Texas Water Conditions Report

July 2020

Texas Water Development Board

RAINFALL

Little to no rain fell over the majority of the Trans Pecos, Low Rolling Plains, Edwards Plateau, North Central, portions of southeastern High Plains, northern South Central, and northern regions of the Southern climate divisions [yellow, orange and red shading, Figure 1(a)].

Some rainfall [light blue and dark blue shading, Figure 1(a)] was recorded over northwestern and central, Trans Pecos, northern and southern High Plains, scattered areas throughout the Low Rolling Plains, central Edwards Plateau, northern, central and eastern North Central, southern and northeastern South Central, the majority of the Southern, Lower Valley, Upper Coast, and East Texas climate divisions, reaching 16.60 inches in portions of the state [dark blue shading, Figure 1(a)].

Monthly rainfall for July was below-average [yellow and orange shading, Figure 1(b)], compared to historical data from 1981–2010, in much of the state, including the majority of the Trans Pecos, High Plains, Low Rolling Plains, Edwards Plateau, North Central, South Central and parts of the Southern, Upper Coast, and East Texas climate divisions.

Above average rainfall fell in small areas in northwestern and southeastern Trans Pecos, Central Edwards, small scattered areas across the Low Rolling Plains, northern, as well as scattered across central and southern portions of the High Plains, parts of the northern and central North Central, eastern and central East Texas, southern and a small area in the northeastern South Central, the majority of the Upper Coast and Southern climate divisions [green and blue shading, Figure 1(b)]. Additionally, parts of southern and central Southern and the majority of the Lower Valley received 2–8 times the average amount of rainfall.

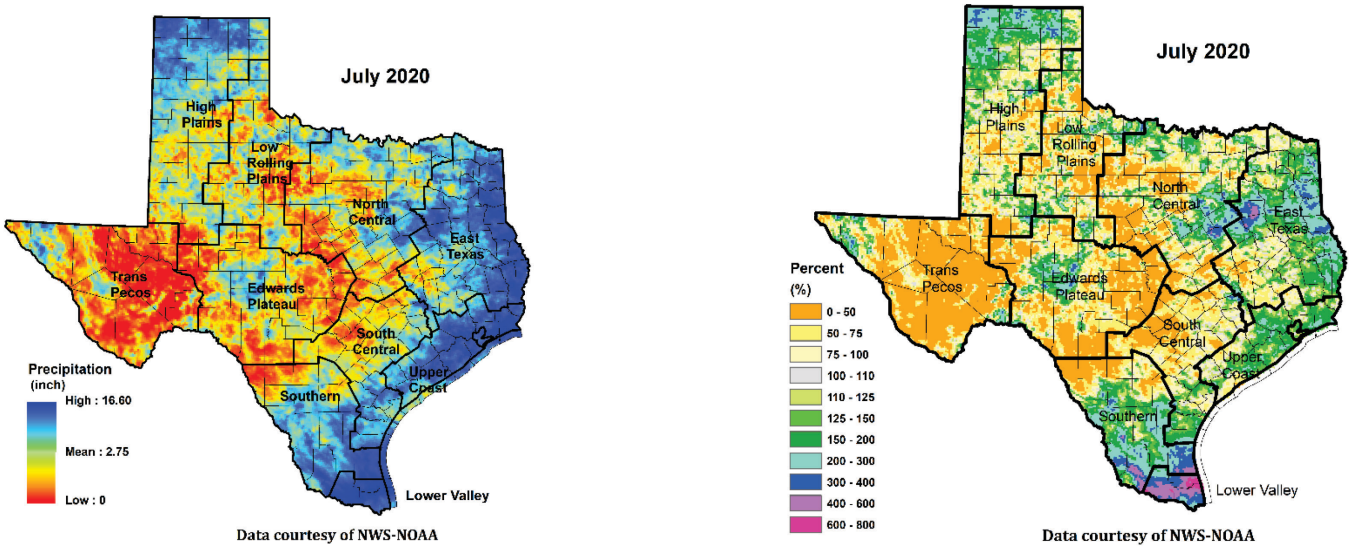


Figure 1: (a) Monthly accumulated rainfall, (b) Percent of normal rainfall

RESERVOIR STORAGE

At the end of July 2020, total conservation storage* in 118 of the state's major water supply reservoirs plus Elephant Butte Reservoir in New Mexico was 26.3 million acre-feet or 82 percent of total conservation storage capacity (Figure 2). This is approximately 0.663 million acre-feet less than a month ago and approximately 1.45 million acre-feet less than the end of July 2019.

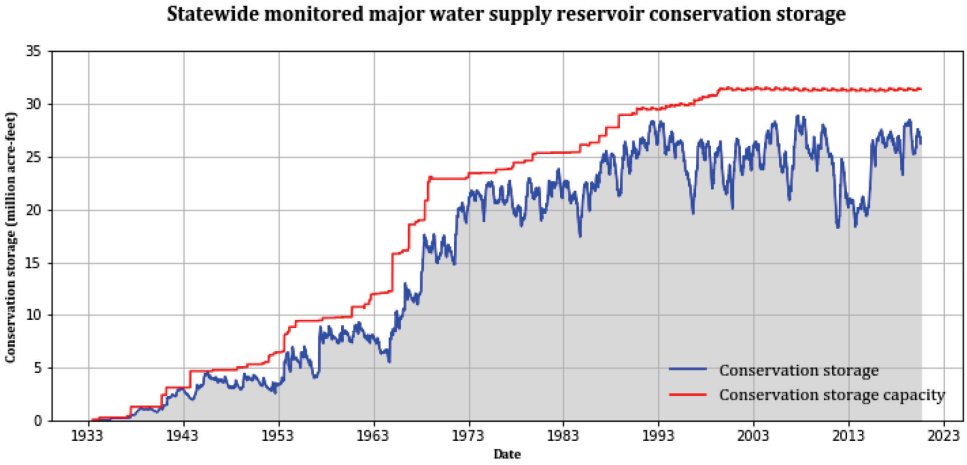


Figure 2: Statewide reservoir conservation storage

Out of 118 reservoirs in the state, 24 reservoirs held 100 percent of conservation storage capacity (Figure 3). Additionally, 60 were at or above 90 percent full. Eight reservoirs [E.V. Spence (24 percent full), Greenbelt (19 percent full), J.B. Thomas (20 percent full), Mackenzie (10 percent full), O. C. Fisher (8 percent full), Palo Duro Reservoir (3 percent full), and White River (17 percent full), Falcon Reservoir (26 percent full)] remained below 30 percent full. Elephant Butte Reservoir (located in New Mexico) was at 9 percent full.

