

WRITTEN IN WATER

U.S. Department of the Interior • Bureau of Reclamation



*Reclamation's
Water
Resource
Mission*

Bureau of Reclamation Regions





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Reclamation's Water Resource Mission



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INTROD

Mission For a

As the American West was settled, one thing quickly became evident: rainfall didn't always come at the right time, the right place, or in the amounts needed for homesteaders to thrive and prosper.

In 1902, the Bureau of Reclamation was created to help alleviate this problem by storing water for later use and moving it to the arid lands where it was needed. After constructing more than 600 dams and reservoirs, including such national treasures as Hoover and Grand Coulee dams, Reclamation's initial mission has been accomplished. Today, we are the largest water wholesaler in the country, bringing this precious resource to more than 31 million people and irrigating 10 million acres of land. Reclamation also is the nation's second largest producer of hydroelectric power and the fifth largest electric utility. Our 58 powerplants annually generate more than 40 billion kilowatt-hours of electricity, providing nearly a billion dollars in power revenues and serving six million homes.

**“The West is a
land where life is
written in water.”
These words, insc
Colorado State Cap
are more true toda**

ACTION:

Changing West

But the needs of the West have changed dramatically since the early 1900's. Demands on Western water have grown exponentially in the past 100 years. Residential, industrial, agricultural, recreational, hydropower, and environmental needs all compete for this finite resource.

This change in the realities of Western water means that Reclamation's basic mission has had to evolve. Few if any new federally funded dams are likely to be built in the United States because of high financial costs and environmental impacts. We are now more engaged in managing scarce water resources in the most efficient way possible.

Our evolving mission places greater emphasis on water conservation, recycling, and reuse; developing partnerships with our customers, states, and tribes; finding ways to bring competing interests together to address everyone's needs; transferring title and operation of some facilities to local beneficiaries who might more efficiently operate them; and achieving a higher level of fiscal responsibility to the taxpayer.

All these changes have one goal — to meet the increasing water demands of the West while protecting the environment and the public's investment.

**ribed on the
itol building,
y than ever.**



WATER CONSERVATION

*Supply is finite. Demand is growing.
So conservation becomes essential.*

That is the fundamental equation of Western water today.

Unless the West can develop and maintain highly efficient water use practices, it will be difficult to provide the water needed to sustain its ecosystems while maintaining a prosperous growing economy. For these reasons, water conservation is one of Reclamation's top priorities.

The Bureau of Reclamation has undertaken a series of conservation initiatives designed to stretch water supplies to meet additional needs. We believe that with the help of water users throughout the West, conservation can help to meet much of the increasing demand for water.

*Hungry Horse Dam
in Western Montana*





Recycling and Reuse

In the past few decades, Americans have learned to recycle and reuse everything from beverage containers to newspapers to automobile tires. Now we are learning how to recycle water.

Technology is emerging which is making water reuse increasingly efficient — and Reclamation is on the cutting edge. Typically, the process involves treating previously used water for reuse as cooling water for powerplants, irrigation water for crops, and replenishing groundwater supplies.

In recent years we have increased our investment in recycling, allocating more than \$80 million for water reclamation and reuse. This part of our mission will continue to expand.

Most of our recycling projects are in California, such as the water reclamation projects in San Diego and San Jose. We are supporting similar efforts in Los Angeles, including the West Basin and East Valley reclamation projects. These programs will help Los Angeles meet its water supply needs while easing demands on the Mono Lake Basin, a Southern California watershed of spectacular scenic and natural values.



Reclamation is funding construction of a de-mineralization addition to this San Diego Water Reclamation Plant

Conservation Guidelines for Water Use

Nearly 140,000 farmers and ranchers, as well as hundreds of residential communities throughout the 17 Western states, receive water from Reclamation. Encouraging efficient water use is one of Reclamation's priority programs. Reclamation actively encourages innovation in water resources management and supports technical assistance to districts and water users in planning, demonstrating, and implementing water efficiency measures.

