Texas Water Conditions Report

Texas Water Development Board

October 2019

RAINFALL

Rainfall observations from the National Oceanic and Atmospheric Administration – National Weather Service (NOAA-NWS) indicate that the rainfall in the Low Rolling Hills region, as well as the southern High Plains, Trans Pecos, the north and western portions of the Edwards Plateau, and the southern portion of the Southern climate division received little to no rainfall [yellow, orange and red shading, Figure 1(a)]. Portions of the northern High Plains, and the majority of the North Central, South Central, East, and Upper Coast received considerable rainfall, with some regions in east Texas receiving rainfall exceeding 15" [dark blue shading, Figure 1(a)]. Monthly rainfall for October was below-average [yellow and orange shading, Figure 1(b)], compared to historical data from 1981–2010, over much of the state. Exceptions being the north central High Plains where rainfall amounts were 3 to 4 times higher than average. Pockets of higher than average rainfall spanned the south central and north western parts of the Trans Pecos, the Lower Valley, East Texas and the Upper Coast.

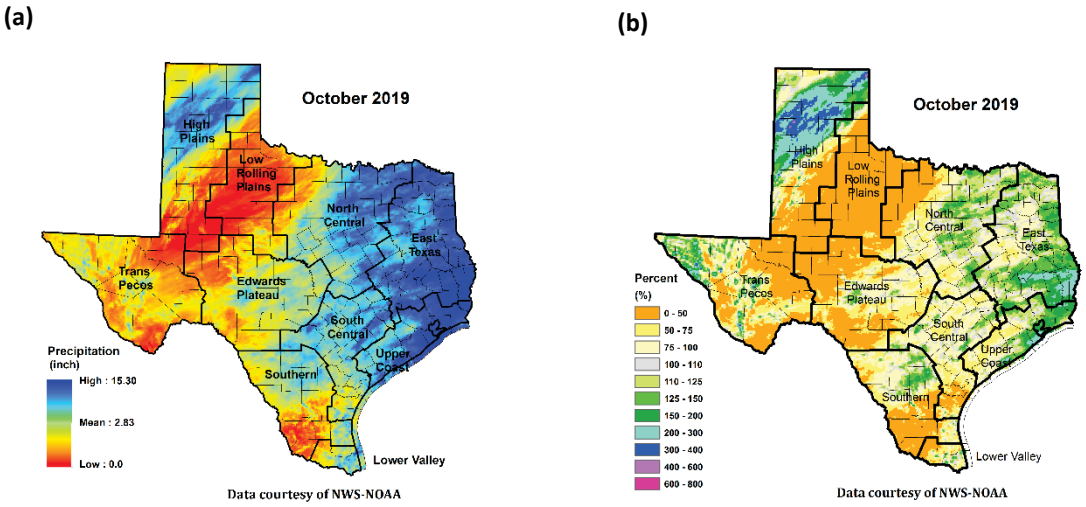

Figure 1: (a) Monthly accumulated rainfall, (b) Percent of normal rainfall

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RESERVOIR STORAGE

At the end of October 2019, total conservation storage* in 118 of the state's major water supply reservoirs plus Elephant Butte Reservoir in New Mexico was 25.7 million acre-feet or 80 percent of total conservation storage capacity (Figure 2). This is approximately 0.3 million acre-feet less than a month ago and approximately 1.6 million acre-feet less than end-October 2018.

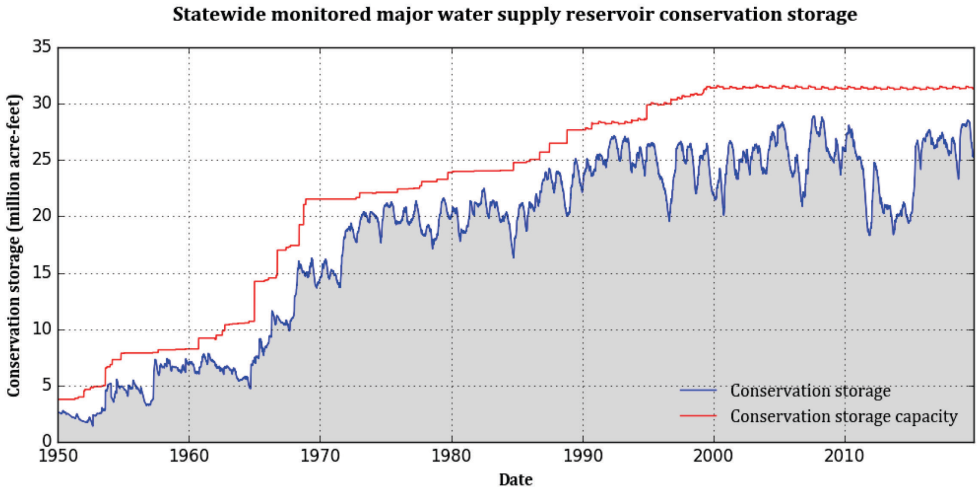

Figure 2: Statewide reservoir conservation storage

Out of 118 reservoirs in the state, 9 reservoirs held 100 percent of conservation storage capacity (Figure 3). Additionally, 42 were above 90 percent full. Nine reservoirs [E.V. Spence (27 percent full), Falcon (23 percent full), Greenbelt (20 percent full), J.B. Thomas (26 percent full), Mackenzie (12 percent full), O. C. Fisher (11 percent full), Palo Duro Reservoir (7 percent full), and White River (20 percent full)] remained below 30 percent full. Elephant Butte Reservoir (located in New Mexico) was at 22 percent full.

