

Texas Water Conditions Report

March 2021

Surface Water News:

- Quadrangle (1° x 1° grid) [reservoir evaporation rates](#) have been updated through December 2020.
- The public comment period for the Draft 2022 State Water Plan is now open. The Texas Water Development Board (TWDB) will receive public comments **until 5:00 p.m. on Wednesday, May 26.** [Draft 2022 State Water Plan](#)
- A new contracted study (TWDB contract # 2101792540) by the University of Texas at Austin – Bureau of Economic Geology titled *Assessing the causes and predictability of extreme high rainfall and linkages to flooding in Texas* has just commenced.

RAINFALL

Little to no rain [yellow, orange, and red shading, Figure 1(a)] fell over much of the Trans Pecos, Edwards Plateau, South Central, Southern, portions of southern and western East Texas, western and eastern portions of the Upper Coast, central and western Lower Valley, northwestern, central, and southern High Plains, and central and northeastern Low Rolling Plains climate divisions.

Some rainfall [light blue and dark blue shading, Figure 1(a)] was recorded over northern and portions of eastern High Plains, northern and southern Low Rolling Plains, portions of northern and eastern Edwards Plateau, northern, central, and portions of southern North Central, much of East Texas, and central and eastern Upper Coast climate divisions, reaching 8.29 inches in northeastern portions of the state [dark blue shading, Figure 1(a)].

Monthly rainfall for March was below average [yellow and orange shading, Figure 1(b)] compared to historical data from 1981–2010, in the southern High Plains, North Central, South Central, Southern, Upper Coast, southern and northeastern Low Rolling Plains, Trans Pecos, Edwards Plateau, Lower Valley, and western and southern East Texas climate divisions.

Above average rainfall [green and light blue shading, Figure 1(b)] occurred in portions of northern and central High Plains, northwestern Low Rolling Plains, portions of eastern Trans Pecos, areas of northwestern Edwards Plateau, a small area of central Southern, eastern Lower Valley, and portions of northern East Texas climate divisions. Portions of the northeastern High Plains received 3–6 times the average rainfall [indicated by dark blue shading and purple arrow Figure 1(b)]. The eastern Trans Pecos and eastern Lower Valley received 3–4 times the average rainfall [indicated by the dark blue arrow in the Lower Valley and dark blue shading in the Trans Pecos, Figure 1(b)].

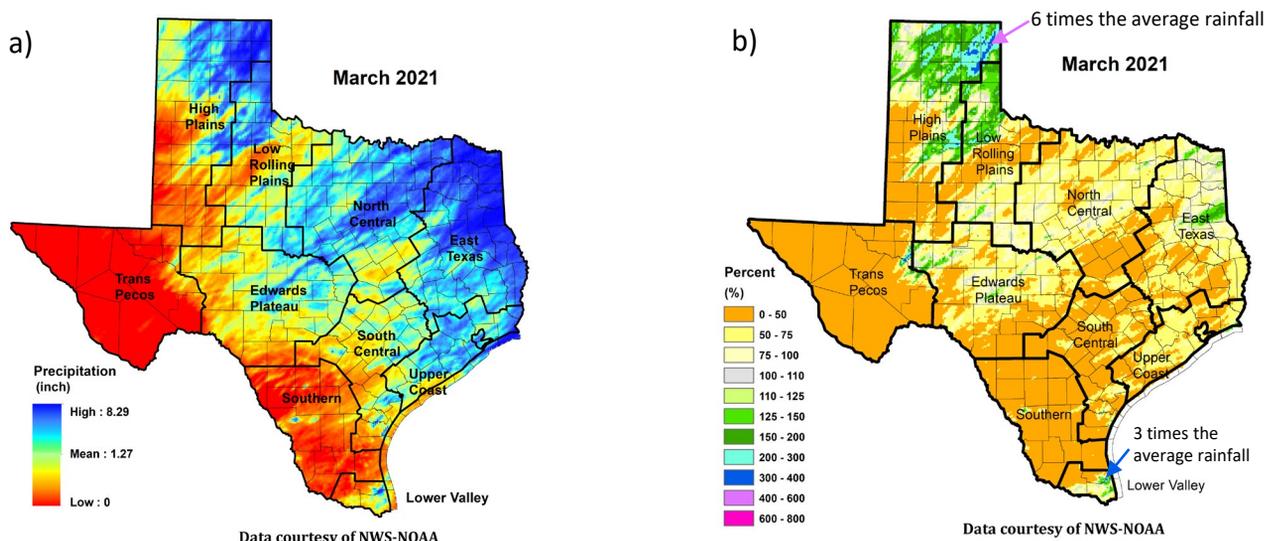


Figure 1: (a) Monthly accumulated rainfall and (b) Percent of normal rainfall

RESERVOIR STORAGE

At the end of March 2021, total conservation storage* in 118 of the state’s major water supply reservoirs plus Elephant Butte Reservoir in New Mexico was 25.8 million acre-feet or 80.1 percent of total conservation storage capacity (Figure 2). This is approximately 0.08 million acre-feet more than a month ago and approximately 1.7 million acre-feet less than at the end of March 2020.

Statewide monitored major water supply reservoir conservation storage

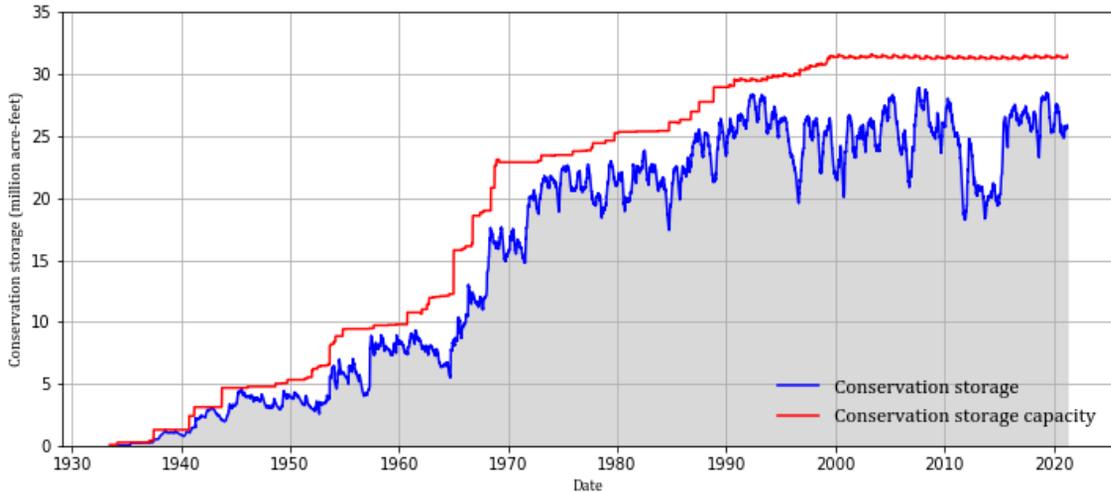


Figure 2: Statewide reservoir conservation storage

Out of 118 reservoirs in the state, 36 reservoirs held 100 percent of conservation storage capacity (Figure 3). Additionally, 36 were at or above 90 percent full. Eight reservoirs, E.V. Spence (21.9 percent full), Greenbelt (17.3 percent full), J.B. Thomas (12.2 percent full), Mackenzie (8.7 percent full), O. C. Fisher (6.0 percent full), Palo Duro Reservoir (1.3 percent full), Falcon (21.9 percent full), and White River (12.8 percent full) remained below 30 percent full. Elephant Butte Reservoir (located in New Mexico) was 10.6 percent full.

