APPENDIX TO

1993 COLORADO FLOOD REPORT

by

The Flood Control and Floodplain Management Section
Colorado Water Conservation Board
Colorado Department of Natural Resources

Ken Salazar, Executive Director
Colorado Department of Natural Resources

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Romer begins plans for possible flooding

Western Slope threat leads governor to seek federal help and free state emergency funds

By John Sanko
Rocky Mountain News Capitol Bureau

Concerned about runoff from record-breaking mountain snowpacks, Gov. Roy Romer Friday activated a state emergency operations plan and sought federal help to prepare for possible flooding in western Colorado.

"We feel it's time to act," said Romer, who called the flood threat along the Colorado River and its tributaries comparable to that of 1983 and 1984, when serious flooding occurred.

"What happens here depends upon how warm it gets, how quickly that warm comes and how long it lasts. There's more snow up there than we've seen in a long while. The seriousness depends on how fast the temperature rises and whether or not we get any rain.

"It could be serious, but we do not think we have to evacuate valleys, for example. We think there is going to be some damage, and that's why we initiated this procedure."

Romer said he plans to tour the Western Slope on Sunday to assess the situation, particularly dams in the area. Early warm weather and the high snowpack have several communities alarmed and on the watch.

In issuing the warning, Romer told tourists thinking of vacationing here they have nothing to fear.

"I want to say to all tourists out there, we do not have a condition that threatens life that we know of," Romer said.

Romer freed $68,000 from his disaster emergency fund and transferred an additional $200,000 into it.

He asked the Army Corps of Engineers for emergency assistance to shore up flood control structures in Mesa and Montezuma counties, including a Colorado River dike that protects the 110-home Riverside subdivision in Grand Junction.

Len Boulas, chief of the Office of Emergency Management, said he has been in contact with officials in flood-threatened areas for the past several weeks in anticipation of possible problems.

Snowpack averages include 448% in the Crystal River Basin (Redstone), 239% in the Dolores River Basin (Dolores), 220% in the Gunnison River Basin (Gunnison), 205% in the East River Basin (Crested Butte and Coal Creek) and 194% in the Roaring Fork River Basin (Basalt).

"I have never seen a figure that high in my time in Colorado," Romer said of the Crystal River Basin mark.

In the letter to Col. Laurence R. Sadoff of the Army Corps of Engineers in Sacramento, Calif., Romer also expressed concern about the Redlands Parkway rock jetties on the Colorado River west of Grand Junction.

Romer also listed as trouble spots a dike designed to protect downtown Grand Junction from a 50-year flood, and the Dolores River levee system in Montezuma County. The levee is not continuous, and storage in McPhee Reservoir at the downstream end of town is high.

Colorado & The West

Steve Campbell, State/Region Editor — 892-5381

Flood-hit counties seek disaster funds

Garfield, Conejos ask state, U.S. for help as streams subside but deluge threat remains

By Joe Garner
Rocky Mountain News Staff Writer

INSIDE
- Romer angers Rifle residents/8A
- Flood forecaster keeps tabs on conditions/8A
- Raging waters add to kayakers' challenge/8A

RIFLE — Garfield and Conejos counties sought disaster aid Monday from weekend flash floods while edgy residents watched rivers recede, cleaned up the mess and feared that the next flood would be worse.

The western and southern Colorado counties sought the state and federal designation to obtain loans and other help in repairing flood damage.

"We've been hit hard, and I don't know what to do with a flash flood. I'm a mechanic," said Allen Ball, standing in ooze in his yard.

Along Park Avenue, where Rifle Creek rampaged out of its banks late Saturday after a cloudburst, Monday was a day for recovery, but not necessarily relief. Clearing skies will end flash-flood watches from thunderstorms statewide today, but more high temperatures will fuel snowmelt into already brimming streams.

Temperatures in western Colorado are expected to be in the 70s and 80s today at lower elevations, and in the 60s in the mountains. Melting will go on around the clock in the deep, high-elevation snowfields.

"No more than 25% of the snowpack is gone," said Larry Tunnell, hydrologist with the National Weather Service in Denver. "Snowmelt may have slowed a little, but there's still a lot of flood season to go."

For the first time Monday, the rising Colorado River almost touched the bottom of a bridge on Interstate 70 at Fruita, west of Grand Junction, Tunnell said.

"We're watching all the creeks because we've got this combination of cloudbursts and heavy spring runoff," said Dale Hancock, Garfield County operations director. "We're trying to get the word out to get your sandbags ready."

In Rifle, 10 homes and one restaurant were damaged, and six families are likely to be out of their homes for several weeks. Damage was estimated at a minimum of $100,000, although Mayor David Ling said the figure could be twice that amount because of mudslides outside the city.

"You're talking heavy equipment to fix up my yard, and I don't have that kind of money," Robert Basinger said, struggling with the 4 feet of silt that had been his yard and vegetable garden. "We also are talking about the fear that this will happen again since it's happened once."

Usually docile Government and Rifle creeks converge on the north side of Rifle and meander to the Colorado River on the south. The homes damaged by the water all were in a flood plain, but few homeowners had flood insurance.

"I had a dike instead of flood insurance, but it came around the dike," said Janet Stricklan, whose log home was flooded by 3 feet of water. "I need to extend the dike, but first I need to get the water and trash out of the house so we can live here again."

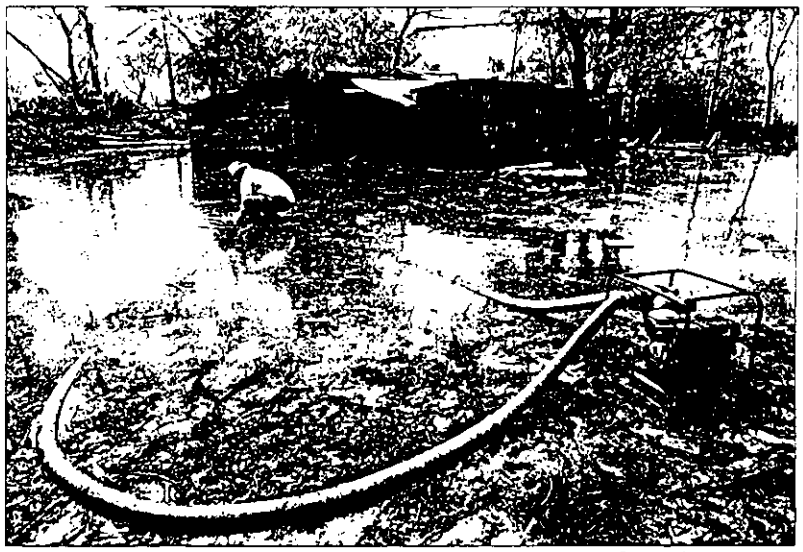
But some of her neighbors along Park Avenue said flood insurance was too costly and laced with exceptions and exemptions.

They said the city should have kept the creek free of debris, including several abandoned vehicles, that contributed to sending the creek into a frenzy.

"If there's a bright side to this, it was Mother Nature's way of flushing out a lot of the debris that had built up so the channels should carry more water," Ling said.

Still incredulous about the ferocity and velocity of the storm, Jim Stever called it "a freak thing."

"It wasn't even raining that hard. Then, I looked out the window and the water was right up to the back of the house," he said.



Ellen Jaskol/Rocky Mountain News

Harold Marrs uses a pump to remove water from around a house owned by his girlfriend, Janet Stricklan. The house, along Rifle Creek, was damaged heavily by weekend flooding.

2 rivers rise in southern Colorado

Water leaves banks, then recedes; Conejos County braces for floods

By Dick Foster
Rocky Mountain News Southern Bureau

Two southern Colorado rivers swollen with runoff and rainfall lapped over their banks during the weekend, threatening an old bridge and one home, but by Monday evening the waters had subsided, county officials said.

"The water level has dropped drastically in the last few hours. It's cooler today and it hasn't rained," Conejos County Emergency Operations Coordinator Rick Muniz said Monday.

Heavy rains over the weekend, however, pushed rivers over their banks, flooding farmland and wiping out headgates that control flow in the rivers. Monday afternoon, county officials declared it a local disaster.

More thunderstorms could send water levels rising again, and more storms were forecast, so public-safety officials are continuing their vigil and have begun seeking disaster aid, even though no homes have been damaged.

"They are a very poor county and know if flooding occurs, they wouldn't be able to handle it without assistance. So this is simply a way of being prepared," said Mike Reddy, deputy director of the state Office of Emergency Management.

Los Pinos and San Antonio rivers ran near bank-full after Sunday rains swelled the already-high runoff in the channels. At some spots along their northeastern route from New Mexico to the Conejos River above Manassa, they spilled onto low-lying farms and ranches.

Many farmers and ranchers diverted the water to their fields.

Few homes or other structures lie near the river, Muniz said.

"We had an older bridge on a county road south of Antonito, and over the years the water has gotten under it and there was some concern over it," he said.

"We had one house at Los Cerritos, east of Manassa, that was encircled by the water, and some people were pulling their livestock out of some fields, but now it's gone down and we're looking pretty good."

The San Luis Valley's biggest river, the Rio Grande, was well within its banks, Alamosa County Sheriff James Drury said.

"It hasn't been a problem, and hopefully we'll keep getting some cool nights up in the mountains so it won't be a problem," he said.

Highest water yet to come

Homes, bridges already damaged

By Mark Obmascik
Denver Post Environment Writer

Flooding already is damaging homes and bridges along Colorado's swollen rivers, but state water managers yesterday added some words of caution: The highest and roughest water is yet to come.

Fueled by a giant high-country snowpack, many Western Slope and San Luis Valley rivers were brimming yesterday at levels twice as high as anything recorded at any time last year. And runoff levels are days — or perhaps weeks — from peaking, officials said.

The National Weather Service said 75 percent of the state's snowpack still hasn't melted, but signs of a massive snowmelt were rampant yesterday.

"It's huge water," said Bureau of Reclamation operations official Randy Peterson. "You only get this kind of event once every 50 or 100 years."

Paonia Reservoir, which is 33 percent bigger than the metro area's Chatfield Reservoir, went from empty to full in less than a week. The single week of huge inflow provided enough water to accommodate all the annual needs for 60,000

Colorado & The West

Steve Campbell, State/Region Editor — 892-5381

Ellen Jaskol/Rocky Mountain News

Bill Lund of Denver helps shovel mud away from Que Paso restaurant in Rifle along Rifle Creek. Lund worked Sunday afternoon after major flooding in Colorado River tributaries hit the town Saturday night.

Residents return as floods ease

More than 100 go back home, but 8 families are displaced after water damages homes

By Joe Garner and Natalie Soto
Rocky Mountain News Staff Writers

RIFLE — More than 100 residents along swollen mountain creeks returned to their homes Sunday night as flooding subsided.

Rifle, about 25 miles west of Glenwood Springs on Interstate 70, was hit hardest by heavy thunderstorms that filled streams already brimming from spring runoff, fueling flash floods.

At least eight families had to leave their damaged homes Saturday night and probably will be displaced for at least a week, fire marshal Mike Morgan said.

Damage was estimated at *$80,000 to $100,000, but no* injuries were reported.

About 150 Rifle residents were evacuated Sunday after the National Weather Service issued a flash-flood warning for Parachute, Rifle and Government creeks, tributaries of the Colorado River.

Heavy rain sent waves of water *down Rifle Creek, but the water* did not leave its banks and was receding by 5 p.m. Sunday. A flood warning for east-central Garfield County expired late Sunday as other creeks also subsided.

"We made it through the day," a Rifle police dispatcher said Sunday night. "It's down quite considerably, and it hasn't rained for a couple of hours. We don't see any problems for a while tonight."

However, the National Weather Service expects *more thundershowers* throughout the state this afternoon, which could trigger another flash flood in the Western Slope communities.

A flood watch covering 13 counties and forming a huge "L" along western and southwestern Colorado was to last until 6 a.m. today, weather service meteorologist Doug Baugh said.

But many residents were breathing a sigh of relief.

"I kind of had this feeling that things wasn't going to be that bad," said Sandy Murray, whose home is 100 yards from Rifle Creek.

One woman walking home from a restaurant with several friends and five children Saturday night got caught in about a foot of water *from Rifle Creek.*

"We went across the Rifle Creek bridge and heard a lot of noise, the water rushing and all," *said Karen Reynolds, who has* lived in Rifle for eight months. "Then as we were coming back over the bridge with the kids, (the water) swiped us –all the way across the road.

"We were up to our knees in water in the road. Later that night, our neighbor's house was about halfway under," she said, adding that a friend broke into the house to save a poodle. A cat and five kittens were already dead.

Reynolds is worried about possible flooding later.

"I'm afraid we're going to lose everything we've got," she said.

DeAnne Gulino was trapped in her home Saturday night when a cloudburst sent Rifle Creek roaring over its bank.

Her home was knocked off its foundation by the flash flood. Two volunteer firefighters had to carry her through five or six feet of water in the house to a deck nearby.

"I've lost everything, but I still have my kids and my faith," Gulino said.

Water rips through homes

Associated Press

RIFLE — Friends and family rushed to carry out the belongings of Bill and Jannie Lee on Sunday as thunder rumbled in the background and firefighters warned residents of this northwestern Colorado town to go to higher ground.

It was the second day in a row the Lees had fled their home as rainstorms sent waves of water running down Rifle Creek.

Dozens of people gathered Sunday afternoon on bridges to watch the expected flood, causing a traffic jam. The water rose but did not leave its banks.

Meanwhile, a flood watch covering 13 counties and forming a huge "L" along most of the western edge of Colorado and along the southwestern border was to last until 6 a.m. today, according to the National Weather Service.

Authorities have been expecting flooding on the Western Slope from runoff of record snows in the high country last winter.

DeAnne Gulino, whose home was knocked off its foundation by the first flash flood, directed a flow of vehicles, volunteer cars carrying the Lees' belongings.

"It's a good town," said Guli-

See **RIFLE** on **11A**

Volunteers save woman as water ravages her house

RIFLE from 8A

no, as she waved cars through.

Gulino was trapped in her home Saturday night when a cloudburst sent Rifle Creek roaring over its bank.

Firefighters had warned the Lee and other families to leave, but Gulino was not home when firefighters knocked on doors.

Shortly after she returned she saw the water approaching and called her daughter, Carole Anderson, to ask for help.

"Then I called 911 but the line went dead when I was giving them my address."

Anderson called police, who sent two volunteer firefighters to the house.

Volunteer Chris Harvey said, "It was so cold I had to go borrow two wet suits. It looked like the Colorado River flowing through there. There was five or six feet of water in the house. We pounded on the door, and finally had to knock down the screen door to get in. But we could hear her yelling."

The two men carried Gulino through the water to the deck of her house, where they had tied up a boat.

"I've lost everything, but I still have my kids and my faith," said Gulino, who had perched on a kitchen counter while waiting to be rescued.

Next door, in a gulch just a few blocks from the center of this town of 5,000, the Lee family grabbed their clothes and left their house when warned of the flood danger Saturday night.

"I backed my truck up to leave, and the water was already here. I had to wait for it to stop. Water was rushing over my truck," said Bill Lee, whose family ran up the hill to higher ground. A dozen people came to help Lee, a volunteer firefighter himself, remove his belongings.

Police Chief Daryl Meisner said between 16 and 20 people had been displaced by the flood. "I've always told people these creeks are unpredictable," said Meisner, near the site of a second flash flood in the town.

Meisner said it was ironic that authorities had been warning communities to expect flooding because of the runoff, but the first flood of the season was caused by a rainstorm.

Meisner and his staff of 11, aided by sheriff's deputies, volunteer firefighters and other volunteers, spent most of the night moving people and watching for signs of a new flood.

Volunteer firefighter Dan Goin said people didn't need to be persuaded to leave. "When water is running through your house you know you have a problem."

Romer

Continued from Page 1

sures in Grand Junction and Delta. Another $200,000 is in reserves, and more could be allocated if need be, he said.

Romer was criticized by some in Rifle for visiting other Western Slope communities to look at potential flood areas on Sunday but failing to stop in Rifle where the season's first floods had already taken place the night before.

He toured some of the damaged homes on Wednesday, and said he hadn't learned of Rifle's flood until it was too late to change his schedule.

DeAnne Gulino showed the governor what's left of her house at 151 E. 10th St. They were followed by a throng of television and print photographers and reporters -- through the mud and muck that was her dream house.

"This is my garden," Gulino said, pointing to the thick mud where only weeds grow now. "This was the walk to my front door." The brick walkway was broken up and scattered about.

A total of 12 homes and three businesses were damaged. There were no injuries, although Gulino had to be rescued by firefighters from her kitchen counter as water rose to more than five feet deep in the house.

Rifle City Manager Mike Bestor said officials couldn't have been more prepared to react when the flood came.

"We were ready to respond, and we knew how to," he said when asked by Romer what other communities could learn from Rifle's experience. "Planning obviously is the key thing.

"We learned a lot from 1984," he said in reference to the last big flood year.

Bestor updated damage estimates from Saturday's flood to $151,000. Earlier figures were between $80,000 and $100,000. The figure could rise even more as the cleanup continues.

For the city, the majority of the cost was to clean mud and debris from streets and sidewalks, plus clear limbs and other debris from culverts. Overtime for city workers accounts for another $5,000 to $10,000.

Rifle Creek Golf Course on Colorado 325 north of town, which is privately owned, also sustained more damage than first thought. Mud on greens, fairways and cart paths accounted for about $20,000 of the total.

Garfield County Commissioner Arnold Mackley said he expects the county will have its own tally soon.

"I feel that the high water is yet to come," he said. "At this point we do feel like we can save the roads (that are in danger)."