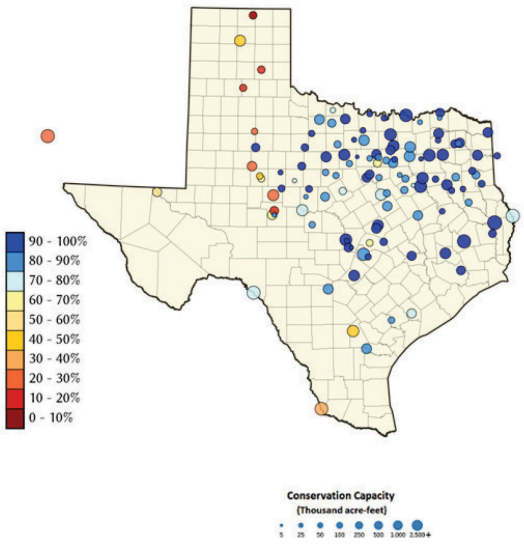

Figure 3: Reservoir conservation storage at end-October expressed as percent full (%)

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 Upper Coast (86.1 percent full), East Texas (89.3 percent full), North Central (90.8 percent full), South Central (87.9 percent full), and Edwards (70.9 percent full) climate divisions (Figure 3). Conservation storage in the Low Rolling Plains climate division was abnormally low (65.2 percent full). Storage in the High Plains and the Trans Pecos climate divisions was severely low (34.9 and 27.7 percent full, respectively). Storage in the Southern climate division was moderately low (39.9 percent full). Combined conservation storage by river basin or sub-basin depicts a similar picture (Figure 4). Storage in basins/sub-basins in the North Central, Eastern, and South-Central regions of the state was normal to high (>70 percent full). The High Plains, Trans Pecos and Southern River Basin had severely low storage, the Low Rolling Plains had abnormally low storage.

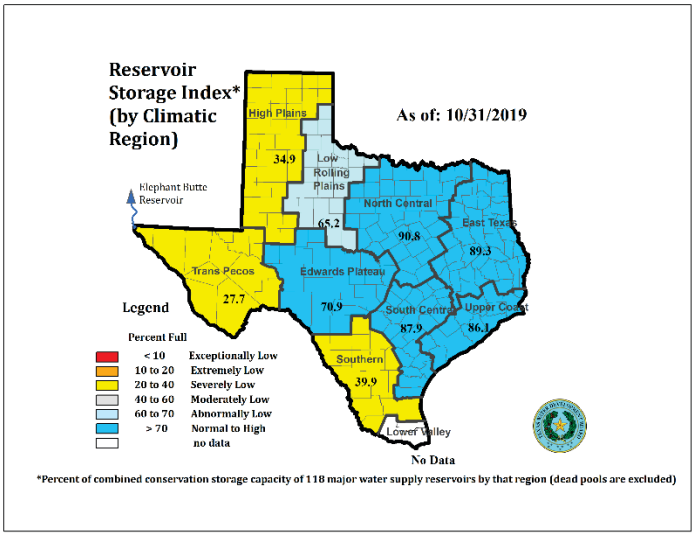

Figure 3: Reservoir Storage Index* by climate division at 10/31/2019

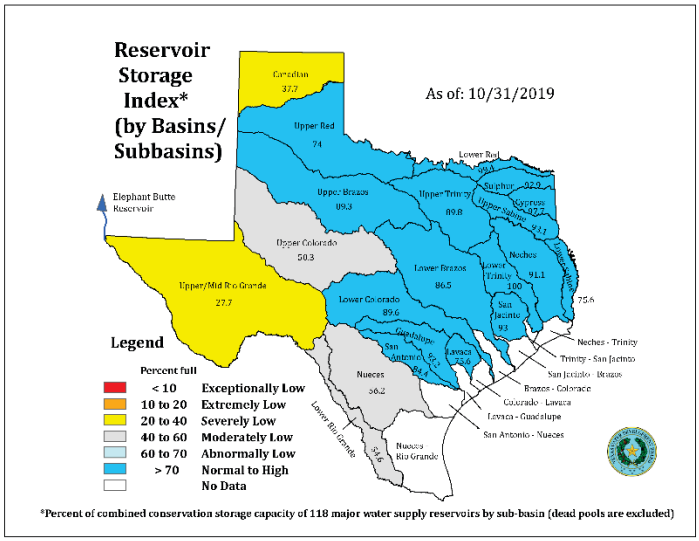

Figure 4: Reservoir Storage Index by river basin/sub-basin at 10/31/2019

*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-October		Storage change from end-Sept. 2019		Storage change from end-Oct. 2018	
	(acre-feet)	(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)
Abilene, Lake	7,900	5,142	65	-484	-6	-2,758	-35
Alan Henry Reservoir	96,207	84,222	88	-2,438	-3	-1,652	-2
*Amistad Reservoir (Texas & Mexico)	1,840,849	1,380,672	75	-9,842	-1	117,512	6
*Amistad Reservoir (Texas)	3,275,532	1,624,177	50	8,810	0	-169,330	-5
Amon G Carter, Lake	19,266	17,888	93	-667	-3	-1,378	-7
Aquilla Lake	43,243	36,553	85	-414	-1	-6,690	-15
Arlington, Lake	40,188	38,165	95	5,799	14	-2,023	-5
Arrowhead, Lake	230,359	202,110	88	-7,346	-3	-28,249	-12
Athens, Lake	29,503	27,688	94	69	0	-1,102	-4
*Austin, Lake	23,972	22,497	94	-275	-1	-214	-1
B A Steinhagen Lake	66,961	60,869	91	-3,892	-6	-1,013	-2
Bardwell Lake	46,122	40,583	88	-150	0	-5,539	-12
Belton Lake	435,225	408,973	94	-10,155	-2	-26,252	-6
Benbrook Lake	85,648	50,089	58	-5,928	-7	-35,559	-42
Bob Sandlin, Lake	192,417	185,631	96	1,483	1	-6,786	-4
Bonham, Lake	11,027	8,880	81	-221	-2	-2,147	-19
Brady Creek Reservoir	28,808	24,706	86	-958	-3	-4,102	-14
Bridgeport, Lake	366,236	308,935	84	-14,462	-4	-54,509	-15
*Brownwood, Lake	128,839	109,130	85	-3,721	-3	-19,709	-15
Buchanan, Lake	860,607	774,068	95	-9,614	-1	-42,836	-5
Caddo, Lake	29,898	29,898	100	0	0	0	0
Canyon Lake	378,781	358,152	95	-6,392	-2	-20,629	-5
Cedar Creek Reservoir in Trinity	644,686	582,932	90	-5,855	-1	-61,754	-10
Champion Creek Reservoir	41,580	27,735	67	-825	-2	571	1
Cherokee, Lake	40,094	37,527	94	1,125	3	-1,662	-4
Choke Canyon Reservoir	662,820	310,451	47	-8,545	-1	-32,621	-5
*Cisco, Lake	29,003	25,490	88	-583	-2	1,740	6
Coleman, Lake	38,075	33,317	88	-1,007	-3	-4,758	-12
Colorado City, Lake	31,040	23,955	77	-966	-3	-7,085	-23
*Coleto Creek Reservoir	30,758	13,973	45	-622	-2	-1,479	-5
Conroe, Lake	410,988	374,330	91	547	0	-36,658	-9
Corpus Christi, Lake	256,062	205,808	80	-9,348	-4	-50,254	-20
Crook, Lake	9,195	8,366	91	153	2	-829	-9
Cypress Springs, Lake	66,756	66,756	100	1,480	2	0	0
E. V. Spence Reservoir	517,272	141,810	27	-5,153	-1	15,156	3
Eagle Mountain Lake	179,880	164,222	91	991	1	-15,658	-9
Elephant Butte Reservoir (Texas)	852,491	188,159	22	2,814	0	157,008	18
Elephant Butte Reservoir (Total Storage)	1,973,358	435,553	22	6,514	0	363,445	18
*Falcon Reservoir (Texas & Mexico)	1,551,007	472,848	30	-4,019	0	-270,984	-17
*Falcon Reservoir (Texas)	2,646,817	620,202	23	-21,875	-1	-436,036	-16
Fork Reservoir, Lake	605,061	559,924	93	-6,502	-1	-38,804	-6
Fort Phantom Hill, Lake	70,030	60,534	86	-3,312	-5	-9,496	-14
Georgetown, Lake	36,823	23,937	65	-476	-1	-12,886	-35
Graham, Lake	45,288	38,719	85	-1,734	-4	-6,569	-15
Granbury, Lake	132,949	127,081	96	946	1	-5,134	-4

