



Fish Passage Center

Weekly Report #99 - 22

August 6, 1999

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SUMMARY OF EVENTS:

Water Supply: Water supply and run off data are unchanged from the week of July 16.

System Storage: Refill of the reservoirs was completed this past week. High inflows from the Canadian part of the Upper Columbia halted intensive drafting of Libby, Hungry Horse and Grand Coulee for flow augmentation. Federal regulators are managing the system targeting minimum flows of 200 kcfs. Drafting for flow augmentation from the Snake River reservoirs to augment flows at Lower Granite is under way.

- *Hungry Horse* is planned to be operated at a flow rate of 4.5 kcfs during the week days and 0.19 kcfs during weekends. The most current flow projections are showing that the COE is planning to operate the reservoir according to the Integrated Rule Curves, defined by the State of Montana. Flow forecasts are showing that the reservoir will be drafted to an elevation of about 3550 ft by the end of August, instead of an elevation of 3540 ft as required by the Biological Opinion. The most current projections are showing that the COE is planning to draft the reservoir at full hydraulic capacity of the powerplant of 7.5 kcfs-8 kcfs from the second half of the August. Current outflows for the period July 30 through August 4 were in the range of 0.19 kcfs to 4.57 kcfs.
- *Libby* will finish the refill by August 9. Current outflow is 12 kcfs. It is projected that outflow will ramp up to 15 kcfs on August 9. The most recent COE projections are showing that the reservoir will be drafted only to an elevation of about 2450 ft by the end of August, as defined by the Integrated Rule Curves, instead of an elevation of 2440 ft, as defined by the Biological Opinion.
- *Arrow* is releasing outflows in the range of 84 kcfs to 88 kcfs. Late melt-off caused very high runoff

for this period of the year. The reservoir is operated under the USA-Canadian Treaty.

- *Grand Coulee* will continue operating in its top two feet. Drafting for flow augmentation is delayed because of the increased inflows from the Upper Columbia. Current outflows are increased from 105.1 kcfs on August 2 to 160.4 kcfs on August 4. Inflows are in the range of 146.4 kcfs to 161.9 kcfs for the week of July 30 through August 4. Drafting for flow augmentation will commence when inflows decrease, so that flows of 200 kcfs at McNary will not be attainable.
- *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. Spring flow management for flood control resulted in failure to refill the reservoir as required by the BiOp by the end of June. The reservoir was drafted at a rate of 18.2 through 19.1 kcfs during the past week, starting on July 31. The states of Washington and Oregon and NMFS and USFWS requested continuation of the outflows of 19 kcfs during August 9-15, but the request will not be implemented. It is expected that EPA will issue a limited total dissolved gas waiver for the week of August 9 through 15, for gradually decreasing outflows from 17 kcfs on Monday to 12 kcfs as of Friday August 13.
- *Brownlee* finished drafting for flow augmentation at Lower Granite. Idaho Power Company delivered its portion of the flow augmentation required by the BiOp by the end of July and shaped the BOR water from the Payette system during the past week. It is projected that the reservoir will be passing the inflow during the rest of August.

A summary of the current elevations on August 4 is given in the following Table:

Reservoir	Actual elev. As of August 4	Max Reservoir pool [ft]
<i>Libby</i>	2457.88	2459
<i>Hungry Horse</i>	3559.96	3560
<i>Grand Coulee</i>	1289.1	1290
<i>Brownlee</i>	2049.08	2077
<i>Dworshak</i>	1569.23	1600

Upper Snake reservoirs:

High temperatures in the basin continue, resulting in high irrigation withdrawals at diversions. 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. The system is currently at 85% of capacity. The major draft for flow augmentation is from American Falls reservoir, currently at 71% of full capacity. Two other major reservoirs in the system, Palisades and Jackson Lake, are at 92% of full capacity and 97% of full capacity.

Boise and Payette River Basins:

The Boise River system (Anderson Ranch, Arrowrock and Lucky Peak) is at 84% of capacity. The daily average outflow from the Boise River system is at rates in the range of 1 kcfs to 1.4 kcfs, with a portion of flow augmentation. 400 cfs commenced about July 5 and it is anticipated that it will continue through August 29. The Payette River system (Cascade and Deadwood) is at 90% of capacity. 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 fluctuating from 48.8 kcfs to 44.6 kcfs during the week of July 30 through August 4. Flows in the Snake river basin are receding. McNary daily average flows continued fluctuating during the past week from 180 kcfs on July 30 to 237.6 kcfs on August 4.