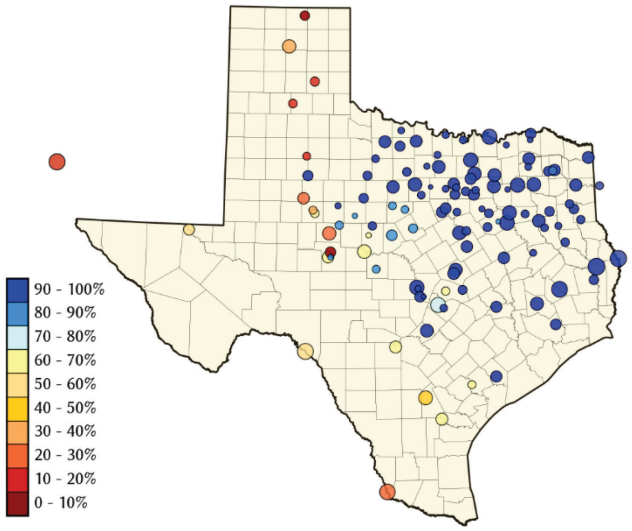


Figure 3: Reservoir conservation storage at end-July expressed as percent full (%)

*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 (96.9 percent full), East Texas (96.1 percent full), South Central (79.4), and Upper Coast (96.3 percent full) climate divisions (Figure 4). Conservation storage in the Edwards Plateau (62.3 percent full), and Low Rolling Plains (69.2 percent full) climate divisions was abnormally low (Figure 4). The High Plains (32.6 percent full), Southern (34.1 percent full) climate divisions had severely low and the Trans Pecos (15.5 percent full) climate division had extremely low conservation storage (Figure 4). Combined conservation storage by river basin or sub-basin showed that the Upper and Lower Red, Upper and Lower Trinity, Upper and Lower Sabine, Sulphur, Cypress, San Jacinto, Upper and Lower Brazos, Lower Colorado, Guadalupe, Lavaca, and Neches was normal to high (>70 percent full, Figure 5). The conservation storage in the Upper Colorado, Nueces, San Antonio, and Lower Rio Grande was moderately low (40–60 percent full). In the Canadian sub-basin storage was severely low (20–40 percent full). In the Upper/Mid Rio Grande the conservation storage was extremely low (10–20 percent full, Figure 5).

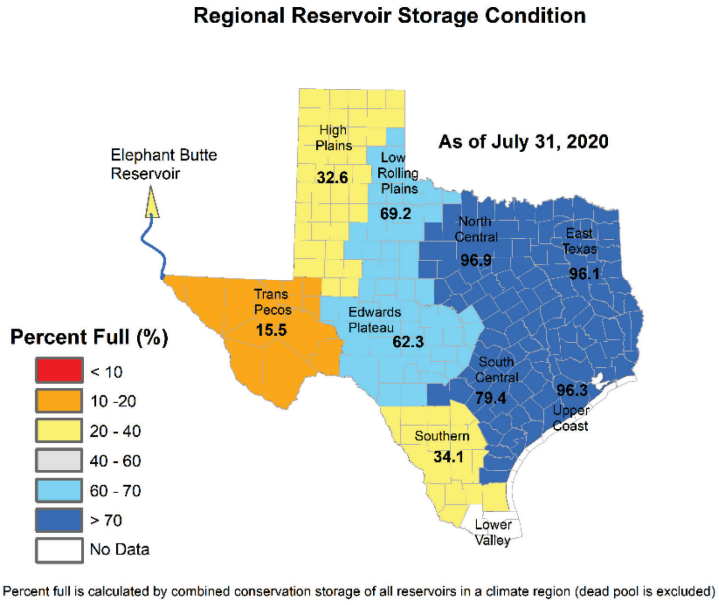


Figure 4: Reservoir Storage Index* by climate division at 7/31/2020

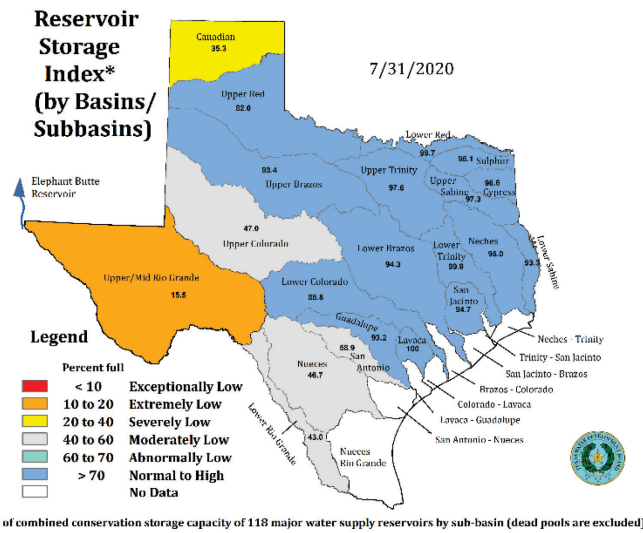


Figure 5: Reservoir Storage Index* by river basin/sub-basin at 7/31/2020

*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-July		Storage change from end-Jun 2020		Storage change from end-Jul 2019	
	(acre-feet)	(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)
Abilene, Lake	7,900	6,723	85	-455	-6	-356	-5
Alan Henry Reservoir	96,207	93,825	98	-2,382	-2	3,555	4
*Amistad Reservoir (Texas & Mexico)	3,275,532	1,133,437	35	-18,222	0	-585,122	-18
*Amistad Reservoir (Texas)	1,840,849	1,049,809	57	-29,973	-2	-462,944	-25
Amon G Carter, Lake	19,266	19,266	100	0	0	85	0
Aquilla Lake	43,243	43,120	100	-123	0	1,041	2
Arlington, Lake	40,157	36,473	91	-3,203	-8	-19	0
Arrowhead, Lake	230,359	223,742	97	-5,314	-2	4,963	2
Athens, Lake	29,503	29,503	100	313	1	0	0
*Austin, Lake	23,972	22,665	95	-493	-2	-153	0
B A Steinhagen Lake	69,186	65,761	95	-1,700	-2	65,096	94
Bardwell Lake	46,122	46,060	100	-62	0	906	2
Belton Lake	435,225	417,821	96	-14,255	-3	-17,404	-4
Benbrook Lake	85,648	78,318	91	-7,330	-9	-416	0
Bob Sandlin, Lake	192,417	190,997	99	-1,420	0	-177	0
Bonham, Lake	11,027	10,098	92	-377	-3	-275	-2
Brady Creek Reservoir	28,808	23,183	80	-1,298	-5	-4,558	-16
Bridgeport, Lake	366,236	363,096	99	-3,140	0	3,825	1
*Brownwood, Lake	130,868	109,936	84	-6,357	-5	-16,760	-13
Buchanan, Lake	816,904	787,968	96	-19,184	-2	-23,082	-3
Caddo, Lake	29,898	29,898	100	0	0	no data	
Canyon Lake	378,781	360,780	95	-8,038	-2	-18,001	-5
Cedar Creek Reservoir in Trinity	644,686	624,623	97	-4,491	0	-2,243	0
Champion Creek Reservoir	41,580	25,722	62	-601	-1	-4,091	-10
Cherokee, Lake	40,094	40,094	100	0	0	94	0
Choke Canyon Reservoir	662,820	264,570	40	-12,015	-2	-79,703	-12
*Cisco, Lake	29,003	24,130	83	-672	-2	-3,575	-12
Coleman, Lake	38,075	35,571	93	-532	-1	-1,013	-3
Colorado City, Lake	31,040	21,355	69	-1,392	-4	-6,852	-22
*Coleto Creek Reservoir	30,758	11,898	39	-500	-2	-3,987	-13
Conroe, Lake	410,988	393,916	96	-7,537	-2	-6,969	-2
Corpus Christi, Lake	256,062	164,849	64	-8,042	-3	-81,996	-32
Crook, Lake	9,195	8,945	97	-73	0	342	4
Cypress Springs, Lake	66,756	65,597	98	-1,029	-2	-900	-1
E. V. Spence Reservoir	517,272	125,291	24	-4,718	0	-32,901	-6
Eagle Mountain Lake	179,880	175,516	98	-4,364	-2	1,016	1
Elephant Butte Reservoir (Texas)	852,491	76,561	9	-48,033	-6	-158,708	-19
Elephant Butte Reservoir (Total Storage)	1,960,900	177,225	9	-111,187	-6	-367,379	-19
*Falcon Reservoir (Texas & Mexico)	2,646,817	519,077	20	-32,667	-1	-166,610	-6
*Falcon Reservoir (Texas)	1,551,007	409,568	26	-45,145	-3	-74,413	-5
Fork Reservoir, Lake	605,061	582,912	96	-11,369	-2	-9,288	-2
Fort Phantom Hill, Lake	70,030	64,472	92	-2,621	-4	-5,166	-7
Georgetown, Lake	36,823	23,976	65	-1,758	-5	-11,512	-31
Graham, Lake	45,288	43,767	97	-1,521	-3	-171	0
Granbury, Lake	132,949	130,112	98	-2,837	-2	-1,535	-1

