



Fish Passage Center

Bi-Weekly Report #98-28

October 23, 1998

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SUMMARY OF EVENTS:

Water Supply: For the period of October 1 through 20, precipitation was below normal for the most of the sites in the Columbia basin except in the upper Columbia, the NW and SW Washington Cascades, the Willamette and Clearwater rivers. The maximum precipitation was at Okanogan with 162% of normal (for 1961-1990 period). The minimum precipitation was at Harney/Malheur Basin with 16% of normal for the same period. Precipitation at the Columbia above Coulee was 99% of normal, at the Columbia above The Dalles was 78% of normal and at the Snake River above Ice harbor was 54% of normal.

The mid range weather forecast for the region calls for continuation of light precipitation and temperatures that are close to normal for this time of year.

System Storage: The reservoirs continue drafting. A summary of actual elevations on October 22, 1998 is shown in the following table:

Reservoir	Actual Elev. [ft] 10/22/98	Max. Pool [ft]
Libby	2343.42	2459.0
Hungry Horse	3532.43	3560.0
Grand Coulee	1283.80	1290.0
Brownlee	2010.68	2077.0
Dworshak	1518.08	1600.0

US reservoirs:

- Libby outflows were decreased from 8 kcfs to 6 kcfs on October 19 and will continue at this level to the end of October. The project is being operated to meet the December 31 flood control elevation of 2411 feet.
- Hungry Horse is currently drafting and releasing slightly more than 2 kcfs per day to maintain the minimum required flows of 3.5 kcfs at Columbia Falls.
- Grand Coulee is operating at elevations around 1283 to 1284 ft.
- Brownlee is in refill and outflow was decreased from 20 kcfs on October 17 to 9 kcfs. This outflow is expected to continue through the middle of December. Projected elevation by the end of October is about 2025 ft. It is expected that the reservoir will be about full by the beginning of December.
- Dworshak is in refill and operating at an outflow of about 1.4 kcfs, which is slightly above minimum, for purposes of meeting the 110% gas criteria.

System Streamflow: The summary of average bi-weekly flows for run of the river projects during September 24 through October 22 is shown in the following Table:

Project	October 9-22	September 24-October 8
Priest Rapids	74.5 kcfs	73.6 kcfs
McNary	100.4 kcfs	99.2 kcfs
Lower Granite	25.5 kcfs	27.3 kcfs
Bonneville	101.3 kcfs	109.7 kcfs

Smolt Monitoring: Subyearling wild chinook collections in the Snake River have steadily decreased over the past two weeks. The average subyearling wild chinook collection for the past seven days of this 2-week reporting period was 32 fish/day at Lower Granite Dam, 5 fish/day at Little Goose Dam, and 1 fish/day at Lower Monumental Dam. Incidental collection of non-salmonids at Snake River dams was dominated by crappie during the past two weeks with highs in the 1,100-1,200 range at Lower Granite and Lower Monumental dams and a range of 1,402 to 13,255 crappie at Little Goose Dam.

Subyearling chinook (mixture of wild and hatchery stocks) collections in the lower Columbia River have oscillated between single and triple digit counts during this past two weeks, without showing any steady decreasing trend as was observed in the Snake River drainage. The average subyearling chinook collection for the past seven days of this 2-week reporting period was 56 fish/day at McNary Dam and 25 fish/day at John Day Dam. The subyearling chinook passage index at Bonneville Dam during this same time was 25 fish/day. Incidental collection of non-salmonids at lower Columbia River dams was dominated by shad. During the past two weeks, estimated passage in the bypass channel of shad averaged approximately 56,000 fish/day at McNary Dam and 12,000 fish/day at John Day Dam. Estimated numbers of shad passing through the bypass channel during the 8-hrs of monitoring at Bonneville Dam Powerhouse 1 ranged from a low of around 50 fish to a high of nearly 118,000 fish during the past two weeks.

Adult Passage: Adult (plus jacks) passage of fall chinook has decreased at Bonneville Dam during the past two-week reporting period. Daily passage of fall chinook (adults and jacks) at Bonneville Dam averaged 356 fish/day during the first week and 151 fish/day during the second week, with a cumulative total through October 22 of 216,628 fish. This is approximately 2% lower than the 10-year average through October 22. The cumulative total adult and jack fall chinook count through October 22 is 76,152 fish at Mc-

Nary Dam, 10,739 fish at Priest Rapids Dam, 7,593 fish at Ice Harbor Dam, and 3,572 fish at Lower Granite Dam. This is approximately 18% lower at McNary Dam, 16% lower at Priest Rapids Dam, 61% higher at Ice Harbor Dam, and 236% higher at Lower Granite Dam than the 10-year average on this date.

