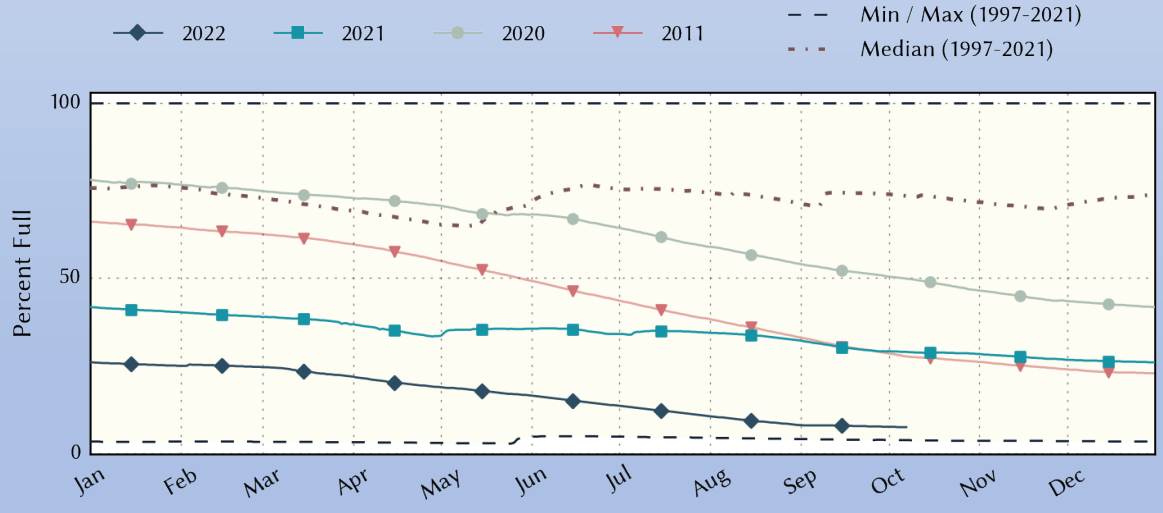
Texas Water Conditions Report

September 2022



Water News:

Pictured above, Medina Lake, located in the San Antonio River Basin, reached a conservation storage of 7.5% in September. That is just 5.1% more than the observed minimum conservation storage record for this reservoir, which occurred in May 2014. For more storage conservation data for Medina Lake and 118 other monitored reservoirs, visit https://www.waterdatafortexas.org/reservoirs/statewide.

RAINFALL

Little to no rain [yellow, orange, and red shading, Figure 1(a)] was seen across most of the state this month. However, some rainfall [light blue and dark blue shading, Figure 1(a)] was recorded in the Trans Pecos, southwestern Edwards Plateau, central North Central, scattered areas across East Texas, southern South Central, Southern, Lower Valley, and the Upper Coast climate divisions, with accumulations reaching 17.5 inches.

Compared to historical data from 1991–2020, much of the state received below average rainfall [yellow and orange shading, Figure 1(b)]. Areas of the Trans Pecos, Edwards Plateau, central North Central, areas of East Texas, southern South Central, Southern, and Lower Valley climate divisions received 125–200 percent of normal rainfall [light green, dark green shading, Figure 1(b)]. 200–400 percent of normal rainfall [light blue, dark blue shading, Figure 1(b)] was seen in the Trans Pecos, Edwards Plateau, and Southern climate divisions. Northwestern Trans Pecos, and southwestern Southern climate divisions received 400–600 percent of normal rainfall [(light pink shading, circled in red, Figure 1 (b)].

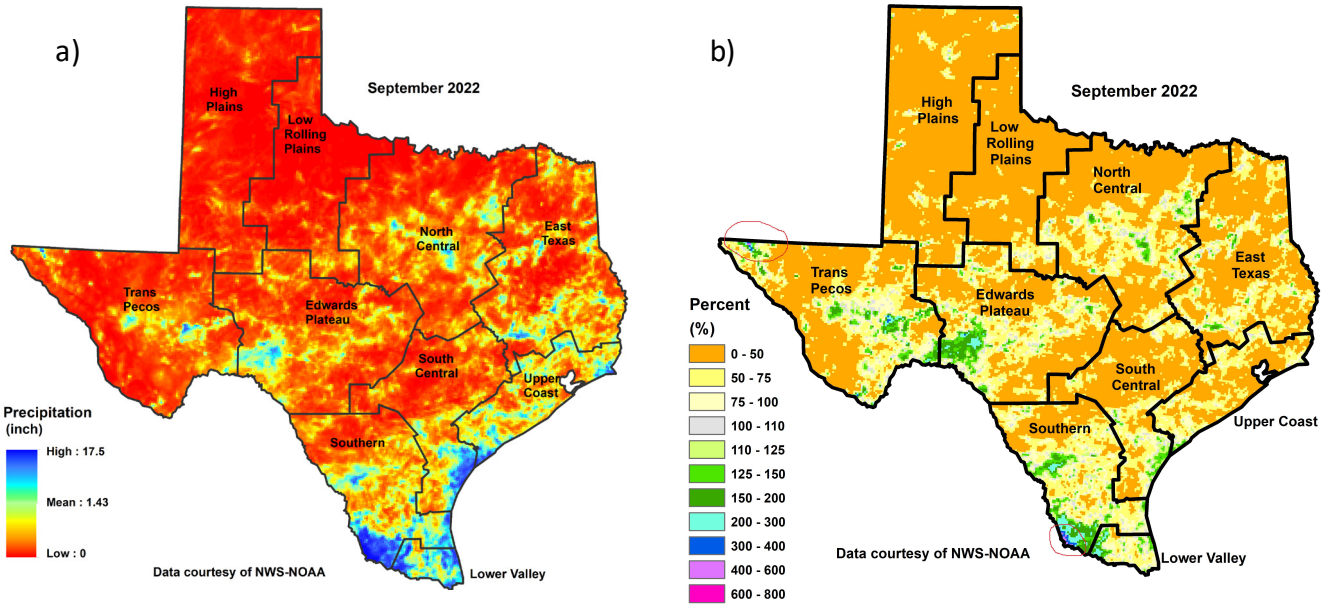
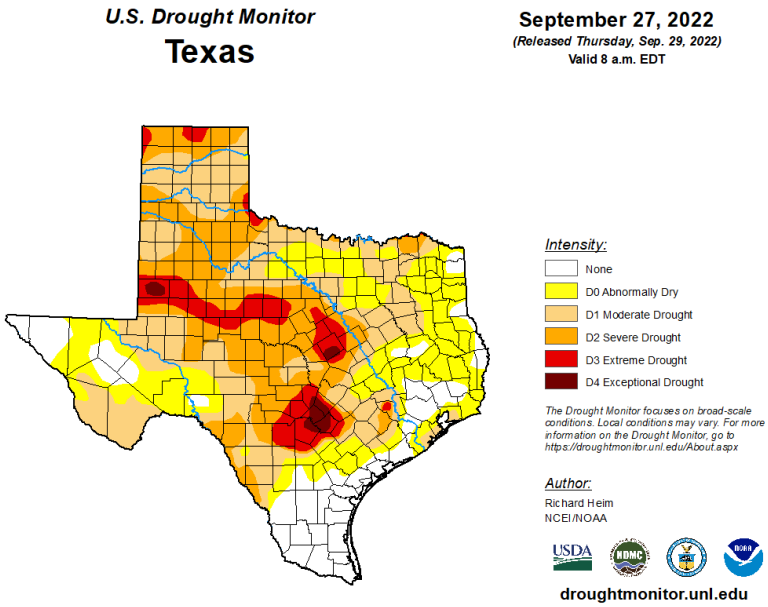


Figure 1: (a) Monthly accumulated rainfall and (b) Percent of normal rainfall

DROUGHT

The August rains allowed for a brief relief from drier conditions. Leading into October, 85% of the state was in the D0 (abnormally dry) through D4 (exceptional drought) categories (**Figure 2**). That is an increase of nearly 6% from September 6.