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of lake or reservoir	Storage capacity	Storage at end-July		Storage change from end-Jun 2020		Storage change from end-Jul 2019	
	(acre-feet)	(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)
		Continued					
Granger Lake	51,822	49,997	96	-1,825	-4	-1,825	-4
Grapevine Lake	163,064	163,064	100	0	0	0	0
Greenbelt Lake	59,968	11,641	19	-234	0	-992	-2
*Halbert, Lake	6,033	5,285	88	109	2	292	5
Hords Creek Lake	8,109	5,416	67	-287	-4	-1,976	-24
Houston County Lake	17,113	16,894	99	13	0	-193	-1
Houston, Lake	130,147	118,805	91	857	1	-2,485	-2
Hubbard Creek Reservoir	313,298	284,378	91	-12,567	-4	-24,547	-8
Hubert H Moss Lake	24,058	23,810	99	-226	0	268	1
Inks, Lake	13,962	12,990	93	105	1	-68	0
J. B. Thomas, Lake	199,931	40,088	20	-3,726	-2	-21,297	-11
Jacksonville, Lake	25,670	25,542	100	92	0	-128	0
Jim Chapman Lake (Cooper)	260,332	242,628	93	-11,876	-5	-12,051	-5
Joe Pool Lake	175,800	173,807	99	-1,993	-1	3,321	2
Kemp, Lake	245,307	226,854	92	-18,453	-8	-18,453	-8
Kickapoo, Lake	86,345	79,640	92	-2,314	-3	-3,744	-4
Lavon Lake	406,388	381,526	94	-24,862	-6	-5,465	-1
Leon, Lake	27,762	24,376	88	-1,286	-5	-2,193	-8
Lewisville Lake	563,228	552,477	98	-10,751	-2	-10,751	-2
Limestone, Lake	203,780	198,722	98	-123	0	1,347	1
*Livingston, Lake	1,741,867	1,741,867	100	0	0	0	0
*Lost Creek Reservoir	11,950	11,719	98	-231	-2	96	1
Lyndon B Johnson, Lake	115,249	111,187	96	-184	0	734	1
Mackenzie Reservoir	46,450	4,664	10	-214	0	-936	-2
Marble Falls, Lake	6,901	6,863	99	54	1	76	1
Martin, Lake	75,726	73,661	97	-49	0	2,893	4
Medina Lake	254,823	150,207	59	-13,982	-5	-98,347	-39
Meredith, Lake	500,000	196,296	39	-3,684	0	-10,590	-2
Millers Creek Reservoir	26,768	26,658	100	-110	0	-110	0
*Mineral Wells, Lake	5,273	5,102	97	-171	-3	-69	-1
Monticello, Lake	34,740	29,395	85	-487	-1	-36	0
Mountain Creek, Lake	22,850	22,850	100	0	0	0	0
Murvaul, Lake	38,285	38,182	100	308	1	513	1
Nacogdoches, Lake	39,522	37,342	94	-864	-2	21	0
Nasworthy	9,615	8,269	86	-13	0	-37	0
Navarro Mills Lake	49,827	49,827	100	1,959	4	2,190	4
New Terrell City Lake	8,583	8,351	97	-232	-3	-232	-3
Nocona, Lake (Farmers Crk)	21,444	21,378	100	-66	0	718	3
North Fork Buffalo Creek Reservoir	15,400	14,795	96	0	0	760	5
O' the Pines, Lake	268,566	268,566	100	0	0	0	0
O. C. Fisher Lake	115,742	8,759	8	-691	0	-4,701	-4
*O. H. Ivie Reservoir	554,340	368,632	66	-12,380	-2	-50,423	-9
Oak Creek Reservoir	39,210	32,625	83	-1,657	-4	-5,787	-15

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of lake or reservoir	Storage capacity	Storage at end-July		Storage change from end-Jun 2020		Storage change from end-Jul 2019	
	(acre-feet)	(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)
		Continued					
Palestine, Lake	367,303	365,688	100	6,646	2	1,611	0
Palo Duro Reservoir	61,066	1,801	3	127	0	-4,635	-8
Palo Pinto, Lake	26,766	23,591	88	-1,705	-6	-2,050	-8
Pat Cleburne, Lake	26,008	25,199	97	-809	-3	124	0
*Pat Mayse Lake	113,683	110,934	98	-2,749	-2	-2,749	-2
Possum Kingdom Lake	538,139	524,132	97	-14,007	-3	-13,649	-3
Proctor Lake	54,762	43,111	79	-6,015	-11	-10,184	-19
Ray Hubbard, Lake	439,559	425,354	97	-13,787	-3	2,840	1
Ray Roberts, Lake	788,167	784,202	99	-3,965	0	-566	0
Red Bluff Reservoir	151,110	79,053	52	-6,883	-5	-16,288	-11
Richland-Chambers Reservoir	1,087,839	1,087,839	100	10,256	1	17,913	2
Sam Rayburn Reservoir	2,857,077	2,694,533	94	-68,522	-2	-125,483	-4
Somerville Lake	150,293	141,441	94	-7,390	-5	-8,852	-6
Squaw Creek, Lake	151,250	151,250	100	0	0	1,262	1
Stamford, Lake	51,570	51,570	100	0	0	0	0
Stillhouse Hollow Lake	227,771	218,807	96	-7,806	-3	-8,707	-4
Striker, Lake	16,934	16,934	100	0	0	0	0
Sweetwater, Lake	12,267	11,045	90	-476	-4	-1,222	-10
*Sulphur Springs, Lake	17,747	16,033	90	-1,076	-6	-711	-4
Tawakoni, Lake	871,685	852,238	98	-17,968	-2	-16,120	-2
Texana, Lake	159,566	159,566	100	184	0	16,657	10
Texoma, Lake (Texas & Oklahoma)	2,487,601	2,559,093	100	-169,375	-7	-73,101	-3
Texoma, Lake (Texas)	1,243,801	1,243,801	100	0	0	0	0
Toledo Bend Reservoir (Texas & Louisiana)	4,472,900	4,177,701	93	-112,368	-3	343,960	8
Toledo Bend Reservoir (Texas)	2,236,450	2,086,800	93	-56,184	-3	171,980	8
Travis, Lake	1,113,348	855,109	77	-55,900	-5	-222,547	-20
Twin Buttes Reservoir	182,454	107,516	59	-7,225	-4	-25,252	-14
Tyler, Lake	72,073	70,995	99	-233	0	928	1
Waco, Lake	189,418	183,873	97	-3,687	-2	-3,043	-2
Waxahachie, Lake	10,780	9,647	89	-909	-8	-688	-6
Weatherford, Lake	17,812	16,763	94	-1,017	-6	-349	-2
White River Lake	29,880	5,028	17	-306	-1	-1,831	-6
Whitney, Lake	553,344	516,786	93	-12,401	-2	14,472	3
Worth, Lake	24,419	20,886	86	-3,533	-14	-33	0
Wright Patman Lake	231,496	231,496	100	0	0	0	0
STATEWIDE TOTAL							
STATEWIDE TOTAL	**32,235,519**	**26,330,643**	**82**	**-663,422**	**-2**	**-1,449,624**	**-4**

