

FIFTIETH ANNUAL REPORT

OF THE

**Upper Colorado
River Commission**



SALT LAKE CITY, UTAH

SEPTEMBER 30, 1998

FIFTIETH ANNUAL REPORT

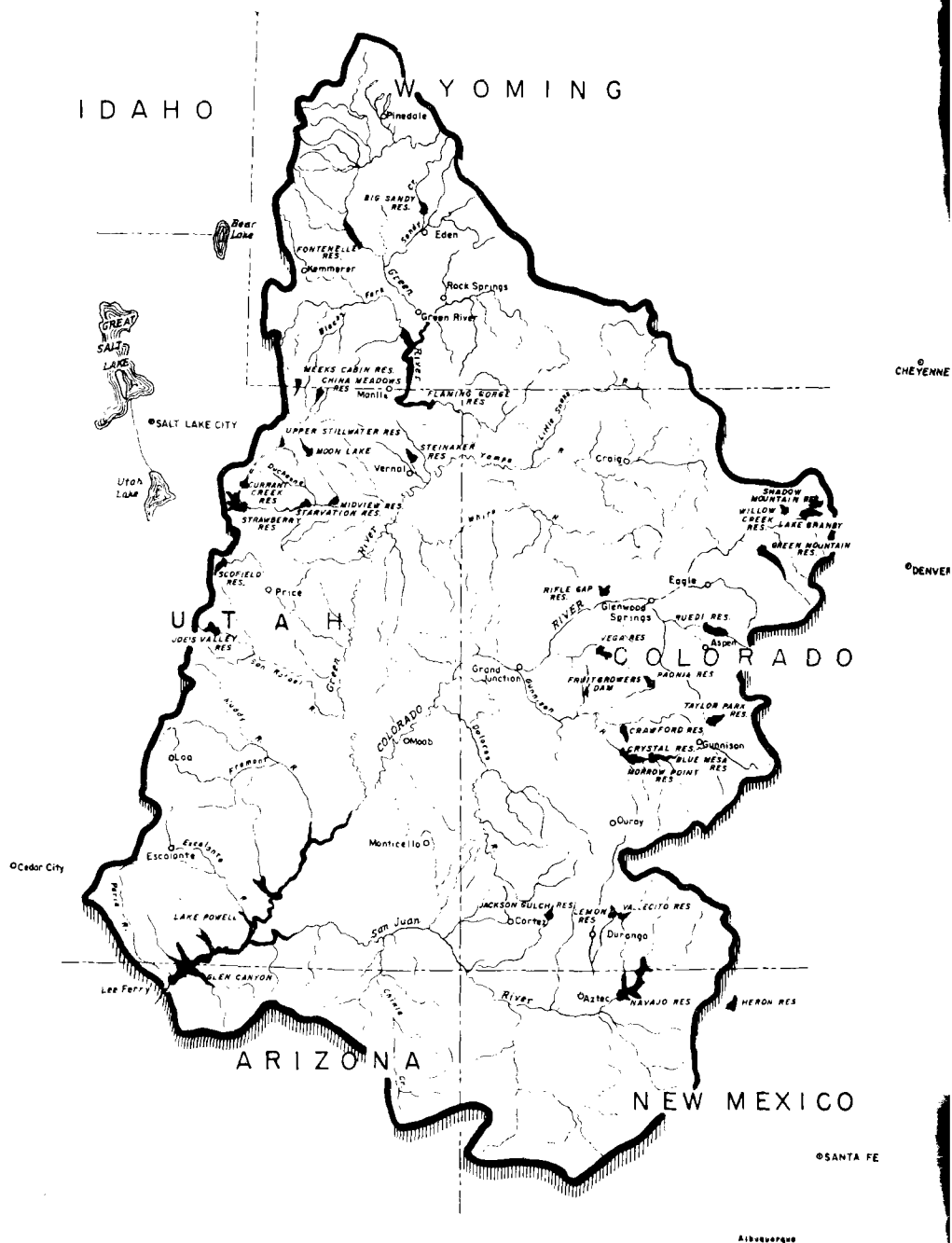
OF THE

Upper Colorado River Commission



SALT LAKE CITY, UTAH

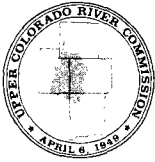
SEPTEMBER 30, 1998



UPPER COLORADO RIVER BASIN

UPPER COLORADO RIVER
COMMISSION

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SCALE OF MILES



UPPER COLORADO RIVER COMMISSION

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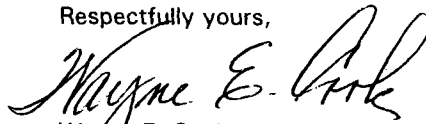
Mr. President:

The Fiftieth Annual Report of the Upper Colorado River Commission, as required by Article VIII(d)(13) of the Upper Colorado River Basin Compact, is enclosed.

The budget of the Commission for fiscal year 2000 (July 1, 1999 - June 30, 2000) is included in this report as Appendix B.

This report has also been transmitted to the Governor of each State signatory to the Upper Colorado River Basin Compact.

Respectfully yours,



Wayne E. Cook
Executive Director

The President
The White House
Washington, D. C. 20500

Enclosure

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PREFACE

Article VIII(d)(13) of the Upper Colorado River Basin Compact requires the Upper Colorado River Commission to "make and transmit annually to the Governors of the signatory States and the President of the United States of America, with the estimated budget, a report covering the activities of the Commission for the preceding water year."

Article VIII(1) of the By-Laws of the Commission specifies that "the Commission shall make and transmit annually on or before April 1 to the Governors of the states signatory to the Upper Colorado River Basin Compact and to the President of the United States a report covering the activities of the Commission for the water year ending the preceding September 30."

This Fiftieth Annual Report of the Upper Colorado River Commission has been compiled pursuant to the above directives.

This Annual Report includes, among other things, the following:

- Membership of the Commission, its Committees, Advisers, and Staff;
- Roster of meetings of the Commission;
- Brief discussion of the activities of the Commission;
- Engineering and hydrologic data;
- Pertinent legal information;
- Information pertaining to congressional legislation;
- Map of the Upper Colorado River Basin;
- Status of the Storage Units and participating projects of the Colorado River Storage Project;
- Appendices containing:
 - Fiscal data, such as: budget, balance sheet, statements of revenue and expense.
 - Transmountain diversions, etc.

COMMISSION



James S. Lochhead
Commissioner for
Colorado



Phillip B. Mutz
Commissioner for
New Mexico



Frank E. (Sam) Maynes
Chairman
Commissioner for
United States



D. Larry Anderson
Commissioner for
Utah



Gordon W. Fassett
Commissioner for
Wyoming

ALTERNATE COMMISSIONERS

Daries C. (Chuck) Lile
Dallin W. Jensen
Dan S. Budd
Aaron H. McGinnis

State of Colorado
State of Utah
State of Wyoming
State of Wyoming

OFFICERS OF THE COMMISSION

Chairman
Vice Chairman
Secretary
Treasurer
Assistant Treasurer

Frank E. (Sam) Maynes
James S. Lochhead
Wayne E. Cook
Ronald A. Schulthies
Roger Dean

STAFF

Executive Director
Assistant to the Executive Director
and General Counsel
Staff Engineer
Administrative Secretary

Wayne E. Cook

Jane Bird
Everett E. Sunderland
P. J. Magura

COMMITTEES

The Committees of the Commission convened when required during the year. Committees and their membership at the date of this report are as follows (the Chairman and the Secretary of the Commission are ex-officio members of all committees, Article V(4) of the By-Laws):

Engineering Committee:

John W. Shields, Chairman
Eugene I. Jenschok
David H. Merritt
Harold (Hal) Simpson

Jay C. Groseclose
Robert L. Morgan
Robert King
Eric Kuhn

Legal Committee:

Jennifer L. Gimbel, Chairman
Gale Norton
Daries C. (Chuck) Lile
David C. Hallford, Alternate

Dallin W. Jensen
Michael M. Quealy
Tom Davidson
C. Brian James

Budget Committee:

Gordon W. Fassett, Chairman
Daries C. (Chuck) Lile

Philip B. Mutz
D. Larry Anderson

ADVISERS TO COMMISSIONERS

The following individuals serve as advisers to their respective Commissioner:

COLORADO

Legal:

Daries C. (Chuck) Lile, Director
Colorado Water Conservation Board
Denver, Colorado

Gale Norton
Attorney General
State of Colorado
Denver, Colorado

David C. Hallford
General Counsel
Colorado River Water
Conservation District
Glenwood Springs, Colorado

Jennifer L. Gimbel
Assistant Attorney General
State of Colorado
Denver, Colorado

Engineering:

Daries C. (Chuck) Lile, Director
Colorado Water Conservation Board
Denver, Colorado

Eugene I. Jencsok
Colorado Water Conservation Board
Denver, Colorado

Harold (Hal) Simpson
State Engineer
Denver, Colorado

David H. Merritt
Colorado River Water
Conservation District
Glenwood Springs, Colorado

Eric Kuhn
Colorado River Water
Conservation District
Glenwood Springs, Colorado

NEW MEXICO

Legal:

C. Brian James
Special Assistant Attorney General
Office of the State Engineer
Santa Fe, New Mexico

Engineering:

Jay C. Groseclose
New Mexico Interstate
Commission
Santa Fe, New Mexico

UTAH

Legal:

Dallin W. Jensen
Attorney at Law
Salt Lake City, Utah

Michael M. Quealy
Assistant Attorney General
Salt Lake City, Utah

Engineering:

Robert King, Chief
Interstate Streams, Division of
Water Resources
Salt Lake City, Utah

Robert L. Morgan
State Engineer
Division of Water Rights
Salt Lake City, Utah

General Advisers:

Don A. Christiansen, Manager
Central Utah Water Conservancy
District
Orem, Utah

David Rasmussen, Manager
Uintah Water
Conservancy District
Vernal, Utah

WYOMING

Legal:

Tom Davidson, Deputy Attorney General
Water Resources Division
Cheyenne, Wyoming

Engineering:

John W. Shields
Interstate Streams Engineer
Cheyenne, Wyoming

MEETINGS OF THE COMMISSION

During the Water Year ending September 30, 1998 the Commission met as follows:

Meeting No. 234

May 27, 1998

Salt Lake City, Utah

ACTIVITIES OF THE COMMISSION

Within the scope and limitations of Article I(a) of the Upper Colorado River Basin Compact and under the powers conferred upon the Commission by Article VIII(d), the principal activities of the Commission have consisted of: (A) research and studies of an engineering and hydrologic nature of various facets of the water resources of the Colorado River Basin especially as related to operation of the Colorado River reservoirs; (B) collection and compilation of documents for a legal library relating to the utilization of waters of the Colorado River System for domestic, industrial and agricultural purposes, and the generation of hydroelectric power; (C) legal analyses of associated laws, court decisions, reports and problems; (D) participation in activities and providing comments on proposals that would increase the beneficial consumptive uses in the Upper Basin, including environmental, fish and wildlife, endangered species and water quality activities to the extent that they might impair Upper Basin development; (E) cooperation with water resources agencies of the Colorado River Basin States on water and water-related problems; (F) an education and information program designed to aid in securing appropriations of funds by the United States Congress for the construction, planning and investigation of storage dams, reservoirs and water resource development projects of the Colorado River Storage Project that have been authorized for construction and to secure authorization for the construction of additional participating projects as the essential investigations and planning are completed; and (G) a legislative program consisting of the analysis and study of water resource bills introduced in the U.S. Congress for enactment, the preparation of evidence and argument and the presentation of testimony before the Committees of the Congress.

A. ENGINEERING -- HYDROLOGY

1. Colorado River Salinity Program

The Upper Colorado River Commission has continued its interest and involvement in the Colorado River Basin salinity problem. The Commission staff has worked with representatives of the Commission's member States in coordinating and correlating activities with other State and Federal agencies, particularly the Colorado River Basin Salinity Control Forum, which is composed of representatives from the seven Colorado River Basin States. The Forum has developed water quality standards and a plan of implementation to meet the Environmental Protection Agency Regulation (40 CFR Part 120, Water Quality Standards--Colorado River System: Salinity Control Policy and Standards Procedures).

Section 303 of the Clean Water Act requires that water quality standards be reviewed from time to time and at least once during each three-year period. The Forum in 1996 reviewed the existing State-adopted and Environmental Protection Agency-approved numeric salinity criteria and found no reason to recommend changes for the three lower mainstem stations.

The values are:

	<u>Salinity in (mg/l)</u>
Below Hoover Dam	723
Below Parker Dam	747
Imperial Dam	879

The Forum is continuing to study salinity conditions and to develop new salinity projections. The Forum is also developing flow versus salt load relationships that will reflect present and anticipated conditions.

Salinities at each of the three lower mainstem stations for which numeric criteria have been established have decreased since 1972.

2. Forecast of Stream Flow

The April 1, 1998 forecast of inflow to Lake Powell by the National Weather Service, Department of Commerce, for April-July was estimated to be 6,800,000 acre-feet¹. The, unregulated inflow to Lake Powell for the period April-July 1998 amounted to 8,625,000 acre-feet², which was about 112 percent of the 30-year (1961-1990) average flow.

During the April-July 1998 period, changes in storage in Colorado River Storage Project reservoirs including Lake Powell resulted in an overall increase of 4,773,000 acre-feet, with 302,000 acre-feet of evaporation and a 202,000 acre-feet increase in bank storage³.

Actual regulated inflow to Lake Powell for the period April-July 1998 was 7,761,000 acre-feet.

For the period October 1, 1997 through September 30, 1998, the change in reservoir storage, excluding bank storage and evaporation, at selected reservoirs above Lake Powell was as follows:

- Fontenelle decreased 20,100 acre-feet.
- Flaming Gorge decreased 17,500 acre-feet.
- Taylor Park decreased 8,600 acre-feet.
- Blue Mesa decreased 136,500 acre-feet.
- Morrow Point increased 4,200 acre-feet.
- Crystal increased 600 acre-feet.
- Navajo decreased 163,600 acre-feet.

The virgin flow⁴ of the Colorado River at Lee Ferry⁵ for the 1998 water year amounted to 17,249,000 acre-feet⁶.

¹ Including water to be stored upstream in other Colorado River Storage Project Reservoirs.

² Adjusted for upstream regulation and depletions.

³ Includes Flaming Gorge Reservoir on the Green River.

⁴ Virgin flow is the estimated flow of the stream if it were in its natural state and unaffected by the activities of man.

⁵ Lee Ferry, Arizona is the division point between the upper and lower basins of the Colorado River as defined in the Colorado River Compact. It is located about one mile downstream from the mouth of the Paria River and about 16 miles downstream from Glen Canyon Dam.

⁶ Based on provisional records subject to revision.

3. Summary of Reservoir Levels and Contents

Runoff⁷ during the year ending September 30, 1998 ranged from 77 percent of the long term (1914-17,1927-98) mean at the San Juan River station near Bluff, Utah to 105 percent of the long term (1914-98) mean at the Colorado River station near Cisco, Utah. The volumes of runoff at these stations were 1,349,367 acre-feet and 5,634,200 acre-feet respectively. Runoff at the Green River station near Green River, Utah totaled 6,016,800 acre-feet, which was 134 percent of the long term (1906-98) mean.

Lake Powell's lowest elevation of the 1998 water year occurred on March 27, 1998 when the reservoir level was at elevation 3,672.81 feet (live content of 20,229,900 acre-feet). Lake Powell was at its highest point on July 7, 1998 at elevation 3,697.06 feet with a content of 23,852,900 acre-feet. A total of 13,423,000 acre-feet was released to the river below Glen Canyon Dam during the 1998 water year. The 1989-1998 (10-year) delivery to the Lower Basin (measured at Lee Ferry) was 96,5791,000 acre-feet.

Lake Mead, on September 30, 1998, contained 25,126,000 acre-feet⁸ of available storage water at elevation 1,214.78 feet. On September 30, 1998, the live storage of Lake Mead was 2,722,500 acre-feet greater than the storage in Lake Powell.

Table 1 on page 11 shows the Statistical Data for Principal Reservoirs in the Upper Colorado River Basin. Table 2 on page 12 provides the same information for the Lower Colorado River Basin reservoirs.

The results of the long-range reservoir operation procedures adopted by the Secretary of the Interior for Lake Powell, Flaming Gorge, Fontenelle, Navajo, and Blue Mesa reservoirs in the Upper Colorado River Basin and for Lake Mead in the Lower Basin are illustrated on pages 13 through 20 for the 1998 water year.

In water year 1998, there was no equalization of storage as dictated by Section 602(a) of Public Law 90-537. The drawdown of Lake Powell was governed by factors other than the equalization criteria.

⁷ Adjusted for the change in storage in Colorado River Storage Project Reservoirs.

⁸ Based on April 1, 1967 Capacity Table revised according to Sedimentation Survey 1963-1964.

Table 1
**STATISTICAL DATA FOR PRINCIPAL RESERVOIRS IN COLORADO RIVER BASIN
 UPPER BASIN**

\\Colorado River Storage Project
 (Total Surface Capacity)

(Units: Elevation = feet; Capacity = 1,000 acre-feet)

	Fontenelle		Flaming Gorge		Taylor Park		Blue Mesa		Morrow Point		Crystal		Navajo		Lake Powell	
	Elev.	Cap.	Elev.	Cap.	Elev.	Cap.	Elev.	Cap.	Elev.	Cap.	Elev.	Cap.	Elev.	Cap.	Elev.	Cap.
River elevation at dam (average tailwater)	-	-	5,603	0	9,174	0	7,160	0	6,775	0	6,534	0	5,720	0	3,138	0
Dead Storage	6,408	0.56	5,740	40	-	-	7,358	111	6,808	0	6,670	8	5,775	13	3,370	1,893
Inactive Storage (minimum power pool)	-	-	5,871	273	-	-	7,393	192	7,100	75	6,700	12	5,990 ¹	673	3,490	5,890
Rated Head	6,491	234	5,946	1,102	-	-	7,438	361	7,108	80	6,740	20	-	-	3,570	11,000
Maximum Storage (without surcharge)	6,506	345	6,040	3,789	9,330	106	7,519	941	7,160	117	6,755	25	6,085	1,709	3,700	26,215

1 The elevation for inactive storage for Navajo Reservoir is required for the Navajo Indian Irrigation Project.

Table 2

**STATISTICAL DATA FOR PRINCIPAL RESERVOIRS IN COLORADO RIVER BASIN
LOWER BASIN**

(Usable Surface Capacity)

(Units: Elevation = feet; Capacity = 1,000 acre-feet)

	Lake Mead		Lake Mohave		Lake Havasu	
	Elev.	Capacity	Elev.	Capacity	Elev.	Capacity
River elevation at dam (average tailwater)	646	-2,378	506	-8.5	370	-28.6
Dead Storage	895	0	533.39	0	400	0
Inactive Storage (minimum power pool)	1,050	7,471	570	217.5	440 ¹	439.4
Rated Head	1,122.8	13,633	-	-	-	-
Maximum Storage (without surcharge)	1,221.4	26,159	647	1,809.8	450	619.4

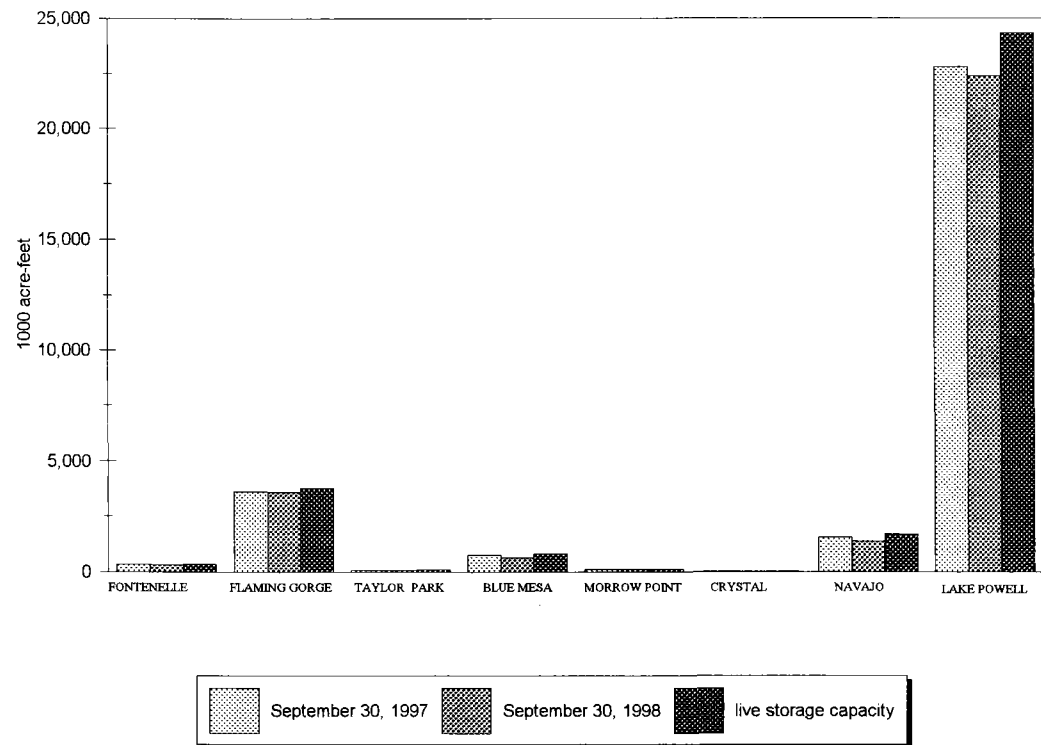
¹ The elevation for inactive storage for Lake Havasu is the contractual minimum for delivery to Metropolitan Water District's Colorado River Aqueduct.

