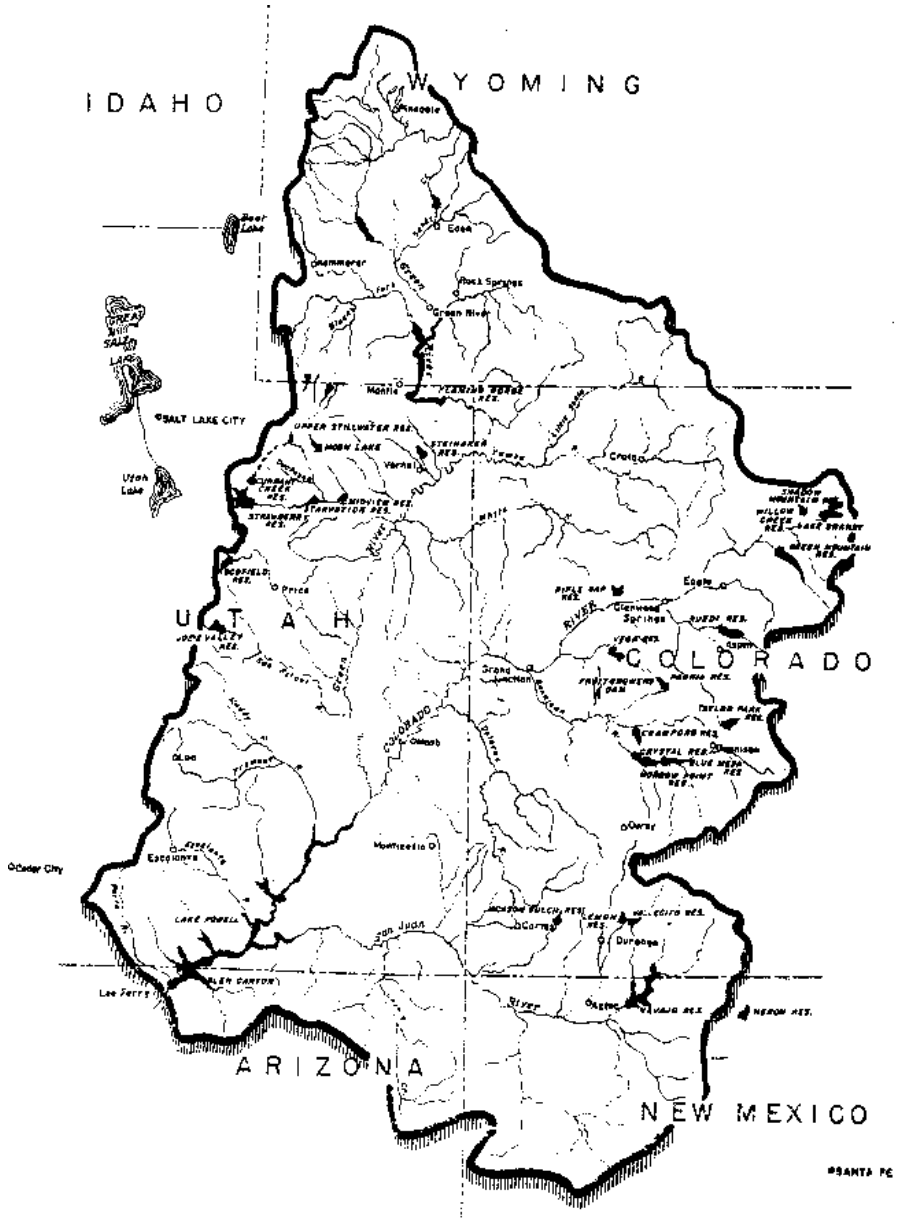
SIXTY-THIRD ANNUAL REPORT

OF THE

Upper Colorado River Commission

SALT LAKE CITY, UTAH

SEPTEMBER 30, 2011



UPPER COLORADO RIVER BASIN

UPPER COLORADO RIVER
COMMISSION

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

April 1, 2012

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

Dear President Obama:

The Sixty-Third 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 2012 (July 1, 2011 – June 30, 2012) 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.

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-Third 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

Jennifer L. Gimbel
Commissioner for
Colorado

John D'Antonio
Commissioner for
New Mexico

Felicity Hannay *
Chairwoman
Commissioner for
United States

Dennis J. Strong
Commissioner for
Utah

Patrick T. Tyrrell
Commissioner for
Wyoming

* Replaced L. Richard Bratton on March 31, 2010

ALTERNATE COMMISSIONERS

Alexandra Davis	State of Colorado
Dallin W. Jensen	State of Utah
D. Larry Anderson	State of Utah
Dan S. Budd	State of Wyoming
Benjamin C. Bracken	State of Wyoming
Estevan Lopez	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	Robert B. Nixon

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 Commissin are ex-officio members of all committees, Article V(4) of the By-Laws):

Legal Committee:

Norman K. Johnson, Chairman – Utah
Dallin W. Jensen – Utah
Scott Balcomb – Colorado
Jim Lochhead – Colorado
Peter Fleming – Colorado
Steve Farris – New Mexico
Marion Yoder – Wyoming
Mike Quealy – Colorado
John W. Suthers – Colorado
Ted Kowalski – Colorado
Barry Spear – Colorado
Karen Kwon – Colorado
James Eklund – Colorado
Peter Michael – Wyoming
Amy Haas – New Mexico
Bennett Raley – Colorado

Engineering Committee:

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

Budget Committee:

Jennifer L. Gimbel – Colorado
Dennis L. Strong – Utah
Patrick T. Tyrrell – Wyoming
John D'Antonio – 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

MEETINGS OF THE COMMISSION

During the Water Year, ending September 30, 2011 the Commission met as follows:

Meeting No. 260 December 15, 2010	Las Vegas, Nevada
Meeting No.261 June 8, 2011	Boulder, Colorado

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 hydrologic nature of various facets of the water resources of the Colorado River Basin especially as related to operation of the Colorado River reservoirs; (B) collection and compilation of documents for 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 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 third year of operations under the 2007 Interim Guidelines. Since the August 24-month study is used

to predict storage elevations in Lake Powell which will determine the operational and release tier for the following year, the Commission has focused much attention on the accuracy of the modeled predictions. During the year it was determined that the 24-month study consistently over-predicts the elevation of Lake Powell. 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 were one of the major causes of the inaccurate predictions. Modifications to the model have been made to improve the accuracy of future predictions. 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 2025.

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 Mexican counterparts on how to better manage future shortages and meet future demands for water. These discussions include conducting 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 is also being expended to evaluate means of enhancing the supply and in evaluating possible changes in salinity and water quality. During this year several proposals for a new minute to implement an agreement have been developed by both countries. Negotiations are continuing into water year 2012.

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, Reclamation, and the States to allow basin funds to be used for future state development projects as well as operation, maintenance, and replacement of existing projects. Projects proposed for funding have been developed with implementation to begin in Federal fiscal year 2012.

Lees Ferry Stream Gage on the Colorado River:

The Commission has studied 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. 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 will improve its accuracy. During Water Year 2011, the USGS conducted measurements of inflow between Glen Canyon Dam and Lees Ferry, which documented gains in flow. Efforts are continuing to determine how to incorporate actual flow data from Lees Ferry into River operations.

Upper Division States Curtailment Procedures and Policy:

The Commission and its engineering and legal advisors are continuing to discuss detailed procedures for implementation of a curtailment of uses should that become necessary in accordance with the 1922 Colorado River Compact. Curtailment of uses has not been necessary in the past and is not expected in the foreseeable future. However, over a decade of significant drought makes it prudent that we understand how this would be done if required.

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 are engaged in 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, will be evaluated. This study should be completed in July 2012.

A. ENGINEERING-HYDROLOGY

1. Stream Flow and Hydrology Summary

The historical flow of the Colorado River at Lee Ferry for water year 2011 based upon USGS Stream flow records at the Lee's Ferry and Paria River gages was 13,227,400 acre-feet. The progressive 10-year total flow at Lee Ferry was 89,640,000 acre-feet.

The virgin or natural flow of the Colorado River at Lee Ferry was estimated to be 20.4 million acre-feet, which is more than the average virgin flow for the period of record of 14.8 million acre-feet.

In the Upper Colorado River Basin during Water Year 2011, the overall precipitation accumulated through September 30, 2011 was approximately 122% of average based upon the 30 years of data between 1971 and the year 2000. Unregulated inflow to Lake Powell in Water year 2011 was about 139 percent of the 30-year average, or 16.8 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:

Unregulated Inflow to Lake Powell

2000 - 62%

2001 - 59%

2002 - 25%

2003 -51%

2004 - 49%

2005 - 105%

2006 – 73%

2007 – 68%

2008 – 102%

2009 – 88%

2010 – 73%

2011 – 139%

Inflow has been below normal in 9 of the last 12 years, which is the second lowest 12 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, 2011 was 64% of the long-term average at the San Juan River station near Bluff, Utah and 131% of the long-term average at the Colorado River Station near Cisco, Utah. The volumes of runoff at these stations were 1,016,300 acre-feet and 7,097,400 acre-feet, respectively. Runoff at the Green River station near Green River, Utah was 176% of the long-term average and totaled 7,679,700 acre-feet.

2. Summary of Reservoir Levels and Contents

As of September 30, 2011 total system storage (Upper and Lower Basins) was 65 percent of capacity. For the period October 1, 2010 through September 30, 2011, the change in reservoir storage, excluding bank storage and evaporation, at selected Upper Basin reservoirs was as follows:

- Fontenelle increased 19,042 acre-feet
- Flaming Gorge increased 313,575 acre-feet
- Taylor Park decreased 1,437 acre-feet
- Blue Mesa increased 86,363 acre-feet
- Morrow Point decreased 630 acre-feet
- Crystal decreased 1061 acre-feet
- Navajo decreased 85,339 acre-feet
- Lake Powell increased 2,326,513 acre-feet

The virgin flow[1] of the Colorado River at Lee Ferry[2] for the 2011 water year was estimated to be 20.4 million acre-feet.[3]

Observed inflows to Lake Powell during Water Year 2011 were above average (139%); Lake Powell storage increased by 2.33 maf and ended the water year at 72% of capacity, with 17.59 maf of storage at elevation 3653.01 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 2011 was 12.52 maf.

Reservoir storage in Lake Mead increased during Water Year 2011 from 10,100,000 acre-feet to 12,980,000 acre-feet, which is 50% of capacity. The total Colorado River System experienced a gain in storage during Water Year 2011 of approximately 5,610,000 acre-feet and ended the year at 65% 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 pages12 through 19 for the 2011 Water Year.

In Water Year 2011, equalization occurred because Lake Powell rose above the equalization elevation of 3643 feet in the 2007 Interim Guidelines. A total equalization volume of approximately 13.7 maf was dictated by the Long Range Operating Criteria (LROC). However, only about 12.5 maf could be delivered by the end of the water year due primarily to power plant capacity constraints. The remaining equalization volume of approximately 1.2 maf was delivered as quickly as practicable through the power plant by the end of December 2011 in accordance with the LROC.

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

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

[3] Based on provisional records subject to revision.

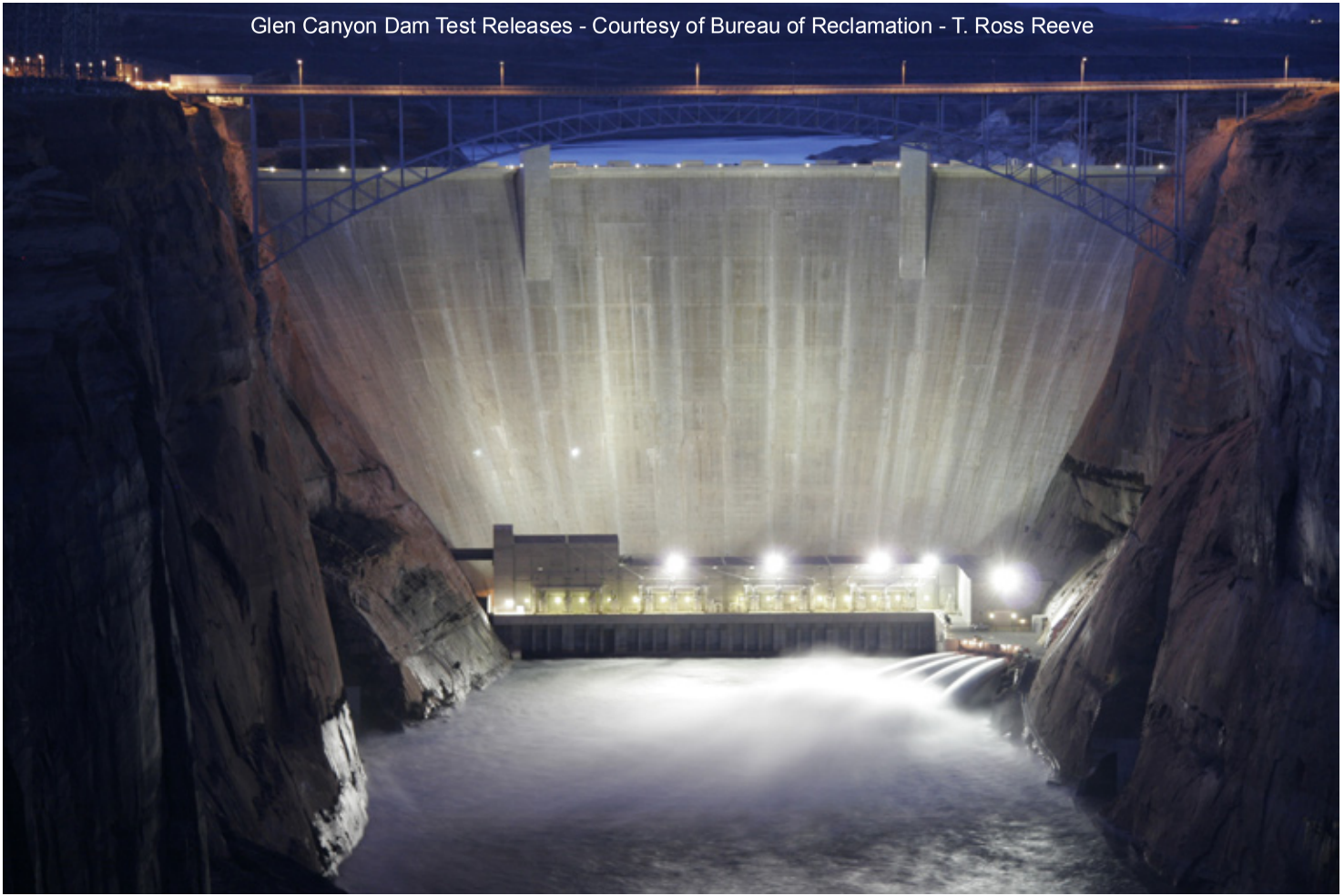

Glen Canyon Dam Test Releases - Courtesy of Bureau of Reclamation - T. Ross Reeve

Table 1
STATISTICAL DATA FOR PRINCIPAL RESERVIORS IN COLORADO RIVER BASIN
UPPER BASIN

Colorado River Storage Project
(Total Surface Capacity)

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

	Fotenelle		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)

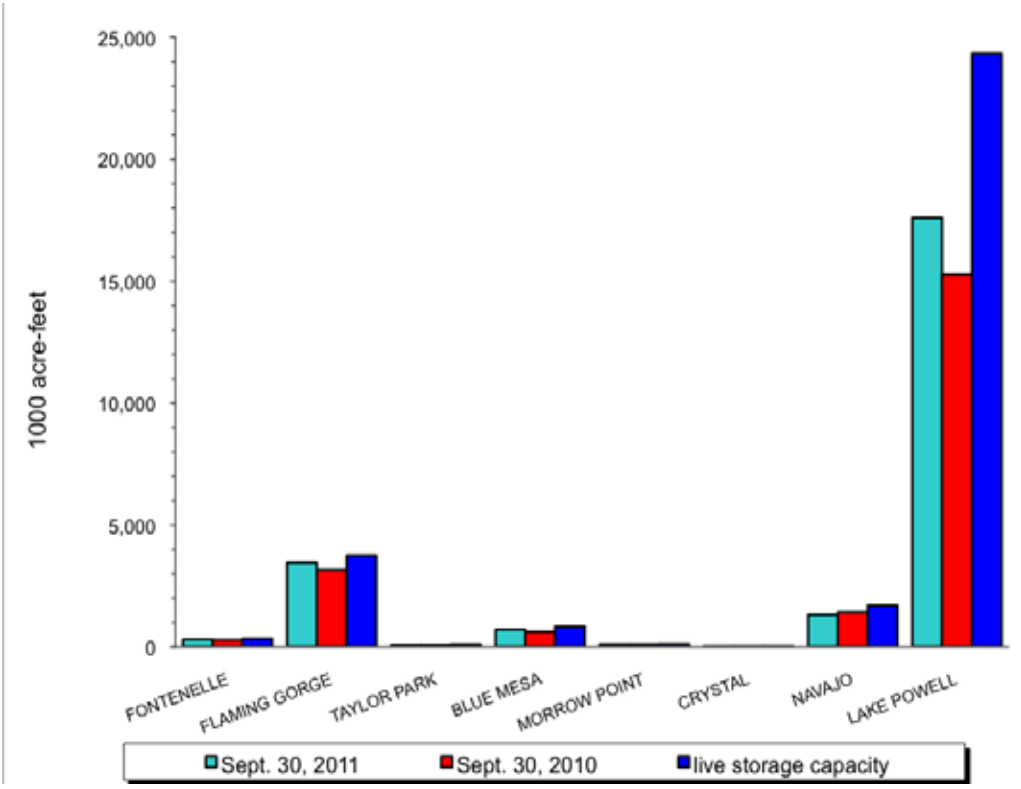
(Units: Elevation = feet; Capacity = 1,000 acre-feet)

	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

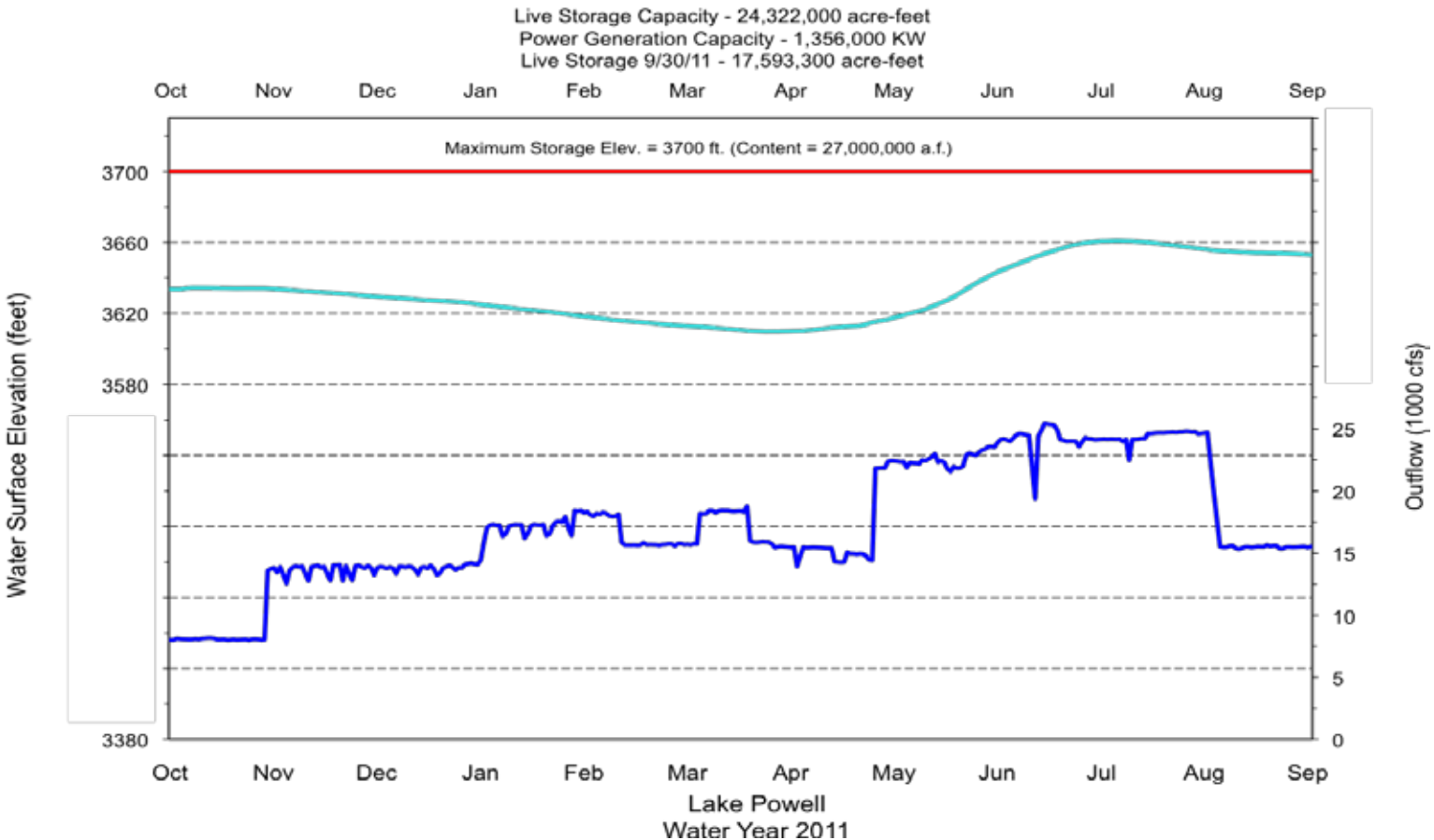
[5] The elevation for inactive storage for Lake Havasu is the contractual minimum for delivery to Metropolitan Water District's Colorado River Aqueduct.

