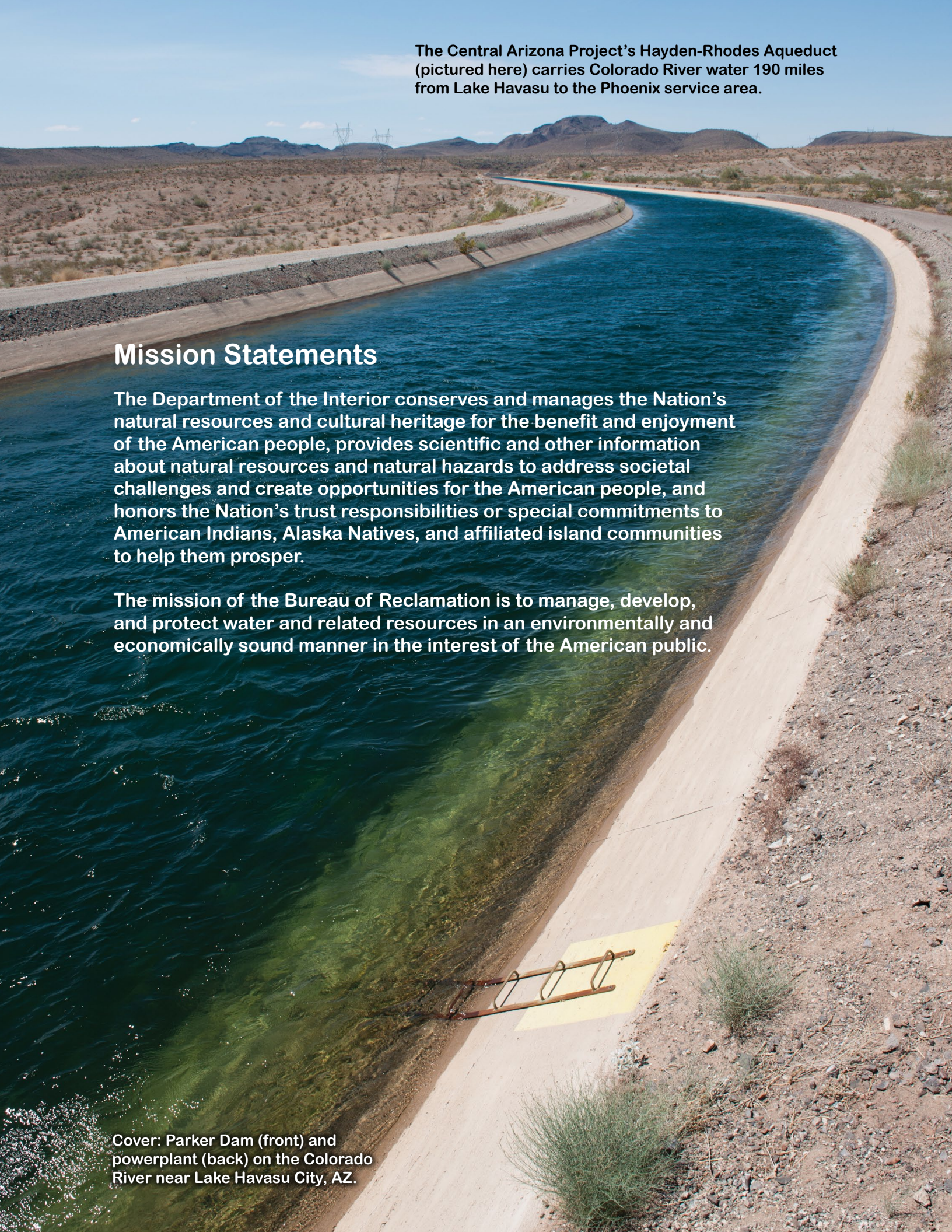
RECLAMATION

Managing Water in the West

The Lower Colorado Region
Fiscal Year 2018

U.S. Department of the Interior
Bureau of Reclamation



The Central Arizona Project's Hayden-Rhodes Aqueduct (pictured here) carries Colorado River water 190 miles from Lake Havasu to the Phoenix service area.

Mission Statements

The Department of the Interior conserves and manages the Nation's natural resources and cultural heritage for the benefit and enjoyment of the American people, provides scientific and other information about natural resources and natural hazards to address societal challenges and create opportunities for the American people, and honors the Nation's trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities to help them prosper.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Cover: Parker Dam (front) and powerplant (back) on the Colorado River near Lake Havasu City, AZ.

Regional Director's Message

I am pleased to share with you the Lower Colorado Region's annual report for Fiscal Year 2018. This report highlights many of the Region's accomplishments, achieved only through the skill, dedication, and hard work of our approximately 850 employees.

Our Region continues to manage, protect, and enhance a broad range of water, power, land, and ecosystem resources throughout the Southwest in the interest of the American public. Our commitment to transparent and collaborative problem-solving, with the involvement of all our partners and stakeholders, is paramount to the way we have and will continue to do business.

I am extremely proud of what we have been able to accomplish this year, yet we also know many challenges remain. One thing is certain – the complexity of the issues we face on the lower Colorado River and Region-wide continue to increase. I assure you that we'll continue to work diligently to address those issues and continue to effectively and efficiently accomplish our mission.

I invite you to read this report and learn more about our challenges and successes over the past year. Please share any feedback you may have via email at LC_report_feedback@usbr.gov.

Sincerely,

Terrance J. Fulp, Ph.D.
Regional Director
Lower Colorado Region

The erosive power of water is demonstrated by the deep path sculpted by the Colorado River to create the Grand Canyon.

Table of Contents

Supplemental Materials

Spring rains bring vivid blossoms to the desert near Lake Mead.

Who We Are

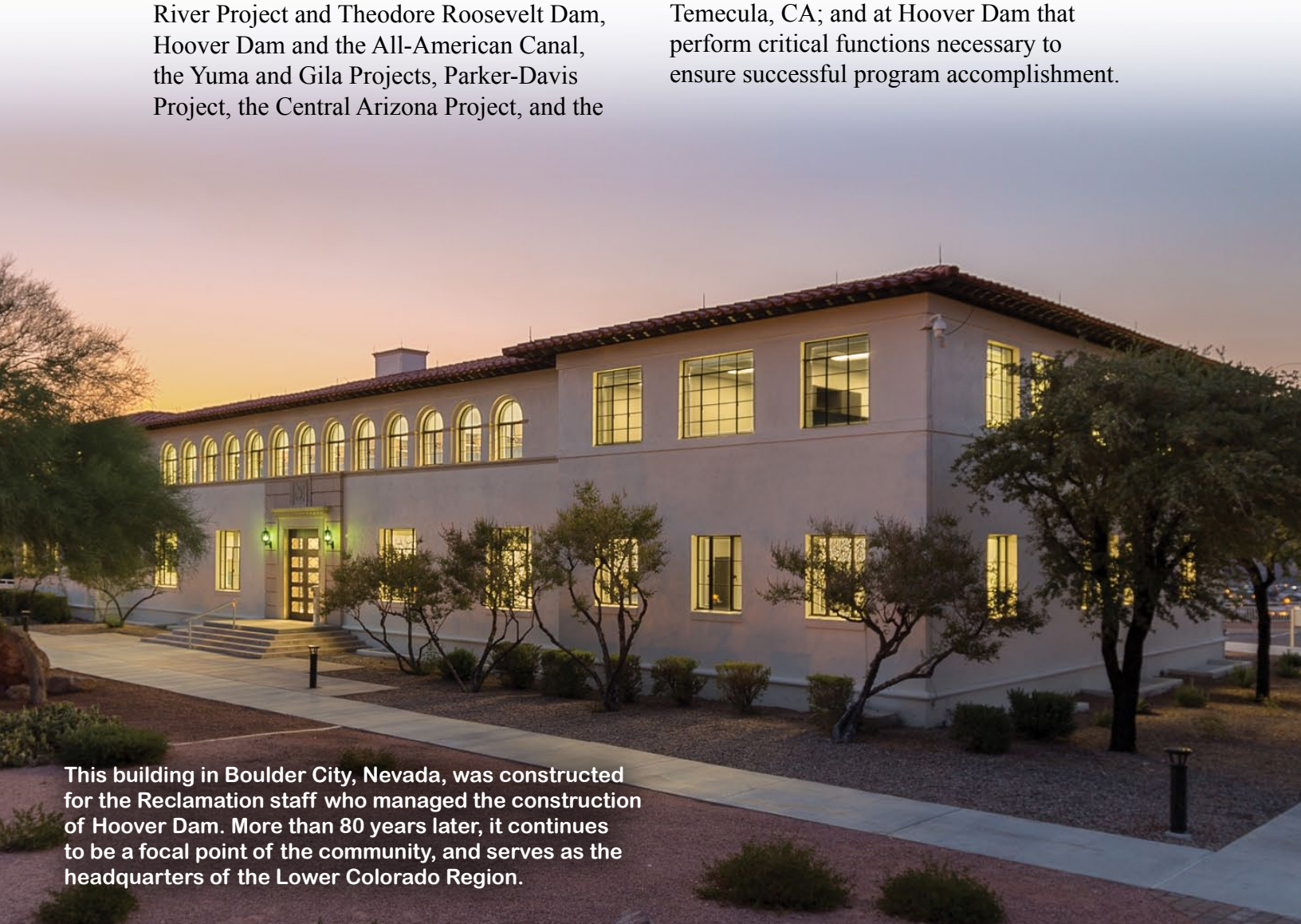
The Lower Colorado Region was established by the Bureau of Reclamation in 1943 to design, construct, manage, and maintain water management projects and facilities in the southwestern United States.

The Region geographically encompasses southern Nevada, southern California, most of Arizona, a small corner of southwest Utah, and the Gila and Little Colorado River Basins in west-central New Mexico – or about one-tenth of the land area of the western United States. Reclamation employees began working in this area soon after Congress passed the Reclamation Act in 1902.

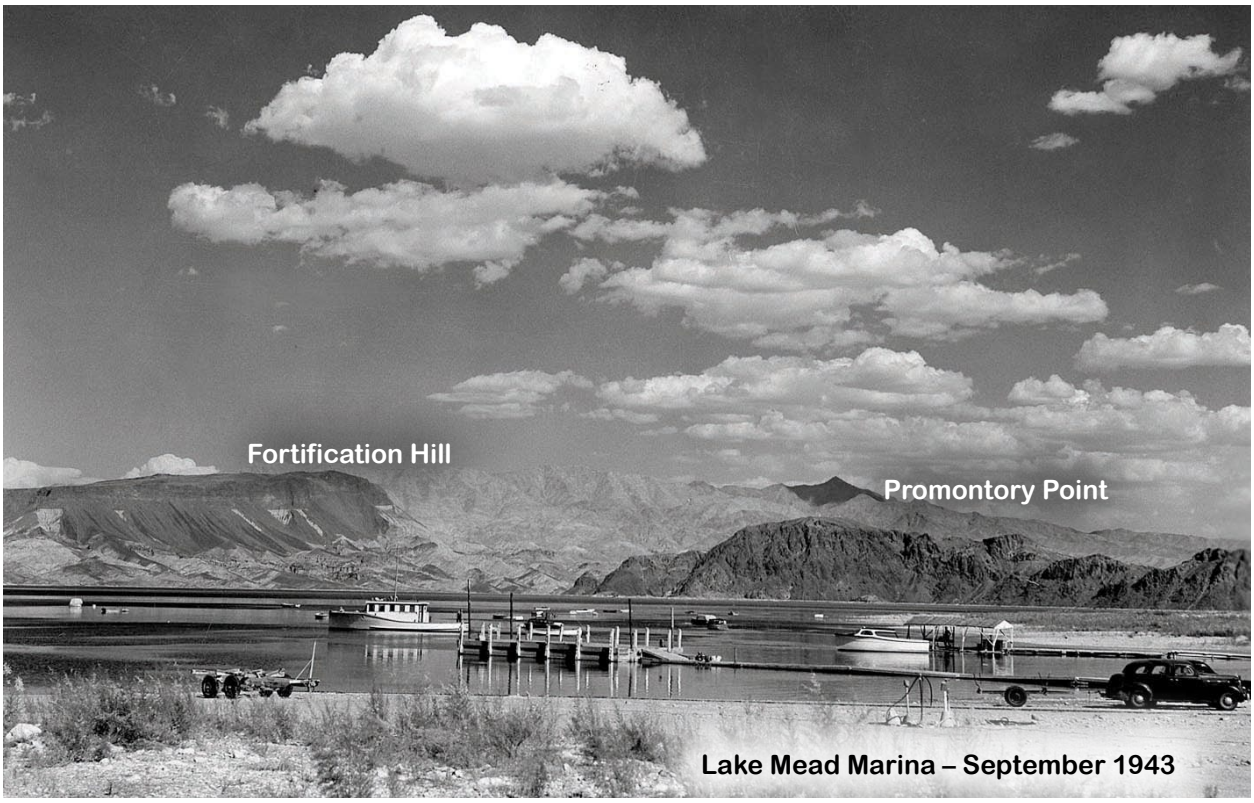
Reclamation's numerous projects and facilities in the Region – including the Salt River Project and Theodore Roosevelt Dam, Hoover Dam and the All-American Canal, the Yuma and Gila Projects, Parker-Davis Project, the Central Arizona Project, and the Robert B. Griffith Project (now Southern Nevada Water System) – have and will continue to contribute significantly to the Southwest's economic growth and development.

Building water and power facilities was the Region's major role for most of the 20th century. Today, we are focused primarily on operating and maintaining our facilities; ensuring the safety and security of our projects, employees, and visitors; efficiently delivering water and power; and preserving and enhancing natural and recreational resources.

The Region, headquartered in Boulder City, NV, is comprised of offices located in Boulder City; Phoenix and Yuma, AZ; Temecula, CA; and at Hoover Dam that perform critical functions necessary to ensure successful program accomplishment.

