



Fish Passage Center

Weekly Report #98 - 22

August 14, 1998

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SUMMARY OF EVENTS:

Water Supply: There was no hydrologically significant precipitation over whole area. Maximum daily temperatures were 10 to 15 F degrees above normal in most locations.

System Storage: U.S. reservoirs continue drafting BiOp required summer augmentation for endangered Snake River salmon. A summary of actual elevations on July 30, 1998 is shown in the following table:

Reservoir	Actual Elev. [ft] 8/13/98	Max. Pool [ft]
Libby	2453.07	2459.0
Hungry Horse	3546.18	3560.0
Grand Coulee	1282.60	1290.0
Brownlee	2044.10	2077.0
Dworshak	1541.46	1600.0

US reservoirs:

- Libby continues drafting for summer augmentation flows at an increased flat rate of 22 kcfs. Additional drafting from the Arrow reservoir has begun as the part of the Libby/Arrow swap. Libby outflow will ramp down to 10 kcfs near the end of the month to deliver as much water as possible past McNary before August 31.
- Hungry Horse continues summer augmentation operations with outflows of 7.2 kcfs through August 18, then ramp down to 4.8 kcfs through August 25. During the last week of August, the pool will draft to elevation 3540 ft by August 31 to meet 3.5 kcfs flow level at Columbia Falls.
- Grand Coulee will operate to support decreasing McNary flows without drafting below elevation 1281.4 ft through August 21.
- Brownlee delivered all augmentation and shap-

ing water, but continues drafting for power production. The outflow rates are about 16 kcfs.

- Dworshak will continue with releases of 14 kcfs. The project releases will be managed to provide water temperatures of 48° F for maintaining steelhead production in the hatchery downstream of the dam.

Upper Snake reservoirs:

The system continues to be operated primarily for irrigation demands. Temperatures continue to be high, resulting in high irrigation withdrawals.

Jackson Lake is drafting for irrigation at a rate of about 5 kcfs and is about 94% full.

Palisades continues slow drafting for Upper Snake diversion irrigation withdrawal at a rate of 8.5 kcfs, about 2 kcfs higher than inflow and it is about 90% full.

American Falls continues intensive drafting to provide irrigation diversion flow downstream at Minidoka. Current outflow is about 12.4 kcfs, about 10.4 kcfs higher than inflow, and the reservoir is about 73% full.

Milner flow, at the lowest point of the Upper Snake system, continues to be at constant rate of about 1.5 kcfs since July 7. Irrigation withdrawal upstream of Minidoka continued to be about 10.9 kcfs. Irrigation withdrawal at the Upper Snake diversion, upstream from Blackfoot continues to be between 9-10 kcfs.

Boise River Basin:

Anderson and Arrowrock continue with more intensive drafting for irrigation withdrawals. Current reservoir capacities are 86% of full and 59% of full. The flow at Glenwood Bridge remained about 1.3 kcfs.

System Streamflow: The weekly average flows due to dry and hot weather continue to recede in Snake basin. Mid Columbia flows were higher than previous week because of increased flows from Canadian reservoirs caused by temporarily melting of snow glacier which ceased by the end of the week. Flows at Lower Granite and McNary continue to be below summer target flows required by BiOp. The summary of average weekly flows for run of the river projects during the July 31-August 13 period is shown in the following Table:

Project	July 31-August 6	August 7-13
Priest Rapids	109.3 kcfs	136.0 kcfs
McNary	152.8 kcfs	161.2 kcfs
Lower Granite	42.7 kcfs	37.7 kcfs
Bonneville	158.0 kcfs	144.5 kcfs*

Spill: Spill above hydraulic capacity continues at Dworshak Dam as flow augmentation is implemented. Spill is averaging 4.1 kcfs daily at this project. In the Lower Snake River the summer spill program is being implemented at Ice Harbor Dam. Spill averaged 29.7 kcfs at Ice Harbor Dam over the past week.

The lower Columbia River summer spill program continues. Some spill has occurred at McNary Dam over the past week in excess of hydraulic capacity. Spill averaged 46.6 kcfs at John Day Dam, 81.4 kcfs at The Dalles Dam, and approximately 86 kcfs at Bonneville Dam over the past week.

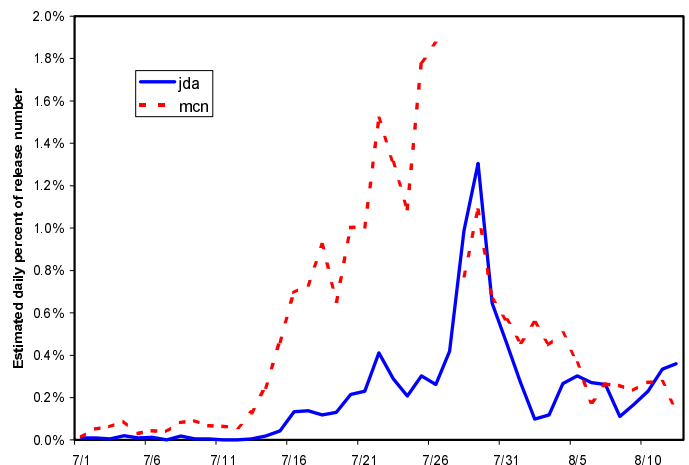
The summer spill program is being implemented at the Mid Columbia projects.

Total Dissolved Gas Supersaturation and gas Bubble Trauma Monitoring

TDGS levels have been at, or below, the gas waivers at all monitoring sites. Gas bubble trauma monitoring has ended for the season at the Snake River monitoring sites. Sampling will continue through the summer at Rock Island, McNary, John Day and Bonneville dams. No juvenile salmon have been detected with signs over the past week.

