

SIXTY-FIFTH ANNUAL REPORT

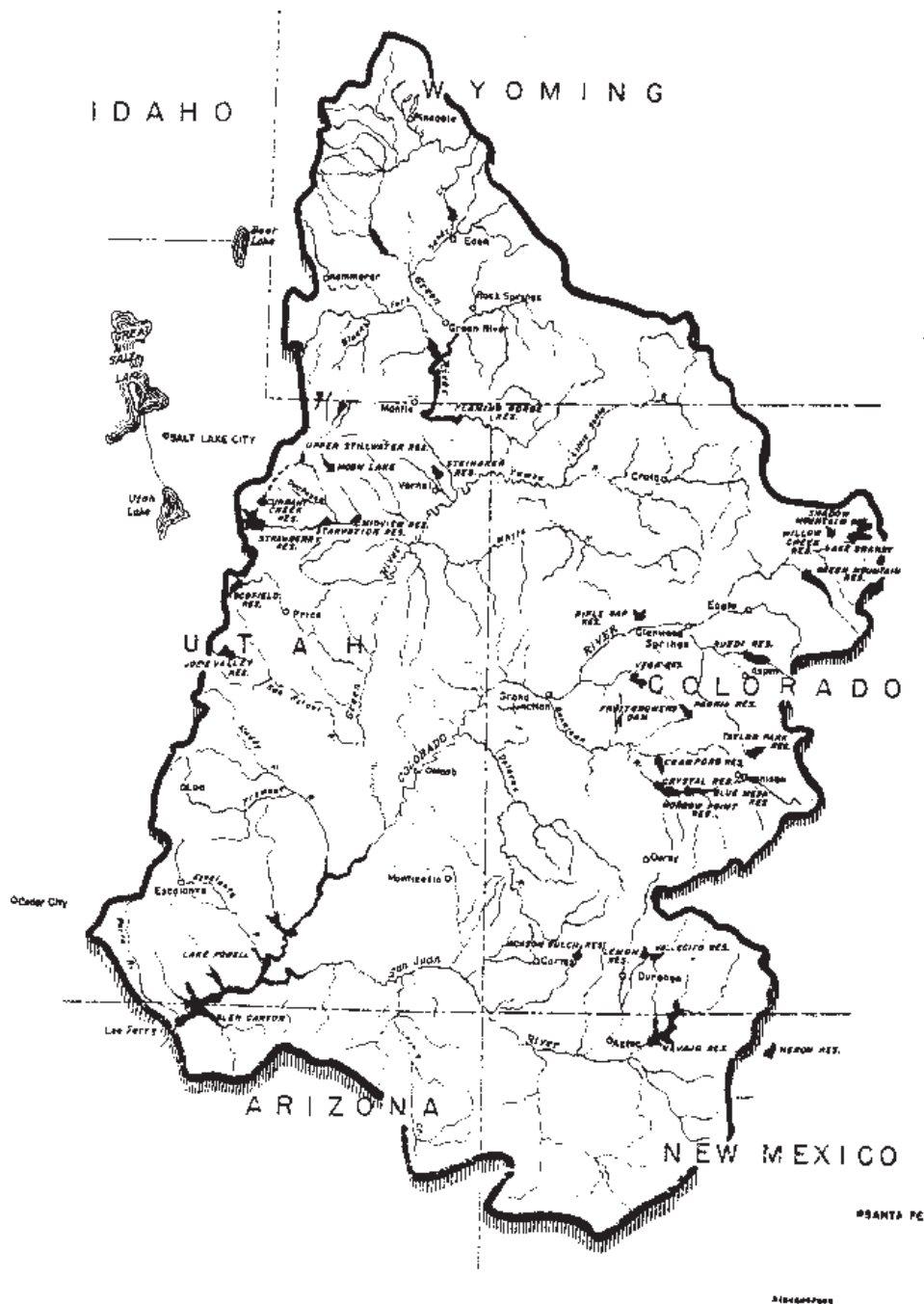
OF THE

Upper Colorado
River Commission



SALT LAKE CITY, UTAH

SEPTEMBER 30, 2013



UPPER COLORADO RIVER BASIN

UPPER COLORADO RIVER
COMMISSION

100
0 100
SCALE OF MILES



UPPER COLORADO RIVER COMMISSION

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

April 1, 2014

President Barack H. Obama
The White House
Washington, D.C. 20500

Dear President Obama:

The Sixty-Fifth 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 2014 (July 1, 2013 – June 30, 2014) 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, which includes Colorado, New Mexico, Utah, Wyoming and Arizona.

Respectfully yours,

Don A. Ostler, P.E.
Executive Director

Enclosure

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Acknowledgements:

The Upper Colorado Region of the U.S. Bureau of Reclamation contributed substantially to the text and technical content of this report.

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PREFACE

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

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

This Sixty-Fifth 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.

A special thanks is in order to the many staff of the U.S. Bureau of Reclamation who have contributed most significantly to the text and data presented herein.

COMMISSION



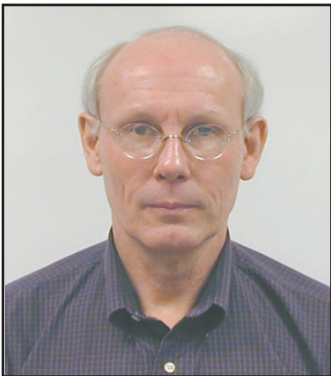
John H. McClow
Commissioner for
Colorado



Estevan Lopez
Commissioner for
New Mexico



Felicity Hannay *
Chairwoman
Commissioner for
United States



Dennis J. Strong
Commissioner for
Utah



Patrick T. Tyrrell
Commissioner for
Wyoming

ALTERNATE COMMISSIONERS

Mike King	State of Colorado
John R. Stulp	State of Colorado
James Ecklund	State of Colorado
Dallin W. Jensen	State of Utah
Robert V. King	State of Utah
Dan S. Budd	State of Wyoming
Benjamin C. Bracken	State of Wyoming
Scott Verhines	State of New Mexico

OFFICERS OF THE COMMISSION

Chairwoman	Felicity Hannay
Vice Chairman	Patrick T. Tyrrell
Secretary	Don A. Ostler
Treasurer	Silvia Norman
Assistant Treasurer	Jonathan B. Spencer

STAFF

Executive Director	Don A. Ostler
Assistant to the Executive Director and General Counsel	Jane Bird
Administrative Secretary	Teri Kay Gomm

COMMITTEES

The Committees of the Commission convened several times 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:

Norman K. Johnson, Chairman – Utah	John W. Suthers – Colorado
Dallin W. Jensen – Utah	Ted Kowalski – Colorado
Scott Balcomb – Colorado	Barry Spear – Colorado
Jim Lochhead – Colorado	Karen Kwon – Colorado
Bennett Raley – Colorado	Peter Fleming – Colorado
Steve Farris – New Mexico	Mike Quealey – Utah
Matthias Sayer – Wyoming	Lee Miller - Colorado
Chris Brown - Wyoming	James Eklund – Colorado
Amy Haas – New Mexico	Shanti Rosset O'Donovan - Colorado
Mike King – Colorado	

Engineering Committee

John Shields, Chairman – Wyoming	Bruce Whitehead – Colorado
Eric Kuhn - Colorado	Mike King - Colorado
Mike Sullivan – Colorado	Kevin Flanigan – New Mexico
Paul Harms - New Mexico	Robert King – Utah
Steve Wolff – Wyoming	D. Randolph Seaholm – Colorado
Michelle Garrison – Colorado	Kent Jones – Utah

Budget Committee:

John H. McClow – Colorado	Patrick T. Tyrrell – Wyoming
Dennis J. Strong – Utah	Estevan Lopez – New Mexico

GENERAL ADVISERS TO COMMISSIONERS

The following individuals serve as advisors to their respective Commissioner:

Utah:

Don A. Christiansen Manager Central Utah Water Conservancy District Orem, Utah	Gawain Snow General Manager Uintah Water Conservancy District Vernal, Utah
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Colorado:

John R. Stulp
Denver, Colorado
Special Policy Advisor to the Governor for Water
IBCC Director

MEETINGS OF THE COMMISSION

During the Water Year ending September 30, 2013 the Commission met as follows:

Meeting No. 264 November 16, 2012
Meeting No. 265 December 12, 2012
Meeting No. 266 June 20, 2013

Denver, Colorado
Las Vegas, Nevada
Santa Fe, New Mexico

ACTIVITIES OF THE COMMISSION

General Activities:

Within the scope and limitations of Article 1(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 hydro-logic 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 the 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 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.

Specific Activities:

The Commission, its full time staff and the Engineering and Legal Committees have been very actively involved in matters pertinent to the administration of the Colorado River. In addition to the above Commission meetings, a large number of additional work meetings, Committee meetings, work groups and conference calls have been held under the authority of the Commission. Activities have included but are not limited to: Meetings regarding implementation of Coordinated Reservoir Operations and Shortage Management, environmental issues below Glen Canyon Dam, Mexico shortage issues, augmentation of the Colorado River supply, climate change impacts to water supply, annual operations plans for Glen Canyon Dam, curtailment procedures, Lees Ferry gage flow measurements, Upper Basin water demand and depletion schedules, future water supply and demand studies, drought mitigation and various legal matters.

Oversight and Administration of Implementation of the Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead:

The Commission and Upper Division States have been heavily involved during the sixth year of operations under the 2007 Interim Guidelines. Since the August 24-month study is used to predict storage elevations in Lake Powell which then determine the operational and release tier for the following year, the Commission has focused much attention on the accuracy of the modeled predictions. In a previous year this over-prediction of elevation placed Lake Powell in the equalization tier when in actuality the reservoir elevations never achieved the equalization

level. It was determined that the assumptions for bank storage, Powell inflow and the averaging period for hydrology, as well as forecast error may be affecting accuracy. Modifications to the 24-month study model were made incorporating mass balance assumptions for inflow, new estimates of bank storage and an updated 30-year hydrology average during 2012. The Commission continues to evaluate the accuracy of the 24-month study predictions, and more work needs to be done. In water year 2012, the difference between the predicted elevation and actual elevation of Lake Powell for January 1 was 6.6 feet. In water year 2013, the difference between the August prediction and actual January 1 elevation was 5.3 feet. It must be understood that the accuracy of reservoir elevation predictions five months in advance of January 1 to facilitate Interim Guidelines decisions depends both on the accuracy of the model to approximate reservoir elevations, but also on the ability to predict weather, precipitation and runoff during the period. The Commission is also gathering information on possible changes to future guidelines based upon operating experience that may improve the guidelines or may be needed if they are considered for extension beyond the year 2026.

Negotiations with Mexico Regarding Shortage Management and Augmentation of the Supply:

The Commission and Upper Division States have been actively involved with the Department of the Interior in discussion with the Mexican counterparts on how to better manage and share future shortages as well as meet future demands for water. These discussions have included modeling to determine a course of operations that will benefit both countries in avoiding and minimizing shortages. This includes using storage more efficiently as well as implementing additional conservation measures within both nations. Considerable effort was also expended to evaluate means of enhancing the supply and in evaluating possible changes in salinity and water quality. An historic Minute No. 319 to the Mexican Water Treaty of 1944 was signed on November 20, 2012 in Coronado, California by the U.S. and Mexican Commissioners of the International Boundary and Water Commission. Prerequisite agreements were signed by the seven basin states and the Upper Colorado River Commission to allow adoption of Minute 319.

Implementation of the Colorado River Basin Fund MOA:

Agreement was reached during water year 2011 on a Memorandum of Agreement (MOA) with the Colorado River Energy Distributors Association, Reclamation, Western Area Power Administration and the Upper Division States to allow basin funds to be used for future state development projects as well as operation, maintenance, and replacement of existing CRSP related projects. Projects have been proposed for funding and are now in the process of implementation as new projects are being developed and proposed. Approximately \$83 million in projects to benefit Upper Basin states have been approved.

Lees Ferry Stream Gage on the Colorado River:

The Commission continues to study the differences between flow measurement at Glen Canyon Dam and Lees Ferry, which is nearest to the Colorado River Compact measuring point at Lee Ferry, Arizona. This flow measuring point is extremely important in administration of the 1922 Colorado River Compact. The USGS, after consultation with the Commission, has completed improvements to flow measuring equipment that have improved its accuracy. During Water Year 2011, the USGS conducted measurements of inflow between Glen Canyon Dam and Lees Ferry, which documented gains in flow. Approximately 68,100 additional acre-ft passed Lee Ferry than was released from the dam in Water Year 2012. From 2005 to 2012 the average increase in flow at Lee Ferry compared to the dam release has been about 190,000 acre-ft per year. The Commission is continuing to evaluate how this information should be incorporated into dam operations.

Upper Division States Drought Contingency Planning:

The Commission and its engineering and legal advisors are continuing to develop drought contingency plans to avoid or reduce the adverse effects on Upper Basin water users from low reservoir conditions. Evaluations include analyzing how to optimize and coordinate all CRSP storage to mitigate the effects of low reservoir conditions on water users as well as evaluation of voluntary conservation and water banking activities. The Commission and states are interested in having an acceptable contingency plan on the shelf for very extreme hydrology conditions even if the likelihood of such conditions is low.

Colorado River Basin Supply and Demand Study:

The Commission, all seven Colorado River Basin States, many large water users within the Basin and the Department of the Interior have participated in completion of a study to quantify current and future demand and supply using various assumptions for future hydrology to identify the imbalance. All methods to address the supply imbalance, including conservation, efficiency and augmentation, are now being evaluated. This Basin study was completed in 2012, and efforts are now turning to next steps to address the long-term supply and demand imbalance particularly in the lower basin.

A. ENGINEERING-HYDROLOGY

1. Stream Flow and Hydrology Summary

The historical flow of the Colorado River at Lee Ferry for water year 2013 based upon USGS stream flow records at the Lee’s Ferry and Paria River gages was 8,289,000 acre-feet. The progressive 10-year total flow at Lee Ferry was 90,750,000 acre-feet (2004 to 2013).

The virgin or natural flow of the Colorado River at Lee Ferry was estimated to be 9.0 million acre-feet, which is less than the average virgin flow for the period of record of 14.6 million acre-feet (1896 to 2013).

In the Upper Colorado River Basin during Water Year 2013, the overall precipitation accumulated through September 30, 2013 was approximately 95% of average based upon the 30 years of data between 1981 and the year 2010. Unregulated inflow to Lake Powell in Water Year 2013 was about 47% of the 30-year average, or 5.12 million acre-feet (maf).

The Upper Colorado River Basin continues to experience a protracted drought that began in October 1999. Unregulated inflow to Lake Powell has varied during this time as follows:

<u>Unregulated Inflow to Lake Powell</u>	
2000	- 62%
2001	- 59%
2002	- 25%
2003	-51%
2004	- 49%
2005	- 105%
2006	– 73%
2007	– 68%
2008	– 102%
2009	– 88%
2010	– 73%
2011	– 139%
2012	– 45%
2013	– 47%

Inflow has been below normal in 11 of the last 14 years, which is the lowest 14 year average in more than 100 years of recordkeeping.

Runoff adjusted for change in storage in Colorado River Storage Project reservoirs for the water year ending September 30, 2013 was 46% of the long-term average at the San Juan River station near Bluff, Utah and 46% of the long-term average at the Colorado River Station near Cisco, Utah. The volumes of runoff at these stations were 722,900 acre-feet and 2,493,000 acre-feet, respectively. Runoff at the Green River station near Green River, Utah was 37% of the long-term average and totaled 1,637,300 acre-feet.

2. Summary of Reservoir Levels and Contents

As of September 30, 2013 total system storage (Upper and Lower Basins) was 50% of capacity. For the period October 1, 2012 through September 30, 2013, the change in reservoir storage, excluding bank storage and evaporation, at selected Upper Basin reservoirs was as follows:

- Fontenelle decreased 30,300 acre-feet
- Flaming Gorge decreased 212,500 acre-feet
- Taylor Park increased 13,600 acre-feet
- Blue Mesa increased 8,400 acre-feet
- Morrow Point increased 3,100 acre-feet
- Crystal increased 800 acre-feet
- Navajo decreased 101,900 acre-feet
- Lake Powell decreased 2,995,200 acre-feet

The virgin flow of the Colorado River at Lee Ferry for the 2013 water year was estimated to be 9.0 million acre-feet.

Observed inflows to Lake Powell during Water Year 2013 were below average (47%); Lake Powell storage decreased by 3.0 maf and ended the water year at 45% of capacity, with 10.93 maf of storage at elevation 3591.25 feet. A more detailed description of Lake Powell conditions is found in section H of this report. The release from Lake Powell during Water Year 2013 was 8.23 maf.

Reservoir storage in Lake Mead decreased during Water Year 2013 from 13,135,000 acre-feet to 12,352,000 acre-feet, which is 47% of capacity. The total Colorado River System experienced a loss in storage during Water Year 2013 of approximately 4,079,000 acre-feet and ended the year at 50% of capacity.

Table 1 on page 10 shows the statistical data for principal reservoirs in the Upper Colorado River Basin. Table 2 on page 11 shows the same information for the Lower Colorado River Basin reservoirs.

The results of the long-range reservoir operation procedures and the Interim Guidelines for Lower Basin Shortage and Coordinated Reservoir Operating Criteria as adopted by the Secretary of the Interior for Powell, Flaming Gorge, Fontenelle, Navajo, and Blue Mesa Reservoirs in the Upper Colorado River Basin and Lake Mead in the Lower Basin are illustrated on pages 12 through 17 for the 2013 Water Year.

3. Flows of Colorado River

Table 3 on pages 23 and 24 shows the estimated virgin flow of the Colorado River at Lee Ferry, Arizona for each water year from 1896 through 2013. Column (4) of the table shows the average virgin flow for any given year within the period computed through Water Year 2013. Column (5) shows the average virgin flow for a given year within the period computed since

Glen Canyon Dam Test Releases - Courtesy of Bureau of Reclamation - T. Ross Reeve



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)

	Fotenville		Flaming Gorge		Taylor Park		Blue Mesa		Morrow Point		Crystal		Navajo		Lake Powell	
	Elev.	Cap.	Elev.	Cap.	Elev.	Cap.	Elev.	Cap.	Elev.	Cap.	Elev.	Cap.	Elev.	Cap.	Elev.	Cap.
River elevation at dam (average tailwater)	—	—	5,603	0	9,174	0	7,160	0	6,775	0	6,534	0	5,720	0	3,138	0
Dead Storage	6,408	0.56	5,740	40	—	—	7,358	111	6,808	0	6,670	8	5,775	13	3,370	1,893
Inactive Storage (minimum power pool)	—	—	5,871	273	—	—	7,393	192	7,100	75	6,700	12	5,990	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	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

⁴ The elevation for inactive storage for Navajo Reservoir is required for the Navajo Indian Irrigation Project.

Table 2

STATISTICAL DATA FOR PRINCIPAL RESERVOIRS IN COLORADO RIVER BASIN
LOWER BASIN

(Usable Surface Capacity)

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

	Lake Mead		Lake Mohave		Lake Havasu	
	Elev.	Capacity	Elev.	Capacity	Elev.	Capacity
River elevation at dam (average tailwater)	646	-2,378	506	-8.5	370	-28.6
Dead Storage	895	0	533.39	0	400	0
Inactive Storage (minimum power pool)	1,050	7,471	570	217.5	440 ⁵	439.4
Rated Head	1,122.80	13,633	-	-	-	-
Maximum Storage (without surcharge)	1,221.40	26,159	647	1,809.80	450	619.4

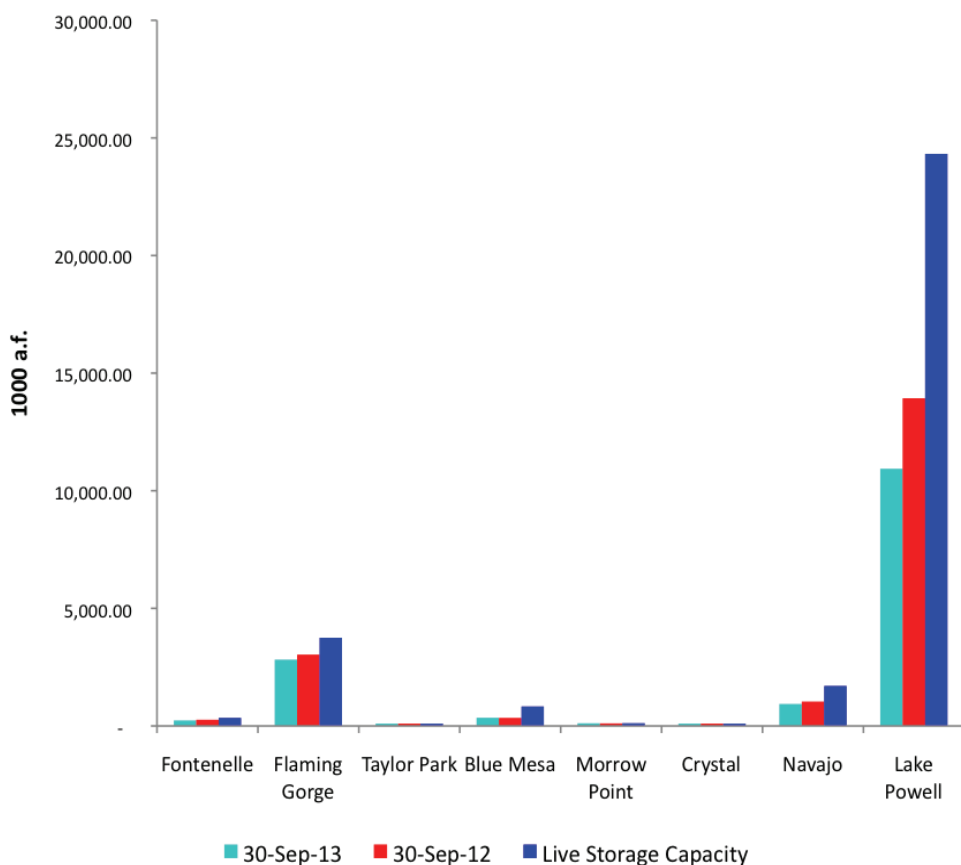
⁵ The elevation for inactive storage for Lake Havasu is the contractual minimum for delivery to Metropolitan Water District's Colorado River Aqueduct.

Storage in Principle Reservoirs at the End of Water Year 2013

Upper Basin

Live Storage Contents

Reservoir	Sept 30, 2013 (acre-feet)	Percent Live Capacity	Sept 30, 2012 (acre- feet)	Percent Live Capacity	Change in Contents (acre-feet)
Fontenelle	232,900	67.5%	263,200	76.3%	(30,300)
Flaming Gorge	2,817,900	75.2%	3,030,400	80.8%	(212,500)
Taylor Park	69,800	65.7%	56,200	52.9%	13,600
Blue Mesa	348,500	42.0%	340,100	41.0%	8,400
Morrow Point	112,200	95.9%	109,100	93.2%	3,100
Crystal	15,000	85.5%	14,200	81.0%	800
Navajo	933,200	54.9%	1,035,100	60.8%	(101,900)
Lake Powell	10,934,000	45.0%	13,929,200	57.3%	(2,995,200)
Total	15,463,500		18,777,500		(3,314,000)



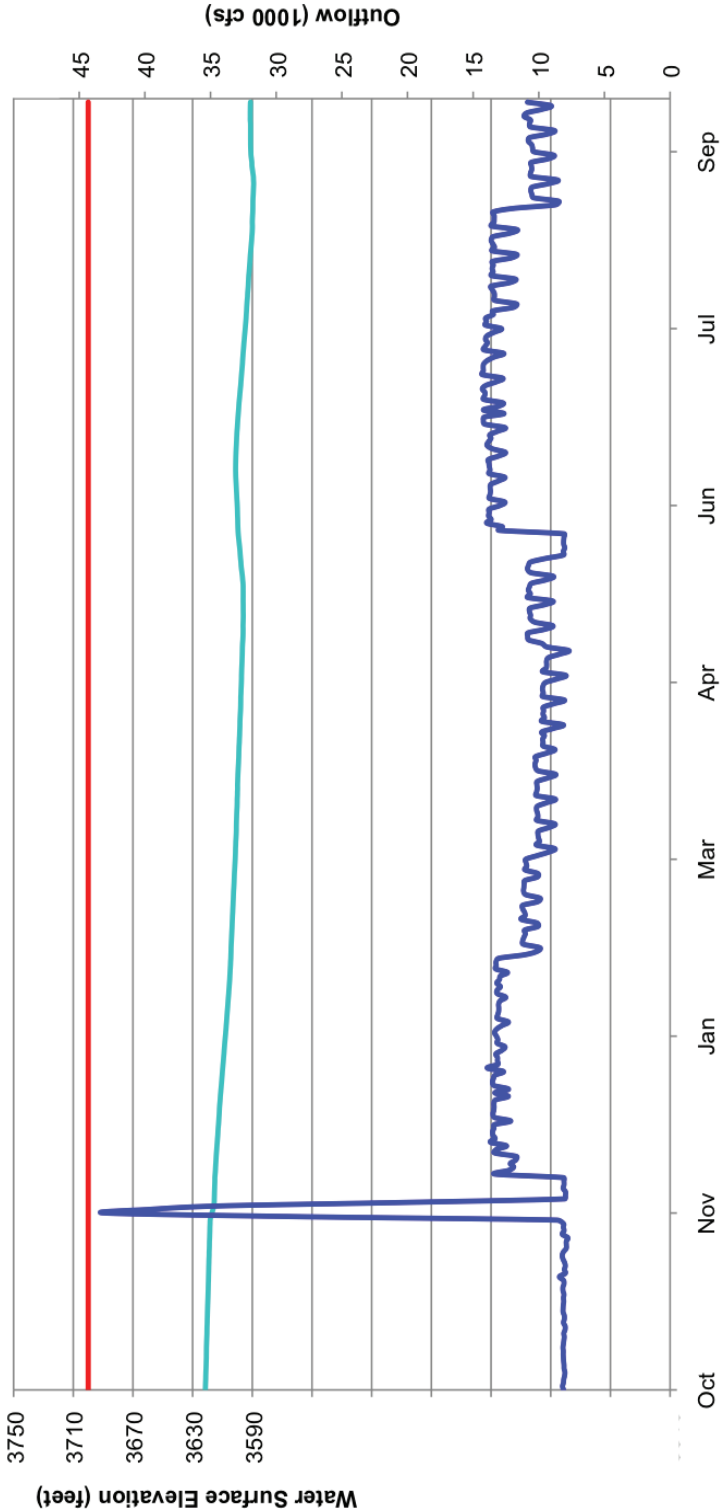
Lake Powell - Glen Canyon

Live Storage Capacity - 24,322,000 acre-ft
Power Generation Capacity - 1,356,000 KW
Live Storage 9/30/13 - 13,929,200acre-feet

Water Surface Elevation (ft)

Maximum Storage Elev = 3700 ft (Content 27,000,000 af)

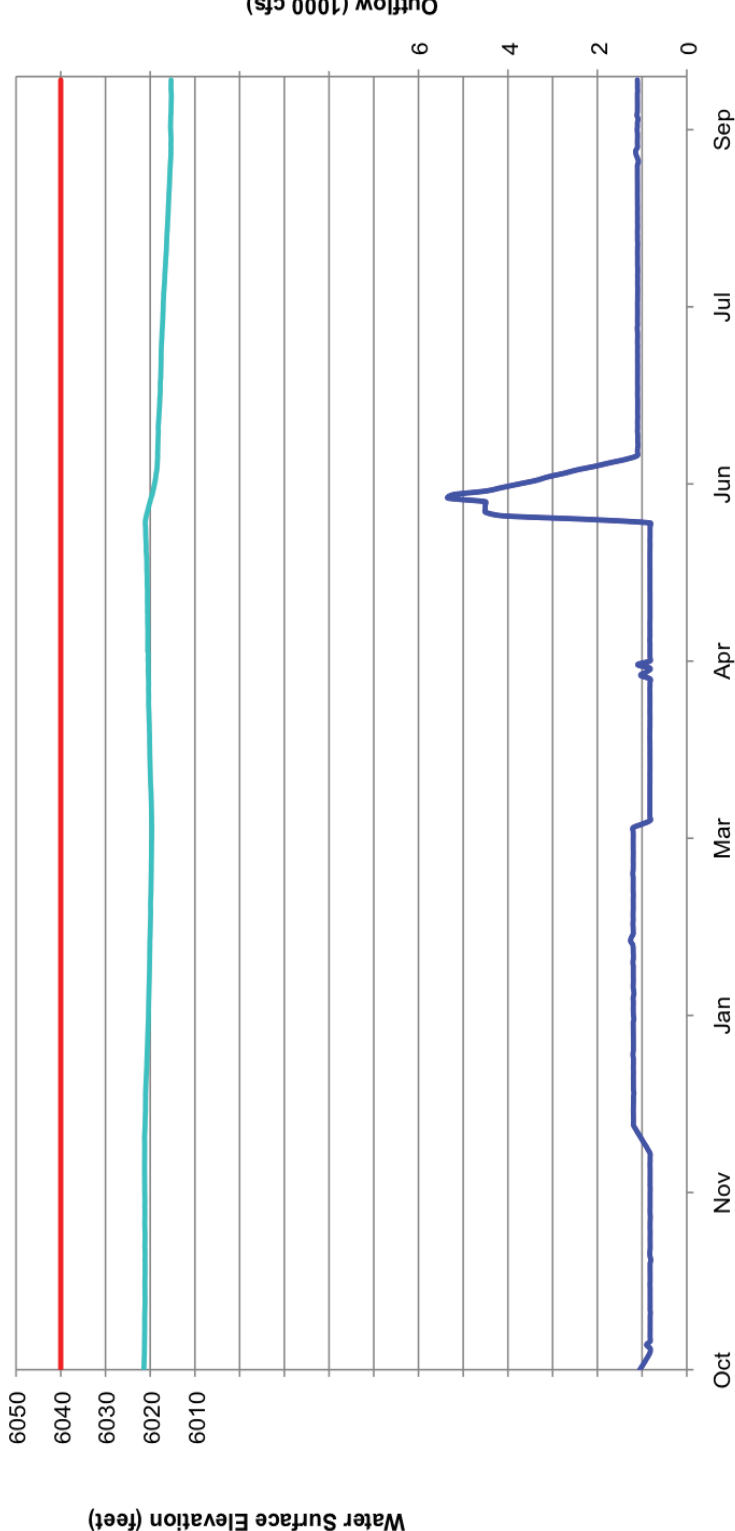
Outflow (cfs)



Lake Powell
Water Year 2013

Flaming Gorge

Live Storage Capacity - 3,749,000 acre-feet
Power Generation Capacity - 144,000 KW
Live Storage 9/30/13 - 3,030,400 acre-feet

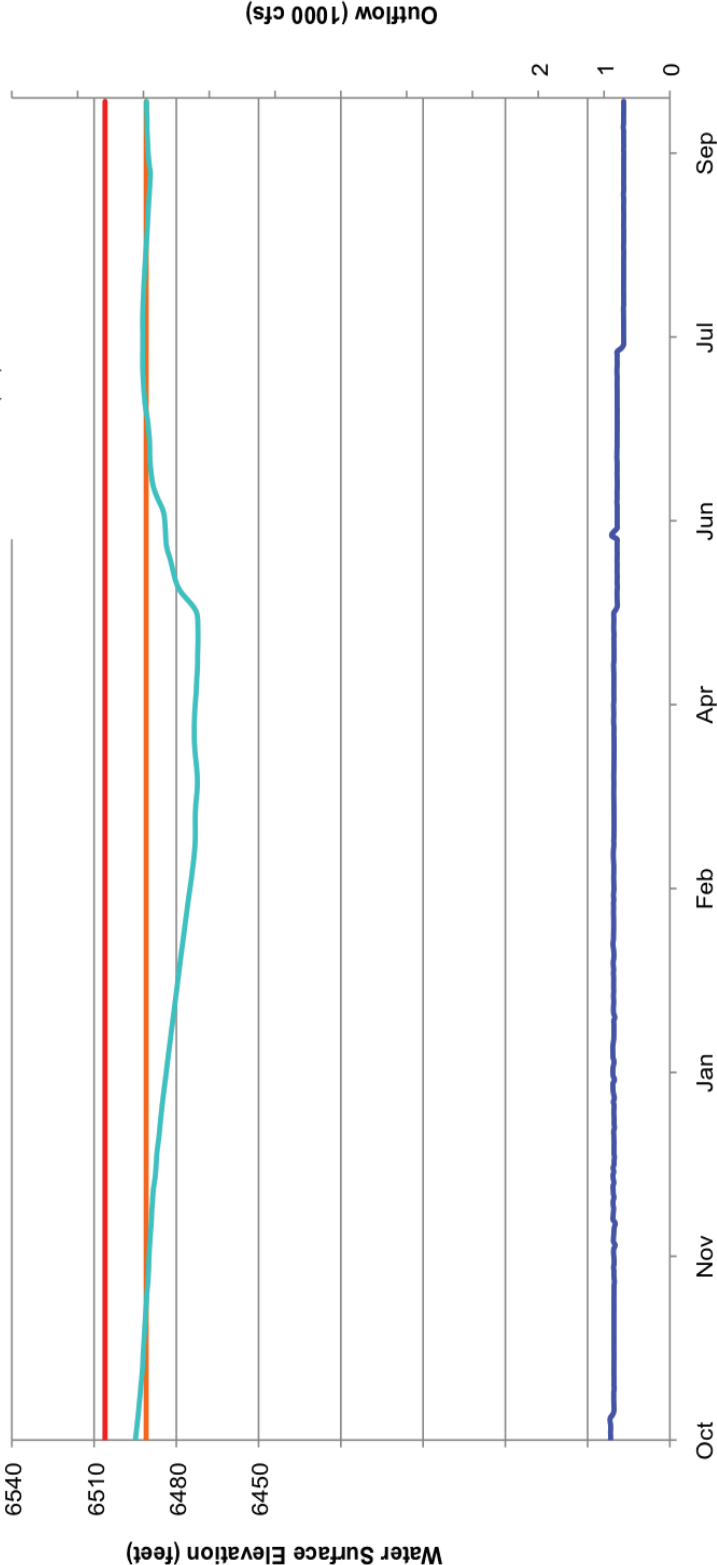


Flaming Gorge Reservoir
Water Year 2013

Fontenelle

Live Storage Capacity - 344,800 acre-feet
Power Generation Capacity - 13,000 KW
Live Storage 9/30/13 - 263,200 acre-feet

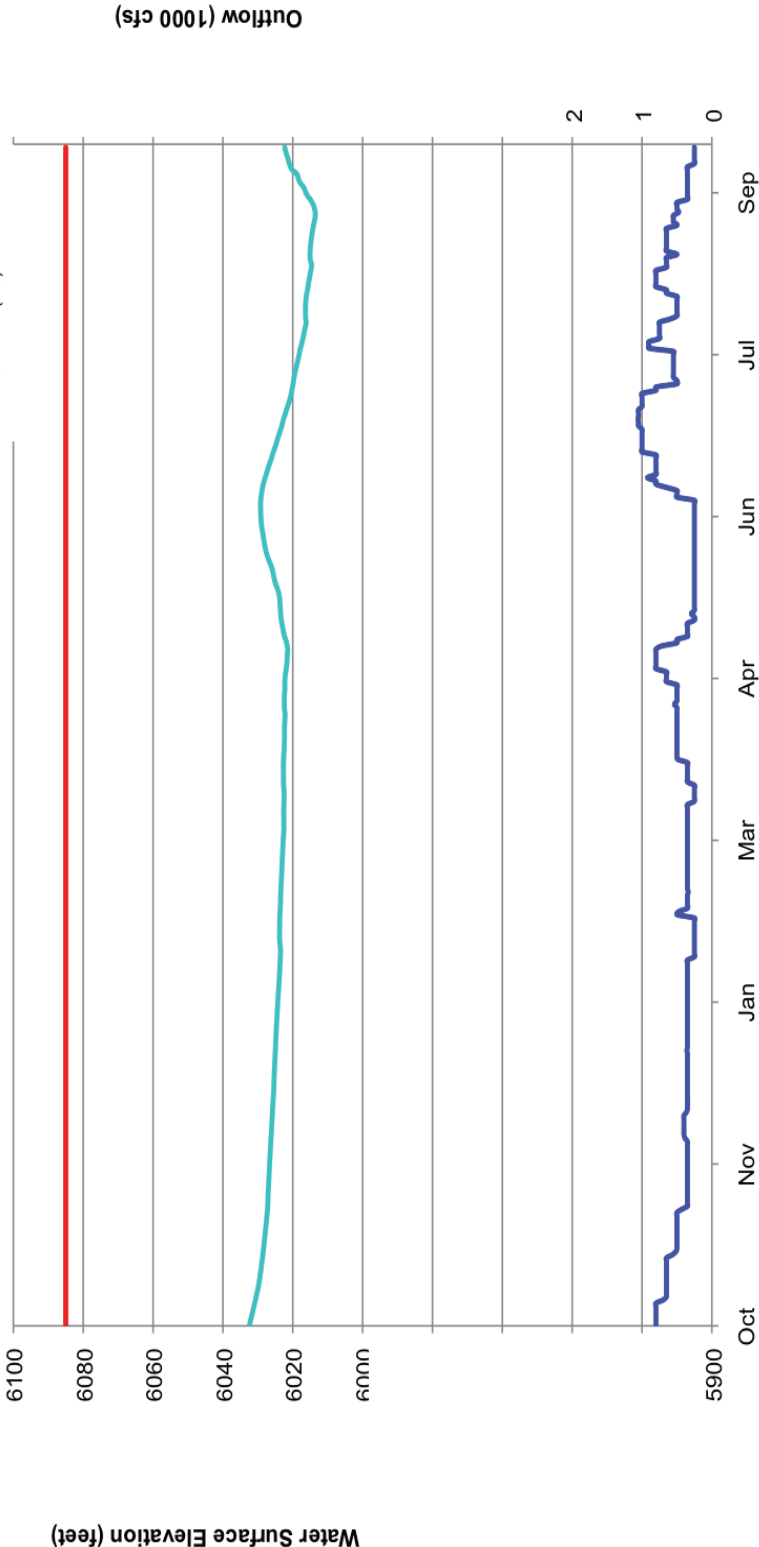
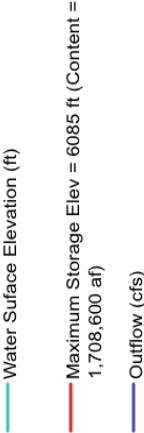
- Rated Head Elev. = 6491 ft (Content = 234,000 af)
- Water Surface Elevation (ft)
- Maximum Storage Elev. = 6506 ft (Content = 345,000 af)
- Outflow (cfs)



