



Fish Passage Center

Weekly Report #99 - 21

July 30, 1999

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SUMMARY OF EVENTS:

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

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

- Hungry Horse is passing inflow after drafting during last week. It is projected to commence draft for summer flow augmentation at the beginning of August. The most current flow projections are showing that the COE is operating the reservoir according to the Integrated Rule Curves, defined by the State of Montana. Flow forecasts are showing that the reservoir will be drafted to an elevation of 3550 ft by the end of August, instead of an elevation of 3540 ft as required by the Biological Opinion. Current outflows for the period July 23 through 29 were in the range of 0.19 kcfs to 4.33 kcfs.
- Libby continues to refill, with minimum required outflows of 8 kcfs, as required for bull trout through the end of July. The most recent flow projections are showing that Libby reservoir will be refilled by the end of July to an elevation of 2456.8 ft and that the reservoir will start drafting on August 2 for summer flow augmentation. The most recent COE projections are showing that the reservoir will be drafted only to an elevation of 2449.3 ft by the end of August, as defined by the Integrated Rule Curves, instead of an elevation of 2440 ft, as defined by the Biological Opinion, impacting flows in the Lower Columbia River.

- Arrow reservoir continued with outflows of 60 to 66 kcfs during the past week. The plan is to continue with outflows in the range of 65 kcfs to 75 kcfs during the coming week. The reservoir is operated under the USA-Canadian Treaty.
- Grand Coulee reservoir is operating in the top two feet. The most recent flow projections are showing that flow augmentation will commence on August 1st. Daily average outflows were in the range of 135.2 kcfs to 164.3 kcfs in the period of July 23 through 29.
- Dworshak reservoir commenced drafting for flow augmentation at Lower Granite on July 16 and is currently operating with full powerhouse capacity. The reservoir was refilled only to an elevation of 1593.35 ft as of July 16 instead of full pool elevation of 1600 ft as required by the Biological Opinion. Spring flow management for flood control resulted in failure to refill the reservoir as required by the BiOp by the end of June. The reservoir will draft at a rate of 19 kcfs in the coming week, starting on July 30.
- Brownlee reservoir continued drafting for flow augmentation at Lower Granite. The reservoir was drafted at an approximate rate of 1-1.22 ft/day. Idaho Power Company delivered its portion of the flow augmentation required by the BiOp by the end of July. It is projected that the reservoir will be passing the inflow during the first week of August.

A summary of the current elevations on July 29 is given in the following Table:

Reservoir	Actual elev. As of July 29	Max Reservoir pool [ft]
<i>Libby</i>	2455.95	2459
<i>Hungry Horse</i>	3560.28	3560
<i>Grand Coulee</i>	1287.50	1290
<i>Brownlee</i>	2057.30	2077
<i>Dworshak</i>	1580.52	1600

*as of July 27

Upper Snake reservoirs:

Flow augmentation to increase flow at Lower Granite began at the Upper Snake on July 1. High temperatures in the basin continue, resulting in high irrigation withdrawals at diversions. It is anticipated by the BOR that flow augmentation will continue through the beginning of September at a rate of 1.5 kcfs from Milner. The system is currently at 88% of capacity. The major draft for flow augmentation is from American Falls reservoir, currently at 75% of full capacity.

Boise and Payette River Basins:

The Boise River system (Anderson Ranch, Arrowrock and Lucky Peak) is at 89% of capacity. The daily average outflow from the Boise River system is at rates in the range of 1 kcfs to 1.4 kcfs, with a portion of flow augmentation of 400 cfs. Flow augmentation commenced about July 5 and it is anticipated that it will continue through August 29. The Payette River system (Cascade, Deadwood) is at 93% of capacity. The daily average outflow from the Payette river system decreased from 1.6 kcfs (as of July 22) to 1.3 kcfs (as of July 29).

Streamflow: The Biological Opinion summer flow targets are: 53.96 kcfs at Lower Granite and 200 kcfs at McNary. Flows at Lower Granite were decreasing from 51.4 kcfs to 44.4 kcfs during the week of July 23-29. Flow augmentation from all reservoirs in the Snake River basin is under way. McNary daily average flows continued fluctuating during the past week from 220.7 kcfs on July 26 to 248.6 kcfs on July 24. Flows in the basin are receding.

The weekly average discharges for the major run-of-river projects for the July 16-29 period are given in the following Table:

Project	Average Discharge [kcfs]	
	July 23-29	July 16-22
<i>Priest Rapids</i>	175.6	189.3
<i>McNary</i>	231.7	243.6
<i>Lower Granite</i>	47.5	52.9
<i>Bonneville</i>	234.4	254.4

Spill: Outflow from Dworshak Dam during the past week exceeded hydraulic capacity for flow augmentation, but total discharge was limited by the 110% total dissolved gas criteria to about 12.8 Kcfs. A letter was sent by EPA to the COE allowing for gas levels to increase to 120% TDGS until August 8. Dworshak outflow will increase to 19 Kcfs at midnight on July 30, 1999 as per SOR #99-19. The Biological Opinion summer spill program in the Snake is being implemented at Ice Harbor Dam.

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

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

Smolt Monitoring. In the Snake River, subyearling chinook passage indices at Lower Granite and Little Goose dams continued the increasing trend begun last week, reaching levels near or above 5,000 fish daily for four days this week at both sites. This week's Lower Granite Dam PIT tag detections of wild fall chinook tagged in the Snake River averaged 20 fish per day during July 23-25 before dropping back to 8 fish per day, a lower level closer to last week's average. This week's Lower Granite Dam PIT tag detections of hatchery fall chinook average 33 fish per day for fish released from Big Canyon Creek acclimation pond (similar to last week's average) and 10 fish per day for fish released from Captain Johns Rapids acclimation pond (double last week's average). Subyearling chinook passage indices at Lower Monumental Dam dropped nearly in half this week from last week's level. But given the increase in passage at the upstream dams, we should see another increase in subyearling chinook passage at Lower Monumental Dam later.

In the mid-Columbia River, this week's subyearling chinook passage indices at Rock Island Dam decreased an average of 20% from last week's level.

