Texas Water Conditions Report

March 2020

Texas Water Development Board

RAINFALL

Rainfall observations from the National Oceanic and Atmospheric Administration – National Weather Service (NOAA-NWS) indicate that during the month of March the majority of the Trans Pecos, the Lower Valley, Upper Coast, Southern, and the High Plains (particularly the northern portions), the western and southeast Edwards Plateau, small scattered portions of East Texas, eastern, western and to a greater extent in the southern South Central, and areas in the northern Low Rolling Plains received little to no rainfall [yellow, orange and red shading, Figure 1(a)]. Some scattered areas of the southern High Plains, small areas of northwest and northeast Trans Pecos, the north, northeast, and central Edwards Plateau, scattered areas of the north with higher concentrations in the central and southern portions of the Low Rolling Plains, the majority of the North Central and East Texas climate divisions, areas in central and northeast South Central, and isolated areas in central, west, and northeast Southern climate division received high amounts of rainfall [light and dark blue shading, Figure 1(a)], reaching 12.71 inches in northeast 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 portions of the northern High Plains, parts of central and southeast Trans Pecos, west and southeast Edward Plateau, the majority of the Southern and Lower Valley, a substantial amount of the South Central climate division with the southern portions being drier, the Upper Coast, scattered portions of southern North Central, the southern portion of East Texas, and small areas in the northern Low Rolling Plains.

The majority of the High Plains, Low Rolling Plains, North Central, patchy areas across the Southern and South Central, a small portion of northwest Lower Valley,the majority of East Texas and Edwards Plateau climate divisions received above average rainfall [green and blue shading, Figure 1(b)]. Additionally, a small area of the Edwards Plateau and significant portions of the Trans Pecos received four to eight times the average amount of rainfall.

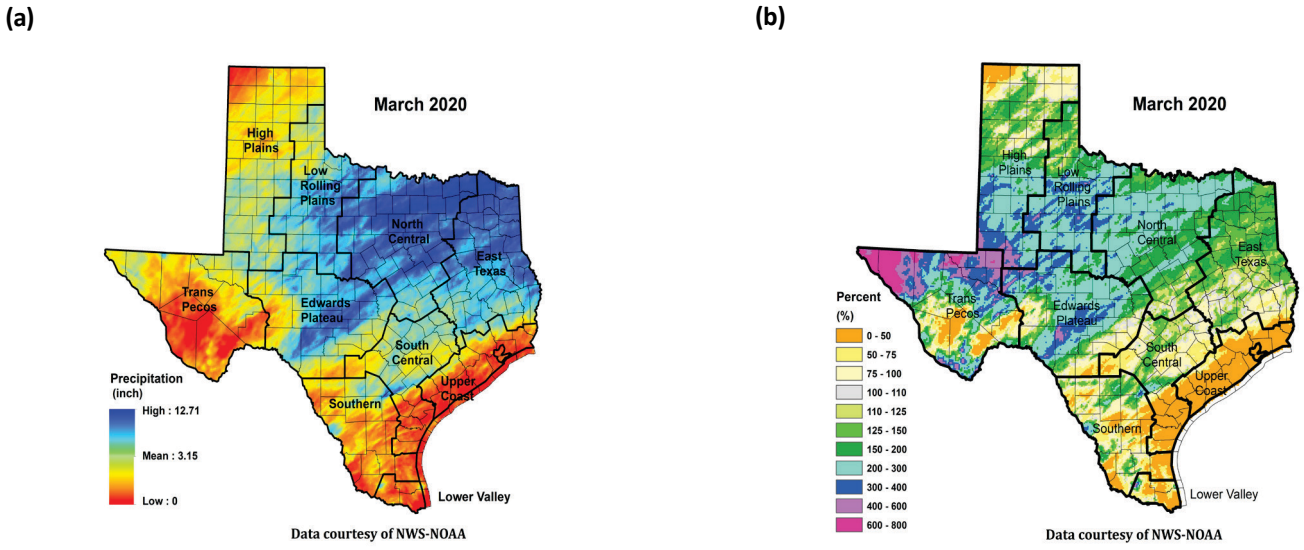


Figure 1: (a) Monthly accumulated rainfall, (b) Percent of normal rainfall

RESERVOIR STORAGE

At the end of March 2020, total conservation storage* in 118 of the state's major water supply reservoirs plus Elephant Butte Reservoir in New Mexico was 27.5 million acre-feet or 86 percent of total conservation storage capacity (Figure 2). This is approximately 0.467 million acre-feet more than a month ago and approximately 0.486 million acre-feet less than the end of March 2019.

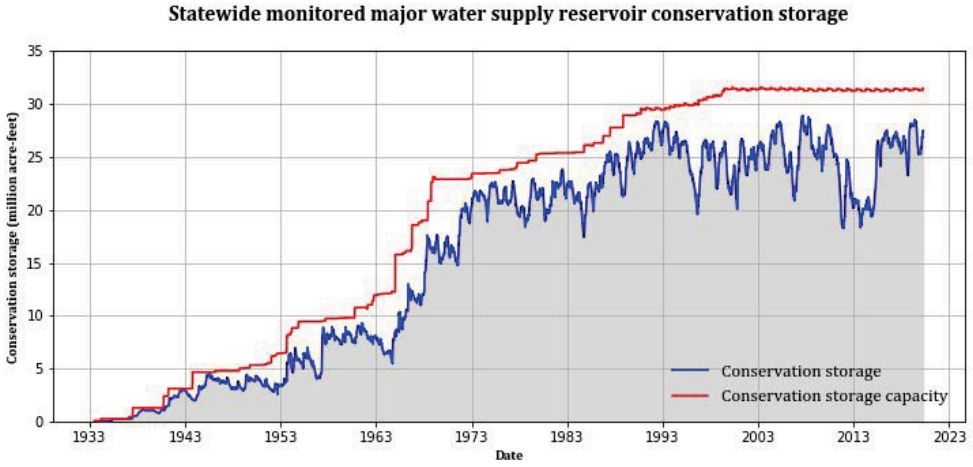


Figure 2: Statewide reservoir conservation storage

Out of 118 reservoirs in the state, 71 reservoirs held 100 percent of conservation storage capacity (Figure 3). Additionally, 23 were at or above 90 percent full. Seven reservoirs [E.V. Spence (27 percent full), Greenbelt (21 percent full), J.B. Thomas (25 percent full), Mackenzie (11 percent full), O. C. Fisher (9 percent full), Palo Duro Reservoir (4 percent full), and White River (21 percent full)] remained below 30 percent full. Elephant Butte Reservoir (located in New Mexico) was at 29 percent full.

