Texas Water Conditions Report

Earthtrekkers.com, Lady Bird Lake, Austin, TX

February 2022

Water News:

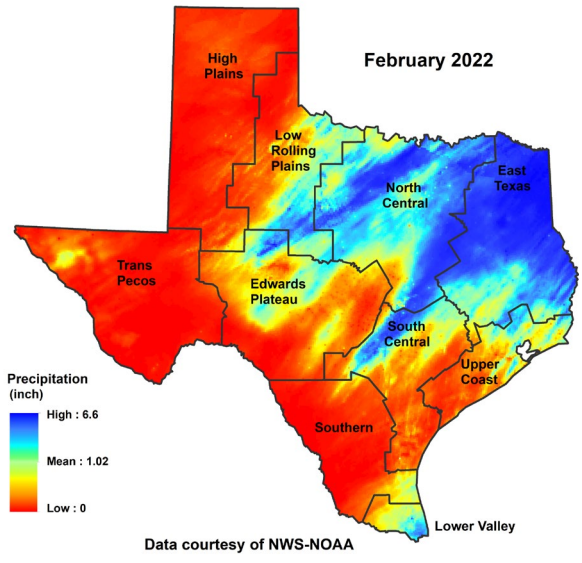
- The goal of the Statewide Synthesis of Environmental Flow Studies (published here: https://www.twdb.texas.gov/publications/reports/contracted_reports/index.asp) was to evaluate: the applicability of each environmental flow study for meeting the goals of defining a sound ecological environment, the expected variability in ecosystem indicators of a sound ecological environment, the potential need for refining adopted flow standards, and strategies to provide for environmental flows in five basin-bay systems.
- The name Bois d'Arc Lake has been officially recognized by the U.S. Board of Geographic Names of the U.S. Department of the Interior and is the first major reservoir to be built in Texas in over 30 years. https://waterdatafortexas.org/reservoirs/individual/bois-darc

RAINFALL

This month very little to no rain [yellow, orange, and red shading, Figure 1(a)] fell over the High Plains, western Low Rolling Plains, Trans Pecos, much of the Edwards Plateau, southwestern North Central, much of South Central, Southern, western Lower Valley, and much of the Upper Coast climate divisions. Some rainfall [light blue and dark blue shading, Figure 1(a)] was recorded in eastern Low Rolling Plains, northern Edwards Plateau, northern South Central, much of the North Central, eastern Upper Coast, and East Texas climate divisions. Above average rainfall [dark blue shading, Figure 1(a)] reaching 6.6 inches in the northeastern parts of the state.

Monthly rainfall for February was below average, compared to historical data from 1991–2020, for most of the state [yellow and orange shading, Figure 1(b)]. Average rainfall [green shading, Figure 1(b)] was seen in northwestern and southern North Central, areas of northern and southern Low Rolling Plains, northern East Texas, western Trans Pecos, northwestern South Central, and southeastern Lower Valley climate divisions. Above average rainfall [light blue shading, Figure 1(b)] was seen in the western Trans Pecos climate division.

a)



b)

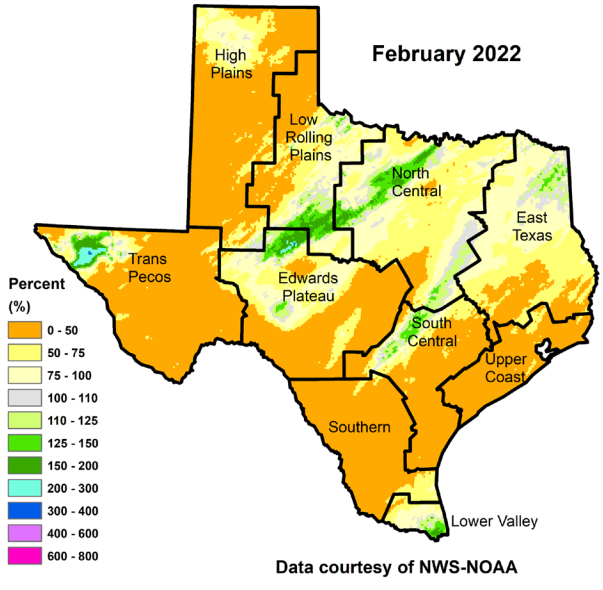


Figure 1: (a) Monthly accumulated rainfall and (b) Percent of normal rainfall

RESERVOIR STORAGE

At the end of February 2022, total conservation storage* in 123 of the state's major water supply reservoirs was 24.6 million acre-feet or 77 percent of total conservation storage capacity (Figure 2). This is approximately 0.12 million-acre-feet more than a month ago and approximately 1.04 million acre-feet less than at the end of February 2021.

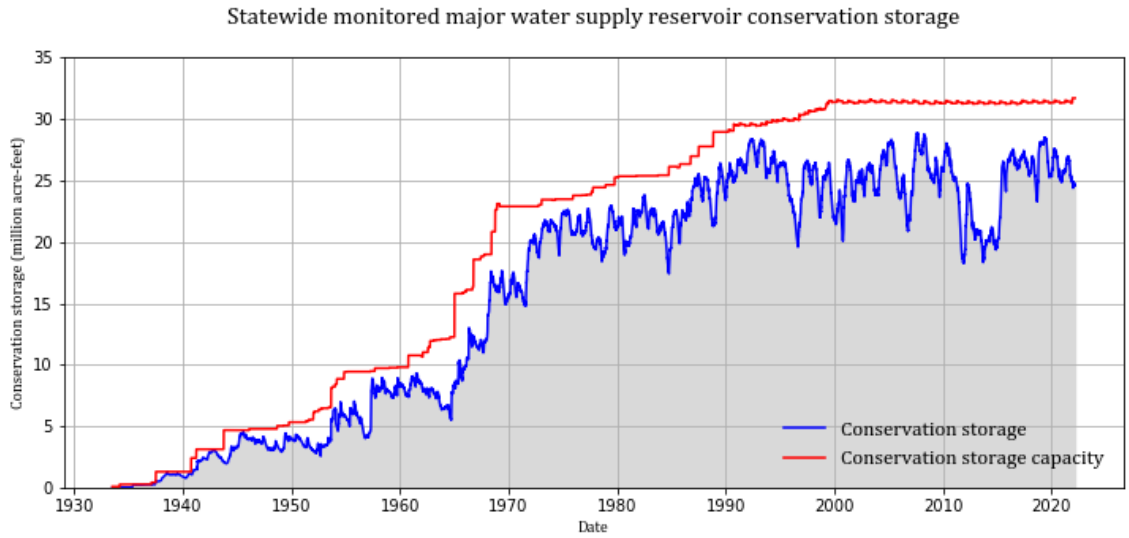


Figure 2: Statewide reservoir conservation storage

Out of 123 reservoirs in the state, 14 reservoirs held 100 percent of conservation storage capacity (Figure 3). Additionally, 43 were at or above 90 percent full. Nine reservoirs remained below 30 percent full: Bois d'Arc (23 percent full), E.V. Spence (24 percent full), Greenbelt (16 percent full), Mackenzie (8 percent full), O. C. Fisher (6 percent full), Palo Duro Reservoir (1 percent full), Falcon (23 percent full), Medina Lake (25 percent full), and White River (18 percent full). Elephant Butte Reservoir (located in New Mexico) was 11 percent full.

