

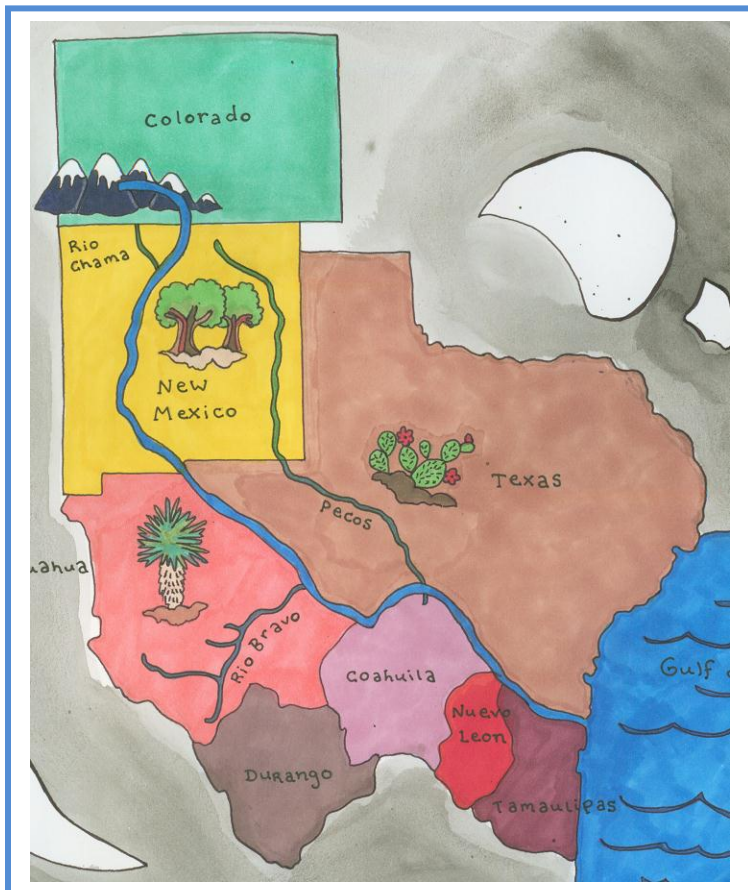
Bosque Ecosystem Monitoring Program

Black Institute for Environmental Studies at Bosque School

Watershed Artwork by Lauren Bennett

Volume 8, Issue 1 ~ November 2012

Drought on the Rio Grande



In this issue of our BEMP newsletter, we are focusing on D-R-O-U-G-H-T, DROUGHT in New Mexico. In addition to seeing dry river beds in September, BEMP students documented that seven of our groundwater wells were dry. BEMP educators also noticed a quick leaf turn to brown, stressed cottonwood trees (soon to drop limbs) and cranes migrating in earlier than years past! However, BEMP Co-Director Dr. Eichhorst reminds us that along with minimal snowpack (most of which sublimated before run-off events), the Rio Grande was also diverted (ie. dewatered) to meet downstream delivery requirements below Elephant Butte.

Photos of the Rio Grande (clockwise): Big Bend, TX; South of Belen; the Diversion Dam in ABQ