In the lower Columbia River, subyearling chinook passage indices at McNary Dam dropped in half from last week's level, and now average about 40,000 fish per day. Subyearling chinook passage indices at John Day and Bonneville dams saw a small decrease this week, dropping less than 10% from last week's level.

Adult Fish Passage: Summer chinook counts at Bonneville Dam ranged between 252 and 460 for the week 7/23 through 7/29. The cumulative count of adult summer chinook at Bonneville Dam was 25,584 about 121% and 127% of the respective 1998 count and 10-year average through July 29. The summer chinook count at The Dalles, John Day and McNary dams was 21,427, 20,775, and 16,962 respectively. The turnoff into the Snake River (Ice Harbor Dam count) was 3,751, with 17,102 summer chinook counted into the Mid-Columbia (Priest Rapids Dam count). The Snake River total was less than the 1998 count and 10-year average while the Mid-Columbia count surpassed the 1998 and 10-year average at Priest Rapids Dam by about 40%.

Most sockeye have passed the lower Columbia River projects and are now above Rock Island Dam. Based on the sockeye counts at Rock Island and Rocky Reach dams, it appears that about 80% have continued past Rocky Reach Dam and are destined for Lake Osoyoos (Okanogan R basin). About 20% of the sockeye should have turned off into the Wenatchee River and would be passing up to the Wenatchee Lake basin. At Snake River projects, the sockeye count at Lower Granite Dam is now 13 with these sockeye mainly comprised of adipose clipped fish that were approximately 17 inches in length. These sockeye should be off spring of hatchery sockeye released in fall 1997 and spring 1998 from the upper Salmon River lakes, i.e., Red Fish Lake, Alturas Lake, or Pettit Lake.

The A-Run steelhead counts increased through the week at Bonneville Dam with daily

tallies ranging between 1,977 and 3,132. Counts exceeded 3,000 per day through the latter part of the week with the average count being 2,520 per day. Through July 29, the cumulative count at Bonneville Dam was 48,743, and surpassed the 1998 count and was up to 96.5% of the 10-year average. The counts of wild steelhead ranged between 861 and 1,365 during the past week at Bonneville Dam. About 38.6% of the steelhead count to date at Bonneville Dam have been "wild" fish based on the presence of the adipose fin. About 48% of The Dalles passage were tallied as "wild" steelhead. Steelhead numbers have increased at lower Columbia River projects through the week. However, the steelhead count at Ice Harbor reduced from 200 per day early in the week to about 150 per day at the end of the week. The steelhead count at Priest Rapids Dam remains fairly low to date with daily counts below 50 to date. Overall, the 1999 counts are near the 1998 count but less than one half the 10-year average.

A couple of coho salmon were counted at Bonneville Dam this past week. The good news on coho is that this year's run should be much improved over the past few years. The Technical Advisory Committee (TAC) projected an early stock return of coho to be 235,300 with the late stock projected at 90,600 to the mouth of the Columbia River. Both the early and late stock projections are the highest since 1991 and 1992. We assume that higher numbers in the lower river will equate to increased numbers of coho passing Bonneville Dam and migrating to upriver hatcheries and tributaries.

Hatchery Releases: No releases were scheduled for the next two weeks. Numbers of juvenile hatchery fish released either in 1999 or late summer or fall 1998 that were expected to migrate in 1999 can be found in the FPC Web Page under 1999 Hatchery Release Schedule.

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

Date	Grand Coulee		Chief Joseph		Wells		Rocky Reach		Rock Island		Wanapum		Priest Rapids	
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
07/16/99	178.0	0.1	177.1	0.0	190.6	15.1	198.8	32.9	204.3	20.5	213.7	55.6	220.4	89.5
07/17/99	129.3	0.1	136.6	0.0	156.0	10.7	165.5	15.8	173.6	20.5	183.3	28.2	194.5	78.4
07/18/99	154.2	0.1	153.4	0.0	159.3	10.7	159.1	6.6	161.8	20.5	162.2	16.4	164.6	66.9
07/19/99	156.3	0.1	156.9	0.0	167.6	11.6	166.8	1.5	176.6	20.5	178.1	19.1	185.9	74.8
07/20/99	147.5	0.1	155.0	0.0	167.7	11.6	175.0	11.4	179.1	20.5	177.6	23.5	186.2	76.2
07/21/99	149.0	0.1	144.8	0.0	159.4	11.6	168.9	18.2	176.6	20.5	183.0	24.2	194.9	78.9
07/22/99	149.0	0.1	152.3	0.0	161.9	11.6	174.9	17.7	172.5	20.5	172.4	15.8	178.3	69.9
07/23/99	164.0	0.1	164.0	0.0	173.5	11.6	179.7	20.3	182.9	20.5	181.9	20.7	186.3	75.7
07/24/99	127.1	0.1	135.7	0.0	153.0	11.6	164.9	13.5	172.1	20.2	184.0	24.4	192.0	77.1
07/25/99	130.1	0.1	127.9	0.0	137.4	10.7	140.6	0.0	147.1	20.3	148.7	15.2	151.6	62.6
07/26/99	153.6	0.1	150.7	0.0	161.8	11.6	164.0	0.3	167.4	20.4	165.7	14.5	169.5	69.7
07/27/99	164.3	0.1	161.2	4.1	171.6	11.6	171.9	5.8	174.4	20.3	176.6	17.0	179.7	71.6
07/28/99	141.5	0.1	157.9	0.0	169.8	11.6	180.4	16.8	185.5	20.2	189.5	28.2	191.9	77.5

