



Fish Passage Center

Bi-Weekly Report #98-26

September 25, 1998

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SUMMARY OF EVENTS:

Water Supply: Precipitation has increased throughout the basin. Air temperatures are normal or a few degrees above normal for this time of the year.

System Storage: The reservoirs continue drafting. A summary of actual elevations on September 24, 1998 is shown in the following table:

Reservoir	Actual Elev. [ft] 9/24/98	Max. Pool [ft]
Libby	2438.8	2459.0
Hungry Horse	3536.8	3560.0
Grand Coulee	1282.0	1290.0
Brownlee	2022.0	2077.0
Dworshak	1519.3	1600.0

US reservoirs:

- Libby outflows decreased from 9.9 kcfs to 8 kcfs.
- Hungry Horse is currently drafting between 1.8 and 2.3 kcfs to maintain the minimum required flows of 3.5 kcfs at Columbia Falls.
- Grand Coulee is operating at elevations between 1280 and 1282 ft during September.
- Brownlee is drafting with outflows in the range of 16 to 24 kcfs and has a current outflow of 19 kcfs. This outflow is expected to continue through the end of October. Projected elevation by the end of October is about 2000 ft. Through November and December the outflow will be at a minimum of 9 kcfs. It is expected that the reservoir will be full by the beginning of December.
- Dworshak is operating at a minimum outflow of 1.3 kcfs through the end of September.

Upper Snake reservoirs:

The system continues to be operated primarily for irrigation demands, though they are decreasing and the system began fall releases for flood control.

Jackson Lake is drafting for irrigation and flood control releases at a rate of about 5.2 kcfs and is about 72% full.

Palisades is passing inflow of 5.5 kcfs and is about 77% full.

American Falls continues slow drafting to provide irrigation diversion flow downstream at Minidoka and for flood control releases. The current outflow is about 7.4 kcfs, approximately 3 kcfs higher than inflow. The reservoir is about 51% full.

Milner flow, at the lowest point in the Upper Snake system, increased flows to 3 kcfs due to lack of irrigation demand. Temporary increases in flow occurred at Milner as a result of structured problems. Irrigation withdrawal upstream of Minidoka decreased to about 5.8 kcfs. Irrigation withdrawal at the Upper Snake diversion, upstream from Blackfoot, decreased further to 3.8 kcfs.

Boise River Basin:

Anderson and Arrowrock continued slow drafting for irrigation withdrawals. Current reservoir capacities are 81% of full and 23% of full. The flow at Glenwood Bridge decreased to about 0.8 kcfs.

System Streamflow: The bi-weekly average flows increased as the effect of the change in weather conditions and increased outflows from Canadian reservoirs. The summary of average weekly flows for run of the river

projects during September 3 through 23 is shown in the following Table:

Project	September 10-23	September 3-9
Priest Rapids	85.9 kcfs	76.4 kcfs
McNary	112.5 kcfs	97.3 kcfs
Lower Granite	29.4 kcfs	22.5 kcfs
Bonneville	121.3 kcfs	107.5 kcfs

Smolt Monitoring. A rise in wild subyearling chinook passage indices was seen at Lower Granite Dam the latter part of this reporting period. This two-week reporting period began with the typical seasonal decline in passage at Lower Granite Dam reaching a low of 40-65 fish per day in mid-September before rebounding to over 400 fish per day since September 23. Little change from the previous reporting period has occurred at Little Goose and Lower Monumental dams where wild subyearling chinook passage indices have averaged 42 and 19 fish per day, respectively. Crappie have dominated the collections at the Snake River sites during this reporting period. In the lower Columbia River, monitoring resumed at McNary Dam at 1:15 p.m. September 15 after 10 days of no operation due to repair work in the bypass collection channel. Excluding the first partial day sample, the next seven days averaged 260 fish per day at McNary Dam, a substantial drop from earlier this month when subyearling chinook passage indices first dropped below 1,000 fish on September 5. Subyearling chinook passage indices at John Day averaged 127 fish per day during this reporting period. Juvenile shad have dominated the collections at the lower Columbia River sites during this reporting period. Subyearling chinook passage indices for Bonneville Dam may be lower than usual (zero on 5 days) due to the small percentage (14-24%) of flow passing through the first powerhouse where the trap sampler is located.