Storage in Principal Reservoirs at the End of Water Year 2011
Upper Basin
Live Storage Contents

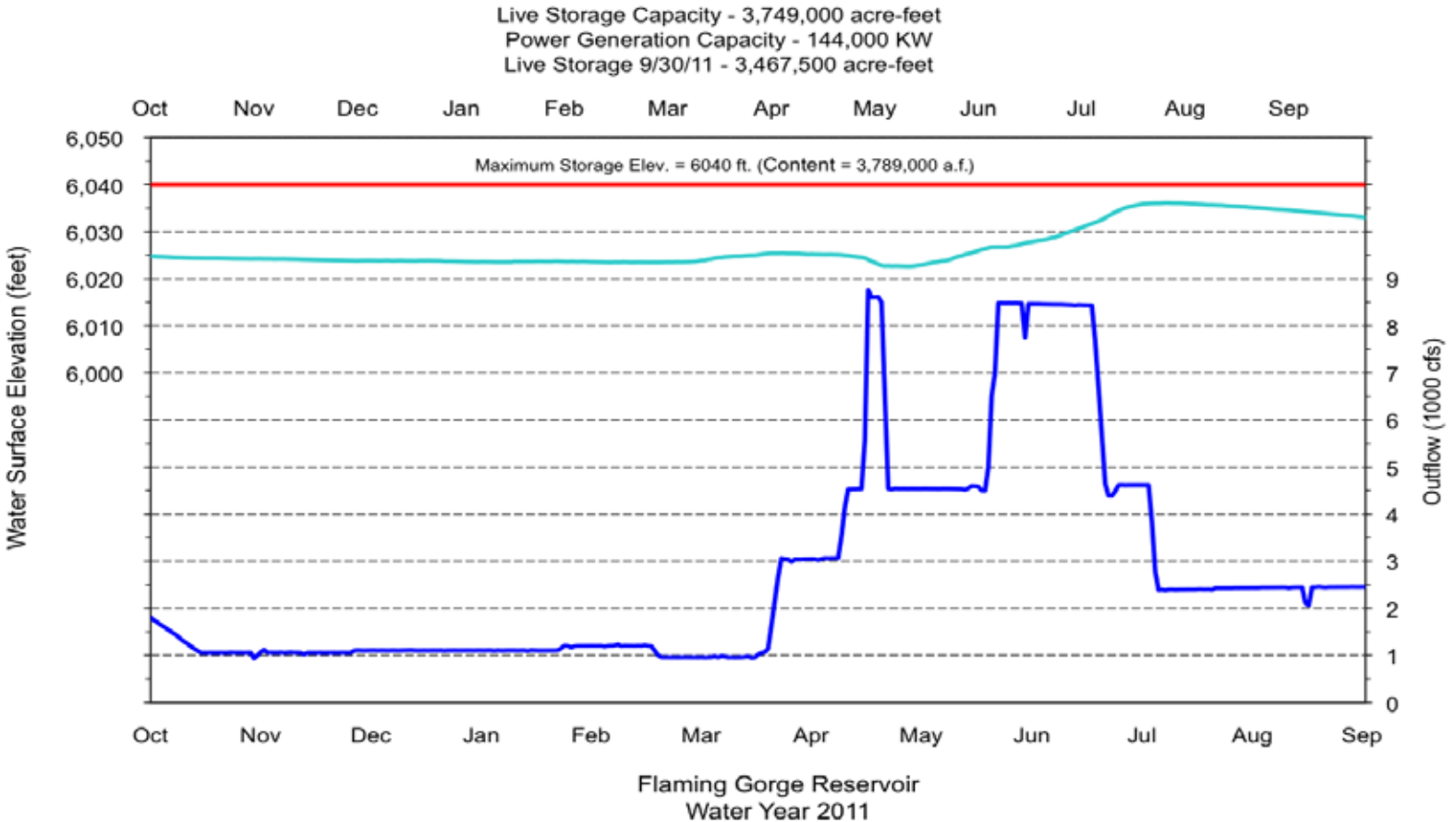
Reservoir	Sept. 30, 2011 (acre-feet)	Percent Live Capacity	Sept. 30, 2010 (acre-feet)	Percent Live Capacity	Change in Contents (acre-feet)
FONTENELLE	298,200	86.5%	279,145	81.0%	19,055
FLAMING GORGE	3,467,500	92.5%	3,153,925	84.1%	313,575
TAYLOR PARK	71,000	66.8%	72,419	68.2%	-1,419
BLUE MESA	699,100	84.3%	609,162	73.5%	89,938
MORROW POINT	107,500	91.9%	108,130	92.4%	-630
CRYSTAL	14,500	82.7%	15,561	88.7%	-1,061
NAVAJO	1,327,000	78.2%	1,412,339	83.3%	-85,339
LAKE POWELL	17,593,300	72.3%	15,266,787	62.8%	2,326,513
TOTAL	23,578,100		20,917,468		2,660,632



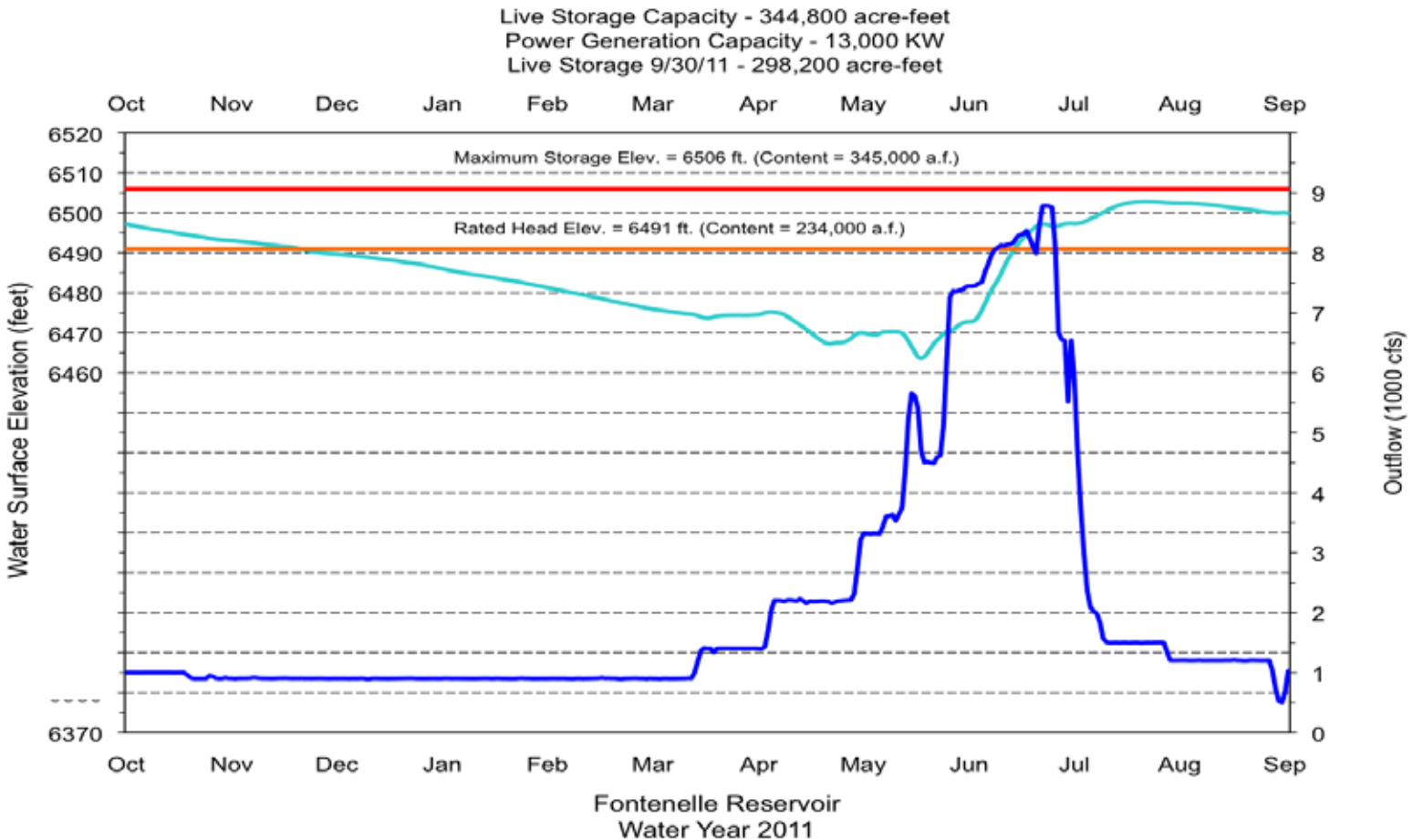
Lake Powell - Glen Canyon Dam



Flaming Gorge

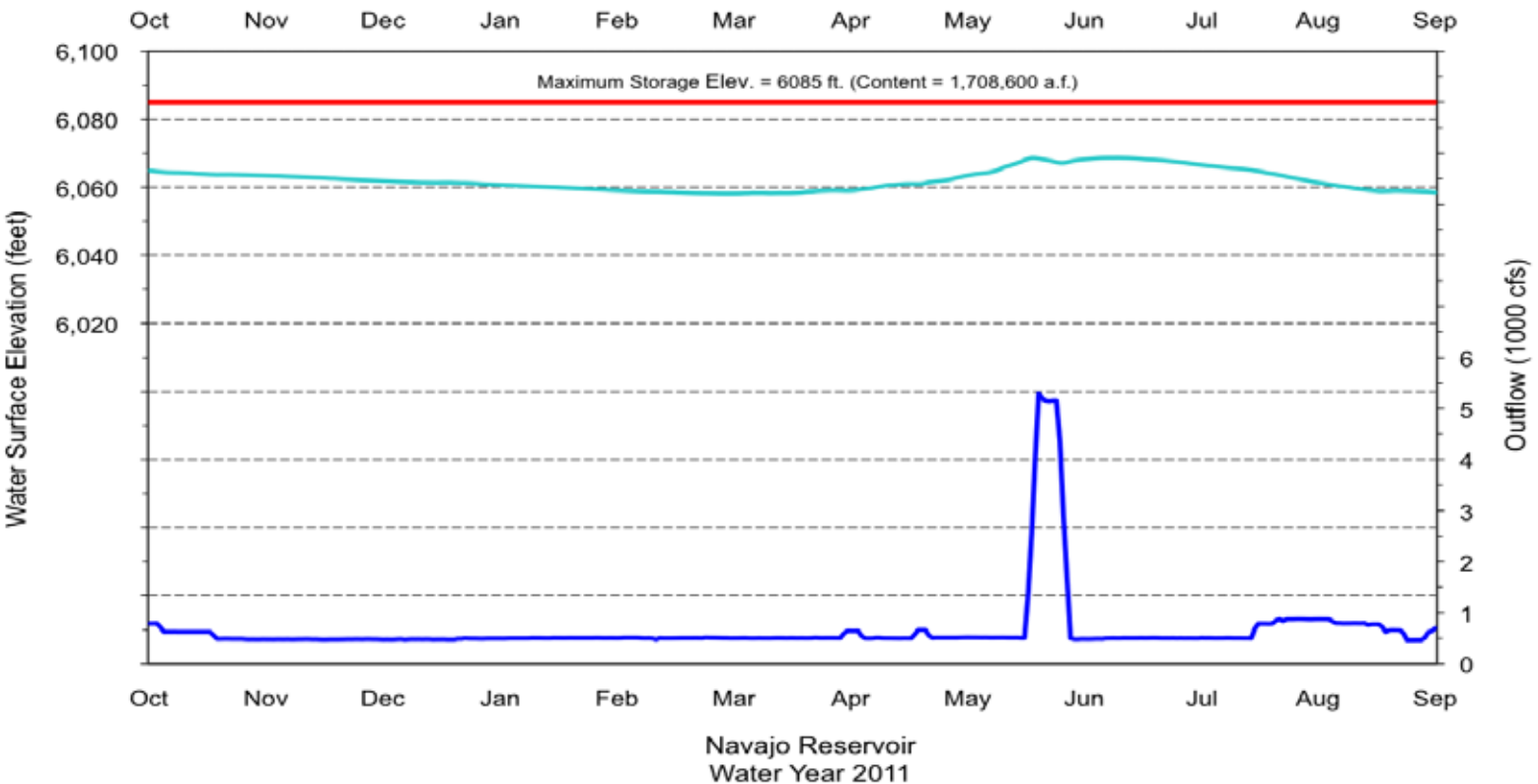


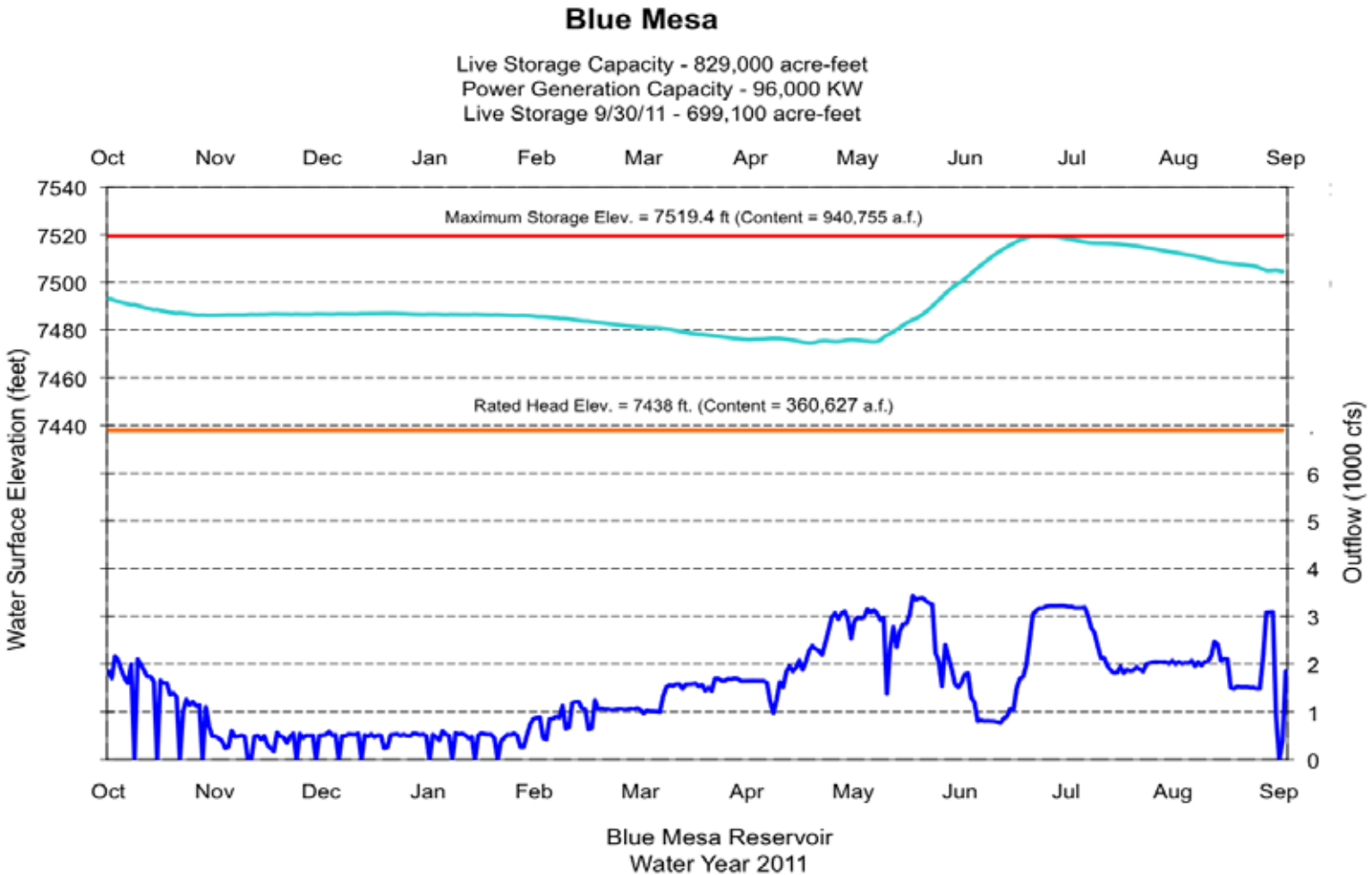
Fontenelle


Live Storage Capacity - 344,800 acre-feet
Power Generation Capacity - 13,000 KW
Live Storage 9/30/11 - 298,200 acre-feet
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Maximum Storage Elev. = 6506 ft. (Content = 345,000 a.f.)
Rated Head Elev. = 6491 ft. (Content = 234,000 a.f.)
6520
6510
6500
6490
6480
6470
6460
6370
Water Surface Elevation (feet)
9
8
7
6
5
4
3
2
1
0
Outflow (1000 cfs)
Fontenelle Reservoir
Water Year 2011

Navajo

Live Storage Capacity - 1,695,900 acre-feet
Power Generation Capacity -0 KW
Live Storage 9/30/11 - 1,327,000 acre-feet



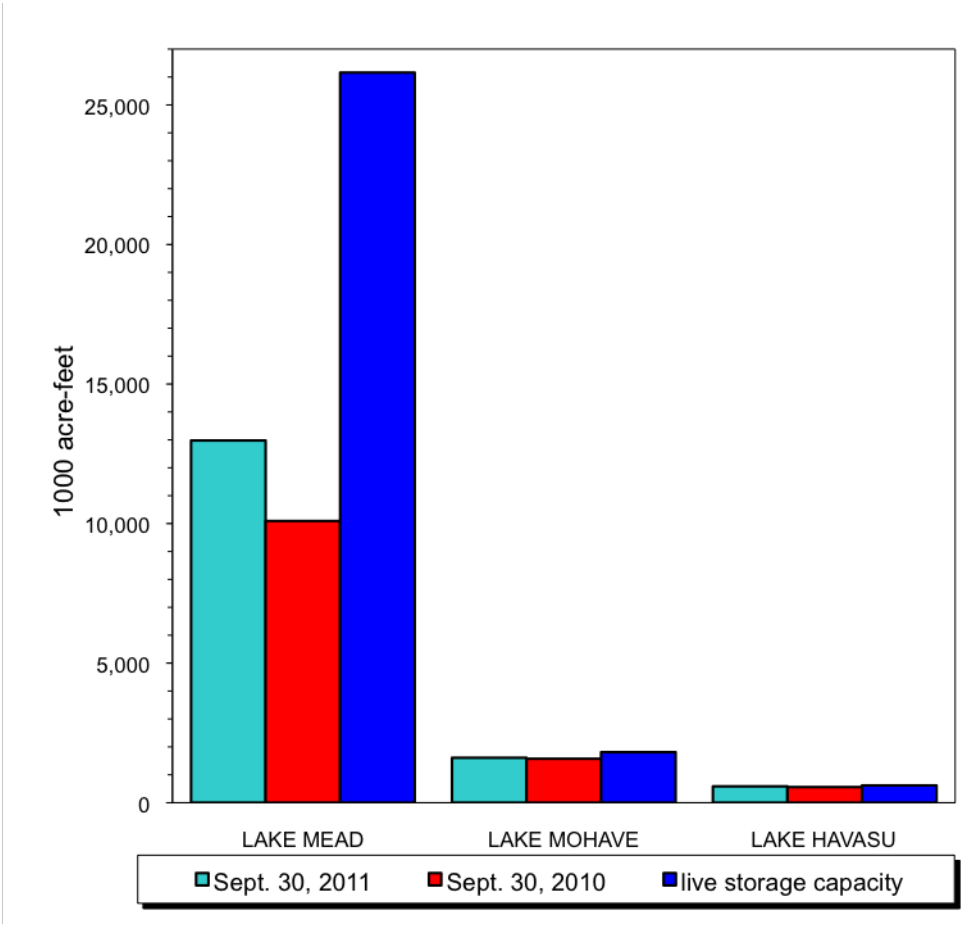

Blue Mesa
Live Storage Capacity - 829,000 acre-feet
Power Generation Capacity - 96,000 KW
Live Storage 9/30/11 - 699,100 acre-feet
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
7540
7520
7500
7480
7460
7440
Maximum Storage Elev. = 7519.4 ft (Content = 940,755 a.f.)
Rated Head Elev. = 7438 ft. (Content = 360,627 a.f.)
Water Surface Elevation (feet)
Outflow (1000 cfs)
6
5
4
3
2
1
0
Blue Mesa Reservoir
Water Year 2011

