

FIFTY-FOURTH ANNUAL REPORT

OF THE

Upper Colorado River Commission



SALT LAKE CITY, UTAH

SEPTEMBER 30, 2002



UPPER COLORADO RIVER COMMISSION

NAME OF PARES



355 South 400 East • Salt Lake City • Utah 84111 • 801-531-1150 • FAX 801-531-9705

President George W. Bush The White House Washington, D.C. 20500

Dear President Bush:

The Fifty-Fourth 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 2004 (July 1, 2003 - June 30, 2004) 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.

Mayne E. Cook Wayne E. Cook Executive Direct

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

Enclosure

TABLE OF CONTENTS

| | Page |
|---|------|
| Letter of Transmittal | iii |
| Commission | 2 |
| Alternate Commissioners | 3 |
| Officers of the Commission | 3 |
| Staff | 3 |
| Committees | 4 |
| Advisers to Commissioners | 5 |
| Meetings of the Commission | 7 |
| Activities of the Commission | 7 |
| A. EngineeringHydrology | 8 |
| 1. Colorado River Salinity Program | 8 |
| 2. Forecast of Stream Flow | 9 |
| 3. Summary of Reservoir Levels and Contents | 10 |
| 4. Flows of Colorado River | 21 |
| B. Legal | 29 |
| Colorado River Storage Project and Participating Projects | 31 |
| A. Authorized Storage Units | 34 |
| 1. Glen Canyon Storage Unit | 34 |
| 2. Flaming Gorge Storage Unit | 36 |
| 3. Navajo Storage Unit | 38 |
| 4. Wayne N. Aspinall Storage Unit | 40 |
| 5. Storage Units Fishery Information | 41 |
| B. Transmission Division | . 42 |
| C. Authorized Participating Projects | 43 |
| 1. Colorado | 45 |
| 2. Colorado and New Mexico | 48 |
| 3. Colorado and Wyoming | 49 |
| 4. New Mexico | . 49 |
| 5. Utah | 50 |
| 6. Wyoming | . 52 |
| 7. New Mexico | 53 |
| D. Recreational Use at Reservoirs | . 53 |
| E. Status of Other Bureau of Reclamation Projects in the Upper Colorado | |
| River Basin | . 55 |
| 1. Colorado | . 55 |
| F. Investigations | . 56 |
| 1. New Mexico | . 57 |
| 2. Utah | . 59 |
| 3. Wyoming | . 59 |
| G. Reservoir Operations | . 60 |
| 1. 2001 Operations Summary and Reservoir Status | . 61 |
| 2. 2001 Water Supply Assumptions | . 62 |
| 3. 2001 Reservoir Operations | . 63 |
| H. Fish and Wildlife | . 69 |

| | Pa | ige |
|--|----|-----|
| I. Appropriations of Funds by the United States Congress | • | 71 |
| Colorado River Basin Salinity Control Program | | 74 |
| 1. Bureau of Reclamation and U.S. Department of Agriculture Salinity | | |
| Control Program | | 75 |
| a. Grand Valley Unit | | 75 |
| b. Lower Gunnison Basin Unit | | 75 |
| c. McElmo Creek Unit | | 76 |
| d. Uinta Basin Unit | | 76 |
| e. Big Sandy River Unit | | 76 |
| f. Price-San Rafael Unit | | 76 |
| g. San Juan River Unit | | 76 |
| h. Hammond Project, New Mexico | | 77 |
| 2. Bureau of Land Management Salinity Control Program | | 77 |
| Findings of Fact | | 77 |
| Acknowledgments | | 77 |

APPENDICES

| Α. | Report of Independent Auditor | 81 |
|----|---|----|
| В. | Upper Colorado River Commission Budget for Fiscal Year 2002 | 82 |
| C. | Transmountain Diversions Upper Colorado River Basin | 91 |

FIGURES

| Map of the Upper Colorado River Basin i | i |
|--|---|
| Storage in Principal Reservoirs at End of Water Year, Upper Basin 13 | 3 |
| 1. Lake Powell | ŀ |
| 2. Flaming Gorge Reservoir15 | 5 |
| 3. Fontenelle Reservoir | 3 |
| 4. Navajo Reservoir | 1 |
| 5. Blue Mesa Reservoir | 3 |
| Storage in Principal Reservoirs at End of Water Year, Lower Basin 19 |) |
| 1. Lake Mead |) |
| Colorado River Flow at Lee Ferry, Arizona |) |
| Lee Ferry Average Annual Virgin Flow for Selected Periods |) |
| | |

TABLES

Page

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 Fifty-Second 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.

COMMISSION



Scott M. Balcomb Commissioner for Colorado





Philip B. Mutz Commissioner for New Mexico



D. Larry Anderson Commissioner for Utah

Frank E. (Sam) Maynes Chairman Commissioner for United States (Replaced by L. Richard Bratton July 26, 2002)



Patrick. T. Tyrrell Commissioner for Wyoming

ALTERNATE COMMISSIONERS

Rod Kuharich Dallin W. Jensen Dan S. Budd State of Colorado State of Utah State of Wyoming

OFFICERS OF THE COMMISSION

Chairman Vice Chairman Secretary Treasurer Assistant Treasurer Frank E. (Sam)Maynes D. Larry Anderson Wayne E. Cook Ronald A. Schulthies Robert B. Nixon, Jr.

STAFF

Executive Director Assistant to the Executive Director and General Counsel Staff Engineer Administrative Secretary Wayne E. Cook

Jane Bird Everett E. Sunderland Kathryn G. Ostler

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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):

Legal Committee:

Thomas J. Davidson, Chairman Ken Salazar Kent Holsinger D. L. Sanders John Stroud

Dalllin W. Jensen Norman K. Johnson Jenifer Scoggin

Engineering Committee:

John W. Shields, Chairman D. Randolph Seaholm Harold (Hal) Simpson Eric Kuhn David H. Merritt Robert King Jerry Olds

Budget Committee:

Rod Kuharich Philip B. Mutz

D. Larry Anderson Patrick T. Tyrrell

ADVISERS TO COMMISSIONERS

The following individuals serve as advisers to their respective Commissioner:

COLORADO

Legal:

Ken Salazar Attorney General State of Colorado Denver, Colorado

Engineering:

D. Randolph Seaholm Colorado Water Conservation Board Denver, Colorado

David H. Merritt Colorado River Water Conservation District Glenwood Springs, Colorado Kent Holsinger Assistant Director For Water Colorado Department of Natural Resources Denver, Colorado

Harold D. (Hal) Simpson State Engineer Denver, Colorado

Eric Kuhn Colorado River Water Conservation District Glenwood Springs, Colorado

NEW MEXICO

Legal:

D. L. Sanders Interim Chief Counsel New Mexico Interstate Stream Commission Santa Fe, New Mexico John Stroud General Counsel New Mexico Interstate Stream Commission Santa Fe. New Mexico

UTAH

Legal:

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

Engineering:

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

General Advisers:

Don A. Christiansen, Manager Central Utah Water Conservancy District Orem, Utah Norman K. Johnson Assistant Attorney General Salt Lake City, Utah

Jerry Olds State Engineer Division of Water Rights Salt Lake City, Utah

| Scott Ruppe, Manage | r |
|----------------------|---|
| Uintah Water | |
| Conservancy District | |
| Vernal, Utah | |

WYOMING

Legal: Thomas J. Davidson Deputy Attorney General Cheyenne, Wyoming

Engineering:

John W. Shields Interstate Stream Engineer Cheyenne, Wyoming Jenifer Scoggin Assistant Attorney General Cheyenne, Wyoming

MEETINGS OF THE COMMISSION

During the Water Year ending September 30, 2002 the Commission met as follows:

Meeting No. 244December 12, 2001Las Vegas, NevadaMeeting No. 243June 4, 2002Silverthorne, Colorado

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) participating 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 2002 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:

Salinity in (mg/l)

| 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 3, 2002 forecast of inflow to Lake Powell by the National Weather Service, Department of Commerce, for April-July was estimated to be 3,000,000 acre-feet¹. The actual unregulated inflow to Lake Powell for the period April-July 2002 amounted to 1,115,000 acre-feet², which was about 14 percent of the 30-year (1961-1990) average flow.

During the April-July 2002 period, changes in storage in Colorado River Storage Project reservoirs including Lake Powell resulted in an overall decrease of 2,091,900 acre-feet, with 222,490 acre-feet of evaporation and a 31,400 acre-feet increase in bank storage³.

Actual regulated inflow to Lake Powell for the period April-July 2002 was 1,453,560 acre-feet.

For the period October 1, 2001 through September 30, 2002, the change in reservoir storage, excluding bank storage and evaporation, at selected reservoirs above Lake Powell was as follows:

- Fontenelle increased 82,700 acre-feet.
- Flaming Gorge decreased 292,000 acre-feet.
- Taylor Park decreased 24,300 acre-feet.
- Blue Mesa decreased 320,500 acre-feet.
- Morrow Point decreased 3,500 acre-feet.
- Crystal increased 1,900 acre-feet.
- Navajo decreased 536,100 acre-feet.

The virgin flow⁴ of the Colorado River at Lee Ferry⁵ for the 2002 water year amounted to 6,518,000 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, 2002 ranged from 35 percent of the long term (1927-02) mean at the Colorado River station near Cisco, Utah to 31 percent of the long term (1914-02) mean at the San Juan River station near Bluff, Utah. The volumes of runoff at these stations were 1,855,445 acre-feet and 535,926 acre-feet respectively. Runoff at the Green River station near Green River, Utah totaled 1,467,419 acre-feet, which was 33 percent of the long term (1906-02) mean.

Lake Powell's lowest elevation of the 2002 water year occurred on September 30, 2002 when the reservoir level was at elevation 3626.53 feet (live content of 14,467,900 acre-feet). Lake Powell was at its highest point on October 1, 2001 at elevation 3,664.73 feet with a content of 19,120,000 acre-feet. A total of 8,230,900 acre-feet was released to the river below Glen Canyon Dam during the 2002 water year. The 1993-2002 (10-year) delivery to the Lower Basin (measured at Lee Ferry) was 102,255,000 acre-feet.

Lake Mead, on September 30, 2002, contained 17,093,430 acre-feet⁸ of available storage water at elevation 1,155.42 feet. On September 30, 2002, the live storage of Lake Mead was 2,024,000 acre-feet less 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 2002 water year.

In water year 2002, 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.

⁶ 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) |
|-----------|-------------|-------|------------|-------|------------|
| (01///00. | | 1000, | Qupuoley - | 1,000 | 4010 1000 |

11

| | Fonte | nelie | Flaming | g Gorge | Taylor | Park | Blue N | Nesa | Morr Poir | ow nt | Crys | tal | Na | vajo | 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 |
| lnactive 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 M | Nohave | 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 2002 Upper Basin Live Storage Contents

| | Sept. 30, | | Sept. 30, | | change |
|---------------|-------------|---------------|-------------|---------------|-------------|
| | 2001 | percent | 2002 | percent | in contents |
| reservoir | (acre-feet) | live capacity | (acre-feet) | live capacity | (acre-feet) |
| FONTENELLE | 164,600 | 47.7% | 246,700 | 71.5% | 82,100 |
| FLAMING GORGE | 2,957,400 | 78.9% | 2,674,700 | 71.3% | -282,700 |
| TAYLOR PARK | 66,800 | 62.9% | 42,400 | 39.9% | -24,400 |
| BLUE MESA | 597,400 | 72.1% | 275,100 | 33.2% | -322,300 |
| MORROW POINT | 107,900 | 92.2% | 104,600 | 89.4% | -3,300 |
| CRYSTAL | 14,500 | 82.7% | 16,300 | 93.0% | 1,800 |
| NAVAJO | 1,409,200 | 83.1% | 871,700 | 51.4% | -537,500 |
| LAKE POWELL | 19,134,800 | 78.7% | 14,467,900 | 59.5% | -4,666,900 |
| TOTAL | 24,452,600 | | 18,699,400 | | -5,753,200 |



Lake Powell - Glen Canyon Dam

Live Storage Capacity - 24,322,000 acre-feet Power Generation Capacity - 1,356,000 KW Live Storage 9/30/02 - 14,467,900 acre-feet



14

Flaming Gorge

Live Storage Capacity - 3,749,000 acre-feet Power Generation Capacity - 144,000 KW Live Storage 9/30/02 - 2,674,700 acre-feet





Navajo



Blue Mesa



38

Storage in Principal Reservoirs at the End of Water Year 2002 Lower Basin

Live Storage Contents

I

Sept. 30, Sept. 30, change 2001 percent 2002 in contents percent reservoir (acre-feet) live capacity (acre-feet) live capacity (acre-feet) LAKE MEAD 19,873,000 76.0% 17,093,430 76.0% -2,779,570 LAKE MOHAVE 1,610,300 89.0% 1,576,600 89.0% -33,700 LAKE HAVASU 567,300 91.6% 564,800 91.6% -2,500 TOTAL 22,050,600 19,234,830 -2,815,770





Lake Mead - Hoover Dam

20

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 2002. Column (4) of the table shows the average virgin flow for any given year within the period computed through water year 2002. 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 105-year period, 1896 through 2002, 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 2002. The historic flow for each progressive ten-year period from 1953 through 2002, 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.

| 4 | |) | ļ | | |
|-----------|-------------|-----|------------|--------------|-------|
| Estimated | | (3) | | ESTIN | |
| Average | | (4) | (million a | MATED VIRGI | Table |
| Average | | (5) | cre-feet) | IN FLOW AT L | ũ |
| 10-year | Progressive | (6) | | EE FERRY | |
| Flow M | Virgi | (7) | | | |

| ហូហ្ | ហ្គូ ហ្គូ | ហ | ប្ត | ກຼຸດ | ດຸ | <u>ດ</u> | ი ç | ი თ | 000 | 67 | 39 | 60 2 | 2 - | 1 - | 12 | 74 | 75 | 76 | 12 | 12 | 8 | 81 | 8 | 00 Q | p 0 | 0.00 | 87 | 88 | 80 | s er | 2 92 | 66 | 94 | u U U U U | 76 | 86 | 66 | 100 | 10 | 102 | 103 | | 106 | 107 | 2002 | Years | (1) |
|------------------|----------------|--------|--------|--------------|--------|----------|------------------|------------|-------------|------|-----------------|------|------|--------------|--------|------|------|------|--------------|----------|-------------|------|------|--------------|---|------|------|------|------|--------------|------|------|------|-----------------------|------------|------|------|------|------------|------|--------------|----------------|------|------|---------|------------|--------------------|
| 4 1949 3 1950 | 5 1947 1948 | 7 1946 | 3 1945 | 1943 | 1 1942 | 1941 | + 1939 3 1940 | 1938 | 1937 | 1936 | 3 19 <u>3</u> 5 | 1934 | 1933 | 1931 | 3 1930 | 1929 | 1928 | 1927 | 1925 | 1924 | 1923 | 1922 | 1921 | 1920 | 1010 | 1917 | 1916 | 1915 | 1914 | 1912 | 1911 | 1910 | 1909 | 1908 | 1906 | 1905 | 1904 | 1903 | 1902 | 1901 | 1900 | 9691. 8681. | 1897 | 1896 | Sept. 3 | Year | (2) |
| 16.4 12.9 | 15.6 | 10.4 | 13.4 | 13.1 | 19.1 | 18.1 | 8.6 | 1/.5 | 13.7 | 13.8 | 11.6 | 5.6 | 11.4 | ۲, ۲ ۵. / | 14.9 | 21.4 | 17.3 | 18.6 | 13.U | 14.2 | 18.3 | 18.3 | 23.0 | 12.J 22.0 | 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1 | 24.0 | 19.2 | 14.0 | 21.2 | 14 J | 16.0 | 14.2 | 23.3 | 23.4 12.9 | 19.1 | 16.0 | 15.6 | 14.8 | 9.4 | 136 | 13.0 | 13.8 | 18.0 | 10.1 | Flow | Estimated | (3) |
| 14.2 14.1 | 14.2 14.2 | 14.2 | 14.1 | 14.1 14.2 | 14.2 | 14.3 | 14.2 | 14.2 | 14.2 | 14.2 | 14.2 | 14.0 | 14.0 | 13.9 | 14.0 | 14.1 | 14.1 | 14.2 | 14.2 | 14.2 | 14.2 | 14.3 | 14.4 | 14.5 | 1 4 0 | 14.6 | 14.6 | 14.6 | 14.7 | 14.8 | 14.8 | 14.8 | 14.9 | 14.8 | 15.0 | 15.0 | 15.0 | 15.0 | 14.9 | 14 9 | 14.9 | 14.9 | 14,9 | 14.9 | 2002 | Average | (4) |
| 15.0 15.0 | 15.0 15.0 | 15.6 | 15.7 | 1,5,0 | 15.8 | 15.7 | 15.7 | 10.0 | 15.9 | 16.0 | 16.0 | 16.1 | 16.0 | 10.0 | 16.8 | 16.8 | 16.7 | 16.7 | 10.0 10.0 | 10.8 | 16.9 | 16.8 | 16.8 | 10.0 | 10.4 | 16.5 | 16.1 | 16.0 | 16.1 | ר בי מיער | 15.6 | 15.6 | 15.7 | 15.1 | 14.5 | 14.0 | 13.8 | 13.6 | 13.4 | 14.1 | 14.0 | 14.0 | 14.1 | 10.1 | 1896 | Average | (5) |
| 5 14.5 15.0 | 14.2 14.2 | 14.0 | 14.4 | 13.2 | 13. | 12.9 | 11.8 | 100 | 13 | 14.0 | 14.2 | 14.3 | 10.0 | 10.0 | 17.5 | 18.2 | 17.3 | 17.1 | 18.C | 10,10 | 18.8 | 18.4 | 18.6 | 17.9 | 17.2 | 18.0 | 17.9 | 17.9 | 18.1 | 17.5 | 16.5 | 16.2 | 16.1 | 15.4 | 14.0 | 14.0 | | | | | | | | | Average | 10-year | (6) Proaressive |
| -2.1 | 0.6 | 4.6 | -1.6 | -1.9 | 4.1 | 3.1 | -0.4 | -20 -20 | ν ν ω | -1.2 | -3.4 | -9.4 | -3.6 | 2-1 | 10,1 | 6.4 | 2.3 | 3.6 | 0.2- | , to | ο ω ω | 3.3 | 8.0 | 7.0 | υ Γ | 9.0 | 4.2 | -1.0 | 6.2 | - U | 1.0 | -0.8 | 8.3 | -2.1 | 0 <u>4</u> | 1.0 | 0.6 | -0.2 | -5, 6 - | -14 | -1.8 8.1- | -1.2 | 1.0 | -4.9 | Average | Flow Minus | (7) Virgin |