STREAMFLOW CONDITIONS

Much of the state had near normal (25–75th percentile, green shading in Figure 6) streamflow in July 2020 (green shading in Figure 6). Above normal streamflow (76–90th percentile, light blue shading in Figure 6) was seen in the lower Red, upper and lower Trinity, upper Neches, San Antonio-Brazos, Cypress, San Antonio-Nueces and Nueces-Rio Grande river basins. The lower Brazos, mid-Trinity, and lower Sabine river basins had much above normal (>90 percentile, dark blue shading in Figure 6).

Below normal (10–24th percentile, orange shading in Figure 6) streamflow was recorded in the Canadian, upper Red, upper Rio Grande, Nueces, upper and mid-Colorado, lower Brazos, San Antonio, Guadalupe, Lavaca river basins. Some sub-watersheds had much below normal (less than the 10th percentile, dark brown shading in Figure 6) streamflow. These include the lower Nueces, lower and mid-Colorado and lower Brazos river basins.

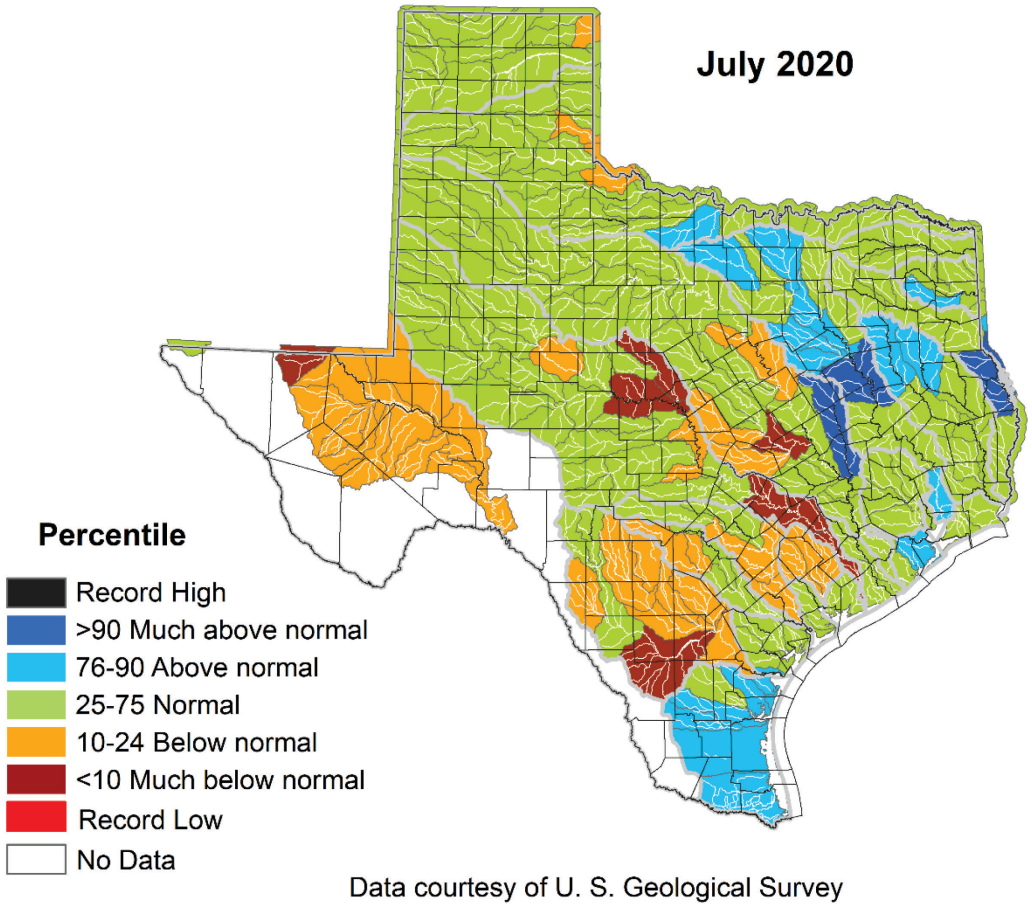


Figure 6: Runoff percentiles by the U.S. Geological Survey's Hydrologic Unit Code

SOIL MOISTURE CONDITIONS

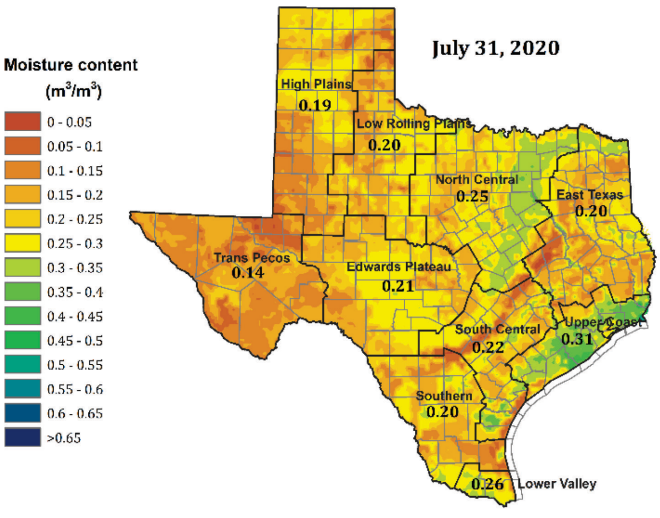
Root zone soil moisture at the end of July 2020 [Figure 7(a)] was moderate [> 0.20 cubic meters of water per bulk cubic meter soil (m^3/m^3)] in much of the state. There were areas of low soil moisture [< 0.15 cubic meters of water per bulk cubic meter soil (m3/m3)] in portions of the Trans Pecos, High plains, scattered across the Low Rolling Plains, small areas of North Central, parts of the Edwards Plateau, portions of the Southern, and the coastal areas of the South Central climate divisions. A band of low moisture was recorded beginning at the northeastern corner of the Southern climate division reaching across central, and northeastern South Central to the southwestern corner of East Texas.

