

## RESERVOIR STORAGE

*January 2014*

At the end of the month, total storage in 115 of the state's major water supply reservoirs was at 20.07 million acre-feet\*, or 64% of their total conservation storage capacity. This is 96.2 thousand acre-feet less than a month ago and 866.6 thousand acre-feet less than the storage at this time last year. No data was available for Electra, Daniel, and Twin Buttes.

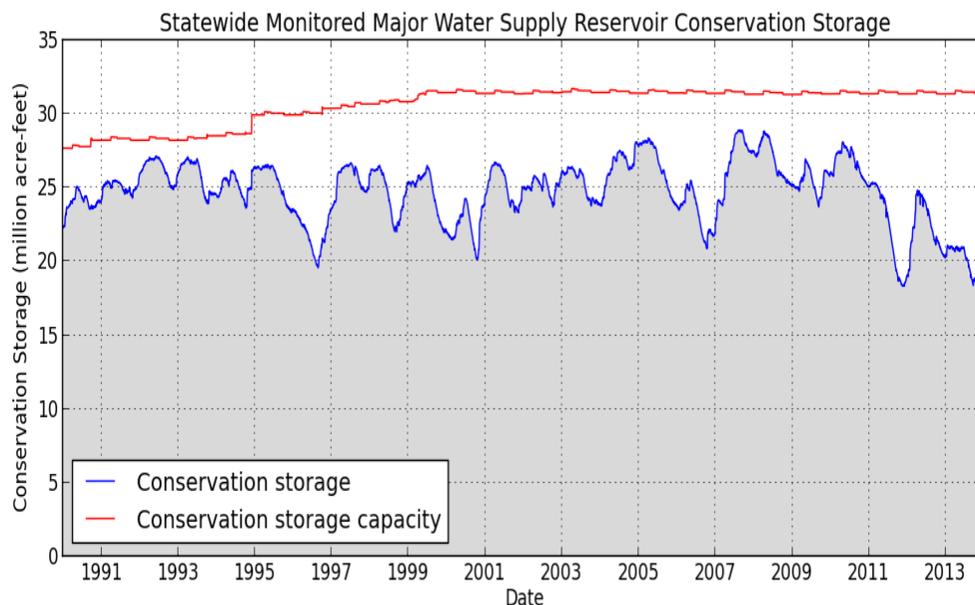
Fifteen reservoirs, most in North Central and East regions, held 100% of conservation storage capacity. Fourteen (14) reservoirs were at or below 10% full: Meredith, White River, Electra, Daniel, Twin Buttes and North Fork Buffalo Creek were effectively empty, J. B. Thomas and O. C. Fisher were at 1%, Palo Duro, Medina, and E.V. Spence were at 3%, Mackenzie was at 5%, Abilene was at 6%, and Champion Creek was at 7% full.

Total combined storage was greater than 70% in the Upper Coast (91%) and East (90%) regions. The regions with the lowest percentage storage were the High Plains (1%) and Low Rolling Plains regions (23%). Storage declined in 6 regions and increased in 3 regions over the past month.

Elephant Butte reservoir held 311,307 acre-feet, or 16% of storage capacity. This is 32,967 acre-feet more than a month ago.

\* Only the Texas share of storage in border reservoirs is counted.

### CONSERVATION STORAGE DATA FOR



Figures are based on the end of the month data at 115 major reservoirs that represent 96 percent of the total conservation storage capacity of the 188 major water supply reservoirs in Texas. Major reservoirs are defined as having a conservation storage capacity of 5,000 acre-feet or greater.

**CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS**

Name of Lake or Reservoir	Conservation Storage Capacity (acre-feet)	Conservation			Change since		Change since	
		Storage end of Jan 2014 (acre-feet)	(%)	(%)	end of Dec 2013 (acre-feet)	(%)	end of Jan 2013 (acre-feet)	(%)
<b>HIGH PLAINS</b>								
Palo Duro Reservoir	61,066	1,779	3	2	0	221	0	
Meredith, Lake (Texas)	500,000	0	0	0	0	0	0	
Meredith, Lake (Texas & Oklahoma)	779,556	0	0	0	0	0	0	
MacKenzie Reservoir	46,450	2,426	5	-33	-0	-596	-1	
White River Lake	29,880	0	0	0	0	-1,356	-5	
<b>TOTAL</b>	<b>637,396</b>	<b>4,205</b>	<b>1</b>	<b>-31</b>	<b>-0</b>	<b>-1,731</b>	<b>-0</b>	
<b>LOW ROLLING PLAINS</b>								
Greenbelt Lake	59,968	8,481	14	-21	-0	1,054	2	
*Electra, Lake	5,626	0**	0**	0**	0**	0	0	
N. Fork Buffalo Crk Reservoir	15,400	70	0	-30	-0	-731	-5	
Kemp, Lake	245,307	59,163	24	-875	-0	-1,674	-1	
Millers Creek Reservoir	26,768	4,141	15	-277	-1	-2,941	-11	
Alan Henry Reservoir	94,808	61,279	65	-1,034	-1	-8,491	-9	
Stamford, Lake	51,570	7,825	15	-514	-1	-5,884	-11	
J B Thomas, Lake	199,931	2,611	1	-167	-0	1,440	1	
Fort Phantom Hill, Lake	70,030	30,890	44	-632	-1	-3,997	-6	
Sweetwater, Lake	12,267	2,507	20	-64	-1	-1,161	-9	
Colorado City, Lake	30,758	8,082	26	-161	-1	-2,839	-9	
Champion Creek Reservoir	41,580	3,027	7	-62	-0	-483	-1	
Abilene, Lake	7,900	437	6	-38	-0	-972	-12	
Coleman, Lake	38,075	15,224	40	-319	-1	-2,460	-6	
Hords Creek Lake	8,443	2,598	31	-63	-1	-333	-4	
<b>TOTAL</b>	<b>902,805</b>	<b>206,335</b>	<b>23</b>	<b>-4,257</b>	<b>-0</b>	<b>-20,991</b>	<b>-2</b>	
<b>NORTH CENTRAL</b>								
Nocona, Lake (Farmers Crk)	21,444	9,036	42	-188	-1	-1,602	-7	
Hubert H Moss Lake	24,058	20,757	86	-161	-1	-322	-1	
Texoma, Lake (Texas)	1,258,113	985,204	78	-33,675	-3	-87,581	-7	
Texoma, Lake (Texas & Oklahoma)	2,525,281	985,204	39	-33,675	-1	-87,581	-3	
*Pat Mayse Lake	113,683	88,425	78	-2,148	-2	-3,918	-3	
Kickapoo, Lake	85,825	26,517	31	-889	-1	-8,360	-10	
Arrowhead, Lake	235,997	62,999	27	-2,462	-1	-31,647	-13	
Bonham, Lake	11,027	9,043	82	-320	-3	1,089	10	
Crook, Lake	9,195	8,841	96	-239	-3	1,630	18	
Amon G Carter, Lake	19,266	9,184	48	-344	-2	-2,915	-15	
Ray Roberts, Lake	788,167	589,237	75	-9,211	-1	-94,700	-12	
Jim Chapman Lake (Cooper)	260,332	84,168	32	-5,712	-2	-65,713	-25	
Graham, Lake	45,288	23,490	52	-504	-1	-10,248	-23	
*Lost Creek Reservoir	11,950	8,521	71	-141	-1	-1,705	-14	
Bridgeport, Lake	366,236	162,939	44	-2,456	-1	-49,099	-13	
Lewisville Lake	563,228	381,938	68	-5,375	-1	-40,223	-7	
Lavon Lake	406,388	195,107	48	-1,525	-0	-54,668	-13	
Hubbard Creek Reservoir	326,559	76,832	24	-2,820	-1	-18,249	-6	
Possum Kingdom Lake	540,340	351,351	65	-3,866	-1	-41,350	-8	
*Mineral Wells, Lake	6,760	4,025	60	-61	-1	-1,079	-16	
Weatherford, Lake	17,812	9,856	55	-387	-2	-842	-5	
Eagle Mountain Lake	179,880	126,133	70	-3,688	-2	-7,743	-4	
Worth, Lake	33,495	23,808	71	-1,002	-3	-361	-1	
Grapevine Lake	164,703	108,678	66	-2,568	-2	-18,432	-11	
Ray Hubbard, Lake	452,040	314,192	70	-9,449	-2	-73,637	-16	
New Terrell City Lake	8,583	6,483	76	-100	-1	-495	-6	
Daniel, Lake	9,515	0**	0**	-2,212	-23	-2820	-29.2	

**CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS**

Name of Lake or Reservoir	Conservation Storage Capacity (acre-feet)	Conservation Storage end of Jan		Change since end of Dec 2013		Change since end of Jan 2013		
		2014 (acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)	(%)	
<b>(North Central Continue)</b>								
Palo Pinto, Lake	26,827	7,696	29	-580	-2	-8,871	-33	
Benbrook Lake	85,648	69,861	82	-5,782	-7	10,720	13	
Arlington, Lake	40,188	28,749	72	-775	-2	-630	-2	
Joe Pool Lake	175,358	166,610	95	-1,516	-1	5,472	3	
*Cisco, Lake	25,895	14,544	56	-238	-1	4,666	18	
Leon, Lake	26,476	21,796	82	-442	-2	4,056	15	
Granbury, Lake	128,046	72,020	56	-3,126	-2	-20,206	-16	
Pat Cleburne, Lake	26,008	16,081	62	-186	-1	-2,864	-11	
Waxahachie, Lake	10,780	9,072	84	247	2	-716	-7	
Bardwell Lake	46,122	36,916	80	0	0	-1,304	-3	
Proctor Lake	55,457	26,419	48	-727	-1	-8,250	-15	
Whitney, Lake	553,344	347,119	63	-1,962	-0	-41,002	-7	
Aquila Lake	44,460	33,252	75	-1,153	-3	-1,153	-3	
Navarro Mills Lake	49,827	49,827	100	0	0	1,264	3	
*Halbert, Lake	6,033	5,176	86	-202	-3	81	1	
Richland-Chambers Reservoir	1,087,839	803,995	74	7,407	1	-120,126	-11	
*Brownwood, Lake	128,839	72,826	57	-1,455	-1	1,170	1	
Waco, Lake	189,567	174,878	92	1,861	1	13,858	7	
Limestone, Lake	208,014	207,645	100	-369	-0	34,094	16	
Belton Lake	435,225	330,734	76	-516	-0	-27,550	-6	
Stillhouse Hollow Lake	227,771	168,592	74	-2,165	-1	-23,260	-10	
Georgetown, Lake	36,823	20,385	55	451	1	-3,218	-9	
Granger Lake	50,779	50,779	100	0	0	0	0	
Tawakoni, Lake	871,685	567,668	65	-15,586	-2	-147,102	-17	
Mountain Creek, Lake	22,850	22,850	100	0	0	0	0	
Squaw Creek, Lake	151,250	150,681	100	-569	-0	-569	-0	
<b>TOTAL</b>	<b>10,661,480</b>	<b>7,162,935</b>	<b>67</b>	<b>-116,674</b>	<b>-1</b>	<b>-943,610</b>	<b>-9</b>	
<b>EAST</b>								
Wright Patman Lake	122,593	122,593	100	0	0	0	0	
*Sulphur Springs, Lake	17,747	17,747	100	0	0	2,900	16	
Cypress Springs, Lake	66,756	65,597	98	-836	-1	3,921	6	
Bob Sandlin, Lake	190,822	156,756	82	3,058	2	7,952	4	
Caddo, Lake	29,898	29,898	100	0	0	0	0	
Martin, Lake	75,116	74,360	99	-756	-1	13,572	18	
Monticello, Lake	34,740	34,740	100	0	0	0	0	
Fork Reservoir, Lake	605,061	490,584	81	2,097	0	-11,250	-2	
O the Pines, Lake	241,363	241,363	100	0	0	60,114	25	
Cedar Creek Reservoir in Trinity	644,686	533,079	83	-1,467	-0	-22,833	-4	
Athens, Lake	29,435	28,422	97	320	1	3,617	12	
Palestine, Lake	373,199	373,199	100	0	0	20,228	5	
Tyler, Lake	73,161	67,096	92	271	0	12,280	17	
Murvaul, Lake	38,285	38,079	99	-206	-1	-206	-1	
Jacksonville, Lake	25,670	25,647	100	-23	-0	530	2	
Nacogdoches, Lake	39,522	38,355	97	234	1	-580	-1	
Houston County Lake	17,113	17,113	100	0	0	0	0	
Sam Rayburn Reservoir	2,857,077	2,429,332	85	18,468	1	-109,159	-4	
Toledo Bend Reservoir (Texas)	2,245,752	1,961,115	87	4,256	0	5,101	0	
Toledo Bend Reservoir (TX & LA)	4,472,900	1,961,115	44	4,256	0	5,101	0	
*Livingston, Lake	1,785,348	1,785,348	100	0	0	0	0	
B A Steinhagen Lake	66,961	47,805	71	-5,343	-8	-5,343	-8	
Conroe, Lake	416,177	391,429	94	3,734	1	30,944	7	
<b>TOTAL</b>	<b>9,996,482</b>	<b>8,969,657</b>	<b>90</b>	<b>23,807</b>	<b>0</b>	<b>11,788</b>	<b>0</b>	

**CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS**

Name of Lake or Reservoir	Conservation Storage Capacity (acre-feet)	Conservation Storage end of Jan		Change since end of Dec 2013		Change since end of Jan 2013		
		2014 (acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)	(%)	
<b>TRANS-PECOS</b>								
Red Bluff Reservoir	151,110	67,670	45	1,945	1	41,724	28	
<b>TOTAL</b>	151,110	67,670	45	1,945	1	41,724	28	
<b>EDWARDS PLATEAU</b>								
Oak Creek Reservoir	39,210	8,044	21	-248	-1	-3,403	-9	
E V Spence Reservoir	517,272	17,857	3	-2,393	-0	-10,326	-2	
O C Fisher Lake	119,445	749	1	-1,900	-2	-163	-0	
*O H Ivie Reservoir	554,340	73,960	13	-3,397	-1	-49,785	-9	
Twin Buttes Reservoir	182,454	0**	0**	0	0	-4,702	-2.6	
Brady Creek Reservoir	28,808	9,263	32	-175	-1	1,354	5	
Buchanan, Lake	860,607	326,108	38	3,758	0	-39,318	-5	
Inks, Lake	13,962	13,436	96	302	2	416	3	
Lyndon B Johnson, Lake	115,056	111,063	97	-491	-0	-245	-0	
*Amistad Reservoir (Texas)	1,840,849	905,834	49	2,168	0	74,618	4	
*Amistad Reservoir (TX & Mexico)	3,275,532	905,834	28	2,168	0	74,618	2	
<b>TOTAL</b>	4,089,549	1,466,314	36	-2,376	-0	42,406	1	
<b>SOUTH CENTRAL</b>								
Travis, Lake	1,113,348	400,958	36	-4,404	-0	-30,632	-3	
*Austin, Lake	23,972	22,803	95	-46	-0	31	0	
Somerville Lake	147,104	117,965	80	295	0	-11,816	-8	
Canyon Lake	378,781	317,372	84	-2,345	-1	6,677	2	
Medina Lake	254,823	8,897	3	-516	-0	-13,451	-5	
*Coletto Creek Reservoir	31,040	21,054	68	483	2	-3,200	-10	
<b>TOTAL</b>	1,949,068	889,049	46	-6,533	-0	-52,391	-3	
<b>UPPER COAST</b>								
Houston, Lake	128,054	128,054	100	0	0	0	0	
Texana, Lake	159,566	133,444	84	-1,871	-1	-12,535	-8	
<b>TOTAL</b>	287,620	261,498	91	-1,871	-1	-12,535	-4	
<b>SOUTHERN</b>								
Choke Canyon Reservoir	695,262	233,783	34	-5,877	-1	-89,054	-13	
Corpus Christi, Lake	256,961	226,647	88	-9,748	-4	186,324	73	
*Falcon Reservoir (Texas)	1,551,007	580,443	37	25,451	2	54,592	4	
*Falcon Reservoir (TX & Mexico)	2,646,817	580,443	22	25,451	1	54,592	2	
<b>TOTAL</b>	2,503,230	1,040,873	42	9,826	0	151,862	6	
<b>STATE TOTAL</b>	31,376,335	20,070,717	64	-96,195	-0	-866,558	-3	
* Conservation volume is used as conservation storage capacity because the dead storage is unknown.								
** No reading available. Last valid reading was near empty. Percentage estimated assuming current storage is zero.								
Elephant Butte Reservoir	1,973,358	311,307	16	32,967	2	128,795	7	

**Note:**  
 Conservation storage capacity is the space available to store water above the lowest outlet and below the top of conservation pool, or normal maximum operating level. Conservation storage refers to the volume of water held within the conservation storage space. Not included is any water in flood control storage (above the top of conservation pool or normal maximum operating level), or any water in the dead storage. Conservation storage percentage is based on the conservation storage capacity of the reservoir and the conservation storage in the reservoir on date shown. Percent change is given by 100\*(current conservation storage - past conservation storage)/conservation storage capacity. Figures shown are for the Texas share of conservation storage in all reservoirs.

# JANUARY RESERVOIR CONDITIONS

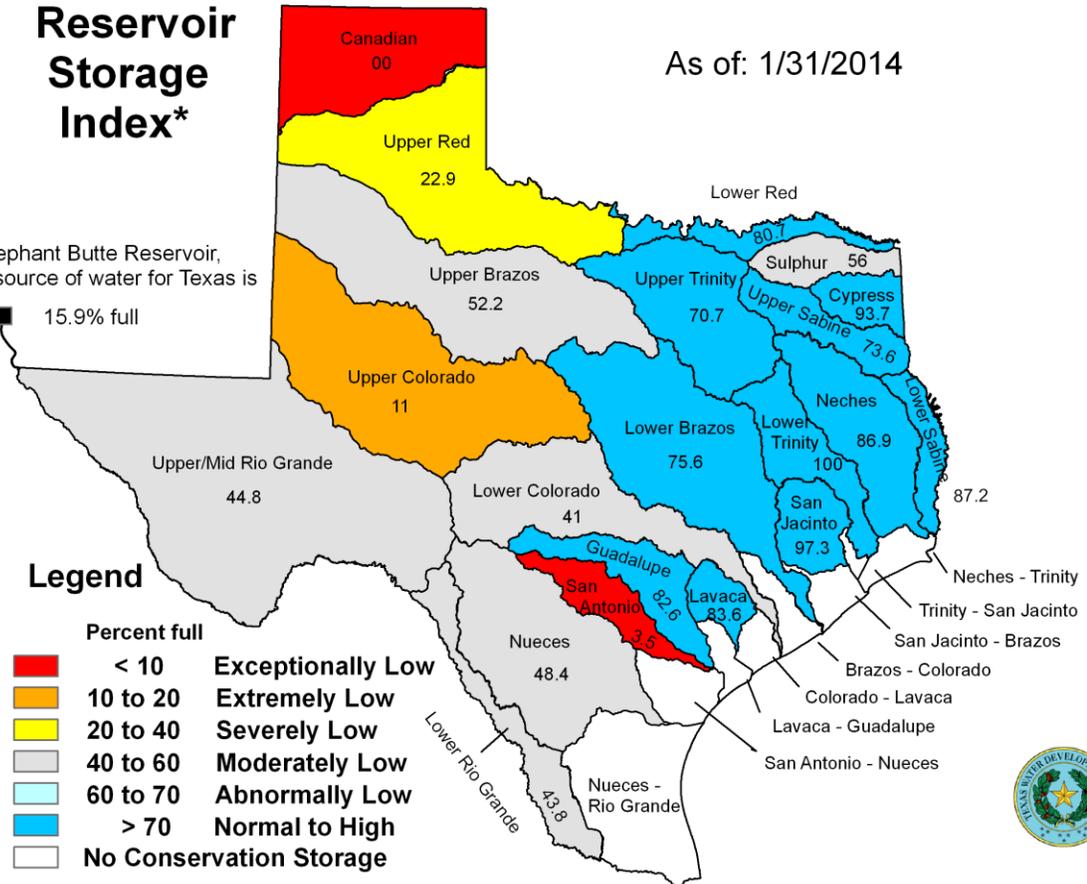
As of: 1/31/2014

## Reservoir Storage Index\*

Elephant Butte Reservoir, a source of water for Texas is 15.9% full

### Legend

Percent full	Category
< 10	Exceptionally Low
10 to 20	Extremely Low
20 to 40	Severely Low
40 to 60	Moderately Low
60 to 70	Abnormally Low
> 70	Normal to High
No Conservation Storage	

