

# Rocky Mountain

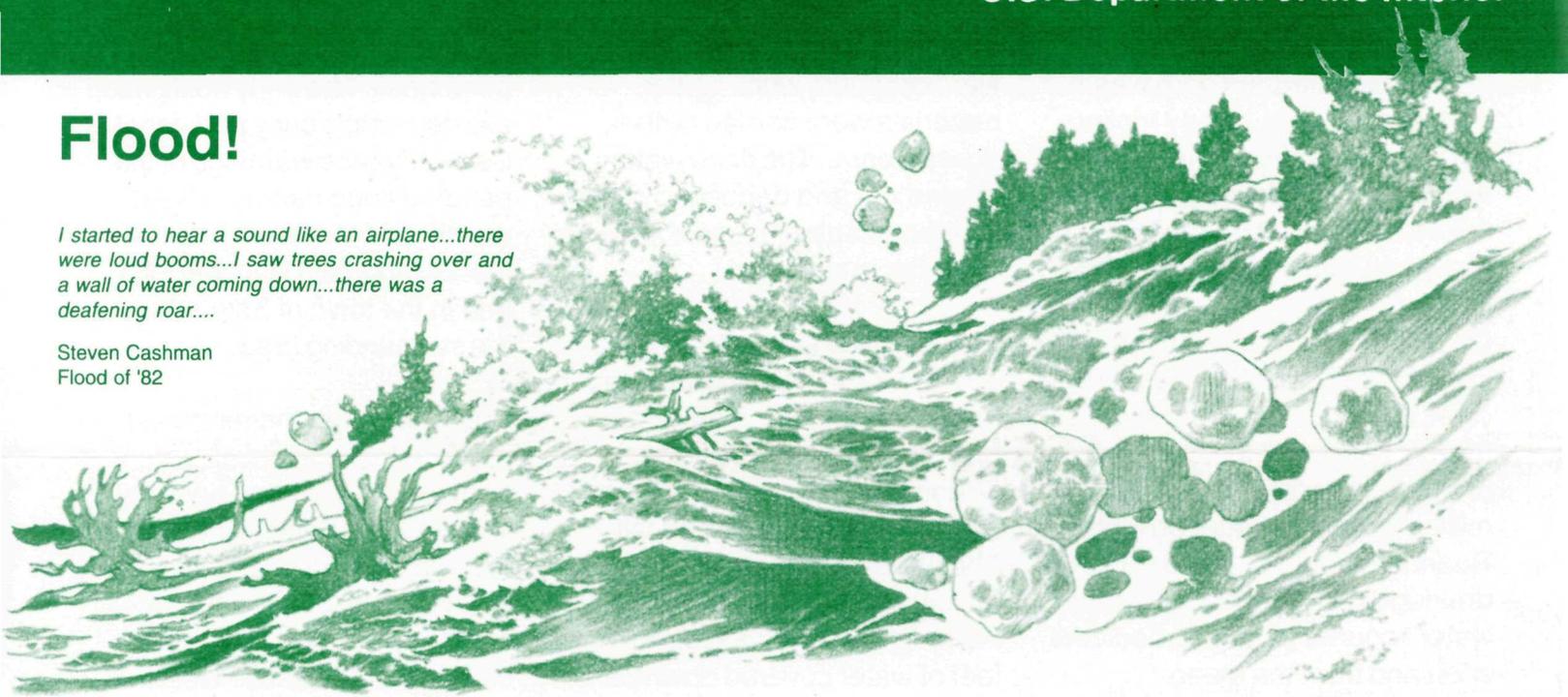
National Park  
Colorado

National Park Service  
U.S. Department of the Interior

## Flood!

*I started to hear a sound like an airplane...there were loud booms...I saw trees crashing over and a wall of water coming down...there was a deafening roar....*

Steven Cashman  
Flood of '82



In mountain environments, weather patterns can change quickly, turning meandering streams into scouring walls of water or *flash floods*. Floods can be natural or unnatural events, but both demonstrate the same awesome force of water.

Natural floods in the mountains can be caused by snowmelt or spring runoff, rainfall mixed with snowmelt, or intense rainfall from storms.

### BIG THOMPSON CANYON FLOOD

The Big Thompson Canyon is located in the foothills east of the town of Estes Park. This canyon, like many in the foothills area, is characterized by narrow valleys bordered by steep, side slopes with soil that is highly susceptible to erosion. Intense rainfalls can oversaturate the soil and overflow river banks, creating a flash flood.

During the night of July 31, 1976 severe thunderstorms developed over the Big Thompson River basin. A large storm system stalled over the foothills for several hours, dumping torrential rains in the upper section of the canyon. In one area of the canyon, 7 1/2 inches of rain fell in a 70-minute period!

Human activities also sometimes cause floods. Dams and levees designed to tame a river or lake can fail. Generally, natural and unnatural floods are minor occurrences causing little damage, but all floods have the capability to change human lives and the natural landscape.

