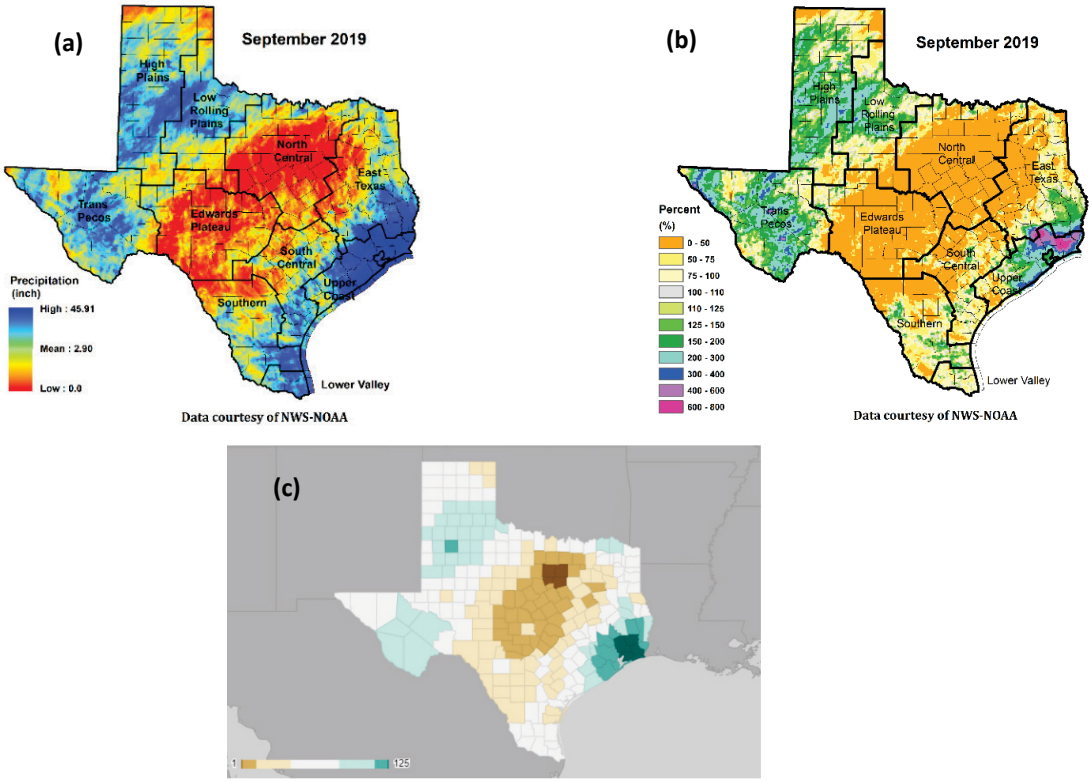
Texas Water Conditions Report

Texas Water Development Board

September 2019

RAINFALL

Rainfall observations from the National Oceanic and Atmospheric Administration – National Weather Service (NOAA-NWS) indicate that the central part of the state received little or no rainfall in September [orange and red shading, Figure 1(a)] while the western, southern and southeastern regions of the state received considerable rainfall [blue shading, Figure 1(a)]. Monthly rainfall for September was below-average, compared to historical data from 1981–2010, for much of the state [brown and yellow shading, Figure 1(b)], except for southeast Texas, the Trans Pecos, and the High Plains climate divisions [green, blue, and purple shading, Figure 1(b)]. Rainfall in portions of southeast Texas exceeded 40”. September rainfall records, released by the National Centers for Environmental Information, indicate that Jefferson, Chambers, Hardin, and Liberty counties had their wettest [dark green shading, Figure 1(c)], and Park, Hood, Tarrant, and Johnson counties had their driest [dark brown shading, Figure 1(c)], month on record (based on rainfall records from 1895−2019).



Source: https://www.ncdc.noaa.gov/cag/county/mapping/41/pcp/201909/1/rank

Figure 1: (a) Monthly accumulated rainfall, (b) Percent of normal rainfall, and (c) Precipitation rank for September 2019

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RESERVOIR STORAGE

At the end of September 2019, total conservation storage* in 118 of the state's major water supply reservoirs plus Elephant Butte Reservoir in New Mexico was 25.9 million acre-feet or 80 percent of total conservation storage capacity (Figure 2). This is approximately 0.7 million acre-feet less than a month ago and approximately 1 million acre-feet more than end-September 2018.

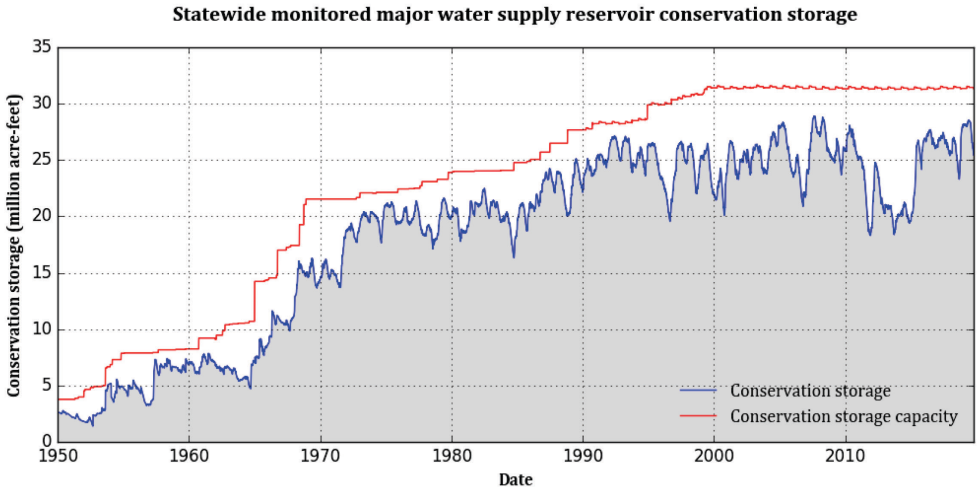

Figure 2: Statewide reservoir conservation storage

Out of 118 reservoirs in the state, 5 reservoirs held 100 percent of conservation storage capacity (Figure 3). Additionally, 57 were above 90 percent full. Eight reservoirs [E.V. Spence (28 percent full), Falcon (24 percent full), Greenbelt (20 percent full), J.B. Thomas (28 percent full), Mackenzie (12 percent full), O. C. Fisher (12 percent full), Palo Duro Reservoir (7 percent full), and White River (21 percent full)] remained below 30 percent full. Elephant Butte Reservoir (located in New Mexico) was at 22 percent full, which was down one percentage points from the end of August 2019.

