

June 10, 2013

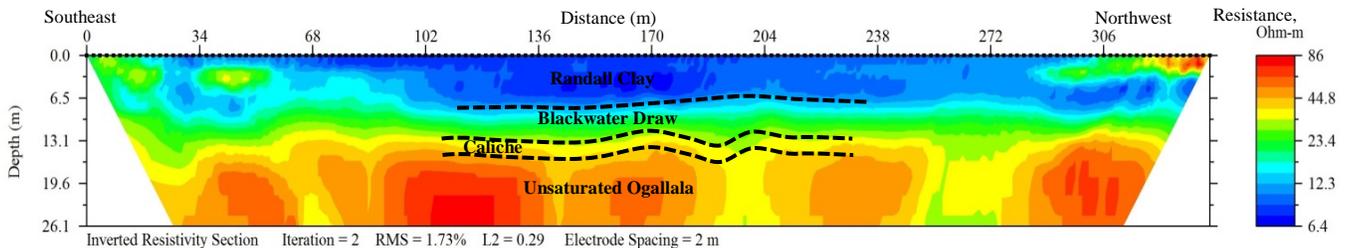
Dear Project Participant,

Welcome to the 2013 update of playa monitoring across the Southern High Plains! The Playa Lakes Ogallala Aquifer Recharge Project continues to be an important effort of the Texas Water Development Board, and has garnered much attention during 83<sup>rd</sup> Texas Legislative session. We appreciate your continued participation in and input to the project.

I would like to begin this newsletter by introducing myself—my name is Christina Bryant, and I am a recent hire in the Groundwater Resources Division at the TWDB. You will probably see me working with Andy Weinberg this summer.

### **Continued Playa Monitoring**

2013 has seen continued and enhanced monitoring, new instrument installation, and the addition of new monitoring sites. One type of data we are collecting is electrical resistivity surveys to assist our evaluation of subsurface moisture distribution. An example of the results from the Crowell site is shown below. Cool colored areas indicate areas of lower electrical resistivity, which is related to soil type and soil moisture. As we perform repeated surveys, the profiles show changes in soil moisture over time and help define recharge areas within the playas.



We are collaborating with other researchers from across the US. In June we will be working with associates at Clemson University to install Differential Variable Reluctance Transducer sensors at selected sites. These subsurface sensors measure very small soil displacements related to changes in mass as water enters or leaves the system. We are also working with the USDA’s Agricultural Research Service and Texas Tech University to install a “Super Station” in a Floyd County rangeland playa. Instrumentation will be installed at this site to help refine our recharge models and provide quality control for the monitoring network.

#### **Our Mission** : **Board Members**

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|---|--|---|---|
| <ul style="list-style-type: none"> <li>To provide leadership, planning, financial assistance, information, and education for the conservation and responsible development of water for Texas</li> </ul> | <ul style="list-style-type: none"> <li>Billy R. Bradford Jr., Chairman</li> <li>Joe M. Crutcher, Vice Chairman</li> <li>Melanie Callahan, Executive Administrator</li> </ul> | <ul style="list-style-type: none"> <li>Lewis H. McMahan, Member</li> <li>Edward G. Vaughan, Member</li> </ul> | <ul style="list-style-type: none"> <li>Monte Cluck, Member</li> <li>F.A. “Rick” Rylander, Member</li> </ul> |
|---|--|---|---|

This past year 3 new sites were added to the Playa Lakes project, thanks to the participation of Jan Minton, Darryl Birkenfeld, and Paul Schacht. Welcome! There are now a total of 17 sites with weather stations and soil moisture monitoring, plus 18 sites with water level monitoring only.

**2013 Drought Conditions and Forecasts**

Drought continues to affect the Texas Panhandle. Please check the TWDB website for our Drought Monitoring page, which provides weekly legislative updates, a seasonal drought outlook, suggestions for drought preparation, tips to avoid wasting water at home, in the lawn or garden, and on the ranch, a frequently asked questions page, and links to other resources.

<http://www.twdb.state.tx.us/surfacewater/conditions/drought/index.asp>

The most recent conditions for Texas, shown below, indicate that virtually all of the High Plains remains in extreme or exceptional drought, with drought predicted to continue or intensify through the summer season (from <http://droughtmonitor.unl.edu/>).