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	(acre-feet)	(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)
Continued							
Granger Lake	51,822	50,924	98	202	0	-898	-2
Grapevine Lake	164,703	157,846	96	5,580	3	-6,857	-4
Greenbelt Lake	59,968	11,998	20	240	0	-383	-1
*Halbert, Lake	6,033	4,918	82	105	2	-767	-13
Hords Creek Lake	8,443	6,887	82	-297	-4	1,440	17
Houston County Lake	17,113	17,113	100	679	4	0	0
Houston, Lake	130,147	129,134	99	7,953	6	1,345	1
Hubbard Creek Reservoir	313,298	277,207	88	-9,983	-3	-30,320	-10
Hubert H Moss Lake	24,058	23,403	97	-182	-1	-655	-3
Inks, Lake	13,962	12,810	92	-30	0	15	0
J. B. Thomas, Lake	199,931	52,176	26	-3,420	-2	-24,972	-12
Jacksonville, Lake	25,670	24,559	96	136	1	-295	-1
Jim Chapman Lake (Cooper)	260,332	231,557	89	-4,835	-2	-28,775	-11
Joe Pool Lake	175,358	156,990	90	-140	0	-18,368	-10
Kemp, Lake	245,307	202,810	83	-7,115	-3	-42,497	-17
Kickapoo, Lake	86,345	72,131	84	-4,410	-5	-14,214	-16
Lavon Lake	406,388	326,034	80	-5,229	-1	-80,354	-20
Leon, Lake	27,762	23,790	86	-490	-2	-3,972	-14
Lewisville Lake	563,228	522,945	93	-2,084	0	-40,283	-7
Limestone, Lake	203,780	172,097	84	-3,297	-2	-26,503	-13
*Livingston, Lake	1,785,348	1,785,348	100	68,310	4	0	0
*Lost Creek Reservoir	11,950	11,006	92	-184	-2	-944	-8
Lyndon B Johnson, Lake	115,249	110,027	95	-365	0	668	1
Mackenzie Reservoir	46,450	5,396	12	-95	0	-523	-1
Marble Falls, Lake	6,901	6,825	99	-60	-1	32	0
Martin, Lake	75,726	61,948	82	-843	-1	-11,324	-15
Medina Lake	254,823	214,963	84	-10,045	-4	-8,126	-3
Meredith, Lake	500,000	207,480	41	7,209	1	17,107	3
Millers Creek Reservoir	26,768	23,342	87	-1,252	-5	-3,426	-13
*Mineral Wells, Lake	5,273	4,620	88	-154	-3	-653	-12
Monticello, Lake	34,740	28,286	81	224	1	-1,686	-5
Mountain Creek, Lake	22,850	22,850	100	0	0	0	0
Murvaul, Lake	38,285	36,045	94	167	0	-2,240	-6
Nacogdoches, Lake	39,522	35,577	90	421	1	-3,444	-9
Nasworthy	9,615	8,220	85	-74	-1	-323	-3
Navarro Mills Lake	49,827	40,613	82	-436	-1	-9,214	-18
New Terrell City Lake	8,583	8,205	96	110	1	-378	-4
Nocona, Lake (Farmers Crk)	21,444	19,525	91	-519	-2	-1,919	-9
North Fork Buffalo Creek Reservoir	15,400	11,659	76	-658	-4	-3,741	-24
O' the Pines, Lake	241,363	241,363	100	-16,506	-7	9,940	4
O. C. Fisher Lake	119,445	13,220	11	-558	0	-4,302	-4
*O. H. Ivie Reservoir	554,340	385,506	70	-8,307	-1	156,411	28
Oak Creek Reservoir	39,210	34,282	87	-1,288	-3	-4,928	-13