Storage in Principal Reservoirs at the End of Water Year 1998

Upper Basin

Live Storage Contents

reservoir	Sept. 30, 1997 (acre-feet)	percent live capacity	Sept. 30, 1998 (acre-feet)	percent live capacity	change in contents (acre-feet)
FONTENELLE	330,200	95.8%	309,600	89.8%	(20,600)
FLAMING GORGE	3,598,900	96.0%	3,580,200	95.5%	(18,700)
TAYLOR PARK	78,600	74.0%	69,700	65.6%	(8,900)
BLUE MESA	761,300	91.8%	623,800	75.2%	(137,500)
MORROW POINT	109,100	93.2%	113,100	96.6%	4,000
CRYSTAL	15,600	89.0%	16,100	91.8%	500
NAVAJO	1,542,700	91.0%	1,380,000	81.4%	(162,700)
LAKE POWELL	22,801,400	93.7%	22,403,500	92.1%	(397,900)
TOTAL	29,237,800		28,496,000		(741,800)

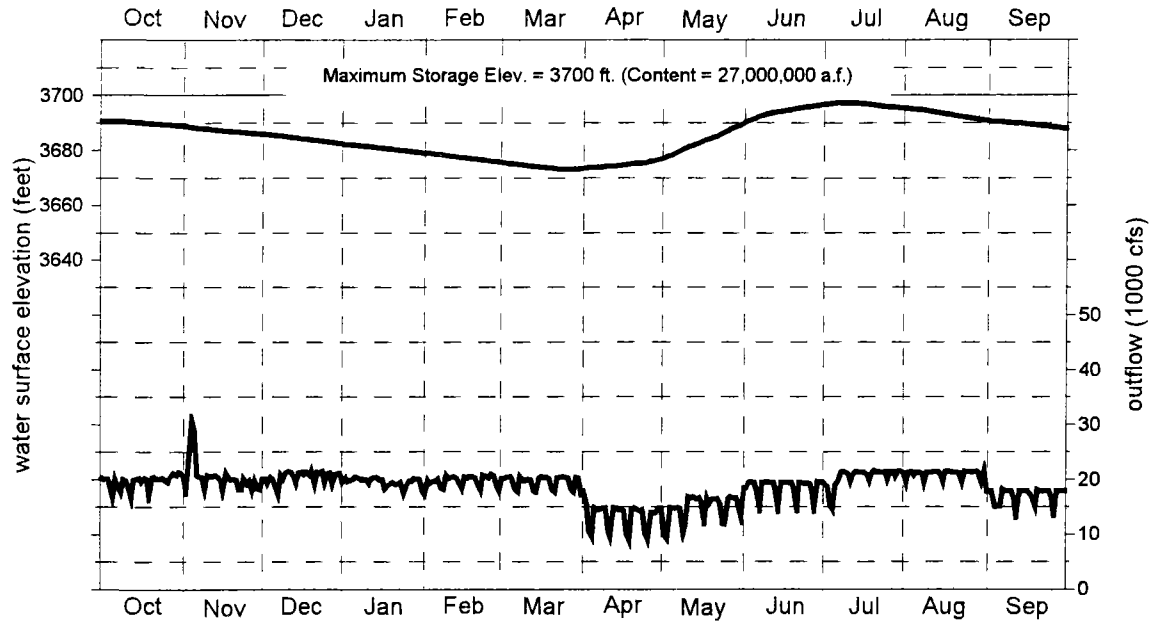


Lake Powell - Glen Canyon Dam

Live Storage Capacity - 24,322,000 acre-feet

Power Generation Capacity - 1,356,000 KW

Live Storage 9/30/98 - 22,403,500 acre-feet



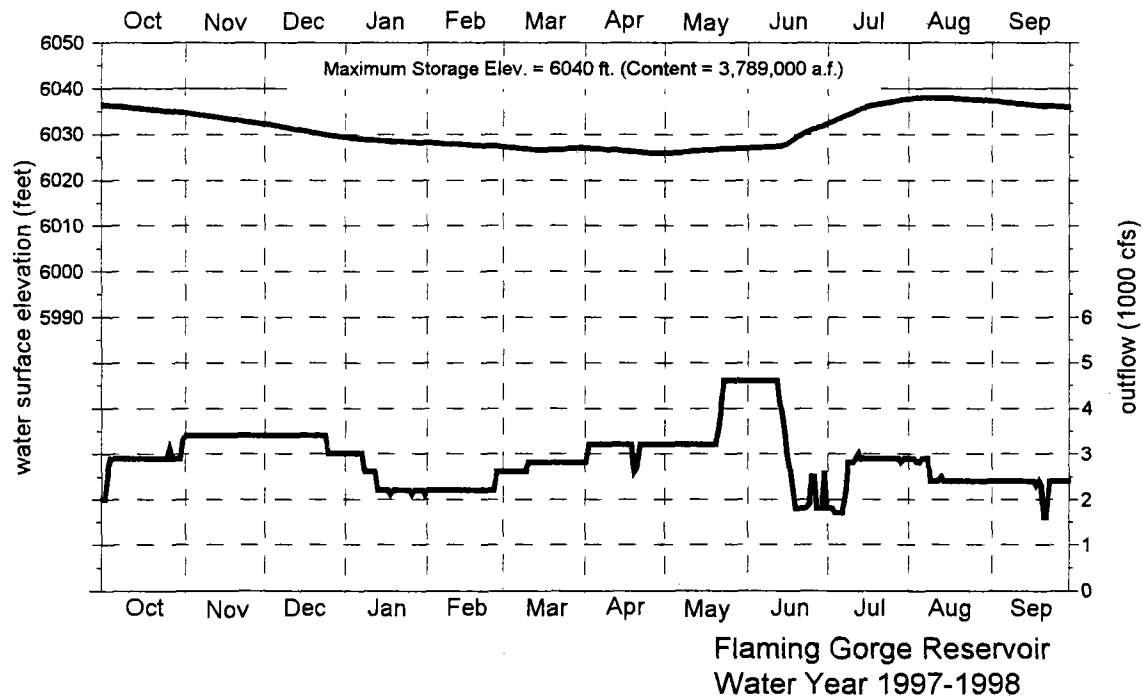
Lake Powell
Water Year 1997-1998

Flaming Gorge

Live Storage Capacity - 3,749,000 acre-feet

Power Generation Capacity - 144,000 KW

Live Storage 9/30/98 - 3,580,200 acre-feet

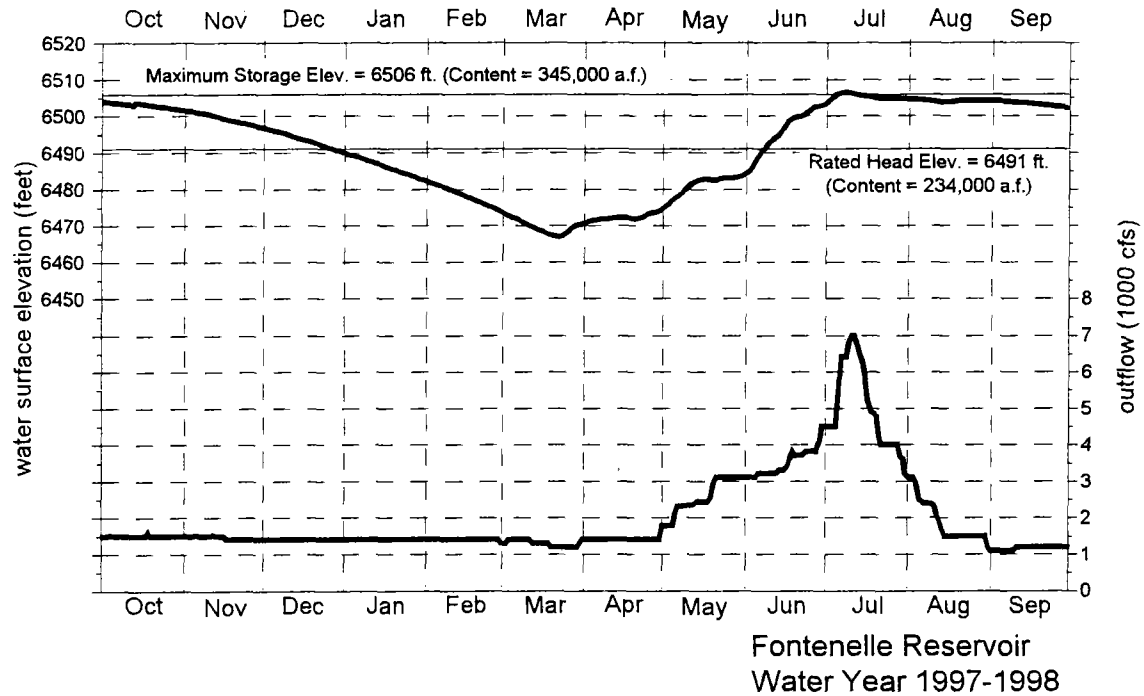


Fontenelle

Live Storage Capacity - 344,800 acre-feet

Power Generation Capacity - 13,000 KW

Live Storage 9/30/98 - 309,600 acre-feet

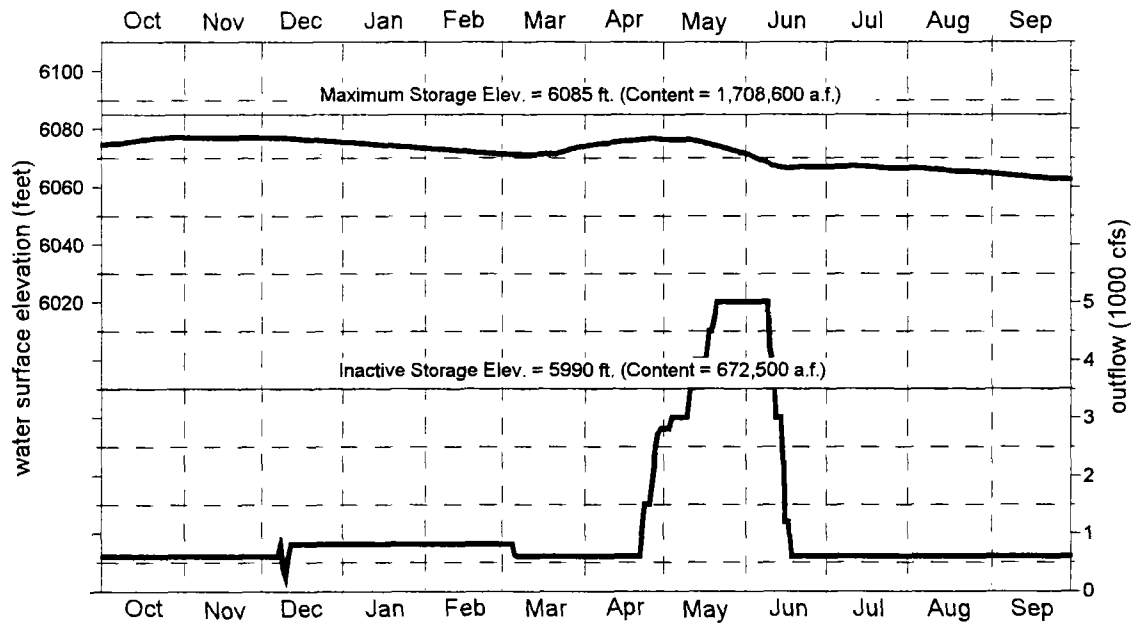


Navajo

Live Storage Capacity - 1,695,900 acre-feet

Power Generation Capacity - 0 KW

Live Storage 9/30/98- 1,380,000 acre-feet



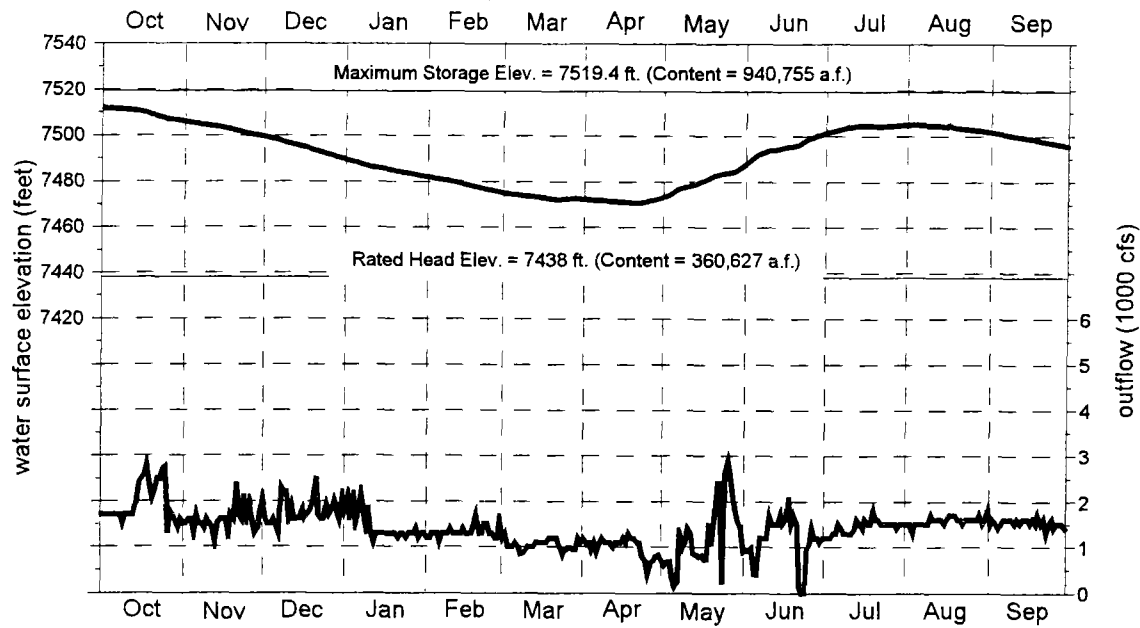
Navajo Reservoir
Water Year 1997-1998

Blue Mesa

Live Storage Capacity - 829,000 acre-feet

Power Generation Capacity - 96,000 KW

Live Storage 9/30/98 - 623,800 acre-feet



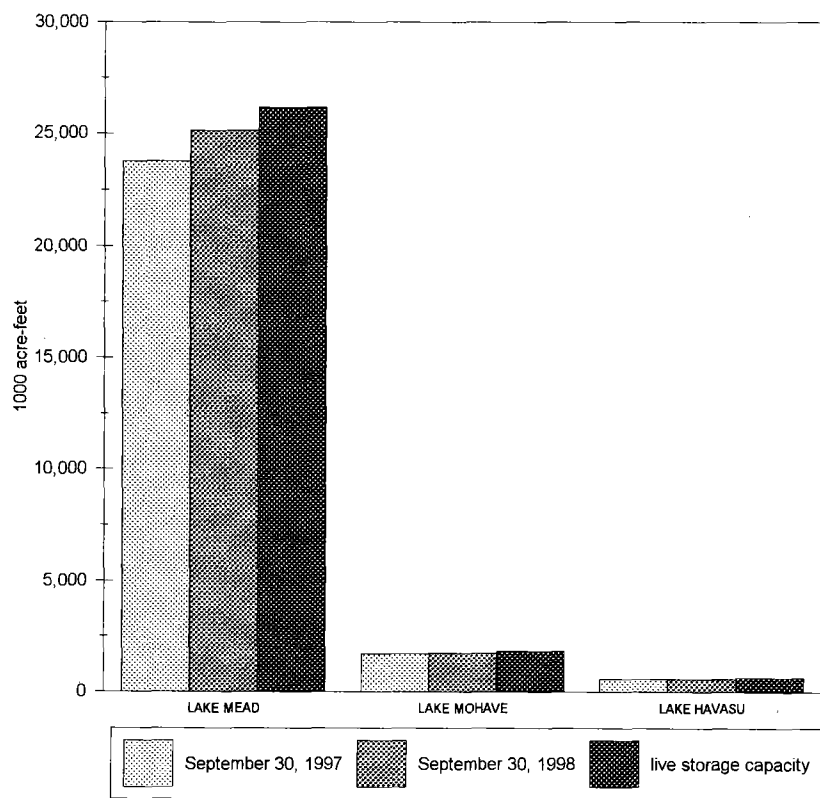
Blue Mesa Reservoir
Water Year 1997-1998

Storage in Principal Reservoirs at the End of Water Year 1998

Lower Basin

Live Storage Contents

reservoir	Sept. 30, 1997 (acre-feet)	percent live capacity	Sept. 30, 1998 (acre-feet)	percent live capacity	change in contents (acre-feet)
LAKE MEAD	23,769,000	90.9%	25,126,000	96.1%	1,357,000
LAKE MOHAVE	1,674,000	92.5%	1,729,300	95.5%	55,300
LAKE HAVASU	579,800	93.7%	565,300	91.3%	(14,500)
TOTAL	26,022,800		27,420,600		1,397,800

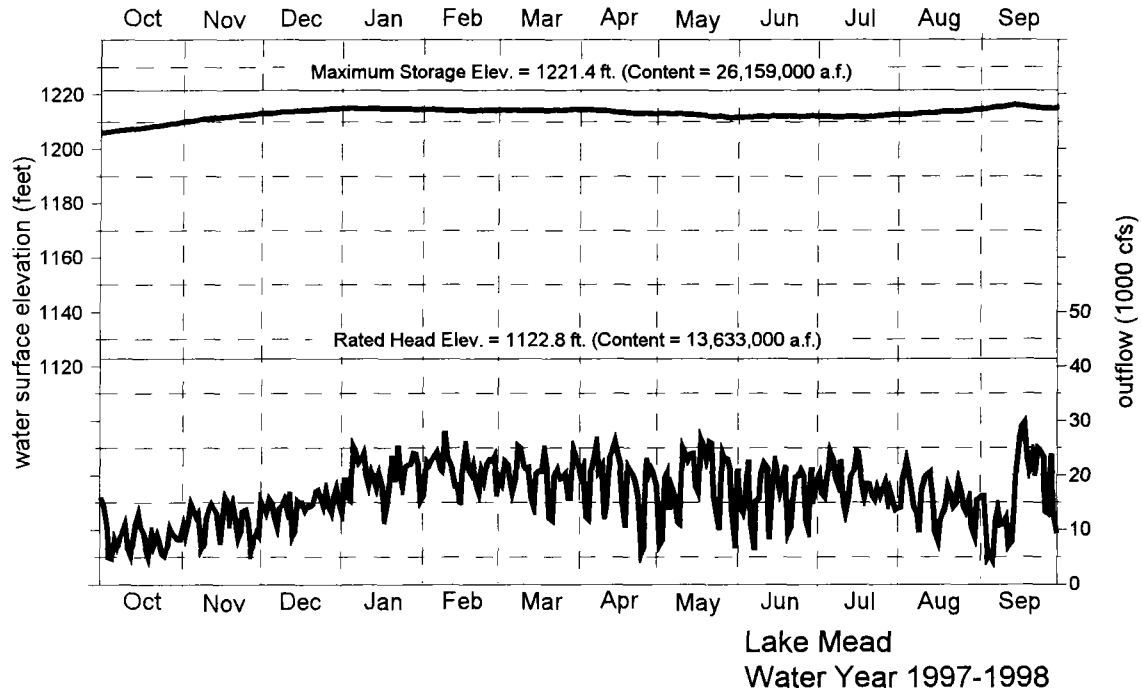


Lake Mead - Hoover Dam

Live Storage Capacity - 26,159,000 acre-feet

Power Generation Capacity - 1,914,000 KW

Live Storage 9/30/98 - 25,126,000 acre-feet



4. Flows of Colorado River

Table 3 on pages 22 and 23 shows the estimated virgin flow of the Colorado River at Lee Ferry, Arizona for each water year from 1896 through 1998. Column (4) of the table shows the average virgin flow for any given year within the period computed through water year 1998. Column (5) shows the average virgin flow for a given year within the period computed since water year 1896. Column (6) shows the average virgin flow for each progressive ten-year period beginning with the ten-year period ending on September 30, 1905. The difference between the virgin flow for a given year and the average flow over the 100-year period, 1896 through 1998, is shown in Column (7).

Article III(d) of the Colorado River Compact stipulates that "the States of the Upper Division will not cause the flow of the river at Lee Ferry to be depleted below an aggregate of 75,000,000 acre-feet for any period of ten consecutive years reckoned in a continuing progressive series beginning with the first day of October next succeeding the ratification of this Compact." Prior to the storage of water in the Colorado River Storage Project reservoirs, which began in 1962, the flow of the river at Lee Ferry in any ten consecutive years was greatly in excess of the 75,000,000 acre-feet required by the Compact. Beginning in 1962, Colorado River Storage Project reservoirs have regulated the river above Glen Canyon Dam. Table 4, on page 24, shows the historic flow at Lee Ferry for the period 1953 through 1998. The historic flow for each progressive ten-year period from 1953 through 1998, beginning with the ten-year period ending September 30, 1962, the commencement of storage in Colorado River Storage Project reservoirs, is shown in Column (3).

In each consecutive ten-year period, the total flow equaled or exceeded the 75,000,000 acre-feet required by the Compact. The flow at Lee Ferry during the ten-year period ending September 30, 1998 was 96,791,000 acre-feet.

