Texas Water Conditions Report

February 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 February the majority of the High Plains, Trans Pecos, Southern, and Lower Valley climate divisions, as well as the western Low Rolling Plains, southern portion of the Edwards Plateau, southwest Upper Coast, and southern South Central climate divisions received little to no rainfall [yellow, orange and red shading, Figure 1(a)]. Some areas of the High Plains and Trans Pecos, south and east Low Rolling Plains, north and east Edwards Plateau, north South Central, northeast Upper Coast, and small portions of north and south Southern climate divisions received high amounts of rainfall [light and dark blue shading, Figure 1(a)], reaching 14.68 inches in eastern portions of the state [dark blue shading, Figure 1(a)].

Monthly rainfall for February was below-average [yellow and orange shading, Figure 1(b)], compared to historical data from 1981–2010, in the central and south Trans Pecos, portions of the High Plains, northern Low Rolling Plains, small areas of the North Central, the majority of the Southern, Upper Coast, and South Central climate divisions, along with southern portions of the Edwards Plateau and East Texas. The northwest and northeast portions of the Trans Pecos, central and scattered areas stretching northeasterly in the High Plains, central and south Low Rolling Plains, west, south, and east North Central, central and north East Texas, northwest and small areas of northeast Edwards Plateau, very small portions in north and south Southern, and small scattered areas of north and west South Central climate divisions received above average rainfall [green and blue shading, Figure 1(b)].

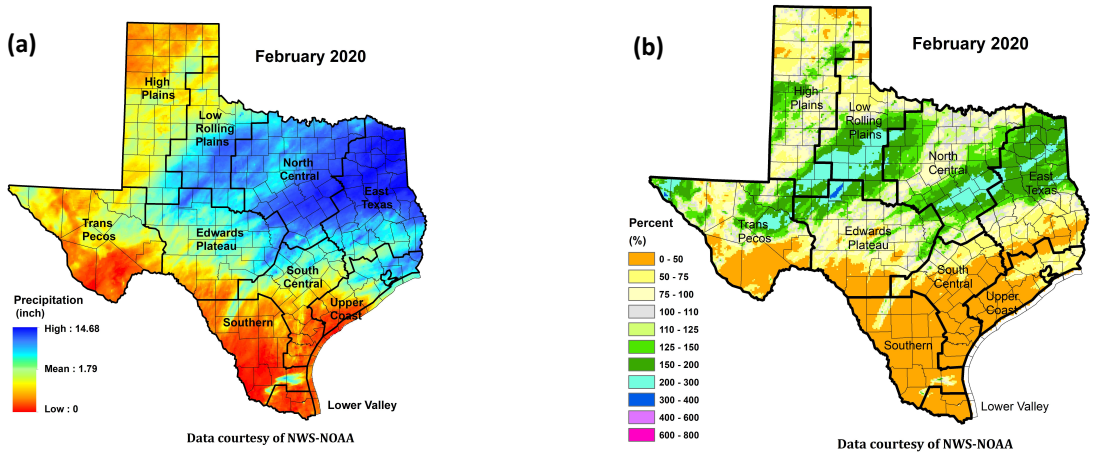


Figure 1: (a) Monthly accumulated rainfall, (b) Percent of normal rainfall

RESERVOIR STORAGE

At the end of February 2020, total conservation storage* in 118 of the state's major water supply reservoirs plus Elephant Butte Reservoir in New Mexico was 27.019 million acre-feet or 84 percent of total conservation storage capacity (Figure 2). This is approximately 0.975 million acre-feet more than a month ago and approximately 0.952 million acre-feet less than the end of February 2019.

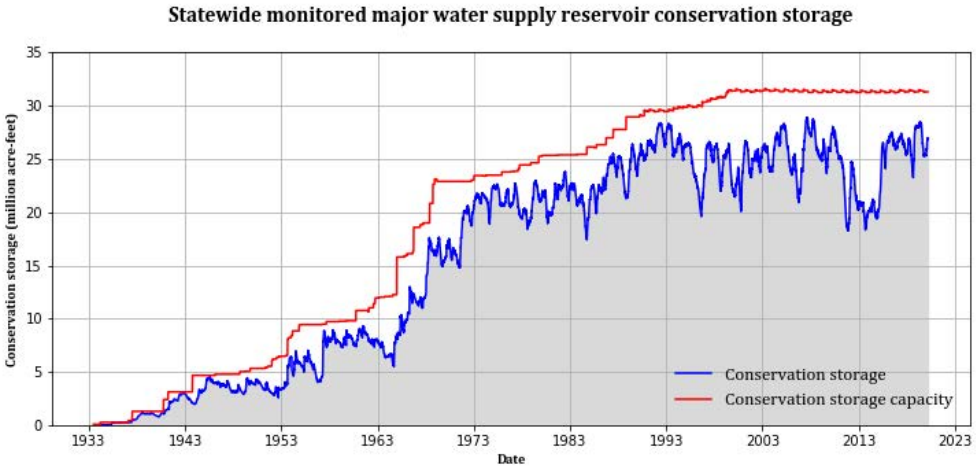


Figure 2: Statewide reservoir conservation storage

Out of 118 reservoirs in the state, 44 reservoirs held 100 percent of conservation storage capacity (Figure 3). Additionally, 30 were at or above 90 percent full. Seven reservoirs [E.V. Spence (27 percent full), Greenbelt (20 percent full), J.B. Thomas (24 percent full), Mackenzie (11 percent full), O. C. Fisher (9 percent full), Palo Duro Reservoir (5 percent full), and White River (18 percent full)] remained below 30 percent full. Elephant Butte Reservoir (located in New Mexico) was at 31 percent full.

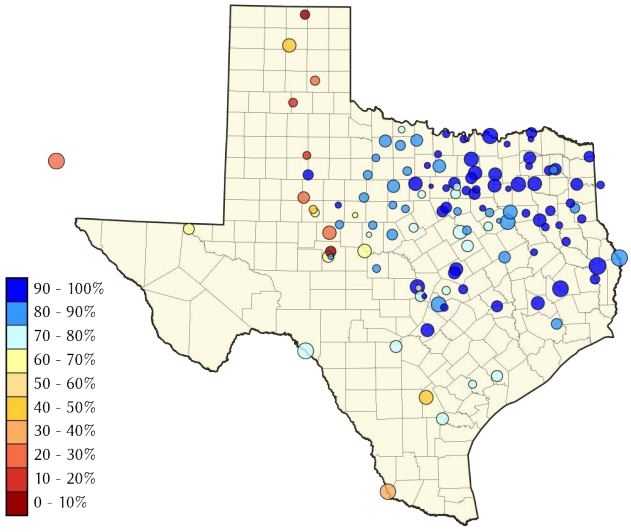


Figure 3: Reservoir conservation storage at end-February expressed as percent full (%)

*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 (96.2 percent full), South Central (84.8 percent full), East Texas (98.8 percent full), and Upper Coast (82.4 percent full) climate divisions (Figure 4). Conservation storage in the Low Rolling Plains (68.1 percent full) and Edwards Plateau (68 percent full) climate divisions was abnormally low (Figure 4). The High Plains (35 percent full), Southern (38.7 percent full), and Trans Pecos (36.7 percent full) climate divisions had severely low conservation storage.

