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Abstract

This Section will detail significant impacts of the current drought (2000-2003) based on analyses conducted by the State and its impact task force in each of eight different impact areas or sectors – Agriculture, Economic Impacts, Energy, Health, Municipal Water, Tourism, Wildfire, and Wildlife. Information provided by impact task forces for the 2003 Drought Impact and Mitigation Report produced by the Department of Natural Resources, which includes categories such as impacts, planned state and local responses, affected agencies, and costs, will be reviewed and supplemented with additional information collected by the Department of Local Affairs.

Introduction

State drought planning has been developed through the preparation and implementation of the Colorado Drought Mitigation and Response Plan (revised in April 2002). The plan was first developed in 1981, and Colorado was the first in the nation to create a formal mechanism to identify and respond to drought. The purpose of Colorado’s plan is to provide an effective and systematic means for the state to reduce the impacts of water shortages over the short and long-term.

The plan consists of four components: monitoring, assessment, mitigation, and response. Monitoring (i.e., Phase 1) is ongoing and accomplished by quarterly meetings of the Water Availability Task Force (WATF). This task force is comprised of Colorado’s water supply specialists from state, local and federal governments, as well as experts in climatology and weather forecasting. This task force monitors snowpack, precipitation, reservoir storage, and streamflow and provides a forum for synthesizing and interpreting water availability information. When the WATF determines drought conditions are reaching significant levels, the Governor’s staff and cabinet notifies the Governor and recommends activation of the plan.

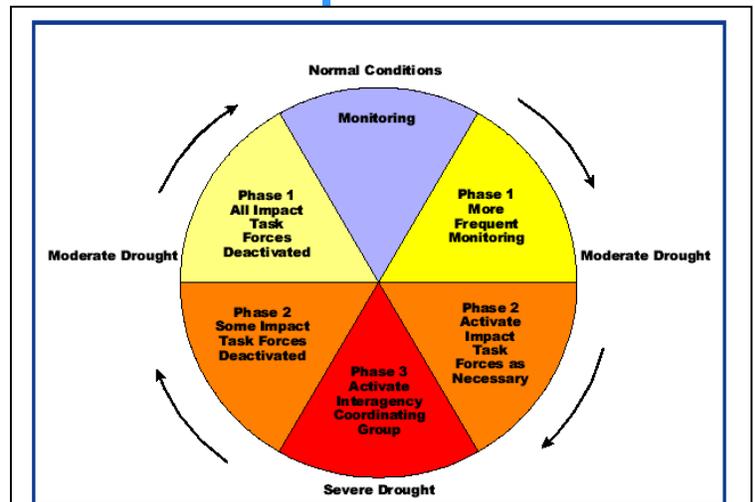
When the plan is activated, the first step (i.e., Phase 2) is impact assessment. Assessment begins with activation of the relevant Impact Task Forces (ITFs). These task forces convene to determine the impacts within specific

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The Colorado Drought Mitigation and Response Plan operates in three distinct phases depending on the severity of the drought – indicated by the standardized precipitation index, surface water supply index, and the Palmer drought index.

sectors that affect the environment and the economy. The ITFs are shown at right.

The Review and Reporting Task Force (RRTF) handles assessment coordination. This task force is comprised of directors from the Departments of Natural Resources (DNR) and Local Affairs (DoLA), and chairpersons of both the WATF and the Impact Task Forces. They review reports from the WATF and ITFs, aggregate assessments and projections, evaluate overall considerations, develop recommendations for drought response, and make timely reports to leadership, the media the response agencies, and others.

The response process (i.e., Phase 3) consists of several lead state agencies, which are selected based on the specific situation, and an Interagency Coordinating Group (ICG). The ICG is comprised of senior management representatives from the lead response agencies. The ICG ensures the coordination of the drought response activities. Additionally, the ICG reviews unmet needs identified by task forces and lead agencies, and identifies and recommends the means to meet those needs. The ICG coordinates with the Executive Branch and State Legislature, and determines when its own deactivation should occur.

In April 2002, for the first time, all eight ITFs were activated, conditions were evaluated, and recommendations were developed for the Governor. The following sections describe the results of the assessments conducted by the ITFs and in some cases indicate the state response based on the assessment.