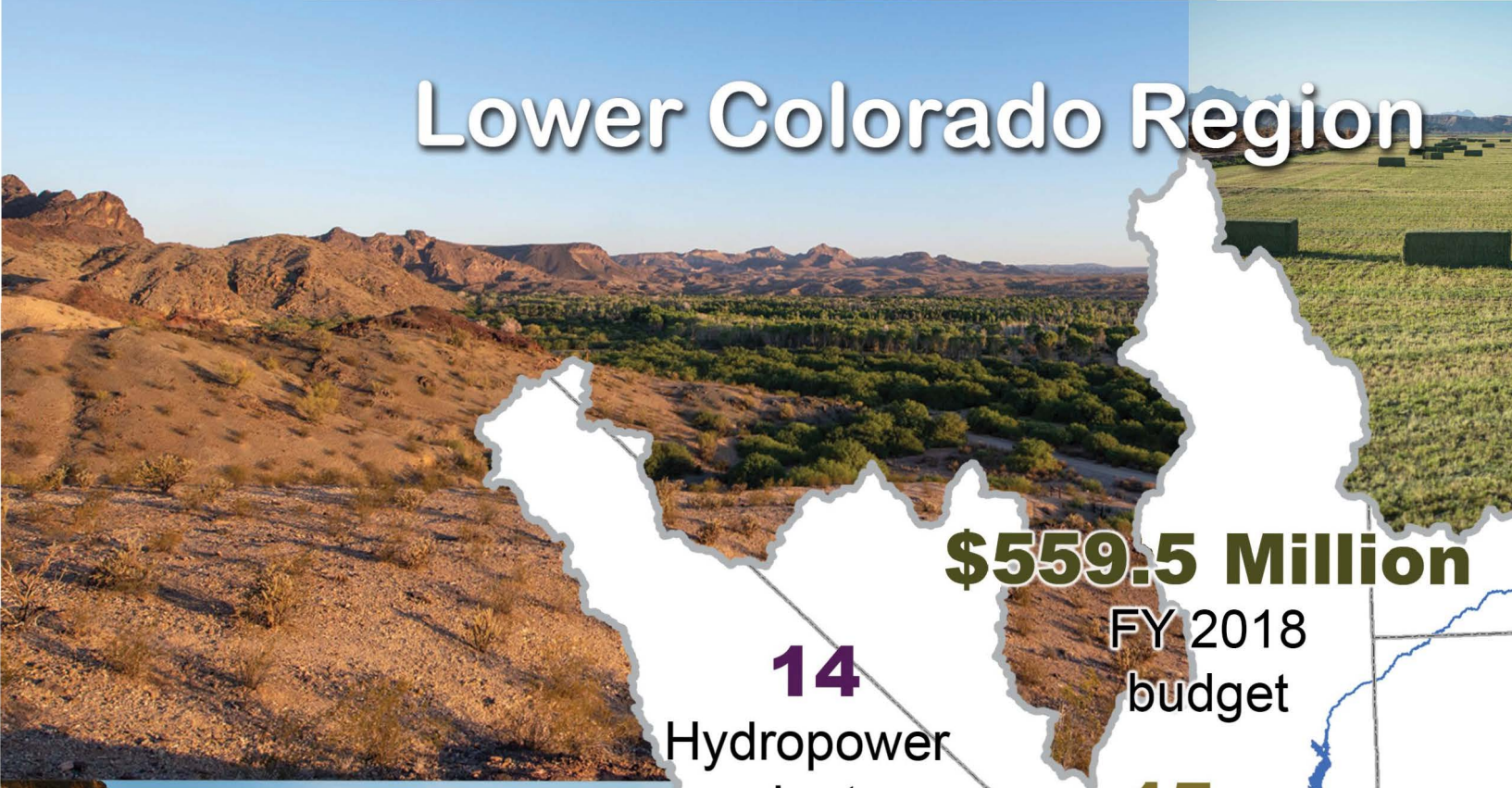


This building in Boulder City, Nevada, was constructed for the Reclamation staff who managed the construction of Hoover Dam. More than 80 years later, it continues to be a focal point of the community, and serves as the headquarters of the Lower Colorado Region.



Reclamation reservoirs throughout the Southwest provide endless opportunities for year-round recreation. The dynamic growth of this industry at Lake Mead is evident in these images of the marina at Boulder Beach. The photo above is from 75 years ago, the year the Lower Colorado Region was established; while the lower photo shows the marina decades later, with nearly 1,400 boat slips available.

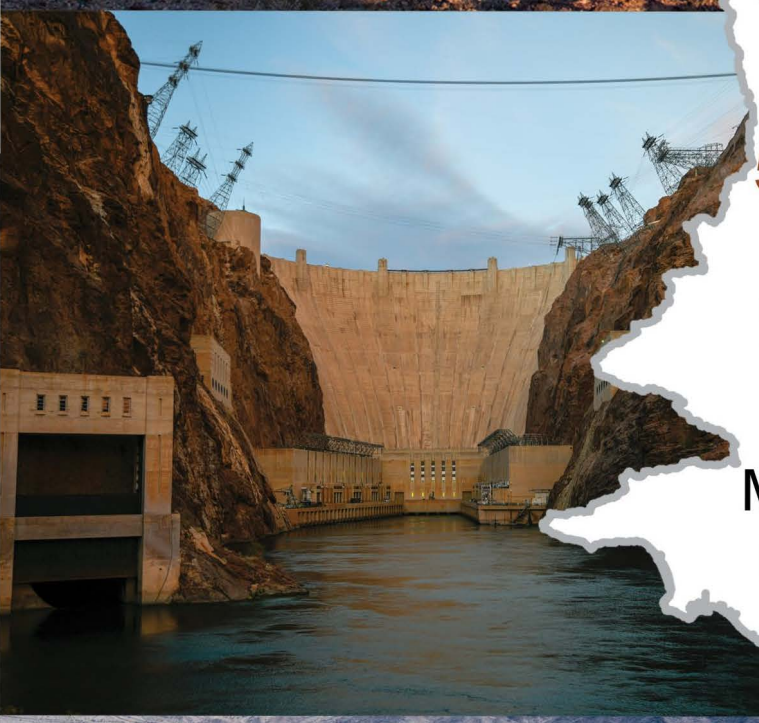
Lower Colorado Region



$559.5 Million
FY 2018 budget

14
Hydropower plants

15
Dams



5.68 Billion
Kilowatt-hours produced in 2018

13
Reservoirs

2,602
Megawatts of hydropower capacity

846
Employees

2
National Water Trails

1
Border neighbor (Mexico)

By the Numbers

Nearly 3 Trillion
Gallons of Colorado River water delivered

34.1 Million
Acre-feet of reservoir capacity
(An acre-foot is 325,851 gallons)

$3 Billion
Value of water related outdoor recreation activities

61
Native American tribes

32
Recreation areas

1.3 Million
Acres of land owned/managed

Our FY 2018 Budget

The Lower Colorado Region's total operating budget in Fiscal Year (FY) 2018 was $559.5 million, from the following funding sources:

- Congressional appropriations;
- "permanent funding" from the sale of Hoover Dam power;
- revenues received for Central Arizona Project (CAP) activities including Navajo Generating Station surplus power sales;
- non-federal funds from Parker-Davis Project power contractors and the Lower Colorado River Multi-Species Conservation Program cost-share partners; and
- other federal funds provided by the Bureau of Indian Affairs through the Southern Arizona Water Rights Settlement Act.

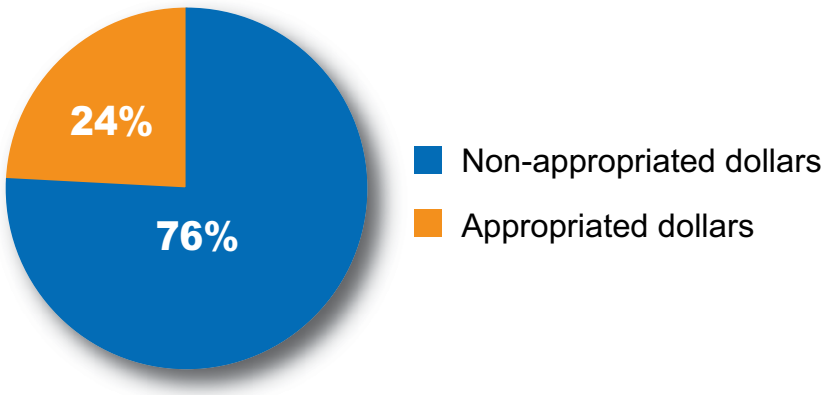
Our FY 2018 budget represents an increase of $42.7 million from FY 2017, which includes an additional $14.8 million in Congressionally appropriated funding for several key activities, ranging from drought response efforts to activities associated with the Salton Sea. The Region's revenues also increased by $39.5 million.

Most of our annual operating funds are provided by program revenues or project partners. In FY 2018, 76 percent of the Region's total operating budget came from project revenues collected from the Region's non-federal partners and stakeholders. Approximately 24 percent of the total operating budget came from Congressionally appropriated dollars.

In FY 2018, **Congress appropriated $134.8 million** for Region-wide programs, projects, and activities including water operations and a portion of the costs of maintaining facilities on the lower Colorado River, meeting Endangered Species Act requirements, negotiating drought contingency plans, supporting water conservation and reuse, complying with the 1944 Water Treaty with Mexico, and meeting legislative mandates.

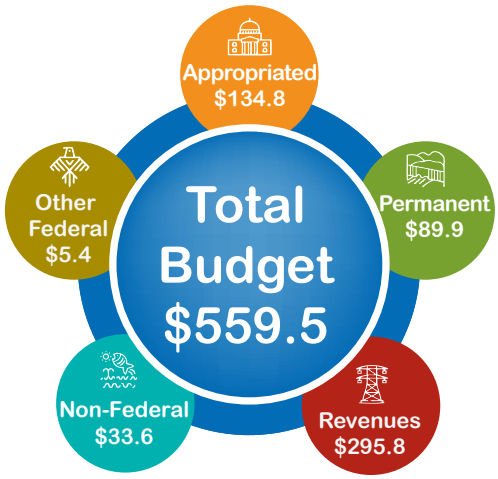
Permanent funding totaled $89.9 million for this FY. These revenues come from entities that have long-term contracts for power generated at Hoover Dam. The 1984 Hoover Dam Power Plant Act requires that revenue from the sale of Hoover Dam power be deposited into the

FY 2018 Funding Sources



Colorado River Dam Fund and made available to pay for operations, maintenance, replacement, and repayment associated with the Boulder Canyon Project.

Lower Colorado Region FY 2018 Budget ($ in millions)



Revenue program funds totaled $295.8 million this FY. Payments made each year by the Central Arizona Water Conservation District to repay construction of the CAP are deposited into the Lower Colorado Basin Development Fund (established by the 1968 Colorado River Basin Project Act).

In addition to these payments, other revenues deposited into the Development Fund come from the sale of power that is surplus to CAP pumping needs, a surcharge on power sold in Arizona from Hoover, Parker, and Davis dams, miscellaneous revenues from CAP operations, and other sources.

The Arizona Water Settlements Act of 2004 also authorizes revenues that would have been returned to the Treasury for repayment of CAP construction costs to be retained in this Fund and invested, with any earned interest deposited back into the Fund. Revenues remaining after the CAP construction repayment are used to pay for constructing tribal distribution systems and delivering CAP water to tribal lands, along with other costs authorized under the Act.

Non-federal funding totaled $33.6 million in FY 2018. Of this funding, power contractors provided about $16.8 million to operate and maintain Parker and Davis dams. Lower Colorado River Multi-Species Conservation Program partners provided $16.8 million to match appropriations that help conserve native species and their habitats in compliance with the Endangered Species Act.

Other federal funding, a total of $5.4 million, was provided by the Bureau of Indian Affairs as required by the Southern Arizona Water Rights Settlement Act. These funds are used for the annual delivery of irrigation water (approximately 66,000 acre-feet) to Tohono O'odham Nation tribal lands.

FY 2018 Financial Commitments

The Region obligated approximately $136.8 million for project-related activities through the award of 861 contract actions, 204 financial assistance agreements, six Public Law 93-638 Indian Self-Determination contracts and modifications, and 17,725 micro-purchases. Through these awards and purchases, small businesses and tribes benefited by approximately $58.3 and $35.6 million, respectively. About 41 percent of the funds obligated for these activities were from non-appropriated funds.

Managing the Lower Colorado River

The Water Master Role

Under the Law of the River, the Secretary of the Interior manages the last 688 miles of the Colorado River from Lee Ferry in northern Arizona to the border with Mexico. This activity includes the contracting, delivery, and accounting of all water use from the mainstream of the lower Colorado River.

The Region accomplishes the Secretary's responsibilities on the lower Colorado River. Reclamation staff schedule water releases from mainstream facilities on a monthly, daily, and/or hourly basis. We also measure, record, and report water diverted and returned to the mainstream; administer contracts for water delivery and for water project repayment and operations and maintenance; and account for all water use. Also, in close coordination with Reclamation's Upper Colorado Region and our partners and stakeholders throughout the Lower Colorado River Basin, we develop the Annual Operating Plan for Colorado River Reservoirs (AOP).

The AOP documents operating decisions for the reservoirs for the completed year, as well as projected operations for the upcoming year. Lake Powell and other Upper Basin (Wyoming, Colorado, New Mexico and Utah) reservoirs operate on a "water year" (WY) basis, from October 1 through September 30. Lake Mead and other Lower Basin (Arizona, New Mexico, Nevada, and California) reservoirs, operate on a calendar year (CY) basis, from January 1 through December 31.