Smolt Monitoring: In the Snake River and Columbia River drainages, this week's change in subyearling chinook passage indices ranged up to 50%. At Lower Granite Dam in the Snake River, wild subyearling chinook passage indices rose from last week's average of slightly above 500 fish per day to 1,068 fish on August 7 and then dropped back to an average of just below 500 fish per day for the last 5 days of this reporting period. At the other two Snake River sites an approximate 50% change occurred in this week's average subyearling chinook passage indices; the change was an increase at Little Goose Dam and a decrease at Lower Monumental Dam. In the Mid-Columbia River, subyearling chinook passage indices at Rock Island Dam averaged 72 fish per day, nearly 50% lower than last week's average. In the lower Columbia River, subyearling chinook passage indices at McNary dropped to an average of 18,842 fish per day, down 30% from last week's average. Subyearling chinook passage indices at John Day Dam varied widely (a six-fold change between weekly minimum and maximum) during this week; the weekly averaged was 10,865 fish per day, up 43% from last week. Subyearling chinook passage indices at Bonneville Dam averaged 1,471 fish per day, a drop of 8% from last week's average. The following plot shows Snake River drainage fall chinook passage at McNary and John Day dams peaked during the latter half of July this year.

Snake River drainage fall chinook passage at McNary and John Day dams



Adult Fish Passage: Steelhead comprise the bulk of the fish passing Bonneville Dam, but few are moving past The Dalles and upstream projects. Through August 13, steelhead passage totaled 69,661 for the season with daily counts varying between 950 early in the report week to above 3,700 fish per day by the end of the report week. Of these steelhead above Bonneville Dam, about 14,100 have passed The Dalles Dam or about 20% of the Bonneville total. With the hot water temperatures that exist in the lower Columbia River, steelhead are seeking cooler water in tributary streams above Bonneville Dam. Daily counts of steelhead at all projects above Bonneville Dam continue to be reduced given the higher water temperatures that exist during this summer. This trend will certainly continue until water temperatures in the river begin to reduce to more tolerable levels. The water temperatures from Bonneville Dam to McNary Dam ranged between 71°F to 75°F for the week. Note that for wild steelhead counted at Bonneville (21,974) about 22 percent of them have been counted at The Dalles Dam (4,939).

Adult fall chinook at Bonneville averaged about 580 fish per day with the season total through August 13 of 5,619, close to equal the 1997 count, but less than the 10-year average so far. Based on fish counts to date, it appears that adult fall chinook are also being delayed above Bonneville Dam as daily counts were normally less than 200 per day at The Dalles Dam, with about 1,200 adult fall chinook counted at that project to date.

Summer chinook passage is winding down at most projects with the Snake River projects normally counting fewer than 10 fish per day for the report week (August 7 – August 13). The total count of summer chinook at Ice Harbor Dam was 5,485, about 59.5% of the 1997 total and 118.8% of the 10-year average. In the Mid-Columbia Reach, the total count of adult summer chinook at Priest Rapids Dam was 13,951. This total was almost equal the 10-year average of 13,949 and slightly greater than the 1997 return of 13,107.

Sockeye passage is nearing completion for the 1998 season with fewer than 20 per day counted at Rock Island through Wells Dam by the end of the reporting week. Sockeye destined for Lake Osoyoos should exceed those migrating to Lake Wenatchee as about 60% of the sockeye past Rock Island (9,266 counted through August 8) have been counted at Rocky Reach Dam.

Hatchery Releases: Columbia Basin hatcheries completed release of subyearling summer and fall chinook for the year. Spring Creek Hatchery personnel will release 500,000 subyearling spring chinook into the Big White Salmon River in mid August. Other releases of subyearling spring and summer chinook will be outplanted in Idaho tributaries during this summer and fall. Most are expected to migrate in spring 1999.

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
07/31/98	104.7	0.1	102.1	0.0	104.9	9.1	107.2	11.7	107.1	20.0	99.9	15.4	113.8	43.0
08/01/98	61.7	0.1	69.4	0.0	72.8	7.3	74.3	8.0	72.4	19.9	61.7	7.9	73.6	27.2
08/02/98	63.8	0.1	67.9	0.0	71.0	7.1	72.4	0.0	71.0	19.9	69.9	9.1	72.5	27.3
08/03/98	129.5	0.1	125.0	0.0	127.5	10.0	128.5	0.0	124.3	20.0	114.1	13.1	122.4	44.9
08/04/98	113.0	0.1	116.0	0.0	118.5	9.6	123.0	3.7	123.0	16.5	113.8	14.2	130.6	47.8
08/05/98	121.7	0.1	121.9	0.0	124.2	9.9	124.8	12.8	122.7	9.4	107.3	12.7	132.0	49.8
08/06/98	114.0	0.1	116.0	0.0	118.3	9.4	120.0	13.4	119.1	10.1	96.9	14.8	120.1	44.8
08/07/98	120.9	0.1	119.9	0.0	120.7	8.5	120.9	12.3	118.0	10.6	108.3	18.7	118.3	43.9
08/08/98	106.8	0.1	107.8	0.0	114.0	8.4	117.5	8.3	117.9	10.6	112.1	19.4	125.0	46.7
08/09/98	113.5	0.1	113.9	0.0	116.0	8.6	115.6	12.6	114.2	10.6	109.0	19.6	118.3	43.1
08/10/98	141.8	0.1	142.2	0.0	142.9	16.6	139.1	0.0	135.8	10.7	128.2	22.7	139.4	51.8
08/11/98	130.9	0.1	131.5	0.0	132.9	13.2	137.7	4.3	136.7	10.4	133.1	26.6	147.2	53.8
08/12/98	146.7	0.1	147.6	0.0	150.7	17.9	147.4	12.5	145.8	10.1	137.4	29.0	152.9	56.2
08/13/98	129.1	0.1	135.6	0.0	136.6	13.3	145.2	14.4	141.1	3.5	135.9	28.2	150.8	55.9