In partnership with others, Reclamation provides technical assistance in developing and implementing water conservation plans, financial assistance through cooperative agreements, support for installing cost-effective water saving and water measurement equipment, applied research on innovative water saving technologies, and Agrimet partnerships to assist farmers with irrigation water management.

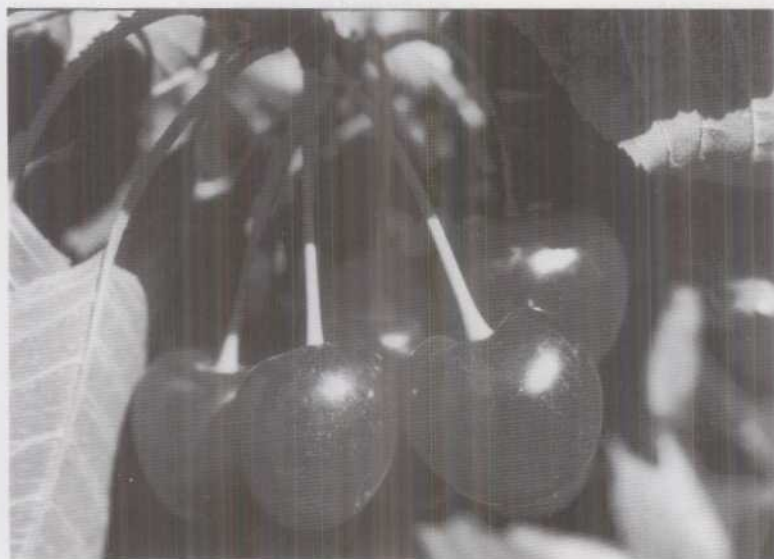
Reclamation assistance programs support and complement state and local agency water conservation efforts.



FARMING AND

The Bureau of Reclamation is so named because our founding mission was to reclaim the lands of the arid West through irrigation so that farms and ranches could support increasing Western settlement. This mission continues to be a mainstay of our programs.

The variety and amounts of foods raised with water from Reclamation's projects is astounding. These crops yield a cornucopia as rich as any in world history, providing more than one-third of the nation's fruits, nuts, and vegetables. In California alone, farmers raise avocados, artichokes, berries, tomatoes, almonds, walnuts, olives, oranges, grapes, and rice, to name a few.



IRRIGATION

Each of the 17 Western states served by Reclamation makes its special contribution to the nation's agricultural wealth: Arizona provides oranges and pecans, Colorado peaches and cherries, Idaho its famous potatoes, Washington State its world-renowned apples, Texas wheat and soybeans, Nebraska corn, Montana small grains, Wyoming sugar beets, Utah corn and soybeans, New Mexico squash and melons, the grains and corn of North and South Dakota, Oklahoma cotton and wheat, Oregon orchards, Nevada melons and alfalfa, Kansas grains, and other crops in each of these states.

The farmers and ranchers who receive Reclamation project water have met the goal of providing food for the West. Indeed, they produce a reliable breadbasket and salad garden for all of America and much of the world.



ENVIRONMENTAL

The harnessing of rivers inevitably affects the environment. When Reclamation was founded by Theodore Roosevelt, America's first great conservationist President, the way dams change river systems and their wildlife was not well understood. Today, after decades of study, we know a great deal more about these impacts.

With that knowledge comes a responsibility and trust.

The river systems in which our projects operate are home to thousands of species, millions of trees, majestic mountains, plains, canyons, and deserts unlike any other in the world.

Preserving wetlands, enhancing instream flows, conserving and enhancing fish and wildlife habitat, controlling water salinity and sources of pollution, and preventing ground water contamination all are vital environmental concerns Reclamation is addressing to help protect the West's unique environment.



Colorado River flowing through the Grand Canyon

PROTECTION

One of the many ways Reclamation promotes the environmental health of the West is by providing challenge grants, such as the 20 or so we provide in partnership with the National Fish and Wildlife Foundation each year. Many of these grants involve the Bring Back the Natives program, an initiative that restores native fish species and their habitat and encourages good land management.

