Fish Passage Center

Weekly Report #99 - 17

July 2, 1999

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SUMMARY OF EVENTS:

Water Supply: A cool showery weather pattern dominated through last week and is expected to continue through the July 4th weekend. Warmer and drier weather is expected to gradually take control of the region.

Precipitation above Grand Coulee was 104% of normal, the Snake River above Ice Harbor was 98% of normal and the Columbia above The Dalles was 95% of normal for the period of June 1-29. The subbasins with the highest precipitation continued to be in the Upper Snake with 127%, and Northeast Washington with 128%. The lowest precipitation continued to be at the Upper Deschutes/Crooked with 26%, and Klamath Basin with 24%.

The new July 99 Early Runoff Volume Forecast was issued. Changes are in the range of -4% to 5% compared to the June Final for the major subbasins in the region. The highest increases are in the mid Snake River basin because of the increased precipitation during June. The runoff volume forecast for Brownlee reservoir increased 5% compared to the June Final. Runoff Volume for the Hungry Horse decreased 4%. The Runoff Volume Forecast for Columbia River above The Dalles is 116% of average and is the same as in the June Final. The summary of the July Early-month and June Final Runoff Volume Forecasts is given in the following Table:

Location	Period	July 99 Early		June 99 Final	
		MAF	%	MAF	%
Libby	Apr-Sep	7.46	110	7.17	106
Hungry Horse	Apr-Sep	2.16	99	2.24	103
Grand Coulee	Jan-Jul	72.0	114	72.2	114
The Dalles	Jan-Jul	123.0	116	123.0	116
Lower Granite	Jan-Jul	36.1	121	35.7	120
Dworshak	Apr-Jul	3.09	114	3.13	116
Brownlee	Apr-Jul	7.85	135	7.51	130

System Storage: The Spring season of flood control and refill operations is finished. All major reservoirs except Brownlee have not refilled as required by the BiOp, and will continue refilling through July.

- *Hungry Horse* continues to refill and is operated to the Integrated Rule Curves defined by the State of Montana for this season. The reservoir is projected to be full by the second week of July, instead of June 30 as required by Biological Opinion. This operation will decrease flows during the first two weeks of July at McNary. The actual daily average outflows continue to be in the range of 230 cfs to 1.35 kcfs.
- *Libby* continues to be operated for the sturgeon pulse. Flow management for sturgeon requires incubation flows of 30 kcfs for 21 days after the sturgeon pulse at Bonners Ferry, which is controlling Libby operations at this time. Outflows at Libby were at range of 20-23 kcfs during last week and will continue with similar outflows to the second week of July. The reservoir is projected to be 10 ft from full by the end of the July, which will impact August flows at McNary.
- *Arrow* reservoir is holding its daily average outflow in the range of 15-17 kcfs. There is a requested daily average outflow of 30 kcfs below Arrow for protecting trout redds but the upstream backwater effect of the higher flows in Kootenai River is providing a sufficient level of the protection. The reservoir is operated under US-Canada Treaty Agreement.
- *Grand Coulee* reservoir continues refilling toward its full pool elevation. It is projected that the reservoir will be full by July 10. Daily average inflows were in the range of 195.1 kcfs to 208.8 kcfs during the week of June 25-

July 1. Daily average outflows were in the range of 135.9 to 174 kcfs during the same period.

- *Dworshak* reservoir continues to refill with minimum daily average outflows of 1.3 kcfs-1.5 kcfs. The latest flow projections are showing that the reservoir will refill to approximately 4.5 ft below full pool elevation as required by BiOp.
- *Brownlee* reservoir operated in its top foot during last week. Daily average inflows decreased compared with the previous week's inflows, but are still in the range of 27 kcfs –33 kcfs. Daily average outflows at Hells Canyon Dam were in the range of 23.8 kcfs to 31.9 kcfs during last week. Fishery agencies requested Idaho Power Company to pass inflow to July 11, delaying the commencement of the flow augmentation for the Lower Snake flows until the major migration of the wild fall chinook.

A summary of the current elevations on June 30 is given in the following Table:

Reservoir	Actual elev. As of June 30	Max Reservoir pool [ft]
Libby	2432.4	2459
Hungry Horse	3550.5	3560
Grand Coulee	1284.1	1290
Brownlee	2076.08	2077
Dworshak	1580.6	1600

Upper Snake reservoirs:

As of July 1, American Falls is full, Palisades is at 92% of full and Jackson Lake is 94% of full capacity. All major reservoirs refilled at a higher rate last week because of intense precipitation in the region. The flows are decreasing rapidly now in the Upper Snake system. Irrigation withdrawals are in the range of 3 kcfs at the diversion below American Falls to 9 kcfs at the diversion below Minidoka. Flow at Minidoka was 10.7 kcfs, compared to flows in the range of 15 kcfs-17 kcfs the previous week. The resulting daily average flow downstream of Milner is 1.7 kcfs, as of July 1. The system is at 94% of capacity.

Boise and Payette River Basins:

Both systems are almost or already refilled. The Boise River system (Anderson Ranch, Arrowrock and Lucky Peak) is at 99% of capacity. The daily average outflow from Boise River system decreased from 3 kcfs during last week to 1.5 kcfs (as of July 1).

The Payette River system (Cascade, Deadwood) is at 100% of capacity. The daily average outflow from Payette river system decreased from 8.9 kcfs (as of June 24) to 5.1 kcfs (as of July 1).

Streamflow:

Biological Opinion summer flow targets are: 53.96 kcfs at Lower Granite, and 200 kcfs at McNary. Flows at Lower Granite are decreasing rapidly after the unusually late spring peak at Lower Granite during late June. Daily average flows at Lower Granite decreased from 120 kcfs on June 26 to 82.5 kcfs on July 1. Flows at McNary remained high because of the increased outflows from the Upper Columbia basin. McNary daily average flows were fluctuating during the past week, from 332.6 kcfs on June 26 to 292.1 kcfs on June 28.