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

Date	Dworshak		Brownlee		Lower Granite		Little Goose		Lower Monumental		Ice Harbor	
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
07/31/98	19.7	9.8	---	---	50.8	0.0	50.4	0.0	52.9	0.0	57.3	42.6
08/01/98	15.6	7.7	---	---	51.2	0.0	51.7	0.0	55.5	0.0	56.9	46.3
08/02/98	1.1	0.0	---	---	33.7	0.0	36.4	0.0	38.1	0.0	45.9	38.5
08/03/98	6.5	1.2	---	---	34.0	0.0	33.0	0.0	34.0	0.0	33.5	23.1
08/04/98	14.1	4.1	---	---	45.3	0.0	46.9	0.0	50.1	0.0	52.6	39.2
08/05/98	14.1	4.1	---	---	41.2	0.0	39.6	0.0	41.1	0.0	43.9	27.9
08/06/98	14.1	4.1	---	---	42.4	0.0	43.2	0.0	44.5	0.0	48.2	35.1
08/07/98	14.2	4.1	---	---	37.6	0.0	38.3	0.0	41.1	0.0	43.2	31.1
08/08/98	14.2	4.2	---	---	39.1	0.0	39.7	0.0	41.9	0.0	43.6	33.8
08/09/98	14.2	4.0	---	---	33.3	0.0	31.4	0.0	31.6	0.0	34.9	28.0
08/10/98	14.1	4.0	---	---	37.6	0.0	38.2	0.0	40.5	0.0	44.4	33.0
08/11/98	14.3	4.1	---	---	36.9	0.0	38.4	0.0	41.2	0.0	41.1	23.3
08/12/98	14.3	4.1	---	---	39.0	0.0	38.8	0.0	40.6	0.0	44.4	33.2
08/13/98	14.3	4.1	---	---	40.1	0.0	42.1	0.0	42.8	0.0	42.9	25.7

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		
07/31/98	158.7	0.0	169.6	46.7	165.7	94.5	170.2	85.2	43.0	32.8
08/01/98	148.6	0.0	144.7	44.8	141.2	90.3	147.0	85.5	48.1	4.3
08/02/98	134.0	0.0	138.7	43.6	136.5	86.5	156.0	85.7	56.4	4.7
08/03/98	108.4	0.0	127.5	38.5	126.6	45.8	137.4	84.7	39.0	4.5
08/04/98	159.1	10.4	149.7	47.5	145.2	42.7	146.9	85.1	43.3	9.5
08/05/98	177.4	28.2	167.5	49.5	162.7	48.2	180.8	84.1	43.3	9.5
08/06/98	179.6	34.7	177.9	53.8	163.6	94.5	167.5	83.0	43.3	9.5
08/07/98	155.5	10.0	169.2	44.8	172.1	109.3	183.2	84.3	48.0	39.5
08/08/98	152.4	0.0	174.5	51.5	167.8	101.7	172.8	85.3	43.0	32.3
08/09/98	140.1	0.0	125.4	37.3	125.9	48.3	150.8	85.7	45.6	44.1
08/10/98	153.2	0.0	161.8	44.0	156.7	46.1	156.3	85.1	43.6	35.7
08/11/98	162.6	4.8	179.8	47.4	174.0	51.1	174.6	88.3	44.4	11.5
08/12/98	172.8	14.6	172.9	46.2	165.7	94.3	177.3	88.3	31.7	30.3
08/13/98	191.8	25.8	194.6	55.3	193.0	118.7	---	---	---	---

These data were obtained from the Corps of Engineers through their CAFE reports #96 and #71.

Gas Bubble Trauma Monitoring Results from Representative Sites on the Snake River and 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													
	08/04/98	SubYrlng Chinook	85	0	0	0.00%	0.00%	0	0	0	0	0	0
	08/06/98	SubYrlng Chinook	39	0	0	0.00%	0.00%	0	0	0	0	0	0
	08/08/98	SubYrlng Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	08/11/98	SubYrlng Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	08/13/98	SubYrlng Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
John Day Dam													
	08/04/98	SubYrlng Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	08/06/98	SubYrlng Chinook	100	3	3	3.00%	0.00%	3	0	0	0	0	0
	08/08/98	SubYrlng Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	08/11/98	SubYrlng Chinook	100	1	1	1.00%	0.00%	1	0	0	0	0	0
	08/13/98	SubYrlng Chinook	100	1	1	1.00%	0.00%	1	0	0	0	0	0
Bonneville Dam													
	08/04/98	SubYrlng Chinook	85	0	0	0.00%	0.00%	0	0	0	0	0	0
	08/06/98	SubYrlng Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	08/08/98	SubYrlng Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	08/11/98	SubYrlng Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	08/13/98	SubYrlng Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
Rock Island Dam													
	08/05/98	SubYrlng Chinook	100	0	0	0.00%	0.00%	0	0	0	0	0	0
	08/07/98	SubYrlng Chinook	52	0	0	0.00%	0.00%	0	0	0	0	0	0
	08/10/98	SubYrlng Chinook	53	0	0	0.00%	0.00%	0	0	0	0	0	0
	08/12/98	SubYrlng Chinook	68	0	0	0.00%	0.00%	0	0	0	0	0	0

Hatchery Release Summary
Schedule for Last Two Weeks
From 7/31/98 to 8/13/98

Hatchery	Species	FPC LotID	Number Released	Release Dates		Release Site	River Name
				Begin	End		
						USFWS	
Spring Creek	SP Chinook	98058	500,000	8/13/98	8/20/98	White Salmon R	Columbia River
	Agency Total:		500,000				
	Total Release:		500,000				

Total Dissolved Gas Saturation (%) - Average of 12 Highest Hours, 24 h Average and 24 h High²