Trouble spots in the county's jurisdiction include Three- and Four-Mile roads, where creeks are undercutting the road in some places.

The south entrance to the Oak Meadows Subdivision of Four-Mile Road has been closed as a result, he said.

Other areas of concern include East and West Divide creeks, South Canyon, Rifle Mountain Park, Parachute Creek, Roan Creek and Baxter Pass. Government Creek, where heavy rains caused the flood in Rifle, is also still a concern.

Romer added that decisions on how to prevent further flooding lie with local governments.

"We need to leave those decisions up to the local folks," he said.

"You know in Rifle how to handle your problems better than we (do)."

Possibly later this week, Romer was expected to tour more sites around the state where flooding is a threat.

Romer can't promise much

And he wants to 'hold fire' until flooding's over

By JOHN STROUD
Post staff writer

RIFLE — Gov. Roy Romer, during a visit Wednesday, commended local officials for their handling of last weekend's flash flood, now estimated to have caused more than $150,000 in damage.

In a meeting with city and county officials, Romer said the state may be able to provide aid for local agencies, but no money is available for private homeowners.

"There are a few pockets of private dollars (such as non-profit organizations) that I will be looking into," he said.

State funds are also limited, and the worst flooding is expected to be at least two weeks away. So spending must be carefully controlled, Romer said.

"We need to ensure that the re-

sponse," he said. "We need to do all we can by sharing available resources. We've got to hold our fire and make sure we have the money to meet the greatest needs."

So far, $68,000 in state aid has been released for prevention mea-

Please see 'Romer,' Page 2

TOTAL P.02

Flood victims seek aid

Ellen Jaskol/Rocky Mountai

Janet Stricklan of Rifle cleans out her flooded log cabin on Park Avenue along Rifle Creek. Residents in western and southern Colorado counties Monday b seeking designation for state and federal disaster aid. Loans and other help will go toward repairing damage to structures inflicted by weekend flooding. **Page 6A**

May 17, 1993 MONDAY 135th year, No. 25 35¢

Flood victims: 'We made it'

Most of 150 evacuees near Rifle go home; damage estimates near $100,000. **Page 8A**

Ellen Jaskol/Rocky Mountain News

Jenita Marrs, 10; Stephanie Barfield, 7; Priscilla Reynolds, 10; and Dana Marrs, 12, from left, walk out of a friend's house on Rifle Creek in Rifle. Jenita and Dana of Glenwood Springs and Stephanie and Priscilla of Rifle visited the home Sunday after major flooding hit the area Saturday night. **Page 8A**

Plateau Creek continues surge

Flood watch remains in effect on West Slope; warm weather expected to keep the snow melting

By Deborah Frazier
Rocky Mountain News Staff Writer

COLLBRAN — Plateau Creek surged higher Friday, threatening the season's first floods as weekend temperatures are expected to stay high.

A flood watch will remain in effect today for Plateau Creek from Collbran west 20 miles to the Colorado River and for streams in Conejos County in south-central Colorado, according to the National Weather Service in Denver.

The rises are expected to be gradual, and no flash flooding is expected.

In addition, the weather service may issue watches today for three more rivers, the Yampa near Steamboat Springs, the Animas near Durango and the San Juan near Pagosa Springs.

They look like the best candidates to expand the area of the watches right now," said Larry Tunnell, weather service hydrologist. "It's going to be hot and dry all over the state for the weekend, so I don't see any reduction in the snowmelt for the next few days."

Temperatures at lower elevations will range as high as the mid 80s, he said. Readings in the large snowfields above 9,000 feet elevation, which yield as much as 80% of the runoff, will be in the 60s.

In Conejos County, the San Antonio and Los Piños rivers and La Jara Creek ran full Friday, but didn't jump their banks, said Sheriff Gerald Rivera.

With snowpack measurements statewide climbing to 149% above average May 1, disaster-preparedness officials have warned of high or medium flood danger on almost all the Western Slope.

Emergency officials fear conditions are ripe for a repeat of 1984, the last time Colorado counties were declared a federal disaster area because of flooding.

Collbran, population 250, sits 15 miles east of Grand Junction near the confluence of Buzzard and Plateau creeks.

Linda McConnel/Rocky Mountain News

Job Corps students Gerard George and Jeremy Vasquez pile sand bags along Plateau Creek. Rising temperatures have melted snow and fueled fears of flooding in Colorado.

"The weather is going to be the manager of this entire situation, but we've got our plan in place to make a run at controlling it," said Gene Click, chairman of the disaster-preparedness committee in Plateau Valley. "We didn't even have a plan for the flooding in '83 and '84."

Students at the Collbran Job Corps site filled sandbags Friday, and heavy equipment moved earth and rocks to strengthen stream banks.

Click said he was puzzled why the weather service had issued the flood watch Thursday because water levels are not yet near peak.

"People are saying this is high water, but we don't have high water yet," Click said. "There's so much snow that some of it hasn't even thought of melting yet."

GOVERNOR'S EXECUTIVE ORDER

EXECUTIVE ORDER

PROCLAMATION

Disaster Emergency due to the potential for Spring Snow Melt Run-off Flooding and Landslides.

WHEREAS, the May 1st statewide snowpack is 149% of average; and
WHEREAS, this is the highest snowpack the state has experienced since 1984; and
WHEREAS, in 1984 the spring snow melt run-off provided the basis for significant flooding and landslides on the western slope of Colorado; and
WHEREAS, the potential exists for similar flooding and landslides this year; and
WHEREAS, the state and its local governments are responsible for taking action to mitigate the impacts of, prepare for, respond to, and recover from those events that may be caused by this potential threat.
NOW, THEREFORE, I, Roy Romer, Governor of the State of Colorado, under the powers vested in me under Section 28-32-2104 of the Colorado Disaster Emergency Act of 1992, do hereby declare that a state of disaster emergency exists in the state of Colorado, due to the reasons set forth above, and therefore direct that the following actions be taken.

1. The State Emergency Operations Plan and the State Emergency Response Team be activated.

2. Current fund balances in the State Disaster Emergency Fund be made available to the Department of Local Affairs, Office of Emergency Management to support the state's flood/landslide mitigation, preparedness, and initial emergency response activities.

3. That $---------- of SFY 93 year-end reversions to the general fund be transferred into the State's Disaster Emergency Fund to support the state's disaster emergency needs as may occur over the spring-summer months. Fund balances are to remain in this account until December 31, 1993, when those funds not expended for the purposes intended shall revert to the State General Fund.

4. All state departments and agencies, local governments and special districts throughout Colorado are directed to intensify their preparedness and mitigation efforts to address this potential natural hazard and respond to those events that may occur. These efforts should be coordinated with the state's Office of Emergency Management.

This Executive Order shall expire after thirty (30) days unless otherwise extended.

Given under my hand and the Executive Seal of the State of Colorado this _____ day of May A.D. 1993.

_____

Roy Romer, Governor

C:\WP51\Letter\ExeOrder.93

APRIL FLOOD THREAT INSPECTION REPORTS

FEDERAL-STATE INSPECTION OF FLOODPRONE AREAS

Spring 1993

Location	Community	Streams
Redlands Parkway	Grand Junction	Colorado River

Picture or Sketch

Description of Problem/Comments

During the May-June 1984 flood, the Colorado River eroded 500 feet of the right bank nearly engulfing the Redlands Parkway. In 1985, the Mesa County Road and Bridge Department constructed a jetty project for a reach of the Colorado River upstream of the parkway. Today, the roadway services a large, rural sub-division. The 1985 project was not completed according to

project design due to budget limitations. Therefore, the project provides only partial protection during a large flood event.

STREAM HYDROLOGY

Discharge Event	Flow	Location
10-year	50,000 cfs	Upstream of confluence with Gunnison River
100-year	82,000 cfs	
1984 year	68,000 cfs	

1993 Outlook:
On May 1, 1993, the Upper Colorado River Basin had a 150% of average snowpack. The flood threat was ranked as high at the annual spring flood threat meeting on May 7.

RECOMMENDED ACTIONS:

Secure Section 404 Permit.

Locate rock at a D-50 of 2-3 feet in size.

Secure rock trucks and other equipment.

Need to complete the 1985 jetty project for the 13 jetty structures.

Estimated cost is $60,000 for jetty project completion.

Section 22 Planning Assistance to the States
State of Colorado, Grand Valley Levee Inventory, FY-90

G

Location UPSTREAM OF DRGW RAILROAD - STATION 337+4 TO 352+2
Owner CITY OF GRAND JUNCTION
Description
Area Protected RESIDENTIAL / COMMERCIAL / INDUSTRIAL
Stream Characteristics ADJACENT TO SMALL ARM OF CHANNEL
Geotechnical: Levee/Area MIN 30 PERCENT FINES, LIQUID LIMIT < 40 PERCENT

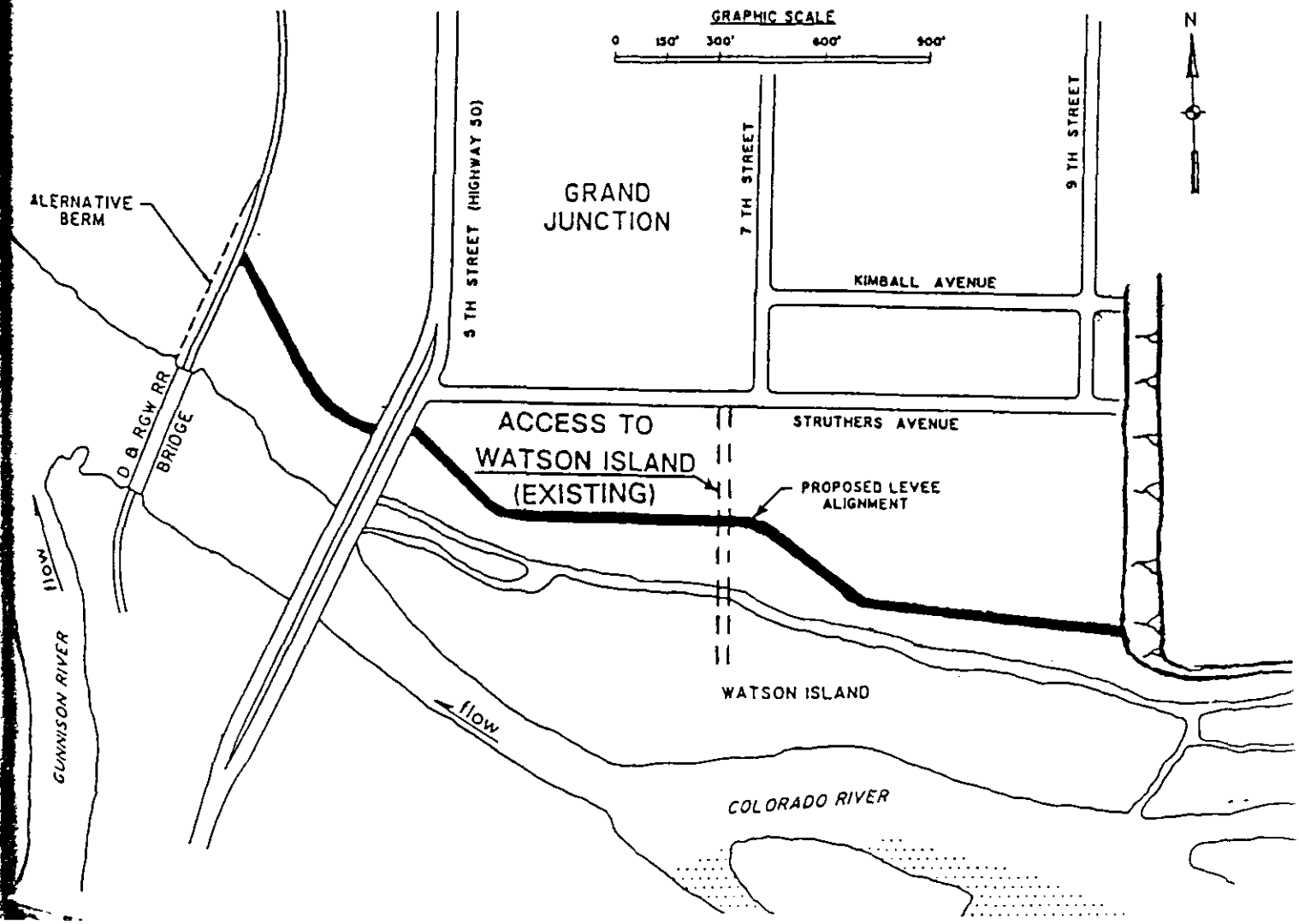
Length	3,100 FT	Height	6-8 FT
Crown Width	12 FT	Setback	100-200FT
Water Side Slope	3H ON 1V	Land Side Slope	2H ON 1V

Trafficability	NA	Armoring	12 IN LAYER WHERE NEEDED
Vegetation	"	Obstructions	NA
Erosion	"	Cracking	"
Sloughing	"	Depressions	"
Animal Burrows	"	Internal Structures	"

Ground Elev	-	1 % Flood Elev	-

Freeboards 3', 4' IN VICINITY OF BRIDGES
Tie-ins D/S: DRGW RR, U/S: HIGH GROUND AT FORMER TAILINGS PILE
Operation
Maintenance
Comments IF FUNDED, COULD BE CONSTRUCTED IN 1983-1984

Sketches and Notes: * PROPOSED LEVEE - NOT YET CONSTRUCTED *



FEDERAL-STATE INSPECTION OF FLOODPRONE AREAS

Spring 1993

Location	Community	Streams
Riverside Subdivision	Grand Junction	Colorado River

Picture No. 1

Picture No. 2A

Picture or Sketch

Description of Problem/Comments

Picture No. 1 - Levee in poor condition due to severe erosion during the 1984 flood. In 1984, the floodwaters were two (2) feet above the existing levee. An emergency levee was constructed in the street parallel to the river. Picture No. 2A - Section of levee in need of immediate repair. Approximately 500 feet of existing levee is undermined and may fail during spring 1993 runoff.

The residential area known as Riverside will be inundated to depths of 2-3 feet.

STREAM HYDROLOGY

Discharge Event	Flow	Location
10-year	50,000 cfs	Upstream of confluence with Gunnison River
100-year	82,000 cfs	
1984 year	68,000 cfs	

1993 Outlook:
On May 1, 1993, the Upper Colorado River Basin had a 150% of average snowpack. The flood threat was ranked as high at the annual spring flood threat meeting on May 7.

RECOMMENDED ACTIONS:

Secure Section 404 Permit

Locate rock at a D-50 of 2-3 feet in size.

Secure rock trucks and other equipment.

Need to make emergency repairs for a 1000 foot section of the levee in compliance with the regional 404 permit now in effect for the area.

FLOOD POTENTIAL NEWS RELEASE

LOCAL GOVERNMENTS SHOULD PREPARE FOR SPRING RUNOFF

With a high snowpack in much of Colorado's high country, there is a lot of talk about the threat of flooding in communities downstream of that snow. FEMA was contacted as early as January with requests for assistance. Colorado's Office of Emergency Management and the Water Conservation Board are beginning to work with some of the communities that may face snowmelt flooding to prepare for the possibility of flood problems. Some local governments are making their own plans. All of this activity raises the question, "What should we be doing in my town?"

In very simplified form, here are the kinds of things that local officials and those who help them should be performing if they anticipate the possibility of a high spring runoff.

1. Gather baseline data
2. Assess the general problem
3. Co-ordinate with the appropriate agencies
4. Assess specific potential problems
5. Organize a local response team
6. Inform the public
7. Refine your response plan as you get more data

Gather Baseline Data

The USDA Soil Conservation Service collects and disseminates snowpack information for its survey throughout the mountains of Colorado. The information is compared to a 20-year average to facilitate prediction. Local officials should learn what the readings are for the basin(s) that drain through their community. Local officials should also familiarize themselves with their floodplain maps. Whether they are Flood Insurance Rate Maps or other maps and whether they are approximate or detailed maps, they will predict geographic areas of potential concern. The profiles that accompany detailed maps will predict potential flood depths.

Assess the General Problem

Examining the available snowpack data and the floodplain maps should permit local officials to make a preliminary assessment of the risk faced by their community. A snowpack of greater than 150% of average indicates a potential problem. A floodplain map that shows several buildings in the 100-year floodplain or a flood profile that shows bridges that would be overtopped by a 100-year flood indicate a potential problem. In a preliminary sense the snowpack information and the floodplain information can be combined to determine whether the community has reason for further concern.

Co-ordinate With the Appropriate Agencies

There are three state agencies with which local governments that are concerned about the risk of snowmelt flooding should co-ordinate their efforts. These agencies are the Department of Local Affairs' Office of Emergency (OEM), the Division of Water Resources (State Engineer) and the Colorado Water Conservation Board (CWCB). OEM is responsible for emergency

preparedness and emergency activities in the state. The State Engineer administers the state's dam safety program. The CWCB is the state's floodplain management agency. If it becomes necessary, the state agencies can contact federal agencies (FEMA, the U.S. Army Corps of Engineers and the Soil Conservation Service) to solicit their assistance.

Assess Specific Potential Problems

Once the general nature of the problem facing a community has been established and contacts with state agencies have been made, local officials can start to determine the specific problems they might face. What specific areas of the community might be affected by flooding, what bridges and roads would be threatened, would any public facilities like water plants or sewage treatment plants be flooded? How deep might the water get, where might erosion be expected, where might sandbags be needed? This specific assessment allows the community to target its attention and its resources in those areas where they are needed without expending effort in places where it is not needed.