Storage In Principal Reservoirs - Water Year 2011

Lower Basin

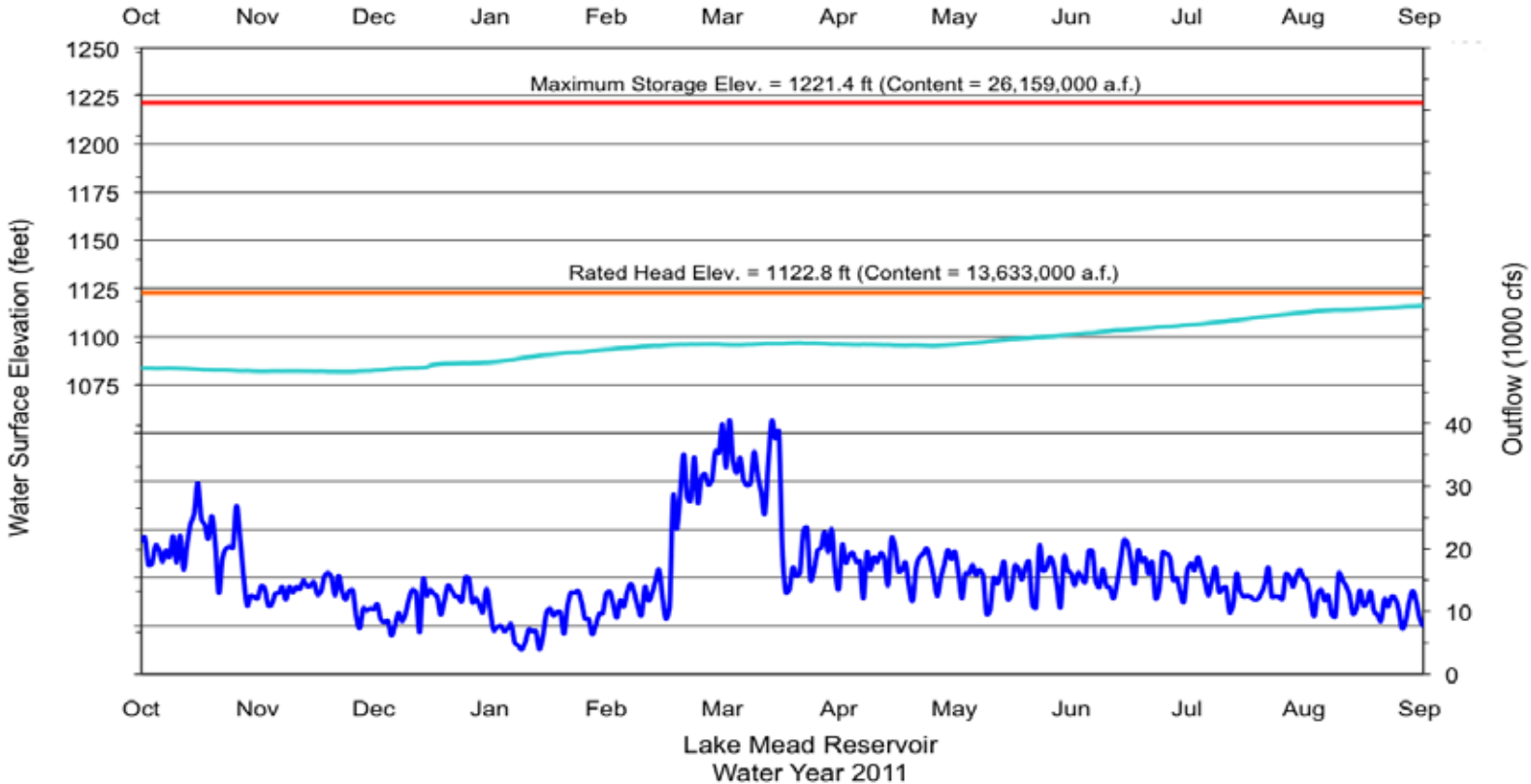
Live Storage Contents

Reservoir	Sept. 30, 2011 (acre-feet)	Percent Live Capacity	Sept. 30, 2010 (acre-feet)	Percent Live Capacity	Change in Contents (acre-feet)
LAKE MEAD	12,977,000	49.6%	10,092,000	38.6%	2,885,000
LAKE MOHAVE	1,610,000	89.0%	1,574,800	87.0%	35,200
LAKE HAVASU	585,400	94.6%	560,200	90.5%	25,200
TOTAL	15,172,400		12,227,000		2,945,400



Lake Mead - Hoover Dam

Live Storage Capacity - 26,159,000 acre feet
Power Generation Capacity - 1,914,000 KW
Live Storage 9/30/11 - 12,977,000 acre-feet



3. Flows of Colorado River

Table 3 on page 23 and 24 shows the estimated virgin flow of the Colorado River at Lee Ferry, Arizona for each water year from 1896 through 2011. Column (4) of the table shows the average virgin flow for any given year within the period computed through water year 2011. Column (5) shows the average virgin flow for a given year within the period computed since water year 1896. Column (6) shows the average virgin flow for each progressive ten-year period beginning with the ten-year period ending on September 30, 1905. The difference between the virgin flow for a given year and the average flow over the 116-year period, 1896 through 2011 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 2011. The historic flow for each progressive ten-year period from 1954 through 2011, 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, 2011 was 89,640,000 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 million 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 14.8 million acre-feet) shows the long-term average virgin flow from 1896 through 2011. 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 25 and 26.

(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, 1896-2011, the estimated average annual virgin flow is 14.8 million acre-feet, and the average annual historic flow is 11.8 million acre-feet.

(5) For the next longest period, 1906-2011, the estimated average annual virgin flow is 14.8 million acre-feet, and the average annual historic flow is 11.7 million acre-feet. Many of the early records for this series of years as well as for the 1896-2011 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 1914-2011 periods is 14.6 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 1922-2011, which is the period of record since the signing of the Colorado River Compact, the average annual virgin flow is 14.2 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 48 years is 14.4 million acre-feet. The estimated historical flow for the same period (1964-2011) is 9.8 million acre-feet.

4. Colorado River Basin Salinity Control 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 for salinity, which include numeric criteria and a plan of implementation, to meet the Environmental Protection Agency Regulation (40 CFR Part 120 Water Quality Standards-Colorado River System: Salinity Control Policy and Standards Procedures).

Section 303 of the Clean Water Act requires that water quality standards be reviewed from time to time and at least once during each three-year period. Last year the Forum reviewed and updated its Water Quality Standards for Salinity (2011 Review). It found no need to change the existing State-adopted and Environmental Protection Agency-approved numeric salinity criteria at the three lower mainstem stations which are as follows:

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

It then updated its plan of implementation. 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 between 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 a need to control about 650,000 additional tons by the year 2030. The Salinity Control Program cannot 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 2011	(2) Year Ending Sept. 30	(3) Estimated Virgin Flow	(4) Average to 2011	(5) Average Since 1896	(6) Progressive 10-year Moving Average	(7) Virgin Flow Minus 112-year Average
116	1896	10.1	14.8	10.1	0.0	-4.7
115	1897	18.0	14.8	14.1	0.0	3.2
114	1898	13.8	14.8	14.0	0.0	-1.0
113	1899	15.9	14.8	14.5	0.0	1.1
112	1900	13.2	14.8	14.2	0.0	-1.6
111	1901	13.6	14.8	14.1	0.0	-1.2
110	1902	9.4	14.8	13.4	0.0	-5.4
109	1903	14.8	14.8	13.6	0.0	0.0
108	1904	15.6	14.8	13.8	0.0	0.8
107	1905	16.0	14.8	14.0	14.0	1.2
106	1906	19.1	14.8	14.5	14.9	4.3
105	1907	23.4	14.8	15.2	15.5	8.6
104	1908	12.9	14.7	15.1	15.4	-1.9
103	1909	23.3	14.7	15.7	16.1	8.5
102	1910	14.2	14.6	15.6	16.2	-0.6
101	1911	16.0	14.6	15.6	16.5	1.2
100	1912	20.5	14.6	15.9	17.6	5.7
99	1913	14.5	14.6	15.8	17.6	-0.3
98	1914	21.2	14.6	16.1	18.1	6.4
97	1915	14.0	14.5	16.0	17.9	-0.8
96	1916	19.2	14.5	16.1	17.9	4.4
95	1917	24.0	14.5	16.5	18.0	9.2
94	1918	15.4	14.3	16.4	18.2	0.6
93	1919	12.5	14.3	16.3	17.2	-2.3
92	1920	22.0	14.4	16.5	17.9	7.2
91	1921	23.0	14.3	16.8	18.6	8.2
90	1922	18.3	14.2	16.8	18.4	3.5
89	1923	18.3	14.1	16.9	18.8	3.5
88	1924	14.2	14.1	16.8	18.1	-0.6
87	1925	13.0	14.1	16.6	18.0	-1.8
86	1926	15.9	14.1	16.6	17.7	1.1
85	1927	18.6	14.1	16.7	17.1	3.8
84	1928	17.3	14.0	16.7	17.3	2.5
83	1929	21.4	14.0	16.8	18.2	6.6
82	1930	14.9	13.9	16.8	17.5	0.1
81	1931	7.8	13.9	16.5	16.0	-7.0
80	1932	17.2	14.0	16.6	15.9	2.4
79	1933	11.4	13.9	16.4	15.2	-3.4
78	1934	5.6	13.9	16.1	14.3	-9.2
77	1935	11.6	14.1	16.0	14.2	-3.2
76	1936	13.8	14.1	16.0	14.0	-1.0
75	1937	13.7	14.1	15.9	13.5	-1.1
74	1938	17.5	14.1	16.0	13.5	2.7
73	1939	11.1	14.0	15.8	12.5	-3.7
72	1940	8.6	14.1	15.7	11.8	-6.2
71	1941	18.1	14.2	15.7	12.9	3.3
70	1942	19.1	14.1	15.8	13.1	4.3
69	1943	13.1	14.0	15.7	13.4	-1.7
68	1944	15.2	14.1	15.7	14.1	0.4
67	1945	13.4	14.0	15.7	14.4	0.4
66	1946	10.4	14.0	15.6	14.0	-1.4
65	1947	15.5	14.1	15.6	14.2	-4.4
64	1948	15.6	14.1	15.6	14.0	0.7
63	1949	16.4	14.1	15.6	14.5	1.6
62	1950	12.9	14.0	15.6	15.0	-1.9
61	1951	11.6	14.0	15.5	14.3	-3.2
60	1952	20.7	14.1	15.6	14.5	5.9
59	1953	10.6	14.0	15.5	14.2	-4.2
58	1954	7.7	14.0	15.4	13.5	-7.1

Table 3

ESTIMATED VIRGIN FLOW AT LEE FERRY

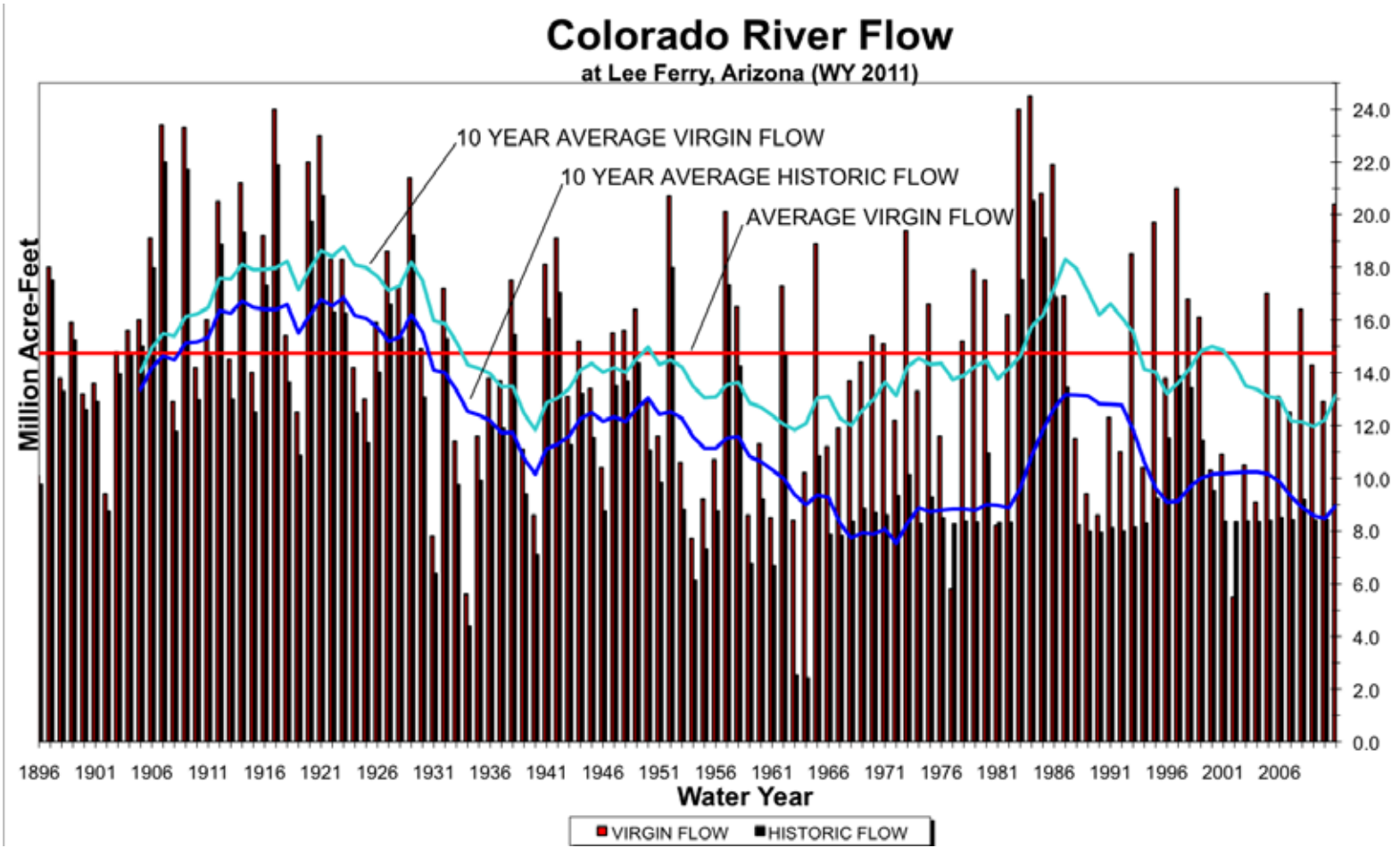
(million acre-feet)

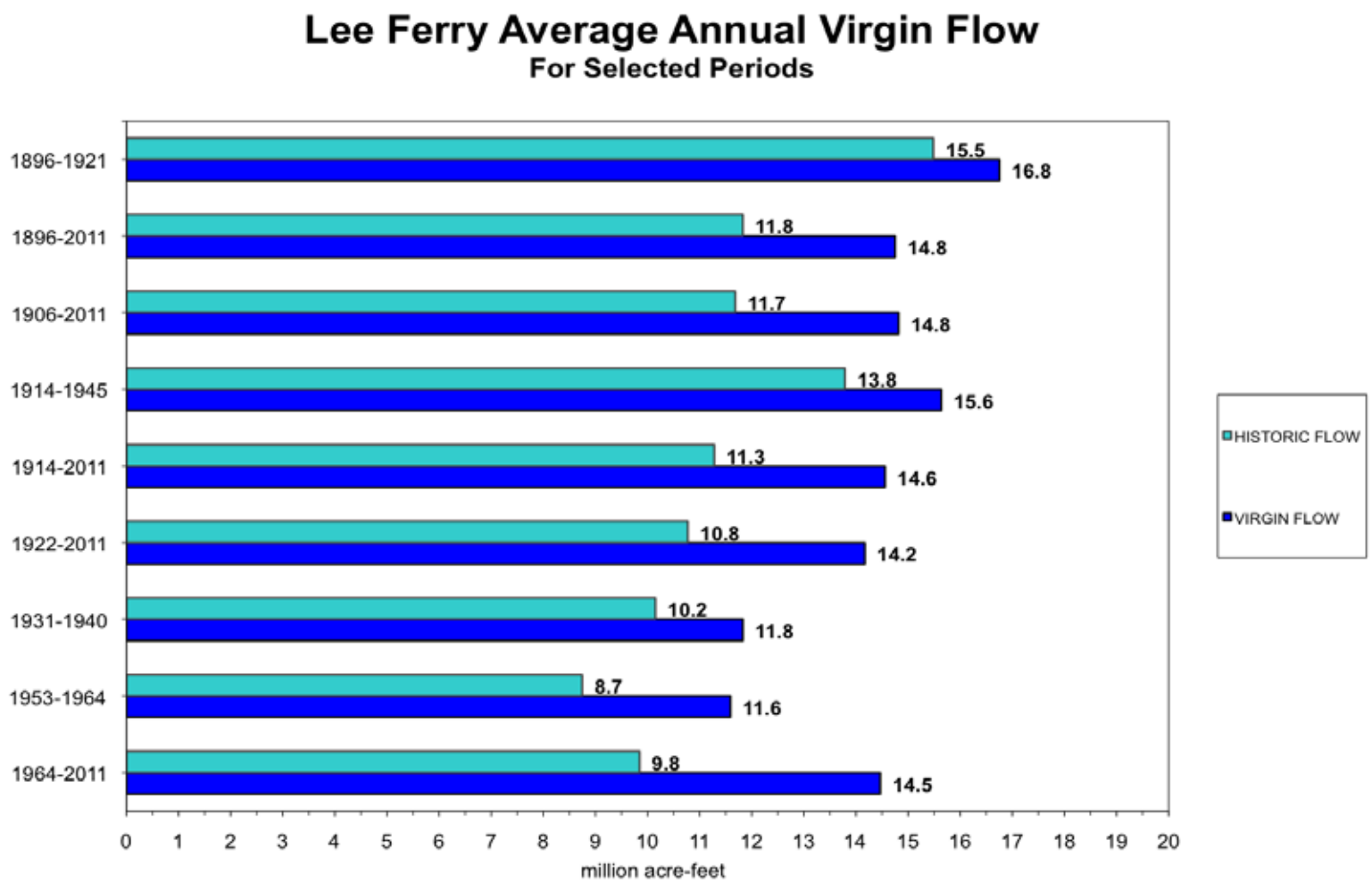
(1) Years to 2011	(2) Year Ending Sept. 30	(3) Estimated Virgin Flow	(4) Average to 2011	(5) Average Since 1896	(6) Progressive 10-year Moving Average	(7) Virgin Flow Minus 111-year Average
57	1955	9.2	14.1	15.3	13.1	-5.6
56	1956	10.7	14.2	15.2	13.1	-4.1
55	1957	20.1	14.3	15.3	13.6	5.3
54	1958	16.5	14.2	15.3	13.6	1.7
53	1959	8.6	14.1	15.2	12.9	-6.2
52	1960	11.3	14.2	15.1	12.7	-3.5
51	1961	8.5	14.3	15.0	12.4	-6.3
50	1962	17.3	14.4	15.0	12.1	2.5
49	1963	8.4	14.4	15.0	11.8	-6.4
48	1964	10.2	14.5	14.9	12.1	-4.6
47	1965	18.9	14.6	14.9	13.1	4.1
46	1966	11.2	14.5	14.9	13.1	-3.6
45	1967	11.9	14.5	14.8	12.3	-2.9
44	1968	13.7	14.6	14.8	12.0	-1.1
43	1969	14.4	14.6	14.8	12.6	-0.4
42	1970	15.4	14.6	14.8	13.0	0.6
41	1971	15.1	14.6	14.8	13.7	0.3
40	1972	12.2	14.6	14.8	13.1	-2.6
39	1973	19.4	14.7	14.9	14.2	4.6
38	1974	13.3	14.5	14.8	14.6	-1.5
37	1975	16.6	14.6	14.9	14.3	1.8
36	1976	11.6	14.5	14.8	14.4	-3.2
35	1977	5.8	14.6	14.7	13.8	-9.0
34	1978	15.2	14.9	14.7	13.9	0.4
33	1979	17.9	14.8	14.8	14.3	3.1
32	1980	17.5	14.8	14.8	14.5	2.7
31	1981	8.2	14.7	14.7	13.8	-6.6
30	1982	16.2	14.9	14.7	14.2	1.4
29	1983	24.0	14.8	14.8	14.6	9.2
28	1984	24.5	14.5	14.9	15.8	9.7
27	1985	20.8	14.1	15.0	16.2	6.0
26	1986	21.9	13.9	15.1	17.2	7.1
25	1987	16.9	13.6	15.1	18.3	2.1
24	1988	11.5	13.4	15.1	17.9	-3.3
23	1989	9.4	13.5	15.0	17.1	-5.4
22	1990	8.6	13.7	14.9	16.2	-6.2
21	1991	12.3	13.9	14.9	16.6	-2.5
20	1992	11.0	14.0	14.9	16.1	-3.8
19	1993	18.5	14.2	14.9	15.5	3.7
18	1994	10.4	13.9	14.9	14.1	-4.4
17	1995	19.7	14.1	14.9	14.0	4.9
16	1996	13.8	13.8	14.9	13.2	-1.0
15	1997	21.0	13.8	15.0	13.6	6.2
14	1998	16.8	13.3	15.0	14.2	2.0
13	1999	16.1	13.0	15.0	14.8	1.3
12	2000	10.3	12.7	14.9	15.0	-4.5
11	2001	10.9	13.0	14.9	14.9	-3.9
10	2002	5.5	13.2	14.8	14.3	-9.3
9	2003	10.5	14.0	14.8	13.5	-4.3
8	2004	9.1	14.5	14.7	13.4	-5.7
7	2005	17.0	15.2	14.7	13.1	2.2
6	2006	13.1	14.9	14.7	13.0	-1.7
5	2007	12.5	15.3	14.7	12.2	-2.3
4	2008	16.4	16.0	14.7	12.1	1.6
3	2009	14.3	15.9	14.7	12.0	-0.5
2	2010	12.9	16.7	14.7	12.2	-1.9
1	2011	20.4	16.7	14.8	13.2	5.6
Maximum		24.5			18.8	
Minimum		5.5			11.8	
Average		14.8			14.8	

Table 4
HISTORIC FLOW AT LEE FERRY
1954-2011

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	128382
1991	8,132	128198
1992	8,023	127898
1993	8,137	118515
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

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 (WY 2011)
10 YEAR AVERAGE VIRGIN FLOW
10 YEAR AVERAGE HISTORIC FLOW
AVERAGE VIRGIN FLOW
Million Acre-Feet
24.0
22.0
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
1896 1901 1906 1911 1916 1921 1926 1931 1936 1941 1946 1951 1956 1961 1966 1971 1976 1981 1986 1991 1996 2001 2006
Water Year
VIRGIN FLOW
HISTORIC FLOW


Lee Ferry Average Annual Virgin Flow
For Selected Periods
1896-1921
15.5
16.8
1896-2011
11.8
14.8
1906-2011
11.7
14.8
1914-1945
13.8
15.6
1914-2011
11.3
14.6
1922-2011
10.8
14.2
1931-1940
10.2
11.8
1953-1964
8.7
11.6
1964-2011
9.8
14.5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
million acre-feet
HISTORIC FLOW
VIRGIN FLOW

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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 Case

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

Montana v. Wyoming and North Dakota, 563 U.S. __, 131 S.Ct. __, 179 L.Ed.2d 799, 2011 U.S. LEXIS 3369 (2011).

