Fish Passage Center

Weekly Report #99 - 20

July 23, 1999

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NOTE: The final version of the 1998 Fish Passage Center Annual Report is in PDF format on the FPC web site - http://www.fpc.org/FPC19982.pdf.

SUMMARY OF EVENTS:

Water Supply: Water supply and run off data are unchanged from last week.

System Storage: Refill of the major system reservoirs, except of Libby and Dworshak is complete. Drafting for flow augmentation commenced from the Snake River reservoirs to implement Biological Opinion flows at Lower Granite.

- Hungry Horse has refilled. The reservoir is projected to pass inflow or to be slightly drafted by the end of July, and then commence draft for summer flow augmentation. The most current flow projections are showing that the COE is operating the reservoir under the Integrated Rule Curves, defined by the State of Montana. Flow forecasts are showing that the reservoir will be drafted to an elevation of 3550 ft by the end of August, instead of elevation 3540 ft as required by Biological Opinion. Current outflows for the period of July 16-22 were in the range of 1.14 kcfs to 4.74 kcfs.
- Libby continues to refill, with minimum required outflows of at least 8 kcfs as required for bull trout to the end of July. The most recent flow projections are showing that Libby reservoir will be refilled by the end of July and that the reservoir will be drafted only to an elevation of 2450 ft by the end of August, as defined by the Integrated Rule Curves, instead of an elevation of 3540 ft, as defined by the Biological Opinion, impacting flows in the Lower Columbia River.
- Arrow reservoir continued with outflows of 54-56 kcfs during past week. The plan is to continue with similar, or slightly higher, outflows during the coming week. The reservoir is operated under a USA-Canadian Treaty.
- Grand Coulee reservoir is operating in the top foot. The most recent flow projections are showing that flow augmentation will commence on August 1st. Daily average outflows were in the range of 147.5 kcfs to 178 kcfs in the period of July 16-22.
- Dworshak reservoir commenced drafting for flow augmentation at Lower Granite on July 16 and is currently operating with full powerhouse capacity. 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 BiOp by the end of June.
- Brownlee reservoir continues drafting for flow augmentation at Lower Granite. The reservoir drafted at an approximate rate of 1 ft/day, not exceeding outflows of 22 kcfs at Hells Canyon. Idaho Power Company plans to deliver its portion of the flow augmentation required by the BiOp by the end of the July.

A summary of the current elevations on July 22 is given in the following Table:

Reservoir	Actual elev. As of July 22	Max Reservoir pool [ft]
Libby	2451.7	2459
Hungry Horse	3560.32	3560
Grand Coulee	1289.1	1290
Brownlee	2063.8*	2077
Dworshak	1588.16	1600

*as of July 21

Upper Snake reservoirs:

Flow augmentation for flows at Lower Granite began at the Upper Snake on July 1. High temperatures and low precipitation 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 92% of capacity. The major draft for flow augmentation is from American Falls reservoir, currently at 82% of full capacity.

Boise and Payette River Basins:

The Boise River system (Anderson Ranch, Arrowrock and Lucky Peak) is at 93% of capacity. The daily average outflow from the Boise River system is at rates in the range of 1.2 kcfs to 1.4 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, Deadwood) is at 95% of capacity. The daily average outflow from the Payette river system decreased from 2.2 kcfs (as of July 15) to 1.6 kcfs (as of July 22).

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 in the range of 51.3 kcfs to 54.6 kcfs during the week of July 16-22. Flow augmentation from all reservoirs in the Snake River basin is under way. McNary daily average flows continued fluctuating during the past week from 233.4 kcfs on July 20 to 271.9 kcfs on July 17. Flows in the basin are receding.

The weekly average discharges for the major run-of-river projects for the July 9-22 period are given in the following Table:

Project	Average Discharge [kcfs]	
	July 9-15	July 16-22
Priest Rapids	201.4	189.3
McNary	265.3	243.6
Lower Granite	54.2	52.9
Bonneville	271.9	254.4

Spill: Spill has continued at Ice Harbor and John Day dams at Biological Opinion summer spill levels. Spill at John Day decreased through the week. Spill at The Dalles continues to be affected by research activities. Spill at McNary Dam continues due to flows occurring in excess of the hydraulic capacity of the project. The FERC summer spill program continued through the week at the Mid-Columbia projects. Dissolved gas levels are staying within the waiver levels. Very few symptoms of gas bubble trauma are being observed.

Smolt Monitoring. In the Snake River, subyearling chinook passage indices at Lower Granite Dam continued to increase this week, reaching 4,464 fish on July 22, a magnitude not seen since June 24. This week's PIT tag detections at Lower Granite Dam averaged 10 fish per day for wild fall chinook tagged in the Snake River, 34 fish per day for hatchery fall chinook tagged at Big Canyon Creek acclimation pond, and 5 fish per day for hatchery fall chinook tagged at Captain Johns Rapids acclimation pond. Subyearling chinook passage indices at Little Goose and Lower Monumental dams also substantially increased this week, again reaching levels above 3,000 fish per day during much of the week.

In the mid-Columbia River, subyearling chinook passage indices at Rock Island Dam fluctuated between 193 and 676 fish per day this week. These levels are between last week's highs and lows.

In the lower Columbia River, subyearling chinook passage indices at McNary Dam ranged between approximately 51,000 and 131,000, levels similar to last week. Subyearling chinook passage indices at John Day Dam during the latter half of this week were about half the magnitude of the first part of this week. This dropped put the John Day Dam subyearling chinook passage indices at a level similar to the start of the preceding week. Passage indices of subyearling chinook at Bonneville Dam also decreased this week, reaching levels in the 6,000 fish range for three days, which is about half of the previous weekly average.

