



## Fish Passage Center

# Weekly Report #99 - 18

July 9, 1999

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### SUMMARY OF EVENTS:

**Water Supply:** It is expected that the current warming trend will continue. A showery precipitation pattern continued over the region during the past week. The Upper Columbia and Kootenai regions experienced some significant precipitation and minor to moderate flow increases. Dry weather with above normal temperatures is expected to continue over the region.

Precipitation above Grand Coulee was 107% of normal, the Snake River above Ice Harbor was 99% of normal and the Columbia above The Dalles was 95% of normal for the month of June. The subbasins with the highest precipitation were in the Upper Snake with 143% and Northeast Washington with 125%. The lowest precipitation continued to be at the Upper Deschutes/Crooked with 24% and Klamath Basin with 20%.

**System Storage:** Major system reservoirs are continuing refill operations. Flow augmentation will commence at the Upper Snake and Brownlee reservoirs for improving flows at Lower Granite.

- Hungry Horse continues with refill. The reservoir is projected to be surcharged to 3561 ft (1 ft above the full pool elevation) by the second week of July, instead of full on June 30 as required by Biological Opinion. The actual daily average outflows were in the range of 820 cfs to 2.8 kcfs for the period of July 2-8.
- Libby operations for the sturgeon pulse finished during this week. Outflows at Libby gradually ramped down from 22-25 kcfs during last week to 12.3 kcfs on July 8 and will continue refill operations, 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 may be refilled to 2459 feet by the end of July.

- Arrow reservoir increased outflows in the range of 15-17 kcfs during spring period to outflows in the range of 28-34 kcfs during the past week.
- Grand Coulee reservoir continues refilling toward its full pool elevation of 1290 ft. It is projected that the reservoir will be full by the second week of July. Daily average inflows were in the range of 167.9 kcfs to 199.3 kcfs during the week of July 2-8. Daily average outflows were in the range of 140.7 kcfs to 158.6 kcfs during the same period.
- Dworshak reservoir continues to refill with minimum daily average outflows of 1.5 kcfs. The project will not fill this year. The latest flow projections are showing that the reservoir will refill to a maximum elevation of 1590.5, 9.5 ft below full pool by July 12.
- Brownlee reservoir operated between 2076 and 2077 ft during last week. Daily average inflows continue to decrease compared with the previous week's inflows, from 19.6 kcfs on July 2 to 15.6 kcfs on July 7. Daily average outflows at Hells Canyon Dam were in the range of 14.8 kcfs to 22.34 kcfs during last week.

A summary of the current elevations on July 8 is given in the following Table:

Reservoir	Actual elev. As of July 8	Max Reservoir pool [ft]
<i>Libby</i>	2437.5	2459
<i>Hungry Horse</i>	3556.3	3560
<i>Grand Coulee</i>	1288.7	1290
<i>Brownlee</i>	2075.9*	2077
<i>Dworshak</i>	1588.49	1600

\* as of July 7

Upper Snake reservoirs:

Flow augmentation for flows at Lower Granite began at Upper Snake on July 1. In spite of the precipitation during June flows decreased rapidly in the system, requiring flow augmentation for fish. BOR is planning to continue flow augmentation through the beginning of September at a rate of 1.5 kcfs from Milner. The system is currently at 96% of capacity. Flow augmentation is being delivered from American Falls reservoir, currently at 94% of full capacity.

Boise and Payette River Basins:

Both systems are nearly refilled. The Boise River system (Anderson Ranch, Arrowrock and Lucky Peak) is at 99% of capacity. The daily average outflow from Boise River system is 1.1 kcfs (as of July 8), with a portion of flow augmentation of 400 cfs. Flow augmentation commenced around July 5 and will continue through August 29.

The Payette River system (Cascade, Deadwood) is at 99% of capacity. The daily average outflow from Payette river system decreased from 5.1 kcfs (as of July 1) to 3.2 kcfs (as of July 8).

**Streamflow:**

The Biological Opinion summer flow targets are: 53.96 kcfs at Lower Granite, and 200 kcfs at McNary. Daily average flows at Lower Granite continued to decrease, from 78.1 kcfs on July 2 to 54.6 kcfs on July 8. McNary daily average flows were fluctuating during the past week, from 293.9 kcfs on July 2 to 259.8 kcfs on July 8.