Fontenelle Reservoir
Water Year 2013

Navajo

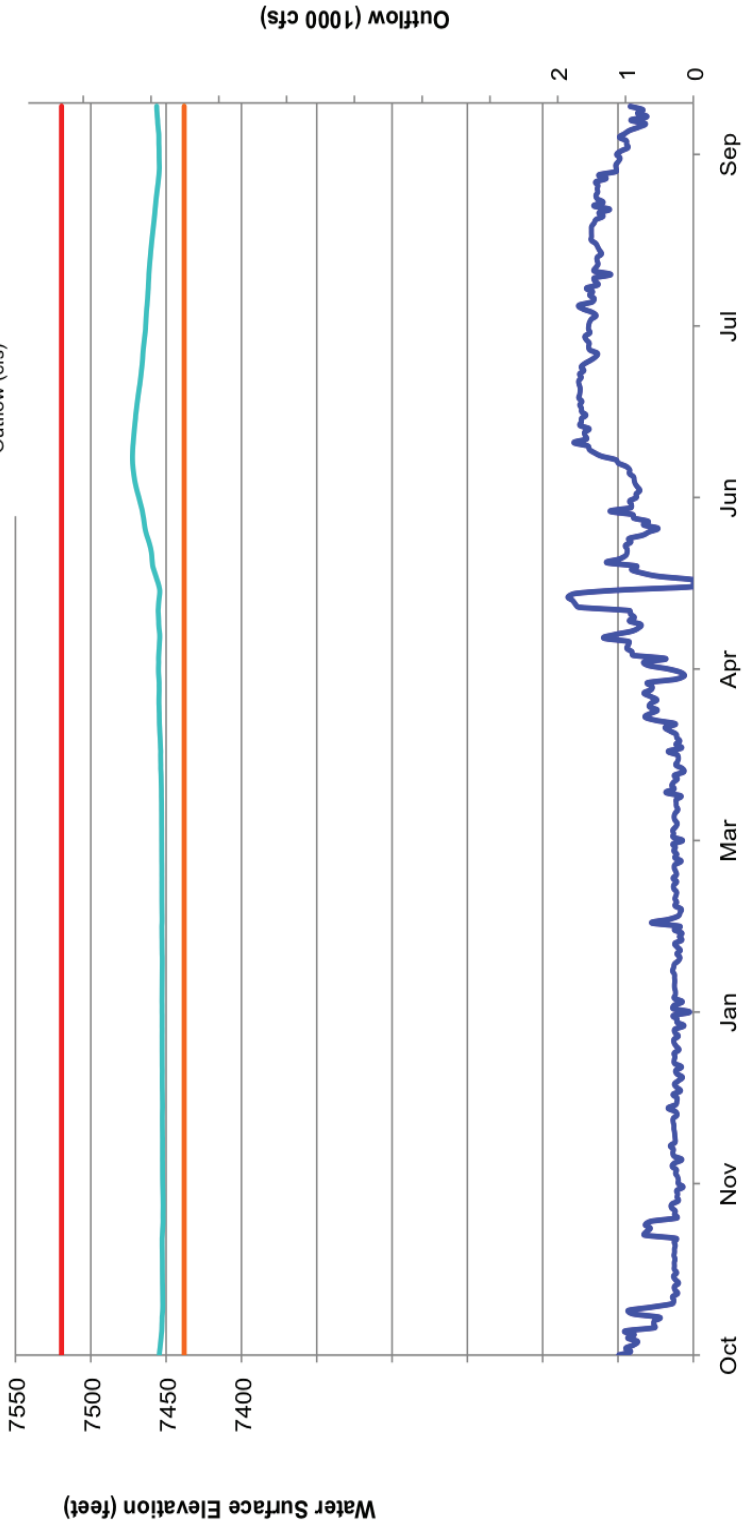
Live Storage Capacity - 1,695,900 acre-feet
Power Generation Capacity -0 KW
Live Storage 9/30/13 - 1,035,138 acre-feet



Blue Mesa

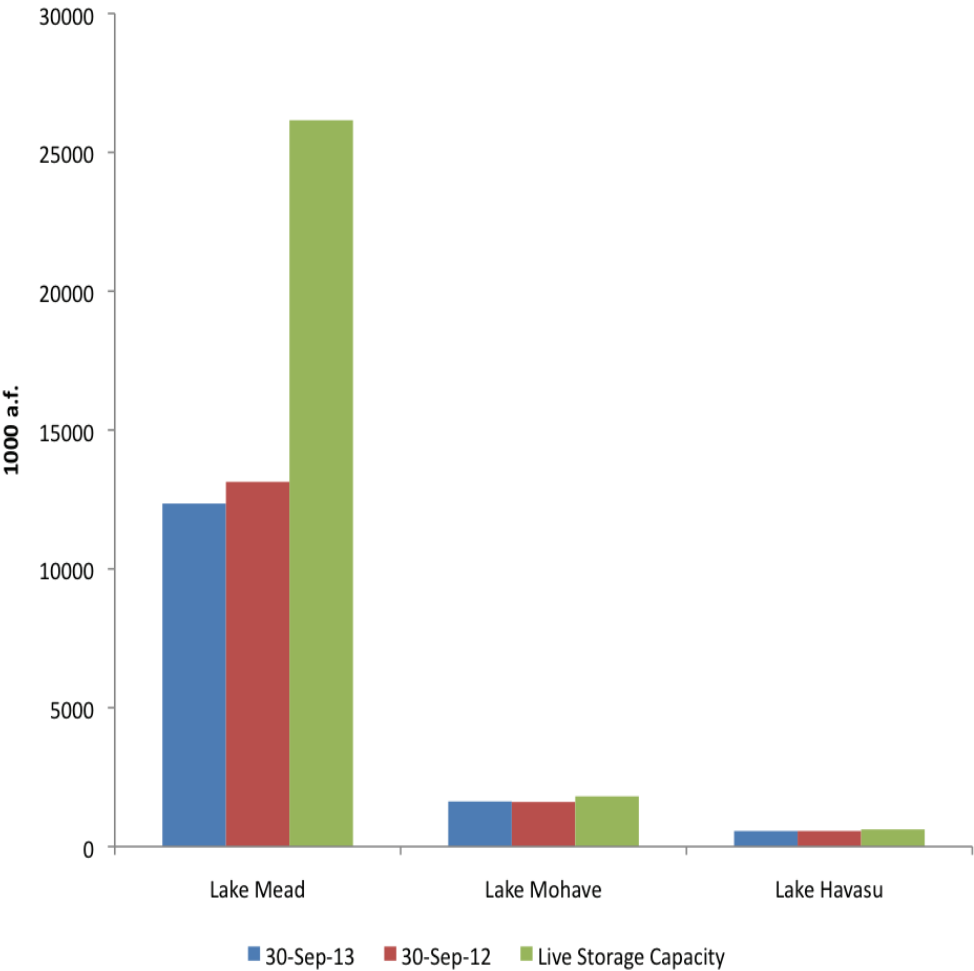
Live Storage Capacity - 829,000 acre-feet
Power Generation Capacity - 96,000 KW
Live Storage 9/30/13 - 340,100 acre-feet

- Water Surface Elev (ft)
- Maximum Storage Elev = 7519.4 ft (Content = 940,755 af)
- Rated Head Elev = 7438 ft (Content = 360,627 af)
- Outflow (cfs)



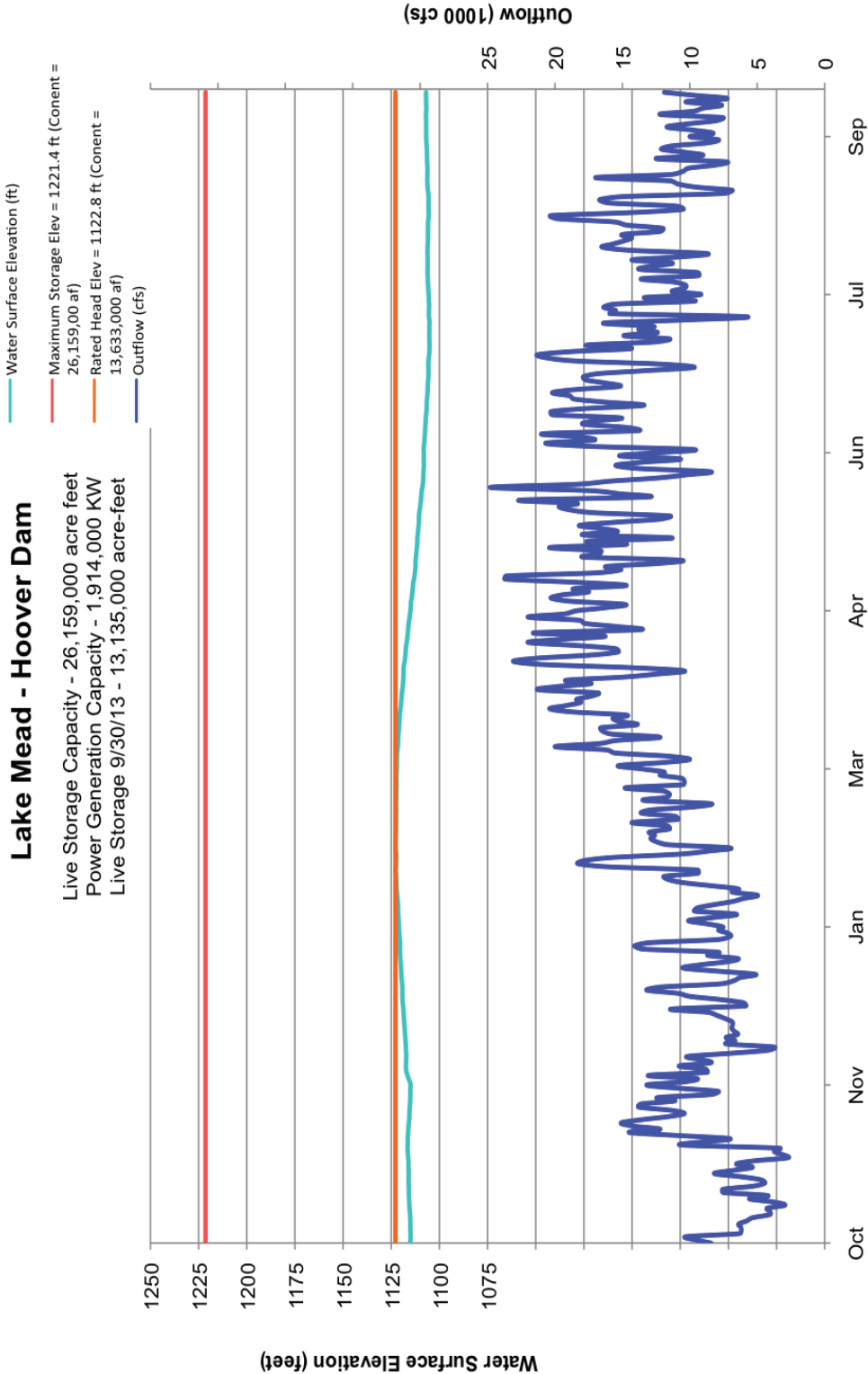
Storage in Principle Reservoirs – End of Water Year 2013
Lower Basin
Live Storage Contents

Reservoir	Sept 30, 2013 (acre-feet)	Percent Live Capacity	Sept 30, 2012 (acre-feet)	Percent Live Capacity	Change in Contents (acre-feet)
Lake Mead	12,352,000	47.22%	13,135,000	50.2%	(783,000)
Lake Mohave	1,623,700	89.79%	1,605,000	88.8%	18,700
Lake Havasu	560,300	90.49%	560,700	90.6%	(400)
Total	14,536,000		15,300,700		(764,700)



Lake Mead - Hoover Dam

Live Storage Capacity - 26,159,000 acre feet
Power Generation Capacity - 1,914,000 KW
Live Storage 9/30/13 - 13,135,000 acre-feet



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 118-year period, 1896 through 2013 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 25 shows the historic flow at Lee Ferry for the period 1954 through 2013. The historic flow for each progressive ten-year period from 1954 through 2013, beginning with the ten-year period ending September 30, 1962, the commencement of storage in Colorado River Storage Project reservoirs, is shown in Column (3).

In each consecutive ten-year period, the total flow equaled or exceeded the 75,000,000 acre-feet required by the Compact. The flow at Lee Ferry during the ten-year period ending September 30, 2013 was 90,870,000 acre-feet. The graphs on pages 26 and 27 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 26 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 14.6 million acre-feet) shows the long-term average virgin flow from 1896 through 2013. Because the Colorado River Compact is administered based on 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 27, entitled Lee Ferry Average Annual Virgin 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 23 thru 25.

- (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, 1896-2013, the estimated average annual virgin flow is 14.6 million acre-feet, and the average annual historic flow is 11.8 million acre-feet.
- (5) For the next longest period, 1906-2013, the estimated average annual virgin flow is 14.7 million acre-feet, and the average annual historic flow is 11.6 million acre-feet. Many of the early records for this series of years as well as for the 1896-2013 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 1914-2013 periods is 14.4 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 periods is 14.6 million acre-feet.
- (7) The average annual virgin flow for the period 1914-1945 is 15.6 million acre-feet. This was the period of record used by the negotiators of the Upper Colorado River Basin Compact of 1948.
- (8) For the period 1922-2013, which is the period of record since the signing of the Colorado River Compact, the average annual virgin flow is 14.1 million acre-feet, and the average annual historic flow is 10.7 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 and 11.6 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's closure in 1963, the estimated virgin flow for the subsequent 50 years is 14.2 million acre-feet. The estimated historical flow for the same period (1964-2013) is 9.8 million acre-feet.

4. 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, 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-

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 2011 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 which are as follows:

The values are:

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

It then updated its plan of implementation. The Forum has now begun its 2014 Review process. For several years, the States, the Upper Colorado River Commission and the Forum have been working with Reclamation as it has updated its river model that can reproduce flows and salinity concentrations of the past and predict probabilities of flows and salinity concentrations in the future. This model is used as a tool in preparation of the reviews.

The Salinity Control Program has been successful in implementing controls that have reduced the average concentrations at Imperial Dam by 90-100/L. The salinity standards are based on long-term average flows, and the river model can assist with the analysis of future salinity control needs. The 2011 Review recognized measures in place which control about 1.2 million tons of salt annually and need to control about 650,000 additional tons by the year 2030. The Salinity Control Program is not designed to offset short-term variances caused by short-term hydrologic variances from the norm.

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

(1) Years to 2013	(2) Year Ending Sept. 30	(3) Estimated Virgin Flow	(4) Average to 2013	(5) Average Since 1896	(6) Progressive 10-year Moving Average	(7) Virgin Flow Minus 114-year Average
118	1896	10.1	14.6	10.1		-4.5
117	1897	18.0	14.7	14.1		3.4
116	1898	13.8	14.7	14.0		-0.8
115	1899	15.9	14.7	14.5		1.3
114	1900	13.2	14.7	14.2		-1.4
113	1901	13.6	14.7	14.1		-1.0
112	1902	9.4	14.7	13.4		-5.2
111	1903	14.8	14.7	13.6		0.2
110	1904	15.6	14.7	13.8		1.0
109	1905	16.0	14.7	14.0	14.0	1.4
108	1906	19.1	14.7	14.5	14.9	4.5
107	1907	23.4	14.7	15.2	15.5	8.8
106	1908	12.9	14.6	15.1	15.4	-1.7
105	1909	23.3	14.6	15.7	16.1	8.7
104	1910	14.2	14.5	15.6	16.2	-0.4
103	1911	16.0	14.5	15.6	16.5	1.4
102	1912	20.5	14.5	15.9	17.6	5.9
101	1913	14.5	14.4	15.8	17.6	-0.1
100	1914	21.2	14.4	16.1	18.1	6.6
99	1915	14.0	14.4	16.0	17.9	-0.6
98	1916	19.2	14.4	16.1	17.9	4.6
97	1917	24.0	14.3	16.5	18.0	9.4
96	1918	15.4	14.2	16.4	18.2	0.8
95	1919	12.5	14.2	16.3	17.2	-2.1
94	1920	22.0	14.2	16.5	17.9	7.4
93	1921	23.0	14.2	16.8	18.6	8.4
92	1922	18.3	14.1	16.8	18.4	3.7
91	1923	18.3	14.0	16.9	18.8	3.7
90	1924	14.2	14.0	16.8	18.1	-0.4
89	1925	13.0	14.0	16.6	18.0	-1.6
88	1926	15.9	14.0	16.6	17.7	1.3
87	1927	18.6	13.9	16.7	17.1	4.0
86	1928	17.3	13.9	16.7	17.3	2.7
85	1929	21.4	13.9	16.8	18.2	6.8
84	1930	14.9	13.8	16.8	17.5	0.3
83	1931	7.8	13.7	16.5	16.0	-6.8
82	1932	17.2	13.8	16.6	15.9	2.6
81	1933	11.4	13.8	16.4	15.2	-3.2
80	1934	5.6	13.8	16.1	14.3	-9.0
79	1935	11.6	13.9	16.0	14.2	-3.0
78	1936	13.8	13.9	16.0	14.0	-0.8
77	1937	13.7	13.9	15.9	13.5	-0.9
76	1938	17.5	13.9	16.0	13.5	2.9
75	1939	11.1	13.9	15.8	12.5	-3.5
74	1940	8.6	13.9	15.7	11.8	-6.0
73	1941	18.1	14.0	15.7	12.9	3.5
72	1942	19.1	14.0	15.8	13.1	4.5
71	1943	13.1	13.9	15.7	13.4	-1.5
70	1944	15.2	13.9	15.7	14.1	0.6
69	1945	13.4	13.9	15.7	14.4	0.6
68	1946	10.4	13.9	15.6	14.0	-1.2
67	1947	15.5	13.9	15.6	14.2	-4.2
66	1948	15.6	13.9	15.6	14.0	0.9
65	1949	16.4	13.9	15.6	14.5	1.8
64	1950	12.9	13.8	15.6	15.0	-1.7
63	1951	11.6	13.9	15.5	14.3	-3.0
62	1952	20.7	13.9	15.6	14.5	6.1
61	1953	10.6	13.8	15.5	14.2	-4.0

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

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Years to 2011	Year Ending Sept. 30	Estimated Virgin Flow	Average to 2012	Average Since 1896	Progressive 10-year Moving Average	Virgin Flow Minus 114-year Average
58	1956	10.7	14.0	15.2	13.1	-3.9
57	1957	20.1	14.1	15.3	13.6	5.5
56	1958	16.5	14.0	15.3	13.6	1.9
55	1959	8.6	13.9	15.2	12.9	-6.0
54	1960	11.3	14.0	15.1	12.7	-3.3
53	1961	8.5	14.1	15.0	12.4	-6.1
52	1962	17.3	14.2	15.0	12.1	2.7
51	1963	8.4	14.1	15.0	11.8	-6.2
50	1964	10.2	14.2	14.9	12.1	-4.4
49	1965	18.9	14.3	14.9	13.1	4.3
48	1966	11.2	14.2	14.9	13.1	-3.4
47	1967	11.9	14.3	14.8	12.3	-2.7
46	1968	13.7	14.3	14.8	12.0	-0.9
45	1969	14.4	14.4	14.8	12.6	-0.2
44	1970	15.4	14.4	14.8	13.0	0.8
43	1971	15.1	14.3	14.8	13.7	0.5
42	1972	12.2	14.3	14.8	13.1	-2.4
41	1973	19.4	14.4	14.9	14.2	4.8
40	1974	13.3	14.2	14.8	14.6	-1.3
39	1975	16.6	14.3	14.9	14.3	2.0
38	1976	11.6	14.2	14.8	14.4	-3.0
37	1977	5.8	14.3	14.7	13.8	-8.8
36	1978	15.2	14.5	14.7	13.9	0.6
35	1979	17.9	14.5	14.8	14.3	3.3
34	1980	17.5	14.4	14.8	14.5	2.9
33	1981	8.2	14.3	14.7	13.8	-6.4
32	1982	16.2	14.5	14.7	14.2	1.6
31	1983	24.0	14.4	14.8	14.6	9.4
30	1984	24.5	14.1	14.9	15.8	9.9
29	1985	20.8	13.7	15.0	16.2	6.2
28	1986	21.9	13.5	15.1	17.2	7.3
27	1987	16.9	13.2	15.1	18.3	2.3
26	1988	11.5	13.0	15.1	17.9	-3.1
25	1989	9.4	13.1	15.0	17.1	-5.2
24	1990	8.6	13.3	14.9	16.2	-6.0
23	1991	12.3	13.5	14.9	16.6	-2.3
22	1992	11.0	13.5	14.9	16.1	-3.6
21	1993	18.5	13.6	14.9	15.5	3.9
20	1994	10.4	13.4	14.9	14.1	-4.2
19	1995	19.7	13.5	14.9	14.0	5.1
18	1996	13.8	13.2	14.9	13.2	-0.8
17	1997	21.0	13.2	15.0	13.6	6.4
16	1998	16.8	12.7	15.0	14.2	2.2
15	1999	16.1	12.4	15.0	14.8	1.5
14	2000	10.3	12.1	14.9	15.0	-4.3
13	2001	10.9	12.3	14.9	14.9	-3.7
12	2002	5.5	12.4	14.8	14.3	-9.1
11	2003	10.5	13.0	14.8	13.5	-4.1
10	2004	9.1	13.3	14.7	13.4	-5.5
9	2005	17.0	13.7	14.7	13.1	2.4
8	2006	13.1	13.3	14.7	13.0	-1.5
7	2007	12.5	13.4	14.7	12.2	-2.1
6	2008	16.4	13.5	14.7	12.1	1.8
5	2009	14.3	12.9	14.7	12.0	-0.3
4	2010	12.9	12.6	14.7	12.2	-1.7
3	2011	20.4	12.5	14.8	13.2	5.8
2	2012	8.1	8.6	14.7	13.4	-6.5
1	2013	9.0	9.0	14.6	13.3	-5.6
Maximum		24.5			18.8	9.9
Minimum		5.5			11.8	-9.1
Average		14.6			14.8	0.0

Table 4
HISTORIC FLOW AT LEE FERRY
1954-2013

Water Year Ending Sept. 30	Historic Flow (1,000 a.f.)	Progressive 10- Year Total (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	6,674	
1962	14,790	
1963	2,520	93,705
1964	2,427	90,016
1965	10,835	93,544
1966	7,870	92,664
1967	7,824	83,148
1968	8,358	77,246
1969	8,850	79,340
1970	8,688	78,836
1971	8,607	80,769
1972	9,330	75,309
1973	10,141	82,930
1974	8,277	88,780
1975	9,274	87,219
1976	8,494	87,843
1977	8,269	88,288
1978	8,369	88,299
1979	8,333	87,782
1980	10,950	90,044
1981	8,316	89,753
1982	8,323	88,746
1983	17,520	96,125
1984	20,518	108,366
1985	19,109	118,201
1986	16,866	126,573
1987	13,450	131,754
1988	8,160	131,545
1989	7,995	131,207
1990	8,125	128,382
1991	8,132	128,198
1992	8,023	127,898
1993	8,137	118,515
1994	8,306	106,303
1995	9,242	96,436
1996	11,530	91,100
1997	13,873	91,523
1998	13,441	96,804
1999	11,540	100,349
2000	9,530	101,754
2001	8,361	101,983
2002	8,348	102,308
2003	8,372	102,543
2004	8,348	102,585
2005	8,395	101,738
2006	8,508	98,716
2007	8,422	93,265
2008	9,180	89,004
2009	8,406	85,870
2010	8,436	84,777
2011	13,227	89,643
2012	9,534	90,829
2013	8,289	90,746

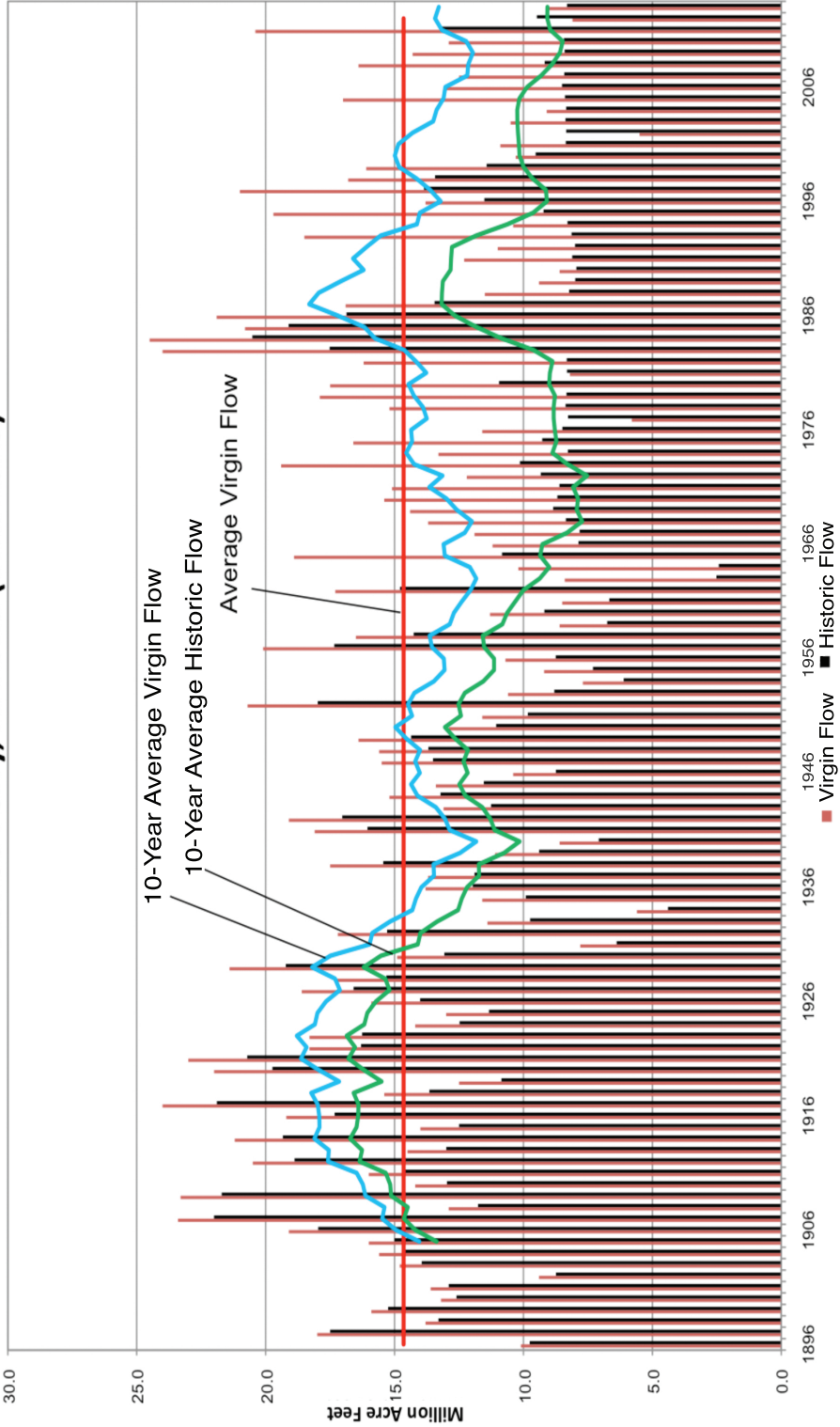
Storage in Flaming Gorge and Navajo Reservoirs began in 1962.

Storage in Glen Canyon Reservoir began in 1963.

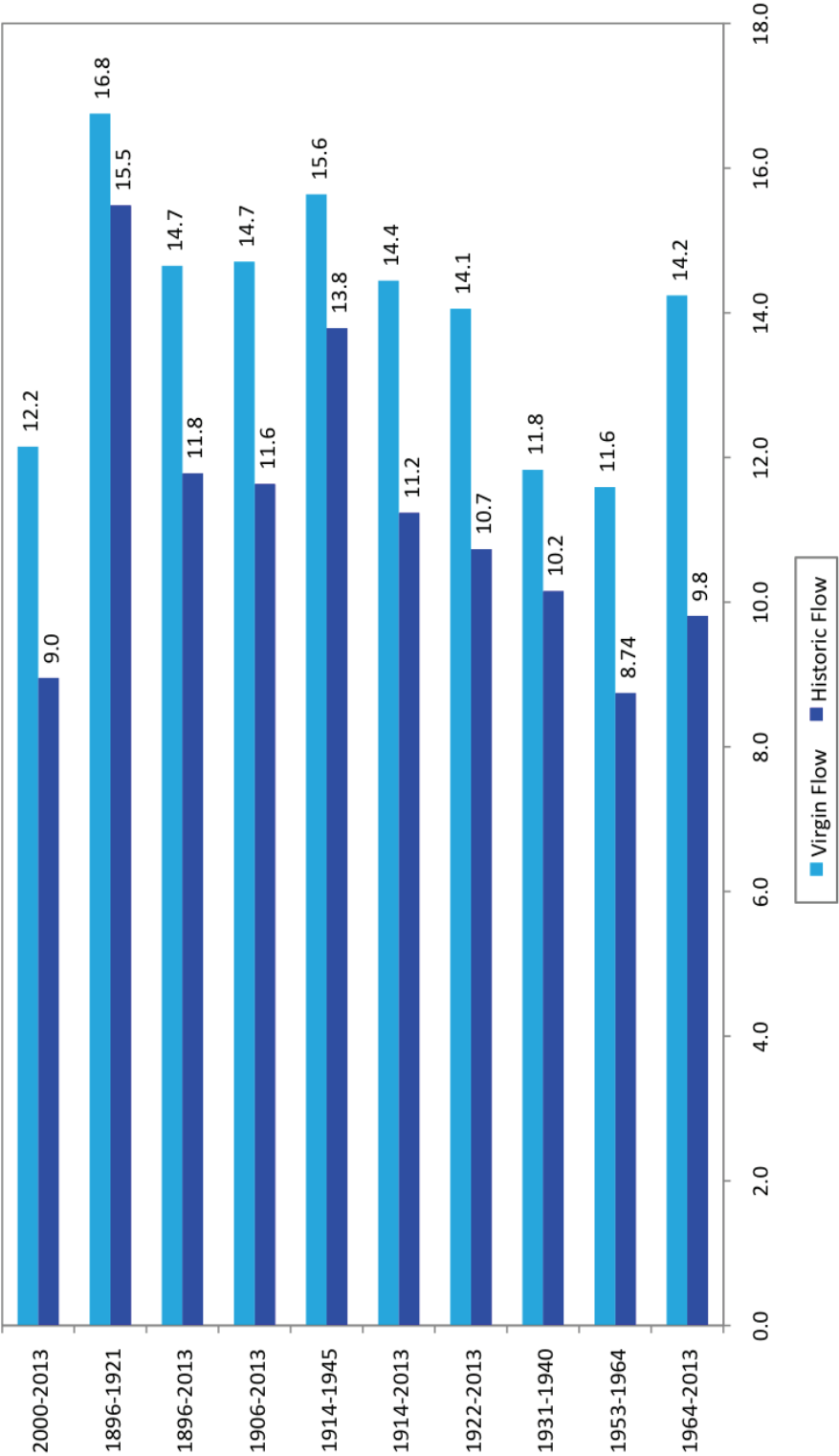
Storage in Fontenelle reservoir began in 1964.

Based upon provisional streamflow records subject to revision.*

Colorado River Flow At Lee Ferry, Arizona (W.Y. 2013)



Lee Ferry Average Annual Virgin Flow For Selected Periods



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B. LEGAL

1. Water Newsletter

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

2. Court Cases

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

Tarrant Regional Water District v. Herrmann, 569 U.S. ___, 133 S.Ct. ___, 186 L.Ed.2d 153 (2013).

The Red River Compact (Compact) allocates water rights among the States within the Red River Basin as it winds through Texas, Oklahoma, Arkansas and Louisiana. The area the Compact governs is divided into five separate subdivisions called “Reaches,” each of which is further divided into smaller “subbasins.” At issue in this case are rights under the Compact to water located in Oklahoma’s portion of Reach II, subbasin 5. Petitioner Tarrant Regional Water District (Tarrant), a Texas agency, claims that it is entitled to acquire water under the Compact from within Oklahoma and that the Compact pre-empts several Oklahoma statutes that restrict out-of-state diversions of water. In the alternative, Tarrant argues that the Oklahoma laws are unconstitutional restrictions on interstate commerce. The District Court granted summary judgment for the Oklahoma Water Resources Board (OWRB), and the Tenth Circuit affirmed. The Supreme Court holds that Tarrant’s claims lack merit and affirms the judgment of the Tenth Circuit.

Tarrant claims that §5.05(b)(1) of the Compact gives it the right to cross state lines and divert water from Oklahoma and that Oklahoma water statutes interfere with its ability to exercise that right. OWRB disputes this reading, arguing that the “equal rights” promised by this section of the Compact give each State an equal opportunity to make use of the excess water within subbasin 5 of Reach II but only within each State’s own borders. The OWRB believes that the absence of language granting cross-border rights indicates that the Compact’s drafters had no intent to create those rights. The Supreme Court holds that cross-border rights were not granted by the Compact on three grounds: (1) the well-established principle that States do not easily cede their control over waters within their own territories; (2) the fact that other interstate water compacts have treated cross-border rights explicitly; and (3) the parties’ course of dealing. The Court finds that States rarely relinquish their sovereign powers, so when they do, the Court would expect a clear indication of such devolution rather than “inscrutable silence.”

The Court compares other Compacts that feature language that unambiguously permits signatory States to cross each other's borders to fulfill obligations under the compacts and holds that the absence of comparable language in the Red River Compact "counts heavily" against Tarrant's reading of it. The Court holds that the parties' conduct under the Compact also undermines Tarrant's position, finding that until Tarrant filed suit in 2007, no signatory State had asked for a cross-border diversion under the Compact. These three factors all convince the Court that the Compact creates no cross-border rights in Texas.

Tarrant also challenges the constitutionality of the Oklahoma water statutes under a dormant Commerce Clause theory. Tarrant argues that the Oklahoma water statutes impermissibly "'discriminate[e] against interstate commerce' for the 'forbidden purpose' of favoring local interests" by erecting barriers to the distribution of water left unallocated under the Compact (citations omitted). The Court finds Tarrant's assumption that there is "unallocated" water under the Compact incorrect, holding that the Compact leaves no waters unallocated, so Tarrant's Commerce Clause argument "founders on this point."

In summary, the Supreme Court holds that the Red River Compact does not pre-empt Oklahoma's water statutes because the Compact does not create cross-border rights in its signatories for these statutes to infringe, nor do Oklahoma's laws run afoul of the Commerce Clause. Therefore, the Court affirms the judgment of the Tenth Circuit.

Los Angeles Flood Control District v. Natural Resources Defense Council, Inc., 568 U.S. ___, 133 S.Ct. ___, 184 L.E.2d 547, (2013).

