

RGV Water Crisis to Worsen

Warm, Dry Spring Sure to Set Conservation Plans in Motion

Tropical Cyclones/Waves Are the Only Hope This Year

Can it get any worse?

For the [24 months ending in January 2013](#), rainfall across Texas Climate Division #10 (RGV – Hidalgo, Cameron, Willacy) was only 28.09 inches – a new record (since 1895) and eclipsing the 32.12 inches that fell during the peak of the 1950s drought by *more than four inches!* As of this writing, February 2013 was headed for the top five warmest all time, with rainfall across the Valley honing in on near record dry territory (below). The warm, dry winter (December-February) has set the table for what could be a devastating spring for growers unable to irrigate, and worse, for municipalities who rely on water sources beyond irrigation to supply their communities. At best, the Valley will need to conserve – now – and likely see water bills rise in a number of areas. At worst, a few communities could be on the verge of running out of potable water as spring heads toward summer.

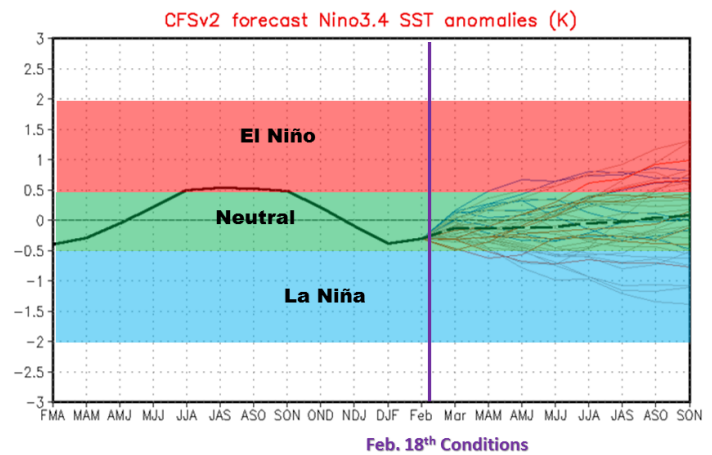
Location	Avg. Temperature	Rank	Record Warmest (Year)	Rainfall
Brownsville	69.6	6	71.6 (1932)	0.01
Harlingen/Coop	68.5	7	72.2 (1932)	0.25
McAllen/Miller	70.5	3	71.5 (1962)	0.01
La Joya/Mission	70.4	3	71.5 (1962)	Trace
Falcon Dam	68.4	2	68.6 (2000)	0.03
Hebbronville	65.8	6	67.3 (2000)	0.13
Raymondville	68.9	4	71.4 (1932)	0
Port Mansfield	67.8	2	68.6 (1962)	0.01

Why No Relief?

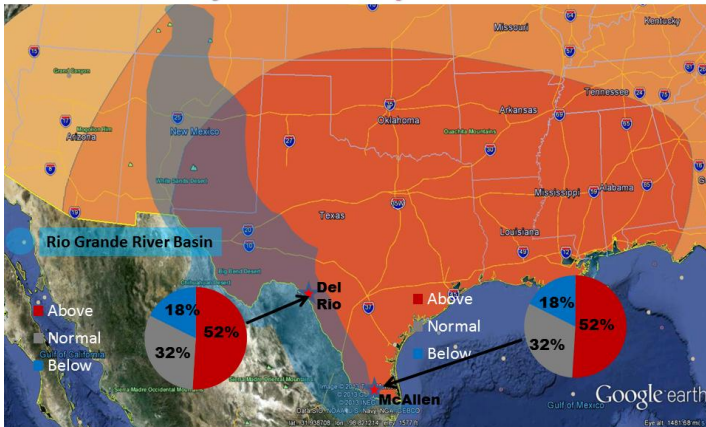
A number of factors (puzzle pieces) are contributing to the current drought, and expected worsening:

- **El Niño/Southern Oscillation (ENSO).** The hopeful late summer trend toward El Niño, which tends to favor increased winter precipitation, died by October. By January, ENSO trended slightly negative - a “lean” toward the drier La Niña pattern. The six month forecast continues a negative “lean” in neutral phase (right), favoring continued dry and warm conditions across the Valley.
- **Arctic Oscillation/North Atlantic Oscillation (AO/NAO).** A negative leaning neutral ENSO signal combined with an expected “lean” toward the negative phase of the AO and NAO favors continued very dry, and generally warm, conditions across the Valley through spring.
- **Pacific Decadal Oscillation (PDO).** Correlation between phases of the PDO and actual weather on the ground across the United States can be indeterminate. However, prolonged negative phase (“cold” phase) has favored drier conditions across the Valley, all other factors being equal.
- **Positive Feedback Loops.** High sun angle and dry ground lead to additional heating, higher evaporation rates, more dry ground, more heating, higher evaporation, etc.

