



**Governor's Representatives on Colorado River Operations
States of Arizona, California, Colorado, Nevada, New Mexico, Utah, and
Wyoming**

**The Seven Basin States' Commitments to
Future Actions Following Release of the Basin Study**

Background

The Colorado River Basin Water Supply and Demand Study (Basin Study) is the most recent example of the Seven Colorado River Basin States (Basin States) and the Bureau of Reclamation (Reclamation) working together to address Colorado River water supply and demand issues. The possibility of future water supply and demand imbalances has been identified since the 1960's. For example over 30 years ago, the study, *The Westside Study Report on Critical Water Problems Facing the Eleven Western States (Reclamation 1975)*, concluded that in spite of conservation, the Basin faces future water shortages unless its natural flows are augmented by more than 2.5 million acre-feet/year, or water-dependent Basin development is limited. With this knowledge, the Basin States and Reclamation have taken several actions to begin to address the potential for imbalance between future supplies and demands.

The Basin Study is the most comprehensive effort to date to quantify and address future supply and demand imbalances in the Colorado River Basin. The Basin Study evaluates system reliability and also outlines potential options and strategies to meet or reduce imbalances that are consistent with the existing legal framework governing the use and operation of the Colorado River. A range of future water demands are quantified in six different demand scenarios that include varied assumptions about future economic conditions, population growth, and water needs for agricultural, municipal and industrial, energy, minerals, and fish, wildlife, and recreation purposes.

The Basin Study considers four different water supply scenarios and is the first Basin-wide study conducted by the Basin States and Reclamation that considers the potential influence of climate change on future water supply. As described in *Technical Report B – Water Supply Assessment*, the climate change scenario, called the Downscaled Global Climate Model (GCM) Projected scenario, was developed using 112 downscaled GCM projections and shows a median projected decrease in mean flows of about 9 percent on average over the 2011-2060 period as compared to the 1906-2007 period. For comparison sake, the 25th and 75th percentiles show a decrease of 1 percent and 16 percent, respectively. Although this variation indicates the need for additional research to better project climate changes on the Colorado River Basin, the results strongly suggest that the Colorado River system is vulnerable to possible changes in water supplies resulting from a drier climate.

The Basin Study's four different supply scenarios and six different demand scenarios present a broad range of possible imbalances. However, when comparing the median of the six demand scenarios combined with the median of four different water supply scenarios, a Basin-wide imbalance of approximately 3.2 million acre-feet/year by 2060 is plausible. Moreover, the greatest increases in demand are projected to occur in the Lower Basin. The Basin Study also illustrates that because of the magnitude and distribution of the imbalances, no single solution will be adequate to meet all future water demand and supply imbalances.

The Basin Study confirms that the Basin faces a range of potential deficits between future water supply and demand and that these possible deficits will require diligent planning and implementation of water supply and demand management programs to help avoid severe shortages and provide necessary supplies for future demands throughout the Colorado River Basin. The flow of the Colorado River is highly variable and given this fact, diligent planning and implementation of water supply programs will need to include portfolios that combine options and strategies that both address supply and demand imbalances and also take advantage of higher flow years. Local, state, regional, and Basin wide projects will all be needed to meet demands over the 50 year planning horizon to ensure that the Basin can develop to its full potential.

The Basin Study identifies a range of measures to address the supply and demand imbalance. Several options proposed during the public comment phase of the Basin Study raise serious legal and policy issues. Without the foundation of existing law, some options and strategies would require significant changes impacting a wide variety of local, state, and federal entities and resulting in increased uncertainty and risk. The Basin States will discuss all options submitted, however, they are committed to taking future actions that fit within the "Law of the River".