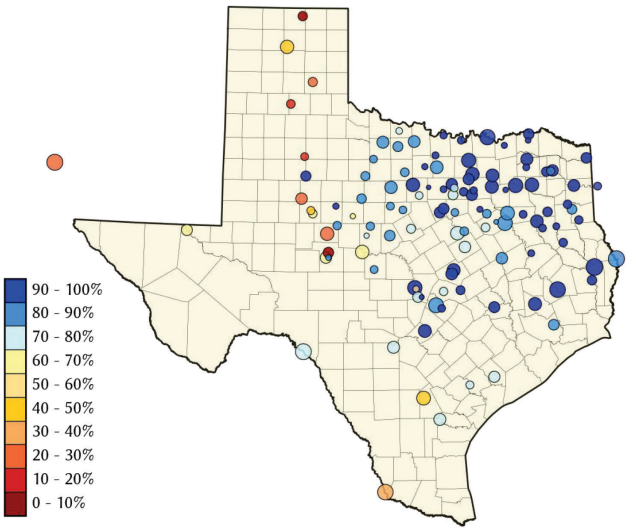


Figure 3: Reservoir conservation storage at end-March expressed as percent full (%)

*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 Low Rolling Plains (74.3 percent full), North Central (99.6 percent full), South Central (87 percent full), East Texas (99.8 percent full), and Upper Coast (81.2 percent full) climate divisions (Figure 4). Conservation storage in the and Edwards Plateau (68.1 percent full) climate divisions was abnormally low (Figure 4). The High Plains (35.4 percent full), Southern (36.8 percent full), and Trans Pecos (34.5 percent full) climate divisions had severely low conservation storage (Figure 4).

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

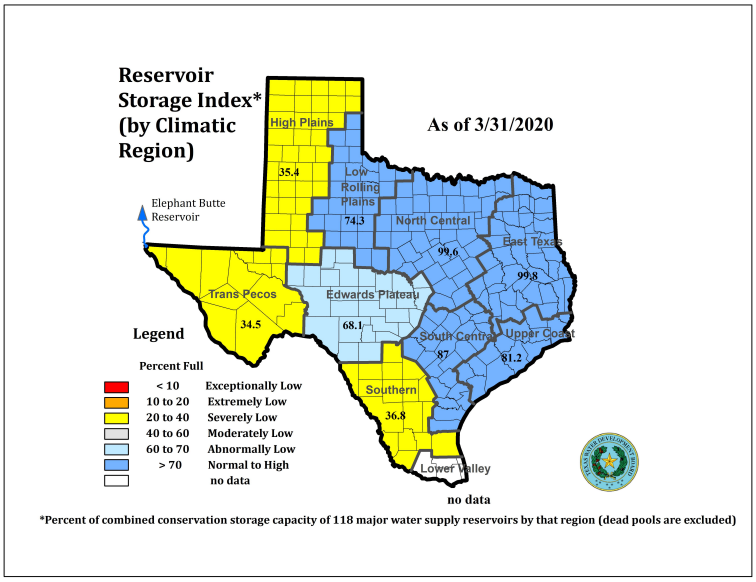


Figure 4: Reservoir Storage Index* by climate division at 3/31/2020

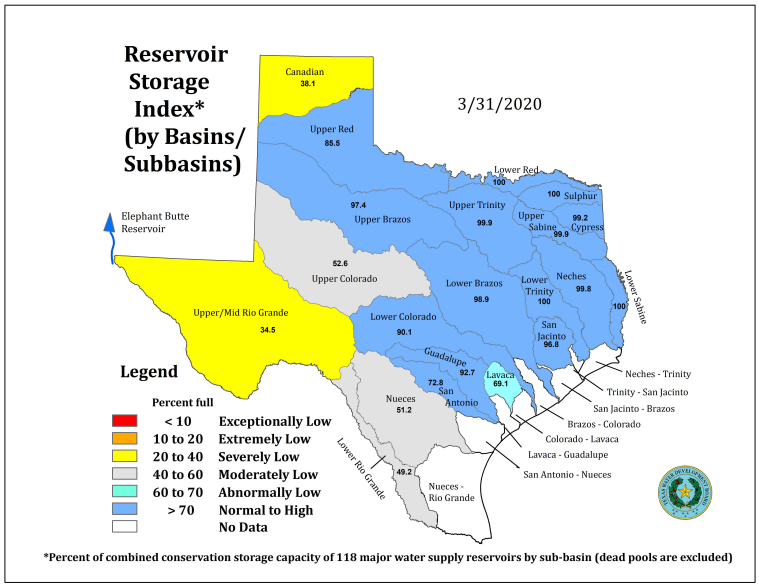


Figure 5: Reservoir Storage Index* by river basin/sub-basin at 3/31/2020

*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-March		Storage change from end-Feb 2020		Storage change from end-Mar 2019	
	(acre-feet)	(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)
Abilene, Lake	7,900	7,160	91	1,594	20	-387	-5
Alan Henry Reservoir	96,207	94,677	98	5,564	6	13,619	14
*Amistad Reservoir (Texas & Mexico)	3,275,532	1,345,301	41	-285,076	-9	-675,678	-21
*Amistad Reservoir (Texas)	1,840,849	1,231,306	67	-68,502	-4	-182,731	-10
Amon G Carter, Lake	19,266	19,266	100	711	4	0	0
Aquilla Lake	43,243	43,243	100	0	0	0	0
Arlington, Lake	40,157	40,157	100	519	1	1,626	4
Arrowhead, Lake	230,359	223,314	97	16,596	7	-4,876	-2
Athens, Lake	29,503	29,503	100	0	0	0	0
*Austin, Lake	23,972	22,588	94	0	0	-338	-1
B A Steinhagen Lake	69,186	63,698	92	872	1	-3,561	-5
Bardwell Lake	46,122	46,122	100	0	0	0	0
Belton Lake	435,225	435,225	100	18,352	4	0	0
Benbrook Lake	85,648	85,648	100	5,869	7	0	0
Bob Sandlin, Lake	192,417	192,417	100	0	0	0	0
Bonham, Lake	11,027	11,027	100	64	1	106	1
Brady Creek Reservoir	28,808	26,331	91	1,371	5	-2,445	-8
Bridgeport, Lake	366,236	366,236	100	45,286	12	0	0
*Brownwood, Lake	130,868	126,030	96	18,831	14	-4,838	-4
Buchanan, Lake	860,607	811,266	94	46,766	5	-6,072	0
Caddo, Lake	29,898	29,898	100	0	0	no data	
Canyon Lake	378,781	355,933	94	1,737	0	-22,684	-6
Cedar Creek Reservoir in Trinity	644,686	644,686	100	654	0	0	0
Champion Creek Reservoir	41,580	27,756	67	205	0	-541	-1
Cherokee, Lake	40,094	40,094	100	0	0	0	0
Choke Canyon Reservoir	662,820	291,452	44	-1,271	0	-67,590	-10
*Cisco, Lake	29,003	25,968	90	707	2	1,829	6
Coleman, Lake	38,075	37,192	98	4,424	12	-486	-1
Colorado City, Lake	31,040	24,024	77	1,622	5	-7,016	-23
*Coleto Creek Reservoir	30,758	13,856	45	89	0	-1,086	-4
Conroe, Lake	410,988	399,939	97	19,203	5	-11,049	-3
Corpus Christi, Lake	256,062	178,590	70	-3,569	-1	-77,472	-30
Crook, Lake	9,195	9,195	100	125	1	125	1
Cypress Springs, Lake	66,756	66,756	100	0	0	0	0
E. V. Spence Reservoir	517,272	141,039	27	2,925	1	1,723	0
Eagle Mountain Lake	179,880	179,880	100	0	0	0	0
Elephant Butte Reservoir (Texas)	852,491	244,197	29	-23,619	-3	149,598	18
Elephant Butte Reservoir (Total Storage)	1,973,358	565,270	29	-54,673	-3	346,292	18
*Falcon Reservoir (Texas & Mexico)	2,646,817	590,567	22	32,728	1	-421,711	-16
*Falcon Reservoir (Texas)	1,551,007	437,905	28	-47,551	-3	-334,246	-22
Fork Reservoir, Lake	605,061	605,061	100	5,547	1	5,547	1
Fort Phantom Hill, Lake	70,030	70,030	100	4,370	6	0	0
Georgetown, Lake	36,823	25,435	69	-1,282	-3	-11,388	-31
Graham, Lake	45,288	45,288	100	6,064	13	0	0
Granbury, Lake	132,949	132,786	100	-163	0	0	0

