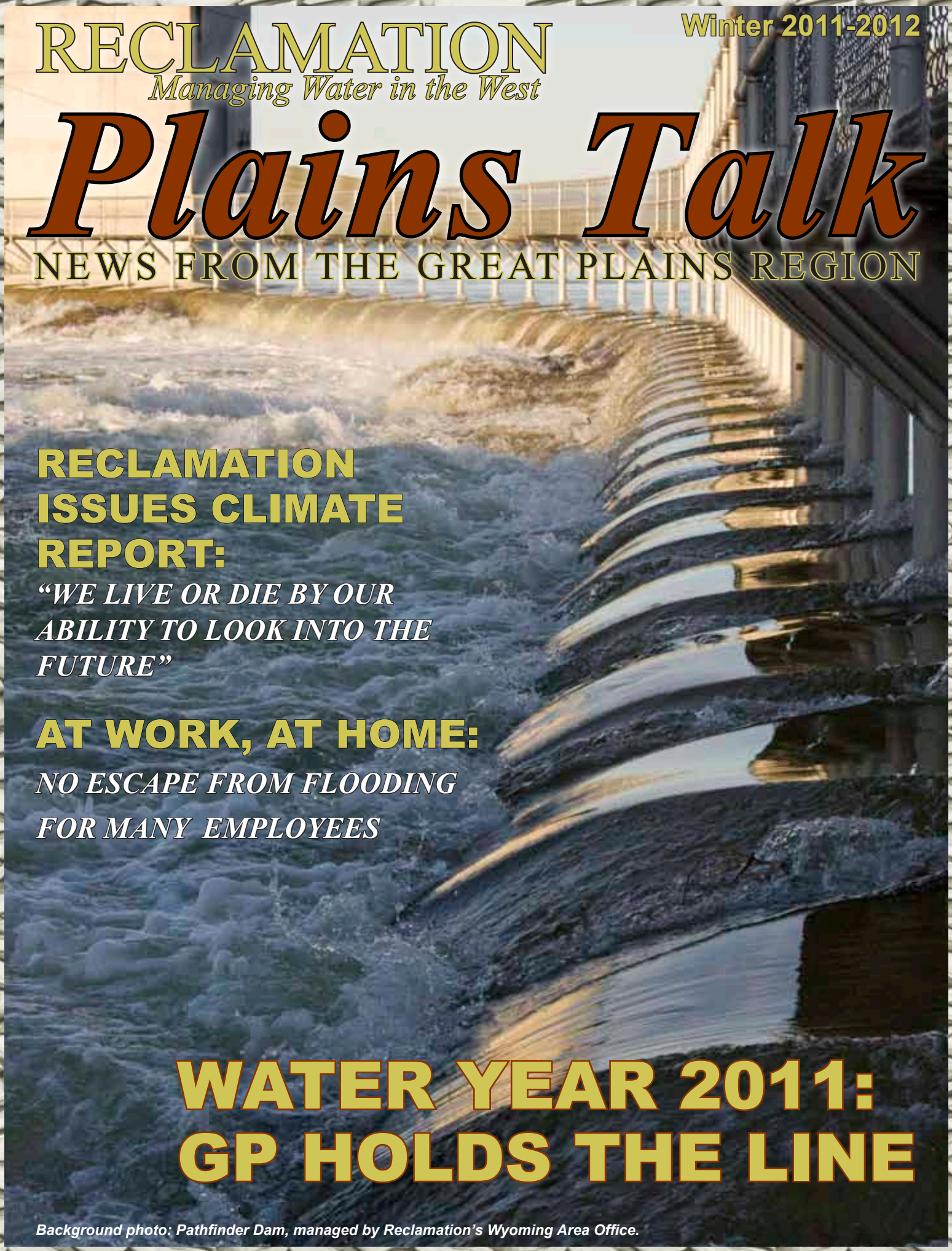
RECLAMATION
Managing Water in the West
Winter 2011-2012

Plains Talk

NEWS FROM THE GREAT PLAINS REGION



RECLAMATION ISSUES CLIMATE REPORT:

"WE LIVE OR DIE BY OUR ABILITY TO LOOK INTO THE FUTURE"

AT WORK, AT HOME:

NO ESCAPE FROM FLOODING FOR MANY EMPLOYEES

WATER YEAR 2011: GP HOLDS THE LINE

Background photo: Pathfinder Dam, managed by Reclamation's Wyoming Area Office.

Plains Talk Issue 02-2011:

PUBLISHER
Tyler Johnson

EDITOR-IN-CHIEF
Buck Feist

ASSISTANT EDITOR
Sterling Rech

GRAPHICS
Jerry Leggate
Tobias Taylor

NEWSPAPER TEAM
Paula Holwegner, Montana
Patience Hurley, Dakotas
Jay Dallman, Wyoming
Kara Lamb, Colorado
Kimberley Parish, Oklahoma & Texas
Terri Salter, Nebraska & Kansas

Plains Talk is an employee publication devoted to the interests of Reclamation's Great Plains Region.

Plains Talk is published from the Great Plains Office of Public Affairs. To be added to the *Plains Talk* mailing list, submit your name and mailing address:

Bureau of Reclamation
U.S. Department of the Interior
316 North 26th Street
Billings, MT 59101
Phone: 406-247-7610
Email: bfeist@usbr.gov

Submission Guidelines:

Articles and other materials for publication should be sent to the Great Plains Public Affairs Office, Attn: Plains Talk Editor, GP-1240, or email to bfeist@usbr.gov.

Plains Talk encourages employee submissions, and assists with developing ideas. Questions about stories or photographic essays should be directed to the *Plains Talk* editor, at 406-247-7610.

contents

contents

The Only Constant is Change

By Buck Feist, Deputy Public Affairs Officer

"We live or die by our ability to look into the future," said Mike Ryan, Great Plains Regional Director.

"It has always been that way in Reclamation. Decisions we make today are based on our best estimate of future conditions," Ryan said.

"But the 21st century has its own set of challenges," said Ryan, "and understanding this trend of variable weather patterns - climate change - is a critical challenge for our operations."

"Impacts to water are on the leading edge of global climate change, and these changes pose a significant challenge and risk to adequate water supplies, which are critical for the health, economy, and ecology of the United States."

- Commissioner Mike Connor

This spring, Secretary of the Interior Ken Salazar released a Bureau of Reclamation report providing the first coordinated assessment of risks to future water supplies across Reclamation basins.

Findings in the report include:

- *temperature increases of 5-7 F over time;*
- *precipitation increases over portions of the western U.S. and a decrease over the southwestern and south-central areas;*
- *decreases for April 1 snowpack, the benchmark used to project river basin runoff; and*
- *an eight to 20 percent decrease in annual streamflow in several river basins including the Colorado.*

"Water is the lifeblood of our communities, rural and urban economies, and our environment," said Secretary Salazar in an April 2011 news release. "And small changes in water supplies or the timing of precipitation can have a big impact on all of us.

"This report provides the foundation for understanding the long-term impacts of climate change on western water supplies and will help us identify and implement appropriate mitigation and adaptation strategies for sustainable water resource management," Salazar said.

Ryan said the ability to forecast climate and weather trends is especially vital to a natural resource agency like Reclamation.

"The men and women of the Great Plains Region maintain operations for an interwoven,

Background photo courtesy of NASA Solar Dynamics Observatory: Solar flare, Feb. 15, 2011.

multi-state system of powerplants, dams and irrigation systems that are vital to our civilization," he said.

"As stewards of these resources we are duty-bound to study all of the variables which may impact our future operations," Ryan said.

Reclamation's report shows increased risks to Western water resources during the 21st century. The report notes that projected changes in temperature and precipitation are likely to impact the timing and quantity of streamflows in all Western basins, potentially impacting water available to farms and cities, hydropower generation, fish and wildlife and other uses such as recreation.

"Impacts to water are on the leading edge of global climate change, and these changes pose a significant challenge and risk to adequate water supplies, which are critical for the health, economy, and ecology of the United States," said Reclamation Commissioner Mike Connor.

The Bureau of Reclamation released a report on climate change in April 2011. The complete report is available on-line at www.usbr.gov/gp.

Throughout the 20th century, Reclamation has demonstrated an incredible ability to adapt to unprecedented natural events, never faltering in the agency's mission of providing the critical water and power resources that helped drive our nation's economy to be the strongest in the world.

To develop the report, Reclamation used original research and existing peer-reviewed studies. Projections of future temperature and precipitation are based on multiple climate models and various projections of future greenhouse gas emissions, technological advancements, and global population estimates. Reclamation will develop future reports to address how changes in supply and demand will impact water management.

Consume enough mass media and a person might become convinced the universe is out to get us. Whether it's solar flares, the Yellowstone Caldera, or not enough fiber in your diet – the world seems to have an infinite number of challenges facing us both as a nation and as individuals.

With such a multitude problems, how does the Great Plains Region prepare itself to meet these challenges?

"It's not that we have to be 100-percent accurate to be effective," Ryan said. "But the mix of historical trends and climatological data provide a critical baseline to assist us in planning our future operations."

"For more than a century, one of the most crucial weapons in Reclamation's arsenal has been our ability to use science and technology to forecast conditions," Ryan said.

"Like those who came before us, we will face the challenges of this new century head-on," Ryan said, "and we will continue the tradition of providing the vital tools our nation needs to thrive, regardless of the challenges we face. We are an agency of problem-solvers ... give us a challenge and Reclamation will get the job done."

What Do You Do?

By Randall Ehlis, Natural Resource Specialist, DKAO

(Above) Randy Ehlis uses a piezometer to measure groundwater pressure on Jamestown Dam.

Randall Ehlis, DKAO

As a Dam Tender at the Dakotas Area Office, I spent much of this year's very long flood season monitoring two Reclamation dams in North Dakota.

With the third year in a row of record moisture, I found myself in western North Dakota, monitoring the Dickinson Dam for most of March.

In early April, with Jamestown Dam entering into flood stage, I headed east to begin extra monitoring of this dam located near Jamestown, N.D.

When the Jamestown Reservoir elevation surpassed 1,454.9 ft., we were required to take daily instrumentation readings.

Although 24-hour monitoring was not required it was determined that we would have a presence in Jamestown for the duration of the high elevation.

I split the extra monitoring workload with another Dam Tender, Ken Lake, out of DKAO.

Most days consisted of taking instrumentation readings in the morning and entering data into the DAMS database so it could be analyzed by staff in the Denver Technical Services Center.

Gathering this information took the better part of the morning, three to five hours, depending on how things go.

The rest of the day consisted of completing maintenance tasks as they were identified, working with contractors when they were needed, interacting with the community as they showed up at the dam asking questions, and doing regular inspections of the dam and surrounding facilities.

"We work seven days a week during flood season."

The maintenance tasks ranged from cleaning up garbage and debris, cleaning out the concrete channels, removing unwanted trees and vegetation, to helping with surveying needs and replacing signs around the dam.

Most days were about 10 hours long, but we were on call 24 hours a day in case a gate change was necessary. We made gate changes at all hours of the day.

We work seven days a week during flood season. This year was no exception. I worked over Easter, Memorial Day and my 29th wedding anniversary, although my wife visited me in Jamestown on that day.

It was a very long flood season this year.

Oklahoma-Texas Area Office Student Engineer Serves State During 2011 Wildfires

By Nick Garmon and Kimberley Parish, OTAO

A helicopter crew drops water over areas where the ground is still hot. The helicopter on the inside photo, piloted by Garmon, conducts an emergency evacuation.

A state of emergency was declared March 11, 2011, for all 77 Oklahoma counties.

Through the summer, the Oklahoma Army National Guard (OKARNG) remained on emergency wildfire standby, with three aviation units sharing responsibility for assigning assets and personnel to respond to wildfires.

Nick Garmon, OTAO SCEP Engineer, serves in Det. 1, C Co. 2-149 General Support Aviation Battalion. Nick is a Blackhawk helicopter pilot for a MEDEVAC unit operating from Muldrow Army Heliport in Lexington, Okla.

One of the many missions Nick's unit provides is wildfire support. He is a part-time member of the OKARNG and participates in most of the state support missions that come up on the weekends.

The weekend of July 9-10, he fought two different wildfires.

On Sat., his crew was sent to Thomas, Okla. The wildfire was not large, but the intense heat, surrounding terrain and lack of personnel kept the firefighters from putting out the blaze.

That day, the temperature in Oklahoma City reached 108 degrees, while the ground temperature near the fire soared to more on 116 degrees.

The helicopter does not have air conditioning and there is very little airflow inside the cockpit. The environment inside the cockpit is similar to driving with your car windows up.

Once on the fire, Nick's unit worked with the emergency management personnel and dropped thousands of gallons of water in areas where the firefighters were unable to reach because of surrounding terrain.

The water was extracted from surrounding farm ponds. One of the farm ponds was very exciting. In order to fill the bucket, the helicopter must hover approximately five feet above the water, which usually means that the helicopter is below the surrounding treeline.

The pond was in the middle of a burned area and relatively small. There was probably only about 10 feet of clearance on both sides of the rotor blades when dipping water. In addition, the trees, which still had embers on them, started to flare back up due to the increased airflow of the rotor wash.

According to Nick: It was fun!

On Sunday, Nick and his crew were sent to Pernell, Okla., where they again utilized local ponds to assist local firefighters and help extinguish the fire.

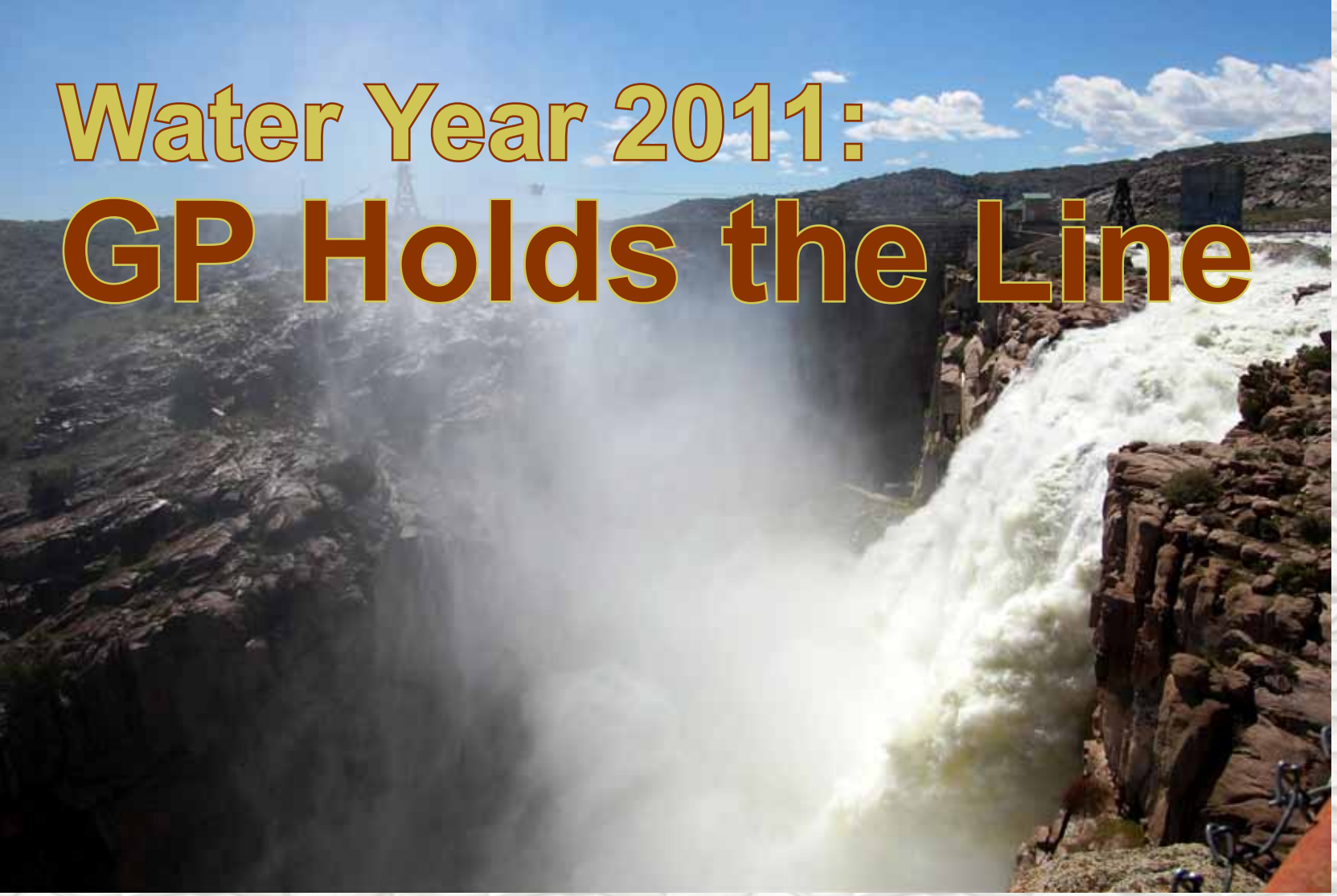
In both of the wildfires, water came from surrounding farm ponds. But, water can come from any source approximately 10 - 15 feet deep.

