

Water for a Thirsty West

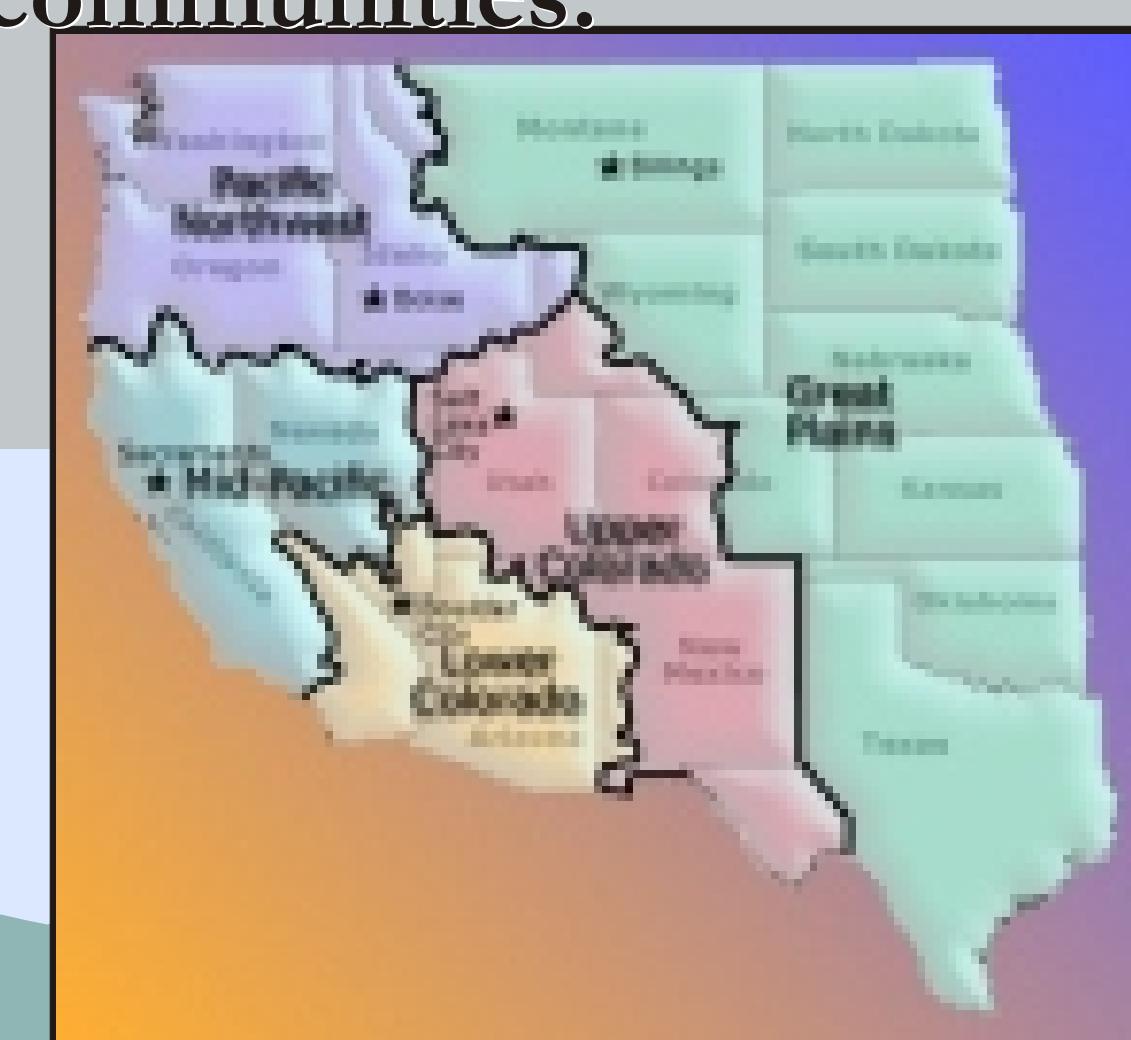


The Bureau of Reclamation was created more than a hundred years ago to provide water projects needed for the development of the American West. Rainfall often was too little or came at the wrong time for successful farming. Communities found it difficult to meet their needs when summer drought reduced flows in streams. Floods threatened property, crops and livestock.