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	(acre-feet)	(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)
Continued							
Palestine, Lake	367,303	334,514	91	2,177	1	-32,789	-9
Palo Duro Reservoir	61,066	3,972	7	-547	-1	3,563	6
Palo Pinto, Lake	26,766	20,570	77	-1,196	-4	-6,196	-23
Pat Cleburne, Lake	26,008	21,801	84	-686	-3	-4,207	-16
*Pat Mayse Lake	113,683	110,042	97	-56	0	-3,641	-3
Possum Kingdom Lake	538,139	508,346	94	-9,322	-2	-16,840	-3
Proctor Lake	54,762	40,929	75	-2,141	-4	-13,833	-25
Ray Hubbard, Lake	439,559	383,083	87	2,547	1	-56,476	-13
Ray Roberts, Lake	788,167	773,786	98	1,119	0	-14,381	-2
Red Bluff Reservoir	151,110	89,551	59	-393	0	-1,855	-1
Richland-Chambers Reservoir	1,087,839	968,951	89	-27,022	-2	-118,888	-11
Sam Rayburn Reservoir	2,857,077	2,604,001	91	-14,890	-1	-13,825	0
Somerville Lake	147,104	144,189	98	-2,806	-2	-2,915	-2
Squaw Creek, Lake	151,250	146,929	97	557	0	-4,321	-3
Stamford, Lake	51,570	43,746	85	-2,756	-5	-7,824	-15
Stillhouse Hollow Lake	227,771	214,266	94	-6,301	-3	-13,505	-6
Striker, Lake	16,934	16,934	100	706	4	0	0
Sweetwater, Lake	12,267	11,635	95	-263	-2	-257	-2
*Sulphur Springs, Lake	17,747	17,072	96	-456	-3	510	3
Tawakoni, Lake	871,685	823,426	94	-5,715	-1	-48,259	-6
Texana, Lake	159,566	120,656	76	-3,265	-2	-38,359	-24
Texoma, Lake (Texas & Oklahoma)	1,258,113	1,258,113	100	6,335	1	0	0
Texoma, Lake (Texas)	2,525,281	2,540,217	100	36,655	1	-731,410	-29
Toledo Bend Reservoir (Texas & Louisiar	2,236,450	1,691,033	76	21,253	1	-236,588	-11
Toledo Bend Reservoir (Texas)	4,472,900	3,386,166	76	42,506	1	-473,176	-11
Travis, Lake	1,113,348	948,647	85	-26,466	-2	-164,701	-15
Twin Buttes Reservoir	182,454	113,484	62	-3,646	-2	31,585	17
Tyler, Lake	72,073	62,335	86	-1,640	-2	-7,317	-10
Waco, Lake	189,418	159,442	84	-6,323	-3	-29,976	-16
Waxahachie, Lake	10,780	9,196	85	130	1	-1,584	-15
Weatherford, Lake	17,812	14,816	83	-379	-2	-2,996	-17
White River Lake	29,880	5,892	20	-402	-1	857	3
Whitney, Lake	553,344	431,519	78	1,967	0	-121,825	-22
Worth, Lake	33,495	28,196	84	710	2	-5,299	-16
Wright Patman Lake	310,382	135,069	100	-96,427	-71	0	0
STATEWIDE TOTOL							
STATEWIDE TOTAL	**32,176,580**	**25,712,501**	**80**	**-277,616**	**-1**	**-1,650,259**	**-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 the last month or last year.

Note:
Conservation storage capacity is the space available to store water above the lowest outlet and below the top of the conservation pool (some may have seasonal variations), or normal maximum operating level. Conservation storage refers to the volume of water held within the conservation storage space. Not included is any water in flood control storage (above the top of the conservation pool or normal maximum operating level) or any water in the dead pool storage. Conservation storage percentage is based on the conservation storage capacity of the reservoir and the conservation storage in the reservoir on date shown. Percent change is given by 100 * (current conservation storage - past conservation storage)/conservation storage capacity.

STREAMFLOW CONDITIONS

Computed runoff by hydrologic unit codes for October 2019 show that much of the state had near normal (25–75th percentile, green shading in Figure 6) streamflow. A couple of sub-basins in the upper Red, and Neches river basins had much above normal (> 90th percentile, dark blue shading in Figure 6) streamflow. Several basins including the Canadian, upper Red, northeastern San Jacinto and southern Neches and lower Sabine had above normal (76−90th percentile, light blue shading in Figure 6). Several sub-basins in the upper Rio Grande, upper and lower Colorado, and lower Brazos river basins had below normal (10–24th percentile, light brown shading in Figure 6) streamflow. Several sub-basins in the upper Colorado, and the upper Brazos and upper Colorado river basins had much below normal (less than the 10th percentile, dark brown shading in Figure 6) streamflow. A record low (red shading in Figure 6) was reached in the Nueces river basin.