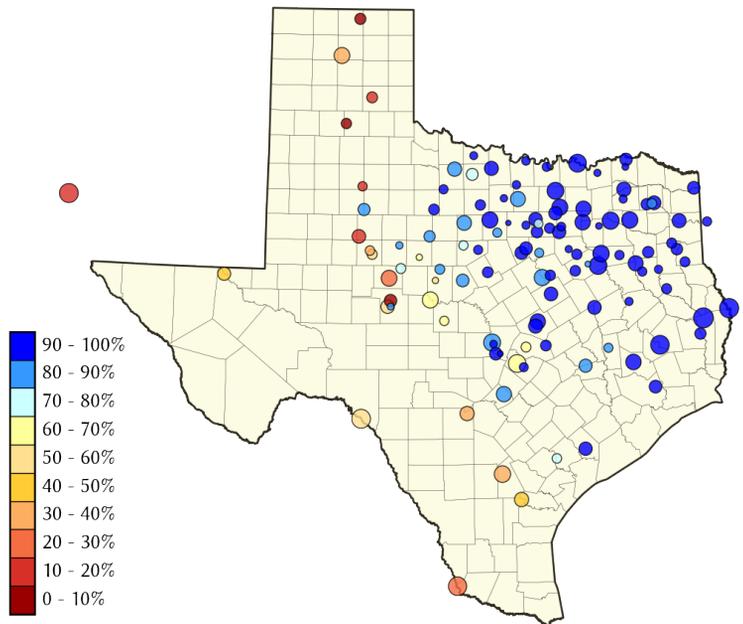


Figure 3: Reservoir conservation storage at end-March expressed as percent full (%)

*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 ≥ 70 percent full) in the North Central (96.5 percent full), East Texas (97.5 percent full), and Upper Coast (96.3 percent full) climate divisions (Figure 4). Conservation storage in the Low Rolling Plains (62.3 percent full), and South Central (68.8 percent full) climate divisions was abnormally low (Figure 4). The High Plains (29.5 percent full), and Southern (27.4 percent full) climate divisions had severely low storage, and the Trans Pecos (16.4 percent full) climate division had extremely low conservation storage (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 and Lower Rio Grande basins was moderately low (40–60 percent full, Figure 5). The Canadian, San Antonio, and Nueces basins had severely low (20–40 percent full, Figure 5) conservation storage. Conservation storage in the Upper/Mid Rio Grande river basin was extremely low (10–20 percent full, Figure 5).

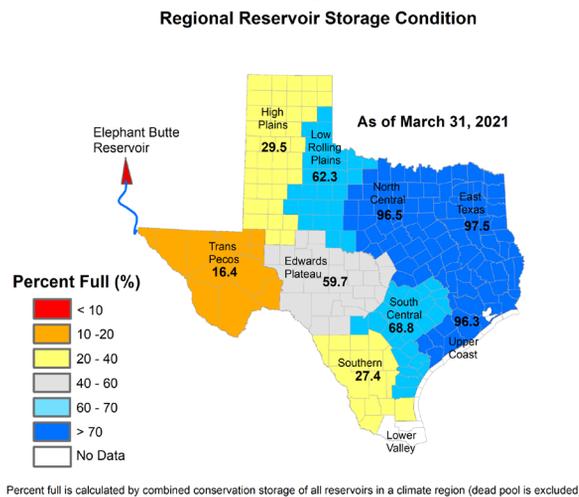


Figure 4: Reservoir Storage Index* by climate division at 3/31/2021

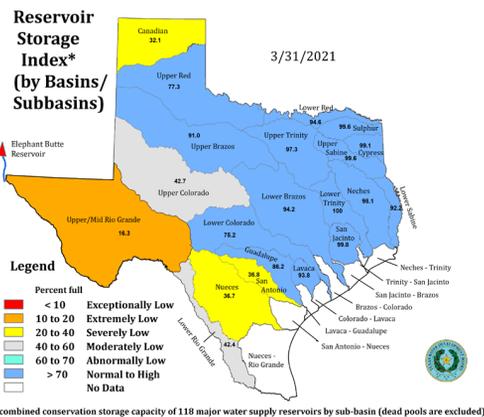


Figure 5: Reservoir Storage Index* by river basin/sub-basin at 3/31/2021

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of lake or reservoir	Storage capacity	Storage at end-March 2021		Storage change from end-Feb 2021		Storage change from end-Mar 2020	
	(acre-feet)	(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)
Abilene, Lake	7,900	5,151	65.2	-192	-2.4	-2,009	-25.4
Alan Henry Reservoir	96,207	81,971	85.2	-1,363	-1.4	-12,706	-13.2
*Amistad Reservoir (Texas & Mexico)	3,275,532	1,189,049	36.3	-9,838	0.0	-156,252	-4.8
*Amistad Reservoir (Texas)	1,840,849	1,101,477	59.8	-15,372	0.0	-129,829	-7.1
Amon G Carter, Lake	19,266	17,846	92.6	-42	0.0	-1,420	-7.4
Aquilla Lake	43,243	41,564	96.1	1,526	3.5	-1,679	-3.9
Arlington, Lake	40,157	38,798	96.6	4,007	10.0	-1,359	-3.4
Arrowhead, Lake	230,359	224,598	97.5	-2,583	-1.1	1,284	0.6
Athens, Lake	29,503	29,503	100.0	0	0.0	0	0.0
*Austin, Lake	23,972	22,972	95.8	-78	0.0	384	1.6
B A Steinhagen Lake	69,186	65,265	94.3	3,781	5.5	1,567	2.3
Bardwell Lake	46,122	46,122	100.0	0	0.0	0	0.0
Belton Lake	435,225	426,415	98.0	0	0.0	-8,810	-2.0
Benbrook Lake	85,648	80,550	94.0	3,918	4.6	-5,098	-6.0
Bob Sandlin, Lake	192,417	192,417	100.0	0	0.0	0	0.0
Bonham, Lake	11,027	10,921	99.0	-106	0.0	-106	0.0
Brady Creek Reservoir	28,808	18,940	65.7	-380	-1.3	-7,391	-25.7
Bridgeport, Lake	366,236	319,065	87.1	-554	0.0	-47,171	-12.9
*Brownwood, Lake	130,868	110,488	84.4	-1,110	0.0	-15,675	-12.0
Buchanan, Lake	860,607	712,752	82.8	-2,668	0.0	-98,514	-11.4
Caddo, Lake	29,898	29,898	100.0	0	0.0	0	0.0
Canyon Lake	378,781	331,313	87.5	-2,641	0.0	-24,620	-6.5
Cedar Creek Reservoir in Trinity	644,686	644,686	100.0	0	0.0	0	0.0
Champion Creek Reservoir	41,580	23,946	57.6	-266	0.0	-3,810	-9.2
Cherokee, Lake	40,094	40,094	100.0	0	0.0	0	0.0
Choke Canyon Reservoir	662,820	220,671	33.3	-5,874	0.0	-71,734	-10.8
*Cisco, Lake	29,003	22,671	78.2	-100	0.0	-3,297	-11.4
Coleman, Lake	38,075	32,155	84.5	-272	0.0	-5,037	-13.2
Colorado City, Lake	31,040	21,992	70.9	717	2.3	-2,032	-6.5
*Coleto Creek Reservoir	30,758	10,860	35.3	-233	0.0	-2,917	-9.5
Conroe, Lake	410,988	410,988	100.0	0	0.0	11,049	2.7
Corpus Christi, Lake	256,062	117,340	45.8	-6,209	-2.4	-61,419	-24.0
Crook, Lake	9,195	9,195	100.0	0	0.0	0	0.0
Cypress Springs, Lake	66,756	66,756	100.0	no data		0	0.0
E. V. Spence Reservoir	517,272	113,212	21.9	-827	0.0	-27,827	-5.4
Eagle Mountain Lake	179,880	164,387	91.4	248	0.1	-15,493	-8.6
Elephant Butte Reservoir (Texas)	852,491	90,674	10.6	12,252	1.4	-148,348	-17.4
Elephant Butte Reservoir (Total Storage)	1,985,900	209,894	10.6	28,362	1.4	-343,398	-17.3
*Falcon Reservoir (Texas & Mexico)	2,646,817	401,124	15.2	-99,697	-3.8	-189,443	-7.2
*Falcon Reservoir (Texas)	1,551,007	338,900	21.9	-95,496	-6.2	-99,005	-6.4
Fork Reservoir, Lake	605,061	600,304	99.2	-4,757	0.0	-4,757	0.0
Fort Phantom Hill, Lake	70,030	60,640	86.6	-497	0.0	-9,390	-13.4
Georgetown, Lake	36,823	24,814	67.4	808	2.2	-611	-1.7
Gibbons Creek Reservoir	25,721	21,055	81.9	-2,130	-8.3	-2,153	-8.4
Graham, Lake	45,288	41,844	92.4	-405	0.0	-3,444	-7.6
Granbury, Lake	132,949	132,949	100.0	815	0.6	652	0.5