A request was made by the States of Washington and Oregon as well as the USFWS to the operating agencies and National Marine Fisheries Service to increase flows at Bonneville Dam. The increased flows would allow greater utilization of spawning habitat between Hamilton and Ives Island for naturally spawning fall chinook. The request was denied as requested but is currently under continuing consideration.

Adult passage of steelhead has decreased at Bonneville Dam during the past two-week reporting period. Daily passage of adult steelhead at Bonneville Dam averaged 357 fish/day during the first week and 134 fish/day during the second week, with a cumulative total through October 22 of 184,198 fish (19% wild). This is approximately 21% lower than the 10-year average through October 22. The cumulative total adult steelhead count through October 22 is 94,025 fish (18% wild) at McNary Dam, 5,654 fish (unknown wild) at Priest Rapids Dam, 72,024 fish (14% wild) at Ice Harbor Dam, and 54,768 fish (14% wild) at Lower Granite Dam. This is approximately 26% lower at McNary Dam, 36% lower at Priest Rapids Dam, 24% lower at Ice Harbor Dam, and 23% lower at Lower Granite Dam than the 10-year average on this date.

Hatchery Releases: None occurred during the past two weeks, and none are planned for the next two weeks.

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
10/09/98	65.7	0.0	67.5	0.0	68.8	0.0	70.3	0.0	67.7	0.0	67.8	10.9	74.9	1.5
10/10/98	44.9	0.0	45.3	0.0	46.7	0.0	49.4	0.0	49.9	0.0	52.6	3.5	59.0	1.6
10/11/98	54.1	0.0	56.3	0.0	58.1	0.0	59.9	0.0	57.9	0.0	57.3	4.0	62.5	1.6
10/12/98	83.0	0.0	81.6	0.0	81.9	0.0	85.7	0.0	84.4	0.0	80.1	10.1	79.4	1.6
10/13/98	66.6	0.0	71.6	0.0	74.1	0.0	76.3	0.0	75.3	0.0	77.4	9.7	83.2	1.7
10/14/98	63.1	0.0	63.3	0.0	64.3	0.0	66.2	0.0	63.0	0.0	73.6	7.2	82.2	1.5
10/15/98	61.8	0.0	59.2	0.0	58.7	0.0	60.1	0.0	58.7	0.0	82.0	3.7	92.1	1.4
10/16/98	61.9	0.0	66.6	0.0	70.8	0.0	73.9	0.0	72.5	0.0	76.4	0.9	82.2	1.3
10/17/98	40.8	0.0	42.3	0.0	43.4	0.0	47.2	0.0	46.0	0.0	55.9	0.6	61.6	1.3
10/18/98	43.8	0.0	44.8	0.0	46.5	0.0	47.7	0.0	46.0	0.0	44.9	0.6	48.0	1.4
10/19/98	78.6	0.0	80.4	0.0	80.0	0.0	82.6	0.0	79.8	0.0	81.2	0.7	85.5	1.2
10/20/98	75.6	0.0	76.7	0.0	78.8	0.0	81.3	0.0	79.4	0.0	75.4	0.7	77.8	1.2
10/21/98	66.5	0.0	68.3	0.0	71.7	0.0	75.5	0.0	74.8	0.0	70.1	0.6	85.1	0.3
10/22/98	67.2	0.0	67.2	0.0	67.3	0.0	70.0	0.0	67.5	0.0	67.3	0.6	68.9	0.0