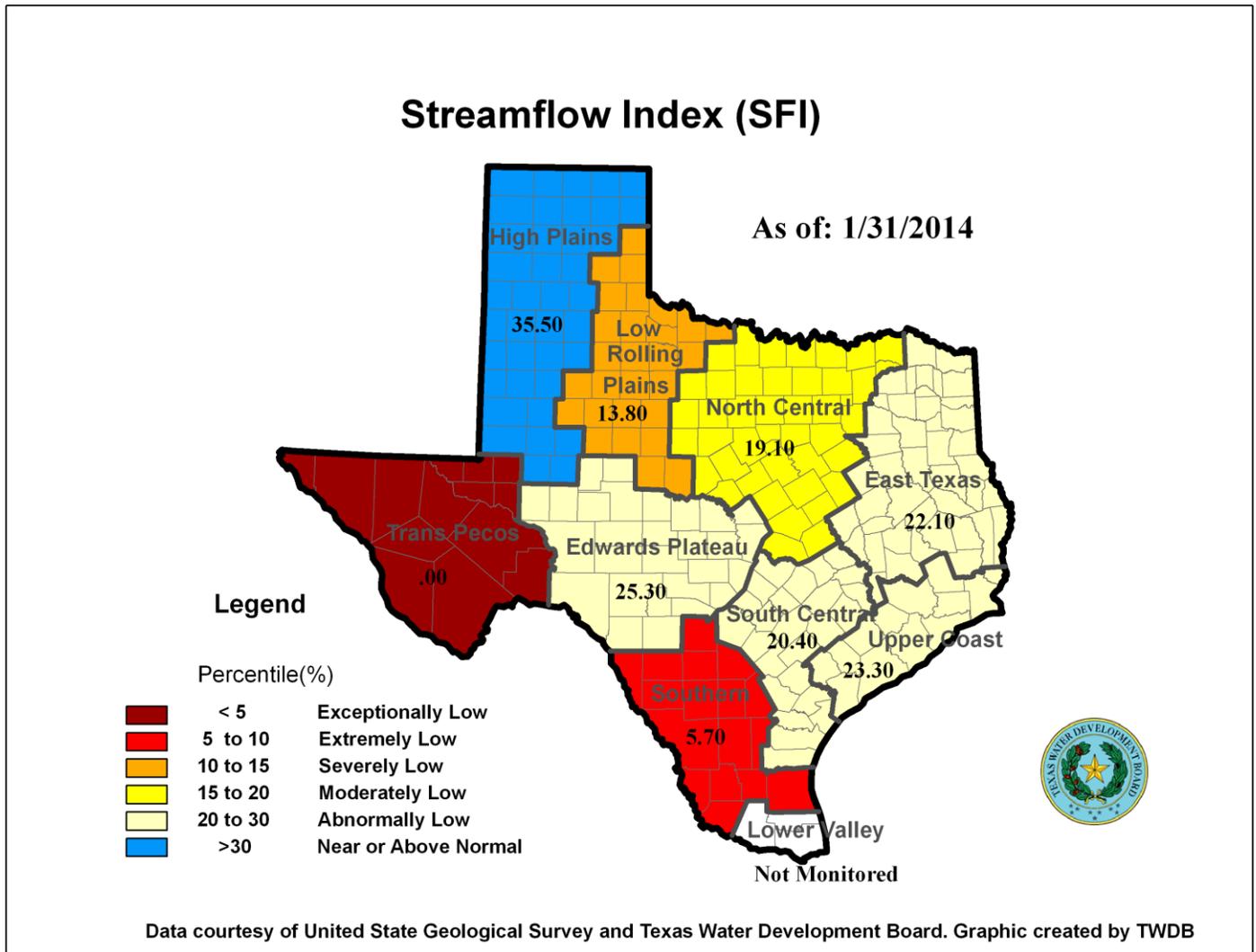


\*Percent of combined conservation storage capacity of 115 major water supply reservoirs by sub-basin (dead pools are excluded)