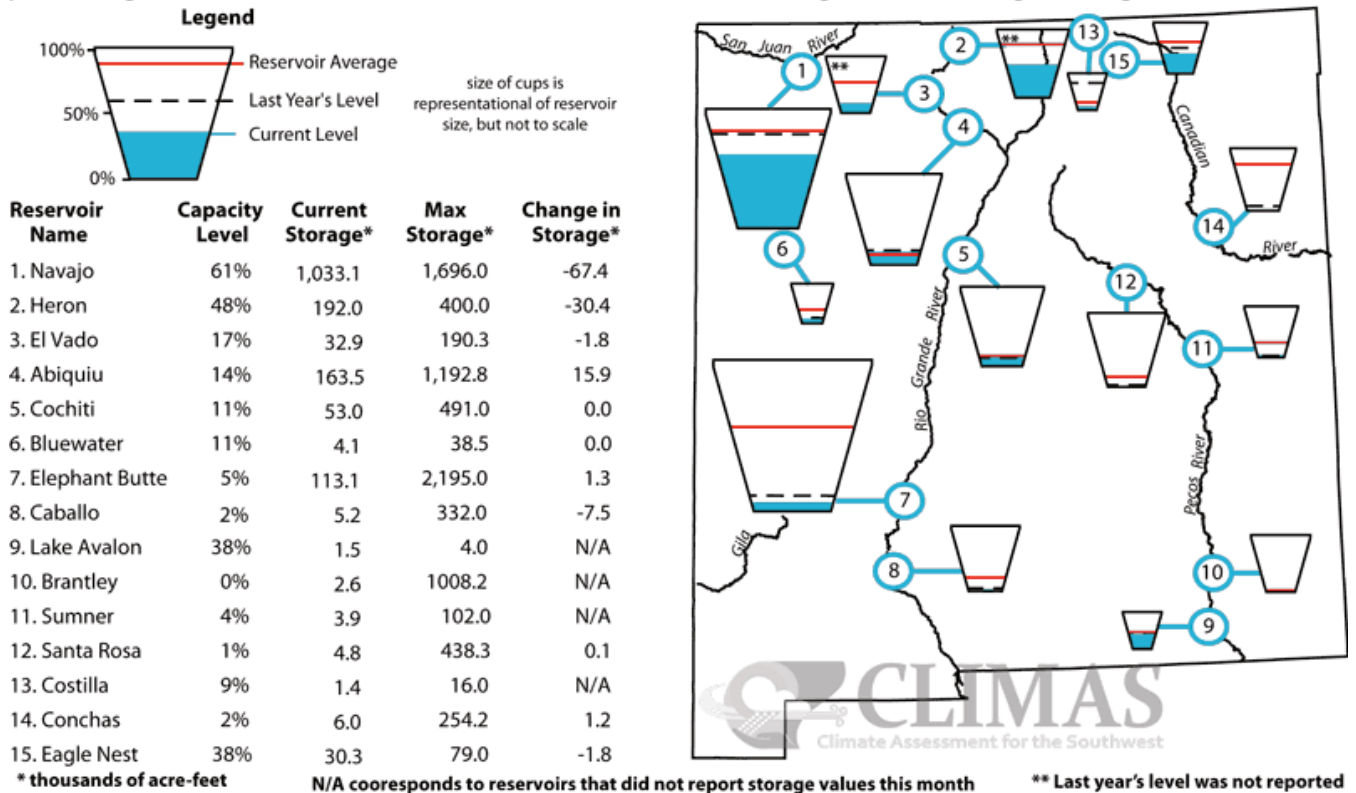
Photos by Kim Fike and Dan Shaw.

INDICATORS OF DROUGHT

New Mexico Reservoir Levels for September (% of Capacity)

www.climas.arizona.edu/swco/oct2012/new-mexico-reservoir-levels

Figure 7. New Mexico reservoir levels for September as a percent of capacity. The map depicts the average level and last year's storage for each reservoir. The table also lists current and maximum storage levels, and change in storage since last month.



As noted in the graphic above, the water level in reservoirs throughout New Mexico (as expressed in thousands of acre feet) steadily declines from north to south. Heron Reservoir is at 48% of capacity level, Cochiti at 11%, Elephant Butte at 5% and Caballo at 2%.

2012 Precipitation Deficits

■ 2012 Precipitation Totals & Deficits (Jan – Sep 2012):

	<i>CY 2012</i>	<i>Departure fm Nrm!</i>
■ Bosque del Apache	3.49 inches	-3.11 inches
■ Santa Fe 2	5.04	-5.91
■ Tucumcari 4NE	6.08	-7.41
■ Fort Sumner 5S	4.58	-7.03
■ Portales	7.39	-6.79
■ Estancia 4N	5.25	-5.04
■ Elephant Butte Dam	4.22	-3.24
■ Glenwood	5.87	-6.17
■ Zuni	5.18	-4.22
■ Gallup Airport	4.41	-4.22
■ Farmington Ag Cntr	2.65	-3.55

www.srh.weather.gov/abq/?n=drought

What is the State's Response to the Drought?