Adult Fish Passage: Passage of adult fall chinook at Bonneville during the past two weeks of September 11 through 24 had counts that ranged from a high of 8,600 early in the report week to a low of near 2,300 by the end of the reporting period. The season total through September 24 was 173,114, about 84.5% and 97.4% of the respective 1997 count and 10-year average. The Tule portion of the fall chinook run (fish destined primarily for Spring Creek NFH) has been less than required to meet full hatchery production this year, less than 3,000 adult female chinook are in the hatchery. However, the number of jack chinook returning to the hatchery may be a record, about 12,500 have arrived at the hatchery. The daily counts of adult fall chinook (Upriver Bright Component) at The Dalles Dam ranged between 900 and 5,800 for the past two weeks, with the season total of 74,766 (less than ½ the Bonneville total) through September 24. Adult fall chinook above McNary Dam totaled 36,354 through September 24; this total is 66.9% and 63.6% of the respective 1997 count and 10-year average. The adult fall chinook counts at Ice Harbor Dam ranged between 50 and 150 for the report period, with the cumulative count being 2,268. This total count is 115% of the 1997 and 97.5% of the 10-year average. At Lower Granite Dam, approximately 200 adult fall chinook (hatchery fish) captured at the adult trap have been taken back to Lyons Ferry Hatchery. Approximately 600 adult and jack chinook (wild and hatchery fish) have passed Lower Granite Dam. At Priest Rapids Dam, daily counts have been in the 50 to 250 range for the past two weeks, with the total approaching 7,700 for the season. The cumulative count is currently 75.5% and 84.3% of the respective 1997 total and 10-year average.

Steelhead passage at Bonneville Dam ranged from nearly 2,200 to 4,000 per day through the reporting period. The Bonneville count through September 24 exceeded 162,000 and was approximately 71% and 73% of the 1997 count and 10-year average, respectively. Steelhead passage showed a substantial increase from the previous reporting week. Of the steelhead counted at Bonneville Dam, about

65,000 have passed The Dalles Dam, or about 40% of the Bonneville total. Water temperatures were starting to drop but most remained near 70°F at the four lower Columbia dams for the two weeks. The wild steelhead count at Bonneville exceeded 33,300 for the season, about 20.5% of the total run.

The steelhead counts at Ice Harbor Dam ranged between 600 to 1,200 per day for the two weeks, with the total count through September 24 at 23,659. This total remained just over half the 1997 count and the 10-year average. At Lower Granite Dam, about 11,500 steelhead have been counted to date. The daily steelhead count at Priest Rapids Dam ranged between 50 and 150 for the two weeks, with the season total now 4,223. This total was approximately 63% and 58% of the respective 1997 count and 10-year average.

At Bonneville Dam, adult coho counts generally ranged between 1,000 to 3,000 fish per day, with the season total nearly 25,000. The coho count now surpasses the 1997 and 10-year average. These early returning coho appear to be exceeding expectations. Most coho passing Bonneville Dam normally return to Bonneville pool tributaries and hatcheries with a smaller portion destined for the Yakima River, the Umatilla River, a smaller number for the Clearwater River, and possibly a few destined for the Methow River. Approximately 2,000 adult coho have passed The Dalles Dam to date.

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
09/11/98	84.1	0.1	86.7	0.0	89.1	0.0	92.6	0.0	90.6	0.0	85.8	1.8	93.6	2.1
09/12/98	80.0	0.1	86.6	0.0	86.1	0.0	84.4	0.0	82.1	0.0	77.7	2.0	80.7	2.0
09/13/98	97.4	0.1	86.1	0.0	86.4	0.0	86.4	0.0	84.4	0.0	83.0	2.0	86.4	2.0
09/14/98	107.6	0.1	107.8	0.0	109.9	0.0	112.0	0.0	108.6	0.0	105.5	1.8	112.0	1.6
09/15/98	99.5	0.1	101.1	0.0	105.0	0.0	109.8	0.0	109.0	0.0	115.1	2.1	125.1	1.7
09/16/98	101.2	0.1	103.5	0.0	99.3	0.0	102.8	0.0	101.3	0.0	95.2	2.0	98.4	1.8
09/17/98	76.8	0.1	82.9	0.0	83.5	0.0	83.5	0.0	81.0	0.0	80.9	1.8	87.2	1.6
09/18/98	74.7	0.1	72.7	0.0	76.8	0.0	79.2	0.0	78.9	0.0	81.2	2.0	83.4	1.6
09/19/98	74.0	0.1	74.8	0.0	77.5	0.0	78.9	0.0	75.2	0.0	75.8	2.0	80.7	1.8
09/20/98	55.2	0.1	58.7	0.0	58.4	0.0	60.4	0.0	59.3	0.0	59.3	2.0	60.7	1.8
09/21/98	63.2	0.1	62.4	0.0	59.4	0.0	59.8	0.0	58.5	0.0	63.4	1.9	69.3	1.8
09/22/98	64.0	0.1	65.2	0.0	65.9	0.0	65.3	0.0	62.8	0.0	62.0	1.4	65.9	1.8
09/23/98	66.7	0.1	69.1	0.0	70.8	0.0	71.3	0.0	74.4	0.0	70.4	1.1	73.3	1.7
09/24/98	71.2	0.1	72.8	0.0	71.0	0.6	73.6	0.0	72.2	0.0	69.2	1.8	72.8	1.7