Table 3
ESTIMATED VIRGIN FLOW AT LEE FERRY
(million acre-feet)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Years to 1998	Year Ending Sept. 30	Estimated Virgin Flow	Average to 1998	Average Since 1896	Progressive 10-year Moving Average	Virgin Flow Minus 101-year Average
103	1896	10.1	15.0	10.1		-4.8
102	1897	18.0	15.0	14.1		3.1
101	1898	13.8	15.0	14.0		-1.1
100	1899	15.9	15.0	14.5		1.0
99	1900	13.2	15.0	14.2		-1.7
98	1901	13.6	15.0	14.1		-1.3
97	1902	9.4	15.0	13.4		-5.5
96	1903	14.8	15.1	13.6		-0.1
95	1904	15.6	15.1	13.8		0.7
94	1905	16.0	15.1	14.0	14.0	1.1
93	1906	19.1	15.1	14.5	14.9	4.2
92	1907	23.4	15.0	15.2	15.5	8.5
91	1908	12.9	14.9	15.1	15.4	-2.0
90	1909	23.3	14.9	15.7	16.1	8.4
89	1910	14.2	14.8	15.6	16.2	-0.7
88	1911	16.0	14.9	15.6	16.5	1.1
87	1912	20.5	14.8	15.9	17.6	5.6
86	1913	14.5	14.8	15.8	17.6	-0.4
85	1914	21.2	14.8	16.1	18.1	6.3
84	1915	14.0	14.7	16.0	17.9	-0.9
83	1916	19.2	14.7	16.1	17.9	4.3
82	1917	24.0	14.7	16.5	18.0	9.1
81	1918	15.4	14.5	16.4	18.2	0.5
80	1919	12.5	14.5	16.3	17.2	-2.4
79	1920	22.0	14.6	16.5	17.9	7.1
78	1921	23.0	14.5	16.8	18.6	8.1
77	1922	18.3	14.3	16.8	18.4	3.4
76	1923	18.3	14.3	16.9	18.8	3.4
75	1924	14.2	14.2	16.8	18.1	-0.7
74	1925	13.0	14.2	16.6	18.0	-1.9
73	1926	15.9	14.3	16.6	17.7	1.0
72	1927	18.6	14.2	16.7	17.1	3.7
71	1928	17.3	14.2	16.7	17.3	2.4
70	1929	21.4	14.1	16.8	18.2	6.5
69	1930	14.9	14.0	16.8	17.5	0.0
68	1931	7.8	14.0	16.5	16.0	-7.1
67	1932	17.2	14.1	16.6	15.9	2.3
66	1933	11.4	14.0	16.4	15.2	-3.5
65	1934	5.6	14.1	16.1	14.3	-9.3
64	1935	11.6	14.2	16.0	14.2	-3.3
63	1936	13.8	14.3	16.0	14.0	-1.1
62	1937	13.7	14.3	15.9	13.5	-1.2
61	1938	17.5	14.3	16.0	13.5	2.6
60	1939	11.1	14.2	15.8	12.5	-3.8
59	1940	8.6	14.3	15.7	11.8	-6.3
58	1941	18.1	14.4	15.7	12.9	3.2
57	1942	19.1	14.3	15.8	13.1	4.2
56	1943	13.1	14.2	15.8	13.2	-1.8
55	1944	15.2	14.3	15.7	14.2	0.3
54	1945	13.4	14.2	15.7	14.4	-1.5
53	1946	10.4	14.2	15.6	14.0	-4.5
52	1947	15.5	14.3	15.6	14.2	0.6
51	1948	15.6	14.3	15.6	14.0	0.7

Table 3
ESTIMATED VIRGIN FLOW AT LEE FERRY
(million acre-feet)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Years to 1998	Year Ending Sept. 30	Estimated Virgin Flow	Average to 1998	Average Since 1896	Progressive 10-year Moving Average	Virgin Flow Minus 101-year Average
50	1949	16.4	14.3	15.6	14.5	1.5
49	1950	12.9	14.2	15.6	15.0	-2.0
48	1951	11.6	14.3	15.5	14.3	-3.3
47	1952	20.7	14.3	15.6	14.5	5.8
46	1953	10.6	14.2	15.5	14.2	-4.3
45	1954	7.7	14.3	15.4	13.5	-7.2
44	1955	9.2	14.4	15.3	13.1	-5.7
43	1956	10.7	14.5	15.2	13.1	-4.2
42	1957	20.1	14.6	15.3	13.6	5.2
41	1958	16.5	14.5	15.3	13.6	1.6
40	1959	8.6	14.4	15.2	12.9	-6.3
39	1960	11.3	14.6	15.1	12.7	-3.6
38	1961	8.5	14.7	15.0	12.4	-6.4
37	1962	17.3	14.9	15.0	12.1	2.4
36	1963	8.4	14.8	15.0	11.8	-6.5
35	1964	10.2	15.0	14.9	12.1	-4.7
34	1965	18.9	15.1	14.9	13.1	4.0
33	1966	11.2	15.0	14.9	13.1	-3.7
32	1967	11.9	15.1	14.8	12.3	-3.0
31	1968	13.7	15.2	14.8	12.0	-1.2
30	1969	14.4	15.3	14.8	12.6	-0.5
29	1970	15.4	15.3	14.8	13.0	0.5
28	1971	15.1	15.3	14.8	13.7	0.2
27	1972	12.2	15.3	14.8	13.1	-2.7
26	1973	19.4	15.4	14.9	14.2	4.5
25	1974	13.3	15.3	14.8	14.6	-1.6
24	1975	16.6	15.4	14.9	14.3	1.7
23	1976	11.6	15.3	14.8	14.4	-3.3
22	1977	5.8	15.5	14.7	13.8	-9.1
21	1978	15.2	16.0	14.7	13.9	0.3
20	1979	17.9	16.0	14.8	14.3	3.0
19	1980	17.5	15.9	14.8	14.5	2.6
18	1981	8.2	15.8	14.7	13.8	-6.7
17	1982	16.2	16.3	14.7	14.2	1.3
16	1983	24.0	16.3	14.8	14.6	9.1
15	1984	24.5	15.7	14.9	15.8	9.6
14	1985	20.8	15.1	15.0	16.2	5.9
13	1986	21.9	14.6	15.1	17.2	7.0
12	1987	16.9	13.9	15.1	18.3	2.0
11	1988	12.1	13.6	15.1	18.0	-3.3
10	1989	9.7	13.8	15.0	17.1	-5.7
9	1990	8.1	14.4	14.9	16.1	-6.9
8	1991	12.1	15.3	14.9	16.5	-2.8
7	1992	10.3	15.9	14.9	15.9	-4.6
6	1993	18.0	17.0	14.9	15.3	3.1
5	1994	10.3	16.7	14.8	13.9	-4.6
4	1995	20.8	18.9	14.9	13.9	5.9
3	1996	14.2	17.9	14.9	13.1	-0.7
2	1997	21.6	21.6	15.0	13.6	6.6
1	1998	17.2	19.4	15.0	14.2	2.2
Maximum		24.5			18.8	9.6
Minimum		5.6			11.8	-9.3

Table 4
HISTORIC FLOW AT LEE FERRY
1953-1998

Water Year Ending Sept. 30	Historic Flow (1,000 a.f.)	Progressive 10-Year Total (1,000 a.f.)
1953	8,805	
1954	6,116	
1955	7,307	
1956	8,750	
1957	17,340	
1958	14,260	
1959	6,756	
1960	9,192	
1961	6,674	
1962	14,790	99,990
1963	2,520	93,705
1964	2,427	90,016
1965	10,835	93,544
1966	7,870	92,664
1967	7,824	83,148
1968	8,358	77,246
1969	8,850	79,340
1970	8,688	78,836
1971	8,607	80,769
1972	9,330	75,309
1973	10,141	82,930
1974	8,277	88,780
1975	9,274	87,219
1976	8,494	87,843
1977	8,269	88,288
1978	8,369	88,299
1979	8,333	87,782
1980	10,950	90,044
1981	8,316	89,753
1982	8,323	88,746
1983	17,520	96,125
1984	20,518	108,366
1985	19,109	118,201
1986	16,866	126,573
1987	13,450	131,754
1988	8,160	131,545
1989	7,995	131,207
1990	8,125	128,382
1991	8,132	128,198
1992	8,023	127,898
1993	8,137	118,515
1994	8,306	106,303
1995	9,242	96,436
1996	11,530	91,100
1997	13,857	91,507
*1998	13,444	96,791

Storage in Flaming Gorge and Navajo Reservoirs began in 1962.

Storage in Glen Canyon Reservoir began in 1963.

Storage in Fontenelle reservoir began in 1964.

*Based upon provisional streamflow records subject to revision.

The graphs on pages 27 and 28 illustrate some of the pertinent historical facts related to the amounts of water produced by the Colorado River System above Lee Ferry, Arizona, the compact division point between the Upper and Lower Colorado River Basins. The first graph, on page 27, is entitled Colorado River Flow at Lee Ferry, Arizona. The top of each vertical bar represents the estimated virgin flow of the river, i.e., the flow of the river in millions of acre-feet past Lee Ferry for a given year had it not been depleted by activities of man. Each vertical bar has two components: The lower shaded part represents the estimated or measured historic flow at Lee Ferry, and the difference between the two sections of the bar in any given year represents the stream depletion, or the amount of water estimated to have been removed by man from the virgin supply upstream from Lee Ferry. It is worth noting that in 1977, and again in 1981, the historic flow at Lee Ferry exceeded the virgin flow. Beginning in 1962, part of this depletion at Lee Ferry was caused by the retention and storage of water in storage units of the Colorado River Storage Project. The horizontal line (at approximately 15.0 million acre-feet) shows the long-term average virgin flow from 1896 through 1998. Because the Colorado River Compact is administered on the basis of running averages covering periods of ten years, the progressive ten-year average historic and virgin flows are displayed on this graph.

The second graph on page 28, entitled Lee Ferry Average Annual Flow for Selected Periods, is a graphical representation of historic and virgin flow averages for several periods of record. The periods of water years selected were those to which reference is usually made for various purposes in documents pertaining to the Colorado River System.

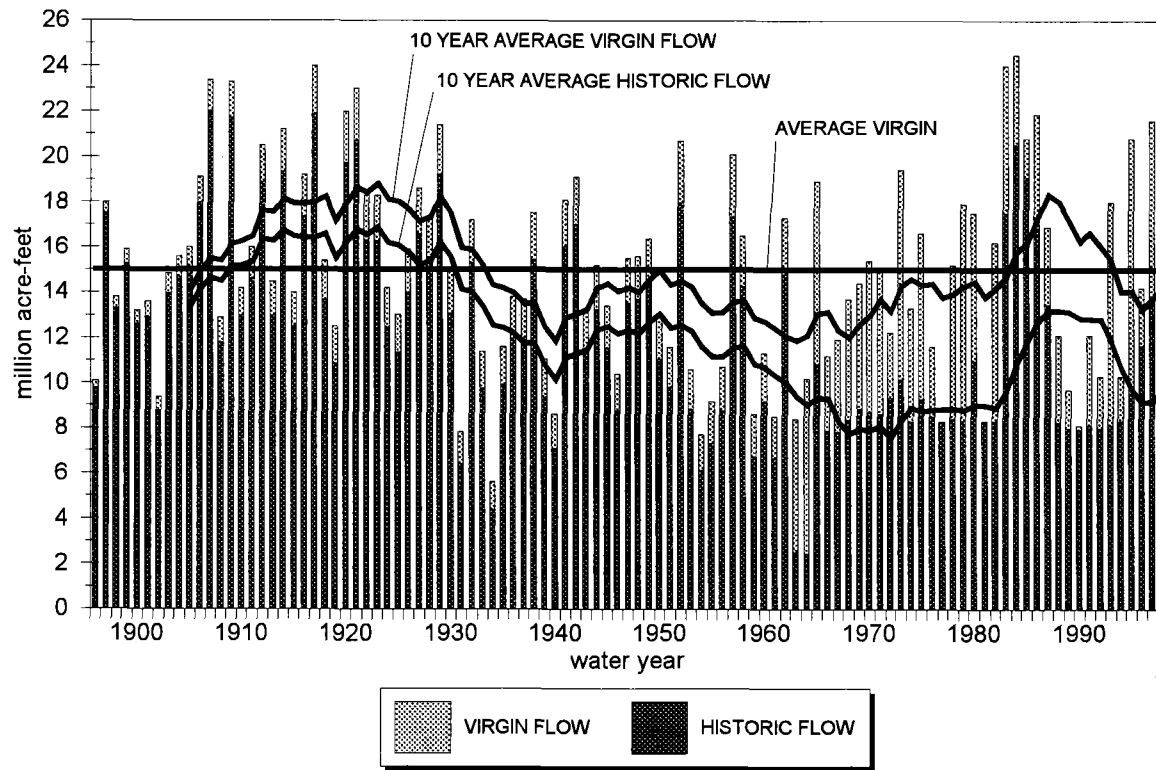
Several important hydrologic facts are apparent from these two graphs on pages 27 and 28.

- (1) A vast majority of the high flows occurred prior to 1929.
- (2) Since the 1924-1933 decade, the progressive ten-year average virgin flow has not exceeded the average virgin flow except in the 1941-1950 and the exceptionally wet 1975-1984 through 1984-1993 decades.
- (3) For the period 1896-1921, which is prior to the Colorado River Compact of 1922, the average virgin flow was estimated to be 16.8 million acre-feet per year, which is considerably greater than for any other period selected, including the long-term average. A stream-gaging station at Lees Ferry, Arizona was not installed until 1921. Thus, the virgin flow at Lees Ferry prior to the 1922 Compact is estimated based upon records obtained at other stations, e.g. the stream gage on the Colorado River at Yuma, Arizona for the period 1902-1921.
- (4) For the longest period shown, 1896-1998, the estimated average annual virgin flow is 15.0 million acre-feet and the average annual historic flow is 12.2 million acre-feet.
- (5) For the next longest period, 1906-1998, the estimated average annual virgin flow is 15.1 million acre-feet and the average annual historic flow is 12.0 million acre-feet. Many of the early records for this series of years, as well as for the 1896-1998 period, are based upon the estimates of flows made at other gaging stations, as mentioned in (3) above. This average is about equal to the 15.0 million acre-feet estimated for the 1906-1967 period which was used as the basis

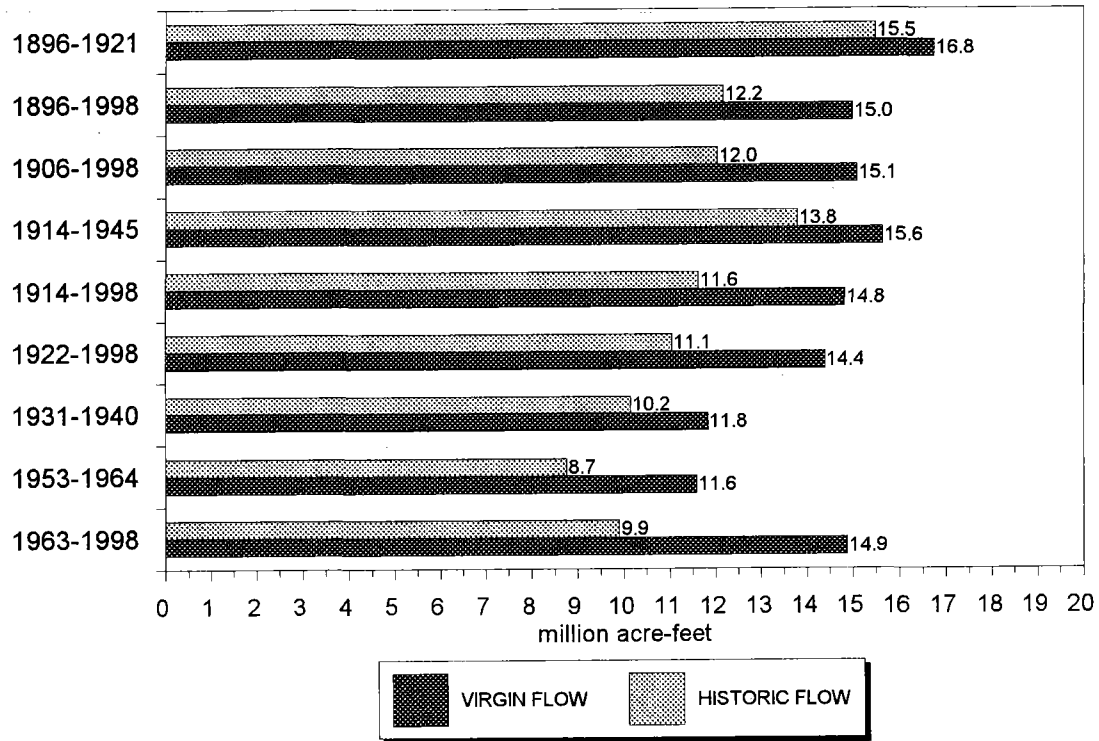
for justification of a water supply for the Central Arizona Project authorized in 1968.

- (6) The estimated average annual virgin flow during the 1914-1998 period is 14.8 million acre-feet. This period is an extension of the 1914-1965 period used in the Upper Colorado Region Comprehensive Framework Studies of 1971. The average annual virgin flow for the 1914-1965 time period is 14.6 million acre-feet.
- (7) The average annual virgin flow for the period 1914-1945 is 15.6 million acre-feet. This was the period of record used by the negotiators of the Upper Colorado River Basin Compact of 1948.
- (8) For the period 1922-1998, which is the period of record since the signing of the Colorado River Compact, the average annual virgin flow is 14.4 million acre-feet and the average annual historic flow is 11.1 million acre-feet. Records for this series of years are based upon actual measurements of flows at Lees Ferry. The ten-year moving average flow since 1922 is considerably less than the ten-year moving average flow prior to 1922.
- (9) Two completely unrelated 10-year periods of minimum flows have occurred since 1930. During these periods, 1931-1940 and 1954-1963, the average annual virgin flow amounts to only 11.8 million acre-feet.
- (10) For a 12-year period, 1953-1964, the average annual virgin flow amounts to only 11.6 million acre-feet.
- (11) Since Glen Canyon Dam was closed in 1963, the estimated virgin flow for the subsequent 35 years is 14.9 million acre-feet. The estimated historical flow for the same period (1963-1998) is 9.9 million acre-feet.

Colorado River Flow at Lee Ferry, Arizona



Lee Ferry Average Annual Virgin Flow For Selected Periods



B. LEGAL

1. Water Newsletter

The legal staff continues to inform the Commissioners, their advisers and other interested parties about developments in the courts, Congress and certain Federal agencies through the *Water Newsletter*. Current information can be found in the newsletter. In addition, the legal staff has prepared legal memoranda on matters needing more detailed treatment.

2. Court Cases

Action has been taken in a number of cases of importance to the Upper Colorado River Basin States. These cases include:

National Association of Home Builders v. Babbitt, D.C. Cir., 130 F.3d 1041, 28 ELR 20403. In this case, the D. C. Circuit holds that Endangered Species Act (ESA) § 9(a)(1)'s application to a fly (the Delhi Sands Flower-Loving Fly) that exists only in California is within Congress' Commerce Clause power. The Court first holds that the application of ESA § 9 to the fly can be viewed as a proper exercise of Congress' Commerce Clause power over activity categorized as the use of the channels of interstate commerce for two reasons: First, the prohibition against takings of an endangered species is necessary to enable the government to control the transport of the endangered species in interstate commerce, because one of the most effective ways to prevent traffic in endangered species is to secure the habitat of the species from predatory invasion and destruction. Second, the prohibition on takings of endangered animals also falls under Congress' authority to prevent the channels of interstate commerce from being used for immoral or injurious purposes. Here, Congress is using this authority to prevent the eradication of an endangered species by a hospital that is presumably being constructed using materials and people from outside the State and that will attract employees, patients and students from both inside and outside the State. The Court then holds that the intrastate activity regulated by section 9 of the ESA can also be viewed as substantially affecting commerce for two primary reasons: First, the provision prevents the destruction of biodiversity and thereby protects the current and future interstate commerce that relies on it. Second, the provision controls the adverse effects of interstate competition that would result from the State adopting lower standards of endangered species protection in order to attract development. Therefore, the Court held that the application of § 9(a)(1) of the ESA to the fly is constitutional.

Southwest Center for Biological Diversity v. Bureau of Reclamation, 9th Cir., 143 F.3d 515, 28 ELR 21247. Appellant Southwest Center filed a citizen suit under the ESA against appellee Bureau of Reclamation alleging that appellee's operations at Hoover Dam were inundating the Lake Mead willow-cottonwood habitat and jeopardizing the continued existence of the Southwestern Willow Flycatcher, a migratory songbird listed as an endangered species under the ESA. Appellant sought injunctive relief, asking the district court to issue an order forcing Reclamation to lower Lake Mead to approximately 1178 feet above sea level to preserve the Lake Mead delta habitat. After the final Biological Opinion (BO) was issued on Reclamation's operations in the Lower Colorado River Basin, appellant

amended its complaint to add a claim against the Secretary of the Interior under the Administrative Procedure Act (APA) challenging the reasonable and prudent alternative (RPA) in the final BO as arbitrary, capricious and contrary to the ESA. The seven Colorado River Basin States filed a brief by special appearance and argued before the district court that to the extent appellant sought injunctive relief compelling the release of water from Lake Mead to the detriment of the States' legal entitlements to or interests in such water, the suit should be dismissed for failure and inability to join them as indispensable parties. The district court (1) dismissed appellant's claims against Reclamation for lack of subject matter jurisdiction because appellant failed to give the required 60-day notice before bringing suit; (2) denied the States' indispensable parties motions as moot; and (3) granted the Secretary's motion for summary judgment, holding that the final BO and RPA were not arbitrary or capricious or an abuse of discretion. Appellant, the States and intervenor water and power providers appealed. The Ninth Circuit affirmed the decision of the district court, holding that: (1) The district court lacked subject matter jurisdiction over appellant's claims against Reclamation, since none of the 3 letters appellant alleged gave the required 60-day notice informed the Secretary and Reclamation that appellant had a grievance about Flycatcher habitat at the Lake Mead delta. (2) Once Reclamation was no longer subject to an order to spill water, the States' claim became hypothetical and moot as a matter of law. (3) The Secretary did not act arbitrarily or capriciously in adopting the final BO, RPA and an incidental take statement allowing the take of Flycatchers, because the Secretary was not required to pick the first reasonable alternative FWS came up with in formulating the RPA or even the best alternative or the one that would most effectively protect the Flycatcher; rather, the Secretary need only adopt a final RPA that complies with the jeopardy standard and could be implemented by the agency. Furthermore, the Court held that under the ESA, the Secretary was not required to explain why he chose one RPA over another or to justify his decision based solely on apolitical factors. Finally, the Court held that there had been no violation of the RPA in this case, there is no indication that Reclamation cannot acquire and restore the habitat required by the RPA, and the FWS full supports the RPA, which insures the creation of replacement habitat and the survival of the Flycatcher species before it permits the destruction or adverse modification of the Lake Mead habitat.

3. Legislation

In the Second Session of the 105th Congress (without regard to the water year), Congress enacted the following statutes that are important to the Upper Colorado River Basin States:

Public Law 105-372, approved November 12, 1998, Salton Sea Reclamation Act of 1998.

Public Law 105-329, approved October 30, 1998, Arches National Park Expansion Act of 1998.

Public Law 105-277, approved October 21, 1998, Omnibus Consolidated and Emergency Supplemental Appropriations Act, 1999.

Public Law 105-245, approved October 7, 1998, Energy and Water Development Appropriations Act, 1999.

