

# 2000 ANNUAL REPORT

## Colorado Division of Water Resources

### Message from the State Engineer

It seems that each year becomes more challenging than the previous year as we deal with new and complex issues. The year 2000 was a year that tested our leadership and management skills in many ways. The runoff and precipitation was well below average throughout the state and the summer "monsoon" rains were absent. This resulted in active water administration on many streams that have not had a call for some time. On the South Platte River, we had a call on from mid-May to mid-September which was twice as long as normal. This longer call caused us to order well augmentation organizations to acquire more replacement water to protect their members from curtailment. Dick Stenzel, Division 1 Engineer, and his staff did a tremendous job of coordinating augmentation activities.

The Legislature continues to have to limit general fund agencies such as DWR in order to meet the funding needs of education, prisons, and Medicaid while living with the TABOR amendment.

In 2000, the Joint Budget Committee proposed to reduce our Personal Services line by one percent and not fund retirement, sick, and annual leave payouts. This amount of underfunding would have been about \$330,000 and would have forced us to hold any vacant position open for most of the year. With many critical water commissioner positions retiring, this would have been a serious situation in 2000. Fortunately, with the assistance of the water users and key legislators, the underfunding was restored. This problem will continue until changes are made in either our funding sources or the TABOR amendment is changed. The 2001 JBC is proposing that our Personal Services line be reduced 1.5 percent.

The Division continues to use new technology to assist us in our mission and in being more efficient and effective in using our limited resources.

The Rio Grande Decision Support System (DSS) is progressing towards providing us with tools to better manage the San Luis Valley wa-

ter resources. The South Platte Decision Support System feasibility study is underway and will be completed by the end of 2001. We have completed the imaging of all of our well permits and they can be accessed by the public quickly and effectively at our Denver and Division offices. We intend to have them available on the Internet in the near future.

Staff have expended many overtime hours without compensation dealing with litigation on the Republican River Compact and the Arkansas River Compact. The timeline on the Republican River Compact litigation is very aggressive with trial scheduled for March of 2003. We are attempting to protect the pumping from the Ogallala aquifer in northeast Colorado (500 to 600,000 acres) from curtailment as a result of this litigation.

I want to conclude by expressing my appreciation to the Division staff for their outstanding dedication and professionalism. They continue to be the "best in the west".



Hal D. Simpson  
State Engineer

#### The Mission of the Division of Water Resources is

- to provide competent and dependable distribution of water in accordance with statutes, decrees and interstate compacts.
- to ensure public safety through safe dams and properly permitted and constructed water wells.
- to maintain and provide accurate and timely information concerning water.
- to promote stewardship of all human, fiscal and natural resources.
- to serve the public through the generation of creative solutions to problems.
- to help the public understand complex water issues.
- to promote stability in the use of the state's limited water resources.
- to apply modern technology to its greatest advantage.

## The Arid South Platte

The 2000 water year turned out to be very dry in the South Platte basin. This contrasts with the far above average conditions we have experienced on the South Platte during the previous five years. It also was not anticipated as we had average snowpack and good reservoir storage conditions at the end of March 2000. The snowpack dropped dramatically the last few days of April due to the warm temperatures and strong winds. Because of this drop, the overall average snowpack conditions were well below average by the end of April.

*Reservoir releases significantly depleted most of these reservoirs even forcing the removal of fish...*

The generally dry, warm conditions continued through May and June. Because of these conditions, runoff was both early and not as large as usual. Thus, the direct flow calls remained on, requiring many users to begin to use their storage supplies to meet needs during much of June. The call also kept junior reservoir owners on the mainstem from refilling. This was a significant depar-

ture from an average or wet year when reservoirs are topped off again during spring runoff.

As had been experienced all spring and early summer, the dry, warm conditions continued throughout July and September. Much of the irrigation demand on the mainstem and the tributaries during these months was met through wells and the release of reservoir storage. The major reservoirs below Greeley had 245,000 acre-feet in storage at the beginning of the irrigation season. Reservoir releases significantly depleted most of these reservoirs even forcing the removal of fish by the Division of Wildlife from Julesburg and Jackson Reservoirs. By the end of September, the combined storage of water left in the major reservoirs downstream of Greeley was only 16,032 acre-feet. Flows were so low in the lower reaches of the river that no water was available above the Petersen Ditch headgate in August.