Sometimes this source is a Reclamation project. Water has been pulled out of Lake Thunderbird, part of OTAO's Norman Project, to help fight fires.

In addition, Lake Thunderbird is also a place where his unit conducts bucket training and over-water hoist operations periodically.

Thanks to Nick for not only his public service working for Reclamation, but also to his personal dedication to serving the public.

Water Year 2011:
GP Holds the Line



(Above) Water roars over the crest of Pathfinder Dam near Casper, Wyo., during the spring of 2011.

By Tyler Johnson, Regional Public Affairs Officer, GPRO

Spring 2011 was a historic and challenging year for Reclamation's Great Plains Region.

(Above) Record snowpack, such as at Granite Siphon in Colorado's Rocky Mountains, contributed to a historic Water Year for the Great Plains Region.

The northern part of the Great Plains Region received a year's worth of precipitation in a two week period following the buildup of an unprecedented combination of winter snowpack and a storm system that lingered over the northern basins for weeks, delivering excessive rainfall.

"I told our folks several times that a steady hand on the throttle is needed at times like these."

- Dan Jewell, MTAO

Gary Campbell, Great Plains Deputy Regional Director said, "Records were shattered across the northern tier of the region. This was an unprecedented historic event that we all will remember for our lifetimes. This event really shows the impacts of allowing construction in the 100-year flood plain and the negative impacts to peoples' lives."

Fortunately for those living near rivers and tributaries in the northern basins, Reclamation managers in Montana, Wyoming and the Dakotas were changing their tactics and creating space across Reclamation lakes and reservoirs in anticipation of the spring snowpack runoff.

Unfortunately, much of the storage space was filled by slow moving rainstorms. Great Plains Region managers were again forced

to recalculate what it would take the handle the behemoth snowpack yet to come.

Bighorn River Basin was under threat for most of the season. At one point, the elevation of Bighorn Lake jumped an unprecedented eight feet in three days. Adding to the complexity of the inflow issues, tributaries downstream of Yellowtail Dam were concurrently flooding the system.

Near Hardin, Mont., a highway bridge was under threat of getting washed out and several local landowners between St. Xavier and Hardin had water lapping at their doorsteps. At the same time, record flows in the Little Bighorn River were causing widespread flooding from Lodge Grass to Hardin and contributing significantly to high water conditions on the Bighorn River all the way to the Yellowstone River.

"It was a trying time for everybody involved, and I was extremely proud of the way our folks stepped-up under such adverse conditions," said Montana Area Manager Dan Jewell. "We were catching a lot of flak from a number of sources and the weather wasn't cooperating at all, but I told our folks several times that a steady hand on the throttle is needed at times like these."

In response to the unprecedented conditions, the Montana Area Office reduced flows dramatically from Yellowtail Dam to compensate for the deluge downstream. By maintaining daily contact with the Big Horn County Department of Emergency Services and local stakeholders throughout the event, downstream impacts were minimized.

"Close coordination with our colleagues in the Wyoming Area Office and the Regional Office, coupled with close attention to the details on a 24/7 basis helped us keep things reasonably in check," Jewell said. "There were impacts to be sure, but through the cooperation of all those involved, and a little luck, we were able to avert flows that would have easily exceeded 30,000 cubic feet per second at St. Xavier."

(Above) The Yellowstone River escapes its banks near Billings, Mont., this past June. Flooding and high river and streamflows affected much of the Great Plains Region in 2011.

Meanwhile, to the south, Wyoming's Platte River Basin

(Above) Larry Lingerfelt of ECAO rakes debris off the diversion grate on a rapidly flowing Sawyer Creek in Colo. Reclamation employees took on a historic Water Year in 2011.

(Above) Releases from Granby Dam in Colo. finally peaked between the last week of June and Fourth of July weekend.

was facing snowpack conditions that topped 200 percent of normal. Wyoming Area Manager John Lawson started preparing two months early, anticipating the need for extra space in the upper part of the Platte River system. Lawson chose Seminoe Reservoir to draft and then hold the projected inflows.

"In September 2007, the North Platte total storage was at a record low of 706,000 acre feet," Lawson said. "The wake-up call came in 2010 after having three back-to-back years of inflow far greater than the 30-year-average. By August 2010, we were actually releasing storage ownership to reduce the amount of water carried over for the coming year. We were very fortunate that we had taken steps in preparation for 2011."

Days turned into weeks and over time the snowpack gradually melted and inflows were managed.

Flows were kept high all summer to accommodate the volume of water moving from Wyoming to Montana in the north, and from southern Wyoming to Nebraska in the southern part of the state.

The inflows into Seminoe Reservoir throughout the 2011 runoff season ended up being 242 percent of the 30-year-average.

"We have taken the same action this year for 2012, and are anxiously awaiting what the snowpack may be next March," said Lawson. "We are already planning our actions for next spring should it appear to be another above average runoff year."

Perhaps the hardest hit was the Dakotas Area Office, which started early in the spring season at Jamestown Dam.

But snowmelt runoff into Jamestown Reservoir would just be the beginning of what proved a record year.

Jamestown Dam released 416,144 acre-feet of water during the 2011 Water Year (Oct. 1 to Sept. 30), beating the previous record from 2009 of 303,067 acre-feet.

The Corps of Engineers' plan to prevent flood damage along the James River and within the city of Jamestown, N.D., was to limit the combined release from Jamestown Dam and Pipestem Dam to 1,800 cubic-feet-per-second (cfs) through late September, then begin curtailing releases in preparation for winter.

However, precipitation events in mid-to-late July in the basin above Jamestown Dam caused a substantial increase in inflows and the reservoir filled again to record levels.

Consequently, the combined releases from the two dams were increased to 2,400 cfs, with the goal to evacuate the flood pool and reach the target elevation for Jamestown Reservoir of 1,431 by November 1.

Releases from Jamestown Dam are anticipated to be higher than average this winter to evacuate storage in preparation for next spring.

At Mini Wiconi Rural Water Project, an intake pump station remained under threat all season due to record releases from Oahe Dam and flood stage on the Missouri River at Pierre, S.D.

(Above) Yellowtail Dam spills into the Bighorn River in Montana.

A protective dike and sump pumps for the intake station were needed to maintain operations. The dike required around the clock monitoring and manual operation of the pumps. Temporary dikes were holding back the water, but relentless seepage and precipitation that collected within the perimeter of the dike required constant collection and control.

The temporary dike held the water back until the releases from Oahe Dam were reduced in mid-August, and the river stage receded. In addition, the wave action associated with high reservoir levels in Lake Sakakawea in N.D. and Lake Oahe in S.D. caused shoreline erosion that threatened several intake structures for rural water projects.

Dick Long, Dakotas Area Manager said, "We faced a challenging water season in the Dakotas.

"We utilized flood space in several other reservoirs in North Dakota and South Dakota to provide as much flood protection as possible during historic high releases by the Corps from the main stem dams on the Missouri River.

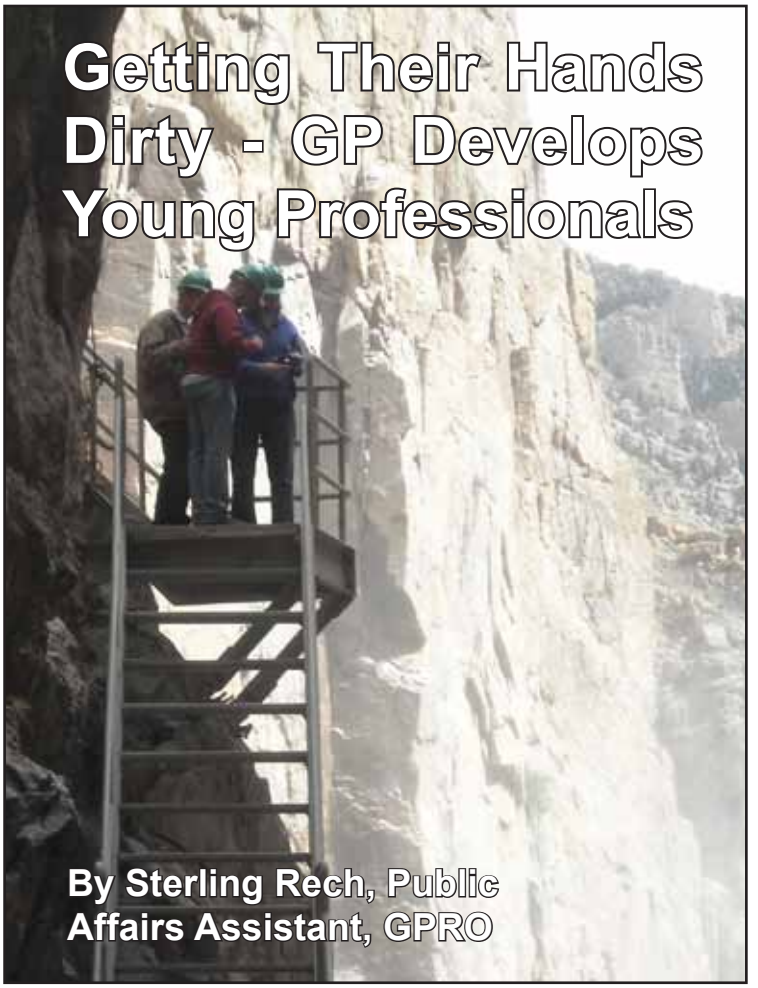
"DKAO staff are to be commended for a great job of operating our projects to provide flood benefits, coordinating our operations with the Great Plains Regional Office and the Corps, and taking actions to protect Reclamation's assets," Long said.

Water Year 2011 was challenging and unpredictable for Reclamation's Great Plains Region and the employees at each area office and facility.

Although the northern states received a heavy combination of snow accumulation and a rare rain event in the northern part of the region, the facilities did what they were designed to do.

In the end, the employees and infrastructure of Reclamation were able to reduce the impacts of flooding along the Platte, Yellowstone and Missouri River systems.

Getting Their Hands Dirty - GP Develops Young Professionals



By Sterling Rech, Public Affairs Assistant, GPRO

SCEP students get a close-up tour of the outer structure of Buffalo Bill Dam in Cody, Wyo.

"I definitely got my hands dirty," said Miguel Hernandez, Civil Engineering student at Metropolitan State College in Denver.

Hernandez, along with 20 other college students from around the U.S., has been working for Reclamation's Great Plains Region under the Student Career Experience Program (SCEP) since 2010.

"The best memories from this summer will be climbing into the Outlet Works Siphon at Webster Dam and stepping around fish while inspecting the pipe for deterioration, climbing endless amounts of stairs to reach the areas inside the spillways, and of course riding in the Buffalo Bill Dam elevator," Hernandez said.

The GP Region has offered well-qualified students the opportunity to participate in the SCEP program since 2002.

The program highlights Reclamation's commitment to hiring the best and brightest students who share a passion and concern for water management issues.

"It's exactly the kind of opportunity you hope for when you start thinking about how you'll make the transition from a college student to a working professional," said Darion Mayhorn, Civil Engineering student at St. Louis University, who has been working as a Civil Engineer Trainee at the Eastern Colorado Area Office in Loveland, Colo.

The SCEP program is structured in a way that gives students hands-on experience to help achieve their academic and career goals.

"We place them in the hot seat from day one," said Ed Zurey, Employee Development Specialist for the GP Region, who facilitates the program each year.

"The best way to ensure that Reclamation will always employ highly qualified and talented individuals is to recruit young folks who are still in academia, and place them in real life scenarios which may include pressure situations," Zurey said.

(Left) Miguel Hernandez, SCEP Civil Engineer Trainee, gears up in a protective suit designed for hazardous situations, such as rappelling and dam inspections.

Veteran engineers and technical specialists mentor SCEP students and prepare them for the important duties and responsibilities related to maintaining a large network of critical infrastructure that's so vital to life in the West.

"We do our absolute best to expose them to every facet of Reclamation's work," said Tim Flanagan, GPRO

Civil Engineer, who works with SCEP students.

"We expose them to everything from facility exams and dam repair projects, to monitoring flows and working on emergency action plans," Flanagan said. "We want them to get a true taste of the exciting work we have to offer."

To ensure the best candidates participate, Reclamation requires students to meet an array of program criteria to fulfill eligibility requirements, including maintaining a minimum 2.5 GPA, providing transcripts to their supervisors at the end of each semester, being highly mobile for rotating work assignments and attending annual orientations.

In return, those candidates receive industry training and skills that will stick with them forever. In addition, students benefit from tuition assistance, stipends for travel and living expenses, salaries, full-time employment during the summer, paid holidays, sick leave, health and life insurance, and the potential for permanent placement upon graduation.

"With everything I have gained from Reclamation's SCEP program so far, it would be a privilege to receive a job offer once I graduate," said Dara Zimmerman, an Environmental Engineering student at Humboldt State University in California, who has been working in the Hydrology Department at the Regional Office in Billings, Mont.

During their program, SCEP students experience Reclamation's facilities, learning how vital the agency's infrastructure is to sustaining life in the American West.

"Being able to get practical work experience in your chosen field while still in school is outstanding," said Zimmerman

For more information on Reclamation's SCEP program, including potential benefits, program criteria and current vacancies, visit: www.usbr.gov/gp/.

SCEP students come to Reclamation from all over the country. They are often from a variety of engineering disciplines, including: civil, electrical, mechanical and environmental. But Reclamation also employs students from other fields, including: finance, archaeology, political science, economics and natural resource management.

EPIC SNOW:

Eastern Colorado Area Office Highlights Partnerships During Historic Runoff Year

By Kara Lamb, Public Involvement Specialist, ECAO

(Above) On the last day of June 2011, snowpack in Rocky Mountain National Park, which provides drainage for much of the Colorado-Big Thompson Project, was still well above 180 percent of daily average. Reclamation's Eastern Colorado Area Office began reaching out in April to local communities and emergency responders to coordinate operations and develop contingency plans for a record snowpack year.

It started in November.

Skiers talked about it first: the Rocky Mountain snowpack was looking great.

Water operators stayed their optimism however. Good snowpack in late fall does not always translate into a good water year.

In fact, by Feb., the eastern plains were still very dry. Snow had been minimal and the snowpack accumulation across Colorado was just above average.

The Arkansas Basin was particularly dry. The Colorado River Basin was up, but not enough to offset concerns about a long hot summer.

"I wasn't sure we were going to be able to fill Ruedi," said Tim Miller, ECAO water scheduler for Ruedi Reservoir on the Fryingpan-Arkansas Project.

But winter was not over. Just one month later, Colorado was abuzz with talk of "epic" snow.

The slightly above average snowpack had hung through the holidays, the typically dry month of February, and was coming on like a lion for March - usually the heaviest precipitation month.