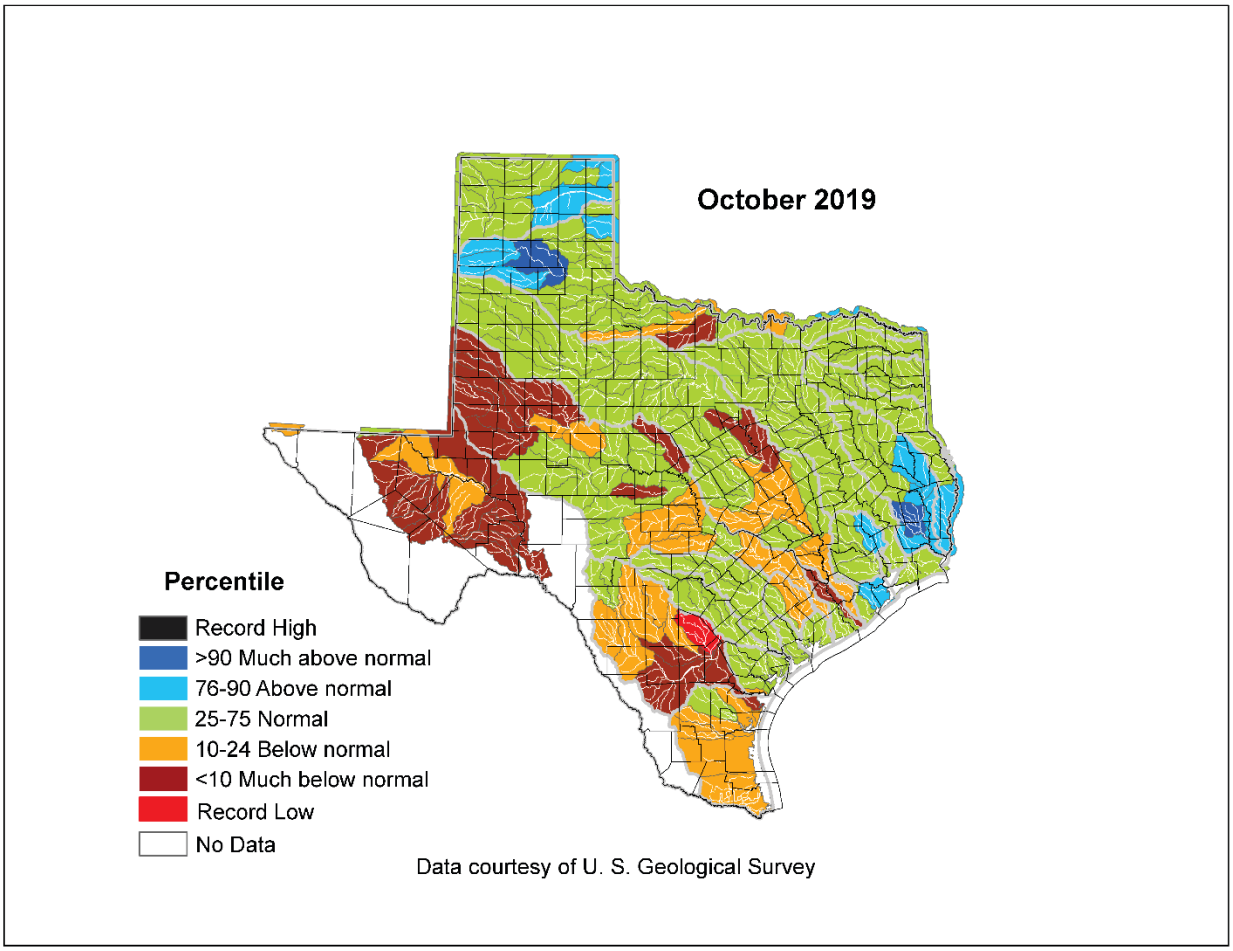


Figure 6: Runoff percentiles by the U.S. Geological Survey's Hydrologic Unit Codes

SOIL MOISTURE CONDITIONS

Root zone soil moisture at the end of October 2019 [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. Exceptions of low soil moisture [> 0.15 cubic meters of water per bulk cubic meter soil (m3/m3)] in areas of the eastern High Plains, the northeastern corner of the Trans Pecos, the southern portion of the Southern climate division and a narrow band running through the center of the South Central climate division and spreading through western 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)], the northeastern North Central region and a large portion of the Upper Coast. On a regional basis, and compared to conditions at the end of September 2019, soil moisture content increased [green to blue shading in Figure 7(b)]in the central regions of the High Plains, northwestern Trans Pecos, South Central, northern portions of the Southern, Upper Coast, East Texas, and North Central climate divisions. Soil moisture content decreased [brown and yellow shading in Figure 7(b)] in the southern regions of the High Plains, Rolling Plains, western portions of the Edwards, central and eastern portions of the Trans Pecos, northeastern Upper Coast, and in southern regions of the Southern climate division.

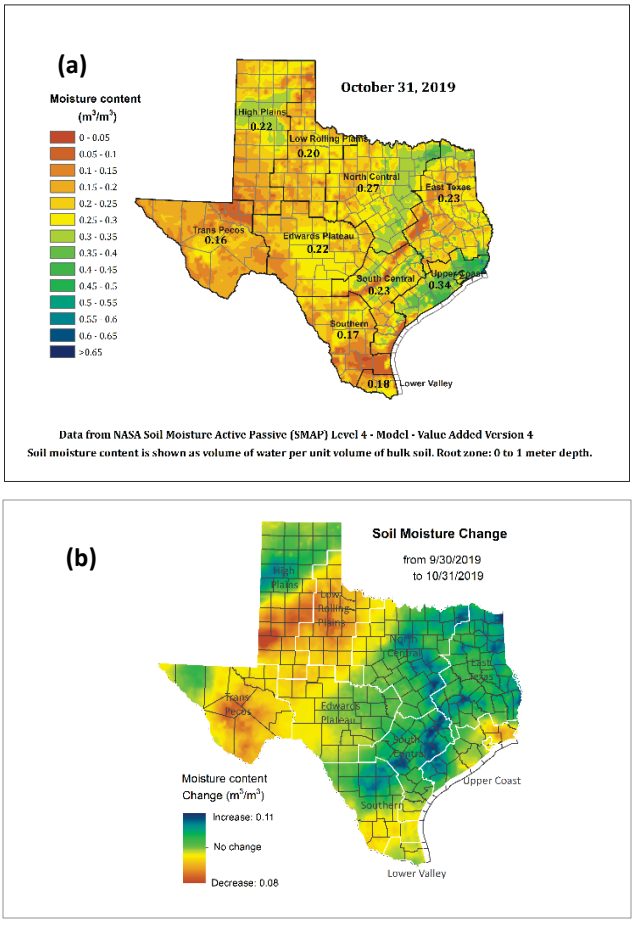
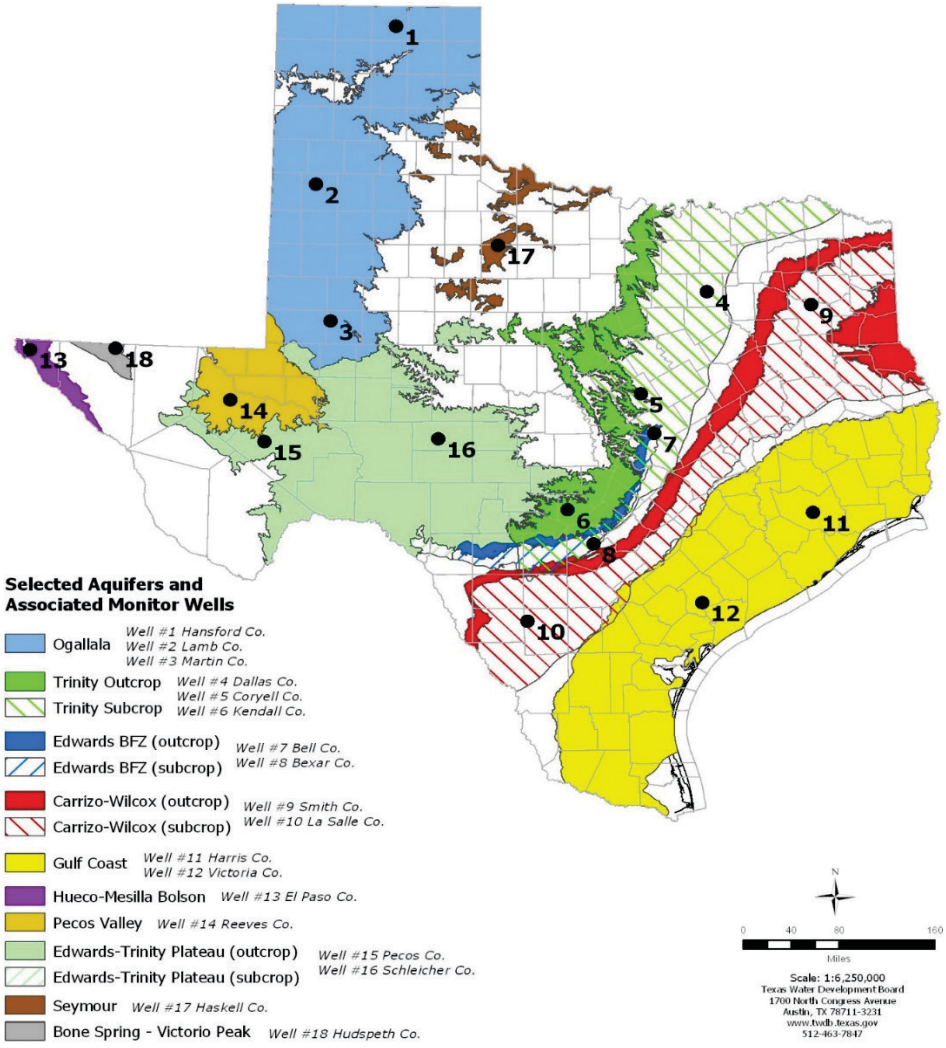