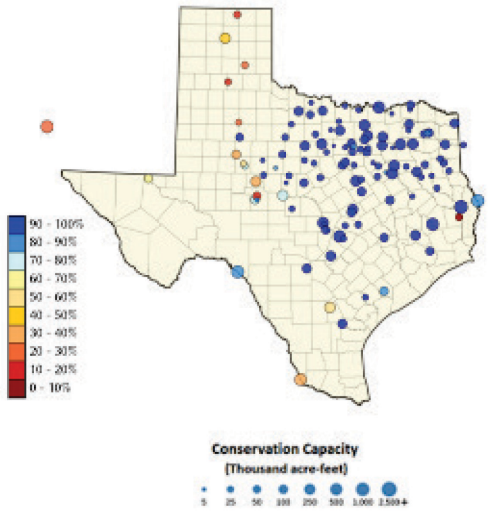

Figure 3: Reservoir conservation storage at end-September expressed as percent full (%)

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 (84.2 percent full), East Texas (89 percent full), North Central (91.6 percent full), South Central (90 percent full), and Edwards (71.7 percent full) climate divisions (Figure 3). Conservation storage in the Low Rolling Plains climate division was abnormally low (67.6 percent full). Storage in the High Plains and the Trans Pecos climate divisions was severely low (34.3 and 27.4 percent full, respectively). Storage in the Southern climate division was moderately low (40.9 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 Upper/Mid Rio Grande and the Canadian River Basin had severely low storage, the Upper Colorado, the Lower Rio Grande, and the Nueces had moderately low storage.

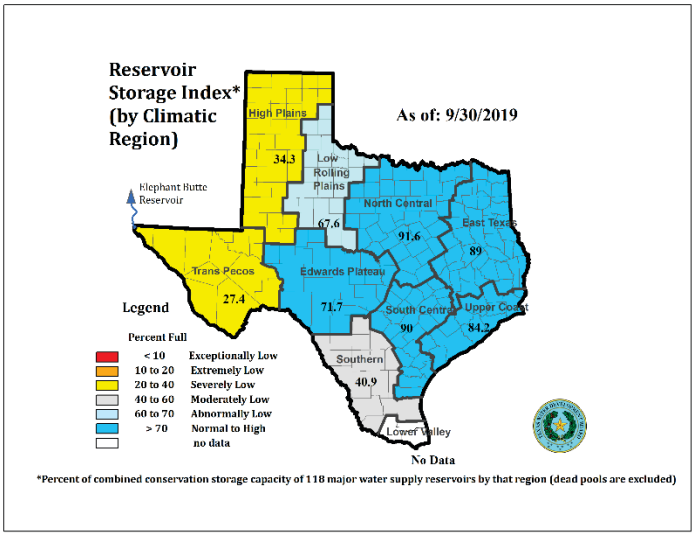

Figure 3: Reservoir Storage Index* by climate division at 9/30/2019

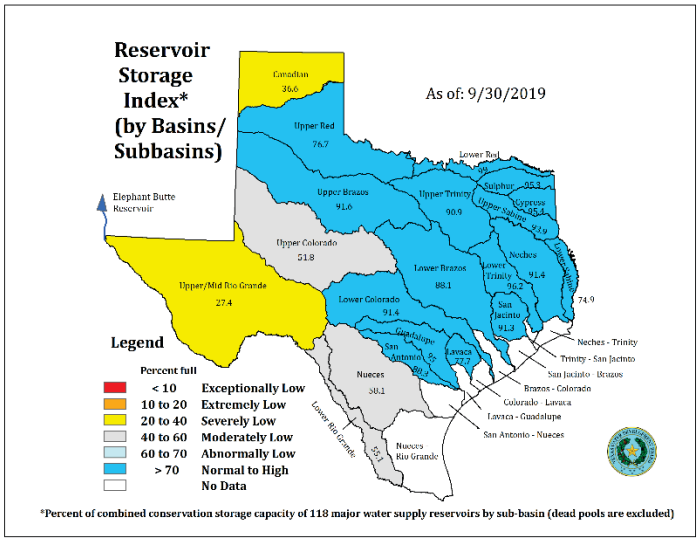

Figure 4: Reservoir Storage Index by river basin/sub-basin at 9/30/2019

*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-September		Storage change from end-Aug 2019		Storage change from end-Sep 2018	
	(acre-feet)	(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)
Abilene, Lake	7,900	5,631	71	-455	-6	2,003	25
Alan Henry Reservoir	96,207	86,660	90	-1,180	-1	10,292	11
*Amistad Reservoir (Texas & Mexico)	1,840,849	1,390,060	76	-40,741	-2	267,289	15
*Amistad Reservoir (Texas)	3,275,532	1,614,839	49	-22,081	-1	9,374	0
Amon G Carter, Lake	19,266	18,555	96	-711	-4	751	4
Aquilla Lake	43,243	37,051	86	-2,574	-6	-2,692	-6
Arlington, Lake	40,188	32,366	81	110	0	-7,822	-19
Arrowhead, Lake	230,359	209,456	91	-3,452	-1	23,645	10
Athens, Lake	29,503	27,619	94	-954	-3	721	2
*Austin, Lake	23,972	22,772	95	-170	-1	-417	-2
B A Steinhagen Lake	66,961	64,657	97	41,366	62	1,138	2
Bardwell Lake	46,122	40,733	88	-2,204	-5	-5,389	-12
Belton Lake	435,225	419,128	96	-10,534	-2	40,156	9
Benbrook Lake	85,648	56,017	65	-14,134	-17	-15,528	-18
Bob Sandlin, Lake	192,417	184,148	96	-2,708	-1	-4,113	-2
Bonham, Lake	11,027	9,188	83	-609	-6	-1,839	-17
Brady Creek Reservoir	28,808	25,664	89	-992	-3	10,809	38
Bridgeport, Lake	366,236	323,731	88	-18,683	-5	26,279	7
*Brownwood, Lake	128,839	113,092	88	-5,389	-4	27,424	21
Buchanan, Lake	860,607	783,682	96	-13,320	-2	97,504	12
Caddo, Lake	29,898	29,898	100	0	0	0	0
Canyon Lake	378,781	364,544	96	-9,643	-3	4,482	1
Cedar Creek Reservoir in Trinity	644,686	588,787	91	-17,447	-3	1,236	0
Champion Creek Reservoir	41,580	28,572	69	-385	-1	8,775	21
Cherokee, Lake	40,094	36,402	91	-1,333	-3	3,912	10
Choke Canyon Reservoir	662,820	318,996	48	-9,997	-2	64,495	10
*Cisco, Lake	29,003	26,051	90	-786	-3	4,819	17
Coleman, Lake	38,075	34,324	90	-1,071	-3	4,455	12
Colorado City, Lake	31,040	24,921	80	-1,382	-4	-3,821	-12
*Coleto Creek Reservoir	30,758	14,595	47	-521	-2	5,514	18
Conroe, Lake	410,988	373,783	91	-1,276	0	-4,934	-1
Corpus Christi, Lake	256,062	215,156	84	-12,515	-5	-40,906	-16
Crook, Lake	9,195	8,233	90	50	1	-962	-10
Cypress Springs, Lake	66,756	65,276	98	-481	-1	574	1
E. V. Spence Reservoir	517,272	146,963	28	-4,885	-1	78,738	15
Eagle Mountain Lake	179,880	163,231	91	-3,227	-2	-7,145	-4
Elephant Butte Reservoir (Texas)	852,491	185,345	22	-13,327	-2	159,999	19
Elephant Butte Reservoir (Total Storage)	1,973,358	429,039	22	-30,849	-2	370,367	19
*Falcon Reservoir (Texas & Mexico)	1,551,007	477,769	31	51,960	3	-170,203	-11
*Falcon Reservoir (Texas)	2,646,817	643,291	24	36,325	1	-233,038	-9
Fork Reservoir, Lake	605,061	566,426	94	-13,416	-2	8,991	1
Fort Phantom Hill, Lake	70,030	63,846	91	-2,717	-4	5,640	8
Georgetown, Lake	36,823	24,383	66	-5,275	-14	-2,355	-6
Graham, Lake	45,288	40,453	89	-1,486	-3	953	2
Granbury, Lake	132,949	126,135	95	-6,488	-5	-6,814	-5