The Upper Colorado River Basin in the center of the Rockies had 130 percent of snowpack average by St. Patrick's Day.

And the snow kept coming.

"Our Area Manager suggested we might want to get out to our localized customer base early this year - talk to them in April, or even March," said ECAO water scheduling team lead, Andrew Gilmore. "We usually don't have Water Year public meetings until late May."

With storms stacking up on the horizon, the conversation began to change. Feelings had moved from stayed optimism to outright concern about statewide flooding.

"By the end of April, we were scheduling conference calls with

(Above) ECAO's Matt Robinson (who stands 6'6") is dwarfed by late April snow at Middle Cunningham. The Fry-Ark's West Slope crew must clear all 16 sites each spring to make diversions possible during run-off.

local county emergency managers," Gilmore said.

"No one wanted to be surprised. The collaboration across the Colorado River Basin, down the Arkansas, and out into the South Platte Basin started as soon as the April forecast numbers were confirmed," Gilmore said.

"It was around that time - early May - I reported to the Southeastern Water District that our projections were almost double our ten-year-average," said Roy Vaughan, Pueblo Field Office Manager.

"Their first question was 'do we have enough space?' My answer was, 'I hope so,'" said Vaughan.

For operations on the Colorado-Big Thompson Project (CB-T), the first major diversion on the entire Colorado River system, the question was particularly sensitive: how was Reclamation going to divert enough water to fill storage on the east slope, while also slowing flooding across the west slope?

The Colorado River was showing daunting numbers for snowmelt.

Many people may not know that most of the water in Colorado's seven major river basins comes almost entirely from snowmelt.

This meant that if Reclamation misjudged conditions, releases upwards of 2000 cfs could be coming through Basalt, Granby and the Big Thompson Canyon at 2 or 3 in the morning.

The snowpack begins to melt and fill local streams and rivers as soon as the weather warms, typically late May to early June.

"But May came and went and runoff hadn't started yet," said Carlos Lora, water scheduler for the C-BT Project. "Then we hit mid-June and still no runoff. I was really getting concerned."

If projections held true, once snowpack melted inflow peaks across the C-BT and at Ruedi Reservoir would reach 1,000 cubic feet per second (cfs) higher than an average runoff year.

Reclamation had the responsibility to balance current storage, inflows and outflows correctly.

Errors could be costly, resulting in uncontrolled releases above mountain towns like Basalt, Granby and Estes Park.

(Below) Mormon Diversion Dam, one of 16 diversions for the Fry-Ark Project, was still diverting at full capacity and spilling into the Fryingpan Valley the last week of June.

(Above) The Colorado Rockies, including the Gore Range above Green Mountain Reservoir, stayed green through the summer of 2011 and mountain snowpack hung on well into August.

Another concern further compounded the issue - timing.

"Our hydrographs are diurnal," Lora explained. "It takes a while for melting snow to make it down to the valleys. So inflow to our mountain reservoirs peaks between 1 and 3 a.m."

This meant that if Reclamation misjudged conditions, releases upwards of 2,000 cfs could be coming through Basalt, Granby and the Big Thompson Canyon at 2 or 3 in the morning.

ECAO's public outreach began immediately, as did cooperative meetings with operating partners.

The Army Corps of Engineers suggested extending the deadline for the flood control pool at Pueblo Reservoir into May to provide room to move Fry-Ark water.

Northern Colorado Water Conservancy District, Reclamation's operating partner on the C-BT, ran a non-charge program, releasing water from Horsetooth and Carter Reservoirs out of season to make room for imports from Granby.

The town of Estes Park held a runoff preparation public meeting in April so residents could prepare for potential impacts.

The Pitkin and Grand county emergency managers routinely checked in to plan around project releases from Ruedi and Granby reservoirs. And, Northern Water's hydrology team and ECAO's water schedulers began crafting an aggressive release program for the west slope collection system of the C-BT.

"We went after the shoulders of the projected runoff," said Gilmore. "We figured if we increased releases early, we could back-off during the actual runoff peak."

By the end of June, snowpack daily numbers were 180 percent of average above Lake Estes and Estes Park, Ruedi Reservoir and Basalt.

Snowpack was more than 200 percent of average above Green Mountain and Granby Reservoirs, as well as the entire upper Colorado River Basin.

Runoff from snowpack finally peaked during the July Fourth weekend.

"It was almost the same scenario as a series of Emergency Action Plan functional exercises we were planning for the C-BT in late July," said Gilmore.

"By the time we actually had the exercises, Northern, the State, the municipalities were all saying: 'Hey, didn't we just do this?'"

Releases from Granby Dam, combined with those from Willow Creek, put a combined 2,500 cfs at the start of the Colorado River.

Numerous ranches and homes

flooded. Ruedi Reservoir nearly spilled two weekends in a row, but because ECAO had "built a hole" in the reservoir by increasing releases back in March and April, there was just enough space to contain the nightly peaks of 2,200 cfs.

Estes Park, a town that sees uncontrolled river flow through its downtown section before the water is caught in Lake Estes on the C-BT, saw nightly peaks nearing 1,800 cfs, but had no significant flooding.

"We were prepared this year," said Kate Rusch, spokesperson for the town of Estes, "And lucky."

The mountains were still not done, however.

The last snowstorm in the upper Rockies came in July. "And then the summer 'monsoonal' rains came early," added Miller. "The weekend after the Fourth of July, saw Ruedi inflows jump because of those storms. Instead of having one extreme singular peak, the hydrograph was sawtooth shaped - and runoff wound up sustaining well into August," Miller said.

With runoff peaks so high, the white water industry across the mountains claimed financial losses for the months of May and June.

Many rafting companies cancelled trips well into July.

Later, Gore Fest, held annually in Gore Canyon on the Colorado River below Green Mountain Reservoir, was cancelled.

"We were well above the BLM's set 'high flow' limit and couldn't get insurance, so they wouldn't permit us," said one of the kayaking contest organizers, "and this is in August!"

All in all, however, plans worked, communities came together and

(Above) Water courses down the spillway of Granby Dam, Colo., in May. The facility typically spills in June or July, but operations were altered in 2011 due to record snowpack in the Colorado Rockies.

Reclamation's partnerships proved invaluable.

"The feedback and consensus seems to be that we all did a good job this year," Gilmore said.

"But I think everyone would agree that it's okay if we don't have to do that again anytime soon."

(Above) An avalanche blocks access to the South Fork gatehouse on the Fry-Ark's west slope collection system. The avalanche left the crew with few options, so they rode bicycles down Chapman Tunnel to South Fork in order to physically open the diversion. The remains of the avalanche finally melted out in mid-July.

Wyoming Tours Highlight Reclamation's Vital Mission

Tour group observes Pathfinder Dam's spillway in operation from Pathfinder Dam Overlook.

By Jay Dallman, Public Involvement Specialist, WYAO

Water Year 2011 has seen a number of records set in Wyoming, in terms of reservoir inflows, and the interest in touring Reclamation's facilities has been high, particularly in the North Platte Basin.

On June 14, a group of 39 members of the Nebraska Association of Resource Districts (NARD) visited WYAO and then toured Reclamation facilities both upstream and downstream of Casper.

Participants included Natural Resource District (NRD) board members, general managers and staff from across the state of Nebraska.

NARD works with individual NRDs to protect lives, protect property and protect the future of Nebraska's natural resources.

Ron Cacek, manager of the North Platte NRD based in Scottsbluff, Neb., and coordinator for the NARD tour group, commented on the conditions the group witnessed, telling participants, "With the large amount of water that is in the North Platte River system, it is important for agencies and other entities to work together to not only protect people and property from flooding, but also to take full advantage of aquifer recharge by discharge timing and diversion."

On July 19 and 20, 51 participants of the annual Scottsbluff - Gering (Neb.) United Chamber of Commerce (SBGCOC) tour visited the Cowboy State and began their inspection of North Platte Basin facilities.

The group visits every year, but they have especially enjoyed the past couple of years after enduring nearly a decade of drought.

The group consisted primarily of farmers and farm-related business folks that have a vested interest in the water supply for the North Platte Project.

Bob Busch, who is with the Scottsbluff County Farm Bureau, has been a central figure for the SBGCOC tour group since 1989.

Busch said, "Each year the tour

Powerplant Mechanic Dennis McCann (right) explains Fremont Powerplant Operation to the SBGCOC group.

Jay Dallman (left-center) addresses SBGCOC tour group at Seminoe Dam Overlook in Wyoming.

has grown in popularity. All of the participants are asked to complete evaluation sheets and most are astounded by the enormity and complexity of the Reclamation storage system in Wyoming.

"They also comment on how the tour gives them a better appreciation of how the irrigation system works in western Nebraska," said Busch.

Each of these groups was escorted by WYAO's Jay Dallman as they visited Reclamation facilities upstream of Casper. Each group was able to visit the WYAO and Casper Control Center in Mills, on their way down river and back to Nebraska.

While visiting WYAO, attendees learned about water management decision making from Area Manager John Lawson.

Of particular interest were the exceptionally high flows moving through the North Platte River system this year.

The timing of their visits provided both groups with the opportunity to see Pathfinder Dam spillway in operation.

The reservoir was nearly two-feet above full capacity and the total release from the reservoir was around 8,000 cubic feet per second (cfs), with about 4,000 cfs pouring over the uncontrolled spillway into the North Platte River.

This was the second consecutive year the spillway has been used, and the 21st runoff season since the completion of the dam in 1909 that water has flowed over the spillway.

Releases from Gray Reef Reservoir, the re-regulating reservoir for Alcova Powerplant, were running in the range of 7,500 - 8,000 cfs, roughly three-times the normal summer flow.

Gray Reef Dam is the last control structure upstream of Casper, so the flows from Gray Reef, plus the gains from a number of small tributaries in the intervening 46-miles of river, determine how much water is flowing in the North Platte River through Casper.

After spending a night in Casper, each group self-toured Reclamation facilities downstream, including Glendo Dam and Reservoir, Guernsey Dam and Reservoir, and the Tri-State and Whalen Diversion structures, as well as some irrigated agriculture operations as they worked their way back home.

Dakotas Area Office Employees Mobilize for 2011 Flood Season

(Above) A wall of sand and gravel holds back rising water in South Dakota, protecting the Mni Wiconi Water Treatment Plant Intake pumping station during the peak of flooding.

By Dean Karsky,
Civil Engineer, DKAO

On May 24, 2011, the U.S. Army Corps of Engineers issued a news release warning of deteriorating Missouri River reservoir conditions due to heavy rains in eastern Montana and western North Dakota, necessitating higher releases of up to 85,000 cubic-feet-per-second (cfs) from Oahe Dam near Pierre, S.D.

These flows were more than three times normal and more than 30,000 cfs higher than the previous high flows recorded from Oahe Dam.

The primary source of water for the Mni Wiconi Project is the water treatment plant at Fort Pierre, S.D., which serves three tribal rural water systems and one non-tribal rural water system in South Dakota.

The project serves a geographic area covering approximately one-sixth of the state of South Dakota with a service population of approximately 40,000 residences, as well as serving commercial, industrial and agricultural needs.

The intake pumping station for the water treatment plant is located two miles downstream of the Oahe Dam, along the west side of the Missouri River.

While the water treatment plant is located on higher ground, about a mile west of the Missouri River, the intake pump house is only about 1,000 feet from the river and was vulnerable to flooding at the predicted flows of 85,000 cfs.

Reclamation learned from the Corps of Engineers on May 26 that releases could go as high as 110,000 cfs, with a potential water elevation of 1,433, which is only 1.45 feet below the floor elevation (1,434.45) of the intake building.

On May 27, Reclamation, with the assistance of the Oglala Sioux Rural Water Supply System (OSRWSS), constructed a temporary dike around the intake building.

On May 28, the Corps of Engineers updated their projected releases to 130,000 cfs by June 2, and 150,000 cfs by June 15, with predicted river elevation at the intake ranging from 1,436 to 1,437, up to 2.5 feet above the floor of the building.

Reclamation made the decision to construct an emergency berm with a top elevation of 1,439, commencing construction on May 29.

Reclamation, with the assistance of O&M crews from OSRWSS, Lower Brule and Rosebud tribes, West River/Lyman-Jones, South Dakota Department of Transportation and some private contractors, completed the berm construction

on June 2, when Oahe Dam releases were increased to 130,000 cfs.

The Intake Pump Station is gravity fed from the Missouri River into a caisson-type wet well with a 42-inch diameter butterfly valve controlling flows into the wet well from the river.

Normally the valve is fully open because the elevation in the river and wet well are in equilibrium, about eight feet below the intake building floor.

However, during flooding, unless the butterfly valve was closed, the river water would pour out of the wet well and flood the intake building, damaging the electrical components and rendering the plant inoperable.

This created operational challenges not considered in the original design of the intake. To operate the intake during flooding, the butterfly valve would have to be manually opened just enough to allow water into the wet well, so booster pumps could send raw river water up to the water treatment plant for processing.

This would have to be done several times per day, requiring Reclamation staff to monitor the normally unattended intake pump station 24 hours per day, seven days a week, for more than a month, until operations settled down to a more routine status.

Several other operational challenges were encountered during the flooding which had to be addressed by developing solutions on the fly.

(Above) Missouri River water inundating homes in South Dakota (Mni Wiconi intake pumping station is shown, upper right).
(Below) Water tests the berm around the Mni Wiconi intake pumping station.

These included drainage issues within the berm due to heavy rain events and unanticipated leaks in the wet well that surfaced within the berm.

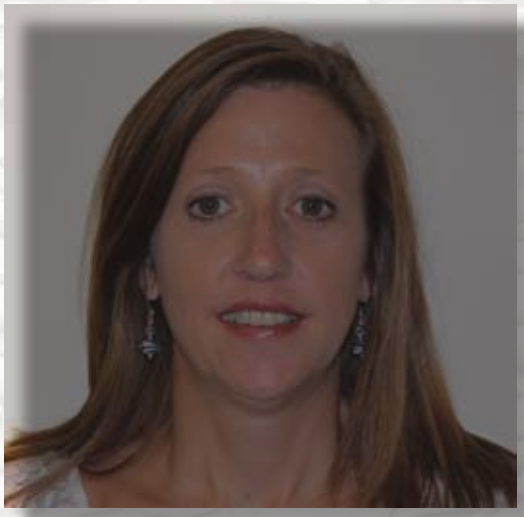
On Aug. 12, the Corps of Engineers were able to reduce releases at Oahe Dam to less than 130,000 cfs, which resulted in the river elevation finally receding below the floor of the intake building.

This marked the point at which the chances of the intake building being flooded due to operational problems were significantly reduced for the first time since the start of major flooding - more than 70 days earlier.

The potential damage to the river intake screen and buried pipeline into the intake wet well is still being assessed.

Through the combined efforts of Reclamation and the O&M crews from the four Mni Wiconi project rural water sponsors, there was no interruption in water service to the project during more than two-months of major Missouri River flooding.

Stories from the Frontlines:



Alicia Waters, Program Analyst, Bismarck, N.D.

"The emerging disaster back in May, when river levels were rising and releases from Garrison Dam were going to increase exponentially, the flurry of activity and chaos of homeowners and officials trying to figure out which plan to follow could have been overwhelming, but I was impressed (if not surprised) by friends and strangers who showed up in areas of need and did whatever was asked of them to help in the situation.

"At one community sandbagging site where my family was working, a little girl, only 6-years-old, came with her family to help.

"She was small but had a huge heart and desire to help. She couldn't handle the shovel and was scared her fingers would get hit by the shovel if she held the bags, so she decided to carry the filled bags.

"Even though she was told she couldn't handle them because they were too heavy, she did it, over and over again. She carried and dragged sandbags to the trailers waiting to be loaded. Everyone was impressed by her work and her parents were proud that she had this opportunity to help others and learn about the value of community.

"I also worked with a couple who came from Harvey N.D. to help out. They helped a family member move belongings to a safe place, then took a couple extra days off to work at the community sandbag sites.

