



StreamLines

Quarterly Newsletter of the Office of the State Engineer

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Drought, Fire and Flood

Million Reservoir, the Latest Casualty of the Million Fire

Michael Sullivan, Assistant Division Engineer, Division 3

The Million Fire, near the town of South Fork on the Rio Grande, is still sending the community reeling, months after the fire is out. Million Reservoir, a popular fishing spot, was the location where the fire started. A small thunderstorm in the burn zone produced debris flows that have effectively killed the fish population in Million Reservoir and caused minor flooding in a subdivision near South Fork.

The Million Fire was hot enough to produce hydrophobic soils. These soils have little ability to retain moisture. On August 3, 2002, a small rain event (reportedly 3/10 inch) rushed off the steep, burned hillsides into small arroyos where the fast-moving water picked up large amounts of sediments including small boulders. Mud and rock, up to four feet deep, are now piled up at the upstream end of the reservoir.

Much of the water ran down Mill Creek, which parallels Million Reservoir. However, significant amounts flowed into the reservoir upstream of the reservoir. The diversion structure into the reservoir was inundated and overflowed with mud and debris before Mill Creek reestablished a channel approximately 30 feet east of its old location.

Water and debris that bypassed the reservoir caused minor flooding and damage in a subdivision where the creek exits the steep hillside.



It is probable that additional debris flows will occur, causing additional damage to the diversion and to the reservoir. The U.S. Forest Service is pursuing reestablishing the diversion structure with an armored embankment to channel debris away from the reservoir. The USFS is also considering using the newly deposited debris upstream of the reservoir to construct temporary sediment traps to prevent another inflow into the reservoir.

Preliminary reports indicate that the debris that entered the reservoir killed most of the fish. Currently, the Colorado Division of Wildlife is evaluating the best methods to clean the reservoir and reestablish the popular fishery in the least amount of time.



Denver Water Reservoir Releases and Water Supply Conditions

James Hall, Assistant Division Engineer, Division 1

Denver Water is the largest supplier of water in Colorado, serving water users in Denver and many of the suburbs of Denver. In response to the drought and the Hayman Fire, Denver Water emptied its highest reservoir in the South Platte drainage, Antero Reservoir. This reservoir previously held approximately 18,000 acre-feet. Denver Water drained Antero Reservoir to consolidate supplies in Cheesman Reservoir in order to reduce evaporation losses, provide a mix of in-basin and transbasin supplies depending on river conditions, and for water quality purposes. All releases have been coordinated with Division 1 staff.

Rains that fall in the Hayman burn area can bring down ash and debris from the fire that will pollute the

water supply into Cheesman Reservoir. By bringing water down from Antero Reservoir and putting it into Cheesman Reservoir, Denver Water hopes to dilute the amount of ash and other sediment in the raw water supply. In addition, adding water in Cheesman Reservoir will help prevent sediment currently at the bottom of the reservoir from moving through the outlet works and downstream to Denver's water treatment plants. Denver Water estimates they will also save 1,500 acre-feet of evaporation losses.

As the reservoir neared empty, Denver Water lowered the release rate from a maximum of 300 cfs to approximately 100 cfs in order to allow the Colorado Division of Wildlife and others to minimize fish kill. Recovery efforts have included netting several thousand

fish that will be relocated to other reservoirs.

Denver Water presently plans to lower Eleven Mile Reservoir, the next highest reservoir in the South Platte basin, for the same purposes. Denver Water presently plans to lower this reservoir from its present storage of 88,000 to approximately 40,000 acre-feet by next spring.

With the releases, Denver Water anticipates that they will be able to fill Cheesman Reservoir to approximately two-thirds, or its approximately 80,000 acre-feet capacity. Even with restrictions in place, Denver Water estimates they will only be at 35% capacity system-wide by April 1, 2003. This compares to normal water conditions when Cheesman Reservoir is 75% to 80% full.