The weekly average discharges for the major run-of-river projects for July 30 through August 4 are given in the following Table:

Project	Average Discharge [kcfs]	
	July 23-29	July 30-August 4
<i>Priest Rapids</i>	175.6	149.9
<i>McNary</i>	231.7	207.8
<i>Lower Granite</i>	47.5	47.05
<i>Bonneville</i>	234.4	207.9

Spill: Outflow from Dworshak increased to 19 Kcfs at midnight on July 30, 1999 as per SOR #99-19 resulting in approximately 9 Kcfs of spill. EPA approved an increase of total dissolved gas levels to 120% for the week ending August 8th. The fishery agencies of the States of Oregon and Washington and the federal agencies, NMFS and USFWS, made a similar request to provide flows of 19 Kcfs from Dworshak for juvenile fall chinook flow augmentation for the upcoming week (ending August 15th). EPA would not approve the 120% total dissolved gas levels for this request. EPA recommended that flows be lowered to 17 Kcfs on Monday and decrease through the week to 13 Kcfs, for a weekly average of 15 Kcfs.

Transmission line problems occurred at Lower Monumental Dam on August 4th resulting in spill. The problems were remedied by the end of the day and spill ceased. The Biological Opinion summer spill program in the Snake is being implemented at Ice Harbor Dam.

The Biological Opinion summer spill program is being implemented at John Day, The Dalles and Bonneville dams. Spill continued at McNary Dam due to flows in excess of hydraulic capacity. The FERC summer spill program continued through the week at the Mid-Columbia projects.

Total dissolved gas levels are remaining within the waiver limits. Monitoring for signs of gas bubble trauma (GBT) on fish collected through the Smolt Monitoring Program showed only a few fish with signs of GBT over the past week.

Smolt Monitoring. In the Snake River, the previous two-week increase in subyearling chinook passage indices at Lower Granite Dam leveled off and began dropping the latter half of this week. Overall, this week's daily subyearling chinook passage indices at Lower Granite Dam averaged 9% lower than last week. At Little Goose Dam, this

week saw subyearling chinook passage indices drop an average of 44% from last week's level. At Lower Monumental Dam the increase projected last week did not materialize; but instead the daily subyearling chinook passage indices dropped another 24%. This week's Lower Granite Dam PIT tag detections of wild fall chinook tagged in the Snake River averaged 7 fish per day, close to the average of the latter half of last week. This week's Lower Granite Dam PIT tag detections of hatchery fall chinook averaged 12 fish per day for fish released from Big Canyon Creek acclimation pond (a 64% drop from last week's average) and 10 fish per day for fish released from Captain Johns Rapids acclimation pond (same as last week's average).

Only the mid-Columbia River showed an increase in subyearling chinook passage indices this week. At Rock Island Dam this week's subyearling chinook passage indices increased 20.5%, offsetting the drop of 20% reported last week from the preceding 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 Dam dropped only an average of 13% from last week's level, and now average about 35,000 fish per day. Subyearling chinook passage indices at both John Day and Bonneville dams saw a large decrease this week, dropping an average of 54% and 59%, respectively, from last week's level.

Adult Fish Passage: Fall chinook counting at Bonneville Dam began on August 1st. Adult fall chinook counts ranged between 200 and 300 for the week of August 1 through 4 with the cumulative count being 1,030. The Dalles began counting fall chinook on August 4.

The final count of summer chinook at Bonneville and The Dalles dams was 26,170 and 22,669, respectively. Summer chinook counts were about 140-150% of the 1998 count and 10-year average. The turnoff of summer chinook into the Snake River is essentially completed for the season with daily counts ranging between 2 and about 20 at the four Snake River dams. The number of summer chinook counted at the Mid-Colum-

bia projects remains fairly high with adult counts ranging between 200 to as high as 600 per day through the week. Overall, 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 50%.

