9	0.0	51.8	41.5
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	12.7	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	12.8	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	---	---	36.3	1.3	36.1	0.7	38.2	0.4	40.8	33.7

**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		
07/30/99	180.0	48.0	195.4	53.7	191.3	119.5	209.9	85.1	67.8	47.8
07/31/99	197.7	58.6	192.7	49.7	193.1	124.5	200.3	85.2	65.2	40.7
08/01/99	198.1	70.0	187.1	53.9	188.2	120.0	200.0	85.0	77.7	28.1
08/02/99	202.7	59.7	201.1	58.7	197.4	125.6	202.9	84.2	62.0	47.5
08/03/99	231.2	72.2	202.9	60.1	197.3	127.0	198.4	85.6	75.8	27.9
08/04/99	237.6	84.4	247.2	51.0	244.4	154.5	236.1	85.6	86.2	55.6
08/05/99	221.8	66.7	211.7	60.7	207.2	132.4	229.5	85.3	83.1	51.9
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

## 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	Can. Boundary				Grand Coulee				Tlwtr G. Coulee				Chief Joseph				Tlwtr C. Joseph			
	24 h		12 h		#	24 h		12 h		#	24 h		12 h		#	24 h		12 h		#
	Avg	Avg	High	hr		Avg	Avg	High	hr		Avg	Avg	High	hr		Avg	Avg	High	hr	
7/30	121	122	122	24	117	117	117	24	114	114	115	24	114	114	115	24	114	114	115	24
7/31	122	123	125	24	117	117	117	24	114	115	115	24	114	115	115	24	114	114	115	24
8/1	124	125	126	24	117	117	117	24	114	115	115	24	114	115	115	23	114	114	115	23
8/2	125	125	126	24	116	116	117	24	113	114	114	24	114	115	115	23	114	114	115	23
8/3	125	126	126	24	116	116	117	24	113	113	114	24	114	115	115	23	113	114	114	23
8/4	125	126	126	24	116	116	117	24	113	113	114	24	114	114	114	22	113	113	114	22
8/5	125	125	126	13	116	116	117	13	113	113	114	12	114	114	115	13	114	114	115	13
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

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

Date	Wells				Rocky Reach				Tlwtr Rocky R.				Rock Island				Tlwtr Rock Isl			
	24 h		12 h		#	24 h		12 h		#	24 h		12 h		#	24 h		12 h		#
	Avg	Avg	High	hr		Avg	Avg	High	hr		Avg	Avg	High	hr		Avg	Avg	High	hr	
7/30	---	---	---	0	110	111	111	24	113	113	114	22	110	110	111	24	116	117	118	22
7/31	---	---	---	0	110	111	112	23	112	112	113	22	109	110	110	24	116	117	118	24
8/1	---	---	---	0	111	112	112	24	113	113	113	23	109	109	110	24	116	117	118	24
8/2	---	---	---	0	111	112	112	23	112	112	112	21	109	109	111	24	115	116	118	24
8/3	---	---	---	0	112	115	117	23	113	113	115	23	109	110	110	23	116	116	117	22
8/4	---	---	---	0	113	114	114	24	114	114	115	23	109	110	111	24	116	116	118	11
8/5	---	---	---	0	113	113	113	13	114	114	114	13	109	109	110	13	116	116	117	13
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

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

Date	Wanapum				Dwns Wanapum				Priest Rapids				Dwns P Rapids				Dworshak			
	24 h		12 h		#	24 h		12 h		#	24 h		12 h		#	24 h		12 h		#
	Avg	Avg	High	hr		Avg	Avg	High	hr		Avg	Avg	High	hr		Avg	Avg	High	hr	
7/30	112	113	114	24	112	113	114	24	111	112	114	24	115	116	116	24	108	109	110	24
7/31	114	115	117	24	114	115	115	24	112	114	115	24	115	116	116	24	114	116	117	24
8/1	115	116	117	24	115	115	116	24	115	116	117	24	116	117	118	24	118	118	119	19
8/2	115	116	117	24	114	115	115	24	114	115	116	24	116	118	119	24	118	118	118	24
8/3	114	115	116	24	114	114	115	24	114	114	115	24	118	118	119	24	118	118	118	23
8/4	114	115	117	24	114	114	115	24	114	115	116	24	118	119	120	24	118	118	119	24
8/5	115	115	117	24	115	115	115	24	115	116	116	24	118	118	119	24	118	118	119	13
8/6	114	115	116	24	115	115	116	24	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	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	112	113	113	24