In other climate divisions, root zone soil moisture was high [< 0.3 cubic meters of water per bulk cubic meter soil (m3/m3)]. These divisions include eastern North Central, areas of northern and scattered in central and southern East Texas, the majority of the Upper Coast, southern and scattered in central and northeastern South Central, small portions of southern, northeastern and central Southern, and portions of the Lower Valley climate divisions [Figure 7(a)].

Compared to conditions at the end of July 2019, soil moisture content increased [green to blue shading in Figure 7(b)] in the majority of the Trans Pecos, High Plains, Edwards Plateau, Southern, Lower Valley, Upper Coast, northern and southern portions of the Low Rolling Plains, southern South Central, and portions of western and southeastern East Texas climate divisions.

Soil moisture content decreased [yellow, orange, and brown shading in Figure 7(b)] in the majority of the North Central and East Texas, a small area of the Trans Pecos , portions of central High Plains, north-central Low Rolling Plains, eastern Edwards Plateau, northeastern Southern, and northern South Central climate divisions.

(a)



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.

(b)

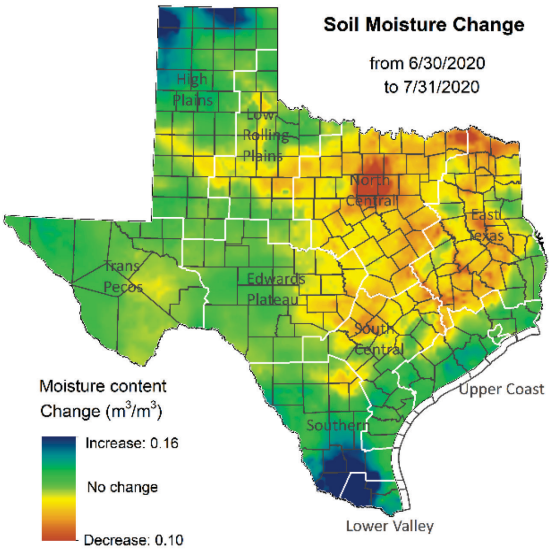
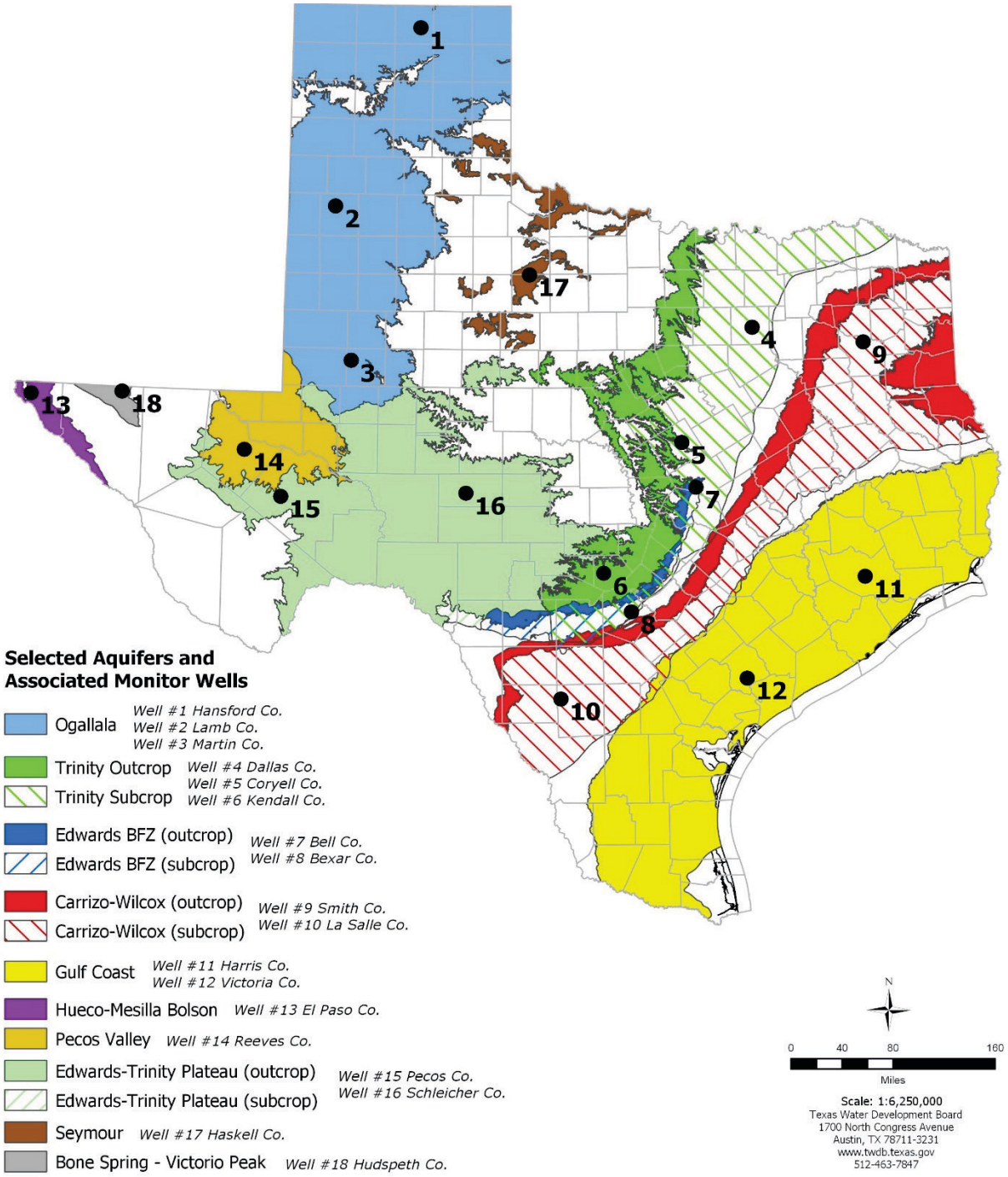


Figure 7: Root zone soil moisture conditions in July, 2020 (a) and the difference in root zone soil moisture between end-June 2020 and end-July 2020 (b)



July 2020 GROUNDWATER LEVELS IN OBSERVATION WELLS

Water-level measurements were available for 17 key monitoring wells in the state. Water levels rose in 3 monitoring wells since the beginning of July, ranging from an increase of 0.23 feet in the Martin County Ogallala Aquifer well (#3 on map) to 0.96 feet in the Dallas County Trinity Aquifer (#4 on map). Water levels declined in 14 monitoring wells, ranging from a decline of -0.08 feet in the Hansford County Ogallala Aquifer well (#1 on map) to -10.03 feet in the Kendall County Trinity Aquifer well (#6 on map). The J-17 well (#8 on map) in San Antonio recorded a water level of 74.70 feet below land surface or 656.30 feet above mean sea level. Water levels declined 3.70 feet below the Stage I critical management level for the San Antonio portion of the Edwards (Balcones Fault Zone) Aquifer. Consequently, drought restrictions have been in effect since July 10th.