The Seven Basin States' Commitments

Additional Conservation and Reuse

The Basin Study recognizes that many municipal agencies in each state have implemented water conservation and reuse to meet the water needs of their growing populations and have incorporated comprehensive conservation programs into their planning to meet future demands. These conservation reductions are included in the forecast of future demands in the Basin Study. Municipal conservation can only be implemented step by step, providing a balance between water rates, demand elasticity, and demand hardening during droughts. Municipalities will continue to evaluate additional conservation and reuse, over and above what is already reflected in the Basin Study demand scenarios, and implement necessary programs on a case by case basis considering local conditions.

In many states, significant agricultural conservation programs are already in place. Additional agricultural conservation, above that already included in the calculation of demands, will require significant additional investment. Agricultural water transfers are being implemented within the Law of the River, represented for example by forbearance of agricultural water use,

and new transfers are under evaluation in many states. Many of the states are also exploring alternatives to permanent agricultural transfers, and these types of alternatives are being further analyzed and implemented. Only projects that actually reduce consumptive use will reduce the imbalances between future supply and demands. This Basin Study identifies additional conservation and transfer opportunities that will be considered by entities as appropriate through local and/or state measures. While these local and state programs will offer a partial solution in some areas of the Basin, they may be, in many cases, problematic because much of the water diverted for use within the Basin returns to the river or a tributary for use by others downstream.

Regional Solutions

Water banking has been ongoing in the lower Basin for many years. A number of water banking options were submitted for consideration by the Basin States and Reclamation. A representative water banking option was included within the Basin Study to conceptually explore water banking. This option demonstrated that there are a number of legal, policy, and institutional barriers to implementing an Upper Basin water bank, however, the benefits associated with this option clearly demonstrate the need for additional exploration and analysis of this and similar concepts.

There are many watershed and regional solutions already being implemented and explored by the states and water agencies. For example, the states and water agencies have jointly been funding weather modification pilot programs for over five years as well as land and vegetation management options. All of these regional solutions are outlined in the Basin Study. The Basin States and relevant water agencies are committed to evaluating and implementing programs and options that have the greatest potential to yield additional supply. Although generally observed to be effective, the potential to generate additional water can vary significantly from year to year, and it is often very difficult to quantify the additional amounts of water generated at particular locations within the river system. Accordingly, regional implementation of these options would likely need to be used to augment the river on a Basin wide basis.

Desalination and Importation Solutions

The large demand and supply imbalances projected at the latter part of the planning horizon can realistically be met only with implementation of a variety of options and strategies. Of the options analyzed, only large scale desalination and importation projects provide the reliability and quantity of water necessary to meet many of the plausible projected supply/demand imbalances. Future population growth in the Basin, the uncertainty of the reliability of the Colorado River supply and long lead times for implementation of projects, dictate that the Basin States and the Federal Government must start evaluating options for developing such project(s) immediately. For example, permitting and construction of large scale desalination projects may take 20 years or more before the projects become operational. The Basin States, in cooperation with appropriate Federal agencies will form a partnership to immediately begin developing a process to consider feasible options for developing large scale

desalination and/or importation project(s), with the goal of having such project(s) in operation before the end of the planning horizon (by 2060).

Other Commitments

Modification to the operations of Lakes Powell and Mead was implemented in 2007 through the “2007 Guidelines” and will be effective through 2026 with re-consultation to occur no later than 2020 or if Lake Mead reaches an elevation of 1,025 feet. The Basin Study does not contemplate any changes to the 2007 Guidelines. Within the context of the 2007 Guidelines, Basin States’ representatives will begin discussions of additional measures or approaches to be taken at a Lake Mead elevation of 1,025 feet.

The Basin Study has again demonstrated to Reclamation and the Basin States the great interest in the future of the Colorado River by a wide variety of stakeholders—tribes, recreational entities, power providers, environmental organizations and conservation groups. As work continues following the completion of the Basin Study and based on its recommendations, the Basin States and Reclamation will continue to work with key stakeholders to explore solutions.