"This was a difficult time for many families in our community and others who have experienced flooding across the Dakotas, but with the help of friends and strangers we'll not just get through it, we have the chance to be better people because of it."

Jim Weigel, Planning Program Coordinator, Mandan, N.D.

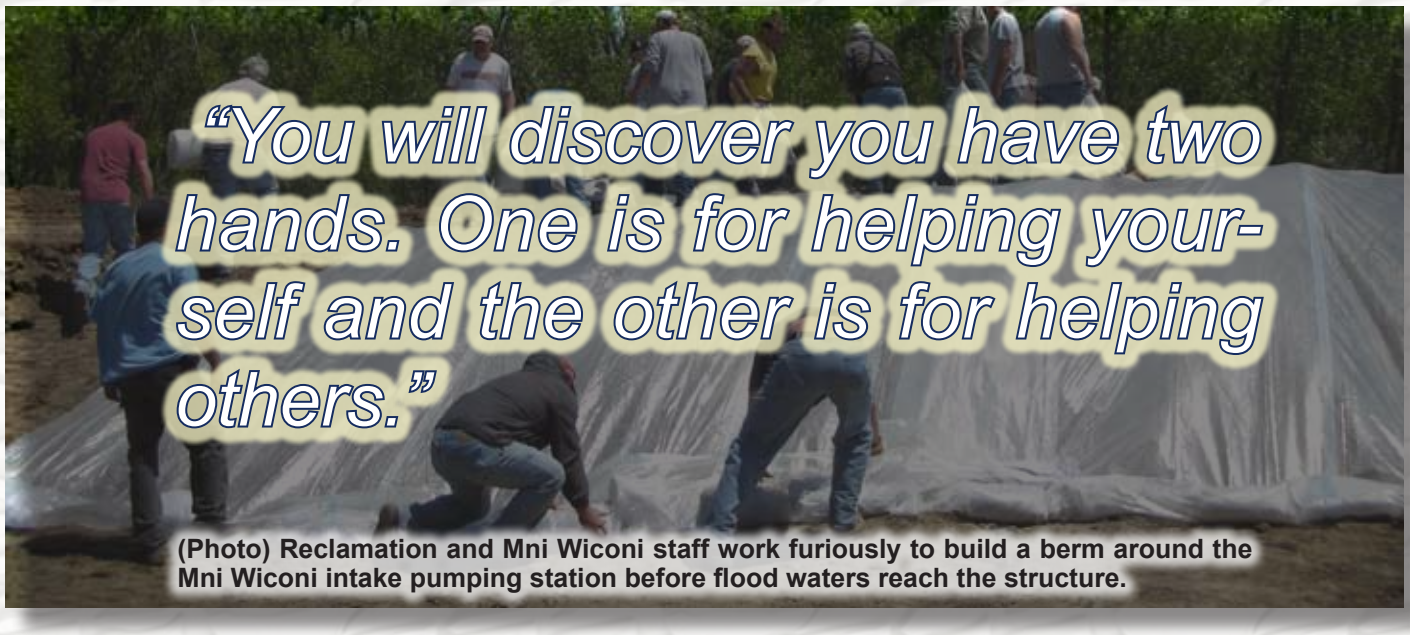
"I worked with my Boy Scout Troop 1054, Mandan, N.D., to fill sandbags for flood fighting efforts.

"The Scouts had a competition to see who could load the most bags in 10 minutes and the record was 27. We loaded trailers and pickups as they arrived on site and the Red Cross stopped by with food and water for the Scouts. We didn't know any of the people who came for sandbags or where they lived, in town or along the river. The mood was solemn among those coming to get the sandbags but they were all appreciative of the Boy Scouts' efforts."

Terry Kvislen, Engineering Tech, Pierre, S.D.

"Along with the help of a lot of friends and volunteers, we built a seven-foot-high sandbag dike to hold back the Missouri River around our home and our neighbor's home while they were in Israel.

"We have been out of our home from the 1st of June through the end of August. It was a very long summer!"



(Photo) Reclamation and Mni Wiconi staff work furiously to build a berm around the Mni Wiconi intake pumping station before flood waters reach the structure.

Maria Jensen, Realty Assistant, Bismarck, N.D.

"My daughter plays for the Century High School Girls Soccer team. Rather than practice, the coach arranged for the girls to sand bag at five different locations in Bismarck, N.D., during a week in May.

"Although she was very sore, my daughter was so motivated every day to lend a helping hand during these tough times. She had this quote on her desk: 'You will discover you have two hands. One is for helping yourself and the other is for helping others.'

"She clearly understood that it's the little things that you do that make a big difference in other people's lives."

Signe Snortland, Environmental Specialist, Bismarck, N.D.

"My husband and I spent six days sandbagging the endangered homes of two friends. Although it was a very stressful time for our friends, we all had a great time filling sandbags and building ring dikes with 7,500 sandbags around each house.

"The only downside was a scratched roof on my Subaru from driving under trees while hauling sandbags, a blown tire on our trailer (too much weight), and $500 spent fixing a new pickup truck I hit with the trailer. Oops."

Scott Hettinger, Outdoor Recreation Planner, Bismarck, N.D.

"My house has been flooded all summer.

"We built a sandbag dike and had eight sump pumps running to keep the water out of the house. We kept the house dry but there is a lot of clean up outside the house now! On top of the flooding we got severe hail and wind storms this summer. Our roof was totaled and several of our trees blow over.

"What a summer!"

NKAO STEP Student Broadens Musical Horizons

Reprinted courtesy of the Kearney Hub

By Ashley Leever, Hub Intern

Love of instruments leads LoCasto to study in Ireland

LoCasto, a senior music composition major from Upland at the University of Nebraska at Kearney, studied abroad through the Mid-America Universities International program at University College Cork in Cork, Ireland.

KEARNEY - For DeAnn LoCasto, music crosses all boundaries.

In the spring semester LoCasto, a senior music composition major from Upland at the University of Nebraska at Kearney, studied abroad through the Mid-America Universities International program at University College Cork in Cork, Ireland.

Ann Marie Park, international education study abroad adviser, said Ireland is one of the most popular choices for students.

"People throughout the Midwest are competing for these positions," Park said.

UNK is able to send only one student per year. LoCasto chose to study in Ireland because it is an English-speaking country and because of the music.

"They have beautiful music. That's why I went there - because I love playing different instruments and writing for them," LoCasto said.

LoCasto received the Benjamin A. Gilman International scholarship, which helped pay travel expenses and tuition.

While at Cork, all the classes LoCasto took focused on playing, studying and writing music. Studying abroad allowed LoCasto to learn more about forms of music, one of her greatest passions.

"Even in junior high and high school, I would ask the band instructor, `Can I take this instrument home this weekend?'

"I would come back and want to play it in the band. I played four or five instruments between seventh grade and my senior year in high school," LoCasto said.

The tin whistle and bodhran, Irish traditional instruments, were two of the instruments LoCasto learned to play while studying at Cork.

LoCasto soon discovered that Irish methods of learning to play music are much different than American methods.

"A lot of the Irish traditional music is traditionally not written down. People memorize the tunes and they trade tunes.

"They just get together, and they learn and they just come and play," LoCasto said.

During her stay in Ireland, LoCasto also wrote and arranged an Irish-style piece for UNK's Thorton String Quartet. The quartet performed it in April.

Because there is limited room

In Ireland, LoCasto studied traditional Irish music and learned to play the tin whistle and bodhran. She played the tin whistle on the Cliffs of Moher on the west coast of Ireland.

for students to live on campus in Cork, LoCasto lived off campus on Washington Street near the historic English Market.

Living off campus allowed LoCasto to get more involved and ingrained in the community.

"It was just really neat to experience a different country and to feel what they feel from a total different perspective," LoCasto said.

During her stay, LoCasto and her husband, Fred, a minister who traveled to Ireland to do ministry, became involved with the Changed Life Ministries church.

"What we did when we went there is we found a ministry and church that we liked.

"We tried to get involved the best we could to help out," LoCasto said.

LoCasto explained that the church was new, and she shared her love of music with the congregation.

She wrote a song for the congregation and also helped in other ways.

"They didn't have any way to play music. They were just playing with CDs.

"We contacted our church back home in Grand Island, and we asked them if they would like to do anything for the church. So they sent money to the church and bought them a keyboard," LoCasto said.

Studying and living in Ireland broadened LoCasto's musical horizons.

"My mind has opened up more. When you go to another country, you see things you didn't realize," LoCasto said.

"I just think experience is invaluable."

Although LoCasto has left Ireland, Ireland hasn't left her. She has begun to learn how to play the Low D whistle and she and her husband are still in touch with Changed Life Ministries.

LoCasto has hopes to return to Ireland and perhaps to study in Spain.

LoCasto's travels have helped her to realize that no matter where she goes and what language is spoken, she will always be able to understand the music.

"Music goes over the barriers," LoCasto said.

Drilling Because of Water

The Pryor Creek Crossing Story

Given past stories in Plains Talk you might think this drill rig would be seeking a water supply for a drought stricken community or a rural water system. Instead, it is exploring the foundation for a replacement canal structure after the hundred year old original was damaged by flooding this past June.

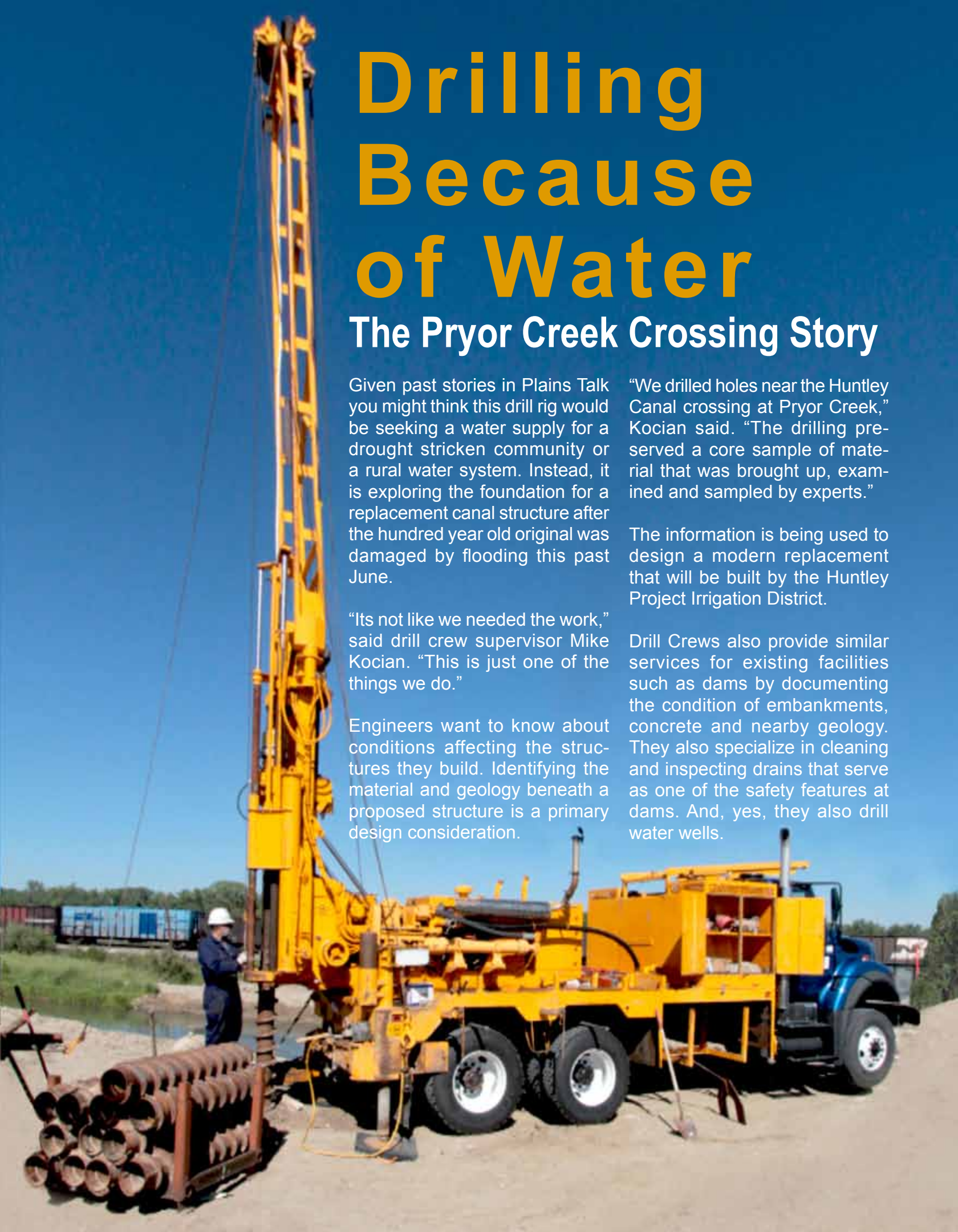
"Its not like we needed the work," said drill crew supervisor Mike Kocian. "This is just one of the things we do."

Engineers want to know about conditions affecting the structures they build. Identifying the material and geology beneath a proposed structure is a primary design consideration.

"We drilled holes near the Huntley Canal crossing at Pryor Creek," Kocian said. "The drilling preserved a core sample of material that was brought up, examined and sampled by experts."

The information is being used to design a modern replacement that will be built by the Huntley Project Irrigation District.

Drill Crews also provide similar services for existing facilities such as dams by documenting the condition of embankments, concrete and nearby geology. They also specialize in cleaning and inspecting drains that serve as one of the safety features at dams. And, yes, they also drill water wells.



(Above) Huntley Irrigation District officials inspect the washed out canal crossing at Pryor Creek. This photo, taken May 26, shows Pryor Creek after the canal embankments washed away.

The large exposed concrete walls enclosed the creek prior to the flood. The smaller section of concrete projecting from the water indicates where the canal entered the crossing structure.

The canal was temporarily returned to service for the summer by rebuilding the earthen embankments.