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

Date	Dworshak		Hells Canyon		Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill	Inflow	Outflow	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
07/16/99	6.6	0.0	13.4	18.7	53.2	0.0	51.7	0.0	53.7	0.0	56.3	44.8
07/17/99	9.0	0.0	12.4	22.3	52.1	0.0	52.2	0.0	54.5	0.0	57.7	46.1
07/18/99	9.8	0.7	13.2	22.4	54.4	0.0	55.6	0.0	59.4	0.0	61.8	53.9
07/19/99	13.2	3.7	13.1	19.8	53.0	0.7	52.2	0.0	53.2	0.0	57.5	43.3
07/20/99	13.9	4.4	13.4	18.7	54.6	0.0	53.3	0.0	54.5	0.0	54.5	43.3
07/21/99	13.6	4.1	13.3	16.4	51.4	0.0	51.1	0.0	53.3	0.0	57.9	46.0
07/22/99	13.4	3.9	13.2	17.2	51.3	0.0	51.9	0.0	54.2	0.0	58.6	49.1
07/23/99	13.3	3.7	12.9	16.6	51.4	0.0	52.8	0.0	56.1	0.0	58.5	50.0
07/24/99	12.9	3.3	12.7	18.0	48.6	0.0	48.2	0.0	49.1	0.0	52.2	42.5
07/25/99	12.7	3.1	13.0	16.7	47.8	0.0	48.0	0.0	50.7	0.0	53.5	42.8
07/26/99	12.8	3.2	12.1	19.8	47.5	0.0	47.4	0.0	48.6	0.0	51.3	39.6
07/27/99	12.8	3.2	12.5	21.3	46.4	0.0	48.3	0.0	52.2	0.0	56.2	44.2
07/28/99	12.8	3.2	---	20.2	46.2	0.0	45.2	0.0	44.5	0.0	47.3	35.5

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

Date	McNary		John Day		The Dalles		Bonneville		PH1	PH2
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill		
07/16/99	268.3	109.0	258.9	62.0	262.0	166.5	267.1	85.1	78.1	94.7
07/17/99	262.9	104.9	248.7	69.0	245.5	153.3	260.4	83.2	77.0	91.0
07/18/99	250.8	91.8	261.5	69.0	260.2	100.3	267.3	82.8	78.2	97.1
07/19/99	228.0	94.1	249.0	66.9	247.3	74.0	255.1	81.2	79.3	85.4
07/20/99	231.6	107.5	234.0	62.4	229.3	66.3	238.2	80.6	74.1	74.3
07/21/99	242.7	120.7	234.1	59.5	229.4	126.7	237.1	80.3	78.4	69.2
07/22/99	221.1	99.3	234.9	59.0	242.2	154.3	255.8	80.6	68.9	97.2
07/23/99	232.9	111.2	231.0	60.3	232.0	146.0	221.3	84.0	77.8	50.3
07/24/99	248.6	125.6	233.5	62.0	231.2	147.0	232.4	86.5	81.9	54.9
07/25/99	229.9	106.6	242.5	65.3	247.9	159.2	252.1	87.9	87.3	67.7
07/26/99	220.7	99.4	230.8	59.3	225.2	145.1	246.4	85.6	78.6	73.0
07/27/99	238.2	112.1	231.7	61.1	223.9	142.5	211.7	86.8	62.8	52.9
07/28/99	225.9	101.8	212.6	58.2	213.1	133.9	219.1	87.7	62.6	59.6

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>Tlwttr G. Coulee</u>				<u>Chief Joseph</u>				<u>Tlwttr 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>		
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	
7/16	120	121	122	24	117	117	118	24	113	114	114	24	115	115	115	24	113	114	115	24
7/17	121	121	122	24	117	118	118	24	114	114	114	24	115	115	115	24	114	115	115	24
7/18	121	121	122	24	117	117	117	24	113	114	114	24	113	114	114	22	112	113	114	23
7/19	122	123	125	24	117	118	118	24	113	114	114	24	114	115	115	23	113	113	114	23
7/20	120	121	124	24	118	118	119	24	114	114	115	24	115	115	115	23	114	115	116	23
7/21	122	122	123	24	118	118	118	24	114	114	115	24	114	115	115	23	113	114	116	23
7/22	122	122	123	24	117	117	118	24	114	114	115	24	114	114	114	23	113	114	115	23
7/23	120	121	121	24	117	117	118	24	114	114	115	24	114	114	115	24	113	114	115	23
7/24	120	121	121	24	117	118	118	24	114	115	115	24	114	115	115	24	114	115	116	24
7/25	119	120	121	23	117	117	117	23	114	114	115	23	114	114	115	23	113	114	114	23
7/26	120	120	121	22	117	117	117	22	114	114	115	20	114	115	115	23	113	113	114	23
7/27	121	122	124	24	117	118	118	24	114	114	115	21	115	116	116	23	115	115	121	23
7/28	123	124	124	24	117	117	118	24	114	114	115	8	115	115	115	23	113	114	115	23
7/29	120	121	122	24	117	117	118	24	114	114	115	24	114	115	115	23	114	114	115	23

Total Dissolved Gas Saturation Data at Mid Columbia River Sites

Date	<u>Wells</u>			<u>Rocky Reach</u>				<u>Tlwttr Rocky R.</u>				<u>Rock Island</u>				<u>Tlwttr 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>		
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	
7/16	---	---	---	0	111	111	112	23	113	114	115	23	112	112	114	24	118	119	120	24
7/17	---	---	---	0	110	110	111	24	113	114	116	24	110	111	112	24	117	118	118	24
7/18	---	---	---	0	108	109	110	24	112	113	116	24	108	109	110	24	116	116	117	24
7/19	---	---	---	0	109	110	110	24	112	113	114	24	109	110	110	24	117	117	118	23
7/20	---	---	---	0	110	111	112	24	113	114	115	20	110	110	111	24	117	117	117	23
7/21	---	---	---	0	110	110	111	24	113	114	114	22	110	111	112	24	117	118	118	24
7/22	---	---	---	0	110	110	111	23	113	113	113	22	110	111	112	23	117	117	118	23
7/23	---	---	---	0	110	111	111	20	113	113	114	20	111	111	112	20	117	117	118	20
7/24	---	---	---	0	110	110	111	24	113	113	114	23	111	111	112	24	116	116	117	24
7/25	---	---	---	0	110	110	111	22	111	111	111	19	108	108	109	23	114	115	115	23
7/26	---	---	---	0	109	110	111	21	111	112	113	21	108	108	110	21	114	114	115	21
7/27	---	---	---	0	110	111	112	21	113	113	114	20	110	110	111	23	115	116	116	22
7/28	---	---	---	0	111	112	112	24	114	114	114	23	110	110	111	23	116	116	117	23
7/29	---	---	---	0	111	111	112	23	114	114	114	22	109	110	111	23	118	119	121	23