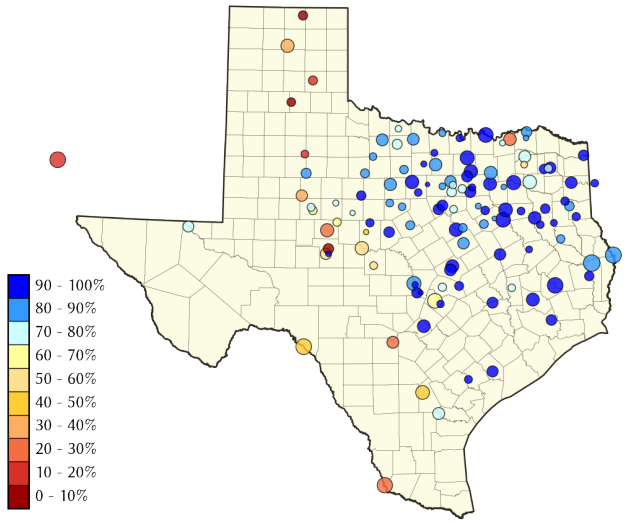


Figure 3: Reservoir conservation storage at end-February expressed as percent full (%)

*Storage is based on end of the month data in 123 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 East Texas (90.8 percent full), North Central (90.9 percent full), South Central (72.1 percent full), and the Upper Coast (99.0 percent full) climate divisions (Figure 4). Conservation storage for the Low Rolling Plains (68.7 percent full) climate division was abnormally low (Figure 4). The Edwards Plateau climate division had moderately low conservation storage (54.6 percent full, Figure 4). The High Plains (28.1 percent full), Southern (33.4 percent full), and the Trans Pecos (20.5 percent full) climate divisions had severely low conservation storage (Figure 4).

Combined conservation storage by river basin or sub-basin was normal to high (>70 percent full, Figure 5) in the Upper and Lower Red, Upper and Lower Trinity, Sulphur, Cypress, Upper and Lower Sabine, Upper and Lower Brazos, San Jacinto, Neches, Lower Colorado, Lavaca, and Guadalupe river basins. The Upper Colorado and Nueces river basins had moderately low conservation storage (40–60 percent full, Figure 5), and the San Antonio, Upper/Mid Rio Grande, Lower Rio Grande, and Canadian river basins had severely low conservation storage (20–40 percent full, Figure 5).

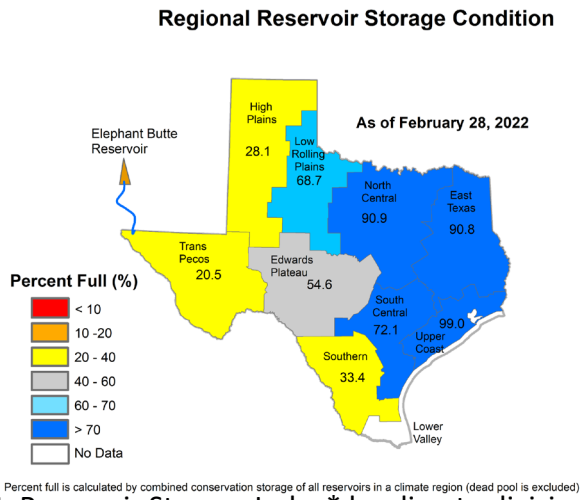


Figure 4: Reservoir Storage Index* by climate division at 2/28/2022

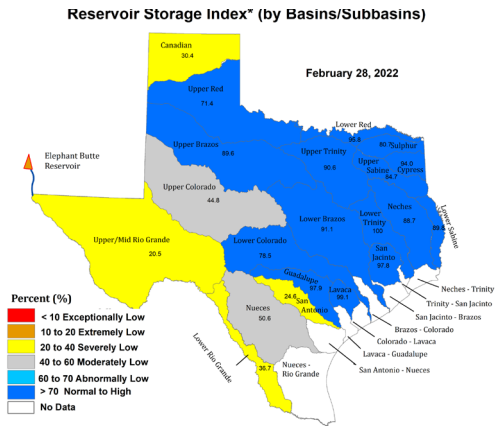


Figure 5: Reservoir Storage Index* by river basin/sub-basin at 2/28/2022

*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 2022		Storage change from end-Jan 2022		Storage change from end-Feb 2021	
	(acre-feet)	(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)
Abilene, Lake	7,900	5,631	71	-81	-1	288	4
Alan Henry Reservoir	96,207	83,826	87	-1,218	-1	565	1
*Amistad Reservoir (Texas & Mexico)	3,275,532	1,100,984	34	-207	0	-97,903	-3
*Amistad Reservoir (Texas)	1,840,849	885,327	48	-3,909	0	-231,522	-13
Amon G Carter, Lake	19,266	18,423	96	-102	0	535	3
Aquilla Lake	43,243	38,062	88	-29	0	-1,976	-5
Arlington, Lake	40,157	33,586	84	4,761	12	-1,205	-3
Arrowhead, Lake	230,359	194,783	85	-659	0	-32,398	-14
Athens, Lake	29,503	29,503	100	0	0	0	0
*Austin, Lake	23,972	22,834	95	-154	0	-216	0
B A Steinhagen Lake	69,186	63,211	91	-1,366	-2	1,632	2
Bardwell Lake	46,122	44,967	97	897	2	-1,155	-3
Belton Lake	435,225	399,324	92	-2,427	0	-27,091	-6
Benbrook Lake	85,648	64,471	75	-1,945	-2	-12,161	-14
Bob Sandlin, Lake	192,417	181,286	94	2,840	1	-11,131	-6
Bois d'Arc Lake	367,609	96,737	26	na		na	
Bonham, Lake	11,027	7,871	71	-41	0	-3,156	-29
Brady Creek Reservoir	28,808	16,192	56	-52	0	-3,128	-11
Bridgeport, Lake	366,236	319,175	87	-555	0	-444	0
*Brownwood, Lake	130,868	117,437	90	-1,022	0	5,839	4
Buchanan, Lake	860,607	755,192	88	210	0	39,772	5
Caddo, Lake	29,898	29,898	100	0	0	no data	
Canyon Lake	378,781	371,822	98	244	0	37,868	10
Cedar Creek Reservoir in Trinity	644,686	594,364	92	11,739	2	-50,322	-8
Champion Creek Reservoir	41,580	28,560	69	-192	0	4,348	10
Cherokee, Lake	40,094	40,094	100	0	0	0	0
Choke Canyon Reservoir	662,820	276,739	42	-5,429	0	49,925	8
*Cisco, Lake	29,003	24,923	86	0	0	2,152	7
Coleman, Lake	38,075	34,884	92	-229	0	2,457	6
Colorado City, Lake	31,040	29,445	95	-634	-2	8,170	26
*Coleto Creek Reservoir	30,758	22,211	72	-231	0	11,118	36
Conroe, Lake	410,988	401,074	98	6,032	1	-9,914	-2
Corpus Christi, Lake	256,062	188,538	74	-5,787	-2	64,989	25
Crook, Lake	9,195	8,233	90	294	3	-962	-10
Cypress Springs, Lake	66,756	60,001	90	-370	0	no data	
E. V. Spence Reservoir	517,272	125,291	24	-1,006	0	11,252	2
Eagle Mountain Lake	179,880	157,816	88	-2,864	-2	-6,323	-4
Elephant Butte Reservoir (Texas)	852,491	93,879	11	9,631	1	15,457	2
Elephant Butte Reservoir (Total Storage)	1,985,900	217,313	11	22,294	1	35,781	2
*Falcon Reservoir (Texas & Mexico)	2,646,817	429,861	16	3,155	0	-70,960	-3
*Falcon Reservoir (Texas)	1,551,007	362,076	23	2,653	0	-72,320	-5
Fork Reservoir, Lake	605,061	451,974	75	895	0	-153,087	-25
Fort Phantom Hill, Lake	70,030	64,656	92	37	0	3,519	5
Georgetown, Lake	36,823	29,104	79	580	2	5,098	14
Gibbons Creek Reservoir	25,721	21,033	82	-982	-4	-2,152	-8
Graham, Lake	45,288	38,127	84	-273	0	-4,122	-9
Granbury, Lake	132,949	131,647	99	4,170	3	-487	0