Total Dissolved Gas Saturation Data at Upper Columbia Sites

Date	Can. Boundary			Grand Coulee			Tlwr G. Coulee			Chief Joseph			Wells			Rocky Reach			
	24 h	12 h	#	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	Avg	Avg High	hr	Avg	Avg High	hr	
7/31	120	120	121	114	114	115	---	---	---	0	114	114	114	112	112	112	111	111	112
8/1	119	120	120	113	113	113	115	115	117	16	113	113	114	112	112	112	110	110	111
8/2	117	117	118	112	113	113	114	115	118	24	113	113	114	112	112	113	109	110	110
8/3	118	119	120	113	113	113	113	114	113	24	113	113	114	112	112	112	109	110	112
8/4	119	120	120	113	113	113	113	114	115	24	114	114	115	112	112	113	109	110	110
8/5	118	119	120	113	114	114	113	114	116	24	114	114	116	112	112	113	110	110	111
8/6	124	126	128	113	113	114	113	114	116	23	112	112	113	111	111	111	109	110	111
8/7	121	121	123	113	113	114	115	116	130	19	112	112	113	110	110	111	109	110	110
8/8	118	119	126	112	113	113	---	---	---	0	112	112	113	110	110	111	108	109	110
8/9	117	118	119	112	113	113	---	---	---	0	112	113	113	109	110	111	109	109	110
8/10	117	118	119	112	112	113	---	---	---	0	112	112	112	110	110	110	106	107	112
8/11	116	116	118	111	112	112	110	110	111	9	111	112	113	109	109	109	107	107	108
8/12	---	---	---	111	111	111	110	111	112	24	111	111	112	109	109	109	108	109	111
8/13	---	---	---	111	111	112	110	111	113	24	111	111	112	109	109	110	108	108	109

Total Dissolved Gas Saturation Data at Mid Columbia Sites

Date	Tlwr. Rocky R.			Rock Island			Tlwr. Rock Island			Wanapum			Tlwr Wanapum			Priest Rapids		
	24 h	12 h	#	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	Avg	Avg High	hr	Avg	Avg High	hr
7/31	113	114	114	109	110	111	117	117	118	---	---	---	---	---	---	---	---	---
8/1	112	112	112	107	108	110	116	117	117	---	---	---	---	---	---	---	---	---
8/2	111	111	112	107	108	111	117	117	118	109	111	112	110	111	113	108	110	111
8/3	111	112	113	108	110	111	116	116	116	---	---	---	---	---	---	---	---	---
8/4	112	113	113	109	111	112	116	116	117	---	---	---	---	---	---	---	---	---
8/5	113	114	114	111	112	113	115	116	116	---	---	---	---	---	---	---	---	---
8/6	113	113	113	110	112	113	115	115	116	---	---	---	---	---	---	---	---	---
8/7	112	112	112	109	111	112	114	114	115	---	---	---	---	---	---	---	---	---
8/8	112	112	113	109	110	111	114	114	115	---	---	---	---	---	---	---	---	---
8/9	111	111	111	109	110	111	113	113	114	111	112	113	113	114	116	111	113	115
8/10	110	111	112	109	110	110	113	113	113	110	111	112	112	114	115	111	112	113
8/11	110	111	111	108	109	110	112	113	114	---	---	---	---	---	---	---	---	---
8/12	112	113	113	109	111	112	114	114	115	---	---	---	---	---	---	---	---	---
8/13	113	113	114	111	112	113	---	---	---	---	---	---	---	---	---	---	---	---

Total Dissolved Gas Saturation at Mid Columbia, Clearwater and Snake Sites

Date	Dwnstr P Rapids			Dworshak			Clearwater			Snake-Lewiston			Lower Granite			Tlwr L. Granite		
	24 h	12 h	#	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	Avg	Avg High	hr	Avg	Avg High	hr
7/31	---	---	---	116	116	117	100	101	101	108	110	110	104	105	106	105	105	106
8/1	---	---	---	117	118	119	113	116	116	108	109	110	103	103	103	104	104	104
8/2	---	---	---	100	100	100	100	100	100	101	101	106	104	105	106	103	104	105
8/3	---	---	---	104	108	110	104	108	110	101	101	103	107	109	113	104	105	106
8/4	---	---	---	111	111	111	110	111	112	105	107	108	107	108	110	104	105	105
8/5	---	---	---	111	111	112	111	111	112	106	107	108	104	105	106	104	105	105
8/6	---	---	---	111	111	111	110	111	112	105	107	108	101	102	102	103	103	104
8/7	---	---	---	110	111	112	110	111	112	105	106	107	101	101	102	102	102	103
8/8	---	---	---	110	111	112	110	111	112	105	107	107	103	105	107	102	102	103
8/9	---	---	---	110	111	112	110	111	112	105	106	107	105	106	109	103	103	104
8/10	---	---	---	110	111	112	110	111	112	105	106	107	102	103	106	101	101	102
8/11	---	---	---	110	110	111	110	111	112	105	106	107	102	102	103	---	---	---
8/12	---	---	---	110	110	111	110	111	111	105	106	107	103	104	108	101	101	102
8/13	---	---	---	110	111	111	110	110	111	106	108	111	109	111	112	---	---	---

¹ Data provided by the Corps of Engineers.

² Dissolved gas readings and averages have been rounded to the nearest integer.

Total Dissolved Gas Saturation (%) - Average of 12 Highest Hours, 24 h Average and 24 h High²