Public Law 105-199, approved July 16, 1998, National Drought Policy Act of 1998.

COLORADO RIVER STORAGE PROJECT AND PARTICIPATING PROJECTS

A. AUTHORIZED STORAGE UNITS

(Information relative to storage units and participating projects has been provided by the United States Department of the Interior, Bureau of Reclamation.)

The Colorado River Storage Project (CRSP) was authorized for construction by the United States Congress in the CRSP Act of April 11, 1956 (70 Stat. 105). Four storage units were authorized by this Act: Glen Canyon Dam and Reservoir (Lake Powell) on the Colorado River in Utah and Arizona; Navajo Dam and Reservoir on the San Juan River in New Mexico and Colorado; Flaming Gorge Dam and Reservoir on the Green River in Utah and Wyoming; and the Wayne N. Aspinall Storage Unit (Aspinall Unit), formerly named the Curecanti Storage Unit and rededicated in July 1981, on the Gunnison River in Colorado. The Aspinall Unit consists of three dams and reservoirs: Blue Mesa, Morrow Point, and Crystal. Combined, the four storage units provide about 33,583,000 acre-feet of water storage capacity. The Act also authorized the construction of 11 participating projects. Ten additional participating projects have been authorized by subsequent congressional legislation.

The storage units and participating projects are described in the 49th and earlier annual reports of the Upper Colorado River Commission. Progress in construction, planning, operation, and investigation of the storage units and participating projects accomplished during the past water year is briefly outlined as follows:

1. Glen Canyon Storage Unit

Glen Canyon Dam and Reservoir (Lake Powell) comprises the key storage unit of the CRSP and is the largest of the initial four, providing about 80 percent of the storage and generating capacity. Construction of the dam was completed in 1963. In addition to water storage for flood control and consumptive uses, Glen Canyon Dam was built as a hydroelectric peaking power facility, permitting it to move from low electrical output during low power demand to high electrical output in peak demand periods. To that extent, flow releases from the dam were adjusted daily, and at times hourly, to respond to variances in electrical demand.

At optimum operations, the generators at Glen Canyon Dam are capable of producing 1,296 megawatts of power. Water releases from the dam occur at 200-230 feet below the surface of Lake Powell, which results in clear, cold water with year-round temperatures of 41°F to 45°F. The recreation, irrigation, and hydropower benefits introduced to the southwest by Glen Canyon Dam are extensive and continue to expand.

Since the damming of the river in 1963, there has been only one flow release which approached average pre-dam spring floods. In 1983, a combination of unanticipated hydrologic events in the Upper Colorado River Basin, combined with a lack of available storage space in Lake Powell, resulted in emergency spillway releases from Glen Canyon Dam which reached 97,000 cubic feet per second (cfs). Except for the 1983 event, historic releases over the last 34 years have generally

ranged between 1,000 cfs and 25,000 cfs, with flows averaging between 5,000 cfs and 20,000 cfs.

As a result of construction of Glen Canyon Dam, the Colorado River ecosystem below the dam has changed significantly from its pre-dam natural character. In addition, the dam's highly variable flow releases from 1964 to 1991 caused additional concern over resource degradation resulting from dam operations. The Secretary of the Interior adopted interim operations criteria in October 1991 which narrowed the range of daily powerplant fluctuations. Since the signing of the operating criteria in February 1997, these releases do not now exceed 25,000 cfs, and most often average between 10,000 cfs and 20,000 cfs.

Responding to concerns that changes to the Colorado River ecosystem were resulting from dam operations, Reclamation launched the Glen Canyon Environmental Studies program in 1982. The research program's first phase (1982-1988) focused on developing baseline resource assessments of physical and biotic resources. The second program phase (1989-1996) expanded research programs in native and non-native fishes, hydrology and aquatic habitats, terrestrial flora and fauna, cultural and ethnic resources, and social and economic impacts.

By the late 1980s, sufficient knowledge had been developed to raise concerns that downstream impacts were occurring and that additional information needed to be developed to quantify the effects and to develop management actions that could avoid and/or mitigate the impacts. This collective information, and other factors, led to a July 1989 decision by the Secretary to direct Reclamation to prepare an environmental impact statement (EIS) on the operation of Glen Canyon Dam. The intent was to evaluate alternative operation strategies to lessen the impacts of operations on downstream resources.

In October 1992, the President signed into law the Reclamation Projects Authorization and Adjustments Act, Public Law (P.L.) 102-575. Responding to continued concerns over potential impacts of Glen Canyon Dam operations on downstream resources, Congress included the Grand Canyon Protection Act (GCPA) as Title 18 of the Reclamation Projects Act. Section 1802(a) of the GCPA requires the Secretary to operate Glen Canyon Dam:

. . . in accordance with the additional criteria and operating plans specified in Section 1804 and exercise other authorities under existing law in such a manner as to protect, mitigate adverse impacts to, and improve the values for which Grand Canyon National Park and Glen Canyon National Recreation Area were established, including, but not limited to natural and cultural resources and visitor use.

The GCPA directs the Secretary to implement this section in a manner fully consistent with all existing laws that govern allocation, appropriation, development, and exportation of the waters of the Colorado River Basin.

Section 1804 of the GCPA required preparation of an EIS, adoption of operating criteria and plans, reports to Congress, and allocation of costs. The Operation of Glen Canyon Dam Final Environmental Impact Statement was filed with the Environmental Protection Agency (EPA) in March 1995 and a Record of Decision (ROD) was signed in October 1996. The ROD changed only two flow parameters

from those shown in the preferred alternative of the EIS. They were (1) increasing the normal maximum flow from 20,000 cfs to 25,000 cfs and (2) increasing the upramp rate from 2,500 cfs/hour to 4,000 cfs/hour. The ROD also changed the triggering mechanisms for conducting beach/habitat-building flows. Instead of conducting them in years when Lake Powell storage is low on January 1, they will be conducted in years when Lake Powell storage is high and requires reservoir releases in excess of powerplant capacity for dam safety purposes. Following the signing of the ROD, the Secretary adopted a set of operating criteria and a 1997 plan of operation. This terminated the 1991 interim flow criteria.

The signing of the ROD began a new chapter in the history of Glen Canyon Dam. In addition to meeting traditional water and power needs, the dam is now being operated in a more environmentally sensitive manner. The EIS process demonstrated the value of a cooperative, integrative approach to dealing with complex environmental issues. The inclusion of all stakeholders resulted in a process that will serve to guide future operations of Glen Canyon Dam, and become a template for other river systems.

a. Adaptive Management

Section 1805 of the GCPA directs the Secretary to establish and implement long-term monitoring programs on the natural, recreational, and cultural resources of Grand Canyon National Park and Glen Canyon National Recreation Area. The "Adaptive Management Program" (AMP) is a key element of the preferred alternative outlined in the final EIS and implemented by the ROD. The program provides for operation of Glen Canyon Dam for environmental purposes in Glen and Grand Canyons in addition to traditional water and power generation.

The AMP provides a process for incorporating science and recommendations from a diverse group of stakeholders in the evaluation and management of future dam operations. The AMP calls for continued interaction of managers and scientists to both monitor the effects of current dam operations on the Colorado River ecosystem, and to conduct research on alternative dam operating criteria that may be necessary to ensure protection of resources and improve natural processes. The AMP identifies the following entities that contribute to the adaptive management process: (1) Adaptive Management Work Group (AMWG), (2) Technical Work Group (TWG), (3) Grand Canyon Monitoring and Research Center (GCMRC), and (4) Science Advisory Board.

The AMWG is a Federal Advisory Committee chartered by the Secretary consisting of a group of stakeholders that are federal and state resource managers, Native American tribes, power marketers, environmental groups, recreationists and other interest groups. The AMWG was established to develop, evaluate, and recommend alternative operations strategies for Glen Canyon Dam and make recommendations to the Secretary. The AMWG does not displace federal agency legal authority and responsibility to manage resources in the best interests of both the environment and society.

In addition to creation of the AMWG, the TWG and GCMRC were created to play vital roles as part of the adaptive management process. The TWG is composed of technical representatives appointed by the AMWG. The TWG provides the AMWG detailed guidance on issues and objectives, develops criteria and standards for research and monitoring programs, provides information for annual

resource reports, and translates the AMWG's management objectives into research needs for the GCMRC. The GCMRC conducts the research and monitoring necessary to evaluate operations and the Science Advisory Board (which has yet to be formed) will provide outside review and credibility.

b. Habitat Maintenance Flow

Fall 1997 inflows to Lake Powell were above normal as the result of high precipitation throughout much of the Colorado River Basin. Possibly an effect of the strong El Nino anomaly, this precipitation created several short duration flood events on the Paria River, a tributary to the Colorado River just downstream from Lees Ferry.

These floods brought an unusually large amount of fine sediment from the Paria drainage into the Colorado River. Researchers felt that this sediment would be quickly transported downstream and desired to carry out some type of high release from the dam in order to move the sediment from the main channel into eddies and channel margins where less sediment would be transported downstream. Since there were no hydrologic or dam safety reasons to release another beach/habitat-building flow as in March 1996, a release at powerplant capacity was scheduled as a type of test of the habitat maintenance flow described in the Glen Canyon Dam final EIS (habitat maintenance flows are high releases within powerplant capacity while beach/habitat-building flows are high releases that exceed powerplant capacity).

On November 4-5, 1997, a 48-hour release at powerplant capacity (3,600 cfs at that time) was made. The average daily releases before and after the release were about 21,000 cfs; thus, the test flow increased the river discharge by about 10,000 cfs, a 45 percent increase. The river stage increased between about 1.5 to 3 feet depending on the location in the Grand Canyon. Preliminary results indicate that maximum powerplant flows can be used to rebuild low-lying sandbar platforms and result in little disruption of terrestrial endangered species. However, a flow of this magnitude is probably insufficient to create or substantially rejuvenate backwater habitats which serve as nursery habitats for native and non-native fish. Although some sandbars increased in area and volume, this flow may not have been of sufficient duration to maximize sandbar rebuilding.

c. Glen Canyon Dam Temperature Modification Project

The Fish and Wildlife Service and Reclamation believe that the cold summer temperatures in the Colorado River, created by releases drawn from deep in Lake Powell, are a constraint to the recruiting and spawning of native and endangered warm-water fish in the river. The biological opinion issued by the Fish and Wildlife Service on the preferred alternative of the Glen Canyon Dam EIS included a requirement to consider increasing the temperature of releases through selective withdrawal. The draft temperature modification project environmental assessment will propose a \$15 million modification to the penstock intakes at the dam that would allow summer temperatures to be raised from 46°F to 59°F. This would not only benefit the endangered fish, but should also provide optimum temperatures for the trout fishery located immediately below the dam. The draft environmental assessment will be released in January 1999.

d. Recreational Use

The extensive recreational use of Glen Canyon National Recreation Area, which surrounds Lake Powell, is demonstrated by the visitation of 2,532,087^(*) people during 1996 (latest figure available). The National Park Service has concession-operated facilities at Wahweap, Dangling Rope, Halls Crossing, Hite and Bullfrog Basin on the reservoir and at Lees Ferry located 16 miles below the dam on the Colorado River. The San Juan Marina, which was operated on Lake Powell by the Navajo Nation, is now closed due to a tributary flood in 1989.

From 1909 through 1961, an estimated total of 20,972 people visited Rainbow Bridge. When access to the bridge by water was made available by completion of the dam in 1963, visitation rapidly increased. In 1966, 20,468 people visited Rainbow Bridge, almost as many people as had visited the site during the previous 53 years. In 1996, 325,562^(*) people visited Rainbow Bridge (latest figure available).

2. Flaming Gorge Storage Unit

Flaming Gorge Dam and Powerplant were completed in 1963. Upgrading of the units in 1992 increased the plant nameplate capacity from 108 megawatts to about 151 megawatts. Flaming Gorge National Recreation Area, which surrounds Flaming Gorge Dam and Reservoir, recorded approximately 2,383,500^(*) visitors during 1996 (latest figure available). The visitor center and dam tour areas have recently been retrofitted to make the facilities fully accessible to persons with disabilities. Fishing is an important recreational activity both on the reservoir and in the Green River below the dam.

Flaming Gorge was operated in water year 1998 in accordance with the 1992 biological opinion which describes seasonal flow regimes for the benefit of endangered fish. During water years 1992 through 1996, extensive research was conducted to better understand the needs of endangered fish living in the Green River below Flaming Gorge Dam. This research was conducted through the Upper Colorado River Recovery Implementation Program (UCRIP). An integrated research report is currently being prepared which will form the basis of year-round flow recommendations. The report is scheduled for completion in 1999. Reclamation intends to conduct National Environmental Policy Act (NEPA) compliance on the permanent implementation of the flow recommendations.

A contract was awarded to repair the number 2 river outlet pipe that failed on June 21, 1997. The repairs to the No. 2 river outlet pipe were completed in August 1998.

^(*)Reclamation's Office of Management and Budget (OMB) clearance to collect this data has expired. The data collection form has been revised and is awaiting new OMB approval.

a. Dutch John Townsite

Dutch John, Utah was founded by Reclamation in 1958 on Reclamation lands as a community to house personnel, administrative offices and equipment for construction and operation of Flaming Gorge Dam and Reservoir. Housing, administrative offices, storage/maintenance buildings and other public buildings and infrastructure were constructed and continue to be owned and maintained by Reclamation.

In 1968, Reclamation lands surrounding the reservoir, including the Dutch John townsite, were included within the boundaries of the Flaming Gorge National Recreation Area which is administered by the Forest Service. Since that time, Reclamation and the Forest Service have shared the costs of providing basic services for and administration and maintenance of the community and its infrastructure. Reclamation and the Forest Service have now determined that certain lands and structures are no longer essential to management of the project or the National Recreation Area.

Residents of the community are interested in purchasing the homes they currently rent from Reclamation and the lands upon which they were built. Daggett County is interested in reducing the financial burden it accrues in providing local government support services to a federally-owned community which produces little direct tax revenue.

In 1997, legislation was again introduced that would authorize Reclamation and the Forest Service to convey ownership of the Dutch John community housing to the current occupants and ownership of the public buildings, infrastructure and appurtenant lands to Daggett County. The legislation was introduced by Senator Robert Bennett and Congressman Chris Cannon; however, no hearings were held during the first session of the 105th Congress.

3. Navajo Storage Unit

The major purposes of Navajo Dam and Reservoir are to regulate the flows of the San Juan River and to provide a water supply for the Navajo Indian Irrigation Project (NIIP) near Farmington, the San Juan-Chama participating project in the Rio Grande Basin and the Hammond participating project, all in New Mexico. Part of the water is also used for municipal and industrial (M&I) purposes in northwestern New Mexico. Navajo Dam was completed in 1963.

Section 7 consultation with the Fish and Wildlife Service on the operation of Navajo Dam continued in 1997. Water year 1997 marked the seventh year of studies to evaluate alternative operations at Navajo Dam to benefit endangered fish. Navajo Dam has been operated to produce a full range of test flows to restore and enhance native and endangered fish habitat in cooperation with the San Juan River Recovery Implementation Program (SJRRIP). This range of flows included a low flow in the winter of 1996/1997 which triggered a lawsuit against Reclamation by several trout fishing organizations. As part of the stipulation and settlement agreement, Reclamation agreed to prepare an EIS prior to conducting additional low winter flows. Studies indicated little or no effects to the trout fishery for the short term. Information gathered during the research/test flow period (1990-1997) was utilized by the SJRRIP Biology Committee and the Fish and Wildlife Service to

develop permanent flow recommendations for Navajo Dam for the benefit of the native fish community. The flow recommendations were approved by the SJRRIP in 1998, and Reclamation awaits the final report containing those recommendations. Reclamation has begun preliminary work on the required EIS.

Under a Memorandum of Agreement with Reclamation, the Colorado Division of Parks and Outdoor Recreation is responsible for public recreation at Navajo Reservoir, within the state of Colorado, until the year 2014. The state has also entered into a cost-share agreement with Reclamation for the rehabilitation of existing recreation facilities and/or expansion, if appropriate. Preliminary design of recreation facilities will be initiated in fiscal year 2000 with actual construction anticipated in fiscal year 2001. The NEPA document for the rehabilitation work should be completed by September 1999.

A new long-term recreation management agreement between Reclamation and the New Mexico Energy, Minerals, and Natural Resources Department is currently being negotiated to replace the previous agreement which expired January 14, 1997. The previous contract was amended to extend its duration until completion of the new management agreement. A cost-share agreement has been signed with the state for rehabilitation of recreation facilities. Construction of facilities has already started and will continue as cost-share funds become available.

Total recreation visitation to Navajo Reservoir was 762,245⁽¹⁾ people in 1996 (latest figure available).

In early March 1996, the Interior Management Council designated a Reclamation and Bureau of Land Management (BLM) proposal designed to resolve long-standing resource management issues within and around Navajo Reservoir as an official National Performance Review (NPR) Reinvention Laboratory. Jurisdiction over the 218,000 acres of mostly federally-owned land surrounding Navajo Reservoir is split between BLM and Reclamation.

Under the recently sanctioned laboratory, a team composed of agency members, Native American representatives and stakeholder groups will develop and implement a five-year cooperative ecosystem management program intended to improve resource management in the area, restore and sustain a healthy ecosystem and enhance customer service. The program will also attempt to erase artificial jurisdictional lines which have previously divided a natural ecosystem. Following completion of NPR training and chartering requirements, the team will work to communicate directly with customer groups who use and enjoy the natural resources at Navajo. This NPR effort has subsequently been curtailed.

A resource management plan for Navajo Reservoir is being prepared by a private consulting firm under contract with Reclamation. The resource management plan is scheduled for completion in late 1999.

a. Dam Safety

Extensive modifications to the abutments were made during 1987 and 1988 to alleviate seepage problems that had increased in severity since the reservoir

was initially filled in 1963. A concrete cutoff wall was placed at the left abutment, and a concrete-lined tunnel with approximately 46 drainage holes drilled into the rock foundation was constructed at the right abutment.

Areas of renewed seepage appeared on the right abutment in November 1995. This initiated a detailed study of the seepage conditions and a consultant review of the situation. As a result of these studies, the frequency of seepage monitoring was increased. It was also determined that additional foundation instruments were required in the abutment to define the relationship of the water level in the abutment with rising and declining reservoir levels. The installation of these instruments began in the fall of 1997 and was completed in the spring of 1998.

In November 1997, a comprehensive facility review was performed at Navajo Dam as part of Reclamation's Dam Safety Program. The comprehensive facility review consisted of an independent facility inspection as well as a state-of-the-art technical evaluation of the dam's design, construction, and performance. The report was completed in 1998 and included an evaluation of present seepage conditions as well as recommendations for future monitoring of the structure. A risk/analysis process and requested performance parameters were initiated in 1998 and are expected to be completed in early 1999.

4. Wayne N. Aspinall Storage Unit

The Aspinall Unit includes three major dams and powerplants in the canyon of the Gunnison River downstream from Gunnison, Colorado, and upstream from the Black Canyon of the Gunnison National Monument. The three dams are Blue Mesa, Morrow Point, and Crystal. Uprating of Morrow Point Dam generator units was completed in 1993. The plant nameplate capacity was increased from 120 megawatts to 156 megawatts. The National Park Service administers the recreational facilities. In 1996 there were 1,017,256⁽¹⁾ visitors (latest figure available).

Similar to Glen Canyon, Flaming Gorge, and Navajo, the Aspinall Unit is being evaluated to determine how operations can be modified to conserve native and endangered fish populations. Section 7 consultation with the Fish and Wildlife Service on the operation of the Aspinall Unit continued in 1998. As part of this consultation, a five-year effort to study the effect of various release patterns on habitat, reproductive success, and reintroduction of endangered fish in the Gunnison River is underway. The goal is to provide a more natural hydrograph.

Additionally, the Aspinall Unit was operated in water year 1998 as if the draft contract among Reclamation, the National Park Service and the state of Colorado to deliver water from the Aspinall Unit to the Black Canyon of the Gunnison National Monument were in place. The operation was also coordinated with the Fish and Wildlife Service and others interested in the operation of the Aspinall Unit. A draft biological opinion on the operation of the Aspinall Unit as it affects endangered fish will be prepared in 1999. An interim contract has been executed to provide flows to study and protect endangered fish species in the lower

Gunnison River and to operate a fish passage around the Redlands Diversion Dam. A voluntary EIS will be prepared on operation changes.

5. Storage Units Fishery Information

The Flaming Gorge, Wayne N. Aspinall, Glen Canyon, and Navajo Units continue to provide excellent warm- and cold-water fishing both in the reservoirs and in the tailwater streams below the dams. Visitor days on the reservoirs total between six and seven million each year. Lake Powell provides approximately 40 percent of the total use, with the remainder coming from the other reservoirs. Lake Powell is almost exclusively a warm-water fishery with striped bass, crappie, walleye, channel catfish and smallmouth and largemouth bass as the harvested species. Angling use on reservoirs appears to be constant, while demand and use for the tailwaters is increasing dramatically (Reclamation does not gather specific data on angler usage at its reservoirs).

Flaming Gorge and Navajo Reservoirs provide both cold- and warm-water fishing, with rainbow trout and kokanee the predominant cold-water harvest and catfish, bass and crappie (at Navajo only) the preferred warm-water fishes. Flaming Gorge also provides a world-class lake trout fishery. The Aspinall reservoirs are exclusively cold-water fisheries, with kokanee and rainbow trout the predominant catch.

The four tailwaters (the San Juan River below Navajo Dam, the Green River below Flaming Gorge Dam, the Gunnison River below Crystal Dam and the Colorado River below Glen Canyon Dam) have provided "blue ribbon" trout fishing that many view as some of the best in the western United States. The Green River (below Flaming Gorge Dam) receives about one half of the total use with the Colorado River (below Glen Canyon Dam), the San Juan River (below Navajo Dam) and the Gunnison River (below Crystal Dam) providing the remainder.

B. TRANSMISSION DIVISION

The power system includes high voltage transmission lines that interconnect to the CRSP hydro-powerplants and deliver power to major load centers or other delivery points. The system is interconnected with adjacent federal, public, and private utility transmission systems. The Transmission Division was transferred to the Department of Energy, Western Area Power Administration, in fiscal year 1978.