Organize a Local Response Team

In order to implement a local response a community will need a team of people working together to accomplish the various tasks involved. Typically this team would include the floodplain administrator, police and fire personnel, the road and bridge supervisor, the building official, public works and/or engineering staff and someone with public information responsibilities. Each of these people needs to know his or her piece of the puzzle and how it relates to other pieces. They need to work as a unit rather than competing or freelancing. Most importantly they need to know ahead of time what they will do.

Inform the Public

To avoid alarming citizens or leading them to believe that nobody is doing anything about the flood threat, local officials should go through the above steps before embarking on a public information campaign. Once the specific problems they may face have been identified and the specific responsibilities of various agencies have been discussed, community officials can let citizens know exactly what they should be concerned about and what is being done about it. They can also let citizens know whether their property is threatened and what measures they can take on their own or collectively.

Refine Your Response Plan As You Get More Data

At the beginning of each month the SCS prepares an updated snowpack report. As we have seen this winter, a month can make a lot of difference in the snowmelt threat facing a community. With March having been a relatively mild month, we can expect some of the readings to have gone done between March 1 and April 1. Meanwhile local officials will have had a chance to familiarize themselves more with their floodplain information, allowing them to know better where the problem areas are. They will have more knowledge of their own response capabilities and shortcomings, they will know better what outside assistance is available, and they will have had a chance to interact with their citizens. All of this information can go into refining the

response plan. The refining can continue through April and well into May. From the middle of May on the response will probably more of a day to day process.

Snowmelt provide local, state and federal officials with a luxury that they do not have to nearly the same extent with rainfall floods, especially thunderstorm floods. That luxury is advanced warning. That luxury should be utilized to prepare as well as possible to minimize loss of life and property damage when the floods come.

PITKIN COUNTY MUD/FLOOD TASK FORCE HANDBOOK

PITKIN COUNTY PUBLIC WORKS

MUD/FLOOD TASK FORCE HANDBOOK

PITKIN COUNTY PUBLIC WORKS

MUD/FLOOD TASK FORCE HANDBOOK

Table of Contents:

1. Flood Fact Sheet
2. Telephone Contact List
3. Water Talk
4. Public Notice
5. Dispatch Procedures
6. Sandbag Plan
7. Equipment
8. Ditch Managers
9. Red Cross Evacuation Procedures
10. Snowpack Data
11. FEMA
12. US Army Corps of Engineers

CRESTED BUTTE FLOOD PREPAREDNESS PLAN

Crested Butte, Colorado

Flood Preparedness Planning

on

Coal Creek

for

Town of Crested Butte, Colorado

and

Gunnison County, Colorado

by

Colorado Water Conservation Board

Denver, Colorado

May 1993

INTRODUCTION

The Town of Crested Butte, Colorado made a request to the State of Colorado for technical assistance regarding the flood potential from the Spring 1993 snowmelt runoff. This request was referred to the Colorado Water Conservation Board (CWCB) at a Gunnison County meeting in Gunnison, Colorado on April22, 1993. In response to the Town's request, the CWCB conducted a meeting with the Town officials on May 12, 1993 to inspect the Coal Creek Channel and floodplain in order to ascertain flood risk areas. The Town requested that the CWCB analyze the staff gages which were previously installed. The CWCB evaluated the gages to determine if they were representative of 1993 runoff conditions.

DISCUSSION

The CWCB evaluation for the Coal Creek channel and floodplain through Crested Butte entailed the following tasks:

- Analyze the past and existing snowpack for the watershed;
- Review the staff gage rating curves for Coal Creek;
- Provide temperature reviews for the years 1978, 1984 and 1993;
- Re-evaluate and develop a 1993 rating curve for the 1st Street Bridge and Maroon Street Bridge staff gages;
- Assess potential flooding problems; and
- Outline a procedure for developing a "Flood Preparedness Plan" for Crested Butte.

DETAILS / FINDINGS

Analyze the Past and Existing Snowpack for the Watershed

Using the Butte USDA SCS snotel station, the existing snowpack for the Crested Butte area is:

Date	'93 Water Content	30 Yr. Avg. W.C.	% of Avg.
05/16/93	16.9	7.6	222
05/18/93	15.7	6.7	234
05/20/93	14.4	5.9	244
05/21/93	13.3	5.5	242

For May 1st of 1978, 1983, 1984, and 1993, see the respective values stated in I. and II. in the runoff outlook.

Review the Staff Gage Rating Curves for Coal Creek

An inspection of the existing staff gages was made on May 12, 1993 by the CWCB. It was discovered that the channel bed at the 1st Street Bridge had aggraded. The gage downstream of Maroon Street had been destroyed.

Provide Temperature Reviews for the Years 1978, 1984, and 1993

Tables are presented for the study years, which are also displayed on a curve. By recording and plotting the 1993 values, a trend can be established for the forthcoming melting period. An increase or decrease in the slope of the curve will be immediately reflected in the future discharge for the stream.

Re-evaluate and Develop a 1993 Rating Curve for the 1st Street Bridge and Maroon Street Bridge Staff Gages

In May 1993, the CWCB evaluated the existing rating curves which are a depicted as stream height versus discharge. It was discovered that the existing curves are no longer representative of the channel cross sections. New curves have been developed (see V. and the attached rating curves).

Potential Flooding Problems

Should the 1993 Spring snowmelt runoff yield a discharge greater than 600 cfs, the Town will have a flood problem which will have to be handled by alternate flow paths or increased streambank heights (see VI.).

Outline a Procedure for Developing a "Flood Preparedness Plan"

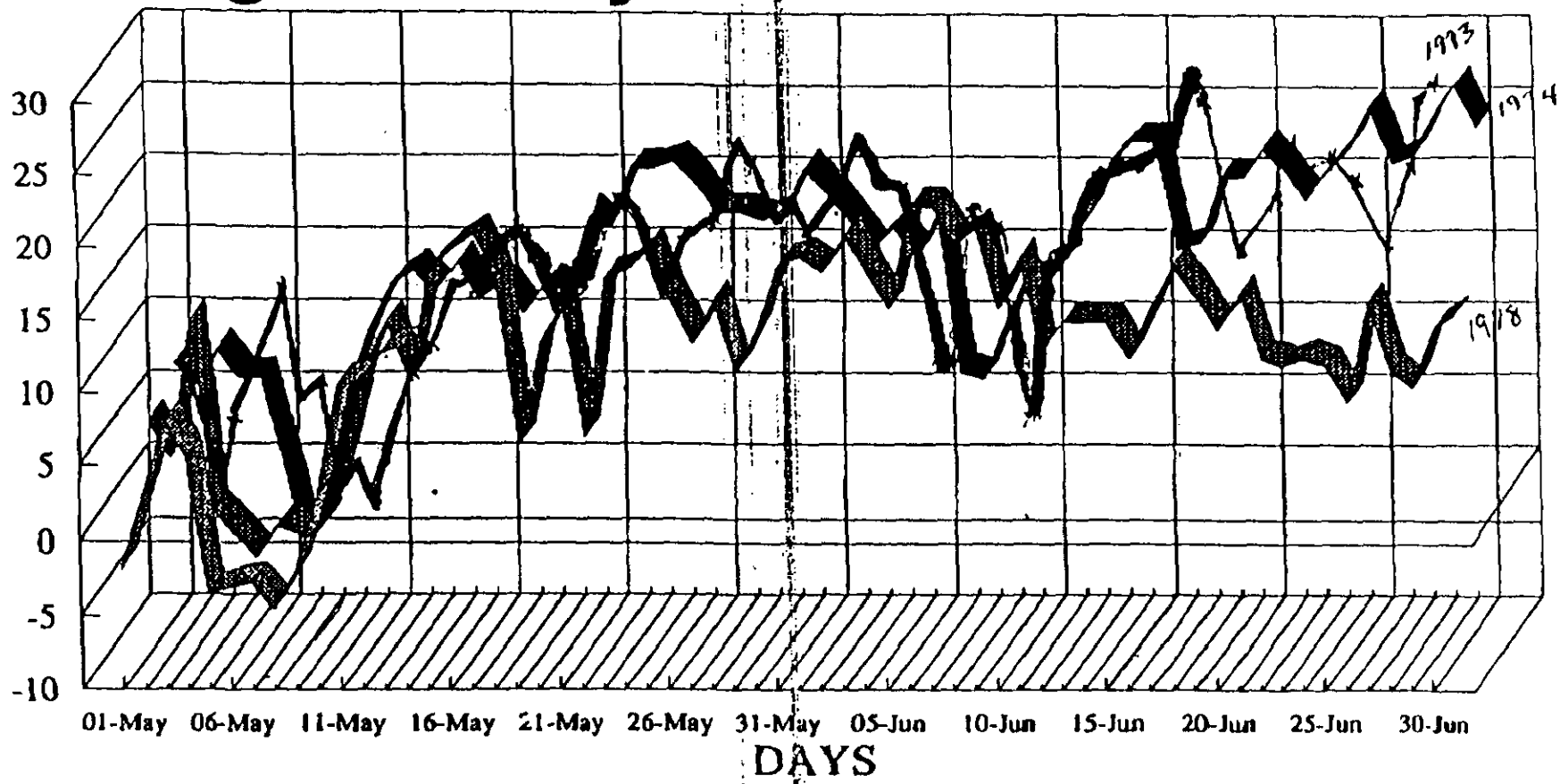
Upon completing an evaluation of 1) the basin snowpack, 2) capacity of the Coal Creek Channel, 3) conditions of the channel banks and levees, and 4) the runoff potential, it appears that the Town may need a "Flood Preparedness Plan" which will include the following elements:

- Recording the daily "high" and "low" temperatures to determine the Degree Days;
- Reading and recording the Staff gage levels to determine a daily discharge;
- Obtaining the daily water content of the snowpack for the basin;
- Developing a "Mitigation Plan" for discharges greater than 500--600 cfs;

The Mitigation Plan should include the following:

- Determinations of flood risk
- Alternate flow paths
- Work force required
- Stockpile of flood fight materials
- An implementation procedure
- Recording cost of flood operations

Degree Days at Crested Butte



Degree Day = (Max + Min)/ 2 - 32
1993 Data is from Butte Snotel Site

Overflow Channel - Crested Butte, Colorado

Mitigation

Several communities have implemented or will soon implement mitigation actions following the spring flood season.

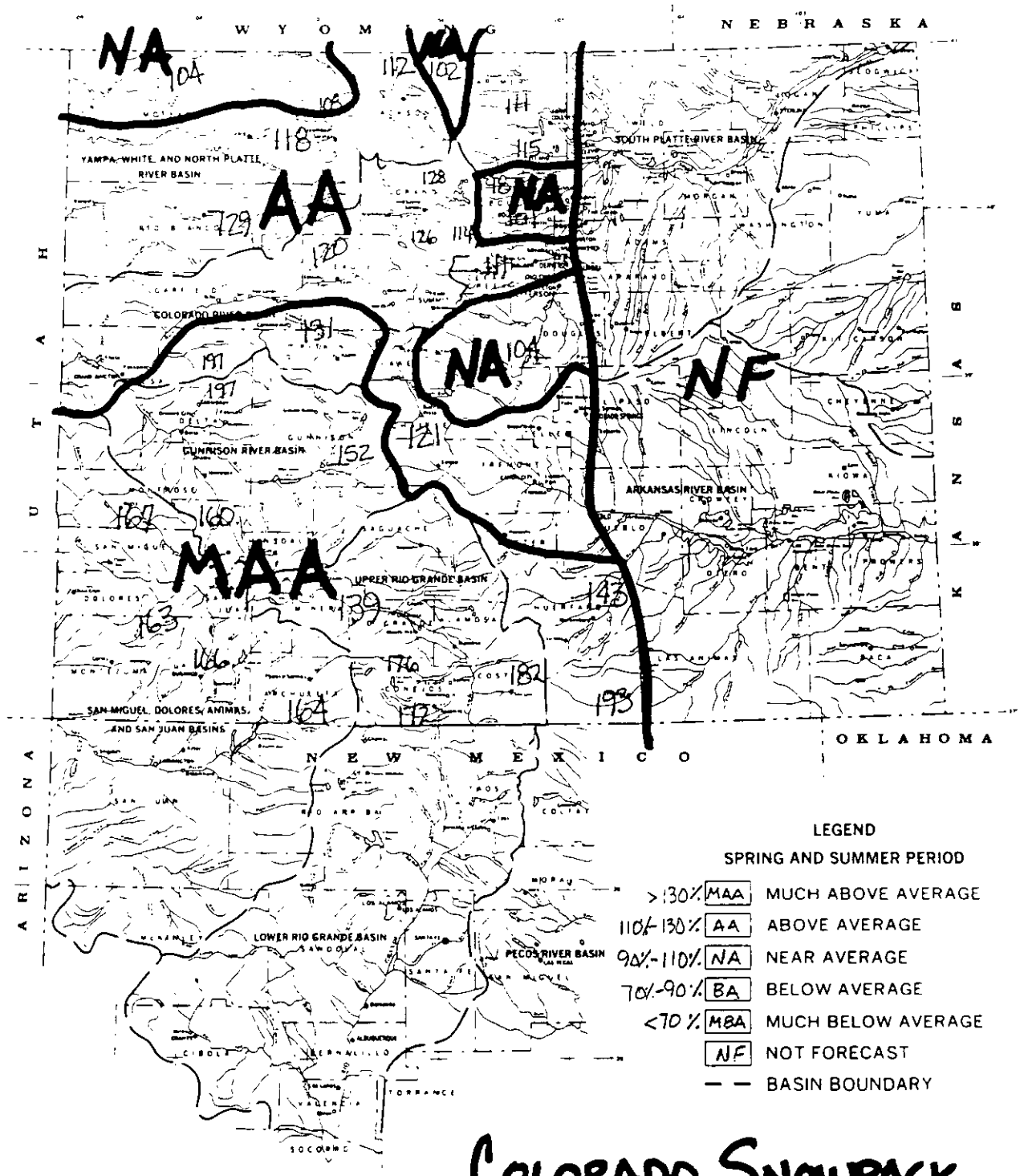
The Town of Paonia has replaced washed-out rock at selected streambank locations in the community.

$5,000 Emergency Repair by Town of Paonia

1993 STREAMFLOW AND SNOWPACK ESTIMATE DATA

U S DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE



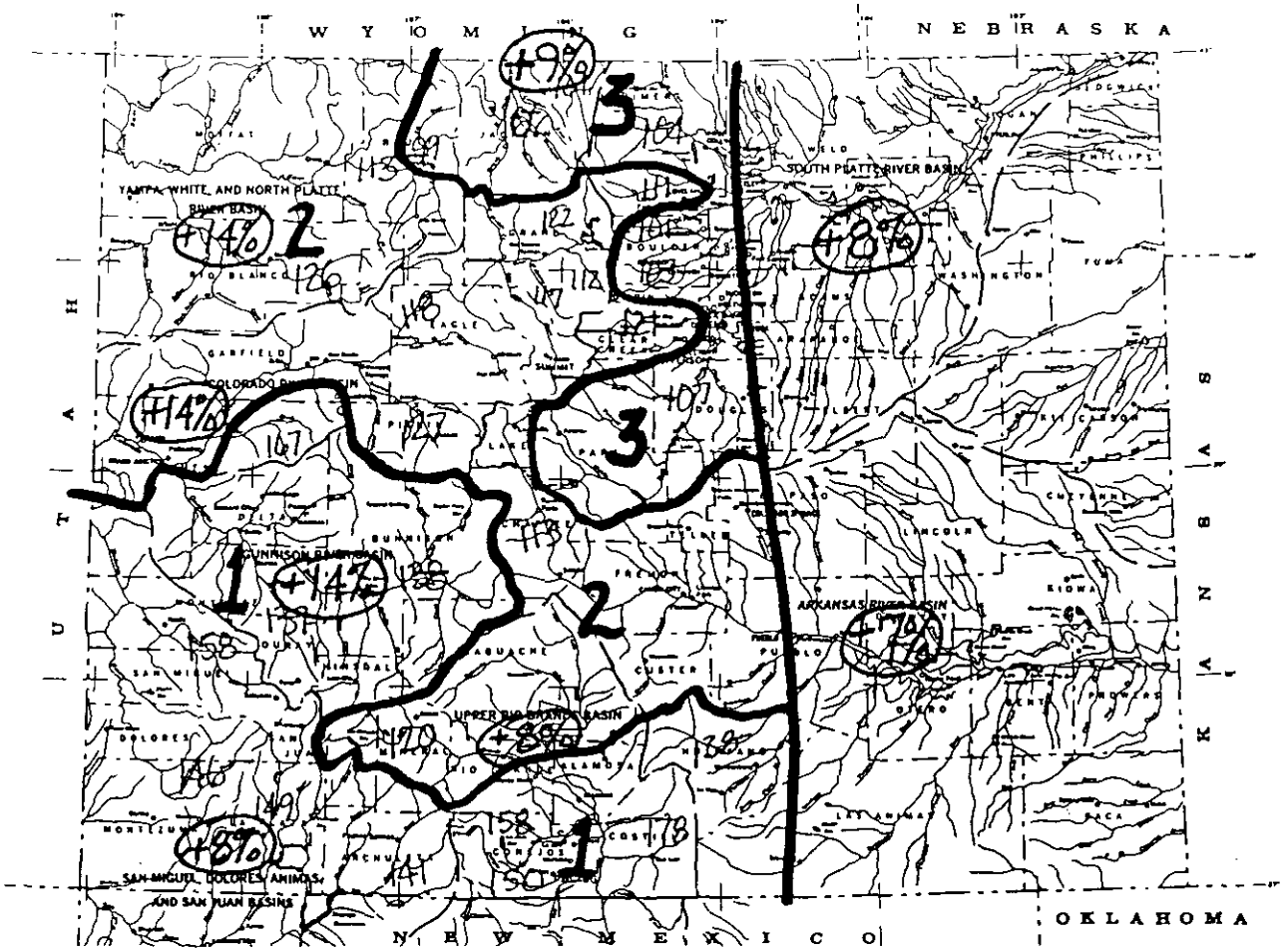
Colorado Snowpack % of Average March 1, 1993

