

CLEARING THE WATERS

A quarterly newsletter by the Surface Water Quality Bureau

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In This Issue:

	pg.
Project Spotlight	1
Staff Updates	3
Water Policy	5
Events	7

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Innovative Restoration on the Rio Grande in Southern New Mexico

By Chris Canavan, Southern NM Team Leader

In 2006, the Rio Grande downstream of Percha Dam below Caballo Reservoir was listed as impaired for *Escherichia coli* (*E. coli*) in the State of New Mexico CWA §303(d) Integrated List of Assessed Surface Waters. *E. coli* bacteria are commonly found in the digestive tracts of warm blooded animals, including humans, and enters the environment via excretion in feces which can then be transported to surface waters. Most strains of *E. coli* are not harmful to humans, but *E. coli* 0157 is toxic and has been implicated in several food borne illness outbreaks in recent years involving fresh vegetables. *E. coli* is utilized as an indicator of recent fecal contamination of water and indicates the possible presence of the other more toxic pathogens such as those associated with typhoid, hepatitis, cholera, and dysentery.

Agricultural drains serve to drain off excess water and salts from cropland that use flood irrigation by intersecting the shallow groundwater table and returning excess water to the river. Within the Elephant Butte Irrigation District (EBID) of southern New Mexico there are over 4,000 farms consisting of approximately 90,600 acres. EBID maintains over 300 miles of irrigation canals and 350 miles of agricultural drains that crisscross the Rincon and Mesilla Valleys. The drains may also intercept stormwater from the numerous arroyos that drain the surrounding watershed. The drains were not designed to receive floodwaters or mitigate any of the associated pollutants.

Modification of drain morphology to create a constructed wetland is an innovative approach that was developed by EBID in response to repeated structural damage to a drain from storm flows. "EBID has been developing innovative approaches to watershed management with multiple benefits for our constituents and the environment" notes Treasurer-Manager, Gary Esslinger. Selden Drain receives storm flow



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Figure 1: Plan view of the Selden Drain Restoration Project.

from Edwards Arroyo which is conveyed over the Leasburg Canal and then across Doña Ana Road via a low water crossing before entering the drain (Figure 1). In July 2008, the remnants of Hurricane Dolly moved into southeast New Mexico and caused considerable localized flooding in Doña Ana County. During the storm, flood debris from Edwards Arroyo dammed up the drain causing flooding in adjacent neighborhoods.

The Selden Drain Habitat Restoration and Inline Storage Project was designed with multiple goals; reduce the impacts from flooding; provide controlled release of storm flows, mitigate potential *E. coli* bacteria from stormwater, and create wildlife habitat. Phase I was completed in 2009 and involved reinforcing the drain at its confluence with Edwards Arroyo, widening the drain to create an overbank area, and installing a flood control gate. The depth of the original drain channel was kept intact to allow it to function as designed. Phase II began in the spring of 2014 and involves extending the project to cover an additional mile of drain, removal of exotic vegetation, installing a weir and overflow gate, and replanting with native vegetation. The project also receives supplemental water prior to the monsoon season with water donated for conservation by a local farmer. When completed, the resulting two small linear retention basins will facilitate the attenuation of stormwater, improve water quality through infiltration to groundwater, and improve wildlife habitat. Even prior to completion, the project is working as designed. In the late summer of 2014 following heavy runoff from the Edwards Arroyo watershed, it is estimated that the project reduced the *E. coli* load to the Rio Grande by approximately 1.80×10^7 cfu/day.



Figure 2: The Selden Drain Project receiving supplemental irrigation water, summer 2014.

Watershed Protection Section Staff Changes - Santa Fe

- 2014 - WPS said goodbye to **Nina Wells**

Nina Wells retired in April of 2014, after almost 22 years with the Surface Water Quality Bureau and 24 years with NMED. She served under five Governors and all seven Secretaries of Environment. She managed over thirty water quality improvement, wetlands restoration, and planning projects, in the Jemez, Santa Fe, Pecos Headwaters, Gallinas, Sapello, Abo Arroyo, and Las Huertas Creek watersheds.



Nina also developed procedures for reporting spills that are to some degree still followed at NMED, and became a valued partner for several of our cooperators. The Santa Fe National Forest, Valles Caldera National Preserve, City and County of Santa Fe, Tierra y Montes and Claunch Pinto Soil and Water Conservation Districts, WildEarth Guardians, Las Placitas Association, and others have strengthened water quality protection and improvement in their programs and projects largely through her providing program information, monitoring assistance, and project oversight for NMED-funded projects. The quality of the recreational and fishing experiences that many New Mexicans enjoy in these areas has been significantly maintained and enhanced through her efforts.