Sockeye passage at upstream Mid-Columbia projects began reducing through the week, but still averaged over 200 per day at the upper three dams. Based on the sockeye counts [through August 2] at Rock Island and Rocky Reach dams, it appears that about 81% have continued past Rocky Reach Dam and are destined for Lake Osoyoos (Okanogan R basin). About 19% of the sockeye should be migrating up into the Wenatchee River and Wenatchee Lake basin.

At Lower Granite Dam, the sockeye count is now up to an official 20 (through August 2) with these sockeye mainly comprised of adipose clipped fish (19 of 20) that were approximately 14-18 inches in length. These sockeye should be offspring 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 (7/30-8/4) at Bonneville Dam with daily tallies ranging between 2,900 and 4,400. Through August 4, the cumulative count at Bonneville Dam was 69,392, surpassing the 1998 count of 49,365 and even the 10-year average count of 68,750. The counts of wild steelhead ranged between 1,300 and 1,700 during the past week at Bonneville Dam with the season total now 26,873. About 38.7% of the steelhead count to date at Bonneville Dam have been "wild" fish based on the presence of the adipose fin. About 48.4% of The Dalles passage was tallied as "wild" steelhead. Steelhead numbers continued increasing at lower Columbia River projects through the week. The steelhead count at Ice Harbor began an up trend at the end of the week with the high daily count rising to 405 on August 4 and the season total 5,841. The steelhead count at Priest Rapids Dam remains fairly low to date with daily counts about 50 per day for the first 3 days of August.

Overall, the 1999 steelhead count at Priest Rapids was 801 and that total fell below the 1998 count and the 10-year average.

Four coho salmon have been counted at Bonneville Dam through August 4.

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
07/22/99	149.0	0.1	152.3	0.0	161.9	11.6	174.9	17.7	172.5	20.5	172.4	15.8	178.3	69.9
07/23/99	164.0	0.1	164.0	0.0	173.5	11.6	179.7	20.3	182.9	20.5	181.9	20.7	186.3	75.7
07/24/99	127.1	0.1	135.7	0.0	153.0	11.6	164.9	13.5	172.1	20.2	184.0	24.4	192.0	77.1
07/25/99	130.1	0.1	127.9	0.0	137.4	10.7	140.6	0.0	147.1	20.3	148.7	15.2	151.6	62.6
07/26/99	153.6	0.1	150.7	0.0	161.8	11.6	164.0	0.3	167.4	20.4	165.7	14.5	169.5	69.7
07/27/99	164.3	0.1	161.2	4.1	171.6	11.6	171.9	5.8	174.4	20.3	176.6	17.0	179.7	71.6
07/28/99	141.5	0.1	157.9	0.0	169.8	11.6	180.4	16.8	185.5	20.2	189.5	28.2	191.9	77.5
07/29/99	124.9	0.1	123.5	0.0	133.1	11.6	136.6	16.9	142.2	20.5	155.3	14.4	158.2	62.6
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

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

Date	Dworshak		Brownlee Canyon		Hells Canyon		Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill	Inflow	Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
07/22/99	13.4	3.9	13.2	17.2	51.3	0.0	51.9	0.0	54.2	0.0	58.6	49.1		
07/23/99	13.3	3.7	12.9	16.6	51.4	0.0	52.8	0.0	56.1	0.0	58.5	50.0		
07/24/99	12.9	3.3	12.7	18.0	48.6	0.0	48.2	0.0	49.1	0.0	52.2	42.5		
07/25/99	12.7	3.1	13.0	16.7	47.8	0.0	48.0	0.0	50.7	0.0	53.5	42.8		
07/26/99	12.8	3.2	12.1	19.8	47.5	0.0	47.4	0.0	48.6	0.0	51.3	39.6		
07/27/99	12.8	3.2	12.5	21.3	46.4	0.0	48.3	0.0	52.2	0.0	56.2	44.2		
07/28/99	12.8	3.2	12.4	20.2	46.2	0.0	45.2	0.0	44.5	0.0	47.3	35.5		
07/29/99	12.8	3.2	11.9	18.7	44.4	0.0	42.3	0.0	43.7	0.0	45.2	35.0		
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	---	---	46.0	0.0	---	---	42.9	13.6	44.4	36.9		