Total Dissolved Gas Saturation Data at Snake Sites

Date	<u>Little Goose</u>			<u>Tlwr L. Goose</u>			<u>Lower Mon.</u>			<u>Tlwr L. Mon</u>			<u>Ice Harbor</u>			<u>Tlwr Ice Harbor</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	hr	Avg	Avg High	hr	Avg	Avg High	hr	Avg	Avg High	hr	Avg	Avg High	hr	Avg	Avg High	hr						
7/31	104	105	107	24	104	104	105	24	103	103	105	18	101	102	103	18	101	102	103	24	---	---	---	0
8/1	103	103	104	24	103	103	104	24	---	---	---	0	---	---	---	0	101	101	101	4	---	---	---	0
8/2	103	104	106	24	102	103	104	24	102	103	104	24	102	103	104	24	101	101	101	24	115	116	117	24
8/3	107	112	114	24	102	103	104	24	104	106	110	24	102	103	104	24	101	101	102	24	113	114	115	24
8/4	108	110	112	24	103	104	104	24	106	106	107	11	102	102	104	11	103	104	109	24	115	116	117	24
8/5	108	112	114	24	103	104	104	24	106	107	110	24	104	104	105	24	105	106	109	24	114	115	116	24
8/6	102	103	103	24	102	102	103	24	104	105	106	23	103	104	105	23	103	104	104	24	115	116	117	21
8/7	102	102	103	24	102	103	103	24	104	104	104	24	103	103	104	24	103	103	104	24	114	116	116	23
8/8	103	103	105	24	102	102	103	24	104	105	106	24	103	103	104	24	103	103	104	24	113	116	117	24
8/9	103	103	106	12	102	102	102	12	104	105	106	24	102	103	104	24	102	103	104	24	113	115	117	24
8/10	101	101	104	24	102	103	106	24	102	102	104	24	101	102	102	24	102	102	104	24	114	116	117	24
8/11	100	101	102	24	100	101	101	24	103	104	105	24	102	103	103	24	103	103	104	24	111	114	117	24
8/12	102	104	105	24	100	101	101	24	102	103	104	23	102	102	103	24	102	103	104	23	113	114	116	23
8/13	105	107	112	24	101	101	102	24	105	106	108	24	102	103	103	24	102	103	103	24	111	112	114	24

Total Dissolved Gas Saturation Data at Lower Columbia Sites

Date	<u>McNary-Oregon</u>			<u>McNary-Wash.</u>			<u>Tlwr McNary</u>			<u>John Day</u>			<u>Tlwr John Day</u>			<u>The Dalles</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	hr	Avg	Avg High	hr	Avg	Avg High	hr	Avg	Avg High	hr	Avg	Avg High	hr	Avg	Avg High	hr						
7/31	---	---	---	0	108	109	110	24	108	108	109	24	106	106	107	24	112	117	118	24	106	108	110	24
8/1	---	---	---	0	106	106	107	24	106	106	107	24	104	104	104	23	111	118	119	24	104	106	108	23
8/2	---	---	---	0	107	109	114	24	105	105	106	24	103	103	106	24	111	117	119	24	106	108	109	24
8/3	---	---	---	0	109	111	114	22	105	106	106	22	103	104	105	24	111	116	119	24	110	112	113	24
8/4	---	---	---	0	110	113	114	24	108	111	113	24	104	104	105	23	112	118	119	24	109	111	112	23
8/5	---	---	---	0	107	108	111	24	112	112	113	24	103	103	105	24	111	118	119	24	108	111	114	24
8/6	---	---	---	0	107	107	108	19	111	112	112	20	102	102	102	23	111	119	120	24	105	107	108	23
8/7	---	---	---	0	---	---	---	0	---	---	---	0	102	102	102	23	110	117	119	23	105	107	109	24
8/8	---	---	---	0	---	---	---	0	---	---	---	0	102	102	104	24	111	119	120	24	105	108	110	24
8/9	---	---	---	0	---	---	---	0	---	---	---	0	101	102	103	24	110	116	118	24	105	107	111	24
8/10	---	---	---	0	---	---	---	0	---	---	---	0	101	101	101	23	109	115	118	24	105	107	108	23
8/11	---	---	---	0	---	---	---	0	---	---	---	0	100	100	101	23	110	117	119	24	105	107	110	23
8/12	---	---	---	0	---	---	---	0	---	---	---	0	101	102	105	23	110	117	120	24	104	106	111	23
8/13	109	111	115	24	110	111	114	24	112	113	114	24	103	104	106	23	110	117	120	24	107	110	112	23

Total Dissolved Gas Saturation Data at Lower Columbia Sites

Date	<u>Dnstr T. Dalles</u>			<u>Bonneville</u>			<u>Warrendale</u>			<u>Skamania</u>			<u>Camas/Wash.</u>			<u>Wauna Mill</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	hr	Avg	Avg High	hr	Avg	Avg High	hr	Avg	Avg High	hr	Avg	Avg High	hr	Avg	Avg High	hr						
7/31	115	116	118	24	104	105	106	24	113	114	116	24	114	117	119	24	110	112	113	24	105	106	106	24
8/1	116	117	118	24	103	103	104	23	113	114	116	23	116	118	120	23	109	112	114	24	104	105	105	24
8/2	117	118	118	24	104	105	106	24	112	114	116	24	117	118	121	24	112	114	116	24	104	105	105	24
8/3	115	116	117	24	108	109	110	24	116	117	117	24	119	120	121	24	114	116	118	24	104	105	106	24
8/4	113	114	115	24	111	112	112	23	117	118	119	23	119	120	122	23	115	117	118	24	105	106	107	24
8/5	113	114	115	24	108	109	111	24	114	117	118	24	115	117	121	24	114	115	116	24	104	105	106	24
8/6	114	115	117	24	105	105	106	23	112	112	113	23	115	117	120	23	110	112	113	24	104	105	106	24
8/7	116	117	118	24	104	105	105	23	111	112	113	23	112	113	115	23	110	111	113	23	104	105	106	23
8/8	116	117	118	24	106	107	108	24	112	112	113	24	115	117	120	24	111	113	115	24	104	105	106	24
8/9	113	116	119	24	107	107	108	24	112	113	114	24	117	117	119	24	111	113	115	24	103	104	104	24
8/10	111	112	113	20	106	107	107	23	113	114	115	23	116	118	121	23	113	115	117	24	103	104	105	24
8/11	110	112	114	24	105	106	106	23	113	114	115	23	115	118	121	23	113	114	116	24	104	104	105	24
8/12	115	116	118	24	105	106	107	23	112	113	114	23	115	117	120	23	112	114	116	24	104	105	106	24
8/13	117	118	119	24	107	108	110	23	112	113	114	23	115	117	120	23	113	115	117	24	105	106	107	24

¹ Data provided by the Corps of Engineers.

² Dissolved gas readings and averages have been rounded to the nearest integer.