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of lake or reservoir	Storage capacity	Storage at end-March 2021		Storage change from end-Feb 2021		Storage change from end-Mar 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	10,345	17.3	490	0.8	-2,113	-3.5
*Halbert, Lake	6,033	5,165	85.6	-109	-1.8	-520	-8.6
Hords Creek Lake	8,109	4,124	50.9	-60	0.0	-2,399	-29.6
Houston County Lake	17,113	17,113	100.0	0	0.0	0	0.0
Houston, Lake	130,147	129,134	99.2	-1,013	0.0	4,783	3.7
Hubbard Creek Reservoir	313,298	269,584	86.0	-3,722	-1.2	-41,522	-13.3
Hubert H Moss Lake	24,058	23,939	99.5	86	0.4	-119	0.0
Inks, Lake	13,962	12,870	92.2	-67	0.0	-143	-1.0
J. B. Thomas, Lake	199,931	24,476	12.2	-1,729	0.0	-26,220	-13.1
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	169,896	96.6	3,924	2.2	-5,904	-3.4
Kemp, Lake	245,307	207,909	84.8	-591	0.0	-37,398	-15.2
Kickapoo, Lake	86,345	67,671	78.4	-1,537	-1.8	-15,426	-17.9
Lavon Lake	406,388	406,388	100.0	0	0.0	0	0.0
Leon, Lake	27,762	25,168	90.7	-164	0.0	-2,577	-9.3
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	4,093	0.2	0	0.0
*Lost Creek Reservoir	11,950	11,648	97.5	193	1.6	-302	-2.5
Lyndon B Johnson, Lake	115,249	111,187	96.5	428	0.4	1,585	1.4
Mackenzie Reservoir	46,450	4,056	8.7	-40	0.0	-1,199	-2.6
Marble Falls, Lake	6,901	6,858	99.4	27	0.4	27	0.4
Martin, Lake	75,726	75,034	99.1	-692	0.0	197	0.3
Medina Lake	254,823	93,983	36.9	-5,401	-2.1	-91,679	-36.0
Meredith, Lake	500,000	179,649	35.9	1,384	0.3	-31,565	-6.3
Millers Creek Reservoir	26,768	25,915	96.8	-611	-2.3	-853	-3.2
*Mineral Wells, Lake	5,273	5,273	100.0	0	0.0	0	0.0
Monticello, Lake	34,740	30,100	86.6	-1,299	-3.7	-681	-2.0
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	38,633	97.8	1,769	4.5	-757	-1.9
Nasworthy	9,615	8,073	84.0	-110	-1.1	-358	-3.7
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	20,174	94.1	91	0.4	-1,270	-5.9
North Fork Buffalo Creek Reservoir	15,400	14,532	94.4	-327	-2.1	-868	-5.6
O' the Pines, Lake	241,363	241,363	100.0	0	0.0	0	0.0
O. C. Fisher Lake	115,742	6,990	6.0	-220	0.0	-3,787	-3.3
*O. H. Ivie Reservoir	554,340	337,225	60.8	137	0.0	-62,586	-11.3
Oak Creek Reservoir	39,210	29,776	75.9	-332	0.0	-7,186	-18.3

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of lake or reservoir	Storage capacity	Storage at end-March 2021		Storage change from end-Feb 2021		Storage change from end-Mar 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	783	1.3	-64	0.0	-1,776	-2.9
Palo Pinto, Lake	26,766	22,266	83.2	-482	-1.8	-4,500	-16.8
Pat Cleburne, Lake	26,008	22,412	86.2	611	2.3	-3,596	-13.8
*Pat Mayse Lake	113,683	113,683	100.0	0	0.0	0	0.0
Possum Kingdom Lake	538,139	528,358	98.2	-1,767	0.0	-6,743	-1.3
Proctor Lake	54,762	53,068	96.9	228	0.4	-1,694	-3.1
Ray Hubbard, Lake	439,559	439,559	100.0	0	0.0	0	0.0
Ray Roberts, Lake	788,167	788,167	100.0	12,698	1.6	0	0.0
Red Bluff Reservoir	151,110	73,870	48.9	-1,545	-1.0	-28,090	-18.6
Richland-Chambers Reservoir	1,087,839	1,083,558	99.6	2,563	0.2	-4,281	0.0
Sam Rayburn Reservoir	2,857,077	2,796,499	97.9	92,062	3.2	-60,578	-2.1
Somerville Lake	150,293	129,402	86.1	-418	0.0	-20,891	-13.9
Squaw Creek, Lake	151,250	151,250	100.0	1,984	1.3	0	0.0
Stamford, Lake	51,570	51,570	100.0	0	0.0	0	0.0
Stillhouse Hollow Lake	227,771	227,771	100.0	0	0.0	10,090	4.4
Striker, Lake	16,934	16,934	100.0	0	0.0	0	0.0
Sweetwater, Lake	12,267	9,922	80.9	-78	0.0	-2,345	-19.1
*Sulphur Springs, Lake	17,747	16,453	92.7	-1,294	-7.3	-1,294	-7.3
Tawakoni, Lake	871,685	871,685	100.0	0	0.0	0	0.0
Texana, Lake	159,566	149,790	93.9	-4,850	-3.0	39,445	24.7
Texoma, Lake (Texas & Oklahoma)	2,487,601	2,338,004	94.0	75,967	3.1	-684,774	-27.5
Texoma, Lake (Texas)	1,243,801	1,169,002	94.0	37,984	3.1	-74,799	-6.0
Toledo Bend Reservoir (Texas & Louisiana)	4,472,900	4,131,559	92.4	116,890	2.6	-427,270	-9.6
Toledo Bend Reservoir (Texas)	2,236,450	2,063,730	92.3	58,446	2.6	-172,720	-7.7
Travis, Lake	1,113,348	742,552	66.7	-5,591	0.0	-216,683	-19.5
Twin Buttes Reservoir	182,454	98,136	53.8	-1,092	0.0	-25,860	-14.2
Tyler, Lake	72,073	72,073	100.0	0	0.0	0	0.0
Waco, Lake	189,418	186,032	98.2	2,636	1.4	-3,386	-1.8
Waxahachie, Lake	10,780	10,780	100.0	483	4.5	0	0.0
Weatherford, Lake	17,812	16,491	92.6	145	0.8	-1,321	-7.4
White River Lake	29,880	3,814	12.8	204	0.7	-2,502	-8.4
Whitney, Lake	553,344	496,060	89.6	10,414	1.9	-57,284	-10.4
Worth, Lake	24,419	17,898	73.3	-802	-3.3	-6,521	-26.7
Wright Patman Lake	122,593	122,593	100.0	0	0.0	0	0.0
STATEWIDE TOTAL							
STATEWIDE TOTAL	32,168,837	25,775,182	80.1	80,990	0.3	-1,780,894	-5.5