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
07/22/99	221.1	99.3	234.9	59.0	242.2	154.3	255.8	80.6	68.9	97.2
07/23/99	232.9	111.2	231.0	60.3	232.0	146.0	221.3	84.0	77.8	50.3
07/24/99	248.6	125.6	233.5	62.0	231.2	147.0	232.4	86.5	81.9	54.9
07/25/99	229.9	106.6	242.5	65.3	247.9	159.2	252.1	87.9	87.3	67.7
07/26/99	220.7	99.4	230.8	59.3	225.2	145.1	246.4	85.6	78.6	73.0
07/27/99	238.2	112.1	231.7	61.1	223.9	142.5	211.7	86.8	62.8	52.9
07/28/99	225.9	101.8	212.6	58.2	213.1	133.9	219.1	87.7	62.6	59.6
07/29/99	225.4	98.7	219.9	52.5	222.0	137.7	257.6	85.0	75.5	87.9
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	---	---	247.2	51.0	244.4	154.5	236.1	85.6	86.2	55.6

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>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>				
7/23	120	121	121	24	117	117	118	24	114	114	115	24	114	114	115	24	113	114	115	23
7/24	120	121	121	24	117	118	118	24	114	115	115	24	114	115	115	24	114	115	116	24
7/25	119	120	121	23	117	117	117	23	114	114	115	23	114	114	115	23	113	114	114	23
7/26	120	120	121	22	117	117	117	22	114	114	115	20	114	115	115	23	113	113	114	23
7/27	121	122	124	24	117	118	118	24	114	114	115	21	115	116	116	23	115	115	121	23
7/28	123	124	124	24	117	117	118	24	114	114	115	8	115	115	115	23	113	114	115	23
7/29	120	121	122	24	117	117	118	24	114	114	115	24	114	115	115	23	114	114	115	23
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

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>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>				
7/23	---	---	---	0	110	111	111	20	113	113	114	20	111	111	112	20	117	117	118	20
7/24	---	---	---	0	110	110	111	24	113	113	114	23	111	111	112	24	116	116	117	24
7/25	---	---	---	0	110	110	111	22	111	111	111	19	108	108	109	23	114	115	115	23
7/26	---	---	---	0	109	110	111	21	111	112	113	21	108	108	110	21	114	114	115	21
7/27	---	---	---	0	110	111	112	21	113	113	114	20	110	110	111	23	115	116	116	22
7/28	---	---	---	0	111	112	112	24	114	114	114	23	110	110	111	23	116	116	117	23
7/29	---	---	---	0	111	111	112	23	114	114	114	22	109	110	111	23	118	119	121	23
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

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>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>	<u>24 h</u>	<u>12 h</u>	<u>#</u>					
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>				
7/23	115	116	117	24	115	116	117	24	114	115	116	24	118	119	119	24	107	107	107	5
7/24	113	114	115	24	114	116	118	24	115	116	117	24	119	119	119	24	---	---	---	0
7/25	111	111	112	24	111	112	112	24	111	112	113	24	115	116	117	24	110	110	111	13
7/26	113	115	116	24	113	114	115	24	112	113	114	24	117	118	119	24	109	110	110	24
7/27	114	115	116	24	114	114	115	24	114	115	115	24	118	119	120	24	110	110	110	24
7/28	113	114	115	24	114	115	116	24	114	115	117	24	118	119	120	24	109	109	110	17
7/29	112	112	112	24	113	113	114	24	112	113	114	24	116	117	118	24	111	111	111	24
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	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	118	118	119	13

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			#	Tlwtr 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		24 h	12 h	High
	Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg	
7/23	107	107	107	5	102	102	102	5	103	103	103	5	106	107	109	24	103	103	104	24			
7/24	---	---	---	0	---	---	---	0	---	---	---	0	104	104	105	24	102	103	103	24			
7/25	---	---	---	0	---	---	---	0	---	---	---	0	103	103	104	21	102	103	103	24			
7/26	107	108	109	24	104	105	106	22	106	108	109	24	106	108	111	23	103	104	104	24			
7/27	107	108	109	24	104	105	106	24	106	108	109	24	107	107	108	24	103	103	103	24			
7/28	107	107	109	17	104	105	106	24	106	108	109	24	105	107	109	24	102	103	104	24			
7/29	109	109	111	24	103	103	106	24	106	108	109	24	106	106	107	21	103	104	104	24			
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			