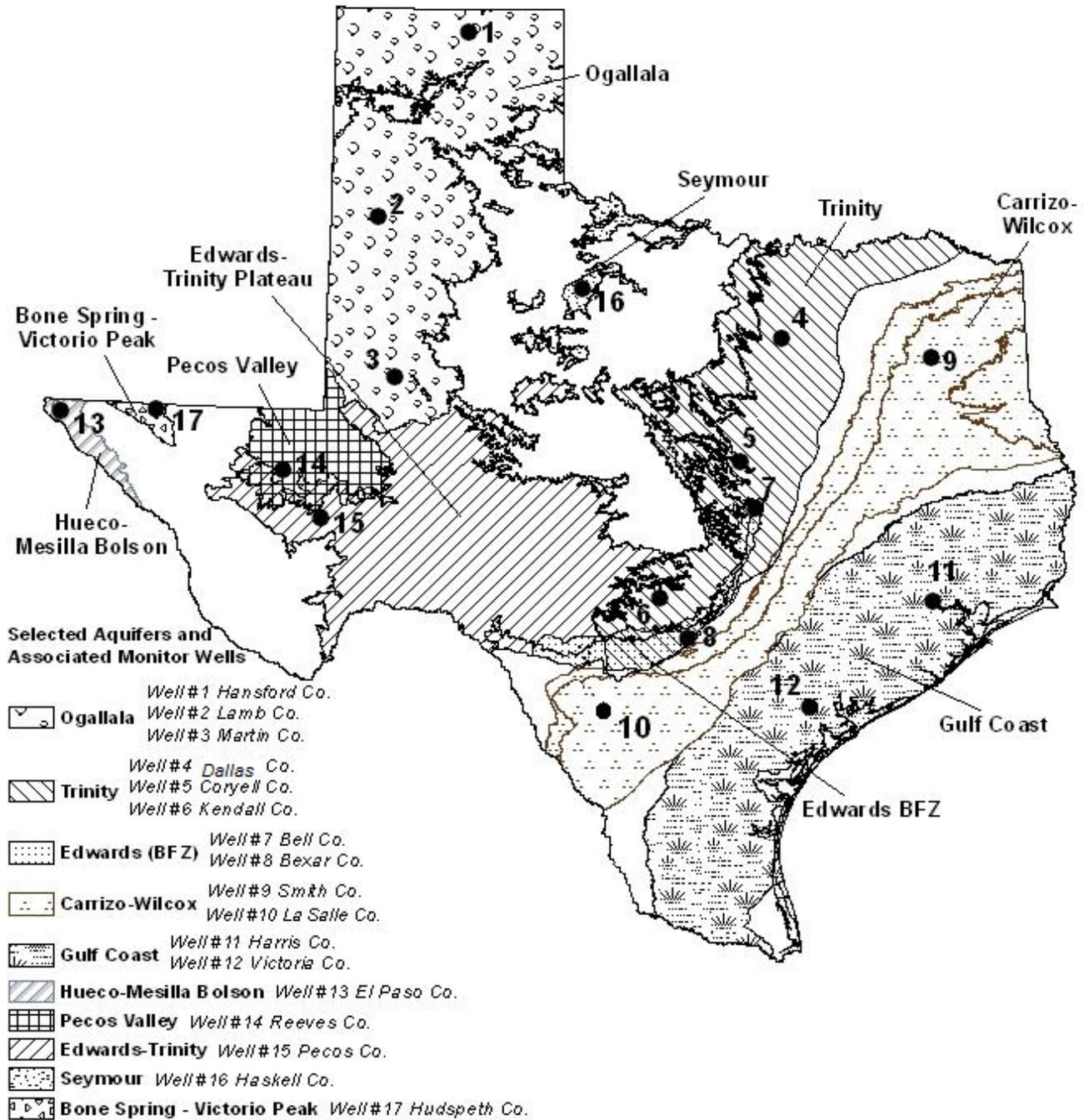
# ***JANUARY STREAMFLOW CONDITIONS***

Of 29 reporting index stations monitored this month, computed 30-day mean flows were exceptionally low (<5%) at 11 stations, extremely low (5-10%) at 4 stations, severely low (10-15%) at 1 station, moderately low (15-20%) at 1 station, abnormally low (20-30%) at 2 stations, and near normal (30% - 70%) at the remaining 10 stations. Compared to last month, flows have increased at 9 index stations and decreased at 16 stations.

On a regional basis, flows in this month were exceptionally low in the Trans-Pecos region, extremely low in the Southern region, severely low in Low Rolling Plains region, moderately low in the North Central region, abnormally low in East Texas, Edwards Plateau, South Central, and Upper Coast regions, and near or above normal in High Plains region. Streamflow in the Lower Valley region is not monitored.



# JANUARY 2014 GROUNDWATER LEVELS IN OBSERVATION WELLS



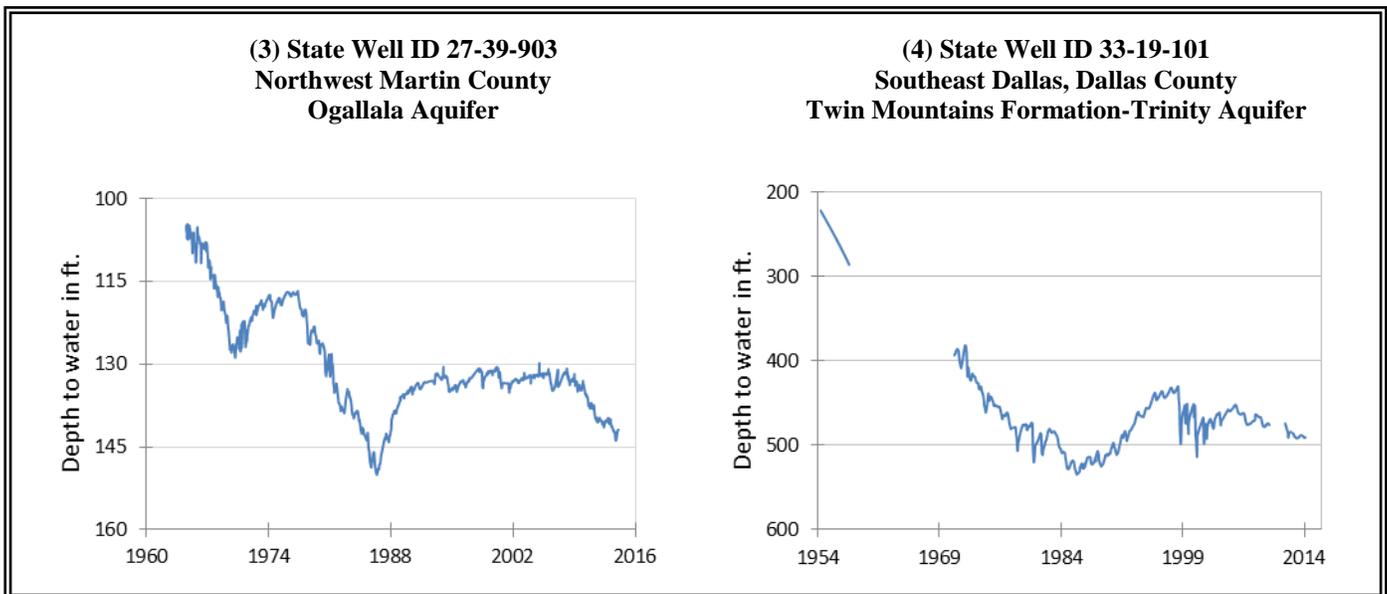
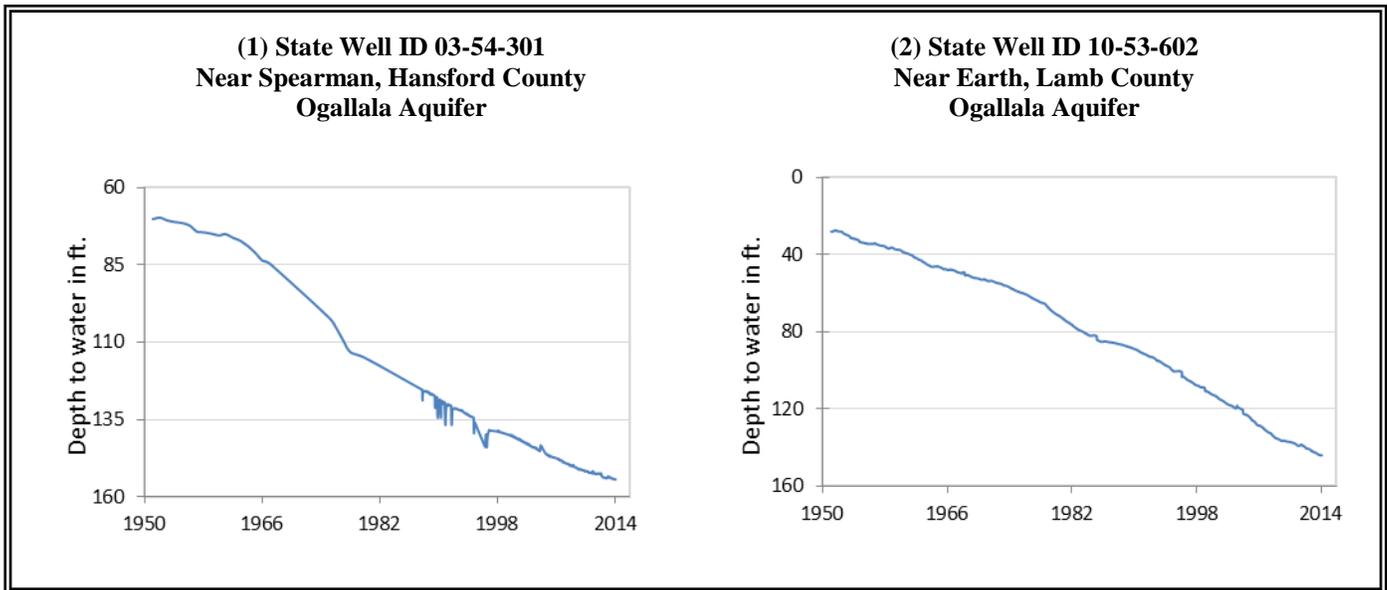
January, 2014

