RECLAMATION
Managing Water in the West

U.S. Department of the Interior
Bureau of Reclamation

ETA

Efficiency
Transparency
Accountability

June 2012

Enjoying America's Great Outdoors

Reclamation offers variety in recreation options

On January 19, the President issued an Executive Order to promote domestic and international tourism throughout the United States. The order highlights something we as citizens know and appreciate: this country has myriad sites – sparkling wild and scenic rivers, majestic national parks and treasured regional and state areas, famed historical and cultural venues and other important locales that we are proud to frequent and share with others. In fact, the Bureau of Reclamation can boast the existence of numerous exceptional sites within our collection of projects that are a draw for the public.

Many readers will be familiar with Reclamation's landmark historic dams and lakes. Who among us cannot recall a special childhood memory of the great outdoors? Perhaps it was spotting the blue oasis of Lake Mead for the first time, experiencing the stately grandeur of Hoover Dam, or the sheer magnitude of Grand Coulee Dam and the vastness of Lake Roosevelt or the memory of a scenic hike, a lazy day on the water or camping and fishing on a beautiful spot such as Shasta Lake? Excursions such as these have the makings of indelible memories. But Reclamation actually has much more in store.

Dionne Thompson
Chief, Congressional and Legislative Affairs

Reclamation provides first-rate opportunities for visitors to enjoy recreational, educational and other prime tourist experiences across the West. As a matter of fact, Reclamation sites have more than 90 million visitors annually. Our 289 recreation areas are among the nation's most popular. In addition, Reclamation oversees a rich variety of properties that are included in the National Register of Historic Places. Some are engineering works, such as Hoover Dam, some are archaeological sites providing information about people who lived on Reclamation lands long ago, and still others are buildings and structures acquired in association with project development. The majority of these tourism opportunities are provided to the public through highly effective partnerships with other federal, state and local entities. These tourism magnets represent special opportunities for national and international visitors.

> "Reclamation sites have more than **90 million** visitors **annually**."

As Wallace Stegner once wrote, "being footloose has always exhilarated us." For him, the road always led west. As we manage western water, we can take the time to appreciate the unique opportunities our occupations provide and help others enjoy the bounty of what Reclamation has to offer.

KEEPING THE LIGHTS ON

Hydroelectric efficiencies mean cleaner, more abundant energy

The Bureau of Reclamation is the second largest producer of hydroelectric power in the United States. It owns and operates 53 power plants, provides almost 15,000 megawatts of capacity and generates about a billion dollars of revenue for the Department of Treasury from hydropower generation. This is enough energy to provide more than 3.5 million homes with electricity for a year.