Petitioner Los Angeles County Flood Control District operates a municipal separate storm sewer system (MS4), a drainage system that collects, transports and discharges storm water. Because storm water is often heavily polluted, the Clean Water Act (CWA) and its implementing regulations require the operator of an MS4 serving a population of at least 100,000 to obtain a National Pollutant Discharge Elimination System (NPDES) permit before discharging storm water into navigable waters. Petitioner first obtained an NPDES permit for its MS4 in 1990 and renewed it several times thereafter. Respondents Natural Resources Defense Council (NRDC) filed a citizen suit against Petitioner and several other defendants under §505 of the CWA. NRDC alleged, among other things, that water-quality measurements from monitoring stations located within the Los Angeles and San Gabriel Rivers demonstrated that Petitioner was violating the terms of its permit. The District Court granted summary judgment to the District. The District Court acknowledged that it was undisputed that data from the two river monitoring stations indicated that water quality standards had repeatedly been exceeded, but the District Court found that numerous entities other than Petitioner discharge into the rivers upstream of the monitoring stations, so the record was insufficient to warrant a finding that Petitioner's MS4 had discharged storm water containing the standards-exceeding pollutants detected at the

downstream monitoring stations. The Ninth Circuit reversed in relevant part. The monitoring stations for the rivers are located in “concrete channels,” and the Ninth Circuit held that a discharge of pollutants occurred under the CWA when polluted water detected at the monitoring stations “flowed out of the concrete channels” and entered downstream portions of the waterways that did not have concrete channels.

The Supreme Court granted certiorari solely to answer the following question: “Under the CWA, does a ‘discharge of pollutants’ occur when polluted water ‘flows from one portion of a river that is navigable water of the United States, through a concrete channel or other engineered improvement in the river,’ and then ‘into a lower portion of the same river’?” The Supreme Court states that the parties and the United States as amicus curiae all agree the answer to that question is “no.” The Court cites *South Florida Water Management District v. Miccosukee Tribe*, 541 U.S. 95, 124 S.Ct. 1537, 158 L.Ed. 2d 264 (2004), in which the Court held that the transfer of polluted water between two parts of the same water body does not constitute a discharge of pollutants under the CWA. Based on that holding, the Court finds that no discharge of pollutants occurs when water, rather than being removed and then returned to a water body, simply flows from one portion of the water body to another. In the current case, the Court holds that the flow of water from an improved portion of a navigable waterway into an unimproved portion of the same waterway does not qualify as a discharge of pollutants under the CWA. Therefore, the judgment of the Court of Appeals for the Ninth Circuit was reversed and the case was remanded.

3. Legislation

In the First Session of the 113th Congress, Congress enacted the following statutes that are important to the Upper Colorado River Basin States:

Public Law 113-24, approved August 9, 2013, to authorize all Bureau of Reclamation conduit facilities for hydropower development under Federal Reclamation law.

Public Law 113-23, approved August 9, 2013, to improve hydropower.

Public Law 113-20, approved July 18, 2013, to authorize the Secretary of the Interior to facilitate the development of hydroelectric power on the Diamond Fork System of the Central Utah Project.

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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 Colorado River Storage Project Act of April 11, 1956 (Public Law 485, 84th Congress, 70 Stat. 105). Four storage units were authorized by this Act: the Glen Canyon Unit on the Colorado River in Arizona and Utah; the Flaming Gorge Unit on the Green River in Utah and Wyoming; the Navajo Unit on the San Juan River in Colorado and New Mexico; and the Wayne N. Aspinall Unit, formerly named the Curecanti Unit and rededicated in July 1981, on the Gunnison River in Colorado. The Aspinall Unit consists of Blue Mesa, Morrow Point, and Crystal dams and reservoirs. Combined, the four main storage units provide about 30.6 million acre-feet of live water storage capacity. The initial CRSP Act of 1956 also authorized the construction of 11 participating projects. Additional participating projects have been authorized by subsequent congressional legislation.

The CRSP storage units and authorized participating projects are described in this 65th report and earlier annual reports of the Upper Colorado River Commission. Progress on construction along with updates on operation and maintenance, power generation, recreational use, planning investigation activities, reservoir operations, and appropriations of funds for the storage units and participating projects accomplished during the past water year (October 1, 2012, to September 30, 2013), fiscal year (October 1, 2012, to September 30, 2013), and calendar year (2013) are outlined below. Significant upcoming or projected information is also included for some storage units and projects.

1. Glen Canyon 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 by adjusting water releases through the powerplant to respond to variances in electrical demand.

At optimum operations, the eight generators at Glen Canyon Dam are capable of producing 1,320 megawatts of power. Water releases from the dam occur at 200-230 feet below the surface of Lake Powell at full pool, which results in clear cold water with year-round temperatures of 45 degrees F to 50 degrees F. During protracted droughts, such as occurred from 2000-2008, Lake Powell elevations decline to levels where warmer water is drawn through the penstocks and released downstream. 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 1995 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 the 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 concern over resource degradation resulting from dam operations. Because of these concerns, the Secretary of the Interior (Secretary) adopted interim operating criteria in October 1991 that narrowed the range of daily powerplant fluctuations. Since the signing of the final operating criteria in February 1997, powerplant releases do not exceed 25,000 cfs, other than during occasional experimental flows or emergency situations, and have most often averaged between 10,000 cfs and 20,000 cfs. Experimental high flows have not exceeded 45,000 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 phase (1989-1996) introduced experimental dam releases and 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 dam 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 this Act. Section 1802(a) of the GCPA requires the Secretary to operate Glen Canyon Dam:

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

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

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

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 (the hourly rate of increase in releases to meet hydropower demands) from 2,500 cfs/hour to 4,000 cfs/hour. The ROD also changed the triggering mechanisms for conducting beach/habitat-building flows (experimental flows above powerplant capacity). Instead of conducting them in years when Lake Powell storage was low on January 1, they would be conducted in years when Lake Powell storage was high and reservoir releases in excess of powerplant capacity were required for dam safety purposes. Following the signing of the ROD, the Secretary adopted a formal set of operating criteria (February 1997) and the 1997 Annual Plan of Operations. This action terminated the 1991 interim operating criteria.

The signing of the 1996 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 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

The Glen Canyon Dam Adaptive Management Program (AMP) was implemented following the 1996 Record of Decision on the Operation of Glen Canyon Dam Final Environmental Impact Statement (FEIS) to comply with consultation requirements of the Grand Canyon Protection Act of 1992. It provides an organization and process to ensure the use of scientific information in decision making for Glen Canyon Dam operations and protection of downstream resources consistent with the GCPA. The AMP includes the Glen Canyon Dam Adaptive Management Work Group (AMWG), Secretary's Designee, Technical Work Group, U.S. Geological Survey's (USGS) Grand Canyon Monitoring and Research Center (GCMRC), and independent scientific review panels. Department of the Interior Regional Directors also facilitate communication and cooperation in the AMP. The program is primarily funded by hydropower revenues. A major initiative of the AMP is developing a set of desired future conditions for important resources within the Glen Canyon National Recreational Area and Grand Canyon National Park that will provide opportunities to balance the competing demands on dam operations. The AMWG makes recommendations to the Secretary of the Interior on dam operations and other management actions that will likely meet those objectives.

Adaptive management is founded in monitoring, research, and scientific experimentation. Long-term monitoring is used to track trends and compare current resource status with baseline conditions. Monitoring protocols are carefully established to ensure consistency and compatibility among data sets and to reveal when resource expectations are not met. Experiments are designed to better understand the ecological processes at work and resource responses. They are resource-integrated and target the complex interactions among the numerous pieces of the resource puzzle. Currently, efforts are focused on improving the status of the endangered humpback chub and the conservation of fine sediments, most of which are now retained in Lake Powell and not delivered to Grand Canyon National Park. The endangered humpback chub population in Grand Canyon was in decline in the 1990s, and reached a low of about 5,000 adult fish in 2001, but has stabilized and increased since that time. The 2008 population estimate compiled by the USGS was about 7,650 adult fish and the most recent estimate (2012) is that the population size has grown to between 9,000 and 12,000 fish. The exact cause of the population increase is unknown, but removal of non-native fish, endangered fish translocation efforts, and recent drought-induced warmer dam releases likely have contributed.

A diverse group of 25 stakeholders comprises the AMP and each has a voice in formal recommendations. AMP stakeholders have divergent views on the interpretation of the GCPA, particularly with regard to how it may or may not amend previous statutes related to the operation of Glen Canyon Dam. While each stakeholder represents their own interests, they also work together for the common good of protecting the ecosystem downstream from Glen Canyon Dam and meeting provisions of the GCPA.

The AMP effort continues to make progress in forming partnerships among participants, understanding resource issues, and experimenting with dam operations and other management actions to better accomplish the intent of the FEIS Record of Decision and the GCPA. It is, of necessity, a long-term commitment.

b. Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead

Against the backdrop of the worst drought in over a century on the Colorado River, and pursuant to a Secretarial directive to finish this effort by 2007, Reclamation worked through a National Environmental Policy Act process to develop interim operational guidelines for Lake Powell and Lake Mead to address drought and low reservoir conditions. These operational guidelines provide Colorado River water users and managers in the United States a greater degree of certainty about how the two large reservoirs on the Colorado River will be operated under low water conditions, and when – and by how much – water deliveries will be reduced in the Lower Basin to the states of Arizona, California, and Nevada in the event of drought or other low reservoir conditions. In a separate, cooperative process, Reclamation worked through the State Department to consult with Mexico regarding potential water delivery reductions to Mexico under the 1944 Treaty with the United States.

A Record of Decision was signed by the Secretary of the Interior at the Colorado River Water Users Association's Annual Conference in Las Vegas, Nevada, on December 13, 2007. The ROD implements the interim operational guidelines that will be in place through 2026. The key components of the guidelines are: (1) a shortage strategy for Lake Mead and the Lower Division states, (2) coordinated operations of Lakes Powell and Mead through a full-range of operations, (3) a mechanism for the creation and delivery of conserved system and non-system water in Lake Mead (Intentionally Created Surplus), and (4) the modification and extension of the existing Interim Surplus Guidelines.

c. Experimental Releases from Glen Canyon Dam

Reclamation has been conducting experimental releases from Glen Canyon Dam to protect, mitigate adverse impacts to, and improve downstream environmental resources consistent with the Grand Canyon Protection Act of 1992. These experimental releases are coordinated through the Glen Canyon Dam Adaptive Management Program.

(i). High-Flow Experiments

Pre-Protocol high-flow experiments were conducted in 1996, 2004, and 2008. Each experimental release added to the understanding of the river ecosystem below the dam and the impacts of high-flow releases. Long-term monitoring has revealed an ongoing loss of fine sediment in the Grand Canyon. Nearly 90 percent of the sediment that once entered the Grand Canyon is now deposited in Lake Powell. Scientific evaluation of the 1996 high-flow experiment revealed that (1) more sediment was exported than was conserved; (2) while beaches were built, the sediment was mined from the river channel and eddy complexes; and (3) a week-

long high flow was not necessary to effectively build beaches. Scientific understanding gained from the 1996 experiment and subsequent geomorphic studies resulted in the hypothesis that conducting high-flow experiments following tributary inputs that produce sediment-enriched conditions can result in overall sediment conservation. Data collected from the 2008 high-flow experiment showed that considerable building of sandbars occurred; however, sandbars created are subsequently subject to erosion. The erosion rate varies greatly depending upon such factors as bar location and the subsequent flow regime, where higher flows and fluctuating flows result in greater erosion rates. High-flow releases also create backwater habitats along shorelines which are important for native fish. Sand deposits created or deepened from high-flow releases are hypothesized to protect archaeological sites as well through deposition of sand on those sites.

(ii). Steady-Flow Experiments

Steady-flow experiments from Glen Canyon Dam have been conducted periodically since 2000. A five-year experiment with steady flows during September and October was initiated in 2008 and continued through 2012. The purpose of this experiment was to contrast the effects that steady and fluctuating releases have on native fish habitat, survival, and recruitment. A nearshore ecology study is evaluating the effects of steady and fluctuating flows on near-shore habitats that are thought to be important for successful rearing of native and endangered fish.

(iii). Environmental Compliance for Experimental Releases

A final Environmental Assessment for Experimental Releases from Glen Canyon Dam, Arizona, 2008 through 2012, and Finding of No Significant Impact (FONSI) covering the 2008 high-flow experiment and five years of fall steady flows were issued on February 29, 2008. Continuing scientific studies and a synthesis report released by the USGS's GCMRC in February 2011 compared the 1996, 2004, and 2008 high-flow experiments and have served to assist the Glen Canyon Dam Adaptive Management Work Group in formulating recommendations on future experimental flows. In 2012, environmental compliance was completed for a new 10-year high-flow protocol as described below. The Department of the Interior remains committed to involving the AMWG and the public in the decision-making process for experimental releases at Glen Canyon Dam.

d. Glen Canyon Dam Operations During 2013

For detailed information on the operations of Glen Canyon Dam and reservoir, see the RESERVOIR OPERATIONS section of this report (Section H).

e. Environmental Assessment (EA) for an Experimental Protocol for High-Flow Releases from Glen Canyon Dam (Protocol)

On December 10, 2009, the Secretary of the Interior announced that the Department of the Interior would undertake an important experimental initiative to improve the management of Glen Canyon Dam and the Colorado River as it flows through Grand Canyon National Park. The Secretary identified the initiative as the development of a High-Flow Experimental Protocol for conducting additional high-flow experiments at the dam, building on knowledge accrued during previous experiments.

National Environmental Policy Act compliance was initiated in December 2009, and following two periods of public comment on the draft EA, a final EA was published in December

2011. The EA analyzes the effects of implementing a Protocol to conduct multiple high-flow experiments from Glen Canyon Dam during the period 2011-2020. It also includes a biological opinion rendered by the U.S. Fish and Wildlife Service (Service) and a science plan written by the GCMRC to measure resources from high-flow experiments conducted under the Protocol. The primary purpose of the Protocol is to learn, through adaptive management, how to better conserve the limited sand supply to the Colorado River below Glen Canyon Dam, while also ensuring that no significant impacts occur to other resources affected by the high releases. The Department's effort to develop and implement the Protocol is a component of its efforts to comply with the requirements and obligations established by the Grand Canyon Protection Act of 1992.

In May 2012, the Department released a FONSI on the Protocol. Concurrent with that release, a Directive was issued by the Secretary to establish a Glen Canyon Leadership Team comprised of members from the five Department bureaus engaged in the AMP (Bureau of Reclamation, National Park Service [NPS], U.S. Fish and Wildlife Service, Bureau of Indian Affairs, and U.S. Geological Survey) and the Offices of the Assistant Secretaries for Water and Science and for Fish and Wildlife and Parks. The Leadership Team is tasked with making a decision on high-flow experiments under the Protocol based on input from a Technical Team having representation from the same bureaus and offices. The first high-flow release under the new Protocol was conducted in November 2012 and the second high-flow release was conducted in November 2013.

f. Environmental Assessment for Non-Native Fish Control in the Colorado River Below Glen Canyon Dam

Biological opinions for the Colorado River Interim Guidelines and operation of Glen Canyon Dam include control of non-native fishes, and more specifically, removal of non-native fishes to benefit endangered humpback chub. Consequently, the 2010/2011 Glen Canyon Dam Adaptive Management Program work plan contained provisions for one to two non-native fish removal trips to take place near the mouth of the Little Colorado River in each of the two years. The Pueblo of Zuni and other AMP tribes expressed concern over the proposed removal trips at the April 2009 Glen Canyon Dam Adaptive Management Work Group meeting. In June and July 2009, the Pueblo of Zuni wrote letters to Reclamation, the GCMRC, and the Service expressing concern over the killing of non-native fish and the location of the activity, which has cultural significance for the Zuni and other tribes. In order to resolve the conflict between the need to control non-native fish and address tribal concerns, Reclamation cancelled the planned 2010 removal trips, reinitiated Endangered Species Act (ESA) Section 7 consultation with the Service over cancellation of the trips, and began an effort to develop an EA to analyze potential alternatives to meet this need.

The Non-Native Fish Control EA evaluates possible actions that could reduce predation on endangered fish in the Colorado River below Glen Canyon Dam. Some means of control are necessary to satisfy commitments for biological opinions on the operation of Glen Canyon Dam to ensure compliance with the Endangered Species Act. Mechanical removal has been used for this purpose previously, but other methods were evaluated in the EA to address the concerns of some Native American tribes for what they perceive to be an unnecessary sacrifice of life in a sacred area.

Reclamation finalized the EA on December 30, 2011. Reclamation received a final biological opinion on the proposed action from the Service on December 23, 2011. In May 2012, concurrent with the FONSI on the Protocol, the Department released a FONSI on non-

native fish control below Glen Canyon Dam. Reclamation, the NPS, and the Service, with the assistance and cooperation of AMP members, are coordinating the non-native fish control program. Reclamation is committed to developing additional non-native fish control options and the NPS has developed a management plan for native and non-native fish downriver from Glen Canyon Dam. All of these actions are also being considered in the development of the Long-Term Experimental and Management Plan (LTEMP) EIS.

g. Environmental Impact Statement for a Long-Term Experimental and Management Plan for Glen Canyon Dam

On December 17, 2010, the Secretary of the Interior announced at the annual conference of the Colorado River Water Users Association the beginning of efforts in early 2011 to work with stakeholders on moving forward with development of a Long-Term Experimental and Management Plan for Glen Canyon Dam. Reclamation and the National Park Service are co-lead agencies on the EIS. The purpose of the proposed LTEMP is to increase scientific understanding of the ecosystem downstream from Glen Canyon Dam and to improve and protect important downstream resources while maintaining compliance with relevant laws including the Grand Canyon Protection Act, the “Law of the River,” and the Endangered Species Act.

A primary function of the LTEMP EIS will be to continue the adaptive management experiments that have been successfully completed under the Glen Canyon Dam Adaptive Management Program. Dam operations and other actions under the jurisdiction of the Secretary of the Interior will be considered for inclusion in alternatives in the LTEMP EIS, in keeping with the scope of the GCPA. The LTEMP will be the first EIS completed on the operations of Glen Canyon Dam since the 1995 EIS, which was a major point of demarcation in attempting to achieve a balance between project purposes and natural resources protection.

Public scoping for the LTEMP EIS was initiated by a *Federal Register* Notice on October 17, 2011, and ended on January 31, 2012. All agencies and tribes that are members of the AMWG and that were recently involved in Reclamation’s two environmental assessments on Glen Canyon Dam operations were invited to be cooperating agencies. Currently, there are 14 cooperating agencies (including six tribes) participating in the LTEMP EIS process. At the close of the public scoping period, over 440 comment letters and e-mails were received. Comments were evaluated and a scoping report to summarize the issues and concerns identified was published in March 2012. Two web-based public meetings to brief the public on the scoping report were held on March 27, 2012.

In April 2012, a two-day workshop was held in Flagstaff, Arizona, to share preliminary draft EIS alternatives with the interested public. The public was invited to participate not only in discussion of the co-lead agencies’ proposed alternatives, but also to present ideas they might have for additional alternatives to be analyzed in the EIS. The public was invited to submit alternatives for consideration by July 2, 2012, and both the Basin States and the Colorado River Energy Distributors Association submitted proposed alternatives. Further coordination with these two groups on their alternatives continued throughout 2013 and finalization of all alternatives to be analyzed in the EIS is expected to occur in early 2014. Concurrent with this effort, coordination and consultation with the cooperating agencies and interested tribes continues. The schedule for development of a draft EIS for public review and comment anticipates publication in the summer of 2014.

h. Recreational Use

The extensive use of the Glen Canyon National Recreation Area (NRA), which surrounds Lake Powell, is demonstrated by the visitation of 1,984,108 people as of November 30, 2013, the latest figure available. This decrease from 2012 numbers is probably due to low water conditions. 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 15.8 miles below Glen Canyon Dam on the Colorado River. The Navajo Nation operates a marina at Antelope Point.

Visitation at Rainbow Bridge as of November 30, 2013, was reported by the National Park Service to be 54,523. Rainbow Bridge is considered a sacred site by Native Americans and many go to the site to pray and hold religious ceremonies. The National Park Service has requested that visitors voluntarily respect the site and keep from approaching too closely or walking under the bridge. Personal watercraft use in the Rainbow Bridge area has been banned since 2000. The trail to the monument was closed in September 2013 due to flash flooding that washed out the trail and created hazardous conditions for visitors. Two weeks after damage was incurred, the trail was reopened.

The Carl B. 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. The Glen Canyon Natural History Association conducts public tours of the dam and operates the book sales area in the visitor center. Public guided tours will continue as long as the security threat advisory stays at “yellow” or below. Self-guided tours of the dam and powerplant were discontinued after September 11, 2001. As of January 5, 2009, a fee for guided tours is being charged to offset, in part, increased costs associated with public visitation to the visitor center. A \$1.5 million contract to upgrade the interpretive exhibits in the visitor center was awarded in May 2013 to Pacific Studio, Inc., of Seattle, Washington. Data gathering to support the chosen theme was undertaken and will shape the final design of the exhibits. Installation of the new exhibits is to take place over the winter of 2014-2015 and it is expected to be reopened to the public by May 31, 2015.

(i). Invasive Mussel Control

In March 2013, NPS divers found 14 adult quagga mussels attached to dock facilities and moored vessels at Wahweap Marina. This triggered additional monitoring and over 150 adults were found in May at both Wahweap and Antelope Point marinas. It was decided to do a mussel “blitz” after the latest discovery and on June 10, 2013, 36 divers with the assistance of 73 support staff went into the water at Wahweap and Antelope Point to assess the extent of infestation. The four-day effort resulted in the discovery of 235 mussels on moored boats, docks, and breakwaters at both marinas, but no large colonies. The mussels found ranged from the size of a pea to the size of a quarter, suggesting different age groups. There were three instances of small groups of two to three mussels at Wahweap; however, the majority were found as individuals and not in colonies. With no current indication of larvae, biologists remain optimistic that there is no reproducing population. Intense monitoring and removal will continue throughout the year at the southern end of the lake with other marinas and docks to be assessed in the future.

Although Lake Powell is extensively monitored, and boat inspections are mandatory, the public bears the bulk of the responsibility for preventing the spread of invasive species through cleaning, draining, and drying their boats. Boat inspections and decontamination only capture a small percentage of the boats entering the lake due to lack of staffing and other resources.

2. Flaming Gorge Unit

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

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 Upper Colorado River Endangered Fish Recovery Program (Upper Colorado Recovery Program). The report, prepared by a multi-disciplinary team, synthesizes research conducted on endangered fish in the Green River under the Upper Colorado Recovery Program and presents flow recommendations for three reaches of the Green River. In 2006, Reclamation completed a National Environmental Policy Act process for implementation of an operation at Flaming Gorge Dam that meets the flow recommendations. A draft environmental impact statement was published in September 2004 and the Operation of Flaming Gorge Dam Final Environmental Impact Statement was published in November 2005. A Record of Decision was signed in February 2006. Flaming Gorge Dam is operated in accordance with the 2006 ROD and the September 2005 Biological Opinion on the Operation of Flaming Gorge Dam.

a. Flaming Gorge Dam Operations During 2013

For detailed information on the operations of Flaming Gorge Dam and reservoir, see the RESERVOIR OPERATIONS section of this report (Section H).

b. Recreational Use

The interagency agreement between the Bureau of Reclamation and Ashley National Forest (U.S. Forest Service) for joint management of facilities within the primary jurisdiction area expired December 31, 2013, and the U.S. Forest Service declined to enter into another agreement. Operation of the visitor center is now Reclamation's sole responsibility and various approaches to staffing it to keep it open to the public are being investigated at this time.

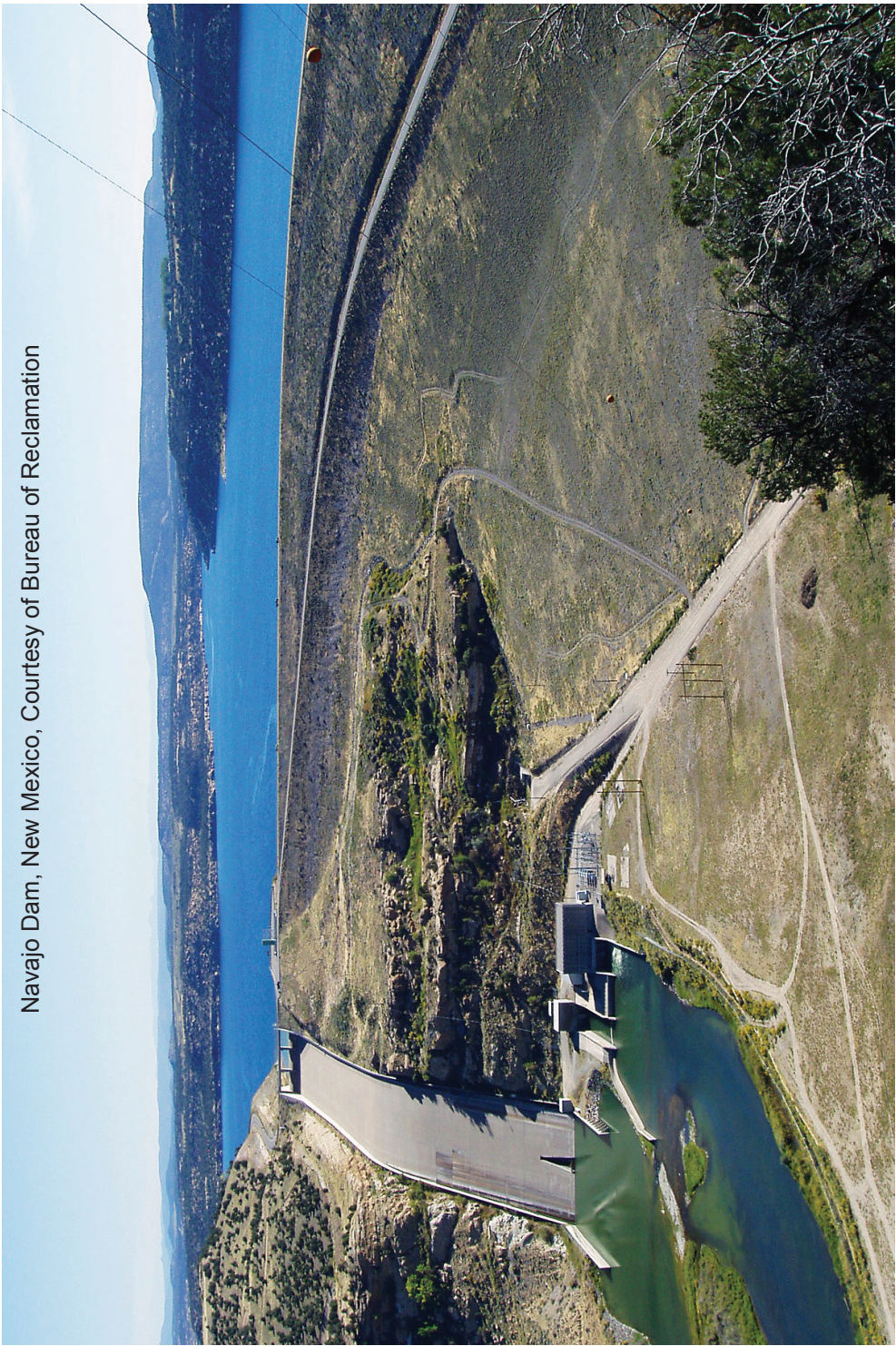
Public tours of the dam are conducted March 15 through October 15 of each year by the Intermountain Natural History Association, a non-profit partner at the visitor center. Tours of the inside of the dam are conducted when the security threat advisory is low. However, when the security threat advisory is high, tours of the inside of the dam are suspended and tourists are taken to a dam overlook area where guides present information about construction and operation of the dam.

A visitation estimate for the entire Ashley National Forest was compiled in fiscal year 2012 and resulted in a use figure of 654,000 for that year. The U.S. Forest Service does not estimate visitor use statistics by feature, so no estimated figures are available for Flaming Gorge NRA.

(i). Invasive Mussel Control

Invasive mussel control at Flaming Gorge Reservoir is the responsibility of the states of Utah and Wyoming as well as marina owners and visitors. The Bureau of Reclamation periodically performs plankton towing and sends these samples to its labs in Denver where a couple of different tests are completed in an effort to discover the presence of veliger (larvae). The Utah Division of Wildlife Resources reports that DNA (deoxyribonucleic acid) has been picked up at Flaming Gorge during sampling at least once, but the lake is not considered to be infested at this time. Data from the 2013 sampling program is pending.

Navajo Dam, New Mexico, Courtesy of Bureau of Reclamation



3. Navajo Unit

Navajo Dam was completed in 1963. The water stored behind Navajo Dam pursuant to the Colorado River Storage Project Act provides a water supply for the Navajo Indian Irrigation Project near Farmington, New Mexico, and the Hammond participating project. In addition, water for the Jicarilla Apache Nation is also available in Navajo Reservoir pursuant to the December 8, 1992, contract between the Jicarilla Apache Nation and the United States which was executed as part of the Jicarilla Apache Nation Water Rights Settlement Act of January 3, 1992 (P.L. 102-441). The water supply for the Navajo-Gallup Water Supply Project will also be provided in part by Navajo Reservoir, as was provided in the Omnibus Public Land Management Act of March 30, 2009 (P.L. 111-11).

Reclamation published the Navajo Reservoir Operations Final Environmental Impact Statement on April 20, 2006, and the Record of Decision was signed on July 31, 2006. Reclamation's decision was to implement the preferred alternative that is identified in the 2006 ROD with reservoir releases ranging from 250 to 5,000 cubic feet per second. The preferred alternative, to the extent possible, implements criteria needed to assist in meeting flow recommendations for the endangered fish in the San Juan River, while assisting both current and future water development in the San Juan River Basin to proceed in compliance with the Endangered Species Act and other state and federal laws. Navajo Dam is operated in accordance with the 2006 Record of Decision.

a. Navajo Dam Operations During 2013

For detailed information on the operations of Navajo Dam and reservoir, see the RESERVOIR OPERATIONS section of this report (Section H).

b. Recreational Use

In June 2008, Reclamation published the Final Environmental Assessment and Resource Management Plan for Lands within the Navajo Reservoir Area. Management alternatives were evaluated in cooperation with Colorado and New Mexico State Parks, the Bureau of Land Management, and other agencies. Reclamation selected the alternative that protects the purposes of the Navajo Unit, allows for other uses consistent with project purposes, provides for public recreation, and protects and enhances area resources. The plan will help direct resource related activities at Navajo Reservoir in the future.

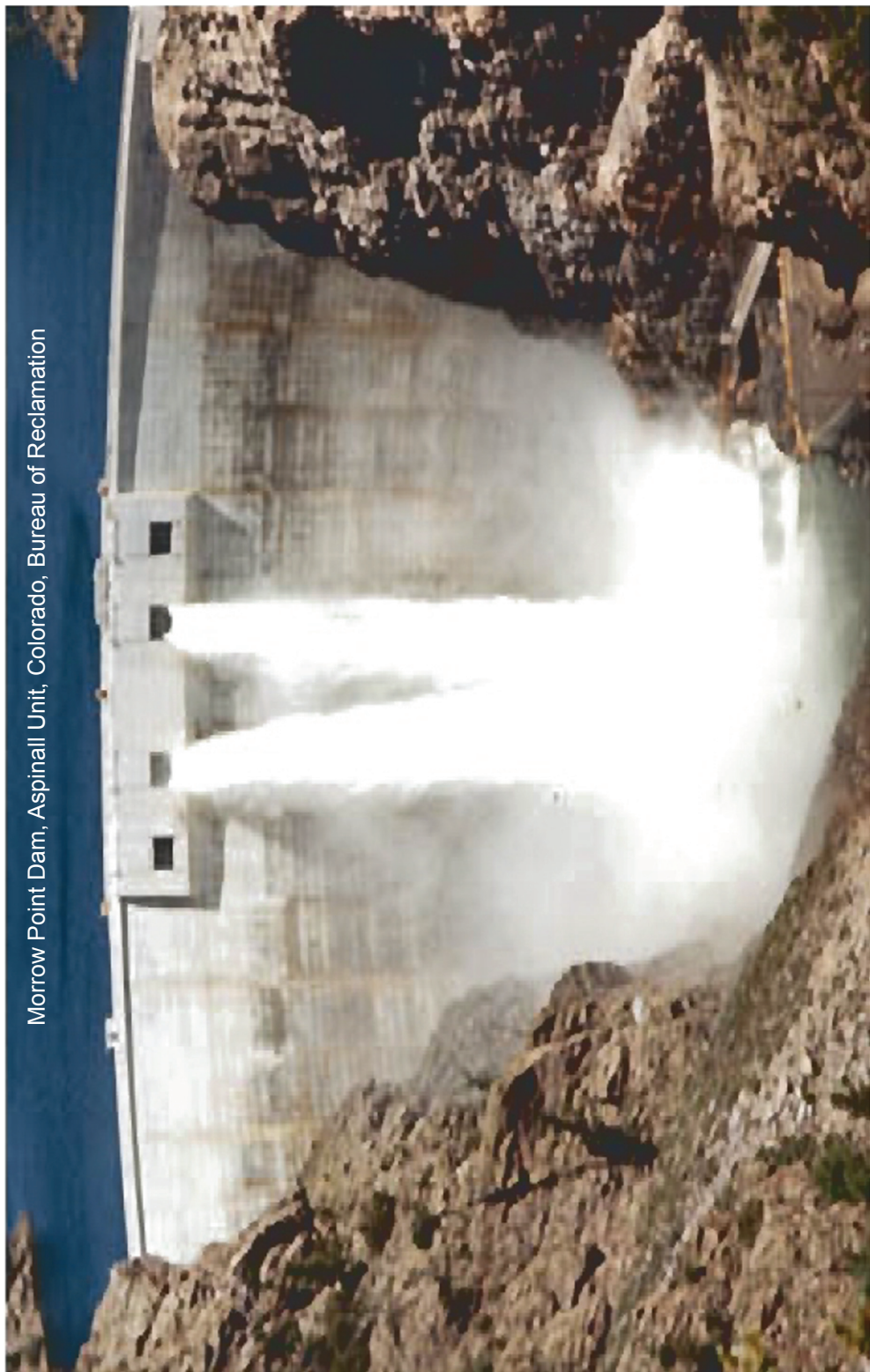
Recreation at Navajo Reservoir is under the jurisdiction of the states of Colorado and New Mexico through contracts with Reclamation. The Colorado portion of the reservoir, or Navajo State Park, is managed by the Colorado Division of Parks and Wildlife (CDPW). The New Mexico portion of the reservoir, or Navajo Lake State Park, is managed by the New Mexico State Parks Division (New Mexico State Parks).

Visitation for the reservoir was reported to be 355,493 on the Colorado side from July 1, 2011, through June 30, 2012, and 428,056 on the New Mexico side during the same time period.

(i). Invasive Mussel Control

Reclamation is working closely with both recreation managing entities to develop effective solutions to manage the spread of invasive mussels including educating the public and

Morrow Point Dam, Aspinall Unit, Colorado, Bureau of Reclamation



providing materials such as signs and brochures. The CDPW is conducting boat inspections and has a portable boat wash and decontamination unit at Arboles. Due to funding limitations, staffing reductions, and liability issues, New Mexico State Parks will no longer perform boat inspections/decontaminations for invasive mussels at any of the reservoirs they manage for Reclamation. The New Mexico Game and Fish Department has authority under state law for mussel control and the agency started an inspection and decontamination program in 2013. With only four seasonal staff inspections to cover the entire state of New Mexico, crews were not able to be on site at all times. At the two main ramps (Pine and Sims), staff were able to inspect 5,211 boats (approximately 16 percent of the total number of estimated launches). Continued sampling activities at Navajo Reservoir during 2012 detected a weak presence of mussels once again; however, these results could not be confirmed with DNA sequencing. Results for 2013 sampling activities are pending.

4. Wayne N. Aspinall Unit

The Wayne N. Aspinall Unit (Aspinall Unit) includes Blue Mesa, Morrow Point, and Crystal dams, reservoirs, and powerplants. Construction of the three Aspinall Unit dams was completed in 1976. The Aspinall Unit is located in Gunnison and Montrose counties, Colorado, on the Gunnison River upstream from Black Canyon of the Gunnison National Park. At optimum operations, the generators at Blue Mesa, Morrow Point, and Crystal powerplants are capable of producing a total of 283 megawatts of power.