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>		
	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>Avg</u>	<u>Avg</u>	<u>High</u>	<u>hr</u>	
7/16	115	115	116	24	119	120	121	24	118	121	122	24	120	121	122	24	103	104	105	24
7/17	115	115	116	24	117	119	121	24	119	121	122	24	120	121	121	24	102	103	104	24
7/18	113	114	115	24	114	115	115	24	114	115	116	24	117	117	118	24	103	104	105	24
7/19	114	115	116	24	115	116	116	24	115	116	118	24	118	119	120	24	108	109	112	16
7/20	114	115	116	24	116	116	117	24	116	117	118	24	119	119	119	7	112	112	112	24
7/21	113	113	114	24	115	115	117	24	115	116	117	24	119	119	119	24	110	111	111	24
7/22	113	115	117	24	114	115	116	23	114	115	118	24	117	118	118	24	110	110	111	24
7/23	115	116	117	24	115	116	117	24	114	115	116	24	118	119	119	24	107	107	107	5
7/24	113	114	115	24	114	116	118	24	115	116	117	24	119	119	119	24	---	---	---	0
7/25	111	111	112	24	111	112	112	24	111	112	113	24	115	116	117	24	110	110	111	13
7/26	113	115	116	24	113	114	115	24	112	113	114	24	117	118	119	24	109	110	110	24
7/27	114	115	116	24	114	114	115	24	114	115	115	24	118	119	120	24	110	110	110	24
7/28	113	114	115	24	114	115	116	24	114	115	117	24	118	119	120	24	109	109	110	17
7/29	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	111	111	111	24

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

Total Dissolved Gas Saturation Data at Clearwater and Snake River Sites

Date	<u>Clearwater</u>			<u>Anatone</u>			<u>Snake-Lewiston</u>			<u>Lower Granite</u>			<u>Tlwtr L. Granite</u>							
	24 h	12 h	#	24 h	12 h	#	24 h	12 h	#	24 h	12 h	#	24 h	12 h	#					
	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr				
7/16	103	104	105	24	103	104	105	24	103	104	105	24	104	104	106	24	102	103	103	24
7/17	102	103	104	24	103	103	105	24	103	104	106	24	101	101	104	24	100	101	102	24
7/18	103	104	105	24	103	104	105	24	103	105	106	24	102	103	104	24	100	101	101	24
7/19	105	106	109	16	103	104	105	24	104	106	108	24	104	106	108	24	101	102	103	24
7/20	108	109	110	24	103	104	105	24	105	107	109	24	105	106	109	24	102	102	103	24
7/21	107	108	109	24	103	103	104	24	105	106	108	24	107	108	110	24	102	103	103	24
7/22	107	108	109	24	103	104	105	24	105	107	109	24	107	108	109	24	103	103	104	24
7/23	107	107	107	5	102	102	102	5	103	103	103	5	106	107	109	24	103	103	104	24
7/24	---	---	---	0	---	---	---	0	---	---	---	0	104	104	105	24	102	103	103	24
7/25	---	---	---	0	---	---	---	0	---	---	---	0	103	103	104	21	102	103	103	24
7/26	107	108	109	24	104	105	106	22	106	108	109	24	106	108	111	23	103	104	104	24
7/27	107	108	109	24	104	105	106	24	106	108	109	24	107	107	108	24	103	103	103	24
7/28	107	107	109	17	104	105	106	24	106	108	109	24	105	107	109	24	102	103	104	24
7/29	109	109	111	24	103	103	106	24	106	108	109	24	106	106	107	21	103	104	104	24

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>							
	24 h	12 h	#	24 h	12 h	#	24 h	12 h	#	24 h	12 h	#	24 h	12 h	#					
	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr				
7/16	104	104	106	24	101	101	102	24	104	105	107	24	103	103	104	24	104	104	105	24
7/17	102	102	104	24	101	101	101	24	102	102	104	24	101	102	102	24	102	103	104	24
7/18	103	105	108	24	99	100	100	24	102	104	107	24	101	102	102	24	102	102	103	24
7/19	104	105	109	24	100	100	100	24	103	104	106	24	101	102	103	24	103	104	106	24
7/20	103	104	106	24	100	100	100	24	102	103	105	24	101	101	101	24	102	102	103	24
7/21	101	102	104	24	99	99	99	24	101	102	102	24	100	101	102	24	101	102	104	24
7/22	100	100	102	24	98	98	98	24	101	102	103	24	100	101	102	24	101	102	102	24
7/23	100	100	102	24	97	98	98	24	101	102	104	24	100	100	101	24	101	101	103	24
7/24	100	100	102	24	98	98	99	24	101	101	102	13	99	99	100	13	101	101	103	24
7/25	100	101	101	24	98	98	98	24	---	---	---	0	---	---	---	0	100	101	102	24
7/26	102	102	106	24	99	99	100	24	100	100	101	24	99	99	100	24	100	101	102	24
7/27	103	104	106	24	99	100	100	24	102	103	106	24	100	101	102	24	100	101	102	24
7/28	102	103	105	24	99	100	100	24	102	102	104	24	99	100	101	24	100	101	102	24
7/29	102	103	106	24	99	100	100	24	101	101	102	24	99	100	100	24	99	100	102	24

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>							
	24 h	12 h	#	24 h	12 h	#	24 h	12 h	#	24 h	12 h	#	24 h	12 h	#					
	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr				
7/16	109	110	111	24	---	---	---	0	111	112	113	24	112	113	114	24	118	120	121	24
7/17	110	111	112	24	---	---	---	0	110	110	111	24	111	111	112	24	119	119	120	24
7/18	111	112	113	24	---	---	---	0	110	111	113	24	110	112	113	24	118	119	119	24
7/19	109	113	113	24	---	---	---	0	110	111	113	24	112	113	114	24	118	119	120	24
7/20	111	112	113	24	---	---	---	0	112	113	114	23	114	115	115	24	120	121	121	24
7/21	112	113	113	24	---	---	---	0	112	113	115	22	113	114	115	24	119	120	121	24
7/22	112	113	113	24	---	---	---	0	112	113	118	24	113	114	115	24	119	119	120	24
7/23	113	114	115	24	---	---	---	0	113	115	120	22	114	115	118	23	120	120	121	23
7/24	112	113	114	24	---	---	---	0	112	112	112	23	113	115	117	24	120	121	121	24
7/25	112	113	114	24	---	---	---	0	111	112	115	23	111	111	113	24	120	121	129	19
7/26	111	113	114	24	---	---	---	0	110	111	114	21	111	112	113	15	118	120	120	21
7/27	112	113	114	24	---	---	---	0	111	112	115	24	113	115	117	24	119	121	121	24
7/28	110	112	114	24	---	---	---	0	114	117	120	24	113	114	115	24	118	119	120	24
7/29	110	111	112	24	---	---	---	0	113	114	116	24	113	114	114	24	118	119	121	24