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Name of lake or reservoir	Storage capacity	Storage at end-September		Storage change from end-Aug 2019		Storage change from end-Sep 2018	
	(acre-feet)	(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)
Continued							
Granger Lake	51,822	50,722	98	-1,100	-2	-1,100	-2
Grapevine Lake	164,703	152,266	92	-12,437	-8	-12,437	-8
Greenbelt Lake	59,968	11,836	20	-414	-1	-634	-1
*Halbert, Lake	6,033	4,813	80	-111	-2	-10	0
Hords Creek Lake	8,443	7,184	85	-276	-3	2,706	32
Houston County Lake	17,113	16,472	96	-345	-2	1,076	6
Houston, Lake	130,147	120,206	92	324	0	-9,941	-8
Hubbard Creek Reservoir	313,298	287,190	92	-9,604	-3	58,164	19
Hubert H Moss Lake	24,058	23,617	98	-150	-1	-397	-2
Inks, Lake	13,962	12,840	92	0	0	-534	-4
J. B. Thomas, Lake	199,931	55,596	28	-2,319	-1	-15,966	-8
Jacksonville, Lake	25,670	24,423	95	-659	-3	459	2
Jim Chapman Lake (Cooper)	260,332	236,392	91	-8,788	-3	-6,575	-3
Joe Pool Lake	175,358	157,130	90	-6,816	-4	-18,228	-10
Kemp, Lake	245,307	209,091	85	-25,326	-10	30,780	13
Kickapoo, Lake	86,345	76,541	89	-1,706	-2	8,615	10
Lavon Lake	406,388	331,263	82	-28,069	-7	-75,125	-18
Leon, Lake	27,762	24,280	87	-1,233	-4	5,185	19
Lewisville Lake	563,228	525,811	93	-20,805	-4	-37,417	-7
Limestone, Lake	203,780	175,394	86	-10,754	-5	23,188	11
*Livingston, Lake	1,785,348	1,717,797	96	-48,122	-3	-67,551	-4
*Lost Creek Reservoir	11,950	11,190	94	-236	-2	-74	-1
Lyndon B Johnson, Lake	115,249	110,392	96	-550	0	304	0
Mackenzie Reservoir	46,450	5,491	12	74	0	-459	-1
Marble Falls, Lake	6,901	6,885	100	44	1	54	1
Martin, Lake	75,726	62,791	83	-3,759	-5	1,548	2
Medina Lake	254,823	225,121	88	-11,549	-5	49,884	20
Meredith, Lake	500,000	200,854	40	-2,562	-1	20,235	4
Millers Creek Reservoir	26,768	24,594	92	-782	-3	-2,174	-8
*Mineral Wells, Lake	5,273	4,774	91	-264	-5	-44	-1
Monticello, Lake	34,740	28,010	81	-537	-2	-817	-2
Mountain Creek, Lake	22,850	22,850	100	0	0	0	0
Murvaul, Lake	38,285	35,878	94	-1,280	-3	3,226	8
Nacogdoches, Lake	39,522	35,176	89	-888	-2	1,478	4
Nasworthy	9,615	8,294	86	-37	0	597	6
Navarro Mills Lake	49,827	41,049	82	-3,093	-6	-1,758	-4
New Terrell City Lake	8,583	8,095	94	-324	-4	-488	-6
Nocona, Lake (Farmers Crk)	21,444	20,044	93	-313	-1	596	3
North Fork Buffalo Creek Reservoir	15,400	12,317	80	-591	-4	-606	-4
O' the Pines, Lake	241,363	257,869	96	-10,697	-4	41,524	15
O. C. Fisher Lake	119,445	13,778	12	-943	-1	4,277	4
*O. H. Ivie Reservoir	554,340	393,813	71	-11,228	-2	310,637	56
Oak Creek Reservoir	39,210	35,570	91	-1,294	-3	952	2