Date	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
2022-09-27	14.96	85.04	61.36	31.61	8.82	1.06

Figure 2. The percentage of drought in Texas according to the U.S. Drought Monitor map as of September 27, 2022.

RESERVOIR STORAGE

Out of 119 reservoirs in the state, 4 reservoirs held 100 percent conservation storage capacity (Figure 3). Additionally, 18 reservoirs were at or above 90 percent full. Nine reservoirs remained below 30 percent full: E.V. Spence (19.2 percent full), O. C. Fisher (3.4 percent full), J.B. Thomas (27.1 percent full), Falcon (16.1 percent full), Greenbelt (12.7 percent full), Mackenzie (6.4 percent full, Medina Lake (7.5 percent full), Palo Duro Reservoir (0.5 percent full), and the White River Lake (15.5 percent full). Elephant Butte Reservoir (New Mexico) was 5.5 percent full (Figure 3).

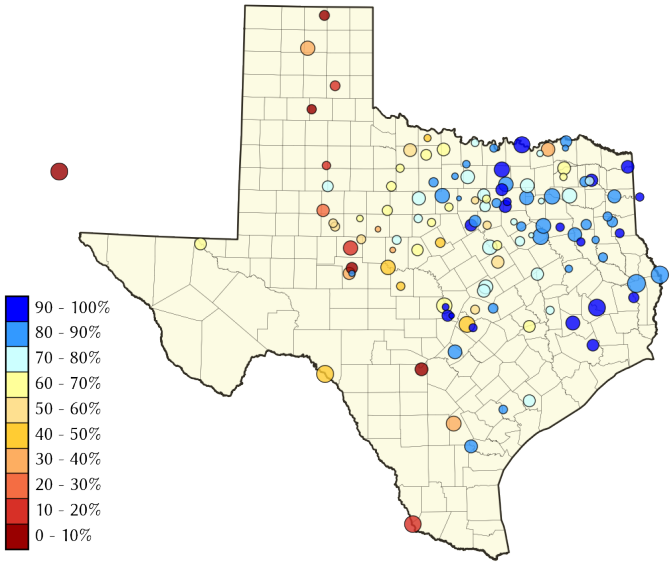


Figure 3. Reservoir conservation storage at end-September expressed as percent full (%)

Reservoir conservation storage by climate division was at or above normal [storage ≥70 percent full, Figure 4(a)] for East Texas (87.7 percent full), North Central (84.3 percent full), and the Upper Coast (85.8 percent full) climate divisions. Conservation storage was moderately low (Figure 4(a)) for the Low Rolling Plains (53.7 percent full), Edwards Plateau (41.9 percent full), and South Central (54.5 percent full) climate divisions. The High Plains (26.5 percent full) and Southern (24.8 percent full) climate divisions had severely low conservation storage (Figure 4(a)). The Trans Pecos (13.6 percent full) climate division had extremely low conservation storage (Figure 4(a)).

Combined conservation storage by river basin or sub-basin was normal to high (>70 percent full, Figure 4(b)) in the Lower Red, Sulphur, Cypress, Upper and Lower Sabine, Upper and Lower Trinity, Upper and Lower Brazos, Neches, San Jacinto, Guadalupe, and Lavaca river basins. The Lower Colorado, Upper Red and Nueces river basins had moderately low conservation storage (40–60 percent full, Figure 4(b)). The Canadian, Upper Colorado, and Lower Rio Grande river basins had severely low conservation storage (20–40 percent full, Figure 4(b)). The Upper/Mid Rio Grande river basin had extremely low conservation storage (10–20 percent full, Figure 4(b)) and the San Antonio river basin had exceptionally low conservation storage (< 10 percent full, Figure 4(b)).

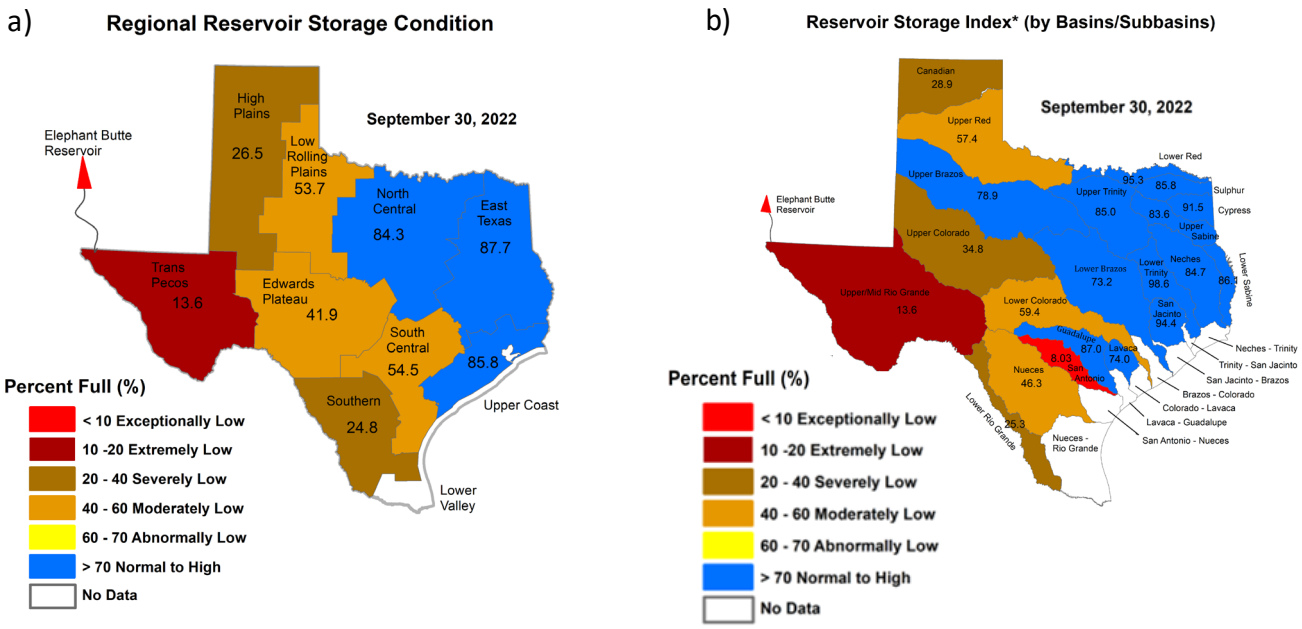


Figure 4: (a) Reservoir Storage Index* by climate division, and (b) Reservoir Storage Index* by basin/sub-basin.