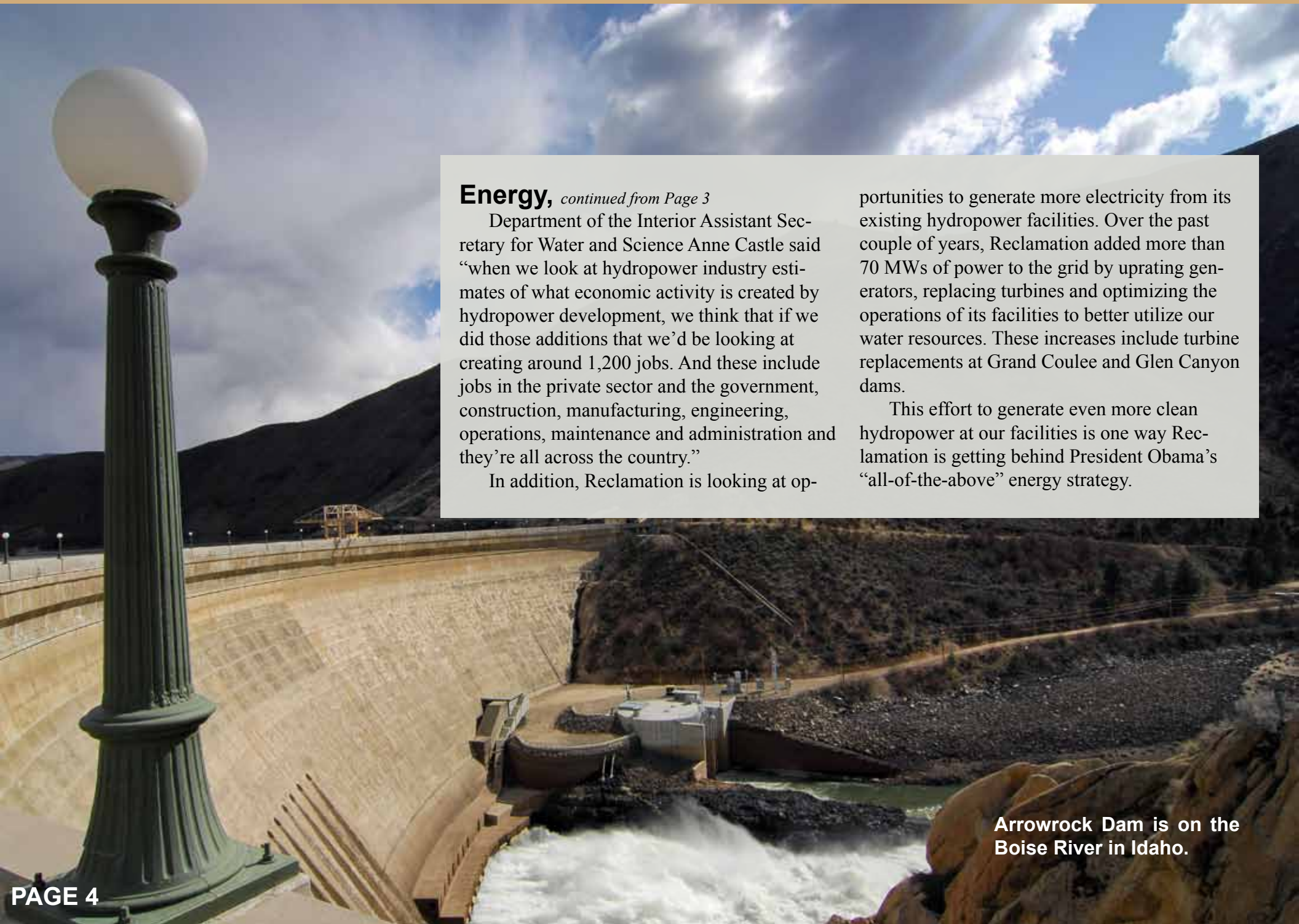
In addition to these 53 plants, there are 81 plants that have been developed by non-federal entities at Reclamation facilities. These plants have more than 1,300 MWs of generating capacity, so together with these non-federal partners there are 134 plants with more than 16,000 MWs of generating capacity on Reclamation sites. But Reclamation is always looking for opportunities to do more.

Over the last few years, Reclamation has conducted hydropower resource assessments to determine the potential for additional hydropower generation at Reclamation's non-powered dams and canals. In 2011, Reclamation released the ***Hydropower Resource Assessment at Existing Reclamation Facilities*** report. This report identified 191 sites, primarily on non-powered dams, with the potential for developing 268 MWs of capacity and almost 1.2 million MWh of annual energy production. If each of these sites were developed they would provide enough electricity to power more than 104,000 households annually.

An integral part of this report is the hydropower assessment tool. This tool is a software program that allows interested parties to change the parameters of any particular site and reevaluate that site based on those parameters. Therefore, if a developer believes site conditions or economics to be different than the assumptions made in the report, they can get an evaluation based on those revised parameters.

In April, a follow-up report to the resource assessment was published focusing the potential for low-head hydropower development on Reclamation's 47,000 miles of canals, conduits, laterals, drains, pipelines and tunnels. This ***Site Inventory and Hydropower Energy Assessment of Reclamation Owned Conduits*** report identifies 373 sites that have the potential to generate more than 365,000 MWh of electricity. This supplemental assessment report indicates that there is additional potential for hydropower generation from canals and conduits in 13 of the western states, with the highest concentration of additional capacity in Colorado, Oregon and Wyoming. Combined with the generation potential identified in the resource assessment, there is enough hydropower development potential on non-powered Reclamation sites to provide the electricity needs of up to 136,500 households annually.

Energy, *continued on Page 4*



Energy, *continued from Page 3*

Department of the Interior Assistant Secretary for Water and Science Anne Castle said "when we look at hydropower industry estimates of what economic activity is created by hydropower development, we think that if we did those additions that we'd be looking at creating around 1,200 jobs. And these include jobs in the private sector and the government, construction, manufacturing, engineering, operations, maintenance and administration and they're all across the country."

In addition, Reclamation is looking at opportunities to generate more electricity from its existing hydropower facilities. Over the past couple of years, Reclamation added more than 70 MWs of power to the grid by uprating generators, replacing turbines and optimizing the operations of its facilities to better utilize our water resources. These increases include turbine replacements at Grand Coulee and Glen Canyon dams.

This effort to generate even more clean hydropower at our facilities is one way Reclamation is getting behind President Obama's "all-of-the-above" energy strategy.