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). In the Lavaca basin the storage was abnormally low and the Canadian and Upper/Mid Rio Grande conservation storage was severely low (20-40 percent full, Figure 5).

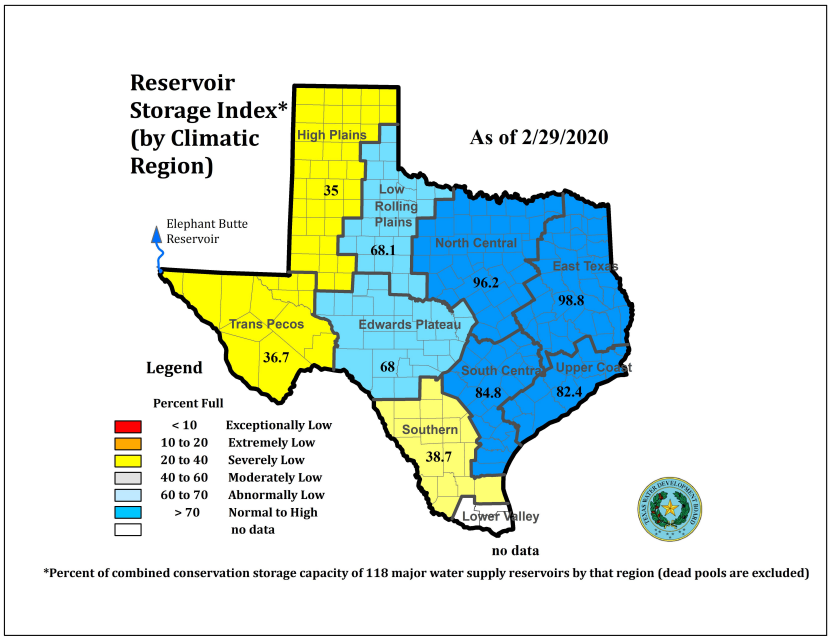


Figure 4: Reservoir Storage Index* by climate division at 2/29/2020

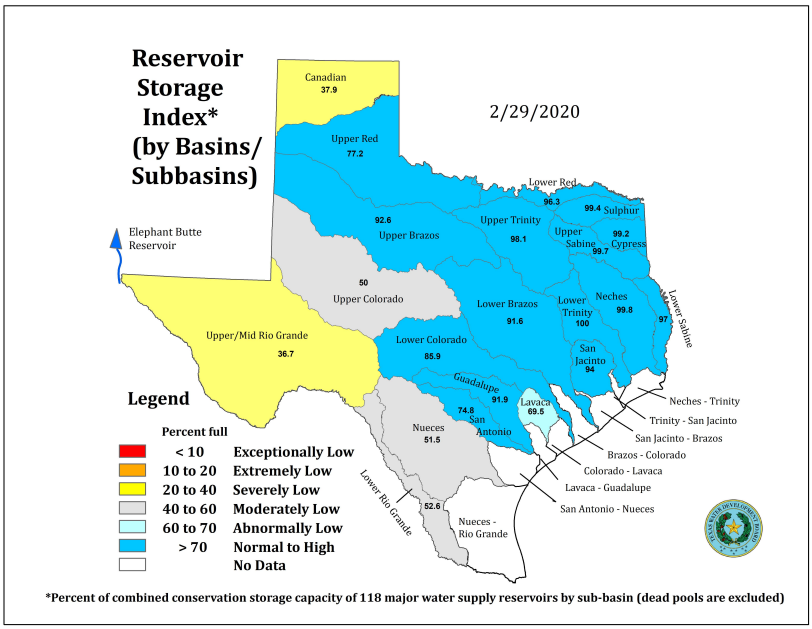


Figure 5: Reservoir Storage Index* by river basin/sub-basin at 2/29/2020

*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-February		Storage change from end-Jan 2020		Storage change from end-Feb 2019	
	(acre-feet)	(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)
Abilene, Lake	7,900	5,566	70	355	4	-2,215	-28
Alan Henry Reservoir	96,207	89,113	93	-419	0	7,743	8
*Amistad Reservoir (Texas & Mexico)	3,275,532	1,630,377	50	-52,918	-2	-361,331	-11
*Amistad Reservoir (Texas)	1,840,849	1,299,808	71	-61,514	-3	-96,500	-5
Amon G Carter, Lake	19,266	18,555	96	709	4	-711	-4
Aquilla Lake	43,243	43,243	100	8,021	19	0	0
Arlington, Lake	40,157	39,638	99	-519	-1	-172	0
Arrowhead, Lake	230,359	206,718	90	3,124	1	-20,750	-9
Athens, Lake	29,503	29,503	100	0	0	0	0
*Austin, Lake	23,972	22,588	94	-31	0	-384	-2
B A Steinhagen Lake	69,186	62,922	91	-3,335	-5	-193	0
Bardwell Lake	46,122	46,122	100	6,312	14	0	0
Belton Lake	435,225	416,873	96	16,741	4	-18,352	-4
Benbrook Lake	85,648	79,779	93	12,833	15	-5,869	-7
Bob Sandlin, Lake	192,417	192,417	100	0	0	0	0
Bonham, Lake	11,027	10,963	99	-64	0	-64	0
Brady Creek Reservoir	28,808	24,960	87	307	1	-3,848	-13
Bridgeport, Lake	366,236	320,950	88	7,077	2	-45,286	-12
*Brownwood, Lake	130,868	107,199	82	-363	0	-23,669	-18
Buchanan, Lake	860,607	764,500	89	-21,324	-2	-38,112	-4
Caddo, Lake	29,898	29,898	100	0	0	no data	
Canyon Lake	378,781	354,196	94	-394	0	no data	
Cedar Creek Reservoir in Trinity	644,686	644,032	100	63,556	10	-654	0
Champion Creek Reservoir	41,580	27,551	66	34	0	-962	-2
Cherokee, Lake	40,094	40,094	100	0	0	0	0
Choke Canyon Reservoir	662,820	292,723	44	-3,347	0	-70,552	-11
*Cisco, Lake	29,003	25,261	87	47	0	1,048	4
Coleman, Lake	38,075	32,768	86	-17	0	-4,983	-13
Colorado City, Lake	31,040	22,402	72	-237	0	-8,638	-28
*Coleto Creek Reservoir	30,758	13,767	45	39	0	-1,410	-5
Conroe, Lake	410,988	380,736	93	3,668	1	-30,252	-7
Corpus Christi, Lake	256,062	182,501	71	-6,211	-2	-73,561	-29
Crook, Lake	9,195	9,070	99	-125	-1	-94	-1
Cypress Springs, Lake	66,756	66,756	100	0	0	0	0
E. V. Spence Reservoir	517,272	138,114	27	316	0	-1,902	0
Eagle Mountain Lake	179,880	179,880	100	0	0	0	0
Elephant Butte Reservoir (Texas)	852,491	267,815	31	13,672	2	194,441	23
Elephant Butte Reservoir (Total Storage)	1,973,358	619,943	31	31,647	2	450,094	23
*Falcon Reservoir (Texas & Mexico)	2,646,817	557,839	21	-12,663	0	-462,708	-17
*Falcon Reservoir (Texas)	1,551,007	485,456	31	-8,563	0	-302,597	-20
Fork Reservoir, Lake	605,061	599,514	99	34,843	6	524	0
Fort Phantom Hill, Lake	70,030	65,698	94	2,909	4	-4,332	-6
Georgetown, Lake	36,823	26,717	73	766	2	-10,106	-27
Graham, Lake	45,288	39,224	87	619	1	-5,941	-13
Granbury, Lake	132,949	132,949	100	326	0	0	0

