

Texas Water Conditions Report

October 2023



Water News:

In an effort to improve existing information on how pan evaporation rates can be adjusted to represent true lake evaporation and enable us to provide more accurate estimates of reservoir evaporation loss, our Water Availability department is upgrading a select number of pan evaporation stations to include automated readings, meteorological readings, and automated refill features. Pictured above is the newest installation at Lake Livingston.

RAINFALL

In October, much of the Trans Pecos, northern High Plains, northern Low Rolling Plains, southern Edwards Plateau, Southern, Lower Valley, eastern East Texas, and eastern Upper Coast climate divisions received zero to little rainfall [yellow, orange, and red shading, Figure 1(a)]. Above average to high amounts of rainfall [light and dark blue shading, Figure 1(a)] were seen in the southern High Plains, Low Rolling Plains, eastern Trans Pecos, central Edwards Plateau, much of North Central and East Texas, areas of Southern, South Central, Lower Valley, and the Upper Coast climate divisions.

Compared to historical data from 1991–2020, western Trans Pecos, northern High Plains, and southeastern East Texas, received 0–75 percent of normal rainfall [yellow, orange shading, Figure 1(b)]. 125–200 percent of normal rainfall [green shading, Figure 1(b)] was received in the eastern Trans Pecos, southern High Plains, Low Rolling Plains, Edwards Plateau, North Central, northern South Central, parts of the Southern, and the central Upper Coast climate divisions. 200–400 percent of normal rainfall [light to dark blue shading, Figure 1(b)] was received in northern and southern East Texas, portions of the Edwards Plateau, Southern, eastern Trans Pecos, northern Lower Valley, northern and southern High Plains, Lower Rolling Plains, and central North Central climate divisions. Northern and southern High Plains, eastern Trans Pecos, southern Lower Rolling Plains, and central North Central climate divisions received 400-600 percent of normal [light purple shading, Figure 1(b)].

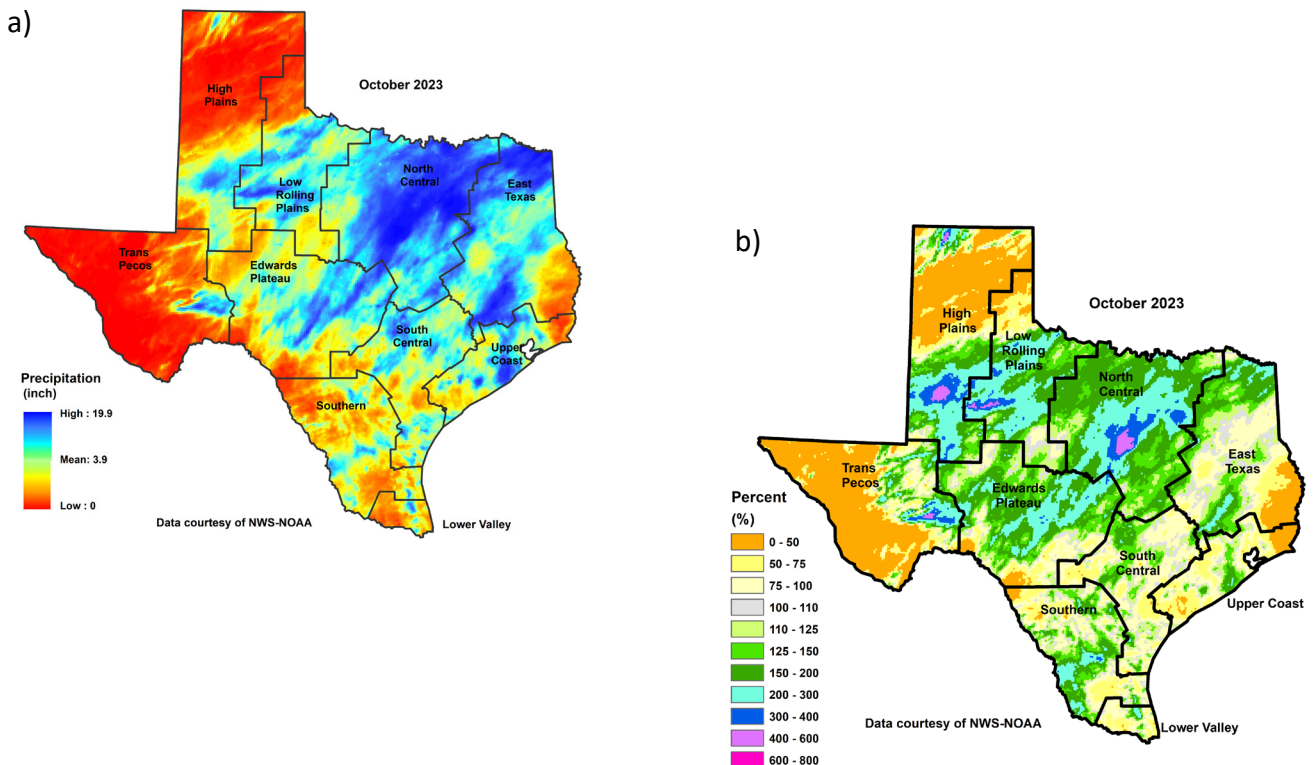
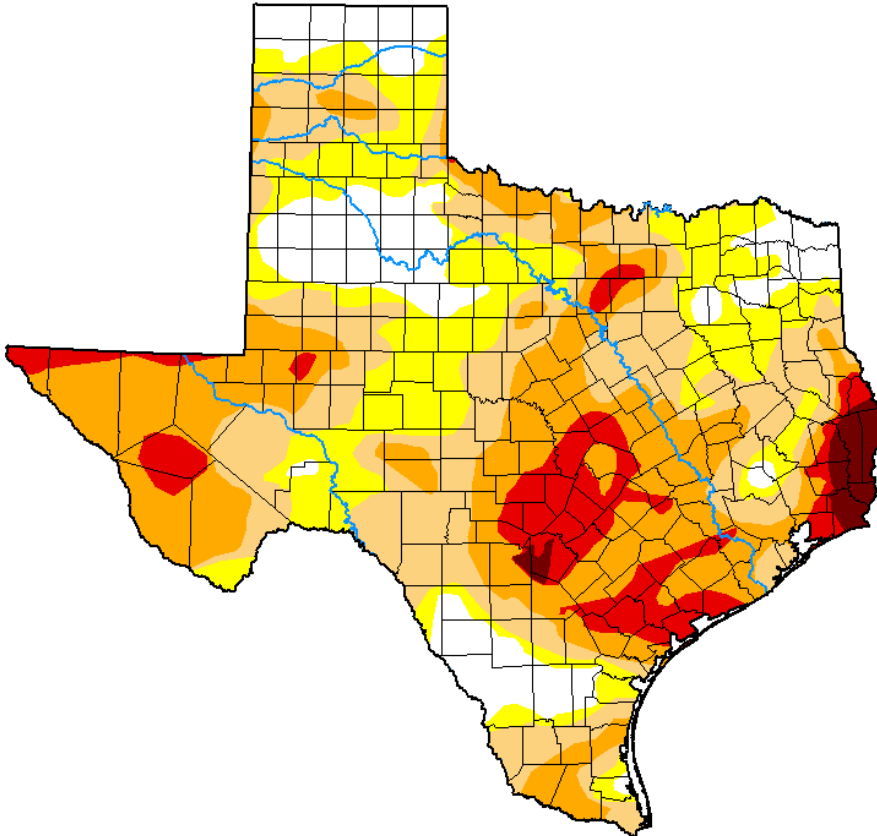