This case arises out of a dispute between Montana and Wyoming over the Yellowstone River Compact. Montana alleges that Wyoming has breached Article V(A) of the Compact by allowing its pre-1950 water appropriators to increase their net water consumption by improving the efficiency of their irrigation systems. Montana alleges that the new systems use sprinklers that reduce the amount of wastewater returned to the river, thus depriving Montana's downstream pre-1950 appropriators of water to which they are entitled under the Compact. The Special Master in the case filed a First Interim Report determining that Montana's allegation fails to state a claim, because more efficient irrigation systems are permissible under the Compact as long as the conserved water is used to irrigate the same acreage watered in 1950. Montana filed an exception to the Special Master's rejection of its increased-efficiency allegation, and it is that exception that was before the Supreme Court. Justice Thomas, writing for the majority, begins with an overview of the prior appropriation doctrine. After examining the law of both Montana and Wyoming, the Court finds that (1) improvements to irrigation systems "seem to be the sort of changes that fall outside the no-injury rule," which prevents appropriators from making certain water-right changes that would harm other appropriators; and (2) both states appear to apply, without qualification, the basic doctrine that the original appropriator may freely recapture his used water while it remains on his property and reuse it for the same purpose on the same land. The Court also rejects Montana's argument that the Compact's definition of "beneficial use" restricts the scope of protected pre-1950 appropriative rights to the net volume of water that was actually being consumed in 1950, holding that (1) if the definition were meant to drastically redefine the term "into shorthand for net water consumption," the Court would expect "far more clarity"; and (2) if Article V(A) were intended to guarantee Montana a set quantity of water, it could have done so as plainly as other water compacts the Court examines, including the Colorado River Compact, have done. For these reasons, the Court agrees with the Special Master that the doctrine of appropriation in both states allows appropriators to improve the efficiency of their irrigations systems, even to the detriment of downstream appropriators, so Montana's allegation that Wyoming has breached Article V(A) of the Compact by allowing its pre-1950 water users to increase their irrigation efficiency fails to state a claim. Montana's first exception to the Special Master's First Interim Report is overruled.

Grand Canyon Trust v. U. S. Bureau of Reclamation, No. CV-07-8164-PHX-DGC (D. Ariz. March 29, 2011).

The District Court issues his final Order in this case that first began in December of 2007. In this Order, the court rules on the motion of plaintiff Grand Canyon Trust (Trust) to vacate the Court's previous rulings on Claims 1, 2 and 9 and on motions for summary judgment by both parties on Claims 3, 12 and 13. The Court first rules on the Trust's motion to vacate the Court's prior rulings on Claims 1, 2 and 9 on the ground that the decision by defendant Bureau of Reclamation (Reclamation) to cancel mechanical removal of non-native trout in May and June of 2010 rendered the 2009 Biological Opinion invalid. The Court denies the motion to vacate, holding that (1) defendants Reclamation and Fish and Wildlife Service (FWS) completed renewed consultation concerning cancellation of removal trips in response to concerns expressed by Indian tribes, and

FWS issued an opinion concluding that cancellation of the removal trips will not jeopardize or improperly take the chub or adversely modify its critical habitat; (2) the science does not support a conclusion that the chub population will decline merely because the mechanical removal of trout has been cancelled for one year, because studies intimate that the chub population began to increase before mechanical removal began, suggesting that the increase was due to factors other than, and independent of, trout removal; (3) the parties were all aware of cancellation of the removal trips before they briefed the issues the Court addressed in the last Order in this case; (4) the Trust argues that FWS had not issued a Biological Opinion on cancellation of the removal trip, but FWS has now issued the Biological Opinion, rending the Trust's arguments moot; and (5) the Trust asserts that mechanical removal has been suspended indefinitely, but the Court disagrees, finding that trout removal is the subject of ongoing consultation between Reclamation and FWS, and the Court will not find the agencies to be acting arbitrarily and capriciously on the basis of a decision to stop mechanical removal altogether, which they have not yet made. In Claim 12, the Trust alleges that FWS' 2010 Incidental Take Statement (ITS) violates the Endangered Species Act (ESA) and Administrative Procedure Act (APA). The Court grants summary judgment to defendants on Claim 12, finding that (1) FWS reached a rational conclusion, and therefore has not acted arbitrarily or capriciously, in concluding that take of the humpback chub cannot be quantified due to the small size of the individual chub likely to be affected, the large size and remoteness of the action area and the fact that, in part, the take involves ingestion of chub by non-native fish; (2) FWS has reasonably concluded that any drop in the adult population of chub below 6,000, except one clearly resulting from an identifiable non-Modified Low Fluctuating Flow (MLFF) cause such as a specific parasite or disease, would signify an excessive take of young chub sufficient to warrant the reopening of consultation, and this 6,000 adult chub trigger constitutes a reasonable measure of the effects of Glen Canyon Dam operations on the chub, particularly given the remote location of the chub's habitat and the fact that actual take of young and larval chub cannot be quantified; (3) mechanical removal of chub is not the only conservation measure FWS identifies that would minimize take of the chub; rather, the 2008 Experimental Plan also includes steps to minimize variations in flow between months that can adversely affect backwater habitat, a Nearshore Ecology Study to examine the effects of flow variations on nearshore chub habitat, creation of a chub refuge, a high-water release in March of 2008 to build beach and backwater habitat and steady flows in September and October of each year from 2008 to 2012. Claim 13 alleges that FWS violated NEPA when it issued its 2010 ITS without first preparing an Environmental Assessment or Environmental Impact Statement. The Court states that he addressed a similar contention in Claim 10, which was directed at FWS' 2009 ITS. As he did on Claim 10, the Court grants summary judgment for FWS on Claim 13, finding that it is Reclamation, the agency that will implement the action authorized by the 2010 ITS, and not FWS, the consulting agency, that bears the burden of NEPA compliance. Claim 3 alleges that Dam operations under the MLFF regime constitute an illegal take of the chub in violation of the ESA. The Court grants summary judgment for defendants on this claim, finding that FWS has issued a valid 2010 Biological Opinion and ITS that address cancellation of Reclamation's mechanical trout removal trips and take that occurs when larval chub are washed from the Little Colorado River into the mainstem from April through June and die in the cold water of the mainstem. Finally, the Court orders that this ruling resolves all outstanding claims in this case, and the Court's decisions in Trust I, II and III and this Order are deemed final judgments for purposes of appeal. The Court directs his clerk to terminate this action.

3. Legislation

In the First Session of the 112th Congress (without regard to the water year), Congress enacted the following statutes that are important to the Upper Colorado River Basin States:

Public Law 112-55, approved November 18, 2011, making consolidated appropriations for the Departments of Agriculture, Commerce, Justice, Transportation and Housing and Urban Development and related programs for the fiscal year ending September 30, 2012.

Public Law 112-52, approved November 9, 2011, to direct the Secretary of the Interior to allow for prepayment of repayment contracts between the United States and the Uintah Water Conservancy District.

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 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 63rd report and earlier annual reports of the Upper Colorado River Commission. Progress in construction, 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, 2010, to September 30, 2011), fiscal year (October 1, 2010, to September 30, 2011), and calendar year (2011) is 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 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 is about 7,650 adult 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 (NEPA) 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

Previous high-flow experiments were conducted in 1996, 2004, and 2008. Each experimental release has 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.

Preliminary data collected from the 2008 high-flow experiment show 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 will continue through 2012. The purpose of this experiment is 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 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 GCMRC in February 2011) comparing the 1996, 2004, and 2008 high-flow experiments will assist the Glen Canyon Dam Adaptive Management Work Group in formulating recommendations on future experimental flows. 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 2011

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.

A *Federal Register* Notice published on December 31, 2009, provided the public with initial information regarding the development and purpose of the Protocol. The Department of the Interior is developing, and if appropriate, implementing the Protocol through an EA and public process pursuant to compliance with the National Environmental Policy Act. The draft EA was provided to the public for two rounds of review prior to being published and released on December 30, 2011. A decision notice is expected in the spring of 2012. 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 resource 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.

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. Mechanical removal has been used for this purpose previously, but other methods are being evaluated 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 conducted two public comments periods in early and mid-2011 and finalized the EA on December 30, 2011. Reclamation received a final biological opinion on the proposed action from the U.S. Fish and Wildlife Service on December 23, 2011, and anticipates a decision notice in the spring of 2012.

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 (LTEMP) for Glen Canyon Dam. The National Park Service will be a co-lead with Reclamation 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.

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 have been invited to be cooperating agencies. Currently, there are 14 cooperating agencies who have accepted an invitation to participate in the LTEMP EIS process. At the close of the public scoping period, over 440 comment letters and e-mails were received. Comments are being evaluated and a scoping report will be prepared to summarize the issues and concerns identified. It is anticipated that the scoping report will be available in March 2012. The LTEMP EIS supersedes the Long-Term Experimental Plan (LTEP) EIS that was partially developed during 2006-2007 and then put on hold. 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.

h. Recreational Use

The extensive use of the Glen Canyon National Recreation Area (NRA), which surrounds Lake Powell, is demonstrated by the visitation of 2,311,820 people for calendar year 2011. This is an increase of 8 percent over visitation in 2010. 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.

Visitation at Rainbow Bridge as of December 2011 was reported by the National Park Service to be 138,470 (a 25 percent increase from 2010). 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 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

(i). Invasive Mussel Control

In July 2007, it appeared that non-native larval quagga (or zebra) mussels were detected in the waters of Lake Powell near Glen Canyon Dam and Wahweap marina. Subsequent test results have not confirmed the presence of the invasive mussels. However, the National Park Service and the states of Arizona and Utah have instituted an aggressive prevention program. Effective November 1, 2009, self-certification of watercraft is no longer an option at Wahweap Main and Bullfrog launch ramps. Screening for invasive mussels by trained personnel is now mandatory for all boats and other types of watercraft at these two ramps. Boat ramps are closed after hours when booths are not operated and launching is prohibited. In other areas of the park, all visitors bringing a boat into the NRA must display a self-certification slip on their windshields proclaiming their boat is free of both quagga and zebra mussels and re-certification is required with each new visit. Failure to display the certificate could result in a mandatory court appearance, up to 6 months in jail, and a $5,000 fine.

In addition to mandatory screening, an interagency Zebra Mussel Prevention Task Force was put in place and is meeting monthly to discuss strategies, gather information, and assess risks and pathways of potential infection. Reclamation is a part of that task force and the Glen Canyon NRA is coordinating efforts with a variety of partners to prevent invasive mussels in Lake Powell. The National Park Service, as manager of the NRA, conducts a very aggressive and effective aquatic invasive species program. During 2011, the National Park Service spent over $1,000,000 to manage the program. The Utah Division of Wildlife Resources provided a $22,000 grant to assist the National Park Service with the program.

2. Flaming Gorge Unit

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

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 2011

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

An interagency agreement between the Ashley National Forest (U.S. Forest Service) and the Bureau of Reclamation for management of the primary jurisdiction area (visitor center, dam, Reclamation warehouses, and some water treatment facilities) was signed in 2004 and will be in effect for 10 years with a potential to renew after that 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 2007 and it was estimated that visits totaled 962,000 for that year. While the U.S. Forest Service does visitor statistic samplings at selected forests each year; the 2007 use figure is the latest figure available for the Ashley National Forest.

(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 U.S. Forest Service has contributed funding toward invasive mussel control. Biology technicians ensure that boaters comply with laws directed at controlling the spread of aquatic invasive species and water samples are collected to determine if water bodies harbor invasive mussels.

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.

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 2011

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)[6]. 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).

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[6] In 2011, the Colorado Division of Parks and Outdoor Recreation merged with the Colorado Division of Wildlife to form the Colorado Division of Parks and Wildlife.

Navajo Dam, New Mexico, Courtesy of Bureau of Reclamation

(i). Invasive Mussel Control

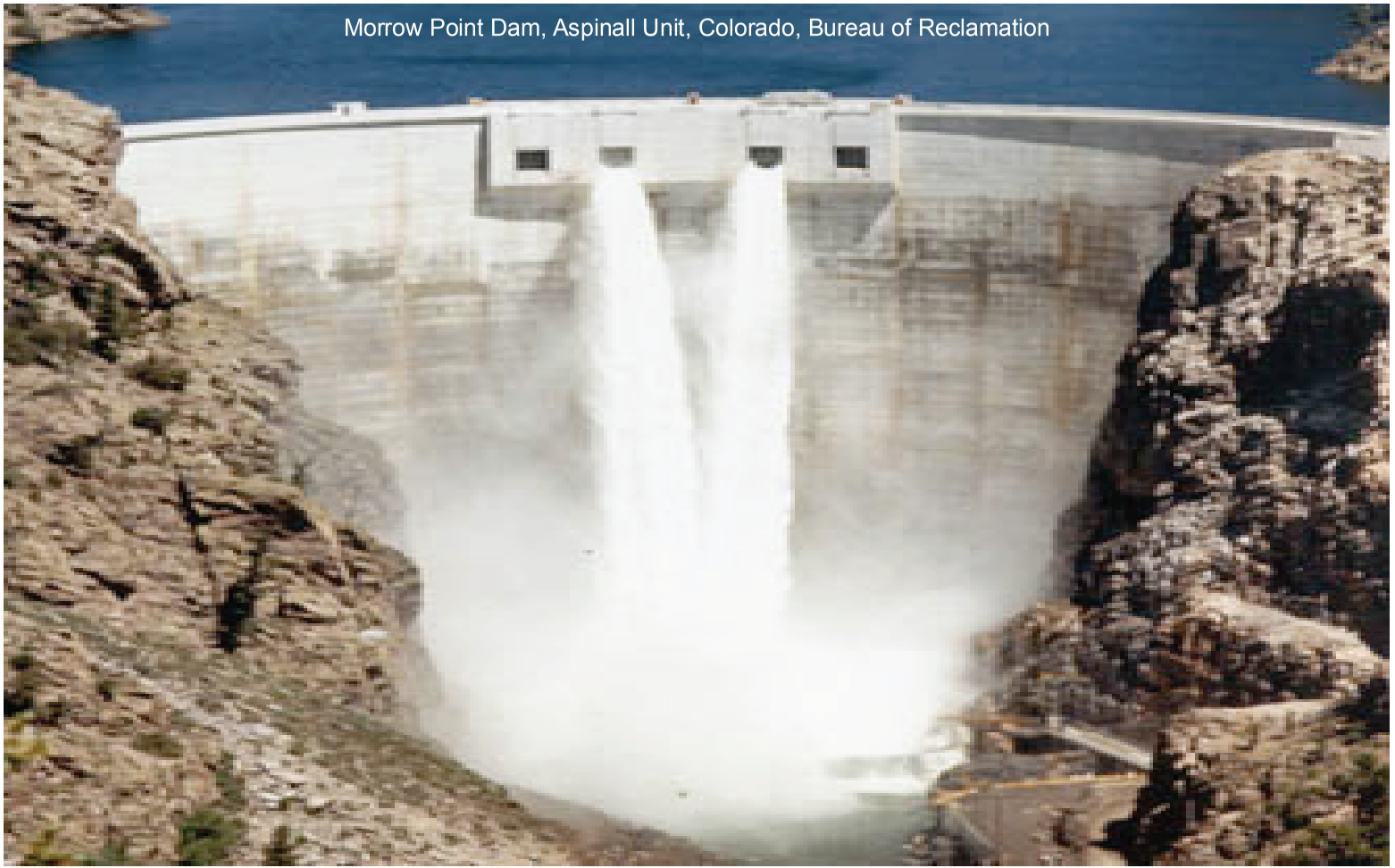
Reclamation is working closely with both recreation managing entities to develop effective solutions to manage the spread of invasive mussels including educating the public and providing materials such as signs and brochures. The CDPW is conducting boat inspections and has a portable boat wash and decontamination 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 talks have been initiated with them to determine how best to continue the inspection and decontamination program. In late 2011, on the New Mexico side of the reservoir, one of the plankton samples showed the potential presence of invasive mussels; however, subsequent DNA testing by two different laboratories was inconclusive. The reservoir is considered suspect at this time and increased monitoring is being implemented. No adult mussels have been found in either Colorado or New Mexico.

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 is scheduled to be published on February 27, 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 is scheduled to be issued in April 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.


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

a. Aspinall Unit Operations During 2011

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 in 2011 was reported to be 924,468 as of December 31, which is a 5 percent decrease over 2010 numbers. 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 (HR 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.

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. Because of the differences in the way visitation data is gathered, and the disparate timeframes that it is gathered in, it is not possible to offer a true number of estimated visits for 2011. However, based upon past trends, it is safe to say that Glen Canyon received the most visitors followed by Flaming Gorge, Curecanti, and Navajo (both sides). Angling use on the reservoirs appears to be constant while demand and use for the tailwaters is increasing dramatically (Reclamation does not gather specific data on angler usage at its reservoirs).

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 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. While the reservoir claims the big ones, the Green River below Flaming Gorge Dam boasts one of the nation's finest "blue ribbon" trout streams. Fish populations in the river have been counted as high as 22,000 per river mile.

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

The 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. The Aspinall Unit reservoirs boast the largest kokanee salmon fishery in the United States.

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 "blue ribbon" trout fishing that many view as some of the best in the western United States. The Green River tailwater accounts for about one-half of the total use with the Colorado River tailwater, San Juan River tailwater, and Gunnison River tailwater accounting for the remainder.

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 7.32 billion kilowatt-hours during fiscal year 2011. The major portion, 5.72 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 2010 and 2011 and the percentage of change:

Table 5
Gross Generation (Kilowatt-Hours)
and Percentage of Change for
Fiscal Years 2010 and 2011

Powerplant	Fiscal Year 2010	Fiscal Year 2011	Percent Change
Glen Canyon	3,700,624,000	5,723,928,800	+54.7
Flaming Gorge	458,838,800	643,824,000	+40.3
Blue Mesa	219,124,600	305,676,600	+39.5
Morrow Point	280,740,000	399,702,000	+42.4
Crystal	154,803,400	167,202,236	+8
Fontenelle	38,240,000	57,073,400	+49.6
McPhee	4,711,536	5,597,853	+18.8
Towaoc	14,972,107	16,863,104	+12.6
Total	4,872,054,443	7,319,867,993	+50.2

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, 16 of the currently authorized 22 participating projects have been completed or are in the process of completion. Five of the remaining participating projects were deemed infeasible or economically unjustified and were never constructed, and the sixth was recently authorized for construction.

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, Wyoming and Utah,
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 16 completed participating projects:

Table 6
Completed Participating Projects

#	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.	Seedskadee	Wyoming	Fontenelle	1968
---	*Central Utah (Bonneville Unit)	Utah	Starvation	1970
10.	Bostwick Park	Colorado	Silver Jack	1971
11.	Lyman	Wyoming and Utah	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	Wyoming and Utah	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	---	---

*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. 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. 522) and the Reclamation Project Act of 1939 (43 U.S.C. 485h(c)). A lease of power privilege is an alternative to development of federal hydropower and grants the lessee the right to use, consistent with project purposes, a federal facility for non-federal electric power generation and sale by the lessee. 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.

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 the 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.

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 the 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. No adult mussels have been found in Colorado. Veliger larvae have been found in some Colorado reservoirs, but are not living long enough to reach adulthood.

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 1.284 megawatts. Towaoc Canal Powerplant is located on the Towaoc Canal, five miles north of Cortez, Colorado, in Montezuma County with an installed capacity of 11.495 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. No adult mussels have been found in Colorado. Veliger larvae have been found in some Colorado reservoirs, but are not living long enough to reach adulthood.

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 .12 megawatts. The powerplant was constructed and is operated by the Florida Water Conservancy District under a lease of power privilege contract.

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. No adult mussels have been found in Colorado. Veliger larvae have been found in some Colorado reservoirs, but are not living long enough to reach adulthood.

e. Fruitland Mesa Project

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

f. Fryingpan-Arkansas Project (“limited participating 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 current average imports are 56,875 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 is sometimes referred to as a “limited participating project” because it does utilize water diverted from the Upper Colorado River system to the eastern slope of Colorado. The Eastern Colorado

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

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 2003, Reclamation, the U.S. Fish and Wildlife Service, and the Colorado Water Conservation Board executed a long-term agreement (through the year 2012) described in the programmatic biological opinion to make 10,825 acre-feet per year of water available 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, 2011, were as follows: Ruedi Reservoir, 88,915 acre-feet; Turquoise Lake, 123,361 acre-feet; combined Mt. Elbert Forebay and Twin Lakes Reservoir, 126,476 acre-feet; and Pueblo Reservoir, 166,957 acre-feet. During water year 2011, transmountain diversions from the Colorado River Basin in Colorado by the Fryingpan-Arkansas Project via the Charles H. Boustead Tunnel totaled 98,858 acre-feet.

g. 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. No adult mussels have been found in Colorado. Veliger larvae have been found in some Colorado reservoirs, but are not living long enough to reach adulthood.

h. San Miguel Project

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

i. 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.

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. No adult mussels have been found in Colorado. Veliger larvae have been found in some Colorado reservoirs, but are not living long enough to reach adulthood.

j. 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. No adult mussels have been found in Colorado. Veliger larvae have been found in some Colorado reservoirs, but are not living long enough to reach adulthood.

k. 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 defines prerequisites for construction that include 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

The Navajo-Gallup Water Supply Project Planning Report and Final Environmental Impact Statement was published on July 6, 2009, and a Record of Decision was signed by the Secretary of the Interior on October 1, 2009, approving Reclamation's decision to proceed with the preferred alternative presented in the EIS. The Upper Colorado Regional Director has been delegated authority to plan, design, construct, operate, and maintain the project in substantial accordance with the preferred alternative; negotiate and execute required contracts; and allocate project delivery capacities and costs.

The Navajo-San Juan Water Rights Settlement Agreement among the Department of the Interior, Navajo Nation, and State of New Mexico was signed on December 17, 2010, and the Settlement Contract between the Navajo Nation and Reclamation was signed on that same date. Execution of the Water Rights Settlement Agreement and Settlement Contract satisfies the legislated deadline of December 31, 2010, required by P.L. 111-11. As of February 2012, all of the legislated construction prerequisites are in place with the exception of the repayment contract with the Jicarilla Apache Nation.

The Navajo-Gallup Water Supply Project will consist of two water treatment plants, 280 miles of pipeline, 24 pumping plants, and numerous 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 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.

The Navajo-Gallup Water Supply Project was recently 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. Construction is anticipated to begin in 2012. 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.

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.