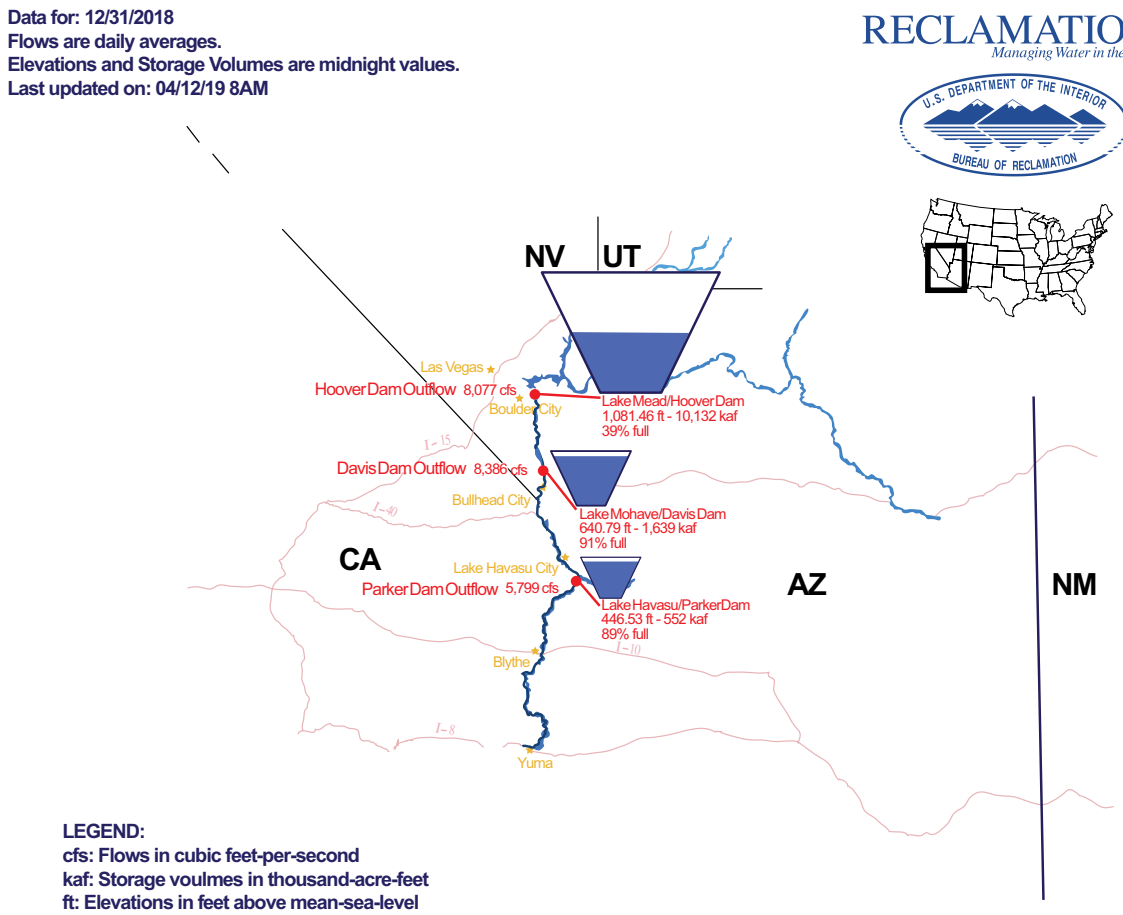
Documented decisions in the AOP include the amount of water to be released from Lake Powell through Glen Canyon Dam to the Lower Basin; whether a "surplus, normal, or shortage" condition will govern the operation of Lake Mead; and the amount of water available to Mexico under the 1944 Water Treaty and subsequent U.S.-Mexico agreements, referred to as "Minutes". Because the Basin's water supply for the upcoming year is uncertain, operational changes are made within the appropriate operating guidelines and documented in the AOP as water supply conditions change during the year.

In a "normal" year, water users in Arizona, California, and Nevada are apportioned 2.8, 4.4, and 0.3 million acre-feet (MAF), respectively, and Mexico is allotted 1.5 MAF under the 1944 Water Treaty.

To date, there has not been a shortage in the Lower Basin, nor a reduction to Mexico. This is due primarily to the ability of Colorado River system reservoirs, particularly Lake Mead and Lake Powell, to hold up to four years of average annual inflow, with reservoirs storing water during high flow years and using this water to meet delivery requirements during low flow periods.

2018 System Status and River Operation Highlights

Approximately 90 percent of the Colorado River Basin's annual water supply originates in the Upper Basin. In WY 2018, the cumulative precipitation within the Upper Basin was 66 percent of the 30-year average from 1981 through 2010. Inflow into Lake Powell during WY 2018, taking into account the effects of operations upstream, was 43 percent of the 30-year average.



The Lower Colorado River Operations group monitors the status of lower Colorado River reservoirs on an hourly basis and develops 'teacup diagrams' that are available on-line (www.usbr.gov/lc/region/g4000/TeacupDiagram.html) to show the daily status of the system. This graphic shows the elevations and storage volumes of the three major reservoirs on the lower River at the end of CY 2018.

The total inflow into Lake Mead is a combination of the water released from Glen Canyon Dam and inflows to the river from tributaries between Glen Canyon and Hoover Dams.

In WY 2018, inflow into Lake Mead was 9.62 MAF, including 9.0 MAF released from Glen Canyon Dam and 690,000 acre-feet (AF) of tributary inflow, primarily from the Little Colorado and Virgin Rivers. Inflow into Lake Mead for CY 2018 was 9.80 MAF and release through Hoover Dam was 9.11 MAF. Lake Mead's condition remained nearly unchanged during CY 2018, declining by only about 1.1 feet in elevation. Lake Mead began the CY at elevation 1,082.52 feet, with 10.22 MAF of water in storage (39 percent full), and ended CY 2018 at elevation 1,081.46 feet with 10.13 MAF, of water in storage (also 39 percent full).

Basin-wide, the amount of water stored in Colorado River system reservoirs decreased from 55 to 47 percent of capacity during WY 2018. Most of the decrease in system storage occurred at Lake Powell in the Upper Basin, which decreased by 3.64 MAF in storage this WY.

As documented in the 2018 AOP, 7.5 MAF of water (plus or minus credits for conserved water that remains in Lake Mead) was available for delivery to Colorado River water entitlement holders in the Lower Basin in CY 2018. In accordance with the 1944 Water Treaty, 1.5 MAF was also available for delivery to Mexico, subject to adjustments provided for in Minute 323.

In FY 2018, we continued efforts to efficiently operate the river by working with irrigation districts to improve the accuracy of water orders and subsequent diversions. Brock Reservoir in southern California, coupled with other operational improvements, enabled us to continue to capture water arriving at Mexico's Northerly International Boundary that was in excess of scheduled deliveries. Water stored in the Reservoir is subsequently delivered to the Imperial Irrigation District as part of its annual Colorado River water entitlement in lieu of releasing water from system storage. In CY 2018, due in part to the operations of Brock Reservoir, excess flows to Mexico were approximately 7,400 AF, as compared to the annual average of approximately 64,000 AF from 2008 through 2017.

Increasing Water Availability

Water is the Southwest's most precious natural resource. Water supplies, however, are increasingly stressed by demand from a variety of sources including a robust agricultural industry, rapid urban growth, and growing environmental needs. These demands, combined with a highly variable water supply, require, in part, the development of new water sources.

Adequate supplies are essential to survival, a healthy ecosystem, energy production, and economic sustainability. Reclamation works through a variety of programs with water users and stakeholders to develop innovative strategies to help ensure adequate supplies are available to meet these increasing demands in the future.

WaterSMART Grants

To address projected impacts and help relieve demand on the Colorado River and other sub-basins in the Region, we work with state and local water agencies, tribes, and non-governmental organizations through the Department of the Interior's WaterSMART program. This initiative, under the SECURE Water Act, provides resources to address changing water supplies and demands, and enables us to take action to secure water resources for communities, economies, and ecosystems.

This is achieved through a number of programs including Basin Studies, Water Conservation Field Services Program (WCFSP), Water and Energy Efficiency Grants (WEEG), Small Scale Water Efficiency Projects (SWEP), Cooperative Watershed Management Projects (CWMP), Title XVI Water Reclamation and Reuse, Drought Response, Water Marketing Strategy Grants, and Reservoir Operations Pilot Studies. Collectively, these programs provide technical and financial assistance to water or power organizations through agreements typically requiring a 50 to 75 percent non-federal cost share. In FY 2018, the Region selected eight projects for WCFSP grant awards totaling $465,958 that will be cost-shared by $666,441 from non-federal partners. Under WaterSMART Grants (WEEG, SWEP, and CWMP), 25 water management and conservation grants totaling $6.6 million were awarded in the Region that will be cost-shared by $93.6 million from non-federal partners.

Five drought response projects in the Region were also awarded $2.9 million that will be

cost-shared by $23 million. Additionally, one project under the Water Marketing Strategy Grants Program was selected for an award totaling $400,000 that will be supplemented with $1.3 million from non-federal partners.

Basin and Planning Studies

In FY 2018, we participated in the San Diego River Basin Study in California, and continued the West Salt River Valley, Lower Santa Cruz River, and Eloy and Maricopa-Stanfield Basin Studies in Arizona to project the potential variability of future water supply and demand in those areas.

The Region also continued our partnership with the Salt River Project in a reservoir operations pilot study to identify potential changes in surface water availability, and resulting effects on operations of the Salt and Verde River systems in Arizona.

Additionally, 24 water and related resources planning studies totaling $2.6 million, including $1.3 million of in-kind services provided by study partners, continued in 2018. These studies are designed to help local and state water managers and agencies develop strategies to sustainably meet their current and future water supply needs.

Many water-conserving projects throughout the Southwest demonstrate the beauty of xeriscape design. These projects in Anaheim (top and right) and at Los Angeles City Hall (bottom left) were supported with funds from Reclamation's Water Conservation Field Services Program and resulted in several thousands of gallons of water saved each year.

Inspectors stand inside one of three of the Yuma Desalting Plant's solids contact reactors. Each reactor measures 185 feet in diameter and about 26 feet in depth, and can hold nearly 5 million gallons of water. When the plant is operating, lime and ferric sulfate in these reactors remove suspended particles in the water and soften it by taking out most of the calcium.

Title XVI Projects

Under the Title XVI program, the Region awarded two grants totaling $5.4 million to help agencies design and construct water recycling and treatment plants. The two funded projects, located in Southern California, are the Groundwater Reliability Improvement Program sponsored by the Water Replenishment District of Southern California, and the Orange County Sanitation District's Effluent Reuse Implementation Project. These projects were authorized by the Water Infrastructure Improvements for the Nation Act and could not be initiated until the projects were specifically listed in the FY 2018 appropriations act. The Region's completed projects for this FY, which include 46 projects in Southern California and two projects in Southern Nevada, produced over 395,000 AF of water.

Yuma Desalting Plant

The Yuma Desalting Plant (YDP), a reverse osmosis desalting facility near the border with Mexico, was constructed to desalinate up to 72 million gallons per day of highly saline flows that originate in the Wellton Mohawk Valley east of Yuma, AZ. The desalinated water would be returned to the Colorado River to be included in deliveries to Mexico. After construction was completed in 1992, Reclamation did not operate the YDP due to surplus water conditions in the River system. With the prolonged drought in the Southwest, however, there is renewed stakeholder interest in Reclamation operating the facility to increase water supply.

Reclamation is committed to continuing to maintain the YDP while making progress to

replace aged infrastructure to prepare the Plant for potential future operations. In FY 2018, we continued to move forward on designs for equipment replacements and obligated $1.2 million to upgrade equipment at the facility. Additionally, $800,000 was invested in infrastructure repairs on the 23 mile-long canal system that carries the saline flow that is the source water for the Plant.

New Mexico's Central Arizona Project Unit

Like other states, New Mexico is looking at its potential future water needs and is pursuing actions that will help it meet those needs.

The Colorado River Basin Project Act of 1968 and the Arizona Water Settlements Act of 2004 (AWSA) authorized the Secretary of the Interior to enter into contracts with southwestern New Mexico water users that would, under certain conditions, allow them to use Gila River water that is currently being used by entities in Arizona. In exchange, an equivalent amount of Colorado River water from the Central Arizona Project would be delivered to users in Arizona.

The State of New Mexico has elected to pursue and construct a diversion project, also known as a "Unit", under the AWSA.

Reclamation, as specified in the AWSA, is conducting a National Environmental Policy Act (NEPA) review of the potential Unit. In FY 2018, a Notice of Intent to prepare an Environmental Impact Statement (EIS) was issued in the Federal Register. A Draft EIS is expected in FY 2019.

The upper reaches of the Gila River in eastern New Mexico and western Arizona flow through many scenic canyons, providing boating, fishing, and seasonal whitewater opportunities.

Power Operations

Historically, the combined generation of the Hoover, Davis, and Parker dam powerplants has been more than 6 billion kilowatt-hours (kWh) each year. Although drought has significantly lowered Lake Mead water levels and reduced Hoover Dam powerplant's available capacity from 2,074 megawatts (MW) to about 1,600 MW (about a 23 percent reduction), net generation from the three plants exceeded 5.1 billion kWh in FY 2018.

Hoover Dam

The Hoover Dam powerplant generated more than 3.6 billion kWh of energy in FY 2018. It also provides benefits beyond its annual power generation in that it operates as a peaking powerplant, responding at four-second intervals to meet peak electrical demands of the Western Area Power Administration, which markets the electricity produced under long-term contracts. Its generation is combined with other sources to provide a consistent amount of electricity to meet changing demands. It also has a key role in restoring the Southwest's power grid should a major blackout occur.

FY 2018 also marked the first day of service under new 50-year power contracts (known as Boulder Canyon Project Post-2017 Contracts) for Hoover Dam energy that were established when the prior contracts expired in 2010. Now, 46 customers, ranging from electric cooperatives and municipalities to irrigation districts, state agencies and tribes, receive power from Hoover Dam. The new contracts gave the existing contractors 95 percent of their existing energy and capacity allocations, while allowing the remaining five percent to be marketed to new entities. These contracts provide for continued maintenance and operation of Hoover Dam to generate affordable and reliable hydropower and build on long-standing practices to effectively manage the Dam and provide flexibility to address changing conditions in the future.

Parker-Davis Project

Davis Dam, about two miles upstream of Laughlin, NV, and Parker Dam, 30 miles south of Lake Havasu City, AZ, were combined into the Parker-Davis Project in 1954. Operations and maintenance of these facilities is funded by the entities that receive the energy they generate.

The Davis Dam powerplant generated 1.1 billion kWh in FY 2018. During the year, we replaced the second and third of five transformers, and installed the first two of five generator circuit breakers, as part of a multi-year replacement program. In FY 2018, the Parker Dam powerplant generated 450 million kWh. The 100-ton gantry crane and the powerplant elevators were rehabilitated, and several reliability improvements were made to station service electrical systems.

Navajo Generating Station

The Navajo Generating Station (NGS), a 2,250 MW coal-fired generating plant in northern Arizona, is operated by the Salt River Project which holds 24.3 percent of the plant's output for the "use and benefit" of the United States. The U.S. is one of five participants that obtain power from NGS. The Lower Colorado Region manages the federal interest in the plant.