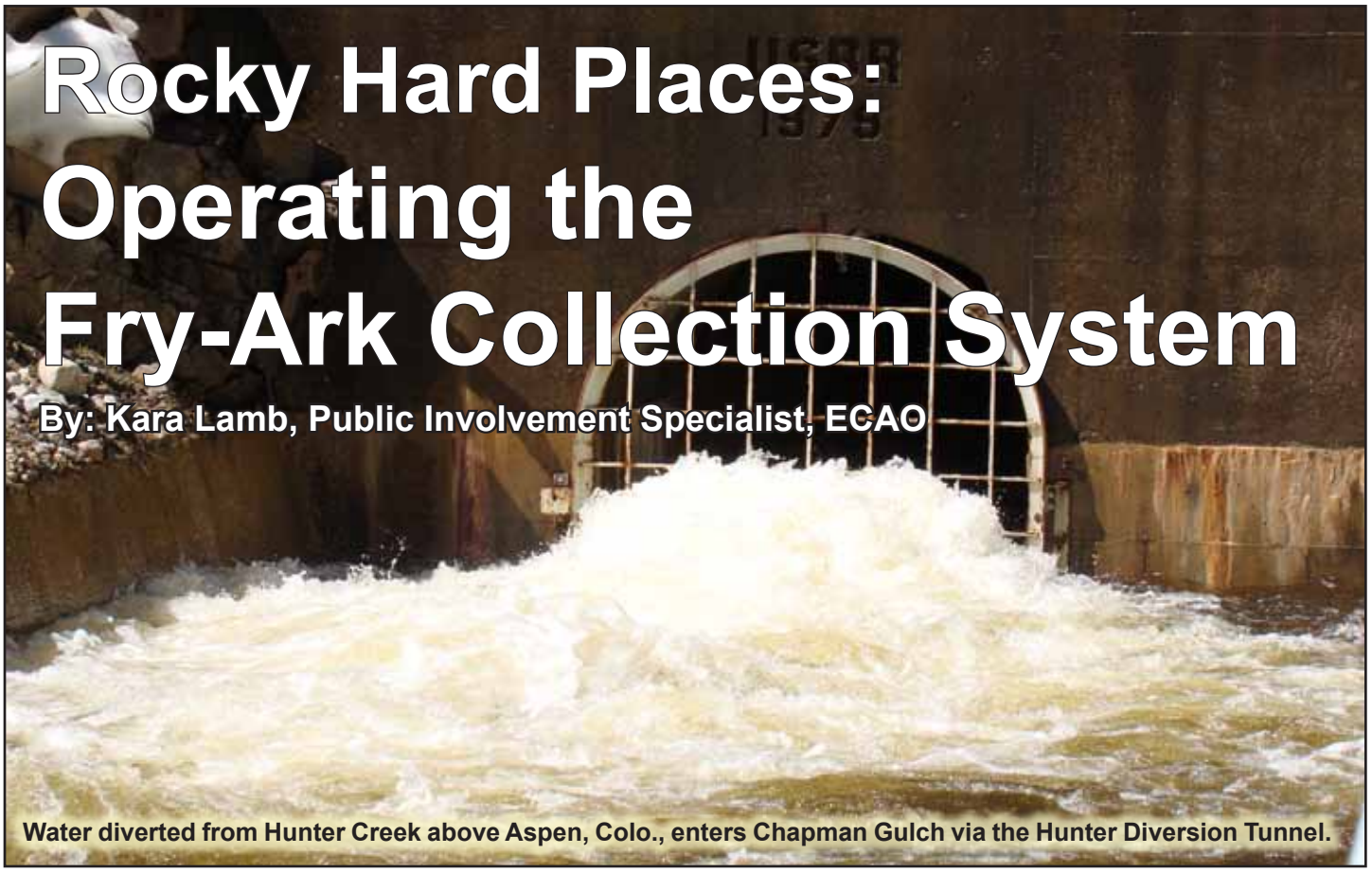
(Left) A consulting engineer examines a section of core brought up by the drill rig in preparation for designing a new canal crossing at Pryor Creek.

Update:

Public Law 111-11 allows Reclamation to provide funds for extraordinary maintenance such as the damaged canal. Up to $1 million is to be provided to the Huntley Project Irrigation District under a contract with Reclamation. The draft contract is under a public comment period from September 30 to November 30 before it can be signed by Regional Director Mike Ryan.

Rocky Hard Places: Operating the Fry-Ark Collection System

By: Kara Lamb, Public Involvement Specialist, ECAO



Water diverted from Hunter Creek above Aspen, Colo., enters Chapman Gulch via the Hunter Diversion Tunnel.

It is a long hike to the Granite Diversion site: 2,000 feet in elevation in just less than a mile.

It is straight down, then straight up; but Justin Krebs and Jeff Ongley make the hike in less than two hours.

"It takes a little longer in snowshoes," says Krebs, hydrorepairman at Mt. Elbert Powerplant.

Granite is one of the Fryingpan-Arkansas Project's 16 collection and diversion sites, all located at about 10,000 feet, and 90 minutes from the nearest town.

Together, the sites provide an average annual diversion of about 49,000 acre-feet. The provision is possible through foresight, dedication and innovation.

Without innovation, a high level of operations and maintenance, and a dedicated staff, the Fry-Ark Project would be unable to divert water for the more than 650,000 people on Colorado's eastern slope.

When touring the Fry-Ark's west slope system, the first thing a person realizes is, "it's a long way back here!"

It takes five hours from Denver to reach the sites, nestled along the west slope of the Continental Divide. The sites ring the upper reaches of the Fryingpan River, high above the valley floor.

The north end of the valley, where the Fryingpan River flows down to Ruedi Reservoir, is referred to as the North Side Collection System.

The upper end of the valley, where the diversion sites deliver, is the South Side Collection System.

The north and south collection systems are linked by a series of tunnels totaling about 24 miles. North Side, which includes diversions from North Fork, Carter, Mormon, Cunningham and Ivanhoe Creeks, eventually drains into Nast Tunnel which carries the water, via gravity, south up the valley.

South Side diversions are similar: even though these also begin above the lower part of the Fryingpan Valley, they too are up quite high so they can deliver water up-valley by dropping down gradually in elevation. This way, South Side collects water from Hunter, No Name, Midway, Sawyer and South Fork Creeks, as well as from Chapman Gulch.

The North and South side systems angle down the mountains to the valley's high point where the headwaters of the Fryingpan River cascade off the back of Independence Pass and the western slopes of both Mt. Elbert and Mt. Massive, Colorado's two highest peaks.

The Nast and South Fork tunnels converge here with the Fryingpan Conduit, merging just upstream of the Boustead Tunnel gatehouse.

The Boustead carries the diverted water 5.4 miles underneath the Continental Divide to Turquoise Reservoir and the eastern slope. Before the Boustead con-

vergence is the Granite Diversion. Although Granite Creek is physically located on the South Side collection system, its water does not flow into the South Fork Tunnel.

Instead, it is dropped through an inverted siphon, beneath the entire Fryingpan River Valley (down one side, under the valley, then up the other side) for delivery into Nast Tunnel.

It takes dedication to hike to these sites, physically open and close them, and oversee the operations, both remotely and by hand, throughout the summer diversion season.

In addition to the Granite hike, Mt. Elbert's west slope crew also spends a day or two during the summer hiking up Carter Creek to make changes to the Carter Diversion.

There is no trail to speak of, just rock hopping up the side of the creek for about 40 minutes. It's a little easier in late spring, however, when the tunnel is not yet flowing. Instead of the snowy creek, the crew walks one-half mile up Carter Tunnel to open its gate.

To make changes to the North Fork Diversion, the crew climbs a ladder over the Carter Tunnel portal and hikes another 15-20 minutes straight up. North Fork sits at about 10,212 feet in elevation - the second highest of the 16 sites.

Every spring, the crew makes the three to four hour drive from the east side of the divide over to Basalt, Colo., below Ruedi Dam on the Fryingpan River. Setting up temporary residence in Basalt, they spend the next couple of weeks opening the collection system and much of the summer operating it. They go home on weekends, but spend long weekdays monitoring the system to keep water flowing.

To open or close the system, they travel to each of sites and physically remove snow and debris so diversion gates can be opened.

With the exception of Granite, Carter and North Fork, the rest of the sites can be reached by truck in summer or snowcat in late spring. In big years, like 2011, some sites remain inaccessible until late summer.

This is often the case with the South Fork Diversion. Some years, including this one, avalanching snow blocks the access road for months. Even though road and foot access is blocked, the site must still be opened.

To overcome inaccessibility, bikes were ordered. "We got mountain bikes," said supervisor Larry Lingerfelt.

"They have carrying cases on the back and we ride them from the Chapman control house down the tunnel to the South Fork gatehouse.

"We climb out, manually open the site, and then ride the bikes back up Chapman Tunnel," Lingerfelt said.

This kind of innovation is common across the system. The sites inspire it.

A couple years ago, Mt. Elbert's C & I Mechanic, Gene Csuti, set out to help improve overall efficiency for the collection system team.

(Above) A grate at the Mormon Creek Diversion drops water down a tunnel system that eventually leads under the Continental Divide.

"Those diversion sites are not close together," Csuti explained. "In any one given night during spring runoff, a person might have to drive the hour and a half up from Basalt to the Chapman or Mormon control houses to get a look at what is going on. Then, they'd have to hop back in the car and drive another hour to the other control house - just to see what was happening. Sometimes, they'd have to drive another hour on top of that to another part of the system, just to check it. That's a lot of time for one person out in the mountains all night," Csuti said.

To save time, improve safety and overall operational efficiency, Csuti had ethernet established at each site. He ordered laptops. Then he made sure the satellite links from each of the diversion sites were working properly.

"Now all a person has to do is deploy with his laptop. They can plug it in anywhere: at the hotel, at Chapman, or at Boustead, and see the whole system." Csuti said.

"If operational changes have to be made, a person only has to drive to the Chapman Control House. They only has to drive out to one of the sites if the required change is manual."

That kind of innovation comes in handy on a system known for offering logistical challenges.

The crew is adept and dedicated. Each member knows the system inside and out - and the Fry-Ark is all the better for it.

Leadership Mastery Training Highlights Commitment to Developing Professionals

(Above) Leadership Mastery Training allows participants to work in teams and develop real-life management projects which are presented at the end of the workshop.

By Craig Meredith, Human Resources Specialist, GPRO

The first week of the Great Plains Leadership Mastery Workshop was held August 15-19, at the Yellowstone Art Museum in Billings, Mont.

Leadership Mastery is the capstone workshop of the Great Plains' four seminar career development continuum.

This is a program designed to enhance and refresh supervisory leadership skills through two professionally led seminars.

In addition, the program aims to develop participants' appreciation of Great Plains Region's management processes and other topical issues presented on an advanced level.

During the seminar, groups are divided into teams and tasked with developing management project ideas.

Each team then selects a project to research, sets a desired goal and outcome, identifies objectives to meet and prepares an outbrief to present during the second week of the workshop.

During the first week, participants experience areas involving in-depth leadership philosophy exchanges with our director and deputies, a 360-degree Leadership Presence Assessment, Leadership Model Analysis, GP Budget Process and Cycle, Employee Development Tools, Leadership Book Readings and Reviews, Emotional Intelligence Assessments, Conflict Competent Leadership, Influence/Negotiation Skills and Intercessional Management Project Assignments.

The second week of the Mastery Program is presented through a contract with Xponents, and focuses on things like external factors impacting the region, Political Style Grid Assessment, developing external awareness, strategic communication, leadership readings and reviews, personality tests, employee and human capital challenges, senior management panel, creativity and innovation skills development, team project presentations to management, and a completion ceremony.

The second week of Leadership Mastery was held Oct. 31 - Nov. 4, in the Visible Vault of the Yellowstone Art Museum in Billings, Mont.

The next GP Leadership Mastery Workshop will be held in the summer of 2012 and a training announcement will be sent to all employees.

Start planning your career now, meet with your supervisor/manager to discuss your training and Individual Development Plan.

For more information, check out the 2011/2012 Training Calendar on the Great Plains' Intranet site.

(Above) Ed Zurey, Supervisory Human Resources Specialist, facilitates the training for employees, which includes presentations from internal and external sources.

Reclamation Finalizes Crow Settlement

Great Plains Regional Director Mike Ryan (left) and Crow Tribal Chairman Cedric Black Eagle, sign the $74M settlement with the Crow Tribe.

During Sept. 2011, Secretary of the Interior Ken Salazar announced the delivery of $74 million in settlement funds to the Crow Tribe, which he described as, "a major step forward in implementing President Obama's pledge for reconciliation and empowerment for American Indian nations."

"These resources will create vital jobs on the reservation, improve the Crow Irrigation Project (CIP) and allow the Crow Nation to develop a modern and robust municipal, rural and industrial water system," Salazar said.

In addition, Reclamation must negotiate an agreement with the Tribe for allocating 300,000 acre-feet per year of water storage in Bighorn Lake and implement the Streamflow and Lake Level Management Plan of Bighorn River and Bighorn Lake in Montana.

This would provide the Tribe with exclusive rights to develop power generation at the Yellowtail Afterbay Dam until Dec. 8, 2025.

Furthermore, the Act authorizes more than $378 million, via Reclamation, for construction of an MR&I system and for the rehabilitation of the CIP with mandatory appropriations of more than $158 million in discretionary appropriations.

Crow Tribal Chairman Cedric Black Eagle served as the Tribe's representative during the negotiation process and ratified the Compact and Act which was voted and approved by tribal membership on March 19, 2011.

"This is a big step forward for the Crow Nation," said Black Eagle. "The Tribe will receive critical water rights, as well as much needed funding for repairs and improvements to our infrastructure and transfer systems while boosting our economic productivity in the process."

The Tribe has already begun planning and designing for the rehabilitation of several structures within the CIP while Reclamation has initiated the value engineering process.

Construction for these projects is targeted to begin November 2011.

Wyoming Area Office Manages Unprecedented North Platte Snowpack

(Above) A line of sandbags protects the Tate Pumphouse Trail Center on the bank of the North Platte River in Casper, Wyo.

By Jay Dallman, Public Involvement Specialist, WYAO

Unprecedented snowpack in mountains feeding the Upper North Platte River Basin and above average storage carryover from 2010 combined to produce serious challenges for Reclamation personnel managing the 2011 spring runoff season.

After nine years of drought in the North Platte Basin, 2010 brought minor flooding and above average storage to Wyoming reservoirs.

The North Platte System has a combined capacity of 2.8 million acre-feet. At the end of the 2010 Water Year, an additional 170,000 acre-feet of water was released to bring total system storage down to two million acre-feet.

This precautionary measure was to create room to store runoff the following spring, even if 2011 runoff turned out to be average.

Some negotiations were necessary. Downstream irrigation districts had to allow storage water in excess of the irrigation demand to pass, unused, down the river during Aug. and Sept.

Area Manager John Lawson persuaded the districts that this was necessary to prevent overwhelming the system's capacity.

By Feb. 2011, snowpack and forecasted runoff was looking well above average.

Discussions were held internally and with downstream irrigation districts about the need to move water downstream as soon as possible.

The 30-year-average runoff for April-July above Glendo Dam is 925,000 acre-feet, and normally water is not released for the irrigation season until May 1.

WYAO was looking at a combined total of 400,000 acre-feet of storage space in the two largest

reservoirs upstream of Casper, Wyo., and a Feb. forecast of more than 1.4 million acre-feet (155 percent of average) of runoff expected to enter the system above Glendo Dam during the April-July period.

The projection for the basin above Seminoe was 168 percent of average.

Water managers were getting nervous. Plans were made to move water downstream as soon as river conditions allowed. But moving water too soon could cause river ice to break up and form ice dams, which can damage bridges and create localized flooding.

Releases from the two furthest downstream reservoirs are basically shut-off during the winter months and resume around April 15 for the start of the irrigation season.

This year, since river ice below the two lower reservoirs was no longer an issue, releases from Glendo were initiated Feb. 22, and flows from Guernsey Reservoir began Feb. 28.

It was the first week of March before the ice melted enough to allow increased river flows below Gray Reef Dam.

By then, expected inflows had crept up to 159 percent of average and projections for inflow in the basin above Seminoe had increased to 172 percent of average.

Flows below the dam were incrementally increased from the winter flow rate of 500 cubic feet per second (cfs) to 3,250 cfs by mid-March, and further increased to 5,100 cfs by the end of April.

By the time the April forecast came out, the projection for expected inflows above Glendo Dam were 183 percent of average and projections for inflow into Seminoe Reservoir had been revised upward to 203 percent.