Economic Impacts and Responses

A thorough examination of the impacts of the drought on Colorado's economy has not been available because there has been little statistical data available to explicitly quantify the impacts. In addition, recent economic impacts have been the result of many factors in addition to the drought. It is difficult to separate the economic impacts from the drought from the overall economic decline in Colorado that occurred as a result of the national recession. As a whole the State had a poor economic performance in 2002, which resulted from a number of factors such as the uncertainty that resulted from the threat of terrorism, and the downturn in the high tech industry.

Impact Task Forces

Economic Impacts
Municipal Water
Wildfire Protection
Agricultural
Industry
Tourism
Wildlife
Energy Loss
Health

Table 3-1: State Responsibilities and Specialization for Drought Management

Agency	Specialization	Responsibility											
		Track Impacts Related to Water Shortages	Improve Water Availability Monitoring	Increase Public Awareness and Education	Augment Water Supply	Facilitate Watershed and Local Planning	Reduce Water Demand/ Encourage Water Conservation	Support Programs to Reduce Impact	Provide Other Technical Support				
Department of Agriculture	Support to Agriculture and Agribusiness	●		●		●		●		●		●	
Department of Local Affairs	Support to Municipal Water Systems	●		●	●								●
Department of Military Affairs	Resources Support												●
Department of Natural Resources	Wildlife, Water Administration, Drought and Water Planning	●	●	●	●					●		●	●
Department of Public Health and Environment	Public Health and Water Quality	●		●									●
Office of Economic Development and International Trade	Tourism	●		●									●
Office of Emergency Management	Life Threatening Situations and Federal Disasters	●		●					●				●
Office of Energy Management and Conservation	Energy	●		●									●
Office of State Planning/ Budget	Economic Impacts	●		●									
State Forest Service	Wildfires	●		●									●

In spite of the challenges that exist with respect to quantifying the economic impacts of the drought, the various sections that follow provide as much information as can reasonably be collected regarding impacts of the most recent drought on the different sectors – be it economic or otherwise.

Agriculture

Colorado's agriculture industry suffered large impacts as a result of the 2000-2003 drought. Annual receipts from agriculture in the state are estimated at approximately \$4.7 billion. Crop and livestock losses due to drought were estimated at \$150 million for ranchers and \$300 million for farmers. In response, the Governor requested a statewide Secretarial Disaster Declaration from USDA. A short-term Secretarial Emergency Disaster Declaration was granted and USDA determined that all 64 counties should be included for relief (for the first time since the 1977 drought). Low interest emergency agricultural loans were made available to qualified applicants in the state.

As a result of reduced forage and water for livestock, the emergency grazing provisions of the Conservation Reserve Program (CRP) lands were implemented through USDA-NRCS. Also, the Colorado Department of Agriculture, Governor's Office, and CSU prepared and provided a list of water haulers to livestock producers. The CSU Extension Service implemented the Hay Hotline to provide supply information to agricultural producers needing supplemental feed.

The tax implications for ranchers forced into herd liquidation prompted the Colorado Department of Agriculture and CSU Extension to develop a workshop to inform agricultural producers about tax implications due to herd liquidation/culling. The workshop also informed producers about assistance/programs available due to drought.

The need to thin or remove moisture competitive trees and brush in watersheds to increase yields for streams and aquifers was also identified as a goal that the USFS, Colorado State Forest Service, and DNR would undertake and would be ongoing as funding permitted. On January 8, 2003, the Governor issued an Executive Order aimed at the eradication of the invasive tamarisk plant, which is responsible for using a great deal of Colorado's water in the many riparian areas where it has become established. The order directed the Department of Natural Resources to develop a plan in one year that will eradicate the plant from all public lands in the state within 10 years.

Finally, the lack of water storage was identified by the Agriculture Impacts Task Force as a need for which legislation should be created to provide more stored water for agricultural purposes on a long-term

basis. The need to create legislation which supports temporary transfers of agricultural water to cities in times of drought was also identified. The Colorado Department of Agriculture, Governor's Office, State Legislature, DNR, CWCB, DWR all contributed to this legislation. The passage of HB03-1318 made the creation of water banks statewide possible and is expected to increase the ability for water rights owners to temporarily lease their water to others.