About two-thirds of the federal share of the plant's output can provide approximately 90

In December 2017, officials from the Navajo Nation, the Interior Department, Western Area Power Administration, and Reclamation gathered to sign the NGS transmission agreement that allows the Nation to sell and transmit power produced on tribal lands to other entities. This enables energy from solar or other generation sources to be delivered to markets in California, Phoenix, and Las Vegas.

percent of the energy needed by the Central Arizona Project (CAP) to pump Colorado River water from Lake Havasu to central and southern Arizona. The remaining one-third of the federal share of the power is sold and the revenue is used, among other things, to help repay CAP construction costs and fund Indian water rights settlements in accordance with the Arizona Water Settlements Act.

Coal for NGS is supplied by Kayenta Mine in northern Arizona. The mine is on lands leased from the Navajo Nation and the Hopi Tribe, and both the powerplant and the mine provide significant economic benefits and job opportunities for these tribes.

In 2017, NGS owners announced they would cease operations and not renew the lease ending December 2019. In FY 2018, NGS owners negotiated an extension lease with the Navajo Nation. Reclamation and the Bureau of Indian Affairs signed a Finding of No Significant Impact and issued a Final Environmental Assessment authorizing the lease extension. The extension allows for operations until December 22, 2019, followed by retirement, decommissioning, site monitoring, and transmission activities from 2020 to 2035. In FY 2018, Reclamation and the Navajo Nation also completed a transmission agreement allocating 500 MW of federal transmission rights to the Navajo Nation.

Also, as part of these efforts, Reclamation modified existing cooperative agreements to continue formulating economic development and clean energy development plans with the two tribes to the end of 2019. The Gila River Indian Community completed a solar generation feasibility study funded by Reclamation in 2018 as outlined in the 2013 NGS Technical Working Group Agreement. Reclamation extended an Interagency Agreement with the National Renewable Energy Laboratory and Northern Arizona University to continue providing technical assistance to the Navajo Nation and Hopi Tribe through September 2019.

The Interior Department and Reclamation continued evaluating future NGS operations options to include identifying potential owners and energy buyers and providing technical assistance to assess strategies to minimize the socio-economic impacts of a potential NGS closure.

Protecting and Enjoying Water-related Natural Resources

Managing and protecting natural and cultural resources is an important part of the Region's mission.

More than one million acres of land have been acquired for Reclamation projects in the Region. Evolving public demands and regulatory requirements mean these lands are now also needed for other purposes, such as local utility and renewable energy projects, communications facilities, electric transmission lines, non-hydro renewable energy production, recreation, and environmental activities.

The Region complies with the National Environmental Policy Act (NEPA) in decision-making related to the use of Reclamation-managed lands and resources. Through NEPA and other laws, regulations, Executive Orders, and policies, the Region ensures potential environmental and related social and economic effects of our actions are considered prior to implementation to maintain conditions under which humans and nature can co-exist. In FY 2018, the Lower Colorado Region completed more than 65 NEPA-related actions.

In carrying out our mission, and under the National Historic Preservation Act, we consulted with more than 40 Native American tribes, numerous public and non-government organizations, and five state historic preservation offices to identify and protect cultural and historic resources on Reclamation lands.

We also work to protect Reclamation resources from the impacts of illegally released or disposed environmental contaminants. The Region is involved with inland water spill response, planning, and training with several federal, state, tribal, and local stakeholders. We also conduct annual audits on Reclamation facilities to ensure compliance with federal and state environmental laws and regulations.

Additionally, our Sustainability and Environmental Management System ensures sustainable practices are followed in energy efficiency, water conservation, waste reduction, and the conservation of biological, cultural, and natural resources. This regional program continues to be used as a "best practice" model throughout the Bureau of Reclamation.

Lower Colorado River Multi-Species Conservation Program

The Lower Colorado Region administers and manages one of the largest environmental programs in the nation – the Lower Colorado River Multi-Species Conservation Program or LCR MSCP.

This 50-year, 50/50 cost-share partnership among federal and non-federal entities balances the use of lower Colorado River water resources with the conservation of native species and their habitats in compliance with the Endangered Species Act and associated state laws.

The program area extends more than 400 miles along the lower Colorado River, from Lake Mead's upper reaches to the Southerly International Boundary with Mexico.

The partnership is currently comprised of 57 entities, including state and federal agencies, water and power users, Native American tribes, conservation organizations, and other interested parties. The partners primarily participate through the program's Steering Committee to coordinate implementation of the program.

Native fish are being re-introduced to their native habitats in remote springs and streams. In this photo, a Reclamation fish biologist investigates a population of Gila topminnow in Walnut Creek in Arizona.

The Program's Habitat Conservation Plan (HCP) includes 13 general conservation measures and 65 species-specific conservation measures. Twenty-seven species, including eight listed as threatened or endangered under the Endangered Species Act, are covered. In FY 2018, the northern Mexican gartersnake was added to the covered species list. In 2016, one was observed in the LCR MSCP Beal Lake Conservation Area near Needles, California. The gartersnake, listed as threatened under the ESA in 2014, had not been observed along the lower Colorado River in over 100 years.

Many of the conservation measures require ongoing management through the duration of the program. Since the initial implementation of the LCR MSCP in 2005, five HCP conservation measures have been completed and 14 conservation areas established. Conservation areas contain a variety of habitat types that enable multiple species to benefit from a specific area. We established 351 acres of new riparian habitat in FY 2018, bringing the total acreage actively managed for native species to more than 6,000 since the program began. Based on program requirements at this stage, we are ahead of schedule.

The program also calls for the stocking of approximately 660,000 razorback suckers and 620,000 bonytail, two endangered native Colorado River fishes, in the lower river. In FY 2018, more than 25,000 native fish were raised and/or stocked, bringing the totals to about 193,000 razorback suckers and 100,000 bonytail stocked since the program began in 2005. Approximately 126,000 razorback have been placed in Lake Mohave to maintain the genetic diversity of this important brood stock.

Other Environmental Programs

In Arizona, barriers are being constructed on small, remote streams to protect native fish. These barriers prevent non-native fish from moving upstream into natural habitats where native fish populations historically thrived. Upstream of these barriers, Reclamation is working with the Arizona Game and Fish Department, U.S. Fish and Wildlife Service, and the Bureau of Land Management to remove non-native fishes and repatriate the streams with native species. These management practices were implemented as conservation measures associated with the delivery of CAP water to the Gila River Basin of Arizona and New Mexico.

As of the end of FY 2018, nine of 13 fish barriers had been constructed on Gila River Basin streams. Currently, two barriers are being designed for locations on Eagle Creek and Redfield Canyon, and planning for two barriers on the upper Verde River was initiated. Reclamation also continued the expansion and modernization of the Arizona Game and Fish Department's Aquatic Research and Conservation Center, a native fish hatchery in Yavapai County that holds and propagates the spikedace and loach minnow, two of the rarest fishes of the Gila River Basin.

In Nevada, we continued to participate in the partnership effort to protect the Las Vegas Wash. This "urban river" flows from the Las Vegas Valley to Lake Mead, carrying an average of more than 150 million gallons of water a day through a wetlands corridor on its way from the valley to the lake. A riparian corridor in an urban area, the Wash is an important ecological resource for southern Nevada, providing habitat to about 300 fish and wildlife species and more than 200 species of plants. The Lower Colorado Region is one of 29 members of the Las Vegas Wash Coordination Committee, formed in 1998 to protect this valuable water resource.

In FY 2018, we continued to partner with the Southern Nevada Water Authority and Reclamation's Provo Area Office construction crew to support the ongoing maintenance of the weirs which control water flows in the Wash. We also helped stabilize the Wash's banks against further erosion, and monitored the effects of other protective and environmental work.

Tackling Invasive Species

Several invasive species have migrated into the Lower Colorado River Basin. The Lower Colorado Region is tackling the threats these invasive species pose to water, hydropower, the environment, and recreational activities.

Quagga Mussels

Every year, invasive quagga and zebra mussels cost millions of dollars in lost economic activity and cause significant environmental impacts to waterbodies in the West. Discovered in Lake Mead in 2007, quagga mussels can block water intake structures, pumps, and delivery pipes; damage boats, docks, and other recreation facilities; and generally upset the ecological balance of water bodies. Additionally, because they are an extremely hardy species, they readily spread from one body of water to another.

In FY 2018, we continued to participate in Reclamation-wide and interagency task forces to help understand the potential future impacts of quagga infestations on water-related infrastructure. These groups are identifying potential mitigation activities and costs, and implementing strategies to help prevent mussels from spreading to other Western water bodies.

Water above 140 °F has been proven to be effective in killing quagga mussels. Hot water wash stations, like the one seen here, at several locations in Lake Mead National Recreation Area provide boaters the resources to clean their vessels to help prevent the spread of this invasive species.

Reclamation is supporting increased understanding of the mussel through genetic analysis and is also working to reduce the likelihood of mussels entering currently uninfected water bodies throughout the Region. To this end, we have helped increase the number of wash/inspection stations at Lakes Havasu and Mead boat ramps, and have provided resources to Arizona to establish mobile inspection stations. We are also working with Arizona in the development of a boat inspection database to improve predictive modeling for inspection station manning requirements.

In FY 2017, the Secretary of the Interior established a "Safeguarding the West" initiative to address the nationwide spread of invasive mussels. As part of this initiative, in FY 2018, the Lower Colorado Region expanded several existing interagency agreements and funding grants with state agencies to support ongoing quagga mussel management efforts throughout the West.

In collaboration with experts from Reclamation's Technical Service Center, Regional staff continued various research efforts, including an evaluation of chemical and non-chemical control methods for reducing the quagga's impacts on the lower Colorado River dams. The preferred treatment method is to install ultraviolet light systems on generating unit cooling

water systems to kill quagga larvae. The systems have been installed on all four Parker Dam generators, on one of the five generators at Davis Dam, and will be installed on all Hoover Dam generators by the end of FY 2019.

Other Invasive Species Efforts

FY 2018 marked the fourteenth consecutive year we have partnered with Palo Verde Irrigation District, the U.S. Department of Agriculture, and the U.S. Fish and Wildlife Service in an effort to reduce and control the further spread of giant salvinia, an invasive weed discovered in the District's drainage system near Blythe, CA. The plant, which has migrated into the lower Colorado River, reduces oxygen content in water, eventually causing its quality to degrade to the point of stagnation. Giant salvinia can also block waterways, threatening both municipal and agricultural water delivery systems.

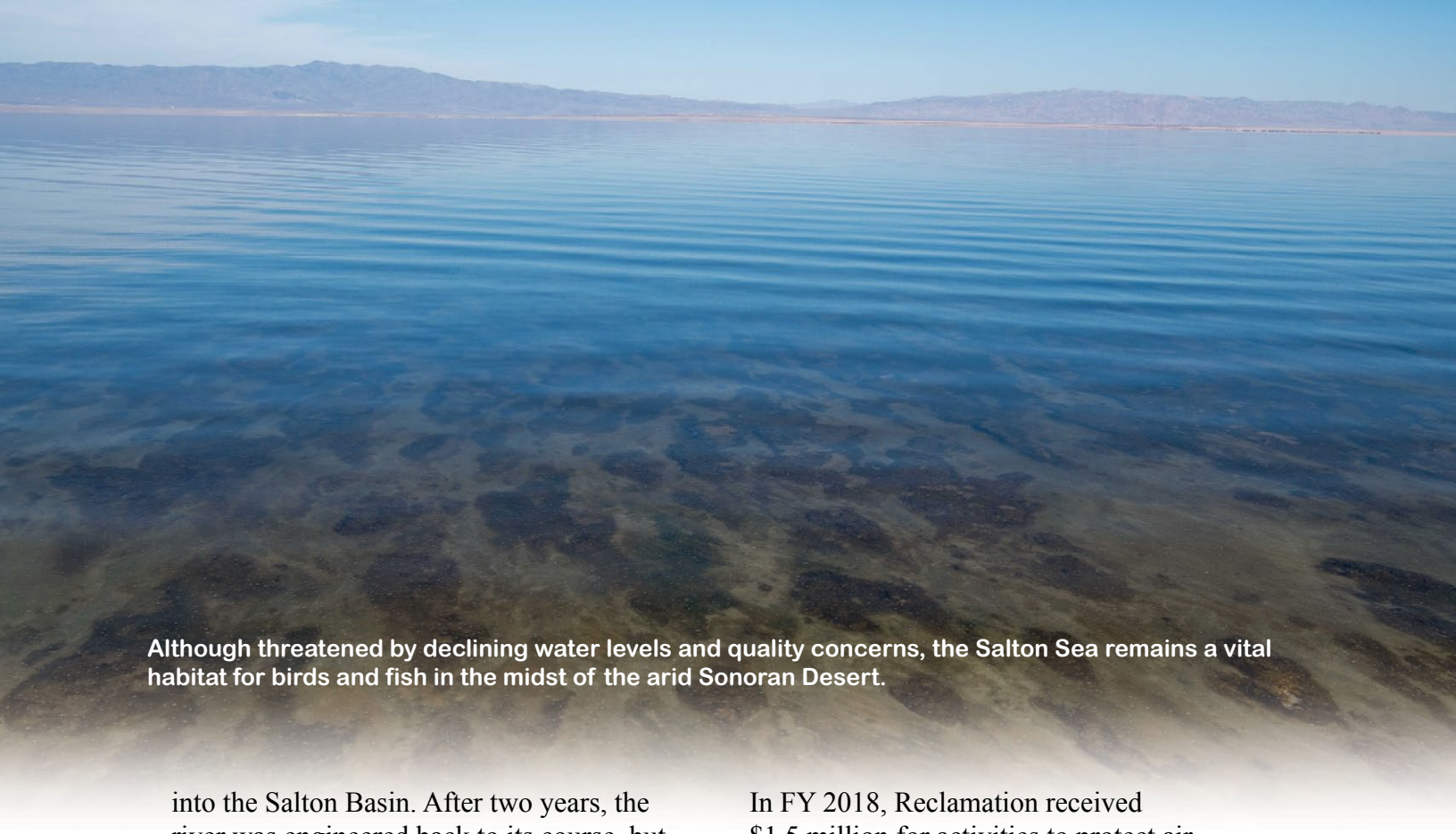
Although the Lower Colorado Region does not have a specific program to address the invasive, non-native tamarisk plant, we participate in an interagency agreement that uses the National Park Service's (NPS) Exotic Plant Management Team (EPMT) to conduct invasive species removal, and re-establish native vegetation. Tamarisk, which has a significant presence along the lower Colorado River, can narrow and channelize streams and rivers, displace native vegetation, increase the risk of wildfire, and limit human and animal access to and use of waterways. We have removed tamarisk and other invasive plants, resulting in an increase in desirable habitat for native species, including some birds listed under the Endangered Species Act. We also continued to employ youth conservation corps crews to remove invasive plant species and restore project lands. During FY 2018, roughly 30 acres were treated for tamarisk and other weeds by Nevada Conservation Corps crews and the EPMT.