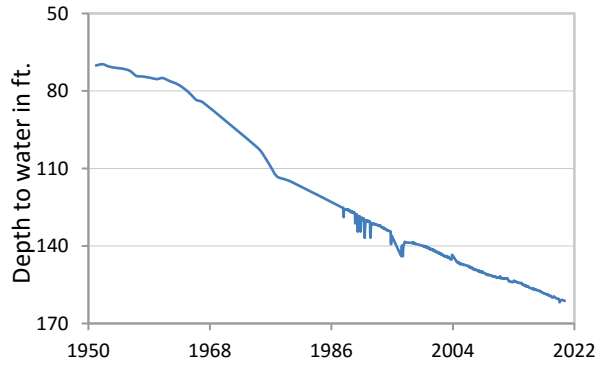
***Well numbers used in this publication on the aquifer map to indicate the monitoring well location (numbers 1 - 17) are different than the TWDB's seven-digit state well number.**

Monitoring Well	July	June	Month Change	Year Change	Historical Change	First Measured
(1) Hansford 0354301	161.24	161.16	-0.08	-0.81	-91.12	1951
(2) Lamb 1053602	NA	151.09	NA	NA	NA	1951
(3) Martin 2739903	143.95	144.18	0.23	-0.74	-39.06	1964
(4) Dallas 3319101	488.32	489.28	0.96	4.83	-266.32	1954
(5) Coryell 4035404	531.37	528.74	-2.63	-0.67	-239.37	1955
(6) Kendall 6802609	156.68	146.65	-10.03	-33.34	-96.68	1975
(7) Bell 5804816	124.61	124.09	-0.52	-4.57	-1.10	2008
(8) Bexar 6837203	74.70	69.50	-5.20	-16.90	-28.06	1932
(9) Smith 3430907	435.29	434.70	-0.59	-1.06	-135.29	1977
(10) La Salle 7738103	510.23	507.65	-2.58	-5.99	-257.16	2003
(11) Harris 6514409	189.28	188.23	-1.05	2.36	-53.78*	1947**
(12) Victoria 8017502	32.08	31.57	-0.51	2.23	1.92	1958
(13) El Paso 4913301	295.80	295.65	-0.15	NA	-63.90	1964
(14) Reeves 4644501	165.69	165.58	-0.11	0.39	-73.60	1952
(15) Pecos 5216802	218.58	216.46	-2.12	-13.15	28.30	1976
(16) Schleicher 5512134	293.66	294.60	0.94	-15.63	8.24	2003
(17) Haskell 2135748	44.17	44.01	-0.16	0.28	-1.17	2002
(18) Hudspeth 4807516	155.39	153.91	-1.48	-0.65	-51.47	1966

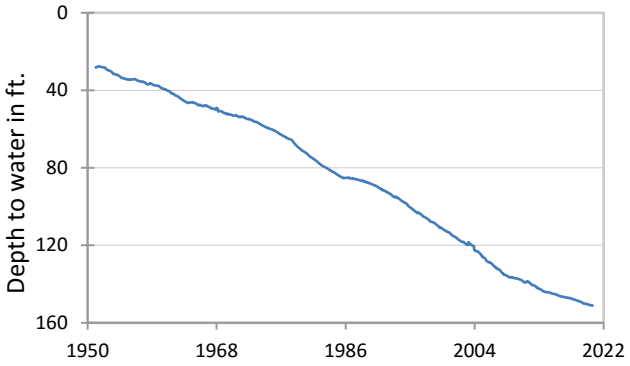
*Change since the original measurement of 135.5 feet below land surface in 1947 (**measurement not shown on the hydrograph)

July 2020 OBSERVATION WELL HYDROGRAPHS

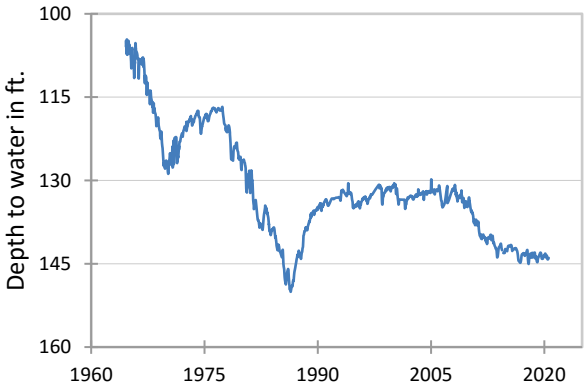
(1) State Well #03-54-301
Near Spearman, Hansford County
Ogallala Aquifer



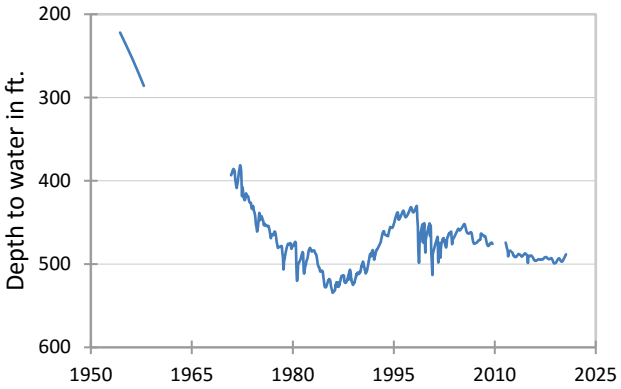
(2) State Well #10-53-602
Near Earth, Lamb County
Ogallala Aquifer



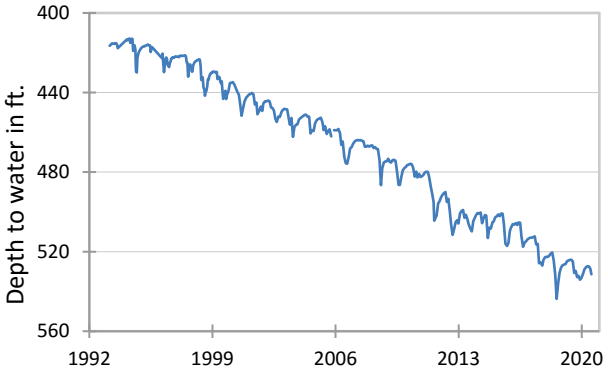
(3) State Well #27-39-903
Northwest Martin County
Ogallala Aquifer