## 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	Clearwater			Anatone				Snake-Lewiston				Lower Granite				Tlwr L. Granite				
	24 h	12 h	High	#	24 h	12 h	High	#	24 h	12 h	High	#	24 h	12 h	High	#	24 h	12 h	High	#
	Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg		
7/30	108	108	110	16	103	104	106	23	106	107	108	24	104	105	106	24	103	103	104	24
7/31	114	116	117	24	103	104	106	24	107	110	111	24	106	107	108	24	103	104	104	24
8/1	115	115	116	17	103	103	105	18	108	109	111	18	105	105	108	12	103	103	104	18
8/2	115	116	117	22	103	104	106	24	109	110	111	24	105	106	107	24	102	102	103	24
8/3	115	115	116	23	102	102	102	9	107	107	108	9	104	105	107	24	103	104	104	24
8/4	116	117	117	23	---	---	---	0	---	---	---	0	107	109	110	24	104	105	106	24
8/5	116	116	116	13	---	---	---	0	---	---	---	0	106	106	107	13	105	105	106	13
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

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

Date	Little Goose			Tlwr L. Goose				L. Monumental				Tlwr L. Monum				Ice Harbor				
	24 h	12 h	High	#	24 h	12 h	High	#	24 h	12 h	High	#	24 h	12 h	High	#	24 h	12 h	High	#
	Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg		
7/30	102	102	103	24	99	99	100	24	101	102	103	24	99	99	100	24	100	101	102	24
7/31	103	103	104	24	99	100	100	24	102	102	103	24	100	101	101	24	100	101	102	24
8/1	105	106	108	18	99	100	101	18	104	105	110	18	100	101	102	18	101	101	102	18
8/2	107	108	111	24	101	103	111	24	103	104	107	24	106	109	115	24	100	101	101	24
8/3	106	108	110	23	100	101	101	23	103	104	105	24	103	105	106	24	101	101	103	24
8/4	109	111	113	24	101	102	102	24	104	105	111	22	105	109	115	22	102	102	103	24
8/5	108	109	110	13	100	100	102	13	105	106	109	13	110	110	116	13	102	102	104	13
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

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

Date	Twtr Ice Har.			Pasco				McNary-Oregon				McNary-Wash.				Tlwr McNary				
	24 h	12 h	High	#	24 h	12 h	High	#	24 h	12 h	High	#	24 h	12 h	High	#	24 h	12 h	High	#
	Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg		
7/30	111	112	113	24	---	---	---	---	113	115	117	23	112	113	114	23	114	115	116	23
7/31	112	113	114	24	---	---	---	---	114	116	116	24	113	113	114	24	113	114	114	24
8/1	112	113	114	18	---	---	---	---	113	114	118	17	112	113	114	18	114	114	114	18
8/2	111	112	113	24	---	---	---	---	113	115	117	24	111	112	113	24	113	114	114	24
8/3	111	112	113	24	---	---	---	---	111	112	115	18	112	113	114	20	114	117	119	23
8/4	110	111	112	24	---	---	---	---	111	111	119	13	112	113	114	24	117	117	119	22
8/5	110	110	112	13	---	---	---	---	110	110	113	12	112	112	112	12	114	114	116	13
8/6	---	---	---	0	---	---	---	---	---	---	---	0	---	---	---	0	---	---	---	0
8/7	---	---	---	0	---	---	---	---	---	---	---	0	---	---	---	0	---	---	---	0
8/8	---	---	---	0	---	---	---	---	---	---	---	0	---	---	---	0	---	---	---	0
8/9	109	111	112	24	---	---	---	---	109	109	114	14	110	110	112	14	112	112	113	14
8/10	110	112	113	24	---	---	---	---	109	109	110	16	111	111	114	16	116	116	118	16
8/11	110	111	112	24	---	---	---	---	111	112	113	17	112	113	114	17	115	116	118	19
8/12	110	112	113	23	---	---	---	---	109	109	110	20	109	109	109	20	116	117	117	20