To increase collaboration with other agency efforts in the Region, Reclamation joined the Southern Nevada Area Partnership, an anti-litter and desert dumping partnership to maintain the quality of public lands. We also participate in the Southern Nevada and Lower Colorado River Cooperative Weed Management Areas that are made up of groups of landowners, agencies, and other local organizations who voluntarily work together to address the issues associated with noxious weeds in the area.

Additionally, our work with the Regional Integrated Pest Management Team in FY 2018 included outreach to local and regional organizations focused on invasive plant species to collaborate on strategies for removal of invasive species and reseeding with native plants, establishment of area native seed banks, and identifying areas for potential seed harvesting.

Salton Sea

Reclamation is an active participant in California's process to coordinate stakeholders and draft a long-term management strategy for the Salton Sea. The Sea, located in Southern California, is the state's largest lake, known for its extremely high salt content – more than 30 percent saltier than ocean water. It is the modern incarnation of a prehistoric waterbody that filled and evaporated multiple times over thousands of years as the Colorado River shifted between emptying into the Gulf of California or diverting northwest into the Salton Trough (or Basin). In 1905, a flood caused the Colorado River to breach a private irrigation company's diversion structure, and the River once again flowed



Although threatened by declining water levels and quality concerns, the Salton Sea remains a vital habitat for birds and fish in the midst of the arid Sonoran Desert.

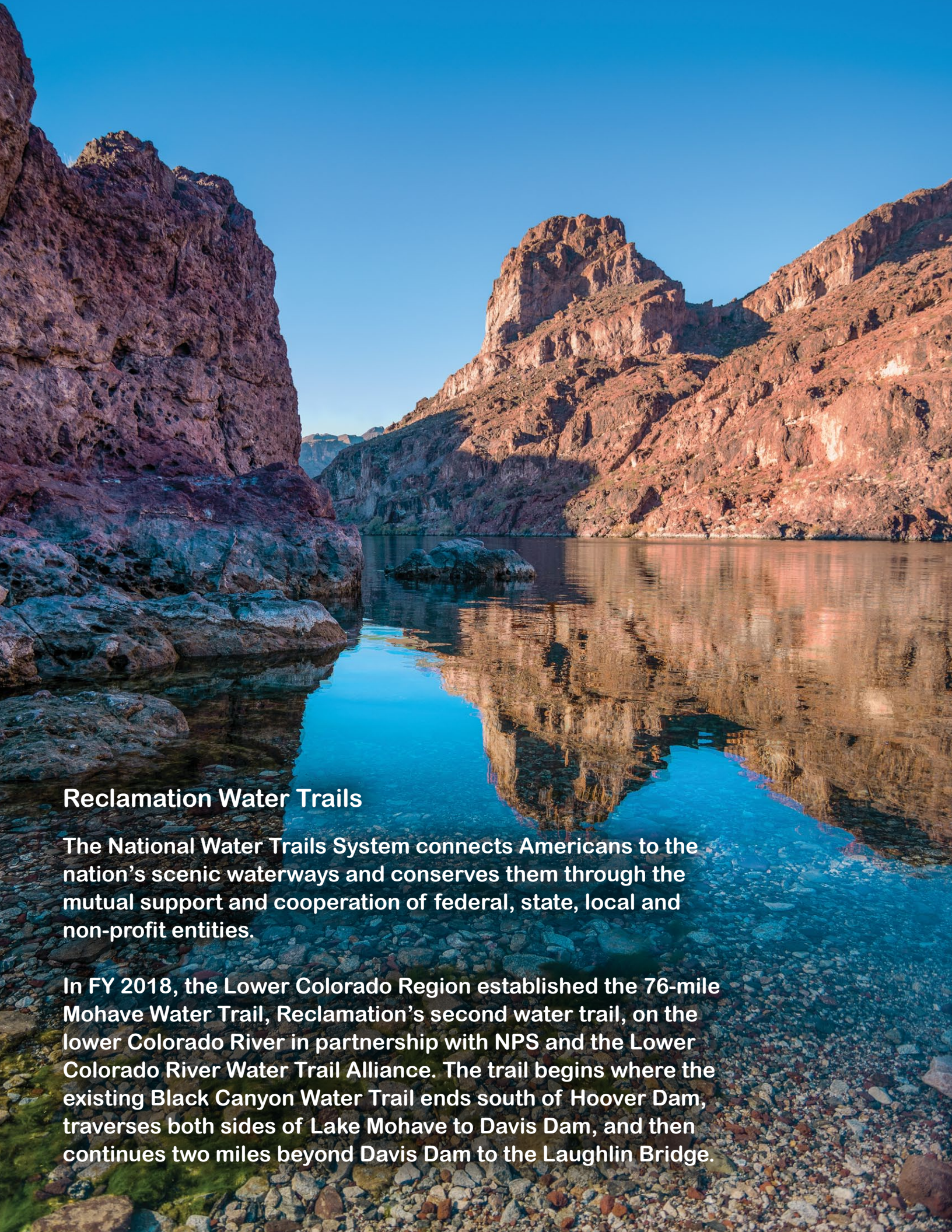
into the Salton Basin. After two years, the river was engineered back to its course, but it left behind a "new" Salton Sea.

In 1924, a Presidential Order designated approximately 90,000 acres of federal lands beneath the Sea a drainage reservoir. The Sea, which would have evaporated naturally, has been sustained by agricultural runoff from the Imperial and Coachella valleys and other sources over the last century. But in recent years, Salton Sea water levels have declined due to record drought conditions, water transfers, and irrigation efficiencies.

The Sea is a vital stop on the Pacific Flyway for millions of birds. More than 400 bird species, including several endangered species, have been identified at the Sea. The ecological benefits to these birds are being severely compromised due to the Sea's increasing salinity, which decreases available food sources and habitat. Through the 1990s, some of the largest bird die-offs in U.S. history brought national attention to the Sea's deteriorating conditions.

In FY 2018, Reclamation received $1.5 million for activities to protect air quality, improve habitat for birds and fish, and maintain a secure Colorado River water supply. These activities help minimize impacts to migratory birds and endangered species, as well as cover exposed playa to reduce dust impacts on human health. Reclamation also worked closely with the State of California, Imperial Irrigation District, Salton Sea Authority, Torres Martinez Tribe, and other federal partners to identify and prioritize projects for implementation at the Sea.

We supported a groundwater hydrology study for future dust control; continued work to complete the Red Hill Bay Project (420 acres of saline shallow-water habitat for migratory birds and coverage of exposed playa); developed approximately 53 acres of Yuma Ridgeway Rail habitat; lined canals that will improve water delivery for approximately 400 acres of aquatic habitat on the Sonny Bono National Wildlife Refuge; and researched boat access for continued water quality monitoring and economic development opportunities.



Reclamation Water Trails

The National Water Trails System connects Americans to the nation's scenic waterways and conserves them through the mutual support and cooperation of federal, state, local and non-profit entities.

In FY 2018, the Lower Colorado Region established the 76-mile Mohave Water Trail, Reclamation's second water trail, on the lower Colorado River in partnership with NPS and the Lower Colorado River Water Trail Alliance. The trail begins where the existing Black Canyon Water Trail ends south of Hoover Dam, traverses both sides of Lake Mohave to Davis Dam, and then continues two miles beyond Davis Dam to the Laughlin Bridge.

Recreational Opportunities

Lower Colorado Region projects and lands provide substantial year-round recreational opportunities, generally through partnerships with state, local, and private entities, and other federal agencies. The recreation industry along the lower Colorado River alone generates about $3 billion annually.

In FY 2018, a planning and design contract was awarded for the $5.9 million Arizona Heritage Trail from Davis Dam to the Laughlin Bridge, which crosses the Colorado River just north of the cities of Laughlin, NV, and Bullhead City, AZ. Through a partnership with the National Park Service, the City of Bullhead City, and Mohave County, AZ, the Trail will connect to the Colorado River Heritage Greenway Trail, creating an approximately 12.5 mile-long loop that joins the two river communities, and improves the public enjoyment of these lands adjacent to the Colorado River.

In our continued partnership with the City of Scottsdale, Reclamation lands in Arizona are annually the site of some of the City's largest public events including the PGA Tour's Waste Management Phoenix Open, the Barrett-Jackson Scottsdale Collector Car Auction, and the Scottsdale Arabian Horse Show. The Waste Management Phoenix Open received an international award for sustainability from Scotland-based GEO Foundation, recognizing the tournament for its efforts to balance environmental impacts, conserve natural resources, and benefit the local community. The event has continued to be extremely popular, setting records again in 2018 with new week-long (719,179) and Saturday (216,818) attendance. The 2018 Barrett-Jackson Auction brought approximately 300,000 people to WestWorld of Scottsdale.

Ongoing planning partnerships are developing trails along the Central Arizona Project canal in southern Arizona as part of the Sun Corridor Trail System that links several regional trails throughout Arizona and southern Nevada. As part of this effort, in FY 2018, we continued planning and design of two trail segments in Pinal and Pima counties.

Reclamation also constructed a new fishing pier at Contact Point on Lake Havasu and assisted with repairing another fishing pier as part of the Lake Havasu Fisheries Program. The project was funded by the Bureau of Land Management and Reclamation, and Arizona State Parks is operating and maintaining the facilities.

In this fiscal year, Reclamation undertook a project to rehabilitate walkways and install handrails on the trails at the Mike O'Callaghan–Pat Tillman Memorial Bridge Plaza near Hoover Dam. Funded primarily by the Southern Nevada Public Lands Management Act (SNPLMA), these enhancements will provide a safer, more enjoyable experience for visitors to the Plaza.

Additionally, renovations to the Hoover Dam Visitor Center began with funding provided by SNPLMA and the Boulder Canyon Project Act. When the work is complete, Hoover Dam visitors will experience a brighter, more modernized space in which to enjoy and learn about the significance of the Dam.

Also in 2018, more than 5.3 million people visited Hoover Dam, with over 700,000 of those visitors participating in dam tours and special events.

Supporting Native American Tribes and Communities

We help fulfill Reclamation's trust responsibilities for the 61 federally recognized tribes in the Lower Colorado Region. Toward this goal, we provide planning, operational, financial, and technical assistance so they can develop and manage their water resources and facilitate tribal self-sufficiency.

One of our highest priorities in 2018 was keeping the tribes and communities informed of progress related to Colorado River drought contingency plan negotiations.

The Region provided $960,000 in technical assistance funding to aid six tribes in Arizona and California with water management activities. The funding supported projects to help the Quechan Indian Tribe and the White Mountain Apache Tribe improve their municipal water systems, and irrigation system improvements for the Pascua Yaqui Tribe and the Bishop Paiute Tribe. Other projects supported the Colorado River Indian Tribes (CRIT) and the Tohono O'odham Nation.

In FY 2018, we continued to participate in activities related to the negotiation and implementation of Indian water rights settlements approved by Congress. This included project planning and construction, environmental compliance, operation and maintenance, as well as land acquisition and financial management.

As part of implementing existing water rights settlements, we awarded contracts totaling $35.5 million under Public Law 93-638, the Indian Self-Determination and Education Assistance Act, to the Tohono O'odham Nation, the Gila River Indian Community, and the San Carlos Apache Tribe in Arizona. These contracts are related to planning and construction of tribal irrigation distribution systems and advance tribal sovereignty, self-governance, and self-determination efforts. Indian water rights settlement negotiations with the Hualapai Tribe, Havasupai Tribe, Zuni Tribe, Yavapai Apache Nation, Tonto Apache Tribe, and Tohono O'odham Nation are ongoing.

We worked with CRIT to plan the removal of approximately 60,000 cubic yards of sediment deposited by Vidal Wash on the Colorado River Indian Reservation to improve flow of the Colorado River.

We consulted with tribes to provide for the protection of cultural and natural resources. For example, we worked with the Fort Yuma Quechan, Cocopah, Fort Mojave, Hualapai, Chemehuevi, and CRIT tribes in monitoring the clean-up of toxic hexavalent chromium found in groundwater near Needles, CA. The Fort Mojave Indian Tribe was also engaged in the development of the Arizona Heritage Trail, which will provide access to Lake Mohave and recreational sites along the Colorado River near Bullhead City, AZ.

Reclamation anticipates releasing the Colorado River Basin Ten Tribes Partnership Tribal Water Study in December 2018. The Study was conducted collaboratively with the member tribes of the Ten Tribes Partnership. Formed in 1992 by ten federally recognized tribes with federal Indian reserved water rights in the Colorado River or its tributaries, the Ten Tribes Partnership consists of five member tribes from the Upper Basin (Ute Mountain Ute Tribe, Southern Ute Indian Tribe, Ute Indian Tribe, Jicarilla Apache Nation, and Navajo Nation) and five from the Lower

Basin (Fort Mojave Indian Tribe, Colorado River Indian Tribes, Chemehuevi Indian Tribe, Quechan Indian Tribe and Cocopah Indian Tribe). The Study documents how Partnership Tribes currently use their water, projects how future water development could occur, and describes the potential effects of future tribal water development on the Colorado River System. It also identifies challenges related to the use of tribal water and explores opportunities that provide a wide range of benefits to both Partnership Tribes and other water users.

In late 2018, as part of the Gila River Indian Community's (GRIC) plan for a long-term sustainable water supply, the tribe's 4 Mile Post Pump Station (above), a component of the Pima-Maricopa Irrigation Project (P-MIP) was expanded.

The expansion allows the Community to pump water to a new groundwater recharge facility, enabling GRIC to store water for future use.

The P-MIP was authorized as part of the Central Arizona Project. The Arizona Water Settlements Act of 2004 made the Lower Colorado River Basin Development Fund available to pay for the costs of constructing water distribution systems for the GRIC.

The expansion was completed as part of the Community's participation in the Lower Colorado River Drought Contingency Plan, along with various federal and state partners.