SOURCE Data compiled by SCS Field Personnel

REVISED JANUARY 1987 4-R 39356

USDA SCS NATIONAL CARTOGRAPHIC CENTER FT. WORTH, TX 1987

U S DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

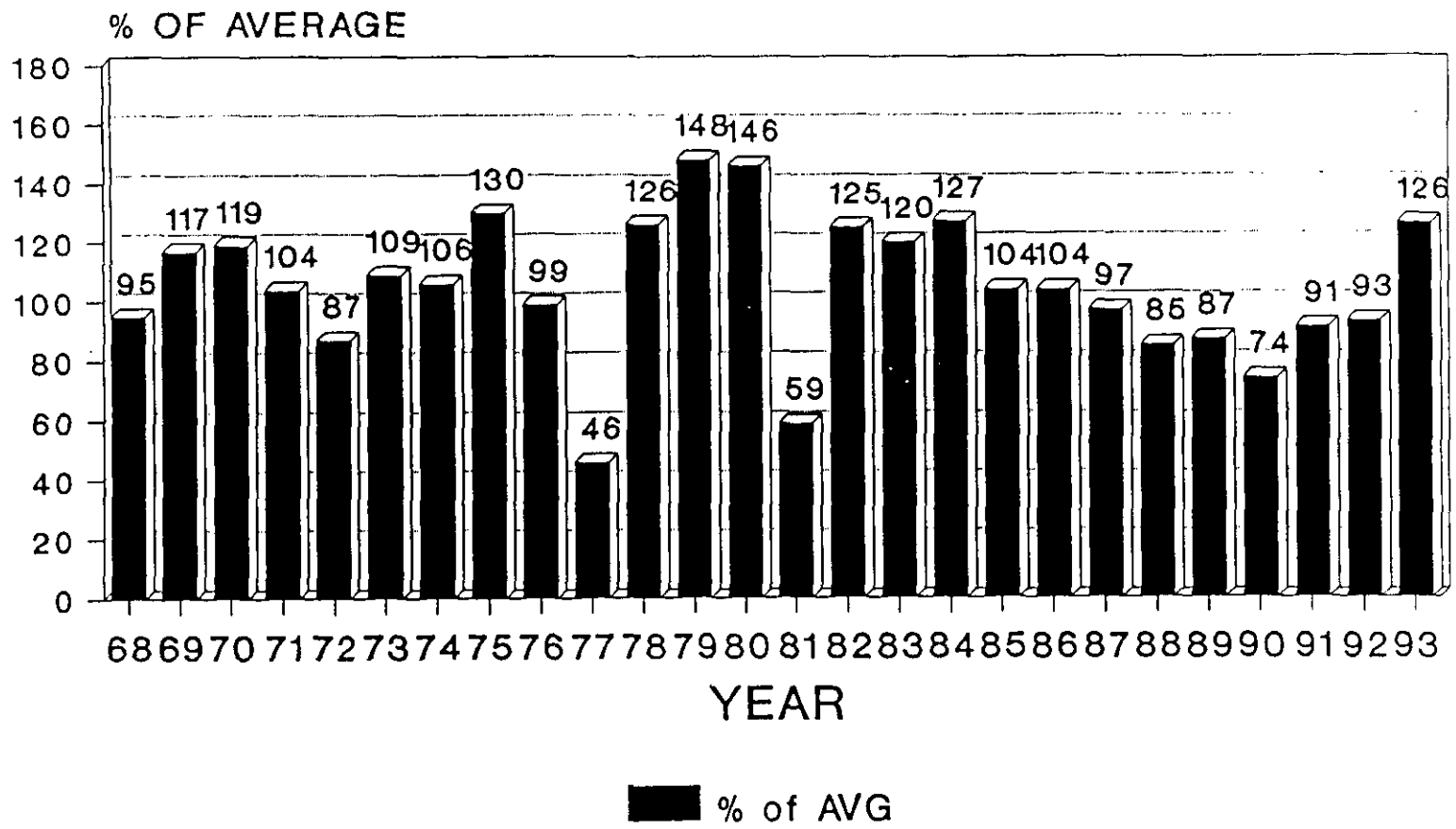


COLORADO SNOWPACK
APRIL 1, 1993

>130% = 1
110% - 130% = 2
90% - 110% = 3
70% - 90% = 4
<70% = 5

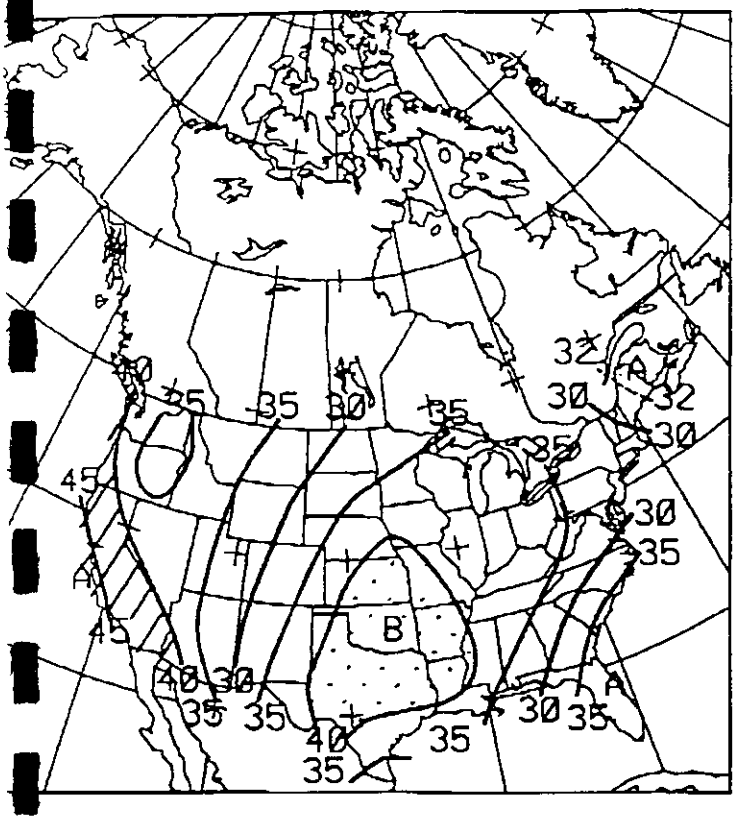
STATEWIDE: 126% of Average
134% of Last Year
136% of Average on 4/15/93

APRIL 1 SNOWPACK
STATE WIDE

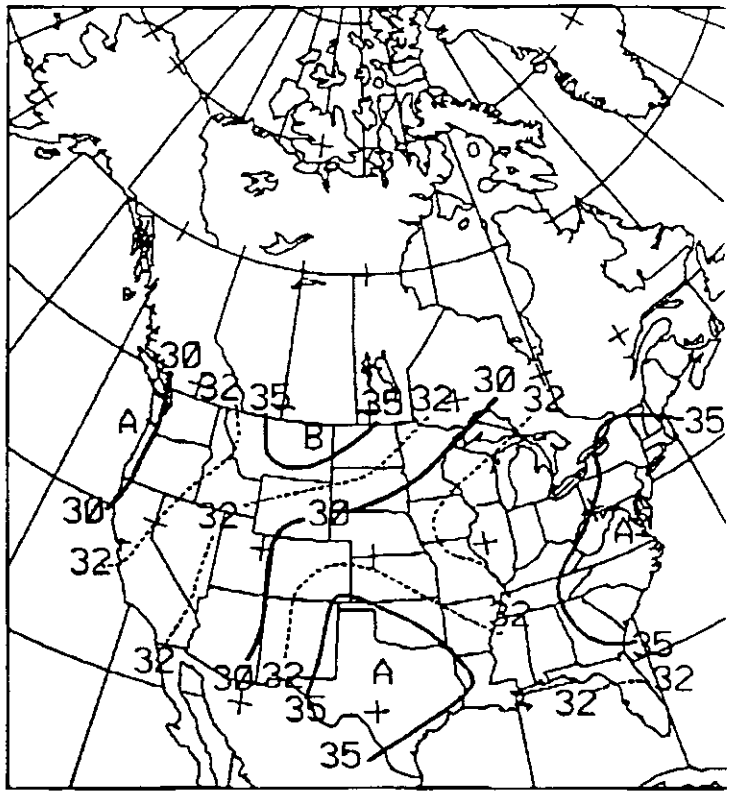


Prepared by Snow Survey Staff, Colorado

90-DAY OUTLOOK FOR MAY THROUGH JULY 1993



TEMPERATURE PROBABILITIES

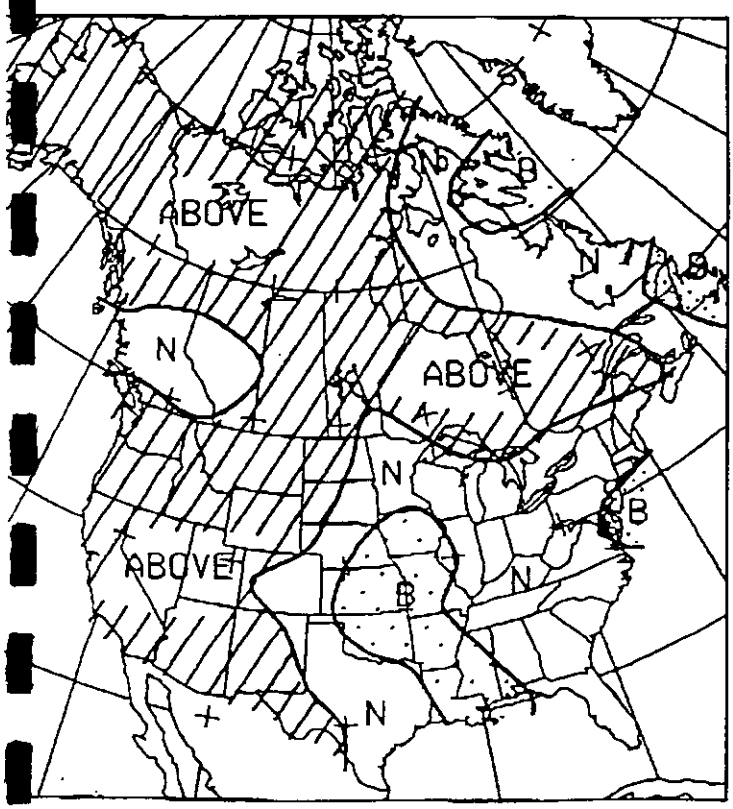


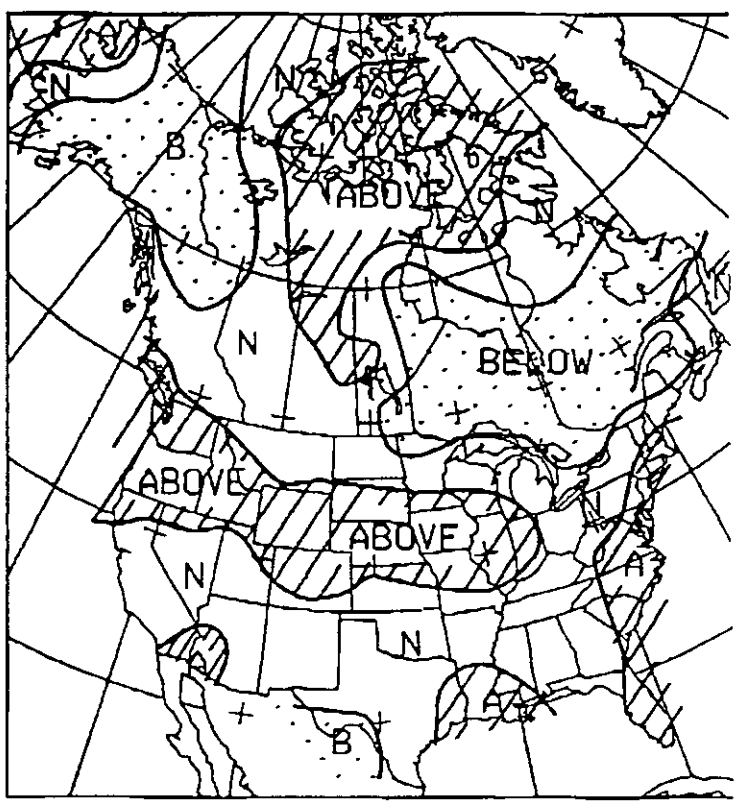
PRECIPITATION PROBABILITIES

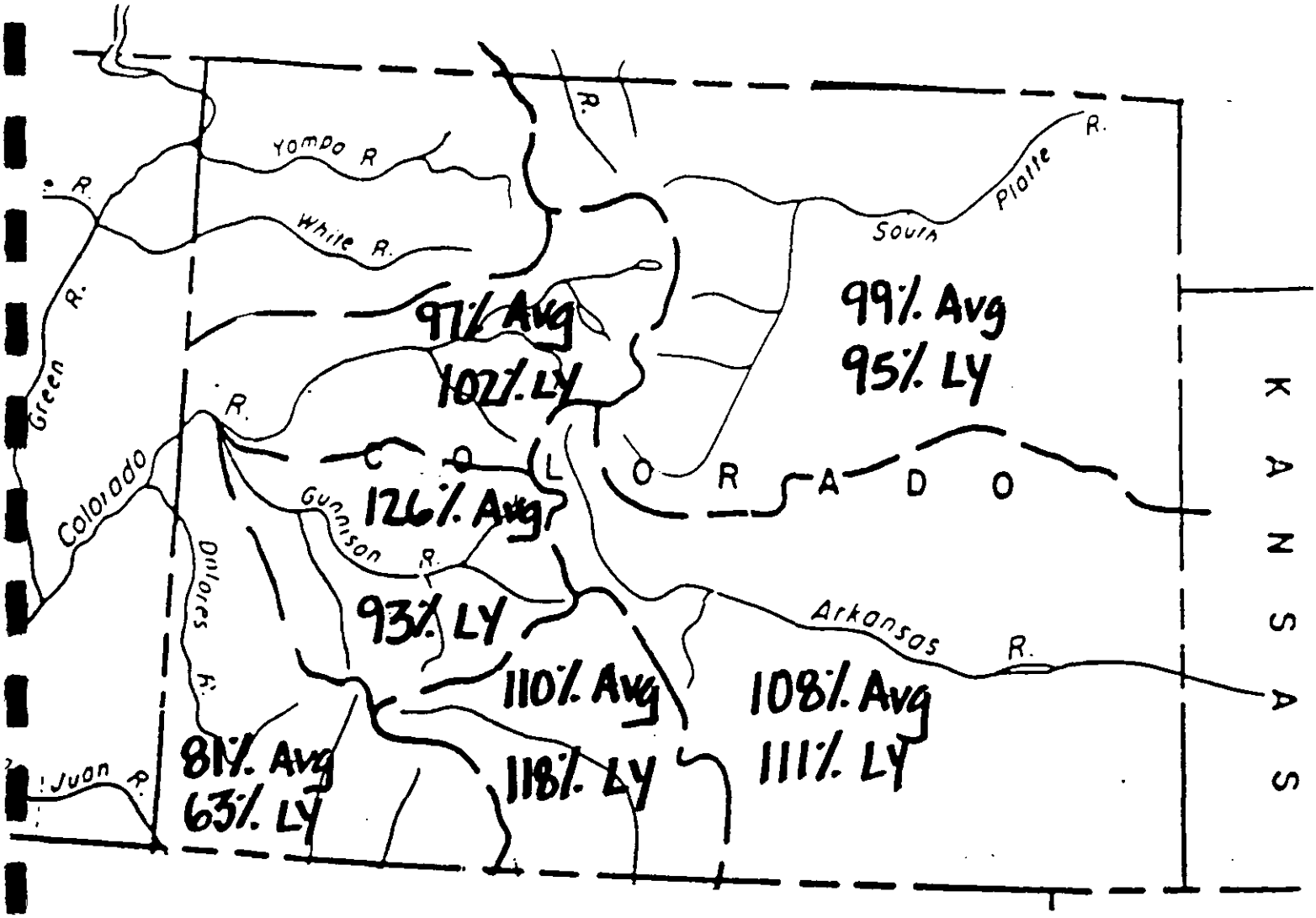
The numerical ranges which apply to these two charts are given on the 7th page of the Outlook.