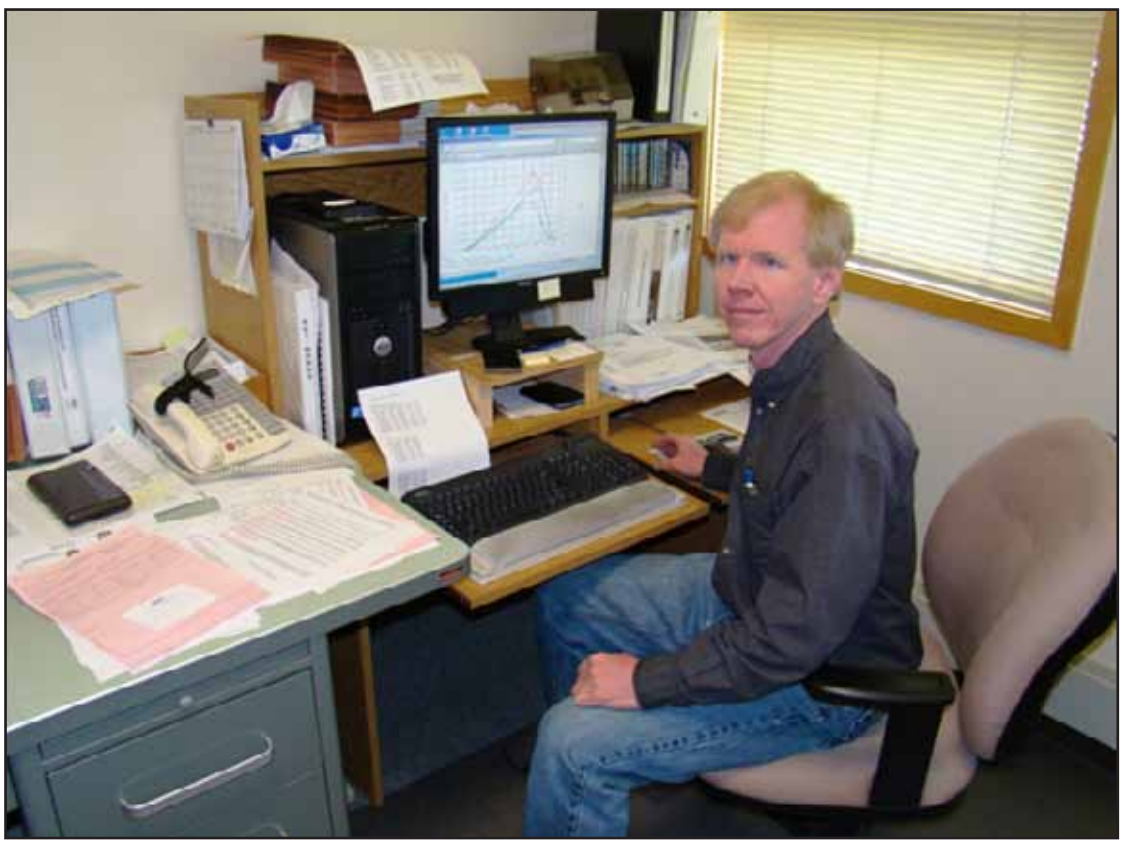
Snowpack continued to build and cool weather continued to delay most of the runoff.

When the May forecast was issued, anticipated inflows above Glendo Dam were up to more than two-million acre-feet (227 percent of average) and projections for Seminoe Reservoir had risen to 1,750,000 acre-feet (245 percent of average).

To put this anticipated runoff in perspective, the last big water year on the North Platte was 1984. That year, during the April through July runoff period, 1,550,000 acre-feet flowed into Seminoe Reservoir and the river through Casper was running above flood stage.

A quick glance at the May 13 NRCS map depicting snow water equivalent in the 15 Wyoming basins showed that every basin in Wyoming, with the exception of the Great Divide Basin, for which there are no records, was well above average.

The Upper North Platte Basin



WYAO Water Management Branch Chief Brian Anderson works on North Platte Basin inflow projections.

(Above) Natrona County Emergency Management crews stockpile sandbags for public use.

stood at 330 percent of average and the lower North Platte Basin registered 332 percent of average.

It was clear that WYAO needed to move water downstream in a hurry to make space in the upper reservoirs to catch a significant portion of the runoff and thereby minimize adverse impacts to downstream communities.

One of the operational restrictions that had to be dealt with was the outlet capacity at Pathfinder Dam.

The powerplant can release a maximum of about 2,700 cfs and the valves below the dam can release up to 3,000 cfs.

In order to release more than the combined release of 5,700 cfs, the reservoir would have to be completely filled so water would top the overflow-type spillway.

By May 3, we had more than 9,000 cfs flowing from Seminoe, through Kortes and the Miracle Mile, and into Pathfinder Reservoir.

The filling of Pathfinder was slowed because the cool weather delayed the runoff into Seminoe, and the high flows out of Seminoe could not be maintained because the level in Seminoe Reservoir dropped below the spillway gates.

With persistence, water managers were able to fill Pathfinder and the reservoir began spilling May 22.

From the first week of June through the third week of July, WYAO released 7,500 to 8,000 cfs from Gray Reef Reservoir, and barring any large thunderstorms, that release was calculated to result in a flow of around 7,700 to 8,200 cfs through Casper.

A flow of 8,000 cfs measures about 7.7 feet deep at the Casper gauge. Last year's high flows peaked at around 7.2 feet and the 1984 flows peaked at 8.3 feet. The river is considered to be in flood stage when the it hits eight feet.

Unfortunately, there are people who are impacted by water in their basements at much lower levels, due to residential communities located in low lying areas.

This encroachment on the river channel has made the job of managing flows and minimizing flood damages much more challenging.

But by mid-August, it was apparent the efforts of our water managers had paid off.

Early action to move large quantities of water out of the upper system, aided by a cold spring and delayed runoff season, allowed Reclamation managers to hold the North Platte River below flood stage at Casper.

Glendo Reservoir peaked at just over five feet into the flood pool and then started dropping.

Last year, Glendo reservoir went 14 feet into the flood pool. It was within four feet of filling the flood

(Above) A recreation area submerged near Glendo Reservoir, Wyo.

pool and flowing over the spillway, which has not been used since the completion of the dam in 1958.

Releases from Glendo Dam are controlled by Reclamation until it enters its exclusive flood pool. Then releases are directed by the U.S. Army Corps of Engineers.

This year, there was concern that the reservoir could go even higher than last year.

Wyoming State Parks, Historic Sites and Trails (WSPHS) took steps to prepare for a record reservoir elevation.

They constructed new temporary camp sites and advertised that they would be ready to accommodate campers and other visitors.

As it turned out, close coordination with the Corps of Engineers and lower flows than anticipated in the Laramie River below Guernsey resulted in much higher flows below Glendo and Guernsey Reservoirs this year, allowing WYAO to slow the pace of Glendo's fill.

Since the reservoir ended up only about five feet into the flood pool, an abundance of camping sites and day use areas remained open for public use.

The cool spring weather was actually a mixed blessing.

While it helped the water managers by delaying the runoff into the upstream reservoirs, it also delayed demand for irrigation deliveries by downstream water users, which could have allowed greater releases from Glendo and Guernsey Reservoirs without increasing flows in the North Platte River through Nebraska.

In spite of the heavy snowpack and record inflows, the combination of proactive water management and cool spring weather resulted in lower than expected flows in the North Platte River through Casper.

The river stayed below flood stage and impacts along the river were kept to a minimum.

The focus for the water management folks will now shift to preparations for next year's runoff season.

Through Our Eyes ...

Great Plains 2011 Photo Contest

Chris Gomer inspects the outlet works intake structure at Sanford Dam, Texas, Feb. 2011 (photo by Joe Rohde).

The top of the walls of the Emmons County water treatment plant in North Dakota. This rebar will tie into the water treatment plant floor slabs (photo by Tom Thompson).

Looking down Relief Well 5 at Jamestown Dam, North Dakota (photo by Randy Ehlis).

Congratulations 2011 Photo Contest Winners!

More than 50 images were submitted for the 2011 GP Photo Contest, with over 100 votes cast. Top honors go to seven photographers and their great images.

Randy Ehlis (DKAO) and Ana Lackey tie for first place, Clark Larsen (GPRO) earns second place with his rainbow over Pathfinder Dam, while voters split third place into a four-way tie between Michael Hilliard (MTAO), Dave Nelson (GPRO), Joe Rohde (GPRO) and Tom Thompson (DKAO).

1st (tie)

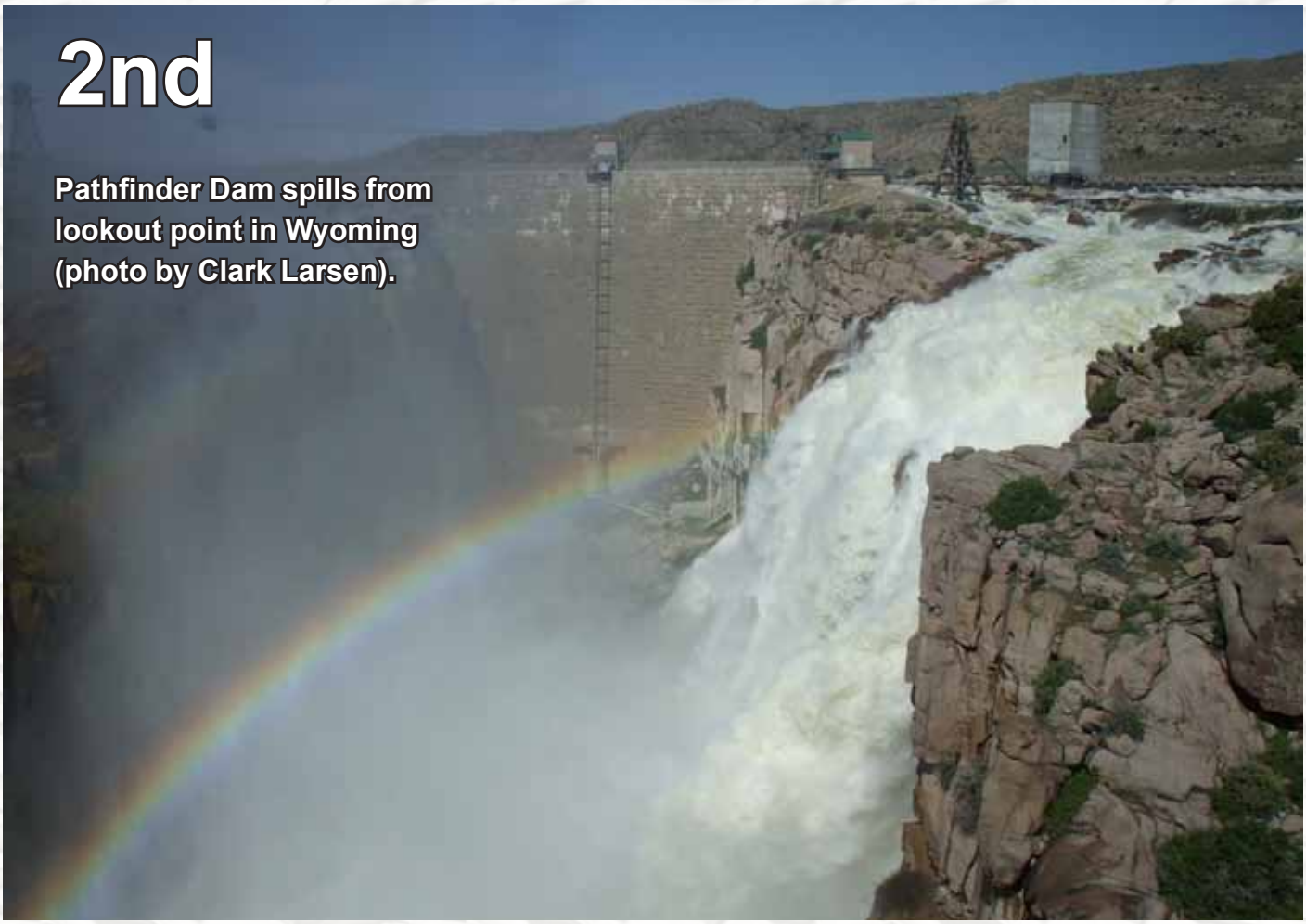
Partial View of Taylor Park Reservoir Dam, Colorado (photo by Ana Lackey).

3rd (tie)

A Great Horned Owl and owlet bask in the sun at Lake Elwell, Montana (photo by Michael Hilliard).

3rd (tie)

An ice-crystal cloud splits the sunlight like a prism (photo by Dave Nelson).



2nd

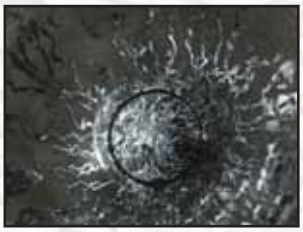
Pathfinder Dam spills from lookout point in Wyoming (photo by Clark Larsen).

Keep an eye out for all of the photo contest images in a variety of Reclamation publications, including the 2012 GP Region Calendar, Plains Talk Magazine, presentations and in our multimedia galleries on the Internet at www.usbr.gov/gp.

In between record high water flows, searing drought and major program accomplishments, Great Plains Region employees found the time to share their visions through photographs with the rest of Reclamation - and for that – we thank you!

winners

(Below) Unaltered thumbnail images of all seven winners:



Randy Ehlis (1st)

Ana Lackey (1st)

Clark Larsen (2nd)

Michael Hilliard (3rd)

Dave Nelson (3rd)

Joe Rohde (3rd)

Tom Thompson (3rd)

Outreach and Planning Prove Key During Montana Area Office's Historic Water Year

(Above) Yellowtail Reservoir in southcentral Montana reached an elevation of 3,655.03 feet on July 25, the second highest storage level since the dam was constructed and the highest since 1967.

By Steve Davies, Tim Felchle and Paula Holwegner, MTAO

"The 2011 spring runoff was either record or near record across Montana," said Dan Jewell, Area Manager for the Montana Area Office.

"By early May, mountain snowpack in many watersheds had reached 140 to 155 percent of average.

"To add to the situation, May and June brought record precipitation across much of Montana and Wyoming, causing many streams to quickly reach or exceed flood stage at many locations," Jewell said.

Flooding along the Bighorn River below Yellowtail Dam after a large rainfall on May 20 and 21, 2011.

To control the significant runoff, the water level at several Reclamation reservoirs had to be increased in preparation for the 'yet-to-come' spring snowmelt.

On a daily basis, MTAO staff worked closely with other Reclamation offices, the Corps of Engineers, National Weather Service, Disaster Emergency Services, Montana and Wyoming Department of Transportation and many other agencies to manage the high water.

MTAO employees put in long days, working to lessen the impact of high water on homeowners and infrastructure, while others stepped up to the plate to keep daily operations running smoothly.

"I'm particularly proud of the way MTAO pulled together in a real team effort and made a significant difference in the outcome of this event," said Jewell.

The record rainfall in late May and early June left reservoirs across much of Montana filling more quickly than anticipated, with streamflows at many locations well above flood stage.

On May 21, Reclamation received a call from the Director of the Montana Department of Transportation, reporting concerns about failure of the State Highway 384 bridge over the Bighorn River at Hardin, Mont.

Failure of the structure could possibly result in the subsequent failure of two larger Interstate 90 bridges immediately downstream.

Heavy rains in the Bighorn Basin had raised the level of the Bighorn River substantially, leaving only about a foot of freeboard underneath the bridge.

Dan Jewell, Area Manager, MTAO.

MDT was worried that high water flows and debris might push the bridge off its abutments and into the two interstate bridges.

MTAO responded by cutting releases from Yellowtail Dam from 8,000 cubic-feet-per-second (cfs) to 3,500 cfs to provide relief.

It was later estimated that flows on the Bighorn River in the Hardin area were about 25,000 to 30,000 cfs as a result of the rainfall event.

While releases from Yellowtail Dam to the Bighorn River were being maintained at 3,500 cfs, storage in Bighorn Lake was quickly filling.

As the rains subsided and streamflows in the Bighorn Basin finally began to slowly recede, MTAO increased releases out of Bighorn Lake in preparation for the anticipated inflow from snowmelt.

"By early June, forecasts indicated releases out of Bighorn Lake to the Bighorn River would need to be increased to as high as 15,500 cfs," said Steve Davies, Project Coordinator.

"This was the second highest release of record out of Yellowtail Dam since it was constructed in 1967.

"Even with maintaining this release rate for approximately two weeks, the record high runoff caused storage to fill about 15 of the 17 feet of exclusive flood storage space in Bighorn Lake," Davies said.