Generation at CRSP powerplants amounted to 8.4 billion kilowatt-hours during water year 1998. The major portion, 6.6 billion kilowatt-hours, was produced at Glen Canyon Dam. The balance was produced at Flaming Gorge, Blue Mesa, Morrow Point, Crystal, Fontenelle, McPhee, and Towaoc Powerplants.

The following table lists the gross generation for fiscal years 1997 and 1998 and the percentage of change:

GROSS GENERATION (Kilowatt-Hours)

Powerplant	Fiscal Year 1997	Fiscal Year 1998	Percent Change
Glen Canyon	6,709,781,000	6,635,583,000	-1
Flaming Gorge	693,367,000	770,285,000	+ 11
Blue Mesa	373,338,000	297,576,000	-20
Morrow Point	482,334,000	367,433,000	-24
Crystal	219,371,000	210,942,000	-4
Fontenelle	71,061,000	79,623,000	+ 12
McPhee	584,127	673,114	+ 15
Towaoc	9,302,400	18,059,400	+ 94
Total	8,559,138,527	8,380,174.514	-2

C. AUTHORIZED PARTICIPATING PROJECTS

Twenty-one participating projects have been authorized by Congress. Eleven were authorized by the initial authorizing Act of April 11, 1956 (70 Stat. 105), two were authorized by the Act of June 13, 1963 (76 Stat. 96), three were authorized by the Act of September 2, 1964 (78 Stat. 852) and five were authorized by the Act of September 30, 1968 (82 Stat. 886). Eleven are in Colorado, three in New Mexico, two in Utah, three in Wyoming, one in both Colorado and Wyoming and one in both Colorado and New Mexico. Participating projects develop, or would develop, water in the upper Colorado River system for irrigation, M&I uses and other purposes and participate in the use of revenues from the Upper Colorado River Basin Fund to help repay the costs of irrigation features that are beyond the ability of the water users to repay.

The following are completed participating projects:

Project	State	Dam	Year Completed
Paonia	Colorado	Paonia	1962
Smith Fork	Colorado	Crawford	1962
Florida	Colorado	Lemon	1963
Silt	Colorado	Rifle Gap	1966
Bostwick Park	Colorado	Silver Jack	1971
Dallas Creek	Colorado	Ridgway	1991
Hammond	New Mexico	---	1962
San Juan-Chama	New Mexico	Heron	1971
Vernal Unit	Utah	Steinaker	1961
Emery County	Utah	Joes Valley	1966
Lyman	Utah	Stateline	1979
Eden	Wyoming	Big Sandy	1952
Eden	Wyoming	Eden	1959
Seedskadee	Wyoming	Fontenelle	1968
Lyman	Wyoming	Meeks Cabin	1971

The present status of construction or investigation for the remaining participating projects follows:

1. Colorado

a. Fryingpan-Arkansas Project

Although the Fryingpan-Arkansas Project is not a participating project of the Colorado River Storage Project because it does not participate in the Upper Colorado River Basin Fund, it is sometimes referred to as a limited participating project because it does utilize water diverted from the upper Colorado River system to the eastern slope of Colorado.

The Eastern Colorado Area Office, located in Loveland, Colorado, directs the operation and maintenance activities of the Fryingpan-Arkansas Project. A field office in Pueblo, Colorado, coordinates with the Southeastern Colorado Water Conservancy District and the State Division Engineer.

NEPA compliance on the Ruedi Round II Water Marketing Program was completed on January 16, 1990, with the signing of a ROD on the proposed action. The proposed action made 51,500 acre-feet of water available for marketing to western slope contractors. As a result of Endangered Species Act (ESA) consultation on the proposed action, 5,000 acre-feet of this total would be withheld from water sales and released to benefit Colorado River endangered fishes. Operational changes make an additional 5,000 acre-feet available to benefit the Colorado River endangered fishes in four years out of five. After Round I sales of 7,850 acre-feet, 38,650 acre-feet of water were available for marketing in Round II. Since 1990, the Fish and Wildlife Service has listed the razorback sucker and identified and listed critical habitat for the four Colorado River endangered fishes, both of which could be affected by the Round II Water Marketing Program.

To comply with the ESA, Reclamation reinitiated consultation with the Fish and Wildlife Service on the Ruedi Round II Water Marketing Program. On May 26, 1995, the Fish and Wildlife Service issued a biological opinion on the effects of the program on the Colorado River endangered fishes and designated critical habitat. Prior to consultation, Reclamation identified 17,000 acre-feet of immediate needs that should be contracted for in Round II. This left 21,650 acre-feet of uncommitted water in Ruedi Reservoir. The May 26, 1995 biological opinion contained two reasonable and prudent alternatives to jeopardy. One was to continue commitments made in the 1990 EIS, and the other was to develop an agreement among the Fish and Wildlife Service, Reclamation and the Colorado Water Conservation Board to make the remaining uncommitted yield available to enhance flows in the 15-Mile Reach of the Colorado River. Because of problems in implementing this second reasonable and prudent alternative, Reclamation reinitiated discussions with the Fish and Wildlife Service, the state of Colorado and water users on how to revise the 1995 biological opinion so that Reclamation could resume contracting. The Fish and Wildlife Service has amended the 1995 biological opinion. Acceptance of the amendment by Reclamation, followed by resumption of Round II contracting, is expected in the near future.

Contents of reservoirs within the Fryingpan-Arkansas Project as of September 30, 1998 were as follows: Ruedi Reservoir, 83,659 acre-feet; Turquoise Lake, 118,264 acre-feet; combined Mt. Elbert Forebay and Twin Lakes Reservoir, 139,454 acre-feet; and Pueblo Reservoir, 147,853 acre-feet. During water year 1998 (October 1, 1997 through September 30, 1998), transmountain diversions from the Colorado River Basin in Colorado by the Fryingpan-Arkansas Project via the Charles H. Boustead Tunnel totaled 51,258 acre-feet.

b. Dolores Project

Dolores Project construction began in 1976. During fiscal year 1995, all primary project facilities were completed and in operation. Work yet to be completed includes installation of agricultural drains and wetland mitigation. Land has been purchased for wetland mitigation, with construction of the wetlands presently scheduled to be completed by July 1999. In 1996, Reclamation signed petitions allocating the last approximately 1,800 acre-feet of full-service irrigation water to full-service users. Reclamation substantially completed construction of the Dolores Project in fiscal year 1998. The final cost allocation for the project is presently scheduled to be completed by mid-1999.

Reclamation negotiated agreements with the three primary contractual beneficiaries: the Dolores Water Conservancy District (District), Montezuma Valley Irrigation Company and Ute Mountain Ute Indian Tribe. These cooperative agreements and grants provided for the benefitting entities to complete the work, rather than using Reclamation's traditional construction methods. Major remaining Reclamation items include 20 additional acres of wetland mitigation (scheduled to be completed by July 1999) and archeology reports (scheduled to be completed by June 1999). Reclamation has deposited \$371,000 with the National Fish and Wildlife Foundation to be used for cost sharing of the acquisition of up to 3,300 acre-feet of water for fish and wildlife enhancement.

The District's agreements for completing its work items and providing 3,900 acre-feet of water for downstream fish and wildlife purposes was completed in 1998. Full payment was made to the Montezuma Valley Irrigation Company under a grant agreement with fiscal year 1996 funds. Two Ute Mountain Ute Tribe agreements allowing them to complete their work items and allowing Reclamation to lease 3,300 acre-feet of unused tribal irrigation water have been completed. Payment in full was made in fiscal year 1996 for leasing 3,300 acre-feet of water for downstream fish and wildlife purposes, and full payment under the grant allowing completion of work items has been made. Closeout of all completion agreements is finalized.

In order to mitigate construction of salinity control modifications to the Upper Hermana, Lone Pine and Rocky Ford Laterals (parts of the Dolores Project), 55 acres of new wetlands were developed at the Lone Dome Wetlands Area below McPhee Dam. In order to complete the remaining 20 acres of mitigation, Reclamation will be developing additional wetlands near the Totten Reservoir area. A long-term management agreement between Reclamation and the Colorado Division of Wildlife for operation and maintenance of the Lone Dome Wetlands Area has been negotiated.

c. Fruitland Mesa Project

As required by Section 204(l) of the Federal Land Policy and Management Act (P.L. 94-579), Reclamation completed a withdrawal review on lands withdrawn for the Fruitland Mesa Project. In December 1988, Reclamation submitted a report to BLM recommending that its withdrawals for this project, totaling approximately 22,600 acres, be terminated in their entirety. That recommendation has not yet been processed by BLM. In September 1996, the Interior Department's Inspector General completed an audit report entitled, "Withdrawn Lands, Department of the Interior." As a result of recommendations made in that audit report, it is anticipated that BLM will soon begin to clear a large backlog of unprocessed recommendations.

d. San Miguel Project - West Divide Project

Both projects have been found to be economically unjustified at this time. As required by Section 204(l) of the Federal Land Policy and Management Act (P.L. 94-579), Reclamation completed a withdrawal review on lands withdrawn for the West Divide Project. In March 1987, Reclamation submitted a report to BLM recommending that its withdrawal for this project, totaling approximately 739.6 acres, be terminated in its entirety. That recommendation has not yet been processed by BLM. In September 1996, the Interior Department's Inspector General completed an audit report entitled, "Withdrawn Lands, Department of the Interior."

As a result of recommendations made in that audit report, it is anticipated that BLM will soon begin to clear a large backlog of unprocessed recommendations.

e. Dallas Creek Project

Block notice number one was issued for the Dallas Creek Project on May 31, 1989, covering all M&I water use. The notice involved 28,100 acre-feet of water. Repayment on that notice began in 1990. Block notice number two was issued on March 21, 1990. The notice included all irrigation waters for the project, involving 11,200 acre-feet. The notice was issued to Tri-County Water Conservancy District. The first payment under the repayment contract was made in February 1993 and will continue until February 2042.

Rock and gravel scour has resulted in damage to the floor of the river outlet works at Ridgway Reservoir. Repairs were planned for fiscal years 1997 and 1998 with the work to be accomplished in two stages. The first contract, to extend the bypass pipe in the outlet works beyond the stilling basin, was awarded to Nordic Industries of Marysville, California. Construction was completed in March 1997. A second contract, to repair the concrete in the outlet works stilling basin, was awarded to Nielsons, Inc., of Cortez, Colorado, and construction was completed in February 1998. Recreation development at Ridgway Reservoir was officially completed on September 30, 1995. Total cost of the recreation facilities exceeded \$21 million.

f. Smith Fork Project

All major construction for rehabilitation of existing recreation facilities at Crawford Reservoir was completed in fiscal year 1997. Rehabilitation included water, sewer, electric, and road upgrades; campground expansion and modification; and construction of a maintenance building. A fishing site that is accessible to persons with disabilities will be completed by the fall of 1998.

g. Silt Project

The appropriate NEPA document for the rehabilitation of recreation facilities and associated infrastructure at Rifle Gap Reservoir will be prepared in fiscal year 1999.

h. Paonia Project

Even though the rehabilitation effort for major recreation facilities at Paonia is not scheduled to begin until approximately 2005, it was decided to purchase four vault toilets for the reservoir area in addition to the ones purchased for Crawford Reservoir. This resulted in a per unit cost savings to the government. One of the four toilets will be made accessible to persons with disabilities.

2. Colorado and New Mexico

a. Animas-La Plata Project

A Final Supplement to the Final Environmental Statement (FSFES) was completed and filed with the EPA in April 1996. No ROD was issued. The project, as configured in the April 1996 FSFES, would be developed in two phases, with

Phase I being further divided into two stages and providing storage water to southwestern Colorado and northwestern New Mexico. As conceived, the project would provide water for the settlement of tribal water rights for the Ute Mountain Ute Indian and Southern Ute Indian Tribes, as well as municipal, industrial and irrigation water to other citizens of Colorado and New Mexico and the Shiprock community of the Navajo Nation.

Following the completion of the FSFES in 1996, Colorado Governor Roy Romer and Lt. Governor Gail Schoettler convened the project supporters and opponents in a process intended to seek resolution of the controversy involved in the original Animas-La Plata Project and to attempt to gain consensus on an alternative to the original project. The Romer-Schoettler process concluded in 1997 with the suggestion of two alternatives, a structural and non-structural proposal. The Animas-La Plata Reconciliation Plan (Structural Proposal) proposed to construct the initial stage of the project as described in the FSFES, with some modifications. The Animas River Citizens' Coalition Conceptual Alternative (Non-structural Proposal) proposed to purchase irrigated lands and other associated water rights near the existing Ute reservations in southern Colorado and would use or purchase water from existing projects or from expanded projects/delivery systems for the purpose of providing Indian-only water.

On August 11, 1998, the Secretary of the Interior presented an Administration Proposal to build a down-sized version of the Animas-La Plata Project to implement the Colorado Ute water rights settlement which would include a non-structural element as part of the settlement implementation. Under the Administration Proposal the project would supply only municipal and industrial water. The project would include both structural and non-structural elements designed to achieve the fundamental purpose of securing the Ute Tribes an assured water supply in satisfaction of their water rights as determined by the 1986 Settlement Agreement and the 1988 Settlement Act, and by providing for identified municipal and industrial water needs in the project area. Other previously contemplated project features would be deauthorized. The Administration Proposal also calls for implementation of the project in accordance with all applicable environmental laws, utilizing whatever pre-existing analysis is available and pertinent.

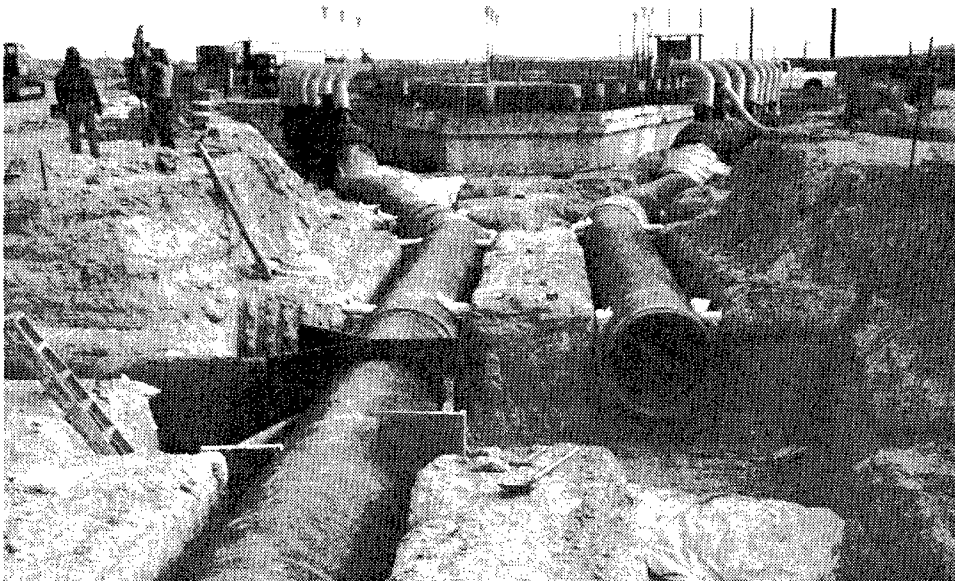
3. Colorado and Wyoming

a. Savery-Pot Hook Project

As required by Section 204(l) of the Federal Land Policy and Management Act (P.L. 94-579), Reclamation completed a withdrawal review on lands withdrawn for the Savery-Pot Hook Project. In April 1983, Reclamation submitted a report to BLM recommending that its withdrawals for this project, totaling approximately 11,303 acres, be terminated in their entirety. That recommendation has not yet been processed by BLM. In September 1996, the Interior Department's Inspector General completed an audit report entitled, "Withdrawn Lands, Department of the Interior." As a result of recommendations made in that audit report, it is anticipated that BLM will soon begin to clear a large backlog of unprocessed recommendations.



Navajo Indian Irrigation Project, New Mexico *Photo-USBR (Dave Gates)*



Navajo Indian Irrigation Project, New Mexico *Photo-USBR (Dave Gates)*
Pumping Plant and Laterals

4. New Mexico

a. Navajo Indian Irrigation Project

The NIIP was authorized in 1962 to develop the necessary infrastructure to deliver San Juan River water to 110,630 acres of farmland in the northeastern part of the Navajo Reservation near Farmington, New Mexico. While Reclamation provides design and construction management services for the Bureau of Indian Affairs (BIA), construction funding is sought by the BIA in its budget appropriation.

Reclamation is continuing toward completion of NIIP. The project's facilities are, and will be, constructed in 11 blocks of approximately 10,000 acres each. Currently NIIP is about 60 percent complete with seven blocks. Completion of NIIP may require between \$350-\$400 million and 10 to 15 years depending on the level of annual appropriations received. During 1998, Blocks 1 through 7 were producing high value crops on approximately 65,000 acres of land.

The main building structure at the Gallegos Pumping Plant was completed in 1996 with a follow-up contract to install pumps and motors continuing in 1997. The testing of pumps and motors at Gallegos may take place in the fall of 1998 or spring of 1999. The Burnham Laterals, Reach 1, Schedule II contract was completed in 1997, as well as three concrete lining rehabilitation contracts. A contract was awarded to provide electrical power distribution to Block 8 lands.

The fiscal year 1998 BIA appropriation transferred to Reclamation for continued project development was \$25.5 million. Priority is on the design and construction of facilities to serve Block 8. The earliest possible completion of Block 8 facilities would be the summer of 2000, assuming annual appropriations of at least \$35 million. However, with continued annual appropriations at the current level of about \$25 million, completion of Block 8 will not occur before 2001 and completion of Block 11 will be delayed until 2010. Section 7 consultation under the ESA for Blocks 9 through 11, a BIA responsibility, is underway and should be completed with an opinion issued by late fall or early winter of 1998.

A coordinated work effort between Reclamation and the BIA is currently underway to prepare a request for a congressionally approved increase in the appropriation ceiling. This same coordinated work effort needs to be applied to justifications to support annual appropriations for construction and operation and maintenance.

Actions needed include: (1) a \$10 million increase in the level of sustained annual funding (to \$35.5 million) to expedite construction, provide for more timely project completion, and reduce the total project completion cost; (2) a need for increased annual funding (\$7.3 million by fiscal year 1999) for project operation, maintenance, and replacement as additional acreage is added to the farm and to allow for proper preventive maintenance of existing facilities and replacement of aging equipment; (3) timely completion of Section 7 environmental consultation to allow the continued orderly development of Blocks 9 through 11; and (4) an increase in the appropriation ceiling.

Reclamation and the BIA need to work together with the Department of the Interior, Office of Management and Budget, Congress, and others to substantially increase annual construction funding levels if NIIP completion is to be cost effective.

Endangered Species Act concerns must be quickly identified so mitigation measures can be included in the project plan. The appropriation ceiling must be increased by new legislation to accurately reflect the revised total estimated cost. More realistic operation, maintenance and rehabilitation funds must be appropriated annually to safeguard the investment.

5. Utah

a. Central Utah Project (CUP)

The CUP provides water for irrigation, M&I uses and power generation. Benefits also include recreation, fish and wildlife, flood control, water conservation, water quality control and area development. The initial phase consists of six units. The largest of these is the Bonneville Unit which involves the diversion of water from the Uinta Basin, a part of the Colorado River Basin, to the Great Basin, with associated resource developments in both Basins. The other units, Vernal, Uintah, Upalco and Jensen, provide for local development in the Uinta Basin.

(I). Bonneville Unit

Legislation introduced in 1991 by the Utah congressional delegation to increase the ceiling to allow completion of the Bonneville Unit of the CUP, primarily the irrigation and drainage system, was passed on October 30, 1992, as P.L. 102-575. The legislation allows the Central Utah Water Conservancy District (District) to plan and construct the remaining CUP features under the purview of the Department of the Interior. Reclamation and the District have prioritized remaining work items to ensure that the most important work is accomplished first under the remaining ceiling. No work will be awarded if the completion of the work will cause the ceiling to be exceeded. Section 203 of P.L. 102-575 provides the District with the opportunity to construct the Uintah and Upalco Units of the CUP. The District is moving ahead with planning for the units and has prepared the draft EIS for both units.

In January 1994, the Commissioner of Reclamation delegated the authority to the CUP Program Director to initiate a lease of power privilege for the development of power at CUP facilities, and an agreement with the Strawberry Water Users Association (Association) for the development of hydroelectric power at Diamond Fork. A notice was published in the *Federal Register* in December of 1994 requesting proposals for development of hydropower at the Diamond Fork area. Experts from Interior, Reclamation, the Western Area Power Administration, Bonneville Power Administration and Army Corps of Engineers evaluated the proposals and concluded that the District/Association joint proposal was best.