Figure 1: (a) Monthly accumulated rainfall, and (b) Percent of normal rainfall

DROUGHT

At the end of October, 86.39% of the state was in the D0 (abnormally dry) through D4 (exceptional drought) categories (**Figure 2**). That is a decrease of 6.73 % from the end of September.

October 31, 2023



Date	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<u>2023-10-31</u>	13.61	86.39	65.37	38.54	10.94	1.78

Figure 2. The percentage of drought in Texas according to the U.S. Drought Monitor map as of October 31, 2023.

RESERVOIR STORAGE

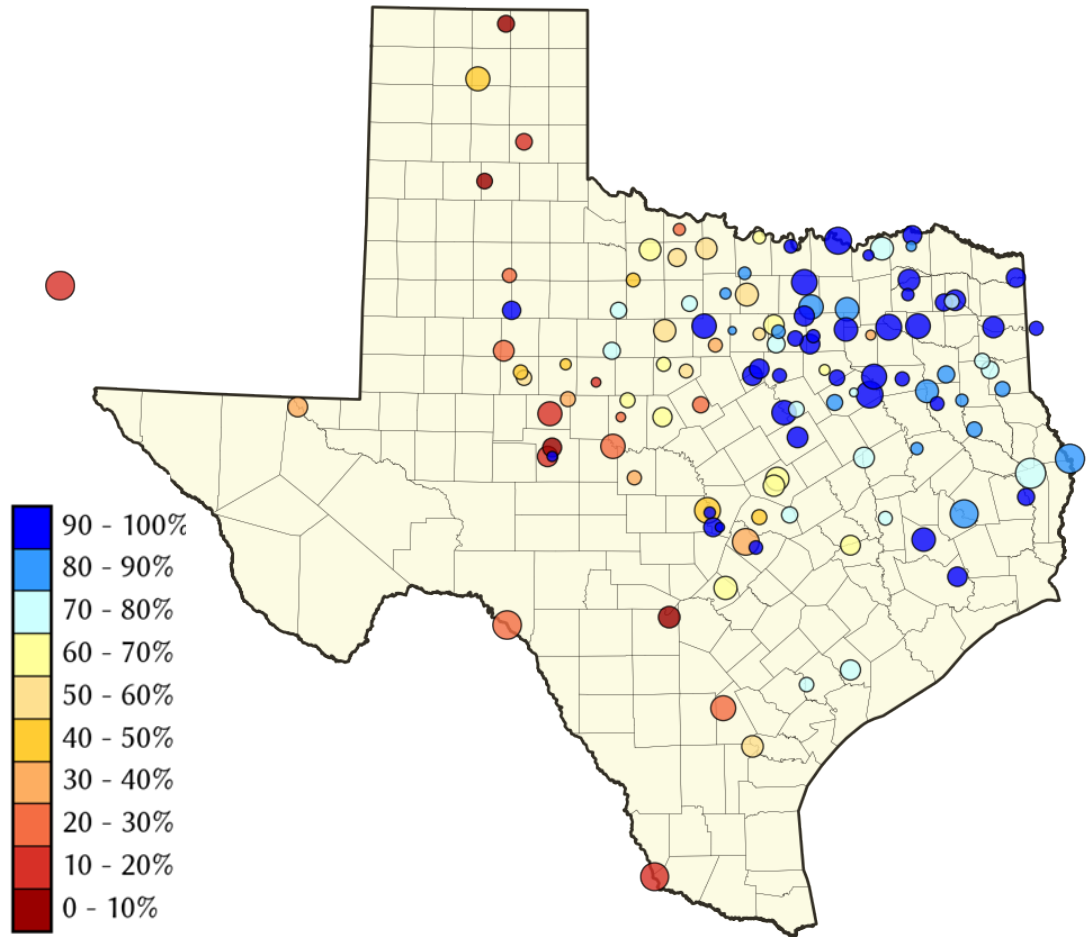


Figure 3. Reservoir conservation storage at end-October expressed as percent full (%)

Out of 119 reservoirs in the state, twelve reservoirs held 100 percent conservation storage capacity. Twenty-nine reservoirs were at or above 90 percent full in October. Sixteen reservoirs remained below 30 percent full: Abilene (18.4 percent full), Choke Canyon (25.7 percent full), E.V. Spence (16.7 percent full), Falcon (10.3 percent full), Greenbelt (10.8 percent full), Hords Creek (23.0 percent full), J.B. Thomas (22.5 percent full), Mackenzie (9.6 percent full), Medina Lake (3.7 percent full), North Fork Buffalo Creek Reservoir (28.8 percent full), O.H. Ivie (29.5 percent full), O.C. Fisher (2.1 percent full), Palo Duro Reservoir (5.8 percent full), Proctor (28.2 percent full), Twin Buttes (16.2 percent full), and the White River Lake (27.1 percent full). Elephant Butte Reservoir (New Mexico) was 16.9 percent full (Figure 3).