Adult Fish Passage: Summer chinook counts at Bonneville Dam ranged between 292 and 469 for the week 7/16 through 7/22. The cumulative count of adult summer chinook at Bonneville Dam was 23,271, about 119% and 125% of the respective 1998 count and 10-year average through July 22. The summer chinook count at The Dalles, John Day and McNary dams was 19,504, 18,582 and 15,111, respectively. The turnoff into the Snake River (Ice Harbor Dam count) was 3,708, with 13,720 summer chinook counted into the Mid-Columbia (Priest Rapids Dam count). The Snake River total was less than the 1998 and 10-year average while the Mid-Columbia count surpassed the 1998 and 10-year average at Priest Rapids Dam by about 30%.

Adult sockeye counts reduced to less than 100 per day by the end of the reporting week at Bonneville Dam. The cumulative count at Bonneville Dam was 17,471 through July 22. Most sockeye have passed the lower projects and are now above Rock Island Dam. Based on the sockeye counts at Rock Island and Rocky Reach dams, it appears that about two thirds (6,444/9,283) have passed Rocky Reach Dam and are destined for Lake Osoyoos (Okanogan R basin) with near one third destined for the Wenatchee Lake basin. For the season, sockeye have been counted at all four Snake River projects with Lower Granite Dam totaling 7 through the end of the reporting week. Most of these sockeye were adipose clipped and were less than 20 inches in length. The likely scenario is that these sockeye are progeny from fish released from upper Salmon River lakes in 1997 (fall) and 1998 spring season.

The A-Run steelhead counts increased through the week at Bonneville Dam with daily tallies ranging between 1,340 and 2,106. Counts exceeded 1,500 per day through most of the week with the average being 1,600 per day. Through July 22, the cumulative count at Bonneville Dam was 30,351 and was near equal the 1998 total but only 84.6% of the 10-year average. One interesting note, the number of wild steelhead passing Bonneville and upstream projects has been substantial during the past two weeks. The wild steelhead numbers ranged between 617 to 931 during the past week at Bonneville Dam. About 37% of the steelhead count to date at Bonneville Dam have been “wild” fish based on the presence of the adipose fin. Greater than 50% of The Dalles passage were tallied as “wild” steelhead. Steelhead numbers are now increasing at all upstream projects with about 200-300 per day now passing into the Snake River. The steelhead count at Priest Rapids Dam remains fairly low to date but are near the 1998 count and less than one half the 10-year average.

Coho salmon will begin passing Bonneville Dam from early August and on through November.

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

	Grand Coulee		Chief Joseph		Wells		Rocky Reach		Rock Island		Wanapum		Priest Rapids	
Date	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
07/09/99	166.0	0.1	162.3	0.0	175.3	13.2	177.8	21.8	182.2	9.3	179.3	27.0	177.1	53.5
07/10/99	160.2	0.1	165.8	0.0	180.3	13.2	194.8	25.9	201.5	9.4	204.7	43.6	202.8	66.9
07/11/99	142.2	0.1	146.0	0.0	163.2	13.2	174.9	9.7	185.6	9.6	190.5	36.2	190.0	62.3
07/12/99	163.0	0.1	159.0	0.0	178.3	12.2	185.9	17.7	195.2	8.1	195.8	34.8	194.1	62.5
07/13/99	179.2	0.1	183.6	0.0	208.3	50.2	207.4	47.9	216.8	14.1	222.3	65.3	225.1	105.0
07/14/99	160.7	0.1	171.0	0.0	194.0	54.3	203.2	35.3	207.6	14.5	224.9	69.9	228.7	95.5
07/15/99	180.6	0.1	171.0	0.0	184.5	10.9	187.9	29.6	189.4	20.6	191.1	40.7	192.1	71.6
07/16/99	178.0	0.1	177.1	0.0	190.6	15.1	198.8	32.9	204.3	20.5	213.7	55.6	220.4	89.5
07/17/99	129.3	0.1	136.6	0.0	156.0	10.7	165.5	15.8	173.6	20.5	183.3	28.2	194.5	78.4
07/18/99	154.2	0.1	153.4	0.0	159.3	10.7	159.1	6.6	161.8	20.5	162.2	16.4	164.6	66.9
07/19/99	156.3	0.1	156.9	0.0	167.6	11.6	166.8	1.5	176.6	20.5	178.1	19.1	185.9	74.8
07/20/99	147.5	0.1	155.0	0.0	167.7	11.6	175.0	11.4	179.1	20.5	177.6	23.5	186.2	76.2
07/21/99	149.0	0.1	144.8	0.0	159.4	11.6	168.9	18.2	176.6	20.5	183.0	24.2	194.9	78.9
07/22/99	149.0	0.1	---	---	161.9	11.6	174.9	17.7	172.5	20.5	172.4	15.8	178.3	69.9