## 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>24 h</u>	<u>12 h</u>	#	<u>24h</u>	<u>12h</u>	#	<u>24h</u>	<u>12h</u>	#	<u>24h</u>	<u>12h</u>	#	<u>24h</u>	<u>12h</u>	#		
	Avg	Avg		High	hr		Avg	Avg		High	hr		Avg	Avg		High	hr		Avg	AVG
7/30	110	110	110	24	114	118	120	24	109	111	113	24	116	117	118	24	110	111	111	23
7/31	109	109	110	24	114	118	119	24	109	112	113	24	117	118	118	24	110	111	111	24
8/1	109	109	109	23	114	118	120	24	109	110	112	23	117	117	118	24	110	110	111	23
8/2	108	108	109	23	113	117	120	23	108	110	112	23	117	117	118	24	109	109	110	23
8/3	107	108	108	23	114	119	120	24	108	109	111	23	117	117	118	24	109	109	109	22
8/4	108	109	111	23	113	117	121	23	109	112	115	23	118	119	120	24	109	110	110	23
8/5	107	107	108	11	114	114	119	11	107	107	109	13	118	118	120	13	111	111	112	13
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

### 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>24 h</u>	<u>12 h</u>	#	<u>24h</u>	<u>12h</u>	#	<u>24h</u>	<u>12h</u>	#
	Avg	Avg		High	hr		Avg	Avg		High	hr	
7/30	113	113	114	24	114	115	117	24	112	113	115	24
7/31	113	114	114	23	116	117	120	24	113	114	116	24
8/1	112	113	115	23	116	118	120	23	112	114	115	24
8/2	113	114	115	23	114	115	116	23	112	114	116	24
8/3	111	113	115	23	116	118	120	23	113	114	116	24
8/4	112	113	114	22	114	115	116	23	112	114	116	24
8/5	113	113	115	13	115	115	117	13	111	111	112	13
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



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

Site	Date	Species	Number of Fish	Number w GBT signs	Number w Fin Signs	% Fin GBT	% Severe Fin GBT	Number of Fish with Fin GBT Listed by Highest Rank				Fish with L. Line GBT	
								Rank 1	Rank 2	Rank 3	Rank 4	Num Fish	Avg. Rank
<b>McNary Dam</b>													
	08/05/99	Subyearling Chinook	100	1	0	0.00%	0.00%	0	0	0	0	0	0
	08/09/99	Subyearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	08/12/99	Subyearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
<b>Bonneville Dam</b>													
	08/05/99	Subyearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	08/12/99	Subyearling Chinook	100	1	0	0.00%	0.00%	0	0	0	0	1	1
<b>Rock Island Dam</b>													
	08/05/99	Subyearling Chinook	100	1	1	1.00%	0.00%	0	1	0	0	0	0
	08/09/99	Subyearling Chinook	100	3	3	3.00%	0.00%	3	0	0	0	0	0
	08/12/99	Subyearling Chinook	100	4	4	4.00%	0.00%	4	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)
07/30/99	---	---	---	---	0	20	0	1	0	0	0
07/31/99	---	---	---	---	0	20	0	1	54	0	0
08/01/99	---	---	---	---	0	24	0	1	0	0	0
08/02/99	---	---	---	---	0	33	0	1	47	0	0
08/03/99	---	---	---	---	0	20	0	1	0	0	0
08/04/99	---	---	---	---	0	4	4	2	48	0	0
08/05/99	---	---	---	---	0	8	0	0	0	0	0
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
<b>Total:</b>	0	0	0	0	19	197	8	8	309	0	0
<b># Days:</b>	0	0	0	0	14	14	13	14	14	14	13
<b>Average:</b>	0	0	0	0	1	14	1	1	22	0	0

### Wild Yearling Chinook

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)
07/30/99	---	---	---	---	0	90	0
07/31/99	---	---	---	---	0	20	0
08/01/99	---	---	---	---	0	32	0
08/02/99	---	---	---	---	0	67	0
08/03/99	---	---	---	---	0	40	0
08/04/99	---	---	---	---	0	8	0
08/05/99	---	---	---	---	0	20	18
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
<b>Total:</b>	0	0	0	0	0	414	34
<b># Days:</b>	0	0	0	0	14	14	13
<b>Average:</b>	0	0	0	0	0	30	3