*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 2022		Storage change from end-Aug 2022		Storage change from end-Sep 2021	
	(acre-feet)	(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)
Abilene, Lake	7,900	3,155	39.9	-294	-3.7	-3,715	-47.0
Alan Henry Reservoir	96,207	73,493	76.4	-762	0.0	-17,948	-18.7
*Amistad Reservoir (Texas & Mexico)	3,275,532	1,284,391	39.2	379,692	11.6	131,372	4.0
*Amistad Reservoir (Texas)	1,840,849	804,648	43.7	133,479	7.3	-155,661	-8.5
Amon G Carter, Lake	19,266	17,019	88.3	-689	-3.6	-2,247	-11.7
Aquilla Lake	43,243	28,967	67.0	-442	-1.0	-11,517	-26.6
Arlington, Lake	40,157	34,290	85.4	-5,867	-14.6	3,237	8.1
Arrowhead, Lake	230,359	160,135	69.5	-7,864	-3.4	-49,458	-21.5
Athens, Lake	29,503	26,848	91.0	-753	-2.6	-2,324	-7.9
*Austin, Lake	23,972	22,957	95.8	154	0.6	154	0.6
B A Steinhagen Lake	69,186	65,166	94.2	-198	0.0	98	0.1
Bardwell Lake	46,122	39,307	85.2	-1,515	-3.3	-5,010	-10.9
Belton Lake	435,225	316,484	72.7	-20,158	-4.6	-106,458	-24.5
Benbrook Lake	85,648	60,556	70.7	2,755	3.2	-4,222	-4.9
Bob Sandlin, Lake	192,417	178,703	92.9	-4,055	-2.1	-3,188	-1.7
Bois d'Arc Lake	367,609	134,449	36.6	-4,886	-1.3	no data	
Bonham, Lake	11,027	8,662	78.6	-642	-5.8	-199	-1.8
Brady Creek Reservoir	28,808	12,677	44.0	-187	0.0	-4,756	-16.5
Bridgeport, Lake	372,183	285,656	76.8	-7,264	-2.0	-74,332	-20.0
*Brownwood, Lake	130,868	84,586	64.6	-3,910	-3.0	-42,844	-32.7
Buchanan, Lake	822,207	533,580	64.9	-345	0.0	-227,641	-27.7
Caddo, Lake	29,898	29,898	100.0	0	0.0	0	0.0
Canyon Lake	378,781	321,778	85.0	-7,733	-2.0	-32,970	-8.7
Cedar Creek Reservoir in Trinity	644,686	519,694	80.6	-22,218	-3.4	-94,743	-14.7
Champion Creek Reservoir	41,580	24,306	58.5	-616	-1.5	-6,108	-14.7
Cherokee, Lake	40,094	34,293	85.5	-649	-1.6	-3,861	-9.6
Choke Canyon Reservoir	662,820	224,264	33.8	-4,034	0.0	-87,985	-13.3
*Cisco, Lake	29,003	21,285	73.4	-515	-1.8	-5,057	-17.4
Coleman, Lake	38,075	28,901	75.9	-708	-1.9	-8,094	-21.3
Colorado City, Lake	31,040	27,523	88.7	268	0.9	-2,579	-8.3
*Coleto Creek Reservoir	30,758	17,422	56.6	-402	-1.3	-6,651	-21.6
Conroe, Lake	417,577	378,870	90.7	-7,950	-1.9	-12,727	-3.0
Corpus Christi, Lake	256,062	219,422	85.7	21,367	8.3	1,487	0.6
Crook, Lake	9,195	7,419	80.7	-339	-3.7	-500	-5.4
Cypress Springs, Lake	66,756	59,109	88.5	-1,541	-2.3	-4,324	-6.5
E. V. Spence Reservoir	517,272	99,179	19.2	-2,759	0.0	-38,935	-7.5
Eagle Mountain Lake	179,880	141,347	78.6	-7,165	-4.0	-27,191	-15.1
Elephant Butte Reservoir (Texas)	852,491	47,166	5.5	6,541	0.8	-585	0.0
Elephant Butte Reservoir (Total Storage)	1,960,900	109,180	5.6	15,141	0.8	-1,355	0.0
*Falcon Reservoir (Texas & Mexico)	2,646,817	500,007	18.9	142,983	5.4	78,982	3.0
*Falcon Reservoir (Texas)	1,551,007	249,163	16.1	60,666	3.9	-65,579	-4.2
Fork Reservoir, Lake	605,061	450,632	74.5	-18,963	-3.1	-107,052	-17.7
Fort Phantom Hill, Lake	70,030	47,312	67.6	-1,723	-2.5	-20,507	-29.3
Georgetown, Lake	36,823	19,281	52.4	-1,193	-3.2	-5,725	-15.5
Gibbons Creek Reservoir	25,721	18,469	71.8	-847	-3.3	-954	-3.7
Graham, Lake	45,288	36,913	81.5	-1,260	-2.8	-4,338	-9.6
Granbury, Lake	132,949	115,191	86.6	-4,544	-3.4	-13,798	-10.4

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS							
Name of lake or reservoir	Storage capacity	Storage at end-September 2022		Storage change from end-Aug 2022		Storage change from end-Sep 2021	
	(acre-feet)	(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)
Continued							
Granger Lake	51,822	43,911	84.7	-671	-1.3	-7,829	-15.1
Grapevine Lake	163,064	159,667	97.9	-2,213	-1.4	1,481	0.9
Greenbelt Lake	59,968	7,640	12.7	-494	0.0	-3,033	-5.1
*Halbert, Lake	6,033	4,532	75.1	-87	-1.4	-477	-7.9
Hords Creek Lake	8,109	2,576	31.8	-90	-1.1	-1,084	-13.4
Houston County Lake	17,113	14,461	84.5	-641	-3.7	-2,266	-13.2
Houston, Lake	132,318	128,679	97.2	-3,639	-2.8	-3,639	-2.8
Hubbard Creek Reservoir	313,298	222,329	71.0	-6,953	-2.2	-74,161	-23.7
Hubert H Moss Lake	24,058	21,506	89.4	-647	-2.7	-1,315	-5.5
Inks, Lake	13,729	13,005	94.7	39	0.3	70	0.5
J. B. Thomas, Lake	199,931	54,136	27.1	-1,890	0.0	-34,254	-17.1
Jacksonville, Lake	25,670	23,442	91.3	-388	-1.5	-1,720	-6.7
Jim Chapman Lake (Cooper)	260,332	177,009	68.0	-16,051	-6.2	-58,045	-22.3
Joe Pool Lake	175,800	165,036	93.9	-1,440	0.0	-8,255	-4.7
Kemp, Lake	245,307	135,043	55.1	-14,715	-6.0	-107,671	-43.9
Kickapoo, Lake	86,345	52,593	60.9	-3,156	-3.7	-18,120	-21.0
Lavon Lake	406,388	298,639	73.5	-21,515	-5.3	-42,892	-10.6
Leon, Lake	27,762	17,558	63.2	-832	-3.0	-7,856	-28.3
Lewisville Lake	563,228	452,338	80.3	-29,229	-5.2	-87,389	-15.5
Limestone, Lake	203,780	150,718	74.0	-5,566	-2.7	-38,061	-18.7
*Livingston, Lake	1,741,867	1,698,476	97.5	-22,105	-1.3	-2,456	0.0
*Lost Creek Reservoir	11,950	10,725	89.7	-238	-2.0	-981	-8.2
Lyndon B Johnson, Lake	112,778	110,660	98.1	-833	0.0	959	0.9
Mackenzie Reservoir	46,450	2,989	6.4	-95	0.0	-768	-1.7
Marble Falls, Lake	7,597	7,161	94.3	-72	0.0	54	0.7
Martin, Lake	75,726	61,067	80.6	-3,293	-4.3	-7,949	-10.5
Medina Lake	254,823	19,176	7.5	-1,296	0.0	-54,832	-21.5
Meredith, Lake	500,000	159,988	32.0	-1,929	0.0	-24,395	-4.9
Millers Creek Reservoir	26,768	17,589	65.7	-1,119	-4.2	-7,659	-28.6
*Mineral Wells, Lake	5,273	4,334	82.2	-151	-2.9	-850	-16.1
Monticello, Lake	34,740	26,914	77.5	-822	-2.4	-703	-2.0
Mountain Creek, Lake	22,850	22,850	100.0	0	0.0	0	0.0
Murvaul, Lake	38,285	37,260	97.3	-1,025	-2.7	271	0.7
Nacogdoches, Lake	39,522	32,437	82.1	-1,514	-3.8	-3,995	-10.1
Nasworthy	9,615	8,331	86.6	49	0.5	209	2.2
Navarro Mills Lake	49,827	36,346	72.9	-2,626	-5.3	-9,417	-18.9
New Terrell City Lake	8,583	6,814	79.4	-315	-3.7	-1,239	-14.4
Nocona, Lake (Farmers Crk)	21,444	16,926	78.9	-548	-2.6	-3,248	-15.1
North Fork Buffalo Creek Reservoir	15,400	7,429	48.2	-757	-4.9	-6,311	-41.0
O' the Pines, Lake	268,566	231,078	86.0	-10,461	-3.9	-19,905	-7.4
O. C. Fisher Lake	115,742	3,958	3.4	-287	0.0	-3,671	-3.2
*O. H. Ivie Reservoir	554,340	231,511	41.8	-5,361	0.0	-82,196	-14.8
Oak Creek Reservoir	39,210	20,149	51.4	-813	-2.1	-8,819	-22.5