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

	Dworshak		Brownlee	Hells Canyon	Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
Date	Flow	Spill	Inflow	Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
07/09/99	1.5	0.0	15.1	19.1	58.2	0.0	59.7	0.0	62.1	0.0	64.9	51.9
07/10/99	1.5	0.0	15.0	18.9	55.2	0.0	55.9	0.0	57.3	0.0	58.7	45.0
07/11/99	1.5	0.0	14.6	19.0	53.3	0.0	53.6	0.0	52.5	0.0	59.1	42.7
07/12/99	1.5	0.0	13.9	18.2	54.1	0.0	53.9	0.0	54.1	0.0	59.1	41.1
07/13/99	1.5	0.0	14.3	21.5	51.1	0.0	51.6	0.0	53.9	0.0	55.9	40.2
07/14/99	1.5	0.0	13.8	22.8	54.0	0.0	54.0	0.0	55.4	0.0	57.7	45.1
07/15/99	3.5	0.0	13.6	21.8	53.2	0.0	53.2	0.0	54.8	0.0	57.9	44.4
07/16/99	6.6	0.0	13.4	18.7	53.2	0.0	51.7	0.0	53.7	0.0	56.3	44.8
07/17/99	9.0	0.0	12.4	22.3	52.1	0.0	52.2	0.0	54.5	0.0	57.7	46.1
07/18/99	9.8	0.7	13.2	22.4	54.4	0.0	55.6	0.0	59.4	0.0	61.8	53.9
07/19/99	13.2	3.7	13.1	19.8	53.0	0.7	52.2	0.0	53.2	0.0	57.5	43.3
07/20/99	13.9	4.4	13.4	18.7	54.6	0.0	53.3	0.0	54.5	0.0	54.5	43.3
07/21/99	13.6	4.1	13.3	16.4	51.4	0.0	51.1	0.0	53.3	0.0	57.9	46.0
07/22/99	13.4	3.9	---	---	51.3	0.0	51.9	0.0	54.2	0.0	58.6	49.1

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

	McNary		John Day		The Dalles		Bonneville			
Date	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	PH1	PH2
07/09/99	252.0	89.7	269.9	59.6	275.3	158.3	270.2	86.4	73.8	100.8
07/10/99	249.4	87.6	223.5	57.3	221.3	138.8	244.7	86.0	73.8	75.7
07/11/99	277.9	115.3	282.4	66.5	281.3	171.0	272.4	85.2	80.6	97.4
07/12/99	251.0	91.5	266.1	111.5	261.9	99.5	289.6	82.4	77.6	120.4
07/13/99	263.3	104.2	245.5	101.7	234.8	70.9	246.2	82.1	71.9	83.0
07/14/99	285.9	128.5	287.1	116.1	285.0	85.2	272.5	83.8	77.4	102.2
07/15/99	277.3	114.4	294.5	68.7	298.4	163.3	307.4	100.2	81.1	116.9
07/16/99	268.3	109.0	258.9	62.0	262.0	166.5	267.1	85.1	78.1	94.7
07/17/99	262.9	104.9	248.7	69.0	245.5	153.3	260.4	83.2	77.0	91.0
07/18/99	250.8	91.8	261.5	69.0	260.2	100.3	267.3	82.8	78.2	97.1
07/19/99	228.0	94.1	249.0	66.9	247.3	74.0	255.1	81.2	79.3	85.4
07/20/99	231.6	107.5	234.0	62.4	229.3	66.3	238.2	80.6	74.1	74.3
07/21/99	242.7	120.7	234.1	59.5	229.4	126.7	237.1	80.3	78.4	69.2
07/22/99	---	---	234.9	59.0	242.2	154.3	255.8	80.6	68.9	97.2

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

	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		#	24 h	12 h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
7/9	117	118	119	24	116	116	116	24	113	113	114	24	113	114	115	24	---	---	---	0
7/10	118	118	119	24	116	116	117	24	113	114	114	24	115	115	115	24	---	---	---	0
7/11	119	120	121	24	116	116	117	24	114	114	115	24	114	115	115	23	---	---	---	0
7/12	119	120	122	24	117	117	117	24	114	114	115	20	115	115	115	23	---	---	---	0
7/13	120	121	122	24	117	117	118	24	114	115	115	24	115	116	116	23	---	---	---	0
7/14	121	122	123	24	117	117	118	24	114	115	115	24	115	115	116	23	---	---	---	0
7/15	121	122	123	24	117	117	117	24	114	114	115	24	113	113	114	23	113	113	115	23
7/16	120	121	122	24	117	117	118	24	113	114	114	24	115	115	115	24	113	114	115	24
7/17	121	121	122	24	117	118	118	24	114	114	114	24	115	115	115	24	114	115	115	24
7/18	121	121	122	24	117	117	117	24	113	114	114	24	113	114	114	22	112	113	114	23
7/19	122	123	125	24	117	118	118	24	113	114	114	24	114	115	115	23	113	113	114	23
7/20	120	121	124	24	118	118	119	24	114	114	115	24	115	115	115	23	114	115	116	23
7/21	122	122	123	24	118	118	118	24	114	114	115	24	114	115	115	23	113	114	116	23
7/22	122	122	123	24	117	117	118	24	114	114	115	24	114	114	114	23	113	114	115	23

Total Dissolved Gas Saturation Data at Mid Columbia River Sites

	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		#	24 h	12 h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
7/9	---	---	---	0	109	110	111	24	113	113	114	24	109	110	111	24	114	115	115	24
7/10	---	---	---	0	110	110	111	24	114	114	115	24	111	112	112	24	115	115	115	24
7/11	---	---	---	0	110	110	111	24	113	114	115	24	111	112	112	24	115	115	115	24
7/12	---	---	---	0	111	111	112	23	114	115	117	23	111	111	112	23	114	115	116	22
7/13	---	---	---	0	112	113	114	22	116	117	123	21	114	115	115	24	117	119	120	22
7/14	---	---	---	0	116	118	122	24	117	121	125	24	115	117	119	23	119	120	122	23
7/15	---	---	---	0	114	114	116	24	118	119	120	22	111	113	115	23	119	120	121	23
7/16	---	---	---	0	111	111	112	23	113	114	115	23	112	112	114	24	118	119	120	24
7/17	---	---	---	0	110	110	111	24	113	114	116	24	110	111	112	24	117	118	118	24
7/18	---	---	---	0	108	109	110	24	112	113	116	24	108	109	110	24	116	116	117	24
7/19	---	---	---	0	109	110	110	24	112	113	114	24	109	110	110	24	117	117	118	23
7/20	---	---	---	0	110	111	112	24	113	114	115	20	110	110	111	24	117	117	117	23
7/21	---	---	---	0	110	110	111	24	113	114	114	22	110	111	112	24	117	118	118	24
7/22	---	---	---	0	110	110	111	23	113	113	113	22	110	111	112	23	117	117	118	23