The increased dependence on wells and the fact that there was a continual call throughout the summer affecting the upper reaches of the South Platte River for over 225 days resulted in the Central and GASP organizations having to purchase additional replacement sources of water to offset their depletions. The need to acquire additional sources of water also resulted in both

organizations looking at ways to maximize their resources by trading replacement sources between each of them as there were some reaches of the river where one had excess replacement sources and the other was in need of additional water. This sharing of resources and cooperation between each organization had not occurred in the past and opened channels of communication. Our office continually met with each organization to keep apprised of their activities and progress in finding replacement sources. We also met with the Bijou and Ft. Morgan Irrigation Companies to inform them of the operations of GASP and Central during the irrigation season.



South Platte River near Peterson Canal (photo taken in August 2000)

## Southwestern Colorado

Division Seven began the irrigation year with ample storage and soil moisture conditions. Poor winter weather caused a shortfall in water supply. Snowpack numbers varied from less than 50% in the South San Juans to around 80% of normal water in the Dolores/San Miguel mountains. An early runoff allowed most reservoirs to fill and ditches to acquire sufficient early water. The later spring and summer was very dry, however, and that led to poor production while using most of the storage in those drainages which had reservoirs. Peak flows occurred on most higher streams early in May and

dropped off steadily afterward.

Streams were administered strictly by priorities on the streams which were under call. The calls started about a month earlier than usual, early in June. The San Juan Project diverted less than any year since 1977. The La Plata River Compact was difficult to administer as the stream below Hesperus dried up and required deliveries to the stateline could not be achieved. Users in Colorado and New Mexico suffered greatly.

Growth and the problems which accompany building on and subdividing

the land have impacted stream flows. Education of the public and dealing with conflicts arising from these situations challenged the division water staff.

Division Seven Water Court case loads remained active and became more complex. The 20-year Pagosa Springs geothermal case was resolved and the Dolores exchange plans were operational this year, while the U.S. Forest Service Reserved rights negotiations faltered but regained a bit of momentum by the end of the year.

## Rio Grande Basin

The Rio Grande drainage experienced drought conditions almost as bad as in 1977, one of the worst drought years on record, during the summer of 2000. The Rio Grande reached a low of 170 cfs during August, the lowest recorded flow in August at the Del Norte gage in 100 years of record. On the mainstem Rio Grande, most of the large canals were out of priority for most of the summer. The tributaries and the Conejos River were delivering a partial water supply to the number one water rights for most of the summer. The Rio Grande delivered 100 acre-feet over the Compact delivery obligation to the stateline. The Conejos delivered 11,000 acre-feet over the Compact obligation, most of that water coming during the winter.

Work continued on the Costilla Creek Watermaster manual with many meetings between the Engineer Advisers to try and hash out the final details. Work with the New Mexico Adviser took a turn for the worse late in the year when the Adviser changed his position on many previously agreed upon items in the manual.

The increase in mileage costs has been

adversely affecting the ability of the water commissioners to perform their duties. Increases of 40% in costs were experienced in the last half of 2000.

The Federal legislation authorizing the Great Sand Dunes National Park sailed through Congress last year. The National Park Service is currently conducting negotiations with the owners of the Baca Ranch to purchase the ranch and incorporate it into the Park property. If the sale goes through, it may remove the threat of exportation of large amounts of water from the Rio Grande Basin from the ranch.

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The Rio Grande Headwaters Restoration project was initiated. Montgomery-Watson Inc. was selected to do the feasibility study for the project with the San Luis Valley Water Conservancy District managing it. The project is looking at

improving riparian habitat, improving flow conditions in the Rio Grande, evaluating flooding potential, evaluating structures in the river, and reducing some of the streambed aggradation, which make it difficult to deliver water to the priority water rights and to the compact.

The Rio Grande Decision Support System (RGDSS) development is moving along. Work continued on developing the groundwater model. Contractors installed many of the new monitoring wells and conducted pump tests to gather data for the groundwater model. Much of the surface structure and irrigated acreage mapping was completed during 2000 and the data has been incorporated into the GIS system. Rules and regulations for new appropriations from the confined aquifer were originally required to be written by July 1, 2001. Currently proposed legislation would delay implementation of rules and regulations for two years. This is due to the contractors being unable to complete the Decision Support System by July 1.