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS							
Name of lake or reservoir	Storage capacity	Storage at end-February 2022		Storage change from end-Jan 2022		Storage change from end-Feb 2021	
	(acre-feet)	(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)
Continued							
Granger Lake	51,822	51,822	100	0	0	0	0
Grapevine Lake	163,064	154,943	95	1,759	1	-8,121	-5
Greenbelt Lake	59,968	9,630	16	-87	0	-225	0
*Halbert, Lake	6,033	5,219	87	210	3	-50	0
Hords Creek Lake	8,109	3,355	41	-45	0	-829	-10
Houston County Lake	17,113	17,113	100	0	0	0	0
Houston, Lake	130,147	128,685	99	-1,462	-1	-1,462	-1
Hubbard Creek Reservoir	313,298	268,729	86	-1,854	0	-4,865	-2
Hubert H Moss Lake	24,058	23,414	97	855	4	-439	-2
Inks, Lake	13,962	13,227	95	417	3	290	2
J. B. Thomas, Lake	199,931	76,126	38	-1,707	0	49,896	25
Jacksonville, Lake	25,670	25,670	100	0	0	0	0
Jim Chapman Lake (Cooper)	260,332	191,030	73	-2,343	0	-69,302	-27
Joe Pool Lake	175,800	162,300	92	-792	0	-3,672	-2
Kemp, Lake	245,307	205,223	84	-116	0	-3,040	-1
Kickapoo, Lake	86,345	63,574	74	-393	0	-5,634	-7
Lavon Lake	406,388	330,357	81	4,502	1	-76,031	-19
Leon, Lake	27,762	23,509	85	-156	0	-1,823	-7
Lewisville Lake	563,228	517,232	92	7,746	1	-45,996	-8
Limestone, Lake	203,780	195,911	96	13,088	6	-7,869	-4
*Livingston, Lake	1,741,867	1,741,867	100	5,731	0	4,093	0
*Lost Creek Reservoir	11,950	11,455	96	12	0	-8	0
Lyndon B Johnson, Lake	115,249	111,248	97	367	0	489	0
Mackenzie Reservoir	46,450	3,484	8	-40	0	-608	-1
Marble Falls, Lake	6,901	6,777	98	-54	0	-54	0
Martin, Lake	75,726	64,677	85	1,664	2	-11,049	-15
Medina Lake	254,823	62,691	25	-855	0	-36,573	-14
Meredith, Lake	500,000	170,457	34	-1,361	0	-7,808	-2
Millers Creek Reservoir	26,768	22,487	84	-177	0	-4,039	-15
*Mineral Wells, Lake	5,273	5,029	95	23	0	-244	-5
Monticello, Lake	34,740	27,516	79	569	2	-3,883	-11
Mountain Creek, Lake	22,850	22,850	100	0	0	0	0
Murvaul, Lake	38,285	38,285	100	1,296	3	0	0
Nacogdoches, Lake	39,522	34,383	87	314	1	-2,502	-6
Nasworthy	9,615	8,707	91	0	0	524	5
Navarro Mills Lake	49,827	43,294	87	222	0	-6,533	-13
New Terrell City Lake	8,583	7,605	89	74	1	-978	-11
Nocona, Lake (Farmers Crk)	21,444	17,315	81	-282	-1	-2,768	-13
North Fork Buffalo Creek Reservoir	15,400	11,968	78	-101	0	-2,891	-19
O' the Pines, Lake	241,363	232,804	96	8,055	3	-8,559	-4
O. C. Fisher Lake	115,742	6,818	6	-106	0	-413	0
*O. H. Ivie Reservoir	554,340	293,420	53	-3,132	0	-43,668	-8
Oak Creek Reservoir	39,210	26,390	67	-73	0	-3,718	-9

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS							
Name of lake or reservoir	Storage capacity	Storage at end-February 2022		Storage change from end-Jan 2022		Storage change from end-Feb 2021	
	(acre-feet)	(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)
Continued							
Palestine, Lake	367,303	367,303	100	2,307	1	0	0
Palo Duro Reservoir	61,066	376	1	-24	0	-471	0
Palo Pinto, Lake	26,766	25,425	95	171	1	2,677	10
Pat Cleburne, Lake	26,008	19,576	75	-357	-1	-2,181	-8
*Pat Mayse Lake	113,683	99,901	88	-158	0	-13,782	-12
Possum Kingdom Lake	538,139	513,162	95	1,552	0	-16,963	-3
Proctor Lake	54,762	47,197	86	696	1	-5,281	-10
Ray Hubbard, Lake	439,559	400,452	91	1,391	0	-39,107	-9
Ray Roberts, Lake	788,167	767,636	97	8,062	1	-7,833	0
Red Bluff Reservoir	151,110	112,289	74	-454	0	36,826	24
Richland-Chambers Reservoir	1,087,839	996,797	92	8,631	1	-84,198	-8
Sam Rayburn Reservoir	2,857,077	2,475,824	87	-1,037	0	-228,613	-8
Somerville Lake	150,293	150,293	100	0	0	20,578	14
Squaw Creek, Lake	151,250	149,204	99	-2,046	-1	-62	0
Stamford, Lake	51,570	43,517	84	-274	0	-8,053	-16
Stillhouse Hollow Lake	227,771	208,637	92	-1,824	0	-19,134	-8
Striker, Lake	16,934	16,913	100	-21	0	-21	0
Sweetwater, Lake	12,267	9,749	79	34	0	-251	-2
*Sulphur Springs, Lake	17,747	10,046	57	255	1	-7,701	-43
Tawakoni, Lake	871,685	787,471	90	3,831	0	-84,214	-10
Texana, Lake	159,566	158,190	99	8,668	5	3,550	2
Texoma, Lake (Texas & Oklahoma)	2,487,601	2,413,873	97	5,046	0	151,173	6
Texoma, Lake (Texas)	1,243,801	1,206,936	97	2,523	0	75,586	6
Toledo Bend Reservoir (Texas & Louisiana)	4,472,900	4,024,484	90	105,674	2	9,815	0
Toledo Bend Reservoir (Texas)	2,236,450	2,010,192	90	52,837	2	4,908	0
Travis, Lake	1,113,348	772,403	69	-5,326	0	24,260	2
Twin Buttes Reservoir	182,454	93,711	51	-260	0	-5,517	-3
Tyler, Lake	72,073	72,073	100	283	0	0	0
Waco, Lake	189,418	156,392	83	-3,050	-2	-27,004	-14
Waxahachie, Lake	10,780	8,576	80	-6	0	-1,721	-16
Weatherford, Lake	17,812	14,520	82	0	0	-1,826	-10
White River Lake	29,880	5,396	18	-187	0	1,786	6
Whitney, Lake	553,344	502,943	91	420	0	17,297	3
Worth, Lake	24,419	18,475	76	768	3	-225	0
Wright Patman Lake	122,593	122,593	100	0	0	0	0
STATEWIDE TOTAL							
STATEWIDE TOTAL	**32,536,446**	**24,746,991**	**76**	**122,599**	**0.5**	**-1,037,340**	**-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, respectively.