Reservoir conservation storage by climate division was at or above normal [storage ≥ 70 percent full, Figure 4(a)] for East Texas (84.6 percent full), North Central (84.8 percent full), and the Upper Coast (85.4 percent full) climate divisions. Conservation storage was moderately low (Figure 4(a)) for the Low Rolling Plains (52.3 percent full), and South Central (41.9 percent full) climate divisions. The High Plains (37.5 percent full), and Edwards Plateau (32.5 percent full) climate divisions had severely low conservation storage (Figure 4(a)), and the Trans Pecos (16.9 percent full) and the Southern climate division (18.6 percent full) had extremely low conservation storage (Figure 4(a)).

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

a) Regional Reservoir Storage Condition

b) Reservoir Storage Index* (by Basins/Subbasins)

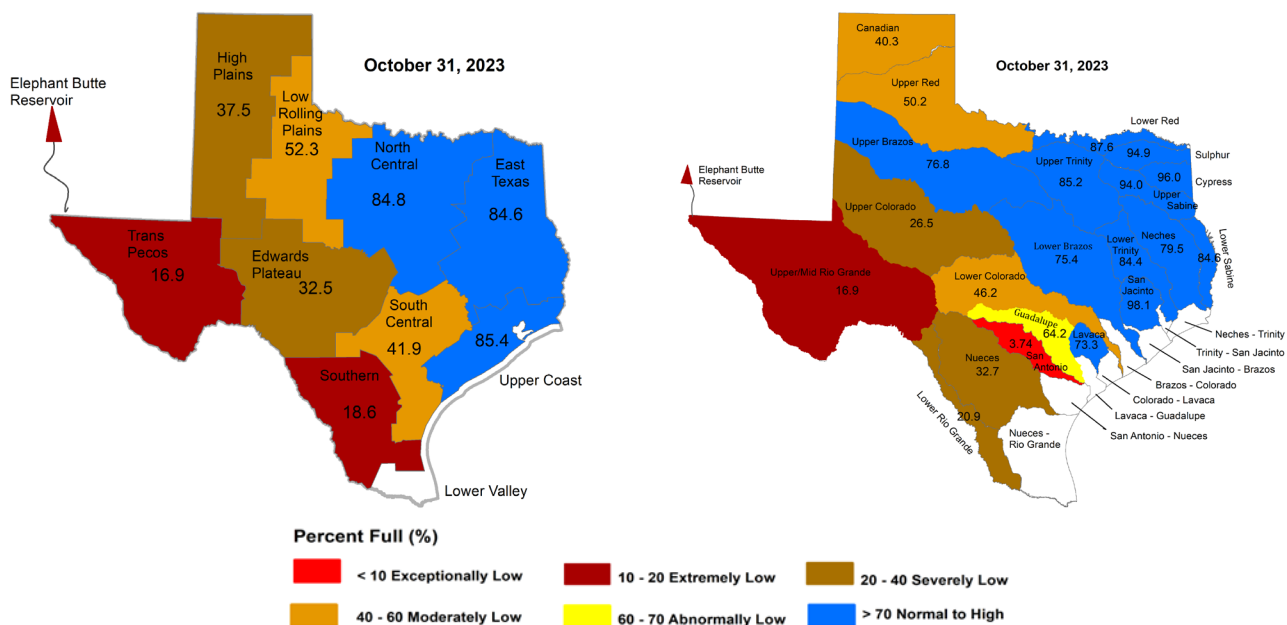


Figure 4: (a) Reservoir Storage Index* by climate division, and (b) Reservoir Storage Index* by basin/sub-basin.

*Reservoir Storage Index is defined as the percent full of conservation storage capacity. Percent full is calculated as the combined conservation storage of all reservoirs in a climate region or a basin/subbasin, excluding dead pool storage.