In the Rockies, for example, the greenback cutthroat trout, once thought extinct, is making such a comeback that it was recently designated Colorado's state fish. The program

also has helped increase Nevada's state fish, the Lahontan cutthroat trout.

Bringing water and economic development to the arid West is important, but preserving the West's biodiversity is also crucial. With application of sound science, we can achieve both economic strength and environmental stewardship.



through the Grand Canyon

The Riverine Environment

Reclamation — along with state and other federal agencies — has devoted substantial time and energy towards learning how to reduce our impact on the environment of Western rivers.

In 1963, for example, Reclamation completed Glen Canyon Dam on the Colorado River, 15 miles upstream from the Grand Canyon. Over time concern grew that the highly variable water releases from the dam were disturbing the natural riverine environment on the Colorado River through the Grand Canyon.

At the direction of the Secretary of the Interior, Reclamation in 1989 undertook the most extensive scientific study ever conducted on the effects of a dam on a river system. Thousands of people participated, contributing more than 33,000 comments on a draft Environmental Impact Statement. This study was produced with the cooperation of scientists from federal, state and Native American

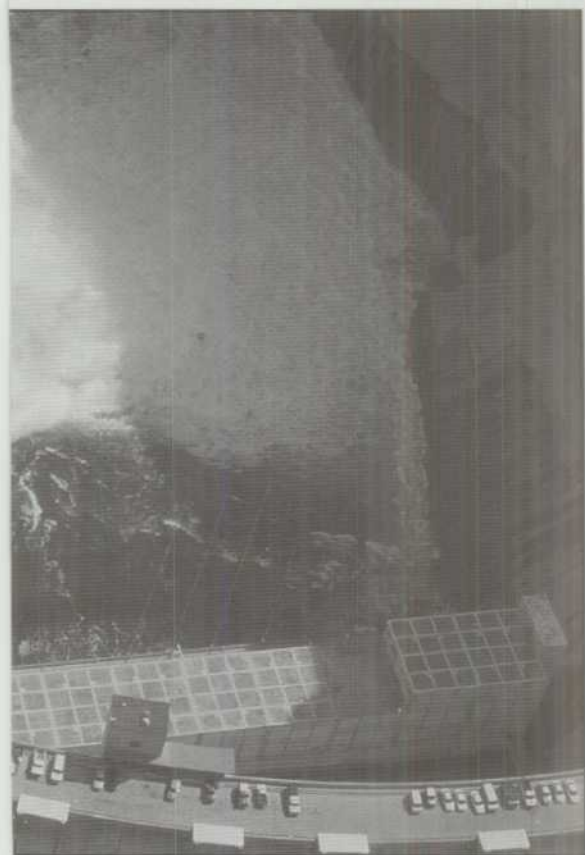


Man-made flood from Glen Canyon Dam to help

interests, power users, environmentalists, recreation industry representatives, as well as private citizens.

It was determined that changing water flows were eroding sandbars, interrupting the flow of back waters and the deposit of nutrients, causing return channels to become overgrown with vegetation, changing water temperatures, and harming endangered fish species. In the final Environmental Impact Statement, Reclamation in early 1995 recommended that permanent changes be made in the operation of Glen Canyon Dam to address adverse

effects on the Colorado River and Grand Canyon. Those recommendations called for the first ever man-made flood of a river system for environmental purposes. In March 1996, 45,000 cubic feet per second of water was released from Glen Canyon Dam, creating floodwaters which had significant restorative effects on the Colorado River and the Grand Canyon.



restore Grand Canyon and riverine environment

Wetlands Preservation

Wetlands are extremely valuable to the environmental balance of the United States. Marshlands, bogs, and bayous are home to some of the most diverse wildlife in North America, particularly among birds and amphibians. In addition, wetlands have an important role to play in filling groundwater and aquifer needs in the West, acting as natural filters to maintain water quality and in sustaining entire ecosystems.