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	(acre-feet)	(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)
Continued							
Palestine, Lake	367,303	332,337	90	-16,762	-5	8,615	2
Palo Duro Reservoir	61,066	4,519	7	-747	-1	4,074	7
Palo Pinto, Lake	26,766	21,766	81	-1,868	-7	3,194	12
Pat Cleburne, Lake	26,008	22,487	86	-1,390	-5	-3,521	-14
*Pat Mayse Lake	113,683	110,098	97	-557	0	-3,585	-3
Possum Kingdom Lake	538,139	517,668	96	-8,045	-1	-20,471	-4
Proctor Lake	54,762	43,070	79	-5,527	-10	12,983	24
Ray Hubbard, Lake	439,559	380,536	87	-22,303	-5	-58,605	-13
Ray Roberts, Lake	788,167	772,667	98	-10,121	-1	-15,500	-2
Red Bluff Reservoir	151,110	89,944	60	-1,518	-1	4,269	3
Richland-Chambers Reservoir	1,087,839	995,973	92	-36,068	-3	-20,664	-2
Sam Rayburn Reservoir	2,857,077	2,612,504	91	-108,481	-4	143,944	5
Somerville Lake	147,104	146,887	100	-217	0	22,219	15
Squaw Creek, Lake	151,250	146,372	97	-1,863	-1	-4,878	-3
Stamford, Lake	51,570	46,502	90	-2,124	-4	-5,068	-10
Stillhouse Hollow Lake	227,771	220,630	97	-3,806	-2	39,435	17
Striker, Lake	16,934	16,228	96	-608	-4	303	2
Sweetwater, Lake	12,267	11,931	97	-163	-1	9,524	78
*Sulphur Springs, Lake	17,747	17,528	99	401	2	1,645	9
Tawakoni, Lake	871,685	829,141	95	-22,369	-3	-38,479	-4
Texana, Lake	159,566	123,921	78	-8,591	-5	-23,205	-15
Texoma, Lake (Texas & Oklahoma)	1,258,113	1,251,778	99	-6,335	-1	-6,335	-1
Texoma, Lake (Texas)	2,525,281	2,503,562	99	-29,143	-1	-302,129	-12
Toledo Bend Reservoir (Texas & Louisiar	2,236,450	1,676,076	75	-31,746	-1	-246,744	-11
Toledo Bend Reservoir (Texas)	4,472,900	3,356,251	75	-63,493	-1	-493,488	-11
Travis, Lake	1,113,348	975,113	88	-49,643	-4	227,250	20
Twin Buttes Reservoir	182,454	117,130	64	-6,077	-3	96,425	53
Tyler, Lake	72,073	63,975	89	-2,777	-4	866	1
Waco, Lake	189,418	165,765	88	-10,930	-6	2,798	1
Waxahachie, Lake	10,780	9,066	84	-394	-4	-1,554	-14
Weatherford, Lake	17,812	15,195	85	-955	-5	626	4
White River Lake	29,880	6,294	21	95	0	2,260	8
Whitney, Lake	553,344	429,552	78	-11,009	-2	-41,075	-7
Worth, Lake	33,495	27,486	82	-3,941	-12	192	1
Wright Patman Lake	310,382	231,496	100	0	0	9,499	4
STATEWIDE TOTOL							
STATEWIDE TOTAL	**32,300,210**	**25,991,633**	**80**	**-738,940**	**-2**	**999,241**	**3**

* 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 September 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, Sabine and Trinity river basins had much above normal (> 90th percentile, dark blue shading in Figure 6) streamflow. A couple of basins in the Canadian, the lower Red, lower Brazos, 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, upper Brazos, and lower Guadalupe river basins had below normal (10–24th percentile, light brown shading in Figure 6) streamflow. Several sub-basins in the upper Colorado, Lavaca, Guadalupe, and Nueces river basins had much below normal (less than the 10th percentile, dark brown shading in Figure 6) streamflow.

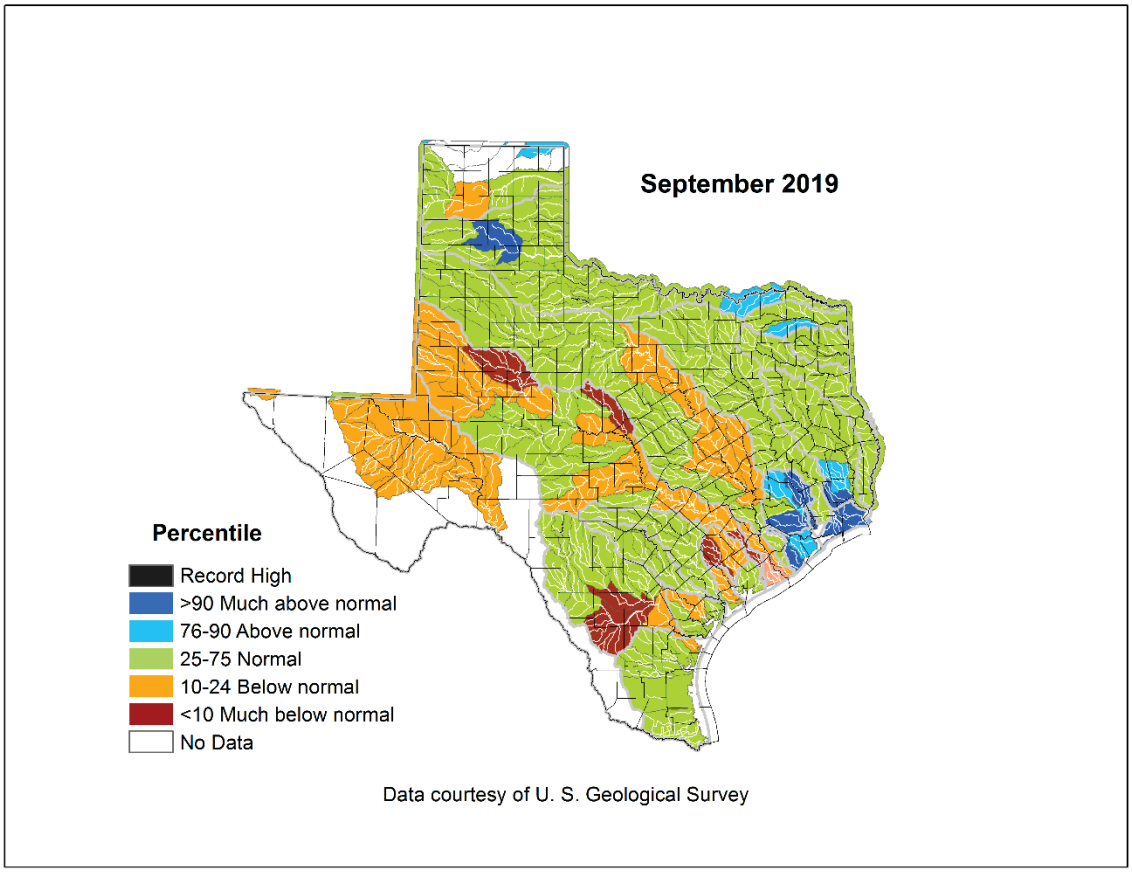


Figure 6: Runoff percentiles by the U.S. Geological Survey's Hydrologic Unit Codes

SOIL MOISTURE CONDITIONS

Root zone soil moisture at the end of September 2019 [Figure 7(a)] was moderate [> 0.20 cubic meters of water per bulk cubic meter soil (m^3/m^3)] in the Lower Rolling Plains, North Central, Edwards Plateau, and Upper Coast climate divisions. In all other climate divisions, root zone soil moisture was low, with regions in the northern Trans Pecos, South Central, Southern, and Lower Valley ranging from ~0.05–18 m^3/m^3 [dark brown sharing in Figure 7(a)]. On a regional basis, and compared to conditions at the end of August 2019, soil moisture content increased [green to blue shading in Figure 7(b)]in the central regions of the High Plains, Trans Pecos, Southern, and Upper Coast climate divisions. Soil moisture content decreased [brown and yellow shading in Figure 7(b)] in the northern regions of the High Plains, North Central, Edwards, and eastern regions of the East Texas climate divisions.