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS							
Name of lake or reservoir	Storage capacity	Storage at end-September 2022		Storage change from end-Aug 2022		Storage change from end-Sep 2021	
	(acre-feet)	(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)
Continued							
Palestine, Lake	367,303	316,933	86.3	-8,500	-2.3	-38,699	-10.5
Palo Duro Reservoir	61,066	275	0.5	-1	0.0	-402	0.0
Palo Pinto, Lake	26,766	16,696	62.4	-459	-1.7	-10,070	-37.6
Pat Cleburne, Lake	26,008	14,148	54.4	-740	-2.8	-8,534	-32.8
*Pat Mayse Lake	113,683	100,586	88.5	-4,597	-4.0	-5,530	-4.9
Possum Kingdom Lake	538,139	469,288	87.2	-1,114	0.0	-59,070	-11.0
Proctor Lake	54,762	25,529	46.6	-2,148	-3.9	-23,951	-43.7
Ray Hubbard, Lake	439,559	386,027	87.8	-15,618	-3.6	-20,799	-4.7
Ray Roberts, Lake	788,167	731,883	92.9	-18,028	-2.3	-42,183	-5.4
Red Bluff Reservoir	151,110	99,220	65.7	3,205	2.1	-12,562	-8.3
Richland-Chambers Reservoir	1,087,839	889,143	81.7	-26,182	-2.4	-144,150	-13.3
Sam Rayburn Reservoir	2,857,077	2,311,779	80.9	-82,732	-2.9	-327,387	-11.5
Somerville Lake	150,293	96,580	64.3	-10,006	-6.7	-50,466	-33.6
Squaw Creek, Lake	151,250	151,250	100.0	0	0.0	0	0.0
Stamford, Lake	51,570	34,220	66.4	-1,235	-2.4	-15,293	-29.7
Stillhouse Hollow Lake	227,771	172,049	75.5	-6,235	-2.7	-51,367	-22.6
Striker, Lake	16,934	14,506	85.7	-967	-5.7	-1,722	-10.2
Sweetwater, Lake	12,267	7,618	62.1	-283	-2.3	-2,620	-21.4
*Sulphur Springs, Lake	17,747	11,881	66.9	-786	-4.4	-800	-4.5
Tawakoni, Lake	871,685	741,038	85.0	-16,367	-1.9	-94,920	-10.9
Texana, Lake	158,975	116,336	73.2	-1,346	0.0	-31,091	-19.6
Texoma, Lake (Texas & Oklahoma)	2,487,601	2,324,933	93.5	-65,256	-2.6	-4,128	0
Texoma, Lake (Texas)	1,243,801	1,162,466	93.5	-32,628	-2.6	-2,064	0.0
Toledo Bend Reservoir (Texas & Louisiana	4,472,900	3,756,671	84.0	-99,470	-2.2	-56,289	-1.3
Toledo Bend Reservoir (Texas)	2,236,450	1,876,286	83.9	-49,734	-2.2	-28,144	-1.3
Travis, Lake	1,098,044	535,406	48.8	-15,473	-1.4	-252,433	-23.0
Twin Buttes Reservoir	182,454	55,705	30.5	-2,835	-1.6	-41,448	-22.7
Tyler, Lake	72,073	60,382	83.8	-1,867	-2.6	-9,362	-13.0
Waco, Lake	189,418	113,493	59.9	-7,298	-3.9	-68,711	-36.3
Waxahachie, Lake	10,780	8,147	75.6	-321	-3.0	-1,295	-12.0
Weatherford, Lake	17,812	10,645	59.8	175	1.0	-5,340	-30.0
White River Lake	29,880	4,628	15.5	475	1.6	-2,223	-7.4
Whitney, Lake	553,344	410,473	74.2	-1,376	0.0	-98,392	-17.8
Worth, Lake	24,419	16,321	66.8	-2,669	-10.9	-4,071	-16.7
Wright Patman Lake	231,496	231,496	100.0	0	0.0	580	0.3
STATEWIDE TOTAL							
STATEWIDE TOTAL	**32,630,956**	**22,141,594**	**67.9**	**-393,239**	**-1.2**	**-3,445,743**	**-10.6**

*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, respectively.

STREAMFLOW CONDITIONS

Normal streamflow (25–75th percentile, green shading, Figure 5) was recorded in northern, eastern, and parts of southern and central Texas this month. Above normal (76–90th percentile, light blue shading, Figure 5) streamflow was seen in the Upper Colorado (Jim Ned watershed), Upper Trinity (Cedar watershed), Upper Brazos (Running Water Draw and Paint watersheds), San Jacinto (Spring watershed), and Nueces (Headwaters and Middle Nueces watersheds) river basins.

Below normal streamflow (10–24th percentile, orange shading, Figure 5) was recorded in the Canadian, Upper and Lower Red, Sulphur, Mid and Lower Brazos, Upper and Lower Colorado, San Antonio, Colorado-Lavaca, Nueces, and Pecos river basins. Much below normal stream flow (< 10th percentile, dark red shading, Figure 5) was seen in the Upper and Lower Red, Upper and Lower Brazos, Upper and Lower Colorado, Guadalupe, Trinity-San Jacinto, and Nueces river basins. Record lows (bright red shading, Figure 5) were seen in the Upper Red (Southern Beaver watershed), Lower Sulphur, and Pecos (Independence watershed) river basins.