Sources of Water for Irrigation Along the South Platte During a Drought

James Hall, Assistant Division Engineer, Division 1

The South Platte is in the midst of its third and most severe year of a drought that has seriously impacted the ability to use water. As an example of conditions, mean flows during July in the South Platte at Kersey - a key gage indicating river conditions - were only 124 cfs. This is the lowest recorded mean flow for this station during July since record-keeping at the station began in 1902. While variable, the average daily flow at Kersey during July is 1,040 cfs. Calls also continued to be very senior throughout the basin. The Farmers Independent, November 22, 1865, call in District 2 on the South Platte above the confluence of the Saint Vrain is the most senior call in

approximately 35 years on this portion of the river. The October 26, 1881, Weldon Valley bypass to the Sterling No. 1, call further east on the South Platte is the most senior call in this portion of the river in over 20 years.

As a result of dry conditions, irrigators have had to depend heavily on their reservoirs as a supply. Jackson, Empire, Julesburg, and Riverside reservoirs are all empty except for dead storage. North Sterling will be empty by the end of August, and Prewitt Reservoir will be empty by the end of September.

In addition to reservoir supplies and senior direct flow rights, wells

provide a key source of water for users in the South Platte. Without storage and wells, the types of crops presently grown could only be grown on a small portion of the land along the South Platte in most years. However, wells cannot operate unless the out-of-priority depletions from pumping the wells are replaced since wells have junior water rights. The Groundwater Appropriators of the South Platte (GASP), the Central Colorado Water Conservancy District (Central), and the Lower South Platte Water Conservancy District (Lower) are three of the augmenting organizations along the Platte. Due to the dry year and continued

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Sources of Water for Irrigation Along the South Platte During a Drought (cont.)

development, these organizations have had to continually search for additional augmentation supplies. They have worked together to utilize their combined resources to maximize the available water supplies available as replacement sources.

Traditional replacement sources have included transbasin water, reservoirs, recharge, and changed water rights. For instance, Central has developed storage the last several years by lining gravel pits that can be used to store water when there is excess and release water for replacement purposes. This year, the amount of replacement required

was expanded due to the unusual length of the call, which was over six months rather than the usual three months. In addition, new sources were developed, including senior ditches bypassing a portion of their right for replacement purposes, and the use of wells far from the river to directly replace water to the stream.

There are over fifty wells being operated in the lower end of the South Platte, District 64, at varying distances away from the river. These wells are providing replacement water to both the river and impacted senior ditches. The depletions associated with pumping

these wells will increase the replacement requirements of GASP and the LSPWCD in the future. Ultimately, in a wet year, much of these depletions will occur when there are periods of no river calls or compact obligations. During normal to wet years, increased recharge credits from an ever-increasing number of recharge sites being developed throughout the South Platte River Basin will be also available to replace the increased depletive effects.

Water users have even been able to secure the use of a small portion of Cherry Creek Reservoir water if necessary to provide replacement at the end of the season.

Creative Water Management in the Gunnison Basin

Frank Kugel, Assistant Division Engineer, Division 4

As in most of Colorado, the water users in Division 4 have been severely impacted by this year's extreme drought conditions. To partially offset these impacts, local water districts have used innovative methods to maximize the use of their limited water supplies. One example of this creativity involved the Redlands Power Canal. This structure diverts water from the Gunnison River near its confluence with the Colorado River in Grand Junction. The Redlands Canal has a number of irrigation and power generation decrees, the most senior being a 1912 decree for 670 cfs and a 1959 decree for 80 cfs. A call by these water rights during the 2002 irrigation season could have caused curtailment of much of the Gunnison Basin's diversions, creating significant hardship for agricultural and recreational interests.

The Colorado River Water Conservation District (CRWCD) used a unique approach to avoid this basin-wide curtailment. The CRWCD initiated an agreement with the Redlands Power and Water Company (RWPC), which stated that during the current June through October period, Redlands would call for only 600 of the 750 cfs contained in their two senior decrees. In return for the reduced water demand, the CRWCD agreed to reimburse RWPC up to \$85,000 for its lost power revenues.