Upon completion of construction for all components of the P-MIP, Reclamation engineers inspect the facility (above) to transfer it from construction under Reclamation oversight to operations and maintenance status under the GRIC and Bureau of Indian Affairs.

Protecting Our Resources

Maintaining Safe Infrastructure

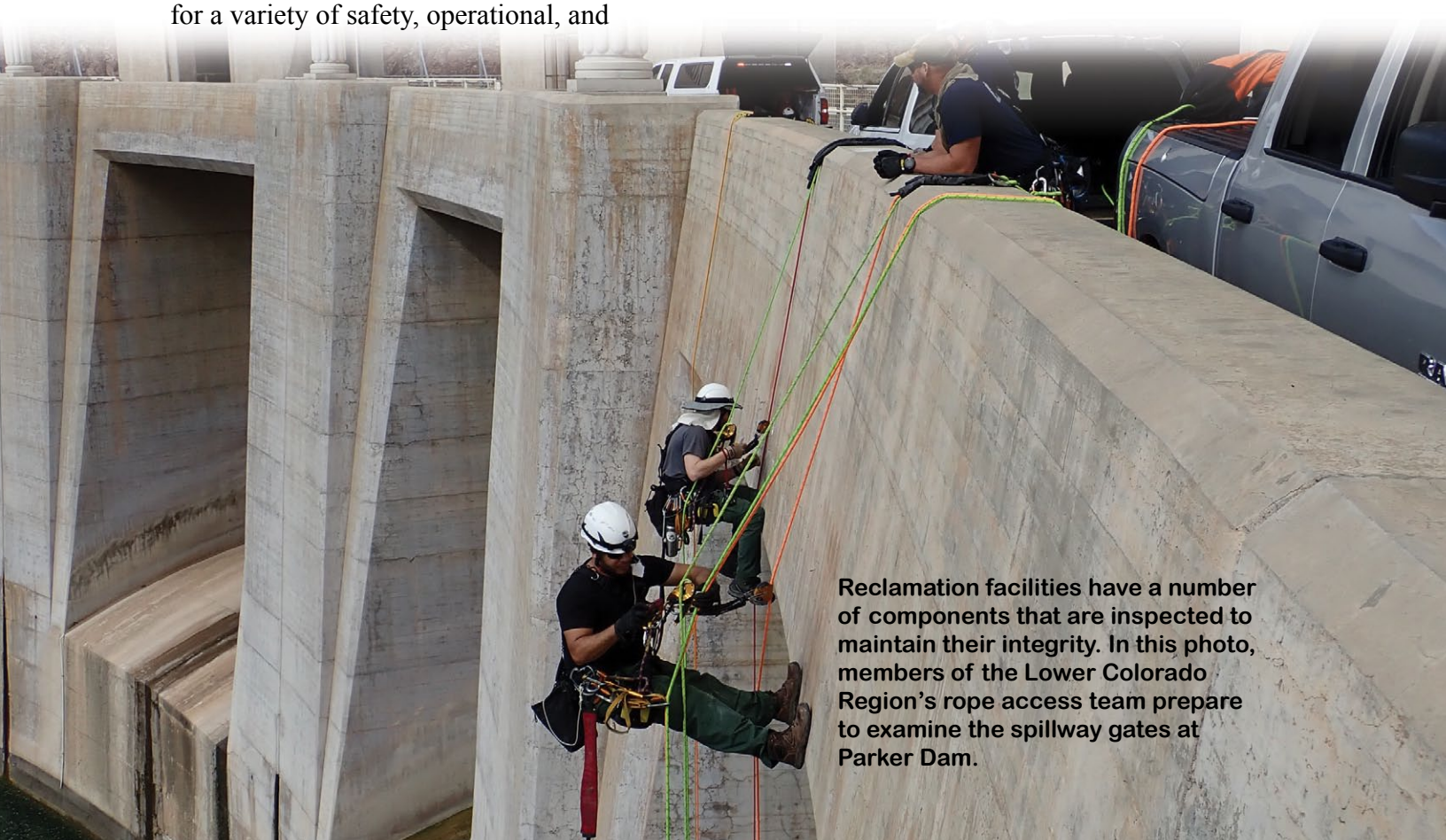
Lower Colorado Region engineers and other staff work to ensure the Region's dams and other facilities, many of which are over 50 years old, continue to operate safely and reliably. To reduce potential risk, we assess structural and performance reliability and implement modifications using state-of-the-art design and construction practices as necessary.

Safety of Dams

The Safety of Dams program ensures our dams are structurally safe and helps protect downstream communities through periodic reviews of each dam's stability and physical integrity.

Reclamation owns 15 high hazard dams in the Lower Colorado Region. Each year, these structures are given a Facility Reliability Rating score of 'Good', 'Fair', or 'Poor'. This rating is based on points earned for a variety of safety, operational, and maintenance factors. During this Fiscal Year, all 15 dams received the highest rating of 'Good', demonstrating the effectiveness of the safety review program.

The major Safety of Dams program components are Comprehensive Reviews (CRs), Periodic Facility Reviews (PFRs), and Annual Site Inspections (ASIs). CRs, performed every eight years, include a detailed on-site physical examination and design, geology, hydrology, and seismology evaluations. PFRs, which are performed every eight years, midway between CRs, involve a detailed on-site examination of the structures. ASIs are conducted in those years in which there are no CRs or PFRs, and each dam undergoes a visual inspection at least quarterly to supplement the formal inspections. For the two CRs and two PFRs conducted in FY 2018, no major findings or recommendations were identified.



Reclamation facilities have a number of components that are inspected to maintain their integrity. In this photo, members of the Lower Colorado Region's rope access team prepare to examine the spillway gates at Parker Dam.

Emergency Action Plans (EAPs) and emergency management exercises also help maintain the safety of our dams. Although there has never been a dam failure in the Region, an EAP has been prepared for each dam that could cause economic damage or loss of human life if it failed; these EAPs are updated annually.

A bridge created from a railroad car spans the Coachella Canal, a Reclamation-constructed waterway, at a remote desert site in southern California. These types of structures have been determined by regulatory agencies to be safe and feasible bridge alternatives for roads with limited traffic.

Tabletop and functional exercises are performed for each dam every four and eight years, respectively. Tabletop exercises involve informal discussion of actions to be taken in an emergency situation. Functional exercises practice a timed, emergency response to a simulated incident. In FY 2018, we conducted three functional exercises and three tabletop exercises.

Review of Operations and Maintenance

We also conduct a routine Review of Operations and Maintenance (RO&M) program to periodically review and examine other structures, including canal turnouts and check structures, bridges, siphons, and pipelines, to ensure they are operated consistent with Standing Operating Procedures (SOPs), and to identify maintenance deficiencies or safety concerns.

Issues identified in the RO&M process are used to develop preventive maintenance programs, identify actions to improve operations, and create/update SOPs related to maintaining structural, electrical, and mechanical equipment. The examinations ensure each facility is safely operated and maintained to reduce unplanned outages and to protect the federal investment. Eleven RO&M inspections were performed on Lower Colorado Region projects this Fiscal Year; and no major deficiencies were found.

Urban canals are sections of canals located within urban areas that could potentially be flooded if a failure were to occur. Due to this risk, Reclamation frequently inspects these canal sections. The Region inspected seven urban canals in FY 2018; all were in good condition.

The Region owns more than 200 bridges. Many of these are open only to government employees and operating districts, but are reviewed through the RO&M inspection process. Some of the bridges are open to the public; these are inspected every two years, as required by the Federal Highway Administration. In FY 2018, we inspected 44 bridges that are open to the public. No significant safety issues or concerns were found during these inspections.

Inaccessible Features Reviews and Inspections

Some areas at dams or other facilities are considered "inaccessible" because they cannot be reached without special equipment.

Using drop cameras, remotely operated underwater vehicles, and/or rope access and dive techniques, the Region's teams of uniquely skilled individuals regularly inspect these areas to assess structural soundness and identify maintenance needs.

Our dive and rope access teams also support other Reclamation regions and federal agencies in inspecting inaccessible features, as this capability is somewhat unique. In this Fiscal Year, 14 inaccessible features exams were performed within the Region, with a number of additional inspections performed for other Reclamation regions.

A Safe Workplace

Our Region's safety commitment is, "Every employee, contractor, and visitor arrives at work safely, conducts business safely, and returns home safely every day."

To that end, we continue to promote ongoing workplace safety activities, such as enhancing safety awareness through annual Safety Fairs, Safety Days, and annual watercraft safety events; engaging employees in local safety committees; publishing safety articles; and presenting training tailored to individual office needs.

We completed the implementation of local safety plans for each facility in the Region to better communicate the local procedures, safety objectives, and safety resources available to employees as part of our efforts to ensure a safe work environment, and actively encouraged employees to participate in the safety program.

The Region-wide Safety Advisory Committee developed metrics to help assess and focus on safety improvement. The Committee continues to foster a climate where safety and productivity are equally important objectives for employees in accomplishing their work, and through improved communication, safety issues common across the Region are identified and resolved.

Security and Law Enforcement

The Lower Colorado Region continually strives to design and deliver a robust and innovative security and law enforcement program to ensure its employees, contractors, visitors, and facilities are safe and secure. Our security personnel, a Bureau of Land Management (BLM) Special Agent, a BLM Ranger, and contracted private security work closely with local law enforcement, including our partners with the National Park Service and other entities, to assess security needs and develop and improve threat detection, identification, deterrence, and response.

The BLM Special Agent manages investigative and intelligence-related activities and represents Reclamation at meetings and exercises of the Las Vegas Joint Terrorism Task Force, the Southern Nevada Counter-Terrorism Center, the Arizona Counter-Terrorism Information Center, and other regional law enforcement agencies. The BLM Ranger addresses public conduct and resource-related crimes on Reclamation lands throughout the Region.

Reclamation security personnel are assigned to Hoover Dam, and contract guards are posted at selected Regional facilities. Several of our facilities' operating and maintenance partners including the Salt River Project, Imperial Irrigation District, and Central Arizona Project provide direct

A demonstration of self-defense techniques at a Boulder City, NV safety fair empowers employees with tools to maintain personal safety, and confront and survive potentially dangerous situations.

and contract security service at Reclamation facilities. These staff, along with the direct involvement of our federal, state, local, and tribal law enforcement partners, provide a vigorous and comprehensive security program in support of Reclamation's mission.

In FY 2018, nine Periodic Security Reviews were conducted at Lower Colorado Region dams. The Regional Security Office partnered with Denver's Program and Emergency Management Office, Lower Colorado Dams Office, and other federal, state, local, and tribal agencies to successfully complete the 2018 Hoover, Davis, and Parker Dams Functional Exercise. This large-scale exercise focused on implementing an Emergency Action Plan in a simulated flood affecting downstream communities by using real world emergency notifications and communications systems. The exercise was an opportunity to test the continuity of operations plans and protocols, and to simulate timely response actions.

Also in 2018, the Lower Colorado Dams Office augmented safety features at Hoover Dam to significantly enhance the safety of the hundreds of thousands of people who visit this historic and world-renowned national icon. A temporary barrier system was installed along the roadway atop the Dam to reduce the likelihood of pedestrian and moving vehicle interactions. This barrier, as well as a permanent solution that is being designed and will eventually be installed, is a marked improvement to security and safety at the site.

The Human Element

A dedicated and diverse workforce helps the Lower Colorado Region accomplish its mission. Each employee contributes to our program achievements, whether they are based in Nevada, Arizona, or California. Every day, at every level, the Region relies on them and their commitment to public service to reach our goals and objectives.

We employ many strategies to recruit, develop, and retain a skilled and diverse workforce. Our professional Equal Employment Opportunity and Human Resources staff conduct various activities to recruit and train people to perform the work we do now and will do in the future. These outreach activities include participating in job fairs, visiting college campuses, and other recruitment efforts. In FY 2018, we participated in over 40 career fairs.

To meet current competency needs and prepare for future requirements, we continue to heavily invest in employee training and development. Our professional training staff facilitated the delivery of more than 60 sessions of technical and professional development sessions in FY 2018. Topics reflected Interior Department priorities covering civil treatment, anti-harassment, and safety culture. We also conducted a broad range of leadership and professional development courses around the Region, focusing on critical competencies such as effective communication, accountability, problem solving, and conflict management. In addition, we coordinated with DOI University to host six "open enrollment" courses on a variety of topics, and coordinated with more than two dozen external vendors to provide numerous training opportunities in areas like human resources programs, safety-related requirements, and finance and accounting.

Public Outreach

We know it is important to integrate and engage the next generation into our workforce. Key FY 2018 activities included support of the Southern Nevada Regional Student Model Bridge Building Contest, in which 678 students from 64 schools participated. We also hosted Hoover Dam tours for more than 9,400 students and provided expert speakers at local schools, from elementary to college level to share their knowledge about careers and specific jobs that support Reclamation programs.

One way we do this is by creating opportunities for young people to experience potential federal careers. During FY 2018, the Region employed 27 students as part of an 8-week summer internship program to enhance their skills in career fields such as water management, hydropower generation, species recovery, engineering, and information technology. Students came from high schools, colleges, and universities all over the country, such as the University of Nevada - Las Vegas, Utah State University, Palo Verde Community College, Northern Arizona University, and Ohio State University, to name a few.

Reclamation employees participated in the Clark County School District Professionals and Youth Building A Commitment (PAYBAC) Program, which focuses on encouraging students to stay in school, setting goals, and establishing plans for the future. We provided federal employment application workshops for students at Morehouse College, Spelman College, Arizona Western College, Palo Verde College, College of Southern Nevada, and various local high schools.

As one of Reclamation's many job outreach efforts, high school students at a Palo Verde College job fair in Blythe, California, receive information about summer work opportunities (left). This job fair led to the hiring of a student intern for Reclamation's Blythe Hydrographic Office who, in the photo below, is assembling and testing a vertical axis current meter used for measuring water velocity.

We also partnered with Jobs for Nevada's Graduates Inc., an organization geared toward students who are at high risk of not graduating and continuing their education. Reclamation employees mentored these students and assisted them with resume building, interview skills, USAJobs navigation, and a variety of employment-related skills.

In addition to educational and outreach activities, we participate in many events that encourage new generations to connect with the natural resources we manage.