OBSERVED FOR MID-MARCH TO MID-APRIL 1993

BASED ON PRELIMINARY REPORTS





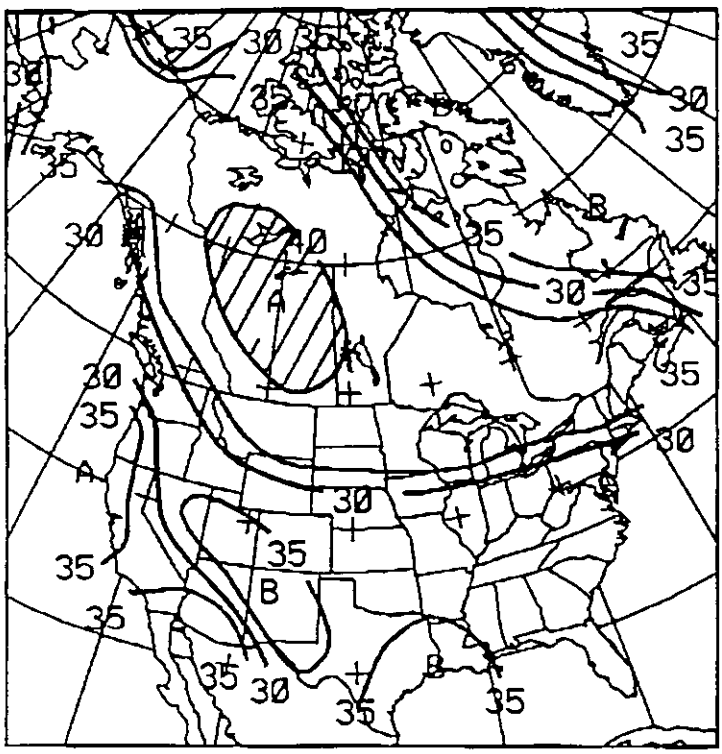


RESERVOIR STORAGE
APRIL 1, 1993
STATEWIDE: 104% of Average
96% of Last Year

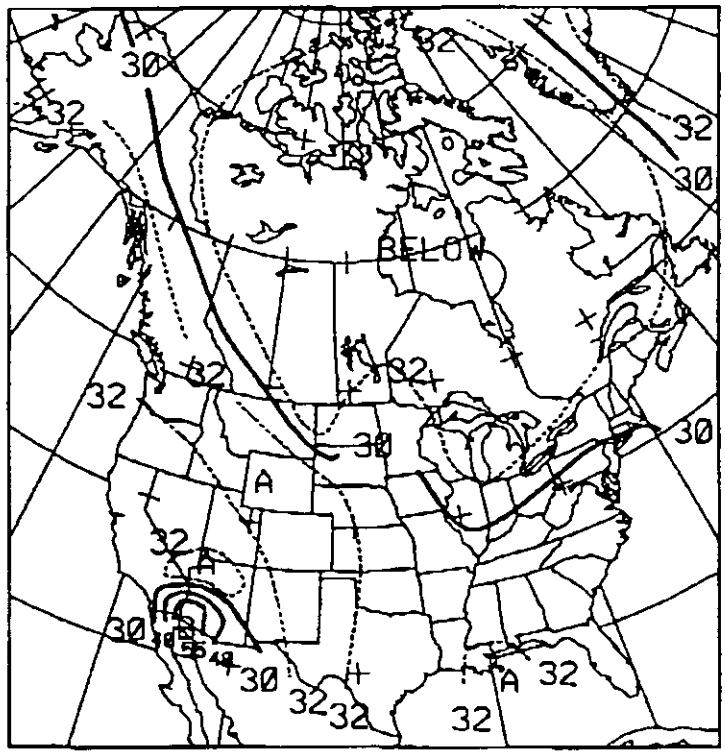
MONTHLY & SEASONAL WEATHER OUTLOOK

U.S. DEPARTMENT OF COMMERCE-NOAA-National Weather Service

FOR MAY 1993



TEMPERATURE



PRECIPITATION

Hawaiian Outlook - Temperature Probabilities: ABOVE 30%, BELOW 30%, NEAR NORMAL 40%
Precipitation Probabilities: ABOVE 25%, BELOW 35%, MODERATE 40%

Because any user of this Outlook needs to know how much confidence to place in it when determining how heavily to let it weigh in a decision, the mapped predictions on this and next two pages are shown in terms of numerical probabilities. Only two categories of average temperature and two of total precipitation, appear on the maps. These are BELOW and ABOVE and refer to below or above normal on the temperature map and below or above median on the precipitation map. Each of these classes is defined so as to occur 30 percent of the time in the long run; the defining numerical limits are listed on the inner pages of the Outlook. In a few exceptionally dry places, such as summertime California, BELOW will occur more than 30 percent of the time because no rain at all occurs more than 30 percent of the time.

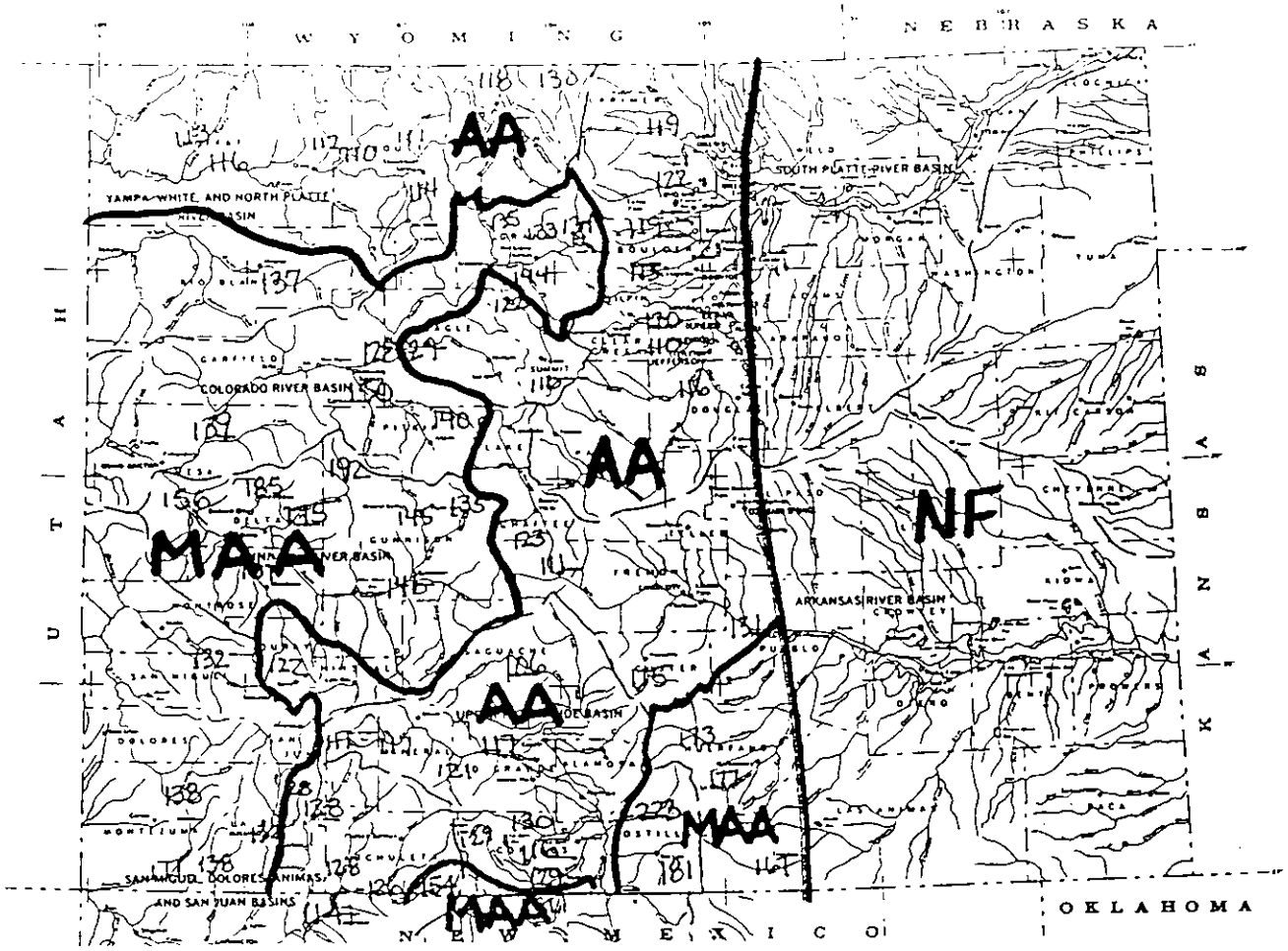
The contours on the maps show our estimates of the probabilities of occurrence for these classes, rising on each side of a common heavy line of indifference (30 percent) toward a maximum for the preferred class. A third, intermediate category, NEAR NORMAL temperature or MODERATE precipitation, does not appear explicitly on the maps. It will occur 40 percent of the time in the long run, and because we have found that predictive skill lies almost entirely outside this part of the frequency distribution, its probability is kept at a constant and uniform 40 percent. Therefore, since the remaining 60 percent is shared between ABOVE and BELOW, the maps need only show a probability for the preferred class, with the difference between it and 60 to be attached to the less likely class. Shading shows where the probability of the preferred class exceeds 40 percent, converting it to the most likely of the three classes. In all unshaded areas, NEAR NORMAL temperature or MODERATE precipitation is the class most likely to occur. In the driest places these rules do not hold exactly, since BELOW (no rain) will eat into the MODERATE class. For these few places the reduced probability of MODERATE is given individually in the station tables.

Any user wishing to deal with only two outcomes, temperatures either above or below the long-term normal or precipitation either above or below the long-term median, may do so by dividing the central category's probability in half, given 20 points to each of the probability contours shown on the maps, again excepting summertime rainfall in California and the Mediterranean, which must be treated station by station using the tables. Normals and medians are included in the numerical tables of class limits.

Some users may wish to have a complete probability distribution, from which their own choice of classes can be assigned probabilities. For temperature, that conditional probability distribution will be approximately Gaussian, and its mean and standard deviation may be estimated by adjusting the local normal and class limits with the help of the following table:

30	0.00	1.91
35	0.27	1.90
40	0.53	1.86
45	0.77	1.81
50	1.00	1.74

For a predicted percent probability of ABOVE or BELOW in the first column, the mean of the conditional distribution will be the local normal plus or minus the product of the local class limit threshold value and the factor given in the second column. The standard deviation of the conditional distribution will be the product of the same class limit threshold value the factor given for the third column. These adjustments amount to a shifting and slight narrowing of the climate frequency distribution of monthly or seasonal average temperature. Since the climatic frequency distribution of precipitation is not Gaussian, the same kind of simple generalization of the forecast probabilities cannot, unfortunately, be provided for modifying it.



STREAMFLOW PROSPECTS
MAY 1, 1993

MAA = Much Above Average (>130% of Average)

AA = Above Average (110% - 130% of Average)

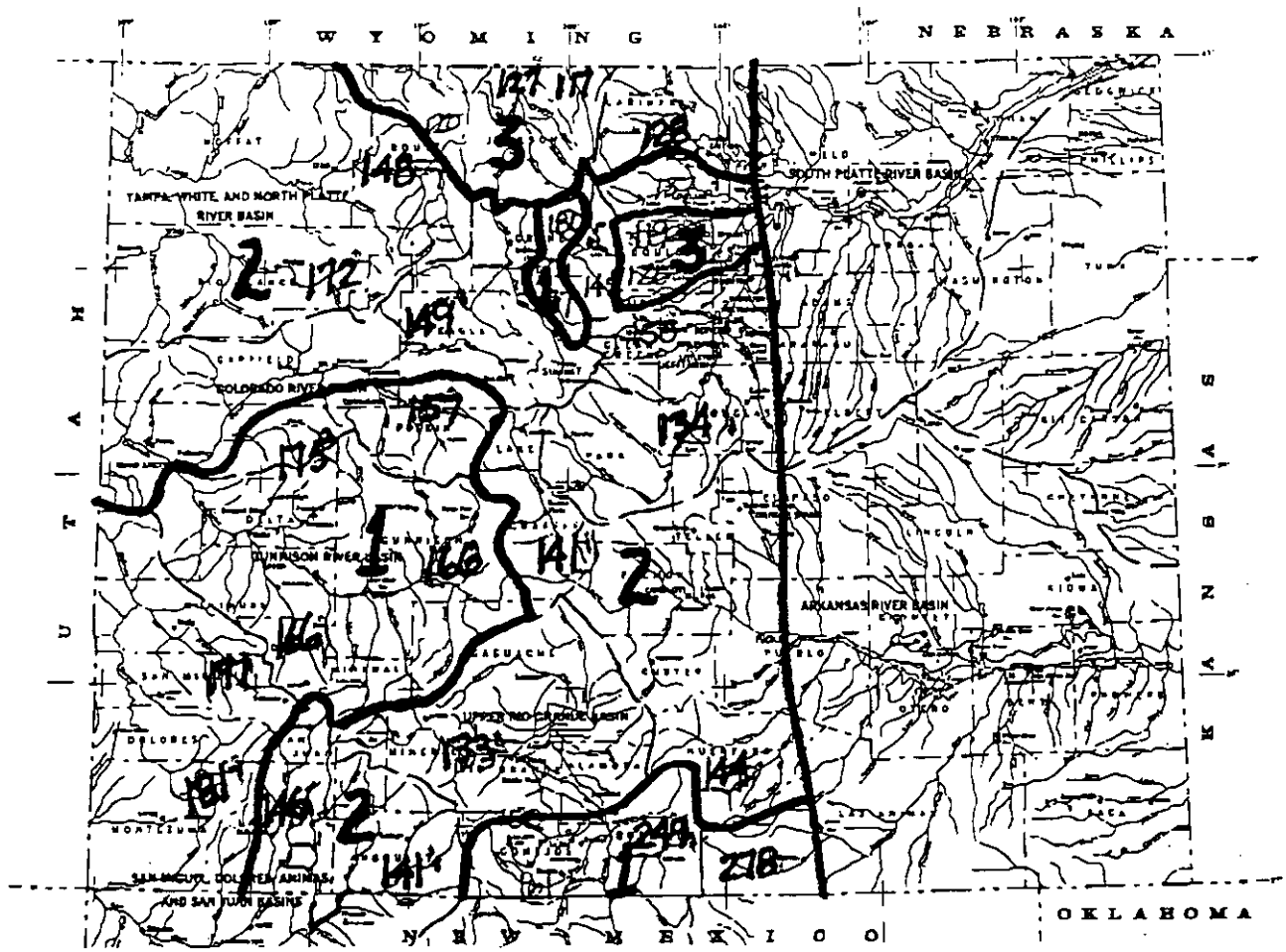
NA = Near Average (90% - 110% of Average)

BA = Below Average (70% - 90% of Average)

MBA = Much Below Average (<70% of Average)