*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 March 2021. Above normal streamflow (76–90th percentile, light blue shading in Figure 6) was seen in the Cypress and Canadian river basins. Much above normal streamflow (>90th percentile, dark blue shading in Figure 6) was observed in the Upper Red and Upper Brazos river basins. Below normal streamflow (10–24th percentile, orange shading in Figure 6) was recorded in the Upper and Lower Red, Upper and Lower Brazos, Upper and Lower Colorado, San Jacinto, Neches, Brazos-Colorado, Lavaca, Lavaca-Guadalupe, Guadalupe, San Antonio, San Antonio-Nueces, Nueces, Nueces-Rio Grande, and Rio Grande river basins. Some watersheds in the Upper Red, Rio Grande, Lavaca, Guadalupe, San Antonio, San Antonio-Nueces, Nueces, and Nueces-Rio-Grande river basins had much below normal streamflow (< 10th percentile, dark brown shading in Figure 6). Record lows were seen in the Upper Rio Grande, Nueces and Upper Brazos river basins (red shading, Figure 6).

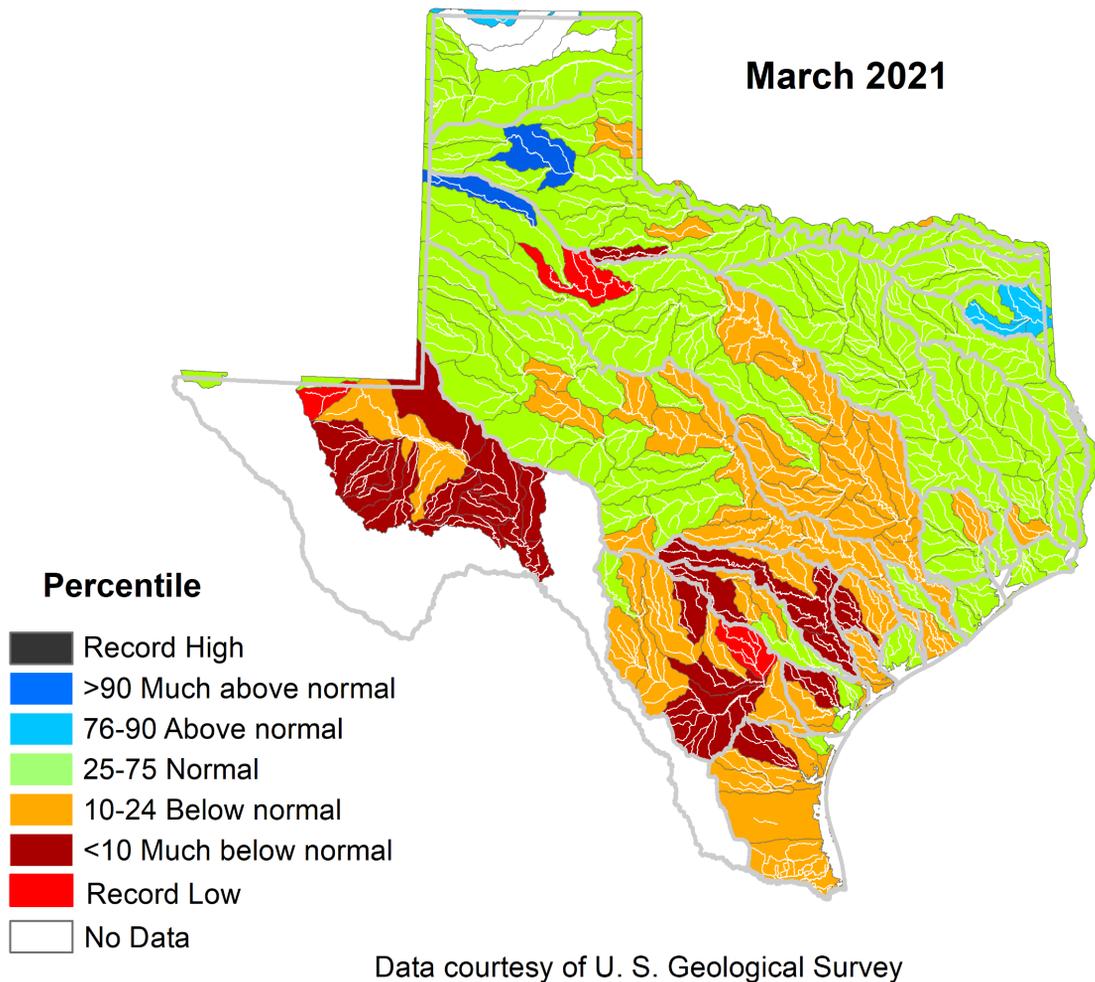
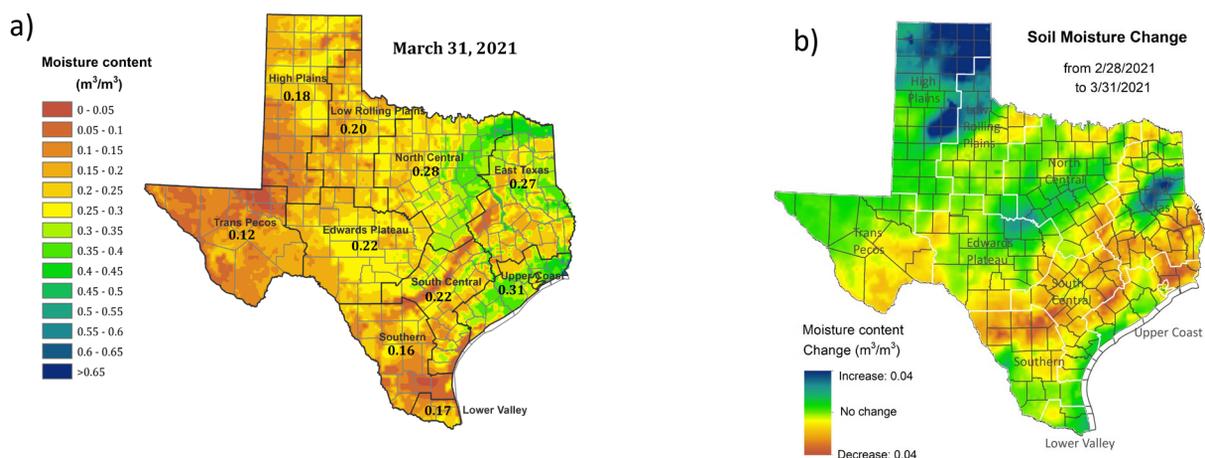