Daily average flows at Priest Rapids were fluctuating in the range of 174.8 kcfs to 189.6 kcfs in the period of July 2-8. The total range of daily and hourly fluctuation is presented in the following Table:

Date	Average Daily Flow at Priest Rapids [kcfs]	Hourly fluctuations [kcfs]
July 2	185.8	166.4-195.8
July 3	188.3	183.1-192.0
July 4	187.6	184.5-190.0
July 5	174.8	97.4-192.3
July 6	179.8	126.7-205.7
July 7	189.0	177.1-186.8
July 8	189.6	151.2-200.9

The weekly average discharges for the major run-of river projects for June 25- July 8 period are given in the following Table:

Project	Average Discharge [kcfs]	
	June 25-July 1	July 2-8
<i>Priest Rapids</i>	200.6	184.98
<i>McNary</i>	310.0	261.3
<i>Lower Granite</i>	99.8	62.9
<i>Bonneville</i>	320.8	271.96

**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.

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 implemented a test this past week to spill at higher levels under lower tailwater conditions and observe total dissolved gas levels. Spill levels up to 130 Kcfs have not exceeded the 120% waiver under the lower tailwater conditions.

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. Only subyearling chinook will be monitored for signs of GBT through the rest of July and August.

**Smolt Monitoring.** In the Snake River, subyearling chinook passage indices at Lower Granite and Little Goose dams continued to show a decreasing trend this week. During the latter half of this week, subyearling chinook passage indices at both dams were below 1,500 fish per day. USFWS is predicting wild fall chinook passage at Lower Granite Dam will increase and possibly peak next week. If this occurs, the reported combined hatchery/wild subyearling chinook passage indices should also begin to increase again. Subyearling chinook passage indices at Lower Monumental Dam have shown wide fluctuations during this past two weeks, but the trend has remained relatively flat over this period. Trends in subyearling chinook passage indices at Lower Monumental Dam may differ from the upriver sites because of the large number of Lyons Ferry Hatchery fish released upstream of this dam.

In the mid-Columbia River, subyearling chinook passage indices were substantially lower at Rock Island Dam compared to the previous week. Over the fourth-of-July weekend, subyearling chinook passage indices at Rock Island Dam dropped to less than a tenth of last week's highs, before returning later in the week to about half of last week's average magnitude.

In the lower Columbia River, subyearling chinook passage indices dropped rapidly early this week at McNary Dam to about a quarter of last week's highs. But as the week progressed, subyearling chinook passage indices again increased for several days before ending the week at again about a quarter of last week's highs. Passage indices of subyearling chinook at John Day and Bonneville dams this week were also well below the level of the peak passage days observed last week.

**Adult Fish Passage:** Summer chinook counts at Bonneville Dam ranged between 457 and 730 for the week 7/02 through 7/08. 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 16,909, which is slightly greater than both the 1998 count and the 10-year average through July 8. The summer chinook count at The Dalles, John Day and McNary dams was 13,253, 11,981 and 8,982, respectively. The turnoff into the Snake River (Ice Harbor Dam count) was 3,296, with 2,020 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 536 and 905 with the total count through July 8 of 14,287. This total was greater than the 1998 count but only 40% of the 10-yr average. The sockeye total at McNary Dam was 7,016 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. Lower Monumental, Little Goose and Lower Granite have all reported counting sockeye this past week. Further information on these counts will be included next week.

Steelhead passage increased through the week at Bonneville Dam. Daily counts ranged between 452 and 812 with higher numbers occurring toward the end of the week. Through July 8, steelhead passage at Bonneville totaled 12,016 and was 80% of the 1998 total and 65% of the 10-year average.

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

**Hatchery Releases:** During the past two weeks, approximately 7.8 million fall chinook were released from the Klickitat and Ringold Springs

hatcheries. No releases are planned 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 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

<b>River Zone</b>	<b>Species/Race</b>	<b># Released</b>
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
<b>Snake Total</b>		<b>23,525,071</b>
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
<b>Mid-Columbia Total</b>		<b>23,311,318</b>
Lower Columbia		
Above Bonneville Dam to below McNary Dam	Chinook/spring	5,780,404
Lower Columbia	Chinook/fall	19,690,646
Lower Columbia	Coho	7,148,477
Lower Columbia	Steelhead/summer	544,304
Lower Columbia	Steelhead/winter	96,763
<b>Lower Columbia Total</b>		<b>32,854,257</b>
<b>Grand Total</b>		<b>79,690,646</b>

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

**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
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	160.5	0.0	189.1	16.0	197.3	31.5	203.4	20.0	205.3	50.3	209.4	72.3
07/02/99	140.7	0.1	148.4	0.0	163.0	13.2	170.7	21.5	180.3	14.9	182.7	22.8	185.8	48.2
07/03/99	151.7	0.1	154.8	0.0	171.5	13.2	175.4	17.4	183.1	11.7	184.5	27.6	188.3	53.2
07/04/99	151.8	0.1	152.0	0.0	167.0	13.2	167.3	1.2	174.0	6.6	182.7	27.4	187.6	56.7
07/05/99	155.5	0.1	159.5	0.0	173.3	13.2	176.2	9.0	182.0	0.0	175.0	26.7	174.8	52.6
07/06/99	158.6	0.1	155.4	0.0	168.3	15.0	175.1	7.1	183.8	0.2	184.1	34.1	179.8	55.7
07/07/99	155.9	0.1	160.8	0.0	177.2	13.2	182.2	20.7	188.7	5.7	188.0	31.4	189.0	57.6

