

# Texas Water Conditions Report

April 2021

## Surface Water News:

### Call For Abstracts

Abstract submission is open for the 36th Conference on Hydrology. We are co-chairing the session on ***Improving and accounting for present and future reservoir evaporative loss*** and invite abstracts focusing on on-going applications of new technologies for addressing current challenges related to reservoir evaporation monitoring, how reservoir evaporation data are currently used for operational water supply decisions and for long-range water supply planning, how reservoir evaporative loss can be factored in as a category of water use/water demand, how climate change affects reservoir evaporative loss, and how such loss can be accounted for in estimates of future surface water availability.

**Session Topic ID: 59282.** The deadline for abstract submission is **August 3, 2021.**  
[abstract submission portal](#)

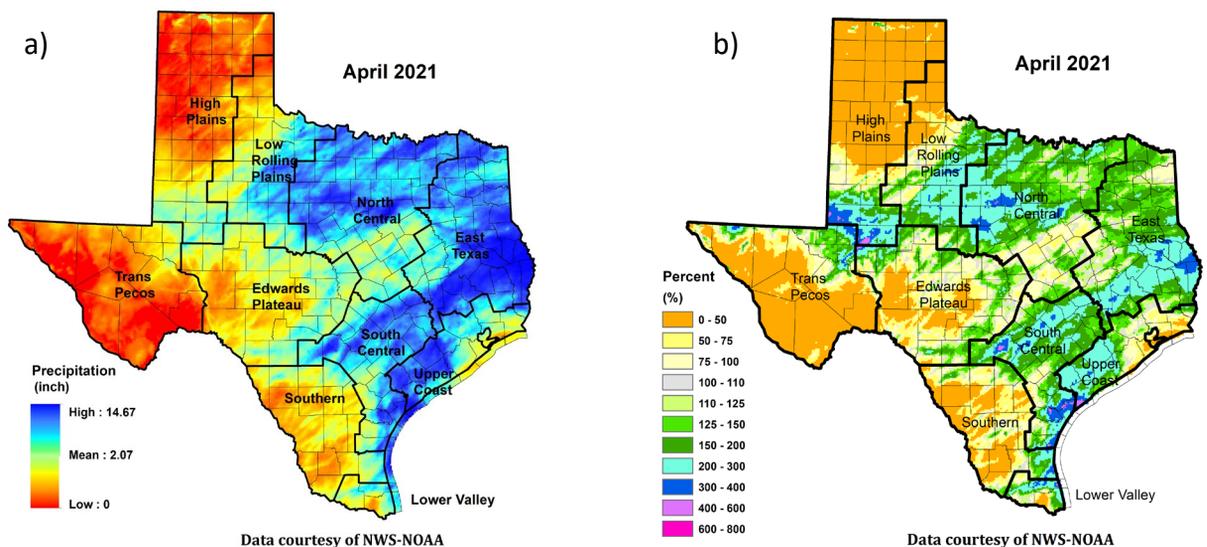
## RAINFALL

This month little to no rain [yellow, orange, and red shading, Figure 1(a)] fell over much of the Trans Pecos, High Plains, Edwards Plateau, Southern, northern and western Low Rolling Plains, southern and western Lower Valley, southeastern Upper Coast, southern North Central, and southeastern South Central climate divisions.

Some rainfall [light blue and dark blue shading, Figure 1(a)] was recorded over the southern High Plains, northern and eastern Low Rolling Plains, northcentral and parts of southern North Central, much of East Texas, northern and western Upper Coast, northeastern Lower Valley, parts of northern Southern, much of South Central, portions of northern, eastern, and southern Edwards Plateau, and the northeastern corner of the Trans Pecos climate divisions, reaching 14.67 inches in eastern portions of the state [dark blue shading, Figure 1(a)].

Monthly rainfall for April was below average [yellow and orange shading, Figure 1(b)], compared to historical data from 1981–2010, in the much of the Trans Pecos, Southern, northern High Plains, northwestern Low Rolling Plains, southern portions of North Central, eastern Upper Coast, central Edwards Plateau, southern Lower Valley, and portions of central South Central climate divisions.

Above average rainfall [green and light blue shading, Figure 1(b)] occurred in portions of northern Trans Pecos, southern High Plains, southern and eastern Low Rolling Plains, northern and portions of southern North Central, much of East Texas, portions of northern, southern, and eastern Edwards Plateau, much of South Central, western Upper Coast, southeastern Southern, and northern and eastern Lower Valley climate divisions. Portions of the southern High Plains, central North Central, the northwestern corner of the Edwards Plateau, northwestern and southeastern South Central, southeastern Southern, northeastern Lower Valley, and southwestern Upper Coast received 3–6 times the average rainfall [dark blue and purple shading, Figure 1(b)].

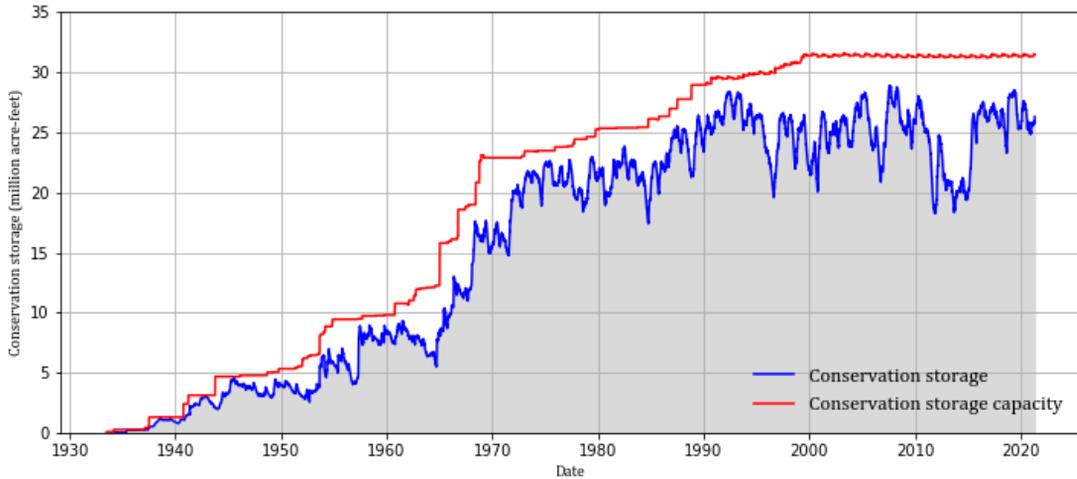


**Figure 1:** (a) Monthly accumulated rainfall and (b) Percent of normal rainfall

## **RESERVOIR STORAGE**

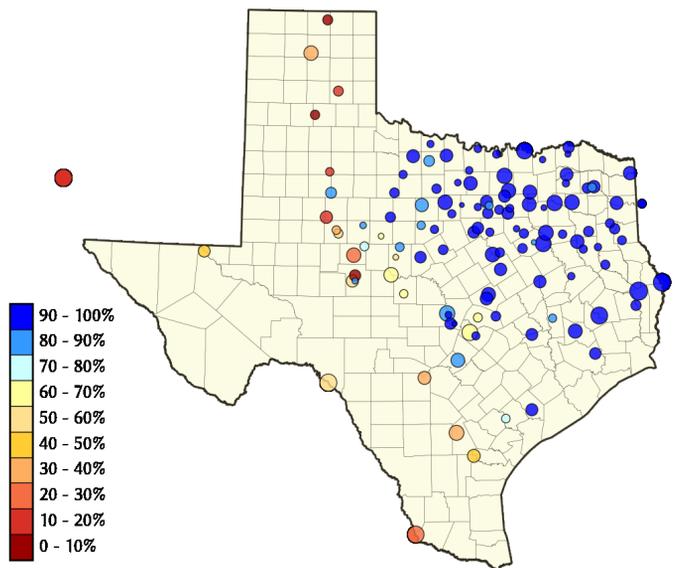
At the end of April 2021, total conservation storage\* in 118 of the state’s major water supply reservoirs plus Elephant Butte Reservoir in New Mexico was 26.1 million acre-feet or 80.8 percent of total conservation storage capacity (Figure 2). This is approximately 0.35 million acre-feet more than a month ago and approximately 1.5 million acre-feet less than at the end of April 2020.