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

	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		#	24 h	12 h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
7/9	113	114	116	24	113	114	114	24	113	114	115	24	115	116	117	24	102	103	104	24
7/10	113	114	115	24	115	116	116	24	116	118	121	24	118	119	120	24	102	103	104	24
7/11	113	114	115	24	115	116	116	24	117	118	120	24	119	119	119	24	108	109	110	24
7/12	113	114	116	24	115	116	117	24	114	115	115	24	117	118	119	24	108	109	110	24
7/13	112	113	113	24	117	119	123	24	117	119	122	24	121	121	122	24	108	109	110	24
7/14	111	111	112	24	116	118	120	24	117	119	123	24	120	120	121	24	108	109	109	24
7/15	113	115	116	24	117	120	126	24	117	119	123	24	119	120	122	24	106	108	116	24
7/16	115	115	116	24	119	120	121	24	118	121	122	24	120	121	122	24	103	104	105	24
7/17	115	115	116	24	117	119	121	24	119	121	122	24	120	121	121	24	102	103	104	24
7/18	113	114	115	24	114	115	115	24	114	115	116	24	117	117	118	24	103	104	105	24
7/19	114	115	116	24	115	116	116	24	115	116	118	24	118	119	120	24	108	109	112	16
7/20	114	115	116	24	116	116	117	24	116	117	118	24	119	119	119	7	112	112	112	24
7/21	113	113	114	24	115	115	117	24	115	116	117	24	119	119	119	24	110	111	111	24
7/22	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	110	110	111	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

	Clearwater				Anatone				Snake-Lewiston				Lower Granite				Tlwtr L. Granite			
	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
7/9	102	103	104	24	104	105	105	24	103	105	106	24	105	106	108	24	103	103	104	24
7/10	102	104	104	24	104	105	105	24	103	105	106	24	105	106	108	24	103	103	103	24
7/11	102	104	104	24	104	105	105	24	103	105	107	24	105	107	108	24	103	103	104	24
7/12	102	104	105	24	104	105	106	24	103	105	107	24	106	107	107	24	103	104	104	24
7/13	102	104	105	24	104	105	106	24	103	105	106	24	106	106	107	24	104	104	105	24
7/14	102	103	104	24	103	104	105	24	102	103	104	24	104	105	106	24	103	103	104	24
7/15	102	104	105	24	103	104	105	24	102	104	105	24	104	105	108	24	102	103	103	24
7/16	103	104	105	24	103	104	105	24	103	104	105	24	104	104	106	24	102	103	103	24
7/17	102	103	104	24	103	103	105	24	103	104	106	24	101	101	104	24	100	101	102	24
7/18	103	104	105	24	103	104	105	24	103	105	106	24	102	103	104	24	100	101	101	24
7/19	105	106	109	16	103	104	105	24	104	106	108	24	104	106	108	24	101	102	103	24
7/20	108	109	110	24	103	104	105	24	105	107	109	24	105	106	109	24	102	102	103	24
7/21	107	108	109	24	103	103	104	24	105	106	108	24	107	108	110	24	102	103	103	24
7/22	107	108	109	24	103	104	105	24	105	107	109	24	107	108	109	24	103	103	104	24

Total Dissolved Gas Saturation Data at Lower Snake River Sites

	Little Goose				Tlwtr L. Goose				L. Monumental				Tlwtr L. Monum				Ice Harbor			
	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
7/9	104	105	107	24	100	101	101	24	103	104	105	24	101	102	103	24	102	103	104	24
7/10	107	108	114	24	100	101	101	24	104	105	107	24	101	102	102	24	102	103	104	24
7/11	107	108	111	24	101	102	102	24	102	103	104	24	104	107	112	24	103	104	104	24
7/12	106	106	107	24	102	102	103	24	104	104	107	24	102	103	104	24	104	104	105	24
7/13	105	106	108	24	103	103	104	24	105	105	107	24	103	104	104	24	104	105	106	24
7/14	103	104	104	24	102	102	103	24	105	105	105	24	102	103	104	24	104	105	105	24
7/15	103	104	107	24	101	101	101	24	104	105	106	24	103	103	104	24	104	105	108	24
7/16	104	104	106	24	101	101	102	24	104	105	107	24	103	103	104	24	104	104	105	24
7/17	102	102	104	24	101	101	101	24	102	102	104	24	101	102	102	24	102	103	104	24
7/18	103	105	108	24	99	100	100	24	102	104	107	24	101	102	102	24	102	102	103	24
7/19	104	105	109	24	100	100	100	24	103	104	106	24	101	102	103	24	103	104	106	24
7/20	103	104	106	24	100	100	100	24	102	103	105	24	101	101	101	24	102	102	103	24
7/21	101	102	104	24	99	99	99	24	101	102	102	24	100	101	102	24	101	102	104	24
7/22	100	100	102	24	98	98	98	24	101	102	103	24	100	101	102	24	101	102	102	24