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
09/11/98	1.3	0.0	---	---	30.6	0.0	33.1	0.0	34.4	0.0	35.9	0.0
09/12/98	1.3	0.0	---	---	28.9	0.0	28.4	0.0	30.3	0.0	28.5	0.0
09/13/98	1.3	0.0	---	---	27.8	0.0	29.1	0.0	30.5	0.0	31.0	0.0
09/14/98	1.3	0.0	---	---	32.6	0.0	30.1	0.0	29.5	0.0	26.8	0.0
09/15/98	1.3	0.0	---	---	27.9	0.0	28.2	0.0	29.7	0.0	29.3	0.0
09/16/98	1.3	0.0	---	---	29.7	0.0	28.7	0.0	28.2	0.0	28.3	0.0
09/17/98	1.3	0.0	---	---	31.2	0.0	36.7	0.0	38.5	0.0	38.1	0.0
09/18/98	1.3	0.0	---	---	33.4	0.0	29.6	0.0	30.4	0.0	30.4	0.0
09/19/98	1.3	0.0	---	---	31.0	0.0	29.5	0.0	31.4	0.0	29.4	0.0
09/20/98	1.3	0.0	---	---	29.5	0.0	31.3	0.0	33.5	0.0	33.9	0.0
09/21/98	1.3	0.0	---	---	30.1	0.0	29.1	0.0	30.0	0.0	28.4	0.0
09/22/98	1.3	0.0	---	---	23.6	0.0	23.3	0.0	24.2	0.0	22.2	0.0
09/23/98	1.3	0.0	---	---	24.9	0.0	25.6	0.0	27.4	0.0	28.4	0.0
09/24/98	1.4	0.0	---	---	25.4	0.0	27.2	0.0	30.5	0.0	28.4	0.0

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		
09/11/98	116.4	0.0	113.4	1.0	109.5	0.0	109.2	0.0	16.0	84.0
09/12/98	108.3	0.0	118.0	1.0	123.3	0.0	128.4	0.0	17.5	101.7
09/13/98	116.2	0.0	121.0	1.0	118.3	0.0	124.6	0.0	22.7	92.7
09/14/98	121.3	0.0	117.3	1.1	118.8	0.0	121.2	0.0	21.7	90.3
09/15/98	141.9	0.0	140.5	1.1	139.3	0.0	147.2	0.0	33.3	104.7
09/16/98	135.6	0.0	145.8	1.0	141.3	0.0	141.6	0.0	37.4	95.0
09/17/98	134.9	0.0	150.8	0.9	149.8	0.0	160.2	0.0	54.5	96.5
09/18/98	139.2	0.0	130.0	1.0	129.8	0.0	132.1	0.0	27.7	95.2
09/19/98	102.9	0.0	102.3	1.0	104.5	0.0	116.3	0.0	16.4	90.7
09/20/98	82.5	0.0	103.7	1.0	106.0	0.0	119.0	0.0	15.1	94.7
09/21/98	94.9	0.0	101.9	1.0	103.4	0.0	101.3	0.0	19.4	73.7
09/22/98	88.8	0.0	91.4	1.0	95.1	0.0	101.5	0.0	21.8	70.5
09/23/98	103.8	0.0	96.8	1.0	99.3	0.0	100.3	0.0	21.0	70.1
09/24/98	87.6	0.0	89.3	1.0	87.2	0.0	95.9	0.0	20.8	65.9

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						
9/11	111	111	114	24	107	107	108	24	107	108	109	24	106	107	107	24	---	---	---	0	99	100	101	21
9/12	110	112	112	24	107	107	107	24	107	108	110	24	107	107	108	24	---	---	---	0	100	101	102	24
9/13	109	110	111	24	107	107	107	24	107	108	109	24	107	108	108	23	---	---	---	0	101	102	103	23
9/14	109	109	110	24	107	107	107	24	106	107	109	24	108	108	108	23	---	---	---	0	101	102	103	23
9/15	108	109	109	24	107	107	108	24	106	107	108	24	107	108	108	23	---	---	---	0	101	102	103	22
9/16	108	109	114	24	107	107	108	24	106	107	107	24	107	107	108	23	---	---	---	0	101	102	102	21
9/17	107	108	108	24	107	108	108	24	107	108	111	24	106	107	107	23	---	---	---	0	101	102	103	23
9/18	107	107	107	24	107	107	108	24	107	108	109	24	106	106	106	23	---	---	---	0	101	102	102	23
9/19	106	107	110	24	107	107	107	24	107	108	109	24	105	106	106	23	---	---	---	0	99	100	101	23
9/20	106	107	110	24	106	106	106	24	107	108	110	24	104	105	105	23	---	---	---	0	97	98	99	23
9/21	105	105	106	24	106	107	107	24	107	107	109	24	105	105	106	23	---	---	---	0	98	99	100	23
9/22	107	108	109	24	106	107	107	24	107	108	109	24	105	106	106	23	---	---	---	0	98	98	100	23
9/23	110	112	113	24	107	107	107	24	107	107	109	24	106	106	107	23	---	---	---	0	97	97	98	21
9/24	110	111	113	24	107	107	108	24	107	108	110	24	106	107	107	23	---	---	---	0	98	98	99	19