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)
07/30/99	---	---	---	---	4,490	2,141	1,416	642	28,274	5,781	4,138
07/31/99	---	---	---	---	4,240	1,252	1,300	556	23,764	5,329	4,678
08/01/99	---	---	---	---	5,790	2,335	1,448	263	32,048	10,316	5,545
08/02/99	---	---	---	---	4,430	3,145	1,472	182	48,860	13,010	3,768
08/03/99	---	---	---	---	4,000	2,666	1,161	201	35,629	12,566	2,785
08/04/99	---	---	---	---	3,777	2,835	2,000	313	41,753	21,933	2,533
08/05/99	---	---	---	---	3,530	2,578	1,626	324	33,093	22,681	3,669
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	1,368	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
<b>Total:</b>	0	0	0	0	46,599	26,285	14,699	5,780	437,065	151,359	51,766
<b># Days:</b>	0	0	0	0	14	14	13	14	14	14	13
<b>Average:</b>	0	0	0	0	3,329	1,878	1,131	413	31,219	10,811	3,982

### 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)
07/30/99	---	---	---	---	10	0	0	0	0	0	18
07/31/99	---	---	---	---	0	5	4	0	0	0	0
08/01/99	---	---	---	---	0	0	0	0	0	0	0
08/02/99	---	---	---	---	0	6	0	0	0	0	0
08/03/99	---	---	---	---	0	0	4	0	0	0	0
08/04/99	---	---	---	---	0	0	4	2	0	0	0
08/05/99	---	---	---	---	10	4	0	0	0	0	0
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
<b>Total:</b>	0	0	0	0	50	34	16	3	0	0	28
<b># Days:</b>	0	0	0	0	14	14	13	14	14	14	13
<b>Average:</b>	0	0	0	0	4	2	1	0	0	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)	
07/30/99	---	---	---	---	120	60	8	3	0	0	0	
07/31/99	---	---	---	---	200	45	4	0	0	0	0	
08/01/99	---	---	---	---	180	12	8	0	58	0	0	
08/02/99	---	---	---	---	180	11	0	5	0	0	0	
08/03/99	---	---	---	---	100	40	16	1	0	0	0	
08/04/99	---	---	---	---	171	28	16	3	0	0	0	
08/05/99	---	---	---	---	20	28	18	0	44	0	0	
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	
<b>Total:</b>	0	0	0	0	1,537	340	106	17	640	0	12	
<b># Days:</b>	0	0	0	0	14	14	13	14	14	14	13	
<b>Average:</b>	0	0	0	0	110	24	8	1	46	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)	
07/30/99	---	---	---	---	0	0	0	1	0	0	0	
07/31/99	---	---	---	---	10	0	0	1	0	27	0	
08/01/99	---	---	---	---	10	4	0	1	0	0	0	
08/02/99	---	---	---	---	0	11	0	1	0	0	0	
08/03/99	---	---	---	---	0	0	0	1	0	0	0	
08/04/99	---	---	---	---	0	0	0	0	0	38	0	
08/05/99	---	---	---	---	0	0	0	3	0	0	0	
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	
<b>Total:</b>	0	0	0	0	30	25	0	9	0	65	0	
<b># Days:</b>	0	0	0	0	14	14	13	14	14	14	13	
<b>Average:</b>	0	0	0	0	2	2	0	1	0	5	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)	
07/30/99	---	---	---	---	0	0	0	1	0	0	0	
07/31/99	---	---	---	---	0	0	0	1	0	0	0	
08/01/99	---	---	---	---	0	0	0	0	0	0	0	
08/02/99	---	---	---	---	0	0	0	0	0	0	0	
08/03/99	---	---	---	---	0	0	0	0	66	0	0	
08/04/99	---	---	---	---	0	0	0	0	0	0	0	
08/05/99	---	---	---	---	0	0	0	0	0	0	0	
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	
<b>Total:</b>	0	0	0	0	0	0	0	2	110	0	0	
<b># Days:</b>	0	0	0	0	14	14	13	14	14	14	13	
<b>Average:</b>	0	0	0	0	0	0	0	0	8	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)	
07/30/99	---	---	---	---	10	0	0	1	0	0	0	
07/31/99	---	---	---	---	0	0	4	0	27	0	53	
08/01/99	---	---	---	---	10	4	0	0	0	0	29	
08/02/99	---	---	---	---	0	0	0	0	0	0	19	
08/03/99	---	---	---	---	0	0	0	0	0	0	0	
08/04/99	---	---	---	---	0	0	0	0	96	0	11	
08/05/99	---	---	---	---	0	0	0	0	44	0	0	
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	
<b>Total:</b>	0	0	0	0	40	19	4	1	241	0	152	
<b># Days:</b>	0	0	0	0	14	14	13	14	14	14	13	
<b>Average:</b>	0	0	0	0	3	1	0	0	17	0	12	