NF = Not Forecast

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE



COLORADO SNOWPACK
MAY 1, 1993

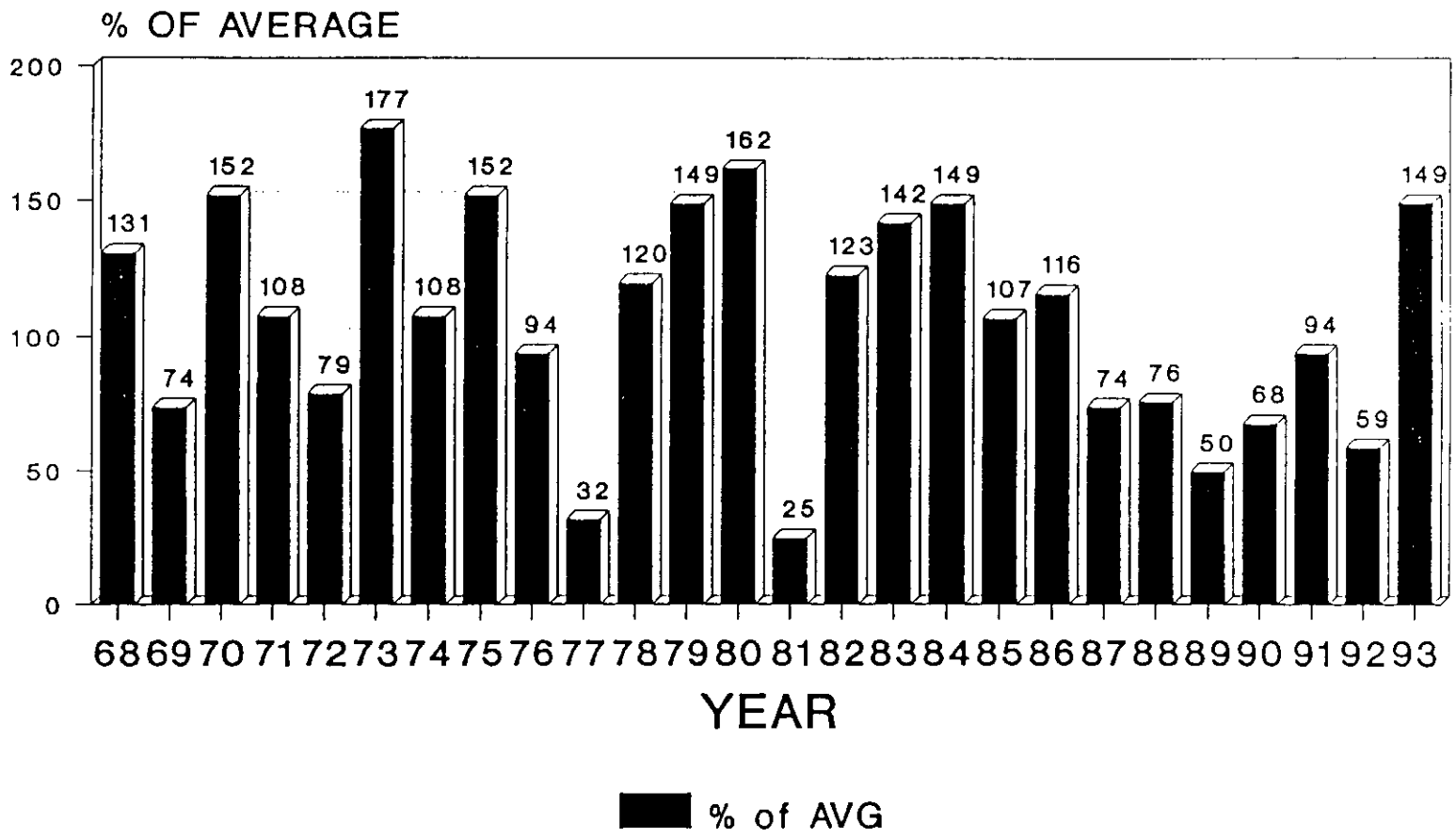
1 = > 150% OF AVERAGE

2 = 130% TO 150% OF AVERAGE

3 = 110% TO 130% OF AVERAGE

STATEWIDE: 149% OF AVERAGE
250% OF LAST YEAR

MAY 1 SNOWPACK
STATE WIDE



Prepared by Snow Survey Staff, Colorado

Gunnison River (entire basin upstream of confluence with Colorado River) Query

Snowcourse	Elevation	May-1 1993	May-2 1993	May-3 1993	May-4 1993	May-5 1993	May-6 1993	May-7 1993	May-8 1993	May-9 1993	May-10 1993	May-11 1993	May-12 1993	May-13 1993	May-14 1993	May-15 1993
Butte	10000	23.3	22.8	22.5	22.1	21.7	21.7	21.8	22.2	22.3	22.2	20.3	20.6	19.6	18.7	17.8
Columbine Pass	9400	26.0	25.8	25.1	23.5	22.9	23.2	23.1	23.6	23.8	24.2	23.3	22.4	20.6	19.2	17.9
Idarado	9800	11.4	11.6	11.0	10.4	10.5	10.6	10.6	11.2	11.5	11.2	10.5	9.5	8.3	7.3	6.3
Independence Pass	10600	23.7	23.6	23.4	23.0	22.5	22.4	22.2	22.3	22.0	21.9	21.5	20.9	20.3	19.6	18.8
McClure Pass	9500	25.8	25.3	24.7	24.0	23.8	24.0	24.3	25.3	25.6	25.6	25.3	24.3	22.8	21.2	20.1
Mesa Lakes	10000	30.3	30.4	30.4	29.6	29.7	29.8	30.2	31.1	31.5	31.5	31.1	30.2	28.9	27.2	25.7
Overland Reservoir	9840	20.6	20.7	20.1	19.2	19.3	19.4	19.6	19.9	19.9	19.9	19.2	19.2	18.3	17.6	17.3
Park Cone	9600	13.0	12.7	12.0	11.4	10.6	10.6	10.0	10.2	10.0	8.9	7.7	7.1	6.3	5.1	3.7
Park Reservoir	9900	47.4	47.9	47.8	47.1	47.7	47.8	48.0	48.7	48.7	48.7	49.5	49.5	49.1	48.6	47.4
Red Mountain Pass	11100	30.2	30.6	30.7	30.3	30.6	30.4	30.8	31.5	32.0	32.3	31.9	32.1	31.6	30.9	30.4
Schofield Pass	10700	49.3	49.3	49.3	48.9	48.4	48.4	48.7	49.3	49.4	49.9	50.5	50.7	50.0	49.0	47.7
Slumgullion	11550	12.2	12.8	12.9	12.3	12.9	13.0	12.9	13.3	13.4	13.3	13.1	12.3	11.7	11.1	10.4
TOTAL FOR 12 SITES =		313.2	313.5	309.9	301.8	300.7	301.4	302.2	308.6	310.1	309.6	303.9	298.8	287.5	275.7	263.5
CURRENT YEAR AVG. AT EACH SITE =		26.1	26.1	25.8	25.2	25.1	25.1	25.2	25.7	25.8	25.8	25.3	24.9	24.0	23.0	22.0
AVG. OF 30 YR AVGS. @ EA. SITE =		16.0	15.7	15.3	15.0	14.8	14.2	13.9	13.5	13.2	12.8	12.4	12.1	11.7	11.4	11.0
% OF 30 YR AVERAGE =		163%	167%	169%	168%	172%	176%	182%	190%	196%	202%	204%	206%	204%	202%	199%

COLORADO SNOWPACK
% OF AVERAGE
as of May 1, 1993
based upon preliminary data

Basin	% Avg.
GUNNISON BASIN	**166**
Gunnison above Blue Mesa	166
Surface Creek	175
Uncompahgre	166
COLORADO BASIN	**151**
Blue River	145
Colorado ab. Dotsero	149
Plateau Creek	175
Roaring Fork	157
Williams Fork	177
Willow Creek	180
YAMPA & WHITE BASIN	**150**
Elk River	120
Yampa River WS	148
White River WS	172
Little Snake	120
SAN JUAN, DOLORES & ANIMAS	**158**
Animas WS	146
Dolores WS	181
San Miguel WS	197
San Juan WS	141

Basin	% Avg.
SOUTH PLATTE BASIN	**132**
Big Thompson	137
Boulder Creek	120
Cache La Poudre	128
Clear Creek	150
St. Vrain Creek	119
South Platte ab. SP	134
NORTH PLATTE BASIN	**124**
Laramie	117
North Platte WS	127
ARKANSAS BASIN	**150**
Arkansas ab Salida	141
Cucharas & Huerfano	144
Purgatoire	278
RIO GRANDE BASIN	**149**
Alamosa	150
Conejos & San Antonio	161
Culebra & Trinchera	249
Rio Grande ab Del Nor.	132
STATEWIDE	**149**

RIVER BASIN SNOWPACK AVERAGES
Snow Water Equivalent

For May 13, 1993

Dolores River Basin - Town of Dolores

El Diente Peak	*
Lizard Head Pass	199
Scotch Creek	263*
Spud Mountain	255
Basin wide % of average	***239***

East River Basin - Town of Crested Butte
(including Coal Creek)

Butte	233
Scofield Pass	177
Basin wide % of average	***205***

Gunnison River Basin - City of Gunnison

Butte	233
Park Cone	332
Porphyry	137
Scofield Pass	177
Basin wide % of average	***220***

Crystal River Basin - Town of Redstone

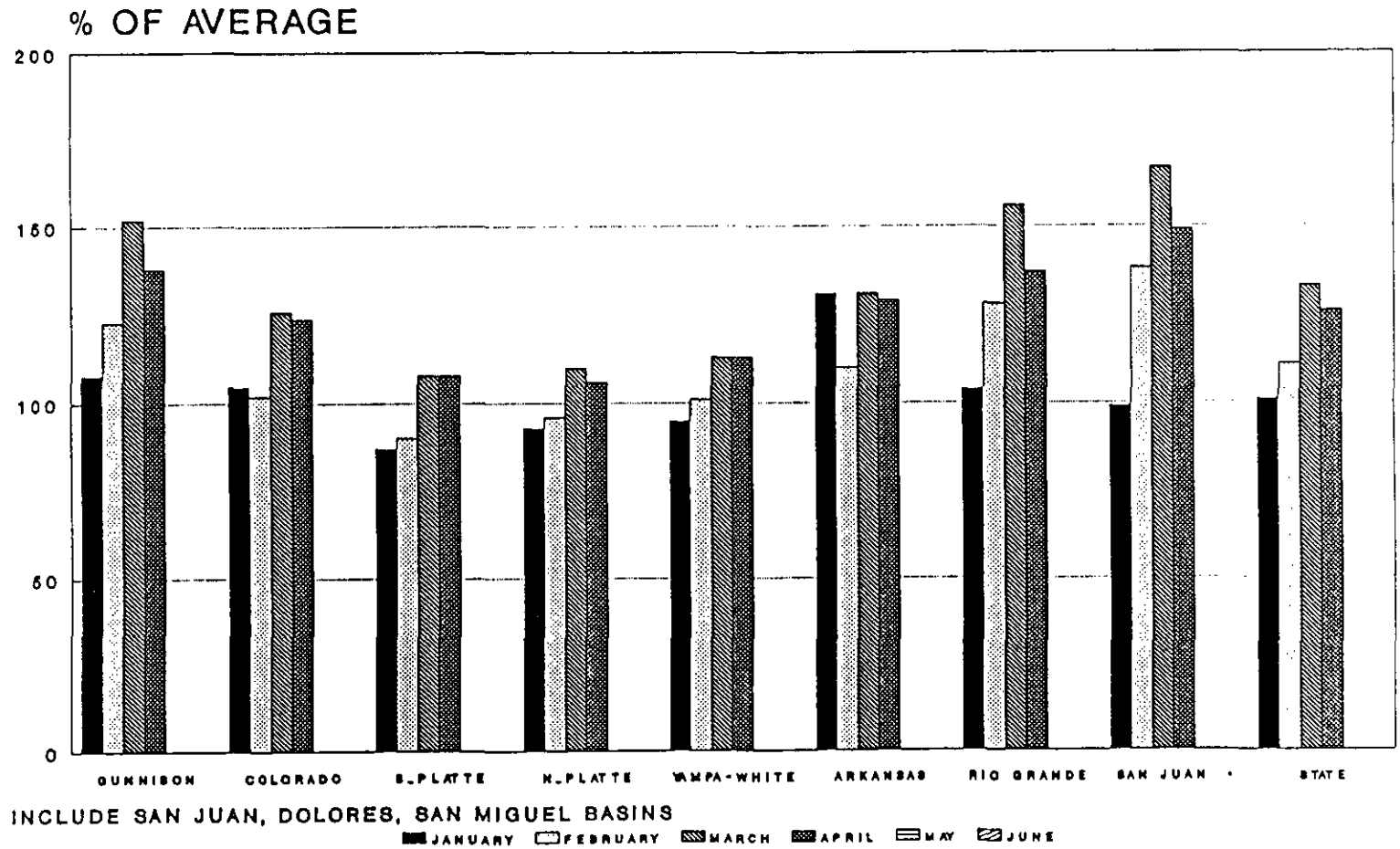
North Lost Trail	448
Basin wide % of average	***448***

Roaring Fork River Basin - Town of Basalt
(including Fryingpan River)

Independence Pass	205
Ivanhoe	109
Kiln	268
Nast Lake	0*
Basin wide % of average (excluding Nast)	***194***