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						
9/11	---	---	---	0	100	102	104	24	106	106	107	24	---	---	---	0	---	---	---	0	---	---	---	0
9/12	---	---	---	0	101	102	104	24	106	106	107	23	---	---	---	0	---	---	---	0	---	---	---	0
9/13	---	---	---	0	101	102	104	23	106	106	107	20	---	---	---	0	---	---	---	0	---	---	---	0
9/14	---	---	---	0	102	103	104	22	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
9/15	---	---	---	0	102	103	103	22	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
9/16	---	---	---	0	101	102	102	20	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
9/17	---	---	---	0	102	103	104	23	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
9/18	---	---	---	0	101	102	103	23	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
9/19	---	---	---	0	101	102	102	23	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
9/20	---	---	---	0	99	99	101	23	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
9/21	---	---	---	0	98	98	99	23	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
9/22	---	---	---	0	98	99	99	23	103	103	104	9	---	---	---	0	---	---	---	0	---	---	---	0
9/23	---	---	---	0	98	98	99	22	103	103	103	11	---	---	---	0	---	---	---	0	---	---	---	0
9/24	---	---	---	0	99	99	100	21	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0

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						
9/11	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	100	101	103	24	97	98	98	22
9/12	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	101	101	102	24	97	98	98	23
9/13	---	---	---	0	107	109	111	24	---	---	---	0	---	---	---	0	101	102	103	24	98	98	98	21
9/14	---	---	---	0	108	108	109	24	---	---	---	0	---	---	---	0	101	103	106	24	97	97	98	19
9/15	---	---	---	0	108	109	110	24	---	---	---	0	---	---	---	0	102	103	105	24	98	98	98	17
9/16	---	---	---	0	107	108	109	24	---	---	---	0	---	---	---	0	101	103	105	24	98	99	100	20
9/17	---	---	---	0	107	108	109	24	---	---	---	0	---	---	---	0	101	102	103	24	99	99	100	22
9/18	---	---	---	0	109	111	112	24	---	---	---	0	---	---	---	0	99	99	100	24	98	98	99	16
9/19	---	---	---	0	107	108	108	24	---	---	---	0	---	---	---	0	98	98	99	24	97	98	98	24
9/20	---	---	---	0	107	108	110	24	---	---	---	0	---	---	---	0	97	97	97	24	97	97	97	24
9/21	---	---	---	0	108	109	112	24	---	---	---	0	---	---	---	0	97	97	98	20	97	97	97	18
9/22	---	---	---	0	107	108	109	24	---	---	---	0	---	---	---	0	97	97	98	24	96	96	97	11
9/23	---	---	---	0	107	108	112	24	---	---	---	0	---	---	---	0	97	98	99	24	96	96	96	1
9/24	---	---	---	0	106	107	108	24	---	---	---	0	---	---	---	0	97	98	98	24	97	97	97	4

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>Tlwtr L. Goose</u>			<u>Lower Mon.</u>			<u>Tlwtr L. Mon</u>			<u>Ice Harbor</u>			<u>Tlwtr 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	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High		
9/11	98	98	99	24	97	98	98	24	100	100	100	24	99	99	99	24	99	99	100	24
9/12	98	98	98	24	97	97	98	24	100	100	100	24	98	99	99	24	99	100	100	24
9/13	97	98	98	24	96	96	97	24	99	100	100	24	98	98	99	24	99	100	100	24
9/14	98	99	100	24	96	97	97	24	101	102	103	24	99	99	100	24	100	100	101	23
9/15	99	100	101	24	97	97	98	24	101	102	104	22	100	101	101	22	100	101	101	16
9/16	99	100	101	24	97	97	98	24	100	101	102	24	99	100	100	24	101	101	102	24
9/17	98	98	99	8	97	97	97	8	99	100	102	24	99	99	99	24	101	102	104	24
9/18	---	---	---	0	---	---	---	0	98	98	98	11	97	97	97	11	99	99	100	24
9/19	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	98	98	98	24
9/20	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	98	98	99	24
9/21	---	---	---	0	---	---	---	0	97	97	97	24	96	97	98	24	96	96	97	16
9/22	95	95	95	1	---	---	---	0	96	97	97	24	96	97	97	24	96	96	97	24
9/23	95	95	95	5	---	---	---	0	96	96	96	24	96	96	97	24	97	97	98	24
9/24	95	96	96	23	---	---	---	0	96	96	97	24	96	96	97	24	97	97	97	24