Energy

Potential loss of energy production was an area of concern due to drought and wildfire conditions. The Governor's Office of Energy Management and Conservation (OEMC) conducted a review in coordination with major energy suppliers, which showed that the continuity of Colorado's energy supply seemed assured for 2003. Likewise, the potential loss of energy transmission lines due to wildfires was a similar concern. The OEMC and utilities worked to identify transmission areas of potential risk in the event of wildfires. High-risk transmission areas were identified and mitigation efforts undertaken to reduce risk from wildfire. All of the state's transmission lines were rated "minus 1" which indicated power continuity was assured if any single transmission line was lost.

The Energy Impacts Task Force recommended that spring snowpack and runoff amounts be monitored to determine the extent, if any, of hydroelectric generation reductions. Although hydroelectric generation may be reduced by low runoff, this does not affect pumped storage plants. One of the 100 mega watt units and the Mt. Elbert pumped storage plant was scheduled to be offline in April for necessary scheduled repairs. In addition, it was recommended that communication links between appropriate agencies and utilities continue and updates to contingency plans be developed. Extensive efforts on the part of the utilities and appropriate agencies have improved communication since 2002. Contingency plans have been updated.

Health

Many public water systems throughout the state were stressed by the 2000-2003 drought. Approximately 20 systems (mostly in southeast Colorado) contacted the Colorado Water Quality Control Division (WQCD) for technical or financial assistance. The WQCD approved new sources of water supply to ensure public safety, and identified potential problems in key stream segments and lakes based on flow/water quality information. As appropriate, "bottled water" advisories were developed for impacted systems. Costs for bottled water and water hauling were borne by utilities and their customers.

With the help of the US Geological Survey, a technology-based early warning system was developed, and assessments were made of low-flow related fish kills regarding potential broader impacts. Standard fish kill procedures were utilized to isolate drought-related impacts from potential spill/release impacts. Public awareness was increased of potential public health and environmental issues associated with extreme low flows and water body contact. For drought, the WQCD developed and disseminated a problem/response matrix to assist systems in recognizing and resolving problems. For fire, the WQCD conducted a series of workshops to help impacted systems address treatment and operating issues due to fire impacts.

The WQCD worked with local public water systems to develop appropriate signage or other forms of public information. Potential problems caused by upstream wastewater treatment plants impacting downstream drinking water treatment plants due to drought-related low flows were identified. The CDPHE is planning to utilize procedures developed during 2002 season again in 2003. The WQCD developed guidance and conducted training workshops on the impacts of drought and fire runoff on water supplies and systems.

Municipal Water

Many of the water systems that experienced severe problems in 2002 had been aware of their limited water supplies and had been working with state agencies in prior years. The summer and fall of 2000 had involved significant drought impacts for many systems in the state, and in 2002 many were forced to implement measures they had planned in prior years. The WQCD and DoLA developed and updated a list of public water systems that experienced operational problems and summarized contact information for technical and financial assistance on drought problems. The Department of Public Health and Environment established a Drought Recovery Grant Program which included federal grant monies provided by United States Environmental Protection Agency (US EPA).

Funding from various state programs was made available to meet local needs, and Table 3-2 below shows the funding that was provided through state programs.