Daily average flows at Priest Rapids were fluctuating in the range of 179.3 kcfs to 214.4 kcfs in the period of June 25-July 1. The total range of daily and hourly fluctuations is presented in the following Table:

Date	Average Daily Flow at Priest Rapids [kcfs]	Hourly fluctuations [kcfs]
June 25	214.4	189.9-247.4
June 26	199.5	184.3-218.1
June 27	179.3	167.5-207.7
June 28	181.2	156.6-194.5
June 29	211.2	167.9-254.0
June 30	209.0	210.8-234.2
July 1	209.4	196.0-230.3

The average daily discharge for the major run-of river projects for June 25- July 1 period are given in the following Table:

Project	Average Discharge [kcfs]	
	June 25-July 1	June 18-24
Priest Rapids	200.6	177.4
McNary	310.0	335.0
Lower Granite	99.8	148.1
Bonneville	320.8	348.2

Spill: Outflow from Dworshak Dam continued at project minimum with no spill. The Biological Opinion spill program at the Lower Snake projects ended on June 20. The Biological Opinion summer spill program in the Snake only calls for spill at Ice Harbor Dam. However, some spill occurred at Lower Granite Dam because of its limited hydraulic capacity.

The Biological Opinion spring spill program ended at the lower Columbia projects June 30. The summer spill program is being implemented at John Day and Bonneville dams. The spill at The Dalles continues at research levels. Spill continued at McNary Dam because present flows are in excess of the hydraulic capacity of this project.

As flows recede, total dissolved gas levels have decreased to levels near, or below, the waiver limits. The COE has reduced spill at John Day Dam to only 20-25% of the total daily river flow (approximately 65-70 Kcfs) in an attempt to meet the 120% total dissolved gas waiver in the tailrace. The state, federal and tribal fishery agencies have expressed concern regarding the reduction of spill due to the numbers of subyearling chinook passing this project. Concern has been raised that the project is being operated outside the design performance curves for the spillway deflectors. Current spill levels are approximately what occurred at this project prior to the installation of the spillway deflectors. A test has been scheduled for this weekend to lower the tailwater and observe total dissolved gas levels under higher spill volumes.

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. The Lower River projects are now sampling subyearling chinook for signs of GBT.

Smolt Monitoring. Late migrating yearling chinook and steelhead numbers have decreased as flows receded in the lower Snake River during this week. Subyearling chinook numbers have shown a decreasing trend in the Lower Snake River after last week's passage of much higher numbers with the high flows. Approximately 14% of the wild subyearling chinook PIT tagged by USFWS in the Snake River passed Lower Granite during the high flows last week. This prompted USFWS to revise their prediction of a later median passage this year.

In the mid-Columbia River, subyearling chinook have dominated the Rock Island Dam collections since mid June. Wild and hatchery steelhead and coho have shown a decreasing trend this week.

In the lower Columbia River, subyearling chinook passage indices have increased considerably this week at McNary and John Day dams, reaching highs of 416,000 and 288,000 fish, respectively, near week's end. Passage indices at Bonneville Dam have increased to near 100,000 for subyearling chinook. Decreasing numbers of late migrating spring migrants were observed this week.

Adult Fish Passage: Summer chinook counts at Bonneville Dam ranged between 520 and 658 for the week ending 6/25 through 7/1. As noted in last week's report, most summer chinook passing Bonneville Dam will now be comprised of Mid-Columbia origin fish. Note that there are no "summer" chinook in the Lower Columbia (below McNary Dam) so there should be no turnoffs into tributaries below the McNary project. The summer chinook count at Bonneville Dam was 12,838 and remained below the 1998 count, but was just above the 10-year average through July 1. The summer chinook count at The Dalles, John Day and McNary dams was 9,915, 8,450 and 5,564, respectively. The turnoff into the Snake River (Ice Harbor Dam count) was 2,910, with 1,778 summer chinook counted into the Mid-Columbia (Priest Rapids Dam count); both were less than the 1998 and 10-year averages.

Adult sockeye counts increased at Bonneville Dam and upstream projects through the week. The daily counts at Bonneville ranged between 580 and 756 with the total count through July 1 of 9,172. This total was greater than the 1998 count but only 35% of the 10-yr average. The sockeye total at McNary Dam was 3,168 with sockeye passing at all Mid-Columbia projects this week. On June 29, the first sockeye was counted

at Ice Harbor Dam on the Snake River and was about 17 inches long. No further details are known about this sockeye yet.

Steelhead passage increased through the week at Bonneville Dam. Daily counts ranged between 225 and 330 with higher numbers occurring toward the end of the week. Through July 1, steelhead passage at Bonneville totaled 7,849 and was 76% of the 1998 total and 56% of the 10-year average.

Coho salmon will begin passing Bonneville Dam in late July and on through November.

Based on sampling by CRITFC at Bonneville Dam adult trap (normally 3 times per week), several items of interest are noted. First, 4-year old fish that comprise about 88-90% of the run through June 19 dominate the age composition of the sockeye passing Bonneville. Second, the summer chinook age composition through June 18 was split about equally between 3-yr old (jack chinook) 32%; 4-yr old chinook, 31%; and 5-yr old chinook 23%.

At Bonneville Dam, no fish were reported with head burns during the week of June 13-19 with about 4% of the chinook sampled at Lower Granite showing signs of head injuries. At Bonneville Dam, marine mammal wounds or scars were recorded on 8% of the chinook and 9% of the sockeye. No fish were determined to be in poor condition because of the wounds during the sampling week.

Hatchery Releases: During the past two weeks, approximately 17.5 million anadromous salmon were released from hatcheries, acclimation ponds, or were directly planted into streams. The releases were primarily subyearling summer and fall chinook. Numbers of juvenile hatchery fish released either in 1999 or late summer or fall 1998 that were expected to migrate in 1999 are listed below. Individual hatchery releases can be found in the FPC Web Page under 1999 Hatchery Release Schedule.

1999 Hatchery Releases by River Zone

River Zone	Species/Race	# Released
Snake	Chinook/spring	9,309,862
Snake	Chinook/summer	1,613,897
Snake	Chinook/fall	1,848,379
Snake	Coho	788,358
Snake	Sockeye	151,899
Snake	Steelhead/summer	9,812,676
Snake Total		**23,525,071**
Mid-Columbia		
(above McNary Dam to Chief Joseph Dam)	Chinook/spring	4,959,538
Mid-Columbia	Chinook/summer	2,992,579
Mid-Columbia	Chinook/fall	11,926,000
Mid-Columbia	Coho	1,486,500
Mid-Columbia	Sockeye	210,591
Mid-Columbia	Steelhead/Summer	1,736,110
Mid-Columbia Total		**23,311,318**
Lower Columbia		
Above Bonneville Dam to below McNary Dam	Chinook/spring	5,780,404
Lower Columbia	Chinook/fall	19,690,646
Lower Columbia	Coho	7,148477
Lower Columbia	Steelhead/summer	544,304
Lower Columbia	Steelhead/winter	96,763
Lower Columbia Total		32,854,257
Grand Total		**79,690,646**

Note: All numbers are Preliminary and will be finalized throughout the year.