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

	Twtr Ice Har.				Pasco				McNary-Oregon				McNary-Wash.				Tlwtr McNary			
	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#	24 h	12 h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
7/9	112	114	115	24	112	113	114	24	108	110	111	24	111	112	113	24	117	118	119	24
7/10	112	114	115	24	113	114	115	24	110	111	112	22	113	115	118	22	116	117	118	22
7/11	112	114	115	24	115	116	117	24	112	114	120	24	115	116	118	24	120	120	121	24
7/12	111	114	117	24	115	116	116	24	114	116	119	24	116	118	120	24	117	121	123	24
7/13	110	113	115	24	113	113	115	24	115	116	118	24	117	118	119	24	119	120	121	24
7/14	111	112	114	23	---	---	---	0	113	113	116	10	114	114	117	15	120	120	122	15
7/15	109	110	112	24	---	---	---	0	111	112	112	24	111	113	114	24	120	121	121	23
7/16	109	110	111	24	---	---	---	0	111	112	113	24	112	113	114	24	118	120	121	24
7/17	110	111	112	24	---	---	---	0	110	110	111	24	111	111	112	24	119	119	120	24
7/18	111	112	113	24	---	---	---	0	110	111	113	24	110	112	113	24	118	119	119	24
7/19	109	113	113	24	---	---	---	0	110	111	113	24	112	113	114	24	118	119	120	24
7/20	111	112	113	24	---	---	---	0	112	113	114	23	114	115	115	24	120	121	121	24
7/21	112	113	113	24	---	---	---	0	112	113	115	22	113	114	115	24	119	120	121	24
7/22	112	113	113	24	---	---	---	0	112	113	118	24	113	114	115	24	119	119	120	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

	John Day				Tlwtr John Day				The Dalles				Dnstr T. Dalles				Bonneville			
	24 h	12 h		#	24 h	12 h		#	24h	12h		#	24h	12h		#	24h	12h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	AVG	High	hr
7/9	108	110	112	24	112	117	118	24	111	112	115	22	117	119	120	24	104	105	106	24
7/10	108	109	110	24	112	115	118	24	109	112	114	24	117	118	119	23	107	107	108	23
7/11	108	109	111	23	113	118	121	24	109	111	114	23	118	119	119	24	106	107	107	23
7/12	111	112	113	19	119	120	122	24	110	113	115	23	115	117	118	24	105	106	106	23
7/13	113	113	114	23	119	120	120	24	112	113	114	22	115	115	116	24	104	105	106	23
7/14	110	110	111	23	120	120	121	24	109	110	110	22	113	114	115	24	101	101	102	23
7/15	110	111	112	23	115	119	120	24	111	112	114	23	116	118	119	24	102	103	104	23
7/16	109	110	111	24	113	117	119	24	110	112	115	24	117	118	118	24	109	112	114	24
7/17	106	107	107	24	112	118	119	24	108	110	111	24	117	117	118	24	111	112	114	24
7/18	108	110	112	23	113	119	120	24	108	112	115	23	116	118	118	24	111	112	113	23
7/19	110	111	112	23	114	118	119	24	110	114	116	23	115	117	118	24	114	115	115	23
7/20	108	108	109	23	113	117	119	24	110	112	114	23	114	116	117	24	113	115	116	23
7/21	107	108	108	23	113	118	120	24	109	111	114	23	116	118	120	24	110	111	112	23
7/22	108	108	109	23	113	118	120	24	109	112	114	23	118	119	119	24	110	110	111	23

Total Dissolved Gas Saturation Data at Lower Columbia River Sites

	Warrendale				Skamania				Camas\Wash.			
	24 h	12 h		#	24 h	12 h		#	24h	12h		#
Date	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
7/9	114	114	115	21	113	114	116	24	113	114	116	24
7/10	116	117	118	24	116	117	118	24	115	117	119	24
7/11	115	116	117	23	116	117	119	23	116	118	119	24
7/12	115	115	117	23	115	115	116	23	115	116	118	24
7/13	114	115	116	23	114	116	117	23	114	116	118	24
7/14	111	112	113	23	111	112	115	23	111	112	114	24
7/15	113	114	116	23	113	114	115	23	112	114	115	24
7/16	114	115	116	24	115	116	116	23	113	114	115	24
7/17	112	114	116	24	114	116	117	24	116	118	119	24
7/18	112	113	114	23	113	114	115	23	116	118	120	24
7/19	114	115	116	22	116	116	117	23	118	121	122	24
7/20	113	114	115	23	115	117	118	23	117	119	121	24
7/21	111	112	113	23	113	114	115	23	114	115	117	24
7/22	112	112	114	23	113	113	114	23	112	113	114	24

Tdgs 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: Rank 1	Rank 2	Rank 3	Rank 4	Fish with L. Line GBT: Num Fish	Avg. Rank
McNary Dam													
	07/15/99	Subyearling Chinook	100	3	2	2.00%	0.00%	2	0	0	0	1	1.0
	07/19/99	Subyearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0.0
	07/22/99	Subyearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0.0
Bonneville Dam													
	07/15/99	Subyearling Chinook	100	1	1	1.00%	0.00%	1	0	0	0	0	0.0
	07/19/99	Subyearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0.0
	07/22/99	Subyearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0.0
Rock Island Dam													
	07/15/99	Subyearling Chinook	100	2	1	1.00%	0.00%	1	0	0	0	1	1.0
	07/19/99	Subyearling Chinook	100	4	3	3.00%	0.00%	3	0	0	0	1	1.0
	07/22/99	Subyearling Chinook	100	3	3	3.00%	0.00%	1	2	0	0	0	0.0