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

Date	Dworshak		Brownlee		Lower Granite		Little Goose		Lower Monumenta		Ice Harbor	
	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill	Flow	Spill
10/09/98	1.6	0.0	---	---	27.8	0.0	26.3	0.0	26.8	0.0	27.1	0.0
10/10/98	1.5	0.0	---	---	30.5	0.0	32.4	0.0	34.2	0.0	34.5	0.0
10/11/98	1.4	0.0	---	---	27.9	0.0	27.1	0.0	29.7	0.0	28.8	0.0
10/12/98	1.4	0.0	---	---	28.6	0.0	28.4	0.0	28.4	0.0	29.0	0.0
10/13/98	1.4	0.0	---	---	28.1	0.0	27.0	0.0	28.4	0.0	26.4	0.0
10/14/98	1.4	0.0	---	---	28.2	0.0	28.4	0.0	29.8	0.0	30.2	0.0
10/15/98	1.4	0.0	---	---	29.4	0.0	28.7	0.0	30.2	0.0	28.8	0.0
10/16/98	1.4	0.0	---	---	27.9	0.0	28.6	0.0	31.7	0.0	31.9	0.0
10/17/98	1.4	0.0	---	---	29.2	0.0	28.1	0.0	28.2	0.0	29.2	0.0
10/18/98	1.4	0.0	---	---	27.3	0.0	30.8	0.0	31.6	0.0	29.7	0.0
10/19/98	1.4	0.0	---	---	17.4	0.0	17.8	0.0	19.5	0.0	19.9	0.0
10/20/98	1.4	0.0	---	---	18.3	0.0	17.0	0.0	17.4	0.0	15.6	0.0
10/21/98	1.4	0.0	---	---	18.2	0.0	18.1	0.0	18.1	0.0	18.0	0.0
10/22/98	1.4	0.0	---	---	18.4	0.0	17.7	0.0	17.6	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		
10/09/98	104.5	0.0	101.4	1.2	102.4	0.0	104.9	0.0	54.8	41.1
10/10/98	101.4	0.0	112.4	1.1	112.1	0.0	112.3	0.0	47.8	55.5
10/11/98	83.2	0.0	81.1	1.1	89.8	0.0	100.2	0.0	44.6	46.6
10/12/98	91.4	0.0	96.7	1.1	96.0	0.0	110.2	0.0	51.9	49.3
10/13/98	125.7	0.0	123.5	1.1	123.3	0.0	128.4	0.0	55.8	63.6
10/14/98	110.3	0.0	109.4	1.1	112.1	0.0	117.4	0.0	56.2	52.2
10/15/98	119.1	0.0	132.1	1.2	127.1	0.0	121.0	0.0	58.5	53.9
10/16/98	88.9	0.0	100.6	0.9	104.3	0.0	114.1	0.0	60.8	44.7
10/17/98	102.1	0.0	109.7	1.0	110.8	0.0	115.6	0.0	63.3	43.7
10/18/98	81.4	0.0	92.9	1.0	96.1	0.0	114.0	0.0	62.5	42.9
10/19/98	84.5	0.0	82.7	1.0	84.4	0.0	95.5	0.0	53.3	33.5
10/20/98	94.0	0.0	86.7	0.9	88.6	0.0	107.9	0.0	58.0	41.3
10/21/98	107.2	0.0	111.9	1.0	113.2	0.0	112.5	0.0	58.4	45.9
10/22/98	92.7	0.0	97.8	1.0	98.9	0.0	108.2	0.0	57.6	42.2

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	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High						
10/9	102	102	103	24	103	104	104	24	104	105	106	24	104	104	104	24	---	---	---	0	---	---	---	0
10/10	102	103	103	24	103	103	103	24	104	104	105	24	103	104	104	24	---	---	---	0	---	---	---	0
10/11	106	107	108	24	103	103	103	24	103	104	104	24	103	103	104	23	---	---	---	0	---	---	---	0
10/12	108	109	110	24	103	103	103	24	102	103	104	24	103	103	104	23	---	---	---	0	---	---	---	0
10/13	108	109	110	24	103	103	103	24	102	103	104	24	103	104	104	23	---	---	---	0	---	---	---	0
10/14	108	109	110	24	103	103	103	24	103	103	104	24	103	103	103	11	---	---	---	0	---	---	---	0
10/15	104	105	108	23	102	102	103	23	102	103	104	23	---	---	---	0	---	---	---	0	---	---	---	0
10/16	101	102	102	24	101	101	102	20	101	101	102	20	---	---	---	0	---	---	---	0	---	---	---	0
10/17	101	101	102	24	101	101	102	24	101	102	103	24	---	---	---	0	---	---	---	0	---	---	---	0
10/18	101	101	101	24	100	100	101	24	101	101	102	24	---	---	---	0	---	---	---	0	---	---	---	0
10/19	105	105	106	24	100	100	100	24	99	100	101	24	---	---	---	0	---	---	---	0	---	---	---	0
10/20	106	106	107	24	99	99	100	24	99	100	102	24	---	---	---	0	---	---	---	0	---	---	---	0
10/21	106	106	107	24	100	100	100	24	100	100	102	24	---	---	---	0	---	---	---	0	---	---	---	0
10/22	107	108	109	24	100	100	100	24	100	101	103	24	---	---	---	0	---	---	---	0	---	---	---	0