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

Date	Dworshak		Brownlee Canyon		Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill	Inflow	Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
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	24.0	26.8	82.5	7.0	81.6	0.0	85.3	0.0	90.0	65.7
07/02/99	1.5	0.0	19.6	15.4	78.1	1.9	81.3	0.0	83.7	0.0	85.6	65.1
07/03/99	1.5	0.0	19.8	22.5	68.2	0.0	69.6	0.0	71.0	0.0	73.1	57.6
07/04/99	1.5	0.0	16.7	17.9	64.7	0.0	66.3	0.0	69.7	0.0	75.4	60.7
07/05/99	1.5	0.0	16.9	17.3	60.0	0.0	60.8	0.0	61.8	0.0	63.4	52.3
07/06/99	1.5	0.0	16.6	16.3	59.5	0.0	60.1	0.0	62.4	0.0	68.1	51.4
07/07/99	1.5	0.0	---	---	55.2	0.0	56.5	0.0	57.2	0.0	59.5	50.2

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

Date	McNary		John Day		The Dalles		Bonneville		PH1	PH2
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill		
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
07/02/99	293.9	130.7	309.2	80.8	302.5	89.8	298.8	83.3	80.3	126.0
07/03/99	264.1	102.8	277.3	45.4	279.7	157.7	286.9	83.3	78.1	116.3
07/04/99	261.0	99.7	262.5	35.2	262.3	165.5	277.8	83.5	78.6	106.5
07/05/99	255.0	98.3	270.4	38.5	272.3	174.2	265.3	83.4	78.9	93.8
07/06/99	257.6	102.9	249.3	80.6	249.1	93.5	258.6	82.9	79.5	87.0
07/07/99	237.8	77.6	234.7	84.0	230.0	69.4	248.7	83.4	74.4	81.7

## 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>24 h</u>	<u>12 h</u>	<u>#</u>		
	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High		
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
7/2	122	123	124	24	118	118	118	24	115	115	115	24	116	116	116	23	115	116	116	23
7/3	119	119	120	24	118	118	118	24	114	114	115	24	115	115	115	23	114	115	115	23
7/4	118	119	120	24	117	117	117	24	113	113	114	24	114	114	115	23	113	114	115	23
7/5	118	119	120	24	116	116	117	24	112	113	113	24	114	114	114	23	113	113	114	23
7/6	118	119	119	24	117	117	118	24	113	114	114	24	114	115	116	23	113	113	114	23
7/7	118	118	119	24	117	118	118	24	113	114	115	24	114	115	116	23	114	116	---	23
7/8	116	116	116	24	116	116	116	24	114	114	115	24	113	113	113	23	---	---	---	0

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>24 h</u>	<u>12 h</u>	<u>#</u>		
	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High		
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
7/2	112	112	112	4	110	111	111	22	113	113	114	20	111	111	112	23	115	115	115	23
7/3	---	---	---	0	110	110	111	24	113	113	113	24	110	110	111	24	114	114	115	23
7/4	---	---	---	0	110	110	111	24	112	112	112	24	109	109	110	24	112	113	114	24
7/5	---	---	---	0	110	110	111	24	112	113	116	24	108	109	110	24	111	112	112	24
7/6	113	113	114	8	111	112	112	22	114	114	116	21	110	111	111	22	113	114	115	21
7/7	113	113	114	7	111	112	113	24	114	115	115	23	111	111	112	22	114	115	115	22
7/8	---	---	---	0	109	109	110	21	112	112	112	18	108	109	110	21	113	114	114	19

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>24 h</u>	<u>12 h</u>	<u>#</u>		
	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High		
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	112	113	113	24	117	118	120	24	117	118	119	24	119	120	121	24	109	110	113	24
7/2	110	111	112	24	112	113	116	24	113	115	116	24	114	116	118	24	108	109	110	24
7/3	111	112	112	24	113	113	113	24	111	113	114	24	114	115	116	24	---	---	---	0
7/4	110	111	111	24	112	113	113	24	112	112	113	24	115	115	116	24	---	---	---	0
7/5	111	112	113	24	112	112	114	24	112	113	114	24	115	116	117	24	---	---	---	0
7/6	112	114	116	24	113	114	118	24	115	117	121	24	117	118	121	24	110	114	115	24
7/7	109	110	112	24	111	112	116	24	112	112	113	24	115	116	116	24	111	113	114	24
7/8	110	112	118	23	110	110	112	24	111	111	112	24	114	115	116	24	107	108	109	24

