

Briefing Document...

Colorado River Basin Salinity Control Program

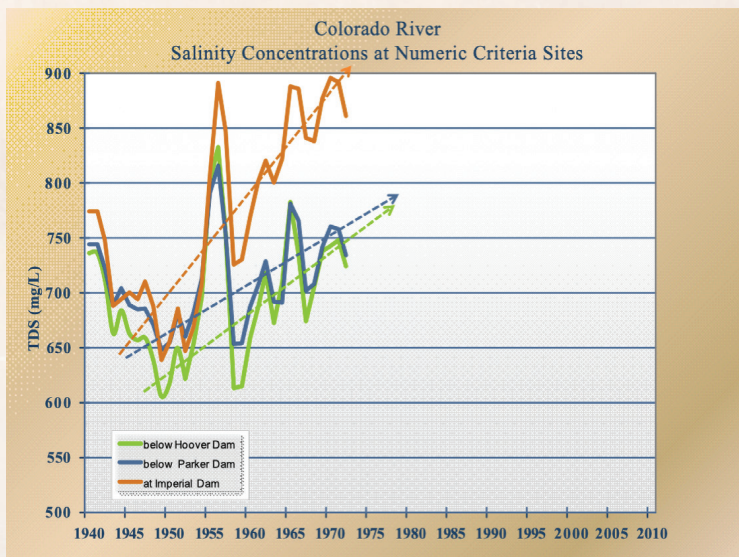
Background

The Colorado River is used by approximately 40 million people for domestic and industrial uses in the United States and is used to irrigate approximately 5.5 million acres of land. Modeling by Reclamation shows that the quantifiable damages from high salinity water are approximately \$348 million dollars per year to U.S. users, with projections that damages would rise to more than \$447 million by 2040 if the Program were not to continue to be aggressively implemented. The Colorado River flows more than 1400 miles from its headwaters in the Rocky Mountains through portions of seven states and the Republic of Mexico before it discharges into the Gulf of California. Through natural and man-induced causes, it picks up and dissolves salt along its path from about 50 mg/L at its source to nearly 850 mg/L (present concentrations) as it passes from the United States into Mexico. Historically nearly 10 million tons of dissolved salts have passed down the river annually below Hoover Dam. The significant salt load creates environmental and economic damages to its users.



The early 1970s saw significant concern by US water users over the increasing Colorado River salinity concentrations, as well as issues between the United States and Mexico over the quality of water being delivered to Mexico pursuant to the treaty between the countries. These concerns, coupled with the passage of the Clean Water Act amendments in 1972 and concerns over EPA mandating state-line water quality standards, led the seven Colorado River Basin states to work with Interior agencies, the State Department and Congress in

passage of the Colorado River Basin Salinity Control Act (Act, 1974). Now, more than four decades later, this unique partnership of federal and state agencies continues to work cooperatively with hundreds of local companies and thousands of individual water users to control the salinity levels of this major river while allowing development and usage of its waters pursuant to the Colorado River Compact. Through Program efforts, the salt load of the Colorado River has now been reduced by more than 1.3 million tons annually, but continuance of the program is required to offset what otherwise would be increases in salinity levels.



Sources of Salinity

Much of the Upper Colorado River Basin is underlain by geologic formations composed of sediments which were deposited or precipitated in ancient inland seas and water ways which concentrated salts in these formations. The passing of water through these formations, or their derived soils, both naturally or through human activity, dissolves and mobilizes these salts. EPA has identified that 62% of the salt load of the Colorado River above Hoover Dam comes from natural sources. With the significant federal ownership in the Basin, most of this comes from federally administered lands. Human activity, principally irrigation, adds to the salt load of the Colorado River. Further, natural and human activities concentrate the dissolved salts in the River. Such activities include out-of-basin exports, crop and other consumptive uses, phreatophytic evapotranspiration and evaporation from reservoir surfaces.



Colorado River Salinity Standard

In 1975 the seven Colorado River Basin states adopted, and subsequently EPA approved, a salinity standard for the Colorado River. That standard is composed of numeric criteria for total dissolved solids and a plan of implementation to meet the

criteria. The numeric criteria were selected as the 1972 salinity levels at the three Lower Basin monitoring locations: below Hoover Dam (723 mg/L), below Parker Dam (747 mg/L) and at Imperial Dam (879 mg/L). The Plan of Implementation is designed to keep the average annual flow-weighted salinity concentrations at or below the 1972 levels while allowing continued use and development of waters upstream. In 2023 the seven Colorado River Basin States reviewed and adopted a revised standard with an updated Plan of Implementation. The Plan of Implementation calls for the creation of an additional 51,700 tons of annual salinity control practices over the three-year Review period.