In FY 2018, we held our annual "Catch A Special Thrill" (C.A.S.T.) event at Lake Mead. The C.A.S.T. for Kids Foundation allows children with disabilities and their families to enjoy a day of fishing and outdoor experiences. The event attracted 28 participants and several family members and caretakers, and was supported by 70 volunteers, including 22 boat captains. Lake Mead Marina provided 10 pontoon boats and the venue for the event, and many entities, including the NPS, U.S. Fish and Wildlife Service, Clark County, Nevada Department of Wildlife, Outside Las Vegas Foundation, and Reclamation, contributed activities or informational exhibits.

Additionally, our Phoenix Area Office conducted its 19th C.A.S.T. for Kids event at Lake Pleasant, with 43 children and their families in attendance. Forty-six boat captains volunteered their boats and time for this event. With the help of these captains and more than 100 volunteers from Reclamation, the CAP, Turn-Outs, bass fishing clubs, Maricopa County Parks and Recreation Department, Coast Guard Auxiliary, Liberty Wildlife, and Arizona Game and Fish Department, the participants were treated to an outdoor adventure that many experienced for the first time.

Regional staff also participated in other outdoor-related educational activities, including several Get Outdoors Nevada history field trips and STEM summer camp, Las Vegas Science Expo, the National Park Service's Junior Ranger Day, Clark County Wetlands Park International Bird Migratory Day, Laughlin Wings and Wildlife, and several Public Lands Day events.

With more than 160 canals in the Yuma, AZ, area, our Yuma Area Office hosted 'Otto Otter', Reclamation's mascot, at several events to educate children and their parents about canal safety. These included the Yuma Getting Involved in Neighborhoods (G.A.I.N.) program which focuses on community safety, and the City of San Luis Safety Days, which was open to kindergarten through 8th grade students.

The Southern California Area Office also continued an ongoing collaboration with the San Diego River Park Foundation on river cleanups. As part of these activities, 337 volunteers, including youth and school groups and military services members, removed 9,975 pounds (nearly 5 tons) of trash along the San Diego River.

Program/Project Support

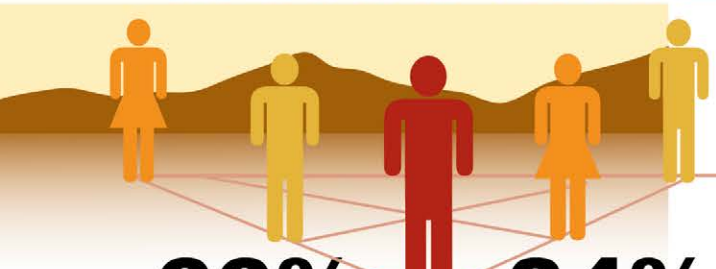
Without the employees and offices that support our programs, projects, and activities, we could not successfully accomplish our mission.

For example, the Region consolidated three technical service groups to create the Information Management and Technology Office. As a result, we are able to continually enhance and improve the reliability of our information technology, records management, privacy, and Freedom of Information Act processes while ensuring those systems are secure. The Office also responds to a multitude of daily service requests, which can include software and hardware problem fixes, software installations, hardware installations and moves, webinar/video teleconferencing setups, and installation, configuration, and maintenance of telecommunications systems across the Region. During FY 2018, the Office's Customer Support group (Service Desk) addressed more than 7,600 service requests for assistance, averaging approximately 30 per workday.

Also during this FY, the Information Management group processed 44 FOIAs, releasing 3,825 records totaling 40,412 pages. They also trained more than 100 Region employees in using the Department Electronic Content System. Other accomplishments include securely shredding 25 tons of paper to be turned into home insulation, handling more than 8,000 pieces of mail, and completing 183 large print requests.

Another vital activity essential to our mission is property management. The Region is responsible for a number of assets including accountable personal property (equipment worth $5,000 or more, or considered sensitive and at risk of theft, such as IT and electronic equipment) and real property (buildings and structures). During FY 2018, Property Management oversaw the acquisition, tracking, and disposition of 4,321 accountable equipment items valued at $39.8 million, including 227 vehicles. Real property accounted for 229 buildings, totaling 1.1 million square feet with a total replacement value of nearly $189 million, and 398 structures with a total replacement value of more than $23 billion.

WORKFORCE SNAPSHOT



846
Total Employees

66%
559 male

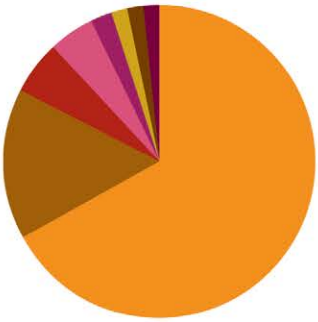
34%
287 female

EDUCATION

846— High school or equivalency
457— College Degrees

- Associate's **67** — 8%
- Bachelor's **253** — 30%
- Master's **130** — 15%
- PhD **7** — 1%

DIVERSITY



- 567 White
- 131 Hispanic or Latino
- 47 Black or African American
- 41 Asian
- 18 American Indian or Alaska Native
- 16 Non-specified
- 14 Two or more races
- 12 Native Hawaiian or Other Pacific

GENERATIONS (AGE GROUPS)

- Traditionalists (1922-1945) — **5**
- Baby Boomers (1946-1964) — **281**
- Generation X (1965-1980) — **361**
- Generation Y (1981-2000) — **199**

as of September 30, 2018

What's Ahead

Addressing Drought – Taking Action to Protect Lake Mead

The Colorado River Basin continues to experience its worst drought in recorded history. The period from 2000 through 2018 marks the driest 19-year period in more than 100 years of record-keeping on the Colorado River. In the first five years of this present drought, storage in the River system reservoirs declined approximately 30 MAF, from nearly full to about half of capacity; the system was less than half-full at 47 percent of capacity at the end of WY 2018.

Through this period of persistent drought, water conservation and storage activities implemented since 2007 have added approximately 2.0 MAF to Lake Mead storage, bolstering its elevation by nearly 25 feet at current lake levels. This additional water stored and conserved in Lake Mead effectively kept the Lower Basin out of a shortage condition every year since 2016.

While these water conservation and storage activities have been successful, Lake Powell and Lake Mead remain at risk of declining to critically low elevations under sustained and severe drought. The Interior Department and Reclamation continued to work collaboratively with our partners to develop consensus-based "drought contingency plans" in both the Upper and Lower Basins until new operational guidelines can be developed by 2026 to address the long-term sustainable operation of the Colorado River System. The Lower Basin's proposed drought contingency plan is comprised of proactive water conservation and system efficiency improvement actions to be taken by water users in Arizona, California, and

The impact of drought on Lake Mead can be seen in this photo of Temple Bar Marina in Arizona, where more than 1/4 mile separates the on-shore campground, resort, and restaurant from the water-based boating facilities.

Nevada, and by Reclamation, and additional operational flexibility to promote the creation and long-term storage of conserved water. These actions will result in additional water in Lake Mead and a significant reduction in the risk of reaching critically low elevations.

Below are summaries of key programs that are already helping to conserve water in Lake Mead.

Lower Basin Drought MOU

On December 10, 2014, Reclamation signed a Memorandum of Understanding (MOU) for Lower Basin Pilot Drought Response Actions with Arizona, California, and Nevada, the Southern Nevada Water Authority (SNWA), The Metropolitan Water District of Southern California (MWD), and Central Arizona Water Conservation District (CAWCD). Under this MOU, the parties agreed to use "best efforts" to implement further voluntary measures designed to add to storage in Lake Mead. The MOU established goals to create 740,000 AF of protection volume for Lake Mead by the end of 2017, and between 1.5 and 3.0 MAF in total by the end of 2019. Estimates indicate that approximately 900,000 AF of protection volume was created by the end of CY 2017, exceeding the goal of 740,000 AF. Additional voluntary contributions totaling approximately 200,000 AF were made in CY 2018.

System Conservation

In FY 2015, Reclamation initiated the Pilot System Conservation Program (PSCP), voluntary compensated efforts to conserve water in Lake Powell and Lake Mead for the benefit of all Colorado River System users with Denver Water, CAWCD, MWD, and SNWA. Participants in the PSCP represent all seven Basin States and are comprised of agricultural, municipal, and tribal entities.

Portions of Hoover Dam's intake towers that are usually covered by water reflect a low elevation at Lake Mead of 1088 feet above sea level in this March 2018 photo. When full, the reservoir is near elevation 1220.

At the end of FY 2018, $21.9 million (with approximately 46 percent funded by Reclamation and 54 percent from the non-federal partners) had been allocated for Lower Basin projects that will ultimately conserve approximately 147,000 AF, or about two feet of Lake Mead elevation.

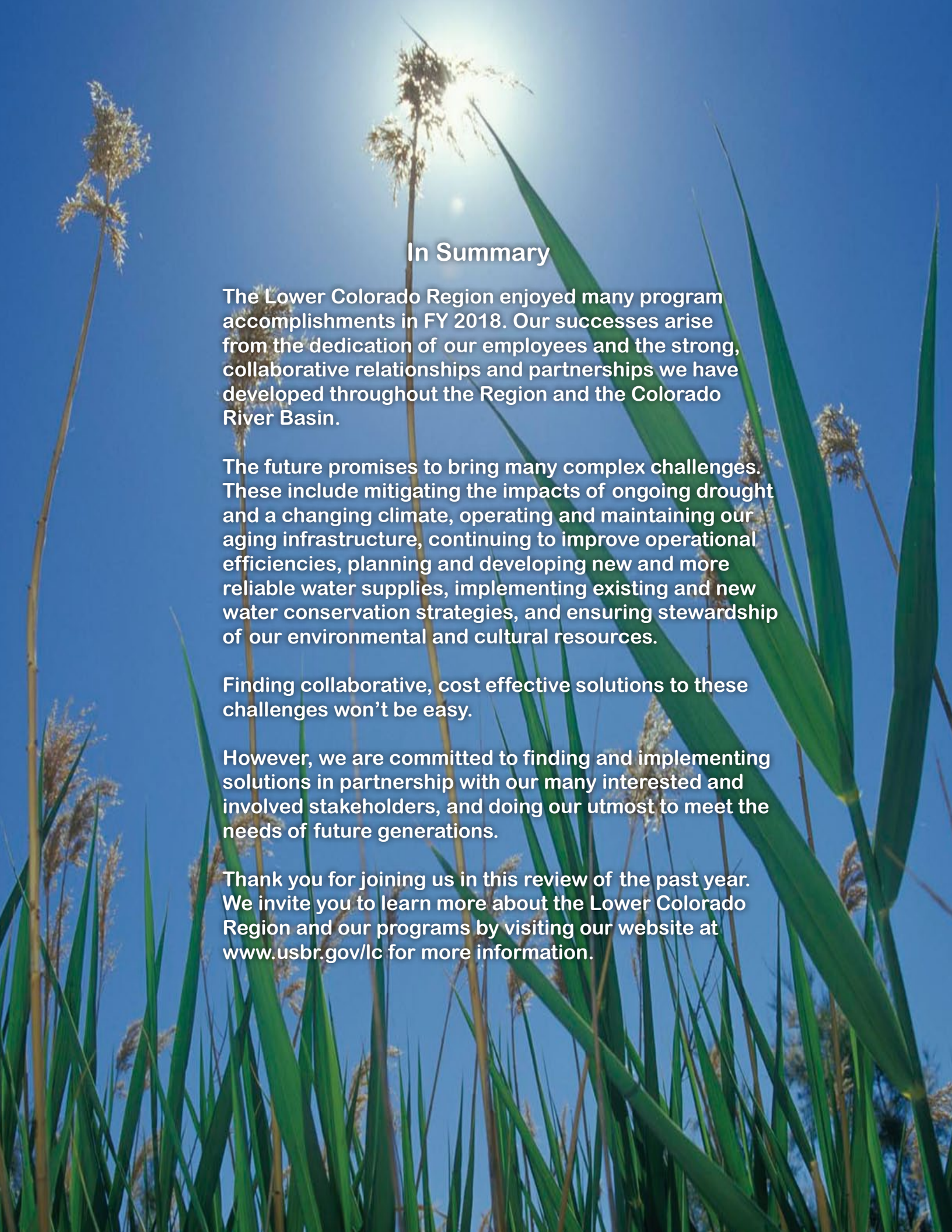
Binational Cooperation

The Colorado River is shared between the United States and Mexico pursuant to the 1944 Water Treaty that addresses both operational issues and allocation of the river between the two countries. The Treaty also provides a mechanism for adoption of binational agreements to address issues that arise during Treaty implementation. These implementing agreements are known as "Minutes" to the 1944 Water Treaty, and are negotiated under the authority and direction of the U.S. State Department and the U.S. Section of the International Boundary and Water Commission (IBWC) and their counterparts in Mexico.

Through a binational cooperative process that began in 2007, Reclamation has been working in partnership with the seven Colorado River Basin States, IBWC, and Mexico to develop binational approaches to address water conservation, responses to historic drought, and environmental enhancement along the Colorado River in the border region.

In September 2017, after more than two years of negotiations, the U.S. and Mexico signed Minute 323 to the 1944 Water Treaty. Adopted to be in force through 2026, it provides an additional nine years of operational certainty for both U.S. and Mexico water users by extending proactive, cooperative reservoir management strategies previously agreed to in 2012 through Minute 319. Minute 323 also includes a new concept of a "Water Scarcity Contingency Plan" whereby additional water savings will be implemented by Mexico when Lake Mead reaches certain low reservoir elevation conditions. This innovative program will only take effect upon the execution of a Lower Basin Drought Contingency Plan in the U.S., which is under active negotiation.

In FY 2018, Reclamation continued to implement the provisions of Minute 319, and worked to implement Minute 323. These provisions include the sharing of hydrologic and operational information with Mexico, storing of deferred Mexican water in U.S. reservoirs, and further implementation of environmental enhancement projects through an ongoing binational work group process. Efforts by these topic-specific, multi-stakeholder groups (that include federal, state, local, and non-governmental organization participants from both nations) will continue in 2019 and during the remaining term of Minute 323.



In Summary

The Lower Colorado Region enjoyed many program accomplishments in FY 2018. Our successes arise from the dedication of our employees and the strong, collaborative relationships and partnerships we have developed throughout the Region and the Colorado River Basin.