Arrowrock Dam is on the Boise River in Idaho.

WORKING TOGETHER

Hydropower resources are increasing through partnership

The Department of the Interior, Department of the Army and Department of Energy ratified a Memorandum of Understanding two years ago to meet the nation's needs for hydropower. In a progress report released on April 16, the agencies reported they have significantly advanced the potential development of hydropower generation in the United States.

Speaking at the annual meeting of the National Hydropower Association in Washington, D.C., Assistant Secretary for Water and Science Anne Castle told the conferees "Through collaboration and partnerships among federal agencies, the hydropower industry, the research community and numerous stakeholders, we are succeeding in advancing the development of hydropower as a clean, reliable, cost-effective and sustainable energy source."

The two-year progress report highlights the collaborative accomplishments of the three departments to advance development of hydropower generation as part of President Obama's comprehensive energy strategy.

This cooperation and collaboration has led to advances in hydropower technology, streamlining of the licensing and permitting process, assessing the potential for adding hydropower generation at existing facilities and the development of a database for all existing U.S. hydropower infrastructure.

The various agencies have accomplished quite a bit through this agreement.

Reclamation completed its assessment of adding power to existing facilities in March 2011 that found 1.2 million MWh annually could be generated. A supplement to that report released this April found that an addition potential of 365,219 MWh could be generated at canal sites across the west.

Developing tools for optimizing the operation of hydropower facilities and evaluating the potential for state-of-the-art upgrades and modernizations was another completed task. Reclamation completed a study in October 2010 assessing the potential for capacity increases at its 58 power plants.

It determined that there is a potential of 67 MWs of additional capacity at ten of Reclamation's 58 power plants. Newer and more efficient turbines could be added at 36 plants and their annual generation could be increased by more than three percent, or about 388,357 MWh per year.

The future commitment to hydropower is great among the agencies with several projects planned through the MOU. One such effort is Reclamation's pump storage study. This new study examines the feasibility of converting existing conventional hydroelectric facilities to pumped storage facilities. This study will be limited to conventional facilities that already have an upper and lower reservoir. If the conversion is feasible, benefits could be gained by using these resources to regulate other non-dispatchable renewable energy such as wind and solar.

To read the *Two-Year Progress Report on the Memorandum of Understanding for Hydropower* and to learn more about Reclamation's Hydropower Program, please visit ***www.usbr.gov/hydropower***.

Pathways is route from student to career

It has been said that "a journey of a thousand miles begins with a single step." These days, no first step is likely more important than the first job that launches a budding career.

At Reclamation, managers strive to make that first job count for young workers and for the American people under the banner of the Department of the Interior's successful youth initiative. The focus of the initiative is the education, engagement and employment of aspiring young people into their chosen career path.

Some youth hires begin their work with Reclamation modestly – refurbishing trails and facilities through temporary positions created under the Public Lands Corps Act. In partnership with the Student Conservation Association and conservation corps across the West, many young people have discovered the value and rewards of hard work through these simple tasks.

"Reclamation managers are finding more and more ways to use youth crews or youth corps partnerships when funding is available," says Amy Sjerven of the Denver Program Services Office. "This unique authority and the partnerships we've built across Reclamation give us a great way to get the work accomplished and help a young person with that first job opportunity."

For many years, two authorities granted to the federal sector were the Student Career Experience Program and the Student Temporary Employment Program. SCEP provided real-world job experiences to students in their related field while STEP offered a short-term job experience not necessarily related to the student's field of study. Both opportunities have helped set the stage for full-time federal employment.

The success of these programs is now the foundation of the new federal-wide Pathways program, set to launch later in 2012 after review by the Office of Personnel Management. Pathways is expected to focus the resources of the federal sector into internship and employment paths for young people.