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

### Total Dissolved Gas Saturation Data at Clearwater and Snake River Sites

Date	<u>Clearwater</u>			<u>Anatone</u>			<u>Snake-Lewiston</u>			<u>Lower Granite</u>			<u>Tlwtr L. Granite</u>			#				
	<u>24 h</u>	<u>12 h</u>	High	#	<u>24 h</u>	<u>12 h</u>	High	#	<u>24 h</u>	<u>12 h</u>	High	#	<u>24 h</u>	<u>12 h</u>	High		#			
	Avg	Avg		hr	Avg	Avg		hr	Avg	Avg		hr	Avg	Avg			hr	Avg	Avg	hr
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
7/2	102	102	103	23	105	105	106	24	102	103	104	24	106	107	113	24	105	106	107	24
7/3	---	---	---	0	105	106	106	24	102	104	105	24	104	105	105	24	104	104	104	24
7/4	---	---	---	0	104	104	105	24	101	102	103	22	103	104	104	24	102	103	103	24
7/5	---	---	---	0	104	106	106	24	102	104	106	24	104	106	107	24	102	102	103	24
7/6	103	105	106	24	105	106	107	24	103	105	107	24	106	107	110	23	103	104	105	23
7/7	102	103	104	24	104	104	105	24	102	103	104	24	103	104	106	24	103	103	104	24
7/8	102	103	104	24	104	105	105	24	102	104	105	23	104	105	106	24	102	103	103	23

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

Date	<u>Little Goose</u>			<u>Tlwtr L. Goose</u>			<u>L. Monumental</u>			<u>Tlwtr L. Monum</u>			<u>Ice Harbor</u>			#				
	<u>24 h</u>	<u>12 h</u>	High	#	<u>24 h</u>	<u>12 h</u>	High	#	<u>24 h</u>	<u>12 h</u>	High	#	<u>24 h</u>	<u>12 h</u>	High		#			
	Avg	Avg		hr	Avg	Avg		hr	Avg	Avg		hr	Avg	Avg			hr	Avg	Avg	hr
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
7/2	106	106	107	24	106	106	106	24	108	108	109	24	107	108	108	24	110	110	111	24
7/3	104	105	105	24	104	104	105	24	106	107	107	24	105	106	106	24	108	108	109	24
7/4	103	103	104	24	103	103	104	24	104	105	106	24	103	104	104	24	106	106	107	24
7/5	104	106	107	24	102	103	103	24	104	104	106	24	102	103	104	24	104	105	106	24
7/6	104	107	111	24	103	104	104	24	104	105	107	24	103	104	104	24	105	106	107	24
7/7	102	103	105	24	102	102	104	24	103	103	107	24	102	102	103	21	103	104	105	24
7/8	102	103	106	24	101	101	101	24	103	104	106	24	101	101	102	24	103	104	105	24

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

Date	<u>Twtr Ice Har.</u>			<u>Pasco</u>			<u>McNary-Oregon</u>			<u>McNary-Wash.</u>			<u>Tlwtr McNary</u>			#				
	<u>24 h</u>	<u>12 h</u>	High	#	<u>24 h</u>	<u>12 h</u>	High	#	<u>24 h</u>	<u>12 h</u>	High	#	<u>24 h</u>	<u>12 h</u>	High		#			
	Avg	Avg		hr	Avg	Avg		hr	Avg	Avg		hr	Avg	Avg			hr	Avg	Avg	hr
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
7/2	115	117	119	24	---	---	---	0	111	111	112	24	111	111	112	24	120	120	121	24
7/3	114	115	115	24	---	---	---	0	110	111	112	24	110	110	111	24	119	120	121	24
7/4	114	115	115	24	---	---	---	0	109	109	110	24	109	110	110	24	119	120	120	24
7/5	113	114	115	24	---	---	---	0	109	110	112	24	110	112	113	24	118	119	119	24
7/6	114	115	116	20	---	---	---	0	110	111	112	22	112	114	116	24	119	120	120	24
7/7	112	114	114	24	---	---	---	0	109	109	110	24	111	112	114	24	116	117	118	24
7/8	113	114	115	24	---	---	---	0	108	109	110	24	109	111	112	24	118	119	119	24