Two-Week Summary of Passage Indices

Yearling Chinook

	Hatchery							Hatchery/Wild Combined			
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO1 (INDEX)
07/09/99	---	---	---	---	64	15	12	2	53	6	0
07/10/99	---	---	---	---	72	10	6	2	75	8	32
07/11/99	---	---	---	---	20	14	0	5	130	9	0
07/12/99	---	---	---	---	28	34	6	2	74	1,556	145
07/13/99	---	---	---	---	48	24	0	2	73	0	0
07/14/99	---	---	---	---	40	6	0	7	52	2	0
07/15/99	---	---	---	---	24	14	0	0	56	10	55
07/16/99	---	---	---	---	40	24	8	0	6	13	0
07/17/99	---	---	---	---	12	32	4	2	36	1	0
07/18/99	---	---	---	---	8	8	0	0	16	3	0
07/19/99	---	---	---	---	12	28	0	0	48	0	0
07/20/99	---	---	---	---	12	52	0	3	0	0	0
07/21/99	---	---	---	---	0	0	0	0	0	0	0
07/22/99	---	---	---	---	36	30	0	0	102	0	0
Total:	0	0	0	0	416	291	36	25	721	1,608	232
# Days:	0	0	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	30	21	3	2	52	115	17

Wild Yearling Chinook

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)
07/09/99	---	---	---	---	36	85	0
07/10/99	---	---	---	---	64	31	24
07/11/99	---	---	---	---	35	76	0
07/12/99	---	---	---	---	96	62	0
07/13/99	---	---	---	---	52	46	0
07/14/99	---	---	---	---	40	46	0
07/15/99	---	---	---	---	12	48	0
07/16/99	---	---	---	---	24	40	16
07/17/99	---	---	---	---	20	60	0
07/18/99	---	---	---	---	20	40	16
07/19/99	---	---	---	---	4	120	6
07/20/99	---	---	---	---	8	90	36
07/21/99	---	---	---	---	20	140	36
07/22/99	---	---	---	---	36	100	12
Total:	0	0	0	0	467	984	146
# Days:	0	0	0	0	14	14	14
Average:	0	0	0	0	33	70	10

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)
07/09/99	---	---	---	---	1,652	443	1,956	224	92,960	25,738	14,217
07/10/99	---	---	---	---	1,820	658	2,532	149	131,085	17,524	10,403
07/11/99	---	---	---	---	415	603	936	137	94,702	53,646	14,597
07/12/99	---	---	---	---	1,536	532	552	185	71,029	55,532	18,139
07/13/99	---	---	---	---	1,756	492	432	435	104,107	41,360	14,471
07/14/99	---	---	---	---	2,032	622	340	1,257	89,996	48,501	8,440
07/15/99	---	---	---	---	2,008	973	1,024	411	76,453	53,408	13,145
07/16/99	---	---	---	---	3,168	1,083	2,868	269	78,275	47,295	10,897
07/17/99	---	---	---	---	2,760	1,288	4,020	254	93,767	38,731	14,702
07/18/99	---	---	---	---	2,240	1,620	3,504	193	62,080	52,906	9,538
07/19/99	---	---	---	---	3,204	2,401	5,724	374	115,229	23,822	6,667
07/20/99	---	---	---	---	2,745	3,240	3,612	676	130,997	14,502	13,969
07/21/99	---	---	---	---	3,792	2,998	3,432	614	74,250	15,919	6,221
07/22/99	---	---	---	---	4,464	3,454	2,370	207	51,318	24,856	6,717
Total:	0	0	0	0	33,592	20,407	33,302	5,385	1,266,248	513,740	162,123
# Days:	0	0	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	2,399	1,458	2,379	385	90,446	36,696	11,580

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)
07/09/99	---	---	---	---	84	25	12	13	56	12	35
07/10/99	---	---	---	---	44	12	0	8	91	4	0
07/11/99	---	---	---	---	20	2	0	5	0	1	33
07/12/99	---	---	---	---	48	36	0	6	99	0	36
07/13/99	---	---	---	---	20	8	0	5	49	2	0
07/14/99	---	---	---	---	16	0	0	7	0	5	34
07/15/99	---	---	---	---	28	6	0	2	84	1	18
07/16/99	---	---	---	---	32	12	0	2	103	3	0
07/17/99	---	---	---	---	24	20	12	0	71	0	33
07/18/99	---	---	---	---	8	8	0	2	16	14	0
07/19/99	---	---	---	---	8	4	0	0	16	0	0
07/20/99	---	---	---	---	20	27	0	3	0	0	31
07/21/99	---	---	---	---	8	20	0	2	0	0	29
07/22/99	---	---	---	---	8	0	0	0	0	0	0
Total:	0	0	0	0	368	180	24	55	585	42	249
# Days:	0	0	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	26	13	2	4	42	3	18