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
06/18/99	91.3	0.0	100.0	0.0	144.7	12.2	149.4	20.4	168.3	17.5	166.6	18.7	173.4	44.4
06/19/99	94.0	0.0	96.0	0.0	128.2	10.4	137.8	16.3	160.8	7.8	153.8	27.6	159.0	23.5
06/20/99	91.9	0.0	88.1	0.0	109.3	9.6	118.0	12.6	133.4	28.4	134.6	11.9	155.0	16.5
06/21/99	130.9	0.1	128.5	0.0	147.9	14.5	150.6	0.1	163.0	16.8	150.4	9.3	152.8	12.1
06/22/99	155.5	0.1	160.6	0.0	178.2	15.7	182.4	18.9	191.6	21.7	168.4	35.8	190.1	52.3
06/23/99	154.7	0.1	156.3	0.0	184.0	16.3	190.1	32.2	201.7	21.0	180.9	34.4	199.3	61.8
06/24/99	163.8	0.0	161.2	0.0	189.7	21.1	194.6	30.1	201.7	20.1	200.3	45.7	212.1	86.2
06/25/99	148.4	0.1	153.3	0.0	183.5	18.3	193.2	25.6	205.6	21.5	199.9	46.1	214.4	90.4
06/26/99	135.9	0.1	138.4	0.0	171.3	13.2	182.5	17.0	194.9	20.2	186.8	41.7	199.5	65.5
06/27/99	149.7	0.1	148.5	0.0	162.4	13.2	156.1	0.0	174.2	20.3	167.5	22.0	179.3	46.5
06/28/99	162.9	0.0	166.1	0.0	173.7	15.4	171.0	1.1	178.1	20.3	170.8	15.6	181.2	50.0
06/29/99	172.3	0.1	175.8	0.0	194.7	29.2	200.6	39.0	206.4	23.1	202.5	51.2	211.2	83.7
06/30/99	174.0	0.1	170.0	0.0	186.6	15.4	196.0	31.0	202.1	20.1	197.6	43.0	209.0	76.2
07/01/99	157.2	0.1	---	---	189.1	16.0	197.3	31.5	203.4	20.0	205.3	50.3	209.4	72.3

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
06/18/99	1.3	0.0	44.7	39.4	157.4	59.3	152.5	36.4	159.2	39.0	160.8	71.3
06/19/99	1.4	0.0	43.2	43.3	165.8	63.7	159.1	41.7	165.4	46.1	166.3	78.1
06/20/99	1.4	0.0	38.4	36.7	162.6	61.0	156.1	35.0	166.5	43.5	173.2	84.9
06/21/99	1.4	0.0	40.7	42.4	150.6	48.9	146.7	29.6	151.4	29.1	153.5	77.0
06/22/99	1.3	0.0	38.2	36.7	145.0	49.9	139.4	25.9	143.3	21.7	148.9	69.9
06/23/99	1.3	0.0	35.4	33.7	133.6	46.0	131.8	18.9	135.9	14.2	138.7	65.7
06/24/99	1.3	0.0	34.5	32.1	121.5	43.6	116.1	3.3	121.0	1.4	124.7	63.3
06/25/99	1.4	0.0	32.3	31.9	119.6	39.1	114.6	0.3	120.1	0.0	122.7	64.4
06/26/99	1.4	0.0	29.8	32.0	120.0	44.3	116.1	4.5	122.6	3.8	125.4	65.3
06/27/99	1.4	0.0	28.4	31.6	104.6	27.5	101.8	0.0	104.3	4.0	109.4	65.6
06/28/99	1.5	0.0	29.0	28.8	98.6	21.9	96.7	0.0	101.3	0.0	101.4	67.7
06/29/99	1.5	0.0	28.7	27.0	87.0	9.9	84.6	0.8	87.3	0.0	90.4	63.7
06/30/99	1.5	0.0	26.9	23.6	86.1	9.3	85.7	0.0	90.4	0.0	93.5	66.3
07/01/99	1.5	0.0	---	---	82.5	7.0	81.6	0.0	85.3	0.0	90.0	65.7

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
06/18/99	343.6	182.0	350.6	95.2	340.9	128.0	359.3	133.2	84.9	132.0
06/19/99	336.0	171.5	359.6	80.8	350.1	104.1	346.7	116.8	85.1	135.6
06/20/99	336.9	172.9	352.1	79.3	340.4	102.2	349.0	118.3	85.4	136.1
06/21/99	326.5	167.5	332.1	64.6	326.8	179.4	348.9	124.1	84.0	131.6
06/22/99	314.6	150.1	331.9	65.1	324.1	200.8	332.3	109.6	85.9	127.6
06/23/99	352.3	195.2	359.6	71.6	351.3	207.9	346.4	118.9	87.0	131.3
06/24/99	339.7	174.9	355.2	70.0	351.5	131.3	354.8	131.1	85.7	129.1
06/25/99	328.0	161.5	327.3	69.9	313.4	95.8	334.4	111.2	84.7	129.3
06/26/99	332.6	169.3	351.5	70.1	340.3	102.3	332.5	109.2	84.1	130.0
06/27/99	315.3	152.2	315.2	52.2	314.2	172.9	337.0	107.7	83.2	136.9
06/28/99	292.1	128.0	302.7	34.3	288.0	183.6	304.6	83.4	85.3	126.6
06/29/99	300.8	136.3	302.8	32.7	302.4	117.5	302.0	83.9	85.6	123.4
06/30/99	305.5	146.2	318.7	70.0	312.3	93.3	329.2	100.8	84.9	134.2
07/01/99	295.5	131.8	287.8	69.6	288.6	86.8	306.0	88.5	83.0	125.3