Similar to Glen Canyon, Flaming Gorge, and Navajo dams, the Aspinall Unit is being evaluated to determine how operations can be modified to assist in the recovery of downstream endangered fish. Flow recommendations for endangered fish in the Gunnison River were completed in 2003. Reclamation prepared a draft EIS on Aspinall Unit operations to provide an operational pattern to assist in the conservation of endangered fish while continuing to meet Aspinall Unit purposes. The draft EIS was published in February 2009. The Aspinall Unit Operations Final Environmental Impact Statement was published in February 2012. The preferred alternative provides operational guidance for the Aspinall Unit for specific downstream spring peak and duration flows that are dependent on forecasted inflow to the Aspinall Unit reservoirs. It also provides base flows outside of the spring runoff period. The U.S. Fish and Wildlife Service completed a programmatic biological opinion for the EIS which addresses proposed operation changes as well as coverage of existing water uses in the Gunnison Basin. The biological opinion also completes Endangered Species Act compliance for the Dallas Creek and Dolores projects. The Record of Decision was issued in May 2012.

On January 8, 2009, the Colorado Water Court issued a decree quantifying the 1933 federal reserved water right for the Gunnison River through Black Canyon of the Gunnison National Park. The decree quantifies the March 2, 1933, priority date water right as a year-round minimum flow and variable peak and “shoulder” flows for each year, the magnitude of which are dependent upon current Gunnison River Basin hydrologic conditions. The negotiations for the right were discussed in the Aspinall Unit draft EIS. Now that the right is in place, additional detail is included in the final EIS. Reclamation will operate the Aspinall Unit with the intent of meeting the water right, the flow recommendations, and authorized Aspinall Unit purposes every year. The reserved right will be considered equally along with flow recommendations and authorized purposes of the Aspinall Unit. Because the reserved right is now decreed, it is considered to be a common element in the No Action and action alternatives cited in the final EIS.

a. Aspinall Unit Operations During 2013

For detailed information on the operations of Aspinall Unit dams and reservoirs, see the RESERVOIR OPERATIONS section of this report (Section H).

b. Recreational Use

Recreation use for the Aspinall Unit is managed by the National Park Service as the Curecanti National Recreation Area. Visitation to the NRA from January through October 2013 was reported to be 769,757 (data for the remainder of the calendar year was not yet available). Visitation to the Black Canyon of the Gunnison, which is below Crystal Dam and adjacent to the Curecanti NRA, was reported to be 171,714 from January through November 2013.

In 1965, the National Park Service entered into an agreement with the Bureau of Reclamation to construct and manage recreational facilities and to manage natural and cultural resources and recreation on, and adjacent to, the three reservoirs. This area became known as the Curecanti National Recreation Area. The NRA is currently identified by an administrative boundary that has not been established by legislation. A Resource Protection Study and Record of Decision for the Curecanti NRA, released in April 2009, identified Alternative 2 as the selected action. Alternative 2 recommends that the Curecanti NRA be formally established through legislation, while also working with Reclamation to ensure that its project interests are protected. In October 2009, a Report to Congress was transmitted to the House Subcommittee on National Parks, Forests, and Public Lands. Implementation of Alternative 2 would require enactment of legislation and appropriation of funding; it is up to Congress to decide what actions, if any, to take. On December 2, 2010, Representative John Salazar introduced legislation (H.R. 6493) known as the Curecanti National Recreation Area Boundary Establishment Act of 2010. On December 6, 2010, the bill was referred to the House Committee on Natural Resources; the Subcommittee on National Parks, Forests and Public Lands; and the Subcommittee on Water and Power. No additional action has occurred since that time.

(i). Invasive Mussel Control

The State of Colorado has instituted an aggressive program to prevent the spread of quagga and zebra mussels into its waters. The three Aspinall Unit reservoirs are being treated under the state's containment protocol for watercraft inspection procedures which requires watercraft exiting the water to be inspected (this is in addition to inspections required upon arrival). Any boats found to be suspicious will be decontaminated. All motorized watercraft leaving the Curecanti NRA will undergo a second inspection to ensure that the craft has been cleaned, drained, and dried according to Colorado's protocol. Continued monitoring has resulted in a couple of positive tests for veligers; however, these tests have not been backed up by microscopy and no adult mussels have been found.

B. STORAGE UNITS FISHERY INFORMATION

The Glen Canyon, Flaming Gorge, Navajo, and Wayne N. Aspinall storage units continue to provide excellent warm- and cold-water fishing both in the reservoirs and in the tailwater streams below the dams.

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. Lake Powell is consistently a high-quality fishery, even during lower water elevations.

The cool, clear depths of Flaming Gorge Reservoir are ideal for several species of 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, smallmouth bass, and channel catfish. Due to illegal stocking, the reservoir also has an established population of burbot. Because the burbot is a voracious predator, its presence could seriously affect populations of sport fish in the reservoir. The Utah Division of Wildlife Resources requires any burbot caught to be killed and there is no limit on the number of fish that can be taken from either the Utah or Wyoming sides of the reservoir. In 2013, the agency sponsored a “Burbot Bash” which drew 1,170 anglers from the surrounding states and resulted in the removal of more than 4,000 of these invasive predatory fish. In addition to lessening the pressure on trout species, biologists were able to collect valuable information that will assist them in understanding and managing the population.

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. Annually, during the late fall and early winter months, there is a snagging season for kokanee after the spawn and before the fish die.

The Aspinall Unit reservoirs are almost exclusively cold-water fisheries with five species of sports fish available: rainbow, mackinaw, brown, and brook trout, as well as kokanee salmon. At one time, the Aspinall Unit reservoirs boasted the largest kokanee salmon fishery in the United States. However, due to an increasing lake trout population and predation of kokanee, the current population has fallen to about one third of what it was a decade ago. Blue Mesa Reservoir is being stocked with 3.5 million kokanee annually and anglers are encouraged to keep the lake trout they take, with no limit on the number of lake trout measuring less than 38 inches in length.

The four tailwaters (the Colorado River below Glen Canyon Dam, the Green River below Flaming Gorge Dam, the San Juan River below Navajo Dam, and the Gunnison River below Crystal Dam) have provided excellent trout fishing that many view as some of the best in the western United States. The Flaming Gorge tailwater is designated a “blue ribbon” fishery by the Utah Division of Wildlife Resources and fish populations in the river have been counted as high as 22,000 per river mile. The 26 miles of the Gunnison River below Crystal through the Black Canyon is designated a “gold medal” fishery by the Colorado Division of Parks and Wildlife.

C. TRANSMISSION DIVISION

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

Generation at CRSP powerplants amounted to 4.31 billion kilowatt-hours during fiscal year 2013. The major portion, 3.52 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.

Table 5 lists the gross generation for fiscal years 2012 and 2013 and the percentage of change:

Table 5
Gross Generation (Kilowatt-Hours)
and Percentage of Change for
Fiscal Years 2012 and 2013

Powerplant	Fiscal Year 2012	Fiscal Year 2013	Percent Change
Glen Canyon	4,314,265,000	3,516,134,000	-18.5
Flaming Gorge	528,976,000	310,339,000	-41.3
Blue Mesa	218,896,000	135,402,000	-38.1
Morrow Point	282,123,000	195,040,000	-30.9
Crystal	153,840,000	103,597,000	-32.7
Fontenelle	56,818,000	35,638,000	-37.3
McPhee	4,790,000	1,035,000	-78.4
Towaoc	16,014,000	9,257,000	-42.2
Total	5,575,722,000	4,306,442,000	-22.8

D. AUTHORIZED PARTICIPATING PROJECTS

Twenty-two participating projects were *originally* authorized by Congress between 1956 and 1968. Eleven were authorized by the initial authorizing Act of April 11, 1956 (70 Stat. 105), one was authorized in the 1956 Act by terms of its authorizing Act of June 28, 1949 (63 Stat. 277), two were authorized by the Act of June 13, 1962 (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). Of the 22 originally authorized participating projects, ten are in Colorado, two in New Mexico, two in Utah, three in Wyoming, three in both Colorado and New Mexico, one in both Colorado and Wyoming, and one in both Utah and Wyoming. In the 1968 Act, the Pine River Extension Project was deleted, leaving 21 participating projects authorized by Congress. On March 30, 2009, the Omnibus Public Land Management Act (123 Stat. 991) amended the Colorado River Storage Project Act of 1956 to include the Navajo-Gallup Water Supply Project in New Mexico as a participating project, increasing the number to 22 participating projects *currently* authorized by Congress.

Participating projects develop, or would develop, water in the Upper Colorado River system for irrigation, municipal and industrial 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 Basin Fund is provided revenues from hydropower and water service sales.

To date, 17 of the currently authorized 22 participating projects have either been completed or are in the process of completion. The five remaining participating projects were deemed infeasible or economically unjustified and were never constructed

A list of the 23 participating projects that have been authorized by Congress is shown below..

The 11 participating projects originally authorized in 1956 are:

1. Central Utah (Initial Phase), Utah,
2. Emery County, Utah,
3. Florida, Colorado,
4. Hammond, New Mexico,
5. La Barge, Wyoming,
6. Lyman, Utah and Wyoming,
7. Paonia, Colorado (works additional to existing project),
8. Pine River Extension, Colorado and New Mexico,
9. Seedskadee, Wyoming,
10. Silt, Colorado, and
11. Smith Fork, Colorado.

12. In the 1956 Act, the Eden Project in Wyoming, by terms of its authorizing Act of June 28, 1949, became financially related to the Colorado River Storage Project as a participating project.

In 1962, authorizing legislation named the following two as participating projects:

13. Navajo Indian Irrigation, New Mexico (being constructed for the Bureau of Indian Affairs by the Bureau of Reclamation), and
14. San Juan-Chama, Colorado and New Mexico.

In 1964, authorizing legislation named an additional three as participating projects:

15. Bostwick Park, Colorado,
16. Fruitland Mesa, Colorado, and
17. Savery-Pot Hook, Colorado and Wyoming.

The Colorado River Basin Project Act of September 30, 1968, authorized five additional projects as participating projects, but deleted the Pine River Extension Project as a participating project:

18. Animas-La Plata, Colorado and New Mexico,
19. Dallas Creek, Colorado,
20. Dolores, Colorado,
21. San Miguel, Colorado, and
22. West Divide, Colorado.

The Omnibus Public Land Management Act of 2009 amended the Colorado River Storage Project Act of 1956 to include the following as a participating project:

23. Navajo-Gallup Water Supply, New Mexico.

Table 6 shows the 17 participating projects that have been completed or are in the process of completion:

Table 6
CRSP Participating Projects
Completed or in the Process of Completion

#	Project	State(s)	Dam	Year Completed
1.	Eden	Wyoming	Big Sandy	1952
---	Eden	Wyoming	Eden	1959
2.	Central Utah (Vernal Unit)	Utah	Steinaker	1962
3.	Hammond	New Mexico	---	1962
4.	Paonia	Colorado	Paonia	1962
5.	Smith Fork	Colorado	Crawford	1962
6.	Florida	Colorado	Lemon	1963
7.	Emery County	Utah	Joes Valley	1966
8.	Silt	Colorado	Rifle Gap	1966
9.	Seedskaadee	Wyoming	Fontenelle	1968
---	*Central Utah (Bonneville Unit)	Utah	Starvation	1970
10.	Bostwick Park	Colorado	Silver Jack	1971
11.	Lyman	Utah and Wyoming	Meeks Cabin	1971
12.	San Juan-Chama	Colorado and New Mexico	Heron	1971
---	*Central Utah (Bonneville Unit)	Utah	Soldier Creek	1973
---	*Central Utah (Bonneville Unit)	Utah	Currant Creek	1975
---	Lyman	Utah and Wyoming	Stateline	1979
---	*Central Utah (Jensen Unit)	Utah	Red Fleet	1980
---	*Central Utah (Bonneville Unit)	Utah	Upper Stillwater	1987
13.	Dallas Creek	Colorado	Ridgway	1991
---	*Central Utah (Bonneville Unit)	Utah	Jordanelle	1993
14.	Dolores	Colorado	McPhee	1998
---	*Central Utah (Uintah Basin Replacement Project)	Utah	Big Sand Wash (enlarged)	2006
15.	*Animas-La Plata	Colorado and New Mexico	Ridges Basin	2011
16.	*Navajo Indian Irrigation	New Mexico	---	---
17.	*Navajo-Gallup Water Supply	New Mexico	---	---

*In the process of completion.

The present status of construction, investigation, and recreational facilities for the 23 authorized CRSP participating projects is as follows:

1. Colorado

a. Bostwick Park Project

The Bostwick Park Project is located in west-central Colorado near the city of Montrose. The project develops flows of Cimarron Creek, a tributary of the Gunnison River, for irrigation and for benefits to sport fishing and recreation. A full and supplemental supply of irrigation water is available for 6,100 acres of land. Silver Jack Dam (completed in 1971) is located on Cimarron Creek about 20 miles above the junction with the Gunnison River. Project water stored in Silver Jack Reservoir is released to Cimarron Creek. The releases, along with usable natural flows, are diverted from the creek into the existing Cimarron Canal 2.5 miles below the dam and conveyed 23 miles to the vicinity of the project land. The U.S. Forest Service developed recreation facilities under a cooperative arrangement with Reclamation. Facilities include access roads, campgrounds (60 units), two group areas, picnicking facilities, restrooms, a boat dock, trails, fences, landscaping, and an administration site. At 8,900 feet in elevation, use is seasonal. The reservoir is managed as a non-motorized boating lake with three species of trout. Access for anglers is fairly easy at designated access points around the 250-acre lake.

b. Dallas Creek Project

The Dallas Creek Project is located on the Uncompahgre River in west-central Colorado. The area served by the project comprises most of the Uncompahgre River Basin and includes lands in Montrose, Delta, and Ouray counties. Ridgway Dam and reservoir, the primary features of the project, are located on the Uncompahgre River a few miles north of the town of Ridgway.

Block notice number one was issued for the Dallas Creek Project on May 31, 1989, covering all municipal and industrial 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.

On June 2, 2010, Reclamation issued a *Federal Register* Notice to accept proposals, select a lessee, and contract for hydroelectric power development at Ridgway Dam. Proposals were due on December 3, 2010. Reclamation received one proposal, from Tri-County Water Conservancy District, to develop hydropower under a lease of power privilege. A lease of power privilege is an alternative to federal hydroelectric power development. It is a contractual right given to a non-federal entity to use a Reclamation facility for electric power generation consistent with Reclamation project purposes. Leases of power privilege have terms not to exceed 40 years. The general authority for lease of power privilege under Reclamation law includes, among others, the Town Sites and Power Development Act of 1906 (43 U.S.C. Sec. 522) and the Reclamation Project Act of 1939 (43 U.S.C. Sec. 485h(c)) (1939 Act). National Environmental Policy Act compliance for the proposed hydroelectric power development was completed in December 2011. A lease between Tri-County Water Conservancy District and the United States was signed on February 6, 2012. Construction began in December 2012 and is scheduled for completion in early 2014. Testing of the generators is scheduled for February 2014 and full operation of the powerplant, with a projected capacity of 7.0 megawatts, is projected for the spring of 2014.

Recreation at Ridgway Reservoir is managed by the Colorado Division of Parks and Wildlife under an agreement with Reclamation. Boating, scuba diving, water skiing, windsurfing, and swimming are some of the offerings at the park. The CDPW has assumed responsibility for marina operations and has recently made significant boat-related facility improvements. In addition, there are numerous picnicking and campsites available including miles of trails around the reservoir and downstream of Ridgway Dam. The existing trail system will be lengthened by about five miles and opened to the public in 2014. The new section of trail will be on the east side of Highway 550. Three miles of the new system will compliment an adjacent Bureau of Land Management trail project, which will result in 20 miles of new trails in the area. Reclamation and Ridgway State Park will implement a seasonal closure of the area east of Highway 550 to public access to protect wintering big game when trail construction is completed.

Reclamation is working closely with CDPW to develop effective solutions to manage the spread of invasive mussels including educating the public and providing materials such as signs and brochures. The CDPW is conducting mandatory boat inspections at Ridgway and boat ramps are closed to trailered boats at the end of September of each year. In 2009, Reclamation conducted a mussel facility risk assessment at Ridgway Reservoir.

c. Dolores Project

The Dolores Project, located in the Dolores and San Juan River basins in southwestern Colorado, uses water from the Dolores River for irrigation, municipal and industrial use, recreation, fish and wildlife, and production of hydroelectric power. Primary storage of Dolores River flows for all project purposes is provided by McPhee Reservoir, formed by McPhee Dam and Great Cut Dike. Dolores Project construction began in 1976. By fiscal year 1995, all primary project facilities were completed and in operation. 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.

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 developed Simon Draw wetlands near the Totten Reservoir area. A long-term management agreement between Reclamation and the Colorado Division of Parks and Wildlife for operation and maintenance of the Lone Dome wetlands area is in place. Reclamation's Western Colorado Area Office operates and maintains Simon Draw wetlands.

Hydroelectric power generation is a component of the Dolores Project with McPhee and Towaoc Canal powerplants. McPhee Powerplant is located at the downstream toe of McPhee Dam along the left abutment with an installed capacity of 1.3 megawatts. Towaoc Canal Powerplant is located on the Towaoc Canal, five miles north of Cortez, Colorado, in Montezuma County with an installed capacity of 11.5 megawatts.

Recreation at McPhee Reservoir is under the jurisdiction of the U.S. Forest Service, through an agreement with Reclamation, and through legislation that expanded the boundary of the San Juan National Forest to include the reservoir. The reservoir has 50 miles of shoreline and 76 campsites on two loops as well as a six-lane boat launch ramp. There is also a small marina to serve visitors. 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, Bureau of Land Management, and Colorado Division of Parks and Wildlife. The campgrounds provide many services including a fish cleaning station, restrooms, and showers.

Reclamation is working with its recreation managing entities to develop effective solutions to manage the spread of invasive mussels. In 2009, Reclamation conducted a mussel facility risk assessment at McPhee Reservoir.

d. Florida Project

Lemon Dam is the principal feature of the Florida Project. The dam, completed in 1963, is located in southwestern Colorado on the Florida River, approximately 14 miles northeast of the city of Durango in La Plata County. Flows in the Florida River are stored in the reservoir formed by the dam, and regulated releases can provide supplemental irrigation water for 19,450 acres. In addition to the construction of Lemon Dam, Reclamation work included rebuilding the Florida Farmers Diversion Dam, enlarging 3.9 miles of the Florida Farmers Ditch to its junction with the Florida Canal, enlarging 1.8 miles of the Florida Canal, and building a new lateral system to serve about 3,360 acres of land on the southwest portion of Florida Mesa. Project funds were advanced to the Florida Water Conservancy District to rehabilitate, enlarge, and extend portions of the Florida Farmers Ditch and Florida Canal distribution systems that serve remaining lands on Florida Mesa. The 1,190 acres of project land located in the Florida River Valley will continue to be served by numerous small ditches without the expenditure of project funds.

Lemon Powerplant, completed in 1989, has a capacity of 0.12 megawatts. The powerplant was constructed and is operated by the Florida Water Conservancy District under a lease of power privilege contract.

A conversion contract for 2,500 acre-feet of Florida Project water to be available for municipal and industrial purposes was negotiated and is expected to be executed in early 2014. A similar contract for 114 acre-feet was executed in 2009, which made water originally tied to the land inundated by the reservoir available for augmentation purposes.

Lemon Reservoir provides important recreation and fish and wildlife benefits; however, its primary purpose is to provide irrigation water and flood control. Recreation at Lemon Reservoir is under the jurisdiction of the U.S. Forest Service through an agreement with Reclamation. This is a high-elevation reservoir (8,500 feet) with seasonal use. The campground has 20 units and a group campground that can accommodate up to 100 people. Amenities include restrooms, picnic tables, and fire rings.

Reclamation is working closely with the U.S. Forest Service to develop effective solutions to manage the spread of invasive mussels including educating the public and providing materials such as signs and brochures. In 2010, Reclamation conducted a mussel facility risk assessment at Lemon Reservoir.

e. Fruitland Mesa Project

The Fruitland Mesa Project was found to be infeasible and was not constructed.

f. Paonia Project

The Paonia Project, located in west-central Colorado, provides full and supplemental irrigation water supplies for 15,300 acres of land in the vicinity of Paonia and Hotchkiss.

Project construction includes Paonia Dam and reservoir and enlargement and extension of Fire Mountain Canal. Paonia Dam controls and regulates the runoff of Muddy Creek, a tributary of the North Fork of the Gunnison River. An automated gate system was installed at Paonia Dam in 2010 with a grant through the Water Conservation Field Services Program.

Recreation at Paonia Reservoir is managed by the Colorado Division of Parks and Wildlife under an agreement with Reclamation. The original recreation facilities were built in 1963 and CDPW assumed management in 1965. There are two campgrounds (13 sites), a picnic area, and boat launching facilities. Recreational attractions at Paonia Reservoir include the landscape surrounding the park, waterskiing, and camping. The park's abundance of wildflowers makes it a destination for photographers and native plant hobbyists. The geology of the area includes fossilized palm fronds, willow, and elm leaves which can be seen in some of the boulders in the area. Paonia Reservoir is also known for northern pike fishing (best from late June through late August).

Reclamation is working closely with CDPW to develop effective solutions to manage the spread of invasive mussels including educating the public and providing materials such as signs and brochures. The CDPW is conducting boat inspections.

g. San Miguel Project

The San Miguel Project was found to be economically unjustified and was not constructed.

h. Silt Project

The Silt Project is located in west-central Colorado near the towns of Rifle and Silt. The project stores the flows of Rifle Creek and pumps water from the Colorado River to supply irrigation water for approximately 7,000 acres of land. Principal features of the project are Rifle Gap Dam and reservoir, a pumping plant, and a lateral system.

Recreation at Rifle Gap Reservoir is managed by the Colorado Division of Parks and Wildlife under an agreement with Reclamation. Recreation facilities include numerous campgrounds, picnic sites, a boat ramp, group use area, restrooms, and parking areas. Recreation activities include motorized water sports, swimming, sailing, windsurfing, and fishing. Although Rifle Gap is a small reservoir (350 surface acres), it is a popular one with five camp loops and 89 campsites; several campsites are accessible to persons with disabilities. Reservations are taken for the campsites from May 1 to October 31 of each year and the campgrounds remain open year round. Anglers take rainbow and German brown trout, walleye, pike, smallmouth and largemouth bass, and yellow perch from the reservoir's waters. Recreation facilities have been upgraded and expanded through a joint recreation rehabilitation program undertaken by CDPW and Reclamation. The remaining work is to be completed in 2014.

Reclamation is working closely with CDPW to develop effective solutions to manage the spread of invasive mussels including educating the public and providing materials such as signs and brochures. In 2010, Reclamation conducted a mussel facility risk assessment at Rifle Gap Reservoir. The CDPW is conducting boat inspections.

i. Smith Fork Project

The Smith Fork Project, located about 30 miles southeast of Delta, Colorado, supplements the irrigation water supply for approximately 8,200 acres in Delta and Montrose counties and provides a full water supply for 1,423 acres of land previously not irrigated.

Constructed features of the project include Crawford Dam and reservoir, Smith Fork Diversion Dam, Smith Fork Feeder Canal, Aspen Canal, Clipper Canal, and recreation facilities. Recreation at Crawford Reservoir is managed by the Colorado Division of Parks and Wildlife under an agreement with Reclamation. Boating, scuba diving, water skiing, jet skiing, windsurfing, swimming, fishing, and camping are some of the offerings at the park. There are two campgrounds with 66 sites, a group day-use area, and 30 sites for day use. Several years ago, the facilities were expanded and rehabilitated under the Rehabilitation Recreation Program. Several campsites are accessible to persons with disabilities.

Reclamation is working closely with CDPW to develop effective solutions to manage the spread of invasive mussels including educating the public and providing materials such as signs and brochures. In 2010, Reclamation conducted a mussel facility risk assessment at Crawford Reservoir. The CDPW is conducting boat inspections.

j. West Divide Project

The West Divide Project was found to be economically unjustified and was not constructed.

2. New Mexico

a. Hammond Project

The Hammond Project is located in northwestern New Mexico along the southern bank of the San Juan River and opposite the towns of Blanco, Bloomfield, and Farmington, New Mexico. The project provides an irrigation supply for 3,933 acres. Major project works consist of the Hammond Diversion Dam on the San Juan River (completed in 1962), the Main Gravity Canal, a hydraulic-turbine-driven pumping plant and an auxiliary pumping plant, three major laterals, minor distribution laterals, and the drainage system. Most of the irrigation supply is obtained from direct diversions of the natural streamflow of the San Juan River. When necessary, these flows are supplemented by storage releases from Navajo Reservoir, a major feature of the CRSP. Water is diverted from the river by the Hammond Diversion Dam and turned into the 27.4-mile-long Main Canal. Major diversions from the canal are made by the East and West Highline laterals, which are served by the Hammond Pumping Plant, and the Gravity Extension lateral. Small diversions are made by minor laterals.

b. Navajo-Gallup Water Supply Project

The Navajo-Gallup Water Supply Project is the cornerstone of the Navajo Nation water rights settlement in the San Juan River Basin and was authorized for construction by the Omnibus Public Land Management Act (P.L. 111-11) on March 30, 2009. The legislation identified prerequisites for construction that included completion of an environmental impact statement and Record of Decision, execution of a Water Rights Settlement Agreement and Settlement Contract with the Navajo Nation, execution of repayment contracts with project beneficiaries, and execution of a cost-share agreement with the State of New Mexico. In addition, Section 10401 of the 2009 Act amended the Colorado River Storage Project Act of 1956 to include the Navajo-Gallup Water Supply Project as a participating project and to allow the Secretary of the Interior to create and operate a top water bank within the available capacity of Navajo Reservoir. Section 10602(e) of the 2009 Act directed the Secretary of the Interior to reserve, from existing reservations of Colorado River Storage Project power for Reclamation projects, up to 26 megawatts of power for use by the Navajo-Gallup Water Supply Project. The Act also set the appropriations ceiling for the project at \$870 million (2007 price level).

By the spring of 2012, all legislated construction prerequisite documents were completed and the first construction contract was awarded on April 16, 2012. A groundbreaking ceremony featuring the Secretary of the Interior and other federal, tribal, and local dignitaries was held on June 2, 2012.

The Navajo-Gallup Water Supply Project will consist of two water treatment plants, 280 miles of pipeline, numerous pumping plants, and water regulation and storage facilities. The project will convey a reliable municipal and industrial water supply to the eastern section of the Navajo Nation; the southwestern part of the Jicarilla Apache Nation; and the City of Gallup, New Mexico, via diversions from the San Juan River in northern New Mexico. Navajo Nation communities and the City of Gallup rely on a rapidly depleting groundwater supply that is inadequate to meet present needs and anticipated growth. Other water sources are needed to meet the current and future municipal and industrial demands of more than 43 Navajo chapters including the communities of Fort Defiance and Window Rock in Arizona, the City of Gallup, and the Teepee Junction area of the Jicarilla Apache Nation. Based on expected populations in the year 2040, the project would serve approximately 203,000 people in 43 chapters in the Navajo Nation, 1,300 people in the Jicarilla Apache Nation, and approximately 47,000 people in the City of Gallup.

In 2011, the Navajo-Gallup Water Supply Project was identified as one of 14 projects nationwide that will be expedited through permitting and environmental review processes as described in a Presidential Memorandum dated August 31, 2011. Design and construction work will be carried out by Reclamation as well as the Navajo Nation, the City of Gallup, and the Indian Health Service. The Claims Resolution Act of 2010 contains a provision for Navajo-Gallup Water Supply Project funding from the Reclamation Water Settlements Fund in the amount of \$180 million over three years starting with \$60 million in fiscal year 2012. It is anticipated that these funds will accelerate work on design and construction of the designated high-priority reaches of the project.

In 2013, construction on the initial reach (Reach 12A) was completed and construction on Reach 27.5 was initiated. Additional construction contracts are scheduled to be awarded in early 2014.

c. Navajo Indian Irrigation Project

The Navajo Indian Irrigation Project (NIIP) was authorized in 1962 by P.L. 87-483 to develop the necessary infrastructure to deliver San Juan River water to approximately 110,630 acres of farmland in the northeastern part of the Navajo Reservation near Farmington, New Mexico. In a 1962 Memorandum of Agreement (MOA) which defined the roles and responsibilities of the Bureau of Indian Affairs (BIA) and Reclamation, Reclamation was designated to design, construct, and initially operate and maintain the project. The 1962 MOA required that construction funding for the project be sought by the BIA in its budget appropriation.

The project has been under construction for over 50 years and is now only approximately 70 percent complete with many of the project features now requiring rehabilitation. The primary issue affecting NIIP completion is insufficient construction funding which has been inconsistent throughout the history of the project and has ranged from a peak of \$26.149 million in 1995 to \$0 in 1984 and 1986. The present funding levels are minimally sufficient to cover costs associated with the operation and maintenance of facilities still remaining in construction status. Insufficient funding adversely impacts Reclamation's ability to maintain adequate staffing levels, needed expertise, and established schedules for the design and construction of the NIIP. Lack of funding has also impacted the ability to

transfer completed features and accomplish correction of construction deficiencies identified in the 1988 Office of the Inspector General's Audit Report.

The NIIP facilities are being constructed in 11 blocks of approximately 10,000 acres each. Blocks 1 through 8 have been completed and Block 9 is about 28 percent complete. Approximately 77,700 acres of land are currently available for irrigation. The farmland served by the NIIP is operated by the Navajo Agricultural Products Industry, an enterprise of the Navajo Nation, charged with managing and operating a commercial farm on lands held in trust for the Navajo Nation. During 2013, the farm produced high value crops including potatoes, wheat, corn, and beans processed and marketed under the "Navajo Pride" brand.

The fiscal year 2012 Office of Management and Budget (OMB) passback language stated that the Navajo Nation, BIA, and OMB should meet to negotiate an equitable settlement for reasonable compensation to the Navajo Nation in lieu of completion, or develop options for completing the NIIP. Pending these negotiations, the BIA suspended future Block 9 work and reduced the fiscal year 2011 NIIP funding transferred to Reclamation to approximately \$3 million. New baselines were developed for two NIIP investments; approval of the baselines is pending.

The fiscal year 2013 BIA appropriation transferred to Reclamation was \$2.627 million and the fiscal year 2014 funding level is expected to remain at the same level. The fiscal year 2014 construction budget will be used to fund the correction of construction deficiencies, correct transfer inspection punch list items, perform operation and maintenance functions for features still in construction status, and continue design work for canal and pumping plant automation.

It is important to note that Reclamation remains committed to completing the project as funding is made available and to provide technical support to the BIA.

3. Utah

a. Central Utah Project

The Central Utah Project (CUP), located in the central and east central part of Utah, was constructed in part by the Bureau of Reclamation and is now being completed by the Central Utah Water Conservancy District in Orem, Utah, the local project sponsor. It is the largest water resources development program ever undertaken in the state of Utah. The CUP provides water for irrigation and municipal and industrial uses. In 2002, Congressional action restored hydropower generation as an authorized project purpose. Benefits include recreation, fish and wildlife, flood control, water conservation, water quality control, and area development. The Initial Phase, authorized in 1964, originally consisted of four units: Bonneville, Jensen, Upalco, and Vernal. An Ultimate Phase consisted of the Ute Indian Unit. A sixth unit; the Uintah Unit, was authorized by separate legislation in 1968. The largest of the six units is the Bonneville Unit which involves the diversion of water from the Uintah Basin, a part of the Colorado River Basin, to the Great Basin, with associated resource developments in both basins. The other units – Jensen, Uintah, Upalco, Ute Indian, and Vernal – were intended to provide for local development in the Uintah Basin. Work on the Uintah and Upalco units was discontinued, in major part due to objections from the Ute Indian Tribe. The Ute Indian Unit was deauthorized by Congress in the Central Utah Project Completion Act (CUPCA) of 1992.

(i). Bonneville Unit

The completed Bonneville Unit will deliver a permanent supply of 42,000 acre-feet of irrigation water and 157,750 acre-feet of municipal and industrial water. A key feature of the Bonneville Unit is the trans-basin diversion of 101,900 acre-feet (annual average) of water from the Uintah Basin to the Wasatch Front (Utah County cities and the Salt Lake City metropolitan area).

Central Utah Project Completion Act of 1992. Legislation enacted in 1992 (P.L. 102-575, CUPCA), significantly reformed implementation of the CUP. Among many changes, the Act increased the ceiling to allow completion of the Bonneville Unit of the CUP, authorized new portions and deauthorized old portions of the original plan, provided Indian water rights settlement benefits, and more. The legislation provides that the project's local sponsor, the Central Utah Water Conservancy District (District), will plan and construct the remaining CUP-Bonneville Unit features; the Utah Reclamation Mitigation and Conservation Commission, an independent federal commission created under CUPCA, will complete the associated fish and wildlife mitigation; the Secretary of the Interior will oversee implementation of CUPCA; and the District and/or Department of the Interior may contract with Reclamation for technical services. The Department of the Interior's CUPCA Office and the District completed a Definite Plan Report in 2004 that will ensure that the Bonneville Unit is completed under the remaining ceiling.

Utah Lake Drainage Basin Water Delivery System (Utah Lake System). The final component of the Bonneville Unit to be constructed is the Utah Lake System. The Department of the Interior published the Utah Lake System Final Environmental Impact Statement on September 30, 2004, and on December 22, 2004, the Assistant Secretary for Water and Science signed the Record of Decision. Due to recent reductions in construction funding, the Utah Lake System is expected to be significantly delayed. Utah Lake System project pipelines that have been completed or that are currently under construction include:

Feature	Diameter (Inches)	Design Capacity	Length	Construction Status
Spanish Fork Canyon (three separate reaches)	96	365 cfs	7 miles	Complete
Spanish Fork – Provo Reservoir Canal Under Construction (five separate reaches)	60	120 cfs	20 miles	Mapleton, Springville, and Provo reaches are complete
Mapleton – Springville Lateral	54	125 cfs	5.5 miles	Phase 1 is complete and Phase 2 is under construction

Utah Lake System project pipelines that are to be constructed in the future include:

Feature	Diameter (Inches)	Design Capacity	Length	Construction Status
Spanish Fork – Santaquin	60	120 cfs	18 miles	---
Santaquin – Mona Reservoir	24	20 cfs	7.7 miles	---

Utah Lake System hydropower projects that are to be constructed in the future include:

Feature	Rating	Construction Status
Sixth Water	45 megawatts	---
Upper Diamond Fork	5 megawatts	---

Bonneville Unit Pilot Program. Public Law 107-366, enacted December 19, 2002, amended CUPCA and, among other things, authorized implementation of the Bonneville Unit Pilot Program (Pilot Program). The Pilot Program is intended to develop a relationship among the Secretary of the Interior, the Central Utah Water Conservancy District, the Utah Reclamation Mitigation and Conservation Commission, and Reclamation for long-term management of the CUP. Although the program was intended to sunset after five years, the parties have continued to cooperate, following the Pilot Program model.

Lease of Power Privilege at Jordanelle Dam. As early as 1979, Bonneville Unit environmental documents specifically described the construction and operation of a hydroelectric facility below Jordanelle Dam. By 1987, Reclamation had decided to defer construction of the Jordanelle Hydropower Project until the construction and operation could be accomplished under a lease of power privilege – a partnership among federal and non-federal entities to provide for the non-federal generation of power on Reclamation facilities. In 2000, through a competitive process of requesting and reviewing proposals, the Department of the Interior selected the Central Utah Water Conservancy District and Heber Light & Power as joint lessees for power development at Jordanelle. The Department of the Interior and the lessees executed a lease agreement in 2005 after approval of an environmental assessment for the project. Fabrication of the turbines and generators began late in 2005 and construction of the building began in late 2006. The hydropower facility, which has been certified by the Low Impact Hydropower Institute, began generating power on July 1, 2008.

Lease of Power Privilege at the Spanish Fork Flow Control Structure. A *Federal Register* Notice for hydropower development under a lease of power privilege at the Spanish Fork Flow Control Structure was issued on May 11, 2011. On March 9, 2012, a joint proposal submitted by the Central Utah Water Conservancy District, Strawberry Water Users Association, and South Utah Valley Electric Service District was selected as the potential lessee. The potential lessee has a five- year period in which to negotiate a lease contract with the United States.

Reservoirs and High Mountain Lakes. There are five reservoirs that are part of the Bonneville Unit where Reclamation has built storage facilities for project irrigation and municipal and industrial use as well as for recreation. The five reservoirs are Jordanelle, Strawberry, Starvation, Currant Creek, and Upper Stillwater. In addition, three high mountain lakes were reconstructed to provide storage in conjunction with the municipal and industrial system.

Jordanelle Reservoir is the newest reservoir with recreation facilities completed in 1998. Recreation and public use is managed by the Utah Division of Parks and Recreation under an agreement with Reclamation. There are two main developed recreation areas: Hailstone and Rock Cliff. Hailstone is a large developed campground and day-use area located on the west side of the reservoir. Rock Cliff is located on the southeast side of the reservoir and offers a quieter experience with walk-in campgrounds.