Total Dissolved Gas Saturation Data at Lower Snake River Sites

Date	Little Goose			#	Tlwtr L. Goose			#	L. Monumental			#	Tlwtr 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		24 h	12 h	High
	Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg			Avg	Avg	
7/23	100	100	102	24	97	98	98	24	101	102	104	24	100	100	101	24	101	101	103	24			
7/24	100	100	102	24	98	98	99	24	101	101	102	13	99	99	100	13	101	101	103	24			
7/25	100	101	101	24	98	98	98	24	---	---	---	0	---	---	---	0	100	101	102	24			
7/26	102	102	106	24	99	99	100	24	100	100	101	24	99	99	100	24	100	101	102	24			
7/27	103	104	106	24	99	100	100	24	102	103	106	24	100	101	102	24	100	101	102	24			
7/28	102	103	105	24	99	100	100	24	102	102	104	24	99	100	101	24	100	101	102	24			
7/29	102	103	106	24	99	100	100	24	101	101	102	24	99	100	100	24	99	100	102	24			
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			

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

Date	Twtr Ice Har.			#	Pasco			#	McNary-Oregon			#	McNary-Wash.			#	Tlwtr 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			
7/23	113	114	115	24	---	---	---	0	113	115	120	22	114	115	118	23	120	120	121	23
7/24	112	113	114	24	---	---	---	0	112	112	112	23	113	115	117	24	120	121	121	24
7/25	112	113	114	24	---	---	---	0	111	112	115	23	111	111	113	24	120	121	129	19
7/26	111	113	114	24	---	---	---	0	110	111	114	21	111	112	113	15	118	120	120	21
7/27	112	113	114	24	---	---	---	0	111	112	115	24	113	115	117	24	119	121	121	24
7/28	110	112	114	24	---	---	---	0	114	117	120	24	113	114	115	24	118	119	120	24
7/29	110	111	112	24	---	---	---	0	113	114	116	24	113	114	114	24	118	119	121	24
7/30	111	112	113	24	---	---	---	0	113	115	117	23	112	113	114	23	114	115	116	23
7/31	112	113	114	24	---	---	---	0	114	116	116	24	113	113	114	24	113	114	114	24
8/1	112	113	114	18	---	---	---	0	113	114	118	17	112	113	114	18	114	114	114	18
8/2	111	112	113	24	---	---	---	0	113	115	117	24	111	112	113	24	113	114	114	24
8/3	111	112	113	24	---	---	---	0	111	112	115	18	112	113	114	20	114	117	119	23
8/4	110	111	112	24	---	---	---	0	111	111	119	13	112	113	114	24	117	117	119	22
8/5	110	110	112	13	---	---	---	0	110	110	113	12	112	112	112	12	114	114	116	13

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>		#
	Avg	Avg	High	hr		Avg	Avg	High	hr		Avg	Avg	High	hr		Avg	Avg	High	hr	
7/23	109	109	109	24	114	118	120	24	109	111	114	24	118	119	120	24	113	114	114	23
7/24	109	109	110	24	113	118	121	24	107	108	109	24	117	118	120	24	110	111	112	23
7/25	108	109	111	23	114	119	120	24	108	112	114	23	118	119	120	24	110	110	110	23
7/26	111	112	113	23	114	118	120	24	110	113	115	23	118	119	120	24	113	114	114	23
7/27	110	110	111	23	114	117	120	21	110	112	113	22	119	119	120	24	115	116	116	23
7/28	109	109	109	23	115	121	124	24	109	111	113	23	118	119	120	24	112	113	113	23
7/29	109	110	111	23	114	118	119	24	108	110	111	23	117	118	120	24	110	111	111	23
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

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>	
	Avg	Avg	High	hr		Avg	Avg	High	hr		Avg	Avg	High	hr
7/23	114	115	116	23	116	117	118	23	113	115	117	23		
7/24	113	114	115	24	114	116	117	24	112	113	114	24		
7/25	112	113	114	23	114	115	117	23	112	114	115	24		
7/26	114	114	116	23	115	116	117	23	113	116	117	24		
7/27	116	118	119	23	117	118	120	23	115	117	119	24		
7/28	115	116	118	23	116	117	119	23	115	116	118	24		
7/29	113	114	115	23	114	115	117	23	112	113	115	24		
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		