Statewide monitored major water supply reservoir conservation storage



**Figure 2:** Statewide reservoir conservation storage

Out of 118 reservoirs in the state, 52 reservoirs held 100 percent of conservation storage capacity (Figure 3). Additionally, 25 were at or above 90 percent full. Eight reservoirs, E.V. Spence (21.3 percent full), Greenbelt (16.9 percent full), J.B. Thomas (11.4 percent full), Mackenzie (8.6 percent full), O. C. Fisher (5.8 percent full), Palo Duro Reservoir (1.1 percent full), Falcon (22 percent full), and White River (12.2 percent full) remained below 30 percent full. Elephant Butte Reservoir (located in New Mexico) was 11.4 percent full.

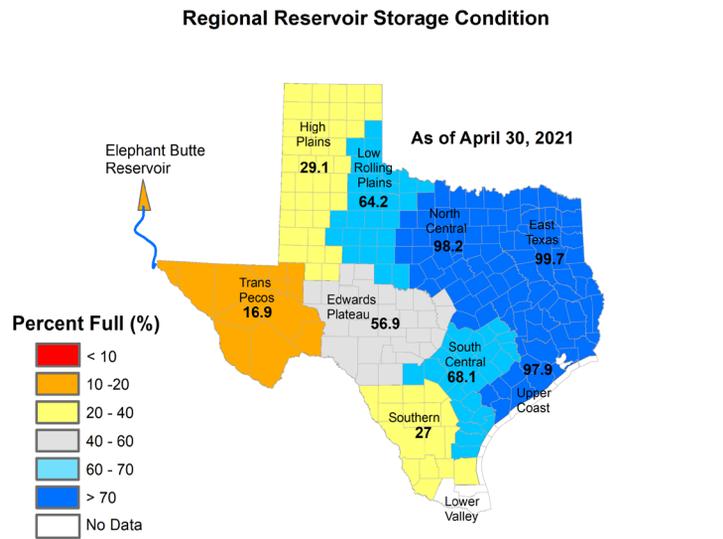


**Figure 3:** Reservoir conservation storage at end-April expressed as percent full (%)

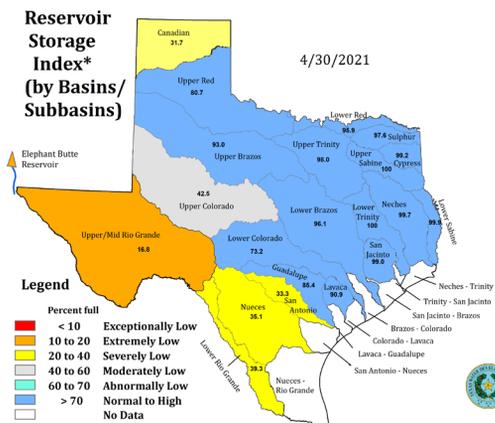
\*Storage is based on end of the month data in 118 major reservoirs that represent 96 percent of the total conservation storage capacity of 188 major water supply reservoirs in Texas plus Elephant Butte Reservoir in New Mexico. Major reservoirs are defined as having a conservation storage capacity of 5,000 acre-feet or greater. Only the Texas share of storage in border reservoirs is counted.

Total regionally combined conservation storage was at or above-normal (storage  $\geq 70$  percent full) in the North Central (98.2 percent full), East Texas (99.7 percent full), and Upper Coast (97.9 percent full) climate divisions (Figure 4). Conservation storage in the Low Rolling Plains (64.2), and South Central (68.1 percent full) climate divisions was abnormally low (Figure 4). The Edwards Plateau climate division had moderately low conservation storage (56.9 percent full). The High Plains (29.1 percent full) and Southern (27 percent full) climate divisions had severely low storage, and the Trans Pecos climate division had extremely low conservation storage (16.9 percent full) (Figure 4).

Combined conservation storage by river basin or sub-basin showed normal to high ( $>70$  percent full, Figure 5) conservation storage in the Upper and Lower Red, Upper and Lower Brazos, Upper and Lower Sabine, Upper and Lower Trinity, Sulphur, Cypress, Neches, San Jacinto, Lower Colorado, Guadalupe, and Lavaca river basins. Conservation storage in the Upper Colorado basin was moderately low (40–60 percent full, Figure 5). The Canadian, San Antonio, Lower Rio Grande, and Nueces basins had severely low conservation storage (20–40 percent full, Figure 5). Conservation storage in the Upper/Mid Rio Grande river basin was extremely low (10–20 percent full, Figure 5).



**Figure 4:** Reservoir Storage Index\* by climate division at 4/30/2021



**Figure 5:** Reservoir Storage Index\* by river basin/sub-basin at 4/30/2021

\*Reservoir Storage Index is defined as the percent full of conservation storage capacity.

## CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of lake or reservoir	Storage capacity	Storage at end-April 2021		Storage change from end-Mar 2021		Storage change from end-Apr 2020	
	(acre-feet)	(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)
Abilene, Lake	7,900	5,146	65.1	-5	0.0	-2,310	-29.2
Alan Henry Reservoir	96,207	81,178	84.4	-793	0.0	-11,882	-12.4
*Amistad Reservoir (Texas & Mexico)	3,275,532	1,088,920	33.2	-100,129	-3.1	-173,061	-5.3
*Amistad Reservoir (Texas)	1,840,849	993,401	54.0	-108,076	-5.9	-215,461	-11.7
Amon G Carter, Lake	19,266	19,266	100.0	1,420	7.4	0	0.0
Aquila Lake	43,243	43,243	100.0	1,679	3.9	0	0.0
Arlington, Lake	40,157	39,830	99.2	1,032	2.6	3,732	9.3
Arrowhead, Lake	230,359	230,359	100.0	5,761	2.5	11,016	4.8
Athens, Lake	29,503	29,503	100.0	0	0.0	0	0.0
*Austin, Lake	23,972	22,788	95.1	-184	0.0	-184	0.0
B A Steinhagen Lake	69,186	60,442	87.4	-5,021	-7.3	-8,744	-12.6
Bardwell Lake	46,122	46,122	100.0	0	0.0	0	0.0
Belton Lake	435,225	425,575	97.8	-840	0.0	-9,650	-2.2
Benbrook Lake	85,648	84,951	99.2	4,401	5.1	-697	0.0
Bob Sandlin, Lake	192,417	192,417	100.0	0	0.0	0	0.0
Bonham, Lake	11,027	11,027	100.0	106	1.0	179	1.6
Brady Creek Reservoir	28,808	18,708	64.9	-232	0.0	-7,292	-25.3
Bridgeport, Lake	366,236	322,507	88.1	3,442	0.9	-43,729	-11.9
*Brownwood, Lake	130,868	116,103	88.7	5,615	4.3	-7,680	-5.9
Buchanan, Lake	860,607	688,788	80.0	-23,964	-2.8	-127,466	-14.8
Caddo, Lake	29,898	29,898	100.0	0	0.0	0	0
Canyon Lake	378,781	328,238	86.7	-3,075	0.0	-28,170	-7.4
Cedar Creek Reservoir in Trinity	644,686	644,686	100.0	0	0.0	0	0.0
Champion Creek Reservoir	41,580	23,989	57.7	43	0.1	-3,439	-8.3
Cherokee, Lake	40,094	40,094	100.0	0	0.0	0	0.0
Choke Canyon Reservoir	662,820	213,848	32.3	-7,884	-1.2	-74,914	-11.3
*Cisco, Lake	29,003	23,340	80.5	669	2.3	-2,269	-7.8
Coleman, Lake	38,075	32,070	84.2	-85	0.0	-4,979	-13.1
Colorado City, Lake	31,040	22,078	71.1	86	0.3	-626	-2.0
*Coletto Creek Reservoir	30,758	10,726	34.9	-134	0.0	-2,777	-9.0
Conroe, Lake	410,988	410,988	100.0	0	0.0	15,571	3.8
Corpus Christi, Lake	256,062	109,360	42.7	-7,438	-2.9	-67,207	-26.2
Crook, Lake	9,195	9,195	100.0	21	0.2	0	0.0
Cypress Springs, Lake	66,756	66,756	100.0	0	0.0	0	0.0
E. V. Spence Reservoir	517,272	110,330	21.3	-2,443	0.0	-28,859	-5.6
Eagle Mountain Lake	179,880	169,958	94.5	5,571	3.1	-9,922	-5.5
Elephant Butte Reservoir (Texas)	852,491	97,155	11.4	6,446	0.8	-119,598	-14.0
Elephant Butte Reservoir (Total Storage)	1,960,900	224,895	11.5	14,922	0.8	-276,848	-14.1
*Falcon Reservoir (Texas & Mexico)	2,646,817	376,440	14.2	-24,684	0.0	-80,998	-3.1
*Falcon Reservoir (Texas)	1,551,007	341,361	22.0	2,461	0.2	-78,043	-5.0
Fork Reservoir, Lake	605,061	605,061	100.0	4,757	0.8	2,119	0.4
Fort Phantom Hill, Lake	70,030	63,626	90.9	2,986	4.3	-6,404	-9.1
Georgetown, Lake	36,823	24,885	67.6	71	0.2	-1,906	-5.2
Gibbons Creek Reservoir	25,721	25,543	99.3	4,444	17.3	330	1.3
Graham, Lake	45,288	45,288	100.0	3,444	7.6	616	1.4
Granbury, Lake	132,949	132,134	99.4	-815	0.0	-163	0.0

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Name of lake or reservoir	Storage capacity	Storage at end-April 2021		Storage change from end-Mar 2021		Storage change from end-Apr 2020	
	(acre-feet)	(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)
<i>Continued</i>							
Granger Lake	51,822	51,822	100.0	0	0.0	0	0.0
Grapevine Lake	163,064	163,064	100.0	0	0.0	0	0.0
Greenbelt Lake	59,968	10,149	16.9	-227	0.0	-2,014	-3.4
*Halbert, Lake	6,033	4,993	82.8	-145	-2.4	-402	-6.7
Hords Creek Lake	8,109	4,078	50.3	-46	0.0	-2,231	-27.5
Houston County Lake	17,113	17,113	100.0	0	0.0	0	0.0
Houston, Lake	130,147	124,792	95.9	-4,342	-3.3	4,910	3.8
Hubbard Creek Reservoir	313,298	278,370	88.9	8,073	2.6	-29,778	-9.5
Hubert H Moss Lake	24,058	24,058	100.0	119	0.5	119	0.5
Inks, Lake	13,962	12,892	92.3	22	0.2	52	0.4
J. B. Thomas, Lake	199,931	22,771	11.4	-1,705	0.0	-25,929	-13.0
Jacksonville, Lake	25,670	25,670	100.0	0	0.0	0	0.0
Jim Chapman Lake (Cooper)	260,332	260,332	100.0	0	0.0	0	0.0
Joe Pool Lake	175,800	175,800	100.0	5,904	3.4	0	0.0
Kemp, Lake	245,307	220,347	89.8	12,908	5.3	-24,960	-10.2
Kickapoo, Lake	86,345	71,709	83.0	4,038	4.7	-8,773	-10.2
Lavon Lake	406,388	406,388	100.0	0	0.0	0	0.0
Leon, Lake	27,762	26,315	94.8	1,147	4.1	-872	-3.1
Lewisville Lake	563,228	563,228	100.0	0	0.0	0	0.0
Limestone, Lake	203,780	203,780	100.0	0	0.0	0	0.0
*Livingston, Lake	1,741,867	1,741,867	100.0	0	0.0	0	0.0
*Lost Creek Reservoir	11,950	11,941	99.9	276	2.3	29	0.2
Lyndon B Johnson, Lake	115,249	110,088	95.5	-1,099	0.0	-548	0.0
Mackenzie Reservoir	46,450	3,981	8.6	-75	0.0	-1,155	-2.5
Marble Falls, Lake	6,901	6,787	98.3	-71	-1.0	-49	0.0
Martin, Lake	75,726	75,726	100.0	692	0.9	0	0.0
Medina Lake	254,823	84,975	33.3	-8,660	-3.4	-95,137	-37.3
Meredith, Lake	500,000	177,301	35.5	-2,348	0.0	-32,116	-6.4
Millers Creek Reservoir	26,768	26,768	100.0	853	3.2	0	0.0
*Mineral Wells, Lake	5,273	5,273	100.0	0	0.0	0	0.0
Monticello, Lake	34,740	30,393	87.5	293	0.8	147	0.4
Mountain Creek, Lake	22,850	22,850	100.0	0	0.0	0	0.0
Murvaul, Lake	38,285	38,285	100.0	0	0.0	0	0.0
Nacogdoches, Lake	39,522	39,522	100.0	889	2.2	0	0.0
Nasworthy	9,615	8,171	85.0	98	1.0	-62	0.0
Navarro Mills Lake	49,827	49,827	100.0	0	0.0	0	0.0
New Terrell City Lake	8,583	8,583	100.0	0	0.0	0	0.0
Nocona, Lake (Farmers Crk)	21,444	21,444	100.0	1,270	5.9	0	0.0
North Fork Buffalo Creek Reservoir	15,400	15,400	100.0	868	5.6	225	1.5
O' the Pines, Lake	241,363	241,363	100.0	0	0.0	0	0.0
O. C. Fisher Lake	115,742	6,731	5.8	-259	0.0	-3,724	-3.2
*O. H. Ivie Reservoir	554,340	335,432	60.5	-1,656	0.0	-63,456	-11.4
Oak Creek Reservoir	39,210	29,405	75.0	-371	0.0	-7,386	-18.8

## CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

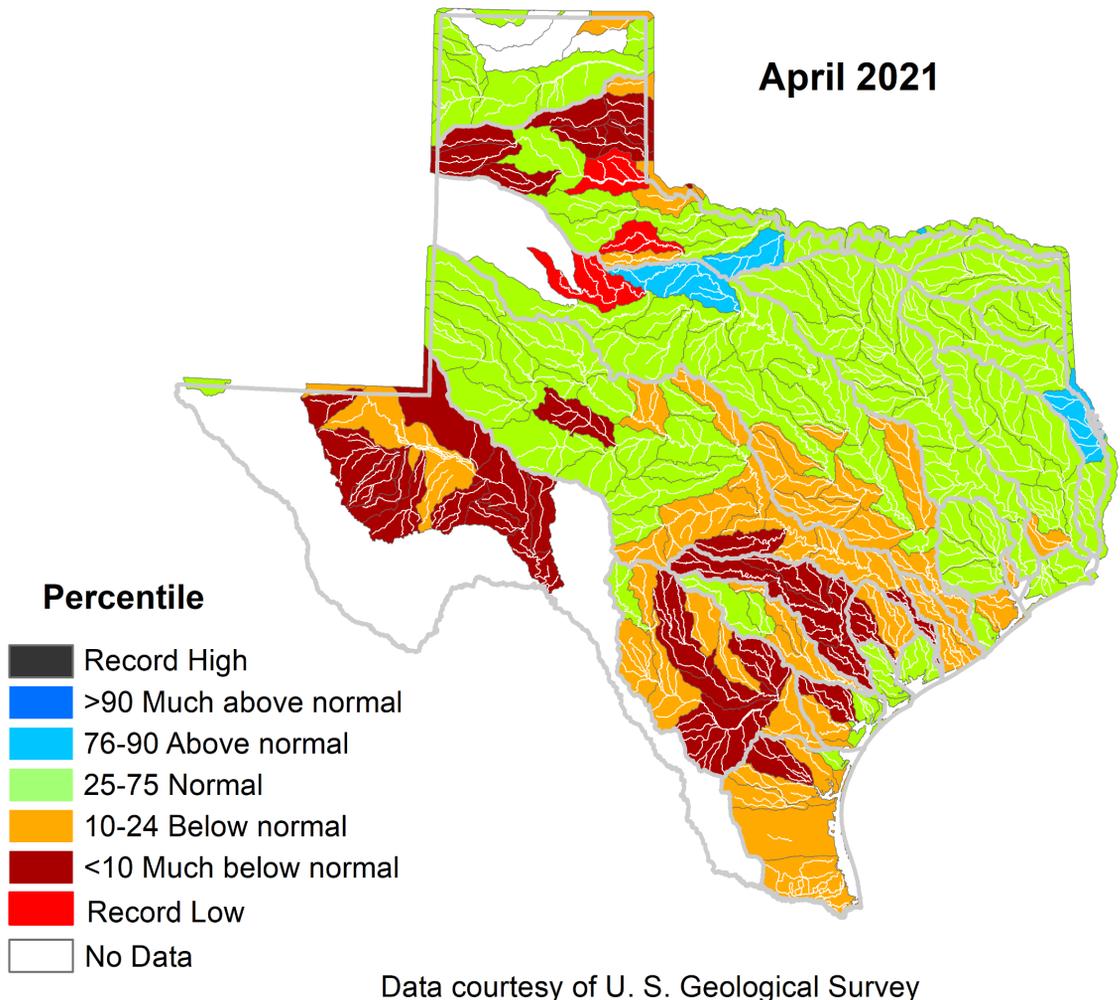
Name of lake or reservoir	Storage capacity	Storage at end-April 2021		Storage change from end-Mar 2021		Storage change from end-Apr 2020	
	(acre-feet)	(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)
<i>Continued</i>							
Palestine, Lake	367,303	367,303	100.0	0	0.0	0	0.0
Palo Duro Reservoir	61,066	679	1.1	-104	0.0	-1,570	-2.6
Palo Pinto, Lake	26,766	26,766	100.0	4,500	16.8	629	2.3
Pat Cleburne, Lake	26,008	24,320	93.5	2,042	7.9	-1,688	-6.5
*Pat Mayse Lake	113,683	113,683	100.0	0	0.0	0	0.0
Possum Kingdom Lake	538,139	536,172	99.6	7,814	1.5	2,674	0.5
Proctor Lake	54,762	54,762	100.0	2,239	4.1	0	0.0
Ray Hubbard, Lake	439,559	439,559	100.0	0	0.0	0	0.0
Ray Roberts, Lake	788,167	788,167	100.0	0	0.0	0	0.0
Red Bluff Reservoir	151,110	71,987	47.6	-1,883	-1.2	-27,233	-18.0
Richland-Chambers Reservoir	1,087,839	1,084,414	99.7	856	0.1	-3,425	0.0
Sam Rayburn Reservoir	2,857,077	2,857,077	100.0	60,578	2.1	0	0.0
Somerville Lake	150,293	136,270	90.7	6,973	4.6	-14,023	-9.3
Squaw Creek, Lake	151,250	151,250	100.0	0	0.0	0	0.0
Stamford, Lake	51,570	51,570	100.0	0	0.0	0	0.0
Stillhouse Hollow Lake	227,771	226,035	99.2	-1,736	0.0	-1,736	0.0
Striker, Lake	16,934	16,934	100.0	0	0.0	0	0.0
Sweetwater, Lake	12,267	9,901	80.7	-21	0.0	-2,366	-19.3
*Sulphur Springs, Lake	17,747	17,747	100.0	1,294	7.3	4,150	23.4
Tawakoni, Lake	871,685	871,685	100.0	0	0.0	0	0.0
Texana, Lake	159,566	145,187	91.0	-4,603	-2.9	16,792	10.5
Texoma, Lake (Texas & Oklahoma)	2,487,601	2,372,268	95.4	34,264	1.4	-153,770	-6.2
Texoma, Lake (Texas)	1,243,801	1,186,134	95.4	17,132	1.4	-57,667	-4.6
Toledo Bend Reservoir (Texas & Louisiana)	4,472,900	4,475,660	100.0	344,101	7.7	-106,526	-2.4
Toledo Bend Reservoir (Texas)	2,236,450	2,235,780	100.0	172,050	7.7	-670	0.0
Travis, Lake	1,113,348	724,061	65.0	-18,491	-1.7	-249,664	-22.4
Twin Buttes Reservoir	182,454	95,686	52.4	-2,450	-1.3	-28,376	-15.6
Tyler, Lake	72,073	72,073	100.0	0	0.0	0	0.0
Waco, Lake	189,418	185,071	97.7	-961	0.0	-4,347	-2.3
Waxahachie, Lake	10,780	10,780	100.0	0	0.0	0	0.0
Weatherford, Lake	17,812	17,337	97.3	846	4.7	-399	-2.2
White River Lake	29,880	3,647	12.2	-167	0.0	-2,330	-7.8
Whitney, Lake	553,344	520,676	94.1	24,616	4.4	-1,736	0.0
Worth, Lake	24,419	20,195	82.7	2,297	9.4	-3,032	-12.4
Wright Patman Lake	310,382	296,608	95.6	174,015	56.1	-13,774	-4.4
<b>STATEWIDE TOTAL</b>							
<b>STATEWIDE TOTAL</b>	<b>32,356,626</b>	<b>26,131,261</b>	<b>80.8</b>	<b>356,748</b>	<b>1.1</b>	<b>-1,513,709</b>	<b>-4.7</b>

\*Total volume below elevation of conservation pool top is used as conservation storage capacity, because the dead pool storage is unknown.

\*\*Monthly and yearly changes do not include reservoirs that did not have data in last month or last year, respectively.

## STREAMFLOW CONDITIONS

Much of the state had near normal streamflow (25–75th percentile, green shading in Figure 6) in April 2021. Above normal streamflow (76–90th percentile, light blue shading in Figure 6) was seen in the Upper Red, Upper Brazos, and Sabine river basins. Below normal streamflow (10–24th percentile, orange shading in Figure 6) was recorded in the Colorado, Lower Brazos, Upper Red, Canadian, Lower Sabine, Trinity-San Jacinto, San Jacinto-Brazos, Brazos-Colorado, Lavaca, San Antonio, San Antonio-Nueces, Nueces, Nueces-Rio Grande, and Upper Rio Grande river basins. Some watersheds in the Upper Red, Upper and Lower Colorado, Guadalupe, Lavaca, Nueces, San Antonio-Nueces, Nueces-Rio Grande, and Upper Rio Grande river basins had much below normal streamflow (< 10th percentile, dark brown shading in Figure 6). Record lows were seen in the Upper Red and Upper Brazos river basins (red shading, Figure 6).