Due to intense private development pressure around the reservoir, a resource management planning process concluded in 2012. The resource management plan guides the development and management of land and recreation resources around the reservoir that are under Reclamation's jurisdiction.

Phase I of a recreation rehabilitation program at Jordanelle was put out for bid in December 2013. Construction of this phase will modify and expand the hailstone entrance facilities and roadway including remodeling the existing entrance station, constructing a new entrance station, and creating three inbound lanes that will feature a card swipe kiosk.

The Utah Division of Wildlife Resources has taken aggressive steps to prevent the spread of invasive mussel species (quagga and zebra) throughout its waters. The State of Utah has an active interdiction and inspection program and waters are regularly sampled and sent to Reclamation's laboratory in Denver, Colorado, for analysis to detect the presence of larval mussels. Jordanelle's current status is listed as "not detected." One of the 2013 samples was determined to be "inconclusive," which means that a plankton sample showed an initial finding of veligers although veliger DNA could not be confirmed. No adult mussels have been found.

Strawberry Reservoir was enlarged in 1974 under authority of the Colorado River Storage Project Act of 1956 (before the enactment of CUPCA). Soldier Creek Dam, completed in 1973, expanded the capacity of Strawberry Reservoir from 283,000 acre-feet to a maximum capacity of 1,106,500 acre-feet and a total surface area of 17,163 acres. The original Strawberry Dam, constructed by Reclamation in 1922, was deliberately breached in 1985. As part of Reclamation's commitment to provide recreation opportunities, new facilities were built. There are four main developed areas: Strawberry Bay, Soldier Creek, Renegade Point, and Aspen Grove.

Recreation management at Strawberry Reservoir is under the jurisdiction of the U.S. Forest Service, Uinta National Forest. The managed recreation season is May through October and there is high use on holidays and weekends. Ice fishing is very popular during the winter months. Available fish species include rainbow and cutthroat trout and kokanee salmon. Strawberry Reservoir is considered by many to be Utah's premier trout fishing lake, with trout up to 24 inches taken regularly.

Ongoing monitoring efforts for invasive mussel species have not resulted in any positive results and the lake is considered to be free of mussels at this time.

Starvation Reservoir is a large reservoir on the Strawberry River in the Uintah Basin. The reservoir, filled by surplus winter and spring flows from the Duchesne and Strawberry rivers, is large enough for all water sports and has a state park with a campground. Starvation State Park was established in 1972, two years after construction of Starvation Dam. The Utah Division of Parks and Recreation manages recreation at Starvation Reservoir under an agreement with Reclamation. Facilities in the main park have been modernized and expanded under a state-wide recreation rehabilitation program, which is a 50-50 cost-share partnership between the State of Utah and Reclamation.

Ongoing monitoring efforts for invasive mussel species have not resulted in any positive results and the lake is considered to be free of mussels at this time.

Currant Creek Reservoir is a high elevation lake (7,680 feet) with a mixed open and timbered setting. Development began in 1977 with construction of Currant Creek Dam. Currant Creek Reservoir finished filling in 1982. The reservoir shoreline is 85 percent

Jordanelle Dam, Bonneville Unit, CUP, courtesy of Bureau of Reclamation



under the jurisdiction of the U.S. Forest Service while the remaining 15 percent is private with restricted access. Recreation management at Currant Creek is under the jurisdiction of the U.S. Forest Service, Uinta National Forest. Winter access is restricted as the canyon access road is not plowed.

Ongoing monitoring efforts for invasive mussel species have not resulted in any positive results and the lake is considered to be free of mussels at this time.

Upper Stillwater Reservoir is another high mountain reservoir that has one main campground. The reservoir serves as a popular trailhead into the High Uintas Wilderness with the boundary located only one mile north of the dam near the high water line for the reservoir. Recreation management is under the jurisdiction of the U.S. Forest Service, Ashley National Forest. A new memorandum of agreement between Reclamation and the U.S. Forest Service was signed in 2009. The managed recreation season at Upper Stillwater Reservoir is from June through September with high use on holidays and weekends. Boating use is restricted to non-motorized craft and fishing is not allowed from any watercraft.

High Mountain Lakes include Washington Lake, Trial Lake, and Lost Lake with a total reservoir capacity of 5,788 acre-feet. Located in the Wasatch Cache National Forest, the lakes were reconstructed to provide irrigation water for Summit County, Utah. Recreation at the lakes is managed by the U.S. Forest Service and allows non-motorized boating and fishing. The lakes are at an elevation of over 9,500 feet and are only accessible during the summer months.

(ii). Jensen Unit

The Jensen Unit in northeastern Utah provides about 5,300 acre-feet of water for municipal and industrial uses and 4,600 acre-feet for irrigation. Key project features include Red Fleet Dam and reservoir, Tyzack Aqueduct Reach 1, and Tyzack Aqueduct Reach 2.

Recreation at Red Fleet Reservoir is managed by the Utah Division of Parks and Recreation under an agreement with Reclamation. In 2008, plankton sampling at Red Fleet showed evidence of quagga mussels. It is the objective of the State of Utah to decontaminate all boats prior to their leaving Red Fleet Reservoir. By early 2014, all forms of listing for contamination were lifted. A resource management plan was completed for Red Fleet Reservoir in 2013.

(iii). Uintah and Upalco Units

Section 203(a) of the CUPCA of 1992 provided for the construction of the Uintah Basin Replacement Project to replace, in part, the Uintah and Upalco units which had never been constructed. Public Law 107-366, enacted December 19, 2002, deauthorized the Uintah and Upalco units, transferring the unexpended budget authority to units of the CUP for construction of the Uintah Basin Replacement Project, Utah Lake System, and other CUPCA purposes. The Central Utah Water Conservancy District has completed construction of the primary features (including the enlarged Big Sand Wash Dam) of the Uintah Basin Replacement Project. The Big Sand Wash Feeder Diversion Structure and Pipeline was completed in March of 2004. The Big Sand Wash Reservoir enlargement was completed in September 2006 followed by completion of the Big Sand Wash Roosevelt Pipeline in September 2008.

Ongoing monitoring efforts for invasive mussel species have not resulted in any positive results and the lake is considered to be free of mussels at this time.

(iv). Ute Indian Unit

The Ute Indian Unit was deauthorized in 1992 by Section 201(b) of the Central Utah Project Completion Act.

(v). Vernal Unit

The Vernal Unit in northeastern Utah supplies supplemental irrigation water to about 14,700 acres and approximately 1,600 acre-feet of municipal and industrial water annually to the communities of Vernal, Naples, and Maeser. Key project features include Steinaker Dam and reservoir, Fort Thornburgh Diversion Dam, Steinaker Service Canal, and Steinaker Feeder Canal.

Steinaker State Park was opened to the public in 1964. Recreation at Steinaker Reservoir is managed by the Utah Division of Parks and Recreation under an agreement with Reclamation. A resource management plan for the reservoir was completed in 2013. Planning for recreation facility rehabilitation is underway with construction scheduled to begin in 2016. Steinaker's location makes it a popular base for exploring the surrounding geologic and paleontologic features of northeastern Utah and Flaming Gorge National Recreation Area.

Ongoing monitoring efforts for invasive mussel species have not resulted in any positive results and the lake is considered to be free of mussels at this time. Results from the 2013 sampling season are still pending.

b. Emery County Project

The Emery County Project is located in east-central Utah near the towns of Huntington, Castle Dale, and Orangeville. The project, which includes an irrigable area of almost 19,000 acres, is in the Green River Basin. Principal construction features of the project are Joes Valley Dam and reservoir on Seely Creek; Swasey Diversion Dam 10 miles downstream from Joes Valley Dam; Cottonwood Creek-Huntington Canal; Huntington North Service Canal; and Huntington North Dam and East and West Dikes which form Huntington North Reservoir. The project provides an estimated average of 28,100 acre-feet of water annually for irrigation of 18,755 acres, of which 771 acres is land previously unirrigated. In the mid-1970s, the irrigable acreage was reduced to 14,171 with 4,604 acres designated "not for service." In 1981, the irrigable area was increased to 16,170 acres with 2,605 acres in the "not for service" category. The project supplies 6,000 acre-feet of water for industrial and municipal purposes.

Recreation facilities have been constructed at both Joes Valley and Huntington North reservoirs. Recreation facilities at Joes Valley are operated by the U.S. Forest Service and recreation at Huntington North is managed by the Utah Division of Parks and Recreation, both under agreements with Reclamation. Although both Joes Valley and Huntington North tested inconclusive for invasive mussels in 2008, subsequent sampling efforts have not detected their presence in either water body.

4. Wyoming

a. Eden Project

The Eden Project furnishes an irrigation water supply for 17,010 acres. Project lands are in the vicinity of the towns of Farson and Eden in southwestern Wyoming about 40 miles

north of Rock Springs. Project features include Big Sandy Dam and reservoir, Eden Dam and reservoir, Little Sandy Feeder Canal, Big Sandy Feeder Canal, Means Canal, Eden Canal, and a lateral and drainage system. Big Sandy Dam (completed in 1952) was constructed to replace some storage in the existing off-stream Eden Reservoir and to supply water for additional project lands. The Means Canal conveys water from Big Sandy Reservoir to the Westside Lateral, which serves lands on the west side of Big Sandy Creek, and to the Eden Canal which serves lands on the east side of the creek. Little Sandy Diversion Dam diverts water into the Little Sandy Feeder Canal. Water can be diverted from Big Sandy Dam to Eden Reservoir through the Big Sandy Feeder Canal. Water is drawn from Eden Reservoir to serve Eden Canal and Farson Lateral.

Recreation facilities at Big Sandy Reservoir are administered by the Bureau of Reclamation's Provo Area Office. In 2010, the Wyoming Game and Fish Commission implemented emergency regulations to stop the spread of aquatic invasive species in Wyoming waters. Under this regulation, all watercraft are required to purchase and display an aquatic invasive species decal. Funds raised from purchase of the decals are used to pay for public education programs and prevention efforts to keep invasive quagga and zebra mussels from being introduced. Efforts include watercraft inspections, decontamination if warranted, and possible criminal and civil penalties for anyone found violating the regulations. To date, no mussels have been detected in Wyoming waters.

b. La Barge Project

The La Barge Project was found to be infeasible and was not constructed.

c. Seedskaadee Project

The Seedskaadee Project is located in the Upper Green River Basin in southwestern Wyoming. It provides storage and regulation of the flows of the Green River for power generation, municipal and industrial use, fish and wildlife, and recreation. Principal features of the project are the Fontenelle Dam, powerplant, and reservoir. The reservoir is operated for municipal and industrial water use, power production, flood control, and the downstream fishery and wildlife refuge.

Recreation facilities at Fontenelle Reservoir are managed by the Bureau of Land Management under an agreement with Reclamation. Fontenelle Creek Recreation Area is the only developed site on the reservoir, although there are three other campgrounds (Tailrace, Weeping Rock, and Slate Creek) located below Fontenelle Dam that are more primitive.

In 2010, the Wyoming Game and Fish Commission implemented emergency regulations to stop the spread of aquatic invasive species in Wyoming waters. Efforts include watercraft inspections, decontamination if warranted, and possible criminal and civil penalties for anyone found violating the regulations. Fifty-one boat inspections were conducted at Fontenelle Reservoir from June 1 through August 5, 2012 (2013 data has not yet been published). No high risk inspections or decontaminations were conducted and no presence of mussels was detected.

The Bureau of Reclamation manages land adjacent to and downstream of Fontenelle Dam and reservoir and is involved in a land revocation review for the Seedskaadee Project. The purpose of the project is to return public lands not needed by Reclamation to the public trust.

Fontenelle Power Plant, Wyoming - Courtesy of Bureau of Reclamation



Reclamation has been pursuing opportunities to transfer some of the lands to the Bureau of Land Management. Reclamation has completed the required National Environmental Policy Act compliance for the Seedska-dee Revocation Project. It is anticipated that Reclamation will submit the completed revocation request package to the Bureau of Land Management sometime in 2014. The U.S. Fish and Wildlife Service has expressed interest in some of the lands to expand the Seedska-dee National Wildlife Refuge. Any transfer of lands to the Service will be subject to additional environmental compliance between the Service and the Bureau of Land Management.

5. Colorado and New Mexico

a. Animas-La Plata Project

The Animas-La Plata Project is located in southwestern Colorado and northwestern New Mexico and was first authorized by the Colorado River Basin Project Act of 1968 (P.L. 90-537). In 1988, it was incorporated into the Colorado Ute Indian Water Rights Settlement Act (P.L. 100-585). The Colorado Ute Settlement Act Amendments of 2000 (Title III of P.L. 106-554, December 21, 2000) provide for implementation and completion of the project. Approval to begin construction was granted in October 2001 and initial site work started in April 2002. Construction of Ridges Basin Dam, Durango Pumping Plant, and Lake Nighthorse (formerly called Ridges Basin Reservoir) will provide the Southern Ute Indian and Ute Mountain Ute Tribes with a reliable water supply for their future needs, while protecting scarce water resources for existing water users in southwestern Colorado and northwestern New Mexico. It remains a priority of the Secretary of the Interior to complete the Animas-La Plata Project in a cost effective and efficient manner.

The Animas-La Plata Project consists of four major components: Ridges Basin Dam, Durango Pumping Plant, and Ridges Basin Inlet Conduit located in Colorado; and the Navajo Nation Municipal Pipeline (NNMP) located in New Mexico. The project consists of various other elements including multiple utility and road relocations; fish, wildlife, and wetlands mitigation; a permanent operating facility; and cultural resources investigations. The reservoir formed by Ridges Basin Dam was named Lake Nighthorse in honor of Senator Ben Nighthorse Campbell who played an instrumental role in the Colorado Ute settlement and construction of the Animas-La Plata Project.

The Colorado portion of the project is 100 percent complete and the New Mexico portion (NNMP) is 90 percent complete. Project closeout work will continue into fiscal year 2014 utilizing carryover funding from previous years. No construction funds have been requested for fiscal year 2014; however, a transfer of American Recovery and Reinvest Act funding may be requested for final construction punch list items.

All Colorado features of the Animas-La Plata project are currently operational. In August 2012, water was released from Lake Nighthorse down Basin Creek to successfully test the Basin Creek features. An operation and maintenance contract has been signed with the Animas-La Plata Operations, Maintenance and Replacement Association (ALP OM&R Association) that allows project sponsors to operate Colorado project features. Transfer of OM&R responsibilities to the ALP OM&R Association occurred on April 1, 2013. Lake Nighthorse began filling on May 4, 2009, and filled for the first time on June 29, 2011. The maximum water surface elevation of 6,882 feet equates to 123,541 acre-feet in storage.

In New Mexico, pipe laying operations on the NNMP were completed in July 2012; however, all NNMP features will not be complete until early 2014. The NNMP consists of approximately 30 miles of 24-inch diameter pipeline running from Farmington, New Mexico, to Shiprock, New Mexico, and will provide for the conveyance of 4,680 acre-feet of municipal water per year to Navajo Nation communities.

The Bureau of Reclamation, Animas-La Plata Water Conservancy District, and community of Durango have developed a Recreation Master Plan for Lake Nighthorse. A National Environmental Policy Act compliance review of the recreation plan is now being completed. Presently, the area in and around Lake Nighthorse remains closed to public use until Reclamation secures a recreation manager and appropriate recreation facilities are in place to provide for public safety and protect land and water resources from damage due to uncontrolled use. The City of Durango has expressed interest in developing the initial recreation facilities and in managing these facilities. Negotiations among the City, Reclamation, and the ALP OM&R Association are ongoing.

When a managing partner is secured for Lake Nighthorse, Reclamation will work closely with them to develop effective solutions to manage the spread of invasive mussels. In 2009, Reclamation conducted a mussel facility risk assessment at Ridges Basin Dam.

b. Pine River Extension Project

The Pine River Extension Project was found to be infeasible and was deleted in the 1968 Colorado River Basin Project Act.

c. San Juan-Chama Project

The San Juan-Chama Project consists of a system of diversion structures and tunnels for transmountain movement of water from the San Juan River Basin to the Rio Grande Basin. Primary purposes of the San Juan-Chama Project are to furnish a water supply to the middle Rio Grande Valley for municipal, domestic, and industrial uses. The project is also authorized to provide supplemental irrigation water and incidental recreation and fish and wildlife benefits. The regulating and storage reservoir is formed by Heron Dam on Willow Creek just above the point where Willow Creek enters the Rio Chama. Heron Reservoir is operated by Reclamation in compliance with applicable federal and state laws including the San Juan-Chama Project authorization and the Rio Grande and Colorado compacts. Under these laws, only imported San Juan-Chama Project water may be stored in Heron Reservoir; there are no provisions for storing native Rio Grande water. Thus, all native Rio Grande water is released to the river below Heron Dam.

The Pojoaque Irrigation Unit, made up of Nambe Falls Dam and storage reservoir, provides supplemental irrigation water for about 2,800 acres in the Pojoaque Valley. It serves the Pojoaque Valley Irrigation District and the Indian pueblos of San Ildefonso, Nambe, and Pojoaque.

Reclamation, in coordination with the Western Area Power Administration, is considering hydroelectric power development on the San Juan-Chama Project under a lease of power privilege at up to four conduit drops along the project. The station drops are all located downstream of the Azotea Tunnel Outlet along Willow Creek and are all features of

the San Juan-Chama Project. Western would have the first opportunity to purchase and/or market the power that would be generated and no federal funds will be made available for power development. A *Federal Register* Notice soliciting public interest was published on August 7, 2013, and proposals are due by January 6, 2014.

Recreation at Heron Reservoir is managed by New Mexico State Parks under an agreement with Reclamation. Recreation at Nambe Falls Reservoir is managed by the Nambe Pueblo under an agreement with Reclamation.

In April 2009, New Mexico's governor signed the Aquatic Invasive Species Control Act. The Act allows the New Mexico Department of Game and Fish to take actions to protect New Mexico's waters from the negative impacts of aquatic invasive species. The Act requires that all boats, personal watercraft, and equipment used in waters infested with invasive species be certified as decontaminated before entering New Mexico waters. Plankton sampling is being conducted at each reservoir and is sent to the Reclamation laboratory in Denver, Colorado, for analysis as part of a state-wide monitoring effort. To date, no evidence of invasive mussels has been found at Heron Reservoir. The Pojoaque Pueblo does not have an active mussel inspection program; therefore, the status of Nambe Falls reservoir is unknown at this time.

6. Colorado and Wyoming

a. Savery-Pot Hook Project

The Savery-Pot Hook Project was found to be infeasible and was not constructed.

7. Utah and Wyoming

a. Lyman Project

The Lyman Project lands are in southwestern Wyoming; however, much of the drainage area and one storage feature are in Utah, just across the Utah-Wyoming state line. The Lyman Project includes Meeks Cabin Dam and reservoir and Stateline Dam and reservoir. The project regulates the flows of Blacks Fork and the east fork of Smiths Fork for irrigation, municipal and industrial use, fish and wildlife conservation, and recreation. Recreation at Meeks Cabin and Stateline dams and reservoirs is the responsibility of the U.S. Forest Service, Wasatch-Cache National Forest, under authority of Public Law 89-72, as amended.

E. RECREATIONAL USE AT RESERVOIRS

A centralized data base has been developed to monitor recreation use at Reclamation reservoirs. Table 7 shows visitor use figures (most recent data where available) for Colorado River Storage Project and participating project reservoirs:

Table 7
Most Current Visitor Use Figures

Recreation Area	Estimated Visitation	Period of Data Collection
Crawford Reservoir	147,220	July 1, 2011, through June 30, 2012
Curecanti National Recreation Area (Wayne N. Aspinall Unit)	769,757	January 1 through October 31, 2013
Currant Creek Reservoir	---	Data not available from USFS*
Flaming Gorge National Recreation Area	---	Data not available from USFS
Fontenelle Reservoir	4,201	Fiscal year 2007
Fruitgrowers Reservoir	2,500	Fiscal year 2012
Glen Canyon National Recreation Area	1,984,108	January 1 through November 30, 2013
Heron Reservoir	160,808	July 1, 2011, through June 30, 2012
Huntington North Reservoir	43,924	2012
Jackson Gulch Reservoir	45,125	July 1, 2011, through June 30, 2012
Joes Valley Reservoir	----	Data not available from USFS
Jordanelle Reservoir	171,212	2012
Lemon Reservoir	---	Data not available from USFS
McPhee Reservoir	---	Data not available from USFS
Meeks Cabin Reservoir	---	Data not available from USFS
Nambe Falls Reservoir	1,000	Calendar year 2011
Navajo Reservoir (Colorado)	355,493	July 1, 2011, through June 30, 2012
Navajo Reservoir (New Mexico)	428,056	July 1, 2011, through June 30, 2012
Paonia Reservoir	28,546	July 1, 2011, through June 30, 2012
Red Fleet Reservoir	26,196	2012
Ridgway Reservoir	313,944	July 1, 2011, through June 30, 2012
Rifle Gap Reservoir	240,546	July 1, 2011, through June 30, 2012
Silver Jack Reservoir	---	Data not available from USFS
Starvation Reservoir	52,653	2012
Stateline Reservoir	---	Data not available from USFS
Steinaker Reservoir	30,396	2012
Strawberry Reservoir	---	Data not available from USFS
Taylor Reservoir	---	Data not available from USFS
Upper Stillwater Reservoir	---	Data not available from USFS
Vallecito Reservoir	19,425	July 2010 through June 2011
Vega Reservoir	184,943	July 1, 2011, through June 30, 2012

*U.S. Forest Service.

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

1. Colorado

a. Colorado-Big Thompson Project

The Colorado-Big Thompson Project is a multipurpose transmountain, transbasin water diversion and delivery project located in Colorado. The project stores, regulates, and diverts water from the Colorado River west of the Rocky Mountains, providing supplemental water for irrigation of 720,000 acres of land east of the Rocky Mountains. The project historically diverts 230,000 acre-feet annually from the headwaters of the Colorado River with a maximum possible diversion of 310,000 acre-feet. The Northern Water Conservancy District apportions the water diverted from the West Slope which is used for irrigation in more than 120 ditches and 60 reservoirs. Besides irrigation water uses, the project also provides water for industrial, hydroelectric power, recreation, and environmental uses.

Although the Colorado-Big Thompson Project is not a participating project of the CRSP because it does not participate in the Upper Colorado River Basin Fund, it does utilize water diverted from the Upper Colorado River system to the eastern slope of Colorado. Reclamation's Eastern Colorado Area Office, located in Loveland, Colorado, directs the operation and maintenance activities of the Colorado-Big Thompson Project in concert with its partner, the Northern Colorado Water Conservancy District.

The Colorado-Big Thompson Project's principal storage facilities on the West slope include: Lake Granby, Grand Lake, Shadow Mountain, Willow Creek Reservoir, and Green Mountain as a Colorado River replacement reservoir. On the East slope of the Rocky Mountains, the major storage facilities are Carter Lake and Horsetooth Reservoir.

In September 1996, a settlement was executed to resolve a water right case referred to as the Orchard Mesa Check Case. Provisions of the settlement included operating criteria for the 66,000 acre-foot historic users pool of Green Mountain Reservoir. The criteria define the terms and conditions under which water in the historic users pool may be deemed surplus to the needs of historic users pool beneficiaries in western Colorado. The settlement provides for the delivery of surplus historic users pool water to the Grand Valley Powerplant and for other non-consumptive beneficial uses in western Colorado, the return flows from which result in augmenting flows in the 15-Mile Reach of the Colorado River.

National Environmental Policy Act compliance on a project (10,825 Project) to fulfill a commitment of water users who divert from the Colorado River or its tributaries upstream of the Gunnison River was completed in March 2012. The compliance process is outlined in the 1999 Final Programmatic Biological Opinion for 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. The 10,825 Project provides for 5,412.5 acre-feet per year of water to be released from Granby Reservoir and delivered to an entity in the Grand Valley, allowing the State of Colorado to protect the water during conveyance to and through the 15-Mile Reach of the upper Colorado River.

Contents of reservoirs within the Colorado-Big Thompson Project as of September 30, 2013, were as follows: Lake Granby, 371,010 acre-feet; Grand Lake, 790 acre-feet; Shadow Mountain, 16,836 acre-feet; Willow Creek Reservoir, 9,318 acre-feet; Green Mountain Reservoir, 107,058; Carter Lake, 49,910 acre-feet; and Horsetooth Reservoir, 94,520 acre-

feet. During water year 2013, transmountain diversions from the Colorado River Basin in Colorado by the Colorado-Big Thompson Project via the Adams Tunnel totaled 236,300 acre-feet.

b. Dominguez Project (Whitewater)

The Dominguez Project was found to be infeasible and was not constructed.

c. Fruitgrowers Dam Project

The Fruitgrowers Dam Project, located in southwestern Colorado, furnishes irrigation water to nearly 2,700 acres of land immediately downstream of Fruitgrowers Dam. Structures built by Reclamation include Fruitgrowers Dam, Dry Creek Diversion Dam, and Dry Creek Diversion Ditch. Other diversion structures and the canal and lateral system were constructed by private interests.

Reclamation manages public use at Fruitgrowers Reservoir. The reservoir and surrounding area has been listed as an "important" bird site by the State of Colorado and it has been determined to be a "globally significant" area under the American Bird Conservancy criteria because of its importance to migrating sandhill cranes and white-faced ibis as well as the presence of some southwestern willow flycatchers. The International Birding Association has determined that the area is an important area for shorebirds and the reservoir is listed on the Colorado Birding Trail website as the "best waterbirding spot on Colorado's West Slope." Fruitgrowers Reservoir also hosts the largest nesting colony of western grebes in Colorado, is one of only a handful of willet nesting sites in the state, and more than 200 species of birds have been sighted in the area. It has been estimated by the Audubon Society that 26 percent of the greater sandhill crane population stops at Fruitgrowers Reservoir during spring migration. In 1993, a watchable wildlife trail and viewing area were constructed near the reservoir. Water quality issues are a concern at Fruitgrowers and, as a result, the public has been discouraged from using the reservoir for boating or swimming activities.

d. Fryingpan-Arkansas Project

The Fryingpan-Arkansas Project is a multipurpose transmountain, transbasin water diversion and delivery project located in Colorado. It makes possible an average annual diversion of 69,200 acre-feet of surplus water from the Fryingpan River and other tributaries of the Roaring Fork River, on the western slope of the Rocky Mountains, to the Arkansas River Basin on the eastern slope. The historical average imports are 52,200 acre-feet. The Fryingpan-Arkansas Project originally provided a supplemental supply of irrigation water for 280,600 acres of farmland and currently provides a supplemental supply of water for 200,000 acres in the Arkansas Valley. Total project supplies may be further increased through use and reuse of project water.

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 does utilize water diverted from the Upper Colorado River system to the eastern slope of Colorado. Reclamation's 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.

National Environmental Policy Act compliance on the Ruedi Round II Water Marketing Program was completed on January 16, 1990, with the signing of a Record of Decision on the proposed action. The proposed action made 46,500 acre-feet of water available for marketing

to western slope contractors. In 1999, the U.S. Fish and Wildlife Service issued a programmatic biological opinion for Reclamation's operations and depletions, other depletions, and funding and implementation of the Upper Colorado Recovery Program actions in the upper Colorado River above the confluence with the Gunnison River, which was accepted by Reclamation in January 2000. In 2013, to meet the commitment of the West Slope water users under the programmatic biological opinion and as part of the 10,825 Project, Reclamation executed a contract with the Colorado River Water Conservation District for release of up to 5,412.5 acre-feet per year of water from Ruedi Reservoir to enhance flows in the 15-Mile Reach. This water is in addition to water made available as a result of earlier Endangered Species Act consultation on the Ruedi Round II Water Marketing Program (5,000 acre-feet per year withheld from water sales and 5,000 acre-feet made available in four out of five years through reoperation/retiming of releases).

Contents of reservoirs within the Fryingpan-Arkansas Project as of September 30, 2013, were as follows: Ruedi Reservoir, 86,080 acre-feet; Turquoise Lake, 103,160 acre-feet; combined Mt. Elbert Forebay and Twin Lakes Reservoir, 98,839 acre-feet; and Pueblo Reservoir, 129,420 acre-feet. During water year 2013, transmountain diversions from the Colorado River Basin in Colorado by the Fryingpan-Arkansas Project via the Charles H. Boustead Tunnel totaled 46,669 acre-feet.

e. Mancos Project

The Mancos Project is an off-stream reservoir in southwestern Colorado, completed in 1948 at a cost of \$3.9 million, of which \$0.9 million is reimbursable and \$0.885 million has been repaid by the Mancos Water Conservancy District (District). The District has one final payment which will be due on December 31, 2013. The project was authorized under the Water Conservation and Utilization Act (P.L. 76-398), as amended. It consists of Jackson Gulch Dam, a 10,000 acre-foot reservoir, an inlet canal, and an outlet canal. The District constructed and operates a 260-kilowatt powerplant at Jackson Gulch Dam under a lease of power privilege contract. The project provides supplementary irrigation water for approximately 13,746 acres and municipal and industrial water for the town of Mancos, the surrounding area, and Mesa Verde National Park. Responsibility for the operation and maintenance of project facilities was transferred to the District by contract in 1963. The term "operation and maintenance" includes replacement, as specified in Reclamation's Report to the Congress, Annual Costs of Bureau of Reclamation Project Operation and Maintenance for Fiscal Years 1993-97, dated September 1998. The Mancos Project is more than 60 years old and many features are reaching the end of their design life. The canal system is in need of extraordinary maintenance and rehabilitation, and delivery of agricultural and municipal and industrial water could be affected if these repairs are not made. The District has completed a study through a private engineering firm to assess the project's needs and repair/replace facilities including canal lining and some canal reconstruction.

Rehabilitation of the Mancos Project was authorized by P.L. 111-11. The total authorized cost of the project is \$8.25 million. The federal cost share is 65 percent and the non-federal reimbursement is 35 percent, not to exceed \$2.9 million. The law also states that "... the Secretary shall credit the District for any amounts it paid before the date of enactment of this Act for engineering work and improvements directly associated with the project." The reimbursement is authorized to be obtained through a 15-year no interest repayment contract. Reclamation provides oversight on operation, maintenance, and replacement; contract compliance; and land management and recreation issues.

Recreation at Jackson Gulch Reservoir is under the administration of the Colorado Division of Parks and Wildlife through a contract with Reclamation. Camping, fishing, hiking, picnicking, wildlife viewing, and winter sports are all popular activities at the park. There is

a network of multiple-use trails (foot, horse, bike, and ski) at the reservoir and one (Chicken Creek) that leads into the adjacent San Juan National Forest.

Reclamation is working closely with CDPW to develop effective solutions to manage the spread of invasive mussels including educating the public and providing materials such as signs and brochures. The CDPW is conducting boat inspections. In 2009, Reclamation conducted a mussel facility risk assessment at Jackson Gulch Reservoir.

f. Pine River Project

The Pine River Project consists of Vallecito Dam and reservoir which were constructed to furnish supplemental water to 63,873 acres of project lands and Southern Ute lands. Vallecito Dam is located on the Pine River, 18 miles northeast of Durango, Colorado. The project stores spring floodwaters to provide a supplemental water supply to about 13,000 acres of the Southern Ute lands and about 41,000 acres of land outside the Southern Ute Reservation. Irrigation water is distributed through privately owned systems or through systems under the jurisdiction of the Bureau of Indian Affairs.

A contract between Reclamation and the Pine River Irrigation District for use of 6,700 acre-feet of Pine River Project water for municipal, industrial, and miscellaneous uses was executed on March 16, 2007. Reclamation completed National Environmental Policy Act compliance for an initial quantity of 3,000 acre-feet. Additional National Environmental Policy Act compliance will be required for the remaining 3,700 acre-feet prior to use.

Recreation at Vallecito Reservoir is under the administration of the Pine River Irrigation District, through a contract with Reclamation, with the exception of public campgrounds on the east side of the reservoir which are administered by the U.S. Forest Service. The District issued private boat dock permits through contracts with Reclamation. However, permits for private boat docks at Vallecito Reservoir will not be renewed when they expire. This is in accordance with the 1996 Vallecito Reservoir Resource Management Plan and Reclamation's policy concerning private exclusive use of project lands. Currently, four private boat dock permits remain in effect, but will expire in 2013, 2014, 2017, and 2018.

Reclamation is working closely with its recreation managing entities to develop effective solutions to manage the spread of invasive mussels including educating the public and providing materials such as signs and brochures. At Vallecito Reservoir, the Colorado Division of Parks and Wildlife is conducting periodic boat inspections and plankton tow and substrate sampling. In 2010, Reclamation conducted a mussel facility risk assessment at the reservoir.

g. Uncompahgre Project

The Uncompahgre Project is located on the western slope of the Rocky Mountains in west-central Colorado. Project lands surround the town of Montrose and extend 34 miles along both sides of the Uncompahgre River to Delta, Colorado. Project features include Taylor Park Dam and reservoir, Gunnison Tunnel, seven diversion dams, 128 miles of main canals, 438 miles of laterals, and 216 miles of drains. The systems divert water from the Uncompahgre and Gunnison rivers to serve over 76,000 acres of project land.

The Uncompahgre Valley Water Users Association (UVWUA), in partnership with Delta Montrose Electric Association, submitted the only proposal in response to Reclamation's August 2009 *Federal Register* Notice requesting proposals for a lease of power privilege on the South Canal. A draft environmental assessment was released to the public in December 2011 and a final EA and Finding of No Significant Impact were issued in February 2012. The

proposed project includes an electronic fish screen to prevent fish in the Gunnison River from entering the Gunnison Tunnel and South Canal. A lease of power privilege was issued in March 2012 and construction and testing was completed in July 2013 followed by full operation of two hydropower units during the summer of 2013. The UVWUA is also working with Reclamation to develop three other potential hydropower sites. These three other sites are in the early stages of development.

The recreation facilities at Taylor Park Reservoir are managed by the U.S. Forest Service under an agreement with Reclamation. The reservoir, with 2,400 acres of surface water, offers good fishing and includes trout species, northern pike, and kokanee salmon. Reclamation is working with its recreation managing entities to develop effective solutions to manage the spread of invasive mussels including educating the public and providing materials such as signs and brochures.

G. PLANNING INVESTIGATION ACTIVITIES

The Upper Colorado Region General Planning Program budget for fiscal year 2013 was \$1,082,000 with approximately 75 percent being directed within the Upper Colorado River Basin. General Planning Program funds are used for Reclamation to conduct critical short-term investigation activities not funded by other projects or programs such as Rural Water or through Reclamation's WaterSMART (Sustain and Manage America's Resources for Tomorrow) programs, including: West Wide Climate Risk Assessments (WWCRA), Basin Studies, Landscape Conservation Cooperatives (LCC), and the Cooperative Watershed Management Program (CWMP). The WWCRA, Basin Studies, and LCC activities represent a comprehensive approach to incorporating the best available science into planning activities for climate change adaptation planning. The CWMP supports the formation and development of locally led watershed groups to facilitate the development of multi-stakeholder watershed management projects. Reclamation solicits input from the states on their watershed needs and activities and will continue to consult with the states to tailor the CWMP in accordance with state watershed management plans. Under the WaterSMART Program, approximately \$560,000 was funded toward planning in the Upper Colorado River Basin for 2013. No funding was authorized for the Rural Water Program. Planning investigations under the Geographically Defined Program have been completed and are no longer funded for future activities.

1. Utah

a. Halchita Water Treatment Plan Upgrade Investigation

Using monies from Reclamation's Native American Affairs Technical Assistance Program, plans are being developed to update the Halchita Water Treatment Facility on the San Juan River near Mexican Hat, Utah. The treatment plant is currently outdated and in bad need of either repairs or an upgrade. Also being considered is an enlargement to accommodate additional flow into a proposed San Juan River to Kayenta pipeline. The majority of this work is being accomplished by Reclamation's Denver Technical Service Center. The Navajo Nation will use the results of this study to seek funding for any repairs or upgrade.

b. Lake Powell Pipeline Project

The Utah State Legislature authorized the Lake Powell Pipeline Project in 2006 to meet the future water needs of a rapidly growing southwestern Utah. The proposed project would deliver approximately 80,000 acre-feet of water per year from Lake Powell to two counties in Utah (~10,000 acre-feet to Kane County and ~70,000 acre-feet to Washington County) via a 139-mile pipeline (in March 2012 Iron County decided to no longer participate

in the project). The water diverted into the pipeline will be a portion of Utah's Upper Colorado River Compact allocation and will consist of water rights to be held or acquired by two Utah water districts (one representing each county) and the Board of Water Resources. Energy generation components for the project include a potential 300-megawatt pumped storage component and 51 megawatts of conventional hydro generating capacity.