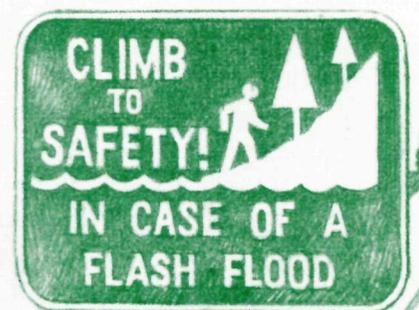
In Rocky Mountain National Park and the surrounding area, two major floods have displayed this powerful force of water. The Big

Water levels rose 9 feet above the normal riverbed, cutting away the river bank and changing the river's main channel. Soil, rocks, trees, homes, and businesses were swept away. Once the water reached the plains, the water slowed down and spread the debris out for miles.

Few flood controls and warning systems were in place along the river. Flood warnings were issued too late for many people in the canyon. Others ignored the warnings altogether. In the confusion, some people tried driving up or down the canyon and were lost in the flood waters. By dawn, 145 people had lost their lives in the canyon. Many survived by climbing to higher ground or clinging to trees and rocks.

Thompson Canyon Flood of 1976 showed the scouring force of a natural, flash flood. The Flood of '82 or Lawn Lake Dam failure was a reminder of the limitations of human engineering. Both flood events unveiled the shattering force of water, and the ability of people and nature to rebuild and recover.

During the flood, search and rescue personnel tried to warn and assist people in the canyon. Some rescue workers lost their lives trying to save others. Rescue workers came from local areas and from far away to help people trapped in the canyon. Following the flood, searchers continued working for weeks to find survivors and to retrieve the bodies of those who had perished.



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## FLOOD OF '82

Lawn Lake is a natural lake located in the park's Mummy range. In the early 1900's, a 26-foot high earthen dam was added to the lake, nearly tripling its size. This privately owned dam was one of five dams built prior to the establishment of Rocky Mountain National Park in 1915.

On July 15, 1982, at 5:30 a.m., the Lawn Lake Dam failed. On this calm, clear Thursday morning, a 95-foot section of the dam breached sending more than 200 million gallons of water down the Roaring River into the Fall River drainage. A 30-foot high wall of water scoured out trees, boulders, and sand from the steep mountainside and carried them down to Horseshoe Park.

As the flood entered the flat valley, the water slowed down and quickly deposited the heaviest debris first. Initially, large boulders, weighing up to 452 tons, were dropped, while lighter materials were carried farther downstream. The flood waters spread out and deposited debris in a fan shape or *alluvial fan* over 42 acres in size.

The flood continued eastward down the Fall River drainage towards a second dam. Four feet of water swept over the 17-foot high, concrete Cascade Dam, causing this dam to fail. The new wave of water continued on towards the town of Estes Park. Trees, mud, rocks, and six feet of water covered downtown Estes Park and continued to head towards the Olympus Dam which forms Lake Estes. This dam held and the flood was stopped.

Luckily, the Lawn Lake Dam failed early in the morning before many people were in the park. A trash collector working in Horseshoe Park notified emergency personnel. The early notification allowed emergency personnel to issue advance warnings of the pending flood danger. Flood warnings were issued inside Rocky Mountain National Park, and in the town of Estes Park and the surrounding area.

Emergency personnel closed roadways and evacuated people from the flood path. The water level in Lake Estes was lowered to handle the incoming water. The Flood of '82, which traveled 12 1/2 miles in 3 1/2 hours, claimed three human lives in Rocky Mountain National Park and caused over \$31 million damages in the town of Estes Park.

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## RECOVERY

Powerful flood waters scour out channels and deposit the material they carry, changing the landscape in an instant. Both the Big Thompson Canyon Flood and The Flood of '82 challenged nature's and people's ability to recover.

In the Big Thompson Canyon, recovery started immediately. The canyon was declared a national disaster area and human intervention quickened the pace of recovery. Flood warning systems and signs were improved. Areas of the canyon were revegetated and the roadway rebuilt. People began to reoccupy and rebuild.

Today, stories about lost loved ones and the courageous efforts of many people in the canyon continue to be told.

The Flood of '82 destroyed some areas while creating new life in other areas of Rocky Mountain National Park. Visual scars along the alluvial fan and the scoured river remain. Fish and wildlife slowly returned to Horseshoe Park. Trees, killed during the flood, provided a new haven for cavity nesting birds. Many trees, shrubs and grasses sprouted on the alluvial fan, beginning a new cycle of growth. Flood debris created a new lake and wetland area, opening up opportunities for waterfowl and returning beaver populations.

Following the dam failure, the remaining private dams inside Rocky Mountain National Park were removed. The town of Estes Park was declared a national disaster area and the community rebuilt.

Both natural and unnatural floods change the landscape and people's lives. Floods can be destructive while at the same time, creating new areas. Being able to recover from these dramatic events is part of the natural cycle.