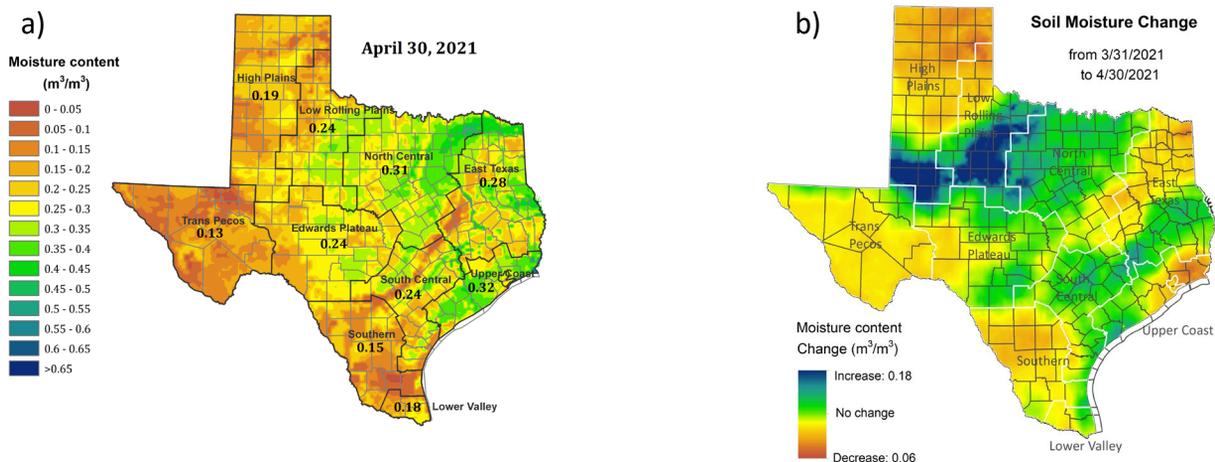


**Figure 6:** Runoff percentiles by the U.S. Geological Survey’s Hydrologic Unit Code

## SOIL MOISTURE

Root zone soil moisture at the end of April 2021 [Figure 7(a)] was moderate [ $> 0.20$  cubic meters of water per bulk cubic meter soil ( $\text{m}^3/\text{m}^3$ )] in portions of the High Plains, central Edwards Plateau, southwestern Low Rolling Plains, central North Central, portions of South Central, Southern, East Texas, Upper Coast, and the eastern Lower Valley climate divisions. There were areas of low soil moisture [ $< 0.15$  cubic meters of water per bulk cubic meter soil ( $\text{m}^3/\text{m}^3$ )] in the Trans Pecos, areas of the High Plains, northern Low Rolling Plains, western Lower Valley, and southwestern East Texas climate divisions, in addition to areas of southern South Central and stretching across the climate division from the west to the northeast. Soil moisture was high [ $> 0.3$  cubic meters of water per bulk cubic meter soil ( $\text{m}^3/\text{m}^3$ )] in eastern Low Rolling Plains, North Central, portions of East Texas, northern and southern South Central, eastern Edwards Plateau, and much of the Upper Coast climate divisions [Figure 7(a)].

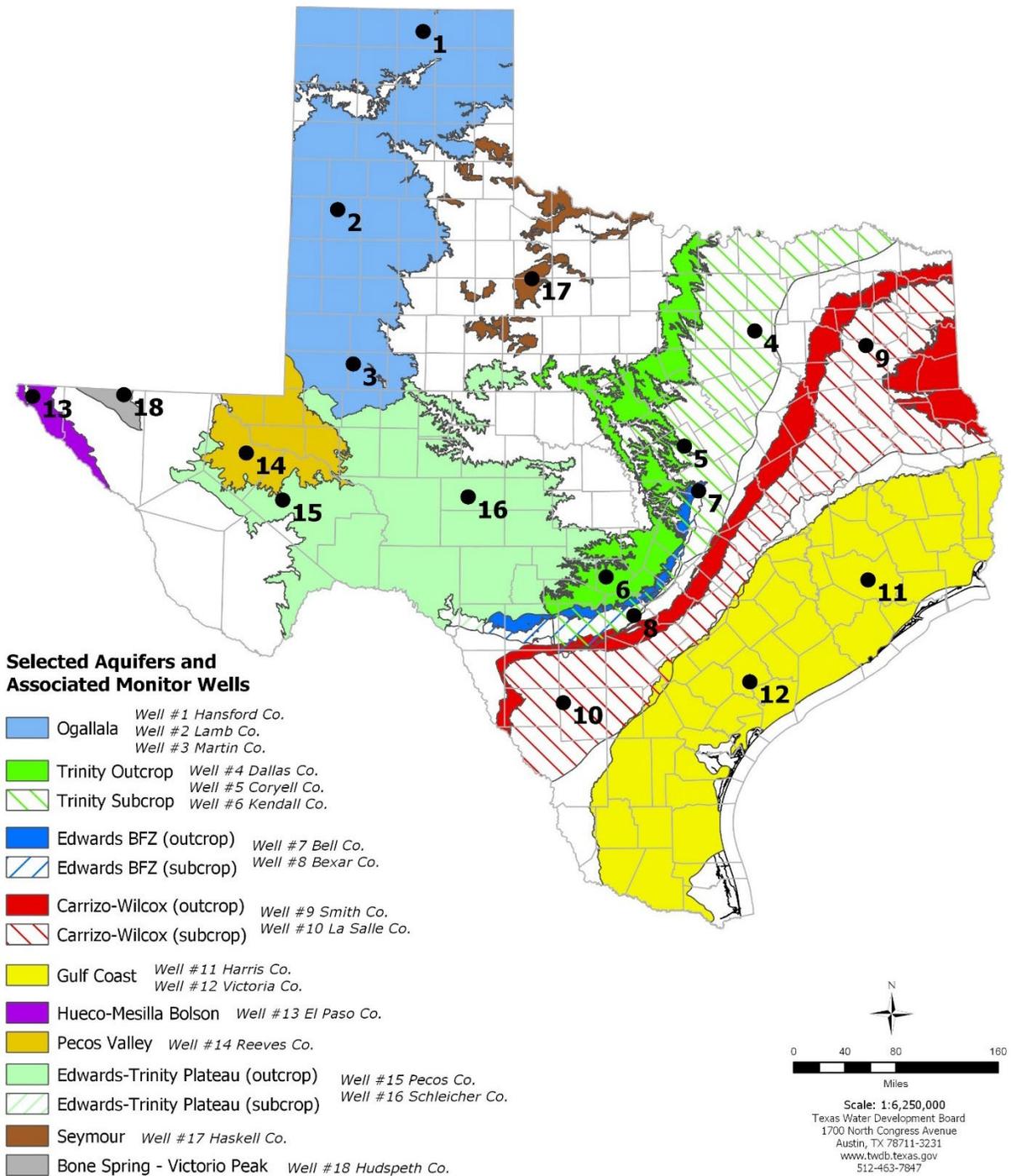
Compared to conditions at the end of March 2021, soil moisture content increased [green to blue shading in Figure 7(b)] in the southern High Plains, much of the Low Rolling Plains, the northern edge of the Trans Pecos, much of North Central, Edwards Plateau, South Central, southern Southern, eastern Lower Valley, western Upper Coast, and southern East Texas climate divisions. Soil moisture content decreased [yellow, orange, and brown shading in Figure 7(b)] in the Trans Pecos, northern and central High Plains, northern Low Rolling Plains, western Edwards Plateau, much of Southern, western Lower Valley, southeastern North Central, northern and western East Texas, and eastern Upper Coast climate divisions.