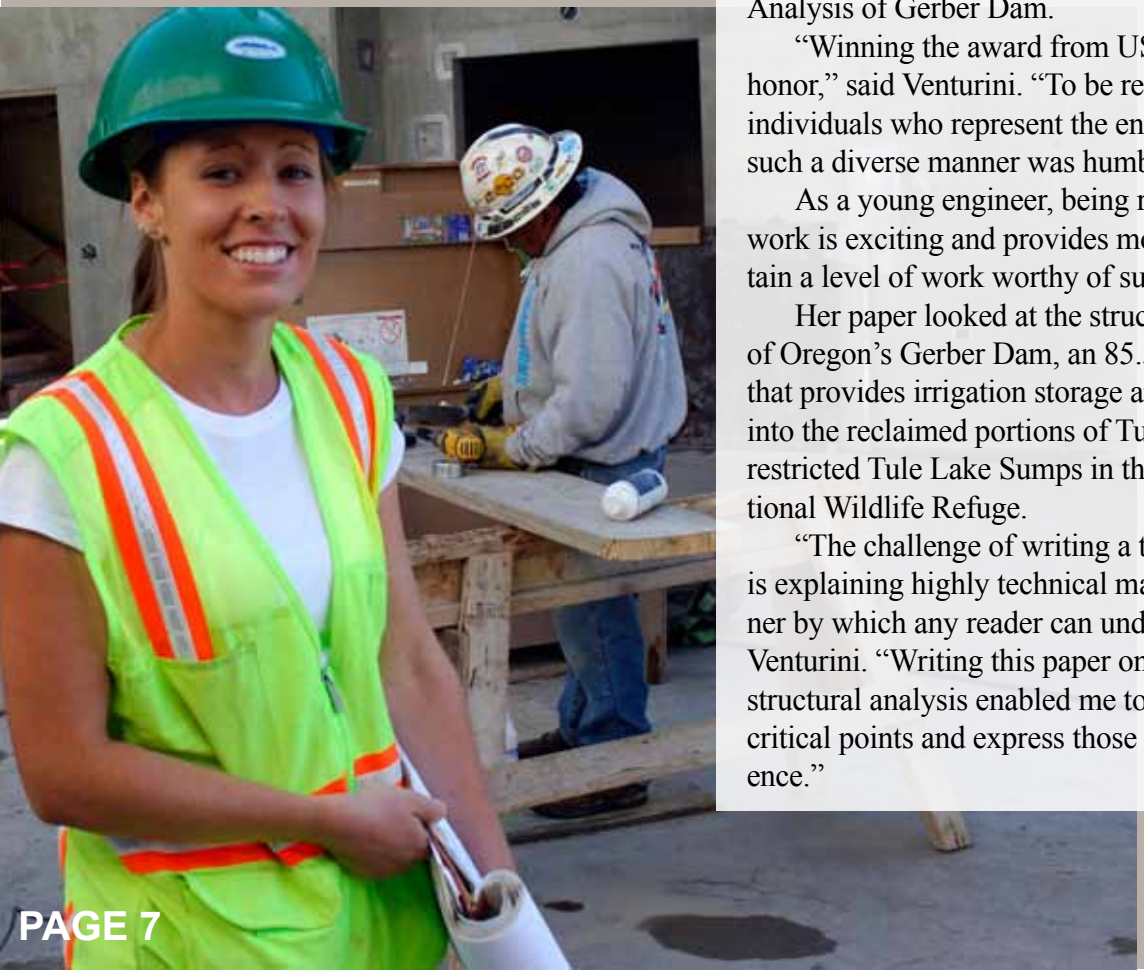
"These types of programs give young people a chance to get a close look at their chosen career," Human Resources Specialist Dwayne Robinson told ETA, who says high school students also can get experience through volunteer work-study positions created through the SCEP program and through high school for-credit programs.

Denver Technical Services Center geophysicist Dan Liechty says the SCEP program gave him a foot in the door five years ago, resulting in his full-time hire by Reclamation in 2009. "It was the obvious choice to work at Reclamation. I feel like I'm working for the greater good," said Liechty. "The SCEP program was the obvious pathway to having a quality, full-time career."

Jawann Smith, who works in Denver, also knows the value of Reclamation's youth hiring programs first-hand. He began in STEP in high school, moved into SCEP, and after college converted to a full-time HR specialist. "My experience grew the longer I was in the program," he says. "I would come back to work for the summer and would get more and more responsibility each year. This experience helps me in the HR field, when I often talk to young people about the potential for their own first federal job."

Way to go Hillery Venturini

U.S. Society on Dams awards Best Paper by a Young Professional



Hillery Venturini

It usually takes several years for an engineer to be recognized in their field, but for Hillery Venturini of Reclamation's Technical Service Center that recognition is coming early in her career. At the recent United States Society on Dams Annual Meeting, Venturini was awarded Best Paper by a Young Professional for her paper on Freeze-Thaw Deterioration on Aging Structures - Structural Analysis of Gerber Dam.

"Winning the award from USSD was an honor," said Venturini. "To be recognized by individuals who represent the engineering field in such a diverse manner was humbling.

As a young engineer, being recognized for my work is exciting and provides motivation to maintain a level of work worthy of such an award."