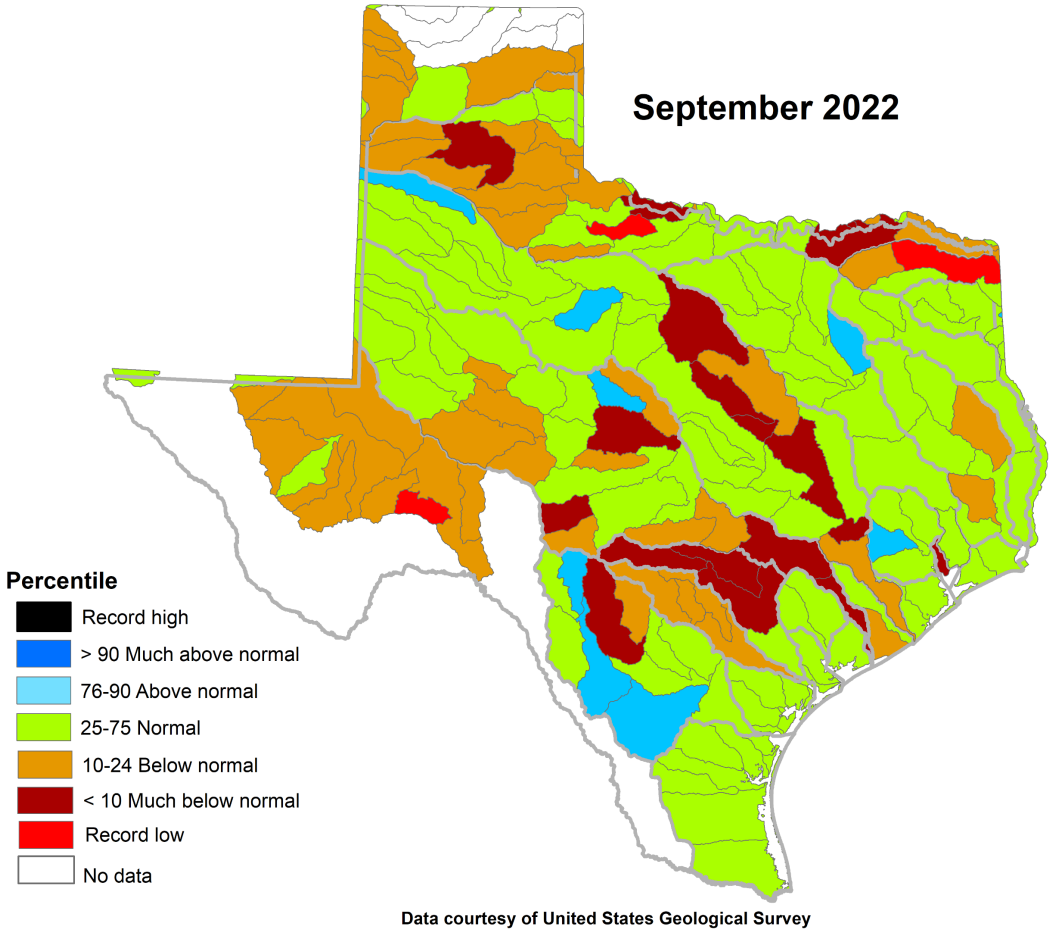
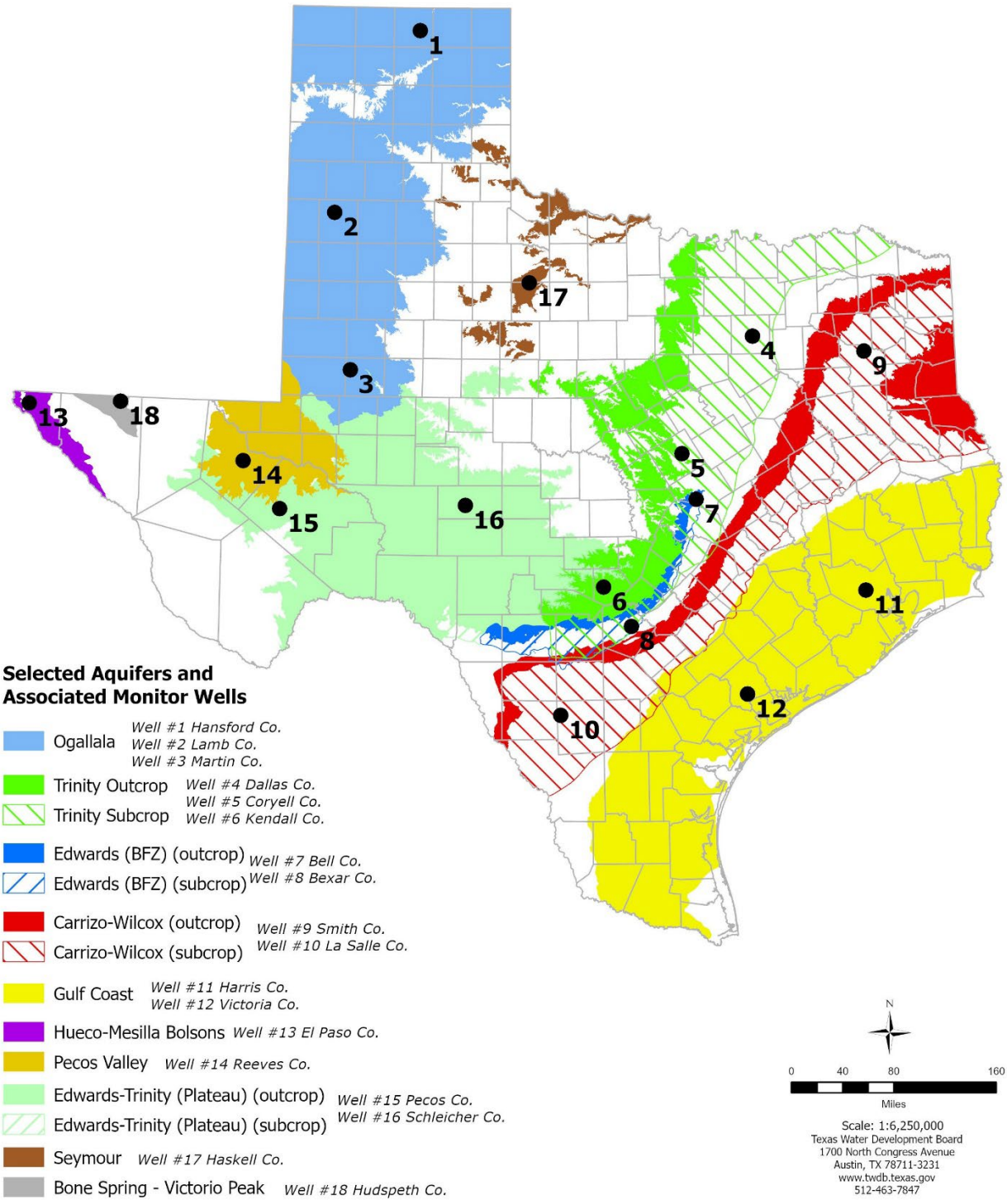


Figure 5: Runoff percentiles by the U.S. Geological Survey's Hydrologic Unit Code



SEPTEMBER 2022 GROUNDWATER LEVELS IN MONITORING WELLS

Water-level measurements were available for 18 key monitoring wells in the state. Water levels rose in five monitoring wells since the beginning of September, ranging from an increase of 0.05 feet in the Hansford County Ogallala Aquifer well (#1 on map) to 18.70 feet in the Kendall County Trinity Aquifer well (#6 on map). Water levels declined in ten monitoring wells, ranging from a decline of -0.10 feet in the Lamb County Ogallala Aquifer well (#2 on map) to -6.86 feet in the Coryell County Trinity Aquifer well (#5 on map). The J-17 well (#8 on map) in San Antonio recorded a water level of 100.30 feet below land surface or 630.70 feet above mean sea level. Water levels are 9.30 feet below the Stage 3 critical management level for the San Antonio portion of the Edwards (Balcones Fault Zone) Aquifer. Stage 3 water restrictions have been in effect since June 13, 2022.