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	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High						
10/9	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
10/10	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
10/11	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
10/12	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
10/13	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
10/14	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
10/15	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
10/16	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
10/17	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
10/18	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
10/19	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
10/20	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
10/21	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
10/22	---	---	---	0	---	---	---	0	---	---	---	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	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High	Avg	Avg	High						
10/9	---	---	---	0	---	---	---	0	999	999	999	99	---	---	---	0	97	98	99	24	---	---	---	0
10/10	---	---	---	0	---	---	---	0	999	999	999	99	---	---	---	0	97	97	97	24	---	---	---	0
10/11	---	---	---	0	108	109	110	24	---	---	---	0	---	---	---	0	97	98	98	24	---	---	---	0
10/12	---	---	---	0	109	109	110	24	---	---	---	0	---	---	---	0	99	99	99	24	---	---	---	0
10/13	---	---	---	0	109	110	111	24	---	---	---	0	---	---	---	0	99	99	99	24	---	---	---	0
10/14	---	---	---	0	109	110	110	24	---	---	---	0	---	---	---	0	98	98	99	24	---	---	---	0
10/15	---	---	---	0	109	109	110	24	---	---	---	0	---	---	---	0	100	101	115	23	---	---	---	0
10/16	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	98	98	99	24	---	---	---	0
10/17	---	---	---	0	---	---	---	0	999	999	999	99	---	---	---	0	98	98	98	24	---	---	---	0
10/18	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	98	98	98	24	---	---	---	0
10/19	---	---	---	0	109	110	113	24	---	---	---	0	---	---	---	0	98	99	99	24	---	---	---	0
10/20	---	---	---	0	108	109	110	18	---	---	---	0	---	---	---	0	98	99	99	24	---	---	---	0
10/21	---	---	---	0	108	109	110	24	---	---	---	0	---	---	---	0	99	100	100	24	---	---	---	0
10/22	---	---	---	0	108	109	110	24	---	---	---	0	---	---	---	0	99	100	100	24	---	---	---	0

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	hr	Avg	Avg High	hr	Avg	Avg High	hr	Avg	Avg High	hr	Avg	Avg High	hr	Avg	Avg High	hr						
10/9	95	95	95	17	---	---	---	0	---	---	---	0	95	96	96	19	96	97	97	24	97	97	98	24
10/10	95	95	95	24	---	---	---	0	---	---	---	0	95	95	96	15	96	96	96	24	97	97	97	24
10/11	96	96	96	24	---	---	---	0	---	---	---	0	96	96	96	7	96	96	97	24	97	97	98	24
10/12	96	96	97	24	---	---	---	0	---	---	---	0	---	---	---	0	96	97	97	24	97	97	97	24
10/13	96	96	97	24	---	---	---	0	---	---	---	0	96	96	97	24	96	96	97	24	97	97	98	24
10/14	97	97	97	24	---	---	---	0	---	---	---	0	95	95	95	7	96	96	97	3	98	98	98	3
10/15	96	97	97	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
10/16	96	96	96	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
10/17	96	96	97	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
10/18	95	95	96	24	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
10/19	95	95	95	8	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0	---	---	---	0
10/20	95	95	95	9	---	---	---	0	---	---	---	0	---	---	---	0	95	95	95	1	97	97	98	24
10/21	95	96	96	24	---	---	---	0	---	---	---	0	---	---	---	0	95	95	96	7	97	98	98	21
10/22	96	96	96	24	---	---	---	0	---	---	---	0	---	---	---	0	95	95	96	16	97	98	98	16

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	hr	Avg	Avg High	hr	Avg	Avg High	hr	Avg	Avg High	hr	Avg	Avg High	hr	Avg	Avg High	hr						
10/9	98	99	100	24	99	100	100	24	99	100	100	24	---	---	---	0	---	---	---	0	---	---	---	0
10/10	100	101	102	24	100	100	100	24	99	99	100	24	---	---	---	0	---	---	---	0	---	---	---	0
10/11	103	103	104	24	100	100	101	24	99	99	100	24	---	---	---	0	---	---	---	0	---	---	---	0
10/12	105	106	106	24	100	100	100	24	99	99	99	24	---	---	---	0	---	---	---	0	---	---	---	0
10/13	107	107	107	24	99	99	100	24	99	99	100	24	---	---	---	0	---	---	---	0	---	---	---	0
10/14	105	108	114	24	100	101	104	24	99	100	102	23	---	---	---	0	---	---	---	0	---	---	---	0
10/15	99	100	101	24	99	100	100	24	98	98	99	24	---	---	---	0	---	---	---	0	---	---	---	0
10/16	99	100	101	24	98	99	99	24	98	98	98	24	---	---	---	0	---	---	---	0	---	---	---	0
10/17	99	99	100	24	99	100	100	24	99	99	100	24	---	---	---	0	---	---	---	0	---	---	---	0
10/18	98	99	100	24	99	99	100	24	98	98	99	24	---	---	---	0	---	---	---	0	---	---	---	0
10/19	98	99	100	24	99	99	100	24	98	98	98	24	---	---	---	0	---	---	---	0	---	---	---	0
10/20	98	99	100	23	100	100	101	23	98	99	99	23	---	---	---	0	---	---	---	0	---	---	---	0
10/21	99	100	101	24	100	100	101	24	99	100	100	24	---	---	---	0	---	---	---	0	---	---	---	0
10/22	99	100	101	24	100	100	100	24	99	99	100	24	---	---	---	0	---	---	---	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>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						
10/9	---	---	---	0	97	97	98	24	98	98	98	24	---	---	---	0	---	---	---	0	---	---	---	0
10/10	---	---	---	0	97	97	97	24	97	97	98	24	---	---	---	0	---	---	---	0	---	---	---	0
10/11	---	---	---	0	97	97	98	23	98	98	98	23	---	---	---	0	---	---	---	0	---	---	---	0
10/12	---	---	---	0	97	97	98	23	98	98	98	23	---	---	---	0	---	---	---	0	---	---	---	0
10/13	---	---	---	0	97	98	98	23	98	98	98	23	---	---	---	0	---	---	---	0	---	---	---	0
10/14	---	---	---	0	98	98	99	23	98	99	99	23	---	---	---	0	---	---	---	0	---	---	---	0
10/15	---	---	---	0	97	97	98	23	99	99	99	23	---	---	---	0	---	---	---	0	---	---	---	0
10/16	---	---	---	0	96	96	97	24	98	98	99	24	---	---	---	0	---	---	---	0	---	---	---	0
10/17	---	---	---	0	97	97	97	24	98	98	99	24	---	---	---	0	---	---	---	0	---	---	---	0
10/18	---	---	---	0	96	97	97	24	98	98	99	24	---	---	---	0	---	---	---	0	---	---	---	0
10/19	---	---	---	0	96	97	97	23	98	98	99	22	---	---	---	0	---	---	---	0	---	---	---	0
10/20	---	---	---	0	97	97	97	23	98	99	100	23	---	---	---	0	---	---	---	0	---	---	---	0
10/21	---	---	---	0	98	98	98	23	99	99	100	23	---	---	---	0	---	---	---	0	---	---	---	0
10/22	---	---	---	0	98	98	98	23	99	99	99	23	---	---	---	0	---	---	---	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