Data from NASA Soil Moisture Active Passive (SMAP) Level 4 - Model - Value Added Version 4

Soil moisture content is shown as volume of water per unit volume of bulk soil. Root zone: 0 to 1 meter depth.

**Figure 7:** (a) Root zone soil moisture conditions in April 2021 and (b) the difference in root zone soil moisture between end-March 2021 and end-April 2021



### April 2021 GROUNDWATER LEVELS IN MONITORING WELLS

Water-level measurements were available for 17 key monitoring wells in the state. A recorder in one well (#14 on map) was temporarily offline and scheduled for repair. Water levels rose in 6 monitoring wells since the beginning of April, ranging from an increase of 0.03 feet in the Coryell County Trinity Aquifer well (#5 on map) to 4.12 feet in the Schleicher County Edwards-Trinity (Plateau) Aquifer well (#16 on map). Water levels declined in 10 monitoring wells, ranging from a decline of -0.01 feet in the Victoria County Gulf Coast Aquifer well (#12 on map) to -8.02 feet in the Pecos County Edwards-Trinity (Plateau) Aquifer well (#15 on map). The J-17 well (#8 on map) in San Antonio recorded a water level of 75 feet below land surface or 656 feet above mean sea level. Water levels are 4.00 feet below the Stage I critical management level for the San Antonio portion of the Edwards (Balcones Fault Zone) Aquifer.

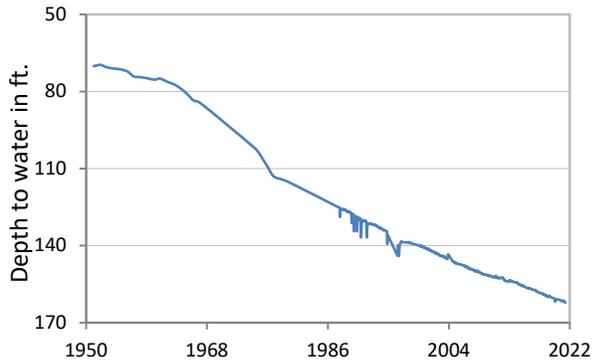
\*Well numbers used in this publication on the aquifer map to indicate the monitoring well location (numbers 1 - 18) are different than the TWDB's seven-digit state well number.

Monitoring Well	April	March	Month Change	Year Change	Historical Change	First Measured
(1) Hansford 0354301	162.28	161.81	-0.47	-1.22	-92.16	1951
(2) Lamb 1053602	151.99	151.85	-0.14	-1.08	-123.82	1951
(3) Martin 2739903	144.67	144.64	-0.03	-1.16	-39.78	1964
(4) Dallas 3319101	486.77	487.39	0.62	NA	-264.77	1954
(5) Coryell 4035404	530.75	530.78	0.03	-3.38	-238.75*	1955**
(6) Kendall 6802609	156.03	157.37	1.34	-14.43	-96.03	1975
(7) Bell 5804816	125.04	124.77	-0.27	-2.08	-1.53	2008
(8) Bexar 6837203	75.00	72.80	-2.20	-10.50	-28.36	1932
(9) Smith 3430907	435.63	436.10	0.47	-2.19	-135.63*	1977**
(10) La Salle 7738103	503.62	498.48	-5.14	12.55	-250.55	2003
(11) Harris 6514409	187.59	188.15	0.56	0.98	-52.09*	1947**
(12) Victoria 8017502	33.46	33.45	-0.01	-2.78	0.54*	1958**
(13) El Paso 4913301	298.67	296.46	-2.21	-2.66	-66.77*	1964**
(14) Reeves 4644501	NA	NA	NA	NA	-71.28*	1952
(15) Pecos 5216802	203.04	195.02	-8.02	-7.90	43.84	1976
(16) Schleicher 5512134	281.54	285.66	4.12	7.25	20.36	2003
(17) Haskell 2135748	44.80	NA	NA	-1.20	-1.80	2002
(18) Hudspeth 4807516	152.02	148.05	-3.97	-6.13	-48.10	1966

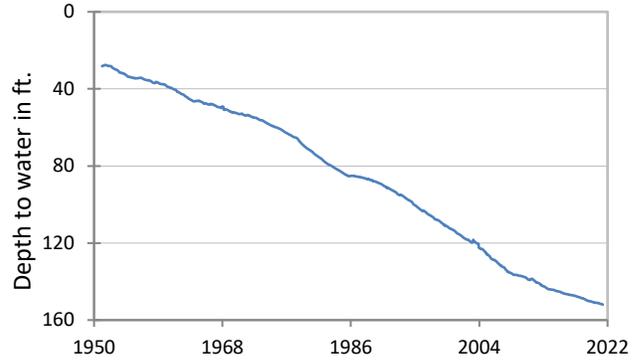
\*Change since the original measurement taken on the date indicated in the last column (\*\*measurement not shown on the hydrograph). The historical change shown for recorder well #14 is based off the most recent water level record from February 2021.

**April 2021 MONITORING WELL HYDROGRAPHS**

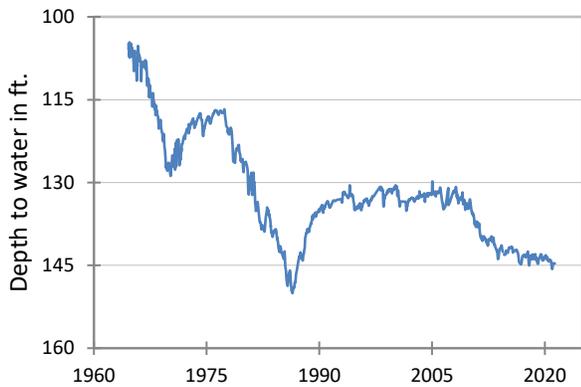
**(1) State Well #03-54-301  
Near Spearman, Hansford County  
Ogallala Aquifer**



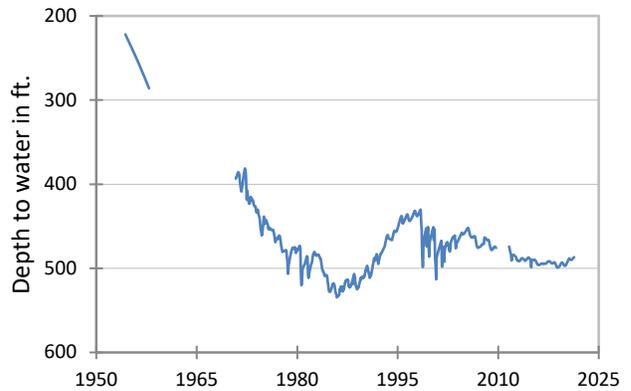
**(2) State Well #10-53-602  
Near Earth, Lamb County  
Ogallala Aquifer**