In March 2008, the State of Utah filed a Preliminary Application Document and Notice of Intent with the Federal Energy Regulatory Commission to begin the federal licensing, permitting, and environmental compliance processes for the project. Reclamation, the Bureau of Land Management, and the National Park Service are cooperating agencies for the federal environmental compliance required for this state project. FERC is the lead federal agency. Although FERC will only license the hydropower portions of the project, it will work with the other three federal agencies to prepare an environmental impact statement. The pre-application part of the FERC process is expected to be finished in late 2014. At that time, the license application will be filed and the EIS process will begin. The EIS process is expected to last through 2016.

The State of Utah supports this project as part of its state-wide water plan. The State will build the project and the two participating water districts will repay the costs through water sales.

c. San Juan River to Kayenta Pipeline Investigation

Using monies from a Reclamation Rural Water grant, this investigation is in the final stages of completing an appraisal-level study of a proposed pipeline system that would extend from an existing pump on the San Juan River at Mexican Hat, Utah, south to the community of Kayenta, Arizona. This multi-state system would also serve Navajo communities along the pipeline route, notably in the Monument Valley area in Utah.

d. Utah Navajo Rural Water/Alternative Energy Investigation

Using monies from Reclamation's Native American Affairs Technical Assistance Program, options are being developed to assist with water and energy supplies to isolated residential units on the Navajo Reservation. At present, 70,000 Navajos are without indoor water and commercial power. For their water supply, they are forced to haul water from sources located a great distance from their homes. Several prototypes have been installed and are currently being evaluated. The issue of water quality is also being addressed. Plans are also being developed to construct a demonstration home that is ultra water and energy efficient. Federal, tribal, and state agencies, as well as non-governmental organizations, are assisting with the investigation.

H. RESERVOIR OPERATIONS

1. 2013 Hydrology Summary and Reservoir Status

Below average stream flows were observed throughout much of the Colorado River Basin during water year 2013. Unregulated¹ inflow to Lake Powell in water year 2013 was 5.12 million acre-feet (maf), or 47 percent of the 30-year average² which is 10.83 maf. Unregulated

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 reservoir operations.

² Inflow statistics throughout this document will be compared to the mean of the 30-year period 1981-2010, unless otherwise noted.

inflow to Flaming Gorge, Blue Mesa, and Navajo Reservoirs was 45, 59, and 51 percent of average, respectively.

Precipitation in the Upper Colorado River Basin was below average³ throughout most of water year 2013. During the fall and winter months (October through March) the overall precipitation rate was approximately 74 percent of average. During the spring runoff period (April through July), the precipitation rate was also below average at approximately 90 percent of average. On September 30, 2013, the cumulative precipitation for the Upper Colorado River Basin for water year 2013 was 95 percent of average.

Snowpack conditions trended below average⁴ in the Colorado River Basin throughout the entire snow accumulation season. Above average accumulation in December increased the overall snowpack; however, on January 1, 2013, snowpack levels in the basin remained below average with the basin-wide snow water equivalent measuring 87 percent of average. During January through March, snow accumulation was below average and the snow water equivalent measured 73 percent of average on April 1, 2013. Late-season storms in April increased the snowpack; however, total seasonal accumulation peaked at approximately 81 percent of average on April 21, 2013. On April 1, 2013, the snow water equivalents for the Green River, Upper Colorado River Headwater, and San Juan River Basins were 78, 77, and 68 percent of average, respectively.

During the 2013 spring runoff period, inflows to Lake Powell began to increase in early May as temperatures increased across the basin. On May 21, 2013, inflows to Lake Powell peaked at approximately 26,600 cubic feet per second. During the spring runoff period Lake Powell storage decreased by 0.449 maf. The April through July unregulated inflow volume for Lake Powell was 2.56 maf which was 36 percent of average.

Lower Basin tributary inflows above Lake Mead were below average for water year 2013. Tributary inflow from the Little Colorado River for water year 2013 totaled 0.112 maf, or 63 percent of the long-term average.⁵ Tributary inflow from the Virgin River for water year 2013 totaled 0.130 maf, or 76 percent of the long-term average.

Tributary inflows in the Lower Colorado River Basin below Hoover Dam were below average during water year 2013. Total tributary inflow for water year 2013 from the Bill Williams River was 0.017 maf, or 17 percent of the long-term average, and total tributary inflow from the Gila River was 0.005 maf⁶

The Colorado River total system storage experienced a net decline of 4.09 maf in water year 2013. Reservoir storage in Lake Powell decreased during water year 2013 by 3.00 maf. Reservoir storage in Lake Mead decreased during water year 2013 by 0.773 maf. At the beginning of water year 2013 (October 1, 2012), Colorado River total system storage was 57 percent of capacity. As of September 30, 2013, total system storage was 50 percent of capacity.

³ Precipitation statistics throughout this document are provided by the National Weather Service's Colorado Basin River Forecast Center and are based on the mean for the 30-year period 1981-2010, unless otherwise noted.

⁴ Snowpack and snow water equivalent statistics throughout this document are provided by the Natural Resources Conservation Service and are based on the median for the 30-year period 1981-2010, unless otherwise noted.

⁵ The basis for the long-term average of tributary inflows in the Lower Basin is natural flow data from 1906 to 2010. Additional information regarding natural flows may be found at <http://www.usbr.gov/lc/region/g4000/NaturalFlow/current.html>.

⁶ Tributary inflow from the Gila River to the mainstream is very sporadic. These flows occur very seldom and when they do they are typically of high magnitude.

Table 8 lists the October 1, 2013, reservoir vacant space, live storage, water elevation, percent of capacity, change in storage, and change in water elevation during water year 2013.

Table 8
Reservoir Conditions on October 1, 2013

Reservoir	Vacant Space	Live Storage	Water Elevation	Percent of Capacity	Change in Storage*	Change in Elevation*
	(maf)	(maf)	(ft)	(%)	(maf)	(ft)
Fontenelle	0.112	0.233	6,490.9	68	-0.030	-4.2
Flaming Gorge	0.932	2.82	6,015.3	75	-0.212	-6.1
Blue Mesa	0.481	0.348	7,456.2	42	0.008	1.4
Navajo	0.762	0.93	6,022.3	55	-0.102	-10.3
Lake Powell	13.4	10.9	3,591.3	45	-3.00	-30.3
Lake Mead	13.5	12.4	1,106.9	47	-0.773	-8.2
Lake Mohave	0.186	1.62	640.2	90	0.018	0.7
Lake Havasu	0.060	0.560	447.0	90	0.000	0.0
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Totals	29.4	29.8		50	-4.09	

*From October 1, 2012, to September 30, 2013.

2. 2014 Water Supply Assumptions

For 2014 operations, three reservoir unregulated inflow scenarios were developed and analyzed: minimum probable, most probable, and maximum probable.

There is considerable uncertainty associated with streamflow forecasts and projections of reservoir operations made a year in advance. The National Weather Service's Colorado Basin River Forecast Center (CBRFC) forecasts the inflow for the minimum probable (90 percent exceedance), most probable (50 percent exceedance), and maximum probable (10 percent exceedance) inflow scenarios for 2014 using an Ensemble Streamflow Prediction model. Based upon the August CBRFC forecast, the range of unregulated inflows is projected to be as follows:

- The forecasted minimum probable unregulated inflow to Lake Powell in water year 2014 is 5.00 maf, or 46 percent of average.
- The forecasted most probable unregulated inflow to Lake Powell in water year 2014 is 8.32 maf, or 77 percent of average.
- The forecasted maximum probable unregulated inflow to Lake Powell in water year 2014 is 15.50 maf, or 143 percent of average.

Projected unregulated inflow volumes into Lake Powell for specific time periods for these three forecasted inflow scenarios are shown in Table 8.

Inflows to the mainstream from Lake Powell to Lake Mead, Lake Mead to Lake Mohave, Lake Mohave to Lake Havasu, and below Lake Havasu are projected using historic data over the five-year period of January 2008 through December 2012, inclusive. These five years of historic data are representative of the most recent hydrologic conditions in the Lower Basin. The most probable side inflows into each reach are estimated as the arithmetic mean of the five-year record. The maximum probable and minimum probable projections for each reach are the 10 percent and 90 percent exceedance values, respectively, of the five-year record. For the reach from Lake Powell to Lake Mead, the minimum probable inflow during water year 2014 is 0.518 maf, the most probable inflow is 0.870 maf, and the maximum probable inflow is 1.29 maf.

The projected monthly volumes of inflow were input into the 24-Month Study and used to project potential reservoir operations for 2014. Starting with the projected October 1, 2013, reservoir storage conditions, the projected monthly releases for each reservoir were adjusted until release and storage levels best accomplished project purposes and applicable operational objectives.

For the latest monthly projections for the major reservoirs in the Colorado River system, please see the most recent 24-Month Study report available on these Reclamation websites:

<http://www.usbr.gov/uc/water/crsp/studies/index.htm>, or <http://www.usbr.gov/lc/region/g4000/24mo.pdf>

**Table 9 Projected Unregulated Inflow into Lake Powell
for Water Year 2014⁷**

Time Period	Minimum Probable (maf)	Most Probable (maf)	Maximum Probable (maf)
10/13 – 12/13	0.970	0.880	1.26
1/14 – 3/14	1.09	1.04	1.62
4/14 – 7/14	2.64	5.70	11.2
8/14 – 9/14	0.306	0.700	1.38
10/14 – 12/14	1.03	1.23	1.67
WY 2014	5.00	8.32	15.50
CY 2014	5.07	8.67	15.87

⁷ All values in Table 5 are projected inflows based upon the August CBRFC forecast with the exception of the values for 10/14-12/14. The values for 10/14-12/14 are based upon average unregulated inflow from 1981-2010. The calendar year totals in Table 5 also reflect average values for the 10/14-12/14 time period.

3. Summary of Reservoir Operations in 2013 and Projected 2014 Water Operations

The operation of the Colorado River reservoirs has affected some aquatic and riparian resources. Controlled releases from dams have modified temperature, sediment load, and flow patterns, resulting in increased productivity of some riparian and non-native 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 aquatic and riparian resources have been established after appropriate National Environmental Policy Act compliance at several locations in the Colorado River Basin.

In the Upper Basin, public stakeholder work groups have been established at Fontenelle Dam, Flaming Gorge Dam, the Aspinall Unit, and Navajo Dam. These work groups provide a public forum for dissemination of information regarding ongoing and projected reservoir operations throughout the year and allow stakeholders the opportunity to provide information and feedback with respect to ongoing reservoir operations. Additionally, the Glen Canyon Dam Adaptive Management Work Group⁸ was established in 1997 as a chartered committee under the Federal Advisory Committee Act of 1972 (Public Law 92-463).

Modifications to projected operations are routinely made based on changes in forecasted conditions or other relevant factors. Within the parameters set forth in the Law of the River and consistent with the Upper Colorado River Endangered Fish Recovery Program (Upper Colorado Recovery Program),⁹ the San Juan River Basin Recovery Implementation Program (San Juan Recovery Program),¹⁰ Section 7 consultations under the Endangered Species Act, and other downstream concerns, modifications to projected monthly operations 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 will conduct meetings with Recovery Program participants, the U.S. Fish and Wildlife Service, other federal agencies, representatives of the Basin States, and with public stakeholder work groups to facilitate the discussions necessary to finalize site-specific projected operations.

The following paragraphs discuss reservoir operations in 2013 and the range of probable projected 2014 operations of each of the reservoirs with respect to applicable provisions of compacts, the Consolidated Decree, statutes, regulations, contracts, and instream flow needs for maintaining or improving aquatic and riparian resources where appropriate.

a. Fontenelle Reservoir

Fontenelle Reservoir began water year 2013 with 0.263 maf in storage, which is 76 percent of full capacity and corresponds to an elevation of 6,495.11 feet above sea level. Hydrologic conditions in the Upper Green River Basin were below average in water year 2013. Snowpack development tracked below average and, with late season storms, melt began later than average with the peak snow water equivalent reaching 86 percent of seasonal median on April 21, 2013. The April forecast for the April through July inflow to Fontenelle Reservoir was 0.405 maf, or 56 percent of average. The actual observed inflow during the April to July season was 0.317 maf, or 44 percent of average.

⁸ Information on the AMWG can be found at www.usbr.gov/uc/rm/amp.

⁹ Information on the Upper Colorado Recovery Program can be found at <http://coloradoriverrecovery.org>.

¹⁰ Information on the San Juan Recovery Program can be found at www.fws.gov/southwest/sjrip.

Fontenelle Reservoir did not fill in water year 2013. The reservoir elevation peaked at 6,492.29 feet on July 22, 2013, which was 13.71 feet below the spillway crest. Reservoir releases were held steady because of the dry conditions in the summer months to balance downstream water resources and power production during the high use summer months, while also allowing for filling the reservoir to maintain sufficient water in storage for use through the fall and winter months. Releases peaked at 907 cfs on October 6, 2012. Releases were reduced to 850 cfs from November 1, 2012, through mid-May 2013 when releases were further reduced to 800 cfs. Hydrologic conditions continued to deteriorate and releases were further reduced to 700 cfs in mid-July and held at this rate going into the fall of 2013. Inflow peaked at 3,795 cfs on May 18, 2013.

Based on the August 2013 24-Month Study, the most probable April through July inflow scenario for Fontenelle Reservoir during water year 2014 is 0.618 maf, or 85 percent of average. This volume far exceeds the 0.345 maf storage capacity of Fontenelle Reservoir. For this reason, the most probable and maximum probable inflow scenarios would require releases during the spring that exceed the capacity of the powerplant to avoid uncontrolled spills from the reservoir. It is very likely that Fontenelle Reservoir will fill during water year 2014. In order to minimize high spring releases and to maximize downstream water resources and power production, the reservoir will most likely be drawn down to about elevation 6,468.00 feet by early April 2014, which is 5.00 feet above the minimum operating level for power generation, and corresponds to a volume of 0.111 maf of live storage.

b. Flaming Gorge Reservoir

Inflow to Flaming Gorge Reservoir during water year 2013 was below average. Unregulated inflow in water year 2013 was 0.657 maf, which is 45 percent of average. On October 1, 2012, the beginning of water year 2013, the reservoir elevation was 6,021.43 feet, which was its maximum elevation for water year 2013, with 3.03 maf of live storage. The reservoir elevation showed an overall decrease during water year 2013, ending the water year (September 30, 2013) at elevation 6,015.33 feet corresponding to a volume of 2.82 maf. The end of water year reservoir elevation was 24.67 feet below the full pool elevation (6,040.00 feet) which corresponded to an available storage space of 0.934 maf.

Flaming Gorge Dam operations in 2013 were in compliance with the 2006 Flaming Gorge ROD. Reclamation convened the Flaming Gorge Technical Working Group (FGTWG) comprised of the Service, Western, and Reclamation personnel, to provide Reclamation three proposed operating scenarios for 2013 based on varying hydrologic conditions and research requests. The FGTWG proposed Reclamation manage releases to the Green River to meet the commitments of the ROD and, to the extent possible, meet the experimental design parameters outlined in the Upper Colorado River Endangered Fish Recovery Program (Recovery Program) Larval Trigger Study Plan (LTSP). The LTSP contains an experimental research and monitoring plan for endangered fish critical habitat below the confluence of the Green and Yampa Rivers (Reach 2). The primary objective of the LTSP is to determine the effects of timing spring releases from Flaming Gorge during the presence of wild razorback sucker larvae in Reach 2. Wild razorback sucker larvae were detected in late-May and on May 29, 2013, releases were increased to powerplant capacity (approximately 4,500 cfs) for nine days. Yampa River flows at the Deerlodge gage decreased below 4,000 cfs on June 2, 2013, and Flaming Gorge releases were increased to 5,500 cfs for a total of two days of bypass releases in support of the LTSP.

The hydrologic conditions during spring 2013 consisted of below average snow accumulation with late season storms increasing snowpack and shifting runoff later in the season. Yampa River spring peak flows were below average. Considering the ROD Flow Recommendations for both the Upper Green and Yampa River conditions resulted in a

designation of moderately dry. Releases from Flaming Gorge Dam remained at an average daily release of 829 cfs through May 29, 2013, when releases were increased to meet the LTSP request. After releases for the LTSP concluded, releases were decreased to base flow releases of 1,100 cfs. Flows at Jensen met or exceeded 8,300 cfs for a total of 25 days, 18 of those days occurred during larval drift, meeting both the ROD Flow Recommendations and LTSP moderately dry targets in Reach 2 of between 7 and 14 days at or above 8,300 cfs.

Consistent with the ROD, considering information provided to the FGTWG, the dry hydrologic conditions and in response to the request of the Service, Reclamation operated Flaming Gorge Dam at 40 percent above Reach 1 minimum base flows in the Green River during the summer of 2013. The ROD base flow period hydrologic classification was dry as of August 2013.

During water year 2014, Flaming Gorge Dam will continue to be operated in accordance with the ROD. Under the most probable inflow scenario, winter base flow releases are projected to be in the dry classification range between 800 cfs and 1,000 cfs. Daily base flows will likely remain at 800 cfs in an attempt to meet the average-year reservoir upper level elevation target of 6,027.00 feet by May 1, 2014. A spring peak release is projected to occur sometime in May 2014, and will be timed to coincide with either the peak flows of the Yampa River or emergence of razorback larvae. Reclamation is considering long-term implementation strategies for the Recovery Program LTSP.

The Recovery Program, in coordination with Reclamation, the Service, and Western, will continue conducting studies associated with floodplain inundation. Such studies may result in alternatives for meeting flow and temperature recommendations at lower peak flow levels where feasible.¹¹

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

At the beginning of water year 2013 (October 1, 2012) the elevation of Blue Mesa was 7,454.82 feet, and the storage content was 0.340 maf, which was 41 percent of capacity.

Below average snowpack conditions prevailed in the Gunnison River Basin during water year 2013. Snow measurement sites in the basin reported below average seasonal snow water equivalent levels throughout the winter and into the spring of 2013. On April 1, 2013, the snow water equivalent for the Gunnison River Basin was 71 percent of average.

Below average snowpack conditions resulted in an April forecast for the April through July unregulated inflow above Blue Mesa that was 0.315 maf, which was 47 percent of average. The actual April through July unregulated inflow into Blue Mesa Reservoir in 2013 was 0.346 maf, which was 51 percent of average.

Releases from Crystal Dam during water year 2013 were below average. In October 2012, releases were about average at approximately 1,100 cfs, but were decreased to 350 cfs by early November 2012. Releases from Crystal Dam were kept at this reduced rate from November through March based on below average snowpack conditions and reduced inflow forecasts. Releases were increased through the powerplant up to 1,300 cfs in a series of steps beginning April 1, 2013, continuing through the end of April resulting in 1,000 cfs being available to Gunnison Tunnel and 300 cfs through the Black Canyon. Releases were again

¹¹ Flow and Temperature Recommendations for Endangered Fishes in the Green River Downstream of Flaming Gorge Dam, September 2000. Available online at: <http://www.ead.anl.gov/pub/doc/flaming-gorgeflowrecs.pdf>.

increased in steps between June 20 and 26, 2013, up to 1,700 cfs. ROD¹² flow targets and Black Canyon Decree targets were met by releases through the powerplant. Flows through the Black Canyon and Gunnison River Gorge averaged approximately 650 cfs over the July through August period.

For water year 2013, the peak elevation of Blue Mesa Reservoir occurred on June 20, 2013, at an elevation of 7,472.32 feet, which was 47.08 feet below full pool. Storage in Blue Mesa Reservoir increased during water year 2013 by 0.008 maf and ended water year 2013 on September 30, 2013, at 0.348 maf, which was 42 percent of capacity. Total unregulated inflow into Blue Mesa Reservoir for water year 2013 was 0.561 maf, which was 59 percent of average.

On May 3, 2012, Reclamation signed a ROD for the operation of the Aspinall Unit intended to avoid jeopardy to endangered species while maintaining and continuing to meet the congressionally authorized purposes of the Unit. The ROD selected the preferred alternative (Alternative B) described in the January 2012 Environmental Impact Statement.¹³ Significant issues addressed in the EIS and important in the selection of the preferred alternative included addressing the relationship with the recently quantified downstream senior federal reserved water right for the Gunnison River through the Black Canyon of the Gunnison National Park.¹⁴ The selected alternative addresses operating the Aspinall Unit to meet specific downstream spring peak flow, duration flow, and base flow targets. For water year 2014, the Aspinall Unit will be operated in accordance with the 2012 ROD while maintaining and continuing to meet the congressionally authorized purposes. As part of the operational process, Reclamation will carry out the consultation required under the ROD and will continue to coordinate operations through tri-annual Aspinall operations meetings.

The projected most probable unregulated inflow for water year 2014 into Blue Mesa Reservoir is 0.784 maf, or 82 percent of average. The reservoir is expected to decrease to a seasonal low elevation of 7,443.65 feet by October 31, 2013. The peak elevation is expected to be approximately 7,493.53 feet by about the end of July 2014. By the end of water year 2014, Blue Mesa Reservoir is expected to be at elevation 7,484.78 feet, with storage of 0.541 maf, or 65 percent of capacity.

d. Navajo Reservoir

At the beginning of the 2013 water year, Navajo Reservoir was at an elevation of 6,032.62 feet, which was 61 percent of full capacity and corresponded to a live storage content of 1.04 maf. Snowpack conditions in the San Juan River Basin were persistently below average during the winter months. On April 1, 2013, the snow water equivalent in the San Juan River Basin above Navajo Reservoir was 67 percent of the seasonal average for the basin.

Inflow to Navajo Reservoir in water year 2013 was below average. Water year 2013

¹² Record of Decision for the Aspinall Unit Operations Final Environmental Impact Statement, signed May 3, 2012. Available online at: <http://www.usbr.gov/uc/envdocs/eis/AspinallEIS/ROD.pdf>.

¹³ Final Environmental Impact Statement for the Aspinall Unit Operations, January 2012. Available online at: <http://www.usbr.gov/uc/envdocs/eis/AspinallEIS/index.html>.

¹⁴ Decree quantifying the federal reserved water right for Black Canyon of the Gunnison National Park (State of Colorado District Court, Water Division Four, Case Number 01CW05) signed on January 8, 2009.

modified unregulated inflow¹⁵ to Navajo Reservoir was 0.543 maf, or 51 percent of average. The April through July modified unregulated inflow into Navajo Reservoir in water year 2013 was 0.267 maf, or 36 percent of average. Modified unregulated inflow to Navajo Reservoir was below average for all water years from 2000 through 2013, except for 2005 which was 136 percent of average and 2008 which was 120 percent of average.

Navajo Reservoir reached a peak water surface elevation of 6,029.22 feet on June 11, 2013, which was 55.78 feet below full pool. The water surface elevation at Navajo Reservoir on September 30, 2013, was 6,022.28 feet, with a reservoir storage volume of 0.933 maf, or 55 percent of capacity.

A final report which outlines flow recommendations for the San Juan River (San Juan Flow Recommendations) below Navajo Dam was completed by the San Juan Recovery Program in May 1999 after a seven-year research period.¹⁶ The purpose of the report was to provide flow recommendations for the San Juan River that promote the recovery of the endangered Colorado River 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 in the basin. The flow recommendations are scheduled to be reviewed by the San Juan River Basin Recovery Implementation Program in fiscal year 2015.

In 2006, Reclamation completed a National Environmental Policy Act process on the implementation of operations at Navajo Dam that meet the San Juan Flow Recommendations, or a reasonable alternative to them. The ROD for the Navajo Reservoir Operations Final EIS was signed by the Regional Director of Reclamation's Upper Colorado Region on July 31, 2006.

Navajo Reservoir was operated in compliance with the ROD in 2013, including the San Juan Flow Recommendations, which recommended no release.

In 2012, a four-year agreement on recommendations for San Juan River operations and administration was developed among major users to limit their water use to the rates and volumes in years 2013-2016, as indicated in the agreement.¹⁷ The 2013-2016 agreement is similar to agreements that were developed in 2003, 2004, 2005, 2006, 2007-2008, and 2009-2012. Ten major water users (the Jicarilla Apache and Navajo Nations, Hammond Conservancy District, Public Service Company of New Mexico, City of Farmington, Arizona Public Service Company, BHP-Billiton, Bloomfield Irrigation District, Farmers Mutual Ditch, and Jewett Valley Ditch) have endorsed these different flow recommendations.¹⁸ These recommendations included limitations on diversions for 2013-2016, criteria for determining a shortage, and shortage-sharing requirements in the event of a water supply shortfall, including sharing of shortages between the water users and the flows for endangered fish habitat. In addition to the ten major water users, the New Mexico Interstate Stream Commission and the Bureau of Indian Affairs all provided input to these recommendations. Reclamation received

¹⁵ Modified Unregulated inflow into Navajo Reservoir is equivalent to unregulated inflow adjusted for trans-basin diversion through the San Juan-Chama Project.

¹⁶ Flow Recommendations for the San Juan River, May 1999. Available online at: http://www.fws.gov/southwest/sjrip/pdf/DOC_Flow_recommendations_San_Juan_River.pdf.

¹⁷ Recommendations for San Juan River Operations and Administration for 2013-2016, July 2, 2012.

¹⁸ Available online at: <http://www.usbr.gov/uc/wcao/water/rsvrs/notice/navshort2012.html>.

the endorsements of these recommendations and notified the New Mexico State Engineer of the endorsements. The New Mexico State Engineer accepted these recommendations on April 18, 2013.

During water year 2014, Navajo Reservoir will be operated in accordance with the Navajo Reservoir Operations ROD. Navajo Reservoir storage levels are expected to be below average in 2014 under the most probable inflow forecast. Base releases from the reservoir will likely range from 250 cfs to 500 cfs through the winter. Under the most probable April through July modified unregulated inflow forecast of 0.600 maf in 2014, a spring peak release would not be recommended in the San Juan Recovery Program's Flow Recommendations. The reservoir is projected to reach a peak elevation of 6,026.50 feet in June 2014. The reservoir is projected to reach a minimum elevation of 5,996.97 feet at the end of February 2014.

Under the minimum probable 2014 April through July inflow forecast of 0.291 maf, there will not be a spring peak release made during the spring of 2014 and a 34 percent shortage will be applied to all water users as per the Recommendations for San Juan River Operations and Administration for 2013-2016. Under the maximum probable 2014 April through July inflow forecast of 1.097 maf, a one-week spring peak release will be recommended as described in the San Juan Flow Recommendations.

e. Lake Powell

Reservoir storage in Lake Powell decreased during water year 2013. On October 1, 2012, the beginning of water year 2013, reservoir storage in Lake Powell was 57 percent of capacity at elevation 3,621.56 feet, with 13.93 maf in storage. On September 30, 2013, the reservoir storage in Lake Powell was 10.93 maf at 45 percent of full capacity indicating a net loss during water year 2013 of 3.00 maf. The unregulated inflow to Lake Powell during water year 2013 was below average at 47 percent of average. Lake Powell ended the water year on September 30, 2013, at elevation 3,591.25 feet.

The August 2012 24-Month Study was run to project the January 1, 2013, elevations of Lake Powell and Lake Mead and determine the water year 2013 operating tier for Lake Powell. Using the most probable inflow scenario, the January 1, 2013, reservoir elevations of Lake Powell and Lake Mead were projected to be 3,614.89 feet and 1,119.14 feet, respectively. Given these projections, the annual release volume from Lake Powell during water year 2013 was consistent with the Upper Elevation Balancing Tier (Section 6.B of the 2007 Interim Guidelines) and under Section 6.B.1, the annual release would be 8.23 maf. The Upper Elevation Balancing Tier, however, does provide for the possibility of adjustments to operation of Lake Powell based on the projected end of water year conditions of Lake Powell and Lake Mead from the April 24-Month Study. The April 2013 24-Month Study projected the end of water year elevation at Lake Powell to be 3,584.13 feet and Lake Mead to be 1,104.18 feet. Since the projected end of water year elevation at Lake Powell was below the 2013 Equalization elevation of 3,646.00 feet and the projected end of water year elevation at Lake Mead was above elevation 1,075.00 feet, Section 6.B.1 of the 2007 Interim Guidelines provided for an annual release volume of 8.23 maf from Lake Powell during water year 2013. The annual release volume during water year 2013 from Glen Canyon Dam was 8.23 maf.

The April through July unregulated inflow to Lake Powell in water year 2013 was 2.56 maf, which was 36 percent of average. Lake Powell reached a spring peak elevation for water

year 2013 of 3,601.18 feet on June 18, 2013, which was 98.82 feet below full pool. This peak elevation corresponds to a live storage content of 11.86 maf.

From November 18-23, 2012, the Department of the Interior conducted the first High Flow Experiment under a multi-year protocol for high flow experimental releases (Protocol), consistent with Reclamation's May 12, 2012, Finding of No Significant Impact.¹⁹ Beginning on the evening of November 18th, releases from Glen Canyon Dam began ramping up to full available powerplant capacity which was approximately 28,000 cfs. At midday on November 19th, bypass tubes at Glen Canyon Dam were opened and releases continued to increase up to full available powerplant and bypass capacity of approximately 43,000 cfs by the evening of November 19th. Releases were maintained at peak release for 24 hours and then began ramping back down. Releases returned to normal operations in the evening of November 23rd. The entire experiment, including ramping lasted 5 days, with 24 hours at peak release. November releases from Glen Canyon Dam prior to and after the High Flow Experiment fluctuated between 7,000 cfs and 9,000 cfs. The elevation of Lake Powell decreased approximately 2.75 feet during the five-day experiment. Approximately 0.078 maf was bypassed during the experiment. The total annual release from Glen Canyon Dam in water year 2013 did not change as a result of the High Flow Experiment.

The ten-year total flow of the Colorado River at Lee Ferry²⁰ for water years 2004 through 2013 is 90.26 maf. This total is computed as the sum of the flow of the Colorado River at Lees Ferry, Arizona, and the Paria River at Lees Ferry, Arizona, surface water discharge stations which are operated and maintained by the U.S. Geological Survey.

(i). 2014 Operating Tier and Projected Operations for Glen Canyon Dam

The operating tier and annual release volume from Lake Powell during water year 2014 will be consistent with the Mid-Elevation Release Tier (Section 6.C of the 2007 Interim Guidelines) and under Section 6.C.1, the annual release will be 7.48 maf. Under the most probable inflow and release scenario Lake Powell is projected to decrease in elevation to 3,582.51 feet by the end of September 2014. Under the maximum probable inflow scenario, 7.48 maf will be released and Lake Powell is projected to end the water year at 3,637.56 feet. Under the minimum probable inflow scenario, 7.48 maf will be released and Lake Powell is projected to end the water year at 3,555.45 feet.

In 2014, scheduled maintenance activities at Glen Canyon Dam powerplant will require that two or more of the eight generating units periodically be offline. Coordination between Reclamation offices in Salt Lake City, Utah, and Page, Arizona, and Western will take place in the scheduling of maintenance activities to minimize impacts to operations throughout the water year including experimental releases.

Because of less than full storage conditions in Lake Powell resulting from drought in the Colorado River Basin, releases from Glen Canyon Dam for dam safety purposes are highly unlikely in 2014. If implemented, releases greater than powerplant capacity would be made consistent with the Colorado River Storage Project Act of 1956, the Colorado River Basin

¹⁹ Finding of No Significant Impact for the Environmental Assessment for Development and Implementation of a Protocol for High-Flow Experimental Releases from Glen Canyon Dam, Arizona through 2020. Available online at: <http://www.usbr.gov/uc/envdocs/ea/gc/HFEProtocol/index.html>.

²⁰ A point in the mainstream of the Colorado River one mile below the mouth of the Paria River.

Project Act of 1968, and to the extent practicable, the recommendations made pursuant to the Grand Canyon Protection Act of 1992. 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 1996 Glen Canyon Dam ROD and as published in the 1997 Glen Canyon Dam Operating Criteria (*Federal Register*, Volume 62, No. 41, March 3, 1997).

Releases from Lake Powell in water year 2014 will continue to reflect consideration of the uses and purposes identified in the authorizing legislation for Glen Canyon Dam. Releases will reflect criteria based on the findings, conclusions, and recommendations made in the 1996 Glen Canyon Dam ROD for the Glen Canyon Dam Final Environmental Impact Statement (GCDFEIS) (required by the Grand Canyon Protection Act of 1992) and other Secretarial decisions.

Monthly releases are updated to be consistent with annual volumes determined pursuant to the 2007 Interim Guidelines. Monthly releases for 2014 will also be consistent with the GCDFEIS/ROD.

For the latest monthly projections for Lake Powell, please see the most recent 24-Month Study report available on Reclamation's Upper Colorado Region Water Operations website:

<http://www.usbr.gov/us/water/crst/studies/index.html>

Daily and hourly releases in 2014 will be made according to the parameters of the 1996 Glen Canyon Dam ROD for the GCDFEIS and the 1997 Glen Canyon Dam Operating Criteria. These parameters set the maximum and minimum flows and ramp rates within which the releases must be made. Exceptions to these parameters may be made during power system emergencies, during experimental releases, or for purposes of humanitarian search and rescue.

The Department of the Interior is conducting planning for high-flow experimental releases from Glen Canyon Dam in November 2013 in accordance with the Protocol and Reclamation's May 12, 2012, Finding of No Significant Impact.

I. FISH AND WILDLIFE

The Upper Colorado River Endangered Fish Recovery Program, established in 1988, is in its 26th year of implementation. The program is a cooperative effort among program participants and stakeholders including the states of Colorado, New Mexico, Utah, and Wyoming; representatives from the water development, hydroelectric consumer, and environmental communities; and affected federal agencies including the Bureau of Reclamation, National Park Service, U.S. Fish and Wildlife Service, and Western Area Power Administration. The intent of the program is to recover the endangered Colorado River fish species (humpback chub, bonytail, Colorado pikeminnow, and razorback sucker) while the states continue to develop their Colorado River Compact entitlements.

The Upper Colorado 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 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 San Juan River Basin Recovery Implementation Program 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 June Sucker Recovery Implementation Program on the Provo River/Utah Lake system in Utah. The Upper Colorado River Endangered Fish Recovery Program also served as a model for the Lower Colorado River Multi-Species Conservation Program.

The San Juan River Basin Recovery Implementation Program, established in 1992, is ongoing in the San Juan River Basin with participation from the states of Colorado and New Mexico; four Native American tribes and nations including the Jicarilla Apache, Navajo, Southern Ute Indian, and Ute Mountain Ute Indian; and affected federal agencies including the Bureau of Indian Affairs, Bureau of Land Management, Bureau of Reclamation, and U.S. Fish and Wildlife Service. The goal of the San Juan Recovery Program 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.

As a result of activities being conducted by both the Upper Colorado and San Juan Recovery Programs, aggressive efforts are being made to stock sufficient numbers of Colorado pikeminnow, razorback suckers, and bonytails to provide the basis for self-sustaining populations that lead to down-listing and de-listing of the species. Capital projects constructed include fish ladders, fish screens, hatcheries, levee breeches, storage reservoirs, and irrigation system upgrades. Existing storage facilities are being re-operated to enhance natural flow regimes. To date, the two Recovery Programs have served as the reasonable and prudent alternative for many water projects depleting more than three million acre-feet of water annually while avoiding Endangered Species Act related litigation.

A specific accomplishment in fiscal year 2013 included construction of the Hogback fish barrier on the Hogback Cuedi canal system near Shiprock, New Mexico. Preconstruction work leading to award of a construction contract for the first phase of the Orchard Mesa Canal Automation Project was also completed and a construction contract was awarded for construction of 33 canal check structures. In addition, design work is progressing with the goal of awarding a construction contract for a regulating reservoir in fiscal year 2014.

On January 1, 2013, Congress passed legislation (H.R. 6060) that reauthorizes federal funding for both the Upper Colorado and San Juan Recovery Programs. Reauthorization of the Programs means federal funding will continue through 2019. The Endangered Fish Recovery Programs Extension Act of 2012 (Public Law 112-672) was signed by the President on January 14, 2013.

J. APPROPRIATIONS OF FUNDS BY THE UNITED STATES CONGRESS

The funds appropriated²¹ for fiscal year 2013 for construction of the CRSP and participating projects and recreational and fish and wildlife activities totaled \$32,740,000. Recreational and fish and wildlife activities received a total of \$4,315,000.

In fiscal year 2013, Reclamation expended \$8,695,000 in appropriations in its Colorado River Basinwide Salinity Program. The Natural Resources Conservation Service expended \$18,552,000 in appropriations in its Colorado River Basin Salinity Control Program.

Table 10 is a summary of action by the 113th Congress pertaining to approval of funds for the construction program of the CRSP and participating projects and recreational and fish and wildlife activities.