Table 3-2: State of Colorado Fire and Drought Assistance

Recipient	Project Description	Amount/Type	State Agency
Aguilar, Town of	Water study	\$20,000 loan	DoLA
Akron, Town of	Drill 2 wells and build a raw water transmission line.	\$349,799 loan	CWCB
Alma, Town of	Drill two additional water wells	\$210,000 grant \$13,500 grant	DoLA DPHE
Beulah and Pine Drive Water Districts	Engineering study, storage tank, transmission line for system interconnect, pump station.	\$100,000 grant & \$60,000 loan	DOLA
Bayfield, Town of	Water treatment improvements	\$470,000 grant & \$233,000 loan \$50,000 grant	DoLA DPHE
Big Elk Meadows Water Association	Water storage	\$15,600 grant	DPHE
Central Weld County Water District	Build Dry Creek Reservoir	\$3,937,500 loan	CWCB
Coal Creek, Town of	Purchase water rights	\$67,500 loan	CWCB
Crestone, Town of	Drill a new fire well	\$20,000 grant	DoLA
Durango, City of	Water treatment improvements	\$300,000 grant & \$200,000 loan	DoLA
East Dillon Water and Sanitation District	Purchase water rights	\$2,550,000 loan	CWCB
Edgemont Ranch Metro District	Water storage	\$5,000 grant	DPHE
Fredrick, Town of	Rehabilitate Milavec Lake	\$1,000,000 loan	CWCB
Freeman Creek Pipeline Association	Treatment plant and water intake replacement	\$25,000 grant	DPHE
Kremmling, Town of	Develop an alternate water source	\$300,000 grant \$1,000,000 loan	DoLA CWCB
Little Thompson Water District	Build Dry Creek Reservoir	\$3,937,500 loan	CWCB
Monument, Town of	Rehabilitate Monument Dam	\$2,443,000 loan	CWCB
Paonia, Town of	Purchase water rights	\$1,000,000 loan	CWCB
Parker Water and Sanitation District	Reuter Hess Reservoir	\$15,000,000 loan	CWCB
Pinewood Springs Water District	Engineering study, filtration system improvements	\$16,800 loan	DPHE
Poudre Tech Metro District	Reservoir Construction	\$2,180,000 loan	CWCB
Red Rock Valley Water District	Drill an additional water well	\$70,000 grant \$2,500 grant	DoLA DPHE
Sugar City, Town of	Water study	\$10,000 grant	DoLA
Weld County (Chambers subdivision)	Connecting subdivision to City of Brighton's water and wastewater systems	\$300,000 grant & \$100,000 loan	DoLA
Windsor, Town of	Rehabilitate Kern Reservoir	\$3,620,000 loan	CWCB

CWCB: Colorado Water Conservation Board

DPHE: Colorado Department of Public Health and Environment

DoLA: Department of Local Affairs

Two tables of potential funding sources for emergency and long-term drought mitigation and fire impacts was developed and disseminated (reproduced here as Table 3-3 and Table 3-4). The CWCB and DoLA provided education and assistance on water conservation planning so that measures would be understood and implemented at the local level. Incentives were considered for public water systems with less reliable supplies to connect to or consolidate with those that had more reliable supplies.

Table 3-3: Drought and Fire Recovery Loan Funds Available in Colorado

Program	Loan Funds Available	Uses/Requirements	Agency and Contact
CWCB Emergency Infrastructure Loan Program	<ul style="list-style-type: none"> - Subject to a \$2 million cumulative annual limit in the emergency account - Loans for up to 75% of project costs. - Rates from 2.75% to 6% 	<ul style="list-style-type: none"> - Raw water projects of an emergency nature - Available to any organization (municipalities, agriculture, ditch companies, homeowners assn, special districts, etc) - Must receive CWCB Board approval 	Colorado Water Conservation Board, John Van Sciver 303-866-3449
CWCB Small Project Loan Program	<ul style="list-style-type: none"> - Up to \$1 million loans for small raw water projects - Loans for up to 75% of project costs. - Rates from 2.75% to 6% 	<ul style="list-style-type: none"> - Raw water projects. - Available to any organization (municipalities, agriculture, ditch companies, homeowners assn, special districts, etc) - Must receive CWCB Board approval 	Colorado Water Conservation Board, John Van Sciver 303-866-3449; email john.vansciver@state.co.us.
CWCB Construction Fund	<ul style="list-style-type: none"> - No limit - Loans typically range from \$50,000 to \$5,000,000 	<ul style="list-style-type: none"> - Raw water projects (dams, pipelines, ditches, wells, new projects or restorations) - Available to any organization (municipalities, agriculture, ditch companies, homeowners assn, special districts, etc) - Must receive CWCB Board and Legislative approval 	Colorado Water Conservation Board, John Van Sciver 303-866-3449; email john.vansciver@state.co.us.
Water Pollution Control Revolving Fund (WPCRF)	<ul style="list-style-type: none"> - Fire-related NPS projects can be given priority status. - Direct loans under \$1,000,000 available with Board approval. - \$10K grants available for planning (fire-related OK). 	<ul style="list-style-type: none"> - Low-interest loans for public waste water treatment system needs and watershed nonpoint source (NPS) control projects. - Available to governmental agencies. - Emergency projects can be identified at any time throughout the year. - Loan funds require board review, study grants available immediately. 	Colorado Water Quality Control Division. Debbie Stenson 303-692-3554
Drinking Water Revolving Fund (DWRF)	<ul style="list-style-type: none"> - Fire-related projects can be given priority status. - Direct loans under \$1,000,000 available with Board approval. - \$10K grants available for planning (fire-related OK). 	<ul style="list-style-type: none"> - Low-interest loans for drinking water treatment system needs. - Available to governmental agencies. - Emergency projects can be identified at any time throughout the year. - Loan funds require board review, study grants available immediately. 	Colorado Water Quality Control Division. Debbie Stenson 303-692-3554
USDA Rural Development 502 Direct Housing Loan Program	<ul style="list-style-type: none"> -Loans limited by individual county mortgage limits - Most counties have loan limit of \$108,317 	<ul style="list-style-type: none"> Available for wells and water connections - Applicants must be very low income, owner/occupant, unable to obtain conventional credit, and in rural communities and areas. 	14 Rural Development offices in Colorado Initial contact Denise Coit (720) 544-2920 for referral to local office