STREAMFLOW CONDITIONS

Parts of the state had near normal streamflow in February 2022 (25–75th percentile, green shading, Figure 6). Below normal streamflow (10–24th percentile, orange shading in Figure 6) was recorded in the Upper and Lower Red, Upper and Lower Brazos, Upper and Lower Colorado, Upper and Lower Trinity, Cypress, Sulphur, Upper and Lower Sabine, Neches, San Antonio, Guadalupe, Nueces, and Nueces-Rio Grande river basins.

Much below normal stream flow (< 10th percentile, dark red shading in Figure 6) was seen in the Canadian, Upper and Lower Red, Upper and Lower Brazos, Upper Sabine, Neches, Nueces, Lower Colorado, and Pecos river basins. Record lows (bright red shading in Figure 6) were seen in the Upper Pecos and Cypress river basins. The Colorado-Lavaca river basin had above normal stream flow (76–90 percentile, light blue shading, Figure 6).

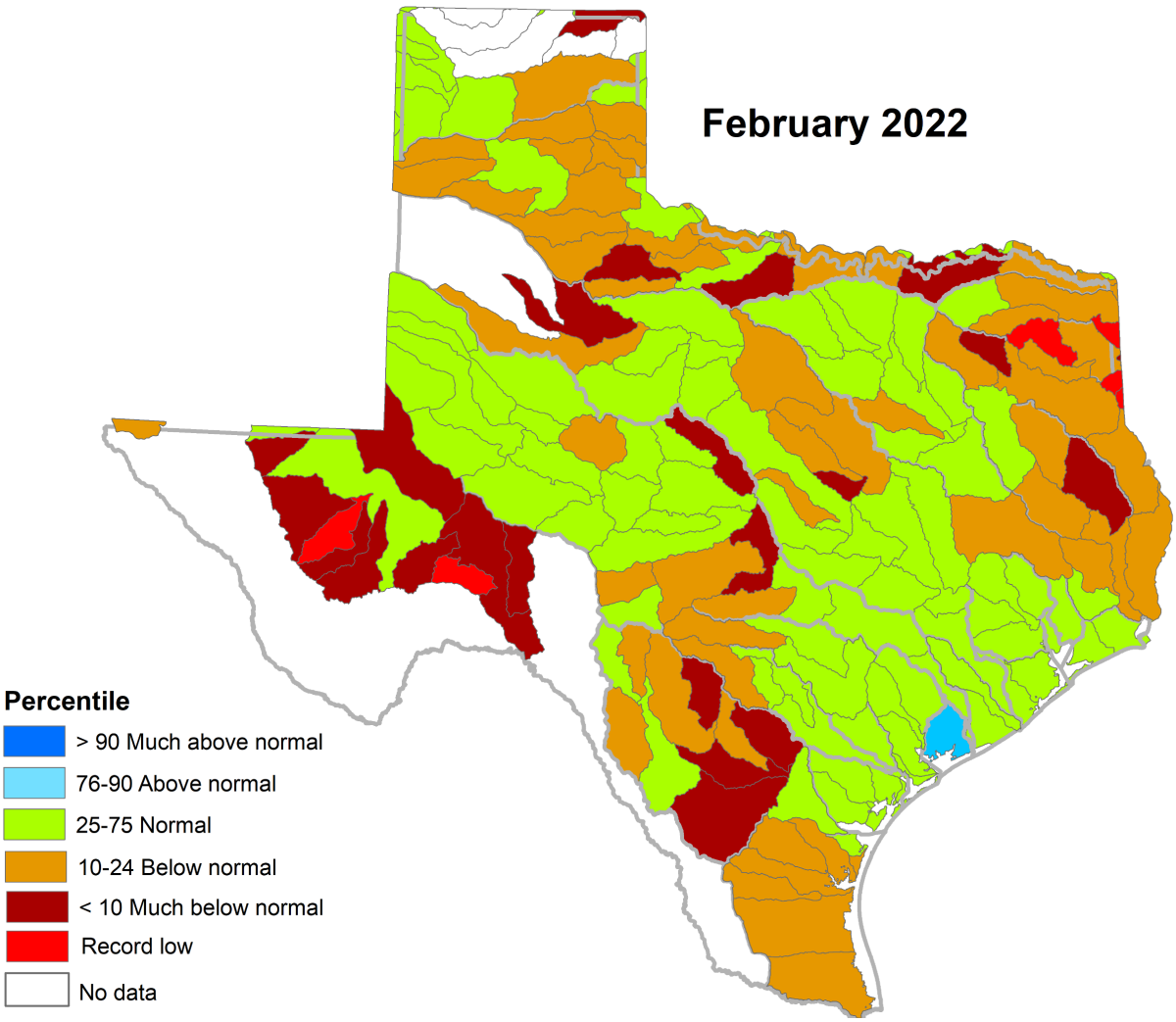


Figure 6: Runoff percentiles by the U.S. Geological Survey's Hydrologic Unit Code

SOIL MOISTURE

Root zone soil moisture at the end of February 2022 [Figure 7(a)] was moderate [> 0.20 cubic meters of water per bulk cubic meter soil (m^3/m^3)] across most of the state. Low soil moisture [< 0.15 cubic meters of water per bulk cubic meter soil (m^3/m^3)] was seen in portions of the High Plains, Low Rolling Plains, Trans Pecos, Edwards Plateau, Southern, Lower Valley, southwestern East Texas, areas of western North Central, southwestern Upper Coast, southern South Central and particularly the northwest stretching across the climate division to the northeast. Average soil moisture [0.3 cubic meters of water per bulk cubic meter soil (m^3/m^3)] was seen in the North Central, South Central, northeastern Southern, across areas of East Texas, and most of the Upper Coast climate divisions.

Compared to conditions at the end of January 2022, soil moisture content increased [green to blue shading in Figure 7(b)] in eastern Low Rolling Plains, North Central, northeastern South Central, western Upper Coast, and East Texas climate divisions. Soil moisture content decreased [yellow, orange, and brown shading in Figure 7(b)] in the High Plains, Trans Pecos, areas of the Low Rolling Plains, the Edwards Plateau, southern North Central, Southern, pats of South Central, Lower Valley, southern East Texas, and eastern portions of the Upper Coast climate divisions.