For example, Reclamation is working in Texas with state, local, and university partners to restore the Rincon Bayou, a unique and complex delta of wetlands providing critical habitat for numerous plants and animals.



The 6,000 square-mile watershed is home to more than 200 species of birds, 90 types of reptiles and amphibians, and nearly 50 species of mammals. The objective of the partnership is to promote sensible, long-range planning and management of the ecosystem, including providing

research, environmental education, and recreational opportunities throughout the basin.

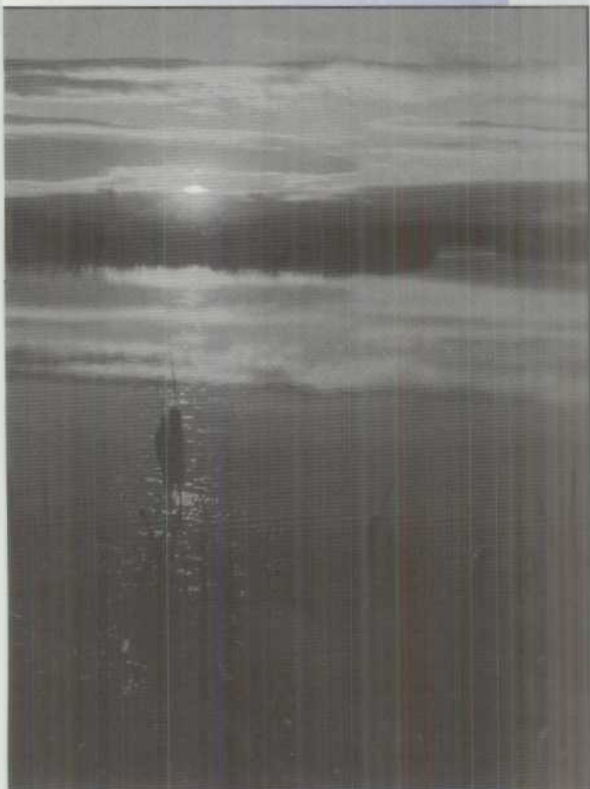
Cottonwood Drain in central Wyoming is another instance of state and local officials working with

Reclamation to sustain wetlands and their wildlife habitat.

With local water district authorities and the Wyoming Game and Fish Department, Reclamation led a project to prevent a stream channel from eroding and draining away wetlands precious to a region which receives only three to five inches of rainfall annually. By building struc-

tures to decrease the channel gradient and reduce flow velocity, upstream wetlands have emerged, providing a habitat for migratory and resident wildlife.

Reclamation is engaged in other wetland restoration, preservation, and creation throughout the West.



Protecting the West's Endangered Species



*Peregrine
Falcon*

From the salmon of the Pacific Northwest to the endangered species of the Colorado River, numerous native fish species in the West are facing conditions which threaten their existence. Reclamation has undertaken a wide variety of programs with the goal of protecting and preserving the West's fish and wildlife.

The most well-known endangered fish in the West is the salmon. Today, many once plentiful salmon runs are dangerously depleted and facing extinction. Among the many reasons believed to contribute to this decline are more than 100 years of overfishing, construction of dams, weakening of native fish stocks by hatchery fish, and demands on instream river water by farmers and metropolitan populations.