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of lake or reservoir	Storage capacity	Storage at end-March		Storage change from end-Feb 2020		Storage change from end-Mar 2019	
	(acre-feet)	(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)
		Continued					
Granger Lake	51,822	51,822	100	no data		0	0
Grapevine Lake	163,064	163,064	100	0	0	0	0
Greenbelt Lake	59,968	12,413	21	344	1	-100	0
*Halbert, Lake	6,033	5,685	94	307	5	373	6
Hords Creek Lake	8,109	6,540	81	301	4	1,418	17
Houston County Lake	17,113	17,113	100	0	0	0	0
Houston, Lake	130,147	124,351	96	-3,327	-3	4,793	4
Hubbard Creek Reservoir	313,298	310,794	99	37,775	12	-2,190	0
Hubert H Moss Lake	24,058	24,058	100	108	0	76	0
Inks, Lake	13,962	13,013	93	61	0	61	0
J. B. Thomas, Lake	199,931	50,287	25	2,622	1	-17,895	-9
Jacksonville, Lake	25,670	25,670	100	0	0	0	0
Jim Chapman Lake (Cooper)	260,332	260,332	100	0	0	0	0
Joe Pool Lake	175,800	175,800	100	2,731	2	1,107	1
Kemp, Lake	245,307	245,307	100	26,065	11	0	0
Kickapoo, Lake	86,345	83,097	96	10,913	13	-3,248	-4
Lavon Lake	406,388	406,388	100	0	0	0	0
Leon, Lake	27,762	27,745	100	3,782	14	419	2
Lewisville Lake	563,228	563,228	100	0	0	0	0
Limestone, Lake	203,780	203,780	100	0	0	744	0
*Livingston, Lake	1,741,867	1,741,867	100	0	0	0	0
*Lost Creek Reservoir	11,950	11,950	100	0	0	42	0
Lyndon B Johnson, Lake	115,249	109,602	95	-303	0	-973	0
Mackenzie Reservoir	46,450	5,255	11	-25	0	-414	0
Marble Falls, Lake	6,901	6,831	99	27	0	65	1
Martin, Lake	75,726	74,837	99	-889	-1	294	0
Medina Lake	254,823	185,662	73	-4,938	-2	-66,741	-26
Meredith, Lake	500,000	211,214	42	1,648	0	18,495	4
Millers Creek Reservoir	26,768	26,768	100	3,082	12	0	0
*Mineral Wells, Lake	5,273	5,273	100	0	0	0	0
Monticello, Lake	34,740	30,781	89	370	1	370	1
Mountain Creek, Lake	22,850	22,850	100	0	0	0	0
Murvaul, Lake	38,285	38,285	100	0	0	0	0
Nacogdoches, Lake	39,522	39,390	100	-132	0	649	2
Nasworthy	9,615	8,431	88	75	1	-75	0
Navarro Mills Lake	49,827	49,827	100	0	0	0	0
New Terrell City Lake	8,583	8,583	100	0	0	0	0
Nocona, Lake (Farmers Crk)	21,444	21,444	100	0	0	0	0
North Fork Buffalo Creek Reservoir	15,400	15,400	100	3,403	22	0	0
O' the Pines, Lake	241,363	241,363	100	0	0	0	0
O. C. Fisher Lake	115,742	10,777	9	152	0	-3,598	-3
*O. H. Ivie Reservoir	554,340	399,811	72	13,107	2	97,055	18
Oak Creek Reservoir	39,210	36,962	94	1,717	4	-2,248	-6

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of lake or reservoir	Storage capacity	Storage at end-March		Storage change from end-Feb 2020		Storage change from end-Mar 2019	
	(acre-feet)	(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)
	Continued						
Palestine, Lake	367,303	367,303	100	0	0	0	0
Palo Duro Reservoir	61,066	2,559	4	-245	0	2,257	4
Palo Pinto, Lake	26,766	26,657	100	6,871	26	43	0
Pat Cleburne, Lake	26,008	26,008	100	530	2	0	0
*Pat Mayse Lake	113,683	113,683	100	0	0	0	0
Possum Kingdom Lake	538,139	534,565	99	-3,574	0	-3,574	0
Proctor Lake	54,762	54,762	100	13,634	25	46	0
Ray Hubbard, Lake	439,559	439,559	100	1,253	0	0	0
Ray Roberts, Lake	788,167	788,167	100	0	0	284	0
Red Bluff Reservoir	151,110	102,142	68	1,637	1	3,597	2
Richland-Chambers Reservoir	1,087,839	1,087,839	100	0	0	0	0
Sam Rayburn Reservoir	2,857,077	2,857,077	100	0	0	0	0
Somerville Lake	150,293	150,293	100	0	0	563	0
Squaw Creek, Lake	151,250	151,250	100	3,078	2	1,199	1
Stamford, Lake	51,570	51,570	100	3,674	7	0	0
Stillhouse Hollow Lake	227,771	217,681	96	10,495	5	-10,090	-4
Striker, Lake	16,934	16,934	100	0	0	0	0
Sweetwater, Lake	12,267	12,267	100	0	0	0	0
*Sulphur Springs, Lake	17,747	17,747	100	2,489	14	0	0
Tawakoni, Lake	871,685	871,685	100	0	0	0	0
Texana, Lake	159,566	110,345	69	-535	0	-46,292	-29
Texoma, Lake (Texas & Oklahoma)	2,487,601	3,022,778	100	639,040	26	653,377	26
Texoma, Lake (Texas)	1,243,801	1,243,801	100	51,933	4	59,101	5
Toledo Bend Reservoir (Texas & Louisiana)	4,472,900	4,558,829	100	214,662	5	348,276	8
Toledo Bend Reservoir (Texas)	2,236,450	2,236,450	100	66,416	3	133,224	6
Travis, Lake	1,113,348	959,235	86	43,280	4	-152,002	-14
Twin Buttes Reservoir	182,454	123,996	68	4,075	2	3,877	2
Tyler, Lake	72,073	72,073	100	0	0	0	0
Waco, Lake	189,418	189,418	100	9,901	5	81	0
Waxahachie, Lake	10,780	10,780	100	0	0	0	0
Weatherford, Lake	17,812	17,812	100	65	0	206	1
White River Lake	29,880	6,316	21	961	3	1,774	6
Whitney, Lake	553,344	553,344	100	87,349	16	56,040	10
Worth, Lake	24,419	24,419	100	239	1	239	1
Wright Patman Lake	122,593	122,593	100	0	0	0	0
STATEWIDE TOTAL							
STATEWIDE TOTAL	**32,143,116**	**27,536,154**	**86**	**466,612**	**1**	**-485,581**	**-2**