| | Av Av | | | | | | | . ـ | <u> </u> | <u>د د</u> | - - | <u>د د</u> | | 2 12 | N | 3 13 | 101 | 30 | N | ა u |) (J) | ۵ <i>ה</i> | ιω | പപ | | ა თ | 44 | 4 | 4 4 | 4 | 44 | 44 | υ 4 | UI C | л | 2002 | Years | (1) | | |
|---|----------------------|------------------|------------------|------------------|----------------|------------------|----------------|--------|------------|--------------|--------------|------------------|----------|------------------|--------------|------------------|--------|------------------|--------|------------------|-------|--------------|--------|------------------|--------|----------------|--------------|----------------|------------------|--------|------------------|---------------|------------------|----------------|--------|---------------|------------------|-----|---------------------------------|------|
| | nimum erage | 2 2001 1 2002 | 4 1999 3 2000 | 5 1997 5 1998 | 7 1996 | 9 1994 8 1995 | 1993 7661 D | 2 1991 | 3 1990 | 5 1988 | 6 1987 | 8 1985 7 1086 | 9 1984 | 1 1982 0 1983 | 2 1981 | 4 1979 3 1980 | 5 1978 | 7 1976 6 1977 | 8 1975 | 9 1973 9 1974 | 1972 | 1970 1971 12 | 4 1969 | 5 1967 5 1968 | 7 1966 | 8 1964 | 0 1963 | 2 1961 | 4 1959 3 1960 | 5 1958 | 7 1956 6 1957 | 8 1955 | 0 1953 9 1954 | 1 1952 | 2 1051 | Sept. 3 | S Year | (2) | | |
| | 24.5 5.6 14.9 | 11.9 6.5 | 17.3 | 21.6 16.6 | 13.7 | 10.7 20.4 | 18.0 | 12.2 | 9.1 8.1 | 12.1 | 21.2 16.9 | 20.8 | 24.5 | 16.2 24.0 | 8.2 | 17.9 17.5 | 15.2 | 11.6 5 В | 16.6 | 19.4 | 12.2 | 15.4 15.1 | 14.4 | 11.9 13.7 | 11.2 | 10.2 | 17.3 8.4 | 100 | 11.3 | 16.5 | 10.7 20.1 | 9.2 | 10.6 7.7 | 20.7 | 11 0 | Flow | Estimated | (3) | ESTI | |
| | | 9.2 6.5 | 12.2 | 13.0 | 14.4 | 14.0 | 15.0 | 14.4 | 13.9 | 13.5 | 13.7 | 14.6 | 15.1 | 15.6 | 15.2 | 15.4 | 15.4 | 14.9 15 n | 15.0 | 15.1 | 15.0 | 15.0 15.0 | 15.0 | 14.9 14.9 | 14.8 | 14.7 14.9 | 14.7 14.6 | 14.5 | 14.3 14.4 | 14.3 | 14.4 14.5 | 14.3 | 14.1 14.2 | 14.2 14.2 | 1/1 0 | 2002 | Average | (4) | MATED VIRG | Tahi |
| ŭ | | 1.1.1 | | <u>-</u> | | 1 | | | 17 | 10 | | 1 -1 | | 12 | 1. | 1 | -1- | 1/ | 12 | 1 | 1 | 14 | 14 | 1 4 | 1. | 14 | 10 | 1 | , | 1 | 10 | | | | 4 | 1896 | Average | (5) | e 3 IN FLOW AT hore-feet) | , |
| | | 000 | | 5 0 | 9.9 | 9.9 | 19 19 | 9.19 | 9,0 | 5 - 1 | <u> </u> | 4 O | 1.9 | 1.7 | 1.7 | | 17 | 7 | 1.9 | 1.9 | 000 | | .00 | 00 00 | 9 | 9.1 | 000 | 0 | .1 2 | - ω | ωĸ | ີພິ | 4 U | ິດປ | л | Averaç | Progres 10-ye | (6) | LEE FERR | |
| | 18.8 11.8 15.0 | 15.4 15.0 | 14.9 | 13.7 | 13.2 | 14.1 | 15.5 15.5 | 16.6 | 16.2 | 18.0 17.2 | 18.3 | 16.2 | 15.8 | 14.2 14.6 | 13,8 13,8 | 14.3 14.3 | 13.9 | 14.4 13.8 | 14.3 | 14.2 14.6 | 13.1 | 13.0 13.7 | 12.6 | 12.3 12.0 | 13.1 | 12.1 | 11.8 | 12.4 | 12.9 | 13.6 | 13.1 13.6 | 13.1 | 14.2 13.5 | 14.ປັ 14.ປັ | 1/2 | ge Ave | ar Flow | | ~ | |
| | -9.5 -0.1 | ¦8 ¦3 ! 4 → ! | 2.3 | 1.0 5.0 | ι Δι ιωι | 5.4 Δ ω | 3.0 4.4 | -2.8 | -6.9 - | л 29 | 1.9 | ກ ປາ ວິດ6 | 9.5 0 | 9 N | -0.8 .0 | э 2.9 7 | 0.2 | ο 4 2 | 1.6 | -1 <u>-</u> 4 - | -2.8 | 0.4 0.1 | -0.6 | υ Έω | ο. | 3-4-8 9-9-8 | -0.0 0.0 | ວ ດ່າ ວີ ດຳ | .¦ | 2.5 | 5.4 .1 .3 | ⊾ ຕ່າ ວັດອ | -4.4 -7.3 | 5.7 | 2 | -year rage | Minus | 2 | | |

Table 4 HISTORIC FLOW AT LEE FERRY 1953-2002

| | 1000 2002 | |
|---------------|--------------|----------------|
| Water Year | Historic | Progressive |
| Ending | Flow | 10- Year Total |
| Sept. 30 | (1,000 a.f.) | (1,000 a.f.) |
| 1954 | 6,116 | |
| 1955 | 7.307 | |
| 1956 | 8,750 | |
| 1957 | 17.340 | |
| 1958 | 14 260 | |
| 1959 | 6 756 | |
| 1960 | 9 192 | |
| 1961 | 6,102 | |
| 1962 | 14 790 | |
| 1963 | 2 520 | 02 705 |
| 1064 | 2,520 | 93,703 |
| 1904 | 2,427 | 90,016 |
| 1965 | 10,035 | 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 |
| 1 99 1 | 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 |
| 1999 | 11,428 | 100,224 |
| 2000 | 9,603 | 101,702 |
| 2001 | 8,362 | 101,932 |
| *2002 | 8,346 | 102,255 |

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 2002. 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, 1896-2002, the estimated average annual virgin flow is 15.0 million acre-feet and the average annual historic flow is 12.1 million acre-feet.
- (5) For the next longest period, 1906-2002, 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 1896-2002 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 1914-2002 period is 14.7 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 acrefeet.
- (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 1922-2002, which is the period of record since the signing of the Colorado River Compact, the average annual virgin flow is 14.3 million acre-feet and the average annual historic flow is 11.0 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 ten-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 39 years is 14.6 million acre-feet. The estimated historical flow for the same period (1963-2002) 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 Case

Action has been taken in the following case of importance to the Upper Colorado River Basin States:

Rio Grande Silvery Minnow v. Keys, 46 Fed. Appx. 929 (10th Cir. 2002). In this case, the 10th Circuit ruled on the motions of plaintiffs-appellees Rio Grande Silvery Minnow to dismiss all appeals for lack of jurisdiction and the motion of intervenors-appellants Middle Rio Grande Conservancy District (MRGCD), et al. for a stay pending appeal. These appeals arise out of an ongoing action in the district of New Mexico reviewing efforts by defendant Fish and Wildlife Service (FWS) to save the endangered Rio Grande Silvery Minnow. Plaintiffs-appellees argue that defendants should consider alternatives to protect the minnow that would involve the use of water otherwise earmarked for the MRGCD and the Rio Chama Acequia Association (RCAA); Federal defendants argue that they lack discretion to redirect water already obligated to other users. In June 2001, FWS issued a final Biological Opinion (BO) that set forth a plan for protection of the minnow that did not impact MRGCD or RCAA water and an associated Incidental Take Statement (ITS) specifying the conditions under which incidental taking of the minnow would not be deemed a violation of the Endangered Species Act (ESA). On April 19, 2002, the District Court issued a memorandum opinion and order addressing the validity of the BO. Although the court upheld the validity of the BO under the deferential standard of administrative review, it was important to the court that the BO lasts for only a limited period, because the court agreed that when the parties engage in either informal negotiations or reinitiation of formal consultation, the annual water deliveries to MRGCD and RCAA that the court identified as discretionary will be available to be considered for use in protecting the minnow from extinction, contrary to the arguments of the Federal defendants and intervenors-appellants. Intervenor-appellants and the Federal defendants appealed from the district court's finding that use of water already obligated to other users was discretionary. The 10th Circuit dismissed intervenors-appellants' appeal, holding that since the district court's order declared the statutory consultative duties of the Federal defendants, not those of intervenors, intervenors-appellants cannot show the injury in fact necessary to convey standing. The Court states that the district court's ruling only requires that Federal defendants consider using intervenors-appellants water when they consult about protecting the minnow; unless and until consultation results in a decision to actually use the water, intervenors-appellants have suffered no injury in fact.
The 10th Circuit also held that the Federal defendants do have standing to challenge the district court's order, since it includes a binding specification of at least one aspect of their consultative duties under the ESA. However, the 10th Circuit dismissed Federal defendants' appeal anyway, holding that they had failed to establish a proper basis for interlocutory appeal. The Court rejected Federal defendants' argument that the challenged ruling was an express injunction appealable under 28 U.S.C. § 1292(a)(1), since the district court simply declared what the Bureau of Reclamation's authority, and therefore consultative duty, was with respect to the use of intervenors-appellants' water to protect the minnow; the court did not issue an order granting an injunction. Since the 10th Circuit dismissed intervenors-appellants' appeal for lack of standing and held that the district court's interlocutory ruling is not subject to immediate review by the remaining appellants, the Court also dismissed the stay motion as moot.

3. Legislation

In the Second Session of the 107th Congress (without regard to the water year), Congress enacted the following statutes that are important to the Upper Colorado River Basin States:

Public Law 107-375, approved December 19, 2002, an Act to extend the periods of authorization for the Secretary of the Interior to implement capital construction projects associated with the endangered fish recovery implementation programs for the Upper Colorado and San Juan River Basins.

Public Law 107-366, approved December 19, 2002, an Act to amend the Central Utah Project Completion Act to clarify the responsibilities of the Secretary of the Interior with respect to the Central Utah Project, to redirect unexpended budget authority for the Central Utah Project for wastewater treatment and reuse and other purposes, to provide for prepayment of repayment contracts for municipal and industrial water delivery facilities, and to eliminate a deadline for such prepayment.

Public Law 107-334, approved December 16, 2002, an Act to make certain adjustments to the boundaries of the Mount Nebo Wilderness Area, and for other purposes.

Public Law 107-310, approved December 2, 2002, an Act to reauthorize the national dam safety program, and for other purposes.

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 CRSP Act, as amended, 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 54th 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 1,200 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 45 degrees F to 50 degrees 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 that 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 releases from Glen Canyon Dam that reached 93,000 cubic feet per second (cfs). Except for the flood events of the mid-1980s, historic daily releases prior to the preparation of the final Glen Canyon Dam environmental impact statement (EIS) 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 and operation 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 (Secretary) adopted interim operations criteria in October 1991 that 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, other than during occasional experimental flows, and have most often averaged 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 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 (GCDFEIS) was filed with the Environmental Protection Agency 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.

The ROD also changed the triggering mechanisms for conducting beach/habitatbuilding flows (experimental flows above powerplant capacity). Instead of conducting them in years when Lake Powell storage is low on January 1, they are being conducted in years when Lake Powell storage is high and reservoir releases in excess of powerplant capacity are required 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 longterm 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 into recommendations to the Secretary from a diverse group of stakeholders in the evaluation and management of future dam operations. The AMP calls for the 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) independent review panels.

The AMWG is a Federal Advisory Committee chartered by the Secretary and consisting of a group of stakeholders who are federal and state resource managers, Native American tribes, power marketers, environmental groups, recreationists, and representatives of 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, tribal, or state agency legal authority and responsibility to manage resources in the best interests of both the environment and society.

In addition to 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 (now under the auspices of the United States Geological Survey) conducts the research and monitoring necessary to evaluate operations and the independent review panels provide outside review and credibility. The AMWG currently meets two to three times a year and the TWG currently meets about six times a year.

During the first quarter of 2003, experimental flows were released from Glen Canyon Dam in accordance with an Environmental Assessment and Finding of No Significant Impact completed in the fall of 2002. The purpose of the flows is to benefit native fish, especially the endangered humpback chub, and to disadvantage trout. The trout, especially in the confluence of the Colorado and Little Colorado Rivers, prey upon humpback chubs and compete for space. The flows are designed to disrupt the spawning and recruitment of trout. Additionally, the trout fishery below the dam to Lee's Ferry should improve as fish density decreases, resulting in larger and healthier fish. In addition to the flow regime from January through March, the United States Geological Survey is physically removing trout from the river in the confluence stretch.

A second proposal, to use high flows above powerplant capacity to move deposited sediment to rebuild beaches and shoreline environments, has been deferred one year. Because the 2002 drought did not produce the necessary monsoon storms in the Paria River drainage, sufficient sediment necessary for the experimental flow was not introduced into the system. That experiment was also included in the Environmental Assessment and Finding of No Significant Impact.

b. Glen Canyon Dam Temperature Modification Project

Prior to construction of Glen Canyon Dam, the Colorado River would warm seasonally from near freezing to about 85°F. Since construction of the dam, releases from the dam are consistently cold throughout the year (about 45-50°F). Cold temperatures can cause thermal shock to young endangered fish, and increase mortality as they descend from warm tributaries into the mainstem of the Colorado River. The U.S. Fish and Wildlife Service found in a biological opinion issued in December 1994 that the operation of Glen Canyon Dam jeopardizes the continued existence of two endangered fish and adversely modifies their critical habitats. The reasonable and prudent alternative provides that Reclamation implement a selective withdrawal program and determine feasibility using stated guidelines.

Based on Reclamation's September 1997 feasibility cost estimates, a typical selective withdrawal structure could cost up to \$140 million, depending upon the type of design. The least expensive modification evaluated would take advantage of the existing trashrack structure and bulkhead gate rails, reducing the construction costs to \$20 to \$40 million.