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

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

Date	<u>John Day</u>			#	<u>Tlwtr John Day</u>			#	<u>The Dalles</u>			#	<u>Dnstr T. Dalles</u>			#	<u>Bonneville</u>			#
	<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24h</u>	<u>12h</u>	<u>High</u>		<u>24h</u>	<u>12h</u>	<u>High</u>		<u>24h</u>	<u>12h</u>	<u>High</u>	
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
7/2	108	108	109	23	121	122	122	23	107	107	108	23	112	112	113	23	101	101	102	23
7/3	107	108	108	23	114	118	122	22	108	110	111	23	115	117	117	24	102	102	102	23
7/4	106	106	107	23	113	118	119	24	105	105	106	23	115	116	117	24	102	103	104	23
7/5	106	107	108	23	113	118	121	24	105	107	108	23	116	117	118	24	104	105	106	23
7/6	107	108	111	23	120	121	121	21	107	109	111	23	114	116	118	24	107	107	108	22
7/7	107	107	108	24	118	119	120	20	107	108	109	23	112	113	114	24	102	104	105	23
7/8	107	108	110	22	118	119	120	24	109	111	113	23	113	115	117	24	101	102	103	23

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

Date	<u>Warrendale</u>			#	<u>Skamania</u>			#	<u>Camas\Wash.</u>			#
	<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24 h</u>	<u>12 h</u>	<u>High</u>		<u>24h</u>	<u>12h</u>	<u>High</u>	
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
7/2	111	111	111	13	111	112	113	23	112	113	114	24
7/3	112	113	114	23	112	112	115	23	112	113	115	24
7/4	113	113	115	23	112	112	113	23	111	113	114	24
7/5	114	115	116	23	114	115	116	23	113	115	117	24
7/6	116	116	118	21	116	116	118	23	115	116	118	24
7/7	112	113	116	20	113	115	117	23	113	113	114	24
7/8	112	112	113	23	111	112	114	23	112	114	116	23



## 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
<b>McNary Dam</b>													
	07/01/99	Subyearling Chinook	100	1	1	1.00%	0.00%	1	0	0	0	0	0
	07/05/99	Subyearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	07/08/99	Subyearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
<b>Bonneville Dam</b>													
	07/01/99	Subyearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	07/05/99	Subyearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	07/08/99	Subyearling Chinook	100	1	1	1.00%	0.00%	1	0	0	0	0	0
<b>Rock Island Dam</b>													
	07/01/99	Subyearling Chinook	86	5	5	5.81%	0.00%	3	2	0	0	0	0
	07/01/99	Steelhead	100	1	0	0.00%	0.00%	0	0	0	0	1	1
	07/08/99	Subyearling Chinook	100	3	3	3.00%	0.00%	3	0	0	0	0	0
	07/08/99	Steelhead	18	0	0	0.00%	0.00%	0	0	0	0	0	0

## Hatchery Release Summary For the Last Two Weeks From 6/25/99 to 7/8/99

Hatchery	Species...	Migration	Year	Number	...Release Dates...		Release Site	River Name
				Released	Begin	..End		
<b>WDFW</b>								
<b>Klickitat</b>	FA	Chinook	1999	4,300,000	6/3/99	6/30/99	Klickitat H	Klickitat River
<b>Ringold</b>	FA	Chinook	1999	3,500,000	6/23/99	6/30/99	Ringold Springs H	Mid-Columbia River
		<b>Agency Total</b>		<b>7,800,000</b>				
		<b>Total Release</b>		<b>15,600,000</b>				

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

## 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)
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
07/02/99	---	---	---	---	42	90	10	12	55	293	0
07/03/99	---	---	---	---	46	70	0	3	105	48	71
07/04/99	---	---	---	---	20	50	6	6	204	0	68
07/05/99	---	---	---	---	40	25	10	5	160	700	0
07/06/99	---	---	---	---	25	45	0	9	203	684	0
07/07/99	---	---	---	---	35	45	10	12	158	28	0
07/08/99	---	---	---	---	60	0	10	5	---	3	0
<b>Total:</b>	0	0	0	0	774	1,032	235	165	3,814	6,708	1,025
<b># Days:</b>	0	0	0	0	14	14	14	14	13	14	14
<b>Average:</b>	0	0	0	0	55	74	17	12	293	479	73

### Wild Yearling Chinook

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)
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
07/02/99	---	---	---	---	52	220	60
07/03/99	---	---	---	---	97	230	10
07/04/99	---	---	---	---	285	305	48
07/05/99	---	---	---	---	135	185	10
07/06/99	---	---	---	---	50	185	30
07/07/99	---	---	---	---	40	170	30
07/08/99	---	---	---	---	40	45	10
<b>Total:</b>	0	0	0	0	2,451	7,404	663
<b># Days:</b>	0	0	0	0	14	14	14
<b>Average:</b>	0	0	0	0	175	529	47