Total Dissolved Gas Saturation Data at Lower Columbia Sites

Date	<u>McNary-Oregon</u>			<u>McNary-Wash.</u>			<u>Tlwtr McNary</u>			<u>John Day</u>			<u>Tlwtr 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	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High		
9/11	103	105	107	23	101	102	103	23	100	100	100	23	99	99	100	24	99	99	100	24
9/12	103	106	109	24	102	103	107	24	100	100	100	24	100	100	101	24	99	99	100	24
9/13	104	107	110	24	105	106	107	24	101	102	102	24	99	99	100	23	99	99	101	24
9/14	108	111	113	24	106	107	109	24	102	103	104	24	100	100	100	23	99	99	100	24
9/15	105	108	111	24	108	110	111	24	104	104	105	24	100	100	101	23	99	99	100	24
9/16	107	109	111	24	106	108	110	24	103	104	104	24	99	99	99	23	99	99	100	24
9/17	105	106	108	24	107	108	110	24	103	104	104	24	99	99	100	11	99	99	100	9
9/18	103	104	104	24	103	103	104	24	101	101	102	24	---	---	---	0	---	---	98	98
9/19	102	103	103	24	102	102	102	24	101	101	101	24	---	---	---	0	---	---	---	0
9/20	101	103	104	24	101	101	101	24	99	99	100	24	---	---	---	0	---	---	---	0
9/21	101	102	104	22	100	100	100	24	99	99	100	24	---	---	---	0	---	---	---	0
9/22	101	103	106	23	101	101	104	23	99	99	99	23	---	---	---	0	---	---	---	0
9/23	101	103	107	24	103	103	104	24	100	101	101	24	---	---	---	0	---	---	---	0
9/24	102	104	106	24	103	104	105	24	101	102	103	24	---	---	---	0	---	---	---	0

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>CamasWash.</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	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High		
9/11	100	100	101	24	99	99	100	24	102	102	103	24	100	100	101	24	100	101	102	24
9/12	100	101	101	24	100	100	100	24	102	102	103	24	100	101	101	24	101	101	102	24
9/13	100	101	101	24	100	100	100	23	102	103	103	23	101	101	101	23	101	101	102	24
9/14	100	101	102	24	100	100	101	23	103	103	104	23	101	101	102	23	101	102	102	24
9/15	100	101	102	23	101	101	101	23	103	103	103	23	101	101	101	7	101	101	102	12
9/16	100	101	101	24	100	100	101	23	102	102	103	23	---	---	---	0	---	---	99	99
9/17	100	100	101	24	100	100	100	23	102	102	103	23	---	---	---	0	---	---	---	0
9/18	98	98	99	8	99	99	100	23	101	102	102	23	---	---	---	0	---	---	---	0
9/19	---	---	---	0	98	99	99	23	101	101	101	23	---	---	---	0	---	---	---	0
9/20	---	---	---	0	99	99	99	23	101	101	102	23	---	---	---	0	---	---	---	0
9/21	---	---	---	0	99	99	99	23	101	102	103	23	---	---	---	0	---	---	---	0
9/22	---	---	---	0	98	99	99	23	102	103	103	23	---	---	---	0	---	---	---	0
9/23	---	---	---	0	98	98	99	23	100	101	101	23	---	---	---	0	---	---	---	0
9/24	---	---	---	0	98	99	99	23	100	100	100	23	---	---	---	0	---	---	---	0

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

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)
09/11/98	---	---	---	---	5	0	0	---	---	0	0
09/12/98	---	---	---	---	6	0	0	---	---	0	0
09/13/98	---	---	---	---	8	0	0	---	---	0	0
09/14/98	---	---	---	---	3	3	0	---	---	0	0
09/15/98	---	---	---	---	2	2	0	---	---	---	0
09/16/98	---	---	---	---	4	2	0	---	0	0	0
09/17/98	---	---	---	---	2	3	0	---	0	0	0
09/18/98	---	---	---	---	1	3	0	---	0	0	0
09/19/98	---	---	---	---	6	2	0	---	0	0	0
09/20/98	---	---	---	---	5	1	0	---	12	0	0
09/21/98	---	---	---	---	1	2	1	---	0	4	0
09/22/98	---	---	---	---	2	2	0	---	0	0	0
09/23/98	---	---	---	---	3	3	3	---	0	0	0
09/24/98	---	---	---	---	4	0	0	---	---	0	0
Total:	0	0	0	0	52	23	4	0	12	4	0
# Days:	0	0	0	0	14	14	14	0	8	13	14
Average:	0	0	0	0	4	2	0	0	2	0	0

Wild Yearling Chinook

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)
09/11/98	---	---	---	---	2	0	0
09/12/98	---	---	---	---	2	0	0
09/13/98	---	---	---	---	3	0	0
09/14/98	---	---	---	---	2	0	2
09/15/98	---	---	---	---	2	0	0
09/16/98	---	---	---	---	0	0	0
09/17/98	---	---	---	---	0	1	1
09/18/98	---	---	---	---	3	0	2
09/19/98	---	---	---	---	3	0	0
09/20/98	---	---	---	---	1	0	0
09/21/98	---	---	---	---	0	0	0
09/22/98	---	---	---	---	2	0	0
09/23/98	---	---	---	---	5	0	0
09/24/98	---	---	---	---	1	0	0
Total:	0	0	0	0	26	1	5
# Days:	0	0	0	0	14	14	14
Average:	0	0	0	0	2	0	0