In January 1999, Reclamation released a draft environmental assessment (EA) for public review. The comment period was extended through April 30, 1999. Peer review of the document suggested that a testing and monitoring plan be prepared and included in the draft EA. The plan will be completed by the Grand Canyon Monitoring and Research Center and released by Reclamation in conjunction with the final EA. Construction would take 30 months with funding split over three fiscal years. If significant adverse impacts are found, the no-action alternative, which is to continue to release cold water through the existing power penstock intake elevation, will be considered.

c. Recreational Use

The extensive recreational use of Glen Canvon National Recreation Area, which surrounds Lake Powell, is demonstrated by the visitation of 2,128,379 people during calendar year 2002, a decrease of about 10 percent from 2001 and 19 percent from 2000. The reduction in visitation may be attributable to the ongoing drought, the Nation's weakened economy, and the ongoing threat of terrorist activity that has reduced international and intranational travel. Visitation at the Carl Hayden Visitor Center was reported by the NPS to be 505,585 (a decrease of about 29 percent from 2001) and is included in the total number reported above. 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. Wastewater system improvements at Wahweap Marina should being in early 2003. The project will connect the Wahweap system to the City of Page's wastewater treatment system and should bring wastewater operations at Wahweap back into compliance with State of Arizona environmental regulations, protect water guality, and help the City of Page operate its existing wastewater treatment facility more efficiently and economically. Because of the continuing drought in the Western States, Stateline launch ramp at Wahweap Marina has been closed as of February 3, 2003, due to almost record-low water levels. This ramp will probably be extended in the near future to allow for additional use under low water conditions. Nearly all of the marinas in the national recreation area are warning boaters to be extra careful when recreating due to the low-water conditions and the hazards such conditions expose recreationists to.

The Navaio Nation, in partnership with the National Park Service and the Bureau of Indian Affairs, opened the Antelope Point Marina public launch ramp in July 1999. Because of low water conditions, the ramp at Antelope Point was extended in both 2001 and 2002. Other improvements planned for Antelope Point include a marina complex that will include lodging, food and beverage, merchandise, cultural center, campground, tour boat operation, and marina-related services such as restrooms, courtesy docks, breakwater, and lighting. These improvements are being funded by a grant issued to the National Park Service through the city of Page from the Arizona State Lake Improvement Funds. The concession contract for development and operation of the Antelope Point area was signed by the Director of the National Park Service on January 22, 2003. The new concessionaire is Antelope Point Holdings, LLC, and the entire development on both Navajo Nation and National Park Service lands will be accomplished in phases over 6 to 8 years with cooperative management and administration of the recreation site by both the Navajo Nation and National Park Service. Antelope Point Holdings, LLC, was also awarded the business site lease by the Navaio Nation in November of 2002 for development on their lands. Construction of the first phase will be the new marina and paying roads and parking. Construction is anticipated to begin spring 2003.

The National Park Service issued a proposed rule in 2003 on the use of personal watercraft in the recreation area. The proposed rule would allow personal watercraft use in the recreation area under a special regulation with additional management restrictions. Personal watercraft use would be restricted in portions of the Colorado, Escalante, Dirty Devil and San Juan Rivers to increase protection of environmental values and reduce visitor conflict. Wake restrictions would be imposed in additional areas of the Escalante and Dirty Devil Rivers. Comments will be taken on the proposed rule until March 17, 2003.

The National Park Service initiated work on a Development Concept Plan (DCP) and Environmental Assessment for the Wahweap Marina Area in January 2003. The last DCP for this area was prepared in 1998, and an update is needed for several reasons including changes in legislation and unforeseen economic conditions that have had a significant impact on operations of the area. The new DCP is intended to guide future development of services, facilities and infrastructure in the Wahweap area for the next 15+ years.

Carbon monoxide (CO) poisonings on and around houseboats continue to be a problem. In October 2002, 14 people in two separate incidents were treated for CO poisoning and all of them survived. The National Park Service is continuing to warn the recreating public of the hazards of inadequate ventilation, poorly working generators, and cautioning swimmers not to swim near or under houseboats. The National Park Service is also educating the public on the symptoms of CO poisoning.

Major rains in October caused flash flooding and forced the closure of several recreation sites in the area while cleanup efforts were undertaken. The closures were done in the interest of public health and safety and included the Bullfrog Marina and Rainbow Bridge areas.

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. Visitation at Rainbow Bridge for calendar year 2002 was reported by the National Park Service to be 167,736, which is approximately 12 percent less than 2001 and 16 percent less than 2000. The probable reasons for this are the same as for the Glen Canyon National Recreation Area itself.

The Carl Hayden Visitor Center, adjacent to Glen Canyon Dam and powerplant in Page, Arizona, is owned and maintained by Reclamation and operated by the National Park Service. In 1996, the center was selected as a Federal Energy Showcase facility by the Department of Energy for significant achievements made in water and energy conservation. An effort is currently underway to modernize the displays at the visitor center and improve accessibility for visitors with disabilities. Public tours of the dam and powerplant had been started again in 2002 after the terrorist attacks in September 2001; however, when the terrorist alert status went to high (orange) on February 7, 2003, the tours were discontinued again until further notice.

2. Flaming Gorge Storage Unit

Flaming Gorge Dam and Powerplant were completed in 1963. Uprating of the units in 1992 increased the plant nameplate capacity from 108 megawatts to about 151 megawatts.

Recreation activities at the Flaming Gorge National Recreation Area are managed by the U.S. Forest Service under the law that designated the National Recreation Area. Visitation to the National Recreation Area was reported by the U.S. Forest Service to be 1,500,000 during calendar year 2002. This number is an estimate; the U.S. Forest Service does not take yearly visitation counts of the reservoir area, it relies on numbers received from its campground concessionaires. Boat ramps and marinas are located at several sites around the lake, and there are 26 designated campgrounds in the area, four of which are accessible only by boat. Fishing is an important recreational activity both on the reservoir and in the Green River below the dam, as is rafting. Other activities in the area include camping, picnicking, scenic biking, hiking, horseback riding, motor coach tours, snowmobiling, snowshoeing, and cross-country skiing. Public tours of the dam are conducted by the Intermountain Natural History Association (INHA), a nonprofit partner at the Visitor Center. Tours of the inside of the dam have been conducted sporadically because of the ongoing terrorist activity and national alerts. However, there is in place an interpretive program that takes interested persons to a dam overlook and explains to them the building and operations of the dam. Only during the months of July through December were full public tours of the inside of the dam conducted; even these were "hit -and-miss," depending upon the level of alert. A major fire during the summer of 2002 lowered visitor numbers in the recreation area for several weeks. INHA reported 55,339 people visited the dam and visitor center during calendar year 2002.

In water year 2002, Flaming Gorge Dam was operated in accordance with the Biological Opinion on the Operation of Flaming Gorge Dam, issued in November 1992. The biological opinion calls for high spring releases to occur each year, timed with the peak of the Yampa River, so as to mimic historic Green River flows.

In September 2000, a final report entitled *Flow and Temperature Recommendations* for *Endangered Fishes in the Green River Downstream of Flaming Gorge Dam* was published by the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (Recovery Program). The report, prepared by a multidisciplinary team, synthesizes research conducted on endangered fish in the Green River under the Recovery Program and presents flow recommendations for three reaches of the Green River. Reclamation began the National Environmental Policy Act (NEPA) process on the implementation of an operation at Flaming Gorge Dam that meets these flow recommendations. A Notice of Intent to prepare an EIS was filed in the *Federal Register* on June 6, 2000. The draft EIS is scheduled to be published in June 2003. The completion of the final EIS is scheduled for release in January 2004 with a ROD scheduled for completion February 2004.

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, 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 shared the costs of providing basic services for and administration and maintenance of the community and its infrastructure.

In 1998, it was determined by Reclamation and the Forest Service that federal ownership of certain lands and structures was no longer essential to management of the project or the National Recreation Area. In addition, residents of the community were interested in purchasing the homes they rent from Reclamation and the lands upon which they were built, and Daggett County was 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.

On October 30, 1998, President Clinton signed the "Dutch John Federal Property Disposition and Assistance Act of 1998," P.L. 105-326. This Act provided for the privatization of certain federal property in the Dutch John community and surrounding area located in Daggett County, Utah. By the summer of 2001, Reclamation had fulfilled the requirements of this Act by successfully completing the privatization of Dutch John, Utah.

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.

On July 29, 2002, Reclamation approved a subcontract between the Jicarilla Apache Nation and the San Juan Water Commission of New Mexico for 6,000 acre-feet of water in 2002 from Navajo Reservoir. This water was intended for 11 entities in the area to supplement their use of water from the San Juan River, which was not available in 2002 because of the current drought. This subcontract was issued pursuant to the December 8, 1992, contract between the Jicarilla Apache nation and the United States, and the Jicarilla Apache Nation Water Rights Settlement Act of January 3, 1992 (P.L. 102-441).

Reclamation is preparing an EIS on the operations of Navajo Dam and Reservoir (Navajo Unit). The cooperating agencies assisting Reclamation in the EIS process include the: Jicarilla Apache Nation, Southern Ute Indian Tribe, Navajo Nation, Ute Mountain Ute Tribe, Southwestern Water Conservation District, New Mexico Interstate Stream Commission, San Juan Water Commission, city of Farmington, Albuquerque Army Corps of Engineers, U.S. Fish and Wildlife Service, Bureau of Indian Affairs, Bureau of Land Management, Colorado Water Conservation Board, and National Park Service. Reclamation and the cooperating agencies will continue to meet throughout the EIS process.

A preliminary draft EIS was released to the cooperating agencies in October 2001 and the draft EIS was released for public review and comment in September 2002. The public comment period concluded on December 4, 2002, and over 350 comments were received. Reclamation is now in the process of writing responses to the comments and developing any necessary document revisions. The draft EIS evaluates the potential impacts of operating Navajo Reservoir to implement the flow recommendations provided by the San Juan River Basin Recovery Implementation Program. The purpose of the proposed federal action is to provide sufficient releases of water at times, quantities, and durations necessary to conserve two endangered fish species and their designated critical habitat in the San Juan River downstream from Farmington, New Mexico. Reclamation would maintain the authorized purposes of the Navajo Unit which include enabling future water development to proceed in the San Juan River Basin in compliance with applicable laws, compacts, court decrees, and American Indian trust responsibilities. The final EIS is scheduled for release in September 2003 with a ROD expected by the end of 2003. Reclamation conducted a summer low flow test from July 9 through July 15, 2001. The test measured some of the impacts on the environment from one of the EIS alternatives (250 cfs summer low flow).

The low flow test report was completed in April 2002.

Under separate agreements with Reclamation, the Colorado Division of Parks and Outdoor Recreation is responsible for public recreation at Navajo Reservoir, within the state of Colorado, and New Mexico State Parks manages recreation at the reservoir within the state of New Mexico.

Colorado has entered into a cost share agreement with Reclamation for the rehabilitation and expansion of existing recreation facilities. Construction began in fiscal vear 2000 and was mostly completed in the fall of 2002. A total of \$7 million has been spent (a 50/50 cost-share), and the final contract for \$350,000 to finish up the project will be signed soon, with an expected start date in April 2003. An accessibility evaluation of the new facilities is being conducted as construction is being finished. In the autumn of 2001, the State of Colorado began long-term contract negotiations with All Parks Construction, Ltd. for the operation of the San Juan Marina at Navaio State Park, Arboles. While negotiations for this contract were taking place, San Juan Marina continued their operations under a short-term concession permit. This permit expired on December 31, 2002, without the successful negotiation of a new long-term contract. To continue operations at Navajo State Park while negotiating for the new long-term contract, the concessionaire was required to enter into a second (identical) short-term concession permit. All Parks declined to do so and on January 16, 2003, Colorado State Parks provided legal notice to the concessionaire to immediately cease all public operations at the park, and to vacate the premises within sixty days. The San Juan Marina will be closed until a new concessionaire can be found, although Colorado State Parks is investigating the possibility of a smaller concession contract to provide jet ski and water ski boat rentals and providing some form of marina services during the 2003 recreation season.

On the New Mexico side, the New Mexico State Parks continues its management and improvement of the recreation areas with some cost-share assistance from the Bureau of Reclamation. Three separate recreation areas comprise Navajo Lake State Park in New Mexico. Pine River, the most developed area along the lake, includes a visitor center with interpretive exhibits. Sims Mesa is across the lake, and the San Juan River area below the dam is world renowned for excellent trout fishing and includes wheelchair- accessible fishing facilities. Navajo Lake is New Mexico's second largest lake and offers the full gamut of water sports and services. It contains both cold- and warm-water fish species.

Every year, for the past six years, Reclamation's Farmington Construction Office has sponsored a very successful C.A.S.T. (Catch A Special Thrill) for Kids fishing event. The event is accomplished with the assistance of the local BASS organizations, private entities and volunteers, and the C.A.S.T. for Kids Foundation. The C.A.S.T. for Kids experience provides a one-day fishing and boating opportunity for children who have disabilities or who are otherwise disadvantaged. It is a family-oriented activity and the communities near the New Mexico side of Navajo Reservoir participate. The 2003 event is scheduled for Saturday, May 17th.

A Resource Management Plan for Navajo Reservoir is being prepared and is scheduled for completion in late spring 2003.

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 Park. The three dams are Blue Mesa, Morrow Point, and Crystal. Uprating of the 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 manages recreation use at the Curecanti National Recreation Area and reports that there were 723,711 visitors to the recreation area during calendar year 2002. The visitor figure of 1,022,32 reported for 2001 in this report was an estimate. The official published visitation figure for 2001 was 879,479. Even with the adjusted 2001 use figure, there has been a decrease in visitation of about 18 percent, probably due to the same factors that are affecting visitation at Glen Canyon and Flaming Gorge.

Curecanti offers a variety of drive-in, boat-in, and hike-in campgrounds. Facilities range from Elk Creek Campground with showers, marina, restaurant, amphitheater and visitor center, to remote boat-in campsites on Blue Mesa Reservoir. The most popular activities include hiking, wildlife viewing, camping, picnicking, photography, boating, salmon and trout fishing, hunting, windsurfing, sailing, waterskiing, cross country skiing, and ice-fishing.

Personal watercraft use on Blue Mesa Reservoir has been suspended since November 7, 2002, as a result of a court ordered settlement between the National Park Service and Bluewater Network. The National Park Service is in the process of preparing an environmental assessment to determine if and where personal watercraft use will continue on Blue Mesa. A rulemaking process and the environmental assessment are occurring simultaneously and will determine if this type of water based recreational activity is appropriate considering park resources and values, as well as other visitor uses of the park and overall management objectives. A draft environmental assessment is expected to be released in the spring of 2003. The Curecanti National Recreation Area is under the national fee demonstration program and several projects have been undertaken with the funds raised under the program, such as improvements to the Elk Creek marina, visitor centers, campgrounds, expanded parking, and others.

The National Park Service is in the process of conducting a Resource Protection Study that will assess the value and character of land and resources within and surrounding Curecanti National Recreation Area. This study is being conducted in response to a request from Congress under Section 8 of the Black Canyon of the Gunnison National Park and Gunnison Gorge Conservation Act. The goal of this study is to identify and recommend a variety of practical alternatives and tools to protect the resource value and character of land in and around the recreation area.

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. Informal consultation with the U.S. Fish and Wildlife Service on the operation of the Aspinall Unit continued in 2002. As part of this consultation, a five-year effort to study the effects of various release patterns on habitat, reproductive success, and reintroduction of endangered fish in the Gunnison River was completed.

The goal is to provide a more natural hydrograph on the Gunnison River. A draft biological opinion on the operation of the Aspinall Unit as it affects endangered fish will be prepared in the future. 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. An EIS will be prepared on operational changes of the Aspinall Unit to improve flow conditions for endangered fish.

Reclamation is also working with the Department of the Interior to help quantify a reserved water right for the Black Canyon of the Gunnison National Park downstream from the Aspinall Unit. The Department of Justice filed an application to quantify this right in January 2001. The United States intends to seek a negotiated settlement of this matter. The intent of filing the application was to identify those parties interested in participating in a negotiated settlement of this water right. The water right as filed claims a base flow of 300 cfs from July 26th to April 30th, and a minimum base flow from May 1st to July 25th between 300 cfs and 3,350 cfs based on the May 1st forecasted unregulated inflow to Blue Mesa Reservoir for April through July. The water right also claims a one-day peak flow between May 1st and June 30th based on the May 1st forecasted unregulated inflow to Blue Mesa Reservoir for April through July with defined ramping rates for increasing from base flow to peak flow and back to base flow. Based on May 1st forecasts since 1965, desired flows in the Black Canyon below the Gunnison Tunnel would have ranged from 300 cfs to 2,710 cfs during the May 1st to July 25th time period with desired one-day peaks ranging from 1,370 cfs to 13,620 cfs.

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, although down from previous years, still total between five and six 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 bluegill, 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).

The cool, clear depths of Flaming Gorge are ideal for trout. These famous angling waters have produced fish of state and world record size, including: lake trout (Mackinaw) over 50 pounds, German brown trout over 30 pounds, and rainbow trout over 25 pounds. Flaming Gorge also supports numerous cutthroat trout, kokanee salmon, small mouth bass, and channel catfish.

While the lake claims the big ones, the Green River below the dam is boasted as one of the Nation's finest blue ribbon trout streams. Fish populations in the river have been counted as high as 22,000 per river mile.

The Aspinall reservoirs are exclusively cold-water fisheries, with five species of sports fish available: rainbow, mackinaw, brown, and brook trout and kokanee salmon.