Fifty years since its authorization, NIIP is only 70 percent complete and many of the project features now require rehabilitation. The primary issue affecting NIIP completion is insufficient construction funding which has been inconsistent throughout the history of the project. Insufficient funding adversely impacts Reclamation's ability to maintain adequate staffing levels, needed expertise, and established schedules for the design and construction of NIIP. Lack of funding also hinders the correction of construction deficiencies.

Navajo Indian Irrigation Project 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 77,685 acres of land are currently under irrigation. The farmland served by NIIP is operated by the Navajo Agricultural Products Industry (NAPI), an enterprise of the Navajo Nation, charged with managing and operating a commercial farm on lands held in trust for the Navajo Nation. During 2011, 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 NIIP. Pending these negotiations, the BIA suspended future Block 9 work and reduced the fiscal year 2011 NIIP funding transferred to Reclamation to $3 million. New baselines were developed for two NIIP investments; approval of the baselines is pending.

The fiscal year 2012 BIA appropriation that will be transferred to Reclamation is $2.291 million. The fiscal year 2012 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.

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 has been 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 the planning process for 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. The Utah Lake System is expected to be completed in 2012. 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 and Springville Reaches Complete
Mapleton – Springville Lateral	54	125 cfs	5.5 miles	Complete

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, and Reclamation for long-term management of the CUP.

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 public and private 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 and the Western Area Power Administration 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. Proposals were due on October 14, 2011. One proposal was submitted by the Central Utah Water Conservancy District, Strawberry Water Users Association, and South Utah Valley Electric Service District. A multi-agency evaluation team is reviewing the proposal and anticipates being able to announce selection of a potential lessee some time in 2012.

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 campground and day use area on the west side of the reservoir. The campground at Rock Cliff has been identified for recreation rehabilitation in an effort to increase use of the area with construction estimated to begin in 2013.

Due to intense private development pressure around the reservoir, a resource management planning process began in November 2010 and is estimated to conclude in April 2012. The Resource Management Plan will guide the development and management of land and recreation resources around the reservoir that are under Reclamation's jurisdiction.

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. In 2011, at Jordanelle Reservoir, over 6,500 boats were interdicted, inspected, and owners educated about the threat of invasive quagga and zebra mussels. Thirty-one boats were decontaminated and no boats were found to be encrusted with invasive mussels.

Strawberry Reservoir was enlarged in 1974 under authority of the Colorado River Storage Project Act of 1956 (before the enactment of CUPCA). 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. In 2011, at Strawberry Reservoir, over 4,700 boats were interdicted, inspected, and owners educated about the threat of invasive quagga and zebra mussels. No boats were found to be encrusted with invasive mussels.

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.


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

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 are currently undergoing rehabilitation with Phase 1 work completed in 2011. In 2011, 3,097 boats were interdicted, inspected, and owners educated about the threat of invasive quagga and zebra mussels. No boats entering Starvation Reservoir were found to be contaminated with quagga or zebra mussels.

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 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.

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 Reservoir showed evidence of quagga mussels. Since that time, no evidence of either quagga or zebra mussels has been detected. Therefore, the reservoir has been downgraded from “detected” to “inconclusive for the presence of invasive mussels.” All boats are decontaminated prior to leaving Red Fleet Reservoir. In 2011, over 1,600 boats were interdicted, inspected, and owners educated about the threat of invasive quagga and zebra mussels.

(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 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.

(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.

Recreation at Steinaker Reservoir is managed by the Utah Division of Parks and Recreation under an agreement with Reclamation. The park was opened to the public in 1964. 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. Planning for recreation facility rehabilitation is underway with construction scheduled to begin in 2014. In 2011, at Steinaker Reservoir, over 2,900 boats were interdicted, inspected, and owners educated about the threat of invasive quagga and zebra mussels.

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. Inspections for invasive mussels are ongoing at both reservoirs and no boats have been found to be contaminated.

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 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.

b. La Barge Project

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

c. Seedskadee Project

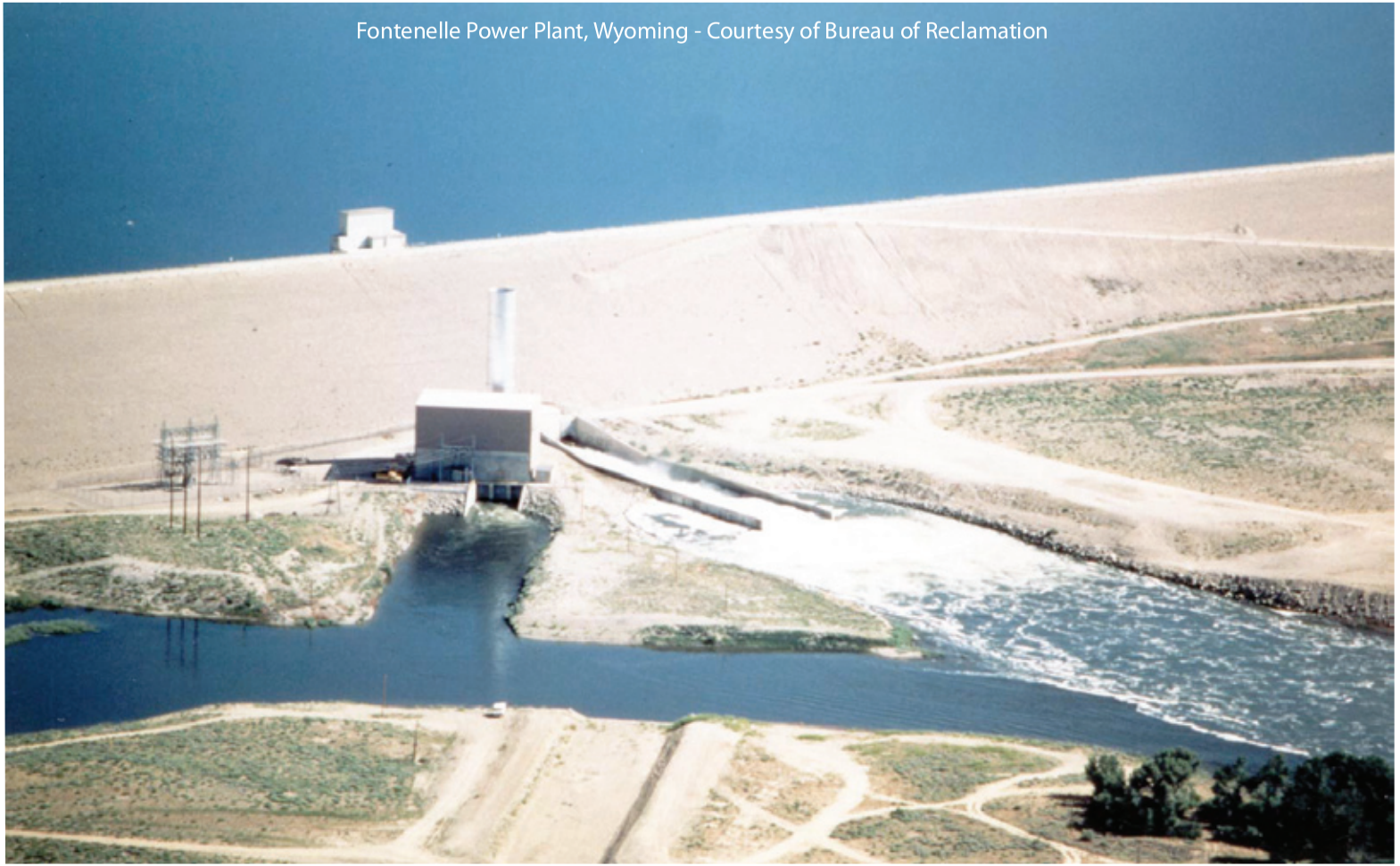
The Seedskadee Project is located in the Upper Green River Basin in southwestern Wyoming. It provides storage and regulation of the flows of the Green River for power generation, municipal and industrial use, fish and wildlife, and recreation. Principal features of the project are the Fontenelle Dam, 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.

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



Fontenelle Power Plant, Wyoming - Courtesy of Bureau of Reclamation

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.

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 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.

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 Colorado portion of the project is 99 percent complete and the Navajo National Municipal Pipeline is 57 percent complete. As of December 2011, the Animas-La Plata Project is 82 percent complete. Projected overall completion of the project is scheduled for fiscal year 2012 with project closeout scheduled for fiscal year 2013. Recent discussions with the Animas-La Plata Operations, Maintenance and Replacement Association, a group representing the interests of the project sponsors, have focused on transfer of the project from construction status to operations and maintenance status. An operation and maintenance contract has been signed with the Association that allows project sponsors to operate Colorado project features.

Durango Pumping Plant testing was completed on April 25, 2009, and Lake Nighthorse began filling on May 4, 2009. Lake Nighthorse filled for the first time on June 29, 2011. The maximum water surface elevation is 6,882 feet, which equates to 123,541 acre-feet in storage. Recreation development and management at Lake Nighthorse will be completed by a non-federal entity. In 2008, due to budget constraints, the Colorado Division of Parks and Wildlife formally declined interest in development and management of recreation at Lake Nighthorse as part of the state park system (state estimated cost at $20 to $30 million). The City of Durango is investigating its options regarding development, operation, and maintenance of the recreation area. In 2010 and 2011, Reclamation and the Animas-La Plata Water Conservancy District held public workshops to create a recreation plan for Lake Nighthorse. The final plan was released in the spring of 2011 and environmental compliance for the plan is being completed. Currently, the area in and around Lake Nighthorse remains closed to public use due to construction activities. It will remain closed until Reclamation finds 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.

When a managing partner is found 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. No adult mussels have been found in Colorado. Veliger larvae have been found in some Colorado reservoirs, but are not living long enough to reach adulthood.

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.

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.

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	141,510	July 2010 through June 2011
Curecanti National Recreation Area (Wayne N. Aspinall Unit)	924,468	January 1 through December 31, 2011
Currant Creek Reservoir	10,001	Calendar year 2006
Flaming Gorge National Recreation Area	---	Data not available
Fontenelle Reservoir	4,201	Fiscal year 2007
Fruitgrowers Reservoir	---	Data not available
Glen Canyon National Recreation Area	2,311,820	January 1 through December 31, 2011
Heron Reservoir	144,204	July 1, 2010, through June 30, 2011
Huntington North Reservoir	65,585	2011
Jackson Gulch Reservoir	45,152	July 2010 through June 2011
Joes Valley Reservoir	85,001	Fiscal year 2005
Jordanelle Reservoir	257,053	2011
Lemon Reservoir	6,959	July 2010 through June 2011
McPhee Reservoir	---	Data not available
Meeks Cabin Reservoir	2,501	2009
Nambe Falls Reservoir	32,345	Calendar year 2005
Navajo Reservoir (Colorado)	333,888	July 2010 through June 2011
Navajo Reservoir (New Mexico)	547,605	Calendar year 2009
Paonia Reservoir	24,616	July 2010 through June 2011
Red Fleet Reservoir	31,984	2011
Ridgway Reservoir	354,318	July 2010 through June 2011
Rifle Gap Reservoir	216,718	July 2010 through June 2011
Silver Jack Reservoir	---	Data not available
Starvation Reservoir	67,816	2011
Stateline Reservoir	6,001	Calendar year 2009
Steinaker Reservoir	83,845	2011
Strawberry Reservoir	459,037	Calendar year 2009
Taylor Reservoir	16,000	2009
Upper Stillwater Reservoir	45,001	Calendar year 2009
Vallecito Reservoir	19,425	July 2010 through June 2011
Vega Reservoir	192,225	July 2010 through June 2011

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

1. Colorado

a. Dominguez Project (Whitewater)

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

b. 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 are 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 as well. Fruitgrowers Reservoir also hosts the largest nesting colony of western grebes in Colorado and more than 200 species of birds have been sighted. It has been estimated by the Audubon Society that 26 percent of the greater sandhill crane stops at Fruitgrowers Reservoir during spring migration. In 1993, a watchable wildlife trail and viewing area were constructed near the reservoir. However, water quality issues have been a concern in the past and, as a result, the public has been discouraged from using the reservoir for boating and swimming activities.

c. 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 $0.75 million has been repaid by the Mancos Water Conservancy District (District). 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. In 2004, the District received a Water 2025 grant for $19,338 to test canal lining on 340 feet of the inlet canal. 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 jurisdiction 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. No adult mussels have been found in Colorado. Veliger larvae have been found in some Colorado reservoirs, but are not living long enough to reach adulthood.

d. 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. During 2007, third-party contracts pursuant to the Pine River Irrigation District contract were executed with the following parties: Happy Seasons Water System, Cottonwood Springs Ranch LLC, and Root Creek Water, Inc.

Recreation at Vallecito Reservoir is under the jurisdiction of the Pine River Irrigation District, through a contract with Reclamation, with the exception of the public campgrounds on the east side of the reservoir which are administered by the U.S. Forest Service. 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. No adult mussels have been found in Colorado. Veliger larvae have been found in some Colorado reservoirs, but are not living long enough to reach adulthood.

e. 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, 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 will be issued in March 2012.

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. No adult mussels have been found in Colorado. Veliger larvae have been found in some Colorado reservoirs, but are not living long enough to reach adulthood.

G. PLANNING INVESTIGATION ACTIVITIES

The Upper Colorado Region Planning Program budget for fiscal year 2011 was $794,000, with approximately 81 percent being directed within the Upper Colorado River Basin. Planning investigations continue under the Geographically Defined Program for northern Utah, southern Utah, Colorado, the San Juan River Basin, and the Navajo Nation. Reclamation also coordinates with other natural resource agencies on critical water resource related problems and issues with funds appropriated through the Environmental and Interagency Coordination account. Funds are also provided in the General Planning Activities account for Reclamation to conduct critical short-term investigation activities not funded by other programs and through Reclamation's WaterSMART (Sustain and Manage America's Resources for Tomorrow) Programs, including: West Wide Climate Risk Assessments, Landscape Conservation Cooperatives, Basin Studies, Rural Water, Climate Analysis Tools Grants, and System Optimization Review Grants. Under the WaterSMART Program, $3,125,163 has been funded to the Upper Colorado River Basin for 2011.

1. Colorado

a. Grand Valley Project

Reclamation, in cooperation with the Colorado River Water Conservation District and the Orchard Mesa Irrigation District (District), is conducting an evaluation of the District's irrigation delivery system (a component of Reclamation's Grand Valley Project). The objective of this evaluation is to improve the efficiency of this system, thus providing a more dependable water supply for District water users and potentially redirecting conserved water to address other human and/or environmental water needs. Reclamation, in cooperation with the Grand Valley Water Users Association (Association), recently completed a similar evaluation in the portion of the Grand Valley Project managed by the Association. Construction of the identified canal automation system was funded by the Upper Colorado River Endangered Fish Recovery Program. This effort has resulted in a 41,000 acre-foot average reduction in the Association's river diversions at an annual cost of approximately $15 per acre-foot. The reduced diversions provide a more dependable water supply for Colorado River water users within the State of Colorado and contribute to improved habitat conditions for endangered fish. Similar results are potentially available in the Orchard Mesa Irrigation District system. A cost-sharing agreement is being negotiated to fund construction of this canal automation project. Under the agreement, construction will be funded by the Upper Colorado Recovery Program and operation and maintenance costs will be cost shared among the State of Colorado, Colorado River Water Conservation District, Orchard Mesa Irrigation District, and the Recovery Program.

In fiscal year 2009, the Upper Colorado Recovery Program agreed to fund construction ($16.5 million) of the canal automation system for the Orchard Mesa Irrigation District with the condition that an acceptable cost-sharing arrangement be negotiated for the incremental operation and maintenance costs. Work is progressing on these negotiations. Additionally, the Colorado River Water Conservation District purchased approximately 15 acres of land on which a regulating reservoir will be constructed as part of the canal automation project. The State of Colorado has agreed to provide $1.5 million for the incremental operation and maintenance expenses associated with this project. Contracts are currently being finalized to provide for a fiscal year 2012 construction start. When completed, the project will redirect approximately 17,000 to 30,000 acre-feet of conserved water to enhance flow regimes in the Colorado River and generate additional hydropower at the Grand Valley Powerplant. The project will also provide a more secure water supply during periods of severe drought.

b. Regional Watershed Supply Project Environmental Impact Statement

In the spring of 2009, the U.S. Army Corps of Engineers (USACE) began the process for preparation of an environmental impact statement to analyze the proposed Regional Watershed Supply Project, a water marketing proposal by Aaron Million to divert water from either the Green River or Flaming Gorge Reservoir in Wyoming and convey it by pipeline to the Front Range of Colorado. The project would include construction of an intake structure from the Green River and/or Flaming Gorge Reservoir in Wyoming as well as pumping plants, pipelines, and possibly one or more reservoirs. Reclamation is a cooperating agency on preparation of the EIS, having been initially approached by Mr. Million in 2006 regarding a potential water service contract for water from Flaming Gorge Reservoir. Mr. Million subsequently applied to the USACE for a 404 permit pursuant to the Clean Water Act, hence their initiation of EIS preparation. The USACE estimates release of a draft EIS in 2016 and a final EIS in 2018.

2. New Mexico

a. Navajo Nation Investigations Program

In 2000, Reclamation signed a Memorandum of Understanding with the Navajo Nation to establish the foundation for a long-term partnership to provide assistance to the Nation in resolving its water resource related problems. The water resources of the Nation are severely limited and the lack of infrastructure and infrastructure deficiencies adversely impact the health, economy, and welfare of the Navajo people. The lack of adequate domestic, municipal, and industrial water is currently the Navajo Nation's greatest water resource problem. This program is focusing on identifying the domestic, municipal, and industrial water needs of each region of the reservation; evaluating the available resources; and developing appraisal-level alternatives to meet those needs. Specific studies to be conducted under this program are determined by the Navajo Nation and Reclamation in consultation with participating agencies. Due to funding constraints in fiscal year 2009, funding under this program was used to complete the Navajo-Gallup Water Supply Project Planning Report and Final Environmental Impact Statement, initiate cultural resource and endangered plant surveys, and initiate and participate in other Navajo-Gallup Water Supply Project pre-construction activities. No new work is being pursued as part of this program.

b. San Juan River Basin Investigations Program

The purpose of this ongoing program is to provide the framework for Reclamation to participate with other federal, state, and local entities to conduct studies and develop

alternatives to meet the long-term water needs of the San Juan River Basin. Development and population growth in the basin causes a continual increase in water demand and a general decrease in water quality. Growth in rural areas and on the Navajo and Southern Ute Indian Reservations has resulted in a large population without adequate domestic water supplies. During 2009, Reclamation continued to provide planning assistance to the La Plata West Water Authority to develop a rural domestic water system to supply the southwest portion of La Plata County, Colorado (including portions of the Ute Mountain and Southern Ute Indian Reservations), and a portion of San Juan County, New Mexico. All of the entities involved have Animas-La Plata Project water which will be stored in Lake Nighthorse, formed by the recently completed Ridges Basin Dam. Reclamation provided assistance to develop conceptual alternatives and appraisal-level designs and cost estimates for an intake structure at Lake Nighthorse. The result was that an intake structure was designed and constructed prior to the encroachment of storage water. Reclamation also provided assistance to the Animas Watershed Group to identify and quantify nutrient loading to the Animas River, a major tributary to the San Juan River. No new work is being pursued as part of this program.

3. 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 the 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. The proposed project would deliver approximately 100,000 acre-feet of water per year from Lake Powell, including 10,000 acre-feet to Kane County, 20,000 acre-feet to Iron County, and 70,000 acre-feet to Washington County, Utah, via a 135-mile pipeline, and would develop a portion of the State of Utah's Colorado River Compact allotment. Energy generation components include a potential 300-megawatt pumped storage unit and 51 megawatts of conventional hydro generating capacity. The State of Utah submitted a Notice of Intent to file an application for original license and the pre-application document to the Federal Energy Regulatory Commission (FERC) in March 2008. Public scoping for the project was completed in 2008. The State's resource studies were made available for public review in March 2011 and comments on the studies were due in May 2011. The State of Utah filed its responses to public comments in July 2011. The FERC accepted those responses and completed that part of the integrated licensing process. The State filed their revised draft studies with FERC on November 18, 2011, and public meetings on those studies were held on November 29 and 30, 2011. According to FERC's Project Manager, formal filing is 1.5 years away.

c. Rural Water Technology Alliance Investigation

Using monies from a congressional write-in, this investigation continues to develop tools to improve basinwide river operation through the selective use of technology (both hardware and software). Field installations are typically low cost, solar powered, and easy

to maintain. Participants in the investigation include the Emery Water Conservancy District, Duchesne County Water Conservancy District, and Sevier River Water Users Association. Also with an interest are the Bear River Commission, Strawberry Water Users Association, Scipio Irrigation Company, and the State of Wyoming (Upper Green River). The latter participants are funded through the WaterSMART program and state appropriations.

d. 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.

e. 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 supply 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. 2011 Hydrology Summary and Reservoir Status

Above average stream flows were observed throughout much of the Colorado River Basin during water year 2011. Unregulated[7] inflow to Lake Powell in water year 2011 was 16.79 million acre-feet (maf), or 139 percent of the 30-year average[8] which is 12.04 maf. Unregulated inflow to Flaming Gorge, Blue Mesa, and Navajo Reservoirs was 140, 117, and 66 percent of average, respectively.

Precipitation in the Upper Colorado River Basin was well above average during the period of October through December 2010, but was below average in January 2011. During the months of February through April 2011, precipitation was again well above average and by May 1, 2011, the overall accumulated water year precipitation received within the Upper Colorado River Basin was 125 percent of average. On September 30, 2011, the cumulative precipitation for water year 2011 was 122 percent of average.

Snowpack conditions trended near average in the northern reaches of the Colorado River Basin until December 2010. A significant storm in mid-December elevated the snowpack conditions to well above average and these above average conditions were sustained throughout the winter. Snowpack conditions in the southern reaches of the Colorado River Basin were also above average as a result of the mid-December storm; however, below

[7]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.