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of lake or reservoir	Storage capacity	Storage at end-February		Storage change from end-Jan 2020		Storage change from end-Feb 2019	
	(acre-feet)	(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)
		Continued					
Granger Lake		no data		81,127	61	81,127	61
Grapevine Lake	163,064	163,064	100	0	0	0	0
Greenbelt Lake	59,968	12,069	20	36	0	-123	0
*Halbert, Lake	6,033	5,378	89	315	5	-50	0
Hords Creek Lake	8,109	6,239	77	-32	0	1,041	13
Houston County Lake	17,113	17,113	100	0	0	0	0
Houston, Lake	130,147	128,125	98	10,605	8	8,243	6
Hubbard Creek Reservoir	313,298	273,019	87	144	0	-40,279	-13
Hubert H Moss Lake	24,058	23,950	100	-108	0	-86	0
Inks, Lake	13,962	12,952	93	5,069	36	-114	0
J. B. Thomas, Lake	199,931	47,665	24	-633	0	-22,217	-11
Jacksonville, Lake	25,670	25,670	100	0	0	0	0
Jim Chapman Lake (Cooper)	260,332	260,332	100	8,963	3	0	0
Joe Pool Lake	175,800	173,069	98	14,445	8	2,361	1
Kemp, Lake	245,307	219,242	89	10,624	4	-26,065	-11
Kickapoo, Lake	86,345	72,184	84	843	1	-14,161	-16
Lavon Lake	406,388	406,388	100	35,329	9	0	0
Leon, Lake	27,762	23,963	86	314	1	-3,484	-13
Lewisville Lake	563,228	563,228	100	0	0	0	0
Limestone, Lake	203,780	203,780	100	38,292	19	0	0
*Livingston, Lake	1,741,867	1,741,867	100	0	0	0	0
*Lost Creek Reservoir	11,950	11,950	100	218	2	51	0
Lyndon B Johnson, Lake	115,249	109,905	95	23,528	20	-670	0
Mackenzie Reservoir	46,450	5,280	11	-37	0	-394	0
Marble Falls, Lake	6,901	6,804	99	-32	0	2,892	42
Martin, Lake	75,726	75,726	100	12,489	16	49	0
Medina Lake	254,823	190,600	75	-4,814	-2	-64,102	-25
Meredith, Lake	500,000	209,566	42	74	0	18,697	4
Millers Creek Reservoir	26,768	23,686	88	445	2	-3,082	-12
*Mineral Wells, Lake	5,273	5,273	100	107	2	0	0
Monticello, Lake	34,740	30,411	88	511	1	-166	0
Mountain Creek, Lake	22,850	22,850	100	0	0	0	0
Murvaul, Lake	38,285	38,285	100	514	1	0	0
Nacogdoches, Lake	39,522	39,522	100	2,138	5	0	0
Nasworthy	9,615	8,356	87	99	1	-150	-2
Navarro Mills Lake	49,827	49,827	100	11,411	23	0	0
New Terrell City Lake	8,583	8,583	100	0	0	0	0
Nocona, Lake (Farmers Crk)	21,444	21,444	100	1,543	7	0	0
North Fork Buffalo Creek Reservoir	15,400	11,997	78	72	0	-3,259	-21
O' the Pines, Lake	241,363	241,363	100	0	0	0	0
O. C. Fisher Lake	115,742	10,625	9	-86	0	-4,007	-3
*O. H. Ivie Reservoir	554,340	386,704	70	1,498	0	89,519	16
Oak Creek Reservoir	39,210	35,245	90	671	2	-3,965	-10

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of lake or reservoir	Storage capacity	Storage at end-February		Storage change from end-Jan 2020		Storage change from end-Feb 2019	
	(acre-feet)	(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)
	Continued						
Palestine, Lake	367,303	367,303	100	8,489	2	0	0
Palo Duro Reservoir	61,066	2,804	5	-239	0	2,478	4
Palo Pinto, Lake	26,766	19,786	74	-200	0	-6,958	-26
Pat Cleburne, Lake	26,008	25,478	98	3,081	12	-530	-2
*Pat Mayse Lake	113,683	113,683	100	0	0	0	0
Possum Kingdom Lake	538,139	538,139	100	7,660	1	0	0
Proctor Lake	54,762	41,128	75	909	2	-13,634	-25
Ray Hubbard, Lake	439,559	439,350	100	39,494	9	626	0
Ray Roberts, Lake	788,167	788,167	100	0	0	0	0
Red Bluff Reservoir	151,110	100,505	67	2,297	2	1,229	1
Richland-Chambers Reservoir	1,087,839	1,087,839	100	144,425	13	0	0
Sam Rayburn Reservoir	2,857,077	2,857,077	100	71,749	3	0	0
Somerville Lake	150,293	150,293	100	1,685	1	0	0
Squaw Creek, Lake	151,250	148,079	98	-1,595	-1	-3,171	-2
Stamford, Lake	51,570	47,896	93	1,821	4	-3,674	-7
Stillhouse Hollow Lake	227,771	207,186	91	1,443	1	-20,585	-9
Striker, Lake	16,934	16,934	100	0	0	0	0
Sweetwater, Lake	12,267	12,267	100	179	1	0	0
*Sulphur Springs, Lake	17,747	15,258	86	-1,176	-7	66	0
Tawakoni, Lake	871,685	871,685	100	28,877	3	0	0
Texana, Lake	159,566	110,880	69	-5,211	-3	-47,859	-30
Texoma, Lake (Texas & Oklahoma)	2,487,601	2,383,738	96	-51,732	-2	-25,806	-1
Texoma, Lake (Texas)	1,243,801	1,191,868	96	-25,866	-2	-12,904	-1
Toledo Bend Reservoir (Texas & Louisiana)	4,472,900	4,344,167	97	620,533	14	-45,161	-1
Toledo Bend Reservoir (Texas)	2,236,450	2,170,034	97	310,267	14	-22,580	-1
Travis, Lake	1,113,348	915,955	82	-9,793	0	-197,393	-18
Twin Buttes Reservoir	182,454	119,921	66	1,785	1	4,174	2
Tyler, Lake	72,073	72,073	100	4,333	6	0	0
Waco, Lake	189,418	179,517	95	30,681	16	-9,901	-5
Waxahachie, Lake	10,780	10,780	100	401	4	0	0
Weatherford, Lake	17,812	17,747	100	-22	0	76	0
White River Lake	29,880	5,355	18	-131	0	858	3
Whitney, Lake	553,344	465,995	84	29,432	5	-71,815	-13
Worth, Lake	24,419	24,180	99	5,512	23	512	2
Wright Patman Lake	122,593	122,593	100	0	0	0	0
STATEWIDE TOTAL							
STATEWIDE TOTAL	**32,091,294**	**27,019,593**	**84**	**975,780**	**3**	**-951,732**	**-3**