Her paper looked at the structural analysis of Oregon's Gerber Dam, an 85.5-foot-tall dam that provides irrigation storage and reduces flow into the reclaimed portions of Tule Lake and the restricted Tule Lake Sumps in the Tule Lake National Wildlife Refuge.

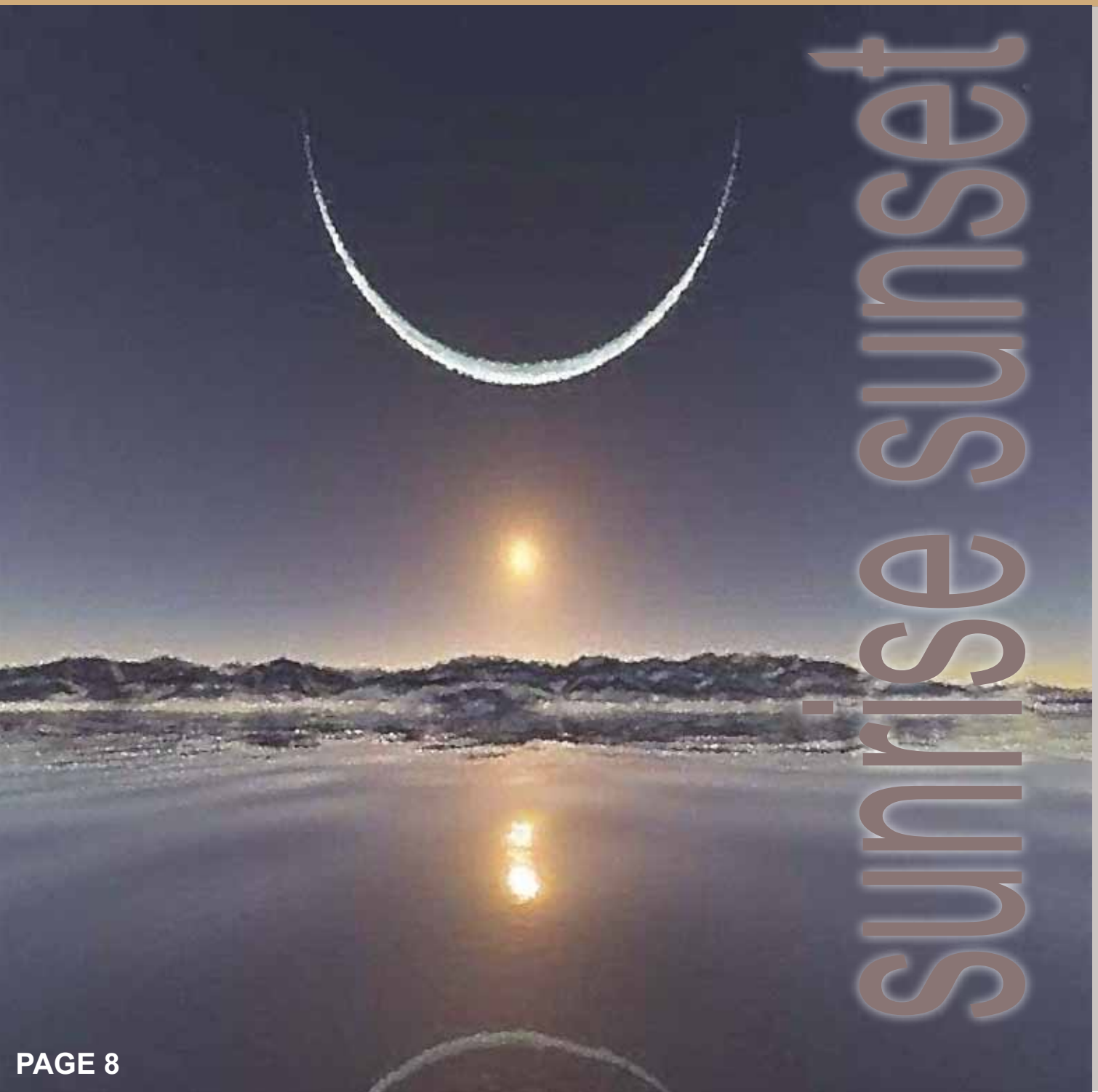
"The challenge of writing a technical paper is explaining highly technical matter in a manner by which any reader can understand," added Venturini. "Writing this paper on the Gerber Dam structural analysis enabled me to identify the most critical points and express those to a diverse audience."

Gerber dam was built in 1925 and is suffering from freeze-thaw damage, particularly the exposed downstream face of the dam where it is not thermally protected by the reservoir. In the paper, Venturini provides information on the physical inspection of the dam and computer modeling that was completed to perform a structural analysis based on the current condition.