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)
10/09/98	---	---	---	---	10	1	0	---	0	0	0
10/10/98	---	---	---	---	10	2	0	---	0	0	0
10/11/98	---	---	---	---	11	2	0	---	0	0	0
10/12/98	---	---	---	---	23	1	0	---	0	0	0
10/13/98	---	---	---	---	57	2	1	---	6	0	0
10/14/98	---	---	---	---	21	2	0	---	0	0	0
10/15/98	---	---	---	---	48	1	0	---	0	0	0
10/16/98	---	---	---	---	38	1	0	---	0	0	0
10/17/98	---	---	---	---	44	1	0	---	0	0	0
10/18/98	---	---	---	---	47	1	0	---	0	0	0
10/19/98	---	---	---	---	56	3	0	---	0	0	0
10/20/98	---	---	---	---	43	1	0	---	0	0	0
10/21/98	---	---	---	---	28	2	0	---	0	0	0
10/22/98	---	---	---	---	17	0	0	---	0	0	0
Total:	0	0	0	0	453	20	1	0	6	0	0
# Days:	0	0	0	0	14	14	14	0	14	14	14
Average:	0	0	0	0	32	1	0	0	0	0	0

Wild Yearling Chinook

Date	WTB (Coll)	IMN (Coll)	GRN (Coll)	LEW (Coll)	LGR (INDEX)	LGS (INDEX)	LMN (INDEX)
10/09/98	---	---	---	---	1	0	0
10/10/98	---	---	---	---	1	1	0
10/11/98	---	---	---	---	0	2	1
10/12/98	---	---	---	---	0	0	0
10/13/98	---	---	---	---	1	0	1
10/14/98	---	---	---	---	0	0	0
10/15/98	---	---	---	---	2	1	1
10/16/98	---	---	---	---	2	0	0
10/17/98	---	---	---	---	4	0	0
10/18/98	---	---	---	---	2	0	0
10/19/98	---	---	---	---	2	0	0
10/20/98	---	---	---	---	2	0	0
10/21/98	---	---	---	---	0	0	0
10/22/98	---	---	---	---	0	0	0
Total:	0	0	0	0	17	4	3
# Days:	0	0	0	0	14	14	14
Average:	0	0	0	0	1	0	0

Wild Subyearling Chinook

LGR (INDEX)	LGS (INDEX)	LMN (INDEX)	
132	22	0	
86	10	1	
56	8	12	
88	7	13	
73	31	9	
81	15	11	
61	4	5	
28	9	1	
29	6	2	
40	5	2	
35	3	0	
30	2	1	
36	6	0	
26	4	2	
Total:	801	132	59
# Days:	14	14	14
Average:	57	9	4