As part of the Redlands issue, the U.S. Bureau of Reclamation (USBR), the U.S. Fish and Wildlife Service (USFWS), and the Colorado Water Conservation Board (CWCB), revisited the terms of their 1995 Memorandum of Understanding. This MOU addressed critical habitat in the lower Gunnison River for endangered fish, such as the Colo-

rado pikeminnow. A specific flow regime is necessary to allow their migration through the fish ladder at the Redlands Canal diversion. To maintain the necessary flows, the 1995 MOU mandated a minimum of 300 cfs in the Gunnison River below the diversion for the months of July through October under normal conditions. The USBR is obligated to make the necessary releases from Blue Mesa Reservoir to meet this minimum stream flow. The USFWS requested a commitment for additional deliveries in June. To conserve storage in the Aspinall Unit (Blue Mesa, Morrow Point and Crystal Reservoirs) while providing additional water during June, the USFWS, USBR, and CWCB agreed to the following flows: 200 cfs in June, 250 in July and August, 100 cfs in September, and

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Creative Water Management (cont.)

no flow obligation during October. This agreement has worked very effectively during the summer of 2002. There are ongoing efforts to effect a similar arrangement throughout the upcoming winter months. In the likely event of low

winter flows, the reduced Redlands demand could allow storage to occur in reservoirs such as Blue Mesa that are junior to the Redlands Power Canal. The benefits of these two agreements would be huge for a basin that has

suffered through one of the worst droughts on record. Through the efforts of these creative water managers, the lessened impact of the drought offers a glimmer of hope to water users in the Gunnison Basin.

Water Users Cooperate to Battle Drought

Robert Plaska, Division 6 Engineer

The severity of the drought this year has resulted in many water users working together to maximize the use of the scarce water supply. In Division 6, this has resulted in many users sharing the available supply, rather than calling for administration. On many of the smaller tributaries, senior rights have decided to take less than the amount of water to which they are entitled, so that others can continue to divert. In some cases, this has only amounted to stock water, but even that is hard to find this year.

Specific examples of what has taken place on the larger rivers in Division 6 show what can be accomplished when users work together. On the White River, when a call was about to be placed by a senior ditch in the Meeker area, other large upstream ditches volun-

tarily reduced their diversions to satisfy the senior ditch. This affected many users on the ditches that reduced their diversions, but it prevented a call on the system and many junior upstream users were allowed to continue diverting.

On the Yampa River, when flows on the mainstem were reaching critically low levels, owners of reservoir water entered into discussions to determine if releases could be made to the river to prevent a call being placed on the entire system. As a result of these discussions, the Upper Yampa Water Conservancy District decided to release water from Stagecoach Reservoir to help the flow conditions in the Yampa River. The District began releases in July and have continued them at a rate of 10 to 15 cfs. While not a large release,

this additional flow has made a significant impact on the river conditions.

On the Michigan River, the Town of Walden and the Hiho Ditch share the senior water right. As river flows have dropped below the amount necessary to fully satisfy this senior right, the owners of the Hiho Ditch have agreed to allow the town to divert their full amount while absorbing any shortfall in the amount delivered to their ditch.

The willingness of the water users to find ways to share the available stream flow in this most serious of drought conditions is commendable. The Division Engineer and his staff thank all of the water users in Division 6 for their cooperation in helping their fellow users survive this summer.

Human Resources

New Employee — **John R. Blair** joined the staff of the Division 6 office as a Dam Safety Engineer on August 1, 2002. John comes to our agency after serving over 23 years with the Colorado Water Quality Control Division. John has a BSCE from North Carolina State University and a MSCE from Colorado State University. John brings a wealth of experience in dealing with people in a regulatory environment, which will serve him well as he performs his duties in Division 6.

Retirement — **Jim Sellers** will retire on October 30 after working over 17 years as a Water Commissioner in Water District 21. He started out as an Assistant in 1985 and worked his way up to lead water commissioner by 1989. Jim handled the lower end of District 21 where reservoir water, the Alamosa River, La Jara Creek, and imported Rio Grande flows all came together in a complex area of ditches and drains. Jim is looking forward to retirement and plans to devote more time to his church and to do some out-of-country travel with his wife.

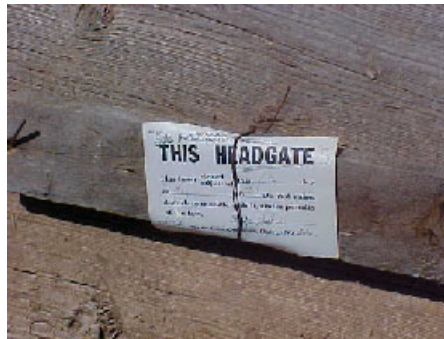
What Exactly is a River Call?