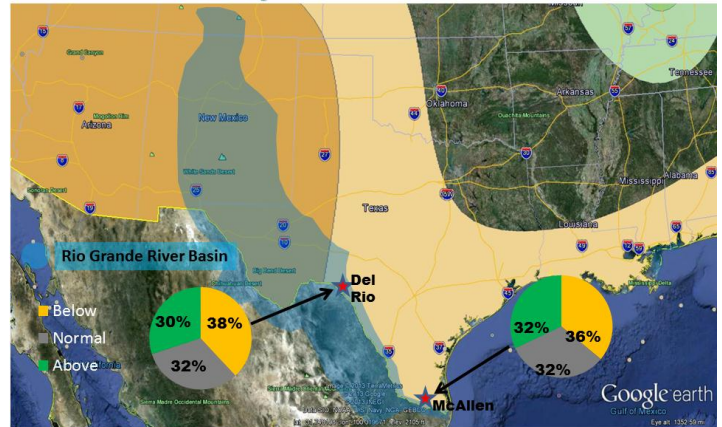
El Niño Southern Oscillation Forecast



March-May 2013 Temperature Forecast



March-May 2013 Rainfall Forecast



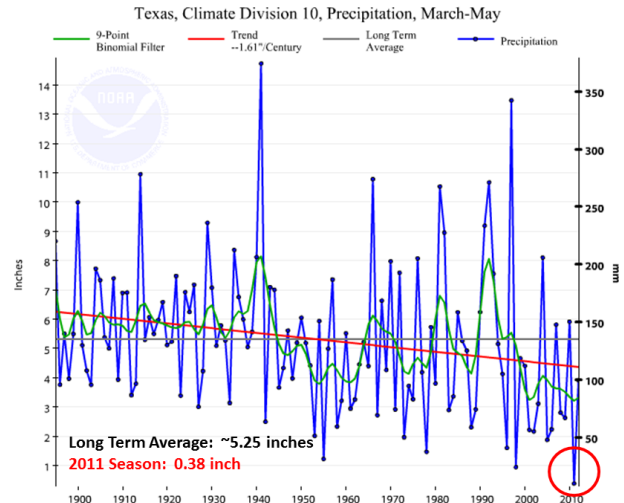
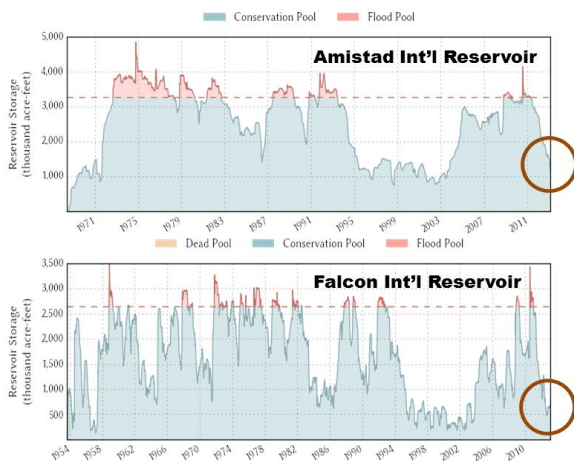
Note: Values described in pie charts above were estimated from the graphic; actual data points were not available at the time of this writing.

The Forecast

The images above tell the warm to hot, dry tale. Confidence continues to increase on a continuation of above average temperatures and below average rainfall through meteorological spring (March through May). Spring is also the second driest season behind winter (December through February) in the Valley based on more than 100 years of data. The Rio Grande River basin is superimposed on the forecast probabilities; much of the headwaters that feed the reservoirs have the highest combined confidence of above average temperature and below average precipitation through the period. For much of the region, dominant daytime temperatures could run in the 80s and lower 90s in March, the 90s in April, and mid to high 90s to around 100 in May. Dry ground will enhance lower humidity, particularly from the Rio Grande Plains/Ranchlands through the Big Bend region and beyond and include each reservoir and the rivers that feed them. Accelerating evaporation rates and targeted irrigation on both sides of the border will likely bring both reservoirs down to or below 20 percent (total U.S. and Mexico pool) by May – uncharted territory since the dams were built in the mid-20th century. On February 22nd, pool levels at both Amistad and Falcon International Reservoir (combined, below left) were similar to those around ten years ago, when population on both sides of the border was more than 650,000

persons fewer than today, and agricultural market value of crops and livestock was nearly a third of what it is today¹.