Figure 6: Runoff percentiles by the U.S. Geological Survey’s Hydrologic Unit Code

SOIL MOISTURE

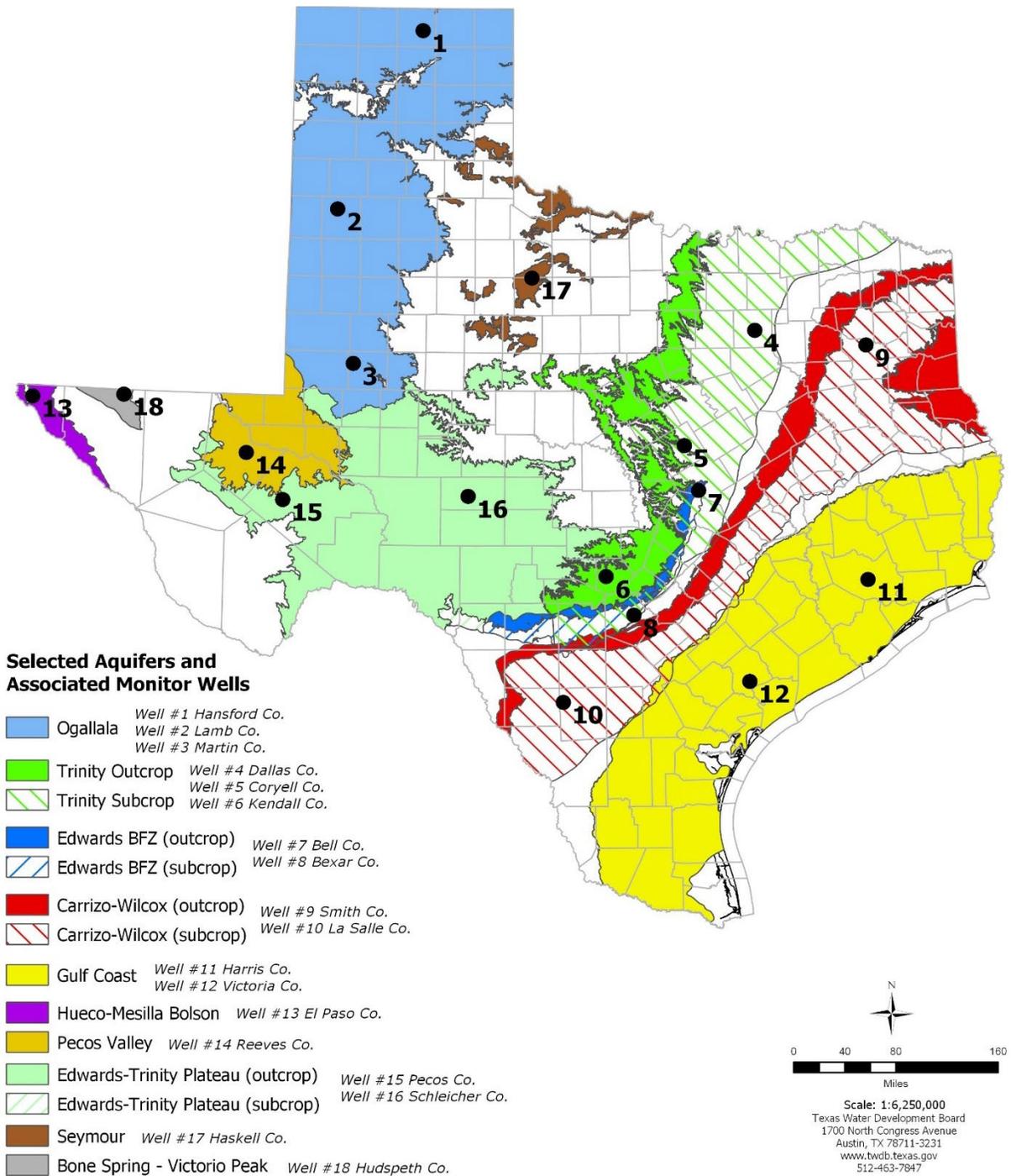
Root zone soil moisture at the end of March 2021 [Figure 7(a)] was moderate [> 0.20 cubic meters of water per bulk cubic meter soil (m^3/m^3)] in portions of northern and central High Plains, central and eastern Trans Pecos, portions of the Edwards Plateau, Low Rolling Plains, northern and western North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

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



March 2021 GROUNDWATER LEVELS IN MONITORING WELLS

Water-level measurements were available for 16 key monitoring wells in the state. Recorders in 2 wells (#14 & #17 on map) were temporarily offline and scheduled for repair. Water levels rose in 4 monitoring wells since the beginning of March, ranging from an increase of 0.01 feet in the Coryell County Trinity Aquifer well (#5 on map) to 4.32 feet in the Schleicher County Edwards-Trinity (Plateau) Aquifer well (#16 on map). Water levels declined in 11 monitoring wells, ranging from a decline of -0.02 feet in the Martin County Ogallala Aquifer well (#3 on map) to -6.87 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 72.80 feet below land surface or 658.20 feet above mean sea level. Water levels are 1.80 feet below the Stage I critical management level for the San Antonio portion of the Edwards (Balcones Fault Zone) Aquifer.

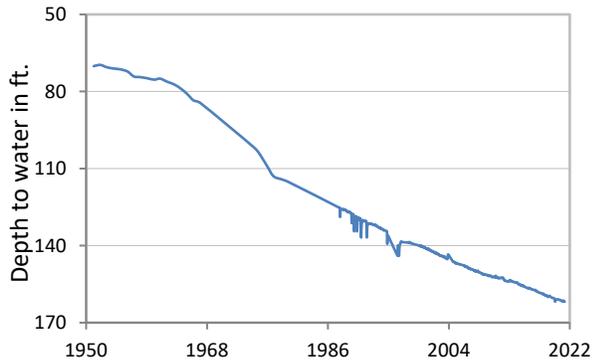
*Well numbers used in this publication on the aquifer map to indicate the monitoring well location (numbers 1 - 18) are different than the TWDB's seven-digit state well number.