Navajo Reservoir provides both cold and warm-water fisheries, including catfish, crappie, and smallmouth bass in the shallows and near the lake surface. Kokanee salmon, northern pike and many varieties of trout are found in the deeper, colder waters.

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 tailwater receives about one half of the total use, with the Colorado River tailwater, San Juan River tailwater, and Gunnison River tailwater providing the remainder.

B. TRANSMISSION DIVISION

The power system includes high voltage transmission lines that interconnect to the CRSP hydro-powerplants and delivers 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 4.6 billion kilowatt-hours during fiscal year 2002. The major portion, 3.8 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 2001 and 2002 and the percentage of change:

| Powerplant | Fiscal Year 2001 | Fiscal Year 2002 | Percent Change |
|---------------|------------------|------------------|-------------------|
| Glen Canyon | 3,949,341,000 | 3,781,328,000 | -4 |
| Flaming Gorge | 270,493,000 | 219,668,000 | -19 |
| Blue Mesa | 207,194,000 | 170,576,000 | -18 |
| Morrow Point | 272,955,000 | 244,443,000 | -10 |
| Crystal | 152,411,000 | 128,802,000 | -16 |
| Fontenelle | 32,220,000 | 24,900,000 | -23 |
| McPhee | 4,056,030 | 1,345,942 | -67 |
| Towaoc | 21,570,450 | 5,889,630 | -73 |
| Total | 4,910,240,480 | 4,576,952,572 | -7 |

Table 1 Gross Generation (Kilowatt-Hours) and Percentage of Change

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 table shows 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 |
| Dolores Project | Colorado | McPhee | 1998 |
| 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 |

Table 2Completed Participating Projects

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

1. Colorado

a. Fryingpan-Arkansas Project

Although the Fryingpan-Arkansas Project is not a participating project of the CRSP 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 fish species. Operational changes make an additional 5,000 acre-feet of water available to benefit the Colorado River endangered fishes in four out of five years. After Round I sales of 7,850 acre-feet, 38,650 acre-feet of water was available for marketing in Round II. Since 1990, the U.S. 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 Ruedi Round II Water Marketing Program.

To comply with the ESA, Reclamation reinitiated consultation with the U.S. Fish and Wildlife Service on the Ruedi Round II Water Marketing Program. On May 26, 1995, the U.S. 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 U.S. 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.

Due to problems in implementing the second reasonable and prudent alternative, Reclamation reinitiated discussions with the U.S. Fish and Wildlife Service, state of Colorado, and water users on how to revise the 1995 biological opinion so that Reclamation could resume contracting. The U.S. Fish and Wildlife Service amended the 1995 biological opinion, which was accepted by Reclamation. Subsequently, the U.S. Fish and Wildlife Service issued a Final Programmatic Biological Opinion for the Bureau of Reclamation's Operations and Depletions, Other Depletions, and Funding and Implementation of the Recovery Program Actions in the Upper Colorado River above the Confluence with the Gunnison River (PBO), which was accepted by Reclamation in January 2000. Under the PBO, Reclamation's commitment to provide 21,650 acre-feet to enhance flows in the 15-Mile Reach is reduced by half when Colorado water users provide 10,825 acre-feet from various sources.

Also under the PBO, the U.S. Fish and Wildlife Service, Reclamation, and the Colorado Water Conservation Board are negotiating a long-term agreement (through the year 2012) to make 10,825 acre-feet/year of water available to enhance flows in the 15-Mile Reach.

Contents of reservoirs within the Fryingpan-Arkansas Project as of September 30, 2002, were as follows: Ruedi Reservoir, 47,825 acre-feet; Turquoise Lake, 58,846 acre-feet; combined Mt. Elbert Forebay and Twin Lakes Reservoir, 110,664 acre-feet; and Pueblo Reservoir, 78,076 acre-feet. During water year 2002 (October 1, 2001, through September 30, 2002), transmountain diversions from the Colorado River Basin in Colorado by the Fryingpan-Arkansas Project via the Charles H. Boustead Tunnel totaled 13,188 acre-feet.

b. Dolores Project

Dolores Project construction began in 1976. During fiscal year 1995, all primary project facilities were completed and in operation. All remaining work has been completed with the exception of final archeology reports, which are scheduled to be completed by April 2003. 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 was completed in October 2000 and approved by the Upper Colorado Regional Director by memorandum dated January 25, 2001.

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 benefiting entities to complete the work, rather than using Reclamation's traditional construction methods. There are no major remaining Reclamation items to be completed. Reclamation has deposited \$371,000 with the National Fish and Wildlife Foundation to be used for cost sharing of the acquisition for up to 3,300 acre-feet of water for fish and wildlife enhancement downstream from McPhee Dam. To date, no water has been acquired for the downstream fishery.

The District's agreements for completing its work items and providing 3,900 acrefeet of water for downstream fish and wildlife purposes were completed in 1998. Full payment was made to the Montezuma Valley Irrigation Company under a grant agreement with fiscal year 1996 funds. The Ute Mountain Ute Tribe's agreement allowing Reclamation to lease 3,300 acre-feet of unused tribal irrigation water has been completed. The grant agreement allowing the tribe to complete their work items will be completed September 30, 2004. 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. 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 has developed Simon Draw 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 Lome Dome Wetlands Area is in place and a similar agreement with the Montezuma Valley Irrigation Company is in negotiations.

Recreation at McPhee Reservoir is the responsibility of the San Juan National Forest, Dolores Ranger District. The Lone Dome Recreation Area is located below McPhee Dam and includes 12 miles of public access to the Dolores River. This area is comprised of lands administered by the U.S. Forest Service, the Bureau of Land Management, and the Colorado Division of Wildlife.

c. 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.

An accessibility evaluation on the recreation facilities at Ridgway Reservoir is scheduled to be completed in 2003. Once completed, a determination will be made as to what improvements need to be made to meet the needs of visitors with disabilities. Recreation at Ridgway Reservoir is managed by the Colorado Division of Parks and Outdoor Recreation under an agreement with Reclamation. For the past couple of years, the Western Colorado Area Office has sponsored a C.A.S.T. for Kids event at Ridgway Reservoir, where the fishing ponds below the dam are stocked for that purpose. This event had previously been held at Crawford Reservoir. The 2003 event is scheduled for May 15th.

d. Silt Project

In the winter of 2002, Reclamation and the State of Colorado began a major construction project to rehabilitate recreation facilities at Rifle Gap Reservoir. Rehabilitation will include upgrading the Park's infrastructure (sewer, water, electricity, and roads); recreation facilities (campgrounds, picnic sites, boat ramp, group use area, restrooms, and parking); and support facilities (Visitor Center, Park Headquarters, and maintenance building).

Facilities will be designed and constructed to meet accessibility and health and safety standards. All work is being cost-shared with the Colorado Division of Parks and Outdoor Recreation.

In March 2001, cracks were discovered at the crest of Rifle Gap Dam near the right abutment. A forensic investigation was immediately conducted to determine the extent of the cracks. The cracks were determined to be caused by differential settlement between the rock abutment and the surrounding embankment.

It was ascertained that grouting of the cracks would reduce the risk of piping paths developing through the embankment. This grouting was completed in June 2001. A Report of Findings, a Risk Analysis, and a Construction Report regarding the cracks and repairs were published in February 2002. The dam embankment is considered to be adequately repaired and a dam safety issue no longer exists. The dam continues to be monitored.

e. Paonia Project

Paonia is officially scheduled for rehabilitation of the recreation facilities in 2005/2006. However, during the rehabilitation project at Crawford Reservoir, four additional vault toilets were purchased and installed at Paonia Reservoir. The toilet facility at the boat ramp was made fully accessible to persons with disabilities. The remaining three toilet facilities will be made fully accessible (parking and route) under the rehabilitation program or prior to 2005 if funding is available. Improvements were also made to the recreation site below Paonia Dam. Improvements included an accessible vault toilet, four to five picnic sites, and parking.

2. Colorado and New Mexico

a. Animas-La Plata Project

The Colorado Ute Settlement Act Amendments of 2000 (Title III of P.L. 106-554 enacted on December 21, 2000) modify certain provisions of the Colorado Ute Indian Water Rights Settlement Act of 1988. Completion of the provisions of the amendments will provide full and final settlement of the claims of the Colorado Ute Indian Tribes on the Animas and La Plata Rivers in southwest Colorado.

The amendments provide for aggressive implementation and completion of the development of the Animas-La Plata Project. They authorize the construction of an offstream reservoir and associated pumping plant, downsized from previous versions of the project, to supply M&I water to the Colorado Ute Tribes and neighboring communities in Colorado and New Mexico. They require completion of construction of the project facilities within seven years of the date of enactment of the amendments and appropriation of the necessary funds over a five-year period, beginning in fiscal year 2002. Approval to initiate construction was effective November 9, 2001, and actual field work began the following spring.

The amendments also provide for a Tribal Resource Fund to be established in the same time frame to be utilized to enhance, restore, and utilize the Colorado Ute Indian Tribes' natural resources in partnership with adjacent non-Indian communities and entities. Financing for this fund is being sought through the Bureau of Indian Affairs.

Overall costs of the project are estimated at \$378 million (October 2003 price level), including nearly \$80 million spent to date and \$298 million of new costs (including the Tribal Resource Fund).

3. Colorado and Wyoming

a. Savery-Pot Hook Project

As required by Section 204(I) 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 the Bureau of Land Management recommending that its withdrawals for the project, totaling approximately 11,303 acres, be terminated in their entirety. That recommendation has not yet been processed by the Bureau of Land Management. 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 the Bureau of Land Management will soon begin to clear a large backlog of unprocessed recommendations. In July 1999, Reclamation sent a letter to the Bureau of Land Management in the state of Wyoming requesting a revocation of withdrawn lands for the Savery-Pot Hook Project. In September 2000, a similar request was sent to the Bureau of Land Management for the state of Colorado. The Bureau of Land Management is in the process of revocating the withdrawn lands.

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 65 percent complete with eight blocks currently under irrigation. Completion of NIIP may require an additional \$300-\$350 million and 15 to 20 more years depending on the level of annual appropriations received. NIIP is operated by the Navajo Agricultural Products Industry (NAPI), an enterprise of the Navajo Nation. During 2002, the farm produced high value crops including potatoes, wheat, corn, and beans processed and marketed under the "Navajo Pride" brand.

Consultation with the U.S. Fish and Wildlife Service under Section 7 of the Endangered Species Act, for Blocks 9 through 11, was completed with the U.S. Fish and Wildlife Service's July 1999 letter of concurrence with the BIA's findings that completion of NIIP may affect, but is not likely to adversely affect, the endangered Colorado pikeminnow and razorback sucker. This action allows for completion of the project through Block 11. As a part of the consultation, the project made a commitment to the SJRBRIP to replace the Cudei Diversion Dam and the Hogback Diversion Dam with facilities designed to enhance upstream passage of endangered fish and control loss of downstream migrating fish in the irrigation canals. Construction on the Hogback Diversion Dam with fish passage facilities was complete in March 2002. The existing diversion for the Cudei Canal was eliminated and an inverted siphon was constructed to transport water from the Hogback Canal to the Cudei Canal. Construction of the Cudei Siphon was also completed in March 2002.

The fiscal year 2003 BIA appropriation that will be transferred to Reclamation for continued project development is about \$11.1 million, or about half of the previous year's appropriations. This level of funding is insufficient to award any major contracts for new Block development. Instead, priority is on the correction of construction deficiencies and completion of all ongoing construction contracts. The President's budget request for NIIP in fiscal year 2004 is the same as fiscal year 2003. Unfortunately, continued annual appropriations at the \$13.1 million level will (1) delay completion of NIIP till at least 2035, and (2) significantly increase the total project cost.

Actions needed include: (1) an increase in the level of sustained annual funding (to \$30 million) in order to provide for a more timely project completion and reduce the total cost to complete the project; and (2) increase the funding 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.

Reclamation and the BIA need to work together with the Department of the Interior, Office of Management and Budget, Congress, and others to increase annual construction funding levels if NIIP completion is to be as cost effective as possible. More realistic operation, maintenance, and rehabilitation funds must be appropriated annually to safeguard the investment.

5. Utah

a. Central Utah Project

The Central Utah Project (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 that 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 was passed on October 30, 1992, as P.L. 102-575, Central Utah Project Completion Act (CUPCA). 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. Interior's CUPCA Office and the District have prioritized remaining work items to ensure that the most important work is accomplished first under the remaining ceiling.

In January 1994, the Commissioner of Reclamation delegated authority to the CUPCA Office Program Director to proceed with development of hydropower at CUP facilities through a lease(s) of power privilege. A notice was published in the *Federal Register* in December of 1994 requesting proposals for development of hydropower on the Diamond Fork System. The CUPCA Office notified the District and the Strawberry Water Users Association (Association) on May 1, 1996, that they were the successful lessee for development of hydropower in the Diamond Fork area. As provided in the December 1994 *Federal Register* notice, the District and the Association "have five years from the date of such notification to enter into a lease(s) of power privilege for the site or sites identified" in their proposal. The deadline for entering into the lease was May 1, 2001, and a lease was not negotiated; therefore, the Program Director terminated the lease of power privilege process.

An additional notice was published in the *Federal Register* in July 1999 requesting proposals for development of hydropower at Jordanelle Dam and Jordan Aqueduct Reach 4. By letter dated August 16, 2000, the CUPCA Office notified the District that they had been selected as the lessee for hydropower development at Jordan Aqueduct Reach 4. On that same date, the CUPCA Office notified the District and Heber Light and Power (HLP) that they had been selected as the lessee for hydropower development at Jordanelle Dam. The CUPCA Office has been in negotiations since November 17, 2000, with the District and HLP for the lease of power privilege for hydropower development at Jordanelle Dam.

The Utah Lake Drainage Basin Water Delivery System (ULS) will complete the Bonneville Unit by delivering 101,900 acre-feet of Bonneville Unit water from the Strawberry Reservoir to the Wasatch Front area. The ULS was first announced in a *Federal Register* Notice on October 14, 1998. On August 23, 2000, the Department of the Interior published a Notice of Intent in the *Federal Register* stating that the District, Interior, and Utah Reclamation Mitigation and Conservation Commission, as joint lead agencies, were planning to prepare an EIS. The Draft EIS is being prepared and it will be available for review during the spring and summer of 2004.

Public Law 107-366, enacted December 19, 2002, amended the CUPCA, among other things, and authorized the implementation of a pilot management program whereby the Secretary of the Interior may delegate oversight for the Bonneville Unit to Reclamation. The pilot management program will exist for a period not to exceed five years and shall provide a mechanism for the Secretary and the Central Utah Water Conservancy District to create a mutually acceptable organization within Reclamation to assist the Secretary in his responsibilities for the long-term management of the Bonneville Unit. Such a pilot management program may be extended indefinitely by mutual agreement between the Secretary and the District.

(ii). Jensen Unit

Recreation management at Red Fleet Reservoir is performed by the Utah Division of Parks and Recreation under agreement with the Bureau of Reclamation. Facilities include a small sandy beach, boat launching ramp, two modern rest rooms, 29 campsites, 32 covered picnic tables, and fish cleaning and sewage disposal stations. Several years ago a dinosaur track way dating back 200 million years was discovered on the east side of the reservoir. Because there's only a primitive trail and some steep terrain that leads to the track way, an interpretive exhibit about the dinosaur tracks was installed in the campground on the west side almost directly across from the track way in order to provide visitors who have small children, elderly persons, and those who have mobility impairments some experience with these paleontological resources. An accessibility evaluation as well as recreation facilities upgrades are taking place at Red Fleet Reservoir. This will result in facilities and areas that are accessible to persons with disabilities.

1

(iii). Vernal Unit

Recreation at Steinaker Reservoir is managed by the Utah Division of Parks and Recreation under agreement with the Bureau of Reclamation. Sandy beaches, swimming, boating and waterskiing top the list of activities at Steinaker. Year-round fishing is for rainbow trout and largemouth bass. Facilities include a boat launching ramp, modern rest rooms, sewage disposal station, 31 individual campsites and two group-use pavilions. An accessibility evaluation has been completed at Steinaker Reservoir. Results from the evaluation resulted in a new and supplemental day use area being built that is accessible to persons with mobility impairments.

b. Emery County Project

Recreation at Huntington North Reservoir is managed by the Utah Division of Parks and Recreation under agreement with the Bureau of Reclamation. The State Park has 237 acres open to boating, swimming and fishing. Facilities include 22 camping units, numerous picnic sites, modern rest rooms, showers, sewage disposal station, boat launching and a large covered group-use pavilion. Some recreation facilities enhancement at Huntington North has taken place and will continue into the future as funding becomes available.

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.

Recreation at Meeks Cabin Dam is the responsibility of the U.S. Forest Service, Wasatch-Cache National Forest. The managed recreation season is from June through October with moderate use. Available fish species include cutthroat trout and whitefish. There are 24 campsites at the reservoir. Preferred activities are camping, picnicking, and motorized boating.

b. Seedskadee Project

Recreation facilities at Fontenelle Reservoir have been managed by the Bureau of Land Management under an agreement with the Bureau of Reclamation for the past 7 years.