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of lake or reservoir	Storage capacity	Storage at end-October 2023		Storage change from end-Sep 2023		Storage change from end-Oct 2022	
	(acre-feet)	(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)
Abilene, Lake	7,900	1,452	18.4	-141	-1.8	-1,563	-19.8
Alan Henry Reservoir	96,207	88,643	92.1	3,849	4.0	15,639	16.3
*Amistad Reservoir (Texas & Mexico)	3,275,532	944,105	28.8	-80,595	-2.5	-495,358	-15.1
*Amistad Reservoir (Texas)	1,840,849	549,196	29.8	-69,476	-3.8	-297,738	-16.2
Amon G Carter, Lake	19,266	16,404	85.1	556	2.9	-247	-1.3
Aquilla Lake	43,243	33,148	76.7	-1,013	-2.3	5,457	12.6
Arlington, Lake	40,157	40,157	100.0	8,812	21.9	5,310	13.2
Arrowhead, Lake	230,359	126,910	55.1	-714	0.0	-29,956	-13.0
Athens, Lake	29,503	26,696	90.5	384	1.3	-67	0.0
*Austin, Lake	23,972	22,757	94.9	-246	-1.0	-138	0.0
B A Steinhagen Lake	69,186	67,764	97.9	806	1.2	5,803	8.4
Bardwell Lake	43,856	43,856	100.0	5,072	11.6	7,621	17.4
Belton Lake	432,631	266,815	61.7	25,663	5.9	-21,542	-5.0
Benbrook Lake	85,648	61,270	71.5	16,837	19.7	1,571	1.8
Bob Sandlin, Lake	192,417	180,854	94.0	1,550	0.8	3,094	1.6
Bois d'Arc Lake	367,609	267,046	72.6	-1,603	0.0	127,290	34.6
Bonham, Lake	11,027	9,988	90.6	984	8.9	161	1.5
Brady Creek Reservoir	28,808	10,776	37.4	74	0.3	-1,694	-5.9
Bridgeport, Lake	372,183	214,075	57.5	-5,147	-1.4	-62,246	-16.7
*Brownwood, Lake	130,868	80,184	61.3	-1,620	-1.2	-1,773	-1.4
Buchanan, Lake	822,207	385,377	46.9	14,160	1.7	-132,875	-16.2
Caddo, Lake	29,898	29,898	100.0	0	0.0	0	0.0
Canyon Lake	378,781	239,861	63.3	-7,517	-2.0	-72,422	-19.1
Cedar Creek Reservoir in Trinity	644,686	596,540	92.5	64,924	10.1	97,419	15.1
Champion Creek Reservoir	41,580	24,787	59.6	1,396	3.4	-653	-1.6
Cherokee, Lake	40,094	31,201	77.8	-396	0.0	-2,167	-5.4
Choke Canyon Reservoir	662,820	170,345	25.7	-5,834	0.0	-46,505	-7.0
*Cisco, Lake	29,003	18,062	62.3	-246	0.0	-2,953	-10.2
Coleman, Lake	38,075	23,851	62.6	-685	-1.8	-4,542	-11.9
Colorado City, Lake	31,040	23,437	75.5	-281	0.0	-2,541	-8.2
*Coletto Creek Reservoir	30,758	15,279	49.7	41	0.1	-2,363	-7.7
Conroe, Lake	417,577	407,306	97.5	31,065	7.4	36,855	8.8
Corpus Christi, Lake	256,062	130,958	51.1	-7,045	-2.8	-71,768	-28.0
Crook, Lake	9,195	8,284	90.1	284	3.1	476	5.2
Cypress Springs, Lake	66,756	63,781	95.5	1,260	1.9	4,611	6.9
E. V. Spence Reservoir	517,272	86,455	16.7	1,711	0.3	-11,881	-2.3
Eagle Mountain Lake	179,880	120,091	66.8	6,374	3.5	-19,126	-10.6
Elephant Butte Reservoir (Texas)	852,491	144,371	16.9	-4,974	0.0	84,044	9.9
Elephant Butte Reservoir (Total Storage)	1,985,900	334,191	16.8	-11,513	0.0	194,547	9.8
*Falcon Reservoir (Texas & Mexico)	2,646,817	385,136	14.6	16,695	0.6	-93,111	-3.5
*Falcon Reservoir (Texas)	1,551,007	159,833	10.3	19,116	1.2	-63,971	-4.1
Fork Reservoir, Lake	605,061	555,697	91.8	13,303	2.2	114,174	18.9
Fort Phantom Hill, Lake	70,030	50,018	71.4	1,227	1.8	2,105	3.0
Georgetown, Lake	38,005	17,172	45.2	-140	0.0	-1,867	-4.9
Gibbons Creek Reservoir	25,721	18,637	72.5	-106	0.0	711	2.8
Graham, Lake	45,288	32,728	72.3	41	0.1	-3,386	-7.5
Granbury, Lake	132,949	131,971	99.3	11,782	8.9	17,073	12.8

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of lake or reservoir	Storage capacity	Storage at end-October 2023		Storage change from end-Sep 2023		Storage change from end-Oct 2022	
	(acre-feet)	(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)
<i>Continued</i>							
Granger Lake	51,822	41,030	79.2	1,732	3.3	-2,363	-4.6
Grapevine Lake	163,064	161,291	98.9	26,970	16.5	-1,773	-1.1
Greenbelt Lake	59,968	6,475	10.8	-310	0.0	-956	-1.6
*Halbert, Lake	6,033	4,312	71.5	-97	-1.6	-333	-5.5
Hords Creek Lake	8,109	1,868	23.0	-63	0.0	-646	-8.0
Houston County Lake	17,113	14,689	85.8	384	2.2	443	2.6
Houston, Lake	132,318	132,318	100.0	1,370	1.0	457	0.3
Hubbard Creek Reservoir	313,298	165,751	52.9	-2,806	0.0	-51,616	-16.5
Hubert H Moss Lake	24,058	21,700	90.2	276	1.1	357	1.5
Inks, Lake	13,729	12,974	94.5	-94	0.0	-86	0.0
J. B. Thomas, Lake	199,931	45,041	22.5	7,943	4.0	-6,928	-3.5
Jacksonville, Lake	25,670	23,475	91.4	77	0.3	362	1.4
Jim Chapman Lake (Cooper)	260,332	239,584	92.0	14,138	5.4	70,136	26.9
Joe Pool Lake	149,629	149,629	100.0	13,576	9.1	7,766	5.2
Kemp, Lake	245,307	156,375	63.7	5,295	2.2	26,221	10.7
Kickapoo, Lake	86,345	44,751	51.8	-673	0.0	-7,320	-8.5
Lavon Lake	409,757	337,931	82.5	30,382	7.4	44,840	10.9
Leon, Lake	27,762	14,103	50.8	-102	0.0	-2,871	-10.3
Lewisville Lake	563,228	505,888	89.8	66,213	11.8	60,030	10.7
Limestone, Lake	203,780	159,544	78.3	-218	0.0	16,642	8.2
*Livingston, Lake	1,603,504	1,353,478	84.4	40,027	2.5	-166,498	-10.4
*Lost Creek Reservoir	11,950	10,678	89.4	-24	0.0	127	1.1
Lyndon B Johnson, Lake	112,778	110,917	98.3	-705	0.0	-448	0.0
Mackenzie Reservoir	46,450	4,453	9.6	-99	0.0	1,504	3.2
Marble Falls, Lake	7,597	7,299	96.1	120	1.6	2,886	38.0
Martin, Lake	75,726	57,113	75.4	-2,302	-3.0	-889	-1.2
Medina Lake	254,823	9,555	3.7	-694	0.0	-8,316	-3.3
Meredith, Lake	500,000	222,950	44.6	-6,605	-1.3	65,672	13.1
Millers Creek Reservoir	26,768	12,443	46.5	100	0.4	-4,694	-17.5
*Mineral Wells, Lake	5,273	4,494	85.2	1,164	22.1	309	5.9
Monticello, Lake	34,740	27,213	78.3	217	0.6	476	1.4
Mountain Creek, Lake	22,850	22,850	100.0	0	0.0	0	0.0
Murva ul, Lake	38,285	32,944	86.0	227	0.6	-3,101	-8.1
Nacogdoches, Lake	39,522	32,910	83.3	-229	0.0	1,460	3.7
Nasworthy	9,615	8,884	92.4	-51	0.0	688	7.2
Navarro Mills Lake	49,827	42,807	85.9	2,714	5.4	7,986	16.0
New Terrell City Lake	8,583	2,943	34.3	1,403	16.3	-3,894	-45.4
Nocona, Lake (Farmers Crk)	21,444	14,961	69.8	-136	0.0	-1,391	-6.5
North Fork Buffalo Creek Reservoir	15,400	4,438	28.8	-115	0.0	-2,707	-17.6
O' the Pines, Lake	241,363	241,363	100.0	-13,958	-5.8	14,060	5.8
O. C. Fisher Lake	115,742	2,418	2.1	-121	0.0	-1,372	-1.2
*O. H. Ivie Reservoir	554,340	163,313	29.5	-5,805	-1.0	-59,183	-10.7
Oak Creek Reservoir	39,210	13,786	35.2	-330	0.0	-5,854	-14.9