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
6/18	121	122	122	24	115	115	116	24	113	114	115	20	115	115	116	24	---	---	---	0
6/19	121	121	122	24	115	115	115	24	---	---	---	0	115	115	115	24	---	---	---	0
6/20	121	122	122	24	115	115	116	24	---	---	---	0	115	115	115	23	---	---	---	0
6/21	122	122	122	24	115	116	116	24	113	113	114	24	115	115	115	23	---	---	---	0
6/22	123	124	125	24	115	115	115	24	113	113	114	24	114	114	115	23	---	---	---	0
6/23	123	123	124	24	114	116	117	24	113	113	114	24	113	113	114	23	---	---	---	0
6/24	122	123	123	24	117	117	118	24	114	114	115	24	114	115	115	23	113	113	113	9
6/25	122	123	123	23	117	117	117	24	113	114	114	24	114	114	115	24	113	114	115	24
6/26	121	122	123	24	117	117	117	24	113	114	114	24	114	114	114	24	113	113	113	24
6/27	122	122	122	24	117	117	117	24	113	114	114	24	114	114	114	23	112	113	114	23
6/28	122	122	122	24	117	117	117	24	113	114	114	24	114	115	115	23	113	113	114	23
6/29	123	124	125	24	117	117	117	24	114	114	114	24	115	115	115	23	113	113	114	23
6/30	124	124	125	24	117	117	118	24	114	115	115	24	115	115	116	23	113	114	115	23
7/1	124	124	125	24	118	118	118	24	115	115	116	24	116	116	116	23	114	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
6/18	111	111	112	7	113	114	115	24	115	116	117	23	112	113	113	24	115	117	123	24
6/19	---	---	---	0	111	111	112	23	112	112	113	23	109	110	111	24	112	114	117	24
6/20	---	---	---	0	111	112	112	24	111	112	112	24	108	109	111	24	115	118	124	24
6/21	111	111	111	1	111	111	112	22	111	112	112	21	108	108	109	23	113	114	115	21
6/22	111	111	111	7	110	111	111	23	112	113	115	22	109	109	110	22	115	117	125	20
6/23	---	---	---	0	111	111	112	22	113	114	117	22	109	110	111	22	116	116	118	22
6/24	111	111	111	1	112	113	114	20	115	115	117	20	111	112	113	23	116	117	118	21
6/25	109	109	110	11	111	112	114	23	114	115	118	23	112	113	113	21	116	116	117	20
6/26	109	109	109	18	110	110	111	24	112	113	114	24	109	109	110	24	114	114	115	24
6/27	---	---	---	0	110	110	110	24	111	111	111	23	107	108	109	24	113	114	114	23
6/28	111	111	112	12	110	111	111	24	111	112	112	24	108	109	110	24	113	114	114	23
6/29	112	112	113	21	111	111	113	23	114	116	118	23	111	112	113	24	116	117	119	24
6/30	112	112	113	13	113	114	116	21	116	117	121	21	112	112	113	21	117	118	120	21
7/1	113	113	113	6	112	113	114	24	114	116	118	24	112	113	114	24	117	117	119	24

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
6/18	112	113	114	24	114	116	124	24	113	115	119	24	116	118	119	24	104	105	106	24
6/19	111	111	112	24	114	117	120	24	113	115	116	24	112	113	114	24	104	105	106	23
6/20	112	113	114	24	114	116	122	24	116	119	122	24	115	117	119	24	107	108	109	24
6/21	111	112	113	24	112	113	113	24	113	115	117	24	112	113	114	24	108	109	110	24
6/22	109	110	110	24	114	115	118	24	111	113	114	24	114	116	119	24	110	112	114	24
6/23	110	112	113	24	113	115	125	24	115	117	122	24	117	119	121	24	110	111	112	24
6/24	112	113	114	24	117	118	121	24	115	116	119	24	118	120	121	24	111	113	114	24
6/25	110	111	113	24	115	117	121	24	115	117	120	24	120	120	121	24	102	103	103	23
6/26	110	111	112	24	114	115	116	24	115	116	117	24	117	118	119	24	103	104	104	24
6/27	111	111	113	24	113	114	116	24	116	117	117	24	116	117	118	24	111	114	115	24
6/28	111	111	111	24	112	113	113	24	113	113	114	24	114	115	116	24	111	113	114	24
6/29	110	111	111	24	116	119	129	24	115	118	120	24	118	121	123	24	110	111	113	24
6/30	111	112	113	24	116	118	121	24	116	118	120	24	119	120	121	24	109	110	110	23
7/1	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	109	110	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