In 1902, President Teddy Roosevelt signed legislation that creating the Reclamation Service (later renamed the Bureau of Reclamation).

As a result, Reclamation was created to "reclaim arid western lands" through water storage and delivery projects in the 17 western states. Most projects were designed to store spring runoff, primarily from snowfall, and deliver the water when needed to farms and communities.



Reclamation manages 348 reservoirs in the 17 western states with a total storage capacity of 245 million acre-feet (an acre-foot, 325,851 gallons of water, supplies enough water for a family of four for one year).

Today, Reclamation manages, develops, and protects water and related resources in an environmentally and economically sound manner in the interest of the American public and:

- serves as the fifth largest electric utility in the 17 Western States and the nation's largest wholesale water supplier,
- provides 1 out of 5 Western farmers (140,000) with irrigation water for 10 million farmland acres that produce 60 percent of the nation's vegetables and 25 percent of its fruits and nuts,
- operates 58 hydroelectric powerplants averaging 42 billion kilowatt-hours annually,
- delivers 10 trillion gallons of water to more than 31 million people each year,
- manages in partnership 308 recreation sites visited by 90 million people a year.

By the mid-20th century, water in the West did more than irrigate 160 acre patches of alfalfa. Water flowed as the life's blood of cities, private industries, and military bases. Droughts during the 1930s illustrated that Rapid City could not depend on surrounding springs as the foundation of a municipal water supply.

In 1942, the War Department broke ground on Ellsworth Air Force Base northeast of the city. The additional 5,000 military personnel strained the city's water supply. This pressure on the community's limited water resources brought the city's leadership to Reclamation for help. The Federal response was the construction of Deerfield Dam in 1945 and Pactola Dam in 1952.

The Rapid Valley Unit and Project

The Rapid Valley Unit consists of Pactola Dam and Reservoir on Rapid Creek and the project includes Deerfield Dam and Reservoir located on Castle Creek, an upstream tributary to Rapid Creek. The Unit is a part of the Pick-Sloan Missouri Basin Program, a comprehensive water development plan for the Missouri River basin created in 1944.

The two reservoirs store water to serve 8,900 acres of farmland in the Rapid Valley Water Conservancy District and also provide municipal and industrial water for Rapid City, including Ellsworth Air Force Base, and flood protection along Rapid Creek. The administration of the reservoir lands and recreation management programs are the responsibility of the U.S. Forest Service. Fish and wildlife are managed by the South Dakota Department of Game Fish and Parks.

Pactola Dam & Reservoir



Drawn from the memory of a gold rusher, Judge H.N. Maguire, the name Pactola derives from Pactolus, the Lydian river of golden sands. Maguire arrived in Dakota Territory in 1876, hiring 80 men to construct a six-mile flume for a placer gold mining operation. Maguire's flume scheme collapsed and the mining town of Pactola now sits at the bottom of the reservoir whose name honors the judge.