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of lake or reservoir	Storage capacity	Storage at end-October 2023		Storage change from end-Sep 2023		Storage change from end-Oct 2022	
	(acre-feet)	(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)
<i>Continued</i>							
Palestine, Lake	367,303	316,933	86.3	-633	0.0	5,240	1.4
Palo Duro Reservoir	61,066	3,532	5.8	-719	-1.2	3,305	5.4
Palo Pinto, Lake	26,766	10,102	37.7	2,036	7.6	-5,381	-20.1
Pat Cleburne, Lake	26,008	26,008	100.0	8,772	33.7	12,465	47.9
*Pat Mayse Lake	113,683	105,896	93.2	-1,486	-1.3	5,151	4.5
Possum Kingdom Lake	538,139	498,151	92.6	16,116	3.0	53,464	9.9
Proctor Lake	54,762	15,418	28.2	1,422	2.6	-8,839	-16.1
Ray Hubbard, Lake	439,559	399,061	90.8	45,416	10.3	9,098	2.1
Ray Roberts, Lake	788,167	751,012	95.3	21,298	2.7	25,894	3.3
Red Bluff Reservoir	151,110	no data		no data		no data	
Richland-Chambers Reservoir	1,087,839	988,166	90.8	9,013	0.8	120,199	11.0
Sam Rayburn Reservoir	2,857,077	2,225,192	77.9	-85,590	-3.0	24,118	0.8
Somerville Lake	150,293	91,701	61.0	-5,691	-3.8	-3,088	-2.1
Squaw Creek, Lake	151,250	151,250	100.0	758	0.5	0	0.0
Stamford, Lake	51,570	36,920	71.6	-1,297	-2.5	3,340	6.5
Stillhouse Hollow Lake	229,796	141,011	61.4	8,409	3.7	-26,441	-11.5
Striker, Lake	16,934	13,684	80.8	325	1.9	-583	-3.4
Sweetwater, Lake	12,267	5,980	48.7	-4	0.0	-1,614	-13.2
*Sulphur Springs, Lake	17,747	17,747	100.0	1,459	8.2	5,378	30.3
Tawakoni, Lake	871,685	856,977	98.3	44,212	5.1	120,682	13.8
Texana, Lake	158,975	116,587	73.3	6,258	4.0	7,004	4.4
Texoma, Lake (Texas & Oklahoma)	2,487,601	2,282,967	91.8	36,846	1.5	-30,271	-1.2
Texoma, Lake (Texas)	1,243,801	1,141,483	91.8	18,423	1.5	-15,135	-1.2
Toledo Bend Reservoir (Texas & Louisiana)	4,472,900	3,788,943	84.7	-33,603	0.0	101,556	2.3
Toledo Bend Reservoir (Texas)	2,236,450	1,892,422	84.6	-16,801	0.0	50,778	2.3
Travis, Lake	1,098,044	424,330	38.6	31,049	2.8	-82,659	-7.5
Twin Buttes Reservoir	182,454	29,585	16.2	-1,927	-1.1	-23,829	-13.1
Tyler, Lake	72,073	59,920	83.1	-1,010	-1.4	1,333	1.8
Waco, Lake	189,418	189,418	100.0	81,801	43.2	80,008	42.2
Waxahachie, Lake	11,060	7,302	66.0	369	3.3	-1,059	-9.6
Weatherford, Lake	17,812	10,628	59.7	1,188	6.7	-460	-2.6
White River Lake	29,880	8,098	27.1	1,643	5.5	3,647	12.2
Whitney, Lake	564,808	522,556	92.5	119,761	21.2	111,992	19.8
Worth, Lake	24,419	20,228	82.8	5,971	24.5	2,680	11.0
Wright Patman Lake	135,069	135,069	100.0	-91,508	-67.7	0	0.0
STATEWIDE TOTAL							
STATEWIDE TOTAL	32,205,142	21,449,237	66.6	1,197,382	3.7	801,264	2.5

*Total volume below elevation of conservation pool top is used as the conservation storage capacity, because the dead pool storage is unknown.

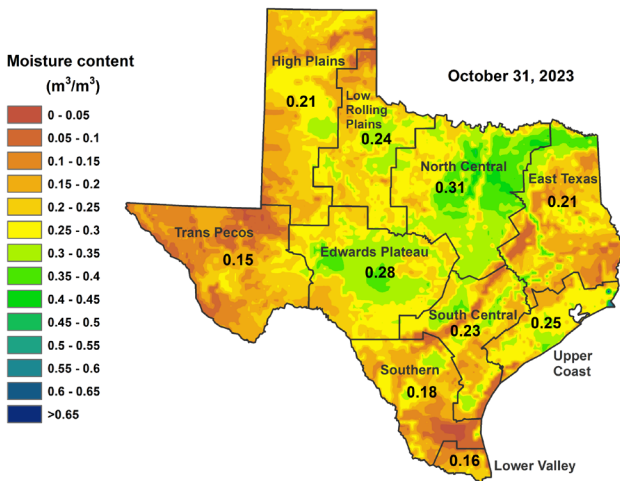
**Monthly and yearly changes do not include reservoirs that did not have data in the last month or last year, respectively.