## Gunnison River Basin

In the annals of Gunnison and San Miguel River flows, the 2000 season will go down as one of the driest in recent history. The measure for comparison for a drought year has been the 1977 season, and 2000 compared very closely to that year. Because of the drought conditions, the Water Commissioners worked very hard to administer the priority system. Extremely dry conditions make people irritable and there were more disagreements than usual.

The San Miguel and Uncompahgre River systems had a river call through most of the summer. On the Uncompahgre, the UVWUA call was administered down through the 1941 rights, where previously they only went down into the 1945 rights. In this area, there are a lot of 1941 and 1942 adjudica-

tions that are needed for irrigation. Many of these ditches haven't been curtailed since Ridgway Reservoir was built in 1986.

On June 1, 2000, the United States Bureau of Reclamation made good on their promise to the water users of the Upper Gunnison Basin when they signed the Aspinnall Subordination Agreement, which formalizes the subordination of 60,000 acre-feet of the federal government's water rights to the Upper Gunnison Basin. Fellow signatories to the agreement were the Colorado Water Conservation District, the Upper Gunnison River Water Conservancy

District, and the Colorado State Engineer. Junior water users may consume up to 60,000 acre-feet of water for use within the Upper Gunnison River Basin without being called out by the Aspinnall Unit's water rights.

Division 4 personnel continue to play an active part in various water user groups, such as attending meetings of Conservancy Districts, GMUG Forest Management Plan Steering Committee, Selenium Task Force, and Water User Associations. They also make field inspections and write consultations to the court for about 260 water court applications per year.



# Colorado River Basin

The 2000 irrigation year was moderately dry, and should be noted as the first year a Cameo call was administered since the settlement of the Orchard Mesa Check Case. It was also the first time since 1989 that the entire 66,000 acre-feet historic users pool in Green Mountain Reservoir was depleted. The graph below depicts the drawdown band or "Rule Curve" for this pool in Green Mountain as decreed in the Check case,

and the actual content for the 2000 irrigation year.

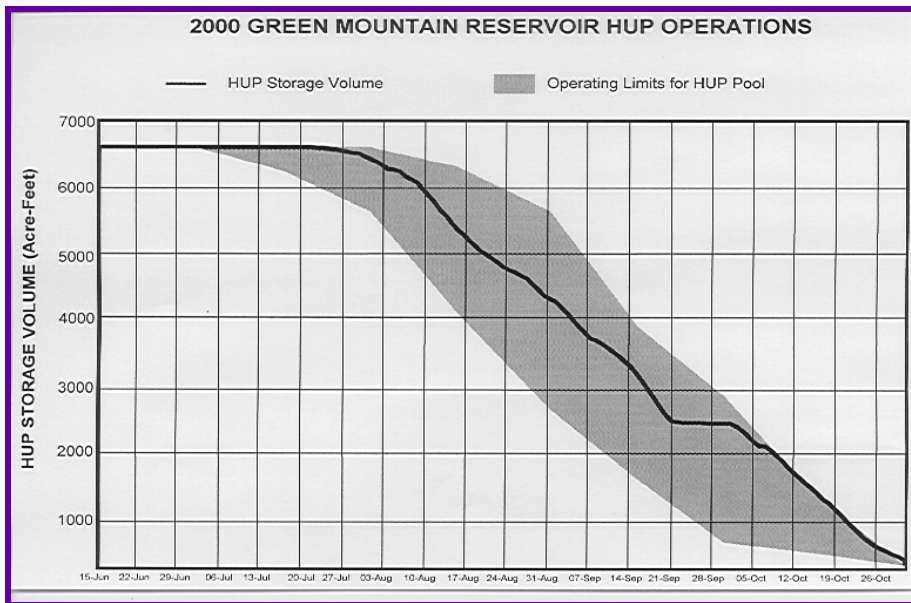
A pilot project was implemented to determine the feasibility of using satellite imagery for determining irrigated acreage and crop type. Using Division 5's GIS expertise and images covering two USGS 7.5' Quad sheets in the Grand Valley area, the project goals included developing the best methodology to be applied to updat-

ing all irrigation mapping previously performed through time consuming field proofing.