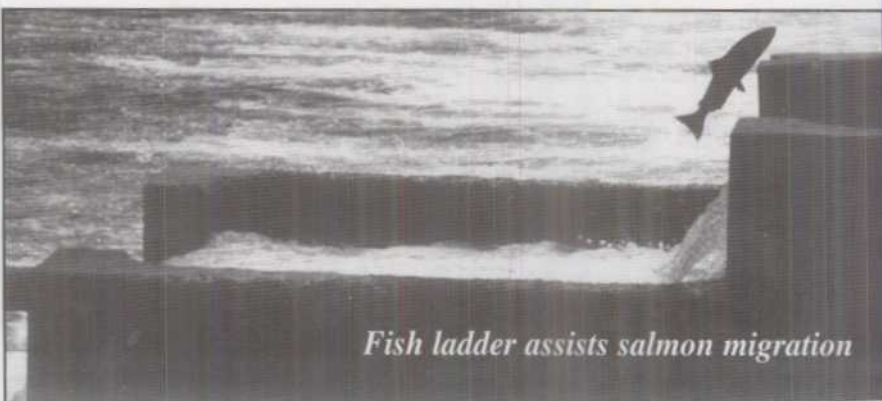
Reclamation is working with other federal and state agencies to help reverse the decline of the salmon by supporting water conservation programs to increase instream flows in Oregon, Washington, and Idaho. We also are buying uncontracted reservoir storage to augment river water flows, studying modifications of operations to improve instream flows, investigating new storage potential on the Snake River, and employing fish screens to prevent the loss of fish through dam turbines.

Salmon are not the only fish threatened in the West. Four native Colorado River basin species also are endangered. Reclamation, with Colorado, Utah, and Wyoming, and numerous federal agencies, water users, and environmental groups, is participating in an effort aimed at the recovery of these species. Recovery plan projects include construction of fish ladders, reoperation of federal projects to enhance instream flows, restoration of flooded bottomlands, a native fish-rearing program in Lake Mohave in the lower basin to replace senescent populations, and management of predatory, non-native fish species which threaten the native stocks.

Reclamation also is developing a broader multi-species conservation management plan for the Lower Colorado basin in cooperation with other federal agencies and the region's states.

This effort has been called a "model program" because it not only brings together all concerned groups to protect threatened species, it also allows for continuing water resource development for other purposes — a goal of all Reclamation's fish protection and recovery plans.

Hundreds of plant and animal species depend on the rivers, lands, and reservoirs Reclamation manages. We are committed to protecting their habitat through innovative water management practices and working with water users as well as local, state, and federal agencies.



Fish ladder assists salmon migration

WATER QUALITY & PUBLIC HEALTH



Most Americans take it for granted; however, not everyone has access to fresh, clean water.

Reclamation is studying and implementing many new approaches to maintain water quality. Because 20 million people rely on the Colorado River for their water supply, its maintenance is essential.

Reclamation, in cooperation with Colorado River basin states and the Environmental Protection Agency, designed the Colorado Water River Quality Improvement Program to halt salinity increases in the river and prevent further degradation.

Sometimes water becomes a health hazard, as it has in three rural Texas communities along the U.S.-Mexico border. The water was so polluted that 90 percent of the population was infected with hepatitis A. Reclamation has constructed pipelines to clean up many of the sewage-contaminated irrigation drainage ditches and is providing further engineering and construction support to the local government in El Paso.

As the quality of our riverways is protected, the same river flow which provides benefits to recreationists and fish and wildlife can be used for municipal and industrial water supply processes and then reclaimed for other economic uses. Thus, water quality works hand-in-hand with our important goals of water reuse and conservation.

NATIVE AMERICAN RESPONSIBILITIES

Reclamation supports the responsibility of the federal government to protect the trust assets of Native Americans and provide for natural resource development and management on Indian reservations. We work in partnership with Indian tribes to establish technical and management programs, as well as facilities and infrastructure for the health and economic well-being of the tribes. Such projects include a Mobile Treatment Pilot Plant to remove the health risks from tribal water supplies and a solar-powered water treatment system on the Navajo Nation which is exploring alternative energy sources for clean, potable water. We are committed to furthering tribal self-governance.