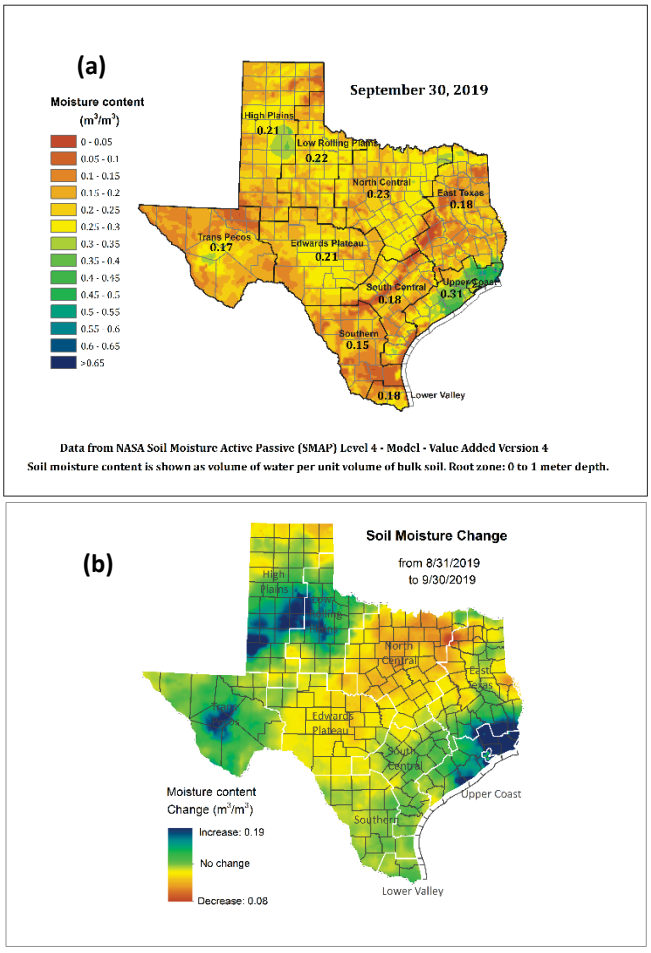
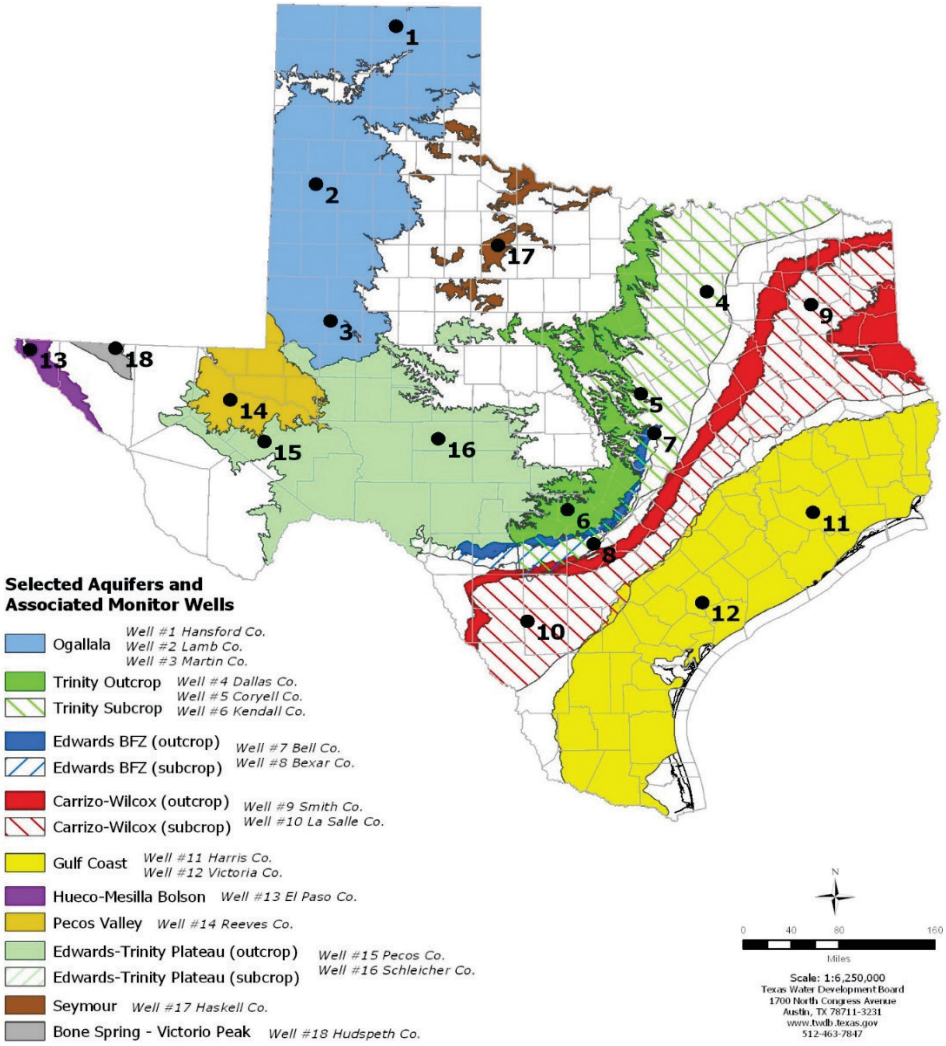


Figure 7: Root zone soil moisture conditions on September 30, 2019 (a) and the difference in root zone soil moisture from end-August 2019 and end-September 2019 (b)

September 2019 GROUNDWATER LEVELS IN OBSERVATION WELLS

Water-level measurements were available for all 18 key monitoring wells in the state. Water levels rose in 4 monitoring well since the beginning of September, ranging from an increase of 0.01 feet in the Hudspeth County Bone Spring – Victorio Peak Aquifer well (#18 on map) to 1.10 feet in the Bexar County Edwards (Balcones Fault Zone) Aquifer (#8 on map). Water levels declined in 13 monitoring wells, ranging from a decline of -0.03 feet in the Haskell County Seymour Aquifer well (#17 on map) to -15.34 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 64.50 feet below land surface or 666.10 feet above mean sea level. Water levels are 6.5 feet above the Stage 1 critical management level for the San Antonio portion of the Edwards (Balcones Fault Zone) Aquifer.