Nina continues to participate in some of her projects as a volunteer. She also plans to be a snowbird and steward with her husband at their land (in such exotic locales as Quemado and Big Bend, Texas).

- 2014 - WPS welcomed **Greg Kaufman**

Greg Kaufman joined the Watershed Protection Section in September as the Implementation and Restoration Team Lead replacing Nina Wells. Previously, Greg served as the Director of the Pueblo of Jemez Natural Resources Department where he and a staff of nine managed projects on 89,000 acres of tribal land in the Jemez Mountains. Greg has also worked as a project manager for Kleinfelder Environmental Engineering in Phoenix and for the U.S. Navy as a civilian environmental protection specialist near Seattle. He holds an M.S. in Earth Resources from Colorado State University.



When not at work, Greg enjoys hiking and cross-country skiing with his wife, Gail, and their two furry canine children, Rif and Axel. As an avid bicyclist and motorcyclist, he loves all things on two wheels.

WPS Staff Changes - NM Field Office Team - Silver City

- 2014 - WPS said goodbye to **Dave Menzie**

Dave Menzie retired from the Surface Water Quality Bureau after 18 years of service working for the protection of the environment in southwest New Mexico. After receiving his Bachelor's Degree in Geology from the University of NM, Dave worked for the NM Bureau of Mines & Mineral Resources at NM Institute of Mining and Technology, the USGS and then as a geologist at White Sands Test Facility. In 1996, the Surface Water Quality Bureau opened an office in Silver City. After seeing a small ad in the Albuquerque Journal Dave was hired a short time later as a Mining and Geological Specialist. As one of the original staff members, Dave became a storehouse of information from local mining and geology to water quality and changing trends in watershed management. Dave also volunteered numerous hours at local symposiums, children's water festivals, and riparian restoration projects. While Dave has hung up his waders for a set of golf clubs, he continues to volunteer with groups such as the Silver City Watershed Keepers and guiding field trips exploring local geology. Not one to break tradition, he still usually keeps one rock in his pocket.



- 2014 - WPS welcomed **John Moeny & Susan j Ossim**

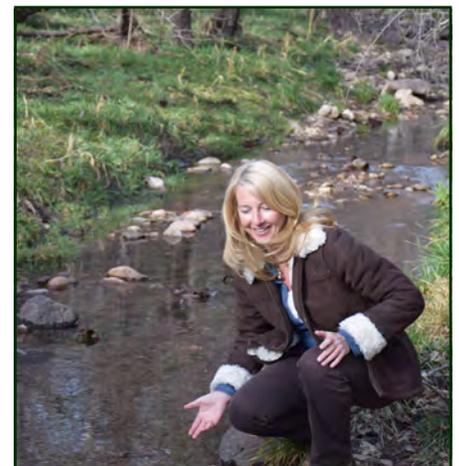


John Moeny joined the Watershed Protection Section last February as an Environmental Scientist. John grew up near the headwaters of the Rio Grande in southern Colorado, and attended Colorado State University where he received his undergraduate degree in Botany. John also earned a Master's degree in Range Science from New Mexico State University. He has worked for numerous federal agencies and private companies throughout the Rocky Mountain west managing a wide variety of projects including wetland restoration, vegetation mapping, rangeland restoration, invasive species research and management, environmental planning and wildlife biology. John's recent work included watershed planning and riparian restoration on the Rio Grande and Pecos River in northern New Mexico. After nearly 15 years of itinerant biological field work, John is happy to focus on a single region and is excited to work with area landowners and stakeholders to improve the watersheds and wetlands of southwest New Mexico.

Susan j. Ossim

Hello readers, I am your editor and the newest person to the Watershed Protection Section. I have taken up post in the Silver City Field Office as an Environmental Scientist and will be working in the southwestern region of the state on the Nonpoint Source, Wetlands, and River Stewardship programs. After graduating from Oregon State University with a degree in Natural Resources, I worked for the Office of the State Engineer in Las Cruces as a Water Resource Specialist. In a former life, I worked in the interior design and architectural field on all aspects of commercial projects in various locations all over the globe.