STREAMFLOW CONDITIONS

Calculated runoff by hydrologic unit codes for March 2020 showed that much of the state had near normal (25-75th percentile, green shading in Figure 6) streamflow. Some sub-watersheds in the Canadian, Mid and Lower Red, Upper and Mid Brazos, Upper and Mid Colorado, Mid and Lower Trinity, Upper Sabine, Sulphur and Neches river basins had above normal streamflow (76–90th percentile, light blue shading in Figure 6). A few river basins had much above normal streamflow conditions (>90 percentile, dark blue shading in Figure 6), including the Upper and Mid Colorado, Upper and Mid Brazos, Mid and Lower Red, Upper Trinity, Upper Sabine and Sulphur river basins. Record highs (black shading in Figure 6) were found in the Upper and Mid Brazos river basin.

Several sub-watersheds in the Upper Rio Grande, Upper Nueces, Trinity-San Jacinto, Guadalupe, Lavaca, Lavaca-Guadalupe, San Antonio-Nueces, Colorado-Lavaca, and Lower Neches river basins had below normal (10–24th percentile, orange shading in Figure 6) streamflow. Some sub-watersheds had much below normal (less than the 10th percentile, dark brown shading in Figure 6) streamflow. These include the Upper Colorado, Lower Nueces, and the San Jacinto-Nueces river basins.

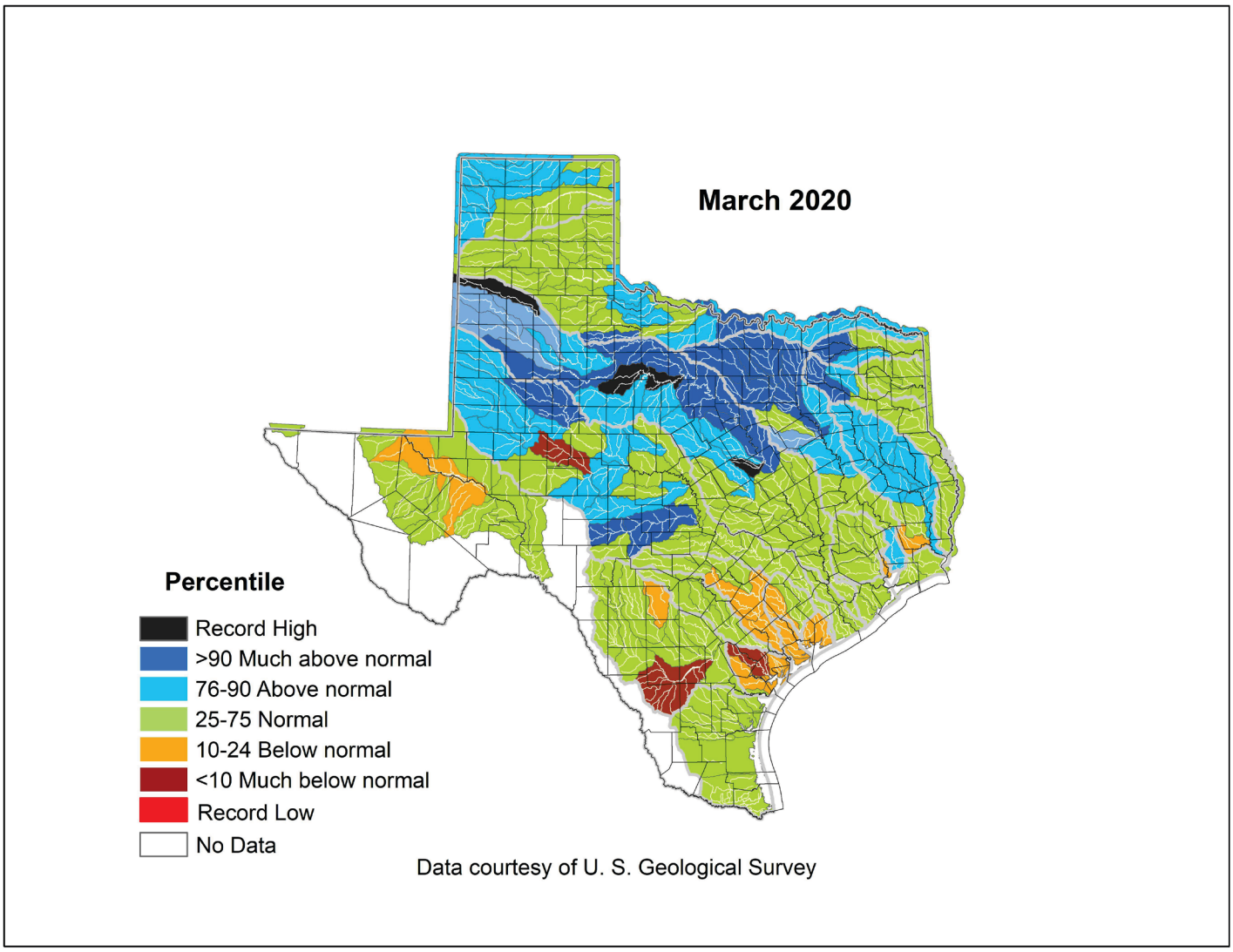
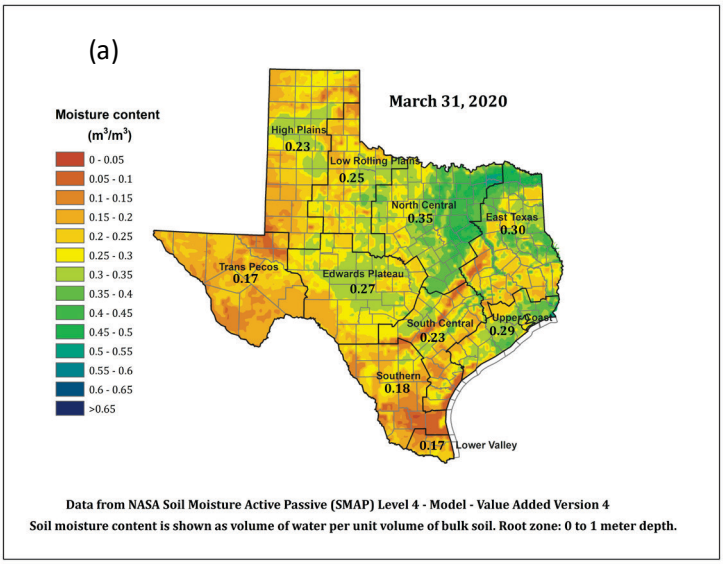


Figure 6: Runoff percentiles by the U.S. Geological Survey's Hydrologic Unit Code

SOIL MOISTURE CONDITIONS

Root zone soil moisture at the end of March 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 northeast and southern Trans Pecos, small areas scattered in the northern and southern High Plains, small portions of the northern Low Rolling Plains, northern and southern areas of the Southern, northwest across to the northeast South Central, small portions of southwest East Texas, and along the northern border of the Lower Valley climate divisions. 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 the northern High Plains, northern Edwards Plateau, the majority of the North Central and Upper Coast, northeast and scattered in southern East Texas, eastern and scattered areas of southwest Low Rolling Plains, parts of northern South Central, and a small patch in northeast Southern climate division.