Table 11 shows the total funds (rounded to the nearest \$1,000) 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 10
Colorado River Storage Project
Fiscal Year 2013 Program

Project	Budget Request	House Allowance	Senate Allowance	H.R. 933 Mar 26, 2013
Construction Program				
CRSP Participating Projects				
Initial Units, CRSP	66,000	66,000	66,000	66,000
Navajo-Gallup Water Supply	<u>25,000,000</u>	<u>24,147,000</u>	<u>25,000,000</u>	<u>28,359,000</u>
TOTAL – Upper Colorado River Basin Fund	\$25,066,000	\$24,212,000	\$25,066,000	\$28,425,000
Recreation and Fish and Wildlife Facilities				
Recreational Facilities	\$172,000	\$170,000	\$172,000	\$172,000
Fish and Wildlife Facilities	<u>4,143,000</u>	<u>3,998,000</u>	<u>4,143,000</u>	<u>4,143,000</u>
TOTAL – CRSP Section 8	\$4,315,000	\$4,168,000	\$4,315,000	\$4,315,000
TOTAL – Construction and Section 8	\$29,381,000	\$28,380,000	\$29,381,000	\$32,740,000

²¹ Approved by Congress minus rescissions.

Table 11
Appropriations Approved by Congress for the
Colorado River Storage Project and Participating Projects

<u>Fiscal Year</u>	<u>Amount</u>
1957	\$13,000,000
1958	35,142,000
1959	68,033,000
1960	74,460,000
1961	58,700,000
1962	52,535,000
1963	108,576,000
1964	94,037,000
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	53,722,000
1977	55,200,000
1978	67,051,000
1979	76,799,000
1980	81,502,000
1981	125,686,000
1982	130,063,000
1983	132,942,000
1984	161,104,000
1985	163,503,000
1986	97,412,000
1987	110,929,000
1988	143,143,000
1989	174,005,000
1990	163,653,000
1991	145,063,000
1992	92,093,000
1993	69,333,000
1994	46,507,000
1995	23,272,000
1996	27,049,000
1997	22,410,000
1998	17,565,000
1999	4,655,000
2000	2,000,000

2001	2,000,000
2002	16,000,000
2003	35,000,000
2004	55,640,000
2005	57,512,000
2006	64,320,000
2007	69,815,000
2008	65,175,000
2009	50,653,000
2010	63,144,000
2011	25,658,000
2012	39,376,000
2013	32,740,000
TOTAL.....	\$3,653,670,000

Plus: Navajo Indian Irrigation Project appropriations 597,057,100
(funds transferred to Reclamation only)

TOTAL APPROPRIATIONS..... \$4,250,727,100

Exclusive of non-reimbursable funds for fish and wildlife, recreation, etc.,
under Section 8 of Public Law 485, 84th Congress, and all under financing
and rescission actions.

COLORADO RIVER BASIN TITLE II SALINITY CONTROL PROGRAM

Information relative to the Colorado River Basin Title II Salinity Control Program in the Colorado River Basin has been provided by 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 (NRCS). Additional information may be obtained at <http://usbr.gov/uc/progact/salinity/index.html>.

Title II of the Colorado River Basin Salinity Control Act, P.L. 93-320 (approved June 24, 1974) (Salinity Control Act), 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 Colorado River while the seven Colorado River Basin States continue to develop their compact apportioned waters. Specifically, the Act authorizes the construction, operation, and maintenance of four salinity control projects (Crystal Geyser, Grand Valley, Las Vegas Wash, and Paradox Valley units) and the expeditious completion of planning reports for 12 other projects. It also requires 25 percent reimbursement of the costs from the Upper Colorado River Basin Fund and Lower Colorado River Basin Development Fund (Basin Funds). 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.

Public Law 98-569, signed into law on October 30, 1984, amends P.L. 93-320 (Colorado River Basin Salinity Control Act). This law amends the original salinity control program by authorizing construction of additional units by Reclamation and de-authorizing Crystal Geyser because of poor cost effectiveness. The Secretary of Agriculture was directed to establish a major voluntary on-farm cooperative salinity control program. The new

units require 30 percent reimbursement of the costs from the Basin Funds. 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 a portion of the costs to install salinity reduction and wildlife habitat practices. Public Law 98-569 also directs the Bureau of Land Management (BLM) to develop a comprehensive program for minimizing salt contributions from the 48 million acres of basin lands that it administers.

Public Law 104-20 was signed into law on July 28, 1995. This law amends the 1974 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 Colorado River 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 combined the USDA's salinity control program and other programs into the Environmental Quality Incentives Program (EQIP). The Act further amended the 1974 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 reimbursement authorized by P.L. 98-569. This cost-sharing option is available for both USDA and Reclamation programs.

Public Law 106-459 was signed into law on November 7, 2000. This law amended the 1974 Salinity Control Act to increase the appropriation ceiling by an additional \$100 million. Public Law 106-459 also requires the BLM 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 BLM as directed by Section 203(b)(3) of P.L. 98-569 (1984).

Public Law 107-171, the Farm Security and Rural Investment Act of 2002, authorized and amended the Environmental Quality Incentives Program that had been added to the Food Security Act of 1985 by P.L. 104-127 (Federal Agricultural Improvement and Reform Act of 1996).

Public Law 110-246, the Food, Conservation, and Energy Act of 2008, signed into law on June 18, 2008, extended the authorization of the Environmental Quality Incentives Program through 2012. Section 2806 of the Act amended P.L. 93-320 and established the Basin States Program. Amounts from the Basin Funds used for cost sharing, not just those associated with the NRCS salinity program, will now be administered through the Basin States Program.

A. BUREAU OF RECLAMATION SALINITY CONTROL PROGRAM

The Bureau of Reclamation's Colorado River Basinwide Salinity Program (Basinwide Program) is currently being implemented under the authorities provided in 1995 by P.L. 104-20. Through this program, projects have been awarded to various non-federal entities through a competitive process. Projects have been ranked based on cost effectiveness and performance risk factors by a committee chaired by the Program Manager along with representatives from the Salinity Control Forum and Reclamation area offices. Individual projects have been constructed by local entities through cooperative agreements with Reclamation. Requests for Proposals (RFPs) were issued by Reclamation in 1996, 1997, 1998, 2001, 2004, and 2006.

In 2008, 2010, and 2012 instead of soliciting proposals through the RFP process, proposals were solicited through a process for financial assistance agreements called Funding Opportunity Announcements (FOA). Another FOA will probably not be needed until fiscal year 2015.

In 2009, \$11.1 million in funds from the American Recovery and Reinvestment Act (ARRA) was received into Reclamation's Basinwide Program. A FOA was issued in March 2009 and closed in May. Applications were received totaling more than \$100 million worth of salinity projects. Five projects were selected to utilize the \$11.1 million of ARRA funds plus about \$4.8 million in cost sharing from the Basin Funds. Agreements and funding were awarded and the projects have been completed. These projects control nearly 12,000 tons of salt loading each year.

In 2013, \$8.695 million of appropriations was received into Reclamation's Basinwide Program and \$3.726 million was received from the Basin Funds for a total program amount of \$12.421 million. This amount was expended through nine ongoing and seven new salinity projects located in Colorado, Utah, and Wyoming. It is estimated that the facilities installed with the \$12.421 million will control about 11,000 tons of salt loading each year.

Subsection 208(b) of the 1974 Salinity Control Act authorized the sum of \$125,100,000 to be appropriated for construction of salinity control units. The appropriation ceiling was based on April 1973 prices and the Salinity Control Act provided for indexing of the cost ceiling. Section 208(c) of the Salinity Control Act was amended by the 1995 and 2000 amendments authorizing an additional \$175,000,000 to be appropriated. As of September 30, 2013, Reclamation calculates the appropriation ceiling, utilizing cost indices, to be \$637,548,000; total expenditures are \$464,396,000; and the remaining ceiling balance is \$156,729,000.

Salinity control is currently being implemented by Reclamation in the following project areas:

1. Colorado

a. C Ditch/Needle Rock Project

Awarded from the 2010 FOA, the C Ditch/Needle Rock Project involves piping a portion of the C Ditch Company's existing unlined ditches in a tributary to the Cottonwood Creek drainage of the Gunnison River near Crawford, Colorado. In July 2012, Reclamation entered into an agreement to provide up to \$1.43 million from the Basinwide Program to pipe 2.5 miles of existing ditches with an expected salt load reduction of about 1,284 tons per year. Construction began in the fall of 2013 and is expected to be completed in the fall of 2014.

b. Cattleman's Harts, Hart/McLaughlin, Rockwell, and Poulsen Ditch Project

Awarded from the 2012 FOA, this project involves piping a portion of the Cattleman's earthen laterals which are supplied by Crystal Creek, a tributary to the Gunnison River near Crawford, Colorado. Reclamation has awarded an agreement to Cedar Canyon Iron Springs Irrigation Company to provide up to \$2.01 million to pipe 6.3 miles of existing laterals with an expected salt load reduction of about 1,855 tons per year. Construction began in the fall of 2013 and is expected to be completed in 2016.

c. Clipper Irrigation Salinity Control – Project 4

Awarded from the 2010 FOA, the Clipper Irrigation Salinity Control Project involves piping a portion of the Crawford Clipper Ditch's existing unlined canals in a tributary to the Cottonwood Creek drainage of the Gunnison River near Hotchkiss, Colorado. In September 2012, Reclamation entered into an agreement to provide up to \$1.21 million from the Basinwide Program to pipe 3.4 miles of existing canals with an expected salt load reduction of about 1,038 tons per year. Construction began in the fall of 2013 and is expected to be completed in the fall of 2014.

d. East Side Laterals Project

Through Reclamation's Basinwide Program FOAs in 2010 and 2012, the Uncompahgre Valley Water Users Association was awarded cooperating agreements for Phases 5, 7, and 8 as follows:

The UVWUA was awarded a \$4.3 million cooperative agreement for Phase 5 which involves an additional 19 miles of laterals under the Selig and East Canal systems and the reduction of about 5,034 tons of salt loading annually. Construction began in November 2011 and is expected to be completed in 2014. The UVWUA was awarded a \$3.2 million cooperative agreement from the Basin States Program for Phase 7 which involves an additional 12.7 miles of laterals under the Selig and East Canal systems and the reduction of about 3,029 tons of salt loading annually. Construction began in the fall of 2012 and is expected to be completed in 2015. The UVWUA was awarded a \$3.54 million cooperative agreement for Phase 8 which involves an additional 14.1 miles of laterals under the South, East, and Loutzenhizer Canal systems and the reduction of about 3,307 tons of salt loading annually. Construction is anticipated to begin in the fall of 2014 and is expected to be completed in 2016.

e. Grand Valley Irrigation Company Projects

As a result of selection under the 2010 FOA, the Grand Valley Irrigation Company was awarded a \$2.8 million cooperative agreement to line approximately 1.9 miles of their main canal and pipe about 4,100 feet of ditch within the Grand Valley. A salt loading reduction of approximately 1,749 tons is expected annually. The canal lining will consist of a PVC membrane with a shotcrete cover and the pipe will be concrete. Construction began in December 2011 and will continue through 2015.

As a result of selection under the 2012 FOA, the Grand Valley Irrigation Company was awarded a \$4.6 million cooperative agreement to line approximately 2.4 miles of their main canal within the Grand Valley. A salt loading reduction of approximately 4,001 tons is expected annually. The canal lining will consist of a PVC membrane with a shotcrete cover. Construction will begin in December 2014 and will continue through 2017.

f. Grandview Canal and Irrigation Company Project

In July 2009, Reclamation entered into a cooperative agreement with the Grandview Canal and Irrigation Company to provide \$5.3 million from the Basinwide Program to pipe 4.8 miles of main canal and five miles of laterals in an area tributary to the North Fork of the Gunnison River near Crawford in Delta County, Colorado. Construction began in September 2010 and was completed in the spring of 2013. The project will reduce salt loading by 6,400 tons annually.

g. Lower Stewart Pipeline Project

Awarded from the 2010 FOA, the Lower Stewart Pipeline Project involves piping a portion of the Stewart Ditch & Reservoir Company's existing unlined canals in a tributary to the North Fork of the Gunnison River near Paonia, Colorado. Reclamation has entered into an agreement to provide up to \$6 million to pipe 11.5 miles of existing canals with an, is expected to be completed in 2014.

h. Mapping and Data Collection Project in Lower Gunnison Basin

Reclamation entered into a cooperative agreement in 2008 with the Delta Conservation District to map and collect information on water diversion, canals and laterals, and irrigation practices in the Lower Gunnison Basin. This information was needed for participation in the FOA process. In 2012, mapping was completed for the North Fork, Delta, Tongue, and Surface creeks as well as for the Bostwick and Shinn Park areas. Also, a majority of the canals were mapped in the Colona area. Additional work is needed to complete the Colona and Ridgway areas and finalize the project. The cooperative agreement with the Delta Conservation District expired on September 30, 2012. Reclamation is looking for alternatives to finalize the mapping project for the Lower Gunnison Basin.

i. Minnesota Ditch Irrigation Projects

Project 1 was selected in the 2010 FOA. This project involves piping a portion of the Minnesota Canal & Reservoir Company's existing unlined canals in a tributary to the North Fork of the Gunnison River near Paonia, Colorado. Reclamation has awarded an agreement to provide up to \$3.94 million to pipe 5.2 miles of existing canals with an expected salt load reduction of about 3,263 tons per year. Construction began in the fall of 2012 and was completed in 2013.

Phase II was selected in the 2012 FOA. This project involves piping the Minnesota Extension portion of the existing unlined canals in a tributary to the North Fork of the Gunnison River near Paonia, Colorado. Reclamation has awarded an agreement to provide up to \$3.03 million to pipe 3.8 miles of existing canals with an expected salt load reduction of approximately 2,328 tons per year. Construction will begin in the fall of 2014 and is expected to be completed in 2015.

j. Paradox Valley Unit

The Paradox Valley Unit, one of the original salinity control units operating since 1996, intercepts saline brine before it reaches the Dolores River and disposes of it by deep well injection. The project continues to intercept and dispose of 100,000+ tons of salt annually. Induced seismicity and the increasing pressure necessary to inject the brine into the disposal formation at 14,000 feet are the limiting factors of the project. As the formation fills with brine, the pressure necessary to inject increases. As the pressure increases, the potential for increased seismicity may exist. In January 2013, a magnitude 4.4 earthquake occurred that caused Reclamation to modify injection operations which included a new shut down schedule and injection rate reduction. Those modifications have significantly decreased the injection pressure which could result in additional life of the well. The current projected life of the well remains at three to five years under current operations.

At the request of the Salinity Control Forum, Reclamation used models to estimate the impacts to the Colorado River system if all the salt from the Paradox Valley Unit were to enter the Dolores River in a "without Paradox Valley Unit" scenario. If Paradox Valley Unit operations ceased, it would take approximately four years to see the full effects in the Lower Basin. It is estimated that salinity would increase by 9-10 milligrams per liter (mg/L) at all three numeric criteria sites in the lower Colorado River. In the Dolores River reach from Paradox Valley downstream to the first significant tributary (San Miguel River), the increase in total dissolved solids (TDS) is estimated to be over 700 mg/L (2x increase in TDS for this reach). From the Dolores River (at its confluence with the San Miguel) downstream to the Colorado River, the increase is estimated to be 237 mg/L. The increase in the concentration of the Colorado River from the confluence with the Dolores River to the confluence with the Green River is estimated to be 20 mg/L. While the increases in TDS in the Dolores River are significant, no water quality standards in Colorado or Utah would be violated.

At the request of the Salinity Control Forum, Reclamation began exploring the development of a pilot study to evaluate evaporation ponds as a viable method for salt disposal at Paradox. Since 2012, Reclamation has had meetings and discussions with the BLM, U.S. Fish and Wildlife Service, Environmental Protection Agency, and Colorado Department of Public Health and Environment. Major issues continue to be compliance with the Migratory Bird Treaty Act, permitting requirements for disposal of the brine evaporate and pond liner, and high levels of hydrogen sulfide. Initial cost estimates are dependent on site selection and environmental regulatory requirements. Reclamation continues to work to find a suitable site for the pilot study and to refine cost estimates. Implementation of the pilot study is also dependent on obtaining funding and a land withdrawal from the BLM.

Reclamation has also begun the process of preparing an environmental impact statement to identify and evaluate brine disposal alternatives to replace or supplement the existing Injection well. A Notice of Intent was published in the *Federal Register* on September 10, 2012, and public scoping meetings were held in Paradox, Montrose, and Grand Junction, Colorado, on September 25-27, 2012. In 2013, Reclamation issued a Scoping Summary Report and invited the cooperating agencies to participate in the scoping process and assist in the environmental analyses for the EIS.

k. Slack/Patterson Laterals Piping Project

Selected in the 2012 FOA, this project involves piping of the Slack/Patterson laterals portion of the Roger's Mesa Water Distribution Association's existing, unlined laterals supplied by Fire Mountain Canal and Leroux Creek, a tributary to the North Fork of the Gunnison River near Hotchkiss, Colorado. Reclamation has awarded an agreement to provide up to \$3.39 million to pipe 9.1 miles of existing laterals with an expected salt load reduction of approximately 3,345 tons per year. Construction will begin in the fall of 2014 and is expected to be completed in 2016.

2. New Mexico

a. Hammond Project

The Hammond Project was authorized as one of the initial participating projects of the Colorado River Storage Project and was constructed in the early 1960s. The project is located in northwestern New Mexico along the southern bank of the San Juan River and opposite the towns of Blanco, Bloomfield, and Farmington, New Mexico. The Hammond Conservancy District, under a cooperative agreement with Reclamation, has constructed the Hammond Salinity Project under the authority of the Colorado River Basinwide Salinity Program. The Hammond Conservancy District has concrete lined and piped approximately 26 miles of the irrigation delivery system in the project area. 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.

3. Utah

a. Cottonwood Creek Consolidated Irrigation Company Projects

The Cottonwood Creek Consolidated Irrigation Company was awarded a cooperating agreement through Reclamation's Basinwide Program in 2010 in the amount of \$6.5 million to replace approximately 31 miles of earthen canals and laterals with a pressurized pipeline system. The project, located in Emery County west of Castledale, Utah, will result in an annual reduction of 2,094 tons of salt. Construction began in May 2011 and the project will be fully operational for the 2014 irrigation season. It is expected that the pressurized pipeline will induce on-farm improvements resulting in an annual reduction of an additional 9,100 tons of salt.

The Blue Cut/Mammoth Unit was selected in the 2012 FOA and Reclamation has executed a cooperative agreement to provide \$5.5 million. This project will replace

approximately 45.6 miles of earthen canals and laterals with a pressurized pipeline system resulting in the reduction of 3,789 tons of salt per year in the Colorado River at an anticipated cost of approximately \$67.57 per ton. The pressurized pipeline will serve 5,680 acres resulting in additional on-farm salt savings. Construction will begin in early 2014 and is expected to be completed in 2016.

b. Hancock-State Road Salinity Reduction Project

The Hancock-State Road Salinity Reduction Project is located in Duchesne and Uintah counties in the vicinity of Roosevelt, Utah. It was selected in the 2010 FOA and funded by the Basin States Program. A cooperative agreement was executed in March 2012 in the amount of \$2,315,250. The project will replace approximately 20.83 miles of earthen canal and laterals with irrigation pipe resulting in an annual reduction of 1,759 tons of salt in the Colorado River at an anticipated cost of approximately \$65.25 per ton. The project began in the fall of 2011 and will be fully operational in the 2014 irrigation season.

c. Huntington-Cleveland Irrigation Company Project

The Huntington-Cleveland Irrigation Company was awarded a cooperative agreement in 2004 to replace approximately 350 miles of open earthen canals and laterals with a pressurized pipeline distribution system to accommodate sprinkler irrigation on about 16,000 acres. The project is located in northern Emery County in and around the towns of Huntington, Lawrence, Cleveland, and Elmo, Utah. Funding for this project is being shared among Reclamation's Basinwide Program, the Huntington-Cleveland Irrigation Company, NRCS's Environmental Quality Incentives Program, and Rocky Mountain Power. From the Basinwide Program, Reclamation has provided \$17.1 million for the off-farm distribution system and an additional \$4.9 million for completion of the on-farm distribution system. The project, scheduled to be fully operational in the 2014 irrigation season, will result in an annual reduction of 59,000 tons of salt of which 13,000 tons are attributed to the off-farm distribution system and 46,000 tons are attributed to the on-farm distribution system and the on-farm salinity control measures (sprinklers).

d. Ouray Park Canal Rehabilitation Project

This Ouray Park Canal Rehabilitation Project is located in Uintah County in the vicinity of Gusher, Utah. It was selected from applications received in Reclamation's 2010 FOA. Reclamation executed a cooperative agreement in September 2011 in the amount of \$2,676,000 from the Basinwide Program. The project will replace approximately 5.2 miles of the Ouray Park Canal with irrigation pipe completing a 20.5-mile system. This will allow for total abandonment of the 13-mile Ouray Valley Canal which carried storage water for one month per year due to previous salinity control agreements. The project results in an annual reduction of 1,662 tons of salt in the Colorado River at an anticipated cost of approximately \$79.82 per ton. Construction on the project began in the fall of 2011 and was completed in the spring of 2013.

e. South Valley Lateral Salinity Project

The South Valley Lateral Salinity Project is located in Daggett County south of the town of Manila, Utah. It was selected in the 2012 FOA and was submitted by the Sheep Creek Irrigation Company. A cooperative agreement was executed in May 2013 for \$4,026,264.75. The project will replace approximately 27,400 feet of earthen laterals with irrigation pipe

resulting in an annual reduction of 3,373 tons of salt in the Colorado River at an anticipated cost of approximately \$55.57 per ton. Construction on the project will begin in the fall of 2014 and expected to be completed in the spring of 2016.

4. Wyoming

a. Austin/Wall Irrigation District Project

The Austin/Wall Irrigation District Project is located in Uintah County in the vicinity of Lyman, Wyoming. It was selected in the 2012 FOA and was submitted by the Austin/Wall Irrigation District. A cooperative agreement was executed in May 2013 in the amount of \$1,350,000. This project will replace approximately 32,000 feet of earthen canal and laterals with irrigation pipe resulting in an annual reduction of 1,092 tons of salt in the Colorado River at an anticipated cost of approximately \$57.55 per ton. The project is scheduled to begin construction in the fall of 2014 and be completed in the spring of 2015.

b. Eden Valley, Eden Canal, Laterals E-5 and E-6 Project

The Eden Valley, Eden Canal, Laterals E-5 and E-6 Project was selected from Reclamation's 2010 FOA. A cooperative agreement was executed in September 2011 in the amount of \$1,712,968.50 from the Basin States Program. The project will replace approximately 1.43 miles of earthen laterals with irrigation pipe and line 1.38 miles of the Eden Canal with an impermeable layer resulting in an annual reduction of 1,101 tons of salt in the Colorado River at an anticipated cost of approximately \$77.13 per ton. Laterals E-5 and E-6 are completed and work on the Eden Canal began in the fall of 2012 and was completed in the spring of 2013.

c. Eden Valley, Farson/Eden Pipeline Project

The Eden Valley, Farson/Eden Pipeline Project was selected from Reclamation's 2008 FOA. Reclamation executed a cooperative agreement in February 2009 in the amount of \$6,453,072 from the Basinwide Program. The project will replace approximately 24 miles of earthen laterals with irrigation pipe resulting in an annual reduction of 6,594 tons of salt in the Colorado River at an anticipated cost of approximately \$52.57 per ton. Laterals E-7, E-8, and E-13 are completed and work on the West Side Canal is underway. The project was completed in late 2013.

B. NATURAL RESOURCES CONSERVATION SERVICE SALINITY CONTROL PROGRAM

The USDA's Environmental Quality Incentives Program, which currently provides the vehicle for USDA salinity control activities in the Colorado River Basin, is administered by the Natural Resources Conservation Service. In fiscal year 2013, \$11.7 million was obligated into new EQIP contracts with individual entities to install salinity control measures. An additional \$2.4 million was used to provide technical assistance (planning, engineering design, construction inspections, etc.) to these individuals. Cost sharing from the Basin Funds is also available to assist producers and to conduct research, studies, and investigations for further implementation of the program. In 2013, approximately \$6 million was provided from the Basin Funds.

Salinity control is currently being implemented by the NRCS in the following project areas:

1. Colorado

a. Grand Valley Unit

Implementation has been underway on the Grand Valley Unit since 1979. The NRCS feels that the salt control measures of the project have been successfully completed as planned. In 2013, 30 new contracts with landowners were enacted on 371 acres that will deliver an additional 554 tons of salt control. Currently, more than 143,000 tons of salt control occur annually due to the Grand Valley Unit Salinity Control Program. A comprehensive survey of the Grand Valley Project area completed in 2010 indicated that 12,500 acres of farmland have been converted to residential use leaving 47,000 acres of irrigated farmland. The same survey found that over 95 percent of irrigated farmland had received treatment and was providing some level of salinity load reduction. Only about 2,000 acres remain untreated. The original salt control goal has been exceeded, but the wildlife habitat replacement stands at about 80 percent. The NRCS, working with Reclamation's Basin States Program, the Colorado State Conservation Board, and the Colorado Division of Parks and Wildlife, has developed an agreement to provide new habitat on about 400 acres. When this project is completed, the NRCS will have reached its habitat replacement requirements. In May 2013, a tour and celebration was held in Grand Junction to recognize the successful implementation of the USDA Grand Valley Salinity Control Project. More than 200 people attended an evening event that was covered extensively by local media. The NRCS will continue to provide technical and financial assistance proportional to need and demand even though the project is considered completed.

An additional area adjacent to and upstream from the Grand Valley Unit, drained by Plateau Creek, was initiated as a pilot salinity control project area using a new approach that provides financial incentives proportional to the amount of salt control. There are 15,000 to 20,000 acres that have the potential for implementation of salt control measures. Progress continues to be slow in the Plateau Creek area.

b. Lower Gunnison Basin Unit

The Lower Gunnison Basin Unit, initiated in 1988, is the largest of the USDA salinity control units and is located in Delta, Montrose, and Ouray counties. Over 171,000 acres are planned for treatment. Early in fiscal year 2010, the NRCS expanded the designated area to include irrigated land in Ouray County. The application of salinity reduction and wildlife habitat replacement practices continues to be an integral part of implementation of the Lower Gunnison Basin Unit.

In 2013, 49 new contracts were developed on 1,820 acres for planned salt control of about 2,559 tons. About 25 percent of the new projects are sprinkler systems, 70 percent are improved surface systems, and 5 percent are micro-spray or drip irrigation. The project is about 61 percent complete and controls approximately 114,400 tons of salt annually. Reclamation has installed livestock watering systems to eliminate canal and lateral use during the winter months. Under its Basinwide Program authorities and the National Irrigation Water Quality Program, Reclamation has funded the lining of a portion of the Uncompahgre Valley Water Users Association's irrigation delivery system. Data indicate that salinity improvements also reduce selenium loading.

c. Mancos Valley Unit

The Mancos Valley Unit, initiated in 2004, is bounded by the San Juan National Forest to the north, Mesa Verde National Park to the east, and the Southern Ute Indian

Reservation to the south. The project is now in its seventh full year of implementation with 54 landowner contracts. The project will reduce salt loading by 15,500 tons by increasing the irrigation application efficiency on 5,400 acres and by reducing seepage in 27 ditches. The total estimated project cost is \$18.9 million. Currently, about 4,370 tons of salt have been controlled out of a goal of 12,000 tons.

d. McElmo Creek Unit

Implementation of the McElmo Creek Unit was initiated in 1990. Application of salinity reduction and wildlife habitat replacement practices continues to be implemented in this area, but the NRCS is serving smaller agricultural units as urbanization is occurring. In 2013, 19 new contracts were developed on 458 acres that will provide 27 tons of salt control when fully implemented. Currently, about 28,000 tons of salt control occur annually as a result of the project. Reclamation's salinity control activities were combined into construction of the Dolores Project which was completed in 1998.

e. Silt Area Project

The NRCS conducted planning and an evaluation of the irrigated cropland in the area surrounding the community of Silt, Colorado, and determined that cost effective salt control could be implemented. Project activity was approved for fiscal year 2006 and several contracts to implement salinity control measures have been completed. An adjustment in the salt control reporting indicates that about 2,157 tons are being controlled in the project area, or that about 48 percent of the goal has been reached.

2. New Mexico

a. San Juan River Unit

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, New Mexico. The 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. Reclamation and the NRCS are working with the San Juan River Dineh Water Users, Inc., to implement a pilot salinity control project. A major earthen lateral has been replaced with a buried pipeline to serve the land of ten Native American farmers. These farmers may now apply to NRCS for EQIP funding to improve their on-farm delivery and application systems that will benefit from the buried pipeline; however, interest has been lacking.

3. Utah

a. Green River Project

This Green River Project was adopted in 2010 with a goal to control 6,540 tons of salt annually. The first Environmental Quality Incentives Program contracts were executed in 2010 and 30 acres of sprinkler systems were installed in 2011. In 2013, no new contracts were developed due to the lack of applications.

b. Manila-Washam Area

In 2006, a salinity control plan and an environmental assessment were completed by the NRCS on irrigated lands near the community of Manila, Utah, along the border with

Wyoming. The project would ultimately treat about 11,000 acres and result in a reduction of salt loading by 25,000 tons annually. Landowner interest has been high in the project area and a significant number of applications for financial assistance have been received. Through 2013, about 9,640 tons of salt control had been implemented, which is 55 percent of the salt reduction goal.

c. Muddy Creek Unit

In 2003-2004, the NRCS conducted planning activities for salt control in cropland areas irrigated from Muddy Creek near the town of Emery, Utah. The Muddy Creek Unit was officially approved in 2005. Plans are to install high efficiency sprinkler irrigation systems on some 6,000 acres of poorly irrigated cropland which will result in some 12,000 tons of annual salt control. The total estimated project cost would be approximately \$11.6 million. While nearly \$1 million in applications has been received, the local irrigation company needs to improve the inlet conditions to make a large piped distribution system feasible. A large settling and water control basin and new diversion have been constructed by the local irrigation company with technical and financial assistance from the U.S. Army Corps of Engineers. These structures will facilitate salinity control project plans. The first Environmental Quality Incentives Program contract for salinity control was enacted in 2010. There were no new contracts in 2013.

d. Price-San Rafael Rivers Salinity Control Unit

Reclamation and the NRCS issued a joint environmental impact statement for the Price-San Rafael Rivers Salinity Control Unit in December 1993. The Record of Decision indicated that more than 36,000 acres of irrigated lands would receive salt control measures and that several hundred miles of earthen canals and laterals would be replaced with buried pipelines. Each agency has proceeded to implement control measures as its funding and authority allows. Some of the larger units (Ferron, Wellington, Moore Group, and Carbon Canal) have been substantially implemented; both on farm and off farm. The Huntington-Cleveland Project, which constitutes nearly half of the Price-San Rafael Rivers Salinity Control Unit, is currently being implemented. In 2013, 50 new contracts were developed on 1,691 acres. At the end of 2013, more than 94,900 tons of on-farm salt control (65 percent of the goal) had been achieved.

e. Uintah Basin Unit

Implementation of the USDA on-farm portion of the Uintah Basin Unit started in 1980. Side-roll and center pivot sprinkler systems predominate in the project area. In 2013, 33 new contracts were developed on 1,059 acres. Landowner participation has exceeded expectations to such an extent that the original salt control goal has been exceeded. Currently, more than 154,000 tons of annual salt control occur on the irrigated agricultural lands. 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.

4. Wyoming

a. Big Sandy River Unit

On-farm salinity control implementation has been underway on the Big Sandy River Unit since 1988. The original goal for salinity reduction is 69 percent complete and wildlife habitat replacement is complete. Consequently, more than 57,000 tons of annual salt control have been achieved. On this project, where practical, farmers have converted nearly all surface flood irrigation to low-pressure sprinkler irrigation systems for salinity control. The

Eden Valley Irrigation Company is replacing a significant portion of the canal delivery system with buried pipeline. Phase 1, initiated in 2007, and Phase 2 are essentially complete. Some small increase in on-farm system improvements is expected to occur as a result of the completion of these two phases.

b. Henrys Fork River Unit

In the spring of 2013, the NRCS officially adopted and initiated the Henrys Fork Project that had been in the planning and evaluation stages since 2009. Several applications have been received for consideration in the fiscal year 2014 funding cycle.

5. Additional Projects

Additional projects are being assessed and evaluated for salinity control implementation on the Blacks Fork of the Green River near Lyman, Wyoming, and in the Plateau Creek, White River, and Yampa River drainages in Colorado. These evaluations are in various stages of completion and may ultimately result in an additional 35,000 acres of on-farm salinity control.

In 2010, the NRCS began to quantify the salt control being provided by Environmental Quality Incentives Program irrigation improvement contracts in areas outside of the approved project areas, but within the Upper Colorado River Basin. In 2013, the Colorado NRCS developed 26 new EQIP contracts to control about 1,478 tons of salt in these areas.

C. BUREAU OF LAND MANAGEMENT SALINITY CONTROL PROGRAM

The BLM is committed to reducing salinity concentrations in the Colorado River sourced from its public lands as required by amendments to the Colorado River Basin Salinity Control Act of 1974 and mission mandates under the Federal Land Policy and Management Act of 1976 (FLPMA). The BLM's primary strategy for reducing salt transport to the Colorado River is to minimize erosion from public lands through its existing land management policies and practices. These policies and practices are intended to maintain or restore land health as reflected by key ecological attributes such as soil and site stability, watershed function, and biotic integrity.

The BLM manages public lands according to a multiple-use mandate under the FLPMA. Many land-use activities such as livestock grazing, energy development, mining, recreation, timber production, utility transmission, and road management increase erosion and sediment transport. The BLM attempts to reduce these impacts to help maintain land-health standards by utilizing best-management practices including terms, conditions, and stipulations in land-use authorizations; and requiring actions to restore lands upon completion of authorized activities. The BLM also engages in many activities to restore degraded ecosystems that contribute excessive sediment and salts to Colorado River Basin watersheds. These activities include constructing and maintaining grade-control structures, spreader dikes, and retention structures; emergency stabilization and rehabilitation efforts following wildfires; removal of invasive plant species; channel stabilization and other riparian enhancements; maintaining road culverts; remediation of abandoned mine lands; and fire fuels reduction treatments.

It is difficult to quantify actual reductions in salinity concentrations of the Colorado River that may be attributed to BLM management activities. There are many physical, chemical, and biological processes that affect the movement of salt from an upland project area to the Colorado River or a perennial tributary to the Colorado River. As the distance between a project and the nearest perennial flow increases, it quickly becomes difficult to quantify the amount of salt that would reach the perennial flow and the amount of time required for the salt

to arrive at the perennial flow. For these reasons, the BLM estimates the amount of salt that is retained on the project site by management actions. It is assumed that the salt retained would have been moved off site by surface runoff if the project had not been implemented. The BLM allocated \$100,000 in fiscal year 2012 to initiate a collaborative study with the Bureau of Reclamation, NRCS, Salinity Control Forum, Agricultural Research Service, and U.S. Geological Survey to help develop better approaches for quantifying salinity reductions.

The BLM established a Salinity Coordinator position in 2003 to coordinate activities in state offices, develop and refine approaches and protocols to advance abilities to understand transport mechanisms and quantify reductions achieved from land management activities, and improve collaboration with the Bureau of Reclamation and NRCS. Significant progress was made in these areas through fiscal year 2011, but the position was vacant for most of fiscal year 2012. The BLM selected a candidate to fill the vacancy starting in January 2013. The BLM also made some organizational changes to the Salinity Coordinator position in fiscal year 2012. Oversight of the position has been transferred from the Washington Office to the National Operations Center in Denver (the position will continue to be physically located in Salt Lake City) and job duties have been combined with a vacant national water quality specialist position.

The BLM allocated \$850,000 in fiscal year 2012 from its Soil/Water/Air (SWA) subactivity to support projects specifically relating to salinity control program objectives in its Upper Basin State Offices. Project funding is allocated towards proposals submitted by State Offices through the BLM Budget Planning System and prioritized using input from the Salinity Coordinator. Funding is allocated between planning, science, and on-the-ground implementation projects. Additional funding is allocated each year from the SWA subactivity to support labor and operations for the Salinity Coordinator. More details regarding the BLM's salinity control accomplishments for fiscal year 2011 are in the Federal Accomplishments Report that was compiled by the Bureau of Reclamation.