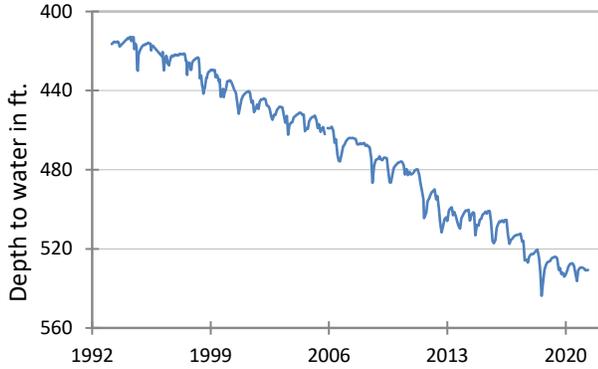
**(3) State Well #27-39-903  
Northwest Martin County  
Ogallala Aquifer**



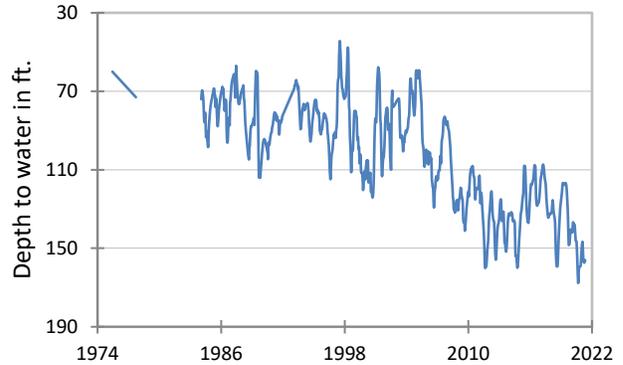
**(4) State Well #33-19-101  
Southeast Dallas, Dallas County  
Twin Mountains Formation-Trinity Aquifer**



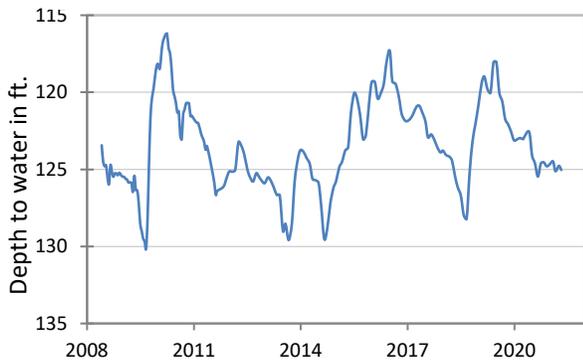
**(5) State Well #40-35-404**  
**Gatesville, Coryell County**  
**Hosston Formation-Trinity Aquifer**



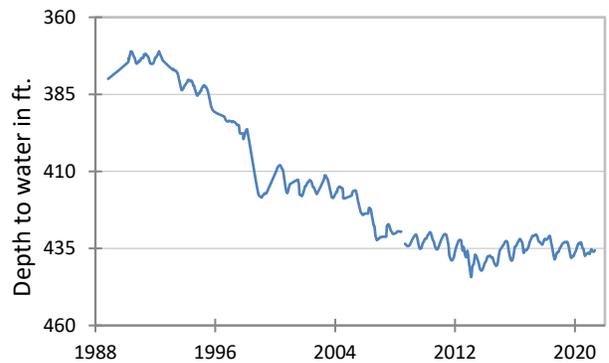
**(6) State Well #68-02-609**  
**Waring, Kendall County**  
**Travis Peak Formation-Trinity Aquifer**



**(7) State Well #58-04-816**  
**Near Salado, Bell County**  
**Edwards (Balcones Fault Zone) Aquifer**



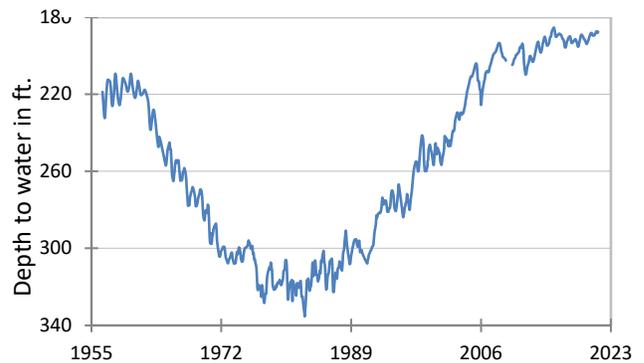
**(9) State Well #34-30-907**  
**Red Springs, Smith County**  
**Carrizo-Wilcox Aquifer**



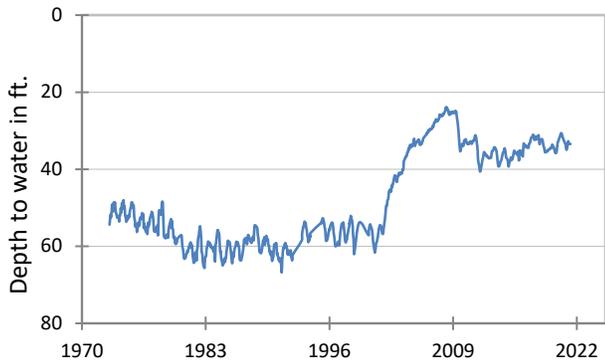
**(10) State Well #77-38-103**  
**Near Cotulla, La Salle County**  
**Carrizo-Wilcox Aquifer**



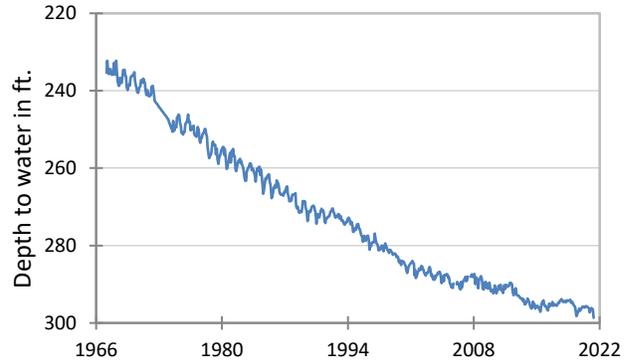
**(11) State Well #65-14-409**  
**North Houston, Harris County**  
**Evangeline Formation-Gulf Coast Aquifer**



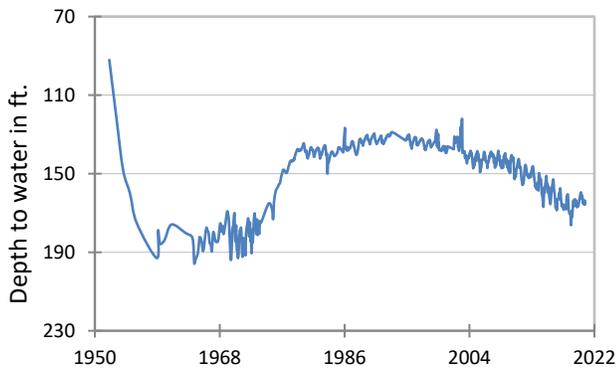
**(12) State Well #80-17-502**  
**Near Bloomington, Victoria County**  
**Lissie Formation-Gulf Coast Aquifer**



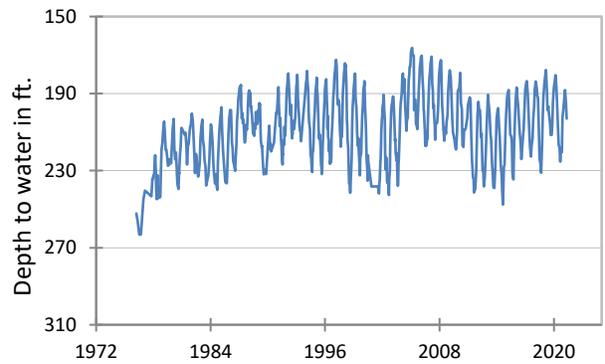
**(13) State Well #49-13-301**  
**El Paso, El Paso County**  
**Hueco-Mesilla Bolsons Aquifer**