*Data may not provide a valid measure of conditions

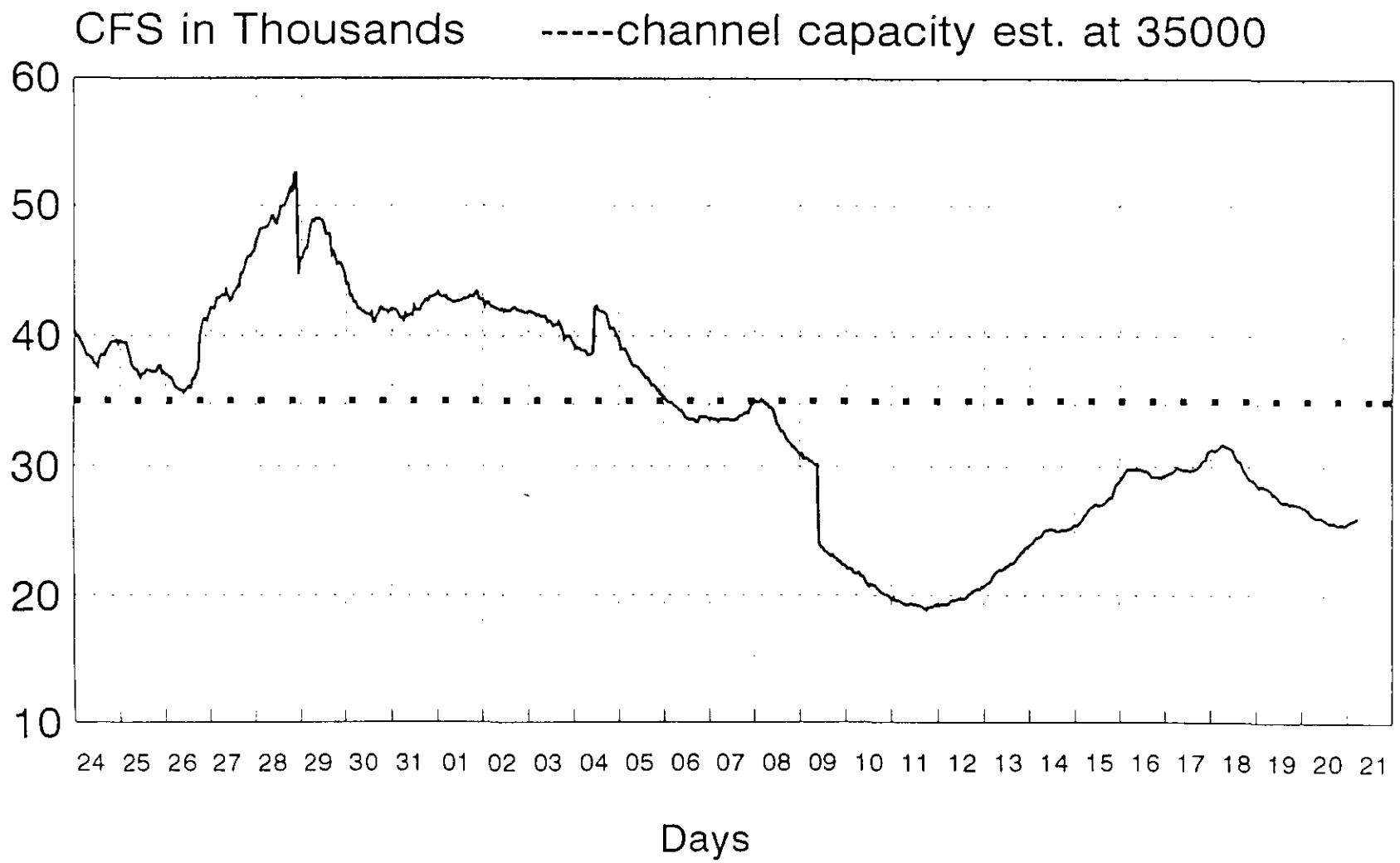
SNOWPACK SUMMARY
STATE OF COLORADO 1993



Prepared by Snow Survey Staff, Colorado

Colorado River at Stateline

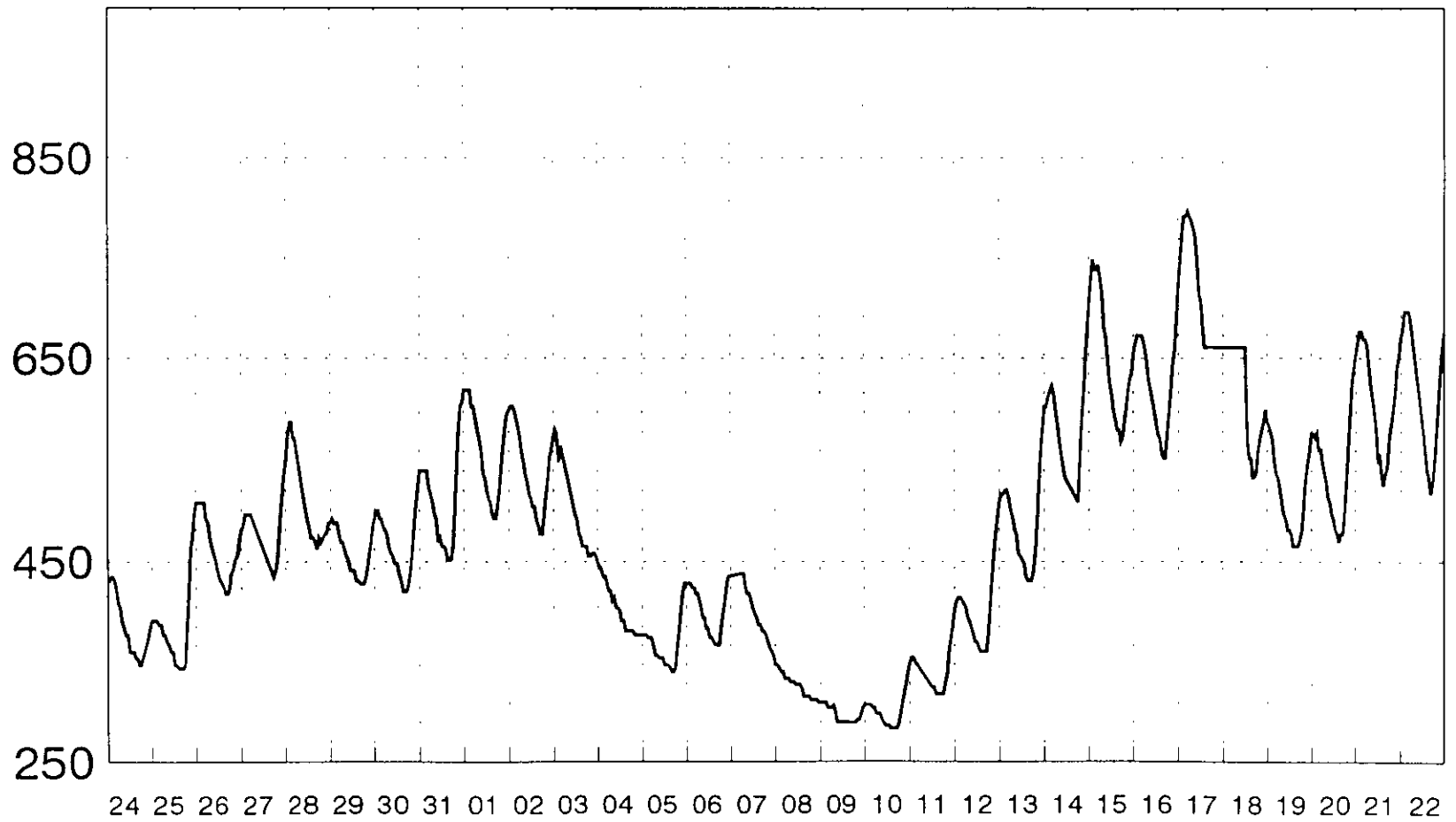
May-June 1993



Prepared on June 21st by
Division of Water Resources

Roaring Fork River at Aspen

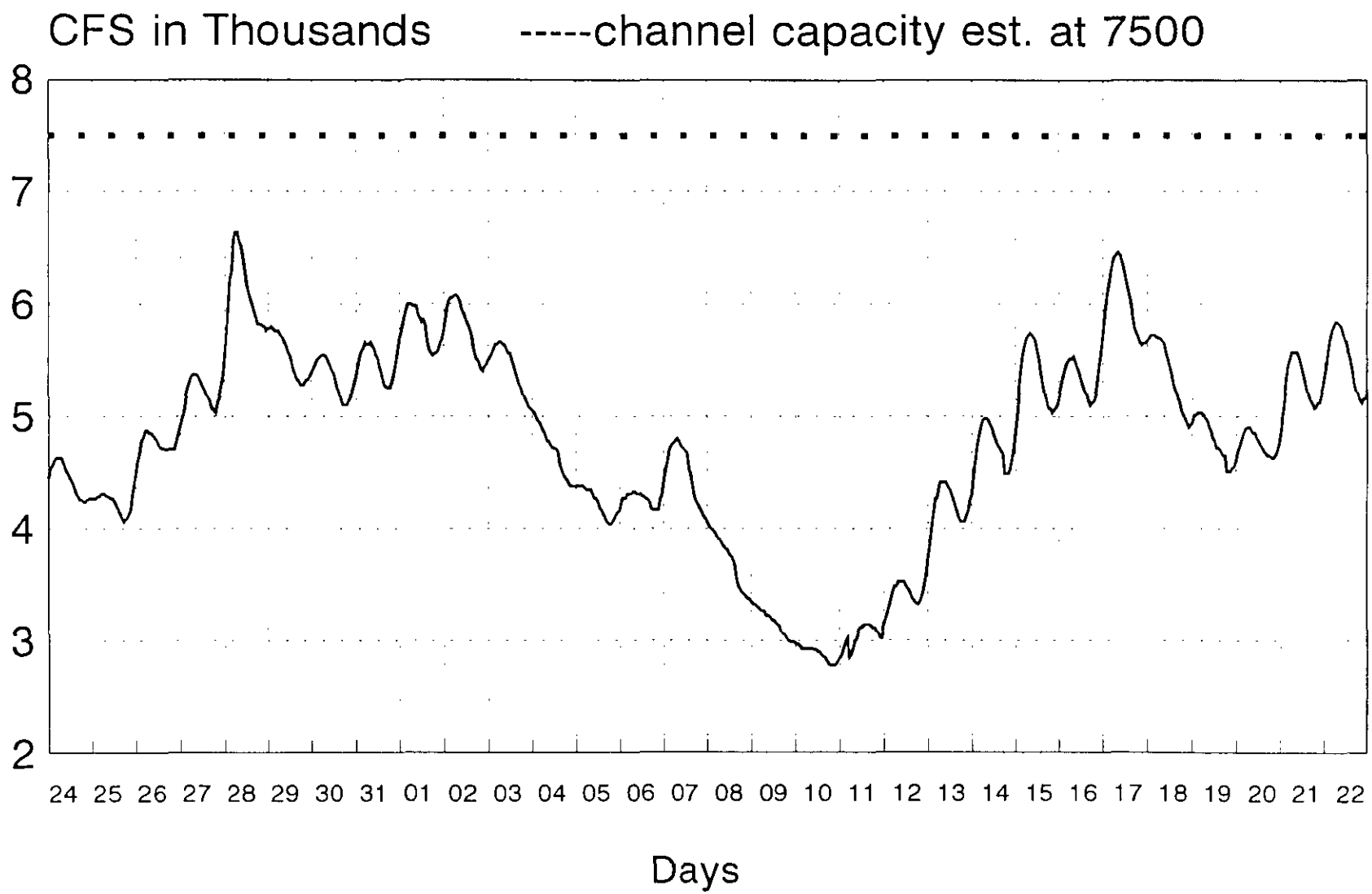
May-June 1993



Prepared on June 23rd by
Division of Water Resources

Roaring Fork River at Glenwood Springs

May-June 1993



Prepared on June 23rd by
Division of Water Resources

Stream	Location	Discharge 10 yr.	Discharge 100 yr.	1983 or 84 or Peak Flow
Colorado R.	U/S of Gunnison R.	40,000	63,000	39,300
	D/S of Gunnison R.	50,000	82,000	69,800
Colorado R.	Parachute	30,200	44,200	31,500
Roaring Fork	D/S of Fryingpan	6,100	9,400	10,400 (at Glenwood)
Fryingpan R.	Basalt	2,200	3,860	1,140
Uncompahgre	Delta	3,000	5,000	5,800
Gunnison R.	Delta	19,000	30,000	25,500
N. Fork Gunnison	Paonia	6,900	11,300	Not avail.
	Somerset			9,220
Surface Crk.	Orchard City	700	1,270	Not avail.
	Cedaredge			
Uncompahgre	Ouray	1,330	2,720	1,970 (near Ridgway)
Animas River	Durango	10,200	23,500	7,480
	Silverton	2,270	4,770	Not avail.
Lightner Crk.	Durango	1,800	4,200	Not avail.
Junction Crk.	Durango	1,500	4,350	Not avail.
Cement Crk.	Silverton	800	1,640	Not avail.
Vallecito Crk.	Above Vallecito Res.	750	1,900	Not avail.
Minnesota C.	Paonia	760	1,375	Not avail.
Gunnison R.	Gunnison	5,762	8,930	7,570
Tomichi Crk.	Gunnison	1,500	2,050	4,620

		10-year	100-year	1983 or 84
Coal Creek	Crested Butte	300*	490*	685

*From ECI Study

Los Pinos R.	Bayfield	3,000	6,000	1,700
	Ignacio			
Dolores R.	Dolores	6,800	14,500	8,000
San Miguel R.	Telluride	560	1,320	2,780
Cornet Creek	Telluride	210	590 1,500**	Not avail.

**Mudflow Discharge

Rio Grande	Alamosa	4,700	11,000	3,390 (near Lobatos)
	Del Norte	7,700	10,700	7,200
San Juan R.	Pagosa Spgs.	6,710	16,400	4,360
White R.	Rangely	7,500	20,000	6,440
Yampa R.	Steamboat Spgs.	5,200	8,000	5,670
	Hayden	12,200	19,130	13,100
Culebra C.	San Luis		1,740	654
Lake Fork Gunnison R.	Lake City	3,000	5,800	1,380

FLOODING ACTIVITY DAILY REPORTS

FLOODING ACTIVITY DAILY REPORT

Prepared by the Colorado Water Conservation Board's
Flood Control and Floodplain Management Section

May 21, 1993

This report is prepared daily to provide current information about 1) snowpack, 2) streamflows, and 3) personal and phone contacts from persons concerned about flooding. Selected streams on the western slope and in the San Luis Valley will be monitored. Daily snowpack and streamflow readings will be issued including statements regarding issues and concerns. Actions taken by CWCB staff will also be noted.

Snowpack Readings by Basin

Streams with flooding potential.
Incorporated communities are listed.

WATER CONTENT, 30 YEAR AVERAGE AND 1993 AVERAGE

	5/16/93 WATER CONTENT inches	30 YR. AVG. inches	5/18/93 WATER CONTENT inches	30 YR. AVG. inches	5/21/93 WATER CONTENT inches	30 YR. AVG. inches
White River (Meeker & Rangely)	85.9(3) 167%	51.3	80.6 166%	48.6	61.5(3) 138%	44.6
Colorado River (Grand Junction, Parachute, Rifle & Glenwood Springs)	-- 161%	--	-- 157%	--	159%	
Roaring Fork River (Glenwood Springs, Basalt, Aspen)	161.2 (8) 203%	79.3(8)	148.8 (8) 201%	74.1	107.3(7) 179%	60.1
Crystal River (Carbondale & Redstone)	82.9(3) 211%	39.2(3)	78.1(3) 213%	36.6	69.4(3) 213%	32.6
Plateau Creek (Collbran)	87.9(3) 208%	42.2(3)	85.0(3) 216%	39.4	77.5(3) 220%	35.2
North Fork of the Gunnison and Surface Creek (Cedaredge, Orchard City, Paonia)	153.9 (5) 196%	78.5(5)	148(5) 202%	73.4	134.1(5) 204%	65.7

Streamflow Data - Date: May 20, 1993

	Flooding cfs	Peak Discharge cfs		Time of Day
Dolores River upstream of Dolores		3,900	Falling	2300
Gunnison River at Gunnison at Delta at Grand Junction		 3,627 9,160 16,080	 F F F	 0500 0500 0000
Colorado River at Cameo at Dotsero at State Line		 21,000 8,560 37,800	 F Rising F	 2300 1200 0000
Roaring Fork River upstream of Basalt, Aspen		428	R	2300
Crystal River upstream of Redstone		1,550	R	2300
Animas River upstream of Durango		4,260	R	1200
Vallecito Creek upstream of reservoir at Bayfield		880	R	2300
Conejos River upstream of Conejos		1,400	Steady	2300
North Fork of Gunnison River upstream of Somerset		4,940	F	0000
Surface Creek upstream of Cedaredge		470	R	2100
Culebra Creek upstream of San Luis				
Trinchera Creek				
Sam Miguel River upstream of Placerville				
Plateau Creek upstream of Collbran		2,170	F	0600
White River upstream of Meeker		2,880	R	2300
Hermosa Creek		1,340	S	2300
Yampa River at Steamboat		2,650	R	2100

Activities/Contacts Regarding Flooding

- CWCB staff continues to prepare daily snowpack data and recorded daily peak streamflow values - Contact Larry Lang at 303-866-3441.

- Divsion of Water Resources continues to prepare daily readings of selected stream gage stations for projected trouble spots. Contact Jim McDanald at 303-866-3581.

- Chuck Lile, CWCB Director, conferred with Division 7, Joe Brown, regarding southwestern Colorado's current flood threat and Vallecito Reservoir operations.

- Mark Matulik met with Garfield County and Town of Basalt officials to review community flood threats and associated actions.

- Floodplain information maps were explained to Conejos County by Brian Hyde.

- Facsimile "Flood Preparedness Plan" sent to Crested Butte Public Works Director Bob Gillie.

- Continued preparation of a flood rating curve/table for the Highway 135 bridge at Gunnison, Colorado for Gunnison County officials.

- Pager numbers for Flood Emergencies

CWCB Main Office	303-866-3441
Larry Lang	303-230-1478
Brian Hyde/Mark Matulik	303-230 2119
Chuck Lile	303-230-2023
Emergency cellular phone	303-877-1467

- The Rio San Antonio River and Conejos Creek River are flooding. Highest water in 20 years.

- On May 21, 1993, the statewide flood threat has lessened due to falling temperatures and no rainfall.

FOR MORE INFORMATION CONTACT THE FLOOD CONTROL AND FLOODPLAIN MANAGEMENT SECTION OF THE COLORADO WATER CONSERVATION BOARD AT 303-866-3441

FLOODING ACTIVITY DAILY REPORT

Prepared by the Colorado Water Conservation Board's
Flood Control and Floodplain Management Section

June 2, 1993

This report is prepared daily to provide current information about 1) snowpack, 2) streamflows, and 3) personal and phone contacts from persons concerned about flooding. Selected streams on the western slope and in the San Luis Valley will be monitored. Daily snowpack and streamflow readings will be issued including statements regarding issues and concerns. Actions taken by CWCB staff will also be noted.

Snowpack Readings by Basin

Streams with flooding potential.
Incorporated communities are listed.

WATER CONTENT, 30 YEAR AVERAGE AND 1993 AVERAGE

	5/28/93 WATER CONTENT inches	30 YR. AVG. inches	5/30/93 WATER CONTENT inches	30 YR. AVG. inches	6/02/93 WATER CONTENT inches	30 YR. AVG. inches
White River (Meeker & Rangely)	49.8 159%	31.3	46.9 158%		14.7 160%	9.2
Colorado River (Grand Junction, Parachute, Rifle & Glenwood Springs)	14.3 158%	9.1	145%		8.1 137%	5.9
Roaring Fork River (Glenwood Springs, Basalt, Aspen)	9.7 202%	4.8	146%		6.9 201%	3.4
Crystal River (Carbondale & Redstone)	16.5 224%	7.4	211%		12.1 228%	5.3
Plateau Creek (Collbran)	19.2 239%	8.0	225%		13.1 226%	5.8
North Fork of the Gunnison and Surface Creek (Cedaredge, Orchard City, Paonia)	20.3 224%	9.1	216%		15.1 227%	6.7

	5/28/93 WATER CONTENT inches	30 YR. AVG. inches	5/30/93 WATER CONTENT inches	30 YR. AVG. inches	6/02/93 WATER CONTENT inches	30 YR. AVG. inches
Gunnison River (Delta)	12.6 202%	6.2	200%		7.7 174%	4.4
Coal Creek (Crested Butte)	8.6 426%	2.0	431%		3.6 1200%*	0.3
Upper Gunnison River (above its confluence with the North Fork: Gunnison, Crested Butte)	10.8 191%	5.6	184%		1.5 79%	1.9
Uncompahgre River (Delta, Montrose, Ridgway & Ouray) San Miguel River (Telluride, Placerville)	5.2 99%	7.0	114%		6.3 107%	5.9
Dolores River (Dolores & Rico)	2.7 220%	1.2	233%		1.1 250%	0.5
Animas River (Durango & Silverton)	12.3 146%	9.7	131%		7.7 127%	6.1
Alamosa River	18.5 145%	12.7	141%		18.0 132%	13.6
Trinchera Creek	0.5 123%	0.4	Melted out		Melted out	
Culebra Creek	0.5 123%	0.4	Melted out		Melted out	
*Data may not provide valid						
measure.						

( ) = number of stations
Basic data from USDA Soil Conservation Service Snotel Stations.

Streamflow Data - Date: June 1 - 2, 1993

	Flooding cfs	Peak Discharge cfs	Time of Day
Dolores River upstream of Dolores	7,000 cfs at Dolores	5,090 Falling	0700
Gunnison River at Gunnison at Delta at Grand Junction	 6,000 cfs 12,000 cfs	 4,254 Rising Missing 15,780 F	 0700 1400
Colorado River at Cameo at Dotsero at State Line at Grand Junction	 25,000 cfs 35,000 45,000	 24,200 R Missing 43,400 R Missing	 2100 2300
Roaring Fork River upstream of Basalt, Aspen		Missing	
Crystal River upstream of Redstone	2,500 cfs	1,980 R	0000
Animas River upstream of Durango	6,000 cfs	6,630 R	1100
Vallecito Creek upstream of reservoir at Bayfield	2,000 cfs	1,020 F	0000
Conejos River upstream of Conejos	2,000 cfs	2,000 S	0500
North Fork of Gunnison River upstream of Somerset	5,500 cfs	4,960 F	0600
Surface Creek upstream of Cedaredge	650 cfs	308 F	2100
Coal Creek at Crested Butte	500 cfs	150 S	0500
East River near Almont	3,000 cfs	2,560 R	0400
Plateau Creek upstream of Collbran		2,890 F	0700
White River upstream of Meeker	4,000 cfs	3,360 R	0500
Hermosa Creek		1,350 F	0400
Yampa River at Steamboat	5,000 cfs	2,920 F	0300

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FOR MORE INFORMATION CONTACT THE FLOOD CONTROL AND FLOODPLAIN MANAGEMENT SECTION OF THE COLORADO WATER CONSERVATION BOARD AT 303-866-3441

FLOODING ACTIVITY DAILY REPORT

Prepared by the Colorado Water Conservation Board's
Flood Control and Floodplain Management Section

June 2, 1993

This report is prepared daily to provide current information about 1) snowpack, 2) streamflows, and 3) personal and phone contacts from persons concerned about flooding. Selected streams on the western slope and in the San Luis Valley will be monitored. Daily snowpack and streamflow readings will be issued including statements regarding issues and concerns. Actions taken by CWCB staff will also be noted.

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White River upstream of Meeker	4,000 cfs	3,360 R	0500
Hermosa Creek		1,350 F	0400
Yampa River at Steamboat	5,000 cfs	2,920 F	0300

Activities/Contacts Regarding Flooding

- CWCB staff continues to prepare daily snowpack data, present daily peak streamflow values and provide accounting of daily flood occurrences - Contact Larry Lang at 303-866-3441.

- Division of Water Resources continues to record daily readings of selected stream gage stations for projected trouble spots. Contact Jim McDanald at 303-866-3581.

- Larry Lang continues a tour of flood threatened west slope communities including Crested Butte, Paonia, Delta, Redstone and Basalt.

- Pager numbers for Flood Emergencies

CWCB Main Office	303-866-3441
Larry Lang	303-230-1478
Brian Hyde/Mark Matulik	303-230 2119
Chuck Lile	303-230-2023
Emergency cellular phone	303-877-1467

FOR MORE INFORMATION CONTACT THE FLOOD CONTROL AND FLOODPLAIN MANAGEMENT SECTION OF THE COLORADO WATER CONSERVATION BOARD AT 303-866-3441

FLOOD INSURANCE FACT SHEET

FLOOD INSURANCE FACT SHEET

The following information was prepared in anticipation of possible flooding in Colorado during the spring of 1993. The March 1, snowpack readings from the U.S. Soil Conservation Service indicate that the southwestern part of the state has a much higher than average snowpack. The highest reading is 205% of normal in the Dolores River drainage. Given this threat, the Colorado Water Conservation Board has prepared a synopsis of flood insurance information for local government officials in southwestern Colorado. The following counties participate in the National Flood Insurance Program (NFIP), as do most of their incorporated municipalities. If you have a question as to whether or not your community is a NFIP participant, please call your county, city or town offices or Mark Matulik or Larry Lang at the CWCB, (303) 866-3441 Ext. 301.