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)
10/09/98	---	---	---	---	0	0	0	---	66	8	49
10/10/98	---	---	---	---	0	0	0	---	54	4	26
10/11/98	---	---	---	---	0	0	0	---	42	8	41
10/12/98	---	---	---	---	0	0	0	---	60	24	39
10/13/98	---	---	---	---	0	0	0	---	114	16	34
10/14/98	---	---	---	---	0	0	0	---	138	16	46
10/15/98	---	---	---	---	0	0	0	---	138	32	46
10/16/98	---	---	---	---	0	0	0	---	84	44	14
10/17/98	---	---	---	---	0	0	0	---	54	16	47
10/18/98	---	---	---	---	0	0	0	---	42	12	20
10/19/98	---	---	---	---	0	0	0	---	48	20	7
10/20/98	---	---	---	---	0	0	0	---	48	28	21
10/21/98	---	---	---	---	0	0	0	---	48	12	43
10/22/98	---	---	---	---	0	0	0	---	66	40	14
Total:	0	0	0	0	0	0	0	0	1,002	280	447
# Days:	0	0	0	0	14	14	14	0	14	14	14
Average:	0	0	0	0	0	0	0	0	72	20	32

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)
10/09/98	---	---	---	---	0	0	0	---	0	0	0
10/10/98	---	---	---	---	0	0	0	---	0	0	0
10/11/98	---	---	---	---	1	0	0	---	0	0	0
10/12/98	---	---	---	---	5	1	0	---	0	0	0
10/13/98	---	---	---	---	2	0	0	---	0	0	17
10/14/98	---	---	---	---	3	2	0	---	0	0	0
10/15/98	---	---	---	---	0	0	0	---	0	0	8
10/16/98	---	---	---	---	1	0	0	---	0	0	7
10/17/98	---	---	---	---	0	0	0	---	0	0	7
10/18/98	---	---	---	---	0	0	0	---	0	0	0
10/19/98	---	---	---	---	0	0	0	---	0	0	0
10/20/98	---	---	---	---	0	0	0	---	0	0	0
10/21/98	---	---	---	---	1	0	0	---	0	0	7
10/22/98	---	---	---	---	0	0	0	---	0	0	7
Total:	0	0	0	0	13	3	0	0	0	0	53
# Days:	0	0	0	0	14	14	14	0	14	14	14
Average:	0	0	0	0	1	0	0	0	0	0	4

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)
10/09/98	---	---	---	---	0	1	0	---	0	0	0
10/10/98	---	---	---	---	0	0	1	---	0	0	0
10/11/98	---	---	---	---	0	0	0	---	0	0	0
10/12/98	---	---	---	---	1	1	0	---	0	0	0
10/13/98	---	---	---	---	0	0	0	---	0	0	0
10/14/98	---	---	---	---	1	0	0	---	0	0	0
10/15/98	---	---	---	---	0	0	1	---	0	0	0
10/16/98	---	---	---	---	0	0	1	---	0	0	0
10/17/98	---	---	---	---	0	0	0	---	0	0	0
10/18/98	---	---	---	---	0	0	0	---	0	0	0
10/19/98	---	---	---	---	0	0	0	---	0	0	0
10/20/98	---	---	---	---	0	1	0	---	0	0	0
10/21/98	---	---	---	---	0	0	0	---	0	0	0
10/22/98	---	---	---	---	0	0	0	---	0	0	0
Total:	0	0	0	0	2	3	3	0	0	0	0
# Days:	0	0	0	0	14	14	14	0	14	14	14
Average:	0	0	0	0	0	0	0	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)
10/09/98	---	---	---	---	2	0	0	---	0	0	0
10/10/98	---	---	---	---	2	0	0	---	0	0	0
10/11/98	---	---	---	---	1	0	0	---	0	0	0
10/12/98	---	---	---	---	1	0	0	---	0	0	0
10/13/98	---	---	---	---	1	0	0	---	0	0	0
10/14/98	---	---	---	---	1	0	0	---	0	0	0
10/15/98	---	---	---	---	1	0	0	---	0	0	0
10/16/98	---	---	---	---	0	0	0	---	0	0	7
10/17/98	---	---	---	---	0	0	0	---	0	0	0
10/18/98	---	---	---	---	2	0	0	---	0	0	0
10/19/98	---	---	---	---	3	0	0	---	0	0	0
10/20/98	---	---	---	---	0	0	0	---	0	0	0
10/21/98	---	---	---	---	2	0	0	---	0	0	0
10/22/98	---	---	---	---	0	0	0	---	0	0	0
Total:	0	0	0	0	16	0	0	0	0	0	7
# Days:	0	0	0	0	14	14	14	0	14	14	14
Average:	0	0	0	0	1	0	0	0	0	0	1

Definitions for Smolt Index Counts.