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



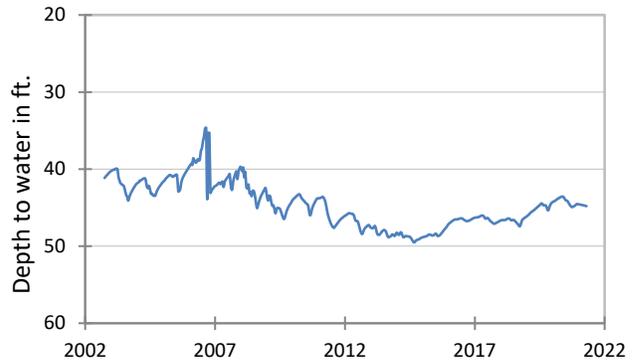
**(15) State Well #52-16-802**  
**Fort Stockton, Pecos County**  
**Edwards-Trinity (Plateau) Aquifer**



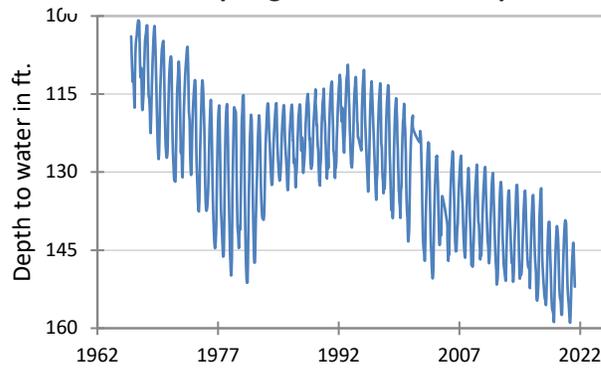
**(16) State Well #55-12-134**  
**Eldorado, Schleicher County**  
**Edwards-Trinity (Plateau) Aquifer**



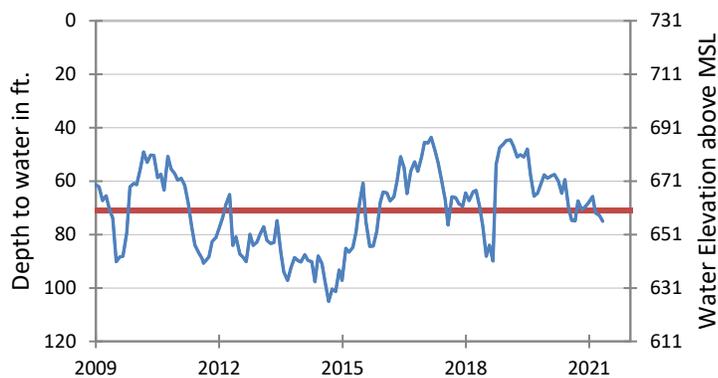
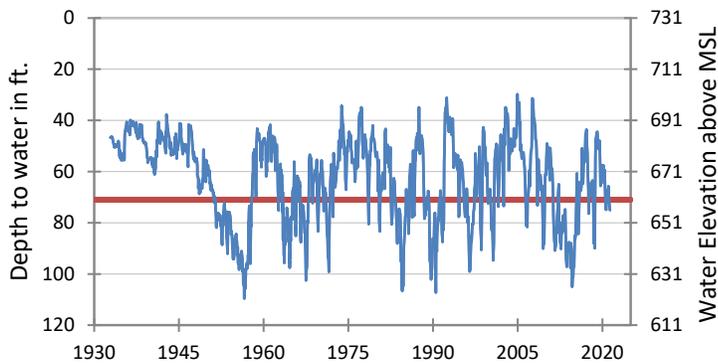
**(17) State Well #21-35-748**  
**Near O'Brien, Haskell County**  
**Seymour Aquifer**



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



**(8) State Well #68-37-203 (J-17)  
San Antonio, Bexar County  
Edwards (Balcones Fault Zone) Aquifer**

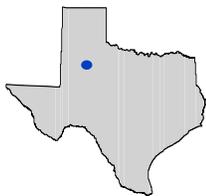


The late April water-level measurement in this Edwards (Balcones Fault Zone) Aquifer well, located at an elevation of 731 feet above mean sea level, was 75.00 feet below land surface, or 656.00 feet above mean sea level. This was 2.20 feet below last month's measurement, 10.50 feet below last year's measurement and 28.36 feet below the initial measurement recorded in 1932.

**Water levels below the red line indicate periods in which Edwards Aquifer Authority Stage 1 drought restrictions are in effect. In April 2021, Stage 1 drought restrictions were in effect because the aquifer dropped 4.00 feet below the Stage 1 critical management level.**

\*Recorder well #14 was temporarily offline in April 2021 and did not record data.

## HYDROGRAPH OF THE MONTH

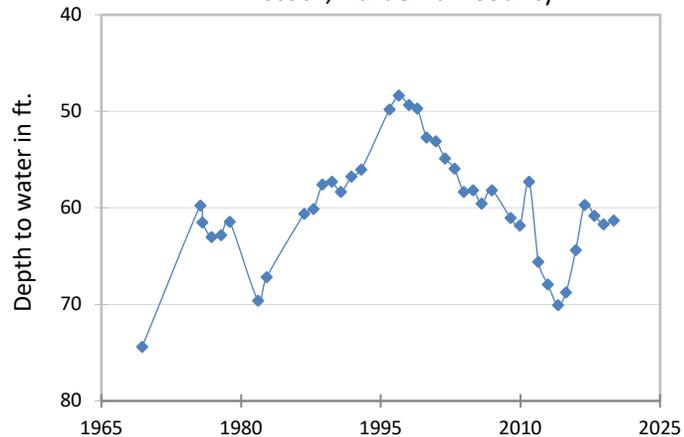


Each month this space features a new hydrograph (marked with the • symbol on the map) depicting different aquifers and their conditions in Texas.

The Blaine Aquifer is a minor aquifer located at the east end of the High Plains in North Texas. The aquifer is part of the Permian Blaine Formation, which is composed of red silty shale, gypsum, anhydrite, salt, and dolomite. The formation consists of cycles of marine and non-marine sediments deposited in a broad, shallow sea that once covered the southwestern United States. Groundwater occurs primarily in solution channels and caverns within the beds of anhydrite and gypsum that contribute to the overall poor quality of the water. Although some wells contain slightly saline water, with total dissolved solids between 1,000 and 3,000 milligrams per liter, most contain moderately saline water, with total dissolved solids between 3,000 and 10,000 milligrams per liter, with almost all exceeding the secondary drinking water standard of 1,000 milligrams per liter. Sulfate values are also in excess of their secondary drinking water standard of 300 milligrams per liter. Water from the Blaine Aquifer is used for livestock and for irrigation of crops that are highly tolerant of salt.

### Blaine Aquifer

Well #13-42-804, 120 feet deep  
stock, Hardeman County



The initial measurement of 74.4 feet below land surface was recorded by the USGS in May of 1969. In August of 1975, the TWDB began collecting near-annual water level measurements. The period of record reveals an overall increase in water-level from 1965 to 1996 and overall decrease from 1996 to present day, with an abrupt period of decline occurring from 2010 through 2014 followed by a period of recovery from 2014 through 2016. Water levels fluctuate on average approximately +/- 3 feet per year. The most recent water level measurement in January of 2020 was 61.31 feet below land surface. This is 0.41 feet above the previous measurement in 2018 and 13.09 feet above the initial measurement in 1969.



Far away (left), and close-up (right) images of well #13-42-804.