Southwestern Colorado Counties Which Participate In The NFIP

Alamosa	*Archuleta*	*Chaffee*	*Conejos*
Costilla	*Delta*	*Dolores*	*Eagle*
Gunnison	*Hinsdale*	*San Juan*	*La Plata*
Mesa	*Mineral*	*Montezuma*	*San Miguel*
Montrose	*Ouray*	*Pitkin*	*Rio Grande*
Summit			

Southwestern Colorado Counties Which Don't Participate In The NFIP (And Therefore Flood Insurance Isn't Available) But Nonetheless Have A Potential Flood Threat

Lake *Saguache*

FLOOD INSURANCE FACTS

- Flood insurance is available in any area of a community which participates in the NFIP.
- Federally-backed flood insurance is not available in communities which don't participate in the NFIP.
- Rate are either subsidized (Pre-FIRM) or actuarial (Post-FIRM) based on when a structure was built.
- Flood insurance can be written by any licensed insurance agent.

b:flinsfct.doc

MEMORANDA

STATE OF COLORADO

COLORADO WATER CONSERVATION BOARD
Department of Natural Resources

721 State Centennial Building
1313 Sherman Street
Denver, Colorado 80203
Phone (303) 866-3441
FAX (303) 866-4474

M E M O R A N D U M

TO: Members, CWCB

FROM: Daries C. Lile, Director

DATE: March 3, 1993

SUBJECT: March 1, 1993 Snowpack Report

Hopes for a good water year are well on the way. In fact, some areas of the state are well above average, as depicted on the attached map.

I requested that Larry Lang meet with the Snow Survey Unit of the Soil Conservation Service to prepare a report for the Board regarding the state's March 1, 1993 snowpack readings. The snowpack ranges from "average" in the Cache la Poudre River Basin to "much above average" in the Gunnison, Upper Arkansas, Rio Grande, San Juan, Dolores and Animas River Basins.

The following table presents the snowpack percentages for Colorado's major drainage basins as of March 1, 1993.

River Basin Percent Snowpack

Basin	% of Avg.	% of Avg. 1992	% of Avg. 1984
Colorado River	127	161	139
Yampa & White Rivers	117	145	114
Gunnison River*	154	198	144
Uncompahgre River*	160	175	147
San Juan, Dolores & Animas Rivers**	165	183	122
Dolores River (only)*	163	205	135
Arkansas River	136	135	149
Rio Grande	156	162	122
South Platte River	108	140	127
North Platte River	110	144	116
Statewide	134	156	130

* Because the snowpack was considerably high, these subbasins were listed separately, as well as included in the aggregate.

** These basins were aggregated together because their headwaters begin in a geographically similar area and snotel sites for these areas are similiarly situated close together.

Some important facts to remember:

- In 1984, the state experienced heavy snowfalls in the months of April and May.

- Our reservoirs were full in the spring of 1984 because the 1983 runoff was above average.

- Without reservoir storage, a 150% "above average" snowpack causes concern for flood forecasters.

- The March 1 snowpack readings are good indicators of our upcoming water year.

- The Board staff, Office of Emergency Management and the U.S. Army Corps of Engineers will be conducting an inspection of western Colorado's potential flood and erosion problems. If Board members have any concerns, please contact Larry Lang or myself.

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STATE OF COLORADO

COLORADO WATER CONSERVATION BOARD
Department of Natural Resources

721 State Centennial Building
1313 Sherman Street
Denver, Colorado 80203
Phone (303) 866-3441
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MEMORANDUM

TO: Len Boulas, Director
Office of Emergency Management

FROM: Larry Lang, Chief
Flood Control and Floodplain Management

DATE: March 16, 1993

SUBJECT: Flood Preparedness for the 1993 Spring Runoff

By the March 1, 1993, Snow Survey readings, it appears that a spring flood from snowmelt is a very real possibility. As you will recall, this flood potential is not something new for us; however, we can never be too prepared. As in the past, the Board staff will be available to assist with your emergency operations.

On this note, I will advise you of some actions that I feel should be implemented immediately.

Notification of Flood Potential

In cooperation with FEMA, Division of Water Resources, and your office, I plan to make a mailing to potential flood threatened communities advising them on the flood threat, availability of flood insurance, our April 19-24 field inspections, and an emergency response plan.

The April 19-24, 1993, Field Inspections

I have scheduled this week with the Corps of Engineers--Jerry Kanenaga's Office--to determine if any "advanced measures" or "flood fight" operations should be implemented. I will facsimile you a draft copy to review.

May 7, 1993, Emergency Preparedness Meeting

I assume that you will be directing the meeting similar to the ones of the past. Let us know what you expect from the Board staff.

Spring 1993 Contact Person

Who will be the person-in-charge for the many activities which will be occurring over the forthcoming weeks?

Hopefully, the spring 1993 runoff season will not be a replay of 1984. But, let's be prepared!

I have received a number of requests for technical assistance. These requests have been discussed with Bob Kistner and Sue Clark. I feel that we should start preparing our grocery list of problem areas for the April 19-24 inspections and May 7th meeting.

LFL/gl

cc: Chuck Lile, Director, CWCB
Ron Cattany, Dep. Dir., DNR
Bob Kistner, CNHMC

STATE OF COLORADO

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MEMORANDUM

TO: Community Officials
Federal and State Agency Representatives

FROM: Larry Lang
Colorado Water Conservation Board

DATE: April 15, 1993

SUBJECT: 1993 Spring Snowmelt Runoff (Flood) Review Meetings and Inspections

I have completed the Federal-State inspection tour of potential flood prone sites for Western Colorado communities. The Inspection Team Members will be:

Corps of Engineers:	Jerry Kanenaga Mark Verke
Federal Emergency Management Agency:	Fred Metzler
Colorado Water Conservation Board:	Larry Lang
Division of Water Resources, Division Engineer Offices:	Keith Kepler-Div. 4 Orlyn Bell-Div. 5 Ken Beegles-Div. 7
Office of Emergency Management:	Bob Kistner Steve Denny Sue Clark

The inspection schedule is:

April 19, 1993 - Monday
Location: Golden, Colorado
Place: Office of Emergency Management
Camp George West
Time: 8:00 a.m.
Contact: Len Boulas
(303) 273-1624 or (303) 866-4583

April 19, 1993 - Monday
Location: Grand Junction
Place: 250 N. 5th Street
Public Works Department
Time: 3:00 p.m.
Contact: Mark Relph
(303) 294-1539

April 20, 1993 - Tuesday
Location: Howard Johnson's
Place: 2790 Crossroads Blvd.
Grand Junction
Time: 8:30 a.m. - 11:00 a.m.
Contact: Fred Sibley
(303) 273-1775

April 20, 1993 - Tuesday
Location: Parachute
Place: Town Hall
Time: 1:00 p.m.
Contact: Dave Rousseau
(303) 285-7630

April 20, 1993 - Tuesday
Location: Basalt
Place: Town Hall
Time: 3:00 p.m.
Contact: Glenn Hartmann
(303) 927-4701

April 21, 1993 - Wednesday
Location: Delta
Place: Delta County Sheriff's Office
505 Dalmar Street
Time: 9:00 a.m.
Contact: Duane Freeman
(303) 874-9734

April 21, 1993 - Wednesday
Location: Paonia
Place: Town Hall
Time: 3:00 p.m.
Contact: John Norris
(303) 527-4101

April 22, 1993 - Thursday
Location: Gunnison
Place: Airport Administration Office
Time: 8:00 a.m. - Officials Meeting
Time: 6:00 p.m. - Public Meeting
Contact: JoAnn Stone
(303) 641-2304

April 23, 1993 - Friday
Location: Ouray
Place: Town Hall
Time: 8:30 a.m.
Contact: David Vince
(303) 325-4323

April 23, 1993 - Friday
Location: Silverton
Place: Town Hall "Old Timer's Hall"
Time: 11:00 a.m.
Contact: David Erichson
(303) 387-5644

April 23, 1993 - Friday
Location: Durango
Place: LaPlata County Courthouse "Basement"
Time: 1:30 p.m.
Contact: Butch Knowlton
(303) 259-4000 1# 270#

April 23, 1993 - Friday
Location: Dolores
Place: Town Hall
Time: 6:00 p.m.
Contact: Shawna Valdez
(303) 882-7720

The purpose of these meetings and inspections is to evaluate the community's flood risks, perform site inspections, formulate flood mitigation measures, prepare flood preparedness actions, and offer an awareness of agency activities and assistance programs.

I would request that the meeting contact person have site maps, arrange for the site inspections, and invite concerned community officials and interested parties.

LFL/bj

cc: Daries C. Lile, Director, CWCB
Hal Simpson, State Engineer
Ron Cattany Deputy Director, DNR
Hal Knott, Director, DLG
Virginia Motoyama, FEMA
Jerry Kanenaga, Corps of Engineers

Mail list attached.

bj996.memo

STATE OF COLORADO

COLORADO WATER CONSERVATION BOARD

Department of Natural Resources

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Denver Colorado 80203
Phone (303) 866-3441
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Roy Romer
Governor

Daries C. Lile P.E.
Director CWCB

MEMORANDUM

TO: Charles "Tommy" Thomson, CWCB Member

THRU: Daries "Chuck" Lile, Director, CWCB

FROM: Larry Lang, Chief, Flood Control Section

DATE: August 4, 1993

SUBJECT: Colorado Requests Emergency Funds

As discussed during my 1993 flood report at Meeker, I welcome your assistance in securing funds for a number of Colorado emergency flood protection projects. Enclosed is Chuck's letter and a "News Release" for your information.

The applications should be completed and mailed to Washington on Monday, August 9, 1993.

The CWCB made a request to the Soil Conservation Service (SCS) on behalf of Colorado communities. The State in cooperation with the SCS has formulated eight feasible projects which will provide immediate assistance to the affected community. The funds will be made available to Colorado through the SCS's 216 program entitled "Emergency Streambank Protection Program". Recently, Congress has authorized $25 million for emergency flood protection projects. I am hopeful these Colorado communities will be considered for funding.

We realize that the Mississippi and Missouri River floodplain communities will be priority; however, Colorado has a number of flood emergencies, also. The emergencies are the result of rapid 1993 snowmelt runoff.

Should your schedule allow, you may want to discuss Colorado's needs with:

Mr. Lloyd Wright, Director
Watershed Projects Division
NHQ
Washington, DC
Phone: (202) 720-1853

LFL/bj
Enclosure
cc: Chuck Lile

bj1151.memo

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
ROOM E200C
655 PARFET STREET
LAKEWOOD, CO 80215-5517

SUBJECT: PDM - Emergency Watershed Protection

DATE: August 2, 1993

TO: Lloyd Wright
Director
Watershed Projects Division
NHQ
Washington, D.C.

FILE CODE: 390-14

The attached shows eight projects that Colorado requests funding through the Emergency Watershed Protection (216) program. All of the projects are non-exigency.

Extended high flows from mountain snowmelt during the period of late May to late June 1993, caused excessive erosion during this period of time. Bank cutting and sloughing have occurred in all eight proposed project areas.

Duane L. Johnson

DUANE L. JOHNSON
State Conservationist

Attachment

cc: Kent Ververs, ASTC-P, Lakewood, CO w/attachment
Duane Killgore, WNTC, Portland, OR w/attachment
Larry Babich, NHQ, Washington, D.C. w/attachment
Dave Doty, AC, Grand Junction, CO w/attachment
Smoky Barker, AC, Alamosa, CO w/attachment

I have reviewed and concur in the request for emergency 216 funding for these eight projects within Colorado.

Daires Lile PE
Director
Colorado Water Conservation Board

8/2/93
Date

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Director
Colorado Water Conservation Board

8/2/93
Date

SCS/CWCB NEWS RELEASE

STATE OF COLORADO

COLORADO WATER CONSERVATION BOARD

Department of Natural Resources

721 State Centennial Building
1313 Sherman Street
Denver, Colorado 80203
Phone (303) 866-3441
FAX (303) 866-4474

Roy Romer
Governor

Daries C. Lile, P.E.
Director, CWCB

FOR IMMEDIATE RELEASE
August 4, 1993

CONTACT: W. KENT VERVERS
Asst. State Conservationist
USDA/Soil Conservation Service
(303) 236-2886

Daries Lile, Director
Colorado Water Conservation Board
(303) 866-3441

COLORADO REQUESTS EMERGENCY FUNDS

Daries Lile, Director, Colorado Water Conservation Board, today requested $693,000 in Emergency Watershed Protection funds through the U.S. Department of Agriculture's Soil Conservation Service (SCS).

If approved by the SCS, the funds will be used to apply streambank protection measures to prevent further flood losses in eight identified watershed areas which were damaged during the 1993 spring and summer snowmelt runoff.

The streambanks and properties to be protected are on the:

- Rio San Antonio in Conejos County;
- North Fork of the Gunnison River in Delta County (4 sites);
- Coal Creek at Crested Butte;
- Crystal River near Redstone; and
- Colorado River in Mesa County.

- more-

During the high spring and summer runoff damage was inflicted on irrigation systems, riparian habitat, residential and commercial properties, public facilities, railroads and historical districts.

Federal dollars for these projects are available through the Emergency Watershed Protection Program when funds are available. Lile said, "We need these funds to assist Colorado communities in their recovery activities."

Under the Emergency Watershed Protection (216) program, federal dollars pay for 75 percent of needed construction and local entities must pay 25 percent. The local share can be in the form of cash and in-kind services such as equipment and personnel.

Funds are being requested for the following Emergency Watershed Projects.

COAL CREEK (GUNNISON COUNTY)

Serious streambank erosion is occurring in three sections of the Coal Creek channel in Crested Butte. High flows have put the existing lined channel in jeopardy due to erosion behind and under the lining. If left unprotected, it is estimated that the next high flows will destroy 1,000 feet of channel lining and could damage properties valued at over $1 million in Crested Butte including homes, businesses and public buildings.

CRYSTAL RIVER (PITKIN COUNTY)

The channel bank has become unstable due to excessive erosion near Redstone. Some 1,000 feet of streambank needs protection. Failure to do so will jeopardize properties worth $500,000, including five homes and 500 feet of county road. Continued siltation of the Crystal River would also reduce the quality of fish habitat.

DELTA FAIRGROUNDS (DELTA COUNTY)

The North Fork of the Gunnison has eroded within 10 feet of the fairground buildings and race track. Five jetties are planned to protect county fairground properties worth $50,000.

HOTCHKISS TRAILER PARK (DELTA COUNTY)

The North Fork of the Gunnison eroded to within 20 feet of a house and trailer home during the flooding this past spring. Six jetties and 50 feet of bank riprap are needed to protect against further damage. Failure to do so will damage homes, an irrigation ditch, a state road and the city's water and sewer system.

EAST HOTCHKISS (DELTA COUNTY)

This bank of the North Fork has eroded to the extent that a portion of the Denver and Rio Grande railroad is in jeopardy of being washed away during the next high flow. The Town of Hotchkiss will also suffer damages. Approximately 800 feet of riprap is needed to protect the railroad and other properties.

PAONIA PROJECT (DELTA COUNTY)

The North Fork of the Gunnison has eroded an irrigation ditch threatening loss of water to 40 farms and 1,600 irrigated acres of pasture, hayland and orchards. Some 1,000 feet of dike and other protections are needed to prevent further damage to the irrigation system.

ROSEVALE PROJECT (MESA COUNTY)

This bank of the Colorado River at Grand Junction has eroded to the extent that 17 houses will likely incur damages during the next flood. Also in need of protection are 1,000 feet of county roads and two high voltage power lines. Fifteen jetties are planned.

EL CODA PROJECT (CONEJOS COUNTY)

This channel of the Rio San Antonio has eroded within 10 feet of an irrigation ditch. Serious damage to nearby homes is anticipated if the river erodes into the irrigation ditch. Thirty-seven hundred (3,700) acres of irrigated land could lose water. Failure to implement this project will jeopardize homes and reduce the quality of stream fisheries.

Duane Johnson, State Conservationist, stated, "It is my pleasure to submit these SCS applications on behalf of the state request." These applications will provide protection for properties valued at over $3 million.

# # #

PHOTOS

North Fork of Gunnison River - Delta County, Colorado

Emergency Bridge Abutment Protection - Delta County, Colorado

North Fork of the Gunnison River Upstream of Somerset

North Fork of the Gunnison River Between Hotchkiss and Paonia

Dolores River At Dolores 4/23/93

Surface Creek At Cedaredge 4/21/93

Terror Creek High Water Mark On 5/27/93

Water Treatment Plant In Colorado River Floodplain
At Parachute On 4/20/93

Uncompahgre River At Ouray, Colorado

Uncompahgre River At Ouray, Colorado

Uncompahgre River At Colorado Hwy 348 - Delta, Colorado

Junction Creek At Durango, Colorado

Uncompahgre River At "B" Road In Delta

Emergency Levee Constructed On Uncompahgre River In Delta In 1984

Roaring Fork River Upstream Of Emma Bridge

Roaring Fork River Downstream Of Emma Bridge

SCS Dike At Paonia Constructed In 1985
Protects 15 Homes

High Water In Hubbard Creek At Paonia

North Fork of Gunnison River at Paonia
Gravel Bar in Center of River Should Be Removed

Minnesota Creek at Paonia

Gunnison River at Dos Rios Island
Old Corps Levee Needs Repair

Gunnison River "City Dike" Constructed in 1984

Gunnison River at Gunnison

Gunnison River "1984 Break Out Location" at Gunnison