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>#</u>	<u>24 h</u>	<u>12 h</u>		<u>#</u>	<u>24h</u>	<u>12h</u>		<u>#</u>	<u>24h</u>	<u>12h</u>		<u>#</u>	<u>24h</u>	<u>AVG</u>	<u>High</u>	<u>hr</u>
	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	AVG	High	hr
7/16	109	110	111	24	113	117	119	24	110	112	115	24	117	118	118	24	109	112	114	24
7/17	106	107	107	24	112	118	119	24	108	110	111	24	117	117	118	24	111	112	114	24
7/18	108	110	112	23	113	119	120	24	108	112	115	23	116	118	118	24	111	112	113	23
7/19	110	111	112	23	114	118	119	24	110	114	116	23	115	117	118	24	114	115	115	23
7/20	108	108	109	23	113	117	119	24	110	112	114	23	114	116	117	24	113	115	116	23
7/21	107	108	108	23	113	118	120	24	109	111	114	23	116	118	120	24	110	111	112	23
7/22	108	108	109	23	113	118	120	24	109	112	114	23	118	119	119	24	110	110	111	23
7/23	109	109	109	24	114	118	120	24	109	111	114	24	118	119	120	24	113	114	114	23
7/24	109	109	110	24	113	118	121	24	107	108	109	24	117	118	120	24	110	111	112	23
7/25	108	109	111	23	114	119	120	24	108	112	114	23	118	119	120	24	110	110	110	23
7/26	111	112	113	23	114	118	120	24	110	113	115	23	118	119	120	24	113	114	114	23
7/27	110	110	111	23	114	117	120	21	110	112	113	22	119	119	120	24	115	116	116	23
7/28	109	109	109	23	115	121	124	24	109	111	113	23	118	119	120	24	112	113	113	23
7/29	109	110	111	23	114	118	119	24	108	110	111	23	117	118	120	24	110	111	111	23

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>#</u>	<u>24 h</u>	<u>12 h</u>		<u>#</u>	<u>24h</u>	<u>12h</u>		<u>#</u>
	Avg	Avg	High	hr	Avg	Avg	High	hr	Avg	Avg	High	hr
7/16	114	115	116	24	115	116	116	23	113	114	115	24
7/17	112	114	116	24	114	116	117	24	116	118	119	24
7/18	112	113	114	23	113	114	115	23	116	118	120	24
7/19	114	115	116	22	116	116	117	23	118	121	122	24
7/20	113	114	115	23	115	117	118	23	117	119	121	24
7/21	111	112	113	23	113	114	115	23	114	115	117	24
7/22	112	112	114	23	113	113	114	23	112	113	114	24
7/23	114	115	116	23	116	117	118	23	113	115	117	23
7/24	113	114	115	24	114	116	117	24	112	113	114	24
7/25	112	113	114	23	114	115	117	23	112	114	115	24
7/26	114	114	116	23	115	116	117	23	113	116	117	24
7/27	116	118	119	23	117	118	120	23	115	117	119	24
7/28	115	116	118	23	116	117	119	23	115	116	118	24
7/29	113	114	115	23	114	115	117	23	112	113	115	24

Gas Bubble Trauma Monitoring Results from Representative Sites for Steelhead and Subyearling chinook on the Columbia River

Site	Date	Species	Number of Fish	Number w GBT signs	Number w Fin Signs	% Fin GBT	% Severe Fin GBT	Number of Fish with Fin GBT Listed by Highest Rank				Fish with L. Line GBT	
								Rank 1	Rank 2	Rank 3	Rank 4	Num Fish	Avg. Rank
McNary Dam													
	07/22/99	Subyearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0.0
	07/26/99	Subyearling Chinook	100	2	0	0.00%	0.00%	0	0	0	0	2	1.0
	07/29/99	Subyearling Chinook	100	1	0	0.00%	0.00%	0	0	0	0	0	0.0
Bonneville Dam													
	07/22/99	Subyearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0.0
	07/26/99	Subyearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0.0
	07/29/99	Subyearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0.0
Rock Island Dam													
	07/22/99	Subyearling Chinook	100	3	3	3.00%	0.00%	1	2	0	0	0	0.0
	07/27/99	Subyearling Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0.0
	07/29/99	Subyearling Chinook	100	2	2	2.00%	0.00%	2	0	0	0	0	0.0

Two-Week Summary of Passage Indices

Yearling Chinook

Date	Hatchery							Hatchery/Wild Combined			
	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO1 (INDEX)
07/16/99	---	---	---	---	40	24	8	0	6	13	0
07/17/99	---	---	---	---	12	32	4	2	36	1	0
07/18/99	---	---	---	---	8	8	0	0	16	3	0
07/19/99	---	---	---	---	12	28	0	0	48	0	0
07/20/99	---	---	---	---	12	52	0	3	0	0	0
07/21/99	---	---	---	---	0	0	0	0	0	0	0
07/22/99	---	---	---	---	36	30	0	0	102	0	0
07/23/99	---	---	---	---	25	21	0	0	0	68	0
07/24/99	---	---	---	---	40	10	0	0	59	0	0
07/25/99	---	---	---	---	10	10	0	0	0	0	0
07/26/99	---	---	---	---	10	30	0	1	0	199	0
07/27/99	---	---	---	---	0	0	0	1	0	0	0
07/28/99	---	---	---	---	10	21	4	0	0	0	0
07/29/99	---	---	---	---	0	11	0	0	0	0	0
Total:	0	0	0	0	215	277	16	7	267	284	0
# Days:	0	0	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	15	20	1	1	19	20	0