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													
	07/29/99	Subyearling Chinook	100	1	0	0.00%	0.00%	0	0	0	0	0	0.0
	08/02/99	Subyearling Chinook	100	1	0	0.00%	0.00%	0	0	0	0	0	0.0
	08/05/99	Subyearling Chinook	100	1	0	0.00%	0.00%	0	0	0	0	0	0.0
Bonneville Dam													
	07/29/99	Subyearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0.0
	08/02/99	Subyearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0.0
	08/05/99	Subyearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0.0
Rock Island Dam													
	07/27/99	Subyearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0.0
	07/29/99	Subyearling Chinook	100	2	2	2.00%	0.00%	2	0	0	0	0	0.0
	08/02/99	Subyearling Chinook	100	2	1	1.00%	0.00%	1	0	0	0	1	2.0
	08/05/99	Subyearling Chinook	100	1	1	1.00%	0.00%	0	1	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)
07/23/99	---	---	---	---	25	21	0	0	0	68	0
07/24/99	---	---	---	---	40	10	0	0	59	0	0
07/25/99	---	---	---	---	10	10	0	0	0	0	0
07/26/99	---	---	---	---	10	30	0	1	0	199	0
07/27/99	---	---	---	---	0	0	0	1	0	0	0
07/28/99	---	---	---	---	10	21	4	0	0	0	0
07/29/99	---	---	---	---	0	11	0	0	0	0	0
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
Total:	0	0	0	0	95	232	8	9	208	267	0
# Days:	0	0	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	7	17	1	1	15	19	0

Wild Yearling Chinook

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)
07/23/99	---	---	---	---	8	50	0
07/24/99	---	---	---	---	0	100	0
07/25/99	---	---	---	---	30	60	0
07/26/99	---	---	---	---	0	180	0
07/27/99	---	---	---	---	10	80	0
07/28/99	---	---	---	---	10	140	8
07/29/99	---	---	---	---	10	41	16
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
Total:	0	0	0	0	68	928	42
# Days:	0	0	0	0	14	14	14
Average:	0	0	0	0	5	66	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)
07/23/99	---	---	---	---	5,449	3,170	2,676	207	39,833	31,546	14,613
07/24/99	---	---	---	---	4,360	5,171	2,088	168	48,905	29,882	11,342
07/25/99	---	---	---	---	5,800	4,965	3,152	177	30,719	38,886	9,237
07/26/99	---	---	---	---	5,550	5,197	1,792	217	30,060	33,552	7,665
07/27/99	---	---	---	---	3,476	3,194	1,428	363	42,878	28,987	7,352
07/28/99	---	---	---	---	5,010	5,123	1,580	441	47,349	21,711	6,907
07/29/99	---	---	---	---	3,630	3,338	1,056	486	40,089	12,988	9,456
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
Total:	0	0	0	0	63,532	47,110	24,195	4,540	523,254	289,168	93,688
# Days:	0	0	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	4,538	3,365	1,728	324	37,375	20,655	6,692

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)
07/23/99	---	---	---	---	17	10	0	0	0	0	0
07/24/99	---	---	---	---	10	10	0	0	0	0	27
07/25/99	---	---	---	---	20	10	0	3	0	0	28
07/26/99	---	---	---	---	0	0	0	1	36	0	0
07/27/99	---	---	---	---	0	10	0	3	0	0	0
07/28/99	---	---	---	---	20	10	0	3	0	0	0
07/29/99	---	---	---	---	10	0	4	0	0	0	20
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
Total:	0	0	0	0	97	65	16	12	36	0	93
# Days:	0	0	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	7	5	1	1	3	0	7

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)
07/23/99	---	---	---	---	202	20	6	8	0	0	0
07/24/99	---	---	---	---	200	10	18	20	118	0	0
07/25/99	---	---	---	---	210	21	16	4	123	0	0
07/26/99	---	---	---	---	360	20	8	3	0	0	0
07/27/99	---	---	---	---	171	40	8	0	0	0	0
07/28/99	---	---	---	---	130	40	8	3	76	0	0
07/29/99	---	---	---	---	160	31	12	2	113	0	0
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
Total:	0	0	0	0	2,404	406	146	52	532	0	0
# Days:	0	0	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	172	29	10	4	38	0	0