The next step toward negotiating a lease with the District/Association was to amend the 1965 CUP repayment contract. These negotiations were completed by the Department of the Interior in 1996, and the amendatory contract was executed January 9, 1997. Prior to initiating negotiations with the District/Association, two issues must be resolved: (1) an operating agreement, as mandated by the Central Utah Project Completion Act, between the two federal projects (the CUP and the Strawberry Valley Project) must be executed, and (2) the final configuration of the Diamond Fork System and the Utah Lake Drainage Basin

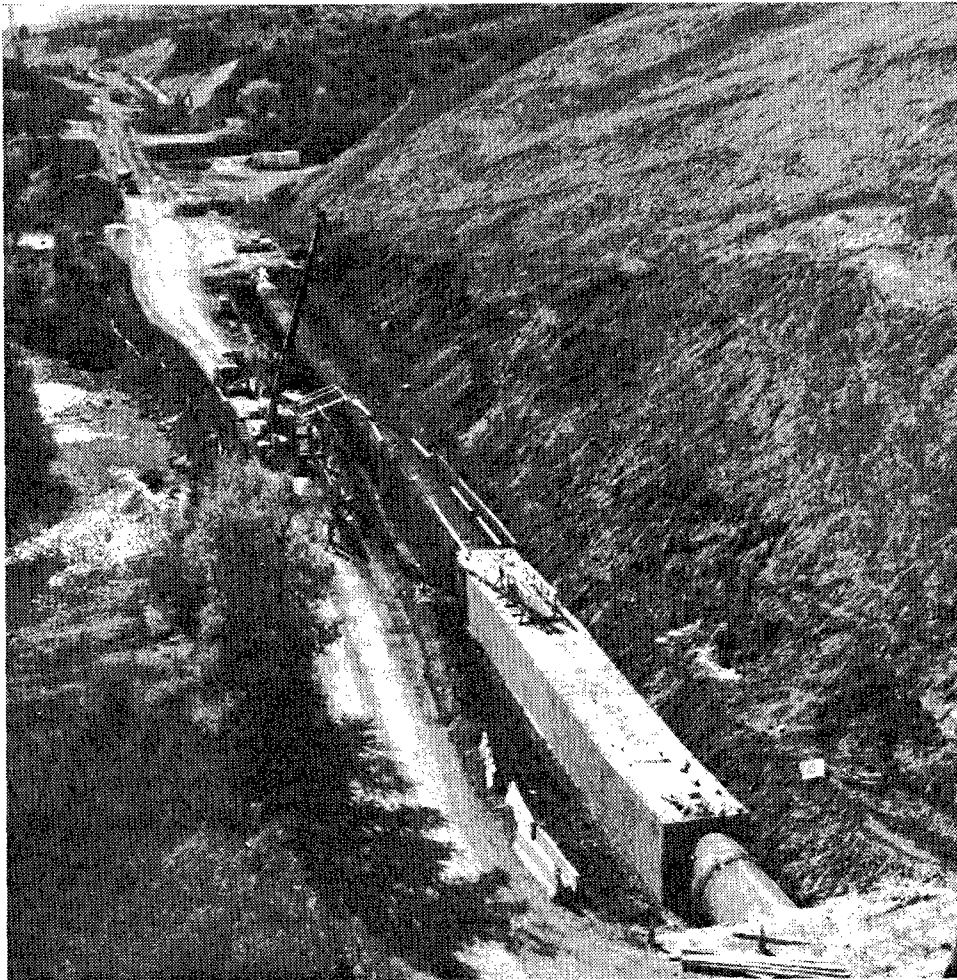


Photo by Don Green

Central Utah Project, Diamond Ford, Utah
Transmountain Diversion

Water Delivery System must be completed. Once these issues are completed, expected lease of power privilege negotiations will be reinitiated by the Department of the Interior.

6. Wyoming

a. Lyman Project

Under the Safety of Dams Program, a contract for construction of a concrete cutoff wall in Meeks Cabin Dam was awarded on July 26, 1993 to Bauer of America Corporation of Waltham, Massachusetts for \$5.9 million. The cutoff wall was designed to reduce seepage through the dam and increase its safety. The work was completed in the fall of 1995 and appears to be working well in that the seepage has been controlled.

7. New Mexico

a. San Juan Chama Project

A resource management plan initiated in 1995 for Heron Reservoir is scheduled for completion in March 1998. The resource management plan and environmental analysis are expected to provide a guide for future resource management decisions and identify problems, issues and opportunities at Heron Reservoir. Review of the final administrative resource management plan is currently underway. The environmental assessment has been completed and distributed to all interested parties.

D. RECREATIONAL USE AT RESERVOIRS

The following estimated recreation visits occurred in 1996^(*) (latest figures available) at the reservoirs listed below:

Reservoir	Year First Visited	1996
Curecanti (Aspinall)	1966	1,017,256
Currant Creek	1982	102,653
Crawford	1963	109,704
Flaming Gorge	1962	2,383,500
Fontenelle	1965	11,700
Heron	1973	136,000
Horsethief	1992	1,587
Huntington North	1967	59,075
Joes Valley	1967	99,190
Jordanelle	1994	519,207
Lake Powell	1962	2,532,087
Lemon	1964	3,272
McPhee	1985	46,921
Meeks Cabin	1973	9,350
Nambe Falls	1977	43,200
Navajo	1963	762,245
Paonia	1962	8,345
Red Fleet	1982	52,227
Ridgway	1989	629,298
Rifle Gap	1967	123,112
Silver Jack	1973	84,500
Starvation	1970	119,553
Stateline	1981	1,750
Steinaker	1962	65,633
Strawberry (enlargement)	1985	459,034
Upper Stillwater	1988	45,000
TOTAL		9,425,399

E. STATUS OF OTHER RECLAMATION PROJECTS IN THE UPPER COLORADO RIVER BASIN

1. Colorado

a. Fruitgrowers Dam Project

Reclamation entered into an agreement with the Audubon Society to manage the lands around Fruitgrowers Reservoir for wildlife habitat enhancement and viewing. A watchable wildlife trail and viewing area, accessible to persons with disabilities, has been constructed.

b. Uncompahgre Project

The proposed AB Lateral Hydropower Facility is designed to generate electrical power, improve the Uncompahgre Project irrigation system and enhance revenues of the Uncompahgre Valley Water Users Association (UVWUA). The project would be funded, built and operated by the UVWUA and Montrose Partners. The project would be constructed under a lease of power privilege (Lease) using existing features of Reclamation's Uncompahgre Project. Reclamation issued a final EIS in 1990 for this non-federally funded project. The ROD, which was issued in 1991, provided that Reclamation could not execute a Lease permitting the Project until a Section 404 Permit was obtained. The Corps of Engineers denied the permit in 1993; the sponsors collected additional data, prepared new bank stabilization plans and submitted a new permit application. The Corps of Engineers issued a public notice on the application in August 1995. Public comments on the application included support, opposition based on increased erosion along the Uncompahgre River and requests for more data and updated NEPA compliance.

The proposed facility would use the existing Gunnison Diversion and Tunnel to divert water from the Gunnison River to an Uncompahgre River hydroplant. Environmental issues relate to increased flows on the Uncompahgre River which could lead to erosion along the river corridor and reduced flows on the Gunnison River. Downstream areas on the Gunnison River have been determined eligible for inclusion in the Wild and Scenic Rivers System, and a segment of river is within the Black Canyon of the Gunnison National Monument. The National Park Service plans to quantify their reserved water right to help establish a water supply for the Monument. Sponsors will honor either the flow required by the federal reserved right or 300 cfs, whichever is greater. In 1997, Reclamation initiated work on a supplemental EIS in light of new bank stabilization plans and other new information. This work will provide the basis for determining if changes to the ROD are necessary.

c. Dominquez Project (Whitewater)

As required by Section 204(l) of the Federal Land Policy and Management Act (P.L. 94-579), Reclamation completed a withdrawal review on lands withdrawn for the Dominquez Project. In December 1988, Reclamation submitted a report to BLM recommending that its withdrawal for this project, totaling approximately 28,444 acres, be terminated in its entirety. That recommendation has not yet been processed by BLM. In September 1996, the Interior Department's Inspector General completed an audit report entitled, "Withdrawn Lands, Department of the Interior."

As a result of recommendations made in that audit report, it is anticipated that BLM will soon begin to clear a large backlog of unprocessed recommendations.

F. INVESTIGATIONS

The Upper Colorado Region General Investigations budget for fiscal year 1998 was about \$3.6 million, with approximately 34 percent being directed within the Upper Colorado River Basin. About 22 percent of the General Investigations funds spent in the Basin during fiscal year 1997 were for salinity control activities including support of the Colorado River Storage System model, economic impact studies, salinity monitoring and verification studies, program coordination, other salinity control activities, and managing the new Basinwide salinity control program.

Other investigations include the Ashley/Brush Creeks Optimization Study, the Carbon/Emery Counties Water Management Study and the Mesa County Water Conservation Study. Under funds appropriated through a congressional write-in, Reclamation provided planning and technical assistance to the city of Gallup, New Mexico, and the Navajo Nation on the San Juan River Gallup/Navajo Water Supply Study. Reclamation continues to provide assistance, as requested, through its Technical Assistance to the States Program, and continues to coordinate with other natural resource agencies on critical water resource related problems and issues. Funds are also provided, under the Investigation of Existing Projects account, to evaluate ways to optimize benefits on existing projects, and under the General Planning Studies account to participate in special studies requested by other natural resource agencies.

1. New Mexico

a. San Juan Gallup/Navajo Water Supply Study

This study is providing planning and technical assistance to the Navajo Nation and the city of Gallup, New Mexico to formulate a project to divert water from the San Juan River to augment domestic water supplies of rural Navajo communities on the eastern side of the reservation, the cities of Gallup, New Mexico and Window Rock, Arizona. Existing groundwater supplies in the area are inadequate to meet expected future demands.

2. Utah

a. Ashley/Brush Creeks Optimization Study

This study is examining the existing operation of projects on Ashley and Brush Creeks and will recommend an optimal operating plan to maximize benefits and resolve critical water resource-related issues and problems. Reclamation's Jensen Unit, on Brush Creek, was constructed to meet projected growth from oil shale and other developments which have not occurred. There is a need to provide an alternate supply of high-quality water to Stewart Lake Waterfowl Management Area to replace drainage water which is carrying selenium and other contaminants into the Stewart Lake Waterfowl Management Area. There is also a need to provide late-season irrigation water to irrigators who own higher priority water rights than Reclamation's Vernal Unit on Ashley Creek. Also, the Ashley Valley sewer lagoons evaporate large quantities of water and leach contaminants into lower Ashley Creek.

These contaminants are causing unacceptable hazards to migratory waterfowl and endangered fish in the area. This study provides the opportunity for a coordinated effort among federal, state and local interests to resolve the region's critical water resource problems, issues and opportunities.

b. Carbon/Emery Counties Water Management Study

This study is developing a Geographic Information System model linked to an expert system and decision support software for use in formulating and evaluating water management strategies for the full range of needs in the two-county area. Carbon County is short of M&I water. Both Carbon and Emery Counties have significant coal reserves, are suppliers of electricity (coal-fired generation plants) and have tremendous recreation potential. Irrigated agriculture has historically been a stabilizing influence on the region's economy. Two Reclamation projects, Emery County and Scofield, are key to future water management strategies in the area. The future of this two-county area is linked to its water management strategies. The study will provide a comprehensive approach among federal, state and local interests in developing a water management plan to include: (1) reducing turbidity in the Price River and its tributaries, (2) augmenting M&I water quality and quantity in Carbon County, (3) integrating salinity management strategies into overall watershed plans, (4) protecting water rights, (5) protecting critical reaches in streams and (6) meeting instream flow requirements.

3. Colorado

a. Mesa County Water Conservation Study

This study will quantify the volume of water that can be potentially salvaged from the Grand Valley Irrigation Company and Orchard Mesa Irrigation District irrigation delivery systems and develop plans to implement water conservation practices. The plans will provide recommendations for increasing water delivery system efficiencies and address issues associated with protecting conserved water within the context of state water law. It is anticipated that approximately 35,000 to 40,000 acre-feet may be saved annually through the elimination of waste. It is envisioned that a substantial portion of the conserved water would be dedicated to endangered species recovery purposes.

G. RESERVOIR OPERATIONS

1. 1998 Operations Summary and Reservoir Status

Water year 1998 observed near-normal hydrologic conditions in the basin with near-normal precipitation translating into average snowpack. At the beginning of the runoff season, the Basinwide snowpack was 100 percent of normal. Great media and public attention focused on the strong El Niño Southern Oscillation anomaly present in the equatorial region of the Pacific Ocean and the potential effect this might have on the Colorado River Basin. Reservoir drawdowns in the winter of 1998 were slightly greater than normal in a conservative attempt to prepare for potential high spring runoff. However, water year 1998 did not have the spring precipitation, cold temperatures, and extreme runoff that characterized

water year 1983 (another strong El Niño Southern Oscillation year), and the spring runoff did not cause significant operational problems.

Unregulated inflow into Lake Powell was 15,509 million cubic meters (MCM) (12.573 million acre-feet (MAF)) in water year 1998, approximately 107 percent of average. This inflow resulted in a drop of approximately 926 MCM (0.751 MAF) of storage in Lake Powell. Approximately 300 MCM (0.243 MAF) of storage was lost in upstream reservoirs, approximately 855 MCM (0.693 MAF) was gained in Lower Basin reservoirs, and the total Colorado storage system lost approximately 371 MCM (0.301 MAF) during water year 1998. It is estimated that with average inflow during 1999, the system will remain relatively full. During 1998, all deliveries of water to meet obligations pursuant to "The Law of the River" were maintained.

Tables 1(a) and 1(b) list the October 1, 1998, reservoir vacant space, live storage, water elevation, percent of capacity, change in storage and change in water elevation during water year 1998.

Table 1(a). Reservoir Conditions on October 1, 1998 (Metric Units)

Reservoir	Vacant Space	Live Storage	Water Elevation	Percent of Capacity	Change in Storage*	Change in Elevation*
	(MCM)	(MCM)	(meters)	(percent)	(MCM)	(meters)
Fontenelle	63	363	1981	85	-44	-1.42
Flaming Gorge	355	4,269	1839	92	-170	-1.05
Blue Mesa	146	878	2288	86	-60	-1.74
Navajo	213	1,879	1851	90	-25	-0.42
Lake Powell	2,802	27,198	1123	91	-926	-1.51
Lake Mead	3,432	30,337	369	90	+1019	+1.68
Lake Mohave	303	1,929	194	86	-136	-1.25
Lake Havasu	76	687	136	90	-28	-0.37
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Totals	7,391	67,540	--	90	-370	--

Table 1(b). Reservoir Conditions on October 1, 1998 (English Units)

Reservoir	Vacant Space	Live Storage	Water Elevation	Percent of Capacity	Change in Storage*	Change in Elevation*
	(MAF)	(MAF)	(feet)	(percent)	(MAF)	(feet)
Fontenelle	.051	.294	6499	85	-0.036	-4.65
Flaming Gorge	.288	3.461	6033	92	-0.138	-3.43
Blue Mesa	.118	.712	7506	86	-0.049	-5.72
Navajo	.173	1.523	6073	90	-0.020	-1.38
Lake Powell	2.272	22.050	3685	91	-0.751	-4.96
Lake Mead	2.782	24.595	1211	90	+0.826	+5.50
Lake Mohave	.246	1.564	638	86	-0.110	-4.10
Lake Havasu	0.062	.557	447	90	-0.023	-1.22
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Totals	5.992	54.756	--	90	-0.301	--

* From October 1, 1997, to September 30, 1998.

2. 1999 Water Supply Assumptions

For 1999 operations, three reservoir unregulated inflow scenarios were developed and analyzed and are labeled as probable maximum, most probable and probable minimum. Although there is considerable uncertainty associated with streamflow forecasts and reservoir operating plans made a year in advance, these projections are valuable in analyzing possible impacts on project uses and purposes. The most probable inflow in water year 1999 is projected to be near normal. Therefore, the magnitude of inflows in each of the three inflow scenarios are near the historical upper decile, mean and lower decile (10 percent exceedance, 50 percent exceedance and 90 percent exceedance, respectively) for each reservoir for water year 1999. The three inflow scenarios for Lake Powell are shown in Tables 2(a) and 2(b).

The volume of inflow resulting from these assumptions was used as input into Reclamation's monthly reservoir simulation model. This model is used to plan reservoir operations for the upcoming 24-month period. Projected water year 1999 inflow and October 1, 1998 reservoir storage conditions were used as input to this model and monthly releases were adjusted until release and storage levels accomplished project purposes.

**Table 2(a). Projected Unregulated Inflow
Into Lake Powell for Water Year 1999
(Metric Units: MCM)**

Time Period	Probable Maximum	Most Probable	Probable Minimum
10/98 - 12/98	2,552	1,850	1,462
1/99 - 3/99	2,595	1,729	1,485
4/99 - 7/99	15,803	9,541	4,199
8/99 - 9/99	1,393	1,342	797
10/99 - 12/99	1,850	1,850	1,850
WY 1999	22,343	14,463	7,943
CY 1999	21,641	14,463	8,331

**Table 2(b). Projected Unregulated Inflow
Into Lake Powell for Water Year 1999
(English Units: MAF)**

Time Period		Probable Maximum	Most Probable	Probable Minimum
10/98 -	12/98	2.069	1.500	1.185
1/99 -	3/99	2.104	1.402	1.204
4/99 -	7/99	12.812	7.735	3.404
8/99 -	9/99	1.129	1.088	0.646
10/99 -	12/99	1.500	1.500	1.500
WY	1999	18.114	11.725	6.439
CY	1999	17.545	11.725	6.754

3. 1999 Reservoir Operations

Minimum instream flow levels and annual operating strategies have been established at several locations in the Upper Basin which are intended to protect the aquatic resources downstream of specific dams. The regulation of the Colorado River has had both positive and negative effects on aquatic resources. Controlled cool water releases from dams have provided for increased productivity of some aquatic resources and the development of significant introduced sport fisheries. However, the same releases may be detrimental to endangered and other native species of fish.

Consultations with the Fish and Wildlife Service in compliance with Section 7 of the ESA on the operation of the Aspinall Unit on the Gunnison River, Navajo Dam on the San Juan River, and Flaming Gorge on the Green River will continue in 1999. Studies associated with these consultations will be used to better understand the flow related needs of endangered and other native species of fish.

Modifications to planned operations may be made based on changes in forecast conditions. However, due to the recovery program for endangered fish species in the Upper Colorado River Basin, Section 7 consultations, and other downstream concerns, modification to the monthly operation plans may be based on other factors in addition to changes in streamflow forecasts. Decisions on spring peak releases and downstream habitat target flows may be made midway through the runoff season. Reclamation and the Fish and Wildlife Service will initiate meetings with interested parties, including representatives of the Basin states, to facilitate the decisions necessary to finalize site-specific operations plans. All operations will be undertaken subject to the primary water storage and delivery requirements established by "The Law of the River" and other applicable statutes, including water quality control, recreation, enhancement of fish and wildlife and other environmental factors.

Reclamation completed Section 7 consultation with the Fish and Wildlife Service in April 1997 on current and projected discretionary routine lower Colorado River operations and maintenance activities for a period of up to five years. Reclamation and the Fish and Wildlife Service have also formed a partnership with other federal, state and private agencies to develop the Lower Colorado River Multi-Species Conservation Program. This program permits both non-federal and federal parties to participate under Sections 7 and 10 of the ESA.

The following paragraphs discuss the operation of each of the reservoirs with respect to compact, decree and statutory water delivery obligations and instream flow needs for maintaining or improving aquatic resources, where appropriate.

a. Fontenelle Reservoir

Precipitation and ensuing runoff in the Upper Green River Basin during water year 1998 was near normal. The April through July runoff into Fontenelle during water year 1998 was 925 MCM (0.750 MAF), or 88 percent of normal. Inflow peaked at 250 cubic meters per second (8,800 cfs) on June 2. Releases of 86 cubic meters per second (3,000 cfs) were made during much of June. No flooding occurred in the city of Green River, Wyoming, located 60 river miles below the dam. The flood stage is exceeded when flows at Green River exceed 354 cubic meters per second (12,500 cfs). Fontenelle Reservoir essentially filled in July of 1998 when the elevation of the reservoir came within 0.61 meters (two feet) of reaching the crest of the spillway.

Because the mean annual inflow of 1,516 MCM (1.229 MAF) far exceeds Fontenelle's storage capacity of 426 MCM (.345 MAF), significant powerplant bypasses are expected under the most probable and maximum probable inflow scenarios. Additionally, there is little chance that the reservoir will not fill during water year 1999. In order to minimize high spring releases and maximize downstream resources and power production, the reservoir will probably be drawn down to minimum pool elevation, 1970.0 meters (6,463 feet) which corresponds to a volume of 115 MCM (0.093 MAF) of live storage.

b. Flaming Gorge Reservoir

Like Fontenelle Reservoir, inflows into Flaming Gorge were near normal during water year 1998. April through July unregulated inflow was 1,357 MCM (1.100 MAF), or 92 percent of normal.

During the operation of the powerplant in 1997, a failure occurred in one of the bypass tubes, causing flooding of the powerplant and a shutdown of the generators. While electrical damage to the generators was quickly repaired, the steel liner and surrounding concrete of the outlet tube suffered significant damage. Repairs were not completed until August 1998, and the spring operation of Flaming Gorge had only the powerplant and the spillway available for use. Since spillway release temperatures in the months following June would have been much higher than powerplant release temperatures, potential emergency actions were closely coordinated with natural resource management interests to minimize adverse ecological impacts should the powerplant generators cease to function. Fortunately, no spillway releases were required during water year 1998.

In 1998, Flaming Gorge was operated in accordance with the Biological Opinion on the Operation of Flaming Gorge Dam issued in November 1992. The biological opinion outlines the reservoir operations which may provide an improved habitat for endangered endemic species of fish. Accordingly, a three-week release at maximum powerplant capacity of 130 cubic meters per second (4,600 cfs) was made during late May through mid-June. This was followed by gradually decreasing releases until mid-summer flows of 34 cubic meters per second (1,200 cfs) were reached.

In water year 1999, Flaming Gorge will again be operated in accordance with the 1992 biological opinion. A revised biological opinion on the operation of Flaming Gorge Dam is due out in December 1998. This revised opinion will likely describe specific constraints during the spring and winter seasons but may also refine the constraints for the entire year.

c. Blue Mesa, Morrow Point and Crystal Reservoirs (Aspinall Unit)

In water year 1998, the April through July unregulated runoff into Blue Mesa Reservoir was 851 MCM (0.690 MAF), or 99 percent of average. Water year 1998 unregulated inflow was 1,272 MCM (1.031 MAF), or 106 percent of average. Water year 1998 powerplant bypasses were approximately 199 MCM (0.161 MAF) at Crystal, the result of annual system maintenance and spring runoff exceeding powerplant capacity. Releases and spills up to 113 cubic meters per second (cms) (4,000 cfs) occurred at Crystal, with flows in the river below the tunnel in excess of 85 cms (3,000 cfs). Blue Mesa filled easily during water year 1998.

Section 7 consultation with the Fish and Wildlife Service on the operation of the Aspinall Unit continued in 1998. As part of this consultation, a five-year effort to study the effect of various release patterns on habitat, reproductive success and reintroduction of endangered fish in the Gunnison River is underway.