Monitoring Well	March	February	Month Change	Year Change	Historical Change	First Measured
(1) Hansford 0354301	161.81	161.65	-0.16	-0.91	-91.69	1951
(2) Lamb 1053602	151.85	151.72	-0.13	-0.94	-123.68	1951
(3) Martin 2739903	144.64	144.62	-0.02	-0.75	-39.75	1964
(4) Dallas 3319101	487.39	488.44	1.05	6.62	-265.39	1954
(5) Coryell 4035404	530.78	530.79	0.01	-3.00	-238.78*	1955**
(6) Kendall 6802609	157.37	156.08	-1.29	-19.17	-97.37	1975
(7) Bell 5804816	124.77	125.12	0.35	-1.73	-1.26	2008
(8) Bexar 6837203	72.80	71.90	-0.90	-12.90	-26.16	1932
(9) Smith 3430907	436.10	435.77	-0.33	-2.75	-136.10*	1977**
(10) La Salle 7738103	498.48	NA	NA	31.91	-245.41	2003
(11) Harris 6514409	188.15	187.54	-0.61	1.41	-52.65*	1947**
(12) Victoria 8017502	33.45	33.37	-0.08	-2.07	0.55*	1958**
(13) El Paso 4913301	296.46	296.30	-0.16	-0.65	-64.56*	1964**
(14) Reeves 4644501	NA	163.37	NA	NA	NA	1952
(15) Pecos 5216802	195.02	188.15	-6.87	-8.09	51.86	1976
(16) Schleicher 5512134	285.66	289.98	4.32	-1.62	16.24	2003
(17) Haskell 2135748	NA	NA	NA	NA	NA	2002
(18) Hudspeth 4807516	148.05	143.57	-4.48	-8.20	-44.13	1966

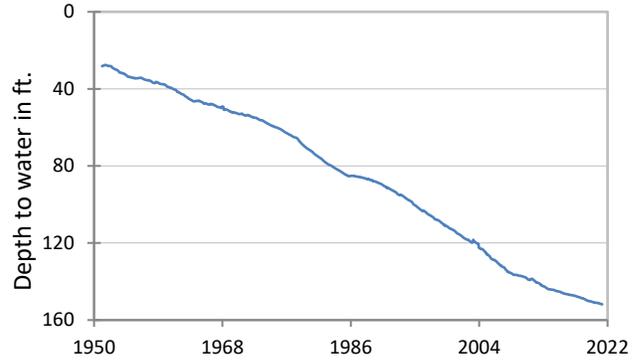
*Change since the original measurement taken on the date indicated in the last column (**measurement not shown on the hydrograph)

March 2021 MONITORING WELL HYDROGRAPHS

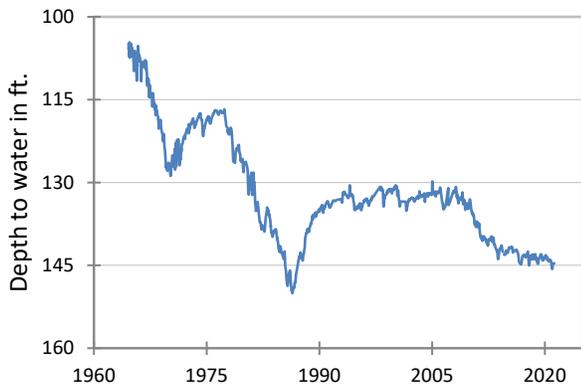
**(1) State Well #03-54-301
Near Spearman, Hansford County
Ogallala Aquifer**



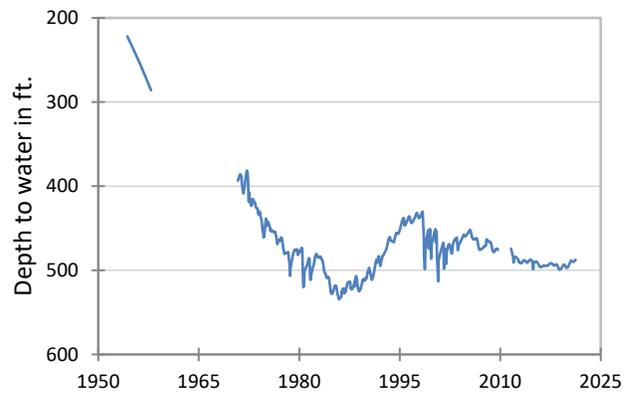
**(2) State Well #10-53-602
Near Earth, Lamb County
Ogallala Aquifer**



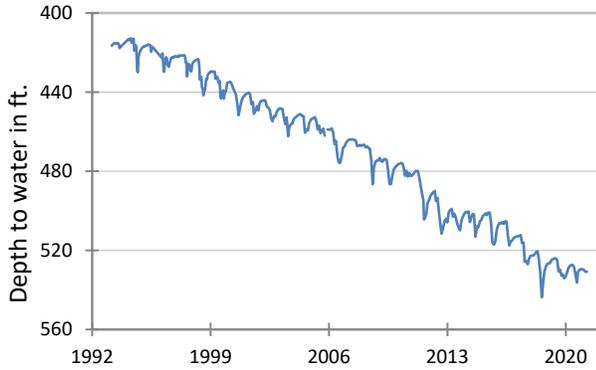
**(3) State Well #27-39-903
Northwest Martin County
Ogallala Aquifer**



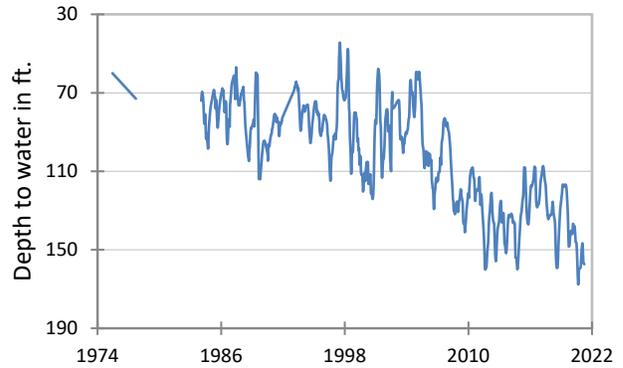
**(4) State Well #33-19-101
Southeast Dallas, Dallas County
Twin Mountains Formation-Trinity Aquifer**



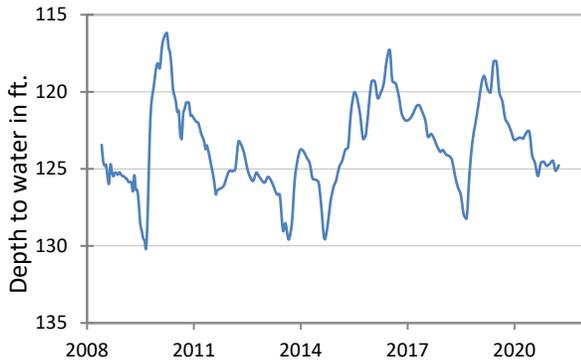
(5) State Well #40-35-404
Gatesville, Coryell County
Hosston Formation-Trinity Aquifer