Wild Subyearling Chinook

LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	
174	29	18	
128	56	27	
103	30	35	
60	18	11	
65	51	18	
61	52	17	
40	61	23	
62	78	22	
90	40	14	
106	16	6	
218	19	15	
356	38	29	
429	59	18	
402	46	10	
Total:	2,294	593	263
# Days:	14	14	14
Average:	164	42	19

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)
09/11/98	---	---	---	---	0	0	0	---	---	146	50
09/12/98	---	---	---	---	0	0	1	---	---	137	0
09/13/98	---	---	---	---	0	0	0	---	---	121	0
09/14/98	---	---	---	---	0	0	0	---	---	117	62
09/15/98	---	---	---	---	0	0	0	---	---	---	99
09/16/98	---	---	---	---	0	0	0	---	80	137	99
09/17/98	---	---	---	---	0	0	0	---	306	193	33
09/18/98	---	---	---	---	0	0	0	---	252	218	18
09/19/98	---	---	---	---	0	0	0	---	324	242	78
09/20/98	---	---	---	---	0	0	0	---	444	166	175
09/21/98	---	---	---	---	0	0	1	---	204	93	0
09/22/98	---	---	---	---	0	0	1	---	180	44	0
09/23/98	---	---	---	---	0	0	1	---	108	16	35
09/24/98	---	---	---	---	0	0	1	---	---	24	0
Total:	0	0	0	0	0	0	5	0	1,898	1,654	649
# Days:	0	0	0	0	14	14	14	0	8	13	14
Average:	0	0	0	0	0	0	0	0	237	127	46

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)
09/11/98	---	---	---	---	4	2	0	---	---	0	0
09/12/98	---	---	---	---	6	6	1	---	---	0	0
09/13/98	---	---	---	---	2	2	1	---	---	0	0
09/14/98	---	---	---	---	5	1	0	---	---	0	0
09/15/98	---	---	---	---	1	0	1	---	---	---	0
09/16/98	---	---	---	---	1	1	2	---	0	0	0
09/17/98	---	---	---	---	2	1	0	---	0	0	0
09/18/98	---	---	---	---	2	1	1	---	0	0	0
09/19/98	---	---	---	---	2	2	0	---	0	0	0
09/20/98	---	---	---	---	1	2	0	---	0	0	0
09/21/98	---	---	---	---	2	0	0	---	0	0	0
09/22/98	---	---	---	---	3	4	0	---	0	0	0
09/23/98	---	---	---	---	2	3	0	---	0	0	0
09/24/98	---	---	---	---	0	1	0	---	---	0	0
Total:	0	0	0	0	33	26	6	0	0	0	0
# Days:	0	0	0	0	14	14	14	0	8	13	14
Average:	0	0	0	0	2	2	0	0	0	0	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)
09/11/98	---	---	---	---	1	2	0	---	---	0	0
09/12/98	---	---	---	---	0	0	2	---	---	0	0
09/13/98	---	---	---	---	1	0	0	---	---	0	0
09/14/98	---	---	---	---	0	0	3	---	---	0	0
09/15/98	---	---	---	---	0	0	0	---	---	---	0
09/16/98	---	---	---	---	0	0	1	---	0	0	0
09/17/98	---	---	---	---	1	1	4	---	0	0	0
09/18/98	---	---	---	---	0	3	1	---	0	0	0
09/19/98	---	---	---	---	2	4	3	---	0	0	0
09/20/98	---	---	---	---	1	1	0	---	0	0	0
09/21/98	---	---	---	---	0	3	1	---	0	0	0
09/22/98	---	---	---	---	1	2	2	---	0	0	0
09/23/98	---	---	---	---	0	7	1	---	6	0	0
09/24/98	---	---	---	---	0	0	3	---	---	0	0
Total:	0	0	0	0	7	23	21	0	6	0	0
# Days:	0	0	0	0	14	14	14	0	8	13	14
Average:	0	0	0	0	1	2	2	0	1	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)
09/11/98	---	---	---	---	0	2	0	---	---	0	0
09/12/98	---	---	---	---	2	0	3	---	---	0	0
09/13/98	---	---	---	---	1	0	2	---	---	0	0
09/14/98	---	---	---	---	0	0	2	---	---	0	0
09/15/98	---	---	---	---	1	0	2	---	---	---	0
09/16/98	---	---	---	---	0	0	2	---	0	0	0
09/17/98	---	---	---	---	0	2	0	---	0	0	0
09/18/98	---	---	---	---	0	0	1	---	0	0	0
09/19/98	---	---	---	---	0	1	0	---	0	0	0
09/20/98	---	---	---	---	0	0	0	---	0	0	0
09/21/98	---	---	---	---	1	1	1	---	0	0	0
09/22/98	---	---	---	---	1	1	1	---	0	0	0
09/23/98	---	---	---	---	0	1	1	---	0	0	0
09/24/98	---	---	---	---	1	0	0	---	---	0	0
Total:	0	0	0	0	7	8	15	0	0	0	0
# Days:	0	0	0	0	14	14	14	0	8	13	14
Average:	0	0	0	0	1	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)
09/11/98	---	---	---	---	0	1	0	---	---	0	0
09/12/98	---	---	---	---	1	1	0	---	---	0	0
09/13/98	---	---	---	---	0	0	0	---	---	0	0
09/14/98	---	---	---	---	0	0	0	---	---	0	0
09/15/98	---	---	---	---	0	0	1	---	---	---	0
09/16/98	---	---	---	---	0	0	0	---	0	0	0
09/17/98	---	---	---	---	0	0	0	---	0	0	0
09/18/98	---	---	---	---	0	1	2	---	0	0	0
09/19/98	---	---	---	---	0	0	0	---	0	0	0
09/20/98	---	---	---	---	0	0	0	---	0	0	0
09/21/98	---	---	---	---	0	0	0	---	0	0	0
09/22/98	---	---	---	---	0	0	0	---	0	0	0
09/23/98	---	---	---	---	0	0	0	---	0	0	0
09/24/98	---	---	---	---	0	0	0	---	---	0	0
Total:	0	0	0	0	1	3	3	0	0	0	0
# Days:	0	0	0	0	14	14	14	0	8	13	14
Average:	0	0	0	0	0	0	0	0	0	0	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)
09/11/98	---	---	---	---	0	0	0	---	---	0	0
09/12/98	---	---	---	---	0	0	0	---	---	0	0
09/13/98	---	---	---	---	0	0	0	---	---	0	0
09/14/98	---	---	---	---	0	0	0	---	---	0	0
09/15/98	---	---	---	---	0	0	0	---	---	---	0
09/16/98	---	---	---	---	0	0	0	---	0	0	0
09/17/98	---	---	---	---	0	0	0	---	0	0	0
09/18/98	---	---	---	---	0	0	0	---	0	0	0
09/19/98	---	---	---	---	1	0	0	---	0	0	0
09/20/98	---	---	---	---	0	0	0	---	0	0	0
09/21/98	---	---	---	---	0	0	0	---	0	0	0
09/22/98	---	---	---	---	0	0	0	---	0	0	0
09/23/98	---	---	---	---	0	0	0	---	6	0	0
09/24/98	---	---	---	---	0	0	0	---	---	0	0
Total:	0	0	0	0	1	0	0	0	6	0	0
# Days:	0	0	0	0	14	14	14	0	8	13	14
Average:	0	0	0	0	0	0	0	0	1	0	0