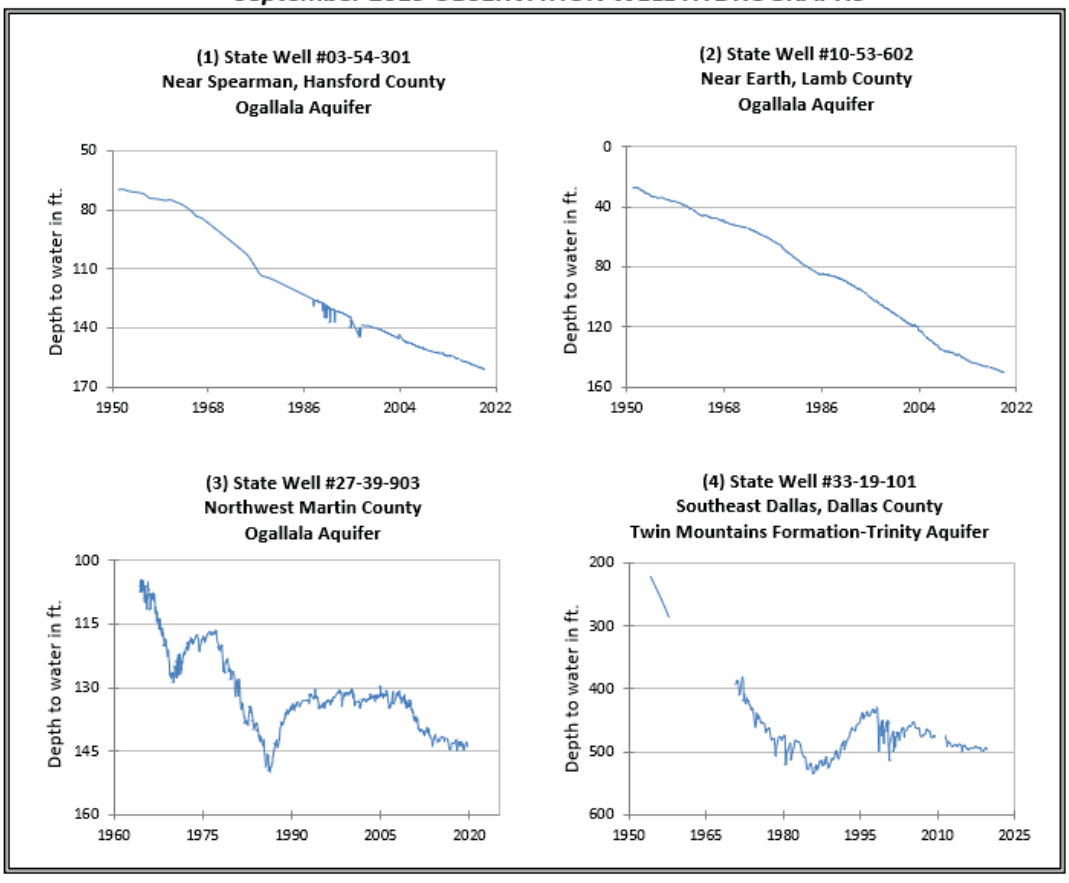


***Well numbers used in this publication on the aquifer map to indicate the monitoring well location (numbers 1–18) are different to the TWDB's seven-digit state well number.**

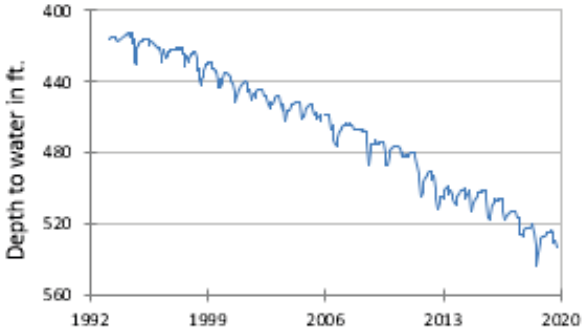
Monitoring Well	September	August	Month Change	Year Change	Historical Change	First Measured
(1) Hansford 0354301	160.65	160.56	*-0.09*	*-0.68*	*-90.53*	1951
(2) Lamb 1053602	150.44	150.31	*-0.13*	*-1.35*	*-122.27*	1951
(3) Martin 2739903	144.43	144.06	*-0.37*	*-1.43*	*-39.54*	1964
(4) Dallas 3319101	495.32	494.17	*-1.15*	*3.12*	*-273.32*	1954
(5) Coryell 4035404	532.82	529.65	*-3.17*	*-2.10*	*-240.82*	1955
(6) Kendall 6802609	148.28	132.94	*-15.34*	*-0.49*	*-88.28*	1975
(7) Bell 5804816	121.74	120.59	*-1.15*	*3.51*	*1.77*	2008
(8) Bexar 6837203	64.50	65.60	*1.10*	*-10.79*	*-17.86*	1932
(9) Smith 3430907	438.05	436.22	*-1.83*	*-0.81*	*-138.05*	1977
(10) La Salle 7738103	525.45	515.21	*-10.24*	*5.45*	*-272.38*	2003
(11) Harris 6514409	193.34	192.38	*-0.96*	*1.95*	*-57.84**	1947**
(12) Victoria 8017502	35.79	35.07	*-0.72*	*-0.36*	*-1.79*	1958
(13) El Paso 4913301	296.31	NA	*NA*	*-2.30*	*-64.41*	1964
(14) Reeves 4644501	166.34	166.68	*0.34*	*2.66*	*-74.25*	1952
(15) Pecos 5216802	211.36	211.38	*0.02*	*5.00*	*35.52*	1976
(16) Schleicher 5512134	289.62	283.71	*-5.91*	*19.87*	*12.28*	2003
(17) Haskell 2135748	44.74	44.71	*-0.03*	*2.67*	*-1.74*	2002
(18) Hudspeth 4807516	157.39	157.40	*0.01*	*1.26*	*-53.47*	1966