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

Monitoring Well	September (depth to water, feet)	August (depth to water, feet)	Month Change	Year Change	Historical Change*	First Measured (year)
(1) Hansford 0354301	162.50	162.55	0.05	NA	-92.38	1951
(2) Lamb 1053602	153.14	153.04	-0.10	-0.86	-124.97	1951
(3) Martin 2739903	145.58	145.31	-0.27	-1.19	-40.69	1964
(4) Dallas 3319101	503.22	502.14	-1.08	-8.13	-281.22	1954
(5) Coryell 4035404	554.38	547.52	-6.86	-19.97	-262.38	1955**
(6) Kendall 6802609	203.65	222.35	18.70	-45.91	-143.65	1975
(7) Bell 5804816	127.24	126.77	-0.47	-5.91	-3.73	2008
(8) Bexar 6837203	100.30	96.10	-4.20	-28.1	-53.66	1932
(9) Smith 3430907	443.93	443.11	-0.82	-4.46	-143.93	1977**
(10) La Salle 7738103	530.32	532.85	2.53	-31.18	-277.25	2003
(11) Harris 6514409	192.03	190.27	-1.76	-5.82	-56.53	1947**
(12) Victoria 8017502	34.63	34.42	-0.21	-2.42	-0.63	1958**
(13) El Paso 4913301	300.53	NA	NA	-1.87	-68.63	1964**
(14) Reeves 4644501	157.21	164.74	7.53	1.70	-65.12	1952
(15) Pecos 5216802	214.06	NA	NA	5.09	32.82	1976
(16) Schleicher 5512134	317.14	318.29	1.15	-10.35	-15.24	2003
(17) Haskell 2135748	47.86	47.21	-0.65	-2.99	-4.86	2002
(18) Hudspeth 4807516	155.70	NA	NA	NA	-51.78	1966

*** Change since the original measurement taken on the date indicated in the last column.**

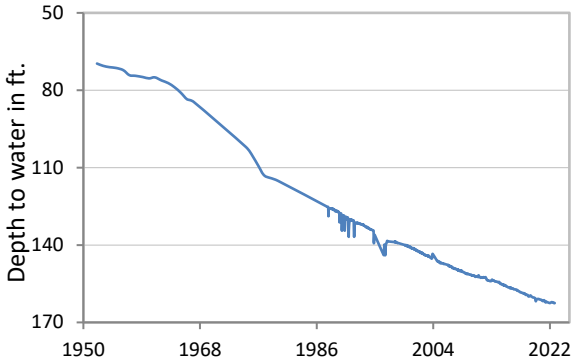
**** Measurement not shown on the hydrograph.**

NA (not available)

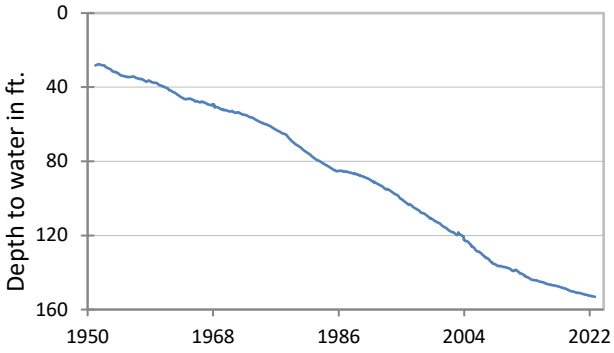
All data are provisional and subject to revision

SEPTEMBER 2022 MONITORING WELL HYDROGRAPHS

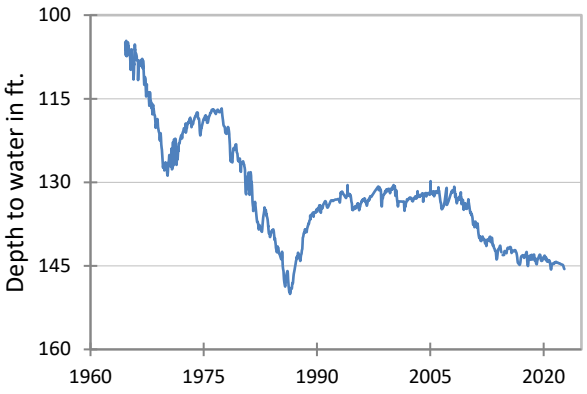
(1) State Well #03-54-301
Near Spearman, Hansford County
Ogallala Aquifer



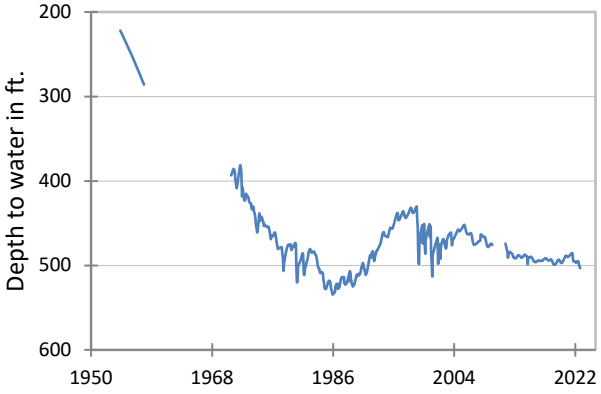
(2) State Well #10-53-602
Near Earth, Lamb County
Ogallala Aquifer



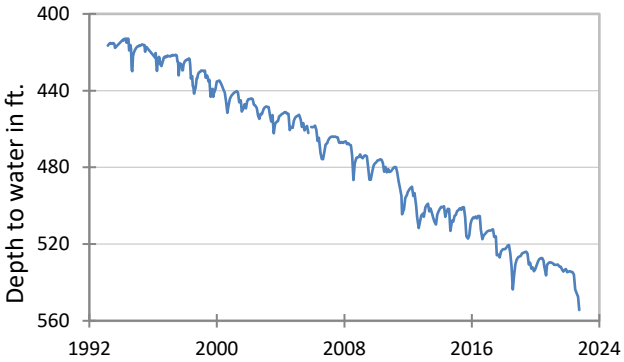
(3) State Well #27-39-903
Northwest Martin County
Ogallala Aquifer



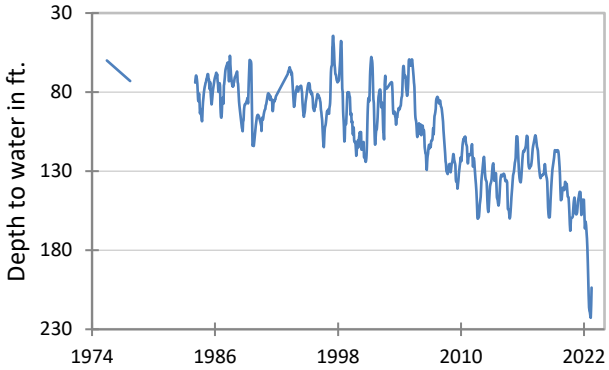
(4) State Well #33-19-101
Southeast Dallas, Dallas County
Twin Mountains Formation-Trinity Aquifer