The interagency agreement expired December 2002, and the Provo Area Office is in the process of deciding whether to enter into a new agreement with the Bureau of Land Management or to manage the recreation resources itself. Due to funding restrictions, the water system serving Fontenelle Creek Campground will be shut down and the flush restrooms closed. The campground, day use area, and boat launch ramp will remain open and there are vault toilets in place at the ramp and in the campground to serve the visiting public. Recreation use is extensive along the river below the dam and upgrades are needed in all of the campgrounds in order to better serve the public and protect the riverine resources. An accessibility evaluation of the recreation facilities was conducted in 2001 and a determination will be made as to what improvements need to be made to meet the needs of visitors with disabilities within the next couple of years.

7. New Mexico

a. San Juan-Chama Project

A resource management plan initiated in 1995 for Heron Reservoir was completed in March 1998. The EA was completed in December 1997 and distributed to all interested parties. 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.

Recreation at Heron Reservoir is managed by the New Mexico State Parks under an agreement with the Bureau of Reclamation. Camping, fishing, sailing, and hiking are popular summer activities. Cross-country skiing is available during the winter. There are multiple campgrounds, picnic areas and dispersed camping along the lake shore. Low water levels existed at the lake during 2002 and hampered some of the recreation activities. Through the resource management planning process, Heron Lake State Park has been designated a "quiet lake" where boats operate at no-wake speeds only. An accessibility evaluation on the recreation facilities at Heron Reservoir was completed in 2002. The purpose of the evaluation is to determine what improvements need to be made to the facilities to meet the needs of persons with disabilities. A determination will be made soon as to what improvements need to be made to meet the needs of visitors with disabilities.

D. RECREATIONAL USE AT RESERVOIRS

Office of Management and Budget approval to collect visitor use information was received during fiscal year 2001 and will expire in 2004. Comments on the new data collection form are being sought at this time in preparation for seeking OMB approval for another 3-year period. A centralized data base was developed and training on the use of the new system was conducted in August 2001. Problems with the new data base have been experienced and data collection is not complete, so updated use figures are not available at this time.

The table below shows current visitor use figures for three mainstem CRSP facilities:

Table 3 2002 Visitor Use Figures

| Reservoir | Year First Visited | 2002 |
|---------------|--------------------|-----------------|
| Aspinall Unit | 1966 | 723,711 |
| Flaming Gorge | 1962 | 1,500,000 |
| Lake Powell | 1962 | <u>2,128,39</u> |
| | TOTAL 4,352,090 | |

(A decrease of 20 percent from 2001)

I

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 maintain the lands around Fruitgrowers Reservoir for wildlife habitat enhancement and viewing. The reservoir and surrounding area has been listed as an "important" bird site by the state of Colorado. A watchable wildlife trail and viewing area, accessible to persons with disabilities, was constructed in 1993. However, water quality issues at Fruitgrowers Reservoir have prevented the public from utilizing the wildlife trail to its full potential. A group of federal, state, and local entities called the Fruitgrowers Coalition are working together to define the causes of the water quality problems.

b. Uncompangre Project

The proposed AB Lateral Hydropower Facility would generate electrical power, improve the Uncompany Project irrigation system, and enhance revenues of the Uncompany Valley Water Users Association (UVWUA). The project would be funded, built, and operated by the UVWUA and Montrose Partners (Sithe Energy). The project would be constructed under a lease of power privilege using existing features of Reclamation's Uncompany Project. Reclamation issued a final EIS in 1990 for this non-federally funded project. The ROD, which was issued in 1991, provided that construction of the project could not begin 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 Uncompany 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 Uncompahyre River hydroplant. Environmental issues relate to increased flows on the Uncompahyre 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 Park. The National Park Service plans to quantify their reserved water right to help establish a water supply for the Park. In January 2001, the National Park Service filed an application to quantify the right. Both this right and Service recommendations for endangered fish flows call for higher spring flows, with lower flows later in the year. These activities could reduce the potential water supply of the hydropower project. 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. Following several delays, it is planned to resume work on the supplement in 2003.

c. Dominguez Project (Whitewater)

As required by Section 204(I) of the Federal Land Policy and Management Act (P.L. 94-579), Reclamation completed a withdrawal review on lands withdrawn for the Dominguez Project. In December 1988, Reclamation submitted a report to the Bureau of Land Management recommending that its withdrawals for the project, totaling approximately 28,444 acres, be terminated in their entirety.

That recommendation has not yet been processed by the Bureau of Land Management. 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 the Bureau of Land Management will soon begin to clear a large backlog of unprocessed recommendations.

d. Mancos Project

At the request of the Mancos Water Conservancy District, Congress passed P.L. 106 549 (114 Stat. 2743) on December 19, 2000, which authorized the Secretary of the Interior to contract with the Mancos Water Conservancy District to use Mancos Project facilities for impounding, storage, diverting, and carriage of non-project water for irrigation, domestic, municipal, industrial, and any other beneficial purposes. Since the passage of P.L. 106 549, Reclamation has received requests for three contracts for the carriage of 30, 60, and 375 acre-feet of irrigation water annually. These requests have been approved and are currently in place. Modifications have been made to improve the efficiency and reliability of the domestic water line that supplies water to the Mesa Verde National Park, the Town of Mancos, and outlying areas.

Recreation at Jackson Gulch Reservoir is managed by the Colorado Division of Parks and Outdoor Recreation under agreement with the Bureau of Reclamation. An accessibility evaluation of the recreation facilities at Mancos State Park is being conducted and when finished, a determination will be made on what improvements are needed to serve persons with disabilities.

F. INVESTIGATIONS

The Upper Colorado Region Investigations budget for fiscal year 2002 was about \$3.5 million, with approximately 55 percent being directed within the Upper Colorado River Basin. About 17 percent of the General Investigations funds spent in the basin during fiscal year 2002 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 basin-wide salinity control program.

Reclamation initiated a study in 1999 to investigate and compile selenium loading in the Upper Colorado River Basin with fate, transport, and hazard assessments throughout the entire basin, including the Salton Sea. The Colorado River barely exceeds the standard of 2 parts per billion established by many of the states in the lower river basin below Glen Canyon Dam, however, the use of the water for irrigation concentrates this selenium to over 10 ppb in most agricultural drain water in the lower basin. A risk assessment of the potential negative biological affects is being conducted. Reclamation is conducting pilot projects and studies in cooperation with the U.S. Geological Survey and the Department of the Interior's National Irrigation Water Quality Program (NIWQP) to estimate the levels of selenium reduction that could be achieved in conjunction with various types of salinity control projects. The combination of these various studies and pilot projects has produced the following: 1) a selenium Total Maximum Daily Loading (TMDL) plan is being developed for the Gunnison River Basin, Colorado; 2) the NIWQP has proposed legislation to help by-down the costs of salinity control projects with potential substantial selenium reduction; 3) the Colorado River Basin Salinity

Control Forum has formed a selenium sub-committee; and 4) Reclamation is compiling a summary report of all the selenium/salinity studies in the basin, including the risk assessment.

Other ongoing investigations include the Navajo-Gallup Water Supply Project, the San Juan River Basin Investigations Program, the San Juan/Grand County Water Management Study, and Coordinated Canal Operations -Southwestern Wyoming. Reclamation continues to provide assistance to states and Native American tribes, as requested, through its Technical Assistance to States Program and continues to coordinate with other natural resource agencies on critical water resource related problems and issues with funds appropriated through the Environmental and Interagency Coordination account. Funds are also provided in the General Planning Activities account for Reclamation to conduct critical short-term investigation activities not funded by other programs.

1. New Mexico

a. Navajo-Gallup Water Supply Project

Reclamation is providing planning and technical assistance for this project. The project's purpose is to provide municipal and industrial water to the City of Gallup and the Jicarilla and Navajo Nations in New Mexico and the Window Rock area of the Navajo Nation in Arizona. Existing groundwater supplies will be augmented to meet current and future water demands. A preferred alternative has been identified and planning activities should be completed in 2003. A draft Planning Report/Environmental Impact Statement is scheduled for 2003.

b. San Juan River Basin Investigations Program (New Mexico, Colorado, Utah, and Arizona)

Reclamation is collecting data and conducting investigations, in cooperation with numerous other entities, necessary to resolve the many and complex water resource management issues in the San Juan River Basin. The demand for water in the basin exceeds the supply and until critical issues affecting current and future uses are resolved, existing uses are in jeopardy and new development is on hold. The major issues include: (1) settlement and implementation of settlements of water right claims of four Native American tribes, (2) providing instream flows for recovery of endangered fish in the San Juan River. and (3) providing water supplies to meet the needs of the rapid development and population growth that is occurring in the basin. Reclamation is currently using a RiverWare framework hydrological model of the basin to evaluate the overall effects of proposed new depletions on existing uses and the instream flow required for the endangered fish. An effort was initiated in 2002, in cooperation with other managing and interested entities, to inventory and evaluate water related resources in watersheds affected by Reclamation projects. In 2003, appraisal-level studies for rural domestic water supply systems were initiated in cooperation with state, local, and tribal governments, and water conservancy districts. In most of the rural areas in the basin, domestic water is supplied from individual wells, small subdivision systems that use wells and/or surface water, and in some parts of the area, household use is from hauling water from central supplies. The drought of 2002 and lack of precipitation in early 2003 have demonstrated the urgency of resolving the rural water supply issue as more than 1,500 domestic wells have already gone dry.

2. Utah

a. San Juan/Grand County Water Management Study

San Juan County has been in a prolonged drought which began in the early 1990s. For example, in 2002, the county's major watersheds received almost no snow pack and little spring runoff. Reclamation has been working with the County, individual communities, and Utah Navajo Nation Chapters to develop appraisal-level plans to meet: (1) the immediate needs brought on by the drought, and (2) long-term needs to help diversify and stabilize the municipal and industrial supplies. Additionally, Reclamation has been working on small-scale, solar-powered demonstration projects to help bring additional water supplies to remote areas of the Navajo Reservation, which historically have relied on water hauling. In Grand County, a demonstration canal automation project was installed in the Moab area.

3. Wyoming

a. Coordinated Canal Operations B Southwestern Wyoming

Reclamation has been working with the Bridger Valley Water Conservancy District on plans to automate the operation of Meeks Cabin and Stateline Reservoirs, thereby making both facilities more responsive to changing hydrologic and weather conditions. Additionally, Reclamation has been working with the Eden Valley Irrigation and Drainage District to provide recommendations for upgrading water measurement instrumentation.

G. RESERVOIR OPERATIONS 1. 2002 Operations Summary and Reservoir Status

Extremely dry hydrologic conditions were observed in the Colorado River basin in water year 2002. Basinwide precipitation was only 48 percent of average and snowpack accumulations were much below normal levels. As the spring snowmelt season began on April 1, 2002, snowpack levels throughout the Colorado River Basin were generally less than 50 percent of average. The situation was particularly severe in the central and southern portions of the Upper Colorado River Basin. Many reservoirs in the Colorado River Basin recorded record low inflows during 2002. These included Navajo Reservoir, Blue Mesa Reservoir, and Lake Powell. Unregulated⁽

¹⁾ inflow into Lake Powell during the April through July runoff period in 2002 was only 1.12 million acre-feet, or 14 percent of the 30-year average⁽²⁾. Total unregulated inflow into Lake Powell for water year 2002 was only 3.06 million acre-feet, or 25 percent of average. This was the lowest recorded since the closure of Glen Canyon Dam in 1963. The previous low was observed in 1977 when water year unregulated inflow was 3.66 million acre-feet, or 30 percent of average.

Not only was water year 2002 a very low year for runoff in the Colorado River Basin, but it also marked the third consecutive year with below average inflow into Colorado River reservoirs. Reservoir storage continued to decline for the

thirdstraight year. Storage in Lake Powell decreased by 4.67 million acre-feet in 2002. Storage in reservoirs upstream of Lake Powell decreased by approximately 1.06 million acre-feet. In Lower Basin reservoirs, storage decreased by 2.80 million acre-feet. At the beginning of water year 2002, Colorado River total system storage was 76 percent of capacity. Total Colorado River system storage decreased by approximately 8.52 million acre-feet during water year 2002. As of September 30, 2002, total system storage was 64 percent of capacity.

Even though Colorado River reservoir storage has been reduced, during 2002, all deliveries of water to meet valid obligations pursuant to applicable provisions of "The Law of the River" were maintained.

Preliminary Colorado River water delivery accounting data for calendar year (CY) 2002, compiled pursuant to Article V of the Decree, indicated that requests for water deliveries by agricultural users in California during CY 2002 had the potential to exceed the maximum amount of water available under the determinations made in the 2002 Annual Operating Plan (AOP) approved and transmitted on January 14, 2002. In light of the potential for such overuse within the Lower Basin, and after consultation with members of the CRMWG, a supplement to the 2002 AOP was approved on November 22, 2002. The supplement to the 2002 AOP addressed this potential CY 2002 overuse and established appropriate conditions for repayment if Reclamation determines that any overuse occurred in CY 2002 pursuant to final Article V Decree accounting data.

The table below shows the October 1, 2002, reservoir vacant space, live storage, water elevation, percent of capacity, change in storage, and change in water elevation during water year 2002.

2

¹ unregulated inflow adjusts for the effects of operations at upstream reservoirs. It is computed by adding the change in storage, and the evaporation losses from upstream reservoirs to the observed inflow. Unregulated inflow is used because it provides an inflow time series that is not biased by upstream operations, and more closely resembles natural flow conditions.

Inflow statistics throughout this document will be as compared to 30-year averages.

| Reservoir | Vacant Space | Live Storage | Water Elevation | Percent of Capacity | Change in Storage | Change in Elevation |
|------------------|-----------------|-----------------|--------------------|---------------------------|-------------------------|---------------------------|
| | (maf) | (maf) | (feet) | (percent) | (maf) | (feet) |
| Fontenelle | 0.098 | 0.247 | 6,492.8 | 72 | 0.082 | 13.2 |
| Flaming Gorge | 1.074 | 2.675 | 6,011.0 | 71 | -0.279 | -8.3 |
| Blue Mesa | 0.554 | 0.275 | 7,443.1 | 33 | -0.322 | -49.0 |
| Navajo | 0.823 | 0.872 | 6,015.6 | 51 | -0.537 | -49.1 |
| Lake Powell | 9.854 | 14.468 | 3,626.5 | 59 | -4.667 | -38.3 |
| Lake Mead | 8.784 | 17.093 | 1,155.4 | 66 | -2.769 | -22.5 |
| Lake Mohave | 0.233 | 1.577 | 638.5 | 87 | -0.031 | -1.2 |
| Lake Havasu | 0.054 | 0.565 | 447.2 | 91 | -0.001 | -0.1 |
| | | | | | | |
| Totals | 21.474 | 37.772 | | 64 | -8.524 | |

 Table 4

 Reservoir Conditions on October 1, 2002

⁺ From October 1, 2001, to September 30, 2002.

2.2003 Water Supply Assumptions

For 2003 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 probable impacts on project uses and purposes. The magnitude of inflows in each of these three inflow scenarios for 2003 is below the historical upper decile, mean, and lower decile (10 percent exceedance, 50 percent exceedance, and 90 percent exceedance, respectively). The volume of inflow is reduced in each of the three scenarios, due to dry antecedent conditions in the Colorado River basin resulting from three consecutive years of below average precipitation. The National Weather Service's Extended Streamflow Prediction (ESP) model was used to develop inflows for the three scenarios for 2003. ESP modeling showed that even with average temperatures and precipitation in 2003, runoff in the Colorado River Basin is likely to remain below average due to dry antecedent conditions. Most probable inflow for Lake Powell for water year 2003 is 10.1 million acre-feet, or 84 percent of average. The three inflow scenarios for Lake Powell are shown in the table below.

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 2003 inflow and October 1, 2002, reservoir storage conditions were used as input to this model and monthly releases were adjusted until release and storage levels accomplished project purposes.

Table 5 Projected Unregulated Inflow Into Lake Powell for Water Year 2003

| 1 | | | |
|----------------|---------------------|------------------|---------------------|
| Time Period | Probable Maximum | Most Probable | Probable Minimum |
| 10/02 - 12/02 | 1.00 | 0.82 | 0.50 |
| 1/03 - 3/03 | 1.66 | 1.00 | 0.43 |
| 4/03 - 7/03 | 13.00 | 7.23 | 1.55 |
| 8/03 - 9/03 | 1.68 | 1.09 | 0.85 |
| 10/03 - 12/03 | 1.53 | 1.52 | 1.53 |
| WY 2003 | 17.33 | 10.14 | 3.33 |
| CY 2003 | 17.86 | 10.84 | 4.35 |

3. 2003 Reservoir Operations

The regulation of the Colorado River has had effects on downstream aquatic and riparian resources. Controlled releases from dams have modified temperature, sediment load, and flow patterns, resulting in increased productivity of some introduced aquatic resources and the development of economically significant sport fisheries. However, these same releases have detrimental effects on endangered and other native species. Operating strategies designed to protect and enhance downstream aquatic and riparian resources have been established at several locations in the Colorado River basin.