Table 3-4: Drought and Fire Recovery Grant Funds Available in Colorado

Program	Grant Funds Available	Uses/Requirements	Agency and Contact
Natural Resources Conservations Service -Emergency Watershed Protection Program	- Funding available through the Simplified Acquisition Procedures (SAP) ranges from \$25K to \$100K. -Funded through contracts between project sponsors and the NRCS. There are no grants. The NRCS pays 75% of the costs.	Installing/repairing conservation measures to control flooding and prevent soil erosion. Generally, more than one individual should benefit from the project. Public or private landowners or others who have a legal interest or responsibility for the values threatened by the watershed emergency.	NRCS – The NRCS State Program Manager is Frank Riggle, phone: 720-544-3570. Initial contacts should be made with NRCS county offices when an emergency exists. The county office contacts can be found by going to www.co.nrcs.usda.gov .
Nonpoint Source Pollution (NPS) Grants	-Typical awards range from \$30K to \$150K.	- Applicants can include governmental and non-governmental organizations. - Applications generally evaluated through a stakeholder process, but this can be waived. - 40% non-federal match is required. - Funds available immediately for fire-damaged watersheds impacting drinking water supplies.	Colorado Water Quality Control Division. Laurie Fisher, Non-Point Source Coordinator, 303-692-3570
Supplemental Environmental Project (SEP) Grants	- Typical awards range from \$10K to \$25K.	- Available to governmental agencies and non-profit water systems. - Funds available for fire-damaged watersheds and infrastructure.	Colorado Department of Public Health and Environment. Debbie Stenson, 303-692-3554
PPG Grants (EPA funds)	-Typical awards range from \$10K to \$25K.	- Available to governmental agencies. - Funds available for fire-damaged watersheds and infrastructure, and drought-related needs.	Colorado Department of Public Health and Environment, Debbie Stenson, 303-692-3554
Agricultural Emergency Drought Response Fund	\$1million fund for loans and grants	- For emergency drought-related water augmentation purposes. - Limited to agricultural organizations	Colorado Water Conservation Board & Colorado Division of Water Resources & Colorado Department of Agriculture. John Van Sciver 303-866-3449
EDA Economic Adjustment Program	Economic adjustment grants can range from \$25,000 up to \$2,000,000 depending on the circumstances.	- Job losses from natural disasters - State and local governments and non-profit organizations	U.S. Economic Development Administration – John Zender 303-844-4902
Energy Impact Assistance Fund	- Maximum grant \$300,000 (guideline) - Loans available for sewer and treated water projects	- Public facility and infrastructure needs - Eligible recipients include municipalities, counties, and special districts. Loan terms up to 20 years, and interest rates of at least 5%	8 Colorado Department of Local Affairs field offices in Colorado – Initial contact Barry Cress at 303-866-2352 for referral to field office
Community Development Block Grants	Maximum award \$250,000 (guideline)	- Public facility and infrastructure needs - Eligible recipients include CDBG “non-entitlement” municipality or county; districts and private systems are eligible sub-recipients. Applicants must provide local cash participation, qualify with low/moderate incomes, pay Davis-Bacon wages, and comply with NEPA.	8 Colorado Department of Local Affairs field offices in Colorado – Initial contact Barry Cress at 303-866-2352 for referral to field office
USDA Rural Development Home Improvement and Repair Loans and Grants (504 Program)	-\$20,000 maximum loan - \$7,500 maximum grant (must be elderly owner occupant age 62+)	For home rehabilitation, including wells and water connections - Applicants must be very low income, owner/occupant, unable to obtain conventional credit, and in rural communities and areas.	14 Rural Development offices in Colorado Initial contact Denise Coit (720) 544-2920 for referral to local office

The issue of insufficient water system revenue due to reduced water sales was identified and DoLA warned system managers of this possibility in two sets of workshops conducted over the summer of 2002. Suggestions and technical assistance on ways to generate additional revenue from current and alternative sources to offset losses from drought were provided. Many water systems imposed drought surcharges, and assessed penalties for prohibited water use.