The Basin Study provides tools for water resource planning for the Colorado River Basin. The Basin States will work with Reclamation to evaluate progress regarding consideration of options listed in the Basin Study, evaluate the ability to use the tools developed for the Basin Study, and update water demands and supply scenarios on a five-year time frame. In addition, the Basin States will work with Reclamation to support improvements in the modeling and analytical tools used in the Basin Study and the information developed to support those tools, including those improvements specifically described in Appendix C5 of *Technical Report C – Water Demand Assessment*.

The Basin States will work with local, state, and federal representatives, and a wide array of diverse and interested stakeholders, to obtain funding to aid in the assessment and implementation of the above listed initiatives.

[Signatures begin on the following page.]

ARIZONA DEPARTMENT OF WATER RESOURCES

The Colorado River is a critical resource for the long-term health and economic welfare of the State of Arizona and its citizens. The Arizona Department of Water Resources (ADWR) is charged with promoting, protecting, and managing Arizona's annual apportionment of 2.8 million acre-feet of Colorado River water. ADWR represents all mainstem water users including the Central Arizona Project (CAP). Arizona's apportionment is used for municipal, industrial, agricultural, Tribal, and wildlife refuges purposes. Annually, the mainstem Colorado River users utilize approximately 1.2 million acre-feet of Arizona's apportionment. The CAP diverts the remaining 1.6 million acre-feet of Colorado River water for its customers in Central Arizona (Maricopa, Pinal, and Pima counties).

Arizona, in particular CAP and many mainstem users, is unique among the Basin States due to its vulnerability to the impacts of shortages from its junior priority status consistent with the Law of the River. In total, 6.2 million Arizonans, most of whom live within the CAP service area, and nearly 800,000 acres of irrigated agricultural land rely on Arizona's Colorado River allocation. Therefore, Arizona, especially CAP and other mainstem entitlement holders, are vitally interested in enhancing the current and future reliability of Colorado River system through augmentation and other means to meet current and future Arizona water needs.

APPROVED:



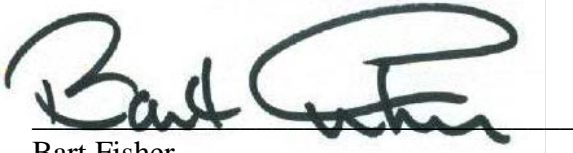
Sandra Fabritz-Whitney
Director

12/5/12
Date

COLORADO RIVER BOARD OF CALIFORNIA

The Colorado River Board of California has authority under California law to investigate, coordinate, collate, and preserve information, facts, and data bearing upon the Colorado River System and to confer with representatives of other States in the Colorado River Basin, representatives of the United States, and other concerning the development of water within the Colorado river Basin and the use of the water of the Colorado River System.

APPROVED:

A handwritten signature in black ink, appearing to read "Bart Fisher", is written over a horizontal line. The signature is enclosed in a thin black rectangular border.

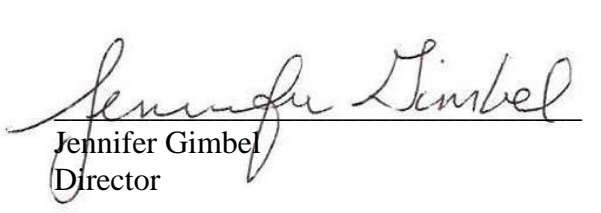
Bart Fisher
Chairman

12/5/12
Date

COLORADO WATER CONSERVATION BOARD

The Colorado Water Conservation Board (CWCB) was established in 1937 to guide the development and protection of water resources for the benefit of present and future Coloradans. Through policy implementation, financial support for water projects, and participation in statewide as well as nationwide programming, the CWCB strives to most effectively utilize this valuable resource. This fifteen member Board and professional staff work with the federal government, neighboring states, and water users within Colorado to strike a balance between necessary development and environmental protection. The CWCB serves as Colorado's primary guide for water policy in all of the state's river basins, as well as administration of major compacts, decrees, and treaties.