SOIL MOISTURE

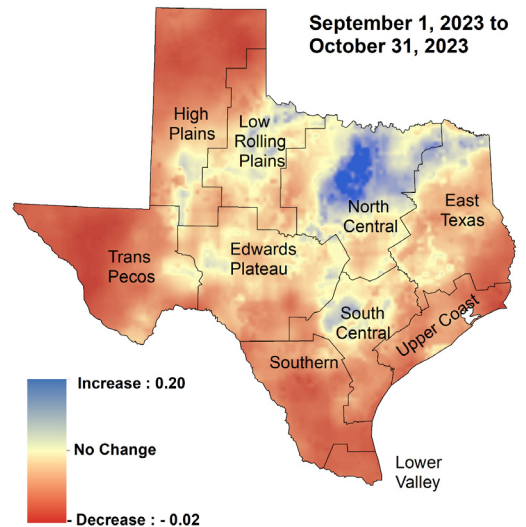
At the end of October 2023, root zone soil moisture was low [yellow, orange, Figure 5(a)] across the state. Areas of more severe dryness [brown shading, Figure 5(a)] were in the northern High Plains, northern Low Rolling Plains, areas of the Trans Pecos, southern Southern, central and southern South Central, northern Lower Valley, and areas of East Texas climate divisions. Average soil moisture [green shading, Figure 5(a)] was seen in eastern High Plains, Low Rolling Plains, Edwards Plateau, North Central, northern Southern, northern and southern South Central, areas of the Upper Coast, and northern and western East Texas climate divisions.

Compared to conditions at the end of September 2023, soil moisture increased [blue shading in Figure 5(b)] in central Low Rolling Plains, central and eastern North Central, northern East Texas, and northern South Central climate divisions. Soil moisture decreased marginally across much of the High Plains, Trans Pecos, Edwards Plateau, Southern, southern South Central, Upper Coast, and central and southern East Texas climate divisions.

a)



b)



Data from NASA Soil Moisture Active Passive (SMAP) Level 4 - Model - Value Added Version 7. Soil moisture content is shown as volume of water per unit volume of bulk soil. Root zone: 0 to 1 meter depth.

Figure 5: (a) Root zone soil moisture conditions in October 2023 and (b) the difference in root zone soil moisture between end-September 2023 and end-October 2023.

STREAMFLOW CONDITIONS

Normal streamflow (25–75th percentile, green shading, Figure 6) was recorded in parts of the Panhandle, Northern, Eastern, and Western regions of Texas this month. Above normal streamflow (76–90th percentile, light blue shading, Figure 6) was seen in the Canadian, Upper Brazos, Middle Brazos (Cowhouse watershed), Upper Trinity, and Upper and Middle Colorado river basins. Much above normal streamflow (>90th percentile, dark blue shading, Figure 6) was seen in the headwaters of the Colorado, Middle Brazos (North Bosque watershed), Pecos (Independence watershed), and Upper Trinity river basins.

Below normal streamflow (10–24th percentile, orange shading, Figure 6) was recorded in the Upper and Lower Red, Upper Brazos (Hubbard watershed), Lower Brazos (Yegua and Lower Brazos-Little Brazos watersheds), Middle and Lower Colorado, Nueces (Upper Nueces, Lower Nueces, West, and Turkey watersheds), Guadalupe (San Marcos watershed), Nueces-Rio Grande, San Antonio-Nueces, Colorado-Lavaca, Lavaca, and Neches (Village and Pine Island Bayou watersheds) river basins. Much below normal stream flow (< 10th percentile, dark red shading, Figure 6) was seen in the Upper Red (Lower Prairie Dog Town Fork Red watershed), Middle Colorado (Elm watershed), Lower Colorado, Brazos-Colorado (San Bernard watershed), Guadalupe, San Antonio (Medina watershed), Nueces (Upper Frio, Atascosa, and Hondo watersheds), Pecos (Toyah watershed), Lower Sabine, Nueces-Rio Grande (San Fernando watershed), and San Antonio-Nueces (Mission watershed) river basins.

Record lows (bright red shading, Figure 6) were recorded in the Upper Red (Blue China watershed) river basin.