Two-Week Summary of Passage Indices

Date	Yearling Chinook							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)
07/31/98	---	---	---	---	68	26	0	0	0	0	0
08/01/98	---	---	---	---	64	12	0	0	0	0	0
08/02/98	---	---	---	---	32	28	0	0	0	0	0
08/03/98	---	---	---	---	16	12	6	0	50	14	0
08/04/98	---	---	---	---	36	10	3	0	0	0	0
08/05/98	---	---	---	---	32	6	1	0	0	0	0
08/06/98	---	---	---	---	52	20	0	0	0	0	0
08/07/98	---	---	---	---	56	6	0	0	0	0	0
08/08/98	---	---	---	---	48	22	1	0	0	0	0
08/09/98	---	---	---	---	24	28	2	0	0	0	0
08/10/98	---	---	---	---	24	52	1	0	0	0	0
08/11/98	---	---	---	---	8	39	0	0	0	0	0
08/12/98	---	---	---	---	4	24	0	0	0	0	0
08/13/98	---	---	---	---	20	20	0	0	0	0	0
Total:	0	0	0	0	484	305	14	0	50	14	0
# Days:	0	0	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	35	22	1	0	4	1	0

Date	Wild Yearling Chinook							Wild Subyearling Chinook		
	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)
07/31/98	---	---	---	---	56	12	8	696	323	100
08/01/98	---	---	---	---	20	14	4	772	393	116
08/02/98	---	---	---	---	32	18	8	476	655	132
08/03/98	---	---	---	---	4	12	3	272	396	54
08/04/98	---	---	---	---	24	2	3	336	211	72
08/05/98	---	---	---	---	8	4	4	436	307	166
08/06/98	---	---	---	---	4	3	2	588	314	108
08/07/98	---	---	---	---	4	8	1	1,068	241	75
08/08/98	---	---	---	---	8	4	3	896	448	43
08/09/98	---	---	---	---	12	12	3	500	739	39
08/10/98	---	---	---	---	16	18	1	424	776	41
08/11/98	---	---	---	---	8	8	3	432	649	38
08/12/98	---	---	---	---	8	12	1	652	667	60
08/13/98	---	---	---	---	4	1	1	448	479	98
Total:	0	0	0	0	208	128	45	7,996	6,598	1,142
# Days:	0	0	0	0	14	14	14	14	14	14
Average:	0	0	0	0	15	9	3	571	471	82

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

Date	Hatchery Subyearling Chinook							Combined Subyearling Chinook			
	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO1 (INDEX)
07/31/98	---	---	---	---	0	0	8	127	30,151	6,924	2,441
08/01/98	---	---	---	---	0	0	4	115	26,133	8,391	1,388
08/02/98	---	---	---	---	0	2	8	95	33,746	4,436	895
08/03/98	---	---	---	---	0	2	3	62	26,686	2,039	868
08/04/98	---	---	---	---	0	0	1	157	18,387	5,764	1,083
08/05/98	---	---	---	---	0	0	3	336	30,488	15,186	1,716
08/06/98	---	---	---	---	0	0	3	95	21,674	10,368	2,813
08/07/98	---	---	---	---	0	0	3	64	20,982	6,709	1,832
08/08/98	---	---	---	---	0	0	1	82	21,295	11,638	1,978
08/09/98	---	---	---	---	0	0	0	44	21,577	7,089	1,072
08/10/98	---	---	---	---	0	0	6	65	19,055	3,893	780
08/11/98	---	---	---	---	0	1	2	79	20,435	8,299	1,847
08/12/98	---	---	---	---	0	0	3	89	14,827	15,075	1,312
08/13/98	---	---	---	---	0	0	6	83	13,725	23,355	1,477
Total:	0	0	0	0	0	5	51	1,493	319,161	129,166	21,502
# Days:	0	0	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	0	0	4	107	22,797	9,226	1,536

Date	All Coho										
	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	RIS (INDEX)	MCN (INDEX)	JDA (INDEX)	BO1 (INDEX)
07/31/98	---	---	---	---	4	14	0	0	0	8	0
08/01/98	---	---	---	---	8	14	4	0	0	0	0
08/02/98	---	---	---	---	4	8	8	0	0	0	0
08/03/98	---	---	---	---	0	4	3	0	0	0	0
08/04/98	---	---	---	---	0	10	2	0	0	0	0
08/05/98	---	---	---	---	0	7	2	0	0	0	0
08/06/98	---	---	---	---	4	6	3	0	0	8	0
08/07/98	---	---	---	---	0	10	1	0	0	0	0
08/08/98	---	---	---	---	8	10	1	0	0	0	0
08/09/98	---	---	---	---	4	4	1	0	0	0	0
08/10/98	---	---	---	---	0	10	1	0	0	0	0
08/11/98	---	---	---	---	4	5	3	0	0	0	0
08/12/98	---	---	---	---	8	8	1	0	0	0	0
08/13/98	---	---	---	---	4	8	1	0	0	0	0
Total:	0	0	0	0	48	118	31	0	0	16	0
# Days:	0	0	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	3	8	2	0	0	1	0

Definitions for Smolt Index Counts

WTB (Collection) = Salmon River Trap at Whitebird : Collection Counts
 GRN (Collection) = Grande Ronde River Trap : 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) }

IMN (Collection) = Imnaha River Trap : Collection Counts
 LEW (Collection) = Snake River Trap at Lewiston : Collection Counts