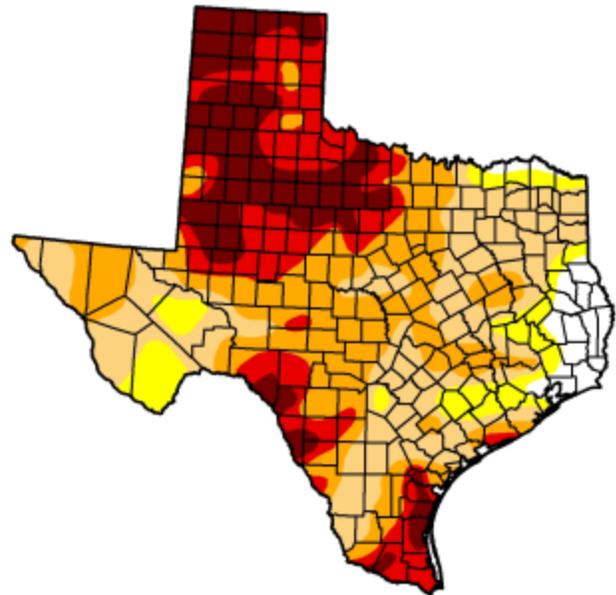
# U.S. Drought Monitor

## Texas

June 4, 2013  
Valid 7 a.m. EST

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	4.66	95.34	87.38	59.59	33.12	16.47
Last Week (05/28/2013 map)	3.49	96.51	88.27	60.34	32.45	16.02
3 Months Ago (03/05/2013 map)	11.15	88.85	76.29	55.62	23.86	7.41
Start of Calendar Year (01/01/2013 map)	3.04	96.96	87.00	65.39	35.03	11.96
Start of Water Year (09/25/2012 map)	9.13	90.87	78.73	57.41	24.91	5.18
One Year Ago (05/29/2012 map)	2.63	97.37	59.18	26.58	10.16	0.73



***Intensity:***

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.*

<http://droughtmonitor.unl.edu>



Released Thursday, June 6, 2013  
David Simeral, Western Regional Climate Center

## **Preliminary Results**

One of our main tasks back in the office has been to evaluate the average flood frequency and flood volume of the playas over time. We combined topographic survey data with satellite imagery to reconstruct playa water levels for 2002 to the present. For the group of 27 playas, size averaged 39.4 acres, with flooded conditions 20.9% of the time, an annual flood volume of 22.6 acre feet, and an average flood depth of 0.6 feet. Results for individual playas are shown in Table 1. We are currently working to extend the period of record back to 1996 and expand the number of playas in the study. Results from this work will help target locations where playa modifications can produce the most recharge. Links to detailed reports and presentations can be found on the project web page at

[http://www.twdb.state.tx.us/groundwater/special\\_projects/index.asp](http://www.twdb.state.tx.us/groundwater/special_projects/index.asp)

## **Future Work**

Playa monitoring is scheduled to continue through mid-2014, at which point selected playas may enter the modification phase. We are interested in your suggestions, input, and ideas on playa modifications.

Again, thank you for your continued participation in this project. So far I have experienced freak snowstorms, dust storms, lightning storms, and hot and cold weather alike, but have yet to see water in the playas. We are all keeping our fingers crossed for rain and a reprieve from this drought.

<b>Playa ID</b>	<b>Area, acres</b>	<b>Flooded time, percent</b>	<b>Annual volume, acre ft</b>	<b>Average flood depth, feet</b>
Minton S	79.8	40.0%	60.7	0.76
SWCROP	23.3	39.4%	45.1	1.94
FLCROP	31.86	39.2%	39.5	1.24
FLRNG	32.62	35.4%	67.9	2.08
Moore	40.09	30.4%	27.4	0.68
BRRNG	31.25	27.6%	22.0	0.70
Minton N	36.78	26.2%	17.6	0.48
Rieff 1	32.49	25.6%	20.4	0.63
Rieff 2	17.41	24.5%	10.9	0.63
Herring 1	33.76	23.5%	26.6	0.79
Glazner	48.27	20.3%	35.1	0.73
Younger	47.57	20.1%	15.2	0.32
Obert N	13.62	19.1%	5.6	0.41
Bowers	13.62	19.1%	3.1	0.22
Obert M	14.41	18.9%	4.7	0.32
Obert S	7.9	16.9%	4.5	0.57
Crowell	27.71	16.5%	7.7	0.28
Wright	119.3	14.9%	26.5	0.22
Mahagan	15.39	14.1%	6.1	0.40
Bivins N	99.23	13.9%	104.4	1.05
SWRNG	17.32	13.9%	8.7	0.50
Durrett	61.66	13.1%	6.5	0.11
Hollenstein	21.66	12.9%	7.1	0.33
Herring 3	22.62	12.5%	7.2	0.32
M.Harrell	30.62	10.3%	6.2	0.20
Herring 3a	12.63	8.9%	2.3	0.19
Bivins S	131.7	5.8%	20.4	0.15

**Table 1: Reconstructed water levels for 2002 to present.**

Please contact Andrew Weinberg at the Texas Water Development Board at 512-463-3210 with any comments or questions.