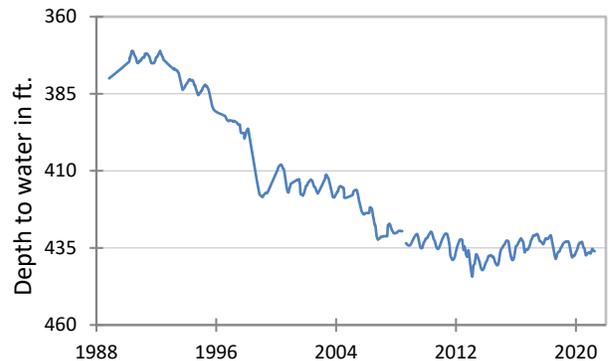
(6) State Well #68-02-609
Waring, Kendall County
Travis Peak Formation-Trinity Aquifer



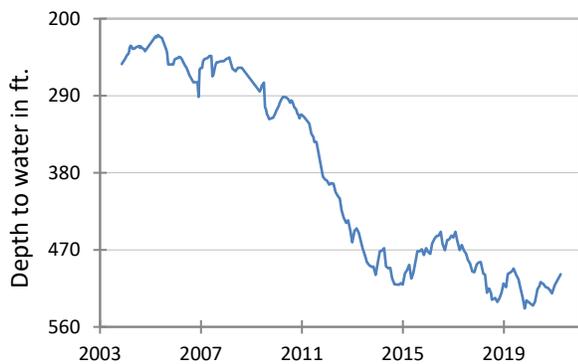
(7) State Well #58-04-816
Near Salado, Bell County
Edwards (Balcones Fault Zone) Aquifer



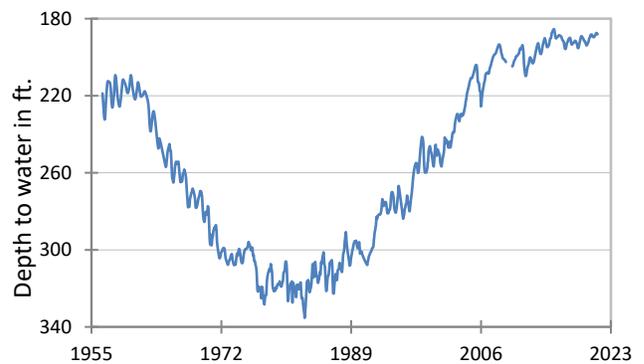
(9) State Well #34-30-907
Red Springs, Smith County
Carrizo-Wilcox Aquifer



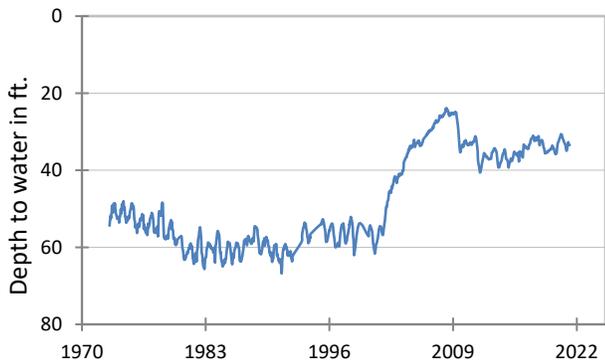
(10) State Well #77-38-103
Near Cotulla, La Salle County
Carrizo-Wilcox Aquifer



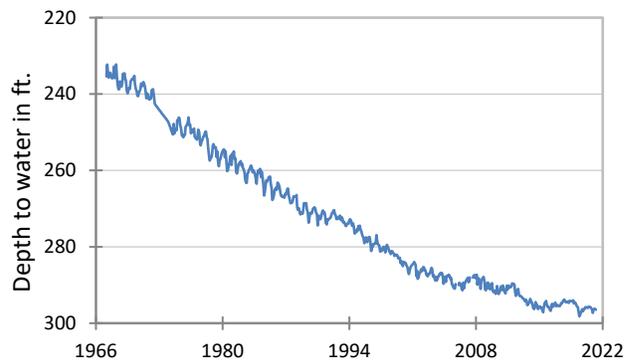
(11) State Well #65-14-409
North Houston, Harris County
Evangeline Formation-Gulf Coast Aquifer



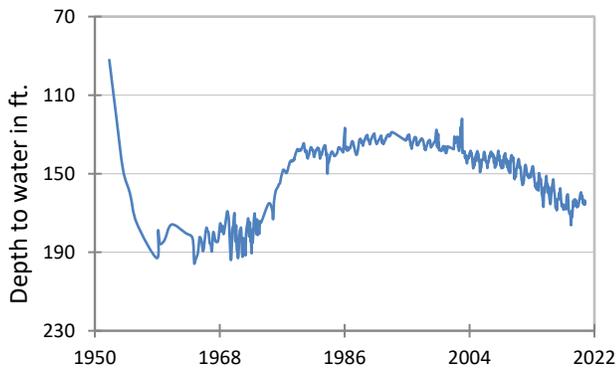
(12) State Well #80-17-502
Near Bloomington, Victoria County
Lissie Formation-Gulf Coast Aquifer



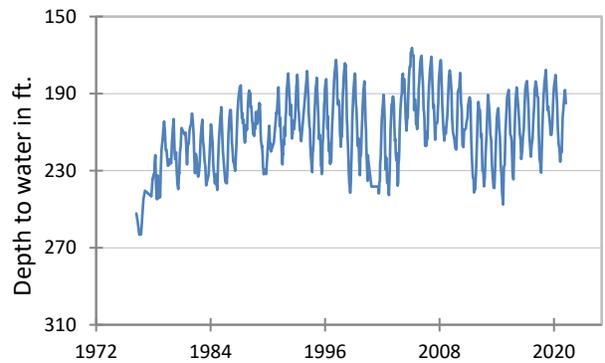
(13) State Well #49-13-301
El Paso, El Paso County
Hueco-Mesilla Bolsons Aquifer



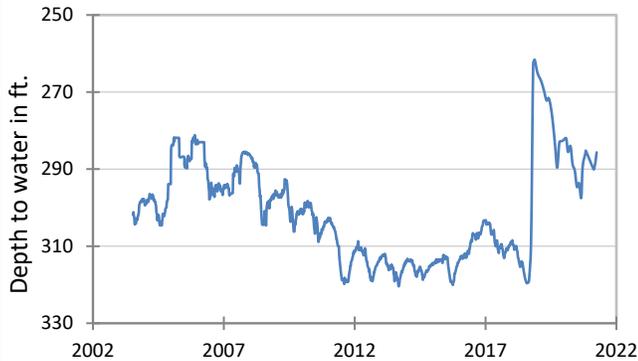
***(14) State Well #46-44-501**
Near Pecos, Reeves County
Pecos Valley Aquifer



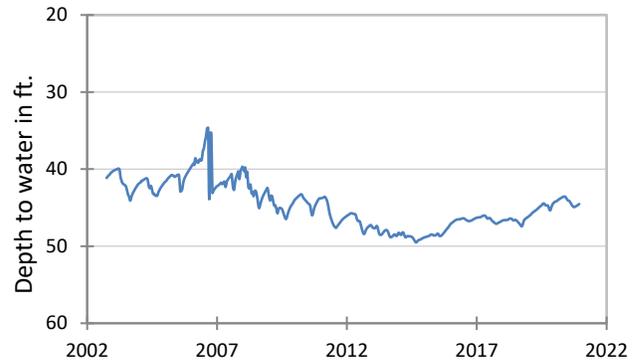
(15) State Well #52-16-802
Fort Stockton, Pecos County
Edwards-Trinity (Plateau) Aquifer