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)
06/25/99	---	---	---	---	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
07/02/99	---	---	---	---	1,919	1,660	2,560	112	88,872	68,552	34,766
07/03/99	---	---	---	---	1,831	1,773	4,410	49	96,674	105,319	30,081
07/04/99	---	---	---	---	1,820	1,314	3,150	40	225,406	60,507	24,331
07/05/99	---	---	---	---	920	1,421	1,650	65	201,697	85,957	20,092
07/06/99	---	---	---	---	1,305	1,376	3,780	185	144,034	53,042	12,669
07/07/99	---	---	---	---	715	1,327	3,950	223	101,742	35,190	14,293
07/08/99	---	---	---	---	1,016	522	1,240	215	---	38,093	16,243
<b>Total:</b>	0	0	0	0	25,910	48,568	44,826	3,688	3,074,152	1,752,546	460,703
<b># Days:</b>	0	0	0	0	14	14	14	14	13	14	14
<b>Average:</b>	0	0	0	0	1,851	3,469	3,202	263	236,473	125,182	32,907

### 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)
06/25/99	---	---	---	---	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
07/02/99	---	---	---	---	84	90	0	26	116	450	72
07/03/99	---	---	---	---	67	40	30	16	52	67	0
07/04/99	---	---	---	---	85	35	6	5	238	347	0
07/05/99	---	---	---	---	45	15	0	20	481	350	32
07/06/99	---	---	---	---	25	25	10	7	153	234	31
07/07/99	---	---	---	---	70	10	0	11	95	31	32
07/08/99	---	---	---	---	28	10	0	15	---	16	33
<b>Total:</b>	0	0	0	0	1,476	1,002	121	430	4,505	5,787	1,285
<b># Days:</b>	0	0	0	0	14	14	14	14	13	14	14
<b>Average:</b>	0	0	0	0	105	72	9	31	347	413	92

#### 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 :  $\text{Passage Index} = \frac{\text{Collection Counts}}{\{\text{Powerhouse Flow} / (\text{Powerhouse Flow} + \text{Spill})\}}$   
 LGS (Index) = Little Goose Bypass Collection System : Passage Index Counts :  $\text{Passage Index} = \frac{\text{Collection Counts}}{\{\text{Powerhouse Flow} / (\text{Powerhouse Flow} + \text{Spill})\}}$   
 LMN (Index) = Lower Monumental Dam Bypass Collection System : Passage Index Counts :  $\text{Passage Index} = \frac{\text{Collection Counts}}{\{\text{Powerhouse Flow} / (\text{Powerhouse Flow} + \text{Spill})\}}$

## 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)
06/25/99	---	---	---	---	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
07/02/99	---	---	---	---	465	110	120	21	109	892	0
07/03/99	---	---	---	---	497	100	50	29	288	14	0
07/04/99	---	---	---	---	460	60	42	23	272	0	68
07/05/99	---	---	---	---	215	45	40	23	481	175	0
07/06/99	---	---	---	---	300	31	10	18	203	12	63
07/07/99	---	---	---	---	220	40	10	9	126	19	0
07/08/99	---	---	---	---	240	15	20	11	---	19	0
<b>Total:</b>	0	0	0	0	7,743	4,956	1,597	453	3,130	3,597	591
<b># Days:</b>	0	0	0	0	14	14	14	14	13	14	14
<b>Average:</b>	0	0	0	0	553	354	114	32	241	257	42

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)
06/25/99	---	---	---	---	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
07/02/99	---	---	---	---	37	20	10	67	0	312	0
07/03/99	---	---	---	---	31	30	0	38	0	227	0
07/04/99	---	---	---	---	50	5	0	23	34	520	0
07/05/99	---	---	---	---	30	10	0	12	0	175	0
07/06/99	---	---	---	---	20	0	0	28	51	228	0
07/07/99	---	---	---	---	10	0	0	20	0	19	0
07/08/99	---	---	---	---	20	5	10	18	---	51	0
<b>Total:</b>	0	0	0	0	496	399	66	1,160	559	4,894	35
<b># Days:</b>	0	0	0	0	14	14	14	14	13	14	14
<b>Average:</b>	0	0	0	0	35	29	5	83	43	350	3