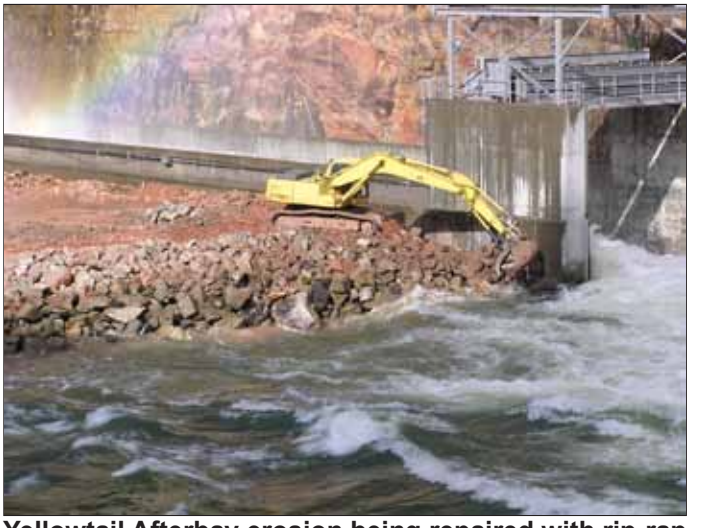
"Storage reached peak level at elevation 3,655 July 23, just five feet below the crest of the dam," Davies said.

The record runoff year resulted in Yellowtail Reservoir reaching elevation 3,655.03 feet July 25, 2011. This is the second highest storage level of record since the dam was constructed and the highest level reached since 1967.

Heavy widespread rains were also being experienced throughout Montana at the same time that mountain snowmelt was about to occur.

Flooding in the town of St. Xavier, Mont.

(Above) Sun River Diversion Dam, Mont.



Yellowtail Afterbay erosion being repaired with rip-rap.

MTAO was closely monitoring the headwaters of the Missouri River upstream of Clark Canyon, Canyon Ferry, Gibson and Tiber Reservoirs.

In anticipation of the snowmelt runoff, nearly four feet of additional storage in Canyon Ferry was evacuated. Releases from Canyon Ferry to the Missouri River were gradually increased to 14,000 cfs by the middle of May.

Snowpack in the Sun River Basin was about 160 percent of average on June 1. Earlier, in mid-April, Reclamation was working closely with the Greenfields Irrigation District (which owns and operates Gibson, Willow Creek and

(Above) Inundated campsites at Clark Canyon Reservoir, Mont.

(Above) Vault toilets at Tiber Reservoir, Mont., swamped by historic high reservoir levels.

Pishkun Dams) to maintain Gibson Reservoir at about 20 percent of full.

As inflows increased, releases were gradually ramped up until the capacity of the regulating gates was reached.

Then, heavy rainfall throughout the basin rapidly increased inflows into the reservoir from 4,000 cfs to over 10,000 cfs.

With the reservoir nearly full, inflows had to be passed through the dam. There was significant flooding on the lower Sun River below Gibson Dam.

To reduce flooding along the Missouri River downstream of Canyon Ferry, releases out of Canyon Ferry were reduced from 14,000 cfs to around 11,000 cfs for about a week in early June.

Tim Felchle, Operations and Maintenance Chief for MTAO, said, "This operation prevented significant flooding that could have occurred in the Great Falls community because of high flows out of Sun River."

By mid-June, the snowmelt runoff in the headwaters of the Missouri was well underway.

Storage in Canyon Ferry was quickly filling while releases were being maintained near 14,000 cfs.

On June 22, storage in Canyon Ferry had reached the top of the joint-use pool and was still increasing. Inflows were more than 25,000 cfs.

With tributary flows downstream of Canyon Ferry slowly declining after the rains subsided, Reclamation steadily increased releases out of Canyon Ferry to a peak discharge of 23,250 cfs while attempting to maintain river flows within safe channel capacity.

Storage in Canyon Ferry continued to slowly increase in the exclusive flood control pool until reaching a peak level at elevation 3,799.68 July 3 - just 0.32 feet below the top of the maximum storage level at Canyon Ferry.

Storage remained near this level for nearly a week before inflows began to decline.

In the upper Missouri River watershed, Clark Canyon Reservoir, located on the Beaverhead River, reached the third highest peak reservoir level ever recorded, at 9.9 feet above the top of the normal joint-use pool.

The Corps of Engineers instructed Reclamation to reduce releases to the minimum conservation release needed to meet project purposes, while storing as much of the remaining runoff as possible in the exclusive flood pools until mid-July.

In response, releases were maintained at levels just high enough to meet downstream irrigation demands until about the middle of July.

When the high flows along the Missouri River began to decline, releases from Clark Canyon were increased to 900 - 1,000 cfs to begin evacuating flood storage.

In mid-May the Corps of Engineers instructed Reclamation to decrease releases from Tiber Reservoir from 2,500 cfs to 500 cfs, later increasing to 750 cfs.

This release rate was maintained through early July, at which time it was increased to 2,700 - 2,800 cfs to begin evacuation of the flood storage.

Storage increased to the peak elevation level of

3,011.42 July 19. This significantly exceeded the previous historic high elevation of 3,005.5 feet (established in 1965) by nearly six feet.

The dam and dike performed well throughout this period, but the impacts of the high reservoir on the recreational facilities were substantial.

Damages to recreational sites around the reservoir from historic high levels is expected to approach $1 million.

In February, with high amounts of snowpack on the prairie throughout the Milk River Basin, releases were increased to begin pulling the reservoir down to provide as much flood control as possible.

Since temperatures were still below freezing, it was difficult make the release changes in a manner that provided confidence that ice jams would not occur.

Releases were staged up throughout the month of March and into the first week of April.

On April 4, the prairie snowmelt was in full force, and even with increased releases through March, the reservoir reached the ungated spillway crest and began to spill.

The spill continued until July 1, when the rain showers and snow runoff finally receded.

Although no flooding occurred on the Milk River through Harlem, substantial flooding occurred downstream as other tributaries flooded the Milk River channel.

The area that saw the worst flooding was from Saco to the confluence with the Missouri River, including the town of Glasgow, Mont.

Overall, Reclamation staff at MTAO felt successful about the management of the water projects under their jurisdiction, considering the record high runoff volumes.

Water Year 2011 will likely be the event that gets talked about again and again throughout their careers.

Tiber Reservoir/ Lake Elwell Hosts 2011 Camp Walleye

For 11 years, volunteers have been bringing middle school children from Great Falls to Tiber Reservoir/ Lake Elwell to introduce them to fishing. This year it was expanded to include kids from all over Montana, with 34 kids and nine youth chaperones participating.

Douglas Morehouse-Huffman (left) with a 28.5 inch walleye.

Pat Volkmar, a middle school teacher from Great Falls, has been instrumental in setting up and running the program, guided by the "Hooked on Fishing, not Drugs" program.

Montana Air National Guard provided tents and many boat captains and others volunteered their time to mentor the kids.

Reclamation's Mike Hilliard, Natural Resource Specialist from the Marias/Milk Rivers' Division in Chester, offered his time to instruct campers on the purpose of Tiber Dam, including recreational opportunities and flood control.

The camp focuses not on the weight of the fish but the length. Over three days, campers caught 168 walleye, with 22 of them being more than 20 inches long; 54 northern pike; three trout; 72 perch and three miscellaneous species including a 19-inch sucker.

OTAO Leads In Development of Emergency Management Program

Reclamation engineers assisted FEMA in the cleanup and restoration process after Hurricane Katrina devastated the Gulf States in 2005.

By Kimberley Parish, Public Involvement Specialist, OTAO

The Oklahoma-Texas Area Office (OTAO) is looking forward to exciting changes in its Emergency Management Program as it welcomes one of its newer staff members to partner with its veteran staff in this important Reclamation program.

For several years, OTAO has been fortunate to have the experience of Lew Hall as its Emergency Management Coordinator.

Since the Emergency Management Program was initiated in 1996, Hall has performed essentially all of OTAO's emergency management work, a dam safety program that helps ensure the safety of the public in emergencies, and threats of emergencies, originating at our dams.

Since Hall's arrival in the Oklahoma City Office in 1990, emergencies that OTAO has responded to include some fifteen surcharge events at Choke Canyon Dam in Texas, three of which were federally declared disasters; at least four surcharge events at Oklahoma reservoirs; and one surcharge event at Cheney Dam in Kansas.

The dam anomalies and internal alerts during this period are numerous.

Since the Emergency Management Program was initiated, OTAO has conducted approximately 50 tabletop and functional exercises, along with about 150 annual emergency planning activities.

Hall has been involving staff in emergency exercises and training, but he has never had anyone shadow his work.

In recent months, OTAO began the process of transitioning this program from a one person job into a team effort, before Hall's experience is no longer available.

This initiative was escalated as Hall made plans for his retirement.

In 2009, Adam Milligan became OTAO's newest Civil Engineering Technician, working in the office next to Hall's.

As Milligan became involved with an assortment of OTAO programs, he also started to assist Hall in emergency management.

As time progressed, it became a natural fit for Milligan to shadow the work Hall does on a daily basis.

The shadowing includes Milligan participating in exercises and orientations. In recent months, he actively planned for a Functional Exercise for two of Oklahoma's Reclamation Projects, which was conducted in late September.

The exercise involved coordinating with three counties and Altus Air Force Base in southwest Oklahoma, where the W.C. Austin and Mountain Park Projects are located.

The transition will be a journey for OTAO as it strives to ensure that the knowledge is passed along.

The journey will also include OTAO Facility Operations group staff members Ben Claggett and Jeremiah Broyles who, incidentally, can now be duly recognized as "senior" Facility Operations staff.

The future of OTAO's Emergency Management Program looks bright.

$15.3 Million Contract Awarded for Red Willow Dam Modification

(Above) Sinkhole discovered during an Oct. 2009, inspection at Red Willow Dam in Nebraska.

On Sept. 27, Reclamation Commissioner Michael Connor announced that SEMA Construction of Centennial, Colo., was awarded a contract of $15,346,900 to conduct extensive modifications of Red Willow Dam in Nebraska.

Red Willow, located 10 miles northwest of McCook, was slated for repair after examinations by Reclamation crews Oct. 2009, discovered a sinkhole on the face of the dam.

Subsequent investigations revealed embankment cracking, prompting Reclamation managers to evacuate most of the water from Hugh Butler Lake, which is impounded by Red Willow Dam.

"With the award of this contract, we are making a major step forward in the process of updating this facility," Connor said.

"This investment will ensure Red Willow Dam will continue to serve the people of Nebraska, and the nation, for future decades.

"This contract helps us restore one of our key structures and helps create job opportunities," Connor said.

Using a formula developed in 2009 by the Council of Economic Advisors to calculate the impact of federal investment, the Red Willow project is estimated to generate more than 160 direct and indirect jobs for one year.

After Reclamation identified the dam safety issue, a Corrective Action Study was initiated in February 2010, evaluating alternatives for the repair of the dam.

Reclamation issued a preferred alternative, and a subsequent modification report was prepared and submitted to Congress for consideration earlier this year.

Red Willow Dam is an earthfill embankment with a structural height of 126 feet and forms a reservoir of 86,630 acre-feet, providing for river and irrigation releases for downstream diversions.

Releases continue to be made to maintain the reservoir elevation in the target range of 2,552 to 2,554 feet to ensure safety of the structure as well as the downstream area. Reservoir operations will continue to maintain this target range until repairs are complete.

(Below) After further excavation, cracks were discovered in Red Willow Dam over the original diversion channel.

Celebrate Community: Fair Offers Tips on Genealogy

Reprinted courtesy of the Billings Gazette, article from Aug. 22, 2011.

By Mary Pickett of the Gazette Staff

P.J. Smith is addicted to genealogy.

For years she's enjoyed unraveling mysteries about the lives of ancestors she has found, who include everyone from a 17th-century Frenchman to a pioneering Montana gold miner.

(Above) P.J. Smith, GPRO, holds a photograph of her great-great-grandmother, Rose Garrigus, who moved to Columbus around 1890 and served as a postmistress.

Her widowed great-great-grandmother, Rose Garrigus, came to Montana about 1890 to become postmistress of Stillwater, the town that is now Columbus.

For Bev Zaugg, genealogy is a way to collect family stories. Her family has held reunions for 54 years, a gathering that always includes of tales of her father and his siblings growing up in Bannock and Sheridan, Mont.

"I love to hear about the pigeon that chased Aunt Dorothy to the out-house," Zaugg said with a laugh. Kari Jorden relies on information collected by genealogists on both sides of her family to make her ancestors come alive.

Last year she returned to Sanford, Colo., for the first time since she was a child for a family gathering to reconnect with her roots.

Interest in genealogy has been spurred by television programs like NBC's "Who Do You Think You Are," Zaugg said.

Computers and genealogy software have made that hunt for a lost relative easier.

In the last 15 years, indexing also has speeded research, Smith said.

Older genealogy information usually is a handwritten document that requires looking at every entry to find a relative's name.

Some of that information now has been plugged into databases so those working on their family trees can do a computer search and get facts for a particular person.

(Above) Flanked by 1861 photos of her relatives William and Rose Garrigus, P. J. Smith holds a family tree that follows her family back to the 1600s.

More information can be found every week, Smith said. That wealth of resources can be overwhelming for a beginner.

So Zaugg, Jorden, Smith and others organized a genealogy fair Saturday to help people do their own ancestor searches.

The event is free and open to everyone. On hand to answer questions about genealogy research will be representatives from these groups: LDS Family History Center, Yellowstone Genealogy Forum, Germans from Russia, Daughters of the American Revolution and Parmly Billings Library.

Short workshops on several topics will be held: 10:15 a.m., Ancestry.com website; 10:45 a.m., Personal Ancestry File (PAF) software; 11:15 a.m., Heritage Quest website; 11:45 a.m., Family Search website; 12:15 p.m., SOAR, Germans from Russia website; 12:45 p.m., introduction to PAF; 1:15 p.m., starting genealogy research; 1:45 p.m., genealogy websites.

Smith is president of the Yellowstone Genealogy Forum, which was started more than 30 years ago.

Zaugg and Jorden are members of the Billings Stake of the Church of Jesus Christ of Latter-day Saints. Genealogy isn't limited to printouts of family trees.

Other creative ways to illustrate family history include quilts, calendars, T-shirts and photo books.

Sifting through centuries of records may bring surprises.

Some genealogists find they are related to royalty or famous people, Jorden said.

Two members of Smith's club discovered they had a common ancestor involved in the Salem witch trials.

"It's a small world," she said.

The Norman Project: In the Wake of Destruction

By Kimberley Parish, Public Involvement Specialist, OTAO

On May 10, 2010, The National Weather Service issued a severe thunderstorm warning for portions of central Oklahoma, warning of highly unstable conditions that could produce multiple tornadoes.

As predicted, the severe thunderstorms that swept across Oklahoma, southern Kansas, and Missouri produced more than 60 tornadoes and caused an estimated $595 million in damage in Oklahoma alone.

The tornado that hit the Norman Project started in the City of Norman as an EF-1, and gradually intensified as it tracked towards Lake Thunderbird.

As it reached the reservoir pumping plant the tornado had already grown to an EF-3. The tornado proceeded to destroy a district maintenance shop including most of the tools and equipment, ripped the roof off of the pumping plant, and shredded trees along the shoreline.

The tornado kept heading east along the shoreline of Lake Thunderbird intensifying to an EF-4 by the time it hit the Fisherman's Point Campground.

(Above) Damage at Little Ax Campground following the storm.

The camp hosts that were staying in the park took shelter in a cinder block bathhouse.

The tornado destroyed parts of the bathhouse, trees, RVs, and vehicles in the campground, but all the people inside the bathhouse survived with only minor injuries.

It also flipped over the newly installed accessible courtesy docks at Denver Corner, Fisherman's Point, and the marina area.

After hitting Fisherman's Point, the tornado headed straight for the Little River Marina.

The Little River Marina, a concession of OTRD, included approximately 250 boat slips, a fuel dock, and a store.

The marina took a direct hit and was completely destroyed. The tornado caused an estimated two million dollars in damage to the boats alone, not counting the marina complex.

The lake had to remain closed for several weeks due to floating debris.

Crews worked for the next ten months removing twisted steel and sunken boats.

All together, some 150 boats and countless loads of steel and other

(Below, left) The Little River Marina, harboring approximately 250 boat slips, a fuel dock and a store, was completely destroyed by the tornado, causing an estimated $2 million in damage to the boats, not including the complex. (Below, right) the reservoir pumping plant and maintenance shop are left battered by the tornado.