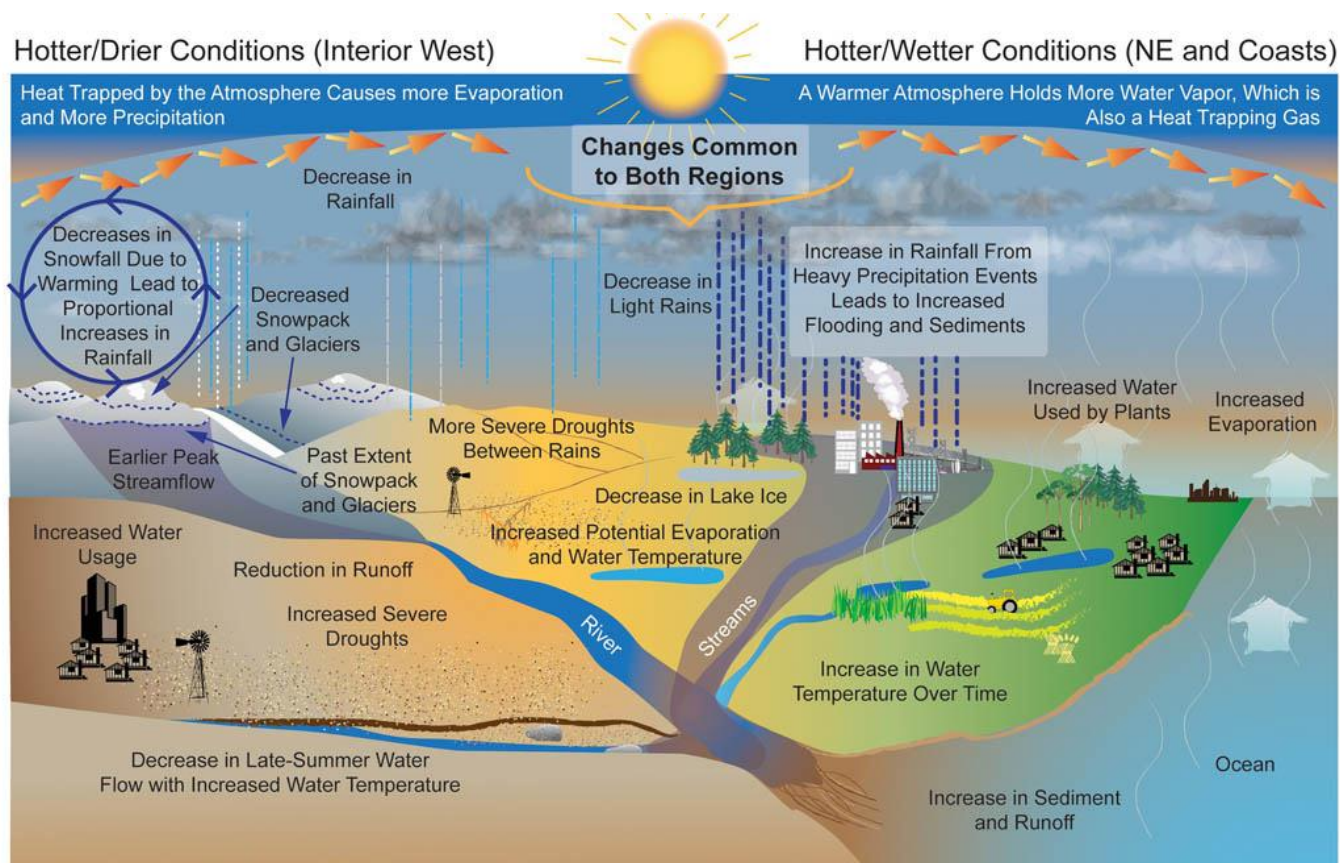
On May 15, 2012, Governor Martinez issued a "New Mexico Drought Declaration" which establishes a Drought Task Force.

For more information, go to:

www.nmdrought.state.nm.us/PDF/Drought_Declaration_2012.pdf

How Might Climate Change Affect Conditions in the West?

<http://epa.gov/climatechange/impacts-adaptation/water.html>



According to the EPA, climate change will result in hotter and drier conditions in the west with decreases in snowfall, snowpack, rainfall, runoff, and increased severe droughts. This will result in an increase in water usage as well as sediment and runoff.

What does BEMP Data Tell Us about Drought?

***Shallow Groundwater Table Depth:** The flow of the river is directly related to groundwater levels. If the water level in the river has dropped, our students see a related drop when they "beep" groundwater wells. We also know that cottonwood roots tend to reach a depth of three meters (~12 feet) and that we can anticipate limb die-off if the water table drops below that.

***Surface Active Arthropod Activity:** When the bosque is dry, we tend to collect fewer arthropods, especially isopods and carabid beetles, but at some sites we collect more tenebrionid beetles.