Compared to conditions at the end of March 2019, soil moisture content increased [green to blue shading in Figure 7(b)] in northern Trans Pecos, southern High Plains, the majority of the Low Rolling Plains, North Central, and Edwards Plateau, northeast South Central, and northern portions of the Southern climate divisions. Soil moisture content decreased [yellow, orange, and brown shading in Figure 7(b)] in the northern High Plains, northwest Low Rolling Plains, southern Trans Pecos, southern portion of the Southern climate division, portions of northeast , northwest and more particularly in the south of the South Central, and the majority of the Lower Valley climate divisions. The greatest decreases in soil moisture occurred in the majority of the Upper Coast and the southeast border of East Texas.



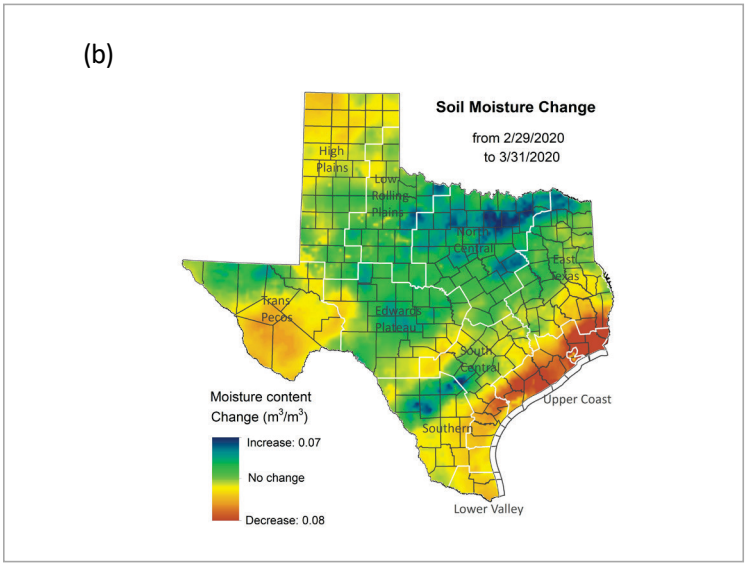
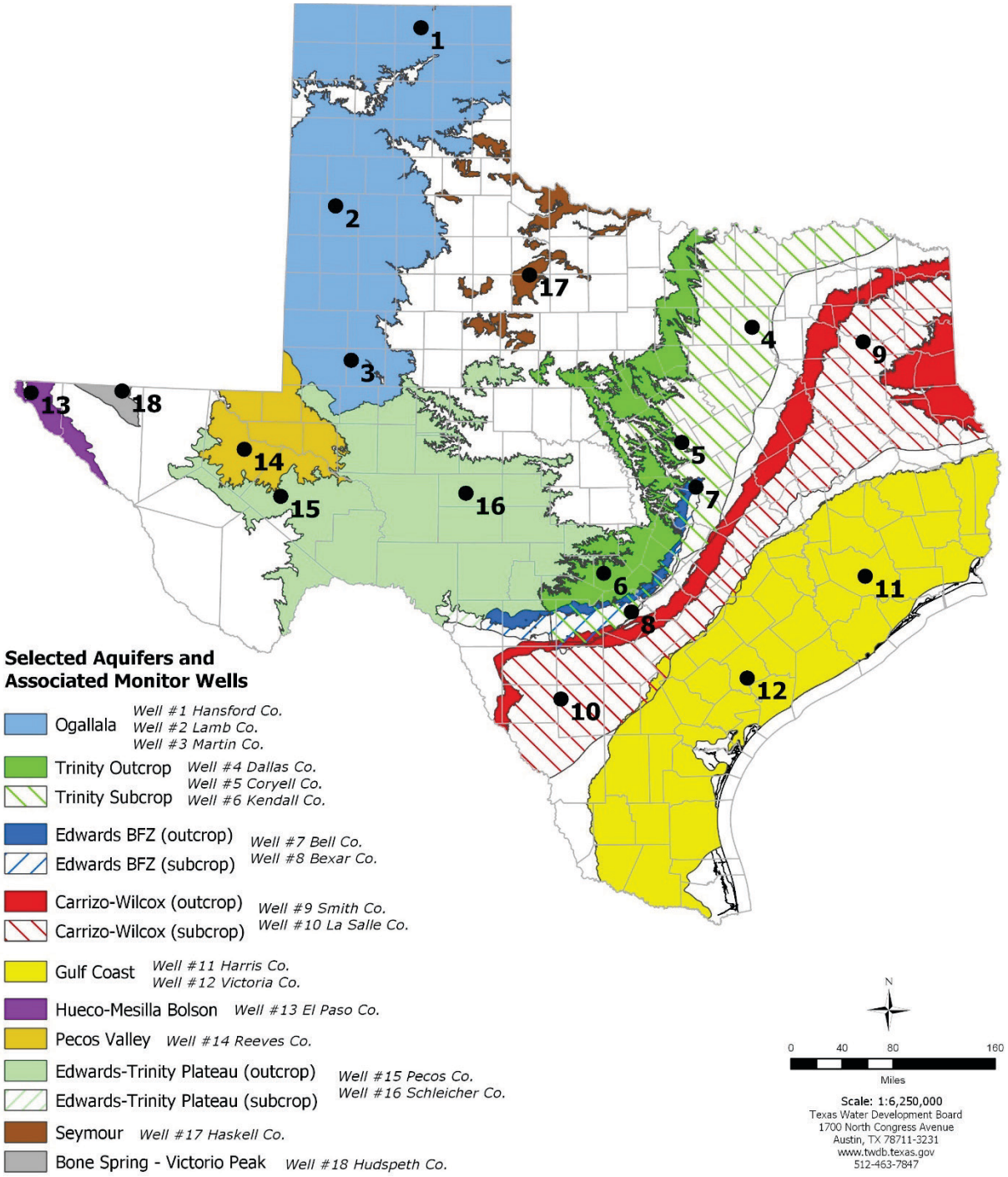


Figure 7: Root zone soil moisture conditions on March, 2020(a) and the difference in root zone soil moisture between end-February 2020 and end-March 2020 (b)



March 2020 GROUNDWATER LEVELS IN OBSERVATION WELLS

Water-level measurements were available for all 18 key monitoring wells in the state. Water levels rose in 11 monitoring wells since the beginning of January, ranging from an increase of 0.02 feet in the El Paso County Hueco-Mesilla Bolson Aquifer well (#13 on map) to 4.71 feet in the La Salle County Carrizo-Wilcox Aquifer (#10 on map). Water levels declined in 6 monitoring wells, ranging from a decline of -0.07 feet in the Bell County Edwards (Balcones Fault Zone) Aquifer well (#7 on map) to -6.57 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 59.90 feet below land surface or 670.70 feet above mean sea level. Water levels are 11.10 feet above the Stage 1 critical management level for the San Antonio portion of the Edwards (Balcones Fault Zone) Aquifer.