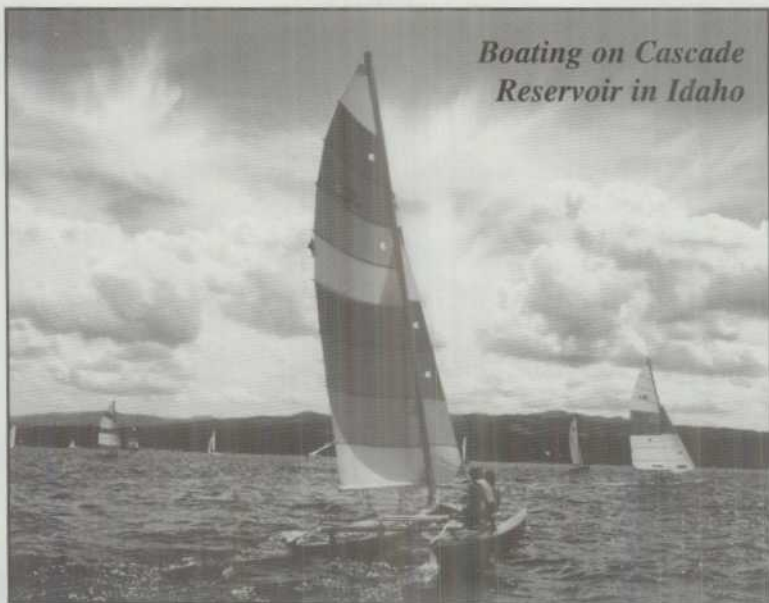
*Salado pottery, dated
1300-1400*



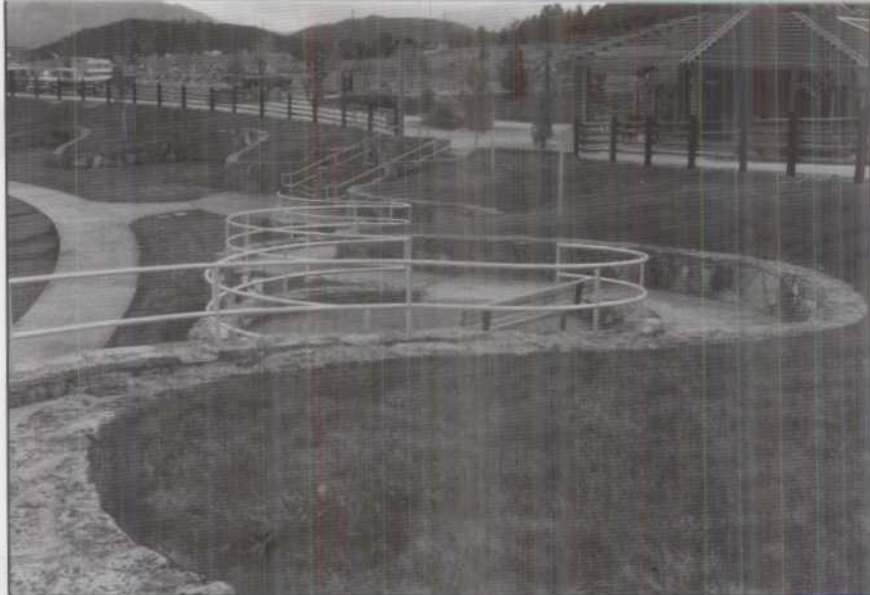
RECREATION FACILITIES & PROGRAMS

More than 90 million visitors each year — a dramatic increase from just ten years ago — enjoy 300 recreation sites created by our projects. Among the activities available are fishing, sailing, kayaking, swimming, boating, water skiing, and hiking. Nearly 200 of these recreation areas are managed by non-federal entities such as state and county parks. Many, including such world-famous destinations as Lake Mead and Lake Powell, are managed by other federal agencies, such as the National Park Service.

We also offer tours at some of the major facilities including Grand Coulee Dam in Washington State and Hoover Dam near Las Vegas, which is visited by more than one million people a year.