Wildfire damage to critical watersheds that supply drinking water was a significant problem for certain systems, and funding for several impacted systems was provided. The WQCD provided \$500,000 to Denver Water, and \$220,000 to the Florida Water Conservancy District (La Plata County) from the non-point source (319) grant program. To limit fire ignition potential, the Municipal Water Supply Task Force recommended that restrictions on fireworks on local, state, and federal lands be considered when applicable. Also, the pre-positioning of water supply, transportation, and fire fighting resources for quick response was recommended.

Tourism

Tourism is one of the state's leading industries, with more than 200,000 Colorado workers, or 8% of the state workforce, employed by the industry in the year 2000. For that year, it was estimated that state and local governments received approximately \$550 million in tax revenue from tourism. In 2001 it was estimated that visitors spent approximately \$7 billion in the state, which equated to \$19 million per day. Even a minimum decline of 10% in tourism would mean a decrease of approximately \$700 million in tourist dollars spent. Moreover, the economies of a number of regions in the state are extremely dependent upon tourism. As a result of the economic losses to recreation and tourism industries, the Colorado Tourism Office (CTO) worked to enhance public outreach and education to provide accurate and informative information about Colorado's drought, and keep the public optimistic about tourism's viability during drought and heightened fire danger. The CTO also drafted crisis communication plans for both drought and wildfire, and began sending informative e-mails to the tourism industry. The first e-mail contained information on "10 Rules of Crisis Communications." Also, CTO encouraged local communities that are dependent on state or national parks for tourism to plan for potential economic impacts with the development of local community mitigation and response plans.

Rafting

Below average snowpack and depleted reservoirs threatened the rafting season. The CTO and industry associations worked to direct visitors to rivers that are raftable, and activities that were more appropriate given the low flows such as kayaking or float fishing, and encouraged rafting to be included into current reports about snowfall/great skiing. Also, river flows were encouraged to be maintained wherever possible.

Ski Industry

To address concerns that fires and national television exposure could discourage summer visitation to mountain resorts, the CTO and Colorado Ski County USA worked to educate the public on what actions are being taken to conserve water and what activities are available at Colorado's resorts.

Fishing and Hunting

Fishing license sales decreased approximately 15% from 2001 levels. It is estimated that approximately one million statewide recreation days may have been lost in 2002. The loss of license sales resulted in \$1.8 million in decreased income to the Division of Wildlife (DOW). The CTO and DOW worked to remind the public that they can enjoy fishing in Colorado even if water is low and that fishing opportunities are often available in a variety of areas, such as tailwater areas, in times of drought.

Golf

Loss of golf course related revenues at the state and local levels occurred due to decreased Colorado resident and non-resident participation. Revenue losses were expected to continue beyond the drought until adversely impacted golf courses respond and reseed drought-impacted areas. The Colorado golf associations funded and developed an educational campaign to inform the public about the water conservation measures used by golf courses and the environmental, ecological, recreational, and social benefits of Colorado's golf course industry. Two economic impact studies were undertaken to quantify 2002 drought impacts to the golf industry.

Colorado State Parks

The drought resulted in 23% reduction in reservations and a 3% decline in visitation. The CTO and the Division of Parks and Outdoor Recreation (DPOR) worked to remind the public that they can enjoy Colorado parks even if water is low or fire restrictions are in place. For 2003, spring boating at reservoirs and early reservations were encouraged. Boat ramps at 14 state parks were closed by mid-September. The DPOR lengthened four boat ramps at some parks to accommodate low water levels.

Wildfire

The 2002 fire season was heightened by extended drought conditions that caused well below average fuel moistures in wildland fuels. The impact experienced was increased potential for fire starts and more intense fire behavior. It was reported that a record number of 4,612 wildland fires occurred that burned a total of 619,030 acres.