In May 2000, the Division 5 well permitting process was put on line with real-time data entry and research. This eliminated the need for the Denver records staff to re-enter well permit data previously entered by the Glenwood staff. It also reduced the time to obtain all research materials, providing complete up-to-date materials which reduced the workload on the Denver records staff.

The Division Engineer's 2000 Abandonment List and 2000 Tabulations were published in July. The Abandonment List had 201 water rights, requiring 177 certified letters. For the Tabulations, Division 5 continued to develop a larger backlog of untabulated water rights decrees.

The United States Bureau of Reclamation turned over the responsibility of inspecting the dams of the Collbran Project to the Division of Water Resources. The inspections were first done in September 2000. The Project has, not including Vega Dam, 15 dams of which nine are Class 1 dams.



# Division Engineer Orlyn Bell Retires

As the end of 2000 irrigation year neared, Orlyn Bell retired after 17 years as the Division Engineer for Water Division 5. Through his tenure, many changes in river administration, technology, and staffing occurred. The primary river administration change was the adoption of the Green Mountain Operating Policy during Mr. Bell's first full year as Division Engineer.

The implementation of this policy,

closer administration of beneficiaries of Green Mountain Reservoir, and the tightening of exchange administration, spawned the Green Mountain exchange case and the Orchard Mesa Check case.

As Orlyn began his service as Division Engineer, coding sheets were mailed for transmittal of data to the CSU CYBER computer, river administration decisions were made through information obtained by phone call to wa-

ter users or by on-site inspection. In 1985, Division 5 acquired its first personal computer.

Today, all division staff have PC's networked to access Satellite Monitoring Data and Decision Support Tools. Likewise, the division staff has grown in number and skill. Through Orlyn Bell's vision, Division 5 has not only survived these changes, but has lead the Colorado River water using community to this new age.

## Yampa/White River Basins

As with most areas of the state, the major issue of 2000 was the extremely dry irrigation season. When viewed from the perspective of the total water year, precipitation for the Division was about 92% of average for the year 2000. Normally, this would be sufficient to provide an adequate water supply; however, the distribution of this precipitation resulted in one of the driest years in decades. The summer precipitation that is relied upon after the runoff season failed to materialize until it was too late to benefit the crops.

As a result of the dry summer, administration on the tributaries to the main rivers started earlier than normal and lasted for most of the irrigation season. This resulted in the expenditure of additional resources at the beginning of

Fiscal Year 2000 that may impact operation of the Division in the spring of 2001.

Due to the dry summer, the Little Snake River was administered under the provisions of the Upper Colorado River Compact for the first time since that compact was signed. The administration was handled jointly by staff of the Colorado Division of Water Resources and the Wyoming State Engineer's Office.

A major project in the Division was work towards finalizing the Yampa River Basin Management Plan. This plan, when completed, will be submitted to the U.S. Fish and Wildlife Service and will form the basis for the Service's preparation of a Programmatic Biological Opinion that will cover the entire

Yampa River basin, including the Little Snake River in Wyoming. While many features of the plan have been agreed upon, discussion continues on the appropriate level of future depletions in the basin that should be covered by the plan. The management plan should be completed in the spring of 2001.

While not seeing a great increase in the number of Water Court cases in Division 6, the complexity of the cases is increasing. There are many more cases involving plans of augmentation and exchanges. These cases center around the growth in the Steamboat Springs area and the renewed activity in the Piceance Creek drainage of the White River.

## Arkansas River Basin

Forecasts of streamflow within the Arkansas River and its tributaries anticipated below average conditions. However, following the extraordinary run-off circumstances of the previous year, most of the available conservation storage capacity of basin reservoirs was full prior to the beginning of the irrigation season. John Martin Reservoir, near Las Animas, Colorado spilled again for the third year in a row. Storage of "east slope" water was allowed in Pueblo Reservoir. Use of ground water was considerably greater than in previous years, since 1997, the first complete year for which accurate records are available (see graph on right).