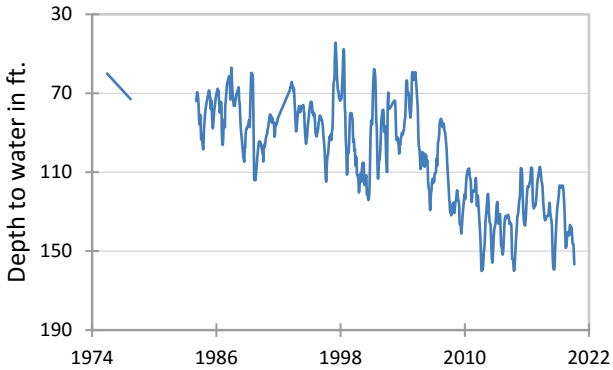
(4) State Well #33-19-101
Southeast Dallas, Dallas County
Twin Mountains Formation-Trinity Aquifer



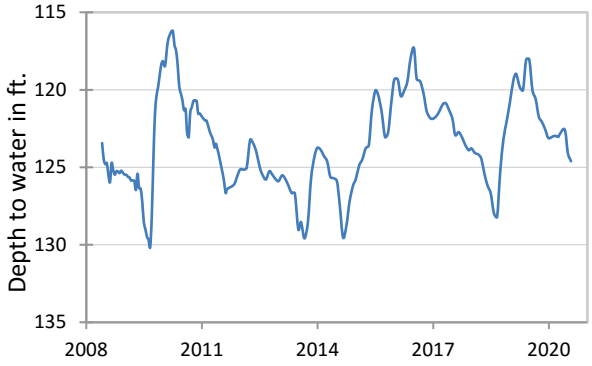
(5) State Well #40-35-404
Gatesville, Coryell County
Hosston Formation-Trinity Aquifer



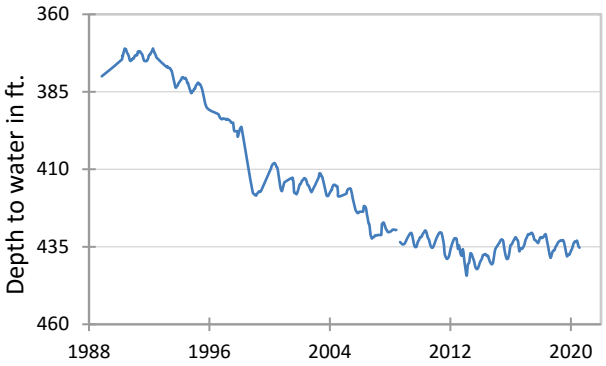
(6) State Well #68-02-609
Waring, Kendall County
Cow Creek Formation-Trinity Aquifer



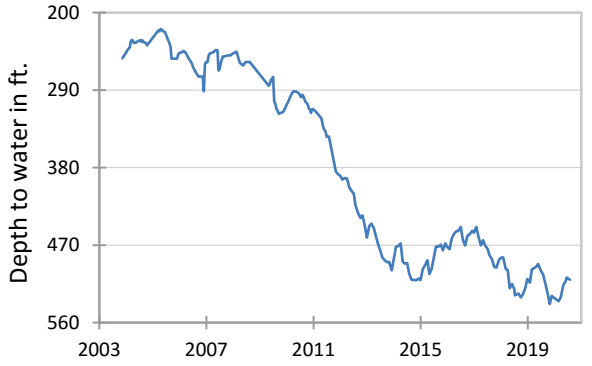
(7) State Well #58-04-816
Near Salado, Bell County
Edwards (Balcones Fault Zone) Aquifer



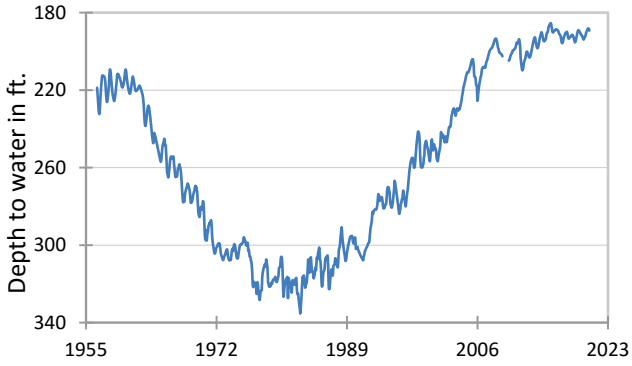
(9) State Well #34-30-907
Red Springs, Smith County
Carrizo-Wilcox Aquifer



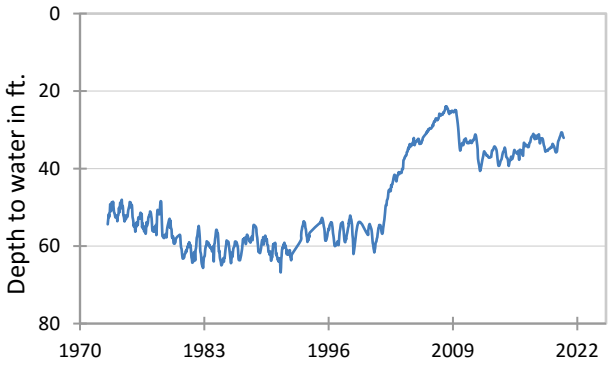
(10) State Well #77-38-103
Near Cotulla, La Salle County
Carrizo-Wilcox Aquifer



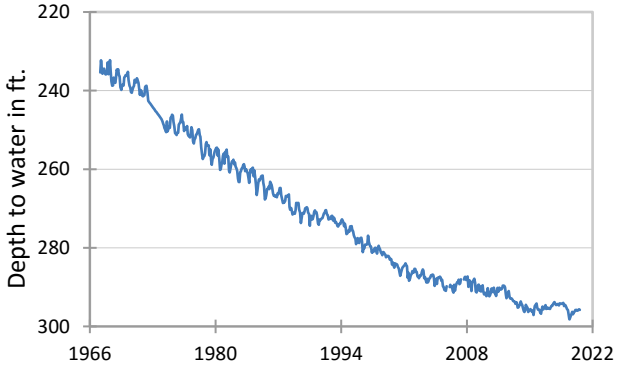
(11) State Well #65-14-409
Alief, Harris County
Evangeline Formation-Gulf Coast Aquifer



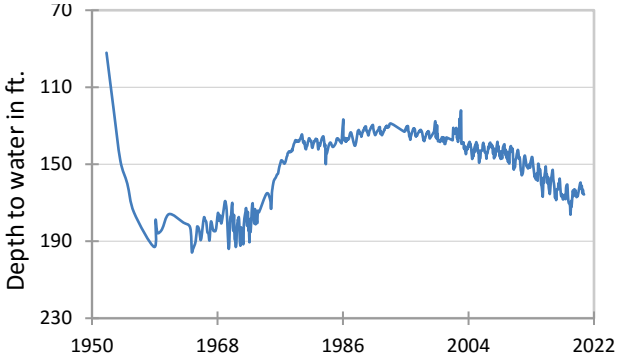
(12) State Well #80-17-502
Near Bloomington, Victoria County
Lissie Formation-Gulf Coast Aquifer