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)
07/31/98	---	---	---	---	64	14	24	0	0	0	0
08/01/98	---	---	---	---	44	12	48	0	0	0	0
08/02/98	---	---	---	---	12	16	24	0	0	0	0
08/03/98	---	---	---	---	20	2	6	0	0	0	0
08/04/98	---	---	---	---	20	4	6	0	0	0	0
08/05/98	---	---	---	---	32	8	12	0	0	0	0
08/06/98	---	---	---	---	36	11	16	0	0	0	0
08/07/98	---	---	---	---	20	7	8	0	0	0	0
08/08/98	---	---	---	---	20	10	3	0	0	0	0
08/09/98	---	---	---	---	16	7	6	0	0	0	0
08/10/98	---	---	---	---	8	9	6	0	0	0	0
08/11/98	---	---	---	---	4	6	2	0	0	0	0
08/12/98	---	---	---	---	0	5	2	0	0	0	0
08/13/98	---	---	---	---	0	3	3	0	0	0	0
Total:	0	0	0	0	296	114	166	0	0	0	0
# Days:	0	0	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	21	8	12	0	0	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)
07/31/98	---	---	---	---	0	6	4	0	0	0	0
08/01/98	---	---	---	---	12	2	0	1	0	0	0
08/02/98	---	---	---	---	4	0	0	0	0	0	0
08/03/98	---	---	---	---	0	0	3	0	0	0	0
08/04/98	---	---	---	---	0	0	0	0	0	0	0
08/05/98	---	---	---	---	0	3	1	0	0	0	0
08/06/98	---	---	---	---	0	0	7	0	0	0	0
08/07/98	---	---	---	---	4	0	1	0	0	0	0
08/08/98	---	---	---	---	0	0	1	0	0	0	0
08/09/98	---	---	---	---	0	1	0	0	0	0	0
08/10/98	---	---	---	---	0	1	1	0	0	0	0
08/11/98	---	---	---	---	0	1	0	0	0	0	0
08/12/98	---	---	---	---	8	1	1	0	0	0	0
08/13/98	---	---	---	---	0	0	1	0	0	0	0
Total:	0	0	0	0	28	15	20	1	0	0	0
# Days:	0	0	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	2	1	1	0	0	0	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)
07/31/98	---	---	---	---	4	2	4	0	0	0	0
08/01/98	---	---	---	---	0	4	0	0	0	0	0
08/02/98	---	---	---	---	8	4	0	0	0	0	21
08/03/98	---	---	---	---	0	2	0	0	0	0	0
08/04/98	---	---	---	---	0	0	0	0	0	0	0
08/05/98	---	---	---	---	0	1	0	0	0	0	0
08/06/98	---	---	---	---	0	0	0	0	0	0	0
08/07/98	---	---	---	---	0	0	0	0	0	0	15
08/08/98	---	---	---	---	0	2	0	0	0	0	15
08/09/98	---	---	---	---	0	0	0	0	0	0	0
08/10/98	---	---	---	---	0	0	0	0	0	0	19
08/11/98	---	---	---	---	0	1	0	0	0	0	0
08/12/98	---	---	---	---	0	0	0	0	0	0	0
08/13/98	---	---	---	---	0	0	1	0	0	0	14
Total:	0	0	0	0	12	16	5	0	0	0	84
# Days:	0	0	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	1	1	0	0	0	0	6

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)
07/31/98	---	---	---	---	0	0	0	0	0	0	0
08/01/98	---	---	---	---	0	0	0	0	0	0	0
08/02/98	---	---	---	---	0	0	0	0	0	0	0
08/03/98	---	---	---	---	0	0	0	0	0	0	13
08/04/98	---	---	---	---	0	0	0	0	0	0	0
08/05/98	---	---	---	---	0	0	1	0	33	0	0
08/06/98	---	---	---	---	0	0	0	0	36	42	0
08/07/98	---	---	---	---	0	0	0	0	0	0	0
08/08/98	---	---	---	---	0	0	1	0	0	26	0
08/09/98	---	---	---	---	0	1	0	1	60	0	0
08/10/98	---	---	---	---	0	1	0	0	0	0	0
08/11/98	---	---	---	---	0	0	0	0	0	0	0
08/12/98	---	---	---	---	0	0	0	0	0	0	0
08/13/98	---	---	---	---	0	0	0	0	0	0	0
Total:	0	0	0	0	0	2	2	1	129	68	13
# Days:	0	0	0	0	14	14	14	14	14	14	14
Average:	0	0	0	0	0	0	0	0	9	5	1

LEW and WTB data collected for the FPC by Idaho Dept. of Fish and Game.

JDA and BO1 data collected for the FPC by National Marine Fisheries Service.

RIS data collected for the FPC by Chelan Co. PUD/Washington Dept. of Fish and Wildlife.

LGR, LMN, and MCN data collected for the FPC by Washington Dept. of Fish and Wildlife.

LGS and GRN data collected for the FPC by Oregon Dept. of Fish and Wildlife. IMN data collected for the FPC by the Nez Perce Tribe.

Cumulative Adult Passage at Mainstem Dams Through August 13, 1998

	Spring Chinook						Summer Chinook						Fall Chinook					
	1998		1997		10-Yr Avg.		1998		1997		10-Yr Avg.		1998		1997		10-Yr Avg.	
	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack
BON	38,253	762	114,000	963	71,826	2,812	21,433	2,674	27,939	1,926	21,772	2,906	5,619	480	5,535	546	7,156	623
TDA	25,330	503	69,365	375	44,144	1,889	15,475	1,565	20,201	1,255	18,063	2,140	1,179	171	1,575	205	6,939	1,152
JDA	22,495	418	62,253	327	34,393	1,541	16,907	1,557	20,508	1,261	15,790	1,851	647	145	881	233	1,608	201
MCN	19,456	335	57,832	404	33,819	1,722	16,082	1,380	20,934	1,417	16,965	1,827	352	98	398	128	878	112
IHR	12,420	131	41,398	75	18,178	714	5,470	299	9,196	122	4,618	417	10	0	17	2	15	2
LMN	10,627	126	38,479	146	17,565	767	4,285	297	9,153	100	4,391	442						
LGS	10,218	104	37,874	108	n/a	n/a	4,299	337	9,358	65	n/a	n/a						
LWG	9,881	106	33,855	81	15,110	655	4,392	322	10,674	126	4,375	428						
PRD	4,147	37	6,780	8	10,704	173	13,524	547	13,107	509	13,949	581						
RIS	3,270	54	6,153	52	8,534	192	10,754	908	10,702	552	11,352	931						
RRH	789	53	1,856	10	2,066	52	5,680	259	5,362	539	4,001	339						
WEL	6	4	942	29	1,204	50	2,260	863	2,462	130	2,302	207						