**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)	
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	
07/02/99	---	---	---	---	5	20	0	4	0	8	0	
07/03/99	---	---	---	---	0	0	10	0	0	5	0	
07/04/99	---	---	---	---	0	5	0	0	102	0	0	
07/05/99	---	---	---	---	5	0	0	0	0	0	0	
07/06/99	---	---	---	---	10	0	0	3	0	6	0	
07/07/99	---	---	---	---	15	0	0	2	0	2	0	
07/08/99	---	---	---	---	16	0	0	5	---	0	0	
<b>Total:</b>	0	0	0	0	115	313	45	101	511	312	0	
<b># Days:</b>	0	0	0	0	14	14	14	14	13	14	14	
<b>Average:</b>	0	0	0	0	8	22	3	7	39	22	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)	
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	
07/02/99	---	---	---	---	10	0	10	0	0	19	0	
07/03/99	---	---	---	---	15	0	10	0	17	34	0	
07/04/99	---	---	---	---	25	5	6	0	0	0	0	
07/05/99	---	---	---	---	5	5	10	0	0	0	0	
07/06/99	---	---	---	---	5	10	0	4	0	0	251	
07/07/99	---	---	---	---	0	10	0	0	32	3	483	
07/08/99	---	---	---	---	0	10	0	2	---	19	424	
<b>Total:</b>	0	0	0	0	109	329	81	10	254	1,236	1,235	
<b># Days:</b>	0	0	0	0	14	14	14	14	13	14	14	
<b>Average:</b>	0	0	0	0	8	24	6	1	20	88	88	

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 8, 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	16,909	2,790	15,600	1,680	15,143	1,600	0	0	0	0	0	0
TDA	17,563	6,180	25,225	518	39,635	1,617	13,253	2,082	11,593	774	12,101	1,018	0	0	0	0	0	0
JDA	15,409	5,089	21,820	378	31,309	1,325	11,981	1,610	11,615	721	10,966	958	0	0	0	0	0	0
MCN	9,258	3,961	19,415	337	30,860	1,525	8,982	1,340	11,438	648	10,705	805	0	0	0	0	0	0
IHR	5,335	2,648	12,434	130	16,094	620	3,296	1,054	5,011	231	3,863	313	0	0	0	0	0	0
LMN	3,924	2,726	10,598	131	15,276	682	2,610	1,035	3,659	217	3,511	304	0	0	0	0	0	0
LGS	3,450	2,656	10,512	118	**	**	2,628	1,067	3,607	195	**	**	0	0	0	0	**	**
LWG	3,322	2,407	9,854	109	13,146	573	2,453	1,134	3,688	199	3,490	291	0	0	0	0	0	0
PRD	4,129	744	4,124	37	9,804	151	5,057	162	6,233	92	5,873	156	0	0	0	0	0	0
RIS	3,312	915	3,187	54	7,271	160	2,020	239	3,816	143	3,263	118	0	0	0	0	0	0
RRH	1,399	252	762	54	1,670	39	687	101	1,088	23	706	31	0	0	0	0	0	0
WEL	*44	*72	6	24	902	41	47	15	136	33	232	19	0	0	0	0	0	0

DAM	Coho						Sockeye			Steelhead			
	1999		1998		10-Yr Avg.		10-Yr			10-Yr			Wild
	Adult	Jack	Adult	Jack	Adult	Jack	1999	1998	Avg.	1999	1998	Avg.	1999
BON	1	0	0	0	0	0	14,287	10,567	35,704	12,016	15,003	18,386	2,428
TDA	0	0	0	0	0	0	9,984	6,933	27,168	3,446	5,661	7,208	920
JDA	1	0	0	0	0	0	9,677	7,253	26,598	6,846	10,116	7,019	1267
MCN	0	1	0	0	0	0	7,016	6,494	25,031	2,021	4,245	5,527	261
IHR	0	0	0	0	0	0	1	0	2	1,334	2,681	3,718	361
LMN	0	0	0	0	0	0	1	0	1	812	1,983	2,965	137
LGS	0	0	0	0	**	**	2	1	**	1,064	2,316	**	326
LWG	0	0	0	0	0	0	1	0	1	3,152	4,569	5,891	559
PRD	0	0	0	0	0	0	4,262	5,387	17,042	144	83	288	***
RIS	0	0	0	0	1	0	1,316	2,329	6,623	41	89	238	52
RRH	8	0	0	0	0	0	784	763	2,350	57	132	141	42
WEL	0	0	0	0	0	0	74	221	1,291	17	8	67	7

LMN, LGS, RIS, RRH and WEL are through 07/06. PRD is through 07/07.