The future promises to bring many complex challenges. These include mitigating the impacts of ongoing drought and a changing climate, operating and maintaining our aging infrastructure, continuing to improve operational efficiencies, planning and developing new and more reliable water supplies, implementing existing and new water conservation strategies, and ensuring stewardship of our environmental and cultural resources.

Finding collaborative, cost effective solutions to these challenges won't be easy.

However, we are committed to finding and implementing solutions in partnership with our many interested and involved stakeholders, and doing our utmost to meet the needs of future generations.

Thank you for joining us in this review of the past year. We invite you to learn more about the Lower Colorado Region and our programs by visiting our website at www.usbr.gov/lc for more information.

The Colorado River winds its way through the desert landscape near Bullhead City, AZ (left) and Laughlin, NV.

Supplemental Materials

RECLAMATION
Managing Water in the West

Label	Southern California Tribe Name
1	Agua Caliente
2	Augustine
3	Cabazon
4	Cahuilla
5	Campo
6	Capitan Grande
7	Ewiiaapaayp
8	Iipay
9	Inaja
10	Jamul
11	La Jolla
12	La Posta
13	Los Coyotes
14	Manzanita
15	Mesa Grande
16	Morongo
17	Pala
18	Pauma
19	Pechanga
20	Ramona
21	Rincon
22	San Manuel
23	San Pasqual
24	Santa Rosa
25	Soboba
26	Sycuan
27	Torres-Martinez
28	Twenty-Nine Palms

This map is intended for general informational purposes only. It is not intended to be used for description or authoritative definition of location or legal boundary. Prepared by the Bureau of Reclamation, Lower Colorado Region, 2018 update.

Lower Colorado Region

Offices	Location
Boulder Canyon Operations Office	Boulder City, NV
Lower Colorado Dams Office	Hoover Dam
Lower Colorado Region Headquarters	Boulder City, NV
Phoenix Area Office	Glendale, AZ
Southern California Area Office	Temecula, CA
Yuma Area Office	Yuma, AZ

Legend

- Dam without powerplant
- Dam with powerplant
- Other powerplants
- Reclamation Office
- Canal or Aqueduct
- Indian Reservation
- Water Users Service Area
- Irrigation District
- Lower Colorado Area
- Phoenix Area
- Southern California Area
- Yuma Area
- MODE Main Outlet Drain Extension

0 50 100 Miles

Bureau of Reclamation Regions

The Secretary of the Interior is the "water master" for the last 688 miles of the Colorado River in the United States. The Lower Colorado Region implements many of the water master functions on behalf of the Secretary. In a normal year, the Region delivers 7.5 million acre-feet of Colorado River water to Arizona, California, and Nevada. In addition,1.5 million acre-feet of water is delivered annually to Mexico in accordance with the 1944 Water Treaty. This water is used to irrigate about 2.5 million acres of land in the U.S. and Mexico, and helps meet the needs of more than 25 million people, including Native American tribes and communities. Hoover, Davis, and Parker hydroelectric powerplants annually generate nearly 6 billion kilowatt-hours of electricity, enough energy to meet the needs of 2 million people. These dams also provide significant flood control and recreational benefits.

Lower Colorado Region Employees

Patricia Aaron • Angela Adams • Pamela Adams • Elissa Aguilar • Genevieve Allan • Megan Allen • Aaron Alton • Jesus Alvarado • Aimee Amador Cort Ancman • Jeffrey Anderson • Laken Anderson • Lisa Anderson • Tracy Anderson • Kevin Andrews • Angela Aniasco • John Arcenas • David Arend Michael Arend • Randolph Argote • William Arndt • Christopher Arnold • Jessica Asbill-Case • Andrew Ashby • Douglas Ashford • Bradley Ashwood Patrick Atkinson • Eugene Authery • Alfonso Avila • Elise Baer • Brian Baker • Jason Baker • Micheal Baker • Sarah Baker • Scott Baker Derek Ball • Thomas Ballman • Dianne Bangle • Michael Banting • Aaron Baptista • Todd Baribault • Robert Baron • Brandon Barrow • Jeffrey Barth Gary Bartusch • Thomas Basinger • James Beadnell • Richard Beard • Gabriel Beck • Christopher Becks • Bryan Bedoya • Dustin Bedoya • Katherine Bedoya Sheldon Bedoya • Joseph Beebe • Bradley Belford • Larissa Bell • Alexander Belous • Fernando Beneduce • Kelly Bergin • Michael Bernardo Alexander 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as of September 30, 2018

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Gordon Matzinger • Peter Maynard • Brittany McAleese • Bruce McBride • Donald McBride • Charles McCaughey • Jennifer McCloskey • Marc McClung
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James Myers • Mario Najarro • Beverly Nelson • Jon Nelson • Kaylee Nelson • Kelli Nelson • Willie Nelson • Jason Nemeth • Marcia Nesby
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Patricia Torres • Pedro Torres • Ronnie Torres • Deborah Tosline • Daniel Townsend • Andrew Trader • Jeremy Tripp • Tanya Trone • Andrew Trouette
Andrew Trujillo • Phyllis Tsosie • Edith Tucker • Taiari Ubbens • Michael Udomratsak • Caireen Ulepic • Daniel Umshler • Sandra Vaden • Paul Valdez
Derek Valentine • Patricia Vanderwal • Dennis Vanryckeghem • Gustavo Varela • Douglas Varner • Laura Vecerina • Daniel Vernon • Edward Virden
Nisan Vue • William Waddilove • Stacy Wade • Maria Wallior • Christopher Wallis • James Wambeke • Bart Wapler • Nathalie Washington • Zachary Waters
Ashlie Way • Henry Weckesser • Rebecca Weir • John Weiss • Valerie Weisser • Veronica Welch • Scott Wells • George Wendt • Crystal White
Julie White • Dwight Whitlow • Vivian Whitlow • Debra Whitney • Mark Wilkinson • Dedina Williams • Rusty Williams • Sandra Williamson • Eric Willson
Nicole Wilson • Mark Wilson • Terri Wilson • Brenda Wilson • Brian Wingfield • Tanya Wirth • Troy Wirth • Edward Wisner • Amy Witherall
Corinna Wittig • Nicholas Wolf • Dennis Wolfe • George Wolfe • Ty Wolters • Cheri Woodward • Melissa Worthen • Linda Wright-Mitchell
Damon Yabo • Tess Yiamarelos • Gloria Yoakum • Helena Yomantas • Elizabeth Young • Gary Zahlen • Katherine Zander • Alexis Zegers • Anthony Zeppetella
Kevin Zito • Christopher Zurkan

Arizona landscape, Roosevelt Dam

Regional Management Team

Regional Director
Terry Fulp

Deputy Regional Director
Jennifer McCloskey

Deputy Regional Director
Jaci Gould

Chief of Staff
Michael Bernardo

Safety & Occupational Health Office
Juli Smith

Lower Colorado Dams Office
Len Schilling

Phoenix Area Office
Leslie Meyers

Southern California Area Office
Jack Simes (Acting)

Yuma Area Office
Maria Ramirez

Acquisitions & Assistance Management Office
Beverly Nelson

Boulder Canyon Operations Office
Steve Hvinden

Engineering Services Office
Nathaniel Gee

Equal Employment Opportunity Office
Brittany Johnson

Financial Management Office
Stacy Wade

Human Resources Office
John Cardiff

Information Management & Technology Office
John Ricker

Lower Colorado River Multi-Species Conservation Program
John Swett

Power Office
Dave Arend

Public Affairs Office
Patti Aaron

Resource Management Office
Mary Reece

Security Office
Dan Cowden

Offices and Facilities

Our activities are accomplished through the cooperative, coordinated efforts of several offices. We also work closely with federal, state and local entities; Indian Tribes; water and power constituents; environmental groups; and other interested groups to achieve our goals.

Regional Office

Location: Boulder City, NV

Area of Operation: Primarily southern Nevada and southern Utah; works with Area Offices to accomplish Region's programs.

Major Responsibilities: The Regional Director and Deputies oversee and have overall management responsibility for Regional activities. Program offices – Acquisitions and Assistance, Equal Employment Opportunity, Engineering Services, Financial Management, Human Resources, Information Management and Technology, Native American Affairs, Power, Public Affairs, Resource Management, Safety and Occupational Health, Security, and Lower Colorado River MSCP – direct, manage or work closely with Area Offices to accomplish various programs and activities.

Contact: Lower Colorado Regional Office, Bureau of Reclamation, PO Box 61470, Boulder City NV 89006
Phone: (702) 293-8000 Web site: www.usbr.gov/lc

Boulder Canyon Operations Office

Location: Boulder City, NV

Area of Operation: Colorado River from Lee Ferry in northern Arizona to Davis Dam north of Laughlin NV/Bullhead City, AZ

Major Responsibilities: Supports the Region's water and hydropower management efforts. Works closely with the Yuma Area Office, Lower Colorado Dams Office, water and power contractors, Indian tribes, and others to manage and schedule water and power operations on the lower Colorado River. Develops and administers water delivery contracts. Accounts for annual Colorado River water use in the Lower Basin and deliveries to Mexico. Oversees the regional water conservation program.

Contact: Boulder Canyon Operations Office, Bureau of Reclamation, PO Box 61470, Boulder City NV 89006
Phone: (702) 293-8400 Web site: www.usbr.gov/lc/riverops.html

Lower Colorado Dams Office

Location: Headquartered at Hoover Dam

Area of Operation: Manages, operates and maintains Hoover, Davis and Parker Dams and their associated powerplants and facilities.

Major Responsibilities: Through coordinated operations with Boulder Canyon Operations and Yuma Area Offices, delivers reliable water supply to contractors in Arizona, Nevada, California, and to Mexico. Generates power that is marketed in the three states under long-term contracts. Operates dams to provide flood protection when needed. Manages public tours of Hoover Dam; about six million people a year visit this iconic engineering structure.

Contact: Lower Colorado Dams Office, Bureau of Reclamation, PO Box 60400, Boulder City NV 89006
Phone: (702) 494-2301 Web site: www.usbr.gov/lc/hooverdam/lcdo.html

Phoenix Area Office

Location: Glendale, AZ

Area of Operation: Most of Arizona and the Gila River Basin in western New Mexico.

Major Responsibilities: Oversees the operation and maintenance of the Salt River and Central Arizona Projects, both of which are owned and constructed by Reclamation, but are managed by other entities. Maintains an oversight role with the entities that manage recreation at the New Waddell Dam reservoir and canal-side facilities developed on Reclamation-owned project lands. Partners with state, local and tribal governments and others to address contemporary water management needs. Works with the Department of the Interior and others to implement Indian water rights settlements.

Contact: Phoenix Area Office, Bureau of Reclamation, 6150 W. Thunderbird Rd., Glendale AZ 85306
Phone: (623) 773-6200 Web site: www.usbr.gov/lc/phoenix/

Southern California Area Office

Location: Temecula, CA

Area of Operation: California south of the Tehachapi Mountains except for the Imperial, Coachella, and Colorado River valleys.

Major Responsibilities: Supports and cooperates with southern California water agencies, tribes, and others to develop or enhance their water supplies or improve their water management practices. Administers water conservation, wastewater reclamation and reuse projects, desalination research, and drought assistance programs. Provides technical assistance to Indian tribes, and supports water resources planning activities throughout Southern California.

Contact: Southern California Area Office, Bureau of Reclamation, 27226 Via Industria, Ste. A, Temecula CA 92590 Phone: (951) 695-5310 Web site: www.usbr.gov/lc/socal/

Yuma Area Office

Location: Yuma, AZ

Area of Operation: Lower Colorado River below Davis Dam; southwestern Arizona and southeastern California.

Major Responsibilities: Coordinates with Boulder Canyon Operations and Lower Colorado Dams Offices to schedule and deliver Colorado River water to users in southwest Arizona, southeast California, and Mexico. Operates and maintains large-scale well fields to help maintain water tables near Yuma. Oversees the Yuma Desalting Plant, one of the world's largest reverse osmosis desalination facilities. Conducts advanced water treatment research at a state-of-the-art research center. Participates in water conservation outreach and demonstration projects with local irrigation districts and Native American tribes. Maintains the river system including levees and other Reclamation facilities, and provides oversight of transferred works.

Contact: Yuma Area Office, Bureau of Reclamation, 7301 Calle Agua Salada, Yuma AZ 85364
Phone: (928) 343-8100 Web site: www.usbr.gov/lc/yuma/

Acronyms

AF	acre-feet
AOP	Annual Operating Plan for Colorado River Reservoirs
ASI	Annual Site Inspection (Safety of Dams)
AWSA	Arizona Water Settlements Act
BLM	Bureau of Land Management
CAP	Central Arizona Project
CAWCD	Central Arizona Water Conservation District
CR	Comprehensive Review (Safety of Dams)
CRIT	Colorado River Indian Tribes
CWMP	Cooperative Watershed Management Projects
CY	Calendar Year (Lower Basin operations)
EAP	Emergency Action Plan
EIS	Environmental Impact Statement
EPMT	Exotic Plant Management Team
FY	Fiscal Year
GRIC	Gila River Indian Community
HCP	Habitat Conservation Plan
IBWC	International Boundary and Water Commission
kWh	kilowatt-hour (a measure of energy needed to make something work)
LCR MSCP	Lower Colorado River Multi-Species Conservation Program
Lower Basin States	Arizona, California, Nevada, New Mexico, and Utah
Lower Division States	Arizona, California, and Nevada

MAF	million acre-feet
MOU	Memorandum of Understanding
MW	megawatt (a measure of power)
MWD	The Metropolitan Water District of Southern California
NEPA	National Environmental Policy Act
NGS	Navajo Generating Station
NPS	National Park Service
PFR	Periodic Facility Review (Safety of Dams)
P-MIP	Pima-Maricopa Irrigation Project
PSCP	Pilot System Conservation Program
RO&M	Review of Operations and Maintenance
SNPLMA	Southern Nevada Public Lands Management Act
SNWA	Southern Nevada Water Authority
SOP	Standing Operating Procedures
SWEP	Small Scale Water Efficiency Projects
Upper Basin States	Colorado, New Mexico, Utah, and Wyoming
Upper Division States	Colorado, New Mexico, Utah, and Wyoming
WCFSP	Water Conservation Field Services Program
WEEG	Water and Energy Efficiency Grants
WY	Water Year (October 1 through September 30; Upper Basin operations)
YDP	Yuma Desalting Plant