(Above, left) Little River Marina, one year after the tornado, has been completely rebuilt to accommodate 187 boats and is open for business. (Above, right) One year later, the Central Oklahoma Master Conservancy District has the maintenance shop rebuilt, the roof replaced on the pumping plant, and new trees planted to replace those lost during the storm.

debris were pulled from the bottom of the reservoir.

The tornado continued to head east across the reservoir straight for the Little Axe Campground.

Several tent sites, trees, and seven lake huts were leveled by the force of the storm.

A camp host travel trailer was thrown several hundred feet into the reservoir.

The tornado continued to head east and eventually hit the community of Little Axe, destroying school buildings, stadium, and several area residences.

The campground was closed for several months while cleanup crews worked tirelessly to restore the area.

Within hours, the Central Oklahoma Master Conservancy District (COMCD) restored minimal water supply to the approximate 250,000 citizens they serve using generator power, but it took several days to restore power and resume full water delivery.

One year later, COMCD has had the maintenance shop rebuilt, the roof replaced on the pumping plant, and planted new trees to replace those lost to the storm.

The campground remains closed,

Little Ax Campground a year after the storm.

but the boat ramps and courtesy docks are open.

All of the trees in the campground had to be removed.

The Oklahoma Tourism and Recreation Department (OTRD) in cooperation with the Oklahoma State Forestry Department have replanted over 3,500 native tree species throughout the park to replace the trees that were damaged during the tornado.

One year and three million dollars later, the marina has been completely rebuilt to accommodate 187 boats and is open for business.

A year later the campground has been reopened to the public. OTAO collaborated with OTRD to build additional tent sites on the south side of the reservoir to partially offset the ones lost at Fisherman's Point and Little Axe Campgrounds.

The lake huts were not replaced, but future OTRD plans involve possibly moving them to the Fisherman's Point Campground.

No fatalities were reported at the Norman Project. Had this storm hit on a weekend, fatalities could have been numerous. One year later things are finally getting back to normal.

The Charitable Spirit of the GP Region

By Tobias Taylor, Visual Information Specialist, GPRO

The Great Plains Region is full of employees who continuously give back to their community throughout the year.

Our employees participate in a myriad of charity events and organizations each year. For example, donating to the Combined Federal Campaign (CFC), volunteering in United Way's Day of Caring, bringing toys for the Marine Corps' Toys for Tots, walking in Relay for Life and donating coats to help support one soldier's mission to keep children warm in war-torn Afghanistan.

This year marks the 50th Anniversary of the Combined Federal Campaign.

CFC is the world's largest and most successful annual workplace charity campaign, with more than 200 CFC campaigns throughout the country and internationally, raising millions of dollars each year.

Pledges made by federal civilian, postal and military donors during the campaign season support nonprofit organizations that provide benefits throughout the world.

Great Plains Deputy Regional Director Gary Campbell said, "We in the Federal Family provide public services and have good stable jobs. There are folks who are not as fortunate as us who from time to time need some help and the CFC is an excellent way to help provide services."

Despite a tough economic year in 2010, and a drop in charitable giving across the country, Federal civilian, military and postal employees pledged more than $281.5 million to the CFC.

The amount raised was the second highest in the CFC's 50 year history and only less than half a percent below the record set in 2009 of $282.6 million.

Day of Caring is a traditional United Way volunteer event that allows local individuals and companies to give the gift of time.

The object is to involve volunteers in first-hand experience with local charities to raise awareness of community needs and services, as well as to better understand the impact of their donated dollars.

This year, 14 GP Regional Office employees spent the afternoon of Sept. 15 giving back to the Billings community by participating in the Day of Caring. Their day started off with lunch at Rimrock Auto Arena Metrapark, followed by splitting into two teams and heading to their volunteer sites.

Bill Cole, Penny Hedges, Delores Tanglen and Christie Walsh spent the afternoon sorting, boxing, reshelving and organizing books that have been donated to the Friends of Parmly Billings Library. A portion of the books will be sold during the Friends Annual Fall

(From left to right) Nicholas Radzykewycz, Mike Ferguson, Paulette Schaeffer, Tracie Long, Sharon Young, Marti Urion, Penny Hedges, Christie Walsh, Paula Schilke, Delores Tanglen, Karen Radzykewycz, Georgia Geigle, Alisha James and Bill Cole.

book sale and the rest will be delivered to various agencies and locations around Billings.

"Each year is different and I always look forward to seeing what the next Day of Caring will bring," said Delores Tanglen, Regional Program Analyst and Day of Caring co-coordinator. "It is hard work, but also a fun team-building experience that's good for morale, good for the community, and something everybody should think about doing."

Mike Ferguson, Georgia Geigle, Alisha James, Tracie Long, Karen Radzykewycz and son Nicholas, Paulette Schaeffer, Paula Schilke, Marti Urion and Sharon Young headed to the Montana Audubon Center where they were dispatched to a sunny hillside where several small saplings awaited a permanent home in the warm earth.

(Above) Reclamation volunteers plant pine trees at the Montana Audubon Center.

Another opportunity was Toys for Tots. The primary goal of Toys for Tots is to deliver, through a new toy at Christmas, a message of hope to less fortunate youngsters that will assist them in becoming responsible, productive, patriotic citizens.

The Billings Reclamation Employee Association has sponsored Toys for Tots for several years, collecting toys at drop points in the regional office.

Regional Office employees donate generously each year, giving not only dozens of toys, but gloves, hats, backpacks and movies. All donations are picked up by the Marine Corps Reserve before Christmas and taken to Family Services and St. Vincent De Paul for distribution to local families.

GP employees also participated in the Relay for Life. Relay for Life is an annual walking relay event held to raise money and awareness in the fight against cancer. Each event is different, but all hold similar key elements such as the Survivor's Lap, an inspirational time when survivors are invited to circle the track together and help everyone celebrate the victories achieved over cancer.

Relay for Life holds a special place in the Nebraska-Kansas Area Office where multiple teams participate each year.

Margo Lindgren has been a member of the G.I. EFree Team for several years. Tami Reichert, former secretary to the Area Manager, and Margaret Keene, Administrative Support Assistant, have both participated in the Survivor's Walk at the beginning of the ceremony.

Terry Seitz, Supervisory Civil Engineer from the McCook Field Office, also participates in the annual walk in Grand Island, Neb.

Karen Jensen, Office Automation Assistant, has participated in the Relay for Life for about 10 years. The Relay for Life Survivor Walk has a special meaning for Karen's family: there are three survivors of cancer in her family (Dad, sister and herself).

Linda Deavila, GP RO's Support Our Troops coordinator, works to keep soldiers' morale high. She has set up collection boxes where employees can donate books, magazines, candy and other items to send to the troops fighting overseas.

One event that went above this general call was when Army Sergeant First Class Glenn Myers of Billings, Mont., asked for help outfitting young Afghan girls who were in desperate need of basic necessities such as school supplies, shoes, scarves, blankets and hygiene products.

Myers' request generated four boxes of school supplies donated by the Veteran's of Foreign Wars.

Deavila organized a coat drive at the Regional Office, asking employees to donate anything they could spare to be boxed and sent to Afghanistan. Regional employees responded with 14 boxes containing a variety of essentials including shoes, pants, hats, scarves, blankets and warm coats.

"Nothing we receive will be wasted," said Myers. "I am so thankful to have the people of Montana to help me."

45 Years of Service: WYAO's Gene Shaulis Retires

Gene Shaulis (right) is presented with a 45-year Career Service certificate by Area Manager John Lawson February 5, 2011, at the Petroleum Club in Casper, Wyo.

By Jay Dallman, Public Involvement Specialist, WYAO

Gene Shaulis worked for Reclamation in Wyoming for more than 38 years, and retired from the WYAO January 1, 2011, with more than 45 years of Federal service.

Shaulis was born and raised in San Diego, Calif. He graduated high school in 1962 and joined the Air Force.

Shaulis was stationed at Lackland Air Force Base in San Antonio, Texas, during the Cuban Missile Crisis.

He served a tour in Southeast Asia as a generator operator at radar communication installations.

During his tour in Japan, he met Susie. They were married and he brought her back to the U.S.

Following his tour, Shaulis was stationed in Havre, Mont., at a radar base for a couple of years.

During this time he also attended a diesel generator school in Havre. Gene got out of the Air Force in 1967, and worked for several months as a security guard for the Pinkerton National Detective Agency.

Shaulis recalls his wife, Susie, was pregnant with their daughter Dee Dee while he was a Pinkerton man. They had no health insurance but his family helped them with doctor and hospital bills.

Next he got a job as a shop la-

borer for the Naval Air Station - North Island, located at the north end of the Coronado Peninsula in San Diego.

Shaulis worked there about two years until a Reduction in Force (RIF) moved him out.

He was called back to work for another brief stint, but then was back looking for a new job.

Shaulis entered a training program for hydroelectric operators in the Southern California State Aqueduct Program.

He started in the Edmonton Pumping Plant, but also worked at Pear Blossom Pumping Plant and a number of other locations.

Shaulis was there until June 1972, when he got a job with the Bighorn Basin Projects Office in Cody, Wyo., as an operator at the Shoshone Powerplant.

Shortly after his arrival, he joined the labor union. Shaulis worked as an operator there until 1980, when he experienced another RIF.

In 1980, he took a job as a Control Center Operator for the North Platte Projects Office in Mills, Wyo., in what is now known as the Casper Control Center.

In 1995, shortly after the consolidation of the North Platte Project Office and the Bighorn Basin Projects Office to form the Wyoming Area Office, he was promoted to Supervisory Operations Manager, which is the position he remained in until his retirement on January 1, 2011.

Shaulis's wife, Susie, owned and operated Susie's Restaurant in Casper, and sushi was one of her specialties.

Shaulis shared her love for cooking and helped her operate the restaurant until her death in 1997.

For nearly two decades, Shaulis's coworkers in Casper benefitted from Susie's cooking skills, and he continued in that tradition until he left federal service.

On Saturday, February 5, a retirement celebration dinner was held at the Casper Petroleum Club.

The event was well attended by Shaulis's family, friends, coworkers and former Reclamation employees.

Shaulis's retirement will mark the beginning of a new era at the Wyoming Area Office.

With one exception, no current WYAO employees can remember a time when he didn't work there.

Shaulis will be missed, but he will leave behind a legacy of his dependable work ethic; his love for Reclamation; his sense of humor; and of course, his love of cooking.

Huntley Main Canal Washes Out

By Margie Replogle,
Budget Analyst, MTAO

Emergency repairs were completed in June 2011 to the Pryor Creek crossing, allowing irrigation water to be delivered for the season.

Authorized in 1905, the Huntley Project is located in south-central Montana, built to divert water from the Yellowstone River to irrigate lands on the south side of the river between Huntley and Pompey's Pillar. The Huntley Project furnishes irrigation water for 27,333 acres of farm land.

Heavy precipitation between May 15 - 26, caused widespread flooding across Montana. Due to heavy precipitation, the Huntley Project Main Canal washed out, damaging the Pryor Creek crossing. Pryor Creek crossing allows streamflows to reach the Yellowstone River, while irrigation water flows through a box culvert beneath Pryor Creek crossing to serve the Huntley Project Irrigation District.

As the water receded, an emergency EA was completed by Reclamation and a temporary fix was completed to allow continued irrigation of croplands through the 2011 irrigation season.

To ensure long-term delivery of water, a permanent fix to the Pryor Creek crossing is in the works, with plans of breaking ground before the end of the year. In addition to ensuring water delivery, the new permanent structure will return the stream to a more natural condition and allow for unimpeded fish passage.

PLAINS TALK: Word Find Puzzle

N	M	T	A	O	W	Y	R	J	H	B	O	R	P	G
E	K	A	L	S	Y	R	A	M	E	C	G	K	R	J
S	D	B	G	F	A	R	S	K	A	H	O	E	Y	E
Y	H	I	U	L	O	E	M	E	R	R	E	K	E	N
O	N	G	E	R	M	F	P	D	T	N	I	A	L	O
B	O	T	R	I	T	N	S	E	M	S	Q	L	L	H
U	T	H	N	V	W	O	S	O	O	F	E	T	O	S
F	R	O	S	D	J	Y	U	A	U	L	M	I	W	O
F	E	M	E	P	K	N	T	K	N	S	H	R	T	H
A	B	P	Y	C	T	A	I	N	T	E	B	I	A	S
L	L	S	K	A	L	C	O	V	A	C	R	P	I	F
O	E	O	I	Q	M	D	N	G	I	A	J	S	L	D
B	T	N	O	Y	N	A	C	T	N	O	M	E	R	F
I	M	I	B	L	H	N	O	R	I	T	A	L	F	C
L	K	D	F	G	P	I	L	O	T	B	U	T	T	E
L	G	L	E	N	D	O	L	L	I	H	E	L	O	P

Find the following office designations and powerplants:

Alcova
Big Thompson
Boysen
Buffalo Bill
Canyon Ferry
DKAO
ECAO
Estes
Flatiron
Fremont Canyon
Glendo
GPRO
Green Mountain
Guernsey
Yellowtail
Marys Lake
MTAO
Mt. Elbert
NKAO
OTAO
Pilot Butte
Pole Hill
Seminoe
Shoshone
Spirit Lake
WYAO
Heart Mountain
Kortes

A turtle suns itself on a log downstream from Yellowtail Dam in Montana, June 2011.

Word Find Puzzle courtesy Timm Seaman (retired)

Alice Barnhart Wins Bonny Dam Essay Contest

Article reprinted from the May 8, 1952, issue of the Burlington Record, titled "Memories of the Last Millennium."

Photo taken from 1952 issue of the Burlington Record, titled "Memories of the Last Millennium."

Alice Barnhart, 16-year-old Burlington high school senior, was the winner of the essay contest sponsored by the Bureau of Reclamation on, "What Bonny Dam Means To Me." The second and third places were Marilyn Doling, 13, eighth grader from Idalia, and Jane Mills, 16, a high school sophomore of St. Francis.

The judge, R.W. Fenwick, a Denver Post writer, announced the winner Saturday, and also stated that Ms. Bonnie Shank, 17, Burlington junior, rated very high with her essay. Special commendations for the quality of their manuscripts went to Lucky Lindsey, Leona Hafer, and Marjorie Powler, all of Burlington.

The contest was sponsored by the Bureau of Reclamation and the towns which have joined in planning dedication ceremonies at the dam, June 1. High school students from the tri-state area were urged to participate in the contest. The winning essay will be read by the contest winner at the ceremonies.

Students in the English and typing classes of the Burlington high school were given the essay contest as an assignment. Local faculty members encouraging the students and picking the best essays from the Curlington school were Harold Voorhees, Miss Mary Harding and Miss Frace Weston.

In a letter to Ralph Williams, publicity director for the regional headquarters of the Bureau of Reclamation, Fenwick said he had read each manuscript three times, and some of them as many as ten times before the final selections were made.

"The interest and knowledge of reclamation and conservation shown by these youngsters," Fenwick wrote, "is highly gratifying and a credit to their teachers and the school they attend. They testify strongly to the security of the future of our Rocky Mountain Empire." Miss Barnhart saw in the Bonny dam many intangible values in addition to its reclamation, conservation and recreation benefits, and said it served as a monumental reminder of what this country can and has accomplished under free government and voluntary cooperation with the government.

Bonny dam, she wrote, "will serve to remind us that without our freedoms we would not be able to have the things we have today, do the things we do today, say the things we say today, print and write the things we do today or to worship as we worship today."

"If we are reminded of this we will fight and work harder to preserve our rights and to make this country a better land in which to live."

Other students noted the dam would afford excellent recreational advantages for the entire region in boating, swimming, skating, fishing and hunting, and would put valuable acres to use, increase crop output from present acreages, prevent floods and the loss of millions of acres of irreplaceable top soil.