	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
6/18	---	---	---	0	109	109	110	24	103	104	105	24	107	107	108	24	121	121	122	24
6/19	---	---	---	0	110	110	111	24	103	104	104	24	107	107	108	24	122	123	124	24
6/20	104	105	105	24	110	111	111	24	103	103	104	24	108	109	109	24	122	123	126	24
6/21	103	104	104	23	109	110	110	24	102	102	103	24	108	109	109	24	118	119	121	24
6/22	103	104	104	23	109	110	110	24	102	103	104	24	107	107	108	24	119	120	121	24
6/23	104	105	105	24	109	109	110	24	103	104	105	24	107	108	109	24	118	120	122	24
6/24	103	104	104	24	108	108	109	24	103	103	104	24	108	108	109	24	118	119	122	24
6/25	---	---	---	0	107	107	107	24	101	102	102	24	107	107	108	24	116	117	119	24
6/26	---	---	---	0	107	108	108	24	102	104	105	24	105	105	106	24	117	118	119	24
6/27	103	104	104	24	107	107	108	24	103	104	105	24	105	105	106	24	112	113	116	24
6/28	102	103	103	24	106	107	107	24	102	103	104	24	106	106	107	24	111	112	115	24
6/29	103	103	104	24	106	107	107	24	103	104	105	24	106	106	107	24	107	108	111	24
6/30	102	103	103	23	106	106	107	24	102	103	103	23	106	107	107	23	107	107	108	23
7/1	102	103	104	24	105	106	106	24	102	103	104	24	106	106	107	24	106	107	108	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
6/18	117	118	119	24	118	120	120	24	118	120	121	24	123	125	128	24	117	117	118	24
6/19	117	117	118	24	119	120	124	24	117	118	120	24	125	126	128	24	116	116	117	24
6/20	119	120	121	24	118	118	119	24	119	119	120	24	125	126	128	24	118	118	119	24
6/21	120	121	121	24	118	119	120	24	119	119	119	24	121	122	125	24	118	119	119	24
6/22	116	118	119	24	116	116	119	24	117	117	118	24	117	119	121	24	117	117	117	24
6/23	114	115	118	24	113	115	116	24	116	116	117	24	115	117	120	24	115	115	117	17
6/24	117	117	118	24	115	117	117	24	115	116	116	24	113	115	118	24	116	116	116	7
6/25	113	114	114	24	112	113	113	24	113	113	114	24	111	112	112	24	112	113	114	24
6/26	111	112	112	24	110	111	112	24	111	111	112	24	110	111	111	24	109	109	110	24
6/27	112	113	115	24	110	112	113	24	110	111	111	24	111	113	117	24	109	109	110	24
6/28	114	115	115	24	114	114	114	24	109	109	110	24	108	109	109	24	109	110	111	24
6/29	111	112	113	24	111	112	113	24	111	112	113	24	110	112	113	24	109	110	110	24
6/30	109	110	110	23	109	109	109	23	113	113	113	23	112	112	113	23	109	110	111	23
7/1	108	109	110	24	108	108	109	24	110	111	112	24	110	110	111	24	111	111	111	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
6/18	119	119	122	24	---	---	---	0	113	114	114	24	114	114	115	24	123	124	124	24
6/19	119	120	123	24	---	---	---	0	112	113	114	24	113	113	114	24	123	123	124	24
6/20	121	121	122	24	---	---	---	0	113	114	114	24	113	113	114	24	123	124	124	24
6/21	119	120	121	24	---	---	---	0	113	114	115	21	111	112	113	21	123	123	124	21
6/22	118	118	120	12	---	---	---	0	112	113	113	24	110	111	112	24	121	122	123	24
6/23	113	113	116	5	---	---	---	0	112	114	116	24	112	113	115	24	124	125	125	24
6/24	119	119	120	7	---	---	---	0	112	112	114	9	112	112	114	9	123	123	124	9
6/25	116	118	119	24	---	---	---	0	111	112	112	24	110	110	112	21	122	123	123	24
6/26	117	119	119	24	---	---	---	0	108	108	109	10	---	---	---	0	122	124	124	22
6/27	116	118	119	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
6/28	116	118	118	24	---	---	---	0	111	111	114	24	---	---	---	0	120	121	123	24
6/29	116	117	118	24	---	---	---	0	111	111	113	15	113	113	113	11	120	121	121	24
6/30	116	117	119	23	---	---	---	0	112	113	115	22	112	112	113	22	121	122	123	22
7/1	116	117	119	24	---	---	---	0	112	112	112	24	112	112	113	24	120	120	121	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
6/18	112	112	113	24	123	123	123	24	110	110	111	24	117	118	121	24	107	108	108	24
6/19	111	111	112	24	123	123	124	24	109	110	110	24	115	116	117	24	105	106	107	24
6/20	112	113	113	23	123	123	123	24	109	110	110	23	115	116	117	24	105	105	106	23
6/21	111	111	112	23	120	122	123	24	109	110	110	23	118	119	119	24	105	105	106	23
6/22	110	110	111	23	119	121	121	24	107	107	108	23	118	118	119	24	104	105	105	23
6/23	109	110	110	23	120	121	123	23	107	109	110	23	118	119	120	24	104	105	106	23
6/24	110	110	110	23	120	121	121	24	108	109	109	23	116	118	121	24	105	106	106	23
6/25	109	109	110	24	120	120	120	24	106	107	107	24	113	114	115	24	101	102	104	24
6/26	109	110	110	24	120	120	121	24	107	107	108	24	113	113	114	24	100	100	100	24
6/27	107	108	109	23	117	120	120	24	106	106	107	23	115	116	117	24	100	100	100	23
6/28	106	106	106	23	114	119	120	22	105	106	106	23	117	117	117	24	101	102	103	23
6/29	108	109	110	23	115	120	121	24	105	106	107	23	114	116	117	24	103	103	104	23
6/30	109	110	110	23	121	121	122	23	108	109	109	23	113	113	114	23	102	104	105	23
7/1	109	110	110	23	121	121	122	22	108	108	109	23	113	113	114	24	102	102	104	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
6/18	118	119	120	24	118	119	120	24	119	119	120	24
6/19	117	117	118	24	117	118	118	24	118	119	120	24
6/20	117	117	117	23	116	116	117	23	117	117	118	24
6/21	116	117	117	23	116	117	117	23	116	117	117	24
6/22	116	116	116	23	115	116	116	23	116	116	116	24
6/23	117	118	120	23	117	118	119	23	117	119	119	24
6/24	119	119	120	23	119	119	120	23	118	119	119	24
6/25	115	116	118	24	115	116	118	24	115	116	116	24
6/26	114	114	115	24	114	114	114	24	114	114	115	24
6/27	114	115	115	23	113	113	113	23	114	114	115	24
6/28	113	114	115	23	113	113	114	23	114	114	115	24
6/29	114	115	116	23	115	115	116	23	115	117	118	24
6/30	116	117	117	23	115	117	117	23	115	116	117	23
7/1	114	114	115	10	112	113	114	23	114	114	115	24

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													
	06/24/99	Subyearling Chinook	100	1	0	0.00%	0.00%	0	0	0	0	1	1.0
	06/28/99	Subyearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0.0
	07/01/99	Subyearling Chinook	100	1	1	1.00%	0.00%	1	0	0	0	0	0.0
Bonneville Dam													
	06/24/99	Subyearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0.0
	06/28/99	Subyearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0.0
	07/01/99	Subyearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0.0
Rock Island Dam													
	06/24/99	Subyearling Chinook	100	2	2	2.00%	0.00%	2	0	0	0	0	0.0
	06/24/99	Steelhead	100	1	1	1.00%	0.00%	1	0	0	0	0	0.0
	06/28/99	Subyearling Chinook	100	1	1	1.00%	0.00%	1	0	0	0	0	0.0
	06/28/99	Steelhead	92	2	0	0.00%	0.00%	0	0	0	0	2	1.0
	07/01/99	Subyearling Chinook	86	5	5	5.81%	0.00%	3	2	0	0	0	0.0
	07/01/99	Steelhead	100	1	0	0.00%	0.00%	0	0	0	0	1	1.0