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)
07/23/99	---	---	---	---	0	0	0	3	0	0	0
07/24/99	---	---	---	---	10	10	0	2	0	0	0
07/25/99	---	---	---	---	0	0	4	3	0	0	0
07/26/99	---	---	---	---	0	0	4	0	0	0	0
07/27/99	---	---	---	---	10	10	0	0	0	0	0
07/28/99	---	---	---	---	10	10	0	0	0	0	0
07/29/99	---	---	---	---	10	0	0	2	0	0	0
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
Total:	0	0	0	0	60	45	8	18	0	65	0
# Days:	0	0	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	4	3	1	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)
07/23/99	---	---	---	---	0	0	0	0	0	0	0
07/24/99	---	---	---	---	0	10	0	0	0	0	0
07/25/99	---	---	---	---	0	0	0	0	0	0	0
07/26/99	---	---	---	---	0	0	0	0	0	0	0
07/27/99	---	---	---	---	0	0	0	0	0	0	0
07/28/99	---	---	---	---	0	0	0	0	0	0	0
07/29/99	---	---	---	---	0	0	4	0	0	0	0
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
Total:	0	0	0	0	0	10	4	2	66	0	0
# Days:	0	0	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	0	1	0	0	5	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)
07/23/99	---	---	---	---	0	0	6	2	0	0	98
07/24/99	---	---	---	---	0	10	0	0	0	0	27
07/25/99	---	---	---	---	0	0	0	0	0	0	0
07/26/99	---	---	---	---	0	0	0	1	36	0	30
07/27/99	---	---	---	---	10	0	0	1	0	0	0
07/28/99	---	---	---	---	10	0	0	0	0	0	34
07/29/99	---	---	---	---	0	0	0	0	0	0	368
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
Total:	0	0	0	0	40	14	10	5	203	0	669
# Days:	0	0	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	3	1	1	0	15	0	48

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 4, 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	26,170	4,022	21,433	2,678	20,784	2,653	1,030	201	931	99	1,318	146
TDA	17,563	6,180	25,225	518	39,635	1,617	22,669	3,219	15,462	1,444	17,039	1,868	219	48	67	11	232	24
JDA	15,409	5,089	21,820	378	31,309	1,325	21,948	2,460	16,121	1,469	15,220	1,686	0	0	0	0	0	0
MCN	9,258	3,961	19,415	337	30,860	1,525	18,355	2,225	16,021	1,372	16,001	1,653	0	0	0	0	0	0
IHR	5,335	2,648	12,434	130	16,094	620	3,853	1,308	5,453	302	4,380	402	0	0	0	0	0	0
LMN	3,924	2,726	10,598	131	15,276	682	3,296	1,335	4,252	296	4,139	426	0	0	0	0	0	0
LGS	3,450	2,656	10,512	118	**	**	3,208	1,555	4,249	331	3,146	305	0	0	0	0	**	**
LWG	3,322	2,407	9,854	109	13,146	573	3,158	1,542	4,298	325	4,158	421	0	0	0	0	0	0
PRD	4,129	744	4,124	37	9,804	151	19,920	436	12,685	497	12,766	490	0	0	0	0	0	0
RIS	3,312	915	3,187	54	7,271	160	15,099	1,138	10,703	925	10,283	677	0	0	0	0	0	0
RRH	1,399	252	762	54	1,670	39	7,259	579	5,572	253	3,675	245	0	0	0	0	0	0
WEL	*44	*72	6	24	902	41	4,495	284	2,454	644	2,059	214	0	0	0	0	0	0