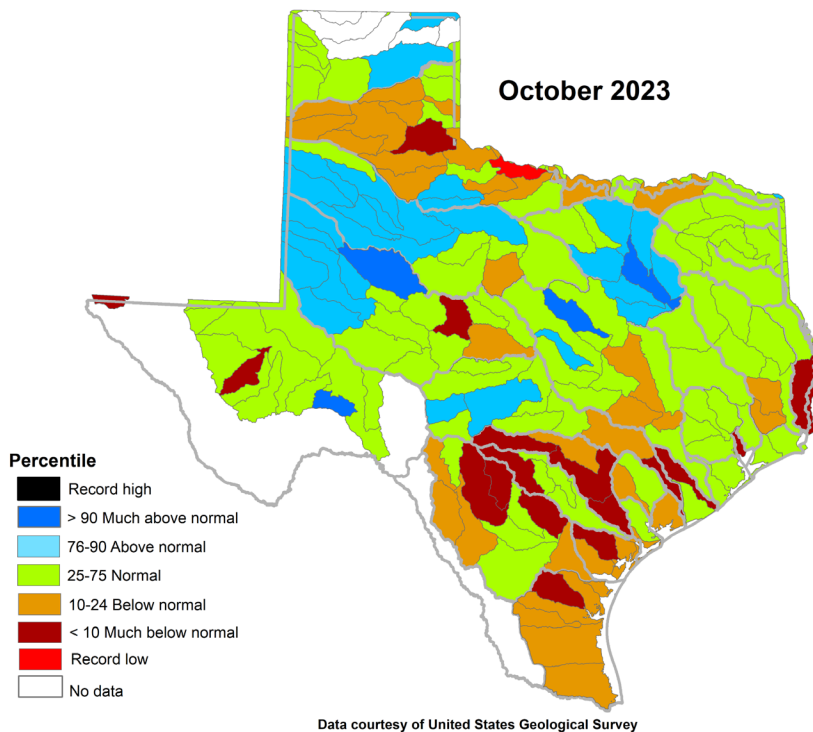
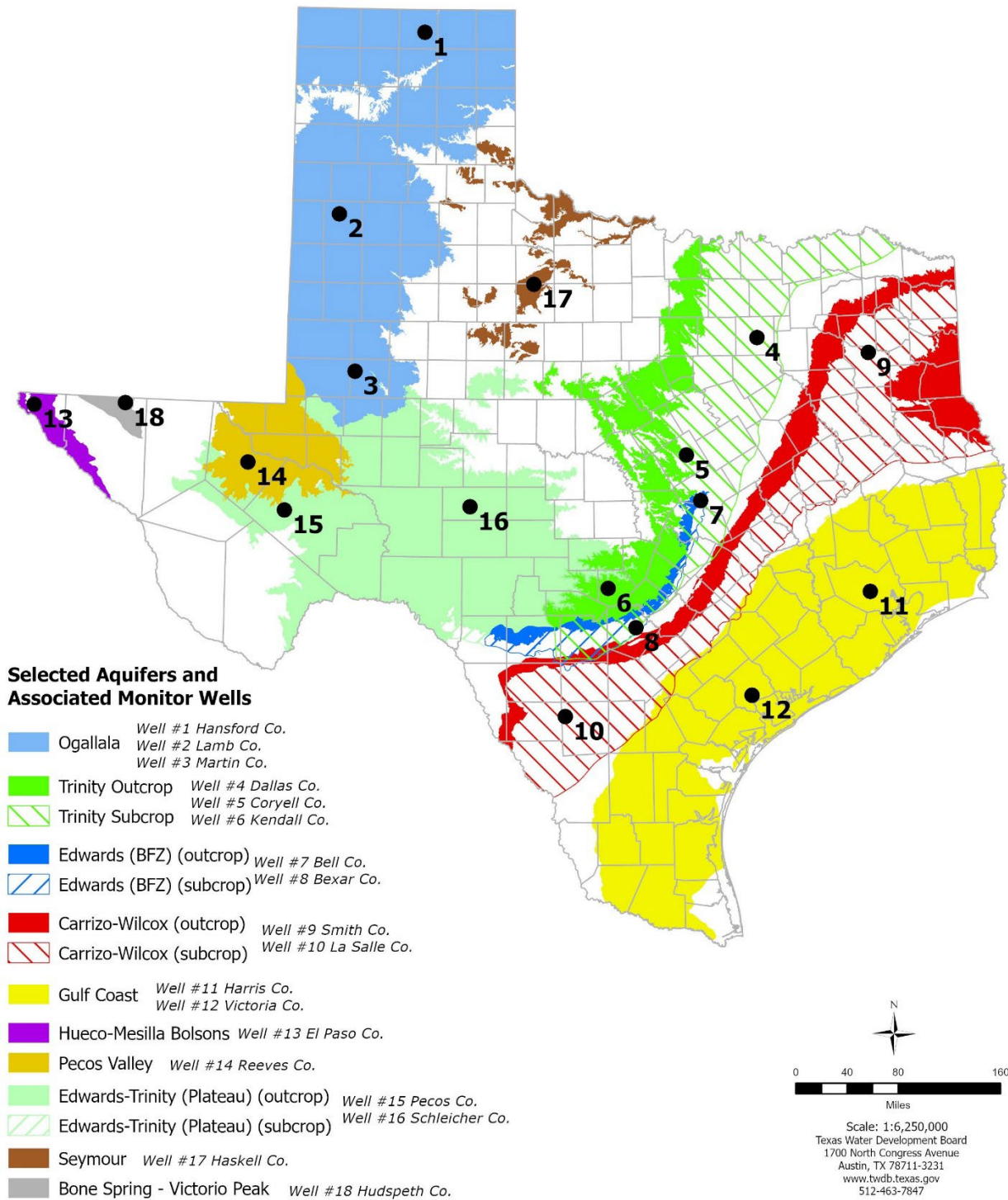


Figure 6: Runoff percentiles by the U.S. Geological Survey's Hydrologic Unit Code



OCTOBER 2023 GROUNDWATER LEVELS IN MONITORING WELLS

Water level measurements were available for 15 key monitoring wells in the state. The recorders in three wells (#9, #14, and #15 on map) were offline or the well experienced issues during the reporting period. Water levels rose in six monitoring wells since the beginning of October, with an increase of 0.47 feet in the Bell County Edwards (BFZ) Aquifer well (#7 on map) to 6.30 feet in the Bexar County Edwards (BFZ) Aquifer (#8 on map). Water levels declined in nine monitoring wells, ranging from a decline of -0.11 feet in the Lamb County Ogallala Aquifer (#2 on map) to -2.33 feet in the Harris County Gulf Coast Aquifer well (#11 on map). The J-17 well (#8 on map) in San Antonio recorded a water level of 95.10 feet below land surface or 635.90 feet above mean sea level. Water levels are 4.10 feet below the Stage 3 critical management levels for the San Antonio portion of the Edwards (Balcones Fault Zone) Aquifer. The Edwards Aquifer Authority declared Stage 3 water restrictions effective November 1, 2023, as a result of well J-17 water levels and area spring flow levels.