Hatchery Release Summary

For the Last Two Weeks

From 6/18/99 to 7/1/99

Hatchery		Species	Migration Year	Number Released	...Release Dates... Begin	..End	Release Site	River Name
				USFWS				
L White Salmon	FA	Chinook	1999	2,100,000	6/24/99	6/24/99	Little White Salmon H	Little White Salmon River
			Agency Total:	2,100,000				
				WDFW				
Klickitat	FA	Chinook	1999	4,300,000	6/3/99	6/30/99	Klickitat H	Klickitat River
Priest Rapids	FA	Chinook	1999	6,544,000	6/14/99	6/23/99	Priest Rapids H	Mid-Columbia River
Ringold	FA	Chinook	1999	3,500,000	6/23/99	6/30/99	Ringold Springs H	Mid-Columbia River
Turtle Rock	SU	Chinook	1999	301,777	6/18/99	6/20/99	Turtle Rock H	Mid-Columbia River
	SU	Chinook	1999	307,511	6/22/99	6/22/99	Turtle Rock H	Mid-Columbia River
Wells	SU	Chinook	1999	390,000	6/18/99	6/21/99	Wells H	Mid-Columbia River
			Agency Total:	15,343,288				
			Total Release:	17,443,288				

Note: All releases have been completed for the spring of 1999.

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)
06/18/99	---	0	---	---	1,401	533	417	27	307	2,239	290
06/19/99	---	---	---	---	836	685	780	35	547	1,976	178
06/20/99	---	---	---	---	1,673	691	904	27	2,826	1,290	279
06/21/99	---	0	---	---	366	492	668	29	2	706	243
06/22/99	---	0	---	---	246	756	414	63	742	665	75
06/23/99	---	0	---	---	102	590	68	25	1,414	1,058	39
06/24/99	---	0	---	---	95	174	143	9	733	539	81
06/25/99	---	---	---	---	29	178	75	12	505	1,001	115
06/26/99	---	---	---	---	81	51	52	35	416	533	77
06/27/99	---	---	---	---	59	77	52	16	200	720	0
06/28/99	---	---	---	---	120	100	0	15	680	1,280	35
06/29/99	---	---	---	---	75	140	0	16	268	370	0
06/30/99	---	---	---	---	68	81	10	12	278	731	301
07/01/99	---	---	---	---	74	80	0	7	582	317	358
Total:	0	0	0	0	5,225	4,628	3,583	328	9,500	13,425	2,071
# Days:	0	5	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	373	331	256	23	679	959	148

Wild Yearling Chinook

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)
06/18/99	---	0	---	---	3,672	1,006	874
06/19/99	---	---	---	---	2,265	1,010	2,244
06/20/99	---	---	---	---	4,480	3,092	3,532
06/21/99	---	1	---	---	1,782	2,320	2,060
06/22/99	---	3	---	---	763	3,984	1,636
06/23/99	---	3	---	---	863	2,921	459
06/24/99	---	0	---	---	300	1,696	303
06/25/99	---	---	---	---	160	1,704	210
06/26/99	---	---	---	---	326	314	31
06/27/99	---	---	---	---	697	1,208	114
06/28/99	---	---	---	---	187	1,427	0
06/29/99	---	---	---	---	150	440	70
06/30/99	---	---	---	---	57	591	10
07/01/99	---	---	---	---	175	380	30
Total:	0	7	0	0	15,877	22,093	11,573
# Days:	0	5	0	0	14	14	14
Average:	0	1	0	0	1,134	1,578	827

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)
06/18/99	---	0	---	---	4,157	2,682	952	443	63,921	56,164	21,574
06/19/99	---	---	---	---	4,185	2,869	451	431	103,620	74,357	16,459
06/20/99	---	---	---	---	11,443	3,262	589	650	136,676	113,479	36,666
06/21/99	---	0	---	---	13,734	10,351	477	496	195,987	125,483	31,786
06/22/99	---	0	---	---	11,679	16,225	1,996	653	166,023	158,659	13,992
06/23/99	---	1	---	---	4,946	10,268	5,961	890	231,787	179,220	24,806
06/24/99	---	0	---	---	4,306	13,380	8,667	672	281,139	126,292	51,421
06/25/99	---	---	---	---	2,841	12,191	4,560	565	350,945	73,818	25,052
06/26/99	---	---	---	---	2,833	4,467	3,520	602	261,459	92,541	27,371
06/27/99	---	---	---	---	2,656	5,030	5,418	371	309,114	172,396	16,311
06/28/99	---	---	---	---	2,721	4,321	1,988	321	385,358	288,326	28,474
06/29/99	---	---	---	---	1,983	7,038	3,430	425	416,683	272,494	33,157
06/30/99	---	---	---	---	1,795	3,747	2,720	359	318,704	282,284	78,524
07/01/99	---	---	---	---	1,555	2,381	2,450	156	173,464	124,027	99,339
Total:	0	1	0	0	70,834	98,212	43,179	7,034	3,394,880	2,139,540	504,932
# Days:	0	5	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	5,060	7,015	3,084	502	242,491	152,824	36,067

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)
06/18/99	---	0	---	---	485	370	391	206	1,975	5,654	916
06/19/99	---	---	---	---	245	333	451	129	2,723	6,432	1,071
06/20/99	---	---	---	---	648	211	84	106	2,019	4,241	915
06/21/99	---	0	---	---	472	103	38	118	2,071	6,432	647
06/22/99	---	0	---	---	270	198	108	154	1,111	5,604	527
06/23/99	---	0	---	---	406	186	34	110	1,045	2,535	349
06/24/99	---	0	---	---	47	56	64	109	533	1,085	727
06/25/99	---	---	---	---	189	76	45	106	707	1,291	115
06/26/99	---	---	---	---	293	101	0	75	519	543	308
06/27/99	---	---	---	---	119	129	0	52	599	180	59
06/28/99	---	---	---	---	173	250	0	18	291	440	381
06/29/99	---	---	---	---	100	80	10	28	268	202	34
06/30/99	---	---	---	---	91	81	10	27	695	1,168	188
07/01/99	---	---	---	---	107	60	10	24	291	468	0
Total:	0	0	0	0	3,645	2,234	1,245	1,262	14,847	36,275	6,237
# Days:	0	5	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	260	160	89	90	1,061	2,591	446