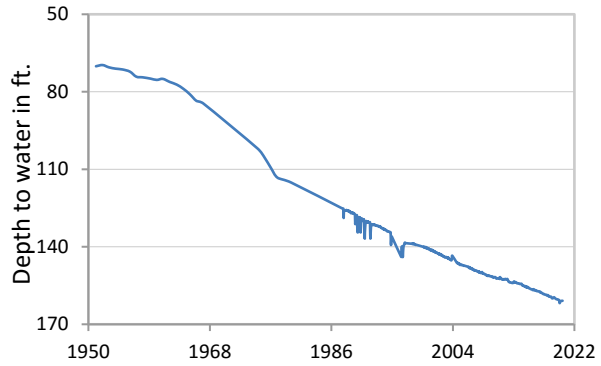
***Well numbers used in this publication on the aquifer map to indicate the monitoring well location (numbers 1 - 17) are different than the TWDB's seven-digit state well number.**

Monitoring Well	March	F February	Month Change	Year Change	Historical Change	First Measured
(1) Hansford 0354301	160.90	*NA*	*NA*	*-0.77*	*-90.78*	1951
(2) Lamb 1053602	150.91	150.97	*0.06*	*-0.90*	*-122.74*	1951
(3) Martin 2739903	143.89	143.19	*-0.70*	*-0.13*	*-39.00*	1964
(4) Dallas 3319101	494.01	495.28	*1.27*	*1.98*	*-272.01*	1954
(5) Coryell 4035404	527.78	529.03	*1.25*	*-3.36*	*-235.78*	1955
(6) Kendall 6802609	138.20	136.89	*-1.31*	*-21.14*	*-78.20*	1975
(7) Bell 5804816	123.04	122.97	*-0.07*	*-3.21*	*0.47*	2008
(8) Bexar 6837203	59.90	57.50	*-2.40*	*-8.90*	*-13.26*	1932
(9) Smith 3430907	433.35	434.34	*0.99*	*-0.15*	*-133.35*	1977
(10) La Salle 7738103	530.39	535.10	*4.71*	*-33.88*	*-277.32*	2003
(11) Harris 6514409	189.56	190.39	*0.83*	*-0.05*	*-54.06**	1947**
(12) Victoria 8017502	31.38	31.99	*0.61*	*3.04*	*2.62*	1958
(13) El Paso 4913301	295.81	295.83	*0.02*	*0.03*	*-63.91*	1964
(14) Reeves 4644501	161.22	162.66	*1.44*	*2.87*	*-69.13*	1952
(15) Pecos 5216802	186.93	180.36	*-6.57*	*1.42*	*59.95*	1976
(16) Schleicher 5512134	284.04	285.52	*1.48*	*-14.09*	*17.86*	2003
(17) Haskell 2135748	43.75	43.95	*0.20*	*1.66*	*-0.75*	2002
(18) Hudspeth 4807516	139.85	139.24	*-0.61*	*2.92*	*-35.93*	1966

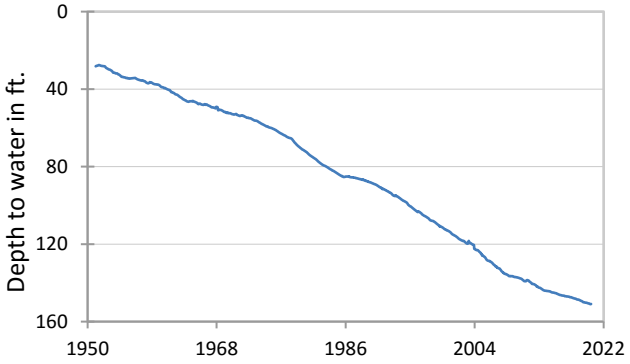
*Change since the original measurement of 135.5 feet below land surface in 1947 (**measurement not shown on the hydrograph)

March 2020 OBSERVATION WELL HYDROGRAPHS

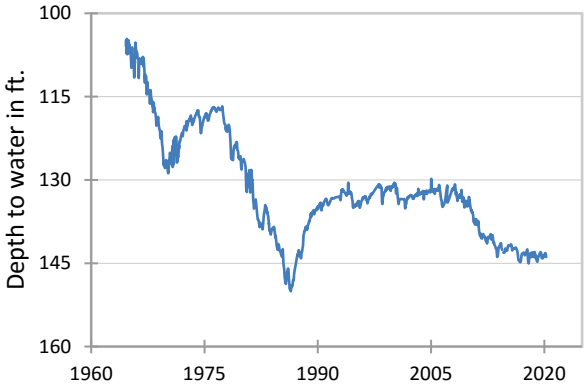
(1) State Well #03-54-301
Near Spearman, Hansford County
Ogallala Aquifer



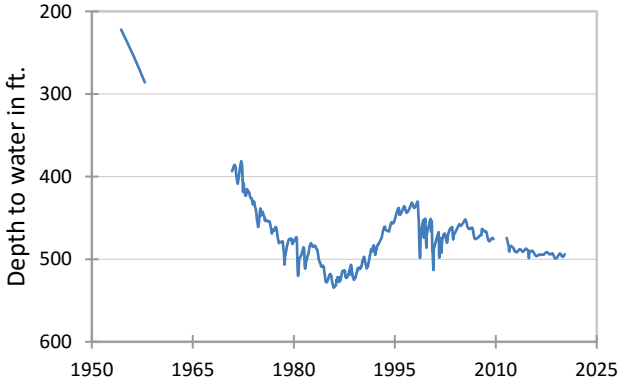
(2) State Well #10-53-602
Near Earth, Lamb County
Ogallala Aquifer



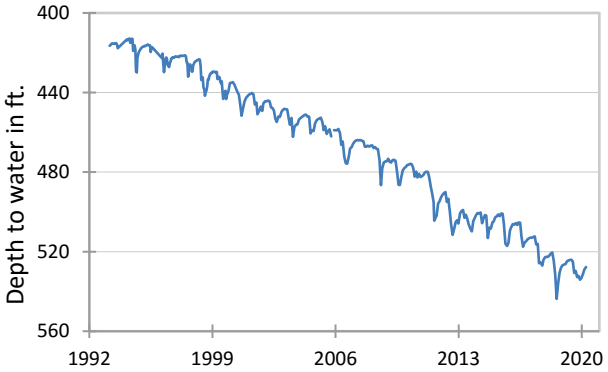
(3) State Well #27-39-903
Northwest Martin County
Ogallala Aquifer



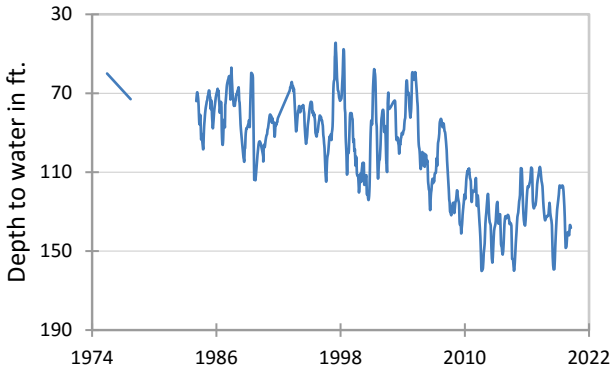
(4) State Well #33-19-101
Southeast Dallas, Dallas County
Twin Mountains Formation-Trinity Aquifer