Additionally, the Aspinall Unit was operated as if the draft contract between Reclamation, the National Park Service, and the state of Colorado to deliver water from the Aspinall Unit to the Black Canyon of the Gunnison National Monument were in place. The operation was also coordinated with the Fish and Wildlife Service and others interested in the operation of the Aspinall Unit.

For water year 1999 operations, Blue Mesa Reservoir will be drawn down to at least an elevation of 2,283 meters (7,490 feet) by December 31, 1998 in order to minimize icing problems in the Gunnison River. Blue Mesa will continue to be drawn down through April 1999 to a level that will accommodate the current most probable inflow scenario and accomplish the release objectives with minimal powerplant bypasses at Crystal.

The minimum release objective of the Aspinall Unit is to meet the delivery requirements of the Uncompahgre Valley Project and to keep a minimum of 8.5 cms (300 cfs) flowing through the Black Canyon of the Gunnison National Monument and to maintain a minimum of 8.5 cms (300 cfs) below the diversion structure at Redlands (at the confluence of the Gunnison and Colorado Rivers) during the summer months. Under all three inflow scenarios, Blue Mesa is expected to fill in the summer of 1999, and flows through the Black Canyon of the Gunnison National Monument are expected to be above the minimum release objective during the summer months. Filling of the reservoir in water year 1999 will ensure that

reasonable specific releases required to study the protection and improvement of habitat for endangered fish can be accommodated. The forecasted runoff for the spring of 1999 will be closely monitored to achieve these objectives. To protect both the blue ribbon trout fishery in the Black Canyon and recreation potential, releases during 1999 will be planned to minimize large fluctuations in the daily and monthly flows in the Gunnison River below the Uncompahgre Tunnel Diversion.

d. Navajo Reservoir

The April through July unregulated inflow into Navajo Reservoir in water year 1998 was 888 MCM (0.720 MAF), or 93 percent of average. Water year 1998 regulated inflow was 1,182 MCM (0.958 MAF), or 95 percent of average. Navajo Reservoir did not fill in 1998.

Section 7 consultation with the Fish and Wildlife Service on the operation of Navajo Dam continued in 1998. Water year 1997 was the seventh year of a seven-year study to evaluate alternative operations of Navajo Reservoir to benefit endangered fish, and a biological opinion on the operation of Navajo Dam is expected in 1999. During the spring, large releases of up to 142 cms (5,000 cfs) were made during May and June to coincide with the peak flows of the Animas River. This resulted in peak flows of 306 cms (10,800 cfs) at Bluff, Utah. After the completion of the large spring releases, releases were gradually reduced to approximately 17 cms (600 cfs) for the remainder of the year.

In water year 1999, Navajo Reservoir is expected to nearly fill under the most probable and probable maximum inflow scenarios. The reservoir should fill above 80 percent of full under the probable minimum scenario. Releases from the reservoir will be held near 17 cms (600 cfs) through the fall and winter months, and large releases will likely be made in May and June in order to improve the habitat and provide better spawning conditions for endangered fish in the San Juan River.

e. Lake Powell

The April through July unregulated inflow into Lake Powell in water year 1998 was 9,498 MCM (7.700 MAF) or 100 percent of average. Water year 1998 unregulated inflow was 15,509 MCM (12.573 MAF), or 107 percent of average. Lake Powell ended the water year 14 feet from full.

During water year 1999, releases greater than the minimum release objective of 10,152 MCM (8.230 MAF) likely will be made to avoid anticipated spills and/or to equalize the storage between Lakes Powell and Mead. Under the most probable inflow conditions, releases of 13,198 MCM (10.700 MAF) would be made, while under the probable maximum inflow scenario, approximately 20,846 MCM (16.900 MAF) will be released. This maximum probable inflow would require releases of about 708 cms (25,000 cfs) for a lengthy period of time. With current full reservoir system conditions, releases above powerplant capacity are possible in 1999. Such releases would be made consistent with the 1956 Colorado River Storage Project Act, the 1968 Colorado River Basin Project Act, the 1992 Grand Canyon Protection Act, and the Secretary of the Interior's agreement for managing spills from Glen Canyon Dam contained in the 1996 Annual Operation Plan. This agreement provides for the use of reservoir releases in excess of powerplant capacity required for dam safety purposes during high reservoir conditions to accomplish the objectives of the beach/habitat-building flow described in the ROD

for the Operation of Glen Canyon Dam Final Environmental Impact Statement.

Releases from Lake Powell in water year 1999 will continue to reflect consideration of the uses and purposes identified in the 1970 Operating Criteria and the 1992 Grand Canyon Protection Act, including ecological impacts to the Grand Canyon. Daily and hourly releases will continue to be made according to the parameters of the ROD for the Glen Canyon Dam Final Environmental Impact Statement preferred alternative, as shown in the following table:

Table 3. Glen Canyon Dam Release Restrictions

<u>Parameter</u>	(cms)	(cfs)	<u>Conditions</u>
Maximum flow ⁽¹⁾	708.0	25,000	
Minimum flow	141.6	5,000	nighttime
	226.6	8,000	7:00 am to 7:00 pm
Ramp rates			
ascending	113.3	4,000	per hour
descending	42.5	1,500	per hour
Daily fluctuations ⁽²⁾	141.6 / 226.6	5,000 / 8,000	

⁽¹⁾ To be evaluated and potentially increased as necessary and in years when delivery to the Lower Basin exceeds 10,152 MCM (8.23 MAF).

⁽²⁾ Daily fluctuations limit is 141.6 cms (5,000 cfs) for months with release volumes less than 740 MCM (.600 MAF), 169.9 cms (6,000 cfs) for monthly release volumes of 740 to 987 MCM (.600 to .800 MAF), and 226.6 cms (8,000 cfs) for monthly volumes over 990 MCM (.800 MAF).

H. FISH AND WILDLIFE

The UCRIP for endangered fish is in its ninth year of implementation. The UCRIP is a cooperative effort involving the states of Colorado, Utah and Wyoming; representatives from the environmental and water user communities; and the Colorado River Energy Distributors Association, Western Area Power Administration, Fish and Wildlife Service and Reclamation. The intent of the program is to recover the listed Colorado River endangered fish species while the Basin states continue to develop their compact entitlements.

In fiscal year 1998, research projects funded totaled almost \$3 million. Also in fiscal year 1998, capital projects totaling almost \$8 million were initiated, in addition to the research effort, to accomplish physical habitat improvements.

To date, capital project construction and acquisition of land has been funded primarily through appropriated non-reimbursable construction dollars. Reclamation is seeking cost sharing from non-federal and other sources. To address this issue, UCRIP and SJRRIP participants have developed legislation through a series of negotiations. The legislation will provide additional authority for expenditures and set both dollar and time limits on the program. The bill was introduced in 1998, but Congress adjourned prior to taking action on the bill. The legislation should be reintroduced to Congress in March of 1999.

Other UCRIP studies were completed in 1998 on the Green River to monitor the effects of the recommendations made in the 1992 Biological Opinion on the Operation of Flaming Gorge Dam and to refine those recommendations. The studies included a series of test flows designed to simulate a wide range of hydrologic conditions. Specific research on the effects of the operation of the Aspinall Unit will be completed in 1998. Integrated reports are being produced to provide a compilation of past research efforts and to analyze endangered fish needs identified by the individual studies. The Flaming Gorge integrated report is now under peer review. Consultation on the operation of the Aspinall Unit is expected to move forward upon completion of the research and issuance of permanent flow recommendations by the Fish and Wildlife Service. Efforts are still ongoing to acquire water rights for endangered fish on the Yampa River and 15-mile Reach of the Colorado River from the confluence of the Gunnison River to the Grand Valley Diversion. A draft programmatic biological opinion is currently being reviewed and is scheduled to be completed by mid-year. This biological opinion relies on the UCRIP as the reasonable and prudent alternative to provide ESA compliance for all historic depletions in the reach, plus provide for additional water development.

As a result of the 1991 biological opinion on the Animas-La Plata Project, the Secretary of the Interior signed a Memorandum of Understanding with the states of Colorado, Utah and New Mexico and affected Native American tribes for the development of a recovery program for the San Juan River. The goal of the SJRRIP is to protect and recover the native fish communities in the San Juan River, while providing for continued water development consistent with state and federal laws. Reclamation and the BIA committed to fund research starting in fiscal year 1992 on the San Juan River as a condition of the reasonable and prudent alternative for the Animas-La Plata Project biological opinion and for Blocks 7 and 8 of the NIIP.

Flow recommendations have been developed for native fish communities in the San Juan River in New Mexico, Colorado and Utah. The flow recommendations are a major milestone of the SJRRIP. Mimicry of the natural hydrograph is the foundation of the flow recommendations. Any future Section 7 consultation in connection with water development in the San Juan River Basin will need to take the flow recommendations into consideration.

I. APPROPRIATIONS OF FUNDS BY THE UNITED STATES CONGRESS

The funds appropriated for fiscal year 1998 for construction of the CRSP, participating projects, and recreational and fish and wildlife activities totaled \$19,525,000. Fish and wildlife activities received a total of \$2,824,000.

In fiscal year 1998, construction funding for the Colorado River Basin Salinity Control Program included \$.9 million for the Grand Valley Unit and \$7.6 million for the Basin wide program.

Table 5, page 65, illustrates a general recapitulation of action by the 106th Congress pertaining to appropriations of funds for the construction program of the CRSP and participating projects.

Table 6, page 66, shows the total funds approved by the United States Congress for the CRSP and participating projects and chargeable against the limitations of various authorizing Acts (P.L. 485, 84th Congress, Colorado River Storage Project Act, as amended in 1972 by P.L. 32-370 and in 1988 by P.L. 100-563; P.L. 87-485, San Juan-Chama and Navajo Indian Irrigation Projects Act; P.L. 88-568, Savery-Pot Hook, Bostwick Park, and Fruitland Mesa Projects Act; and P.L. 90-537, Colorado River Basin Project Act).

TABLE 5
COLORADO RIVER STORAGE PROJECT
FISCAL YEAR 1999 PROGRAM

Project and State	Budget Estimate	House Allowance	Senate Allowance	P.L. 105-245 October 7, 1998
Construction Program				
CRSP Participating Projects:				
Animas-La Plata - Colorado	\$3,000,000	\$3,000,000	\$3,000,000	\$3,000,000
Central Utah Project - Utah				
Bonneville Unit	1,251,000	1,251,000	1,251,000	1,251,000
Dolores Project - Colorado	<u>404,000</u>	<u>404,000</u>	<u>404,000</u>	<u>404,000</u>
	\$4,655,000	\$4,655,000	\$4,655,000	\$4,655,000
TOTAL - Upper Colorado River Basin Fund	<u>\$4,655,000</u>	<u>\$4,655,000</u>	<u>\$4,655,000</u>	<u>\$4,655,000</u>
Recreational and Fish and Wildlife Facilities:				
Recreational Facilities	-0-	-0-	-0-	-0-
Fish and Wildlife Facilities	<u>3,682,000</u>	<u>3,476,000</u>	<u>3,682,000</u>	<u>3,476,000</u>
	\$3,682,000	\$3,476,000	\$3,682,000	\$3,476,000
TOTAL - Colorado River Storage Project	<u>\$ 8,337,000</u>	<u>\$8,131,000</u>	<u>\$8,337,000</u>	<u>\$8,131,000</u>

TABLE 6

APPROPRIATIONS BY CONGRESS
FOR THE
COLORADO RIVER STORAGE PROJECT AND
PARTICIPATING PROJECTS

<u>Fiscal Year</u>	<u>Amount</u>
1957	\$ 13,000,000
1958	35,142,000
1959	68,033,335
1960	74,459,775
1961	58,700,000
1962	52,534,500
1963	108,576,000
1964	94,036,700
1965	55,800,000
1966	45,328,000
1967	46,648,000
1968	39,600,000
1969	27,700,000
1970	25,740,000
1971	24,230,000
1972	27,284,000
1973	45,770,000
1974	24,426,000
1975	22,967,000
1976	38,160,000
Transition Quarter (July, August, September 1976)	
.....	15,562,000
1977	55,200,000
1978	67,051,000
1979	76,799,000
1980	81,502,000
1981	125,686,000
1982	130,063,000
1983	132,942,000
1984	161,104,000
1985	163,503,000
1986	97,412,000
1987	110,929,000
1988	143,143,000
1989	174,005,000
1990	163,653,000
1991	145,063,000
1992	92,093,000
1993	69,333,000
1994	46,507,000
1995	23,272,000
1996	27,049,000
1997	22,410,000
1998	19,849,000
1999	8,131,000
TOTAL	\$3,080,396,310
Plus: Navajo Indian Irrigation Project appropriations \$445,667,494	
(funds transferred to Reclamation only)	
TOTAL APPROPRIATIONS	\$3,526,063,804
Exclusive of non-reimbursable funds for fish and wildlife, recreation, etc.,	
under Section 8 of P. L. 485, 84th Congress.	

COLORADO RIVER BASIN SALINITY CONTROL PROGRAM

(Information relative to the Colorado River Basin Salinity Control Program in the Colorado River Basin has been obtained from the United States Department of the Interior, Bureaus of Reclamation and Land Management, and the United States Department of Agriculture (USDA), Natural Resources Conservation Service.)

Title II of the Colorado River Basin Salinity Control Act, P.L. 93-320 (approved June 24, 1974), directs the Secretary of the Interior to expedite the investigation, planning, and implementation of the salinity control program. The program objective is to treat salinity as a Basinwide problem in order to maintain salinity concentrations at or below 1972 levels in the lower mainstem of the river while the Basin states continue to develop their compact-apportioned waters. Specifically, the Act authorizes the construction, operation, and maintenance of four salinity control projects (Paradox Valley, Grand Valley, Las Vegas Wash, and Crystal Geyser Units) and the expeditious completion of planning reports for 12 other projects. It also requires cost sharing by non-federal entities. The Secretary of the Interior, Secretary of Agriculture, and Administrator of the EPA are directed to cooperate and coordinate their activities to meet the program objectives.

P.L. 98-569, signed into law on October 30, 1984, amends P.L. 93-320. This law amends the original salinity control program by authorizing construction of additional units by Reclamation and deauthorizing Crystal Geyser because of poor cost effectiveness. The Secretary of Agriculture is directed to establish a major voluntary on-farm cooperative salinity control program. The authorizing legislation provides for cost sharing and technical assistance to participants for planning and installing needed salinity reduction practices, including voluntary replacement of incidental fish and wildlife values foregone. Participants pay at least 30 percent of the costs to install salinity reduction and wildlife habitat practices. P.L. 98-569 also directs that the BLM develop a comprehensive program for minimizing salt contributions from the 48 million acres of Basin lands that it administers.

P.L. 104-20 was signed into law on July 28, 1995. This law amends the Salinity Control Act to authorize a new approach to salinity control for Reclamation. Past authorities were unit specific. This amendment authorized Reclamation to pursue salinity control anywhere in the Basin. The amendment also increases Reclamation's appropriation ceiling by \$75,000,000 to continue its ongoing efforts to control salinity. The Basinwide program will again request proposals from the public in February 1999, rank the proposals based on cost and performance risk factors, and fund the most highly ranked projects. Awards are scheduled for next fall.

The Federal Agriculture Improvement and Reform Act of 1996 (P.L. 104-127) was signed into law on April 4, 1996. This Act combines the USDA's salinity control program and other programs into the Environmental Quality Incentives Program. The Act further amends the Salinity Control Act to authorize

the Secretary of the Interior the option to expend funds available in the Basin Fund to carry out cost-shared salinity measures consistent with the 30 percent allocation authorized by P.L. 98-569. This cost sharing option is available for both the USDA and Reclamation programs.

A. PROGRAM STATUS

1. Bureau of Land Management Salinity Control Program

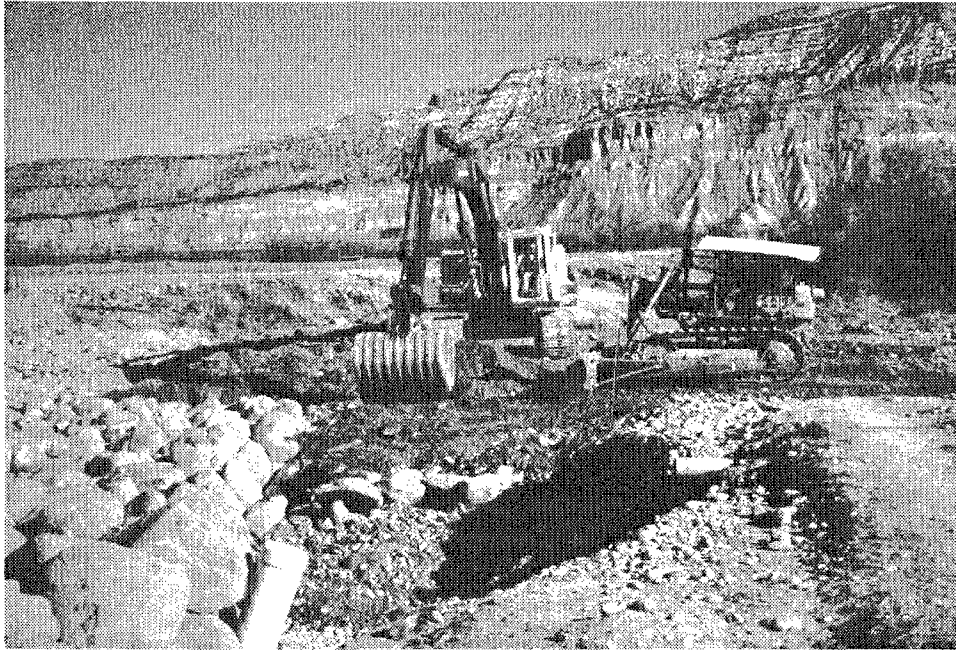
The BLM recognizes and is committed to its role in reducing the contribution of salts to the Colorado River system from public lands. As in past years, BLM undertakes this responsibility through the multitude of individual management decisions that are made within each BLM jurisdiction. While salinity is not segregated as a specific program, it is affected by almost all other land management decisions that are made. Progress in salt reduction is therefore achieved through efforts to minimize the impacts of grazing, protect riparian areas, reduce offroad vehicle impacts, conduct prescribed burns and generally manage vegetative cover and reduce erosion on public lands.

Due to the imprecise boundaries encompassed by many management decisions and the large areas affected, it is difficult to determine actual impacts on salinity with any precision. However, significant reductions in salt loading to the Colorado River are being achieved each year, and in fiscal year 1999 BLM hopes to develop better mechanisms to quantify the reduction in salt loading associated with many of these land-use decisions and activities.

2. Bureau of Reclamation and U. S. Department of Agriculture Salinity Control Program General Investigations and Construction

The USDA's Environmental Quality Incentives Program consisting of Colorado River Basin salinity control activities is administered through the cooperative efforts of the Natural Resources Conservation Service; the Farm Service Agency; and the Cooperative State Research, Education, and Extension Service. In fiscal year 1998, \$3.6 million was allocated to salinity control activities under the Environmental Quality Incentives Program. These funds were used for cost-sharing, technical assistance, and education assistance activities.

a. Grand Valley, Colorado – Implementation has been underway on this unit since 1979. The application of salinity control and wildlife habitat replacement practices continues. Farmers are installing underground pipelines, gated pipe, concrete-lined ditches, land leveling and a variety of other practices. The installation of surge irrigation systems continues to increase. The surge units provide the participants with the capability of performing fertigation, which involves applying liquid nitrogen fertilizer during the soak stage of irrigation. Acceptance of this practice is an additional incentive for farmers to install surge systems.



Grand Valley, Colorado
Fish Passage – Pools / riffles under construction



Completed project, Grand Valley fish passage

b. Lower Gunnison Basin, Colorado – This is the largest of the USDA salinity control units and is located in Delta and Montrose counties. Implementation was initiated in 1988 on this unit. The application of salinity reduction and wildlife habitat replacement practices continues to be an integral part of implementation of the Lower Gunnison Unit. The major practices are underground pipelines, ditch lining, land leveling, irrigation water control structures, gated pipe, and sprinkler and surge irrigation systems.

c. McElmo Creek, Colorado – Implementation was initiated on this unit in 1990. Application of salinity reduction and wildlife habitat replacement practices continues to be implemented in this area with sprinkler systems, underground pipelines and gated pipe being installed. Development and use of automatic shutoff valves for sprinkler systems continue to be widely implemented in the project to achieve water management.

d. Uintah Basin, Utah – Implementation began on this unit in 1980. The rate of applying salinity reduction and wildlife habitat replacement practices continues to increase. The major practices installed are sprinkler irrigation systems, improved surface systems, underground pipelines and gated pipe. In this area, a large number of groups are replacing earthen laterals with pipelines to provide gravity pressure for onfarm sprinkler systems. Demonstration plot activities continued on Ute Indian tribal land to illustrate the benefits of sprinkler irrigation; teach principles of irrigation scheduling; and provide data on crop variations, yields and costs to determine fair market lease agreements. Special emphasis is being placed on working with individual farmers on principles of irrigation water management.

e. Big Sandy River, Wyoming – Implementation has been underway on this unit since 1988. The application of salinity reduction and wildlife habitat replacement practices continues to be implemented. In this area, farmers are converting from surface flood irrigation to primarily low-pressure center pivot irrigation systems for salinity control.

f. Price-San Rafael, Utah – The ROD was issued in April 1997 for this project. Reclamation and the USDA began work in the project area in fiscal year 1998. USDA salinity activities will be done under the Environmental Quality Incentives Program.

g. San Juan River, New Mexico – A salinity investigation has been completed on irrigated lands along the San Juan River in New Mexico from the vicinity of Fruitland, westward to Cudei. This area consists of approximately 8,400 irrigated acres within the boundaries of the Navajo Nation. Findings from the investigation were published in a verification report in July 1993. The findings indicated that irrigation on the unit is contributing to increased salt loading in the San Juan River which ultimately flows into the Colorado River. It is recommended that the unit be studied further to produce an irrigation plan that will reduce irrigation return flow and salt loading to the San Juan River. No further progress was made in fiscal year 1998 on any planning activities in this potential project area due to the functions of the Colorado River Salinity Control Program being combined into the Environmental Quality Incentives Program.