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)
06/18/99	---	49	---	---	19,761	6,828	1,956	338	143	944	268
06/19/99	---	---	---	---	16,495	7,135	5,089	263	436	1,808	139
06/20/99	---	---	---	---	11,982	8,276	6,265	178	1,615	1,034	179
06/21/99	---	40	---	---	6,239	3,944	3,567	153	1,242	2,359	162
06/22/99	---	36	---	---	2,188	3,379	2,868	167	987	2,204	301
06/23/99	---	22	---	---	2,283	2,345	900	119	1,106	1,245	194
06/24/99	---	21	---	---	1,088	827	828	90	733	688	161
06/25/99	---	---	---	---	801	1,448	465	71	303	384	173
06/26/99	---	---	---	---	879	912	341	59	416	683	38
06/27/99	---	---	---	---	757	874	176	67	599	1,080	59
06/28/99	---	---	---	---	1,187	500	83	43	194	20	190
06/29/99	---	---	---	---	748	500	100	33	0	224	0
06/30/99	---	---	---	---	510	141	90	22	139	51	0
07/01/99	---	---	---	---	464	180	50	24	0	24	0
Total:	0	168	0	0	65,382	37,289	22,778	1,627	7,913	12,748	1,864
# Days:	0	5	0	0	14	14	14	14	14	14	14
Average:	0	34	0	0	4,670	2,664	1,627	116	565	911	133

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)
06/18/99	---	0	---	---	1,759	736	261	527	134	1,641	22
06/19/99	---	---	---	---	837	665	547	511	0	1,744	139
06/20/99	---	---	---	---	756	766	547	374	202	1,871	60
06/21/99	---	0	---	---	472	311	305	321	0	1,628	0
06/22/99	---	0	---	---	443	247	183	282	123	1,315	75
06/23/99	---	2	---	---	178	216	153	204	123	1,710	155
06/24/99	---	0	---	---	79	88	64	141	67	1,533	81
06/25/99	---	---	---	---	44	127	15	192	0	1,352	0
06/26/99	---	---	---	---	16	51	21	149	104	600	0
06/27/99	---	---	---	---	15	51	0	153	0	180	0
06/28/99	---	---	---	---	120	0	0	94	0	237	35
06/29/99	---	---	---	---	12	20	10	97	134	426	0
06/30/99	---	---	---	---	40	0	0	90	139	488	0
07/01/99	---	---	---	---	51	80	0	179	97	79	0
Total:	0	2	0	0	4,822	3,358	2,106	3,314	1,123	14,804	567
# Days:	0	5	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	344	240	150	237	80	1,057	41

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)
06/18/99	---	0	---	---	0	0	13	37	176	153	22
06/19/99	---	---	---	---	50	54	55	47	109	26	0
06/20/99	---	---	---	---	53	26	21	56	0	93	40
06/21/99	---	0	---	---	52	103	38	53	0	80	0
06/22/99	---	0	---	---	49	74	36	47	2	22	0
06/23/99	---	0	---	---	50	0	51	30	0	15	39
06/24/99	---	0	---	---	16	0	16	32	67	15	0
06/25/99	---	---	---	---	29	51	15	22	0	41	0
06/26/99	---	---	---	---	16	101	10	17	312	35	0
06/27/99	---	---	---	---	0	51	0	9	0	0	0
06/28/99	---	---	---	---	13	25	0	6	97	183	0
06/29/99	---	---	---	---	0	40	0	14	0	11	0
06/30/99	---	---	---	---	6	20	10	10	0	13	0
07/01/99	---	---	---	---	0	0	0	9	0	8	0
Total:	0	0	0	0	334	545	265	389	763	695	101
# Days:	0	5	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	24	39	19	28	55	50	7

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)
06/18/99	---	0	---	---	50	31	78	2	263	181	22
06/19/99	---	---	---	---	0	15	55	1	0	220	40
06/20/99	---	---	---	---	0	54	42	0	0	297	0
06/21/99	---	0	---	---	52	32	38	1	207	75	81
06/22/99	---	0	---	---	0	52	36	0	0	37	0
06/23/99	---	0	---	---	26	32	17	0	184	240	39
06/24/99	---	0	---	---	0	0	48	2	67	37	0
06/25/99	---	---	---	---	15	26	15	2	101	61	0
06/26/99	---	---	---	---	0	25	0	0	104	450	77
06/27/99	---	---	---	---	15	26	0	0	0	360	0
06/28/99	---	---	---	---	13	50	10	0	0	196	0
06/29/99	---	---	---	---	0	61	10	0	0	11	0
06/30/99	---	---	---	---	0	61	10	0	0	51	0
07/01/99	---	---	---	---	6	40	0	2	0	32	0
Total:	0	0	0	0	177	505	359	10	926	2,248	259
# Days:	0	5	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	13	36	26	1	66	161	19