Water-level measurements were available for all seventeen key monitoring wells in the state. Water levels rose in eleven of the monitoring wells since the beginning of January, ranging from 0.14 feet in the Martin County Ogallala Aquifer well to 15.69 feet in the La Salle County Carrizo-Wilcox Aquifer well. Water levels declined in five monitoring wells, ranging from 0.07 feet in the Lamb County Ogallala Aquifer well to 0.62 feet in the El Paso County Hueco-Mesilla Bolson Aquifer well. No change was recorded in the Hansford County monitoring well. The J-17 well in San Antonio recorded a water level of 87.6 feet below land surface or 643.4 feet above mean sea level. This water level is 3.4 feet above the Stage III critical management level in that segment of the Edwards Aquifer. Stage II restrictions were declared by the EAA when the ten-day average fell below the 650-foot elevation, or 81 feet below land surface.

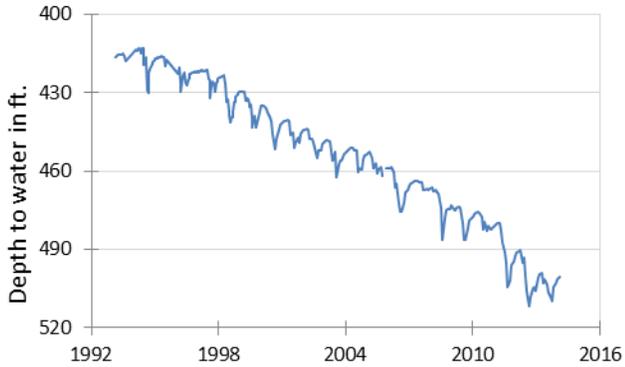
\* ID is used in this publication to differentiate between the monitoring well number (1 - 17) as displayed on the aquifer map and the TWDB's six- or seven-digit state well "identification" number.

Monitoring Well	January	December	month change	year change	historical change	first measured
(1) Hansford 0354301	154.4	154.4	0.0	-1	-84.28	1951
(2) Lamb 1053602	144.18	144.11	-0.07	-1.65	-116.03	1951
(3) Martin 2739903	141.89	142.03	0.14	-1.45	-37	1964
(4) Dallas 3319101	490.52	491.13	0.61	1	-268.52	1954
(5) Coryell 4035404	500.57	501.65	1.08	0.26	-208.57	1955
(6) Kendall 6802609	132.6	133.39	0.79	-5.91	-72.6	1975
(7) Bell 5804816	123.87	123.75	-0.12	1.65	-0.74	2008
(8) Bexar 6837203	87.6	90.34	2.74	-10.5	-40.96	1932
(9) Smith 3430907	438.96	439.72	0.76	5.36	-72.96	1987
(10) La Salle 7738103	471.8	487.49	15.69	-23.74	-218.73	2003
(11) Harris 6514409	193.71	196	2.29	5.13	-58.21	1956
(12) Victoria 8017502	37.58	37.94	0.36	-2.21	-3.58	1958
(13) El Paso 4913301	294.25	293.63	-0.62	-1.03	-62.35	1967
(14) Reeves 4644501	150.24	149.73	-0.51	-3.99	-58.15	1952
(15) Pecos 5216802	198.94	203.23	4.29	-8.27	47.94	1976
(16) Haskell 2135748	48.54	48.26	-0.28	-0.87	-7.21	2002
(17) Hudspeth 4807516	132.54	136.5	3.96	1.21	-28.62	1964

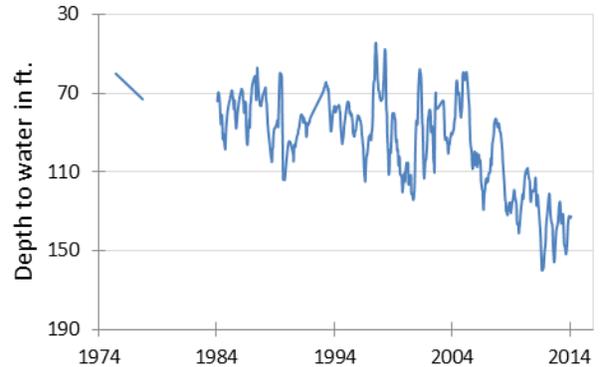
## JANUARY GROUNDWATER LEVELS IN OBSERVATION WELLS



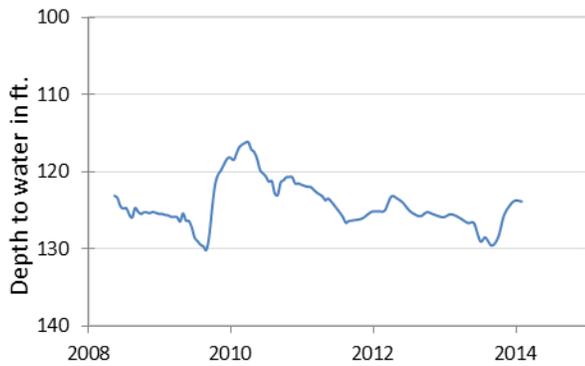
**(5) State Well ID 40-35-404  
Gatesville, Coryell County  
Hosston Formation-Trinity Aquifer**