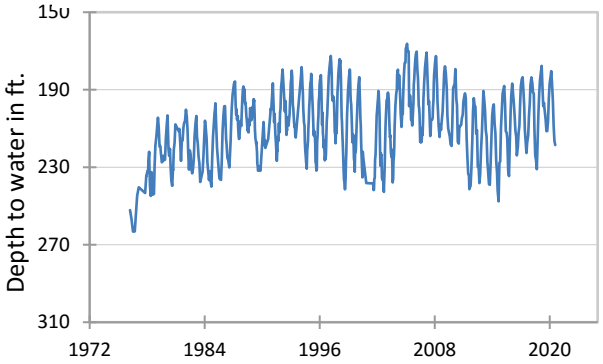
(13) State Well #49-13-301
El Paso, El Paso County
Hueco-Mesilla Bolson Aquifer



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

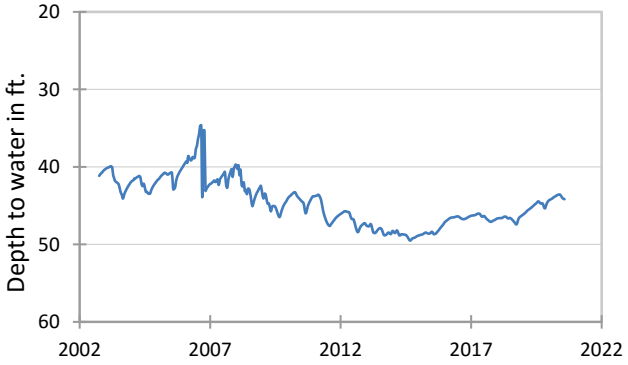


(15) State Well #52-16-802
Fort Stockton, Pecos County
Edwards-Trinity (Plateau) Aquifer

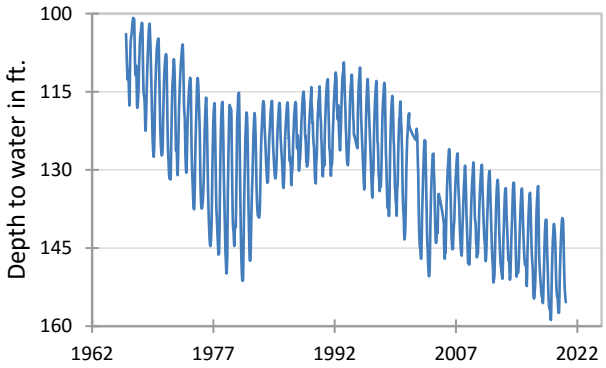


(16) State Well #55-12-134
Eldorado, Schleicher County
Trinity Aquifer

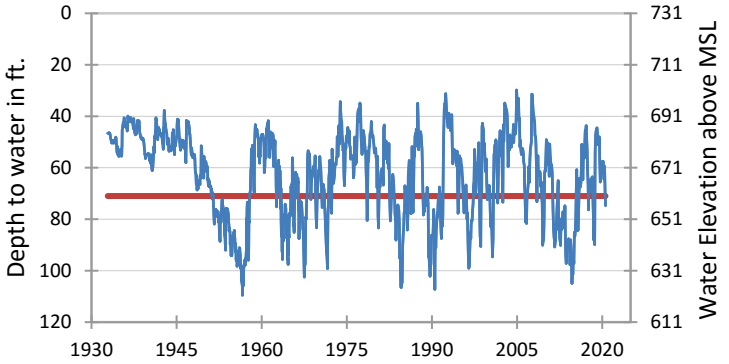
(17) State Well #21-35-748
Near O'Brien, Haskell County
Seymour Aquifer

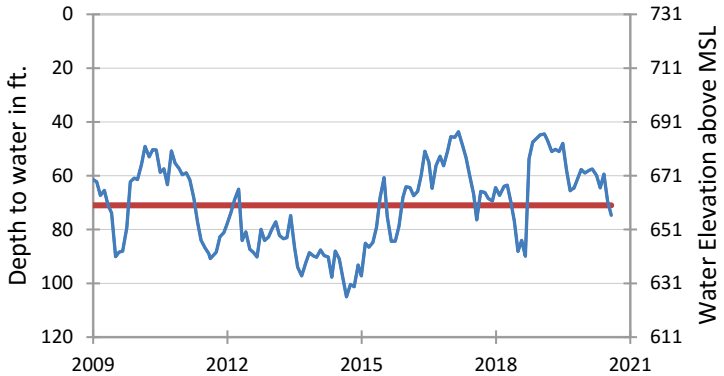


(18) State Well #48-07-516
Dell City, Hudspeth County
Bone Spring - Victorio Peak Aquifer



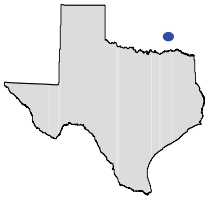
(8) State Well #68-37-203 (J-17)
San Antonio, Bexar County
Edwards (Balcones Fault Zone) Aquifer





The late July water-level measurement in this Edwards (Balcones Fault Zone) Aquifer well, elevation 731 feet above mean sea level, was 74.70 feet below land surface, or 656.30 feet above mean sea level. This was 5.20 feet below last month's measurement, 19.90 feet below last year's measurement and 28.06 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.

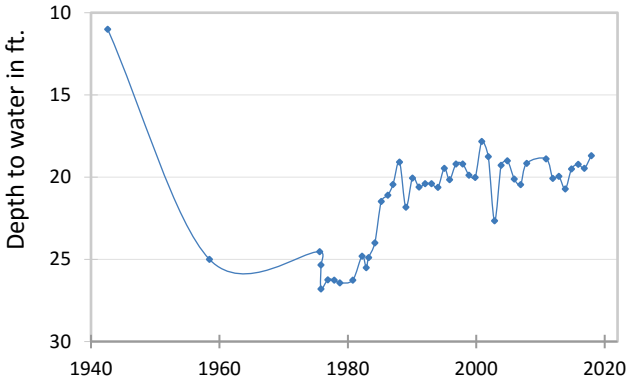


HYDROGRAPH OF THE MONTH

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

Blossom Aquifer

Well #17-21-710, 168 feet deep
unused, Lamar County



The Blossom is a minor aquifer located in Bowie, Red River, and Lamar counties in the northeast corner of Texas. The aquifer consists of the Blossom Sand Formation, composed of alternating sequences of sand and clay. In places, the aquifer is as much as 40 feet thick, although no more than about one-third of this thickness consists of sand, and freshwater saturated thickness averages 25 feet. The aquifer yields water of useable quality to wells located mostly in outcrop areas. However, in part of Red River County, slightly saline water, with total dissolved solids less than 3,000 milligrams per liter, extends underground for about 6 miles south of the outcrop. Groundwater in the Blossom Aquifer is generally soft, slightly alkaline, and, in some areas high in sodium, bicarbonate, iron, and fluoride. Although water quality is not acceptable for irrigation, it is generally acceptable for nonindustrial uses. Municipal pumping accounts for a large percentage of total pumping from the aquifer.

The initial measurement of 11 feet below land surface was recorded by a registered water well driller in August of 1942. Roughly thirty-three years later, the TWDB began recording near-annual measurements in the public supply well. The period of record reveals a sharp decline in water level over the first sixteen years of well use. After 1958, water levels increased and have remained around 19 feet below land surface. This is likely a result of the well no longer being used.

Far away (left), and close-up (right) images of well #17-21-710.