APPROVED:



Jennifer Gimbel
Director


12/5/12
Date

COLORADO RIVER COMMISSION OF NEVADA

SOUTHERN NEVADA WATER AUTHORITY

The State of Nevada participants in the Colorado River Basin Study include the Colorado River Commission of Nevada (CRCN) and the Southern Nevada Water Authority (SNWA). The CRCN is a State authorized agency responsible for securing and protecting Nevada's rights and interests in the Colorado River and in electric power generated by the river. The SNWA is a political subdivision of the State of Nevada and is responsible for addressing Southern Nevada's water needs on a regional basis. The SNWA represents seven member agencies including the Big Bend Water District, the City of Boulder City, the City of Henderson, the City of Las Vegas, the City of North Las Vegas, Clark County Water Reclamation District, and the Las Vegas Valley Water District. The CRCN and the SNWA work cooperatively to effectively manage Colorado River water resources for the State of Nevada and water users in Southern Nevada.

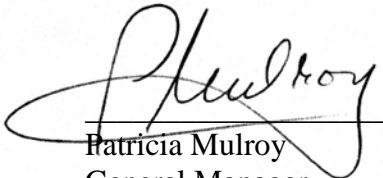
APPROVED:



Jayne Harkins
Executive Director
Colorado River Commission of Nevada

12/5/12
Date

APPROVED:




Patricia Mulroy
General Manager
Southern Nevada Water Authority

12/5/12
Date

NEW MEXICO INTERSTATE STREAM COMMISSION

The New Mexico Interstate Stream Commission (NMISC) is authorized by statute to do any and all things necessary to protect, conserve and develop the waters of the state, including representing the state of New Mexico's interests in the allocations made to New Mexico under the Colorado River and Upper Colorado River Basin compacts. In addition, the NMISC looks after the interests of all Colorado River water users within the State of New Mexico. The use of Colorado River water is vital to the economic health and public welfare of the state of New Mexico and its citizens and includes water used for municipal and industrial, irrigation, and tribal purposes while providing fish and wildlife, recreational and environmental benefits within the San Juan, Little Colorado, Gila and Rio Grande basins.

APPROVED:



Estevan Lopez
Director

12/5/12
Date

UTAH DIVISION OF WATER RESOURCES

The Utah Board of Water Resources (Board) and the Division of Water Resources (Division) were established to develop and protect the water resources of the State of Utah for the benefit of present and future citizens of Utah. Through policy implementation, water resource planning, and financial assistance for water projects, the Division and the Board work to effectively utilize this precious resource. As the Governor's representative for interstate streams, The Division represents Utah to coordinate work with the federal government, neighboring states, and water users within Utah to achieve the goals of protecting our scenic natural environment while maintaining the vital use and development of water to promote the wellbeing and economic vitality of Utah on behalf of its citizens.

APPROVED:



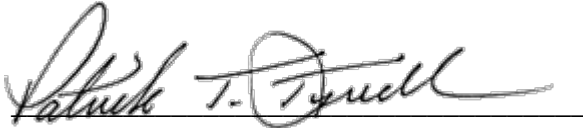
Dennis J. Strong
Director
Utah Interstate Stream Commissioner

12/5/12
Date

STATE OF WYOMING

Water in Wyoming belongs to the State. The Wyoming State Engineer is a constitutionally-created office and is Wyoming's chief water official with general supervisory authority over the waters of the state, and of its appropriation, distribution and application to recognized beneficial uses. The State Engineer is entrusted with the duty to preserve Wyoming's water allocations to safeguard the State's current and future water supplies. The Wyoming legislature has conferred upon Wyoming officers the authority to cooperate with and assist like authorities and entities of other states in the performance of any lawful power, duty or authority. Wyoming and its State Engineer represent the rights and interests of all Wyoming appropriators with respect to other states.

APPROVED:



Patrick T. Tyrrell
State Engineer

12/5/12
Date