DAM	Coho						Sockeye			Steelhead			
	1999		1998		10-Yr Avg.		1999	1998	10-Yr Avg.	10-Yr			Wild 1999
	Adult	Jack	Adult	Jack	Adult	Jack				1999	1998	Avg.	
BON	4	0	20	2	24	9	17,827	13,179	44,410	69,408	49,365	68,750	26,873
TDA	0	0	0	0	1	0	13,586	8,779	35,381	30,908	13,909	27,729	14,938
JDA	1	0	0	0	0	0	14,448	9,711	36,607	28,112	18,023	18,478	8,110
MCN	0	1	0	0	0	0	11,730	9,345	38,536	11,069	9,695	15,744	2,660
IHR	0	0	0	0	0	0	5	5	6	5,826	5,701	8,326	1,280
LMN	0	0	0	0	0	0	8	1	6	3,543	4,299	6,484	737
LGS	0	0	0	0	0	0	17	3	5	2,910	3,335	2,670	815
LWG	0	0	0	0	0	0	14	2	4	4,704	5,558	7,275	1,014
PRD	0	0	12	0	1	0	15,918	10,664	42,712	813	962	1,433	0
RIS	0	0	0	0	2	0	15,597	9,193	36,434	334	570	968	208
RRH	8	0	0	0	0	0	12,682	5,476	17,555	216	456	574	80
WEL	0	0	0	0	0	0	10,526	4,098	16,106	142	203	407	25

LMN, LGS, RIS, and RRH are through 8/02; PRD 08/03

*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 07/23/99 to 08/05/99**

	Yearling Chinook	Subyearling Chinook	Steelhead Coho	Sockeye	Total
LOWER GRANITE DAM					
Collected	163	63489	2462	97	66251
Bypassed	0	20	0	0	20
Trucked	231	64140	2581	95	67085
Barged	0	0	0	0	0
Total Transported	231	64140	2581	95	67085
LITTLE GOOSE DAM					
Collected	1160	47110	451	65	48810
Bypassed	0	0	0	0	0
Trucked	1246	47607	496	61	49443
Barged	0	0	0	0	0
Total Transported	1246	47607	496	61	49443
LOWER MONUMENTAL DAM					
Collected	44	23636	148	16	23858
Bypassed	0	0	0	0	0
Trucked	43	24832	140	16	25045
Barged	0	0	0	0	0
Total Transported	43	24832	140	16	25045
M McNARY DAM					
Collected	130	309370	290	20	309990
Bypassed	0	0	0	0	0
Trucked	127	305080	288	19	305691
Barged	0	0	0	0	0
Total Transported	127	305080	288	19	305691
PROJECT TOTALS					
Collected	1497	443605	3351	198	448909
Bypassed	0	20	0	0	20
Trucked	1647	441659	3505	191	447264
Barged	0	0	0	0	0
Total Transported	1647	441659	3505	191	447264

**Transportation Summary Report
Cumulative Transportation Summary
through 08/05/99**

	Yearling Chinook	Subyearling Chinook	Steelhead	Coho	Sockeye	Total
LOWER GRANITE DAM						
Collected	2173440	205895	3353936	78482	17556	5829309
Bypassed	115918	43	266363	14608	1640	398572
Trucked	32255	106540	33417	1355	1468	175035
Barged	2011776	94052	3053028	62315	14012	5235183
Total Transported	2044031	200592	3086445	63670	15480	5410218
LITTLE GOOSE DAM						
Collected	3532092	175371	3135218	117298	21008	6980987
Bypassed	19783	0	158018	4195	299	182295
Trucked	8248	90907	3895	940	578	104568
Barged	3481142	77971	2969994	111937	18954	6659998
Total Transported	3489390	168878	2973889	112877	19532	6764566
LOWER MONUMENTAL DAM						
Collected	1892423	121600	1978671	51151	12870	4056715
Bypassed	148537	1	251013	7795	596	407942
Trucked	5450	86909	2126	116	214	94815
Barged	1736425	33327	1724869	43237	12032	3549890
Total Transported	1741875	120236	1726995	43353	12246	3644705
MCNARY DAM						
Collected	2104467	3733909	536994	140738	782674	7298782
Bypassed	2098392	801225	532579	137083	781069	4350348
Trucked	127	305080	288	19	177	305691
Barged	3490	2589486	3896	3544	836	2601252
Total Transported	3617	2894566	4184	3563	1013	2906943
PROJECT TOTALS						
Collected	9702422	4236775	9004819	387669	834108	24165793
Bypassed	2382630	801269	1207973	163681	783604	5339157
Trucked	46080	589436	39726	2430	2437	680109
Barged	7232833	2794836	7751787	221033	45834	18046323
Total Transported	7278913	3384272	7791513	223463	48271	18726432