***Monthly Precipitation:** Average monthly rainfall across our BEMP sites this monsoon season (July-September) was 21 mm. This is similar to 2010, but not as dry as 2011.

For those BEMPer's who are **BERNALILLO COUNTY** residents, the *Albuquerque Bernalillo County Water Utility Authority* requests community input on the future of water conservation. Participants will earn \$20 off their water bill! To register,

Albuquerque Bernalillo County
Water Utility Authority

MEETING DATES & LOCATIONS

African American Performing Arts Center, 310 San Pedro Dr. NE

11/15/12 6-8:00 PM

11/17/12 10-noon

UNM Continuing Ed Center, 1634 University Blvd. NE

12/6/12 6-8:00 PM

12/8/12 10-noon

2012-2013 Participating Schools & Groups

Albuquerque Biopark	Las Cruces Public Schools
Abq. Institute of Math & Science	Los Lunas High School
Alvarado Elementary	Montessori of the Rio Grande
Bandelier Elementary	Mountain Mahogany
Bernalillo Middle School	NM Museum – Young Explorers
Bosque Farms Elementary	New Mexico State Parks
Bosque School	North Star Elementary
Cien Aguas International School	Ohkay Owingeh Comm School
Citizen Schools	Pueblo of Santa Ana
Cottonwood Valley Charter School	Rio Grande Elementary
Dolores Gonzales Elementary	Rio Rancho Cyber Academy
Earthforce: Summer of Service	Roots & Shoots
Escuela Luz de Mundo	Santo Domingo Middle School
Georgia O'Keeffe Elementary	School of Dreams Academy
Harrison Middle School	School on Wheels Alternative HS
Holy Ghost Catholic School	Sevilleta National Wildlife Refuge
Hoover Middle School	The Montessori School
Hope Christian School	Tierra Adentro of New Mexico
Jimmy Carter Middle School MESA	Van Buren Middle School
La Academic de Esperanza	Wilson Middle School
La Cueva High School	

New Mexico Watershed Watch / BEMP Partners

Cimarron High School, Cochiti School, Desert Academy, East Mountain High School, Espanola Valley High School, NM School of the Arts, Santa Fe Prep & United World College

OUR MISSION

*The mission of the **Bosque Ecosystem Monitoring Program (BEMP)** is collaborative **long-term** ecological monitoring of key abiotic and biotic processes and characteristics to promote continued education, understanding and stewardship of the riparian ecosystem to scientists, teachers, students, policy makers and the public.*

www.bosqueschool.org/bemp.aspx



BOSQUE SCHOOL



scholarship • community • integrity

THANK YOU
to those that sponsor BEMP

AMAFCA, Stormwater Quality Team ♦ Albuquerque Community Foundation ♦ Bernalillo County Open Space ♦ Bosque School ♦ Captain Planet Foundation, Inc. ♦ Educational Foundation of America ♦ Goodman Family ♦ LANL Foundation ♦ McKee/Crawford Foundation ♦ Messengers of Healing Winds Foundation ♦ Middle Rio Grande Bosque Initiative/U.S. Fish and Wildlife Service ♦ Middle Rio Grande Conservancy District ♦ National Science Foundation's Schoolyard Education Program at UNM's Sevilleta Long Term Ecological Research Site ♦ New Mexico Association of Soil & Water Conservation Districts ♦ New Mexico Forest & Watershed Institute at Highlands University ♦ Norcross Foundation ♦ PNM Inc. ♦ Sandoval County ♦ U.S. Army Corps of Engineers ♦ U.S. Bureau of Reclamation ♦ USDA Forest Service ♦ 7 Bar Foundation

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2013 Crawford Symposium

~ Green Trails for the Next Generation ~

A *conference and celebration* to share our research and ideas about the New Mexico bosque and landscape we cherish. This is *an event for students and professionals* to promote information sharing, networking and action to help create a *sustainable future!*

Save the Date: **Tuesday, February 26th 2013**

Location: Bosque School – Budagher Hall
4000 Learning Road NW
Albuquerque, NM 87120



Time: 4-7:00 pm; dinner included

Highlights: poster session, drought in NM, citizen science



www.bosqueschool.org/bemp.aspx

CONGRATULATIONS
to BEMP Co-Directors Dan Shaw and Dr. Kim Eichhorst
for receiving the **2012 National Forest Service Chief's Award** for their
“outstanding success in educating and enlightening citizens of their role in helping to sustain ecosystems.”