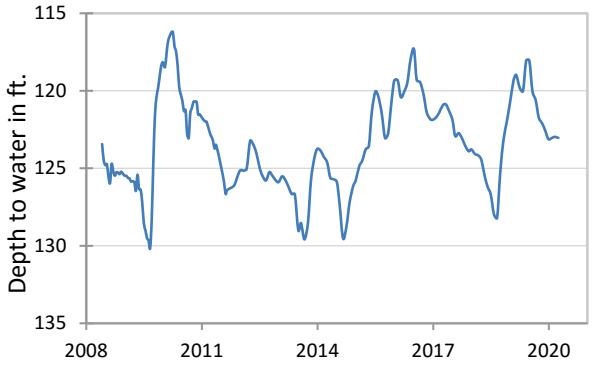
(5) State Well #40-35-404
Gatesville, Coryell County
Hosston Formation-Trinity Aquifer



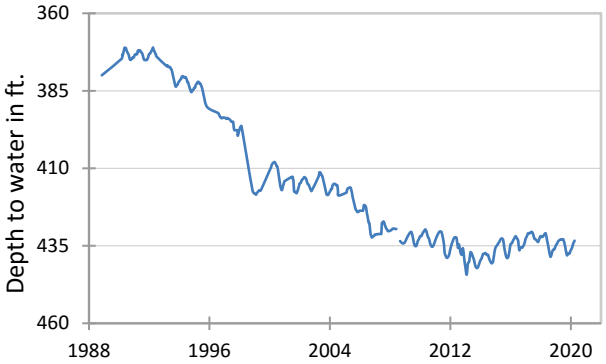
(6) State Well #68-02-609
Waring, Kendall County
Cow Creek Formation-Trinity Aquifer



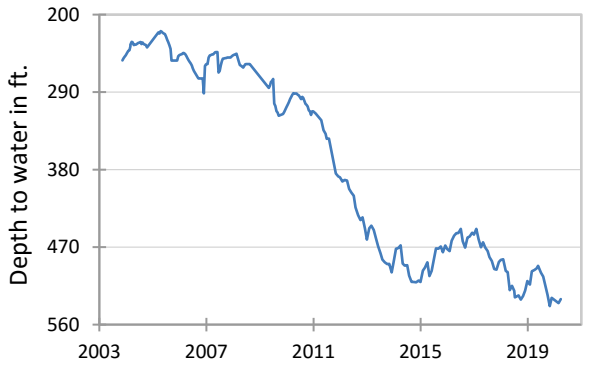
(7) State Well #58-04-816
Near Salado, Bell County
Edwards (Balcones Fault Zone) Aquifer



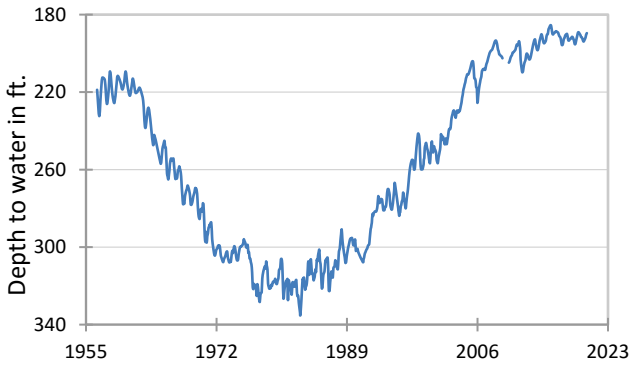
(9) State Well #34-30-907
Red Springs, Smith County
Carrizo-Wilcox Aquifer



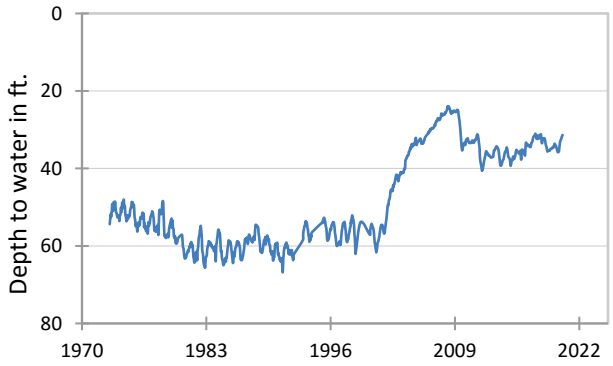
(10) State Well #77-38-103
Near Cotulla, La Salle County
Carrizo-Wilcox Aquifer



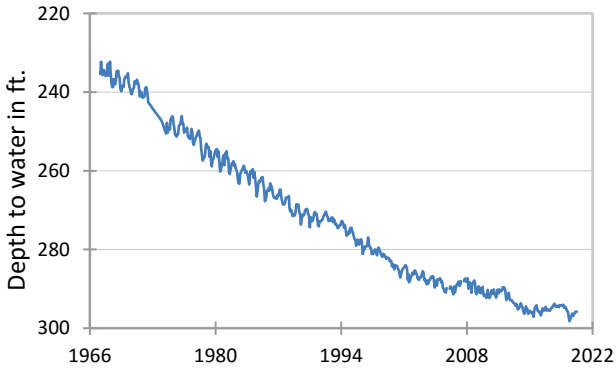
(11) State Well #65-14-409
Alief, Harris County
Evangeline Formation-Gulf Coast Aquifer



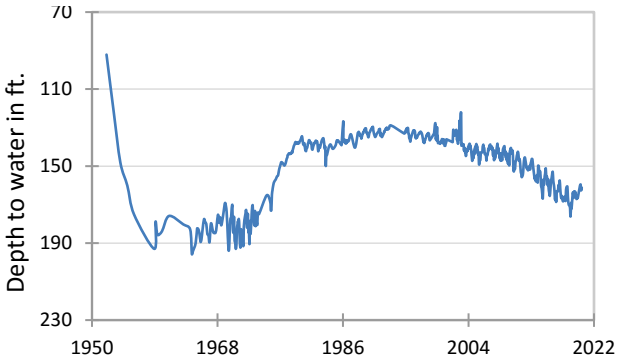
(12) State Well #80-17-502
Near Bloomington, Victoria County
Lissie Formation-Gulf Coast Aquifer



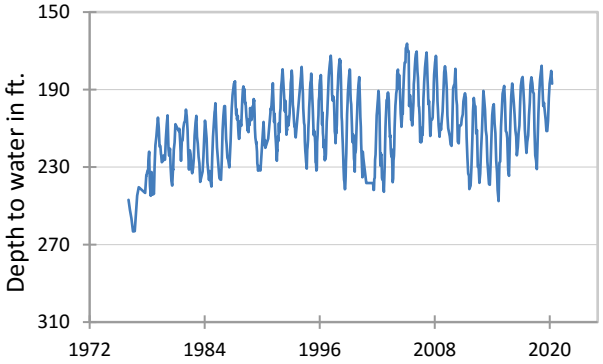
(13) State Well #49-13-301
El Paso, El Paso County
Hueco-Mesilla Bolson Aquifer