\*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 06/25/99 to 07/08/99**

	Yearling Chinook	Subyearling Chinook	Steelhead	Coho	Sockeye	Total
<b>LOWER GRANITE DAM</b>						
Collected	2,590	21,466	6,740	1,173	191	32,160
Bypassed	0	6	0	0	0	6
Trucked	1,585	14,798	4,819	753	105	22,060
Barged	1,123	8,113	2,333	420	59	12,048
<b>Total Transported</b>	<b>2,708</b>	<b>22,911</b>	<b>7,152</b>	<b>1,173</b>	<b>164</b>	<b>34,108</b>
<b>LITTLE GOOSE DAM</b>						
Collected	8,360	48,142	5,291	995	637	63,425
Bypassed	0	0	0	0	0	0
Trucked	4,824	26,077	1,849	684	349	33,783
Barged	5,031	31,988	4,206	348	272	41,845
<b>Total Transported</b>	<b>9,855</b>	<b>58,065</b>	<b>6,055</b>	<b>1,032</b>	<b>621</b>	<b>75,628</b>
<b>LOWER MONUMENTAL DAM</b>						
Collected	889	44,440	1,642	121	126	47,218
Bypassed	0	0	0	0	0	0
Trucked	340	29,963	607	76	86	31,072
Barged	935	21,289	1,832	105	99	24,260
<b>Total Transported</b>	<b>1,275</b>	<b>51,252</b>	<b>2,439</b>	<b>181</b>	<b>185</b>	<b>55,332</b>
<b>MCNARY DAM</b>						
Collected	2,030	1,659,916	2,010	2,409	390	1,666,755
Bypassed	0	28,182	0	0	0	28,182
Trucked	0	0	0	0	0	0
Barged	1,914	1,550,713	1,911	2,332	368	1,557,238
<b>Total Transported</b>	<b>1,914</b>	<b>1,550,713</b>	<b>1,911</b>	<b>2,332</b>	<b>368</b>	<b>1,557,238</b>
<b>PROJECT TOTALS</b>						
Collected	13,869	1,773,964	15,683	4,698	1,344	1,809,558
Bypassed	0	28,188	0	0	0	28,188
Trucked	6,749	70,838	7,275	1,513	540	86,915
Barged	9,003	1,612,103	10,282	3,205	798	1,635,391
<b>Total Transported</b>	<b>15,752</b>	<b>1,682,941</b>	<b>17,557</b>	<b>4,718</b>	<b>1,338</b>	<b>1,722,306</b>



**Transportation Summary Report  
Cumulative Transportation Summary  
through 07/08/99**

	Yearling Chinook	Subyearling Chinook	Steelhead	Coho	Sockeye	Total
<b>LOWER GRANITE DAM</b>						
Collected	2,172,394	108,847	3,347,844	78,017	17,412	5,724,514
Bypassed	115,918	6	266,363	14,608	1,640	398,535
Trucked	31,321	14,924	27,849	936	1,324	76,354
Barged	2,011,587	91,851	3,052,413	62,254	14,000	5,232,105
<b>Total Transported</b>	<b>2,042,908</b>	<b>106,775</b>	<b>3,080,262</b>	<b>63,190</b>	<b>15,324</b>	<b>5,308,459</b>
<b>LITTLE GOOSE DAM</b>						
Collected	3,529,611	107,829	3,134,256	117,045	20,910	6,909,651
Bypassed	19,783	0	158,018	4,195	299	182,295
Trucked	5,825	26,077	2,977	689	469	36,037
Barged	3,481,142	77,971	2,969,994	111,937	18,954	6,659,998
<b>Total Transported</b>	<b>3,486,967</b>	<b>104,048</b>	<b>2,972,971</b>	<b>112,626</b>	<b>19,423</b>	<b>6,696,035</b>
<b>LOWER MONUMENTAL DAM</b>						
Collected	1,892,197	64,662	1,978,293	51,111	12,830	3,999,093
Bypassed	148,537	1	251,013	7,795	596	407,942
Trucked	5,219	29,969	1,740	76	174	37,178
Barged	1,736,395	33,327	1,724,869	43,237	12,032	3,549,860
<b>Total Transported</b>	<b>1,741,614</b>	<b>63,296</b>	<b>1,726,609</b>	<b>43,313</b>	<b>12,206</b>	<b>3,587,038</b>
<b>M McNARY DAM</b>						
Collected	2,103,851	2,634,291	535,735	140,305	782,190	6,196,372
Bypassed	2,098,392	767,245	532,579	137,083	781,069	4,316,368
Trucked	0	0	0	0	0	0
Barged	2,921	1,783,127	2,863	3,073	515	1,792,499
<b>Total Transported</b>	<b>2,921</b>	<b>1,783,127</b>	<b>2,863</b>	<b>3,073</b>	<b>515</b>	<b>1,792,499</b>
<b>PROJECT TOTALS</b>						
Collected	9,698,053	2,915,629	8,996,128	386,478	833,342	22,829,630
Bypassed	2,382,630	767,252	1,207,973	163,681	783,604	5,305,140
Trucked	42,365	70,970	32,566	1,701	1,967	149,569
Barged	7,232,045	1,986,276	7,750,139	220,501	45,501	17,234,462
<b>Total Transported</b>	<b>7,274,410</b>	<b>2,057,246</b>	<b>7,782,705</b>	<b>222,202</b>	<b>47,468</b>	<b>17,384,031</b>