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

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

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

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

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)	
10/09/98	---	---	---	---	0	0	0	---	0	0	0	
10/10/98	---	---	---	---	0	0	0	---	0	0	0	
10/11/98	---	---	---	---	0	0	0	---	0	0	0	
10/12/98	---	---	---	---	0	0	0	---	0	0	0	
10/13/98	---	---	---	---	0	0	0	---	0	0	0	
10/14/98	---	---	---	---	0	0	0	---	0	0	0	
10/15/98	---	---	---	---	0	0	0	---	0	0	0	
10/16/98	---	---	---	---	1	1	0	---	0	0	0	
10/17/98	---	---	---	---	4	0	0	---	0	0	0	
10/18/98	---	---	---	---	1	0	0	---	0	0	0	
10/19/98	---	---	---	---	0	0	0	---	0	0	0	
10/20/98	---	---	---	---	1	0	0	---	0	0	0	
10/21/98	---	---	---	---	3	0	0	---	0	0	0	
10/22/98	---	---	---	---	0	0	0	---	0	0	0	
Total:	0	0	0	0	10	1	0	0	0	0	0	
# Days:	0	0	0	0	14	14	14	0	14	14	14	
Average:	0	0	0	0	1	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)	
10/09/98	---	---	---	---	0	0	0	---	0	0	0	
10/10/98	---	---	---	---	0	0	0	---	0	0	0	
10/11/98	---	---	---	---	0	0	0	---	0	0	0	
10/12/98	---	---	---	---	0	0	0	---	0	0	0	
10/13/98	---	---	---	---	0	0	0	---	0	0	0	
10/14/98	---	---	---	---	0	0	0	---	0	0	0	
10/15/98	---	---	---	---	0	0	0	---	0	0	0	
10/16/98	---	---	---	---	0	0	0	---	0	4	0	
10/17/98	---	---	---	---	0	0	0	---	0	0	0	
10/18/98	---	---	---	---	0	0	0	---	0	0	0	
10/19/98	---	---	---	---	0	0	0	---	0	0	0	
10/20/98	---	---	---	---	1	0	0	---	0	0	0	
10/21/98	---	---	---	---	0	0	0	---	0	0	0	
10/22/98	---	---	---	---	0	0	0	---	0	4	0	
Total:	0	0	0	0	1	0	0	0	0	8	0	
# Days:	0	0	0	0	14	14	14	0	14	14	14	
Average:	0	0	0	0	0	0	0	0	0	1	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 October 22, 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	188,237	28,391	213,867	22,975	186,971	34,627
TDA	25,330	503	69,365	375	44,144	1,889	15,475	1,565	20,201	1,255	18,063	2,140	92,081	18,934	117,306	14,325	114,866	25,364
JDA	22,495	418	62,253	327	34,393	1,541	16,907	1,557	20,508	1,261	15,790	1,851	77,342	11,555	85,714	13,608	84,934	19,252
MCN	19,456	335	57,832	404	33,819	1,722	16,223	1,413	20,934	1,417	16,965	1,827	62,998	13,154	66,581	14,502	70,899	21,486
IHR	12,420	131	41,398	75	18,178	714	5,485	299	9,196	122	4,618	417	4,203	3,390	2,712	1,467	3,432	1,286
LMN	10,627	126	38,479	146	17,565	767	4,319	301	9,153	100	4,391	442	2,960	16,118	2,251	1,185	2,018	932
LGS	10,218	104	37,874	108	n/a	n/a	4,345	341	9,372	65	n/a	n/a	2,053	2,389	1,573	517	n/a	n/a
LWG	9,881	106	33,855	81	15,110	655	4,440	325	10,709	127	4,392	430	1,790	1,782	1,391	426	818	246
PRD	4,147	37	6,780	8	10,704	173	13,951	612	13,107	509	13,949	581	9,259	1,480	11,079	1,359	10,520	2,296
RIS	3,270	54	6,153	52	8,534	192	11,689	1,127	10,960	614	11,712	998	3,435	896	3,846	793	4,354	1,705
RRH	789	53	1,856	10	2,066	52	6,817	332	5,614	694	4,258	397	2,460	358	1,905	730	2,343	660
WEL	6	4	942	29	1,204	50	2,829	924	2,569	152	2,716	280	822	124	375	130	893	271

	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	43,562	3,506	22,959	3,029	19,835	6,553	13,121	47,008	51,155	184,198	254,508	233,951	35,389
TDA	7,036	724	3,989	645	4,447	2,046	8,827	32,429	40,186	105,811	161,195	167,617	22,353
JDA	6,580	812	3,445	696	3,357	1,651	9,986	35,830	40,547	152,114	149,554	138,846	28,218
MCN	4,739	195	2,227	307	1,216	681	9,425	38,043	42,642	94,025	123,994	127,722	16,812
IHR	10	4	83	1	9	0	2	16	11	72,024	89,533	94,687	10,045
LMN	0	0	24	1	3	2	2	16	11	58,300	80,970	82,372	7,600
LGS	206	0	46	2	n/a	n/a	4	10	n/a	57,791	69,022	n/a	8,088
LWG	31	2	52	5	5	1	3	11	8	54,768	69,822	71,184	7,833
PRD	0	1	23	1	12	1	11,608	45,412	47,428	5,654	8,771	8,859	0
RIS	0	0	5	0	63	0	9,323	41,504	41,413	4,643	7,512	7,563	0
RRH	1	0	0	0	28	0	5,682	30,485	21,428	4,023	6,356	4,963	0
WEL	0	3	2	5	17	1	4,561	25,754	20,523	2,259	3,789	3,873	185

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 October 21.