"I was delighted that she had won this award," said Barbara Mills-Bria, Venturini's supervisor in the Technical Service Center's Structural Analysis Group. "She is self-motivated, accurate in her work and organized which has enabled her to tackle the difficult high-end analysis that we do in our group."

Venturini has worked for Reclamation for more than seven years and has been involved in multiple structural analyses of concrete dams and structures plus various aspects of design and evaluation projects. She graduated from the University of Colorado at Denver in 2006 with a bachelor of science in civil engineering.

"Working at Reclamation has been a wonderful experience," continued Venturini. "The team-based environment established by Reclamation not only produces high level products and services, but allows for younger engineers to learn from seasoned engineers eager to share their knowledge."



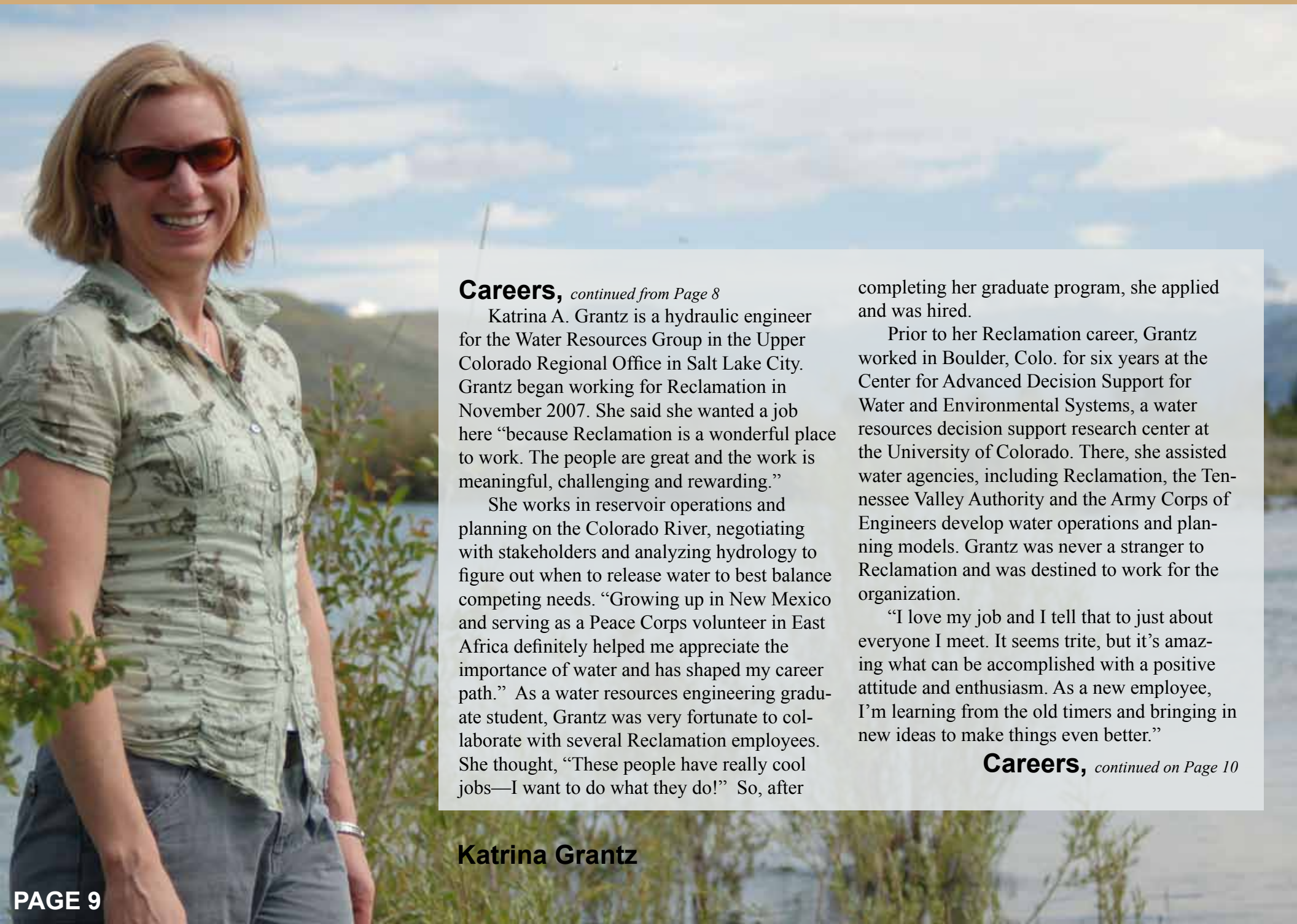
Reclamation Careers

begin, grow, change

Employees have varied opportunites

At the Bureau of Reclamation new employees are trained and developed into skilled and successful workers. Reclamation has more than 2,000 employees that have worked for less than five years the position they were originally hired and many under new positions they transitioned into over the years. There are many opportunities for employees to rotate to other positions within the agency.