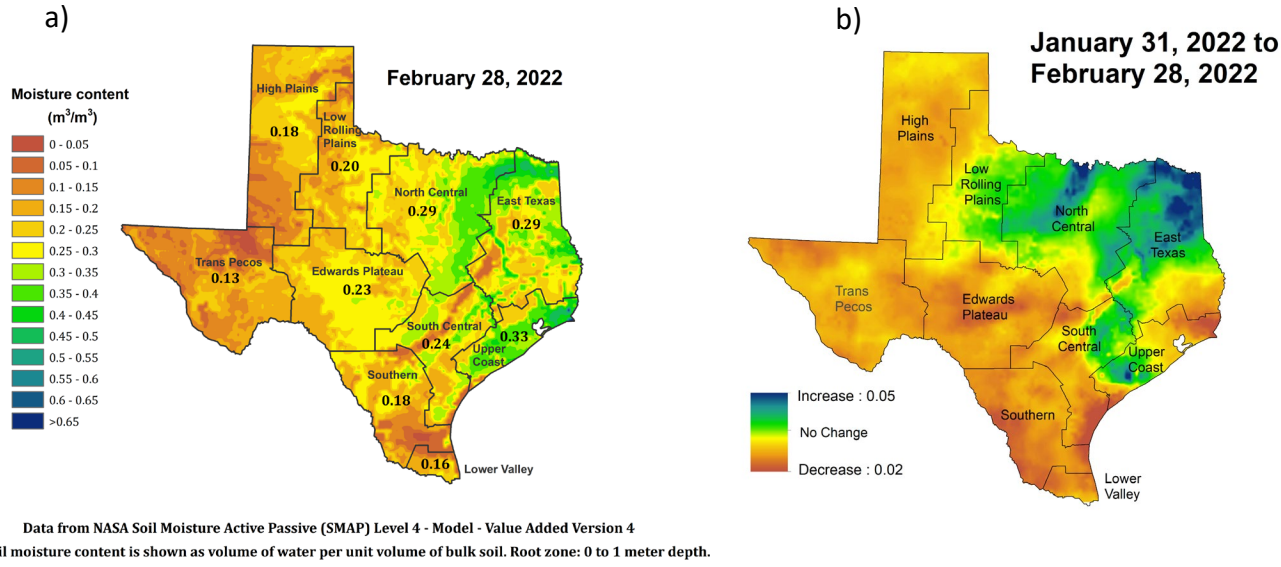
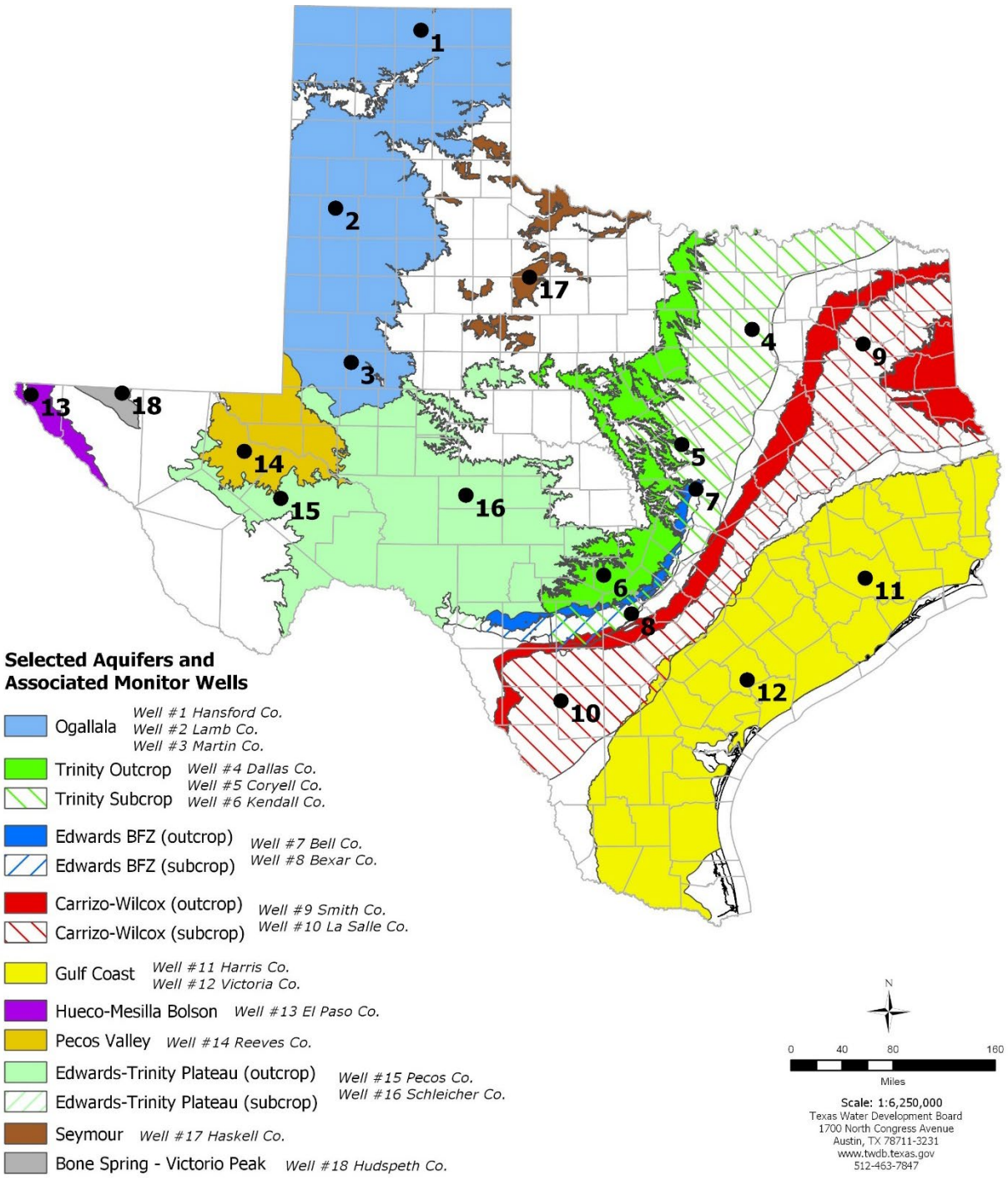


Figure 7: (a) Root zone soil moisture conditions in February 2022 and (b) the difference in root zone soil moisture between end-January 2022 and end-February 2022



FEBRUARY 2022 GROUNDWATER LEVELS IN MONITORING WELLS

Water-level measurements were available for 16 key monitoring wells in the state. Recorders in 2 wells (#1 and #14 on map) were offline during the reporting period. Water levels rose in 8 monitoring wells since the beginning of February, ranging from an increase of 0.02 feet in the Haskell County Seymour Aquifer well (#17 on map) to 3.99 feet in the Kendall County Trinity Aquifer well (#6 on map). Water levels declined in 7 monitoring wells, ranging from a decline of -0.07 feet in the Lamb and Martin County Ogallala Aquifer wells (#2 and #3 on map) to -1.23 feet in the Victoria County Gulf Coast Aquifer well (#12 on map). The J-17 well (#8 on map) in San Antonio recorded a water level of 69.10 feet below land surface or 661.90 feet above mean sea level. Water levels are 1.90 feet above the Stage I 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 than the TWDB's seven-digit state well number.**