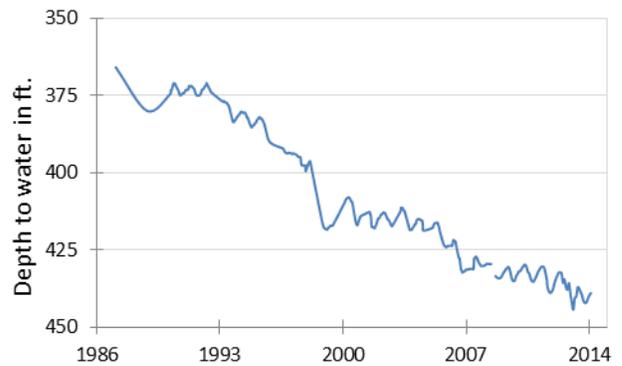
**(6) State Well ID 68-02-609  
Waring, Kendall County  
Cow Creek Formation-Trinity Aquifer**



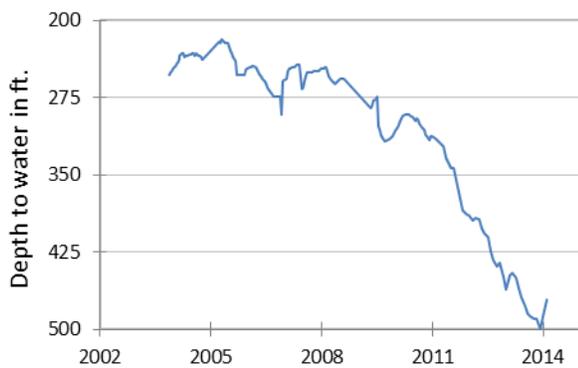
**(7) State Well ID 58-04-816  
Near Salado, Bell County  
Edwards (BFZ) Aquifer**



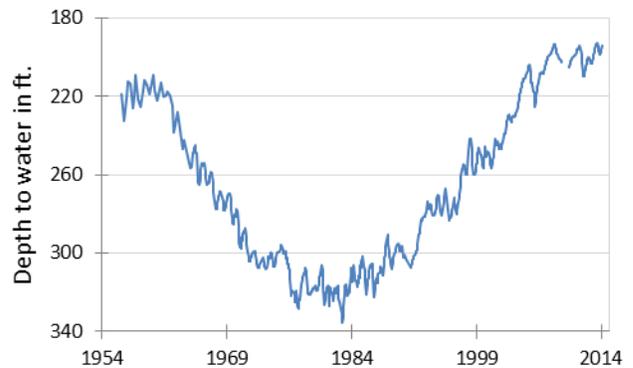
**(9) State Well ID 34-30-907  
Red Springs, Smith County  
Carrizo-Wilcox Aquifer**



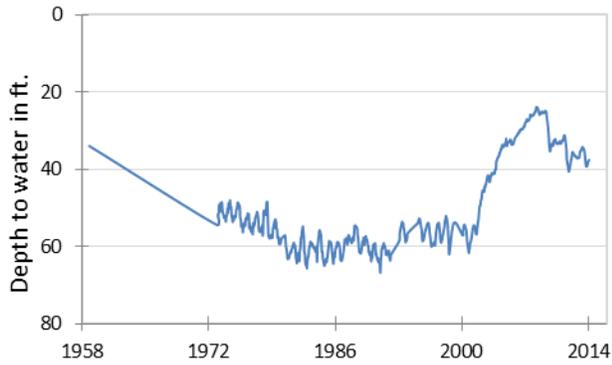
**(10) State Well ID 77-38-103  
Near Cotulla, La Salle County  
Carrizo-Wilcox Aquifer**



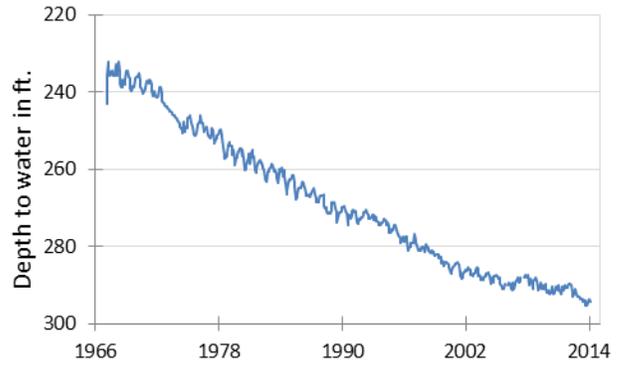
**(11) State Well ID 65-14-409  
Alief, Harris County  
Evangeline Formation-Gulf Coast Aquifer**



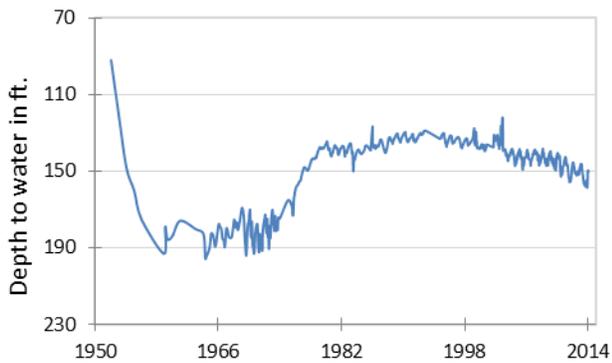
**(12) State Well ID 80-17-502**  
Near Bloomington, Victoria County  
Lissie Formation-Gulf Coast Aquifer



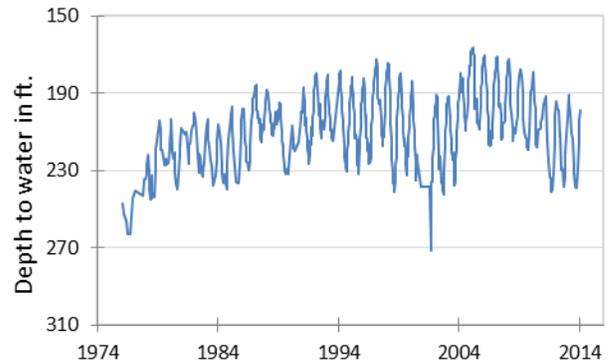
**(13) State Well ID 49-13-301**  
El Paso, El Paso County  
Hueco-Mesilla Bolson Aquifer