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

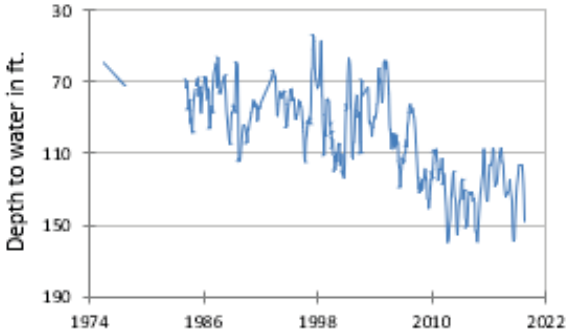
September 2019 OBSERVATION WELL HYDROGRAPHS



(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

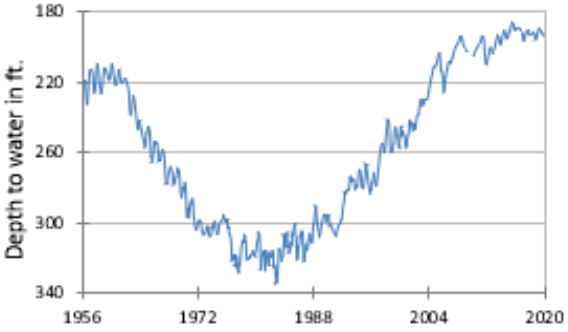


(7) State Well #58-04-816
Near Salado, Bell County
Edwards (Balcones Fault Zone) Aquifer

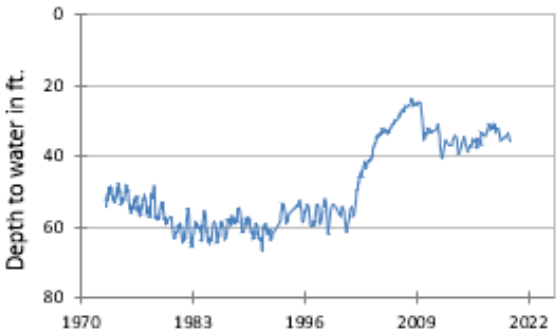
(9) State Well #34-30-907
Red Springs, Smith County
Carrizo-Wilcox Aquifer

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

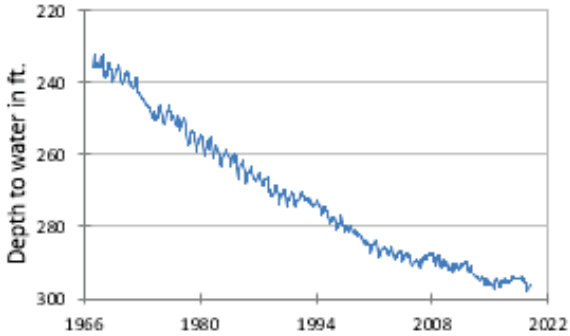
(11) State Well #65-14-409
Alief, Harris County
Evangeline Formation-Gulf Coast Aquifer



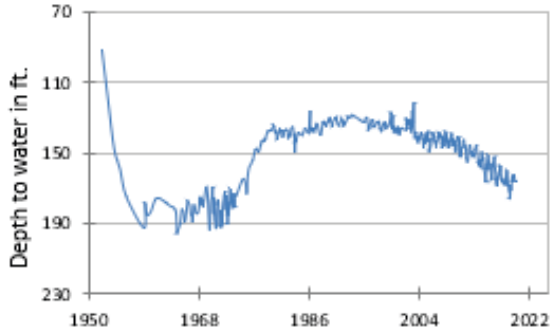
(12) State Well #80-17-502
Near Bloomington, Victoria County
Lissie Formation-Gulf Coast Aquifer



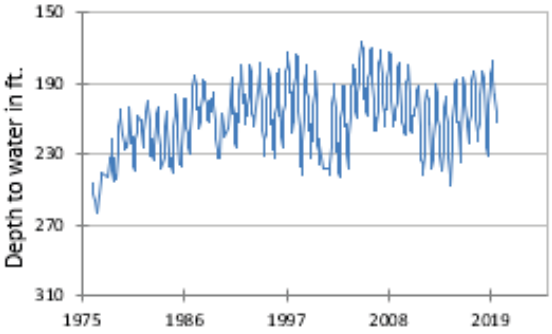
(13) State Well #49-13-301
El Paso, El Paso County
Hueco-Mesilla Bolson Aquifer



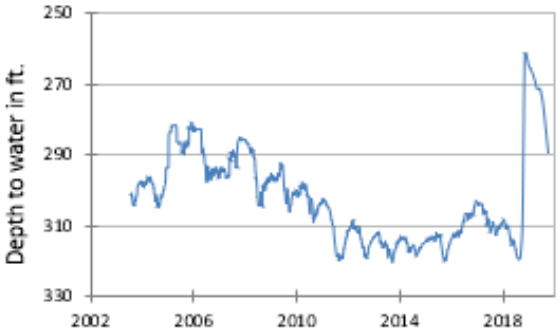
(14) State Well #46-44-501
Near Pecos, Reeves County
Pecos Valley Aquifer



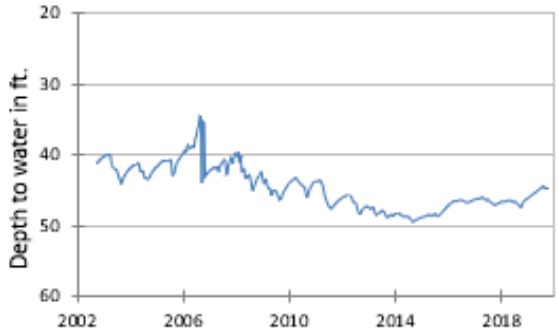
(15) State Well #52-16-802
Fort Stockton, Pecos County
Edwards-Trinity (Plateau) Aquifer



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

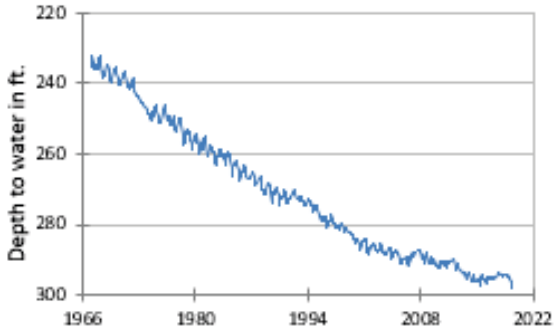


(17) State Well #21-35-748
Near O'Brien, Haskell County
Seymour Aquifer

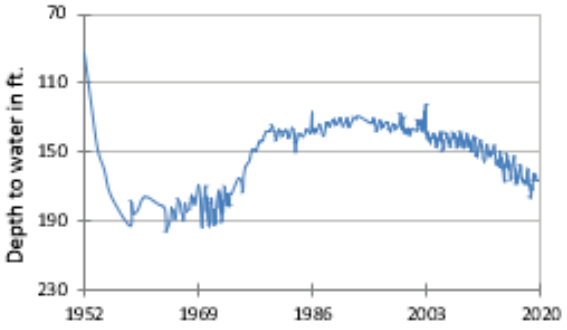


(12) State Well #80-17-502
Near Bloomington, Victoria County
Lissie Formation-Gulf Coast Aquifer