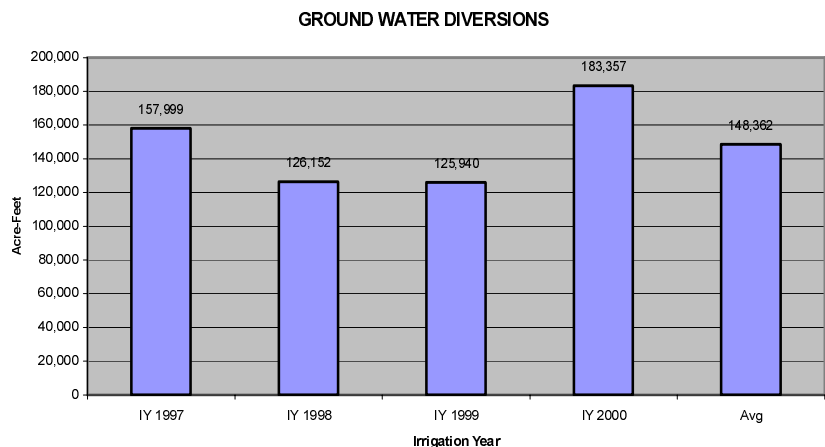
In the ongoing lawsuit, Kansas v. Colorado, No. 105 Original (U.S. Supreme Court) Special Master, Arthur L. Littleworth presented his Third Report containing his recommendations regarding damages through the year 1994, dated August 2000. In addition, a number of depositions were taken of Division of Water Resources personnel in preparation for future hearings concerning compact compliance for the period fol-

lowing 1996.

Attempts to resolve other issues within the context of the Arkansas River Compact Administration have met with frustration.

The inability to fill vacant positions in a timely manner had an effect on every Division 2 program area to some extent

during the year. This is a process in need of improvement. Never-the-less, Division 2 staff are to be commended for advancing the cause of creating safer working conditions, continuing to develop improved data handling processes, and promoting better administration of the State's water resources through accountability, improved data collection and record keeping.



# 2000 Statistics

## Special areas of interest and accomplishments for calendar year 2000:

- Second year of development for the Rio Grande Decision Support System (RGDSS). Some of the key accomplishments included completion of historic calibration of StateMod on a monthly basis, application of the state's consumptive use model was completed, and the development of water information sheets required to implement the Colorado Water Right Administration Tool.
- A comprehensive feasibility study was initiated in order to determine the users, components, cost and schedule for developing a decision support system for the South Platte River basin (SPDSS).
- A total of 798 dam safety inspections occurred in 2000. There were four serious incidents at dams this year involving failure of the outlet works to sinkholes in the reservoirs. Colorado applied for and received grants for federal fiscal year 2000 in the amount of \$85,400 in order to provide dam safety engineering staff advanced training in dam safety engineering subjects, and to acquire computer hardware and software for the analysis of dam performance.
- The Division of Water Resources reviewed and acted upon 140 substitute water supply plans. Staff strived to update records and take necessary actions for historic gravel pits that are not currently covered by an existing substitute water supply plan or court decree.
- A total of 464 subdivision referrals were received and acted upon, which was 116 more than 1999.
- During a special case management conference held in October, 2000, Nebraska formally enjoined Colorado as an active party in the interstate litigation known as Kansas v. Nebraska and Colorado, No. 126 Original.
- The damages segment of the Kansas v. Colorado litigation extended into February 2000.
- The ground water evaluation staff acted upon 11,569 new well permit applications. The Designated Basins staff acted upon 1,111 small capacity well permits, 203 large-capacity permits, evaluated 44 change applications, and were involved in numerous enforcement activities and hearings.

## Employee Recognition

### Employees of the Year

Support Staff	Shari Titus, Program Assistant, Durango
Technical	Michael Schaub, Engineering Technician, Denver
Professional	Chuck Roberts, Professional Engineer, Denver Scott Brinton, Hydrographer, Durango
Manager	Marta Ahrens, Public Information Officer, Denver Mary Ann Cavanaugh, Records Manager, Denver
Leadership	Ken Knox, Assistant State Engineer, Denver Jo Ann Thomas, Administrative Program Specialist, Denver

### Water Commissioners of the Year

Division 1	Robert Carlson
Division 2	Joe Flory
Division 3	Art Rivale
Division 4	Richard Rozman
Division 5	Larry Gepfert
Division 6	Sue Petersmann
Division 7	Marty Robbins

STATE OF COLORADO  
Bill Owens, Governor

DEPARTMENT OF NATURAL RESOURCES  
Greg E. Walcher, Executive Director

COLORADO DIVISION OF WATER RESOURCES  
Hal D. Simpson, State Engineer

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