*Boating on Cascade
Reservoir in Idaho*



Accessibility ramp to Ridgway Recreation Facilities

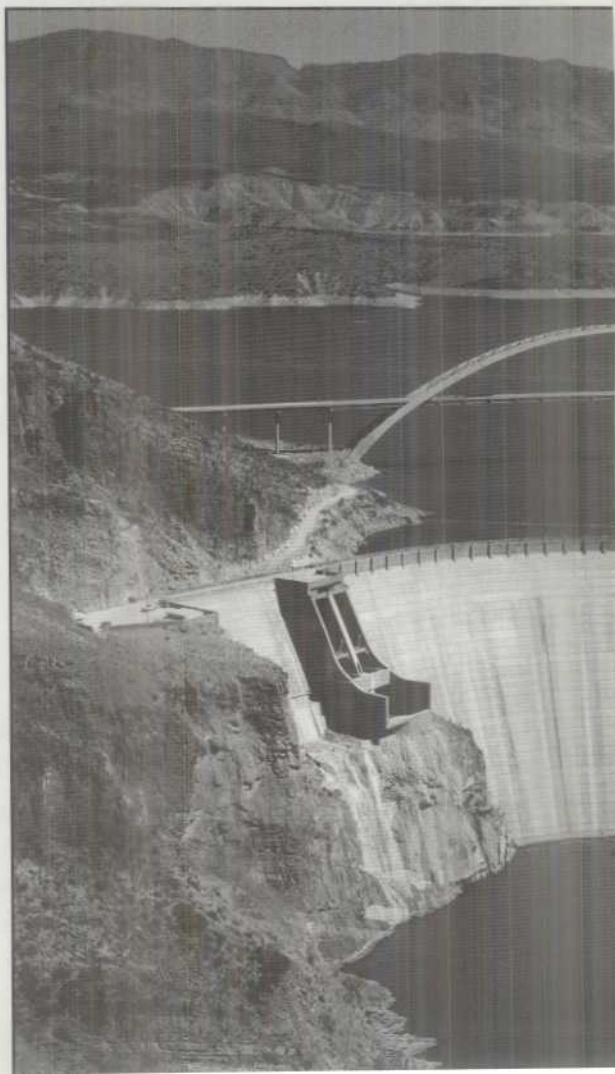
Reclamation is also making it easier for persons with disabilities to enjoy America's recreation areas. With federal partners around the country, Reclamation developed a database called the Accessibility Data Management System that allows anyone who calls a toll-free number or accesses the internet address to learn which of America's recreation areas are accessible to persons with disabilities. We are also making more of our own facilities accessible. Reclamation's Dutch Charlie Recreation Area at Ridgway Reservoir in Colorado, for example, was named by the Physically-Challenged Access to the Woods organization as the recreation area most accessible to persons with disabilities in the United States.

Reclamation has developed partnerships with organizations including the Bass Anglers Sportsman's Society, Trout Unlimited, and America Outdoors to sponsor fishing and outdoor events in cooperation with local businesses and community groups. Examples include National River Cleanup Week, National Fishing Week, and Catch a Special Thrill, which encourages children with disabilities to learn to fish.

DAM OPERATI

Safety in the operation and maintenance of our dams is a high Reclamation priority. In recent years, our dam safety budget has increased by more than 200 percent, reflecting investments in new research and technology. We have called on a panel of distinguished, outside engineering experts to assess Reclamation's dam safety program and recommend improvements.

These steps are important and necessary as our structures age. At Roosevelt Dam on the Salt River in Arizona, originally constructed between 1903 and 1911, Reclamation completed a \$410 million renovation of this largest masonry arch dam ever built. The recent renovation improved public safety by providing for secure dam operations and adding a flood control function.