Monitoring Well	February (depth to water, feet)	January (depth to water, feet)	Month Change	Year Change	Historical Change*	First Measured (year)
(1) Hansford 0354301	NA	NA	NA	NA	-92.37	1951
(2) Lamb 1053602	152.60	152.53	-0.07	-0.88	-124.43	1951
(3) Martin 2739903	144.61	144.54	-0.07	0.01	-39.72	1964
(4) Dallas 3319101	496.22	496.84	0.62	-7.78	-274.22	1954
(5) Coryell 4035404	534.22	534.30	0.08	-3.43	-242.22	1955**
(6) Kendall 6802609	161.94	165.93	3.99	-5.86	-101.94	1975
(7) Bell 5804816	121.74	121.42	-0.32	3.38	1.77	2008
(8) Bexar 6837203	69.10	68.60	-0.50	2.80	-22.46	1932
(9) Smith 3430907	437.67	438.51	0.84	-1.90	-137.67	1977**
(10) La Salle 7738103	494.01	497.22	3.21	NA	-240.94	2003
(11) Harris 6514409	184.17	184.76	0.59	3.37	-48.67	1947**
(12) Victoria 8017502	32.01	30.78	-1.23	1.36	1.99	1958**
(13) El Paso 4913301	298.76	298.29	-0.47	-2.46	-66.86	1964**
(14) Reeves 4644501	NA	NA	NA	NA	NA	1952
(15) Pecos 5216802	192.77	192.65	-0.12	-4.62	54.11	1976
(16) Schleicher 5512134	276.17	278.28	2.11	13.81	25.73	2003
(17) Haskell 2135748	44.72	44.74	0.02	NA	-1.72	2002
(18) Hudspeth 4807516	141.13	NA	NA	2.44	-37.21	1966

*** Change since the original measurement taken on the date indicated in the last column. The historical changes shown for recorder wells #1 and #14 are based off the most recent water level records from December and October 2021, respectively.**

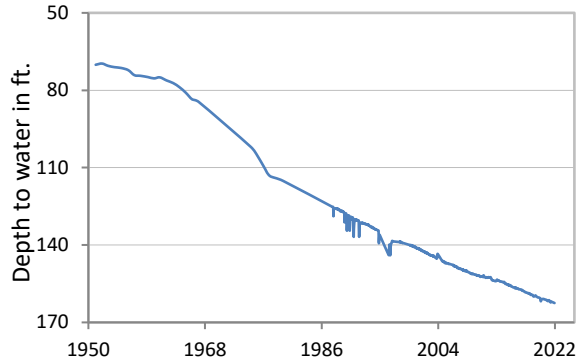
**** Measurement not shown on the hydrograph.**

NA (not available)

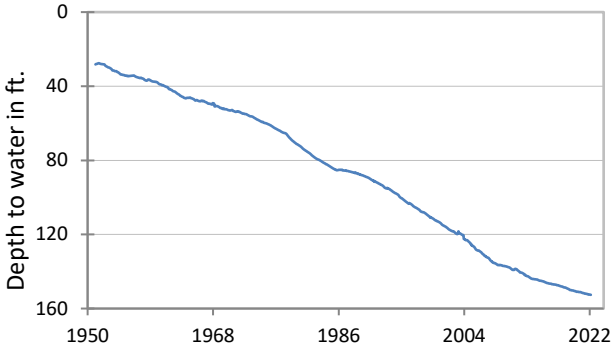
All data are provisional and subject to revision

FEBRUARY 2022 MONITORING WELL HYDROGRAPHS

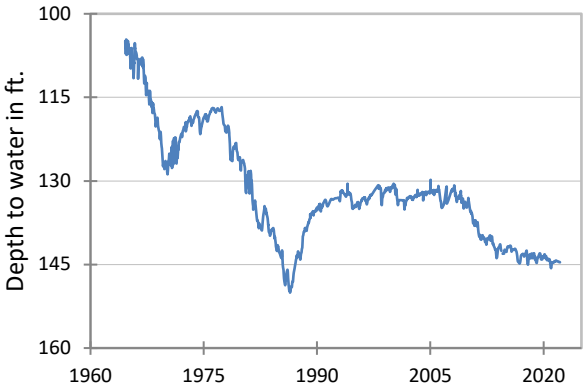
***(1) State Well #03-54-301**
Near Spearman, Hansford County
Ogallala Aquifer



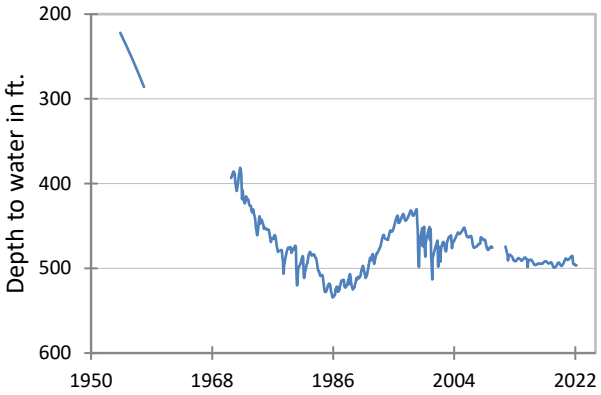
(2) State Well #10-53-602
Near Earth, Lamb County
Ogallala Aquifer



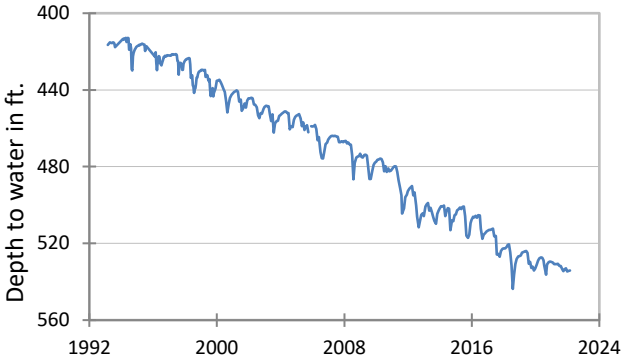
(3) State Well #27-39-903
Northwest Martin County
Ogallala Aquifer



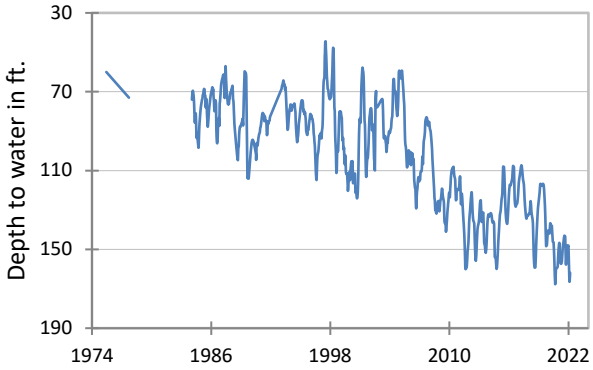
(4) State Well #33-19-101
Southeast Dallas, Dallas County
Twin Mountains Formation-Trinity Aquifer



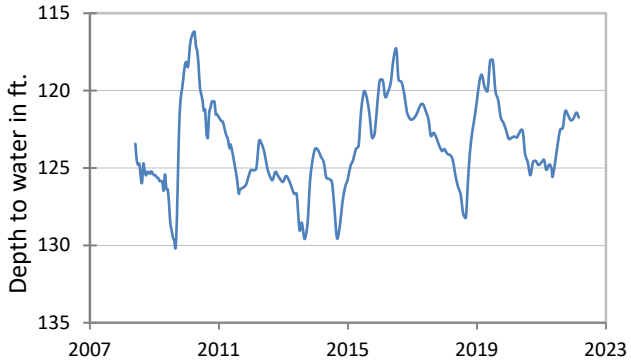
(5) State Well #40-35-404
Gatesville, Coryell County
Hosston Formation-Trinity Aquifer