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 12, 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
<b>BON</b>	38,669	8,691	38,342	775	66,606	2,467	26,170	4,022	21,433	2,678	20,784	2,653	4,552	705	5,096	428	5,682	486
<b>TDA</b>	17,563	6,180	25,225	518	39,635	1,617	22,667	3,233	15,462	1,444	17,039	1,868	1,994	636	1,087	149	2,426	227
<b>JDA</b>	15,409	5,089	21,820	378	31,309	1,325	22,068	2,487	16,246	1,534	15,357	1,707	1,337	177	548	119	1,132	131
<b>MCN</b>	9,260	3,972	19,415	337	30,860	1,525	19,275	2,343	16,226	1,408	16,460	1,733	343	63	265	75	583	85
<b>IHR</b>	5,351	2,657	12,434	130	16,094	620	3,910	1,311	5,473	304	4,420	406	1	0	0	0	5	0
<b>LMN</b>	3,924	2,726	10,598	131	15,276	682	3,346	1,352	4,274	298	4,175	431	0	0	0	0	0	0
<b>LGS</b>	3,445	2,690	10,512	118	**	**	3,245	1,572	4,279	334	**	**	0	0	0	0	**	**
<b>LWG</b>	3,296	2,507	9,854	109	13,146	573	3,195	1,565	4,331	327	4,192	425	0	0	0	0	0	0
<b>PRD</b>	4,139	761	4,124	37	9,804	151	21,635	513	13,150	577	13,604	563	0	0	0	0	0	0
<b>RIS</b>	3,309	915	3,187	54	7,271	160	17,122	1,304	11,259	1,070	11,121	822	0	0	0	0	0	0
<b>RRH</b>	1,389	233	762	54	1,670	39	9,059	617	6,201	301	4,179	306	0	0	0	0	0	0
<b>WEL</b>	141	199	6	24	902	41	5,368	323	2,741	668	2,321	242	0	0	0	0	0	0

DAM	Coho						Sockeye			Steelhead			Wild 1999
	1999		1998		10-Yr Avg.		1999	1998	10-Yr Avg.	10-Yr			
	Adult	Jack	Adult	Jack	Adult	Jack				1999	1998	Avg.	
<b>BON</b>	7	0	42	3	38	18	17,849	13,209	44,473	95,023	66,242	94,513	35,183
<b>TDA</b>	0	0	0	0	2	0	13,599	8,806	35,440	39,445	15,066	34,976	19,977
<b>JDA</b>	0	0	5	5	0	0	14,468	9,774	36,690	34,272	18,976	22,726	11,674
<b>MCN</b>	0	1	0	0	0	0	11,738	9,355	38,653	17,126	10,166	19,861	4,629
<b>IHR</b>	0	0	0	0	0	0	5	5	7	8,761	6,272	10,234	1,881
<b>LMN</b>	0	0	0	0	0	0	8	1	6	5,112	4,735	7,862	1,066
<b>LGS</b>	0	0	0	0	**	**	17	5	**	3,899	3,546	**	1,098
<b>LWG</b>	0	18	0	0	0	0	14	2	4	5,225	5,762	7,911	1,164
<b>PRD</b>	35	4	12	0	1	0	16,326	10,722	43,164	1,254	1,151	1,939	***
<b>RIS</b>	0	0	0	0	2	0	16,777	9,278	37,423	597	812	1,401	312
<b>RRH</b>	22	0	0	0	0	0	13,554	5,568	18,389	372	666	836	108
<b>WEL</b>	0	0	0	0	0	0	11,486	4,235	16,973	220	327	554	47

Wild steelhead numbers are included in the total.