Evacuations occurred in 142 subdivisions and 12 communities displacing 81,435 people. Ten lives were lost in Colorado due to the wildfires.

While the economic loss to insurance companies may not be large when compared with other natural disasters, the impact to state and local governments can be great. The 2000 wildfires in Colorado cost state and local governments \$6.5 million. The federal government reimbursed the state for \$3.2 million because of a Federal Emergency Management Act declaration. The 2002 forest fire season was the worst that Colorado has ever seen. Colorado had 3,409 wildfires that were not on federal land. The total suppression costs to federal, state, and local governments in 2002 are estimated to be over \$150 million. Colorado's share of these costs, based on the percentage of non-federal land to federal land burned, is estimated to be between \$30 million to \$40 million. After reimbursement from FEMA, these fires are estimated to cost the state \$11.6 million. Finally, it is estimated that the insurance losses from the forest fires in 2002 totaled approximately \$70 million.

The Governor supported wildfire suppression funding in the amount of \$15 million through executive order. If the same level of fire activity is experienced in 2003 as occurred in 2002 it is expected that costs to the state will be similar to 2002 levels. The Governor also provided through executive order funding that provided two additional single engine air tankers (SEAT) used for initial attack on wildfires and funding to acquire 10 wildland urban interface fire engines to complement local and federal resources.

To provide for the increased potential for wildfires in wildland interface areas, the Colorado State Forest Service (CSFS) provided state-supported technical and cost-sharing assistance to counties for the development and implementation of expanded county Fire Management Plans. The CSFS also provided for wildland-urban interface management needs and for a fuels mitigation cost-sharing program, and coordinated and funded the development and implementation of a statewide, county-by-county wildfire risk assessment. State-level support for expanded state participation in zone dispatch center and in the extended attack phase of wildfire suppression. The CSFS, the state telecommunications division, and various federal agencies worked to identify statewide protocols for radio communication across local, state, and federal jurisdictions.

The CSFS and federal land management agencies have worked to coordinate interagency implementation and allocation of funds related to the National Fire Plan, the Ten Year Comprehensive Strategy, and similar efforts, such as the President's Healthy Forest

Initiative, as well as provide state leadership in developing and delivering coordinated interagency wildland fire messages to homeowners, landowners, land management agencies, the general public and others.

Wildlife

In 2002, the State of Colorado saw some significant impacts, primarily to the aquatic environment. The major aquatic-related wildlife impacts experienced in the Upper South Platte Basin in 2002 included the loss of Antero Reservoir's "crown jewel fishery" mostly due to draining of the reservoir. The draining of Tarryall Reservoir for dam repairs, the draining of almost one-half of Spinney Mountain Reservoir, and loss of 40,000 acre-feet of water from Elevenmile Reservoir also resulted in significant aquatic-related impacts. The lower South Platte River reservoirs experienced the loss of fishery resources due to draining of most of the major reservoirs in the lower South Platte system. In the San Luis Valley, the Home, Smith, Mountain Home, Million and La Jara reservoirs were all drained dry with a total loss of fish. On the Dolores River, the fishery from below McPhee Reservoir to the state line suffered significant losses. The Florida River was rendered sterile from Lemon Dam downstream because of wildfire-related mudflows. Bear Creek experienced a significant fish kill, as did smaller tributaries below Evergreen due to low flows and water quality issues in this heavily recreated creek. Wildfires in the South Platte, Animas, La Plata, Los Pinos, and Mitchell Creek Watersheds, and their aftermath, have resulted in serious loss of quality habitat in these watersheds. The probability of continued erosion and sedimentation creates ongoing concerns for these areas even should the drought subside.

The major actions undertaken to lessen drought impact on wildlife in 2002 can be grouped in three main categories as shown in Table 3-5 below.

Other Initiatives

In 2003, several major state initiatives were undertaken. On February 14th, the Governor urged state legislators to enact a set of legislative priorities divided into the three major areas of immediate actions, conservation efforts, and addressing long-term supplies. A major outcome of the 2003 state legislative session was a statewide ballot initiative to allow the state, through CWCB, to incur up to \$2 billion in debt to finance major water supply projects. The senate bill that provided this initiative also allowed the Colorado Water Resources and Power Development Authority to provide loans of up to \$500 million for water projects.