Wild Yearling Chinook

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)
07/16/99	---	---	---	---	24	40	16
07/17/99	---	---	---	---	20	60	0
07/18/99	---	---	---	---	20	40	16
07/19/99	---	---	---	---	4	120	6
07/20/99	---	---	---	---	8	90	36
07/21/99	---	---	---	---	20	140	36
07/22/99	---	---	---	---	36	100	12
07/23/99	---	---	---	---	8	50	0
07/24/99	---	---	---	---	0	100	0
07/25/99	---	---	---	---	30	60	0
07/26/99	---	---	---	---	0	180	0
07/27/99	---	---	---	---	10	80	0
07/28/99	---	---	---	---	10	140	8
07/29/99	---	---	---	---	10	41	16
Total:	0	0	0	0	200	1,241	146
# Days:	0	0	0	0	14	14	14
Average:	0	0	0	0	14	89	10

The data presented in the following passage index section is preliminary and has been derived from various sources. For verification and/or origin of data, contact the operators of the Fish Passage Data System at (503) 230-4099.

Smolt indices, wild & hatchery or combined, are presented in the following order: yearling chinook (chinook 1's), subyearling chinook (chinook 0's), steelhead, coho, and sockeye. Two classes of fish counts are shown in these tables: collection counts, which account for sample rates but are not adjusted for flow; and passage indices, which are collection counts divided by the proportion of water passing through the sampling system. Collection counts may be constrained due to sampling effort or river flow. Passage indices are not population estimates, but are used to adjust collection counts for daily fluctuations in the site's or project's operations. The classes of counts presented in the report are defined below for each site. Most samples occur over a 24 hour period that spans two calendar days. In this report, the date shown corresponds with the sample end date.

Two-Week Summary of Passage Indices

Combined Subyearling Chinook

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO1 (INDEX)
07/16/99	---	---	---	---	3,168	1,083	2,868	269	78,275	47,295	10,897
07/17/99	---	---	---	---	2,760	1,288	4,020	254	93,767	38,731	14,702
07/18/99	---	---	---	---	2,240	1,620	3,504	193	62,080	52,906	9,538
07/19/99	---	---	---	---	3,204	2,401	5,724	374	115,229	23,822	6,667
07/20/99	---	---	---	---	2,745	3,240	3,612	676	130,997	14,502	13,969
07/21/99	---	---	---	---	3,792	2,998	3,432	614	74,250	15,919	6,221
07/22/99	---	---	---	---	4,464	3,454	2,370	207	51,318	24,856	6,717
07/23/99	---	---	---	---	5,449	3,170	2,676	207	39,833	31,546	14,613
07/24/99	---	---	---	---	4,360	5,171	2,088	168	48,905	29,882	11,342
07/25/99	---	---	---	---	5,800	4,965	3,152	177	30,719	38,886	9,237
07/26/99	---	---	---	---	5,550	5,197	1,792	217	30,060	33,552	7,665
07/27/99	---	---	---	---	3,476	3,194	1,428	363	42,878	28,987	7,352
07/28/99	---	---	---	---	5,010	5,123	1,580	441	47,349	21,711	6,907
07/29/99	---	---	---	---	3,630	3,338	1,056	486	40,089	12,988	9,456
Total:	0	0	0	0	55,648	46,242	39,302	4,646	885,749	415,583	135,283
# Days:	0	0	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	3,975	3,303	2,807	332	63,268	29,685	9,663

All Coho

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO1 (INDEX)
07/16/99	---	---	---	---	32	12	0	2	103	3	0
07/17/99	---	---	---	---	24	20	12	0	71	0	33
07/18/99	---	---	---	---	8	8	0	2	16	14	0
07/19/99	---	---	---	---	8	4	0	0	16	0	0
07/20/99	---	---	---	---	20	27	0	3	0	0	31
07/21/99	---	---	---	---	8	20	0	2	0	0	29
07/22/99	---	---	---	---	8	0	0	0	0	0	0
07/23/99	---	---	---	---	17	10	0	0	0	0	0
07/24/99	---	---	---	---	10	10	0	0	0	0	27
07/25/99	---	---	---	---	20	10	0	3	0	0	28
07/26/99	---	---	---	---	0	0	0	1	36	0	0
07/27/99	---	---	---	---	0	10	0	3	0	0	0
07/28/99	---	---	---	---	20	10	0	3	0	0	0
07/29/99	---	---	---	---	10	0	4	0	0	0	20
Total:	0	0	0	0	185	141	16	19	242	17	168
# Days:	0	0	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	13	10	1	1	17	1	12

Definitions for Smolt Index Counts

WTB (Collection) = Salmon River Trap at Whitebird : Collection Counts
 IMN (Collection) = Imnaha River Trap : Collection Counts
 GRN (Collection) = Grande Ronde River Trap : Collection Counts
 LEW (Collection) = Snake River Trap at Lewiston : Collection Counts
 LGR (Index) = Lower Granite Dam Bypass Collection System : Passage Index Counts : Passage Index = (Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill) })
 LGS (Index) = Little Goose Bypass Collection System : Passage Index Counts : Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill) }
 LMN (Index) = Lower Monumental Dam Bypass Collection System : Passage Index Counts : Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill) }

Two-Week Summary of Passage Indices

Hatchery Steelhead											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO1 (INDEX)
07/16/99	---	---	---	---	300	22	4	10	91	3	0
07/17/99	---	---	---	---	284	48	32	5	71	0	0
07/18/99	---	---	---	---	200	32	16	2	81	0	0
07/19/99	---	---	---	---	208	32	12	5	96	0	0
07/20/99	---	---	---	---	190	11	30	0	0	0	0
07/21/99	---	---	---	---	248	51	24	5	0	0	0
07/22/99	---	---	---	---	176	80	6	8	0	0	0
07/23/99	---	---	---	---	202	20	6	8	0	0	0
07/24/99	---	---	---	---	200	10	18	20	118	0	0
07/25/99	---	---	---	---	210	21	16	4	123	0	0
07/26/99	---	---	---	---	360	20	8	3	0	0	0
07/27/99	---	---	---	---	171	40	8	0	0	0	0
07/28/99	---	---	---	---	130	40	8	3	76	0	0
07/29/99	---	---	---	---	160	31	12	2	113	0	0
Total:	0	0	0	0	3,039	458	200	75	769	3	0
# Days:	0	0	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	217	33	14	5	55	0	0