Modifications to planned operations may be made based on changes in forecast conditions. However, due to the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (Upper Colorado Recovery Program), 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 U.S. 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.

Reclamation completed Section 7 consultation with the U.S. Fish and Wildlife Service in April 2002 on current and projected discretionary routine lower Colorado River operations and maintenance activities for a period of up to 3 years. On an annual basis, Reclamation's compliance with environmental commitments related to the April 1997 and 2002 Biological Opinions are reported to the U.S. Fish and Wildlife Service. The most recent report documenting Reclamation's compliance with these commitments is dated April 2002. Reclamation's compliance with additional environmental commitments, related to adoption of the Interim Surplus Guidelines, will continue to be addressed in future annual reports, as appropriate. Reclamation and the U.S. 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 nonfederal and federal parties to participate and address Endangered Species Act (ESA) compliance requirements 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 2002 were well below normal for the third year in a row. The April through July runoff into Fontenelle during water year 2002 was 0.330 million acre-feet, or 38 percent of normal. Inflow peaked at 4,400 cfs on June 3, 2002. Releases in excess of powerplant capacity were not required from Fontenelle Reservoir in 2002. Maximum releases in 2002 were at powerplant capacity (approximately 1500 cfs) from May 8, 2002, to May 15, 2002. Fontenelle Reservoir reached a peak elevation of 6,496.7 feet on August 5, 2002, which was 9.3 feet (2.8 meters) below the crest of the spillway.

Because the most probable inflow of 0.891 million acre-feet for water year 2003 far exceeds Fontenelle's storage capacity of 0.345 million acre-feet, the most probable and maximum probable inflow scenarios require releases during the spring that exceed the capacity of the power plant. It is unlikely that Fontenelle reservoir will not fill during water year 2003. In order to minimize high spring releases, and to maximize downstream resources and power production, the reservoir will most likely be drawn down to the minimum pool elevation of 6,463 feet above sea level by early April 2003, which corresponds to a volume of 0.093 million acre-feet of live storage.

b. Flaming Gorge Reservoir

For the third year in a row, inflows into Flaming Gorge were well below normal during water year 2002. The annual unregulated inflow volume for water year 2002 was 0.529 million acre-feet, or 31 percent of normal. The annual unregulated inflow was only 56 percent of normal in water year 2000 and only 43 percent of normal in water year 2001. Flaming Gorge Reservoir did not fill in water year 2002 and inflow was so low that the reservoir continued to decrease in water surface elevation during the spring and early summer. The water surface elevation of Flaming Gorge Reservoir on September 30, 2002, was 6,011.0 feet above sea level, 29.0 feet from full pool.

A spring peak release of 4,000 cfs was made for a period of 1 week between May 21, 2002, and May 27, 2002, as called for in the 1992 Final Biological Opinion on the Operation of Flaming Gorge Dam. These releases were made through the powerplant and were successfully timed to meet peak flows on the Yampa River.

The Yampa River peaked at approximately 3,700 cfs on May 22, 2002. Flows on the Green River near Jensen, Utah, an important segment of the Green River for endangered fish, peaked at about 7,700 cfs on May 23, 2002.

In September 2000, a final report titled "Flow and Temperature Recommendations for Endangered Fishes in the Green River Downstream of Flaming Gorge Dam" (Flaming Gorge Flow Recommendations) was published by the Upper Colorado River Recovery Program. The report compiled and summarized research conducted on endangered fish in the Green River under the Upper Colorado River Recovery Program and presents flow recommendations for three segments of the Green River. Reclamation is currently conducting a National Environmental Policy Act process to determine the best operational alternative for Flaming Gorge Dam to meet these flow recommendations. Reclamation has developed a river simulation model (using the RiverWare modeling system), which simulates the operation of Flaming Gorge Dam under the Flaming Gorge Flow Recommendations, and under the 1992 Biological Opinion on the Operation of Flaming Gorge (BOFG). These modeled alternatives facilitate the quantification of impacts to the resources at Flaming Gorge Dam and to resources in the Green River below the dam associated with the proposed implementation of the Flaming Gorge Flow Recommendations. A draft Environmental Impact Statement (DEIS) will likely be published in June 2003 while completion of the final EIS and Record of Decision is scheduled to occur in January and February 2004, respectively.

In water year 2003, Flaming Gorge Dam will continue to be operated in accordance with the BOFG. The BOFG calls for high spring releases to occur each year, timed with the peak of the Yampa River, so as to more closely mimic historic Green River flows. Releases from Flaming Gorge Dam, under the most probable scenario, in the winter and early spring months of 2003 will be relatively low (approximately 800 cfs) in order to conserve reservoir storage.

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

Severe drought conditions prevailed in the Gunnison River Basin in 2002. The April through July unregulated runoff into Blue Mesa Reservoir in 2002 was only 0.157 million acre-feet, or 22 percent of average. Water year 2002 unregulated inflow was 0.324 million acre-feet, or 32 percent of average. This inflow was the lowest ever recorded since closure of Blue Mesa Dam in 1969. The low inflow caused Blue Mesa Reservoir to decrease in storage in water year 2002 by 0.322 million acre-feet. Storage in Blue Mesa Reservoir on September 30, 2002, was 0.275 million acre-feet, or 33 percent of capacity. Water year 2002 powerplant bypasses were approximately 0.027 million acre-feet at Crystal, all of which was the result of annual system maintenance.

On August 16, 1995, Memorandum of Agreement (MOA) 95-07-40-R1760 was signed by Reclamation, the U.S. Fish and Wildlife Service and the Colorado Water Conservation Board. The purpose of the MOA was to provide water to the Redlands Fish Ladder and assure at least 300 cfs of flow in the 2-mile reach of the Gunnison River between the Redlands Fish Ladder and the confluence of the Gunnison and Colorado Rivers (2-mile reach). This MOA was extended for an additional five years on June 30, 2000. A key provision of the MOA requires that the parties adopt a plan to share water shortages in dry years, when total storage at Blue Mesa Reservoir is projected to drop below 0.4 million acre-feet by the end of the calendar year. Accordingly, a plan to share or allocate physical water shortages due to the extremely dry hydrological conditions occurring in the Gunnison River Basin was developed for water year 2002 and implemented among the MOA parties, along with the Colorado River Water Conservation District (CRWCD), and Redlands Water and Power Company (Redlands).

Specifically, the shared shortage plan for water year 2002 recognized that Redlands would not likely have water available to satisfy their senior rights and that the U.S. Fish and Wildlife Service would have insufficient water available to meet fish passage needs in the 2-mile reach of the Gunnison River downstream of the Redlands Fish Ladder. In normal years, Redlands can place its senior call for 750 cfs and the U.S. Fish and Wildlife Service relies upon releases from the Aspinall Unit to provide fish passage flows in the 2-mile reach of at least 300 cfs during the irrigation season. For water year 2002, it was agreed that Redlands would voluntarily reduce its senior river call and the U.S. Fish and Wildlife Service would reduce the 2-mile reach flow requests for the period June through October.
In exchange, Aspinall operations were modified to provide at least 600 cfs to Redlands and the 2-mile reach flows were maintained at reduced rates as follows:

| June 2002 | 200 cfs |
|----------------|---------|
| July 2002 | 250 cfs |
| August 2002 | 250 cfs |
| September 2002 | 100 cfs |
| October 2002 | 0 cfs |
| | |

Additionally, the CRWCD entered into a contract with Redlands to compensate Redlands for lost hydropower revenues due to the reduced water diversions, and Xcel Energy Company made temporary modifications to Redlands hydropower contract to make the compensation costs reasonable.

In water year 2002, the Aspinall Unit was operated in cooperation with this shared shortage agreement to provide benefits to water users and fish and wildlife, including endangered fish, while minimizing the draw on unit storage to a reasonable extent. As was formally agreed by all parties, pursuant to the aforementioned agreements, water year 2002 operations were undertaken to lessen the impacts of the severe drought conditions to a reasonable extent, and do not establish or set any precedent that such operations will continue or occur again in the future.

In January 2000, a draft report titled "Flow Recommendations to Benefit Endangered Fishes in the Colorado and Gunnison Rivers" was submitted to the Upper Colorado River Recovery Program - Biology Committee. The report compiles and summarizes the results of research conducted on endangered fish in the Gunnison River and Colorado River under the Upper Colorado River Recovery Program. This report presents flow recommendations for two different river reaches. One for the Lower Gunnison River between Delta and Grand Junction, Colorado and the other for the Colorado River downstream of the Gunnison River confluence. Based upon comments and objections by numerous parties, these flow recommendations are undergoing review. It is anticipated that revisions to the draft report will be completed in late 2002 or early 2003. Following the issuance of final flow recommendations, Reclamation intends to initiate a National Environmental Policy Act compliance process to determine the impacts of the flow recommendations, or a reasonable alternative to them, on Aspinall Unit operations and on other resources associated with the Gunnison River.

On January 17, 2001, the National Park Service, through the Department of Justice, filed an application to quantify the federal reserved water right decreed to the Black Canyon of the Gunnison National Monument. The water right is for flows in the Gunnison River through the Black Canyon of the Gunnison National Park downstream of the Gunnison Tunnel. Reclamation is continuing to work with the National Park Service and Western Area Power Administration, using a daily time step computer model, to evaluate the effects of a reserved water right on Aspinall operations. The model will also be used in conjunction with the State of Colorado's model to analyze the effects of the reserved right and the flow recommendations for endangered fish, once the flow recommendations have been completed.

For water year 2003, the Aspinall Unit will be operated in accordance with Colorado River Storage Project Act to conserve storage while meeting downstream delivery requirements. Under normal conditions, the minimum release objectives of the Aspinall Unit are to meet the delivery requirements of the Uncompany Valley Project, maintain a flow of 300 cfs in the Gunnison River through the Black Canyon of the Gunnison National Park, and maintain a minimum flow of 300 cfs in the 2-mile reach below the Redlands Diversion Dam during the summer months. In dry years, the 300 cfs for the 2-mile reach can be reduced as agreed to by the MOA parties.

In extremely dry years, the 300 cfs through the Black Canyon can be reduced to as little as 200 cfs, although other downstream requirements such as senior water rights could require more flow. Under the most probable inflow conditions, flows through the Black Canyon of the Gunnison National Park will be above the minimum release objective during the summer months. To protect both the blue ribbon trout fishery in the Black Canyon and recreational interests, releases during 2003 will be planned to minimize large fluctuations in the daily and monthly flows in the Gunnison River below the Gunnison Tunnel diversion.

Under the minimum probable and most probable inflow scenarios, Blue Mesa Reservoir is not expected to fill in the summer of 2003. With most probable inflow, Blue Mesa Reservoir will fill to within about 12 feet of full pool in July 2003.

d. Navajo Reservoir

Runoff in the San Juan River basin in water year 2002 was the driest on record. April through July unregulated inflow to Navajo Reservoir in water year 1999, 2000, and 2001 was 81, 44, and 107 percent of average, respectively. The April through July unregulated inflow into Navajo Reservoir in water year 2002 was 47,000 acre-feet, or 4 percent of average. Water year 2002 unregulated inflow was 117,000 acre-feet, or 10 percent of average. Navajo Reservoir did not store any water in 2002. The peak elevation occurred October 1, 2001, at 6,064.63 feet and the minimum elevation occurred September 30, 2002, at 6,015.62 feet.

The final report titled "Flow Recommendations for the San Juan River," which outlines flow recommendations for the San Juan River below Navajo Dam, was completed by the Biology Committee of the San Juan River Basin Recovery Implementation Program in May 1999. The report synthesizes research conducted on endangered fish in the San Juan River over a seven-year period. The purpose of the report is to provide flow recommendations for the San Juan River that promote the recovery of the endangered Colorado pikeminnow and razorback sucker, maintain important habitat for these two species, as well as the other native species, and provide information for the evaluation of continued water development potential in the basin. It is anticipated that implementation of the flow recommendations, or reasonable alternative to it, will allow for a non-jeopardy biological opinion to be issued by the U.S. Fish and Wildlife Service for the operations of Navajo Dam.

No spring release was made in 2002 as prescribed by the flow recommendations. Minimum releases were maintained at 500 cfs from November 2001 to March 2002, at which time releases were increased in an attempt to maintain the target base flow of the flow recommendations. Minimum releases did not return to 500 cfs again until September 2002.

In water year 2003, Navajo Reservoir is not expected to fill under the most probable inflow scenario. Under the minimum probable inflow scenario, shortages are expected to occur for contract water users. Minimum releases from the reservoir will be held near 350 cfs through April and at 500 cfs during May through September.

e. Lake Powell

Lake Powell began water year 2002 with 20.9 million acre-feet of storage (86 percent of capacity). From October 2001 through January 2002, releases from Glen Canyon Dam were scheduled to achieve equalization of storage between Lake Mead and Lake Powell by the end of water year 2002 in accordance with Article II(3) of the Operating Criteria. Inflow projections were reduced in February 2002 with forecasted April through July unregulated inflow to Lake Powell only 7.7 million acre-feet, or 59 percent of average.

This forecast was sufficiently low that storage equalization no longer became the governing criterion in the 2002 operation. From February, 2002 through the end of the water year, releases were scheduled to maintain the minimum release objective from Lake Powell of 8.23 million acre-feet for water year 2002 in accordance with Article II(2) of the Operating Criteria.

April through July unregulated inflow into Lake Powell in water year 2002 was 1.12 million acre-feet, or 14 percent of average. Water year 2002 unregulated inflow was 3.06 million acre-feet, or 25 percent of average. Unregulated inflow in 2002 was the lowest recorded since the closure of Glen Canyon Dam. The previous low occurred in 1977.

Lake Powell normally increases in elevation during the April through July runoff period. Inflow was so low in the spring of 2002, however, that reservoir storage in Lake Powell continued to decline throughout the runoff period. The elevation of Lake Powell on September 30, 2002 was 3,626.5 feet (73.5 feet from full). Lake Powell ended water year 2002 with 14.5 million acre-feet of storage (59 percent of capacity).

On April 24, 2002, members of the Glen Canyon Adaptive Management Work Group recommended to the Secretary that a two-year experimental flow test be made from Glen Canyon Dam beginning in water year 2003. The recommendation addressed the decline of two key resources in the Grand Canyon: sediment and population viability of endangered humpback chub.

Reclamation, the National Park Service, and the United States Geological Survey have jointly prepared an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA) to document the impacts of these proposed experimental flows. This EA incorporates a Biological Assessment for the U.S. Fish and Wildlife Service under the Endangered Species Act (ESA). The proposed experimental flows could be implemented in 2003 depending upon the outcome of the NEPA process, and ESA consultations. The experimental flows would not alter the total volume of water to be released from Lake Powell in water year 2003.

During water year 2003, the minimum release objective of 8.23 million acre-feet will be made under the most probable and minimum probable inflow conditions. Above average inflow to Lake Powell in 2003 may require that releases greater then 8.23 million acre-feet be made to equalize the storage between Lakes Powell and Mead. Under the probable maximum inflow scenario, approximately 11.0 million acre-feet will be released.

Because of less than full storage conditions in Lake Powell, resulting from three consecutive years of below normal runoff, releases for dam safety purposes are highly unlikely in 2003. If implemented, releases greater than powerplant capacity would be made consistent with the 1956 Colorado River Storage Project Act, the 1968 Colorado River Basin Project Act, and the 1992 Grand Canyon Protection Act. Reservoir releases in excess of powerplant capacity required for dam safety purposes during high reservoir conditions may be used to accomplish the objectives of the Beach/Habitat Building Flow according to the terms contained in the Glen Canyon Dam ROD, and as published in the Glen Canyon Dam Operating Criteria (62 Federal Register 9447, March 3, 1997).

Daily and hourly releases in 2003 will be made according to the parameters of the ROD for the Glen Canyon Dam Final Environmental Impact Statement (GCDFEIS) preferred alternative, and the Glen Canyon Dam Operating Criteria, as shown in Table 6. Exceptions to these parameters may be made during power system emergencies, or for purposes of humanitarian search and rescue. Experimental flows, if implemented in 2003, may also require that releases exceed the parameters of the Glen Canyon Dam Operating Criteria during the winter months of 2003.

Releases from Lake Powell in water year 2003 will continue to reflect consideration of the uses and purposes identified in the authorizing legislation for Glen Canyon Dam. Powerplant releases and Beach/Habitat Building Flows will reflect criteria based on the findings, conclusions, and recommendations made in the ROD for the GCDFEIS pursuant to the Grand Canyon Protection Act of 1992, and any additional NEPA documentation regarding the April 24, 2002 AMWG experimental flow proposal.