Careers, *continued on Page 9*



Careers, *continued from Page 8*

Katrina A. Grantz is a hydraulic engineer for the Water Resources Group in the Upper Colorado Regional Office in Salt Lake City. Grantz began working for Reclamation in November 2007. She said she wanted a job here "because Reclamation is a wonderful place to work. The people are great and the work is meaningful, challenging and rewarding."

She works in reservoir operations and planning on the Colorado River, negotiating with stakeholders and analyzing hydrology to figure out when to release water to best balance competing needs. "Growing up in New Mexico and serving as a Peace Corps volunteer in East Africa definitely helped me appreciate the importance of water and has shaped my career path." As a water resources engineering graduate student, Grantz was very fortunate to collaborate with several Reclamation employees. She thought, "These people have really cool jobs—I want to do what they do!" So, after completing her graduate program, she applied and was hired.

Prior to her Reclamation career, Grantz worked in Boulder, Colo. for six years at the Center for Advanced Decision Support for Water and Environmental Systems, a water resources decision support research center at the University of Colorado. There, she assisted water agencies, including Reclamation, the Tennessee Valley Authority and the Army Corps of Engineers develop water operations and planning models. Grantz was never a stranger to Reclamation and was destined to work for the organization.

"I love my job and I tell that to just about everyone I meet. It seems trite, but it's amazing what can be accomplished with a positive attitude and enthusiasm. As a new employee, I'm learning from the old timers and bringing in new ideas to make things even better."

Careers, *continued on Page 10*

Katrina Grantz

Careers, *continued from Page 9*

Student Career Experience Program's Hoover Dam Mechanical Engineer Student Trainee Jonathan G. Sanchez began working for Reclamation in June 2010 and eventually became a part of the Lower Colorado Region Rope Access Team. "I not only work for a great agency which contains a vast and rich history and diversity, but I also work for an agency that works for the people and its land and environment," said Sanchez.

In Sanchez's childhood, he was a part of the Royal Rangers youth organization, which is similar to the Boy Scouts of America. In 2003, he earned the Gold Medal of Achievement, a medal with the same requirements needed to achieve an Eagle Scout Award.

"With my experience and knowledge learned, as I advance in my career within Reclamation, I plan to lead change, lead people, obtain results and build coalitions for future generations."

Sanchez is looking forward to conversion to a permanent position once he has completed his master's of science degree in mechanical engineering. "As a student trainee I have learned to always ask questions and try to learn as much as I can from others. Do your best to learn as much as you can and never stop learning. The best resource for getting a job done is by talking to people. Great communication and positive synergy are important factors in obtaining successful results."

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Jonathan Sanchez

Ray Eiley

Careers,

continued from Page 10

Ray Eiley is in Washington, D.C. and began working in October 2009 with Reclamation. He has moved within the organization five times in different positions over the years. He now holds the position as special assistant to Gray Payne, deputy commissioner policy, administration and budget. “If you like working for a relatively small government agency, where the challenges associated with any small organization are ever-present, Reclamation will be a great fit. In addition, potable water is the world’s most scarce commodity, so the work Reclamation does with and through its stakeholders carries everyday challenges and is very interesting. Never a dull moment,” said Eiley.

This year, he volunteered to manage the Reclamation basketball team in the Department of the Interior March Madness Basketball tournament. Eiley was able to build strong camaraderie among those who participated within the Washington, D.C. Office.

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Robert Morton

Careers, *continued from Page 11*

Robert Morton, like Eiley, has had his fair share of performing in different positions within Reclamation. Since June he has been a safety and occupational health specialist in New Mexico working out of the Albuquerque Area Office. Morton believes that Reclamation has one of the best work environments he's experienced, with a very friendly management and staff. He began his Reclamation career at the Albuquerque Area Office as a construction control representative in 1999, but left shortly after his wife died in 2010.

He took a construction representative position with the Department of Veterans Affairs Medical Center in Albuquerque for a grade increase and for a change in environment, which helped him readjust after his loss. "As an old-new employee, I came back to Reclamation reinvigorated and ready to continue and improve upon Reclamation's tradition of innovative safety standards and the protection of their work force and the contractors that do important work for Reclamation," Morton said.