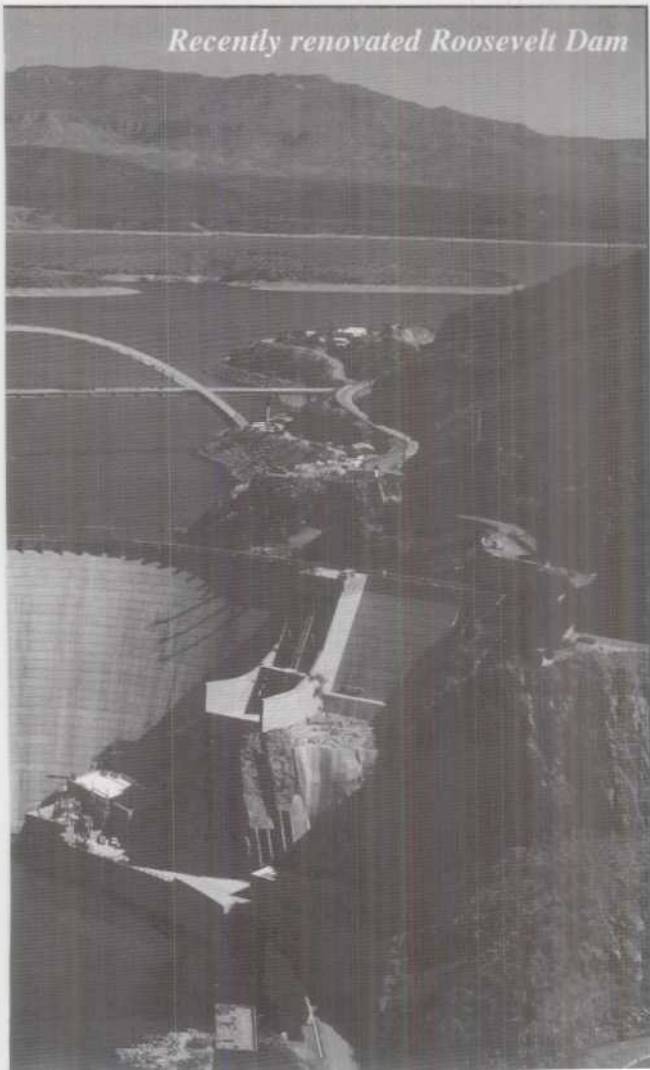


ONS & SAFETY

In recent years, Reclamation performed significant safety-related construction on nine structures, including Steinaker Dam in Utah, Meeks Cabin Dam in Wyoming, and Ochoco Dam in Oregon. We inspect our structures every three years. Reclamation offers all communities downstream from Reclamation facilities assistance in preparing emergency evacuation plans in the unlikely event that a structure should develop serious problems.

Recently renovated Roosevelt Dam

Through our renovations, operations, flood control, and general safety plans, Reclamation's structures are among the safest and most secure in the world.



BRINGING COMPETING INTERESTS TOGETHER

Because of water's scarcity, water interests carefully guard their precious share, often leading to competition among agricultural interests, environmentalists, urban water man-

agers, Native Americans, recreationists, and business leaders. These and other groups often have conflicting ideas on how to best use the West's limited water supplies. Reclamation is working to find consensus among competing parties.

Charged with establishing water quality standards and Endangered Species Act protections for the Sacramento San Joaquin Delta/San Francisco Bay in California, Reclamation sat down with the many competing stakeholders and worked out a landmark agreement. The accord will protect this fragile estuary while providing certainty about water supplies to agricultural and urban water users.

Another historic agreement in the works is our continuing negotiation of Platte River resource issues. Working closely with Nebraska, Colorado, and Wyoming interests, Reclamation is helping facilitate discussions to reach an agreement that will restore fish and wildlife habitat while meeting the economic needs of the region.

Everyone is affected by water policy. These and other agreements are proving time and again that, with innovation and a lot of dedication and patience, economic and environmental interests can coexist. There can be water for all if we use it wisely and if we come together to work out agreements.

Our Promise to the American Taxpayers

More than 31 million people use Reclamation water to irrigate crops, for drinking and bathing and cooking, for recreation and industry, for power generation, and for sustaining the West's environment. Although in recent years, Reclamation has reduced its workforce by more than 20 percent and its budget by more than 10 percent, we remain dedicated to providing the American public the most effective water resource system in the world in the most cost-efficient manner possible.

*Better service at less cost — that is what we
promise to deliver.*



For more information, contact one of our Reclamation offices or check out our web site at www.usbr.gov

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Mission

To manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.



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