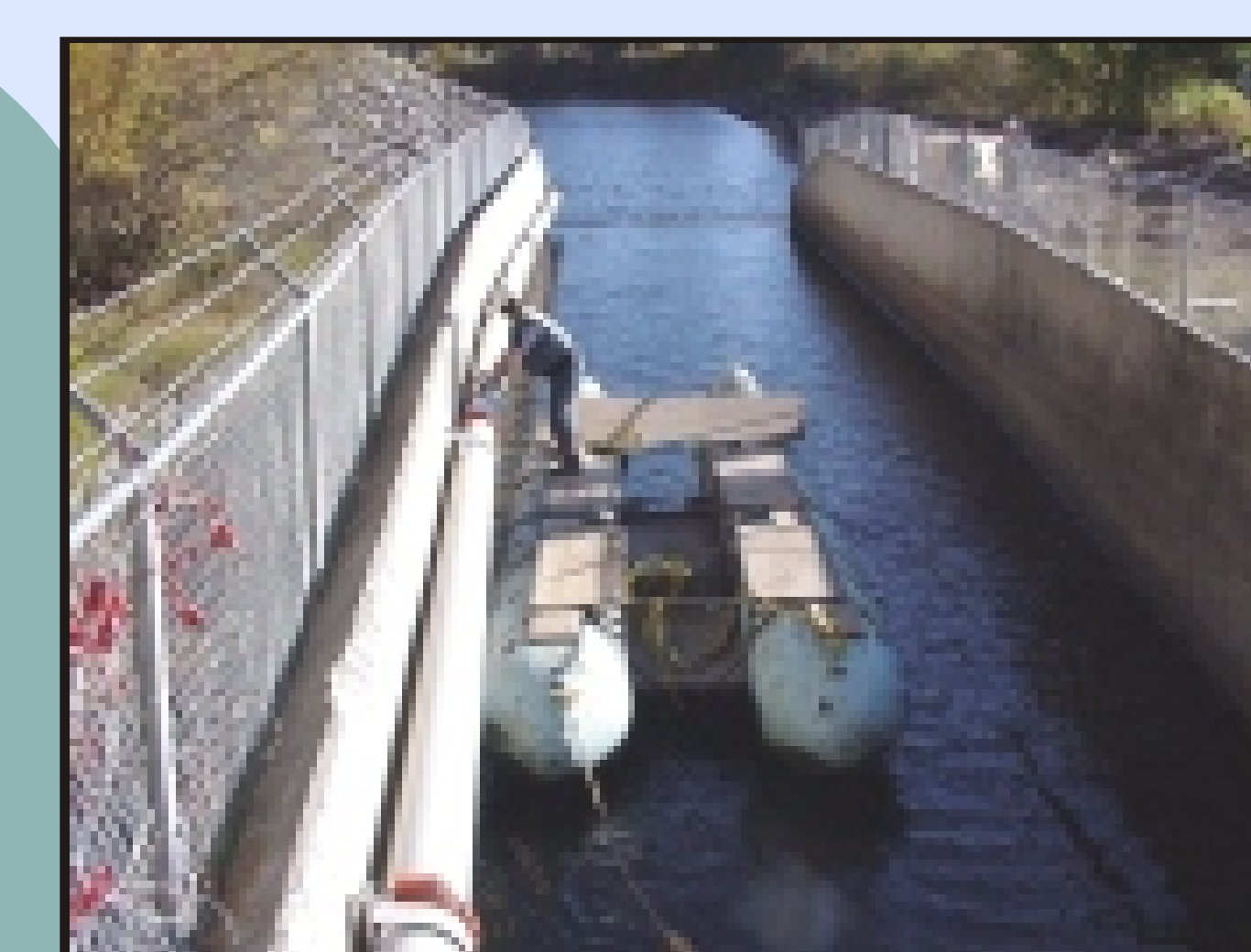
(Left) The town of Pactola as seen before the reservoir was filled.



(Below) Early construction of Pactola Dam in 1954 as seen from the location of the present day Visitor Center.



(Left) A view of Rapid City during the flood of June 10, 1972. The deluge killed 235 people and destroyed \$300 million worth of property.



(Below) A pipe is installed to provide releases for year-round needs of fish and wildlife downstream from the dam.

Construction of Pactola Dam began in 1952 and was completed in 1956. At times nearly 200 men worked on the dam. Unskilled laborers earned \$1.25 an hour and skilled workers \$2.75 an hour. The men placed 2,163,251 cubic yards of impervious earthfill and 2,156,742 cubic yards of rockfill for a total of 4,319,993 cubic yards of embankment fill. There were no accidental deaths in the four years of construction at Pactola, but numerous injuries resulted from the steep terrain and outcroppings of hard rock known as amphibolite.

Pactola performed a vital service during the Rapid City flood of June 1972. Thunderstorms dumped more than 12 inches of rain on the east slopes of the Black Hills. The heaviest rains bypassed the reservoir, but the dam held back water that fell in the upper watershed which helped alleviate additional damage downstream.

Pactola has undergone modifications since 1956 to ensure continued safety and reliability. The largest modification to the dam was completed in 1987. It included raising the dam 15 feet and constructing a new and larger spillway to accommodate extreme floods. Additional modifications have been made to allow for frequent cleanup and maintenance in the outlet works while continuing to provide year-round instream flows below the dam for the blue ribbon fishery and other wildlife.