STREAMFLOW CONDITIONS

Calculated runoff by hydrologic unit codes for February 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, upper and lower Brazos, upper Colorado, mid-Red, upper and lower Trinity, upper Neches, Sabine, Cypress, and Sulphur 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 Trinity, upper Neches, Cypress, and lower Red river basins. Several sub-watersheds in the upper Red, lower Brazos, Brazos-Colorado, Lavaca, Lavaca-Guadalupe, lower Guadalupe, lower Guadalupe, upper and lower Nueces, San Antonio-Nueces, and the upper and lower Nueces-Rio Grande 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 Rio Grande, lower Nueces, and San Antonio-Nueces river basins. Record lows (red shading in Figure 6) were found in the lower Nueces river basin.

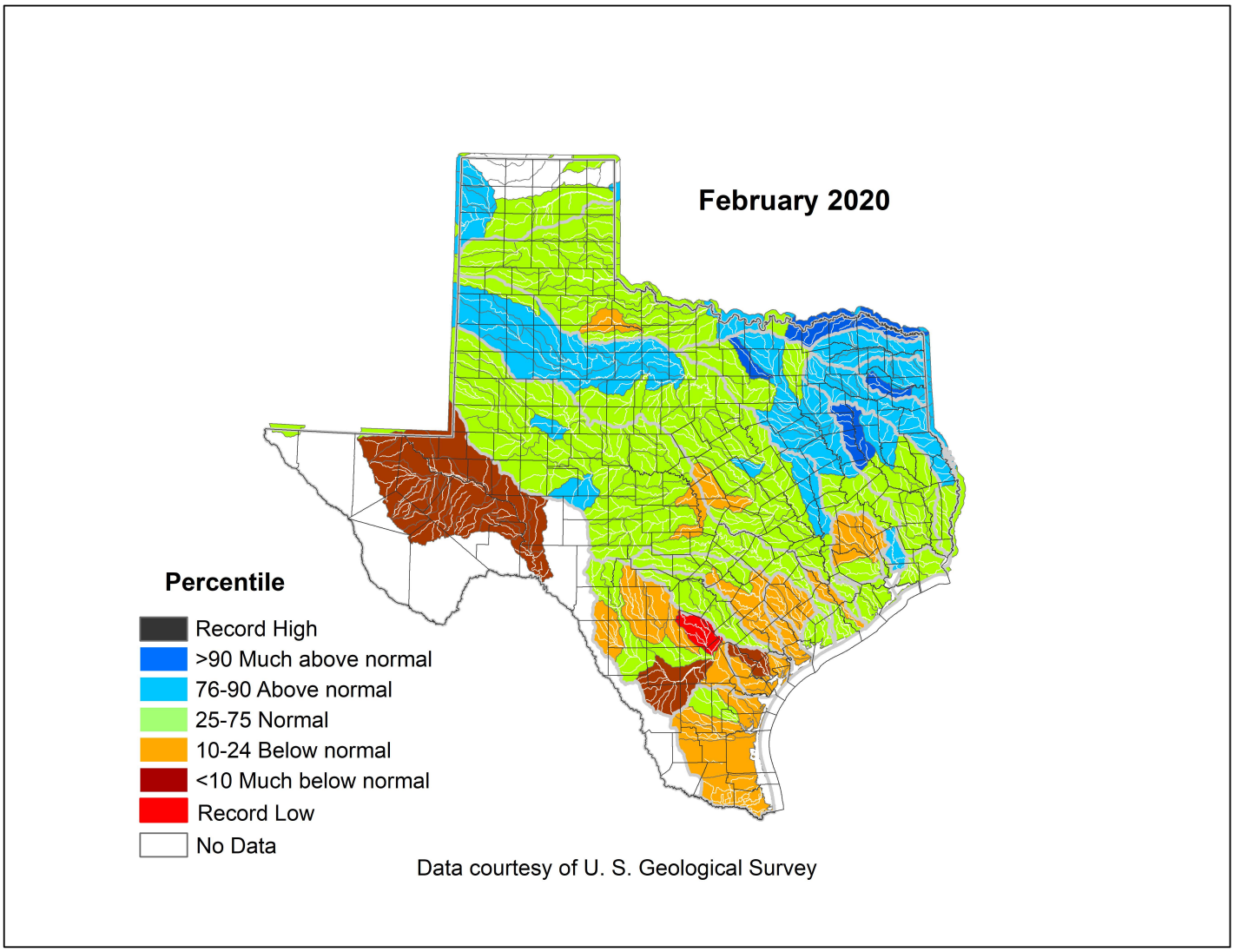


Figure 6: Runoff percentiles by the U.S. Geological Survey's Hydrologic Unit Code

SOIL MOISTURE CONDITIONS

Root zone soil moisture at the end of February 2020 [Figure 7(a)] was moderate [> 0.20 cubic meters of water per bulk cubic meter soil (m^3/m^3)] in the majority of the state. There were areas of low soil moisture [< 0.15 cubic meters of water per bulk cubic meter soil (m3/m3)] in the northeast corner, as well as scattered in parts of the south and west Trans Pecos, pockets in the northeast and southwest High Plains, small areas of northern Low Rolling Plains, portions of the north and south Southern, and north and west Lower Valley climate divisions. There was a band of low soil moisture that stretched across the South Central region and extending north through the southwest East Texas region and along the southern border of the South Central. 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 north central High Plains, scattered areas across the Edwards Plateau, northeast, northwest, and portions of the south South Central, small areas in the east and south Low Rolling Plains, the majority of the North Central and Upper Coast, and areas in the north, east, and scattered in south East Texas.

Compared to conditions at the end of February 2019, soil moisture content increased [green to blue shading in Figure 7(b)] in minute portions of the northern Edwards Plateau. The greatest increase was seen in central and east North Central, and the north and central East Texas climate divisions. Soil moisture content decreased [yellow, orange, and brown shading in Figure 7(b)] in the northern Low Rolling Plains, west and south Trans Pecos, southern Edwards Plateau, southern East, the majority of the High Plains, Southern, and Lower Valley, with the most significant decrease shown in the southern portions of the Southern and the majority of the Upper Coast climate divisions.