	Coho						Sockeye			Steelhead			
	1998		1997		10-Yr Avg.		1998	1997	10-Yr Avg.	1998	1997	10-Yr Avg.	Wild 1998
	Adult	Jack	Adult	Jack	Adult	Jack							
BON	47	3	43	1	42	36	13,163	46,985	51,124	69,661	140,493	104,941	21,974
TDA	0	0	1	0	2	1	8,779	32,339	40,141	14,120	39,973	40,074	4,939
JDA	10	5	0	0	1	0	9,973	35,791	40,516	20,791	29,641	24,367	4,559
MCN	0	0	0	0	0	0	9,456	37,980	42,593	10,284	24,420	22,203	2,575
IHR	0	0	0	0	0	0	0	14	9	6,290	11,244	11,104	1,321
LMN	0	0	0	0	0	0	2	16	10	4,678	9,066	9,241	1,036
LGS	0	0	0	0	n/a	n/a	4	9	n/a	3,608	6,127	n/a	1,044
LWG	0	0	0	0	0	0	3	9	7	5,610	6,993	8,301	1,355
PRD	1	1	0	0	1	0	11,576	45,194	47,239	1,189	1,597	2,339	0
RIS	9	0	5	0	3	0	9,266	40,894	41,048	840	1,088	1,732	0
RRH	0	0	0	0	1	0	5,570	29,833	21,150	713	732	1,019	0
WEL	0	3	2	1	0	0	3,562	24,825	19,965	294	314	667	0

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

1996, 1997, and 1998 counts were obtained from the Corps of Engineers.

1998 totals at LMN, RIS, and RRH are based on video counts accumulated through August 12.

1998 totals at LGS are based on video counts accumulated through August 11.

Adult count records at LGS have been maintained since 1993.

** - Through June 28, all (spring) chinook are being trapped and removed from the ladder at Wells prior to the counting window.

* - 1998 John Day Steelhead counts will be revised

Transportation Summary Report
Two-Week Transportation Summary
from 07/31/98 to 08/13/98

	Yearling Subyearling		Steelhead	Coho	Sockeye	Total
	Chinook	Chinook				
LOWER GRANITE DAM						
Collected	692	7,996	324	48	12	9,072
Bypassed	0	20	0	0	0	20
Trucked	676	7,828	320	46	11	8,881
Barged	0	0	0	0	0	0
Total Transported	676	7,828	320	46	11	8,881
LITTLE GOOSE DAM						
Collected	433	6,603	129	118	18	7,301
Bypassed	0	0	0	0	0	0
Trucked	420	6,432	114	101	18	7,085
Barged	0	0	0	0	0	0
Total Transported	420	6,432	114	101	18	7,085
LOWER MONUMENTAL DAM						
Collected	59	1,193	186	31	7	1,476
Bypassed	0	1	65	0	0	66
Trucked	39	1,124	118	28	6	1,315
Barged	0	0	0	0	0	0
Total Transported	39	1,124	118	28	6	1,315
M McNARY DAM						
Collected	50	303,977	0	0	120	304,147
Bypassed	0	0	0	0	0	0
Trucked	0	86,137	0	0	59	86,196
Barged	92	247,611	0	0	59	247,762
Total Transported	92	333,748	0	0	118	333,958
PROJECT TOTALS						
Collected	1,234	319,769	639	197	157	321,996
Bypassed	0	21	65	0	0	86
Trucked	1,135	101,521	552	175	94	103,477
Barged	92	247,611	0	0	59	247,762
Total Transported	1,227	349,132	552	175	153	351,239

Transportation Summary Report

Cumulative Transportation Summary through 08/13/98

	Yearling Chinook	Subyearling Chinook	Steelhead	Coho	Sockeye	Total
LOWER GRANITE DAM						
Collected	1,603,603	68,677	5,085,514	155,400	49,620	6,962,814
Bypassed	108,383	436	125,475	1,426	0	235,720
Trucked	40,925	58,739	67,810	6,338	620	174,432
Barged	1,449,633	8,532	4,888,200	147,145	48,911	6,542,421
Total Transported	1,490,558	67,271	4,956,010	153,483	49,531	6,716,853
LITTLE GOOSE DAM						
Collected	899,836	48,408	1,505,103	51,117	17,692	2,522,156
Bypassed	0	0	0	0	0	0
Trucked	13,585	44,881	9,967	3,455	829	72,717
Barged	874,575	1,663	1,490,712	47,129	16,696	2,430,775
Total Transported	888,160	46,544	1,500,679	50,584	17,525	2,503,492
LOWER MONUMENTAL DAM						
Collected	492,713	21,449	949,193	29,584	14,884	1,507,823
Bypassed	4,290	1,133	12,617	1,031	639	19,710
Trucked	1,321	16,093	4,403	455	263	22,535
Barged	485,912	3,913	931,488	28,063	13,963	1,463,339
Total Transported	487,233	20,006	935,891	28,518	14,226	1,485,874
M McNARY DAM						
Collected	1,044,077	8,120,543	327,356	125,972	512,150	10,130,098
Bypassed	1,004,308	163,229	316,015	109,189	492,648	2,085,389
Trucked	7,035	157,105	4,888	4,978	4,174	178,180
Barged	28,873	7,624,549	6,038	11,552	13,065	7,684,077
Total Transported	35,908	7,781,654	10,926	16,530	17,239	7,862,257
PROJECT TOTALS						
Collected	4,040,229	8,259,077	7,867,166	362,073	594,346	21,122,891
Bypassed	1,116,981	164,798	454,107	111,646	493,287	2,340,819
Trucked	62,866	276,818	87,068	15,226	5,886	447,864
Barged	2,838,993	7,638,657	7,316,438	233,889	92,635	18,120,612
Total Transported	2,901,859	7,915,475	7,403,506	249,115	98,521	18,568,476