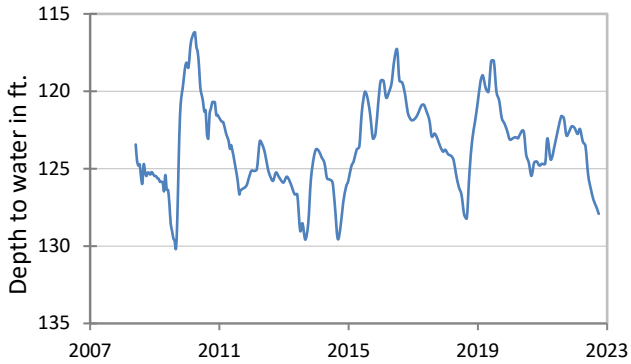
(5) State Well #40-35-404
Gatesville, Coryell County
Hosston Formation-Trinity Aquifer



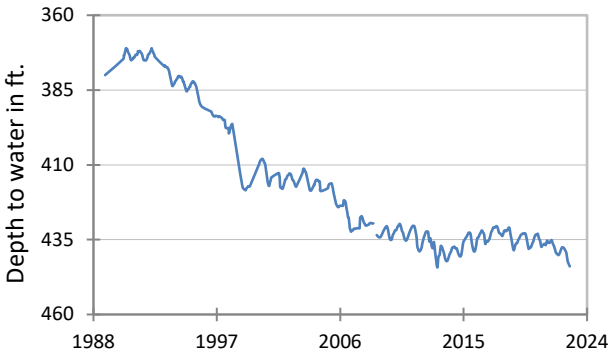
(6) State Well #68-02-609
Waring, Kendall County
Travis Peak Formation-Trinity Aquifer



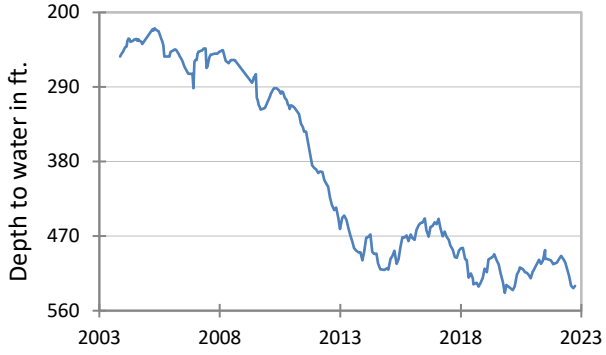
***(7) State Well #58-04-816**
Near Salado, Bell County
Edwards (Balcones Fault Zone) Aquifer



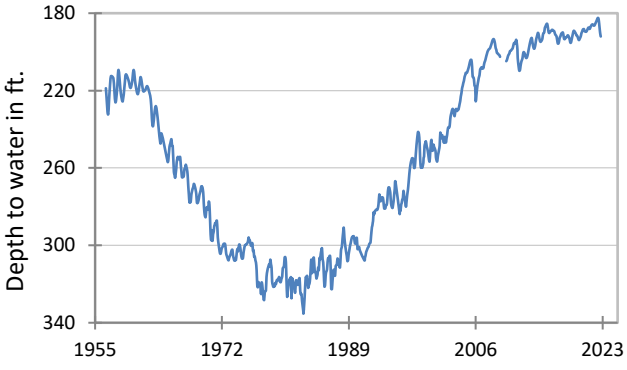
(9) State Well #34-30-907
Red Springs, Smith County
Carrizo-Wilcox Aquifer



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

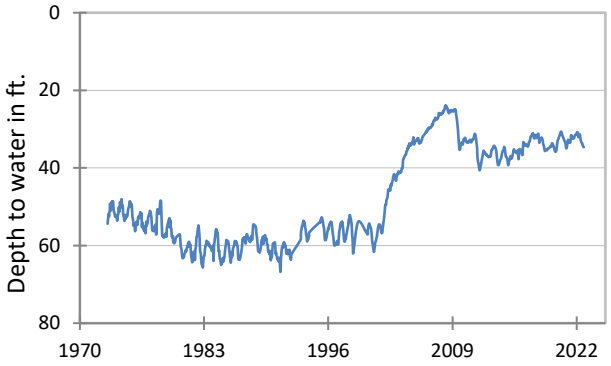


(11) State Well #65-14-409
North Houston, Harris County
Evangeline Formation-Gulf Coast Aquifer

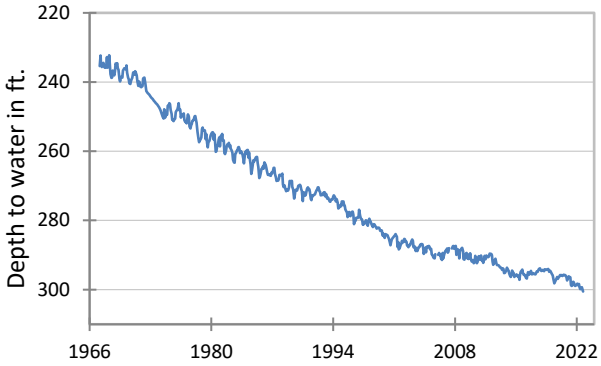


*Data from 1/26/2021 to present has been revised and corrected.

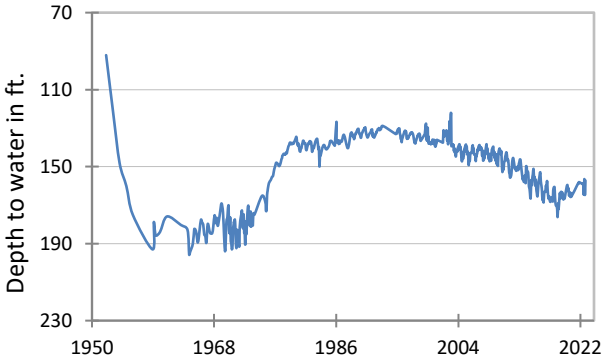
(12) State Well #80-17-502
Near Bloomington, Victoria County
Lissie Formation-Gulf Coast Aquifer



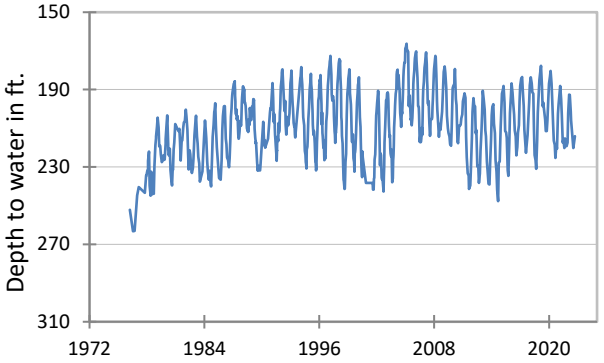
(13) State Well #49-13-301
El Paso, El Paso County
Hueco-Mesilla Bolsons Aquifer



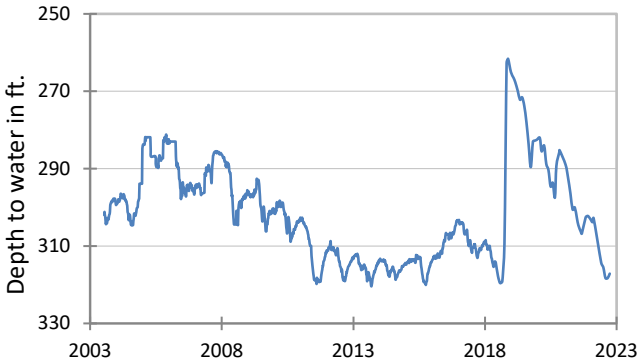
(14) State Well #46-44-501
Near Pecos, Reeves County
Pecos Valley Aquifer