[8]Inflow statistics throughout this document will be compared to the 30-year average, 1971-2000, unless otherwise noted.

average precipitation during the months of January and February caused the snowpack conditions in the southern reaches to fall below average by early March 2011. On April 1, 2011, the snow water equivalents for the Green River, Upper Colorado River Headwater, and San Juan River Basins were 121, 131, and 81 percent of average, respectively. The overall snow water equivalent for the Upper Colorado River Basin above Lake Powell on April 1, 2011, was 119 percent of average.

During the 2011 spring runoff season, inflows to Lake Powell began to increase in April as temperatures increased across the basin. On June 12, 2011, inflows to Lake Powell peaked at approximately 96,600 cubic feet per second (cfs). During the spring runoff period Lake Powell storage increased by 5.80 maf. The April through July unregulated inflow volume for Lake Powell was 12.89 maf which was 162 percent of average based on the historic period from 1971 through 2000.

Inflow to Lake Powell has been below average in nine of the past 12 water years (2000-2011). Provisional calculations of the natural flow for the Colorado River at Lees Ferry, Arizona, show that the average natural flow since water year 2000 (2000-2011, inclusive) is 12.82 maf. This is the second lowest 12-year average in over 100 years of record keeping on the Colorado River.

Lower Basin tributary inflows above Lake Mead varied, with some below average and some above average for water year 2011. Tributary inflow from the Little Colorado River for water year 2011 totaled 0.048 maf, or 27 percent of the long-term average[9]. Tributary inflow from the Virgin River for water year 2011 totaled 0.362 maf, or 211 percent of the long-term average.

Tributary inflows in the Lower Colorado River Basin below Hoover Dam were below average during water year 2011. Total tributary inflow for water year 2011 from the Bill Williams River was 0.029 maf, or 29 percent of the long-term average, and total inflow from the Gila River was 0.005 maf[10].

The Colorado River total system storage experienced a net gain of 5.61 maf in water year 2011. Reservoir storage in Lake Powell increased during water year 2011 by 2.33 maf. Reservoir storage in Lake Mead increased during water year 2011 by 2.89 maf. At the beginning of water year 2011 (October 1, 2010), Colorado River total system storage was 56 percent of capacity. As of September 30, 2011, total system storage was 65 percent of capacity.

Table 8 lists the October 1, 2011, reservoir vacant space, live storage, water elevation, percent of capacity, change in storage, and change in water elevation during water year 2011.

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[9]The basis for the long-term average of tributary inflows in the Lower Basin is natural flow data from 1906 to 2008. Additional information regarding natural flows may be found at *http://www.usbr.gov/lc/region/g4000/NaturalFlow/current.htm.*

[10]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
Reservoir Conditions on October 1, 2011

Reservoir	Vacant Space	Live Storage	Water Elevation	Percent of Capacity	Change in Storage*	Change in Elevation*
	(maf)	(maf)	(ft)	(%)	(maf)	(ft)
Fontenelle	0.047	0.298	6,499.9	86	0.019	2.6
Flaming Gorge	0.283	3.47	6,033.0	92	0.314	8.2
Blue Mesa	0.130	0.699	7,504.5	84	0.090	11.0
Navajo	0.368	1.33	6,058.4	78	-0.085	-6.6
Lake Powell	6.73	17.6	3,653.0	72	2.327	19.4
Lake Mead	12.9	13.0	1,116.0	50	2.885	32.2
Lake Mohave	0.200	1.61	639.7	89	0.035	1.3
Lake Havasu	0.035	0.585	448.3	94	0.025	1.3
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Totals	20.7	38.6		65	5.61	

*From October 1, 2010, to September 30, 2011.

2. 2012 Water Supply Assumptions

For 2012 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 2012 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 2012 is 7.00 maf, or 58 percent of average.
- The forecasted most probable unregulated inflow to Lake Powell in water year 2012 is 12.60 maf, or 105 percent of average.
- The forecasted maximum probable unregulated inflow to Lake Powell in water year 2012 is 19.50 maf, or 162 percent of average.

Projected unregulated inflow volumes into Lake Powell for specific time periods for these three forecasted inflow scenarios are shown in Table 9.

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 2006 through December 2010, 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 2012 is 0.480 maf, the most probable inflow is 0.815 maf, and the maximum probable inflow is 1.208 maf.

The projected monthly volumes of inflow were input into the 24-Month Study and used to project potential reservoir operations for 2012. Starting with the projected October 1, 2011, 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 available on the following Reclamation websites:

htpp://www.usbr.gov/uc/water/crsp/studies/index.html or
http://www.usbr.gov/lc/region/g4000/24mo.pdf.

Table 9
Projected Unregulated Inflow into Lake Powell for Water Year 2012[11]

Time Period	Minimum Probable (maf)	Most Probable (maf)	Maximum Probable (maf)
10/11–12/11	1.67	1.90	2.05
1/12 – 3/12	1.42	1.65	1.99
4/12– 7/12	3.41	8.00	13.60
8/12 – 9/12	0.51	1.05	1.88
10/12 – 12/12	1.18	1.50	1.96
WY 2012	7.00	12.60	19.50
CY 2012	6.52	12.20	19.43

[11]All values in Table 9 are projected inflows based upon the August CBRFC forecast with the exception of the values for 10/12-12/12. The values for this period are the average unregulated inflow from 1976-2005. The calendar year totals in Table 10 also reflect the average values for the 10/12-12/12 time period

3. Summary of Reservoir Operations in 2011 and Projected 2012 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 Group[12] 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. Consistent with the Upper Colorado River Endangered Fish Recovery Program[13], the San Juan River Basin Recovery Implementation Program (San Juan Recovery Program)[14], 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 the U.S. Fish and Wildlife Service, other federal agencies, representatives of the seven Colorado River 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 2011 and the range of probable projected 2012 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

Hydrologic conditions in water year 2011 in the Upper Green River Basin were significantly wetter than average. The April through July inflow to Fontenelle Reservoir during water year 2011 was 1.22 maf, which was 142 percent of average. Snowpack conditions in the Upper Green River Basin were significantly above average with the peak snow water equivalent reaching 139 percent of seasonal average on May 3, 2011. The Upper Green River Basin has experienced a decade of drought conditions with below average inflows the past nine out of ten years. Inflows in water year 2011, however, were higher than have been experienced since 1997.

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[12]Additional information on the AMWG can be found at *www.usbr.gov/uc/rm/amp*.

[13]Additional information on the Upper Colorado Recovery Program can be found at *http://coloradoriverrecovery.fws.gov*.

[14]Additional information on the San Juan Recovery Program can be found at *www.fws.gov/southwest/sjrip*.

Fontenelle Reservoir filled in water year 2011. The reservoir elevation peaked at 6,502.44 feet on August 29, 2011, 3.56 feet below the spillway crest. In anticipation of significantly above average inflows, releases were increased beginning on April 20, 2011, to maintain safe operating levels in Fontenelle Reservoir. Releases peaked at 8,800 cfs on July 15, 2011, and continued for four days. These releases were made through the powerplant and bypass tubes at Fontenelle Dam. Releases were reduced to 1,200 cfs after the inflow subsided. Inflow peaked at 13,500 cfs on July 3, 2011.

Based on the August 2011 24-Month Study, the most probable April through July inflow scenario for Fontenelle Reservoir during water year 2012 is 0.752 maf, or 88 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 2012. 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 2012, 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 2011 was above average. Unregulated inflow in water year 2011 was 2.42 maf, which is 140 percent of average. On October 1, 2010, the beginning of water year 2011, the reservoir elevation was 6,024.83 feet. The reservoir elevation showed an overall increase during water year 2011 with an ending water year (September 30, 2011) elevation of 6,033.03 feet corresponding to a volume of 3.47 maf. Flaming Gorge Reservoir reached a maximum elevation of 6,036.11 feet, with 3.59 maf in storage, on August 1, 2011. The end of water year reservoir elevation was 6.97 feet below the full pool elevation (6,040.0 feet) which corresponds to an available storage space of 0.283 maf.

In water year 2011, Reclamation operated Flaming Gorge Dam in compliance with the 2006 Record of Decision. The hydrologic conditions during the spring of 2011 met the moderately wet designation under the ROD. Reclamation convened the Flaming Gorge Technical Working Group (FGTWG) comprised of the U.S. Fish and Wildlife Service, Western Area Power Administration, and Reclamation personnel. The FGTWG proposed that Reclamation manage releases to the Green River in an attempt to meet the primary and secondary objectives of the Upper Colorado River Endangered Fish Recovery Program's research request. The first criterion of the primary objective was to alter the timing of releases from Flaming Gorge Reservoir for an experiment that would allow for better understanding of the relationship between timed river flows, the abundance of wild razorback sucker larvae, and the rate of larval entrainment. The second criterion of the primary objective was to meet the target outlined in the 2000 Flow and Temperature Recommendations for Reach 2 of at least 18,600 cfs for a minimum of two weeks. The second objective was to maintain flows at or above 15,000 cfs for at least five consecutive days in Reach 2 during the Yampa River peak flows, if hydrology permitted, in order to continue the Stirrup Floodplain research.

Moderately wet conditions prevailed in the Green River Basin and wet conditions prevailed in the Yampa River Basin, and continued precipitation and low temperatures resulted in increased snow accumulation and delayed runoff. Runoff conditions in 2011, combined with Flaming Gorge Dam operations, achieved the Upper Colorado Recovery Program's research request with 10 days above 15,000 cfs. The requirements of 26,400 cfs for one day, 22,700 cfs for two weeks or more, and 18,600 cfs for four weeks or more in

Reach 2 under the wet designation of the ROD were also met. The requirement of one day at or above 26,400 cfs was achieved on June 11, 2011, with a one-day peak of 32,100 cfs pursuant to the ROD.

Releases from Flaming Gorge Reservoir were increased to powerplant capacity of 4,600 cfs on April 28, 2011, in order to evacuate storage for dam safety in anticipation of high spring flows in the Upper Green River. Releases were increased to full powerplant and bypass tube capacity of 8,600 cfs from May 3 to May 7, 2011, and again from June 11 to July 10, 2011, in order to evacuate storage for dam safety in anticipation of high spring flows in the Upper Green River. Releases were maintained at powerplant capacity from July 14, 2011, until July 27, 2011. Green River flows at Jensen remained above 8,300 cfs from April 20, 2011, to July 27, 2011 (98 days). Flows at Jensen reached 32,100 cfs on June 11, 2011, for a single day as a result of releases from Flaming Gorge Dam and flows on the Yampa River. Releases from Flaming Gorge Reservoir were reduced by 350 cfs per day beginning on July 11, 2011. The use of the bypass tubes was not required to meet these flow objectives. However, bypass tubes were required in order to evacuate storage for dam safety in anticipation of high spring flows.

As of August 2011, the hydrologic classification as defined by the Flaming Gorge ROD was wet. Reclamation received a request for base flow releases from both the Service and Western. The Service requested base flows at the higher end of the average range during the summer period (July through September). Western requested that the base flow levels be based on research related to maximum critical habitat available in Reach 2. Reclamation convened the FGTWG to consult on a flow proposal for the Green River during the base flow period (August through February of the following year). The FGTWG proposed to Reclamation that flows in the Green River, during the base flow period, should fall within the moderately wet range, as described in the Flaming Gorge Final Environmental Impact Statement for the Action Alternative. Consistent with the ROD, and considering information provided to the FGTWG, Reclamation operated Flaming Gorge Dam to provide base flows in the Green River during the summer of 2011 that maximized critical habitat in Reach 2 according to the flexibility outlined in the ROD and requested by the Service. It is anticipated that 2011-2012 winter releases from Flaming Gorge Dam will follow a daily double peak pattern (peaking during the morning and evening hours) for hydropower purposes during the months of November through March if hydrology permits flows above an 800 cfs daily average.

During water year 2012, Flaming Gorge Dam will continue to be operated in accordance with the Flaming Gorge ROD. High spring releases are scheduled to occur in 2012, timed with the Yampa River's spring runoff peak flow, followed by lower summer and autumn base flows. Under the most probable inflow scenario, base flow releases are projected to be 2,450 cfs through September 30 and then decrease to approximately 2,050 cfs beginning in October 2011, and will likely continue at that rate until spring runoff begins in May 2012. A spring peak release is projected to occur sometime in May 2012, and will be timed to coincide with the peak flows of the Yampa River.

The Upper Colorado 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[15].

[15]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/flaminggorgeflowrecs.pdf*.

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

Above average snowpack conditions prevailed in the Gunnison Basin during water year 2011. Snow measurement sites in the basin reported mostly above average snow water equivalent levels throughout the winter and into the spring of 2011. The April through July unregulated inflow into Blue Mesa Reservoir in 2011 was 0.892 maf, which was 124 percent of average. Water year 2011 unregulated inflow into Blue Mesa Reservoir was 1.16 maf, which was 117 percent of average. Blue Mesa Reservoir effectively filled in 2011. The reservoir reached a peak elevation of 7,519.22 feet on July 16, 2011, 0.18 feet below full pool. Storage in Blue Mesa Reservoir increased during water year 2011 by 0.090 maf. Storage in Blue Mesa Reservoir on September 30, 2011, was 0.699 maf, or 84 percent of capacity.

Releases from Aspinall Unit reservoirs in 2011 were about average and provided flows of approximately 500 cfs from early October 2010 to early February and then approximately 800 cfs through mid-February in the Gunnison River through the Black Canyon (below the Gunnison Tunnel). On February 18, 2011, releases were increased to 1,100 cfs in response to increases in forecasted inflow. Other increases followed in short time intervals until the peak powerplant capacity of 2,100 cfs was reached at Crystal Dam on June 3, 2011.

Beginning June 4, 2011, releases from Crystal Reservoir were increased on a daily basis until reaching 8,040 cfs resulting in 7,150 cfs in the Black Canyon below the diversion tunnel on June 8, 2011. Releases were then ramped down on a daily basis starting the morning of June 9, 2011, and leveled off at 1,900 cfs from Crystal Dam resulting in 1,060 cfs in the Black Canyon below the diversion tunnel and Gunnison Gorge on July 2, 2011. Reservoir release flows again increased starting on July 7, 2011, in response to higher than predicted inflows caused from monsoonal moisture combined with late season snowmelt. Release rates were increased on a daily basis of 200 cfs increments until reaching a total release rate of 3,650 cfs from Crystal Reservoir on July 14, 2011. Reservoir releases were then reduced starting on July 30, 2011, at a 200 cfs daily reduction rate until reaching a total release rate of 2,050 cfs from Crystal Reservoir. Flows stabilized for the summer season during mid-August at about 1,200 cfs through the Black Canyon and Gunnison Gorge.

For water year 2012, the Aspinall Unit will be operated to conserve storage while meeting downstream delivery requirements, consistent with authorized project purposes. Releases include the delivery requirements of the Uncompahgre Valley Project and other senior water rights downstream, including the Black Canyon Water Right[16]. As part of the operational process, Reclamation will continue to coordinate operations through tri-annual Aspinall Unit operations meetings. Under the minimum probable, most probable, and maximum probable inflow scenarios, Blue Mesa Reservoir is projected to fill in 2012.

d. Navajo Reservoir

Inflow to Navajo Reservoir in water year 2011 was below the 30-year average. Water year 2011 unregulated inflow was 0.738 maf, or 66 percent of average. The April through July unregulated inflow into Navajo Reservoir in water year 2011 was 0.579 maf, or 74 percent of average. Unregulated inflow to Navajo Reservoir was below average for all water years from 2000 through 2011, 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 6,068.67 feet on July 1, 2011, 16.33 feet below full pool. The water surface elevation at Navajo Reservoir on September 30, 2011, was 6,058.35 feet, with reservoir storage at 78 percent of capacity.

[16]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.

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[17]. 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.

In 2006, Reclamation completed a NEPA 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.

In water year 2011, Navajo Reservoir was operated in compliance with the 2006 ROD, including the San Juan Flow Recommendations which required a one-week spring peak release at 5,000 cfs with a week-long ramp up and down.

In 2009, a four-year agreement was developed among major users to limit their water use to the rates and volumes indicated in the agreement[18]. The 2009-2012 agreement was similar to agreements that were developed in 2003, 2004, 2005, 2006, and 2007-2008. 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) endorsed the flow recommendations. The recommendations included limitations on diversions for 2009-2012, 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 flow demands for endangered fish habitat. In addition to the ten major water users, the New Mexico Interstate Stream Commission, the Bureau of Indian Affairs, the U.S. Fish and Wildlife Service, and the San Juan Recovery Program all provided input to the recommendations. The recommendations were acknowledged by Reclamation and the New Mexico State Engineer for reservoir operation and river administration purposes.

During water year 2012, Navajo Reservoir will be operated in accordance with the Navajo Reservoir Operations ROD. Navajo Reservoir storage levels are expected to be near average in 2012 under the most probable inflow forecast. Releases from the reservoir will likely remain at a 500 cfs base release through the winter. Under the most probable inflow forecast in 2012 (1.04 maf), the spring release will likely include a three-week peak release at 5,000 cfs, a weeklong ramp up, and a weeklong ramp down, as described in the San Juan Flow Recommendations.

Under the minimum probable inflow forecast (0.450 maf), there will likely not be a spring peak release made during the spring of 2012. If a perturbation year, as defined in the San Juan Flow Recommendations, has been calculated, a one-week spring peak hydrograph would likely be released. Under the maximum probable inflow forecast (1.66 maf), a maximum spring peak release (21 days at 5,000 cfs) will likely be required as described in the San Juan Flow Recommendations.

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[17]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*.

[18]Recommendations for San Juan River Operations and Administration for 2009-2012, January 29, 2009.

e. Lake Powell

Reservoir storage in Lake Powell increased during water year 2011. On October 1, 2010 (the beginning of water year 2011), reservoir storage in Lake Powell was 63 percent of capacity at elevation 3,633.66 feet, with 15.27 maf in storage. On September 30, 2011 (the end of water year 2011), the reservoir storage in Lake Powell was 17.59 maf (72 percent of full capacity), indicating a net gain during water year 2011 of 2.33 maf. The unregulated inflow to Lake Powell during water year 2011 was above average at 139 percent of average. Lake Powell ended the water year at elevation 3,653.01 feet.

The August 2010 24-Month Study, using the most probable inflow scenario, was run to project the January 1, 2011, Lake Powell elevation. The projected January 1, 2011, elevation, and guidance under Section 6.B of the 2007 Colorado River Interim Guidelines, determined the Upper Elevation Balancing Tier to be the applicable operational tier for water year 2011. This resulted in a volume of 8.23 maf being initially scheduled for release from Glen Canyon Dam for water year 2011.

Using an 8.23 maf release volume, the August 2010 24-Month Study also projected that the end of water year 2011 elevation would be above 3,643.00 feet, the Equalization Level for water year 2011. Thus, the August 2010 24-Month Study projected that an adjustment would be made in April and "the Equalization Tier would govern the operation of Lake Powell for the remainder of the water year." In April 2011, the 24-Month Study, with a release of 8.23 maf, projected that the end of water year 2011 elevation of Lake Powell would be 3,662.63 feet. Based on this projection and consistent with Section 6.B.3 of the 2007 Colorado River Interim Guidelines, the Equalization Tier (Section 6.A) governed the operation of Glen Canyon Dam for the remainder of water year 2011, and resulted in an annual release volume during water year 2011 from Glen Canyon Dam of 12.52 maf.

The April through July unregulated inflow to Lake Powell in water year 2011 was 12.89 maf which was 162 percent of average. Lake Powell reached a peak elevation for water year 2011 of 3,660.90 feet on July 30, 2011, which was 39.10 feet below full pool.

In addition to a spring high-flow test conducted in March 2008, a five-year period of steady flows in September and October of each year is being implemented during the period from 2008 through 2012 with flows in accordance with the 1997 Glen Canyon Dam Operating Criteria occurring during the other months of the year (November through August). A Final Biological Opinion on the Operation of Glen Canyon Dam was issued on February 27, 2008, and a final Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) were issued on February 29, 2008.

In September and October of 2011, a test of steady flows (steady daily releases), as described in the EA, was conducted consistent with Reclamation's February 29, 2008, FONSI. Steady flows of approximately 15,500 cfs were made during the two-month period in 2011. In 2012, a test of steady flows will be repeated during September and October.

(i). 2012 Operating Tier and Projected Operations for Glen Canyon Dam

The January 1, 2012, reservoir elevation of Lake Powell is projected under the most probable inflow scenario to be 3,646.26 feet based on the August 2011 24-Month Study. Given this projection, the water year release volume from Lake Powell during water year 2012 will be consistent with the Equalization Tier (Section 6.A of the 2007 Colorado River Interim Guidelines).

Under the minimum probable inflow scenario and recognizing actual 2011 water year operations, the August 2011 24-Month Study, with a projected water year release volume of

9.96 maf in water year 2012, projects that the end of water year elevation and storage of Lake Powell will be 3,638.20 feet and 15.79 maf, respectively.

Under the most probable inflow scenario, the August 2011 24-Month Study, with a projected water year release volume of 13.57 maf in water year 2012, projects that the end of water year elevation and storage of Lake Powell will be 3,646.40 feet and 16.77 maf, respectively.

Under the maximum probable inflow scenario, the August 2011 24-Month Study, with a projected water year release volume of 14.48 maf in water year 2012, projects the end of water year elevation and storage of Lake Powell will be 3,685.51 feet and 22.07 maf, respectively.

Recognizing the August 2011 plan for maintenance for Glen Canyon Dam during water year 2012, the full release capability of Glen Canyon Powerplant would result in an estimated annual release volume through the powerplant of approximately 14.48 maf. At any point throughout water year 2012, if the 24-Month Study projects the remaining water year release volume to be greater than the release capability of Glen Canyon Powerplant, Reclamation will strive to adjust the maintenance plan as much as possible to accommodate a higher release volume through the powerplant during water year 2012.