The Secretary is considering information submitted to the Department of the Interior by the Colorado River Basin States (65 Federal Register 48537, August 8, 2000) whereby 602(a) storage requirements determined in accordance with Article II (1) of the Operating Criteria would utilize a value of not less than 14.85 million acre-feet (elevation 3,630 feet) for Lake Powell through the year 2016. The Secretary, through Reclamation, may initiate a NEPA process in 2003 to determine the impacts of the Basin States proposed 602(a) storage.

 Table 6

 Glen Canyon Dam Release Restrictions

 (Glen Canyon Dam Operating Criteria)

| Parameter | (cfs) | (cms) | <u>Conditions</u> |
|------------------------|---------------|---------------|-----------------------|
| Maximum flow (1) | 25,000 | 708.0 | |
| Minimum flow | 5,000 | 141.6 | Nighttime |
| | 8,000 | 226.6 | 7:00 am to 7:00 pm |
| Ramp rates | | | |
| Ascending | 4,000 | 113.3 | Per hour |
| Descending | 1,500 | 42.5 | Per hour |
| Daily fluctuations (2) | 5,000 / 8,000 | 141.6 / 226.6 | |

(1) May be exceeded during beach/habitat building flows, habitat maintenance flows, or when necessary to manage above average hydrologic conditions.

(2) Daily fluctuations limit is 5,000 cfs for months with release volumes less than 0.600 million acre-feet; 6,000 cfs for monthly release volumes of 0.600 to 0.800 million acre-feet; and 8,000 cfs for monthly volumes over 0.800 million acre-feet.

H. FISH AND WILDLIFE

The Recovery Program is in its 15th year of implementation. The Recovery Program is a cooperative effort among the states of Colorado, Utah, and Wyoming; representatives from the environmental and water user communities; the Colorado River Energy Distributors Association, Western Area Power Administration, Service, National Park Service, and Bureau of Reclamation. The intent of the program is to recover the endangered Colorado River fish species while the states continue to develop their Colorado River Compact entitlements. The U.S. Fish and Wildlife Service relies upon Recovery Program accomplishments to serve as the "reasonable and prudent alternative" (RPA) for depletion impacts when issuing biological opinions on existing and new water projects requiring Endangered Species Act consultations.

Since its inception in 1988, the Recovery Program has served as the RPA in the issuance of biological opinions covering projects depleting over 1.7 million acre-feet.

The Recovery Program is one of the oldest basinwide recovery efforts and exemplifies successful cooperation among diverse stakeholders to recover endangered species while developing water and power projects. The Recovery Program provides for collaborative problem solving and proactive efforts that reduce costly litigation. Due to its success, the program has served as a model for other similar programs in the West including the SJRBRIP on the San Juan River in Colorado, New Mexico, and Utah, the Middle Rio Grande Endangered Species Collaborative Program on the Rio Grande in New Mexico, and the soon to be formalized June Sucker Recovery Implementation Program on the Provo River/Utah Lake system in Utah. The Recovery Program also served as a model for the Multi-Species Conservation Program for the lower Colorado River.

In fiscal year 2002, research projects funded for the Recovery Program totaled almost \$4.7 million. Also in fiscal year 2002, capital projects totaling almost \$8.3 million were initiated to accomplish physical habitat improvements. Major Recovery Program accomplishments included (1) construction of canal system improvements to the Grand Valley Project in order to increase irrigation system efficiency and conserve water to improve river flows for the benefit of endangered fish species, (2) construction of a screen to prevent entrainment of native fish into a canal owned by the Grand Valley Irrigation Company, (3) production of draft recovery goals which define the terms and conditions for down listing and de-listing four Colorado River fishes (Notice of Availability published in the *Federal Register* on September 10, 2001), and (4) expansion of studies designed to estimate the population size of Colorado pikeminnow and humpback chub into the lower and middle Green River.

The SJRBRIP is ongoing in the San Juan River Basin with Colorado, New Mexico, four Indian tribes, the Bureau of Land Management, Reclamation, the U.S. Fish and Wildlife Service, and the Bureau of Indian Affairs participating. The goal of the SJRBRIP 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. In fiscal year 2002, research projects funded for the SJRBRIP totaled \$1.8 million and capital project construction funding totaled about \$832,000. Capital funds were used to construct a fish passage structure at a weir owned by the Public Service Company of New Mexico. Flow recommendations have been developed for the endangered and native fish communities in the San Juan River in New Mexico, Colorado, and Utah. The flow recommendations are a major milestone of the SJRBRIP. Mimicry of the natural hydrograph is the foundation of the flow recommendations. An EIS is being prepared to analyze the effects of implementing the proposed flow recommendations.

To date, capital project construction and acquisition of land for both the Upper Colorado and San Juan River Basin Recovery Implementation Programs have been funded primarily through appropriated non-reimbursable construction dollars. In October 2000, Congress passed legislation (P.L. 106-392) that established a cost ceiling of \$80 million. The legislation authorizes expenditures of up to \$46 million of appropriated nonreimbursable construction funds, \$17 million of state cost share contributions, and \$17 million of CRSP reimbursable hydropower revenues for capital projects. The legislation also authorizes expenditures of up to \$6 million of non-reimbursable CRSP hydropower revenues annually to support ongoing research, monitoring, and operation and maintenance activities for capital projects.

APPROPRIATIONS OF FUNDS BY THE UNITED STATES CONGRESS

The funds appropriated for fiscal year 2002 for construction of the CRSP, participating projects, and recreational and fish and wildlife activities totaled \$35,851,000. Recreational and fish and wildlife activities received a total of \$21,202,000.

In fiscal year 2002, construction funding for the Colorado River Basin Salinity Control Program totaled \$10.2 million.

Table 7, page _____, 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 8, page _____, 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, CRSP 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 7 Colorado River Storage Project Fiscal Year 2003 Program

| Project and State | Budget Request | House Allowance | Senate Allowance | P.L. Feb. 20, 2003 |
|--|---|---|---|---|
| Construction Program CRSP Participating Projects: Animas-La Plata -Colorado | \$33,000,000 | \$38,000,000 | \$35,000,000 | \$35,000,000 |
| TOTAL - Upper Colorado River Basin Fund | <u>\$33,000,000</u> | <u>\$38,000,000</u> | \$35,000,000 | <u>\$35,000,000</u> |
| Recreational and Fish and Wildlife Facilities: Recreational Facilities Fish and Wildlife Facilities | 2,830,000 <u>7,629,000</u> \$10,459,000 | 2,830,000 <u>7,629,000</u> \$10,459,000 | 2,830,000 <u>7,629,000</u> \$10,459,000 | 2,830,000 <u>7,629,000</u> \$10,459,000 |
| TOTAL - Colorado River Storage Project | <u>\$43,459,000</u> | <u>\$48,459,000</u> | <u>\$45,459,000</u> | <u>\$45,459,000</u> |

Table 8 Appropriations Approved by Congress for the Colorado River Storage Project and Participating Projects

| Year | Amount |
|---|------------|
| 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 | 08,576,000 |
| 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) | 15 500 000 |
| 4077 | 15,562,000 |
| 1977 | 55,200,000 |
| 19/8 | 67,051,000 |
| 19/9 | 76,799,000 |
| 1980 | 81,502,000 |
| 1987 | 25,686,000 |
| 1002 | 30,003,000 |
| 1094 | 52,942,000 |
| 1025 | 63 603 000 |
| 1986 | 97 412 000 |
| 1987 | 10 929 000 |
| 1988 | 43 143 000 |
| 1989 | 74 005 000 |
| 1990 1 | 63 653 000 |
| 1991 | 45 063 000 |
| 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 | 17 565.000 |
| 1999 | 4 655 000 |
| 2000 | 2 000 000 |
| 2001 | 2,000,000 |
| 2002 | 16.000.000 |
| 2003 | |
| TOTAL\$3.1 | 29.636.310 |
| ······································ | |
| Plus: Navajo Indian Irrigation Project Appropriations | 17,843,404 |
| (funds transferred to Reclamation only) | |
| | |

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. A d d i t i o n a l i n f o r m a t i o n m a y b e o b t a i n e d a t www.uc.usbr.gov/progact/salinity/index.html.

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 Environmental Protection Agency 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 the Bureau of Land Management to 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 increased Reclamation's appropriation ceiling by \$75,000,000 to continue its ongoing efforts to control salinity.

The Federal Agriculture Improvement and Reform Act of 1996 (P.L. 104-127) was signed into law 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 Funds 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.

P.L. 106-459 was signed into law on November 7, 2000. This law amended the Colorado River Basin Salinity Control Act to increase the appropriation ceiling for Reclamation's Basinwide Salinity Program by \$100 million, bringing the total to \$175 million. With 30 percent cost sharing from the Colorado River Basin Funds, the total amount of funds available for the Basin Wide Salinity Program is \$250 million. This appropriation authority allowed Reclamation to request new proposals in 2001 under its Basinwide Salinity Control Program.

To date, a total of 26 project contracts have been awarded totaling over \$125 million. Reclamation is planning on soliciting new proposals in 2003.

P.L. 106-459 also requires the Bureau of Land Management to prepare a report to Congress on the status of implementation of its comprehensive program for minimizing salt contributions to the Colorado River from lands administered by the Bureau of Land Management as directed by section 203(b)(3) of P.L. 98-569 (1984).

A. PROGRAM STATUS

1. Bureau of Reclamation and U. S. Department of Agriculture Salinity Control Program

Reclamation's Basinwide Salinity Program is currently being implemented under the authorities provided in 1995 by PL 104-20. This program typically awards projects to various non-federal entities through a competitive Request for Proposal process. Projects are ranked based on cost effectiveness and performance risk factors by a committee chaired by the program manager along with representatives from the Salinity Forum and Reclamation area offices. Individual projects are constructed by local entities thru construction cooperative agreements with Reclamation area offices in Provo and Grand Junction. Solicitations and awards completed by Reclamation in 1996, 1997, and 1998, consumed the available appropriation ceiling of \$75 million authorized by Congress in P.L. 104-20 to test the new program. Investigation, operation, and maintenance funding levels remain at nearly \$5 million per year. The increase in appropriation authority provided by P.L. 106-459 allowed Reclamation to request new proposals in 2001. To date, a total of 26 project contracts have been awarded totaling over \$125 million. Reclamation is planning on soliciting new proposals in 2003.

The USDA's Environmental Quality Incentives Program, that currently provides the vehicle for 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 2002, a total appropriation of about \$9.7 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. The allocation for fiscal year 2003 is expected to be approximately \$17 million. This amount will greatly accelerate salinity control measures.

a. Grand Valley Unit, Colorado B Implementation has been underway on this unit since 1979. The application of salinity control and wildlife habitat replacement practices continues. Reclamation has completed its planned project to line and pipe major portions of the irrigation delivery system. Under the USDA program, farmers continue to install underground pipelines, gated pipe, concrete-lined ditches, land leveling, and a variety of other practices.

b. Lower Gunnison Basin Unit, Colorado B 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. Reclamation has installed livestock watering systems to eliminate canal and lateral use during the winter months. Under its new basinwide salinity control authorities and the National Irrigation Water Quality Program, Reclamation has lined a small portion of the irrigation delivery system to test its effectiveness in concurrently controlling salinity and selenium. Early test results show that salinity improvements also control selenium loading. The first center pivot sprinkler is being installed to serve as a demonstration for future systems in the Gunnison Basin.

c. McElmo Creek Unit, Colorado B 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 goals. Reclamation's salinity control activities were combined into the construction of the Dolores Project that is complete.

d. Uinta Basin Unit, Utah B Implementation of the USDA on-farm portion of this unit started in1980. The major practices installed are sprinkler irrigation systems, improved surface systems, underground pipelines, and gated pipe. USDA 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. Starting in 1997, Reclamation's Basinwide Program has been replacing earthen canals and laterals with pipelines to provide gravity pressure for on-farm sprinkler systems. Landowner participation has exceeded expectations.

e. Big Sandy River Unit, Wyoming B USDA implementation has been underway on this unit since 1988. The application of salinity reduction and wildlife habitat replacement practices is nearing completion. In this area, farmers are converting from surface flood irrigation to primarily low-pressure center pivot irrigation systems for salinity control. Studies in 2003 and beyond will investigate bringing the entire project under gravity-powered sprinkler systems.

f. Price-San Rafael Unit, Utah B The ROD was issued in April 1997 for this project. Reclamation and the USDA began work in the project area in fiscal year 1998. In this area, a large number of groups have replaced earthen laterals with pipelines to provide gravity pressure for on-farm sprinkler systems. Reclamation has also installed livestock watering systems to eliminate canal and lateral seepage during the winter months.

g. San Juan River Unit, New Mexico B The USDA has completed salinity investigations 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 that ultimately flows into the Colorado River. No further progress was made on any USDA 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. h. Hammond Project, New Mexico B The Hammond Project was authorized as one of the initial participating projects of the CRSP and was constructed in the early 1960s. The project is located in northwestern New Mexico along the southern banks of the San Juan River opposite the towns of Blanco, Bloomfield, and Farmington, New Mexico. The Hammond Conservancy District, under a cooperative agreement with the Bureau of Reclamation, has constructed the Hammond Salinity Project under the authority of the Basinwide Program. This project has concrete lined and piped approximately 26 miles of the irrigation delivery system in the project area. The majority of the work has been completed. It is estimated that the lining will help remove at least 27,700 tons to as much as 68,560 tons of salt from the San Juan River.

2. Bureau of Land Management Salinity Control Program

The Bureau of Land Management remains committed to its role in reducing the contribution of salts to the Colorado River system from public lands. As in past years, the agency has undertaken this responsibility through the multitude of individual management decisions that are made within each Bureau of Land Management 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 off-road 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. The Bureau of Land Management hopes to develop better mechanisms to quantify the reduction in salt loading associated with many of these land-use decisions and activities.

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 the 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.

APPENDIX A

UPPER COLORADO RIVER COMMISSION APPENDICES FINANCIAL STATEMENTS AND ADDITIONAL INFORMATION

JUNE 30, 2002

UPPER COLORADO RIVER COMMISSION

ANNUAL FINANCIAL REPORT

June 30, 2002

Table of Contents

| F | 'age |
|---|------|
| Independent Auditors' Report | 80 |
| Combined Balance Sheet | .83 |
| General Fund Statement of Revenues, Expenditures and Changes in Fund Balance-Budget to Actual | 84 |
| Notes to Financial Statements | 86 |
| Supplemental Schedule of Cash Receipts and Disbursements-General Fund | 88 |
| Detail of Personal Services and Current Operating Expenditures - Budget to Actual | 89 |

Ulrich & Associates, PC

Certified Public Accountants

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, 2002. 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 auditing standards generally accepted in the United States of America. 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, 2002, and the results of its operations and changes in fund balance for the year then ended in conformity with accounting principles generally accepted in the United States of America.

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.

Which & Associates P.C.