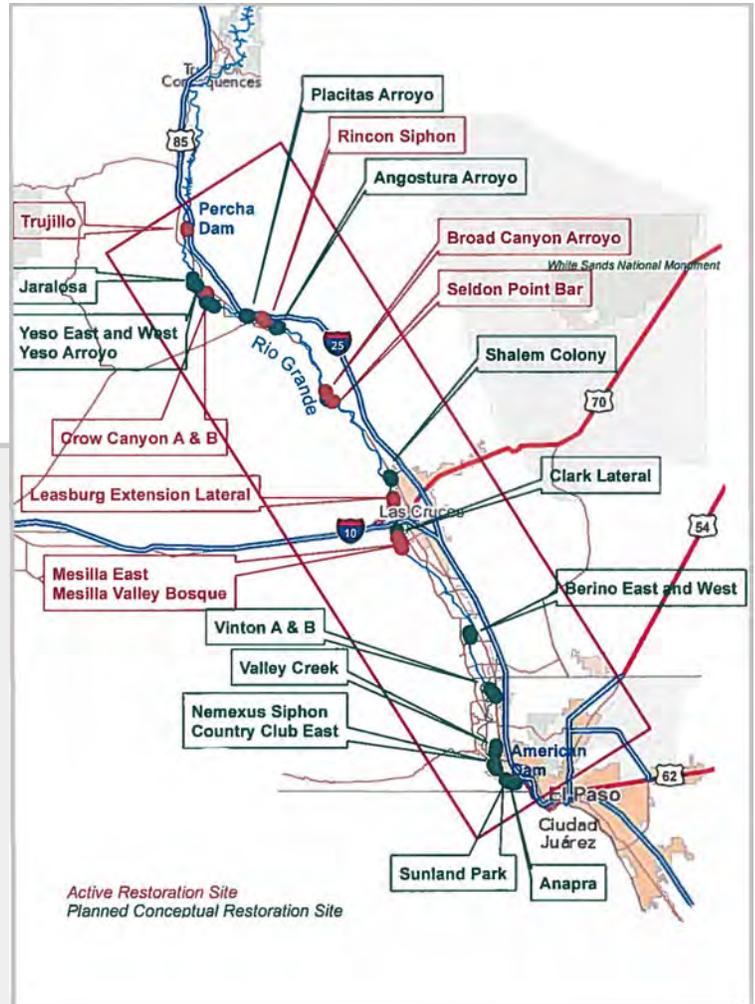
Amid this beautiful landscape of southwestern New Mexico, I am elated to utilize my varied skills and education towards watershed improvement projects.



NEW SURFACE WATER POLICY TO BENEFIT RIO GRANDE HABITAT RESTORATION

By Susan j Ossim, Environmental Scientist - NM Field Team, Silver City

In New Mexico, an advent of positive collaboration has emerged which has had direct benefit for the first, of optimistically many, riparian habitat restoration projects on the Rio Grande in Southern New Mexico. As a result of this collaboration, in June of 2014 surface water released from the Elephant Butte Irrigation District (EBID) was used for the beneficial irrigation of a 30-acre native plant restoration project located in the Lower Rio Grande Basin. This restoration project is one of 30 restoration sites along a 105-mile stretch of the Rio Grande that the United States Section of the International Boundary and Water Commission (USIBWC) is committed to restore to a more natural condition. That commitment is in response to the loss of native habitat which occurred when the Rio Grande Canalization Project (RGCP) (1938-1943) was constructed to control flooding and also enable releases of surface water to reach Mexico. USIBWC signed the Record of Decision (ROD) in June 2009, on River Management Alternatives for the Rio Grande Canalization Project which details that commitment. Project area and locations are identified on Map 1 & 2 (*below and right*) and include approximately 2,500 acres.



Map 1 and 2 - USIBWC Rio Grande Canalization Project extends from Percha Dam in Sierra County, NM 105.6 miles downstream to the American Diversion Dam, in El Paso County, TX. General locations of Habitat Restoration Sites.

continued on page 6

Rio Grande Restoration *continued from page 5*

In addition to USIBWC's commitment to implementing habitat restoration, they also were tasked to develop an Environment Water Transactions Program (EWTP) to procure water rights from willing sellers for sites without existing water rights, because the waters of the Rio Grande are fully appropriated. To secure these surface water rights for environmental purposes, many different entities - USIBWC, EBID, Audubon New Mexico, U.S. Fish and Wildlife Service, and the National Fish and Wildlife Foundation - collaborated on this effort, which resulted in EBID's support of a "new policy to allow voluntary sale and transfer of Rio Grande Project water rights to aid in restoration of native riparian habitat" and the creation of the Rio Grande EWTP. By having the Rio Grande EWTP in place, owners of EBID water rights who wish to donate, lease or sell their irrigation surface water to aid in habitat restoration are able to do so by contacting Audubon New Mexico or the USIBWC.