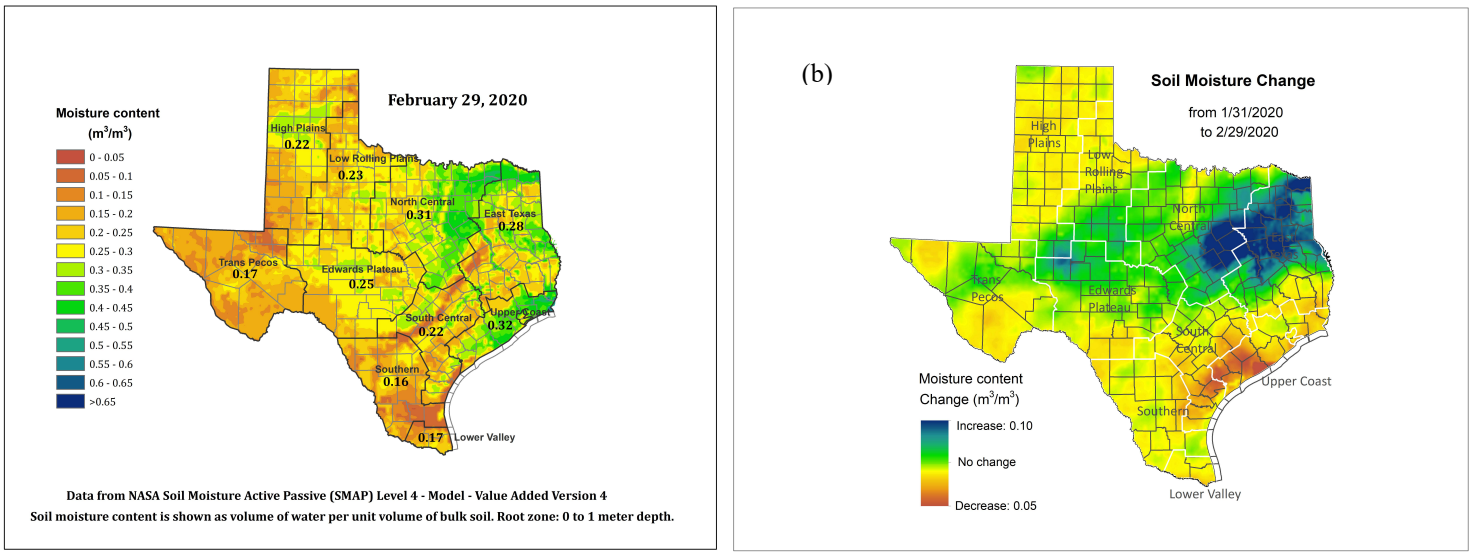
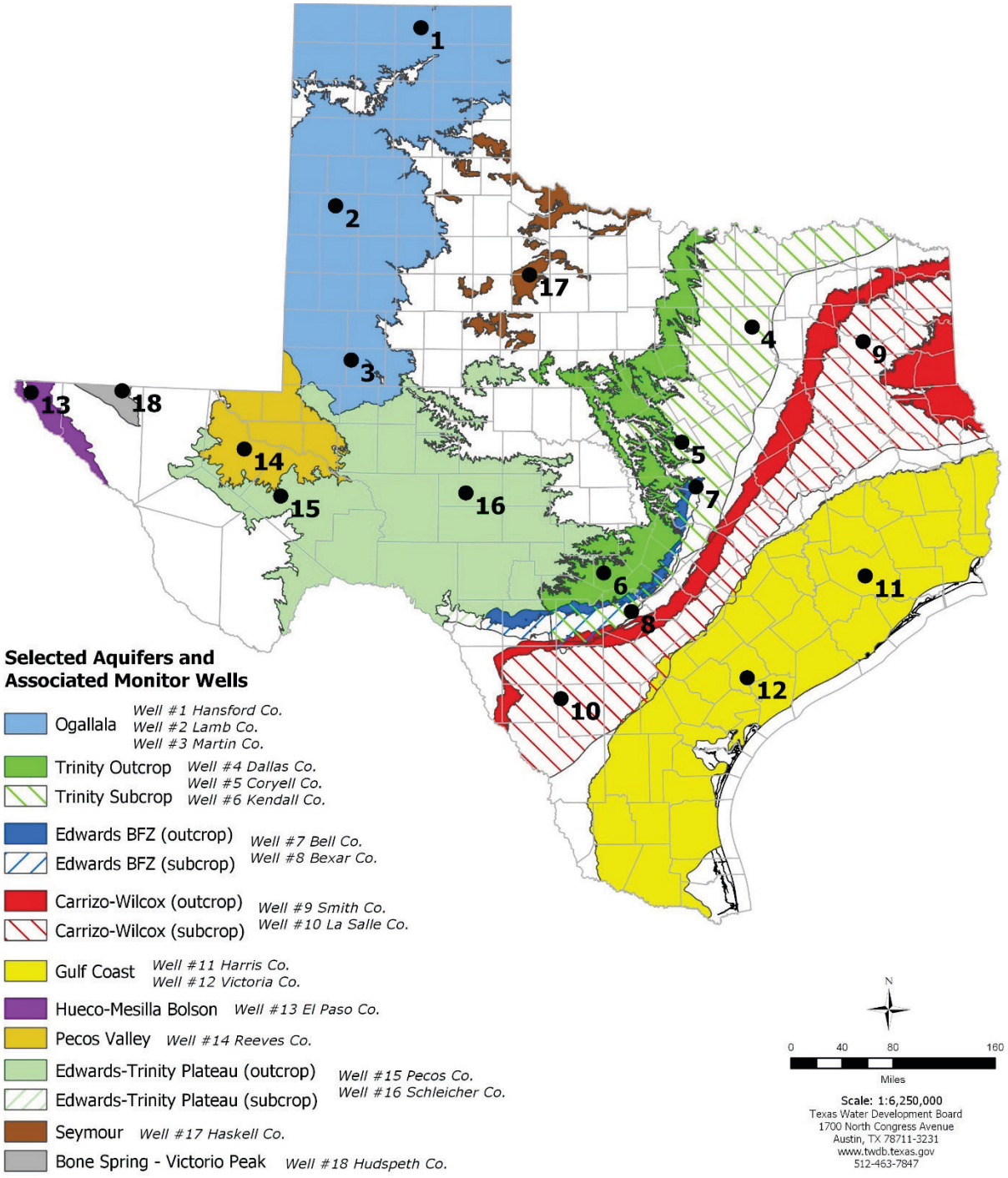


Figure 7: Root zone soil moisture conditions on February, 2020(a) and the difference in root zone soil moisture between end-January 2020 and end-February 2020 (b)



February 2020 GROUNDWATER LEVELS IN OBSERVATION WELLS

February 2020

Water-level measurements were available for 17 key monitoring wells in the state. Water levels rose in 12 monitoring wells since the beginning of January, ranging from an increase of 0.05 feet in the Martin County Ogallala Aquifer well (#3 on map) to 4.95 feet in the Kendall County Trinity Aquifer (#6 on map). Water levels declined in 4 monitoring wells, ranging from a decline of -0.03 feet in the El Paso County Hueco-Mesilla Bolson Aquifer well (#13 on map) to -3.48 feet in the Schleicher County Edwards-Trinity Plateau Aquifer well (#16 on map). The J-17 well (#8 on map) in San Antonio recorded a water level of 57.50 feet below land surface or 673.10 feet above mean sea level. Water levels are 13.50 feet above the Stage 1 critical management level for the San Antonio portion of the Edwards (Balcones Fault Zone) Aquifer.