Program Partners

Department of the Interior
Bureau of Reclamation*
Bureau of Land Management*
US Geological Survey
US Fish and Wildlife Service
Department of Agriculture
Natural Resources Conservation Service*
US Environmental Protection Agency

State of Arizona
State of California
State of Colorado
State of Nevada
State of New Mexico
State of Utah
State of Wyoming

Literally hundreds of water districts, water user organizations and canal and ditch companies, as well as thousands of individual water users and producers.

* Implementing agency

Program Implementation

Implementation of the Program occurs principally through off-farm irrigation water delivery improvements under Reclamation's Basinwide Program or on-farm irrigation improvement practices implemented through NRCS' Environmental Quality Incentives Program (EQIP). Additionally, salinity control is achieved through BLM practices and administration of NPDES permits by the states. Reclamation's Basinwide Program is a grant program under a funding opportunity announcement every two or three years. Potential participants make application to Reclamation and awards are granted based on cost-effectiveness and other factors. Most applications consist of canal and ditch lining or piping practices. Annual appropriation is about \$6 million. Under EQIP, NRCS assists producers with improvements to their on-farm irrigation practices—generally improving flood irrigation systems or providing sprinklers in the form of side rolls or center pivots. Financial assistance is about \$11 million annually. Reduced seepage from canals and laterals or reduced deep percolation from farm fields decreases the amount of dissolved salt which seeps to the Colorado River and its tributaries.

Cost Share

The Act requires a cost share from power revenues of up front 30% of the total cost of the practices implemented by Reclamation and NRCS. For example, if Reclamation were to implement \$10 million in practices under its Basinwide Program, then \$7 million would come from appropriated dollars and \$3 million would come from power revenues. Alternatively said, the cost-share dollars are three-sevenths of the appropriated dollars (or 43%). That means that for every dollar appropriated to the Program, whether to Reclamation or NRCS, an additional 43 cents of cost share is added to the effort. It is important to remember that the required cost-share dollars are on a percentage of the appropriated dollars. Therefore, if the appropriated dollars are reduced, the cost share will automatically be reduced. In addition to the cost-share dollars,



under NRCS' EQIP, producers often contribute about 25% of the total cost of the improvements. Under Reclamation's Basinwide Program, applicants often expend meaningful dollars to buy down their projects to make their proposals more cost-competitive.

Program Needs

Reclamation's Basinwide Program

- Continue effective program implementation, restore funding levels to \$10.7M to keep current with program needs, continue operating Paradox Valley Unit while seeking brine disposal alternatives

NRCS' EQIP

- Continue funding allocation consistent with Three-Year Funding Plan, continue effective implementation under EQIP including effective technical assistance to producers and sufficient staffing to implement the program

BLM

- Continue to develop an understanding of salt mobilization on rangelands and then develop and fund "a comprehensive program for minimizing salt contributions to the Colorado River from lands administered" by BLM

Legislative History

1974 PL93-320

- Colorado River Basin Salinity Control Act (Act)
- Title I deals with waters below Imperial Dam and the US commitment to Mexico
- Title II created the Colorado River Basin Salinity Control Program and directed the Secretary of the Interior to implement salinity control projects

1984 PL 98-569

- Authorized the Secretary of Agriculture to establish a voluntary cooperative salinity control program
- Directed the Secretary of the Interior “to develop a comprehensive program for minimizing salt contributions to the Colorado River from lands administered by the Bureau of Land Management”

1995 PL 104-20

- Changed Reclamation’s program to the Basin-wide Program to implement salinity control through competitive grants rather than large Reclamation projects

1996 PL 104-127

- Combined the USDA Colorado River Basin Salinity Control Program with three other programs under EQIP
- Authorized up-front cost sharing

2008 PL 110-234

- Created the Basin States Program through which the cost-share dollars are to be expended

2018 PL 115-334

- Extended EQIP authority through September 30, 2023

Colorado River Basin Salinity Control Forum

The Colorado River Basin Salinity Control Forum was created by the seven Colorado River Basin states in 1973 to act as a common voice for the states on salinity matters and to coordinate with federal agencies in the implementation of the Program. Forum membership consists of appointees from each of the governors of the Colorado River Basin states and includes water quantity and water quality agency leads and representatives from major water user organizations.

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Colorado River Basin
**SALINITY
CONTROL FORUM**

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