Wild Steelhead											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO1 (INDEX)
07/16/99	---	---	---	---	16	2	0	3	0	3	0
07/17/99	---	---	---	---	16	4	0	3	0	219	0
07/18/99	---	---	---	---	12	0	0	2	0	221	0
07/19/99	---	---	---	---	24	4	0	3	16	207	0
07/20/99	---	---	---	---	4	0	0	1	0	0	0
07/21/99	---	---	---	---	12	0	0	10	0	40	0
07/22/99	---	---	---	---	8	10	0	6	0	80	0
07/23/99	---	---	---	---	0	0	0	3	0	0	0
07/24/99	---	---	---	---	10	10	0	2	0	0	0
07/25/99	---	---	---	---	0	0	4	3	0	0	0
07/26/99	---	---	---	---	0	0	4	0	0	0	0
07/27/99	---	---	---	---	10	10	0	0	0	0	0
07/28/99	---	---	---	---	10	10	0	0	0	0	0
07/29/99	---	---	---	---	10	0	0	2	0	0	0
Total:	0	0	0	0	132	50	8	38	16	770	0
# Days:	0	0	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	9	4	1	3	1	55	0

Definitions for Smolt Index Counts.

RIS (Index) = Rock Island Dam Second Powerhouse Bypass Trap : Passage Index Counts : Passage Index = Collection Counts / {Powerhouse 2 Flow / (Powerhouses 1 & 2 Flow + Spill) }

MCN (Index)= McNary Dam Bypass Collection System : Passage Index Counts : Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill) }

JDA (Index) = John Day Dam Bypass Collection System : Passage Index Counts : Passage Index = Collection Counts / {Powerhouse Flow / (Powerhouse Flow + Spill) }

BO1 (Index)= Bonneville Dam First Powerhouse Bypass Trap : Passage Index Counts : Passage Index = Collection Counts / {Powerhouse 1 Flow / (Powerhouses 1 & 2 +Flow + Spill)}

Two-Week Summary of Passage Indices

Hatchery Sockeye											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO1 (INDEX)
07/16/99	---	---	---	---	8	0	0	0	0	5	0
07/17/99	---	---	---	---	0	4	0	0	0	3	0
07/18/99	---	---	---	---	0	0	0	2	16	8	0
07/19/99	---	---	---	---	0	0	6	0	0	0	0
07/20/99	---	---	---	---	0	0	0	0	0	0	0
07/21/99	---	---	---	---	0	0	0	0	0	0	0
07/22/99	---	---	---	---	0	0	0	0	0	0	0
07/23/99	---	---	---	---	0	0	0	0	0	0	0
07/24/99	---	---	---	---	0	10	0	0	0	0	0
07/25/99	---	---	---	---	0	0	0	0	0	0	0
07/26/99	---	---	---	---	0	0	0	0	0	0	0
07/27/99	---	---	---	---	0	0	0	0	0	0	0
07/28/99	---	---	---	---	0	0	0	0	0	0	0
07/29/99	---	---	---	---	0	0	4	0	0	0	0
Total:	0	0	0	0	8	14	10	2	16	16	0
# Days:	0	0	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	1	1	1	0	1	1	0

Wild Sockeye											
Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO1 (INDEX)
07/16/99	---	---	---	---	16	0	0	0	16	8	0
07/17/99	---	---	---	---	0	8	0	0	36	1	132
07/18/99	---	---	---	---	0	4	4	0	16	204	99
07/19/99	---	---	---	---	8	0	0	0	32	0	31
07/20/99	---	---	---	---	4	5	0	3	140	0	31
07/21/99	---	---	---	---	0	20	6	2	0	0	29
07/22/99	---	---	---	---	0	10	0	0	0	0	21
07/23/99	---	---	---	---	0	0	6	2	0	0	98
07/24/99	---	---	---	---	0	10	0	0	0	0	27
07/25/99	---	---	---	---	0	0	0	0	0	0	0
07/26/99	---	---	---	---	0	0	0	1	36	0	30
07/27/99	---	---	---	---	10	0	0	1	0	0	0
07/28/99	---	---	---	---	10	0	0	0	0	0	34
07/29/99	---	---	---	---	0	0	0	0	0	0	368
Total:	0	0	0	0	48	57	16	9	276	213	900
# Days:	0	0	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	3	4	1	1	20	15	64

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 29, 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	25,584	3,914	21,091	2,621	20,207	2,575	0	0	0	0	0	0
TDA	17,563	6,180	25,225	518	39,635	1,617	21,427	3,004	15,113	1,379	16,147	1,737	0	0	0	0	0	0
JDA	15,409	5,089	21,820	378	31,309	1,325	20,775	2,265	15,581	1,306	14,559	1,567	0	0	0	0	0	0
MCN	9,258	3,961	19,415	337	30,860	1,525	16,962	2,036	15,648	1,264	15,180	1,516	0	0	0	0	0	0
IHR	5,335	2,648	12,434	130	16,094	620	3,751	1,265	5,422	302	4,338	396	0	0	0	0	0	0
LMN	3,924	2,726	10,598	131	15,276	682	3,250	1,318	4,211	289	4,104	418	0	0	0	0	0	0
LGS	3,450	2,656	10,512	118	**	**	3,164	1,532	4,201	320	**	**	0	0	0	0	**	**
LWG	3,322	2,407	9,854	109	13,146	573	3,054	1,540	4,245	314	4,110	414	0	0	0	0	0	0
PRD	4,129	744	4,124	37	9,804	151	17,102	374	11,894	421	11,969	428	0	0	0	0	0	0
RIS	3,312	915	3,187	54	7,271	160	12,879	1,003	9,575	694	9,310	543	0	0	0	0	0	0
RRH	1,399	252	762	54	1,670	39	6,012	492	4,701	213	3,115	187	0	0	0	0	0	0
WEL	*44	*72	6	24	902	41	3,318	241	2,107	614	1,697	174	0	0	0	0	0	0