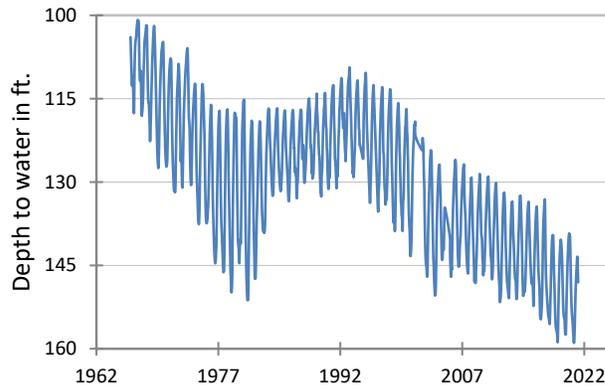
(16) State Well #55-12-134
Eldorado, Schleicher County
Edwards-Trinity (Plateau) Aquifer



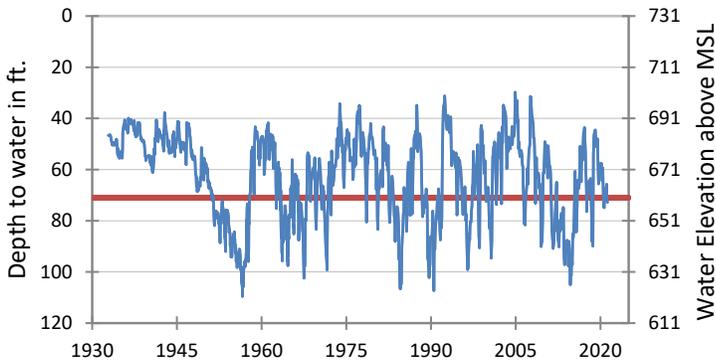
***(17) State Well #21-35-748**
Near O'Brien, Haskell County
Seymour Aquifer



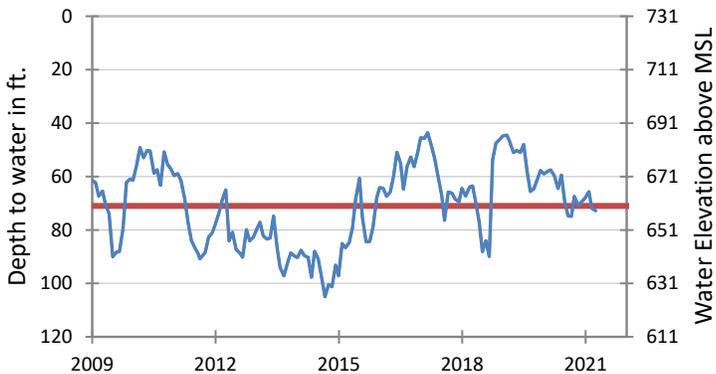
**(18) State Well #48-07-516
Dell City, Hudspeth County
Bone Spring - Victorio Peak Aquifer**



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

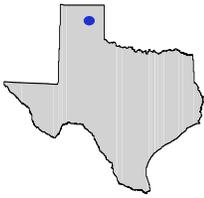


The late March water-level measurement in this Edwards (Balcones Fault Zone) Aquifer well, located at an elevation of 731 feet above mean sea level, was 72.80 feet below land surface, or 658.20 feet above mean sea level. This was 0.90 feet below last month's measurement, 12.90 feet below last year's measurement and 26.16 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 March 2021, Stage 1 drought restrictions were in effect because the aquifer dropped 1.80 feet below the Stage 1 critical management level.

*Recorder wells #14 and #17 were temporarily offline in March 2021 and did not record data.



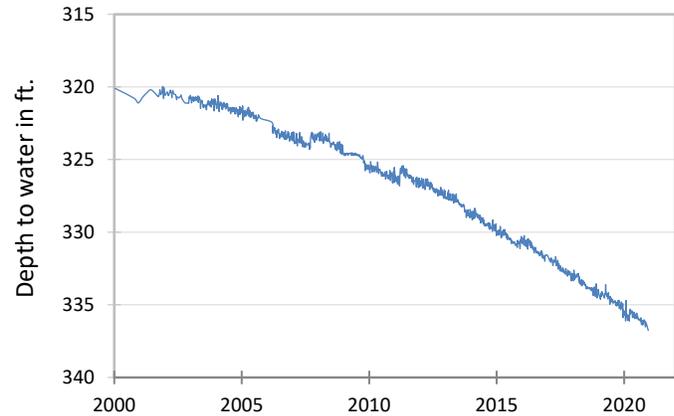
HYDROGRAPH OF THE MONTH

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

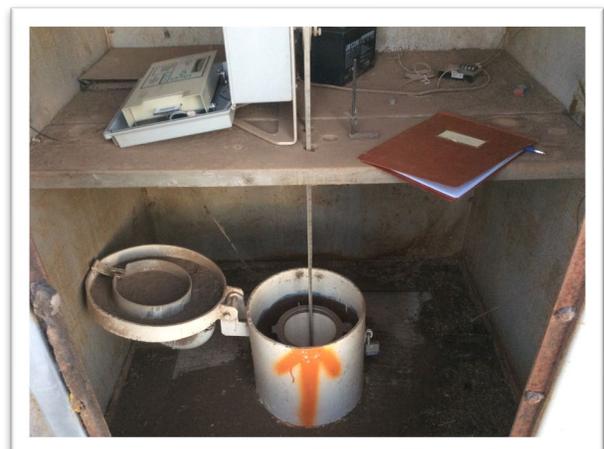
The Ogallala Aquifer is the largest aquifer in the United States and a major aquifer of Texas underlying much of the High Plains region. The aquifer consists of sand, gravel, clay, and silt and has a maximum thickness of 800 feet. Water to the north of the Canadian River is generally fresh, with total dissolved solids typically less than 400 milligrams per liter; however, water quality diminishes to the south, where large areas contain total dissolved solids in excess of 1,000 milligrams per liter. High levels of naturally occurring arsenic, radionuclides, and fluoride in excess of primary drinking water standards are also present. The Ogallala Aquifer provides significantly more water for users than any other aquifer in the state. The availability of this water is critical to the economy of the region, as approximately 95 percent of groundwater pumped is used for irrigated agriculture. Throughout much of the aquifer, groundwater withdrawals exceed the amount of recharge, and water levels have declined consistently over time.

Ogallala Aquifer

Well #05-17-203, 466 feet deep
unused, Roberts County



The initial measurement of 320.1 feet below land surface was recorded by a Groundwater Conservation District (GCD) in January of 2000. The GCD and U.S. Geological Survey installed automatic water-level recorder equipment in the unused well, which began collecting near-monthly measurements in October of 2000. In March of 2006, the TWDB became responsible for managing the automatic water-level recorder equipment. The period of record reveals a steady decline in water level of about 16.66 feet over 21 years (equivalent to -0.79 feet per year), with periods of recovery in 2007, 2011 and 2015.



Far away (left), and close-up (right) images of well #05-17-203.