Figure 7: Root zone soil moisture conditions on October 31, 2019 (a) and the difference in root zone soil moisture from end-September 2019 and end-October 2019 (b)

October 2019 GROUNDWATER LEVELS IN OBSERVATION WELLS

Water-level measurements were available for 17 key monitoring wells in the state. Water levels rose in 8 monitoring wells since the beginning of October, ranging from an increase of 0.04 feet in the Victoria County Gulf Coast Aquifer well (#12 on map) to 6.58 feet in the Schleicher County Edwards-Trinity Plateau Aquifer (#16 on map). Water levels declined in 9 monitoring wells, ranging from a decline of -0.09 feet in the Lamb County Ogallala Aquifer well (#2 on map) to -13.03 feet in the La Salle County Carrizo-Wilcox Aquifer well (#10 on map). The J-17 well (#8 on map) in San Antonio recorded a water level of 64.60 feet below land surface or 666 feet above mean sea level. Water levels are 6.4 feet above the Stage 1 critical management level for the San Antonio portion of the Edwards (Balcones Fault Zone) Aquifer.

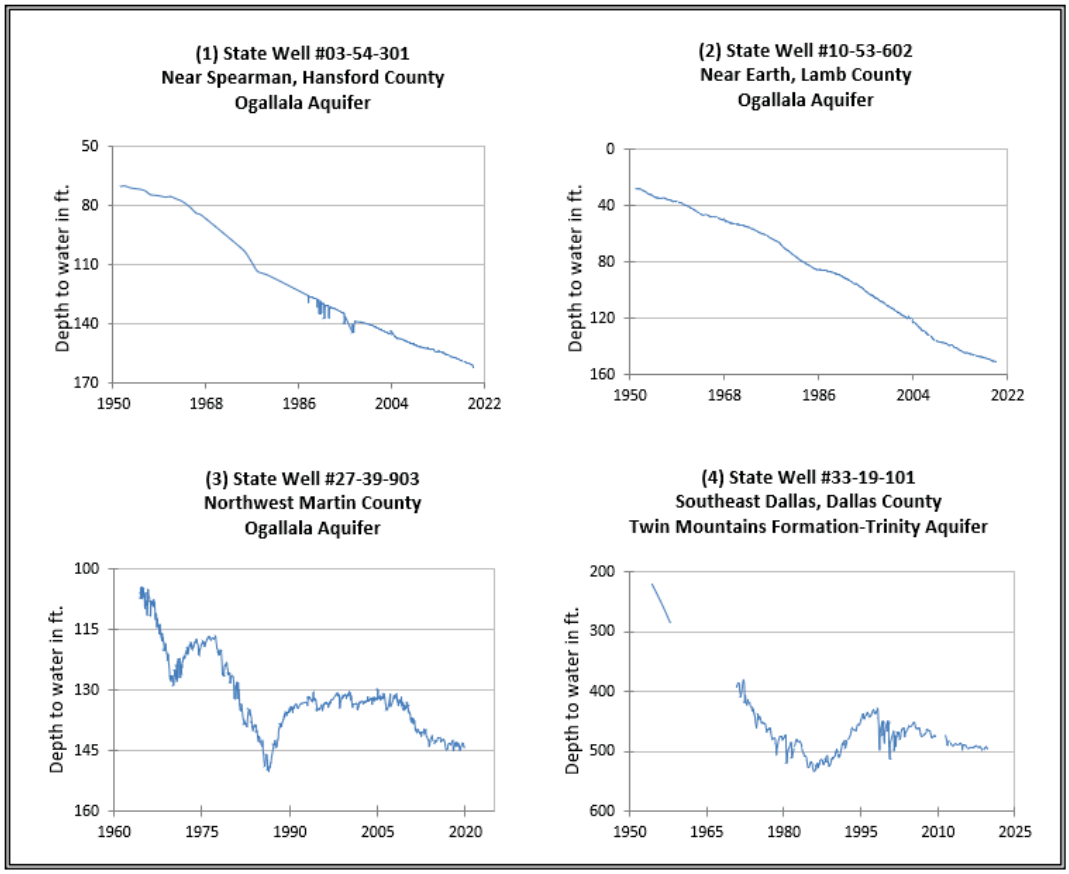


***Well numbers used in this publication on the aquifer map to indicate the monitoring well location (numbers 1–18) are different to the TWDB's seven-digit state well number.**