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Careers, *continued from Page 12*

Anna Hoag is a civil engineer in Austin, Texas and began working for Reclamation on January 12. “I was offered a great opportunity to work in an ambitious office under a supervisor I know will constantly challenge and improve my skills and abilities.” Like many other Reclamation employees, Hoag began her career with Reclamation under the SCEP program working two summers in the Oklahoma City Office. This is Hoag’s first career position since earning her degree in December.

Anna Hoag

Don't pass the salt

Keep unwanted minerals out of our water

The Bureau of Reclamation is an international leader in research and development in desalination. While desalination literally means removal of salt, when referred to in water terms the definition is expanded to cover the removal of minerals of many types that make the water unusable for most purposes.

"The salinity programs really are water quality programs," Kevin Price, Reclamation's Advanced Water Treatment Research Coordinator in Denver said.

He added, "Historically, water was moved and stored to places where it was needed and the quality met very simple criteria. Today, technologies exist where underutilized impaired waters can be treated to qualities better than drinking water standards."

Reclamation has several research projects conducted across its Regions. According to Price these include the Colorado Salinity Control Program (Upper Colorado Region) and the Yuma Desalting Plant (Lower Colorado Region).

The Denver research office oversees the Desalination and Water Purification Research program for external financial assistance for universities, private sector, state and local governments and non-profits; the Science and Technology program funds internal researchers and external partnerships.

Reclamation's primary desalination or water treatment goals are: to reduce the environmental impacts of the technologies that remove the salt and to reduce the costs of existing technologies either through the development of new technologies or through improvements in existing technologies.

According to Price, "There are a number of new or improved technologies that Reclamation has supported over the years including improvements in desalting membranes, forward osmosis, membrane distillation, pressure retarded osmosis, dew vaporation and membrane bioreactors."

Over the years, Reclamation has assisted other countries apply technology developed in the United States to treat unusable water as quantities of high quality water sources have decreased.

In December, Reclamation collaborated with the New Mexico Water Resources Research Institute at New Mexico State University and hosted an international conference on these issues in Alamogordo, N.M.

Experts representing Europe, the Middle East, Africa and Australia presented some of their successful projects and demonstrated why Europe and Asia are currently considered the global leaders in this technology.

Dam sitings

Online itinerary available to guide guests to scenic locales

The summer season means that Reclamation stands ready to share its vast resources with the traveling American public. Whether boating or fishing at Reclamation reservoirs, or touring its cultural and historic sites, Reclamation provides high quality visitor experiences to Americans and international visitors throughout the West. While some dams such as Hoover are well known, others such as Derby Diversion Dam near Reno, Nev. will receive added recognition as part of a new online travel itinerary developed by Reclamation in cooperation with the National Park Service.

The itinerary entitled, ***Bureau of Reclamation Historic Dams and Water Projects: Managing Water in the West***, consists of 25 Reclamation sites, three National Historic Landmarks and 22 properties either listed in the National Register of Historic Places or eligible for listing. Designed to discover America's shared heritage, the National Park Service itineraries span all geographic regions of the country and highlight significant locations in American history, architecture, archeology, engineering and culture. The Reclamation itinerary sites are located in 11 western states and feature historic Reclamation dams and power plants that are "the fabric of our national heritage and are collectively known as cultural resources or sometimes heritage assets — they are our tangible links with the past," according to Tom Lincoln, Reclamation's preservation officer and lead for the Cultural Resources Management Program.

Sharing Reclamation's rich history was the goal of the project, and the February release of the itinerary was in timely alignment with the Travel and Tourism Executive Order issued by President Obama. The order directs the Secretaries of Commerce and Interior to lead an interagency taskforce on travel and competiveness with the goal of promoting domestic and international travel opportunities throughout the United States, thereby expanding job creation, but also to increase tourism to America's iconic destinations located on public lands. As Reclamation nears its 110th anniversary, the vast array of visitor's centers and cultural sites are of interest to cultural heritage visitors, who represent the fastest growing sector of international visitors to the United States, according to the Department of Commerce.

Hoover

Parker

Elephant Butte

Derby

Hungry Horse

Belle Fourche

On the cover: Roosevelt Dam and bridge near Phoenix.

This page: Cool weather and snow showers did not stop steelhead anglers this spring on the Salmon River outside Stanley, Idaho.

ETA is published electronically and can be found on the Bureau of Reclamation website at: ***www.usbr.gov/eta***.

For questions or comments concerning ETA, please contact ***ETA@usbr.gov*** or call 202-513-0568.