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)
07/09/99	---	---	---	---	260	30	12	13	209	8	0
07/10/99	---	---	---	---	428	38	18	21	121	1	0
07/11/99	---	---	---	---	165	24	12	8	227	1	0
07/12/99	---	---	---	---	312	32	12	22	99	264	0
07/13/99	---	---	---	---	252	26	12	16	122	0	0
07/14/99	---	---	---	---	240	24	12	30	104	254	0
07/15/99	---	---	---	---	180	22	28	8	134	0	0
07/16/99	---	---	---	---	300	22	4	10	91	3	0
07/17/99	---	---	---	---	284	48	32	5	71	0	0
07/18/99	---	---	---	---	200	32	16	2	81	0	0
07/19/99	---	---	---	---	208	32	12	5	96	0	0
07/20/99	---	---	---	---	190	11	30	0	0	0	0
07/21/99	---	---	---	---	248	51	24	5	0	0	0
07/22/99	---	---	---	---	176	80	6	8	0	0	0
Total:	0	0	0	0	3,443	472	230	153	1,355	531	0
# Days:	0	0	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	246	34	16	11	97	38	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)
07/09/99	---	---	---	---	20	5	0	27	0	6	0
07/10/99	---	---	---	---	24	4	0	11	0	12	0
07/11/99	---	---	---	---	5	6	0	6	0	1	0
07/12/99	---	---	---	---	16	2	0	14	0	5	0
07/13/99	---	---	---	---	16	0	0	14	0	266	33
07/14/99	---	---	---	---	12	2	0	12	0	32	0
07/15/99	---	---	---	---	4	0	0	10	0	202	0
07/16/99	---	---	---	---	16	2	0	3	0	3	0
07/17/99	---	---	---	---	16	4	0	3	0	219	0
07/18/99	---	---	---	---	12	0	0	2	0	221	0
07/19/99	---	---	---	---	24	4	0	3	16	207	0
07/20/99	---	---	---	---	4	0	0	1	0	0	0
07/21/99	---	---	---	---	12	0	0	10	0	40	0
07/22/99	---	---	---	---	8	10	0	6	0	80	0
Total:	0	0	0	0	189	39	0	122	16	1,294	33
# Days:	0	0	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	14	3	0	9	1	92	2

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 / (Power-house 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)
07/09/99	---	---	---	---	4	0	0	3	83	3	0
07/10/99	---	---	---	---	4	0	0	0	23	1	0
07/11/99	---	---	---	---	0	0	0	0	0	3	0
07/12/99	---	---	---	---	4	2	0	0	25	0	0
07/13/99	---	---	---	---	4	0	0	0	0	5	33
07/14/99	---	---	---	---	0	0	0	0	0	3	0
07/15/99	---	---	---	---	4	0	0	0	0	5	0
07/16/99	---	---	---	---	8	0	0	0	0	5	0
07/17/99	---	---	---	---	0	4	0	0	0	3	0
07/18/99	---	---	---	---	0	0	0	2	16	8	0
07/19/99	---	---	---	---	0	0	6	0	0	0	0
07/20/99	---	---	---	---	0	0	0	0	0	0	0
07/21/99	---	---	---	---	0	0	0	0	0	0	0
07/22/99	---	---	---	---	0	0	0	0	0	0	0
Total:	0	0	0	0	28	6	6	5	147	36	33
# Days:	0	0	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	2	0	0	0	11	3	2

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)
07/09/99	---	---	---	---	16	5	0	2	17	4	177
07/10/99	---	---	---	---	8	0	0	0	0	5	223
07/11/99	---	---	---	---	0	8	6	0	0	0	98
07/12/99	---	---	---	---	8	2	0	3	25	268	253
07/13/99	---	---	---	---	8	0	0	2	0	3	99
07/14/99	---	---	---	---	8	6	4	0	52	3	68
07/15/99	---	---	---	---	0	4	0	0	7	204	74
07/16/99	---	---	---	---	16	0	0	0	16	8	0
07/17/99	---	---	---	---	0	8	0	0	36	1	132
07/18/99	---	---	---	---	0	4	4	0	16	204	99
07/19/99	---	---	---	---	8	0	0	0	32	0	31
07/20/99	---	---	---	---	4	5	0	3	140	0	31
07/21/99	---	---	---	---	0	20	6	2	0	0	29
07/22/99	---	---	---	---	0	10	0	0	0	0	21
Total:	0	0	0	0	76	72	20	12	341	700	1,335
# Days:	0	0	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	5	5	1	1	24	50	95

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 July 22, 1999

	Spring Chinook						Summer Chinook						Fall Chinook					
	1999		1998		10-Yr Avg.		1999		1998		10-Yr Avg.		1999		1998		10-Yr Avg.	
DAM	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	23,271	3,561	19,542	2,397	18,623	2,301	0	0	0	0	0	0
TDA	17,563	6,180	25,225	518	39,635	1,617	19,504	2,744	14,375	1,239	15,040	1,551	0	0	0	0	0	0
JDA	15,409	5,089	21,820	378	31,309	1,325	18,582	2,044	14,665	1,112	13,737	1,404	0	0	0	0	0	0
MCN	9,258	3,961	19,415	337	30,860	1,525	15,111	1,826	14,784	1,117	14,179	1,335	0	0	0	0	0	0
IHR	5,335	2,648	12,434	130	16,094	620	3,708	1,242	5,370	297	4,270	386	0	0	0	0	0	0
LMN	3,924	2,726	10,598	131	15,276	682	3,130	1,270	4,098	278	3,996	398	0	0	0	0	0	0
LGS	3,450	2,656	10,512	118	**	**	3,069	1,476	4,133	306	**	**	0	0	0	0	**	**
LWG	3,322	2,407	9,854	109	13,146	573	3,003	1,490	4,193	309	4,028	397	0	0	0	0	0	0
PRD	4,129	744	4,124	37	9,804	151	13,720	289	10,316	301	10,570	335	0	0	0	0	0	0
RIS	3,312	915	3,187	54	7,271	160	8,294	612	7,854	469	7,490	367	0	0	0	0	0	0
RRH	1,399	252	762	54	1,670	39	3,250	332	3,311	157	2,219	115	0	0	0	0	0	0
WEL	*44	*72	6	24	902	41	347	37	1,620	575	1,303	142	0	0	0	0	0	0