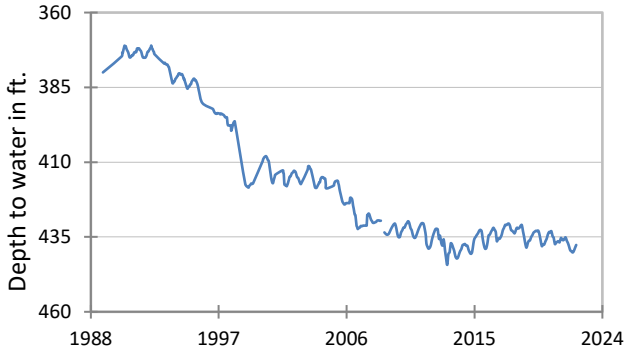
(6) State Well #68-02-609
Waring, Kendall County
Travis Peak Formation-Trinity Aquifer



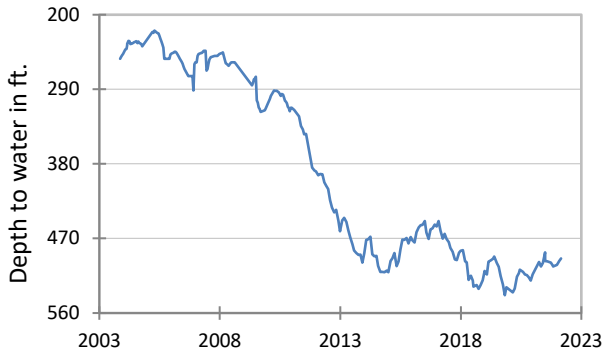
(7) State Well #58-04-816
Near Salado, Bell County
Edwards (Balcones Fault Zone) Aquifer



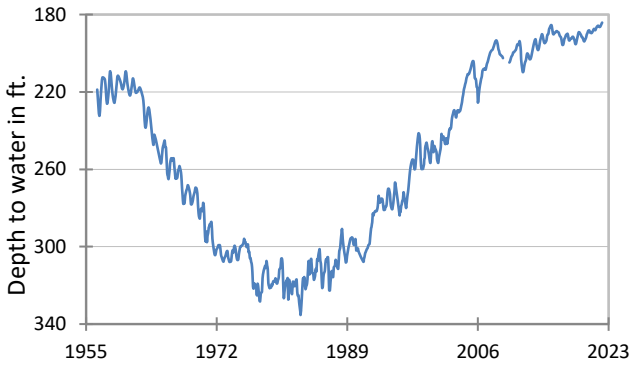
(9) State Well #34-30-907
Red Springs, Smith County
Carrizo-Wilcox Aquifer



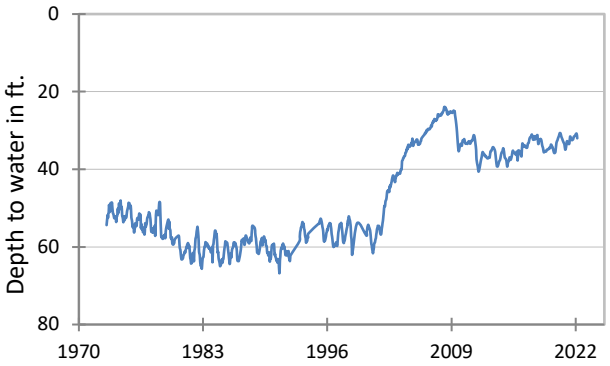
(10) State Well #77-38-103
Near Cotulla, La Salle County
Carrizo-Wilcox Aquifer



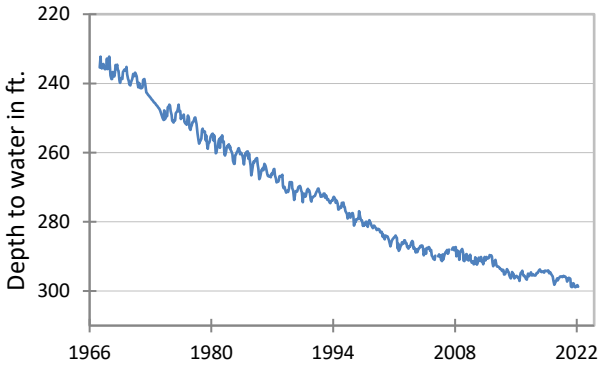
(11) State Well #65-14-409
North Houston, Harris County
Evangeline Formation-Gulf Coast Aquifer



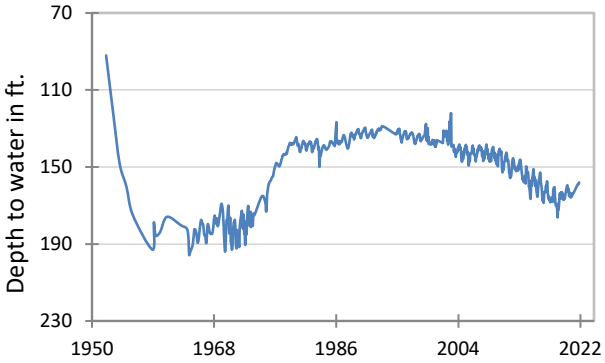
(12) State Well #80-17-502
Near Bloomington, Victoria County
Lissie Formation-Gulf Coast Aquifer



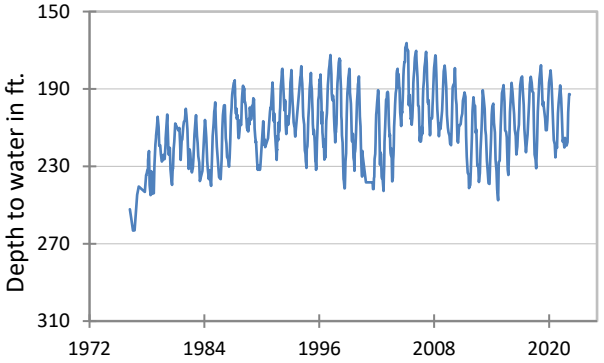
(13) State Well #49-13-301
El Paso, El Paso County
Hueco-Mesilla Bolsons Aquifer



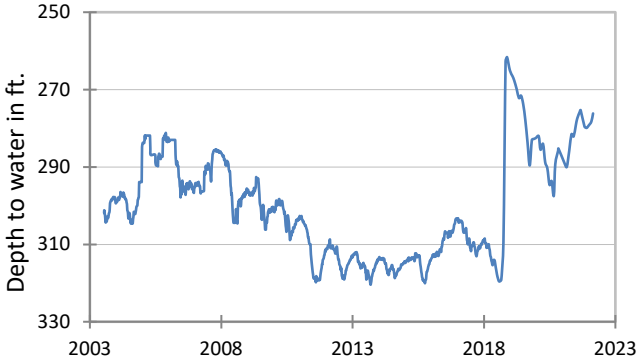
***(14) State Well #46-44-501**
Near Pecos, Reeves County
Pecos Valley Aquifer