August 21, 2002

s of Utah Association of CPA's | American Institute of CPA's

Charles E. Ulrich, CPA 🕴 Michael E. Ulrich, CPA Cathle Hurst, CPA 1 Neal K. Steadman 1 Clark F. Ulrich, Financial Advisor* unities and Lesiment Advisory Services offered through Securian Financial Services (Fr. 1999 - 2566 Michion Ave , Upden, Ut 84401 - 601-299 5469 - United & Associates, PC is independently owned and operated

81

4991 South Harrison | Ogden, Utah 84403 Tel] 801.627.2100 | Fax] 801.475.6548

UPPER COLORADO RIVER COMMISSION Combined Balance Sheet June 30, 2002

With Comparative Totals for June 30, 2001

| | Governmental | | | Tot | als |
|---------------------------|-------------------|----------------|---------------|-------------------|----------------|
| | Fund Type | Account Group | | (Memorandum Only) | |
| | , | General | General | | |
| | | Fixed | Long-Term | | |
| | General | Assets | Debt | 2002 | 2001 |
| ASSETS | | | | | |
| Petty cash | \$ 25 | - | - | 25 | 25 |
| Cash in bank | 12,805 | - | - | 12.805 | 6.322 |
| Utah public treasurers' | | | | , | -, |
| investment pool | 220,413 | - | - | 220,413 | 277,816 |
| Property and equipment: | | | | | |
| Land and land improveme | nts - | 26.366 | - | 26.366 | 26.366 |
| Building | - | 56,919 | - | 56,919 | 56,919 |
| Furniture and fixtures | - | 38,775 | _ | 38 775 | 38 775 |
| Engineering equipment | - | 3 411 | _ | 1 411 | 1 411 |
| Upper colorado river | | 1,711 | - | 1,411 | 1,411 |
| basin relief model | - | 5,938 | - | 5,938 | 5,938 |
| Amount to be provided | | • | | -, | -, |
| for payment of compensat | ed | | | | |
| absences | | · . | 23 999 | 23 999 | 21 397 |
| | | | <u> </u> | | |
| Total assets | \$ <u>233,243</u> | <u>129,409</u> | <u>23,999</u> | <u>386,651</u> | <u>434,969</u> |
| LIABILITIES AND FUND BOUI | TY | | | | - |
| Lizbilities. | | | | | |
| highlicies: | · · · · · · | | | | |
| Accounts payable | \$ 1,717 | - | - | 1,717 | 911 |
| Prepaid assessments | 2,010 | - | - | 2,010 | 35,600 |
| Obligation for | | | | | |
| compensated absences | 1,492 | | <u>23,999</u> | 25,491 | 22,889 |
| Total liabilities | 5,219 | | 23,999 | 29,218 | 59,400 |
| | | | | | |
| Fund equity: | | | | | |
| Investment in general | | | | | |
| fixed assets | - | 129.409 | - | 129.409 | 129.409 |
| Fund balance | 228.024 | - | - | 228 024 | 246 160 |
| | | <u> </u> | | 2201021 | 2301490 |
| Total fund equity | 228.024 | 129,409 | - | 357.433 | 375.569 |
| | | | | | 2121222 |
| Total liabilities an | đ | | | | |
| fund equity | \$ 233,243 | 129.409 | 21 397 | 386 657 | 434 969 |
| | + <u></u> | <u>کھٹ کتت</u> | <u></u> | | <u></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, 2002

Newspaper 1

| _ | _Budget_ | <u>Actual</u> | (Unfavorable) Variance |
|---|--|--|----------------------------------|
| Revenues: Assessments Interest Other | \$ 298,600 - | 298,600 9,596 1,200 | 9,596 <u>1,200</u> |
| Total revenues | <u>298,600</u> | 309,396 | 10,796 |
| Expenditures: Personal services Travel Current operating expenditures Capital outlay Contingencies | 278,700 14,500 24,275 . 700 10,625 | 278,746 16,239 21,231 684 10,625 | (46) (1,739) 3,044 16 |
| Total expenses | <u>328,800</u> | 327,525 | 1,275 |
| Excess of revenues over (under) expenditures | (30,200) | (18,129) | 12,071 |
| Fund balance, June 30, 2001 | 246,153 | <u>246,153</u> | |
| Fund balance, June 30, 2002 | \$ <u>215,953</u> | 228,024 | 12,071 |

UPPER COLORADO RIVER COMMISSION Notes to Financial Statements June 30, 2002

(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.

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.

UPPER COLORADO RIVER COMMISSION Notes to Financial Statements - Continued June 30, 2002

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

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.

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.

UPPER COLORADO RIVER COMMISSION Notes to Financial Statements - Continued June 30, 2002

(2) CASH AND CASH EQUIVALENTS

The Commissioners have authorized the Commission to deposit funds in demand accounts at First Security Bank and deposit funds with the Utah Public Treasurers' Investment Pool.

Cash in bank consisted of the following at June 30, 2002:

| Checking Payroll Account | | \$ 9,805 _ <u>3,000</u> |
|-----------------------------|------------|----------------------------|
| | | \$ <u>12,805</u> |
| | _Cost | Fair _Value_ |
| Investment Pool | \$ 220,413 | \$ 220,413 |

At year end, the carrying amount of the Commission's cash deposits was \$12,805 and the balance per the bank statements was \$21,619. All deposits are fully insured. The public treasurers fund is a state pooled investment account and bears market risk like any investment.

(3) CHANGES IN INVESTMENT IN GENERAL FIXED ASSETS

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

| | - | Fixed Assets | | Retirements | Fixed Assets |
|---|----|-----------------|-----------|-------------|-----------------|
| | _ | 2001 | Additions | | 2002 |
| Land and Land improve- | | | | | |
| ments | \$ | 26,366 | - | - | 26,366 |
| Building | | 56,919 | - | - | 56,919 |
| Furniture and fixtures | | 38,774 | - | - | 38,774 |
| Engineering equipment Upper Colorado River | | 1,411 | - | - | 1,411 |
| Basin relief model | | 5,938 | | | 5,938 |
| | \$ | 129,408 | | | 129,408 |

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

Year ended June 30, 2002

| Cash at June 30, 2001 | | \$ 284,163 |
|---|----------------------------------|--------------------|
| Cash receipts: Assessments Interest on time deposits Waternews subscriptions | 265,010 9,596 <u>1,200</u> | <u>275,806</u> |
| | | 559,969 |
| Cash disbursements: | | |
| Personal services | 278.746 | |
| Travel | 15,434 | |
| Current operating expenditures | 21,231 | |
| Capital outlay | 684 | |
| Contingency | 10,625 | (<u>326,720</u>) |
| Cash at June 30, 2002 | | \$ 233,249 |

87

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UPPER COLORADO RIVER COMMISSION Detail of Personal Services and Current Operating Expenditures - Budget and Actual

Year ended June 30, 2002

| | Budact | Notreal | Favorable (Unfavorable) |
|---|---|---|--------------------------------------|
| | Budget | Actual | variance |
| Summary of Personal Services With Budget Comparisons | | | |
| Executive director Administrative secretary Legal salary Engineering salary Social security Pension fund contributions Employee medical insurance Janitorial | \$ 99,000 17,640 64,950 41,950 16,235 22,805 15,160 <u>960</u> | 99,000 17,640 64,950 41,950 16,039 22,904 15,363 900 | - - - (99) (203) 60 |
| | 273,700 | <u>278,746</u> | (<u>46</u>) |
| Summary of Current Operating Expenditures with Budget Total Comparison | | | |
| Accounting and auditing Telephone Insurance Printing Office supplies, postage and printing Library Meetings, including reporter Utilities Building repair and maintenance Memberships and meeting registrations | | 3,120 1,634 2,159 1,672 1,214 5,205 619 3,343 1,675 | |
| | * * \$ <u>24,275</u> | <u>21,231</u> | 3,044 |

* * 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, 2004

BUDGET UPPER COLORADO RIVER COMMISSION Fiscal Year Ending June 30, 2004

| | As Approved* <u>06/04/2003</u> |
|--------------------------|-----------------------------------|
| PERSONAL SERVICES | |
| Administrative Salaries | |
| Executive Director | \$90,000 |
| Administrative Secretary | 21,950 |
| Professional Services | |
| Legal Counsel | 67,200 |
| Staff Engineer | 43,500 |
| Janitor | 1,000 |
| Pension Trust | 23,000 |
| Social Security | 17,025 |
| Health Insurance | <u>27,600</u> \$291,000 |
| | Ψ271,000 |
| TRAVEL | 18,000 |
| CURRENT EXPENSES | 22,725 |
| CAPITAL OUTLAY | 1,000 |
| CONTINGENCIES | 5,000 |
| | <u>\$338,500</u> |

2004 STATES ASSESSMENTS

| Colorado | 51.75% | \$165,550 |
|------------|--------|-----------|
| New Mexico | 11.25% | 35,990 |
| Utah | 23.00% | 73,575 |
| Wyoming | 14.00% | 44,785 |

Appendix C

Transmountain Diversions

Upper Colorado River Basin

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TRANSMOUNTAIN DIVERSIONS FROM COLORADO RIVER BASIN IN UTAH 1991-2002

| | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 10 YEAR AVERAGE |
|---|----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------------------|
| TO GREAT BASIN Fairview Tunnel | 3,460 | 1,525 | 4,474 | 2,049 | 2,445 | 2,830 | 2,009 | 1,985 | 1,617 | 1,844 | 1,959 | 1,182 | 2,239 |
| Ephraim Tunnel | 2,751 | 1,808 | 4,007 | 1,004 | 2,629 | 2,132 | 3,399 | 2,395 | 2,444 | 1,648 | 3,049 | 2,807 | 2,551 |
| Spring City Tunnel | 2,149 | 1,632 | 3,391 | 1,334 | 2,670 | 2,824 | 2,571 | 1,519 | 798 | 1,066 | 1,819 | 1,486 | 1,948 |
| Central Utah Project, Bonneville Unit* | 30,590 | 63,975 | 49,243 | 18,587 | 11,933 | 11,891 | 12,385 | 5,006 | 16,863 | 3,707 | 3,954 | 46,889 | 18,046 |
| Hobble Creek Ditch | 552 | 369 | 1,051 | 694 | 825 | 590 | 972 | na | 740 | 0 | 194 | 0 | 507 |
| Strawberry-Willow Creek Ditch | 1,342 | 2,041 | 2,171 | 962 | 953 | 1,379 | 1,706 | 1,554 | 61 007 | 1,239 | 0 | 0 | 1,063 |
| Duches no Tunnel | 00,029 01.060 | 15 679 | 25.649 | 74,190 | 30,700 | 21,934 | 41,576 | 20,021 | 22,400 | 20,030 | 00,073 | 20 767 | 39,700 |
| Ducilestie Turmer | 21,002 | 15,078 | 35,040 | 22,017 | 39,039 | 31,095 | 39,440 | 30,740 | 33,429 | 20,402 | 20,739 | 20,707 | 31,160 |
| TOTAL | 120,235 | 159,900 | 151,469 | 121,637 | 98,082 | 105,475 | 104,064 | 96,026 | 117,855 | 114,592 | 120,587 | 146,550 | 117,234 |
| TRANSMOUNTAIN DIVERSIONS FROM GREAT BASIN IN UTAH TO COLORADO RIVER BASIN IN UTAH 1991-2002 | | | | | | | | | | | | | |
| Tropic and East Fork Canal | 3,612 | 5,325 | 6,509 | 4,801 | 7,022 | 4,542 | 5,442 | 6,922 | 6,699 | 3,413 | 6,153 | 2,333 | 5,384 |
| TRANSMOUNTAIN DIVERSIONS FROM BASIN TO NORTH PLATTE BASIN IN W 1991-2002 | I COLORAE VYOMING | o river | | | | | | | | | | | |
| | 16,462 | 12,450 | 23,422 | 14,405 | 12,144 | 17,014 | 14,119 | 14,870 | 13,252 | 15,327 | 12,563 | 6,668 | 14,378 |
| TRANSMOUNTAIN DIVERSIONS FROM COLORADO RIVER BASIN 1991-2002 | 1 | | | | | | | | | | | | |
| TOTAL | 733,450 | 764,943 | 866,283 | 725,212 | 693,918 | 632,204 | 784,968 | 641,455 | 626,569 | 507,301 | 614,983 | 671,711 | 676,060 |
| 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. Streamgaging of the following small transmountain diversions in Utah were discontinued in 1959, flows are estimated as: 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. Does not include diversions for enlargement Continental Divide Ditch which services 437 acres or Ranger Ditch which services 391 acres. Neither ditch is gaged, and suitable estimates of diversion amounts are currently unavailable. The total diversion is the sum of all diversions except Tropic and East Fork Canal which imports water to the Colorado River Basin. This import is subtracted from the sum of exports. | | | | | | | | | | | | | |

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* Part of the Strawberry Reservoir to Bonneville Basin trans-mountain diversions

TRANSMOUNTAIN DIVERSIONS FROM COLORADO RIVER BASIN IN COLORADO 1991-2002

5.6

| | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 10 YEAR |
|--|-------------|---------|------------|---------|---------|---------|---------|-----------------|---------|---------|---------|---------|---------|
| TO PLATTE RIVER BASIN | | | | | | | | | | | | | |
| Grand River Ditch | 18,410 | 21,360 | 24,770 | 17,870 | 19,808 | 23,260 | 17,948 | 21,140 | 19,440 | 9,363 | 8,326 | 9,390 | 17,132 |
| Eureka Ditch | 60 | 212 | 9 5 | 0 | 180 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 |
| Alva B. Adams Tunnel | 199,200 | 198,300 | 206,400 | 233,200 | 238,500 | 207,300 | 229,000 | 203,800 | 165,840 | 118,960 | 131,931 | 268,000 | 200,293 |
| Berthoud Pass Ditch | 624 | 1,010 | 1,260 | 874 | 815 | 1,530 | 2,610 | 1,570 | 0 | 0 | 268 | 244 | 917 |
| Moffat Water Tunnel | 64,900 | 49,890 | 34,470 | 43,310 | 24,220 | 51,050 | 50,860 | 35,620 | 38,530 | 27,454 | 34,353 | 35,070 | 37,494 |
| Boreas Pass Ditch | 82 | 175 | 334 | 83 | 0 | 209 | 282 | 178 | 249 | 62 | 95 | 29 | 152 |
| Vidler Tunnel | 1,240 | 1,150 | 1,150 | 465 | 760 | 268 | 420 | 425 | 580 | 167 | 186 | 320 | 474 |
| Harold D. Roberts Tunnel | 65,850 | 85,530 | 124,100 | 73,890 | 52,176 | 36,920 | 53,480 | 30,550 | 40,380 | 47,377 | 53,263 | 130,500 | 64,264 |
| Straight Creek Tunnel | 269 | 363 | 408 | 330 | 320 | 399 | 393 | 295 | 386 | 190 | 163 | 225 | 311 |
| TO ARKANSAS RIVER BASIN | | | | | | | | | | | | | |
| Hoosier Pass Tunnel | 12,400 | 11,570 | 11,186 | 9,188 | 4,532 | 12,306 | 8,312 | 10,400 | 10,115 | 5,226 | 5,294 | 3,400 | 7,996 |
| Columbine Ditch | 1,602 | 1,610 | 2,478 | 1,470 | 2,390 | 2,500 | 1,730 | 1,669 | 933 | 1,740 | 1,790 | 780 | 1,748 |
| Ewing Ditch | 869 | 934 | 1,622 | 796 | 1,410 | 1,440 | 1,350 | 759 | 618 | 1,020 | 936 | 192 | 1,014 |
| Wurtz Ditch | 2,260 | 2,173 | 4,031 | 2,073 | 4,241 | 4,210 | 4,180 | 2,183 | 1,230 | 2,600 | 2,230 | 647 | 2,763 |
| Homestake Tunnel | 638 | 26,910 | 28,110 | 24,230 | 23,505 | 38,690 | 37,130 | 23,316 | 31,420 | 24,140 | 35,770 | 26,510 | 29,282 |
| Twin Lakes Tunnel | 42,980 | 41,970 | 62,664 | 42,850 | 33,120 | 34,850 | 34,190 | 47,441 | 16,580 | 42,060 | 45,650 | 20,570 | 37,998 |
| Charles H. Boustead Tunnel | 61,130 | 57,060 | 88,740 | 55,040 | 91,300 | 38,540 | 79,380 | 53,986 | 43,140 | 50,690 | 50,530 | 15,780 | 56,713 |
| Busk-Ivanhoe Tunnel | 5,660 | 5,210 | 4,980 | 4,100 | 5,817 | 2,450 | 4,640 | 4,174 | 5,070 | 5,240 | 5,330 | 2,680 | 4,448 |
| Larkspur Ditch | 95 | 205 | 334 | 146 | 116 | 60 | 185 | 67 | 6 | 7 | 63 | 0 | 98 |
| TO RIO GRANDE BASIN | | | | | | | | | | | | | |
| Tarbell Ditch | 0 | 344 | 109 | 207 | 68 | 368 | 753 | 830 | 1,700 | 750 | 532 | 0 | 532 |
| "Tabor Ditch | 997 | 684 | 1,060 | 639 | 1,240 | 375 | 1,340 | 1,010 | 1,430 | 495 | 254 | 87 | 793 |
| Treasure Pass Ditch | 9 | 63 | 113 | 94 | 0 | . 15 | 245 | 223 | 367 | 70 | 29 | 0 | 116 |
| Don La Font Ditches No. 1 & 2 | 473 | 480 | O | 364 | 50 | 112 | 64 | 0 | 0 | 10 | 0 | 0 | 60 |
| Williams Creek-Squaw Pass Ditch | 235 | 475 | 441 ′ | 279 | 374 | 124 | 421 | 289 | 746 | 230 | 199 | 91 | 319 |
| Pine River-Weminuche Pass Ditch | 257 | 520 | 246 | 172 | 672 | 42 | 1,050 | 396 | 1,100 | 203 | 212 | 0 | 409 |
| Weminuche Pass Ditch | 685 | 2,630 | 0 | 0 | 0 | 0 | 1,090 | 45 9 | 3,400 | 0 | 0 | 0 | 495 |
| TOTAL | 480,925 | 510,828 | 599,101 | 511,670 | 505,614 | 457,018 | 531,053 | 440,780 | 383,260 | 338,054 | 377,404 | 514,515 | 465,847 |
| TRANSMOUNTAIN DIVERSIONS FROM COLORADO RIVER BASIN | | | | | | | | | | | | | |
| IN COLORADO TO RIO GRANDE BAS 1991-2002 | IN IN NEW A | MEXICO | | | | | | | | | | | |
| San Juan-Chama Diversions | 119,440 | 87,090 | 98,800 | 82,300 | 85,100 | 57,239 | 141,174 | 96,701 | 118,901 | 42,741 | 110,582 | 6,311 | 83,985 |

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RECEIVED MO. DAY YEAR

APR 0 2 2003

FISH MALDLIFE ECOLO CONTRACIÓN