Upper Colorado River Commission

Annual Financial Report

**For the Year Ended
June 30, 2013**

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UPPER COLORADO RIVER COMMISSION

Annual Financial Report

June 30, 2013

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Ulrich & Associates, PC

Certified Public Accountants

INDEPENDENT AUDITORS' REPORT

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

Report on the Financial Statements

We have audited the accompanying financial statements of the governmental activities and major fund information of Upper Colorado River Commission as of and for the year ended June 30, 2013, which comprise the Commission's basic financial statements as listed in the table of contents. These financial statements are the responsibility of Upper Colorado River Commission's management. Our responsibility is to express an opinion on these financial statements based on our audit.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express opinions 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 and the standards applicable to financial audits contained in Government Auditing Standards, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Members of Utah Association of CPAs | American Institute of CPAs

Charles E. Ulrich, CPA | Michael E. Ulrich, CPA
Cathie Hurst, CPA | Heather Christopherson, CPA | Bruce Gulso, CPA

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Opinions

In our opinion, the financial statements referred to above present fairly, in all material respects, the respective financial position of the governmental activities and major fund information of Upper Colorado River Commission as of June 30, 2013, and the respective changes in financial position thereof and the budgetary comparison for the general fund for the year then ended in conformity with accounting principles generally accepted in the United States of America.

Other Matters

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis, and budgetary comparison information be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Information

Our audit was conducted for the purpose of forming opinions on the financial statements that collectively comprise the Upper Colorado River Commission's financial statements as a whole. The supplemental schedule of cash receipts and disbursements, and the supplemental schedule of expenses – budget to actual, are presented for purposes of additional analysis and are not a required part of the financial statements. These schedules are the responsibility of management and were derived from and relate directly to the underlying accounting and other records used to prepare the financial statements. The information has been subjected to the auditing procedures applied in the audit of the financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the information is fairly stated in all material respects in relation to the financial statements taken as a whole.

Wink & Associates, P.C.

August 31, 2013

Management Discussion and Analysis

This discussion and analysis is intended to be an easily readable analysis of the Upper Colorado River Commission (the Commission) financial activities based on currently known facts, decisions or conditions. This analysis focuses on current year activities and should be read in conjunction with the financial statements that follow.

Report Layout

Besides this Management's Discussion and Analysis (MD&A), the report consists of government-wide statements, fund financial statements, and the notes to the financial statements. The first two statements are condensed and present a government-wide view of the Commission's finances. Within this view, all Commission operations are categorized and reported as governmental activities. Governmental activities include basic services and administration. The Commission does not have any business-type activities. These government-wide statements are designed to be more corporate-like in that all activities are consolidated into a total for the Commission.

Basic Financial Statements

The Statement of Net Position focuses on resources available for future operations. In simple terms, this statement presents a snap-shot view of the assets the Commission, the liabilities it owes and the net difference. The net difference is further separated into amounts restricted for specific purposes and unrestricted amounts.

The Statement of Activities focuses gross and net costs of the Commission's programs and the extent to which such programs rely upon general revenues. This statement summarizes and simplifies the user's analysis to determine the extent to which programs are self-supporting and/or subsidized by general revenues.

The notes to the financial statements provide additional disclosures required by governmental accounting standards and provide information to assist the reader in understanding the Commission's financial condition

The MD&A is intended to explain the significant changes in financial position and differences in operation between the current and prior years. Significant changes from the prior year are explained in the following paragraphs.

Commission as a Whole

Government-wide Financial Statements

A condensed version of the Statement of Net Position at June 30, 2013 follows:

Net Position at Year-end		
	2013	2012
Cash & investments	\$ 366,478	389,202
Capital assets (net)	42,497	45,479
Total assets	408,975	434,681
Current liabilities	10,771	15,314
Non-current liabilities	34,230	33,017
Total liabilities	45,001	48,331
Net position:		
Invested in capital assets	42,497	45,479
Unrestricted	321,477	340,871
Total net position	\$ 363,974	386,350

During the year ended June 30, 2013 the biggest change in net position occurred in capital assets. The commission purchased a computer and copier. The charge for depreciation reduced the net position.

A condensed version of the Statement Activities follows:

Governmental Activities For the year ended June 30		
	2013	2012
Revenues		
Program Revenues		
Charges for Services	\$ 646	620
Assessments	345,646	345,646
General Revenues		
Interest	3,187	3,509
Total Revenues	349,479	349,775
Expenses		
Administration	371,855	365,773
Change in net position	(22,376)	(15,998)
Beginning net position	386,350	402,348
Ending net position	\$ 363,974	386,350

There were no significant increases in expenditures during the current year.

Capital Assets

At June 30, 2013 the Commission had \$42,497 invested in capital assets, consisting primarily of a building and furniture & equipment. The change in capital assets during the year consisted of purchasing a new computer and copier, and continued depreciation expense.

Capital Assets at Year-end

	<u>2013</u>	<u>2012</u>
Land	\$ 24,159	24,159
Building	79,827	79,827
Improvements	2,207	2,207
Furniture & equipment	<u>75,014</u>	<u>73,123</u>
Subtotal	181,207	179,316
Accumulated Depreciation	<u>138,710</u>	<u>133,837</u>
Capital assets, net	<u>\$ 42,497</u>	<u>45,479</u>

Financial Contact

The Commission’s financial statements are designed to present users (citizens, taxpayers, state governments) with a general overview of the Commission’s finances and to demonstrate the Commission’s accountability. If you have questions about the report or need additional financial information, please contact the Commission’s secretary at 355 South 400 East, Salt Lake City, UT 84111.

Basic Financial Statements

UPPER COLORADO RIVER COMMISSION

Statement of Net Position

June 30, 2013

	Governmental Activities
	<hr/>
ASSETS	
Cash & cash equivalents	\$ 366,478
Capital assets:	
Land	24,159
Building	79,827
Improvements other than building	2,207
Furniture & equipment	75,014
Less: accumulated depreciation	<hr/> (138,710) <hr/>
Total Assets	<hr/> 408,975 <hr/>
 LIABILITIES	
Accounts payable	8,118
Payroll liabilities	64
Retirement payable	1,097
Compensated absences	<hr/> 1,492 <hr/>
Total current liabilities	<hr/> 10,771 <hr/>
Noncurrent liabilities:	
Accrued compensated absences	<hr/> 34,230 <hr/>
Total noncurrent liabilities	<hr/> 34,230 <hr/>
Total Liabilities	<hr/> 45,001 <hr/>
 NET POSITION	
Invested in capital assets	42,497
Unrestricted	<hr/> 321,477 <hr/>
Total Net Position	<hr/> \$ 363,974 <hr/>

See accompanying notes to the basic financial statements

UPPER COLORADO RIVER COMMISSION

Statement of Activities For the year ended June 30, 2013

		Program Revenues		Net Revenue and Changes in Net Position
		Charges for services	Operating grants and contributions	
	<u>Expenses</u>			<u>Total</u>
Governmental activities:				
General administration	\$ <u>371,855</u>	<u>646</u>	<u>345,646</u>	<u>(25,563)</u>
Total governmental activities	\$ <u><u>371,855</u></u>	<u><u>646</u></u>	<u><u>345,646</u></u>	<u>(25,563)</u>
General revenues:				
Interest				<u>3,187</u>
Total general revenues				<u>3,187</u>
Change in Net Position				(22,376)
Net Position - Beginning of Year				<u>386,350</u>
Net Position - Ending of Year				\$ <u><u>363,974</u></u>

See accompanying notes to the basic financial statements

UPPER COLORADO RIVER COMMISSION

Balance Sheet Governmental Funds June 30, 2013

	<u>General Fund</u>
Assets	
Petty cash	\$ 25
Cash in bank	11,810
Utah public treasurers' investment pool	<u>354,643</u>
Total Assets	<u><u>366,478</u></u>
Liabilities	
Accounts payable	8,118
Accrued liabilities	1,161
Accrued benefits	<u>1,492</u>
Total Liabilities	<u>10,771</u>
Fund Balance	
Assigned to:	
Unpaid compensated absences	35,722
Unassigned	<u>319,985</u>
Total Fund Balance	<u>355,707</u>
Total Liabilities and Fund Balance	<u>\$ 366,478</u>

Reconciliation of the Statement of Net Position to the Balance Sheet

Amounts reported for governmental activities in the statement of net position are different because:

Total fund balance reported above	\$ 355,707
Capital assets used in governmental activities are not financial resources and, therefore, are not reported in the funds	42,497
Compensated absences are not due and payable in the current period and therefore, are not reported in the funds	<u>(34,230)</u>
Net position of governmental activities	<u>\$ 363,974</u>

See accompanying notes to the basic financial statements

UPPER COLORADO RIVER COMMISSION

Statement of Revenues, Expenditures and Changes in Fund Balance Governmental Funds for the Year Ended June 30, 2013

	<u>Original & Final Budget</u>	<u>General Fund</u>	<u>Variance w/Final Budget</u>
Revenues:			
Assessments	\$ 345,646	345,646	-
Interest	-	3,187	3,187
Waternews subscriptions & refunds	-	646	646
Total Revenues	<u>345,646</u>	<u>349,479</u>	<u>3,833</u>
Expenditures:			
Personal services	333,991	302,287	31,704
Travel	32,000	30,967	1,033
Current operating	39,700	32,115	7,585
Capital outlay	<u>5,000</u>	<u>2,291</u>	<u>2,709</u>
Total Expenditures	<u>410,691</u>	<u>367,660</u>	<u>43,031</u>
Excess of revenues over expenditures	(65,045)	(18,181)	46,864
Fund Balance - June 30, 2012	<u>373,888</u>	<u>373,888</u>	<u>-</u>
Fund Balance - June 30, 2013	<u>\$ 308,843</u>	<u>355,707</u>	<u>46,864</u>

Reconciliation of the statement of Revenues, Expenditures and Changes in Fund Balances of Governmental Funds to the Statement of Activities

Net change in fund balance (as reported above) \$ (18,181)

Governmental funds report capital outlays as expenditures.

However, in the statement of activities, the cost of those assets is allocated over their estimated useful lives as depreciation expense. This is the amount by which depreciation exceeded capital outlays in the current period.

(2,982)

The expense for accrued compensated absences reported in the statement of activities does not require the use of current financial resources and, therefore, are not reported as expenditures in governmental funds.

(1,213)

Change in net position of governmental activities (page 9)

\$ (22,376)

See accompanying notes to the basic financial statements

UPPER COLORADO RIVER COMMISSION

Notes to Basic Financial Statements

June 30, 2013

NOTE 1 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

A. Reporting entity

The 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 has no component units that are included with this report.

B. Basis of Presentation - Government-wide financial statements

While separate government-wide and fund financial statements are presented, they are interrelated. The governmental activities column incorporates data from governmental fund. The Commission does not currently have any business-type activities.

C. Basis of Presentation - Fund financial statements

The fund financial statements provide information about the Commission's funds. Statements for the only fund category—governmental—is presented. The emphasis of fund financial statements is on major governmental funds, each displayed in a separate column. The Commission has only a general governmental fund that is reported as a major fund in the fund financial statements.

D. Measurement focus and basis of accounting

GOVERNMENT WIDE FINANCIAL STATEMENTS

The accounting and financial reporting treatment is determined by the applicable measurement focus and basis of accounting. Measurement focus indicates the type of resources being measured such as current financial resources or economic resources. The basis of accounting indicates the timing of transactions or events for recognition in the financial statements.

The government-wide statements are prepared using the *economic resources* measurement focus and the accrual basis of accounting. Revenues are recorded when earned and expenses are recorded when a liability is incurred, regardless of the timing of related cash flows.

The governmental fund financial statements are reported using the current financial resources measurement focus and the *modified accrual basis of accounting*. Revenues are recognized as soon as they are both measurable and available. Revenues are considered to be available when they are collectible within the current period or soon enough thereafter to pay liabilities of the current period. For this purpose, the government considers revenues to be available if they are collected within 60 days of the end of the current fiscal period. Expenditures generally are recorded when a liability is incurred, as under accrual accounting. However, debt service expenditures, as well as expenditures related to compensated absences, and claims and judgments, are recorded only when payment is due. General capital asset acquisitions are reported as expenditures in governmental funds. Issuance of long-term debt and acquisitions under capital leases are reported as other financing sources.

UPPER COLORADO RIVER COMMISSION

Notes to Basic Financial Statements (continued)

June 30, 2013

E. Budgetary Information

Annual budgets are prepared on the modified accrual basis of accounting and adopted as required by the compact. 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.

F. Assets, liabilities, deferred outflow/inflows of resources, and net position/fund balance

Cash & cash equivalents

The government's cash and cash equivalents are considered to be cash on hand, demand deposits, and short-term investments with original maturities of three months or less from the date of acquisition.

Capital Assets and Depreciation

Capital assets, which include property, and equipment, are reported in the governmental activities column in the government-wide financial statements. Capital assets are defined by the Commission as assets with an initial, individual cost of more than \$1,000 and an estimated useful life in excess of one year.

Depreciation of capital assets is computed and recorded by the straight-line method. Estimated useful lives of the various classes of depreciable capital assets are as follows: buildings, 30 years; improvements, 10 to 15 years; furniture and equipment, 3 to 15 years.

Fund balance policies

Fund balance of governmental funds is reported in various categories based on the nature of any limitations requiring the use of resources for specific purposes. The Commission itself can establish limitations on the use of resources through either a commitment (committed fund balance) or an

Net Position / Fund Balance

Government-wide Financial Statements

Equity is classified in the government-wide financial statements as net assets and can be displayed in three components:

Invested in capital assets, net of related debt - Capital assets including restricted assets, net of accumulated depreciation and reduced by any debt related to the acquisition, or improvement of the assets.

Restricted net position - Net position with constraints placed on the use either by (1) external groups or (2) law through constitutional provisions or enabling legislation.

Unrestricted net position - All other net position that do not meet the definition of "restricted" or "invested in capital assets, net of related debt."

Fund Financial Statements

In the fund financial statements governmental fund equity is classified as fund balance. Fund balance is further classified as Nonspendable, Restricted, Committed, Assigned, or Unassigned. Description of each classification is as follows:

UPPER COLORADO RIVER COMMISSION

Notes to Basic Financial Statements (continued)

June 30, 2013

Nonspendable fund balance - Amounts that cannot be spent because they are either (a) not in spendable form, or (b) legally or contractually required to be maintained intact.

Restricted fund balance - Amounts restricted by enabling legislation. Also if, (a) externally imposed by creditors, grantors, contributors, or laws and regulations of other governments, or (b) imposed by law through constitutional provisions or enabling legislation.

Committed fund balance - Amounts that can only be used for specific purposes pursuant to constraints imposed by formal action of the commissions highest level of decision making authority.

Assigned fund balance - Amounts that are constrained by the Commissions intent to be used for specific purposes, but are neither restricted nor committed.

Unassigned fund balance - Residual classification of the General Fund. This classification represents fund balance that has not been restricted, committed, or assigned specific purposes within the general

Unpaid 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 maintained separately and represents a reconciling item between the fund and government-wide presentations.

NOTE 2 STEWARDSHIP, COMPLIANCE AND ACCOUNTABILITY

Accounting and Reporting

The commission is not required to report to any individual state or federal agency. Financial reports are given to each commissioner and is reviewed by them. The commission is exempt from federal income tax reporting under 501(c) (1) of the internal revenue code.

NOTE 3 DETAIL NOTES ON ALL ACTIVITIES AND FUNDS

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.

As of June 30, 2013, the Commission had the following deposits and investments:

	<u>Fair Value</u>
Cash on deposit	\$ 24,249
Utah Public Treasurers' Investment Pool	<u>354,643</u>
	<u>\$ 378,892</u>

UPPER COLORADO RIVER COMMISSION

Notes to Basic Financial Statements (continued)

June 30, 2013

Interest rate risk. The Commission manages its exposure to declines in fair value by only investing in the Utah Public Treasurers Investment Fund.

Credit risk. As of June 30, 2013, the Utah Public Treasurer's Investment Fund was unrated.

Concentration of credit risk. The Commission's investment in the Utah Public Treasurer's Investment Fund has no concentration of credit risk.

Cash and Cash Equivalents (Continued)

Custodial credit risk - Deposits. In the case of deposits, this is the risk that in the event of a bank failure, the government's deposits may not be returned to it. As of June 30, 2013, none of the \$24,249 balance of deposits was exposed to custodial credit risk because it was insured.

Custodial credit risk - Investments. For an investment, this is the risk that, in the event of the failure of the counterparty, the Commission will not be able to recover the value of its investments that are in the possession of an outside party. The Commission's investment in the Utah Public Treasurer's Investment Fund has no custodial credit risk.

Components of cash and investments (including interest earning deposits) at June 30, 2013, are as follows:

Cash on deposit	\$ 11,835
Utah State Treasurer's Investment Pool	354,643
	<u>\$ 366,478</u>

Capital Assets

Capital asset activity for the year ended June 30, 2013, is as follows:

	Balance at June 30, 2012	Additions	Disposals	Balance at June 30, 2013
Land	\$ 24,159	-	-	24,159
Building	79,827	-	-	79,827
Improvements	2,207	-	-	2,207
Furniture & Equipment	73,123	1,891	-	75,014
Totals at historical costs	<u>179,316</u>	<u>1,891</u>	<u>-</u>	<u>181,207</u>
Less accumulated depreciation				
Building	68,208	1,475	-	69,683
Improvements	2,207	-	-	2,207
Furniture & Equipment	63,422	3,398	-	66,820
Total accumulated depreciation	<u>133,837</u>	<u>4,873</u>	<u>-</u>	<u>138,710</u>
Capital assets, net	<u>\$ 45,479</u>	<u>(2,982)</u>	<u>-</u>	<u>42,497</u>

Depreciation expense of \$4,873 was charged to the general administration activity of the Commission

UPPER COLORADO RIVER COMMISSION

Notes to Basic Financial Statements (continued)

June 30, 2013

NOTE 4 OTHER NOTES

Employee Retirement Plan

The Commission's employee pension plan is a 401(K) defined contribution plan which covers all of the present employees. The Commission contributes 7% of the employees' gross salaries. In addition, the Commission will match contributions made by employees up to a maximum of 3%. Accordingly, the maximum allowable contribution by the Commission is 10%. The employees are allowed to contribute up to the maximum allowed by law. The employer's share of the pension plan contribution for the year ended June 30, 2013 was \$23,196, which includes \$350 of administrative costs.

Risk Management

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

Subsequent Events

Subsequent events have been evaluated through August 31, 2013, the date the financial statements were available to be issued. There have been no subsequent events that provide additional evidence about conditions that existed at the date of the balance sheet.

Supplemental Schedules

UPPER COLORADO RIVER COMMISSION
Supplemental Schedule of Cash Receipts
and Disbursements
Year ended June 30, 2013

Cash at June 30, 2012		\$	389,205
Cash Receipts:			
Assessments	345,646		
Interest	3,187		
Refunds	46		
Waternews Subscriptions	600		
	<u> </u>		349,479
Cash Disbursements:			
Personal Services	307,894		
Travel	27,392		
Current Operating	34,697		
Capital Outlay	2,223		
Contingency	-		
	<u> </u>		<u>372,206</u>
Cash at June 30, 2013		\$	<u><u>366,478</u></u>

UPPER COLORADO RIVER COMMISSION
Detail of Personal Services and Current Operating
Expenditures - Budget to Actual (Accrual Basis)
Year ended June 30, 2013

	<u>Budget</u>	<u>Actual</u>	Variance w/Final <u>Budget</u>
<u>Summary of Personal Services</u>			
<u>with Budget Comparisons</u>			
Executive director	\$ 106,995	106,995	-
Administrative secretary	33,985	33,985	-
General counsel	87,483	87,483	-
Consulting services	32,968	1,983	30,985
Social security	17,478	17,478	-
Pension fund contributions	23,296	23,196	100
Employee medical insurance	30,586	30,447	139
Janitorial	1,200	720	480
	<u>\$ 333,991</u>	<u>302,287</u>	<u>31,704</u>

Summary of Current Operating
Expenditures with Budget Total Comparison

Audit and accounting	\$ 4,400	3,855	545
Building repair & maintenance	3,500	3,600	(100)
Insurance	3,300	2,177	1,123
Library	6,500	7,095	(595)
Meetings, including reporter	2,100	1,363	737
Memberships and registrations	2,900	1,555	1,345
Office supplies and postage	3,300	1,713	1,587
Printing	4,000	2,731	1,269
Telephone	4,700	4,010	690
Utilities	5,000	4,016	984
	<u>\$ 39,700</u>	<u>32,115</u>	<u>7,585</u>

Upper Colorado River Commission

APPENDIX B

BUDGET

Fiscal Year Ending June 30, 2010

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**Approved FY 2014 Budget
UPPER COLORADO RIVER COMMISSION
Fiscal Year Ending June 30, 2014
Approved at the June 20, 2013 Commission Meeting**

As Approved
6/20/2013

Personnel Cost including Pension, Social Security & Health Insurance	317,723
Travel	35,000
Current Expense	41,600
Janitor	1,200
Income (newsletter)	-400
Funding to capitalize leave sinking fund	20,000
Capital Expense	5,000
Contingency	5,000
Total	425,123

2014 State Assessments

	State %	FY 2014
Colorado	51.75	96,760
New Mexico	11.25	42,773
Utah	23.00	87,448
Wyoming	14.00	53,229
Total		\$380,210

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Upper Colorado River Commission

APPENDIX C

RESOLUTIONS

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RESOLUTION OF THE UPPER COLORADO RIVER COMMISSION

Regarding Compensation for a Portion of Unused Employee Sick Leave and Management of Commission Liability upon Employee Separation from Employment

WHEREAS, at the Meeting of the Upper Colorado River Commission ("Commission") on May 24, 2012 in Page, Arizona, the Commission unanimously passed a Resolution directing Commissioner Patrick T. Tyrrell to work with Commission Staff and any other Commissioners of his choosing to evaluate the policies of the Commission and its four member States regarding payout of unused leave for employees upon separation from Commission service and make recommendations regarding this issue; and

WHEREAS, the Commission has a written policy governing sick leave accrual previously approved by the Commission on July 14, 1991 which provides there will be no payment for unused sick leave upon employees' separation from Commission employment; and

WHEREAS, The Commission has determined that the sick leave policies of the Commission in this regard are inconsistent with those of the Commission's four member States, since all of such States provide for payout of some unused sick leave upon an employee's separation from State employment; and

WHEREAS, the Commission has determined that its sick leave policy should be revised to provide for payout of 50 percent of an employee's unused sick leave upon separation from employment not to exceed payment for 160 hours as an incentive to promote conservation of sick leave where appropriate; and

WHEREAS, the maximum additional Commission liability for implementation of the above policy based upon today's costs if all three employees left employment at the same time is estimated to be approximately \$17,573; and

WHEREAS, it is recognized if such action is taken by the Commission, it will require additional monies in the sinking fund created by Article VII (Fiscal), Paragraph 8 of the Commission By-Laws in order to properly plan and budget for such costs; and

WHEREAS, it has been determined that currently unused funding for the engineer/consultant position as presently shown in the budget is estimated to be sufficient to capitalize the sinking fund for both annual leave and sick leave liability within about three years should the Commission decide to use these funds for this purpose; and

WHEREAS, the Commissioners have also discussed funding the sinking fund by the use of unused funding from the budget or additional appropriations to be decided each year as part of the annual budget process.

NOW, THEREFORE, BE IT RESOLVED that the Commission shall amend its current policy regarding sick leave to allow payout of 50 percent of an employee's unused sick leave upon separation from employment not to exceed payment for 160 hours; and

BE IT FURTHER RESOLVED that the Commission will plan and budget for such costs with appropriations to the sinking fund created by Article VII (Fiscal), Paragraph 8 of the Commission By-Laws.

CERTIFICATE

I, DON A. OSTLER, Executive Director and Secretary of the Upper Colorado River Commission, do hereby certify that the above Resolution was unanimously adopted by the Upper Colorado River Commission at its Meeting held in Santa Fe, New Mexico on June 20, 2013.

WITNESS my hand this 26th day of June, 2013.


DON A. OSTLER
Executive Director and Secretary

RESOLUTION OF THE UPPER COLORADO RIVER COMMISSION

Regarding an Extension of Time to Develop Recommendations for Policies and Procedures for Implementing Curtailments of Water Use Pursuant to Article IV of the Upper Colorado River Basin Compact

WHEREAS, on December 15, 2010, the Commission adopted a resolution to develop policies and procedures that may be needed to implement articles III through VI of the Upper Colorado River Basin Compact, including policies and procedures needed to implement curtailments and other related provisions of the Compact; and

WHEREAS, this resolution is titled, "Resolution Regarding the Development of Policies and Procedures for Implementing Curtailments of Water Use Pursuant to Article IV of the Upper Colorado River Basin Compact" (herein "Original Resolution"); and

WHEREAS, the Original Resolution directs the Commission's staff to work with the Upper Division states' representatives to develop options for implementing articles III through VI of the Upper Colorado River Basin Compact and provide a recommendation for consideration by the Commission as soon as practicable but, in no event, later than December 31, 2013; and,

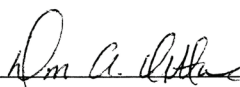
WHEREAS, the Commission has determined that a one-year extension of the December 31, 2013 deadline contained in the Original Resolution is warranted.

NOW, THEREFORE, BE IT RESOLVED that the Commission hereby extends to December 31, 2014 the deadline contained in the Original Resolution to develop options for implementing articles III through VI of the Upper Colorado River Basin Compact and to provide a recommendation for consideration by the Commission.

CERTIFICATE

I, Don A. Ostler, Executive Director and Secretary of the Upper Colorado River Commission, do hereby certify that the Upper Colorado River Commission adopted the above Resolution at its meeting held in Santa Fe, New Mexico on June 20, 2013.

WITNESS my hand this 26th of June, 2013.



DON A. OSTLER
Executive Director and Secretary

RESOLUTION OF THE UPPER COLORADO RIVER COMMISSION

Regarding Liability for Costs Incurred in Payout of Employee Annual Leave Upon Separation from Employment

WHEREAS, the Upper Colorado River Commission ("Commission") is aware of some executive-branch organizations that have incurred substantial lump-sum payout costs for unused leave upon employee separation that were not funded in the organizations' budgets; and

WHEREAS, at the Meeting of the Commission on May 24, 2012 in Page, Arizona, the Commission unanimously passed a Resolution directing Commissioner Patrick T. Tyrrell to work with Commission Staff and any other Commissioners of his choosing to evaluate the potential financial liability of the Commission for payout of unused leave for employees upon separation from Commission service and make recommendations on addressing this issue; and

WHEREAS, the Commission does not currently budget for such leave payout expenses and would have to pay them out of reserves and/or active budget categories; and

WHEREAS, the Commission has a written policy for annual leave accrual previously approved by the Commission on December 5, 1990 that limits carry-over of such leave to a maximum of 30 days per year and provides that the employee will be paid for unused annual leave upon separation; and

WHEREAS, the Commission has determined that the annual leave policies of the Commission are generally consistent with those of the Commission's four member States; and

WHEREAS, the Commission leave policies do not currently allow for any payout of unused sick leave, but the Commission may consider the possibility for partial payment for qualified sick leave in the future; and

WHEREAS, the maximum annual leave payout liability if all three current Commission employees left Commission service at once is approximately \$44,000 at today's costs; and

WHEREAS the Commission Budget Committee has met via conference call to discuss this matter and has recommended approval; and

WHEREAS, the Commission has determined it is prudent to properly plan for and budget for such costs.

NOW, THEREFORE, BE IT RESOLVED that the Commission shall establish a sinking fund by modification of the Commission By-Laws, creating Article VII (Fiscal), Paragraph 8 as follows: "The Commission shall create a separate account in its budget to fund payout of accrued and qualifying employee leave upon separation from Commission employment. Monies in this sinking fund may also be used in emergencies for other purposes upon concurrence of the Commission provided it is recapitalized within three years." The Commission shall initially capitalize this sinking fund utilizing unused funding from the engineer/consultant position, other unused budget categories or other State appropriations over a period of approximately three years beginning in the Commission's Fiscal Year 2014. The source and specific amount of funding will be decided each year during review of the budget for the next two fiscal years.

CERTIFICATE

I, DON A. OSTLER, Executive Director and Secretary of the Upper Colorado River Commission, do hereby certify that the above Resolution was unanimously adopted by the Upper Colorado River Commission at its Meeting held in Santa Fe, New Mexico on June 20, 2013.

WITNESS my hand this 26th day of June, 2013.


DON A. OSTLER
Executive Director and Secretary

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Upper Colorado River Commission

APPENDIX D

TRANSMOUNTAIN DIVERSIONS

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TRANS MOUNTAIN DIVERSIONS FROM
COLORADO RIVER BASIN IN COLORADO
1991-2013

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	10YEAR AVERAGE
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	9,330	2,541	7,376	21,217	19,542	20,432	22,098	19,385	14,033	17,080	9,832	17,882	16,869
Eureka Ditch	60	212	95	0	180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alva B. Adams Tunnel	199,200	198,300	206,400	233,200	238,500	207,300	229,000	203,600	165,840	118,960	131,931	268,000	88,571	122,770	162,911	273,118	283,885	287,330	245,307	225,799	247,800	292,314	287,200	232,641
Berthoud Pass Ditch	624	1,010	1,260	874	815	1,530	2,610	1,570	0	0	268	244	288	202	801	839	720	702	727	534	841	403	558	633
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	36,510	30,862	56,274	85,031	43,341	76,912	44,455	31,034	51,780	43,749	57,781	52,122
Boreas Pass Ditch	82	175	334	83	0	209	282	178	249	62	95	29	86	21	133	177	187	171	209	181	237	4	103	142
Vidler Tunnel	1,240	1,150	1,150	465	760	268	420	425	580	167	186	320	220	194	518	641	714	1,059	1,285	954	400	441	291	650
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	36,027	46,699	59,233	111,309	41,392	76,912	57,286	54,280	79,310	115,972	84,942	72,634
Straight Creek Tunnel	269	363	408	330	320	399	393	295	386	190	163	225	183	164	361	347	226	286	267	218	347	183	225	262
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	3,671	3,266	10,034	12,276	6,121	10,965	10,230	10,345	3,137	4,586	9,295	8,025
Columbine Ditch	1,602	1,610	2,478	1,470	2,390	2,500	1,730	1,669	933	1,740	1,790	780	1,940	1,210	1,530	1,340	1,830	87	78	352	230	673	1,350	928
Ewing Ditch	869	934	1,622	796	1,410	1,440	1,350	759	618	1,020	936	192	1,030	499	784	963	1,040	1,440	1,200	919	1,492	257	769	936
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	2,400	1,550	2,300	2,920	2,360	1,280	2,920	1,690	3,246	803	1,639	2,071
Homestake Tunnel	638	26,910	28,110	24,230	23,505	36,690	37,130	23,316	31,420	24,140	35,770	26,510	9,930	23,150	23,920	32,490	20,880	26,920	50,510	9,010	32,231	43,350	19,465	28,186
Twin Lakes Tunnel	42,980	41,970	62,664	42,850	33,120	34,850	34,190	47,441	16,590	42,060	45,650	20,570	45,240	35,550	50,160	54,677	54,470	64,540	59,740	66,326	23,250	37,782	49,231	
Charles H. Boustead Tunnel	61,130	57,060	88,740	55,040	91,300	38,540	79,380	53,985	43,140	50,690	50,530	15,780	57,999	28,590	55,810	62,340	55,220	90,790	83,840	56,660	99,804	13,960	47,019	59,403
Busk-kanhee 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	5,090	5,270	5,170	4,830	4,310	4,880	3,320	3,250	4,039	2,990	4,128	4,219
Larksour Ditch	95	205	334	146	116	60	185	67	6	7	63	0	0	76	171	221	397	461	375	234	310	48	64	236
TO RIO GRANDE BASIN																								
Tarbell Ditch	0	344	109	207	68	368	753	830	1,700	750	532	0	330	683	1,120	231	983	902	511	744	578	185	424	638
Tabor Ditch	997	684	1,060	639	1,240	375	1,340	1,010	1,430	485	254	87	323	250	1,050	801	1,270	1,050	827	506	591	347	361	705
Treasure Pass Ditch	9	63	113	94	0	15	245	223	367	70	29	0	185	150	337	71	200	121	262	183	262	213	180	198
Don La Font Ditches No. 1 & 2	473	480	0	364	50	112	64	0	10	0	0	0	0	0	54	0	269	218	154	22	296	184	309	151
Williams Creek-Squaw Pass Ditch	235	475	441	279	374	124	421	288	746	230	199	91	226	200	632	368	466	328	257	303	395	337	296	357
Pine River-Wemmuche Pass Ditch	257	520	246	172	672	42	1,050	396	1,100	203	212	0	103	100	2,710	390	577	350	352	274	307	244	525	983
Wemmuche Pass Ditch	665	2,630	0	0	0	0	1,090	459	3,400	0	0	0	64	50	508	241	1,050	743	847	653	229	219	718	526
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	292,967	307,892	457,738	665,653	492,323	670,445	581,344	458,988	611,266	554,545	523,046	532,344

TRANS MOUNTAIN DIVERSIONS FROM
COLORADO RIVER BASIN
IN COLORADO TO RIO GRANDE BASIN IN
NEW MEXICO
1991-2013

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	6,310	62,707	84,884	152,624	71,722	118,860	145,946	106,382	132,458	92,826	51,775	40,353	99,843
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**TRANSMOUNTAIN DIVERSIONS FROM
COLORADO RIVER BASIN IN UTAH
1981-2013**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013 AVERAGE	10 YEAR
TO GREAT BASIN																								
Broadbent Supply Ditch (Wyoming)	3,460	1,525	4,474	2,049	2,445	2,630	2,009	1,985	1,617	1,844	1,959	2,892	1,101	912	1,101	1,217	1,551	2,044	1,455	994	367	377	507	1,052
Fairview Tunnel	2,751	1,808	4,007	1,004	2,629	2,132	3,399	2,395	2,444	1,648	3,049	1,182	2,459	1,571	2,345	2,563	1,515	2,630	1,429	1,300	2,032	2,175	1,881	1,944
Ephraim Tunnel	2,149	1,632	3,391	1,334	2,670	2,824	2,571	1,519	798	1,068	1,066	1,819	2,862	3,691	4,874	4,532	3,000	4,221	7,120	1,522	2,145	1,742	3,585	
Central Utah Project, Bonneville Unit*	30,590	63,975	49,243	18,567	11,933	11,891	12,365	5,006	16,863	3,707	3,954	46,889	42,715	33,861	75,670	33,617	33,606	38,834	37,229	2,850	4,908	3,421	4,023	3,157
Hobble Creek Ditch	552	369	1,051	694	825	590	972	800	740	0	194	0	0	0	0	0	0	0	0	33,233	39,780	27,817	36,437	39,008
Strawberry-Willow Creek Ditch	1,342	2,041	2,171	962	953	1,379	1,706	1,554	667	1,293	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Strawberry Water Users Association*	58,329	72,872	51,484	74,190	36,768	51,934	41,576	52,821	61,297	76,636	80,973	69,419	58,570	62,962	49,824	47,791	68,906	86,297	45,971	65,740	38,418	71,917	69,600	60,733
Duchiesne Tunnel	21,062	15,678	35,646	22,617	39,659	31,895	39,446	30,746	33,429	26,482	28,739	20,767	28,657	27,278	29,008	21,454	29,496	28,607	29,482	27,126	10,561	20,712	24,144	24,590
TOTAL	120,235	159,900	151,469	121,637	98,082	105,475	104,064	96,826	117,855	114,392	120,387	145,440	139,577	132,012	166,143	114,178	140,929	162,167	122,557	138,965	97,807	128,463	138,334	134,069

**TRANSMOUNTAIN DIVERSIONS FROM
GREAT BASIN
IN UTAH TO COLORADO RIVER BASIN IN
UTAH
1981-2013**

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	2,712	2,431	4,500	4,884	4,469	5,319	4,258	5,329	4,667	5,100	5,640	4,660
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**TRANSMOUNTAIN DIVERSIONS FROM
COLORADO RIVER
BASIN TO NORTH PLATTE BASIN IN
WYOMING
1981-2013**

City of Cheyenne	16,462	12,450	23,422	14,405	12,144	17,014	14,119	14,870	13,252	15,327	12,563	6,668	16,745	13,502	17,454	16,880	12,061	18,519	10,063	11,608	5,262	5,754	12,784	12,389
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**TRANSMOUNTAIN DIVERSIONS FROM
COLORADO RIVER BASIN
1981-2013**

TOTAL	736,550	766,043	869,383	728,312	697,018	635,304	786,088	645,355	629,669	510,401	618,083	673,700	512,384	538,959	792,559	666,849	762,704	994,857	819,228	739,190	805,395	738,537	712,577	777,085
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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 in 1959. Flows are estimated and added to total on line 93.

Candlelight Ditch - 200 acre-feet, Horseshoe Tunnel - 600 acre-feet, Larsen Tunnel - 690 acre-feet, Coal Creek Ditch - 260 acre-feet, Twin Creek Tunnel - 220 acre-feet, Cedar Creek Tunnel - 340 acre-feet, Black Canyon Ditch - 230 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.

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