1998 totals at LGS are based on video counts accumulated through October 20.

Adult count records at LGS have been maintained since 1993.

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

NOTE: 1998 John Day Steelhead counts will be revised downwards.

NOTE: Fall Chinook Jack count at LMN based on FPC analysis is actually 1975.

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

NOTE: RIS 1998 Coho count revised from 9 to zero based on FPC communication with WDFW.

Transportation Summary Report

Two-Week Transportation Summary from 10/09/98 to 10/22/98

	Yearling Chinook	Subyearling Chinook	Steelhead	Coho	Sockeye	Total
LOWER GRANITE DAM						
Collected	470	801	18	13	11	1,313
Bypassed	0	0	17	4	0	21
Trucked	468	713	0	8	11	1,200
Barged	0	0	0	0	0	0
Total Transported	468	713	0	8	11	1,200
LITTLE GOOSE DAM						
Collected	24	132	3	3	1	163
Bypassed	0	0	3	0	0	3
Trucked	24	127	0	3	1	155
Barged	0	0	0	0	0	0
Total Transported	24	127	0	3	1	155
LOWER MONUMENTAL DAM						
Collected	4	59	3	0	0	66
Bypassed	0	0	2	0	0	2
Trucked	4	57	0	0	0	61
Barged	0	0	0	0	0	0
Total Transported	4	57	0	0	0	61
M McNARY DAM						
Collected	6	1,002	0	0	0	1,008
Bypassed	0	215	0	0	0	215
Trucked	6	769	0	0	0	775
Barged	0	0	0	0	0	0
Total Transported	6	769	0	0	0	775
PROJECT TOTALS						
Collected	504	1,994	24	16	12	2,550
Bypassed	0	215	22	4	0	241
Trucked	502	1,666	0	11	12	2,191
Barged	0	0	0	0	0	0
Total Transported	502	1,666	0	11	12	2,191

Transportation Summary Report

Cumulative Transportation Summary through 10/22/98

	Yearling Chinook	Subyearling Chinook	Steelhead	Coho	Sockeye	Total
LOWER GRANITE DAM						
Collected	1,604,584	81,665	5,085,623	155,521	49,641	6,977,034
Bypassed	108,386	1,003	125,540	1,458	0	236,387
Trucked	41,854	70,137	67,843	6,413	638	186,885
Barged	1,449,633	8,532	4,888,200	147,145	48,911	6,542,421
Total Transported	1,491,487	78,669	4,956,043	153,558	49,549	6,729,306
LITTLE GOOSE DAM						
Collected	900,087	52,870	1,505,210	51,274	17,729	2,527,170
Bypassed	0	0	61	0	0	61
Trucked	13,805	49,159	10,006	3,606	862	77,438
Barged	874,575	1,663	1,490,712	47,129	16,696	2,430,775
Total Transported	888,380	50,822	1,500,718	50,735	17,558	2,508,213
LOWER MONUMENTAL DAM						
Collected	492,763	22,944	949,320	29,627	14,895	1,509,549
Bypassed	4,290	1,133	12,703	1,031	639	19,796
Trucked	1,363	17,506	4,429	495	274	24,067
Barged	485,912	3,913	931,488	28,063	13,963	1,463,339
Total Transported	487,275	21,419	935,917	28,558	14,237	1,487,406
M McNARY DAM						
Collected	1,044,247	8,267,753	327,380	125,972	512,268	10,277,620
Bypassed	1,004,336	164,036	316,015	109,189	492,648	2,086,224
Trucked	7,071	302,095	4,907	4,978	4,291	323,342
Barged	28,972	7,624,665	6,038	11,552	13,065	7,684,292
Total Transported	36,043	7,926,760	10,945	16,530	17,356	8,007,634
PROJECT TOTALS						
Collected	4,041,681	8,425,232	7,867,533	362,394	594,533	21,291,373
Bypassed	1,117,012	166,172	454,319	111,678	493,287	2,342,468
Trucked	64,093	438,897	87,185	15,492	6,065	611,732
Barged	2,839,092	7,638,773	7,316,438	233,889	92,635	18,120,827
Total Transported	2,903,185	8,077,670	7,403,623	249,381	98,700	18,732,559