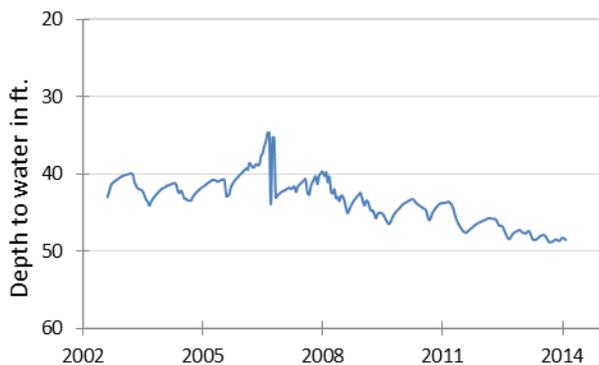
**(14) State Well ID 46-44-501**  
Near Pecos, Reeves County  
Pecos Valley Aquifer



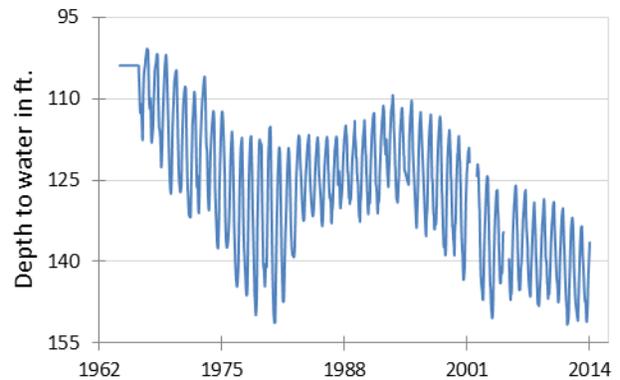
**(15) State Well ID 52-16-802**  
Fort Stockton, Pecos County  
Edwards-Trinity (Plateau) Aquifer



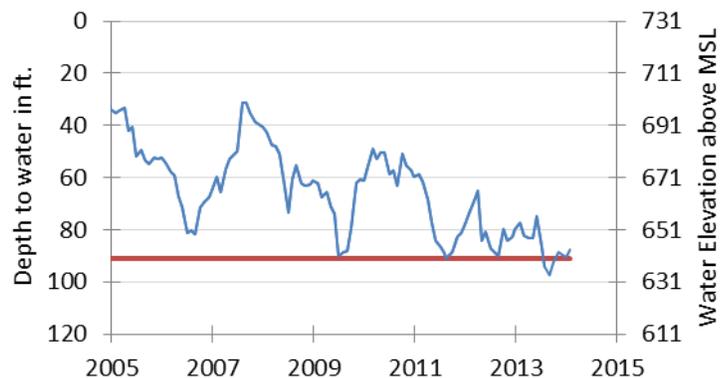
**(16) State Well ID 21-35-748**  
Near O'Brien, Haskell County  
Seymour Aquifer



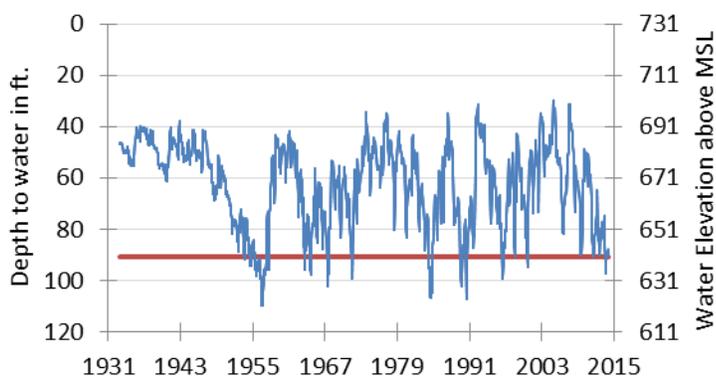
**(17) State Well ID 48-07-516**  
Dell City, Hudspeth County  
Bone Spring - Victorio Peak Aquifer



**(8) State Well ID 68-37-203 (J-17)  
In San Antonio, Bexar County  
Edwards (BFZ) Aquifer**



The late January water level measurement in this Edwards (BFZ) Aquifer well, elevation 731 feet above mean sea level, was 87.6 feet below land surface, or 643.4 feet above mean sea level. This was 2.74 feet above last month's measurement, 10.5 feet below last year's measurement, and 40.96 feet below the initial measurement recorded in 1932.



**\*\*\* Water levels below the red line indicate Edwards Aquifer Authority Stage III drought restrictions. \*\*\***



***HYDROGRAPH OF THE MONTH***

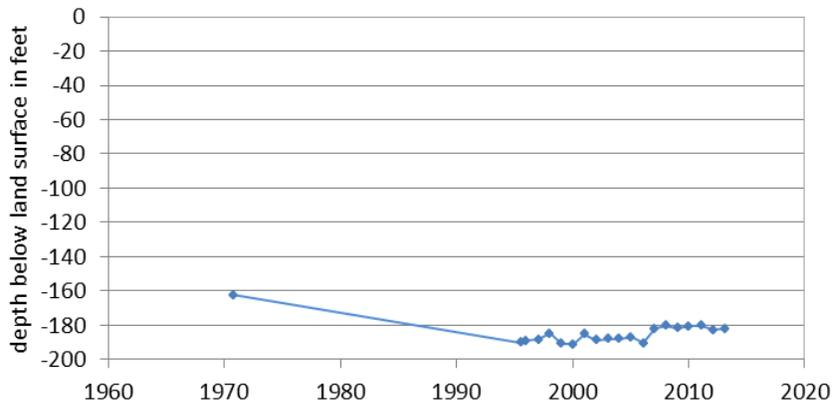
Each month this space features a new hydrograph (marked with the • symbol on the map) depicting different aquifers and different conditions in Texas.

**Rustler Aquifer**

The Rustler Aquifer is a minor aquifer located in Brewster, Culberson, Jeff Davis, Loving, Pecos, Reeves, and Ward counties. The aquifer consists of the carbonates and evaporites of the Rustler Formation, 250 to 670 feet thick beneath outcrop areas and extending into the subsurface toward the center of the Delaware Basin to the east. Groundwater occurs in partly dissolved dolomite, limestone, and gypsum. Most of the water production comes from fractures and solution openings in the upper part of the formation. The water is used primarily for irrigation, livestock, and water-flooding operations in oil-producing areas. Fluctuations in water levels over time most likely reflect long-term variations in water use patterns.

The total dissolved solids concentration in this 280-foot deep stock well, in southeast Culberson County, at 1,639 milligrams per liter (mg/l), exceeds

**Well #4754302  
Culberson County**



the secondary drinking water standard of 1,000 mg/l. The sulfate concentration, at 1,010, is also above the secondary standard of 300 mg/l. These high values are naturally occurring. However, the nitrate (as NO<sub>3</sub>) concentration of 66.9 mg/l, above the primary drinking water standard of 44.3 mg/l (equivalent to 10 mg/l as N), is most likely indicative of anthropogenic contamination.

*TEXAS WATER DEVELOPMENT BOARD  
1700 N. CONGRESS AVE.  
P.O. BOX 13231  
AUSTIN TX 78711-3231*