Table 3-5: Major Actions to Lessen Drought Impact on Wildlife

Major Actions	
O n e	<p>Cooperative Actions among Water Users, Community Groups and State Agencies Some of the major joint actions taken included the partnership between water users, power providers, and state agencies in providing additional flows to benefit the seriously strained fishery in the Yampa River through Steamboat Springs. In addition, anglers worked together to encourage fishing early or late reducing stress on the heat-strained fishery. On the White River, community leaders and water users came together to provide relief to the distressed fishery. Stream flows were augmented by release of CDOW water from Lake Avery. On the Conejos River, extremely low stream flows were augmented by release of water from Platoro Reservoir. The CDOW agreed to reimburse the Conejos Water Conservancy District for the released water. On the Rio Grande River, stream flows were augmented by reduced diversions. The CDOW curtailed an approximate 10-cfs diversion to San Luis Lakes to keep water in the mainstem of the Rio Grande. On the Roaring Fork River, cities, state agencies, and community organizations worked to provide additional water to the strained trout fishery. Senator Andy McElhany and Representative Gregg Rippy introduced legislation (HB03-1320) that was passed to allow temporary loans or donations of water rights for instream flows.</p>
T w o	<p>Fisheries Management Actions State agencies, along with private organizations and community volunteers, worked throughout the summer to improve aquatic habitat and to manage drought impacts. Genetically important native trout species were salvaged and either transferred to isolation units or barren lakes (i.e. native greenbacks were salvaged from Como Creek and Apache Creek and native Rio Grande cutthroat were salvaged from Placer Creek, Indian Creek and Forbes-Trinchera Ranch). Fishing restrictions and regulations were imposed on several stream sections as needed to protect fisheries. Fish salvage operations were also conducted where appropriate (i.e. Antero Reservoir, Jackson Reservoir, Kiser Slough Reservoir, and Roaring Judy kokonee salmon spawning operation). In addition, the CDOW redistributed and reduced stocking of fish throughout the state.</p>
T h r e e	<p>Major Administrative Actions Activities undertaken in 2002 to mitigate drought impacts to wildlife included:</p> <ul style="list-style-type: none"> ▪ The CWCB initiated a statewide review of decrees and called for enforcement of decrees to protect the State’s instream flow water rights. ▪ The CWCB placed formal, written calls for water on several streams to ensure instream flow water rights were receiving water to which they were legally entitled. ▪ The Colorado Wildlife Commission approved more than 14,000 new antlerless rifle elk licenses and 2,500 new antlerless archery elk licenses for the 2002 big game season in an effort to reduce herd size in anticipation of the lack of winter forage due to the ongoing drought. <p>The CDOW’s Habitat Partnership Program increased the use of distribution management hunts on private land. These hunts are designed to redistribute concentration of big game to reduce or eliminate damage to private landowners. These two aggressive administrative actions to increase elk licenses resulted in a new state record elk harvest in 2002 of just over 61,000 elk harvested.</p>

The Colorado Water Conservation Board remains involved in a number of initiatives aimed at alleviating the drought conditions.

These efforts include:

- **Statewide Water Supply Initiative (SWSI)** – An effort that involves the gathering and sharing of information in a statewide forum to develop a common understanding of existing water supplies and future supply needs and possible means of meeting those needs.

- **Colorado River Return Reconnaissance Study** – An engineering evaluation of the physical, logistical, environmental, financial and institutional aspects of a large-scale delivery system from the Colorado River near the Utah border to the basins of the South Platte, Arkansas and Colorado basins.

Regarding state facilities and assets, the Department of Personnel and Administration (DPA), which provides asset management services to the state's capitol complex grounds and buildings, as well as the state's fleet of vehicles, has achieved some important successes. In 2003, the number of vehicle washes was reduced by over 50% by having the motor pool limit car washing to no more than two per month per vehicle. Also in 2003, the DPA's capitol complex, responsible for maintenance of 14 buildings and 7.5 acres of land installed new sprinkler clocks to enhance the system's ability to conserve water. In addition, the installation of smaller nozzles and additional sprinklers in certain zones has reduced overspray and reduced run times. The number of flowers planted at the capitol complex was also reduced by 66% and mulch was used to enhance water retention in flowerbeds. Finally, DPA is having an audit conducted of water and plumbing systems, which might result in water savings of 25 – 50% through the use of low flow fixtures.