	Coho						Sockeye			Steelhead			
	1999		1998		10-Yr Avg.				10-Yr			10-Yr	Wild
DAM	Adult	Jack	Adult	Jack	Adult	Jack	1999	1998	Avg.	1999	1998	Avg.	1999
BON	1	0	1	0	8	3	17,471	12,799	43,612	30,367	30,536	35,893	11,207
TDA	0	0	0	0	0	0	13,180	8,557	34,596	11,125	11,298	15,619	5,697
JDA	1	0	0	0	0	0	13,790	9,488	35,578	15,108	14,835	11,963	3531
MCN	0	1	0	0	0	0	11,255	9,187	37,002	4,922	7,913	9,738	855
IHR	0	0	0	0	0	0	5	1	4	3,200	4,438	5,593	696
LMN	0	0	0	0	1	0	6	1	3	1,555	3,198	4,306	258
LGS	0	0	0	0	**	**	9	2	**	1,676	2,951	**	434
LWG	0	0	0	0	0	0	7	2	3	3,702	5,162	6,482	686
PRD	0	0	0	0	0	0	13,491	9,785	38,015	329	344	694	***
RIS	0	0	0	0	1	0	9,287	7,350	25,685	132	215	480	90
RRH	8	0	0	0	0	0	6,444	3,591	11,422	112	206	279	60
WEL	0	0	0	0	0	0	1,585	2,644	10,483	30	57	194	7

LMN, RIS and RRH are through 07/19; LGS and PRD are through 07/21.

WEL has many days of missing data.

*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 07/09/99 to 07/22/99

	Yearling Chinook	Subyearling Chinook	Steelhead	Coho	Sockeye	Total
LOWER GRANITE DAM						
Collected	883	33,559	3,630	368	104	38,544
Bypassed	0	17	0	0	0	17
Trucked	703	27,476	2,987	324	106	31,596
Barged	189	2,201	615	61	12	3,078
Total Transported	892	29,677	3,602	385	118	34,674
LITTLE GOOSE DAM						
Collected	1,275	20,407	511	180	78	22,451
Bypassed	0	0	0	0	0	0
Trucked	1,172	17,198	422	190	76	19,058
Barged	0	0	0	0	0	0
Total Transported	1,172	17,198	422	190	76	19,058
LOWER MONUMENTAL DAM						
Collected	182	33,302	230	24	26	33,764
Bypassed	0	0	0	0	0	0
Trucked	188	32,108	246	24	26	32,592
Barged	0	0	0	0	0	0
Total Transported	188	32,108	246	24	26	32,592
MCNARY DAM						
Collected	426	748,588	829	353	284	750,480
Bypassed	0	32,163	0	0	0	32,163
Trucked	0	0	0	0	0	0
Barged	420	705,778	816	351	283	707,648
Total Transported	420	705,778	816	351	283	707,648
PROJECT TOTALS						
Collected	2,766	835,856	5,200	925	492	845,239
Bypassed	0	32,180	0	0	0	32,180
Trucked	2,063	76,782	3,655	538	208	83,246
Barged	609	707,979	1,431	412	295	710,726
Total Transported	2,672	784,761	5,086	950	503	793,972

Transportation Summary Report
Cumulative Transportation Summary
through 07/22/99

	Yearling Chinook	Subyearling Chinook	Steelhead	Coho	Sockeye	Total
LOWER GRANITE DAM						
Collected	2,173,277	142,406	3,351,474	78,385	17,516	5,763,058
Bypassed	115,918	23	266,363	14,608	1,640	398,552
Trucked	32,024	42,400	30,836	1,260	1,430	107,950
Barged	2,011,776	94,052	3,053,028	62,315	14,012	5,235,183
Total Transported	2,043,800	136,452	3,083,864	63,575	15,442	5,343,133
LITTLE GOOSE DAM						
Collected	3,530,932	128,261	3,134,767	117,233	20,984	6,932,177
Bypassed	19,783	0	158,018	4,195	299	182,295
Trucked	7,002	43,300	3,399	879	545	55,125
Barged	3,481,142	77,971	2,969,994	111,937	18,954	6,659,998
Total Transported	3,488,144	121,271	2,973,393	112,816	19,499	6,715,123
LOWER MONUMENTAL DAM						
Collected	1,892,379	97,964	1,978,523	51,135	12,856	4,032,857
Bypassed	148,537	1	251,013	7,795	596	407,942
Trucked	5,407	62,077	1,986	100	200	69,770
Barged	1,736,425	33,327	1,724,869	43,237	12,032	3,549,890
Total Transported	1,741,832	95,404	1,726,855	43,337	12,232	3,619,660
MCNARY DAM						
Collected	2,104,337	3,424,539	536,704	140,718	782,494	6,988,792
Bypassed	2,098,392	801,225	532,579	137,083	781,069	4,350,348
Trucked	0	0	0	0	0	0
Barged	3,490	2,589,486	3,896	3,544	836	2,601,252
Total Transported	3,490	2,589,486	3,896	3,544	836	2,601,252
PROJECT TOTALS						
Collected	9,700,925	3,793,170	9,001,468	387,471	833,850	23,716,884
Bypassed	2,382,630	801,249	1,207,973	163,681	783,604	5,339,137
Trucked	44,433	147,777	36,221	2,239	2,175	232,845
Barged	7,232,833	2,794,836	7,751,787	221,033	45,834	18,046,323
Total Transported	7,277,266	2,942,613	7,788,008	223,272	48,009	18,279,168