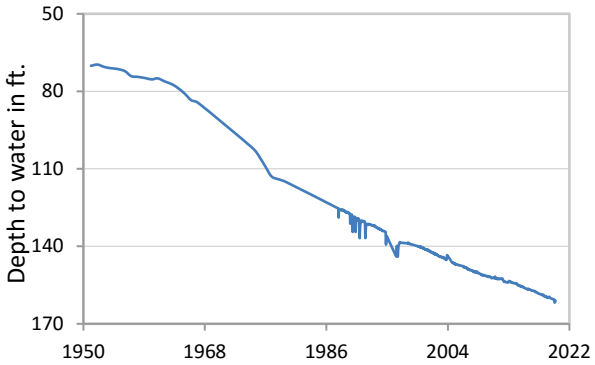
***Well numbers used in this publication on the aquifer map to indicate the monitoring well location (numbers 1 - 17) are different than the TWDB's seven-digit state well number.**

Monitoring Well	February	January	Month Change	Year Change	Historical Change	First Measured
(1) Hansford 0354301	*NA*	*NA*	*NA*	*NA*	*NA*	1951
(2) Lamb 1053602	150.97	150.81	*-0.16*	*-1.01*	*-122.80*	1951
(3) Martin 2739903	143.19	143.24	*0.05*	*0.91*	*-38.30*	1964
(4) Dallas 3319101	495.28	496.36	*1.08*	*2.27*	*-273.28*	1954
(5) Coryell 4035404	529.03	530.91	*1.88*	*-4.21*	*-237.03*	1955
(6) Kendall 6802609	136.89	141.84	*4.95*	*-20.05*	*-76.89*	1975
(7) Bell 5804816	122.97	123.04	*0.07*	*-4.00*	*0.54*	2008
(8) Bexar 6837203	57.50	58.00	*0.50*	*-10.70*	*-10.86*	1932
(9) Smith 3430907	434.34	435.55	*1.21*	*-0.77*	*-134.34*	1977
(10) La Salle 7738103	535.10	*NA*	*NA*	*-36.97*	*-282.03*	2003
(11) Harris 6514409	190.39	191.68	*1.29*	*-1.33*	*-54.89**	1947**
(12) Victoria 8017502	31.99	32.56	*0.57*	*2.81*	*2.01*	1958
(13) El Paso 4913301	295.83	295.80	*-0.03*	*-0.28*	*-63.93*	1964
(14) Reeves 4644501	162.66	159.51	*-3.15*	*0.48*	*-70.57*	1952
(15) Pecos 5216802	180.36	183.32	*2.96*	*-2.66*	*66.52*	1976
(16) Schleicher 5512134	285.52	282.04	*-3.48*	*-17.86*	*16.38*	2003
(17) Haskell 2135748	43.95	44.14	*0.19*	*1.70*	*-0.95*	2002
(18) Hudspeth 4807516	139.24	139.99	*0.75*	*0.12*	*-35.32*	1966

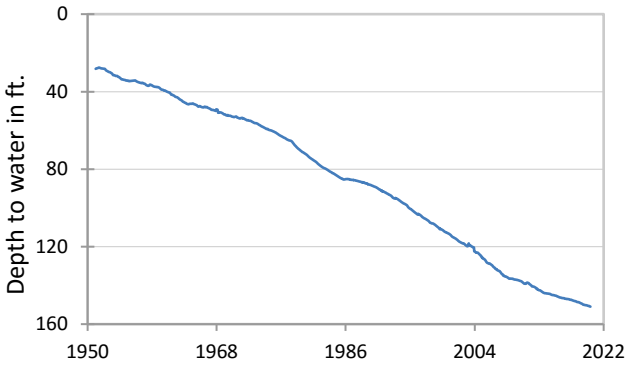
*Change since the original measurement of 135.5 feet below land surface in 1947 (**measurement not shown on the hydrograph)

February 2020 OBSERVATION WELL HYDROGRAPHS

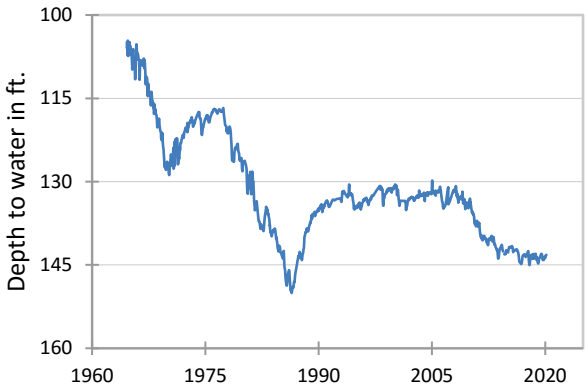
(1) State Well #03-54-301
Near Spearman, Hansford County
Ogallala Aquifer



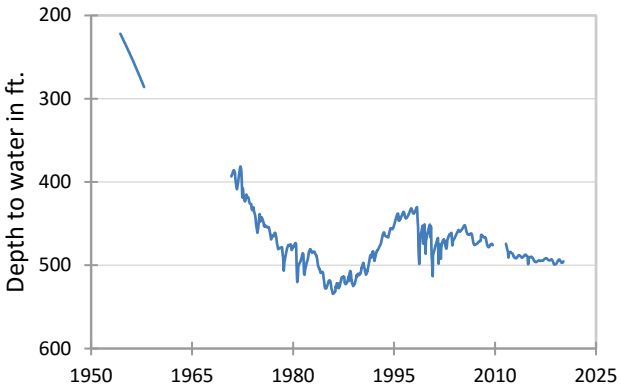
(2) State Well #10-53-602
Near Earth, Lamb County
Ogallala Aquifer



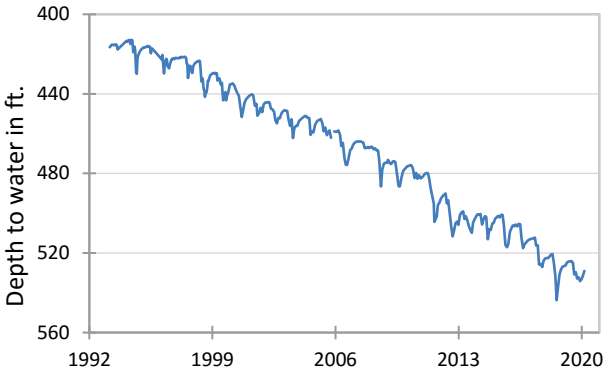
(3) State Well #27-39-903
Northwest Martin County
Ogallala Aquifer