Rainfall, which averages around 5 ¼ inches between March and May, could end up well below. Periodic thunderstorms between late March and mid-May 2012 pushed the average close to four inches; in 2011, when puzzle pieces were more similar to those of 2013, the average for Cameron, Willacy, and Hidalgo County combined was a paltry 0.38 inches (right, circled).



Impacts

- **Water Shortages.** Irrigation water will be limited this spring; conservation and “smart” crop watering techniques will be vital to producing any reasonable yield of traditional crops (grain sorghum, cotton, corn), citrus, and vegetables. As of this writing, there are 20 public/municipal water supplies with restrictions along and near the Rio Grande, including two with severe restrictions (one each in Starr and Zapata County). Up to thirteen municipalities in Hidalgo County are planning for a likely combination of conservation and increased water prices this spring.
- **Rapid Spread of Wildfire.** Cold fronts will be less “cold” and more dry, more similar to the spring of 2008 and 2011 than the spring of 2012. Gusty north to northwest winds will be accompanied by plummeting humidity, perhaps 10 percent or lower on a number of days through April. Combined with increasingly “crispy” fine (grasses) and coarse (brush and trees) fuels, any fires that begin will spread quickly, perhaps explosively. Ranchers should take advantage of any low wind, moderate humidity days and thin any dead brush and cut high grasses early this spring, before hotter weather arrives. Others should follow smart tips provided [here](#). Remember, [only you can prevent wildfires](#).
- **Exceptional Drought.** As of February 22nd, nearly the entire Texas border region near the Gulf was in Extreme or Exceptional drought. Exceptional drought – the highest level – is likely to spread east and west and could cover all areas at some point in March, April, and/or May.
- **Heat.** Much of this winter wasn’t winter at all, but more like March. In McAllen, daytime temperatures from December through February 21st averaged nearly 77°F (average is closer to 72°F) – 6th highest since records began in 1961. Brownsville averaged nearly 76°F – unofficially, 5th highest since records began in 1878. Increasing heat will combine with increasing humidity at the surface ahead of fronts to make it feel more like June and even July than April or May.

What You Can Do

- **Conserve Water!**
 - Take fewer and shorter showers.
 - Install low-flow toilets, faucets, and shower heads.
 - Recycle used household water for plant irrigation rather than turning on the spigot.
 - Repair leaky faucets, showers, or other plumbing.
 - Check appliances, such as dishwashers and clothes washers, for water efficiency.
 - Let your grass grow to better accept condensation from dew, and irrigate infrequently.

- Wash cars seldomly.
 - Consider rain barrels (cisterns) to collect whatever falls this spring. . Check out how on page 3 of the [Winter 2013 Coastal Breeze web letter](#).
 - You may also want to collect condensate water from air conditioning units Consider becoming more drought tolerant. [Xeriscape or landscape](#) with drought-hardy plants.
 - Read more Texas water conservation tips [here](#).
- **Conserve Energy!** Hot, dry weather is typically a drain on electricity. We're all in this together; the energy you save can save you and your community money – or more – during exceptional drought.
 - Check your walls, foundation, and roof for air leaks.
 - Service your heating, ventilation, and air conditioning (HVAC) units to ensure they are not using excessive energy.
 - Set your thermostat to a higher temperature when you're not home
 - Install or use an attic fan to improve ventilation
 - Read more Texas energy conservation tips [here](#).

Keep Updated

Point your browser to <http://weather.gov/rqy/?n=drought> through spring to see the latest updates on drought conditions, drought forecasts, and rainfall deficits. Join us on [Facebook](#) or [Twitter](#) to keep updated on shared information from our core water, environmental, forest, and emergency services partners as the expected dry, hot spring unfolds.

¹USDA [Census of Agriculture](#), 2002-2007. The 2012 Census is being finalized in early to mid-2013.