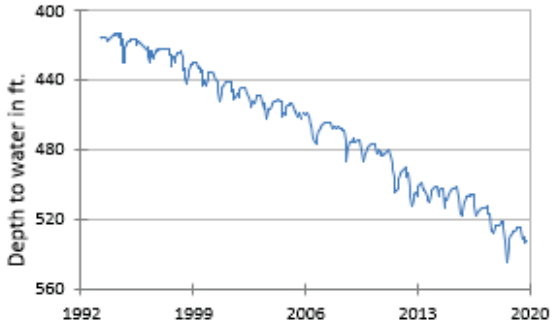
Monitoring Well	October	September	Month Change	Year Change	Historical Change	First Measured
(1) Hansford 0354301	161.81	160.65	*-1.16*	*-1.94*	*-91.69*	1951
(2) Lamb 1053602	150.53	150.44	*-0.09*	*-1.28*	*-122.36*	1951
(3) Martin 2739903	144.05	144.43	*0.38*	*0.02*	*-39.16*	1964
(4) Dallas 3319101	496.44	495.32	*-1.12*	*2.81*	*-274.44*	1954
(5) Coryell 4035404	532.18	532.82	*0.64*	*-4.05*	*-240.18*	1955
(6) Kendall 6802609	147.62	148.28	*0.66*	*-9.50*	*-87.62*	1975
(7) Bell 5804816	122.08	121.74	*-0.34*	*1.12*	*1.43*	2008
(8) Bexar 6837203	64.60	64.50	*-0.10*	*-17.09*	*-17.96*	1932
(9) Smith 3430907	437.54	438.05	*0.51*	*-1.25*	*-137.54*	1977
(10) La Salle 7738103	538.48	525.45	*-13.03*	*-11.70*	*-285.41*	2003
(11) Harris 6514409	193.91	193.34	*-0.57*	*0.07*	*-58.41**	1947**
(12) Victoria 8017502	35.75	35.79	*0.04*	*-0.45*	*-1.75*	1958
(13) El Paso 4913301	296.90	296.31	*-0.59*	*-2.06*	*-65.00*	1964
(14) Reeves 4644501	NA	166.34	*NA*	*NA*	*NA*	1952
(15) Pecos 5216802	206.14	211.36	*5.22*	*-4.20*	*40.74*	1976
(16) Schleicher 5512134	283.04	289.62	*6.58*	*-20.34*	*18.86*	2003
(17) Haskell 2135748	45.36	44.74	*-0.62*	*1.29*	*-2.36*	2002
(18) Hudspeth 4807516	151.18	157.39	*6.21*	*1.27*	*-47.26*	1966

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

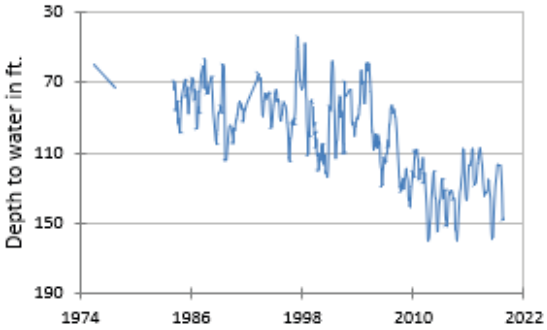
October 2019 OBSERVATION WELL HYDROGRAPHS



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

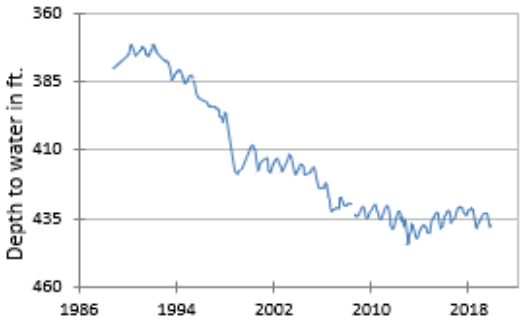


(6) State Well #68-02-609
Waring, Kendall County
Cow Creek Formation-Trinity Aquifer



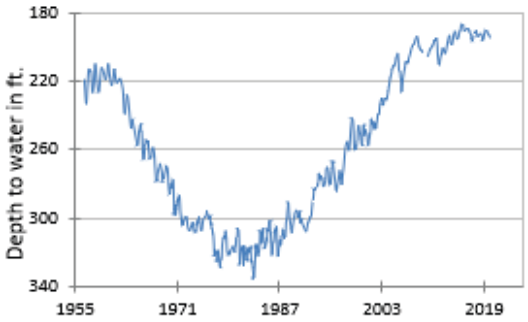
(7) State Well #58-04-816
Near Salado, Bell County
Edwards (Balcones Fault Zone) Aquifer

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

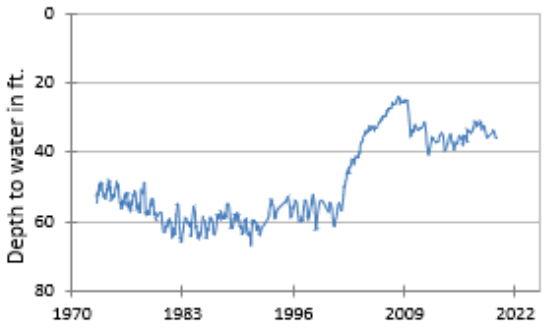


(10) State Well #77-38-103
Near Cotulla, La Salle County
Carrizo-Wilcox Aquifer

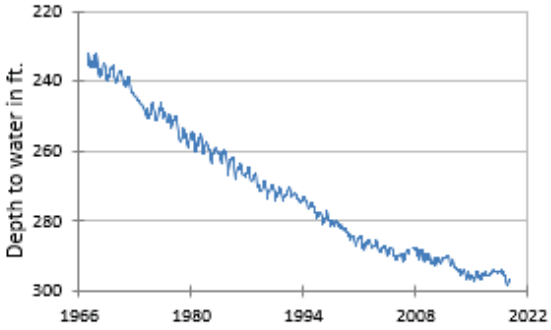
(11) State Well #65-14-409
Alief, Harris County
Evangeline Formation-Gulf Coast Aquifer