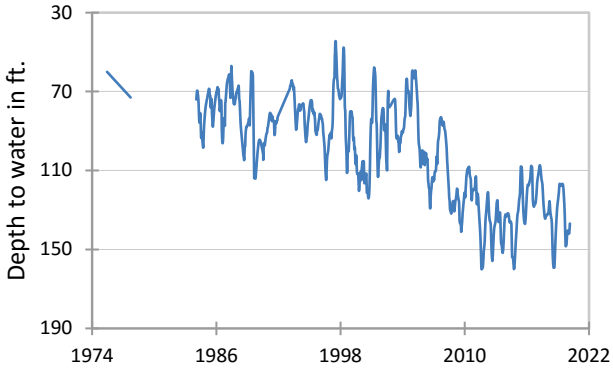
(4) State Well #33-19-101
Southeast Dallas, Dallas County
Twin Mountains Formation-Trinity Aquifer



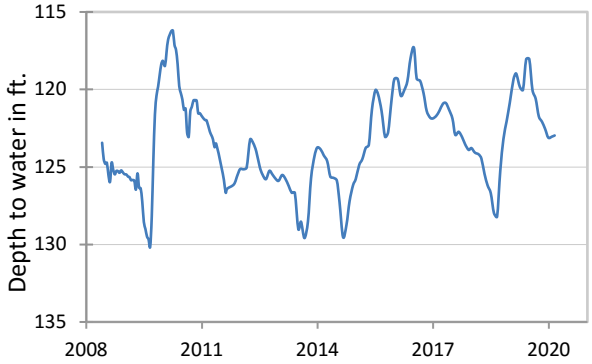
(5) State Well #40-35-404
Gatesville, Coryell County
Hosston Formation-Trinity Aquifer



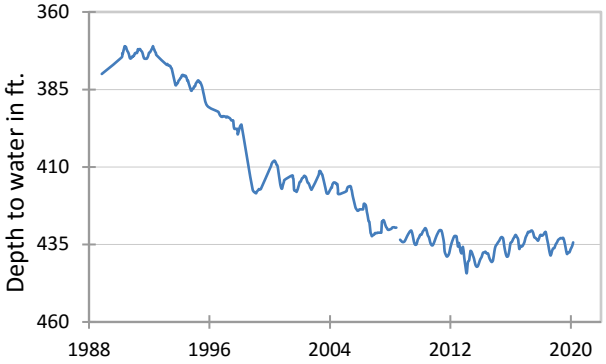
(6) State Well #68-02-609
Waring, Kendall County
Cow Creek Formation-Trinity Aquifer



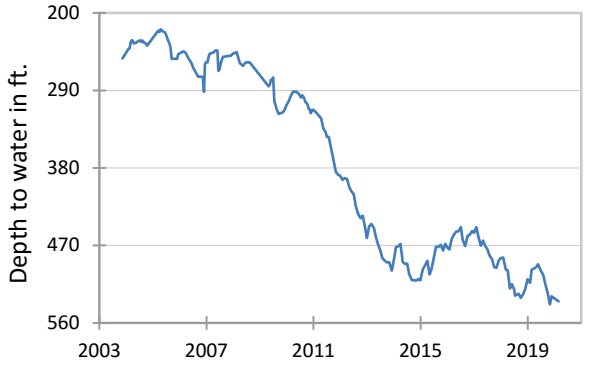
(7) State Well #58-04-816
Near Salado, Bell County
Edwards (Balcones Fault Zone) Aquifer



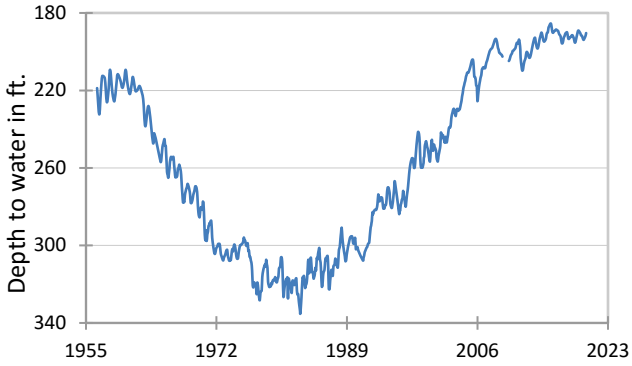
(9) State Well #34-30-907
Red Springs, Smith County
Carrizo-Wilcox Aquifer



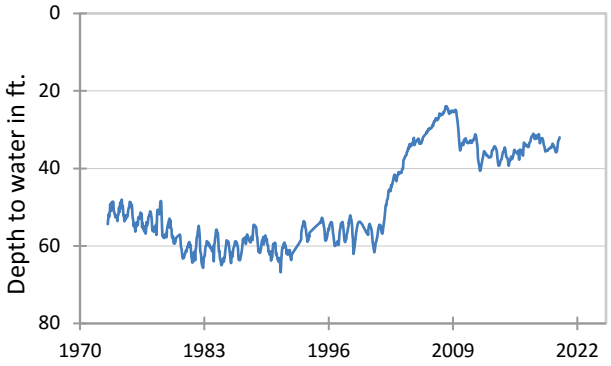
(10) State Well #77-38-103
Near Cotulla, La Salle County
Carrizo-Wilcox Aquifer



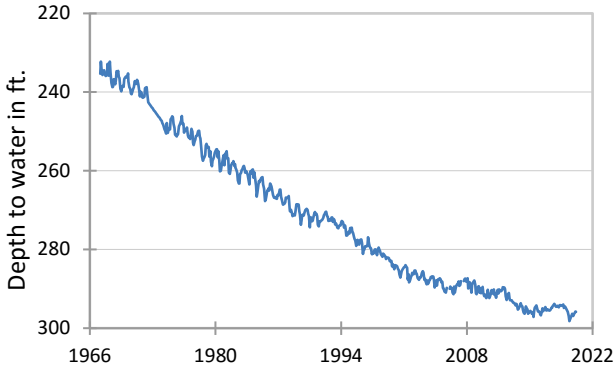
(11) State Well #65-14-409
Alief, Harris County
Evangeline Formation-Gulf Coast Aquifer



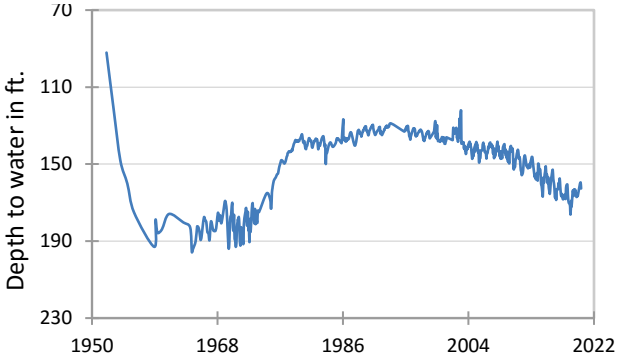
(12) State Well #80-17-502
Near Bloomington, Victoria County
Lissie Formation-Gulf Coast Aquifer