**LMN is through 8/9, PRD, LGS, RIS, and RRH are through 8/10, WEL is through 8/11.**

\*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 07/30/99 to 08/12/99

	Yearling Chinook	Subyearling Chinook	Steelhead	Coho	Sockeye	Total
<b>LOWER GRANITE DAM</b>						
Collected	19	46,380	1,559	50	40	48,048
Bypassed	0	22	0	0	0	22
Trucked	17	46,136	1,536	50	37	47,776
Barged	0	0	0	0	0	0
<b>Total Transported</b>	<b>17</b>	<b>46,136</b>	<b>1,536</b>	<b>50</b>	<b>37</b>	<b>47,776</b>
<b>LITTLE GOOSE DAM</b>						
Collected	611	26,261	365	34	19	27,290
Bypassed	0	0	0	0	0	0
Trucked	597	26,048	360	34	18	27,057
Barged	0	0	0	0	0	0
<b>Total Transported</b>	<b>597</b>	<b>26,048</b>	<b>360</b>	<b>34</b>	<b>18</b>	<b>27,057</b>
<b>LOWER MONUMENTAL DAM</b>						
Collected	36	14,596	108	16	4	14,760
Bypassed	0	0	0	0	0	0
Trucked	36	14,538	104	16	4	14,698
Barged	0	0	0	0	0	0
<b>Total Transported</b>	<b>36</b>	<b>14,538</b>	<b>104</b>	<b>16</b>	<b>4</b>	<b>14,698</b>
<b>MCNARY DAM</b>						
Collected	210	295,520	440	0	240	296,410
Bypassed	0	0	0	0	0	0
Trucked	206	291,495	437	0	236	292,374
Barged	0	0	0	0	0	0
<b>Total Transported</b>	<b>206</b>	<b>291,495</b>	<b>437</b>	<b>0</b>	<b>236</b>	<b>292,374</b>
<b>PROJECT TOTALS</b>						
Collected	876	382,757	2,472	100	303	386,508
Bypassed	0	22	0	0	0	22
Trucked	856	378,217	2,437	100	295	381,905
Barged	0	0	0	0	0	0
<b>Total Transported</b>	<b>856</b>	<b>378,217</b>	<b>2,437</b>	<b>100</b>	<b>295</b>	<b>381,905</b>

**Transportation Summary Report  
Cumulative Transportation Summary  
through 08/12/99**

	Yearling Chinook	Subyearling Chinook	Steelhead	Coho	Sockeye	Total
<b>LOWER GRANITE DAM</b>						
Collected	2,173,459	222,045	3,354,505	78,512	17,576	5,846,097
Bypassed	115,918	59	266,363	14,608	1,640	398,588
Trucked	32,272	126,097	34,000	1,395	1,487	195,251
Barged	2,011,776	94,052	3,053,028	62,315	14,012	5,235,183
<b>Total Transported</b>	<b>2,044,048</b>	<b>220,149</b>	<b>3,087,028</b>	<b>63,710</b>	<b>15,499</b>	<b>5,430,434</b>
<b>LITTLE GOOSE DAM</b>						
Collected	3,532,297	184,680	3,135,344	117,317	21,023	6,990,661
Bypassed	19,783	0	158,018	4,195	299	182,295
Trucked	8,470	102,696	4,046	963	592	116,767
Barged	3,481,142	77,971	2,969,994	111,937	18,954	6,659,998
<b>Total Transported</b>	<b>3,489,612</b>	<b>180,667</b>	<b>2,974,040</b>	<b>112,900</b>	<b>19,546</b>	<b>6,776,765</b>
<b>LOWER MONUMENTAL DAM</b>						
Collected	1,892,443	126,332	1,978,715	51,155	12,870	4,061,515
Bypassed	148,537	1	251,013	7,795	596	407,942
Trucked	5,482	92,688	2,179	120	214	100,683
Barged	1,736,425	33,327	1,724,869	43,237	12,032	3,549,890
<b>Total Transported</b>	<b>1,741,907</b>	<b>126,015</b>	<b>1,727,048</b>	<b>43,357</b>	<b>12,246</b>	<b>3,650,573</b>
<b>M McNARY DAM</b>						
Collected	2,104,577	3,866,949	537,364	140,738	782,754	7,432,382
Bypassed	2,098,392	801,225	532,579	137,083	781,069	4,350,348
Trucked	236	436,271	655	19	256	437,437
Barged	3,490	2,589,486	3,896	3,544	836	2,601,252
<b>Total Transported</b>	<b>3,726</b>	<b>3,025,757</b>	<b>4,551</b>	<b>3,563</b>	<b>1,092</b>	<b>3,038,689</b>
<b>PROJECT TOTALS</b>						
Collected	9,702,776	4,400,006	9,005,928	387,722	834,223	24,330,655
Bypassed	2,382,630	801,285	1,207,973	163,681	783,604	5,339,173
Trucked	46,460	757,752	40,880	2,497	2,549	850,138
Barged	7,232,833	2,794,836	7,751,787	221,033	45,834	18,046,323
<b>Total Transported</b>	<b>7,279,293</b>	<b>3,552,588</b>	<b>7,792,667</b>	<b>223,530</b>	<b>48,383</b>	<b>18,896,461</b>