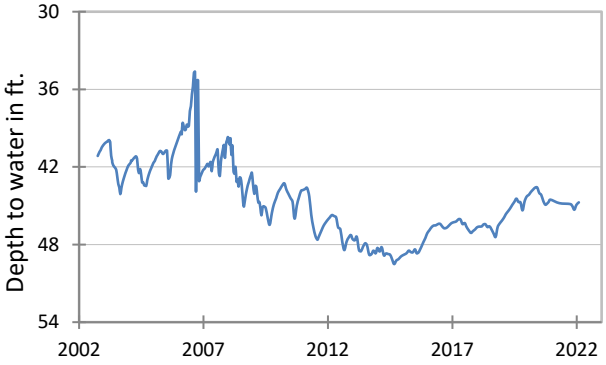
(15) State Well #52-16-802
Fort Stockton, Pecos County
Edwards-Trinity (Plateau) Aquifer



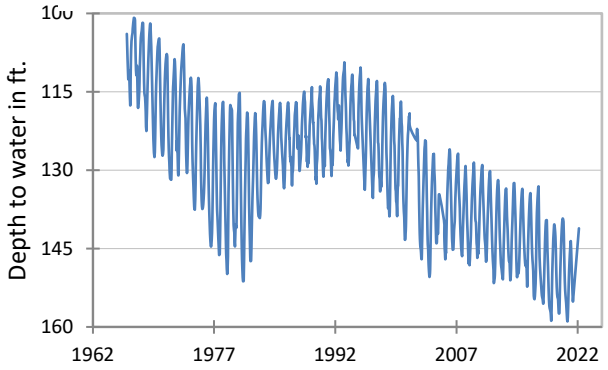
(16) State Well #55-12-134
Eldorado, Schleicher County
Edwards-Trinity (Plateau) Aquifer



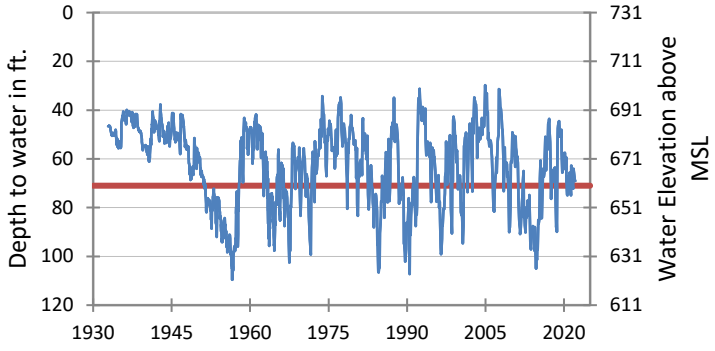
(17) State Well #21-35-748
Near O'Brien, Haskell County
Seymour Aquifer

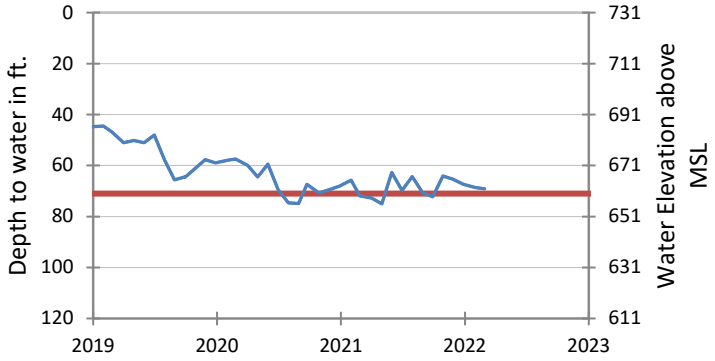


(18) State Well #48-07-516
Dell City, Hudspeth County
Bone Spring - Victorio Peak Aquifer



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



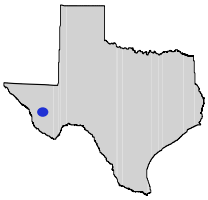


The late February water-level measurement in this Edwards (Balcones Fault Zone) Aquifer well, located at an elevation of 731 feet above mean sea level, was 69.10 feet below land surface, or 661.90 feet above mean sea level. This was 0.50 feet below last month's measurement, 2.80 feet above last year's measurement, and 22.46 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. In February 2022, Stage 1 drought restrictions were not in effect because the aquifer remained above the Stage 1 critical management level.

***Recorder wells #1 and #14 were offline in February 2022 and did not record data.**

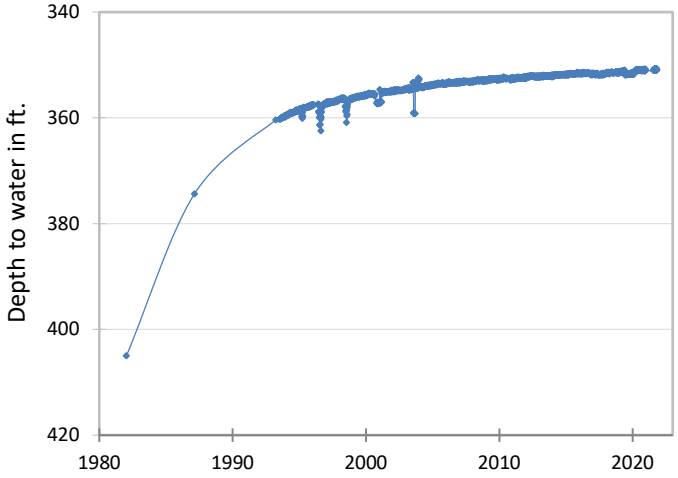
HYDROGRAPH OF THE MONTH



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

West Texas Bolsons Aquifer

Well #51-29-805, 1648 feet deep
unused, Presidio County



The West Texas Bolsons Aquifer is a minor aquifer located in several basins, or bolsons, in far west Texas. The aquifer occurs as water-bearing, basin-fill deposits as much as 3,000 feet thick. It is composed of eroded materials that vary depending on the mountains bordering the basins and the manner in which the sediments were deposited. Sediments range from the fine-grained silt and clay of lake deposits to the coarse-grained volcanic rock and limestone of alluvial fans. Freshwater saturated thickness averages about 580 feet. Groundwater quality varies depending on the basin, ranging from freshwater, containing less than 1,000 milligrams per liter of total dissolved solids, to slightly to moderately saline water, containing between 1,000 and 4,000 milligrams per liter of total dissolved solids. Groundwater in the central and southern regions of the aquifer commonly exceeds maximum contaminant level for arsenic, fluoride, gross alpha radiation, or nitrate-N. The northern regions of the aquifer are more likely to exceed the maximum contaminant level for total dissolved solids. Groundwater is used for irrigation and livestock throughout the area and for municipal supply in the cities of Presidio, Sierra Blanca, Valentine, and Van Horn.

The initial water level measurement taken by the Texas Water Development board was 405 feet below land surface in January of 1982. The TWDB took additional measurements in 1987, 1992, and 1993 before installing an automatic water-level recorder in the unused well in July of 1993. The recorder continues to take hourly measurements (available online) and daily measurements (in the groundwater database). The period of record shows a rapid phase of recovery in water level from approximately 1982 to 1993, followed by a phase of gradual and steady recovery roughly equal to 0.33 ft/yr. This may be attributed to a decrease in pumping for irrigation in the local area.

Far away (left), and close-up (right) images of well #51-29-805.