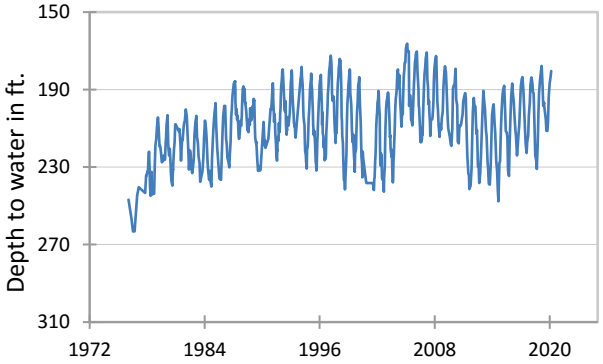
(13) State Well #49-13-301
El Paso, El Paso County
Hueco-Mesilla Bolson Aquifer



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



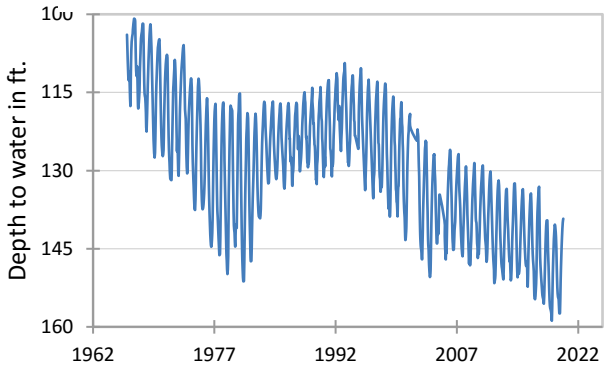
(15) State Well #52-16-802
Fort Stockton, Pecos County
Edwards-Trinity (Plateau) Aquifer



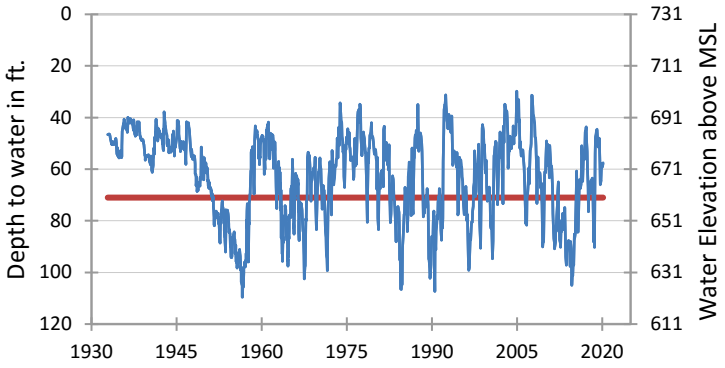
(16) State Well #55-12-134
Eldorado, Schleicher County
Trinity Aquifer

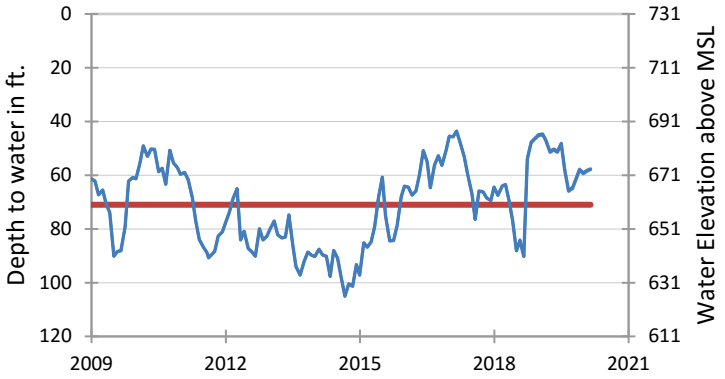
(17) State Well #21-35-748
Near O'Brien, Haskell County
Seymour Aquifer

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



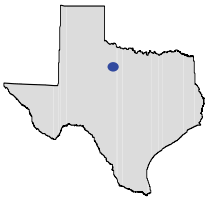
(8) State Well #68-37-203 (J-17)
San Antonio, Bexar County
Edwards (Balcones Fault Zone) Aquifer





The late February water-level measurement in this Edwards (Balcones Fault Zone) Aquifer well, elevation 731 feet above mean sea level, was 57.50 feet below land surface, or 673.10 feet above mean sea level. This was 0.50 feet above last month's measurement, 10.70 feet below last year's measurement and 10.86 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.

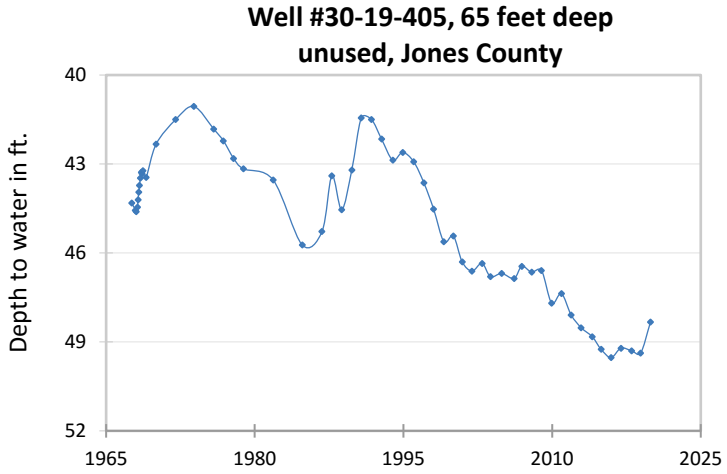


HYDROGRAPH OF THE MONTH

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

Seymour Aquifer

The Seymour Aquifer is a major aquifer that extends across north-central Texas. The aquifer consists of quaternary-age, alluvial sediments unconformably overlying Permian-age rocks. Water is contained in isolated patches of alluvium as much as 360 feet thick, composed of discontinuous beds of poorly sorted gravel, conglomerate, sand, and silty clay. Water ranges from fresh to slightly saline, containing from approximately 100 to 3,000 milligrams per liter of total dissolved solids. Throughout its extent, the aquifer is affected by nitrate in excess of primary drinking water standards. Excess chloride also occurs throughout the aquifer. Irrigation accounts for 90% of the groundwater usage, with the remainder used primarily for municipal supply. Predictive groundwater availability modeling based on future estimates of pumping indicates that average water levels are not expected to change by more than several feet with or without a drought of record. Water levels in localized areas are predicted to decline in the Seymour Aquifer by as much as 30 feet.



The initial measurement of 44.31 feet below land surface was recorded by the TWDB in August of 1967. Since then, near-annual measurements have been recorded by the TWDB. Water levels have fluctuated between 41 and 50 feet below land surface over the 52-year period of record. Overall, this record reveals a general downward trend in water level.

Far away (left), and close-up (right) images of well #30-19-405.