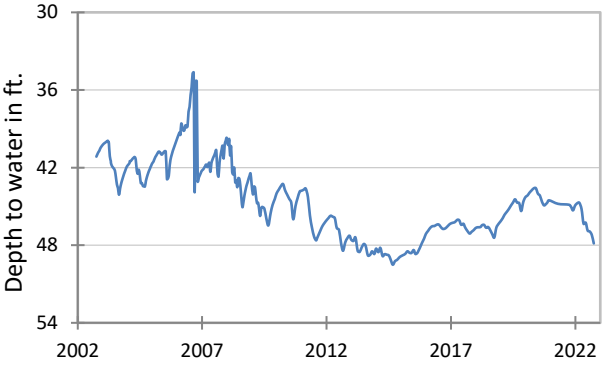
(15) State Well #52-16-802
Fort Stockton, Pecos County
Edwards-Trinity (Plateau) Aquifer



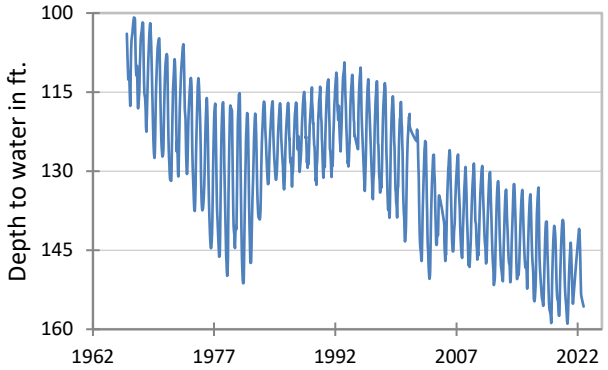
(16) State Well #55-12-134
Eldorado, Schleicher County
Edwards-Trinity (Plateau) Aquifer



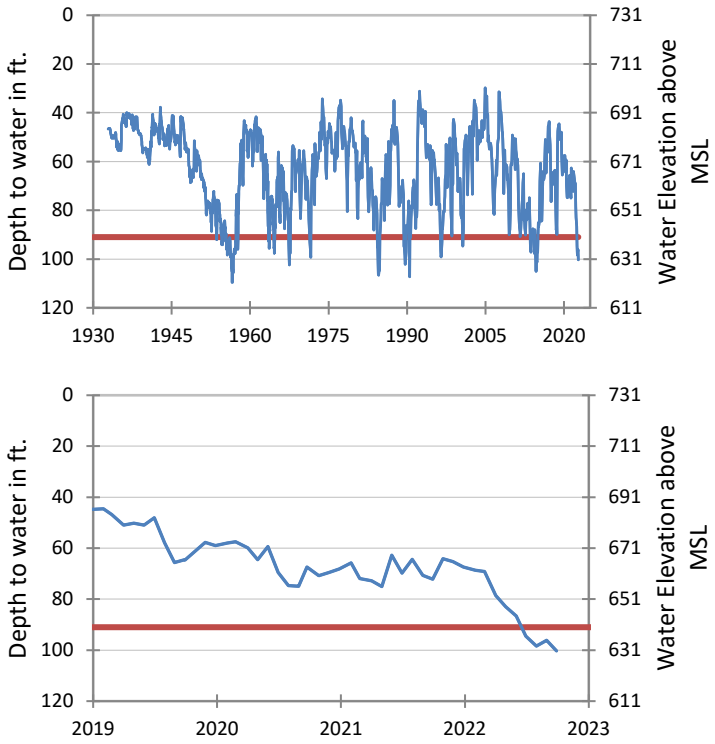
(17) State Well #21-35-748
Near O'Brien, Haskell County
Seymour Aquifer



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



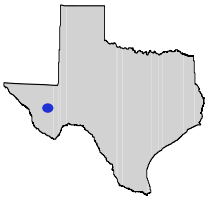
(8) State Well #68-37-203 (J-17)
San Antonio, Bexar County
Edwards (Balcones Fault Zone) Aquifer



The late September water-level measurement in this Edwards (Balcones Fault Zone) Aquifer well, located at an elevation of 731 feet above mean sea level, was 100.30 feet below land surface, or 630.70 feet above mean sea level. This was 4.20 feet below above last month's measurement, 28.10 feet below last year's measurement, and 53.66 feet below the initial measurement recorded in 1932.

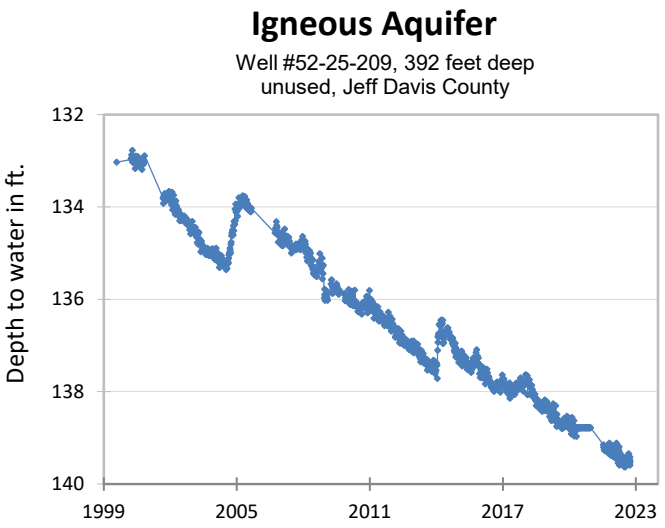
Water levels below the red line indicate periods in which Edwards Aquifer Authority Stage 3 drought restrictions are in effect. In September 2022, Stage 3 drought restrictions were in effect because the aquifer remained below the Stage 3 critical management level.

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 Igneous Aquifer is a minor, unconfined aquifer located in Far West Texas. The aquifer consists of volcanic rocks made up of a complex series of welded pyroclastic rock, lava, and volcaniclastic sediments and includes more than 40 different named units as much as 6,000 feet thick. Freshwater saturated thickness averages about 1,800 feet. The best water bearing zones are found in igneous rocks with primary porosity and permeability, such as vesicular basalts, interflow zones in lava successions, sandstone, conglomerate, and breccia. Faulting and fracturing enhance aquifer productivity in less permeable rock units. Water in the Igneous Aquifer is fresh and contains less than 1,000 milligrams per liter of total dissolved solids. Groundwater from some wells contains elevated levels of silica and fluoride, as a result of weathering of the igneous rock that makes up the aquifer. Groundwater in a few wells exceeds maximum contaminant levels for arsenic, fluoride, and gross alpha radiation. Water is primarily used to meet municipal needs for the cities of Alpine, Fort Davis, and Marfa, as well as some agricultural needs.



The initial water-level measurement in this well was taken by the TWDB in August 1999 at 133.03 feet below land surface. The TWDB then installed an automatic water-level recorder in March 2000. The recorder continues to take hourly measurements (available online) and daily measurements (in the groundwater database). The period of record reveals a steady decline of 6.39 feet over 23 years with brief periods of recharge in 2004 and 2014. The lowest water level on record was recorded on July 9, 2022, at 139.63 feet below land surface.

Far away (left), and close-up (right) images of well #52-25-209.