*Irrigation of cottonwood and willow saplings during a celebration commemorating USIBWC's EWTP first release of surface water for riparian habitat at the Leasburg Extension Lateral Wasteway #8 restoration site - June 30, 2014.
- Since 2012 a total of 1,500 native cottonwood and Goodding's willow trees have been planted along the Leasburg restoration site -*

For the success of future USIBWC restoration projects, the change in water policy was crucial. Recent drought conditions in some areas of the state are not making implementation any easier. In the Lower Rio Grande valley, the water table can see a dramatic flux throughout the year. The depth to ground water in this valley depends on several factors: if water is present in the river channel, timing of surface water releases from the Elephant Butte Dam, proximity to the river within the valley, and also the location in the valley-north to south. Monitoring wells located throughout the Lower Rio Grande basin have recorded a drop in the water table of 10' or more, which is critical when new vegetative roots are yearning to establish. Since many of the restoration sites include a large vegetation component and rely heavily on water to become established and proliferate, securing surface water rights is an essential project component considering the uncertainty of precipitation events and accessible ground water at the site. In the next 5 years USIBWC anticipates restoring the final 21 restoration sites while purchasing additional water rights. The USIBWC estimates the 10 year implementation of the ROD will cost \$11.1 million. As of June 2014, \$2.6 million has been obligated or spent, representing about 23% completion.

For more information, visit - www.ibwc.gov/EMD/canalization_eis.html

ANNOUNCEMENTS

March

March 10th - Community Meeting - Tucumcari, NM. 5:30-7:30 PM at the Mesalands Community College. Topics - Water Quality Survey Planning Presentation for the Canadian and Dry Cimarron Rivers, Lakes and Tributaries. For more information please contact the NMED SWQB:

Stream information: Scott Murray 505-827-2621 or scott.murray@state.nm.us

Lake information: Chuck Dentino 505-827-0101 or charles.dentino1@state.nm.us

March 9-12 - Forest Plan Revision, Community Conversations with the Gila National Forest.

Various locations and times. For more information visit the Gila National Forest website at :

www.fs.usda.gov/detail/gila/news-events/?cid=STELPRD3829418 or www.fs.usda.gov/gila

Locations include: Quemado, Reserve, Glenwood, Silver City, Lake Roberts, & Truth or Consequences

March 26 - Wetlands Roundtable Event - 9:00-4:30 in the Rotunda Meeting Room at the University of NM Science and Technology Research Park - Albuquerque. Presented by: NMED, Quivira Coalition and Albuquerque Wildlife Federation. Please contact Shelly Barnes at 505-827-2827 or michelle.barnes@state.nm.us for more information.



There is no cost to attend but RSVP's are required for this event.

Please sign up at:

<https://www.eventbrite.com/e/new-mexico-wetlands-roundtable-highlighting-the-work-of-bill-zeedyk-tickets-15377488482>

Use the password: Wetlands

April

April 9 - Southern New Mexico Wetlands Roundtable Event - 9:00-4:00 at the Las Cruces City Hall - Las Cruces. Presented by: NMED. Please contact Karen Menetrey at 505-827-0194 or karen.menetrey@state.nm.us for more information.

April 17-19 - Cebolla Canyon; El Malpais National Conservation Area SE of Grants, NM.

Albuquerque Wildlife Federation volunteer restoration project. For additional details: Albuquerque Wildlife Federation - <http://abq.nmwildlife.org>

May

May 1-4 - River Rally on the Rio Grande - Tamaya Resort - Santa Ana Pueblo, NM. A Gathering of the River and Watershed Conservation Community. Please visit the River Network's website for more details: www.rivernetwork.org/programs/river-rally

May 15-17 - Rio Mora National Wildlife Refuge. Northeastern New Mexico.

Albuquerque Wildlife Federation volunteer restoration project. For additional details: Albuquerque Wildlife Federation - <http://abq.nmwildlife.org>