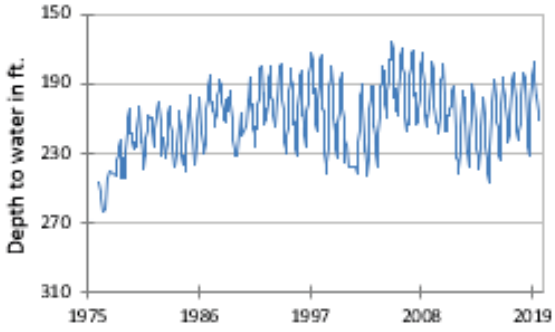
(13) State Well #49-13-301
El Paso, El Paso County
Hueco-Mesilla Bolson Aquifer



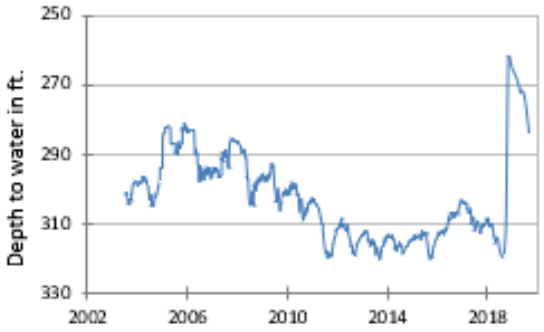
(14) State Well #46-44-501
Near Pecos, Reeves County
Pecos Valley Aquifer



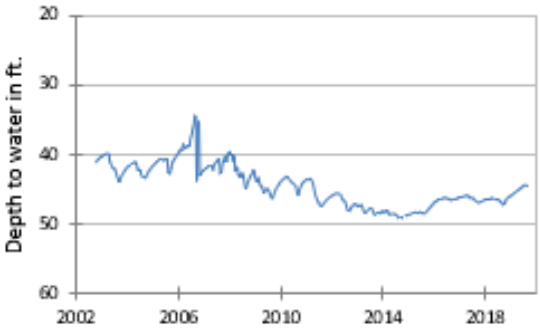
(15) State Well #52-16-802
Fort Stockton, Pecos County
Edwards-Trinity (Plateau) Aquifer



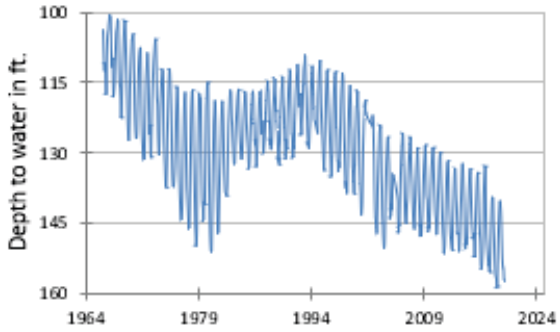
(16) State Well #55-12-134
Eldorado, Schleicher County
Trinity Aquifer



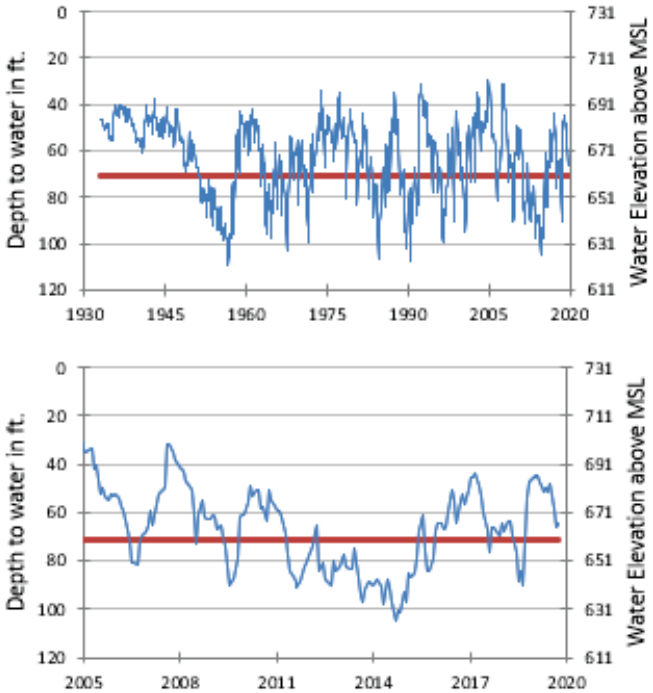
(17) State Well #21-35-748
Near O'Brien, Haskell County
Seymour Aquifer



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



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



The late September water-level measurement in this Edwards (Balcones Fault Zone) Aquifer well, elevation 731 feet above mean sea level, was 64.50 feet below land surface, or 666.10 feet above mean sea level. This was 1.10 feet above last month's measurement, 10.79 feet below last year's measurement and 17.86 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.

The Pecos Valley Aquifer is a major aquifer located in West Texas. Water bearing sediments include alluvial and windblown deposits in the Pecos River Valley. These sediments fill several structural basins, the largest of which are the Pecos Trough in the west and Monument Draw Through in the east. Thickness of the alluvial fill reaches 1,500 feet, and freshwater saturated thickness averages 250 feet. The water quality is highly variable with the water being typically hard, and generally better in the Monument Draw Trough than in the Pecos Trough. Total dissolved solids in groundwater from the Monument Draw Trough are usually less than 1,000 milligrams per liter. The aquifer is characterized by high levels of chloride and sulfate in excess of secondary drinking water standards, resulting from previous oil field activities. In addition, naturally occurring arsenic and radionuclides occur in excess of primary drinking water standards. More than 80 percent of groundwater pumped from the aquifer is used for irrigation, and the rest is withdrawn for municipal supplies, industrial use, and power generation.

Pecos Valley Aquifer

Well #46-48-806, 425 feet deep
unused, Pecos County

The initial measurement of 75.05 feet below land surface was recorded by the USGS in July of 1960. Roughly ten years later, the Texas Water Development Board recorded a water level of 77.42 feet below land surface. It wasn't until 1995 that the TWDB continued to take measurements in the well on a near-annual basis. The period of record reveals a general upward trend in water level with some fluctuations. Long-term variations in water levels are likely attributed to variations in water use patterns.

Far away (left), and close-up (right) images of well #46-48-806.