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 September 24, 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	173,114	22,608	204,890	16,081	177,691	12,760
TDA	25,330	503	69,365	375	44,144	1,889	15,475	1,565	20,201	1,255	18,063	2,140	74,766	12,854	106,506	9,209	104,122	18,382
JDA	22,495	418	62,253	327	34,393	1,541	16,907	1,557	20,508	1,261	15,790	1,851	53,151	6,540	75,856	7,182	74,917	12,626
MCN	19,456	335	57,832	404	33,819	1,722	16,223	1,413	20,934	1,417	16,965	1,827	36,354	6,301	54,331	6,429	57,182	11,725
IHR	12,420	131	41,398	75	18,178	714	5,485	299	9,196	122	4,618	417	2,404	933	1,969	313	2,327	420
LMN	10,627	126	38,479	146	17,565	767	4,319	301	9,153	100	4,391	442	1,564	13,788	1,549	273	1,313	306
LGS	10,218	104	37,874	108	n/a	n/a	4,345	341	9,372	65	n/a	n/a	833	368	1,046	90	n/a	n/a
LWG	9,881	106	33,855	81	15,110	655	4,440	325	10,709	127	4,392	430	733	320	834	90	472	73
PRD	4,147	37	6,780	8	10,704	173	13,951	612	13,107	509	13,949	581	7,764	1,083	10,175	878	9,114	1,265
RIS	3,270	54	6,153	52	8,534	192	11,689	1,127	10,960	614	11,712	998	2,465	597	2,939	496	3,440	813
RRH	789	53	1,856	10	2,066	52	6,817	332	5,614	694	4,258	397	1,654	196	1,350	520	1,734	357
WEL	6	4	942	29	1,204	50	2,829	924	2,569	152	2,716	280	601	54	245	87	629	142