In accordance with the Colorado River Basin Project Act of 1968, the 1970 Criteria for Coordinated Long-Range Operation of Colorado River Reservoirs (Long-Range Operating Criteria), and Section 6 of the 2007 Interim Guidelines, Reclamation will attempt to achieve Equalization as nearly as practicable by the end of the water year. Consistent with Section II(4) of the Long-Range Operating Criteria, "[a]ny water thus retained [after September 30] in Lake Powell to avoid bypass of water at the Glen Canyon Powerplant will be released through the Glen Canyon Powerplant as soon as practicable" to achieve Equalization.

The August 2011 24-Month Study under the maximum probable inflow scenario with an annual release volume that achieves Equalization by September 30, 2012 (16.69 maf) and an annual volume that recognizes the August 2011 plan for maintenance for Glen Canyon Dam during water year 2012 (14.48 maf) projects a range of end of water year conditions at Lake Powell. Under these two release scenarios, the projected end of water year 2012 elevation and storage in Lake Powell range from 3,671.43 feet to 3,685.51 feet and 20.04 maf to 22.07 maf, respectively.

In 2012, scheduled maintenance activities at Glen Canyon Dam Powerplant will require that one or more of the eight generating units periodically be offline. Coordination between Reclamation offices in Salt Lake City, Utah, and Page, Arizona, 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 2012. If implemented, releases greater than powerplant capacity would be made consistent with the 1956 Colorado River Storage Project Act, the 1968 Colorado River Basin Project Act, and 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 a 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.

Daily and hourly releases in 2012 will be made according to the parameters of the 1996 Glen Canyon Dam ROD 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.

Releases from Lake Powell in water year 2012 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 Operation of Glen Canyon Dam Final Environmental Impact Statement (required by the Grand Canyon Protection Act of 1992) and other Secretarial decisions.

Monthly releases for 2012 will be consistent with the 1996 ROD and the 2008 EA/FONSI for Experimental Releases for Glen Canyon Dam, Arizona, 2008-2012. Monthly releases are updated to be consistent with annual volumes determined pursuant to the 2007 Interim Guidelines.

For the latest monthly projections for Lake Powell, please see the most recent 24-Month Study available on Reclamation's Upper Colorado Region Water Operations website:
http://www.usbr.gov/uc/water/crsp/studies/index.html.

The ten-year total flow of the Colorado River at Lee Ferry[19] for water years 2002 through 2011 is 89.29 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 United States Geological Survey.

On December 10, 2009, the Secretary announced that the Department of the Interior would initiate development of a High-Flow Experimental Protocol for releases from Glen Canyon Dam as part of the ongoing implementation of the Glen Canyon Dam Adaptive Management Program. High-flow experimental releases have been undertaken in the past and will be further analyzed and implemented pursuant to the direction of the Secretary to assess the ability of such releases to protect, mitigate adverse impacts to, and improve the values for which Grand Canyon National Park and Glen Canyon National Recreation Area were established. As part of the AMP, the Department's effort to develop the Protocol is a component of its ongoing responsibility to comply with the requirements and obligations established by the Grand Canyon Protection Act of 1992 (P.L. 102-575).

The Protocol is nearing the completion of a NEPA analysis. The draft EA was provided to the public for two rounds of review prior to being published and released on December 30, 2011. A decision notice is expected in the spring of 2012. The EA analyzes the effects of implementing a Protocol to conduct multiple high-flow experiments from Glen Canyon Dam during the period 2011-2020. If a high-flow experimental release is undertaken in water year 2012, and if the Protocol is implemented by the Department, projected operations of Glen Canyon Dam will be modified consistent with the Protocol.

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[19]A point in the mainstream of the Colorado River one mile below the mouth of the Paria River.

I. FISH AND WILDLIFE

The Upper Colorado River Endangered Fish Recovery Program, established in 1988, is in its 24th 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 Act 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 Recovery 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 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, the humpback chub and Colorado pikeminnow are establishing self-sustaining populations. 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.

Currently, P.L. 106-392 authorizes the Bureau of Reclamation to accept cost sharing for construction of capital projects including fish passages, fish screens, hatcheries, floodplain and instream habitat, and the enlargement of an existing reservoir. Authority to use Colorado River Storage Project hydropower revenues for base funding activities other than operation and maintenance of capital projects and fish population monitoring expired at the end of fiscal year 2011. This resulted in activities such as non-native fish control, research, program management, and public information and education being funded through appropriations in fiscal year 2012. Failure to identify a long-term funding solution for these activities could result in the loss of Endangered Species Act compliance for over 2,100 federal, tribal, and non-federal water projects in the Colorado River and San Juan River basins depleting in excess of 3.7 million acre-feet of water annually.

Due to the success of the two recovery programs, there has been a concerted effort on the part of many of the stakeholders to develop legislation to reauthorize the programs. As required by P.L. 106-392, the Secretary of the Interior provided a report to Congress on the continued need for CRSP power revenues. The report recommended that P.L. 106-392 be amended to allow for the continuation of base funding at currently authorized levels through 2023 for all activities necessary to achieve recovery and that existing agreements regarding cost sharing for base funding be maintained. There appears to be strong support for this legislation from the programs' non-federal stakeholders and a legitimate need exists for this additional authority. House Resolution 2288 authorizing appropriations to address the funding shortfall was passed by the House, but failed to become law. Legislation to extend the use of hydropower revenues may be introduced in 2012.

J. APPROPRIATIONS OF FUNDS BY THE UNITED STATES CONGRESS

The funds appropriated[20] for fiscal year 2011 for construction of the CRSP and participating projects and recreational and fish and wildlife activities totaled $19,721,000. Recreational and fish and wildlife activities received a total of $3,711,000.

In fiscal year 2011, Congress approved appropriations for Reclamation's Colorado River Basinwide Salinity Program totaling $6,986,000, with $17.65 million for the Natural Resources Conservation Service's Colorado River Basin Salinity Program.

Table 10 is a summary of action by the 112th 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 2011 Program

Project	Budget Request	House Allowance	Senate Allowance	H.R. 1473 April 11, 2011
Construction Program				
CRSP Participating Projects				
Animas-La Plata	$11,978,000	$11,978,000	$11,978,000	$6,019,000
Initial Units, CRSP	35,000	35,000	35,000	35,000
Navajo-Gallup Water Supply	10,000,000	10,000,000	10,000,000	10,000,000
TOTAL – Upper Colorado River Basin Fund	$22,013,000	$22,013,000	$22,013,000	$16,054,000
Recreation and Fish and Wildlife Facilities				
Recreational Facilities	$850,000	$850,000	$915,000	$915,000
Fish and Wildlife Facilities	2,931,000	2,931,000	2,931,000	2,931,000
TOTAL – CRSP Section 8	$3,781,000	$3,781,000	$3,781,000	$3,781,000
TOTAL – Construction and Section 8	$25,765,000	$25,765,000	$25,765,000	$19,835,000

[20]Approved by Congress minus rescissions

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

Fiscal Year	Amount	Fiscal Year	Amount
1957	$13,000,000	1984	161,104,000
1958	35,142,000	1985	163,503,000
1959	68,033,000	1986	97,412,000
1960	74,460,000	1987	110,929,000
1961	58,700,000	1988	143,143,000
1962	52,535,000	1989	174,005,000
1963	108,576,000	1990	163,653,000
1964	94,037,000	1991	145,063,000
1965	55,800,000	1992	92,093,000
1966	45,328,000	1993	69,333,000
1967	46,648,000	1994	46,507,000
1968	39,600,000	1995	23,272,000
1969	27,700,000	1996	27,049,000
1970	25,740,000	1997	22,410,000
1971	24,230,000	1998	17,565,000
1972	27,284,000	1999	4,655,000
1973	45,770,000	2000	2,000,000
1974	24,426,000	2001	2,000,000
1975	22,967,000	2002	16,000,000
1976	53,722,000	2003	35,000,000
1977	55,200,000	2004	55,640,000
1978	67,051,000	2005	57,512,000
1979	76,799,000	2006	64,320,000
1980	81,502,000	2007	69,815,000
1981	125,686,000	2008	65,175,000
1982	130,063,000	2009	50,653,000
1983	132,942,000	2010	63,144,000
1984	161,104,000	2011	25,658,000

TOTAL $3,581,554,000

Plus: Navajo Indian Irrigation Project appropriations 592,584,000
(funds transferred to Reclamation only)

TOTAL APPROPRIATIONS $4,174,138,000

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://wwwusbr.gov/uc/progact/salinity/index.html.

Title II of the Colorado River Basin Salinity Control Act, P.L. 93-320 (approved June 24, 1974), directs the Secretary of the Interior to expedite the investigation, planning, and implementation of the salinity control program. The program objective is to treat salinity as a basinwide problem in order to maintain salinity concentrations at or below 1972 levels in the lower mainstem of the river while the 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 (Paradox Valley, Grand Valley, Las Vegas Wash, and Crystal Geyser Units) and the expeditious completion of planning reports for 12 other projects. It also requires 25 percent reimbursement of the costs from the Upper Colorado River Basin Fund (Basin Fund). 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 Fund. 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. P.L. 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 Fund 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 Fund 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 AND NATURAL RESOURCES CONSERVATION SERVICE SALINITY CONTROL PROGRAM

The Bureau of Reclamation's Colorado River Basinwide Salinity 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 Forum and Reclamation area offices. Individual projects have been constructed by local entities through cooperative agreements with Reclamation. Requests for Proposals (RFPs) have been issued by Reclamation in 1996, 1997, 1998, 2001, 2004, and 2006.

In 2008 and 2010, 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 is scheduled for the fall of 2012.

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 Fund. Agreements and funding were awarded and the projects have been completed. These projects control nearly 12,000 tons of salt loading each year.

In 2011, $8.053 million of appropriations was received into Reclamation's Colorado River Basinwide Salinity Program and $3.451 million was received from the Basin Fund for a total program amount of $11.504 million. This amount was expended through eight ongoing salinity projects located in Colorado, Utah, and Wyoming. It is estimated that the facilities installed with the $11.504 million will control about 12,600 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 2011, Reclamation calculates the appropriation ceiling, utilizing cost indices, to be $626,386,000; total expenditures are $434,459,000; and the remaining ceiling balance is $191,927,000.

The USDA's Environmental Quality Incentives Program, that 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 2011, $12.1 million was obligated into new EQIP contracts with individual entities to install salinity control measures. An additional $5.4 million was used to provide technical assistance (planning, engineering design, construction inspections, etc.) to these individuals. Cost sharing from the Basin Fund is also available to assist producers. In 2011, approximately $7.5 million was provided from the Basin Fund.

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

1. Colorado

a. Grand Valley Unit

Implementation has been underway on the Grand Valley Unit since 1979. The application of salinity control measures and wildlife habitat replacement practices continues. In 2010, producers installed sprinkler systems on 278 acres, improved surface systems on 534 acres, and installed drip or micro-spray systems (which greatly reduce salt loading) on 89 acres of irrigated lands. Currently, about 150,000 tons of salt control occurs annually due to the Grand Valley Unit Salinity Control Program. A comprehensive survey of the Grand Valley Project area in 2010 indicated that 12,500 acres of farmland have been converted to residential use leaving 47,000 acres of irrigated farmland. That 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 has offered accelerated outreach to provide further opportunities to irrigators to install improved systems and to implement the remaining wildlife habitat replacement. At the end of 2012, NRCS plans to consider the Grand Valley Unit Salinity Control Project complete.

Through Reclamation's Basinwide Salinity Program, the Grand Valley Irrigation Company (GVIC) has been awarded cooperative agreements of $3 million and $2.8 million in 2008 and 2011, respectively. Under the 2008 agreement, GVIC lined 2.9 miles of their main canal in the City of Grand Junction and the canal is reducing salt loading by approximately 4,500 tons annually. The project was completed under budget and the remaining funds were utilized to line approximately 1,000 feet of additional canal that controls another 290 tons of salt. Under the 2011 agreement, GVIC will line 1.9 miles of their main canal and pipe 4,100 feet of ditch within the Grand Valley that will reduce salt loading by approximately 1,749 tons annually. Construction began in December 2011.

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 has been slow due to current economic conditions.

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 and Montrose 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 2011, about 1,300 acres of improved irrigation systems were installed. The improved systems consist of 1,056 acres of surface systems, 150 acres of sprinklers, and 129 acres of drip systems. The project is about 59 percent complete and annually controls about 110,000 tons of salt. Reclamation has installed livestock watering systems to eliminate canal and lateral use during the winter months. Under its Basinwide Salinity 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 (UVWUA) irrigation delivery system. Data indicate that salinity improvements also reduce selenium loading.

In 2011, the UVWUA completed construction of Phase 3 of their East Side Laterals project which involves the piping of 10.5 miles of laterals under the Selig and South Canal systems and the reduction of about 2,300 tons of salt loading annually. This phase utilized $1.3 million of Reclamation's Colorado River Basinwide Salinity Program funding as well as funding from Reclamation's Departmental Irrigation Drainage (selenium) Program. Through Reclamation's Basinwide Salinity Program Funding Opportunity Announcements in 2008 and 2010, the UVWUA was awarded cooperating agreements for Phases 4, 5, and 7 as follows:

Phase 4 involves an additional 11 miles of laterals under the Selig and East Canal systems and the reduction of about 3,700 tons of salt loading annually. Approximately $2 million of salinity control funding will be supplemented with approximately $800,000 from a Section 319 grant obtained through the Colorado Division of Public Health and Environment. Phase 4 will be completed in 2012. Phase 5 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. Phase 7 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 is anticipated to begin in the fall of 2012.

In July 2009, Reclamation entered into a cooperative agreement with the Grandview Canal and Irrigation Company to provide $5.3 million 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. Construction began in September 2010 with completion expected to occur in 2012. The project will reduce salt loading by 6,400 tons annually.

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 fifth full year of implementation. 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 $12,500,000. Currently, about 4,200 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 2011, 722 acres of sprinkler systems and 379 acres of surface systems were installed, bringing the annual on-farm salt control to about 27,300 tons. Reclamation's salinity control activities were combined into the construction of the Dolores Project which has been completed.

e. 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. The pressure necessary to inject the brine into the disposal formation at 14,000 feet is increasing. Modification of the facility to operate at a higher injection pressure to extend the life of the injection well was completed in 2009, but at the current rate of injection pressure increase, the current maximum pressure limit will be reached in three to four years or sooner. 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. In 2011, Reclamation had numerous meetings and discussion with the Bureau of Land Management, U.S. Fish and Wildlife Service, Environmental Protection Agency, and Colorado Department of Public Health and Environment. Initial cost estimates for a two- to three-year pilot study using a 16-acre site are between $5 and $7 million depending on the site selected and environmental regulatory requirements. An additional $1.5 million would be required to encapsulate the pond at the completion of the study. The projected completion schedule for constructing the pilot evaporation pond is 2014 or 2015 depending on the need to obtain a land withdrawal from the Bureau of Land Management.

f. Silt Area

The NRCS conducted planning and evaluation of the irrigated cropland in the area surrounding the community of Silt 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 developed. The Silt Project has already exceeded its goal of 3,990 tons of salt control.

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.

b. 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. 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.

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.

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 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 2011, nearly 8,000 tons of salt control had been implemented, which is 46 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. 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.

d. Price-San Rafael Rivers Salinity Control Unit

The Bureau of Reclamation and NRCS issued a joint environmental impact statement for the Price-San Rafael Rivers Salinity Control Unit in December of 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, Carbon Canal) have been substantially implemented; both on-farm and off-farm. The Huntington-Cleveland area, which constitutes nearly half of the Price-San Rafael Unit, is currently being implemented. At the end of 2011, about 84,000 tons of on-farm salt control (57 percent of the goal) had been achieved.

Through Reclamation's Colorado River Basinwide Salinity Program, 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 Salinity Program, the Huntington-Cleveland Irrigation Company, NRCS's Environmental Quality Incentives Program, and Rocky Mountain Power. From the Basinwide Salinity Program, Reclamation has provided $17.1 million for the off-farm distribution system and an additional $4.8 million for completion of the on-farm distribution system. The project, scheduled to be completed in 2012, will result in the annual reduction of 59,000 tons of salt of which 13,000 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).

Cottonwood Creek Consolidated Irrigation Company was awarded a cooperating agreement through Reclamation's Basinwide Salinity 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 the annual reduction of 2,094 tons of salt. Construction began in May 2011 and the project is expected to be operational for the 2013 irrigation season. It is expected that the pressurized pipeline will induce on-farm improvements resulting in the annual reduction of an additional 9,100 tons of salt.

e. Tropic Area

The Tropic Area Project is a relatively small project located in the upper Paria drainage near Tropic, Utah. The project consists of replacing approximately 5.5 miles of open irrigation canal with approximately four miles of pressure pipeline with funding from Reclamation's Basinwide Salinity Program. Construction activities associated with this project were completed by the Tropic and East Fork Irrigation Company in 2008.

f. Uintah Basin Unit

Implementation of the USDA on-farm portion of this Uintah Basin Unit started in 1980. Side-roll and center pivot sprinkler systems predominate in the project area. In 2011, sprinkler systems were installed on 1,054 acres and a surface system was installed on one acre. No-drip or micro-spray systems were installed. Landowner participation has exceeded expectations to such an extent that the original salt control goal has been nearly attained. Currently, about 146,000 tons of annual salt control occurs 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 68 percent complete and wildlife habitat replacement is complete. Consequently, nearly 57,000 tons of annual salt control has been achieved. In this project, where practical, farmers have converted nearly all of the 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.

Through Reclamation's Basinwide Salinity Program, the Eden Valley Irrigation and Drainage District has been awarded a cooperative agreement of $6.4 million. The project will replace approximately 24 miles of earthen laterals with irrigation pipe resulting in an annual reduction of 6,594 tons of salt. The project, located in Sweetwater County in the vicinity of Farson, Wyoming, is scheduled to be completed by 2013.

5. Additional Projects

Additional projects are being assessed and evaluated for salinity control implementation in the following locations: Blacks Fork of the Green River near Lyman, Wyoming; Henrys Fork of the Green River near the communities of Burnt Fork and McKinnon, 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. The Henrys Fork Project Draft Environmental Impact Statement is currently being reviewed. The NRCS in Wyoming plans to adopt this project in 2012.

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 2011, the NRCS developed new EQIP contracts to control about 2,000 tons in these areas.

B. BUREAU OF LAND MANAGEMENT SALINITY CONTROL PROGRAM

The Bureau of Land Management remains committed to its role in reducing the contribution of salts to the Colorado River system from public lands. The agency has undertaken this responsibility by designating a full-time salinity coordinator that is housed with the Bureau of Reclamation along with the USDA NRCS salinity coordinator. Salinity is affected by almost all land management decisions that are made. Progress in salt reduction is achieved through efforts to minimize the impacts of grazing, protect riparian areas, reduce off-road vehicle impacts, conduct prescribed burns and reseedings, and generally manage vegetative cover and reduce erosion on public lands.

The natural salt load from the Colorado River at Lees Ferry, Arizona, is estimated to be about 4.4 million tons per year. Contributions from BLM lands are included in this estimate. Surface runoff from BLM-administered lands above Lees Ferry is estimated to contribute about 700,000 tons per year, or about 16 percent. The remaining 3.7 million tons are contributed primarily by groundwater inflow and saline springs as well as runoff from federal, tribal, state, and private land.

It is difficult to estimate the actual reduction in the salinity 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.

In a step to strengthen the reporting effort, during fiscal year 2003 the BLM created a new salinity coordinator position. The salinity coordinator began work in fiscal year 2004. A restructuring of the program took place in fiscal year 2006 and plans were finalized and communicated to BLM offices that compete for salinity funding. Projects in areas with higher potential for salt loading are being targeted for funding. During fiscal years 2007 through 2011, the new program to track and report dollars spent was repeated. The focus in fiscal year 2011 was to capture more projects, either ongoing or new, that result in salt control savings and attempt to quantify those savings. The BLM salinity coordinator worked with colleagues in the Bureau of Reclamation and Natural Resources Conservation Service to control salt loading in the Colorado River Basin.

For fiscal year 2011, $750,000 was allocated for BLM's salinity control program. Funding goes to four major areas: (1) program administration, (2) planning, (3) science, and (4) on-the-ground implementation projects. More details (i.e., a breakdown of state by state funding and salinity control projects) on BLM's salinity control accomplishments for fiscal year 2011 are in the Federal Accomplishment Report that was compiled by the U.S. Bureau of Reclamation.

Upper Colorado River Commission

APPENDIX A

ANNUAL FINANCIAL REPORT

For the Year Ended
June 30, 2011

Ulrich & Associates, P.C.
Certified Public Accountants

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UPPER COLORADO RIVER COMMISSION

Annual Financial Report

June 30, 2011

Table of Contents

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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

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, 2011, 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.

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 of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the 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, 2011, and the respective changes in financial position thereof for the year then ended in conformity with accounting principles generally accepted in the United States of America.

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

Charles E. Ulrich, CPA | Michael E. Ulrich, CPA
Cathie Hurst, CPA | Heather Christopherson, CPA | Brandon Olsen, CPA
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The management's discussion and analysis and budgetary comparison information are not a required part of the basic financial statements but are supplementary information required by accounting principles generally accepted in the United State of America and the Governmental Accounting Standards Board. We have applied certain limited procedures, which consisted principally of inquiries of management regarding the methods of measurement and presentation of the required supplementary information. However, we did not audit the information and express no opinion on them.

Our audit was conducted for the purpose of forming opinions on the financial statements that collectively comprise the Upper Colorado River Commision's basic financial statements. 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 basic financial statements of Upper Colorado River Commission.

Ulrich & Associates, PC.

August 18, 2011

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 Assets 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. For the first time, governmental activities are reported on the accrual basis of accounting.

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 Assets at June 30, 2011 follows:

Net Assets at Year-end

		2011	2010
Cash & investments	$	403,536	430,537
Receivables		-	-
Capital assets (net)		49,245	53,117
Total assets		452,781	483,654
Current liabilities		16,950	29,586
Non-current liabilities		33,482	32,264
Total liabilities		50,432	61,850
Net assets:			
Invested in capital assets		49,245	53,117
Unrestricted		353,104	368,687
Total net assets	$	402,349	421,804

During the year ended June 30, 2011 the change in net assets occurred in capital assets. The commission also purchased office equipment (computer & printer).