FINDINGS OF FACT

No findings of fact pursuant to Article VIII of the Upper Colorado River Basin compact have been made by the Upper Colorado River Commission. No part of this Annual Report is to be construed as a finding of fact by the Commission.

ACKNOWLEDGMENTS

The Upper Colorado River Commission wishes to thank the Governors of Colorado, New Mexico, Utah and Wyoming for their interest in and support of the Upper Colorado River Commission.

The Commission especially wishes to give recognition to the difficult and able work of the members of the United States Congress from Upper Division States of the Colorado River Basin and to acknowledge with appreciation the assistance it has received from agencies of the Executive Branch of the Federal Government, the Department of the Interior, Bureau of Reclamation, Bureau of Land Management, Geological Survey, Fish and Wildlife Service, Bureau of Indian Affairs, Western Area Power Administration, the National Weather Service and the Department of Agriculture.

The diligent devotion to duty by departments of health and environment, water pollution control commissions, and counterpart organizations of the Upper Division States in aiding in the resolution of pollution and salinity problems of the Upper Colorado River System deserves special commendation.

Special recognition and appreciation is due to the Colorado River Basin Salinity Control Forum, several of whose members are advisers closely associated with the Commission, for the excellent work accomplished on the difficult salinity problems of the Colorado River.

Officers and personnel of many State agencies having their primary interests in various phases of water resources have also aided materially with cooperative efforts and information.

APPENDIX A

UPPER COLORADO RIVER COMMISSION

REPORT OF INDEPENDENT AUDITOR
AND
FINANCIAL STATEMENTS

JUNE 30, 1998

UPPER COLORADO RIVER COMMISSION

ANNUAL FINANCIAL REPORT

June 30, 1998

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INDEPENDENT AUDITORS' REPORT

The Commissioners of the
Upper Colorado River Commission
Salt Lake City, Utah

We have audited the accompanying general purpose financial statements of the Upper Colorado River Commission as of and for the year ended of June 30, 1998. These general purpose financial statements are the responsibility of the Commission's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with generally accepted auditing standards. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the general purpose financial statements referred to above present fairly, in all material respects, the financial position of the Upper Colorado River Commission, as of June 30, 1998, and the results of its operations and changes in fund balance for the year then ended in conformity with generally accepted accounting principles.

Our audit was made for the purpose of forming an opinion on the general purpose financial statements taken as a whole. The supplemental schedule of cash receipts and disbursements - general fund and the supplemental schedule of expenses - budget and actual, are presented for purposes of additional analysis and are not a required part of the general purpose financial statements of the Upper Colorado River Commission. Such information has been subjected to the auditing procedures applied in the audit of the general purpose financial statements and, in our opinion, is fairly stated in all material respects in relation to the general purpose financial statements taken as a whole.

Ulrich & Associates, P.C.

August 13, 1998

Members American Institute of Certified Public Accountants • Members Utah Association of Certified Public Accountants

UPPER COLORADO RIVER COMMISSION
Combined Balance Sheet
June 30, 1998

With Comparative Totals for June 30, 1997

	Governmental Fund Type	Account Group		Totals (Memorandum Only)	
		General Fixed Assets	General Long-Term Debt		
	General			1998	1997
ASSETS					
Petty cash	\$ 25	-	-	25	25
Cash in bank	26,433	-	-	26,433	87,539
Certificates of deposit	190,500	-	-	190,500	123,000
Interest receivable	7,398	-	-	7,398	4,662
Property and equipment:					
Land and land improvements	-	26,366	-	26,366	26,366
Building	-	56,919	-	56,919	56,919
Furniture and fixtures	-	38,690	-	38,690	53,649
Engineering equipment	-	1,411	-	1,411	1,411
Upper colorado river basin relief model	-	5,938	-	5,938	5,938
Amount to be provided for payment of compensated absences	-	-	12,262	12,262	8,803
Total assets	\$ <u>224,356</u>	<u>129,324</u>	<u>12,262</u>	<u>365,942</u>	<u>368,312</u>
LIABILITIES AND FUND EQUITY					
Liabilities:					
Accounts payable	\$ 573	-	-	573	682
Obligation for compensated absences	<u>1,493</u>	<u>-</u>	<u>12,262</u>	<u>13,755</u>	<u>10,296</u>
Total liabilities	<u>2,066</u>	<u>-</u>	<u>12,262</u>	<u>14,328</u>	<u>10,978</u>
Fund equity:					
Investment in general fixed assets	-	129,324	-	129,324	144,283
Fund balance	<u>222,290</u>	<u>-</u>	<u>-</u>	<u>222,290</u>	<u>213,051</u>
Total fund equity	<u>222,290</u>	<u>129,324</u>	<u>-</u>	<u>351,614</u>	<u>357,334</u>
Total liabilities and fund equity	\$ <u>224,356</u>	<u>129,324</u>	<u>12,262</u>	<u>365,942</u>	<u>368,312</u>

See accompanying notes to financial statements.

UPPER COLORADO RIVER COMMISSION
General Fund
Statement of Revenues, Expenditures and Changes
in Fund Balance - Budget and Actual

Year ended June 30, 1998

	<u>Budget</u>	<u>Actual</u>	<u>Favorable (Unfavorable) Variance</u>
Revenues:			
Assessments	\$ 267,900	267,900	-
Interest	13,100	13,798	698
Other	<u>1,000</u>	<u>1,350</u>	<u>350</u>
Total revenues	<u>282,000</u>	<u>283,048</u>	<u>1,048</u>
Expenditures:			
Personal services	232,500	230,399	2,101
Travel	17,000	17,730	(730)
Current operating expenditures	26,200	24,390	1,810
Capital outlay	1,300	1,290	10
Contingencies	<u>5,000</u>	<u>-</u>	<u>5,000</u>
Total expenses	<u>282,000</u>	<u>273,809</u>	<u>8,191</u>
Excess of revenues over (under) expenditures	-	9,239	9,239
Fund balance, June 30, 1997	213,051	213,051	-
Fund balance, June 30, 1998	\$ <u>213,051</u>	<u>222,290</u>	<u>9,239</u>

See accompanying notes to financial statements

UPPER COLORADO RIVER COMMISSION
Notes to Financial Statements
June 30, 1998

(1) SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

History and Activities

The Upper Colorado River Commission was formed pursuant to the terms of the Upper Colorado River Basin Compact on October 11, 1948, and consented to by the Congress of the United States of America by Act on April 6, 1949, as an administrative agency representing the Upper Division States of the Colorado Basin, namely Colorado, New Mexico, Utah and Wyoming. The Commission consists of one commissioner representing each of the four states and one representing the United States of America. The activities of the Commission are conducted for the purpose of promoting and securing agricultural and industrial development of the Upper Basin's water resources.

The Commission is the reporting entity and it approves the budget. The Commission hires a director and other personnel to administer the day-to-day activities of the Commission.

The Commission is exempt from Federal income taxes under provisions of Section 501(c)(1) of the Internal Revenue Code. The Commission is also exempt from state income taxes.

Basis of Accounting

The financial statements are presented on the modified accrual basis of accounting. Under the modified accrual basis of accounting, expenditures are recorded at the time liabilities are incurred. Revenues are recognized as received except for revenue susceptible to accrual and revenues of a material amount that have not been received at the normal time of receipt. Revenues susceptible to accrual are those that are both measurable and available to finance the Commission's operations during the year.

Budgets and Budgetary Accounting

Annual budgets are prepared on the modified accrual basis of accounting and adopted as required by law. The Commission approves the annual budget in total and by major sub-items as identified in the statement of revenues, expenditures and changes in fund balance - budget and actual. The Executive Director has authority to transfer budget accounts within the sub-items with Commissioner approval required to transfer monies between expenditure categories. The budget amounts shown in the financial statements are the final authorized amounts as revised during the year.

(1) SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONT.)

Assessments

The Commission's major source of revenue consists of assessments levied against the four states and apportioned among them on the basis of the formula contained in the Upper Colorado River Basin Compact.

Property and Equipment

Property and equipment is recorded as capital outlay in the general fund at time of purchase and capitalized at cost in the general fixed assets account group. Cost of maintenance, repairs and minor renewals are expensed as incurred. When assets are retired or otherwise disposed of, the related cost is removed from the accounts. No provision for depreciation is provided on assets in the general fixed assets account group.

Compensated Absences

According to Commission policy each employee accrues annual leave based on years of service with the commission. Employees may accumulate a maximum of 30 days of unused annual leave, which is paid in cash upon termination of employment. The Commission's secretary may grant additional carryover to employees provided that: (1) the employee requests the carryover in writing prior to June 30, and (2) the employee uses the additional carryover within 90 days of the start of the fiscal year.

The Obligation for Compensated Absences has been broken down into two components; current and non-current. The current portion is classified as part of the general fund and is an estimate of the amounts that will be paid within the next operating year. The non-current portion is classified as part of the General Long-Term Debt Account Group because the obligation is not expected to be paid from spendable available resources within the next operating year.

Total Column on the Combined Statements

The total column on the combined statement is captioned "Memorandum Only" to indicate that it is presented only to facilitate financial analysis. The data in this column does not present financial position in conformity with generally accepted accounting principles. Neither is such data comparable to a consolidation.

(1) SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONT.)

Use of Estimates

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Risk Management

The commission is exposed to various risks of loss related to torts; theft of, damage to and destruction of assets; errors and omissions; and natural disasters for which the government carries commercial insurance.

(2) CERTIFICATES OF DEPOSIT AND CASH

Time certificates of deposit held at two different banks at June 30, 1998 consisted of the following:

	<u>Amount</u>	<u>Maturity Date</u>
5.40% certificate	\$ 97,000	June 30, 1998
6.25% certificate	93,000	September 15, 1998

The Commissioners have authorized the Commission to deposit funds in demand accounts at the First Security Bank of Utah and purchase time certificates of deposit at any United States bank only to the extent the deposits are covered by Federal Depository Insurance.

Cash in bank consisted of the following at 6-30-98:

Checking	\$ 942
Money Market	<u>25,491</u>
	<u>26,433</u>

At year end, the carrying amount of the Commission's cash deposits and certificates was \$216,933 and the balance per the bank statements was \$226,956. All deposits as well as certificates are fully insured.

(3) CHANGES IN INVESTMENT IN GENERAL FIXED ASSETS

Changes in the components of general fixed assets are as follows:

	Fixed Assets July 1, <u>1997</u>	<u>Additions</u>	Retirements and <u>Disposals</u>	Fixed Assets June 30, <u>1998</u>
Land and Land improve- ments	\$ 26,366	-	-	26,366
Building	56,919	-	-	56,919
Furniture and fixtures	53,649	1,290	16,249	38,690
Engineering equipment	1,411	-	-	1,411
Upper Colorado River Basin relief model	<u>5,938</u>	<u>-</u>	<u>-</u>	<u>5,938</u>
	<u>\$ 144,283</u>	<u>1,290</u>	<u>16,249</u>	<u>129,324</u>

(4) OTHER INCOME

Other income consisted of the following at June 30, 1998:

Waternews Subscription fees \$ 1,350

(5) PENSION PLAN

The Commission's employee pension plan is a 401(K) defined contribution plan which covers all of the present employees. The Commission contributes 7% of the employees' gross salaries. In addition, the Commission will match contributions made by employees up to a maximum of 3%. Accordingly, the maximum allowable contribution by the Commission is 10%. The employees are allowed to contribute up to the maximum allowed by law. The employer's share of the pension plan contribution for the year ended June 30, 1998 was \$19,400, which includes \$500 of administrative costs.

UPPER COLORADO RIVER COMMISSION
Supplemental Schedule of Cash Receipts
and Disbursements - General Fund

Year ended June 30, 1998

Cash at July 1, 1997		\$ 210,564
Cash receipts:		
Assessments	267,900	
Interest on time deposits	11,063	
Waternews subscriptions	<u>1,350</u>	<u>280,313</u>
		490,877
Cash disbursements:		
Personal services	230,399	
Travel	17,558	
Current operating expenditures	24,672	
Capital outlay	<u>1,290</u>	(273,919)
Cash at June 30, 1998		\$ <u>216,958</u>

UPPER COLORADO RIVER COMMISSION
Expense Summary Schedules
Supplemental Schedule of Expenses - Budget and Actual

Year ended June 30, 1998

			Favorable (Unfavorable)
	<u>Budget</u>	<u>Actual</u>	<u>Variance</u>
Summary of Personal Services			
<u>With Budget Comparisons</u>			
Administrative salaries	\$ 112,000	112,000	-
Legal salary	50,000	50,000	-
Engineering salary	28,000	27,976	24
Social security	13,200	13,271	(71)
Pension fund contributions	19,800	19,400	400
Employee medical insurance	7,400	5,832*	1,568
Janitorial	<u>2,100</u>	<u>1,920</u>	<u>180</u>
	<u>232,500</u>	<u>230,399</u>	<u>2,101</u>

**Summary of Current Operating
Expenditures with Budget
Total Comparison**

Accounting and auditing	1,820	
Telephone	2,974	
Insurance	1,536	
Printing	1,710	
Office supplies, postage and printing	3,630	
Library	5,924	
Meetings, including reporter	525	
Utilities	3,412	
Building repair and maintenance	2,159	
Memberships and meeting registrations	<u>700</u>	
	* * \$ <u>26,200</u>	<u>24,390</u> <u>1,810</u>

* Premiums for the year were reduced by a rebate.

* * The budgeted amount for operating expenditures is not classified into specific expenditures. The total budgeted amount is shown as a comparison against total actual expenditures.

Appendix B

Budget

Fiscal Year Ending June 30, 2000

Fiscal Year Ending June 30, 2000

BUDGET
UPPER COLORADO RIVER COMMISSION
Fiscal Year Ending June 30, 2000

PERSONAL SERVICES

Administrative Salaries	
Executive Director	\$ 92,200
Administrative Secretary	28,300
Professional Services	
Legal Counsel	53,400
Staff Engineer	33,300
Janitor	2,200
Pension Trust	21,200
Social Security	14,800
Health Insurance	<u>12,900</u>
	\$ 258,300

TRAVEL \$ 18,000

CURRENT EXPENSES \$ 25,100

CAPITAL OUTLAY \$ 800

CONSULTANT FEES \$ -0-

CONTINGENCIES \$ 5,000
\$307,200

TOTAL BUDGETED EXPENSES

To be funded from surplus	\$ 29,600
Total Assessments for FY 2000	<u>\$277,600</u>
	<u>\$307,200</u>

Assessments 2000

Colorado	51.75%	\$143,660
Utah	23.00%	63,850
Wyoming	14.00%	38,860
New Mexico	11.25%	<u>31,230</u>
		\$277,600

Appendix C
Transmountain Diversions
Upper Colorado River Basin
1987-1998

**TRANSMOUNTAIN DIVERSIONS FROM
COLORADO RIVER BASIN IN COLORADO**

1989-1998

10 Year

1989 1990 1991 1992 1993 1994 1995 1996 1997 1998¹ AVERAGE

TO PLATTE RIVER BASIN

Grand River Ditch	18,830	20,980	18,410	21,360	24,770	17,870	19,808	23,260	17,948	21,140	20,438
Eureka Ditch	60	60	60	212	95	0	180	0	0	0	67
Alva B. Adams Tunnel	273,200	213,700	199,200	198,300	206,400	233,200	238,500	207,300	229,000	203,800	220,260
Berthoud Pass Ditch	843	623	624	1,010	1,260	874	815	1,530	2,610	1,570	1,176
Moffat Water Tunnel	66,530	67,390	64,900	49,890	34,470	43,310	24,220	51,050	50,860	35,620	48,824
Boreas Pass Ditch	0	0	82	175	334	83	0	209	282	178	134
Vidler Tunnel	975	660	1,240	1,150	1,150	465	760	268	420	425	751
Harold D. Roberts Tunnel	74,380	59,420	65,850	85,530	124,100	73,890	52,176	36,920	53,480	30,550	65,630
Straight Creek Tunnel	N/A	370	269	363	408	330	320	399	393	295	315

TO ARKANSAS RIVER BASIN

Hoosier Pass Tunnel	10,720	11,200	12,400	11,570	11,186	9,188	4,532	12,306	8,312	10,400	10,181
Columbine Ditch	1,420	746	1,602	1,610	2,478	1,470	2,390	2,500	1,730	1,669	1,762
Ewing Ditch	786	785	869	934	1,622	796	1,410	1,440	1,350	759	1,075
Wurtz Ditch	2,070	1,702	2,260	2,173	4,031	2,073	4,241	4,210	4,180	2,183	2,912
Homestake Tunnel	26,840	27,480	638	26,910	28,110	24,230	23,505	38,690	37,130	23,316	25,685
Twin Lakes Tunnel	37,410	41,368	42,980	41,970	62,664	42,850	33,120	34,850	34,190	47,441	41,884
Charles H. Boustead Tunnel	37,240	47,270	61,130	57,060	88,740	55,040	91,300	38,540	79,380	53,986	60,969
Busk-Ivanhoe Tunnel	3,760	5,170	5,680	5,210	4,980	4,100	5,817	2,450	4,640	4,174	4,596
Larkspur Ditch	30	8	95	205	334	146	116	60	185	67	125

TO RIO GRANDE BASIN

Tarbell Ditch	344	79	0	344	109	207	68	368	753	830	310
Tabor Ditch	487	627	997	684	1,060	639	1,240	375	1,340	1,010	846
Treasure Pass Ditch	163	53	9	63	113	94	0	15	245	223	98
Don La Font Ditches No. 1 & 2	339	138	473	480	0	364	50	112	64	0	202
Williams Creek-Squaw Pass Ditch	238	205	235	475	441	279	374	124	421	289	308
Pine River-Weminuche Pass Ditch	508	451	257	520	246	172	672	42	1,050	396	431
Weminuche Pass Ditch	878	960	685	2,630	0	0	0	0	1,090	459	670

TOTAL

558,051 501,445 480,925 510,828 599,101 511,670 505,614 457,018 531,053 440,780¹ 509,649

**TRANSMOUNTAIN DIVERSIONS FROM COLORADO RIVER BASIN
IN COLORADO TO RIO GRANDE BASIN IN NEW MEXICO**

1989-1998

San Juan-Chama Diversions	51,416	71,710	119,440	87,090	98,800	82,300	85,100	57,239	141,174	107,765	90,203
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**TRANSMOUNTAIN DIVERSIONS FROM
COLORADO RIVER BASIN IN UTAH²
1989-1998**

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998 ¹	10 YEAR AVERAGE
TO GREAT BASIN											
Fairview Tunnel	1,988	2,555	3,460	1,525	4,474	2,049	2,445	2,830	2,009	1,985	2,532
Ephraim Tunnel	533	2,682	2,751	1,808	4,007	1,004	2,629	2,132	3,399	2,395	2,334
Spring City Tunnel	844	2,033	2,149	1,632	3,391	1,334	2,670	2,824	2,571	1,519	2,097
Central Utah Project, Bonneville Unit*	25,007	38,025	30,590	63,975	49,243	18,587	11,933	11,891	12,385	5,006	26,664
Hobble Creek Ditch	427	510	552	369	1,051	694	825	590	972		666
Strawberry-Willow Creek Ditch	1,113	1,773	1,342	2,041	2,171	962	953	1,379	1,706	1,554	1,499
Strawberry Water Users Association*	90,409	78,006	58,329	72,872	51,484	74,190	36,768	51,934	41,576	52,821	60,839
Duchesne Tunnel	25,609	29,125	21,062	15,678	35,648	22,817	39,859	31,895	39,446	30,746	29,189
TOTAL	<u>145,930</u>	<u>154,709</u>	<u>120,235</u>	<u>159,900</u>	<u>151,469</u>	<u>121,637</u>	<u>98,082</u>	<u>105,475</u>	<u>104,064</u>	<u>96,026¹</u>	<u>125,819</u>

**TRANSMOUNTAIN DIVERSIONS FROM GREAT BASIN
IN UTAH TO COLORADO RIVER BASIN IN UTAH
1989-1998**

Tropic and East Fork Canal	3,717	3,332	3,612	5,325	6,509	4,801	7,022	4,542	5,442	6,922	5,122
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**TRANSMOUNTAIN DIVERSIONS FROM COLORADO RIVER
BASIN TO NORTH PLATTE BASIN IN WYOMING³
1989-1998**

TOTAL	12,489	13,894	16,462	12,450	23,422	14,405	12,144	17,014	14,119	14,870	15,127
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**TRANSMOUNTAIN DIVERSIONS FROM
COLORADO RIVER BASIN⁴
1989-1999**

TOTAL	<u>764,169</u>	<u>738,426</u>	<u>733,450</u>	<u>764,943</u>	<u>866,283</u>	<u>725,212</u>	<u>693,918</u>	<u>632,204</u>	<u>784,968</u>	<u>652,519¹</u>	<u>735,609</u>
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¹ Based on preliminary streamflow records obtained from U.S. Bureau of Reclamation, U.S. Geological Survey, Central Utah Water Conservancy District, Colorado Division of Water Resources, New Mexico Interstate Stream Commission, and Wyoming State Engineer's Office - subject to revision.

² Stream gaging of the following small transmountain diversions in Utah was discontinued in 1959, but the flow is estimated to be as follows: Candland Ditch - 200 acre-feet; Horseshoe Tunnel - 600 acre-feet; Larsen Tunnel - 690 acre-feet; Coal Fork Ditch - 260 acre-feet; Twin Creek Tunnel - 200 acre-feet; Cedar Creek Tunnel - 340 acre-feet; Black Canyon Ditch - 290 acre-feet; Reeder Ditch - 250 acre-feet; Madsen Ditch - 40 acre-feet; and John August Ditch - 200 acre-feet. These diversions are from the San Rafael River in the Colorado River Basin to the Great Basin in Utah and total about 3,100 acre-feet annually.

³ Does not include diversions for enlargement continental Divide Ditch which services 437 acres, or Tanger Ditch which services 391 acres. Neither Ditch is gaged and suitable estimates of diversion amounts arccurrently unavailable

⁴ The total diversion is the sum of all diversions except Tropic and East Fork Canal, which imports water to the Colorado River Basin.