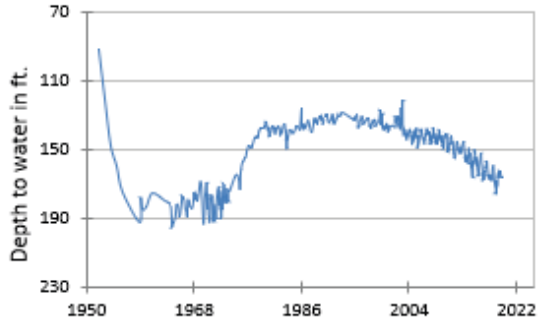
(12) State Well #80-17-502
Near Bloomington, Victoria County
Lissie Formation-Gulf Coast Aquifer



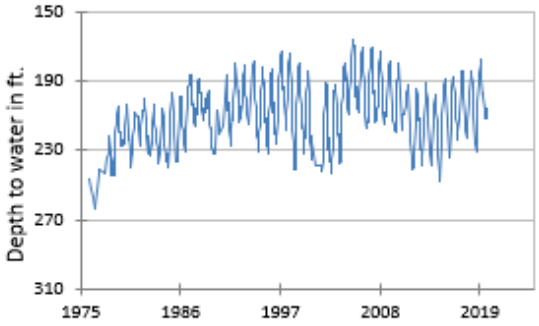
(13) State Well #49-13-301
El Paso, El Paso County
Hueco-Mesilla Bolson Aquifer



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

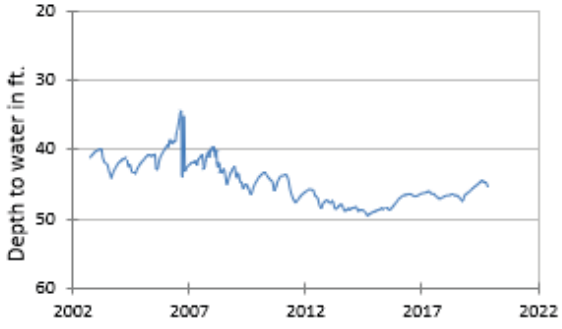


(15) State Well #52-16-802
Fort Stockton, Pecos County
Edwards-Trinity (Plateau) Aquifer

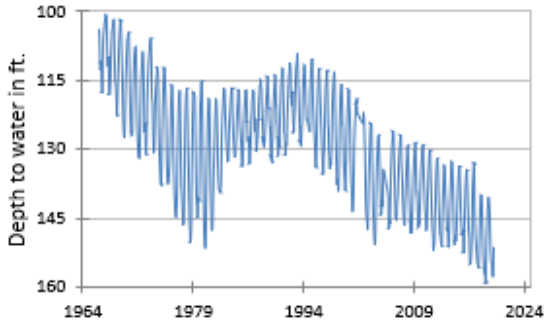


(16) State Well #55-12-134
Eldorado, Schleicher County
Trinity Aquifer

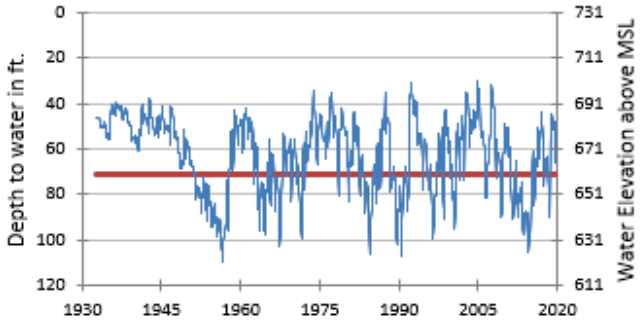
(17) State Well #21-35-748
Near O'Brien, Haskell County
Seymour Aquifer



(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 October water-level measurement in this Edwards (Balcones Fault Zone) Aquifer well, elevation 731 feet above mean sea level, was 64.60 feet below land surface, or 666 feet above mean sea level. This was 0.10 feet below last month's measurement, 17.09 feet below last year's measurement and 17.96 feet below the initial measurement recorded in 1932.

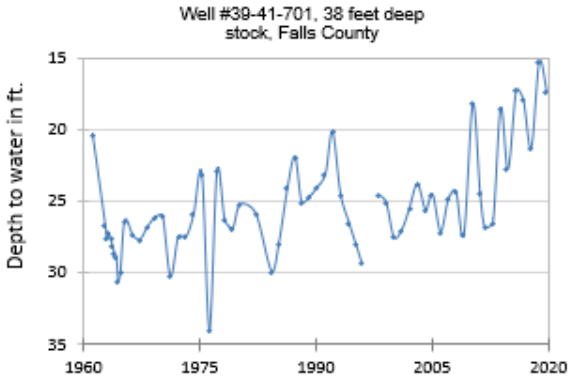
Water levels below the red line indicate periods in which Edwards Aquifer Authority Stage 1 drought restrictions are in effect.

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.

Brazos River Alluvium Aquifer

The Brazos River Alluvium Aquifer is a minor aquifer found along the Brazos River in east-central Texas. The aquifer is as much as 7 miles in width and extends along 350 river miles from southern Bosque County to eastern Fort Bend County. Groundwater is contained in alluvial floodplain and terrace deposits, although the latter is not an appreciable source of water. The floodplain alluvium consists of fine to coarse sand, gravel, silt, and clay. Water in the aquifer is very hard and fresh to slightly saline, generally containing less than 1,000 milligrams per liter of total dissolved solids but ranging to as much as 3,000 milligrams per liter in some wells. The aquifer is under water table conditions in most places and is used mainly for irrigation. Recharge to the aquifer occurs from rainfall on the aquifer and subsequent downward leakage to the saturated zone. Discharge from the aquifer occurs through evapotranspiration, discharge to the river, and withdrawals from wells. Some wells can yield as much as 1,000 gallons per minute, but the majority of the wells yield from 250 to 500 gallons per minute. No significant water level declines have occurred in the aquifer.



The initial measurement of 20.36 feet below land surface was recorded by the USGS in March of 1961. The USGS continued to collect measurements until October of 1964 when the Texas Water Development Board began measuring on a near-annual basis. The period of record reveals fluctuations in water level that typically lie between 20 and 30 feet below land surface. Water levels have generally risen over the past decade, with the highest level of 15.37 feet below land surface being recorded in October of 2018. This rise in water level may be attributed to less pumping for irrigation, more aquifer recharge, or a combination of the two.

Far away (left), and close-up (right) images of well #39-41-701.