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

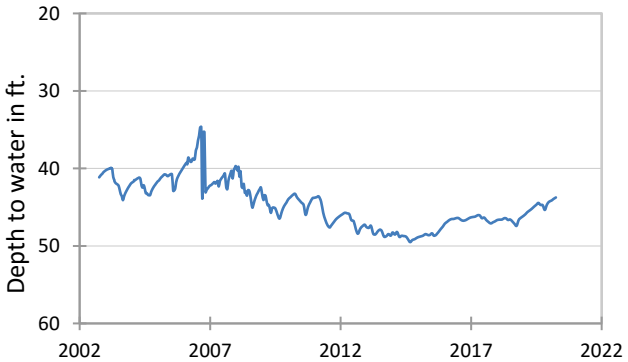


(15) State Well #52-16-802
Fort Stockton, Pecos County
Edwards-Trinity (Plateau) Aquifer

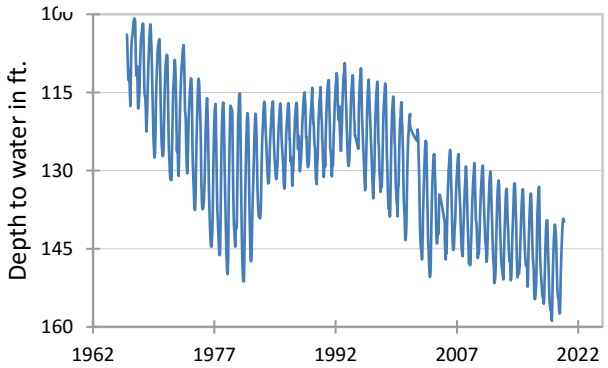


(16) State Well #55-12-134
Eldorado, Schleicher County
Trinity Aquifer

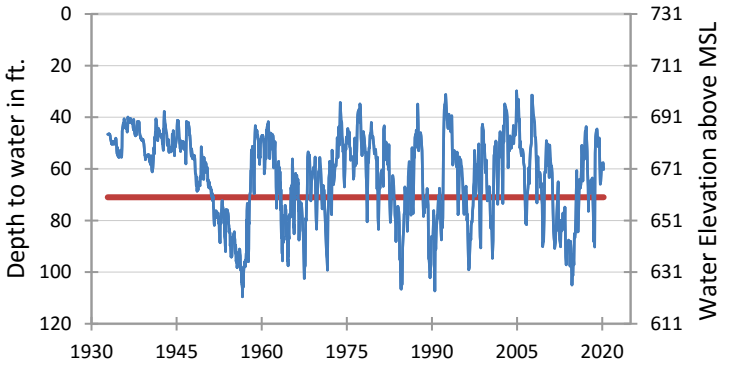
(17) State Well #21-35-748
Near O'Brien, Haskell County
Seymour Aquifer

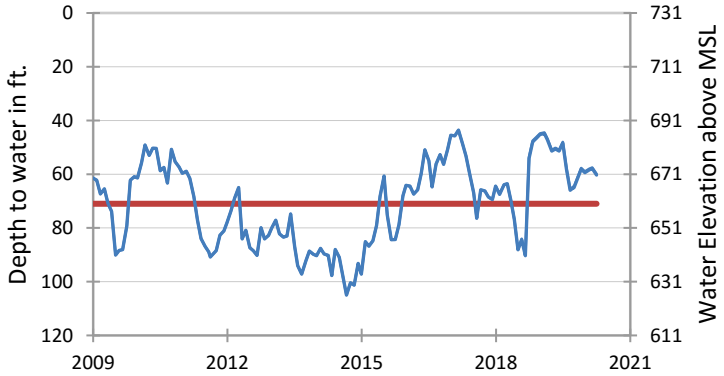


(18) State Well #48-07-516
Dell City, Hudspeth County
Bone Spring - Victorio Peak Aquifer



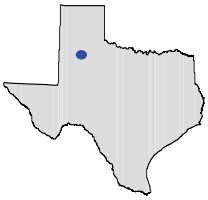
(8) State Well #68-37-203 (J-17)
San Antonio, Bexar County
Edwards (Balcones Fault Zone) Aquifer





The late March water-level measurement in this Edwards (Balcones Fault Zone) Aquifer well, elevation 731 feet above mean sea level, was 59.90 feet below land surface, or 670.70 feet above mean sea level. This was 2.40 feet below last month's measurement, 8.90 feet below last year's measurement and 13.26 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.

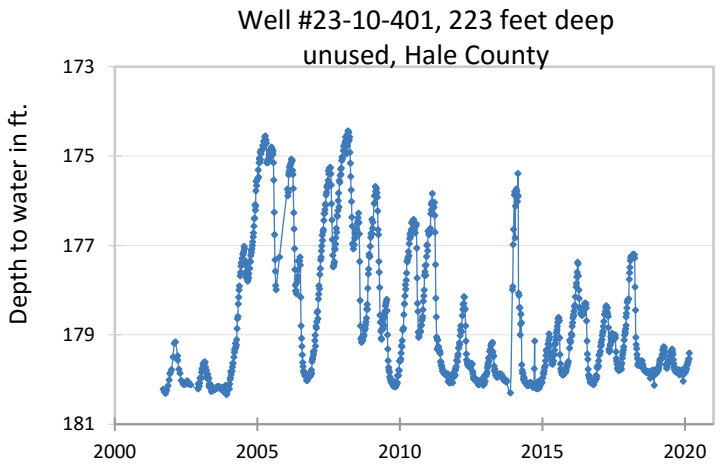


HYDROGRAPH OF THE MONTH

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

Edwards-Trinity (High Plains) Aquifer

The Edwards-Trinity (High Palins) Aquifer is a minor aquifer that underlies about 9,000 square miles of the Ogallala Aquifer in western Texas and eastern New Mexico. Its water-producing units include sandstone of the Antlers Formation (Trinity Group) and limestone of the overlying Comanche Peak and Edwards formations. Recharge to the aquifer is primarily due to downward leakage from the younger Ogallala Aquifer. Groundwater typically contains more total dissolved solids than does the overlying Ogallala Aquifer. It generally is slightly saline, with total dissolved solids ranging from 1,000 to 2,000 milligrams per liter but can range from 400 to more than 3,000 milligrams per liter. Groundwater is poorest in quality, with total dissolved solids in excess of 20,000 milligrams per liter, where the aquifer is overlain by saline lakes or the gypsum-rich Tahoka and Double Lakes formations. The main use of the aquifer is for irrigation, which accounts 95% of the usage. Water level declines have occurred in some irrigated areas.



The initial measurement of 180.22 feet below land surface was recorded by a USGS automatic water-level recorder in September of 2001. In January of 2006 the TWDB took over monitoring efforts with an automatic water-level recorder as well. Hourly measurements are displayed online and near-weekly measurements are stored in the groundwater database. The period of record reveals seasonal fluctuations in water level that are likely attributed to nearby pumping for irrigation. In recent years, however, seasonal fluctuations have decreased in intensity.

Far away (left), and close-up (right) images of well #23-10-401.