DAM	Coho						Sockeye			Steelhead			
	1999		1998		10-Yr Avg.		10-Yr		1999	1998	10-Yr Avg.	Wild 1999	
	Adult	Jack	Adult	Jack	Adult	Jack	1999	1998					Avg.
BON	2	0	10	0	16	5	17,769	13,105	44,247	48,759	41,945	50,496	18,783
TDA	0	0	0	0	0	0	13,520	8,742	35,205	19,969	13,083	21,630	9,488
JDA	1	0	0	0	0	0	14,343	9,681	36,387	20,299	17,152	15,326	5,133
MCN	0	1	0	0	0	0	11,757	9,335	38,180	7,482	9,166	12,723	1,536
IHR	0	0	0	0	0	0	5	5	6	4,249	5,054	6,931	938
LMN	0	0	0	0	1	0	8	1	5	2,821	3,777	5,465	558
LGS	0	0	0	0	**	**	16	2	**	2,340	3,128	**	624
LWG	0	0	0	0	0	0	13	2	3	4,202	5,349	6,854	826
PRD	0	0	6	0	0	0	15,045	10,598	41,634	506	643	1,034	***
RIS	0	0	0	0	1	0	13,947	8,982	34,186	217	379	718	160
RRH	8	0	0	0	0	0	11,023	5,129	15,897	148	310	425	79
WEL	0	0	0	0	0	0	8,424	3,746	13,917	87	117	277	23

LMN, LGS, RIS, RRH and PRD are through 07/27; WEL is through 07/28.

ICH data is missing fish counts from July 26.

*WEL - WDFW was trapping Spring Chinook on both fish ladders.

**Adult count records at Little Goose Dam have been maintained since 1991, visual counts were not conducted at Little Goose Dam between 1982 and 1990.

***PRD is not reporting Wild Steelhead numbers.

Bonneville and Lower Granite were doing video counts only until April 1, 1999. These counts were 8 hour daytime video counts.

Historic counts (pre-1996) were obtained from CRITFC and compiled by the FPC.

Historic counts 1997 to present were obtained from the Corps of Engineers.

No Video counts at Lower Granite Dam on 3/1/99 and 3/2/99.

Transportation Summary Report
Two-Week Transportation Summary
 from 07/16/99 to 07/29/99

	Yearling Chinook	Subyearling Chinook	Steelhead	Coho	Sockeye	Total
LOWER GRANITE DAM						
Collected	415	55,599	3,168	185	56	59,423
Bypassed	0	19	0	0	0	19
Trucked	402	55,175	3,072	185	55	58,889
Barged	0	0	0	0	0	0
Total Transported	402	55,175	3,072	185	55	58,889
LITTLE GOOSE DAM						
Collected	1,518	46,242	508	141	71	48,480
Bypassed	0	0	0	0	0	0
Trucked	1,495	45,769	483	141	69	47,957
Barged	0	0	0	0	0	0
Total Transported	1,495	45,769	483	141	69	47,957
LOWER MONUMENTAL DAM						
Collected	162	39,302	208	16	26	39,714
Bypassed	0	0	0	0	0	0
Trucked	160	39,198	202	16	26	39,602
Barged	0	0	0	0	0	0
Total Transported	160	39,198	202	16	26	39,602
M McNARY DAM						
Collected	144	493,798	436	144	165	494,687
Bypassed	0	12,986	0	0	0	12,986
Trucked	30	144,776	218	19	20	145,063
Barged	141	365,056	284	168	149	365,798
Total Transported	171	509,832	502	187	169	510,861
PROJECT TOTALS						
Collected	2,239	634,941	4,320	486	318	642,304
Bypassed	0	13,005	0	0	0	13,005
Trucked	2,087	284,918	3,975	361	170	291,511
Barged	141	365,056	284	168	149	365,798
Total Transported	2,228	649,974	4,259	529	319	657,309

**Transportation Summary Report
Cumulative Transportation Summary
through 07/29/99**

	Yearling Chinook	Subyearling Chinook	Steelhead	Coho	Sockeye	Total
LOWER GRANITE DAM						
Collected	2,173,440	175,665	3,352,946	78,462	17,536	5,798,049
Bypassed	115,918	37	266,363	14,608	1,640	398,566
Trucked	32,255	79,961	32,464	1,345	1,450	147,475
Barged	2,011,776	94,052	3,053,028	62,315	14,012	5,235,183
Total Transported	2,044,031	174,013	3,085,492	63,660	15,462	5,382,658
LITTLE GOOSE DAM						
Collected	3,531,686	158,419	3,134,979	117,283	21,004	6,963,371
Bypassed	19,783	0	158,018	4,195	299	182,295
Trucked	7,873	76,648	3,686	929	574	89,710
Barged	3,481,142	77,971	2,969,994	111,937	18,954	6,659,998
Total Transported	3,489,015	154,619	2,973,680	112,866	19,528	6,749,708
LOWER MONUMENTAL DAM						
Collected	1,892,407	111,736	1,978,607	51,139	12,866	4,046,755
Bypassed	148,537	1	251,013	7,795	596	407,942
Trucked	5,446	78,150	2,075	104	210	85,985
Barged	1,736,425	33,327	1,724,869	43,237	12,032	3,549,890
Total Transported	1,741,871	111,477	1,726,944	43,341	12,242	3,635,875
M McNARY DAM						
Collected	2,104,367	3,571,429	536,924	140,738	782,514	7,135,972
Bypassed	2,098,392	801,225	532,579	137,083	781,069	4,350,348
Trucked	30	144,776	218	19	20	145,063
Barged	3,490	2,589,486	3,896	3,544	836	2,601,252
Total Transported	3,520	2,734,262	4,114	3,563	856	2,746,315
PROJECT TOTALS						
Collected	9,701,900	4,017,249	9,003,456	387,622	833,920	23,944,147
Bypassed	2,382,630	801,263	1,207,973	163,681	783,604	5,339,151
Trucked	45,604	379,535	38,443	2,397	2,254	468,233
Barged	7,232,833	2,794,836	7,751,787	221,033	45,834	18,046,323
Total Transported	7,278,437	3,174,371	7,790,230	223,430	48,088	18,514,556