	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	25,101	1,680	16,863	1,850	14,649	4,576	13,121	47,008	51,155	162,220	229,887	222,812	33,305
TDA	1,893	294	2,639	419	2,879	1,341	8,797	32,424	40,184	65,273	124,050	136,454	17,165
JDA	833	179	1,748	396	1,992	1,021	10,016	35,826	40,545	75,499	97,330	40,545	14,075
MCN	110	12	686	149	423	282	9,487	38,043	42,636	36,362	73,991	79,929	8,080
IHR	0	0	1	0	0	0	2	16	11	23,659	43,099	46,923	4,230
LMN	0	0	0	0	0	1	2	16	11	16,488	35,045	37,688	2,965
LGS	2	0	0	0	n/a	n/a	4	9	n/a	9,790	23,660	n/a	2,340
LWG	1	0	0	0	0	0	3	11	8	11,584	23,721	25,623	2,616
PRD	11	1	11	0	5	1	11,608	45,412	47,427	4,223	6,736	7,292	0
RIS	9	0	5	0	9	0	9,318	41,486	41,394	2,930	5,422	5,901	0
RRH	0	0	0	0	4	0	5,672	30,485	21,421	2,505	4,366	3,745	0
WEL	0	3	2	1	3	0	3,882	25,726	20,511	1,105	2,412	2,733	52

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 September 23.

1998 totals at LGS are based on video counts accumulated through September 22.

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

NOTE: 1998 counts this week are through 9/24/98

NOTE: PRD, RIS, and RRH, are not reporting Wild Steelhead numbers.

Transportation Summary Report

Two-Week Transportation Summary from 09/11/98 to 09/24/98

	Yearling Chinook	Subyearling Chinook	Steelhead	Coho	Sockeye	Total
LOWER GRANITE DAM						
Collected	78	2,294	14	33	2	2,421
Bypassed	0	388	12	18	0	418
Trucked	74	1,786	0	8	1	1,869
Barged	0	0	0	0	0	0
Total Transported	74	1,786	0	8	1	1,869
LITTLE GOOSE DAM						
Collected	24	593	31	26	3	677
Bypassed	0	0	29	0	0	29
Trucked	24	564	0	24	3	615
Barged	0	0	0	0	0	0
Total Transported	24	564	0	24	3	615
LOWER MONUMENTAL DAM						
Collected	9	268	36	6	3	322
Bypassed	0	0	25	0	0	25
Trucked	9	250	4	6	3	272
Barged	0	0	0	0	0	0
Total Transported	9	250	4	6	3	272
M McNARY DAM						
Collected	12	1,898	6	0	6	1,922
Bypassed	0	9	0	0	0	9
Trucked	11	1,858	6	0	6	1,881
Barged	0	0	0	0	0	0
Total Transported	11	1,858	6	0	6	1,881
PROJECT TOTALS						
Collected	123	5,053	87	65	14	5,342
Bypassed	0	397	66	18	0	481
Trucked	118	4,458	10	38	13	4,637
Barged	0	0	0	0	0	0
Total Transported	118	4,458	10	38	13	4,637

Transportation Summary Report

Cumulative Transportation Summary through 09/24/98

	Yearling Chinook	Subyearling Chinook	Steelhead	Coho	Sockeye	Total
LOWER GRANITE DAM						
Collected	1,603,997	76,820	5,085,580	155,481	49,628	6,971,506
Bypassed	108,383	868	125,504	1,444	0	236,199
Trucked	41,300	66,077	67,843	6,392	626	182,238
Barged	1,449,633	8,532	4,888,200	147,145	48,911	6,542,421
Total Transported	1,490,933	74,609	4,956,043	153,537	49,537	6,724,659
LITTLE GOOSE DAM						
Collected	900,021	52,431	1,505,191	51,259	17,726	2,526,628
Bypassed	0	0	44	0	0	44
Trucked	13,742	48,771	10,006	3,592	859	76,970
Barged	874,575	1,663	1,490,712	47,129	16,696	2,430,775
Total Transported	888,317	50,434	1,500,718	50,721	17,555	2,507,745
LOWER MONUMENTAL DAM						
Collected	492,753	22,817	949,306	29,624	14,893	1,509,393
Bypassed	4,290	1,133	12,693	1,031	639	19,786
Trucked	1,354	17,390	4,429	492	272	23,937
Barged	485,912	3,913	931,488	28,063	13,963	1,463,339
Total Transported	487,266	21,303	935,917	28,555	14,235	1,487,276
M McNARY DAM						
Collected	1,044,101	8,265,469	327,380	125,972	512,268	10,275,190
Bypassed	1,004,298	163,821	316,015	109,189	492,648	2,085,971
Trucked	7,065	300,213	4,907	4,978	4,291	321,454
Barged	28,873	7,624,549	6,038	11,552	13,065	7,684,077
Total Transported	35,938	7,924,762	10,945	16,530	17,356	8,005,531
PROJECT TOTALS						
Collected	4,040,872	8,417,537	7,867,457	362,336	594,515	21,282,717
Bypassed	1,116,971	165,822	454,256	111,664	493,287	2,342,000
Trucked	63,461	432,451	87,185	15,454	6,048	604,599
Barged	2,838,993	7,638,657	7,316,438	233,889	92,635	18,120,612
Total Transported	2,902,454	8,071,108	7,403,623	249,343	98,683	18,725,211