A condensed version of the Statement Activities follows:

Governmental Activities
For the year ended June 30

Revenues		2011	2010
Program Revenues			
Charges for Services	$	709	934
Assessments		345,646	335,579
General Revenues			
Interest		2,312	2,955
Total Revenues		348,667	339,468
Expenses			
Administration		369,967	346,113
Change in net assets		(21,300)	(6,645)
Beginning net assets		423,649	428,449
Ending net assets	$	402,349	421,804

Health insurance for the employees continued to increase substantially in the current year.

Capital Assets

At June 30, 2011 the Commission had $49,245 invested in capital assets, consisting primarily of a building and furniture & equipment. The change in capital assets during the year consisted of purchases of a new computer and printer.

Capital Assets at Year-end

		2011	2010
Land	$	24,159	24,159
Building		79,827	79,827
Improvements		2,207	2,207
Furniture & equipment		77,020	75,299
Subtotal		183,213	181,492
Accumulated Depreciation		133,968	128,375
Capital assets, net	$	49,245	53,117

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.

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Basic Financial Statements

UPPER COLORADO RIVER COMMISSION

Statement of Net Assets

June 30, 2011

	Governmental Activities
ASSETS	
Cash & cash equivalents	$ 403,536
Capital assets:	
Land	24,159
Building	79,827
Improvements other than building	2,207
Furniture & equipment	77,020
Less: accumulated depreciation	(133,968)
Total Assets	452,781
LIABILITIES	
Accounts payable	8,366
Payroll liabiities	0
Retirement payable	7,092
Compensated abscences	1,492
Total current liabilities	16,950
Noncurrent liabilities:	
Accrued compensated absences	33,482
Total noncurrent liabilities	33,482
Total Liabilities	50,432
NET ASSETS	
Invested in capital assets	49,245
Unrestricted	353,104
Total Net Assets	402,349
Total Liabilities and Net Assets	$ 452,781

See accompanying notes to the basic financial statements

UPPER COLORADO RIVER COMMISSION

Statement of Activities

For the year ended June 30, 2011

	Expenses	Program Revenues: Charges for services	Program Revenues: Operating grants and contributions	Net Revenue and Changes in Net Assets: Total
Governmental activities:				
General administration	$ 369,967	709	345,646	(23,612)
Total governmental activities	$ 369,967	709	345,646	(23,612)
General revenues:				
Interest				2,312
Total general revenues				2,312
Change in Net Assets				(21,300)
Net Assets - Beginning of Year				423,649
Net Assets - Ending of Year				$ 402,349

See accompanying notes to the basic financial statements

UPPER COLORADO RIVER COMMISSION
Balance Sheet
Governmental Funds
June 30, 2011

	General Fund
Assets	
Petty cash	$ 25
Cash in bank	13,564
Utah public treasurers' investment pool	389,947
Total Assets	403,536
Liabilities	
Accounts payable	8,366
Accrued liabilities	7,092
Accrued benefits	1,492
Total Liabilities	16,950
Fund Balance	
Assigned to:	
Unpaid compensated abscences	34,974
Unassigned	351,612
Total Fund Balance	386,586
Total Liabilities and Fund Balance	$ 403,536

Reconciliation of the Statement of Net Assets to the Balance Sheet

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

Total fund balance reported above	$ 386,586
Capital assets used in governmental activities are not financial resources and, therefore, are not reported in the funds	49,245
Compensated absences are not due and payable in in the current period and therefore, are not reported in the funds	(33,482)
Net assets of governmental activities	$ 402,349

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, 2011

	Budget	General Fund	Variance Favorable (Unfavorable)
Revenues:			
Assessments	$ 345,646	345,646	-
Interest	-	2,312	2,312
Waternews subscriptions & refunds	-	709	709
Total Revenues	345,646	348,667	3,021
Expenditures:			
Personal services	333,943	300,751	33,192
Travel	29,000	28,327	673
Current operating	38,900	33,516	5,384
Capital outlay	4,600	2,283	2,317
Contingencies	4,000	-	4,000
Total Expenditures	410,443	364,877	45,566
Excess of revenues over expenditures	(64,797)	(16,210)	48,587
Fund Balance - June 30, 2010 (as adjusted)	402,796	402,796	-
Fund Balance - June 30, 2011	$ 337,999	386,586	48,587

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)	$ (16,210)
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.	(3,872)
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.	(1,218)
Change in net assets of governmental activities (page 9)	$ (21,300)

See accompanying notes to the basic financial statements

UPPER COLORADO RIVER COMMISSION

Notes to Basic Financial Statements
June 30, 2011

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 Unites 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 - Fund Accounting

The accounting system is organized and operated on a fund basis. A fund is defined as a fiscal and accounting entity with a self balancing set of accounts, which are segregated for the purpose of carrying on specific activities or attaining certain objectives in accordance with special regulations, restrictions or limitations.

The Commission's funds are grouped into two broad categories and one generic fund type for financial statement presentation purposes. The general fund is the only governmental fund. The Commission has no proprietary funds or fiduciary funds.

C. Basis of Accounting

GOVERNMENT WIDE FINANCIAL STATEMENTS

The statement of net assets and the statement of activities display information about the Commission. These statements distinguish between activities that are considered governmental activities and those that are considered business-type activities.

The government-wide statements are prepared using the economic resources measurement focus and the accrual basis of accounting. This is the same approach used in the preparation of the proprietary fund financial statements but differs from the manner in which governmental fund financial statements are prepared. Therefore, governmental fund financial statements include a reconciliation with brief explanations to better identify the relationship between the government-wide statements and the statements for governmental funds.

The government-wide statement of activities presents a comparison between expenses and program revenues for the governmental activity. Direct expenses are those that are specifically associated with the service provided by the Commission. Program revenues include charges paid by recipients of the goods or services offered by the Commission and contributions that are restricted to meeting the operational or capital requirements of the Commission. Revenues which are not classified as program revenues are presented as general revenues. The comparison of program revenues and expenses identifies the extent to which the Commission is self financing.

FUND FINANCIAL STATEMENTS

Fund financial statements report detailed information about the Commission. The focus of governmental financial statements is on major funds rather than reporting funds by type. Each major fund is presented in a separate column. The only major fund is the general fund with no other nonmajor funds.

GOVERNMENTAL FUNDS

The Commission accounts its general fund using the modified accrual basis of accounting and the current financial resources measurement focus. Under this basis revenues are recognized in the accounting period in which they become measurable and available. Expenditures are recognized in the accounting period in which the fund liability is incurred, if measurable.

Revenue Recognition

In applying the susceptible to accrual concept under the modified accrual basis, the following revenue sources are deemed both measurable and available (i.e., collectible within the current year or within two months of year-end and available to pay obligations of the current period). This includes interest earnings and waternews subscriptions. Assessments from the four states are recorded as revenue in the year assessed to pay for operations or if received in advance, deferred until the year assessed.

Expenditure Recognition

The measurement focus of governmental fund accounting is on decreases in net financial resources (expenditures) rather than expenses. Most expenditures are measurable and are recorded when the related fund liability is incurred. Allocations of costs, such as depreciation, are not recognized in the governmental funds.

Capital Assets and Depreciation

All assets of the Commission are considered general capital assets. When purchased, such assets are recorded as expenditures in the governmental funds and capitalized (recorded and accounted for) in the General Capital Asset Account Group. The valuation basis for general capital assets are historical cost.

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.

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.

Net Assets / Fund Balance

Government-wide Financial Statements

Equity is classified in the government-wide financial statements as net assets and can be displayed in threee 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 assets - Net assets with constraints placed on the use either by (1) external groups or (2) law through constitutional provisions or enabling legislation.

Fund Financial Statements

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

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 highlest 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 fund.

NOTE 2 COMPLIANCE AND ACCOUNTABILITY

Budgets

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.

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 review 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 TRANSACTION ACCOUNTS

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, 2011, the Commission had the following deposits and investments:

	Fair Value
Cash on deposit	$ 32,411
Utah Public Treasurers' Investment Pool	389,947
	$ 422,358

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, 2011, 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, 2011, none of the $32,411 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, 2011, are as follows:

Cash on deposit	$ 13,589
Utah State Treasurer's Investment Pool	389,947
	$ 403,536

Capital Assets

Capital asset activity for the year ended June 30, 2011, is as follows:

	Balance at June 30, 2010	Additions	Disposals	Balance at June 30, 2011
Land	$ 24,159	-	-	24,159
Building	79,827	-	-	79,827
Improvements	2,207	-	-	2,207
Furniture & Equipment	75,299	1,721	-	77,020
Totals at historical costs	181,492	1,721	-	183,213
Less accumulated depreciation				
Building	65,035	1,586	-	66,621
Improvements	2,207	-	-	2,207
Furniture & Equipment	61,133	4,007	-	65,140
Total accumulated depreciation	128,375	5,593	-	133,968
Capital assets, net	$ 53,117	(3,872)	-	49,245

Depreciaiton expense of $5,593 was charged to the general administration activity of the Commission

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, 2011 was $23,220, which includes $150 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.

Prior Period Adjustment

A prior period adjustment was made in the amount of $1,845 for retirement expenses that were over accrued in the prior year.

Supplemental Schedules

UPPER COLORADO RIVER COMMISSION

Supplemental Schedule of Cash Receipts and Disbursements

Year ended June 30, 2011

Cash at June 30, 2010		$ 430,537
Cash Receipts:		
Assessments	345,646	
Interest	2,312	
Refunds	33	
Waternews Subscriptions	676	
		348,667
Cash Disbursements:		
Personal Services	313,060	
Travel	26,082	
Current Operating	33,955	
Capital Outlay	2,068	
Contingency	503	
		375,668
Cash at June 30, 2011		$ 403,536

UPPER COLORADO RIVER COMMISSION

Detail of Personal Services and Current Operating Expenditures - Budget to Actual (Accrual Basis)

Year ended June 30, 2011

	Budget	Actual	Favorable (Unfavorable) Variance
Summary of Personal Services with Budget Comparisons			
Executive director	$ 104,897	104,897	-
Administrative secretary	33,319	33,319	-
General counsel	85,768	85,768	-
Bonus	6,720	6,720	-
Consulting services	32,322	715	31,607
Social security	17,135	17,704	(569)
Pension fund contributions	22,849	23,220	(371)
Employee medical insurance	29,733	27,528	2,205
Janitorial	1,200	880	320
	$ 333,943	300,751	33,192
Summary of Current Operating Expenditures with Budget Total Comparison			
Audit and accounting	$ 4,200	4,620	(420)
Building repair & maintenance	3,000	3,194	(194)
Insurance	3,300	2,270	1,030
Library	6,200	5,964	236
Meetings, including reporter	2,000	678	1,322
Memberships and registrations	2,800	2,061	739
Office supplies and postage	3,300	2,701	599
Printing	3,500	3,230	270
Telephone	4,800	4,547	253
Utilities	5,800	4,251	1,549
	$ 38,900	33,516	5,384

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Upper Colorado River Commission

APPENDIX B

BUDGET

Fiscal Year Ending June 30, 2012

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APPROVED FY 2012 Budget
UPPER COLORADO RIVER COMMISSION
Fiscal Year Ending June 30, 2012
Approved at the June 8, 2011 Commission Meeting

	As Approved 6/8/2011
Personnel Costs	326,290
Travel	31,000
Current Expense	39,400
Janitor	1,200
Income (Newsletter)	-500
Capital Expense	4,800
Contingency	5,000
Total	407,190

2012 State Assessments

	State %	FY 12
Colorado	51.75%	178,873
New Mexico	11.25%	38,885
Utah	23.00%	79,498
Wyoming	4.00%	48,390
Total		$345,646

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Upper Colorado
River Commission

APPENDIX C

RESOLUTION

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RESOLUTION OF THE UPPER COLORADO RIVER COMMISSION

Regarding the Development of Policies and Procedures for Implementing Curtailments of Water Use Pursuant to Article IV of the Upper Colorado River Basin Compact

WHEREAS, article III of the Upper Colorado River Basin Compact of 1948 ("compact") apportions from the upper Colorado River system in perpetuity to each state of the Upper Division the consumptive use per annum resulting from the application of fixed percentages to the total quantity of consumptive use per annum apportioned in perpetuity to and available for use each year by the Upper Basin under the Colorado River Compact of 1922 and remaining after deduction of the use, not to exceed 50,000 acre-feet per annum, made in Arizona; and

WHEREAS, article IV of the compact provides that, if necessary, a determination by the Upper Colorado River Commission ("Commission") shall be made as to the amount of water each state must contribute in order to assure full compliance with article III of the Colorado River Compact; and

WHEREAS, on March 20, 1984, June 2, 1987, October 22, 1987 and June 5, 2006, the Commission adopted, by unanimous consent, resolutions (Resolutions) addressing hydrologic determinations by the Secretary of the Interior, including determinations of Upper Basin yield, recognizing that the estimates may be changed in the future based upon new assumptions or information; and

WHEREAS, the states of the Upper Division continue to discuss implementation of certain provisions of articles III through VI of the Upper Colorado River Basin Compact, including policies and procedures needed to implement article IV curtailments and other related provisions of articles III through VI of the compact.

NOW, THEREFORE, BE IT RESOLVED that the Commission intends to develop policies and procedures that might be needed to implement articles III through VI of the compact in furtherance of: (1) the Commission performing its responsibilities, pursuant to article VIII of the compact, as necessary to implement the provisions of the compact; (2) implementation of article IV of the compact; and (3) the comprehensive development of the water resources of the Upper Basin; and (4) the interests that the Upper Division States have in reducing uncertainty associated with their water supplies by developing the best information possible about Upper Basin hydrologic yield in the future; and

BE IT FURTHER RESOLVED that the Commission hereby 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.

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 regular meeting held in Las Vegas, Nevada, on December 15, 2010.

WITNESS my hand this 22nd day of December, 2010.

DON A. OSTLER
Executive Director and Secretary

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Upper Colorado
River Commission

APPENDIX D

TRANSMOUNTAIN DIVERSIONS

TRANSMOUNTAIN DIVERSIONS FROM COLORADO RIVER BASIN IN COLORADO 1992-2011

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	10YEAR AVERAGE
TO PLATTE RIVER BASIN																					
Grand River Ditch	21,360	24,770	17,870	19,808	23,260	17,948	21,140	19,440	9,363	8,326	9,390	2,541	7,376	21,217	19,542	20,432	22,098	19,385	14,033	17,080	15,309
Eureka Ditch	212	95	0	180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alva B. Adams Tunnel	198,300	206,400	233,200	238,500	207,300	229,000	203,800	165,840	118,960	131,931	268,000	88,571	122,770	162,911	273,118	233,858	287,330	243,307	225,799	247,800	215,346
Berthoud Pass Ditch	1,010	1,260	874	815	1,530	2,610	1,570	0	0	268	244	298	202	801	839	720	702	727	534	841	591
Moffat Water Tunnel	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	49,127
Boreas Pass Ditch	175	334	83	0	209	282	178	249	62	95	29	86	21	133	177	187	171	209	181	237	143
Vidler Tunnel	1,150	1,150	465	760	268	420	425	580	167	186	320	220	194	518	641	714	1,059	1,285	954	400	631
Harold D. Roberts Tunnel	85,530	124,100	73,890	52,176	36,920	53,480	30,550	40,380	47,377	53,263	130,500	36,027	45,699	59,233	111,409	41,392	76,912	57,286	54,280	79,310	69,205
Straight Creek Tunnel	363	408	330	320	399	393	295	386	190	163	225	183	164	361	347	226	286	267	218	347	262
TO ARKANSAS RIVER BASIN																					
Hoosier Pass Tunnel	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	7,344
Columbine Ditch	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	1,940	1,830	87	78	352	230	998
Ewing Ditch	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	956
Wurtz Ditch	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	2,131
Homestake Tunnel	26,910	28,110	24,230	23,505	38,690	37,130	23,316	31,420	24,140	35,770	26,510	9,930	23,150	23,920	32,490	20,880	26,820	50,510	9,010	32,231	25,545
Twin Lakes Tunnel	41,970	62,664	42,850	33,120	34,850	34,190	47,441	16,580	42,060	45,650	20,570	45,240	35,550	50,160	54,677	54,470	64,540	58,740	46,810	66,326	49,708
Charles H. Boustead Tunnel	57,060	88,740	55,040	91,300	38,540	79,380	53,986	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	60,683
Busk-Ivanhoe Tunnel	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	4,284
Larkspur Ditch	205	334	146	116	60	185	67	6	7	63	0	0	76	171	221	397	461	375	234	310	225
TO RIO GRANDE BASIN																					
Tarbell Ditch	344	109	207	68	368	753	830	1,700	750	532	0	330	693	1,120	231	993	902	511	744	578	610
Tabor Ditch	684	1,060	639	1,240	375	1,340	1,010	1,430	495	254	87	323	250	1,050	801	1,270	1,050	827	506	591	675
Treasure Pass Ditch	63	113	94	0	15	245	223	367	70	29	0	185	150	337	71	200	121	262	183	262	177
Don La Font Ditches No. 1 & 2	480	0	364	50	112	64	0	0	10	0	0	0	0	54	0	269	218	154	22	296	101
Williams Creek-Squaw Pass Ditch	475	441	279	374	124	421	289	746	230	199	91	226	200	632	358	466	328	257	303	395	326
Pine River-Weminuche Pass Ditch	520	246	172	672	42	1,050	396	1,100	203	212	0	103	100	2,710	390	577	350	352	274	307	516
Weminuche Pass Ditch	2,630	0	0	0	0	1,090	459	3,400	0	0	0	64	50	508	241	1,050	743	847	653	229	438
TOTAL	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	665,853	492,323	670,445	581,344	458,988	611,266	505,333

TRANSMOUNTAIN DIVERSIONS FROM COLORADO RIVER BASIN IN COLORADO TO RIO GRANDE BASIN IN NEW MEXICO 1992-2011

San Juan-Chama Diversions	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	97,472

TRANSMOUNTAIN DIVERSIONS FROM COLORADO RIVER BASIN IN UTAH
1992-2011

TO GREAT BASIN	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	10 YEAR AVERAGE
Broadbent Supply Ditch (Woming)											2,892	1,101	912	1,101	1,217	1,551	2,044	1,455	994	367	1,363
Fairview Tunnel	1,525	4,474	2,049	2,445	2,830	2,009	1,985	1,617	1,844	1,959	1,182	2,459	1,571	2,345	2,563	1,515	2,630	1,429	1,300	2,032	1,903
Ephraim Tunnel	1,808	4,007	1,004	2,629	2,132	3,399	2,395	2,444	1,648	3,049	2,804	2,862	3,691	4,874	4,532	3,000	3,000	4,221	7,120	1,522	3,763
Spring City Tunnel	1,632	3,391	1,334	2,670	2,824	2,571	1,519	798	1,066	1,819	1,487	3,013	1,737	3,321	3,004	2,755	2,755	2,800	2,850	4,908	2,863
Central Utah Project, Bonneville Unit*	63,975	49,243	18,587	11,933	11,891	12,385	5,006	16,863	3,707	3,954	46,889	42,715	33,861	75,670	33,617	33,606	38,834	37,229	33,233	39,780	41,543
Hobble Creek Ditch	369	1,051	694	825	590	972	800	740	0	194	0	0	0	0	0	0	0	0	0		0
Strawberry-Willow Creek Ditch	2,041	2,171	962	953	1,379	1,706	1,554	667	1,239	0	0	0	0	0	0	0	0	0	0		0
Strawberry Water Users Association*	72,872	51,484	74,190	36,768	51,934	41,576	52,821	61,297	76,636	80,873	69,419	58,570	62,962	49,824	47,791	68,906	86,297	45,971	65,740	38,418	59,390
Duchesne Tunnel	15,678	35,648	22,817	39,859	31,895	39,446	30,746	33,429	28,452	28,739	20,767	28,857	27,278	29,008	21,454	29,496	26,607	29,492	27,128	10,581	25,067
TOTAL	159,900	151,469	121,637	98,082	105,475	104,064	96,826	117,855	114,592	120,587	145,440	139,577	132,012	166,143	114,178	140,829	162,167	122,597	138,365	97,607	135,891

TRANSMOUNTAIN DIVERSIONS FROM GREAT BASIN
IN UTAH TO COLORADO RIVER BASIN IN UTAH
1992-2011

Tropic and East Fork Canal	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	4,090

TRANSMOUNTAIN DIVERSIONS FROM COLORADO RIVER
BASIN TO NORTH PLATTE BASIN IN WYOMING
1992-2011

City of Cheyenne	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	12,876

TRANSMOUNTAIN DIVERSIONS FROM COLORADO RIVER BASIN
1992-2011

TOTAL	768,043	869,383	728,312	697,018	635,304	788,068	645,355	629,669	510,401	618,083	673,700	512,384	538,959	792,559	866,849	762,704	994,857	819,228	739,190	805,395	750,582

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 cin 1959. Flows are estimated ɛand addeto total on line 93: Candland Ditch - 200 acre-feet, Horseshoe Tunnel - 600 acre-feet, Larsen Tunnel - 690 acre-feet, Coal Fork Ditch - 260 acre-feet, Twin Creek Tunnel - 220 acre-feet, Cedar Creek Tunnel - 340 acre-feet, Black Canyon Ditch -290 acre-feet, Reeder Ditch - 250 acre-feet, Madsen Ditch - 40 acre-feet, and John August Ditch - 200 acre-feet. These diversions are from the San Rafael River in the Colorado River Basin to the Great **Basin in Utah and total about 3,100 acre-feet annually.**

Does not include diversions for enlargement Continental Divide Ditch which services 437 acres or Ranger Ditch which services 391 acres. Neither ditch is gaged, and suitable estimates of diversion amounts are currently unavailable.

The total diversion is the sum of all diversions except Tropic and East Fork Canal which imports water to the Colorado River Basin. This import is subtracted from the sum of exports.

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

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