Kenneth Beegles, Division 7 Engineer

This year, during the extraordinary low water situation, there are many people asking the question, "What is a river call?" With streams falling off much more than usual, the supply available is limited and, in some areas, people who have not previously been subjected to a "call" are finding out first hand what it means.

After the streams peak out from spring snowmelt and the reservoirs have filled as much as they can from the high water period, the level of the stream drops to a point where one or more of the ditches in the river system does not have as much water as its water decree allows it to take. Users will be calling the ditch officials and informing them of the low water and their desire for more water. The ditch rider or officer calls the local water commissioner and places the initial "call." Depending on the river system, a verbal call may be made, but in many cases a formal written "call" for water is required and signed by the party representing the calling ditch. The water commissioner must consider this call as a demand to enforce the decrees against all the ditches in the reach of stream tributary to this ditch. If the ditch is indeed short of water, and has made a reasonable attempt to divert and beneficially use all the water available to it, the commissioner looks upstream for non-decreed uses first and then uses of

water by junior priorities as recognized by the water court decrees.



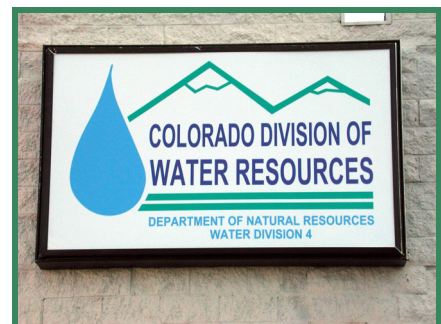
At some point in the declining stream, there may not be enough water to even supply this ditch with the amount they demanded through the call. Then the call level is set at that priority. This call level changes each day depending on the stream flow available to all the ditches. Depending on how administration is done in the particular division, the "call" on a given day is likely the ditch and priority in the river drainage that is short of water for its needed uses on that day. Upstream water rights that are junior to this priority will not have any water, unless they also have senior decrees in the ditch. Usually, reservoir water and transbasin water are considered to be independent of the priority system and are carried down the stream to be delivered according to the decrees under which they operate. They may suffer a loss imposed by the Division Engineer,

but will be able to divert based on the storage release or imported additions to the stream. Interstate Compacts have an impact on the call as the water available to users is reduced by the amount that must be passed downstream to the state line.

Many streams in southwestern Colorado were reduced to the top one or two priorities by the middle of June this year. Since the anticipated monsoon season did not arrive in the needed amounts, the junior ditches and any decrees dependent on the junior water rights were curtailed to meet the senior demand. In some cases, the futile call doctrine from Section 37-92-502(2)(a), Colorado Revised Statutes, was invoked by the Division Engineer after examining stream conditions. This allows the junior upstream ditch to continue operating if it is determined that no surface water would be made available in a reasonable time to the senior ditch by the total curtailment of the junior priorities.

The Division offices keep track of the calls on the Web, and the information can be reviewed at this location. If rainstorms increase the supply to the drainage, more priorities of water may be made available to the ditches in the system.

On July 18, 2002, the Division 4 (Montrose) office of the Division of Water Resources moved into its new office. After being at the previous location for almost twelve years, this is a welcome change. Stop by and see the new office at **1871 East Main Street** next time you're in Montrose. Just look for the sign! The phone number, 970-249-6622, remains the same.





CALENDAR OF EVENTS

- October 1** Colorado Board of Examiners of Water Well Construction and Pump Installation Contractors Meeting, Denver, Colorado; for more information, contact Gina Antonio at 303-866-3581
- October 2-4** Colorado Water Officials Conference, Marriott Hotel/Pueblo Convention Center, Pueblo, Colorado; for more information, contact Wendy Bogard at 719-542-3368
- November 15** Colorado Ground Water Commission Meeting, 1313 Sherman Street, Room 318, Denver, Colorado; for more information, contact Marta Ahrens at 303-866-3581
- November 25-26** Colorado Water Conservation Board Meeting; for more information, contact Catherine Gonzales at 303-866-3441
- December 3** Colorado Board of Examiners of Water Well Construction and Pump Installation Contractors Meeting, Denver, Colorado; for more information, contact Gina Antonio at 303-866-3581

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