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 1, 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	12,838	2,389	13,254	1,280	12,746	1,203	0	0	0	0	0	0
TDA	17,563	6,180	25,225	518	39,635	1,617	9,915	1,754	9,770	547	9,947	730	0	0	0	0	0	0
JDA	15,409	5,089	21,820	378	31,309	1,325	8,540	1,387	9,564	498	8,716	672	0	0	0	0	0	0
MCN	9,258	3,961	19,415	337	30,860	1,525	5,564	1,018	8,768	403	7,973	551	0	0	0	0	0	0
IHR	5,335	2,648	12,434	130	16,094	620	2,910	820	4,527	157	3,375	243	0	0	0	0	0	0
LMN	3,924	2,726	10,598	131	15,276	682	1,853	686	2,748	128	2,497	185	0	0	0	0	0	0
LGS	3,450	2,656	10,512	118	**	**	1,982	718	2,916	118	**	**	0	0	0	0	**	**
LWG	3,322	2,407	9,854	109	13,146	573	1,388	551	2,756	140	2,635	194	0	0	0	0	0	0
PRD	4,129	744	4,124	37	9,804	151	1,778	97	3,066	50	2,832	60	0	0	0	0	0	0
RIS	3,312	915	3,187	54	7,271	160	529	137	1,280	35	1,335	42	0	0	0	0	0	0
RRH	1,399	252	762	54	1,670	39	162	78	271	7	245	8	0	0	0	0	0	0
WEL	*44	*72	6	24	902	41	6	6	16	2	31	3	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	0	0	0	0	0	0	9,172	8,160	26,016	7,849	10,378	13,945	1,303
TDA	0	0	0	0	0	0	5,705	5,132	18,888	2,349	3,686	4,958	433
JDA	1	0	0	0	0	0	5,421	4,823	17,428	5,572	8,015	5,380	1063
MCN	0	1	0	0	0	0	3,168	3,848	13,611	1,437	3,054	4,186	188
IHR	0	0	0	0	0	0	1	0	1	1,078	2,103	3,192	319
LMN	0	0	0	0	0	0	0	0	1	641	1,720	2,601	116
LGS	0	0	0	0	**	**	0	0	**	972	2,160	**	316
LWG	0	0	0	0	0	0	0	0	0	3,075	4,444	5,746	549
PRD	0	0	0	0	0	0	1,075	1,611	4,954	90	56	165	***
RIS	0	0	0	0	0	0	257	234	1,085	29	61	179	41
RRH	0	0	0	0	0	0	189	161	362	49	112	113	42
WEL	0	0	0	0	0	0	26	33	186	17	8	53	7

LMN is through 06/27, LGS, RIS and RRH are through 06/29, PRD and WEL are through 06/30.

*WEL - WDFW is trapping Spring Chinook on both fish ladders, 3 days per week starting 06/14.

**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 06/18/99 to 07/01/99

	Yearling Chinook	Subyearling Chinook	Steelhead	Coho	Sockeye	Total
LOWER GRANITE DAM						
Collected	13,613	47,093	45,327	2,425	336	108,794
Bypassed	225	0	812	0	0	1,037
Trucked	738	6,503	2,525	384	17	10,167
Barged	12,560	39,985	41,932	2,036	301	96,814
Total Transported	**13,298**	**46,488**	**44,457**	**2,420**	**318**	**106,981**
LITTLE GOOSE DAM						
Collected	22,454	86,716	31,999	1,883	940	143,992
Bypassed	0	0	0	0	0	0
Trucked	3,215	17,262	1,406	469	294	22,646
Barged	18,936	66,364	30,278	1,404	616	117,598
Total Transported	**22,151**	**83,626**	**31,684**	**1,873**	**910**	**140,244**
LOWER MONUMENTAL DAM						
Collected	11,750	40,645	19,370	975	515	73,255
Bypassed	0	0	100	0	0	100
Trucked	70	5,325	187	10	20	5,612
Barged	11,635	35,233	19,052	965	492	67,377
Total Transported	**11,705**	**40,558**	**19,239**	**975**	**512**	**72,989**
MCNARY DAM						
Collected	4,673	1,707,243	4,401	7,166	801	1,724,284
Bypassed	2,147	341,754	2,363	4,686	350	351,300
Trucked	0	0	0	0	0	0
Barged	2,199	1,264,990	1,966	2,304	446	1,271,905
Total Transported	**2,199**	**1,264,990**	**1,966**	**2,304**	**446**	**1,271,905**
PROJECT TOTALS						
Collected	52,490	1,881,697	101,097	12,449	2,592	2,050,325
Bypassed	2,372	341,754	3,275	4,686	350	352,437
Trucked	4,023	29,090	4,118	863	331	38,425
Barged	45,330	1,406,572	93,228	6,709	1,855	1,553,694
Total Transported	**49,353**	**1,435,662**	**97,346**	**7,572**	**2,186**	**1,592,119**

Transportation Summary Report
Cumulative Transportation Summary
through 07/01/99

	Yearling Chinook	Subyearling Chinook	Steelhead	Coho	Sockeye	Total
LOWER GRANITE DAM						
Collected	2,171,434	99,451	3,345,284	77,619	17,301	5,711,089
Bypassed	115,918	0	266,363	14,608	1,640	398,529
Trucked	30,474	6,629	25,555	567	1,236	64,461
Barged	2,011,587	91,851	3,052,413	62,254	14,000	5,232,105
Total Transported	**2,042,061**	**98,480**	**3,077,968**	**62,821**	**15,236**	**5,296,566**
LITTLE GOOSE DAM						
Collected	3,527,946	98,436	3,133,785	116,820	20,845	6,897,832
Bypassed	19,783	0	158,018	4,195	299	182,295
Trucked	4,216	17,262	2,534	474	414	24,900
Barged	3,481,142	77,971	2,969,994	111,937	18,954	6,659,998
Total Transported	**3,485,358**	**95,233**	**2,972,528**	**112,411**	**19,368**	**6,684,898**
LOWER MONUMENTAL DAM						
Collected	1,891,953	43,922	1,977,981	51,065	12,784	3,977,705
Bypassed	148,537	1	251,013	7,795	596	407,942
Trucked	4,949	5,331	1,320	10	108	11,718
Barged	1,736,443	38,495	1,725,009	43,257	12,052	3,555,256
Total Transported	**1,741,392**	**43,826**	**1,726,329**	**43,267**	**12,160**	**3,566,974**
MCNARY DAM						
Collected	2,103,321	2,122,050	534,800	139,621	782,100	5,681,892
Bypassed	2,098,392	755,844	532,579	137,083	781,069	4,304,967
Trucked	0	0	0	0	0	0
Barged	2,199	1,264,990	1,966	2,304	446	1,271,905
Total Transported	**2,199**	**1,264,990**	**1,966**	**2,304**	**446**	**1,271,905**
PROJECT TOTALS						
Collected	9,694,654	2,363,859	8,991,850	385,125	833,030	22,268,518
Bypassed	2,382,630	755,845	1,207,973	163,681	783,604	5,293,733
Trucked	39,639	29,222	29,409	1,051	1,758	101,079
Barged	7,231,371	1,473,307	7,749,382	219,752	45,452	16,719,264
Total Transported	**7,271,010**	**1,502,529**	**7,778,791**	**220,803**	**47,210**	**16,820,343**