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

Monitoring Well	October (depth to water, feet)	September (depth to water, feet)	Month Change	Year Change	Historical Change*	First Measured (year)
(1) Hansford 0354301	164.98	164.77	-0.21	-2.32	-94.86	1951
(2) Lamb 1053602	154.46	154.35	-0.11	-1.18	-126.29	1951
(3) Martin 2739903	145.98	145.72	-0.26	-0.17	-41.09	1964
(4) Dallas 3319101	509.31	508.38	-0.93	-5.03	-287.31	1954
(5) Coryell 4035404	548.01	547.07	-0.94	3.64	-256.01	1955**
(6) Kendall 6802609	171.78	173.23	1.45	-3.19	-111.78	1975
(7) Bell 5804816	128.44	128.91	0.47	-1.61	-4.93	2008
(8) Bexar 6837203	95.10	101.40	6.30	1.80	-48.46	1932
(9) Smith 3430907	NA	NA	NA	NA	-140.39	1977**
(10) La Salle 7738103	543.95	543.34	-0.61	-4.34	-290.88	2003
(11) Harris 6514409	199.21	196.88	-2.33	-5.61	-63.71*	1947**
(12) Victoria 8017502	34.14	33.34	-0.80	0.33	-0.14	1958**
(13) El Paso 4913301	299.44	298.65	-0.79	0.74	-67.54	1964**
(14) Reeves 4644501	NA	NA	NA	NA	-64.44	1952
(15) Pecos 5216802	NA	NA	NA	NA	24.73	1976
(16) Schleicher 5512134	320.43	321.44	1.01	-6.34	-18.53	2003
(17) Haskell 2135748	47.19	47.86	0.67	0.06	-4.19	2002
(18) Hudspeth 4807516	150.91	152.12	1.21	0.98	-46.99	1966

*Change since the original measurement taken on the date indicated in the last column. The historical changes shown for recorder wells #9, #14, and #15 are based off their most recent water level records from April 2023, August 2023, and August 2023, respectively.

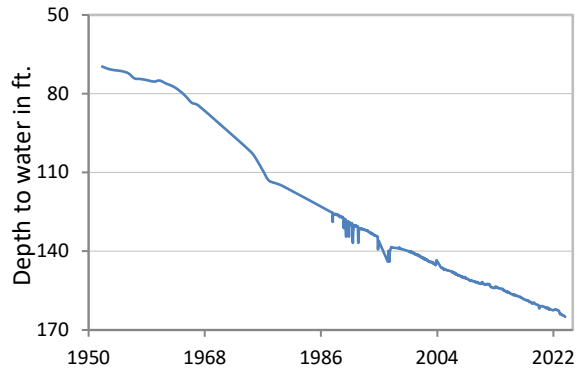
** Measurement not shown on the hydrograph.

NA (not available)

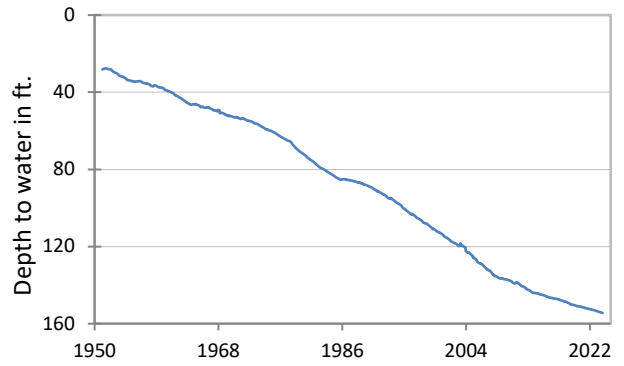
All data are provisional and subject to revision.

OCTOBER 2023 MONITORING WELL HYDROGRAPHS

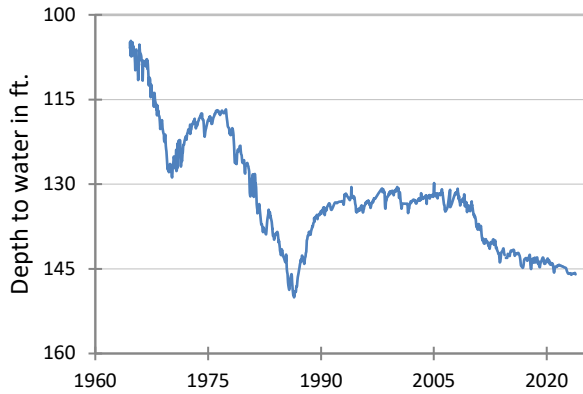
**(1) State Well #03-54-301
Near Spearman, Hansford County
Ogallala Aquifer**



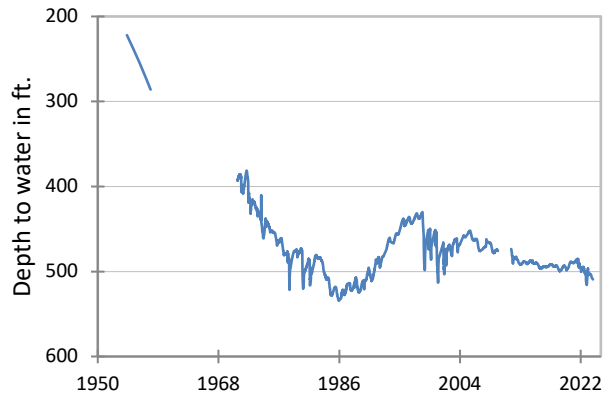
**(2) State Well #10-53-602
Near Earth, Lamb County
Ogallala Aquifer**



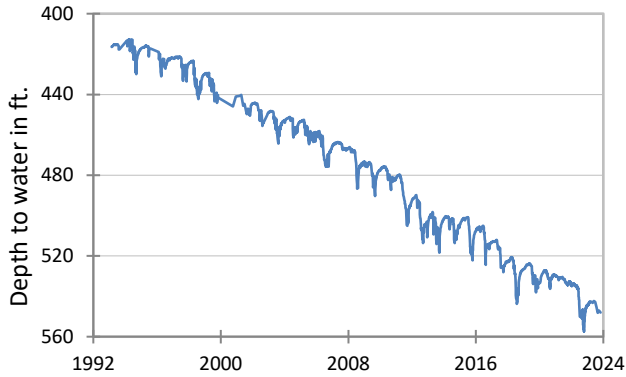
**(3) State Well #27-39-903
Northwest Martin County
Ogallala Aquifer**



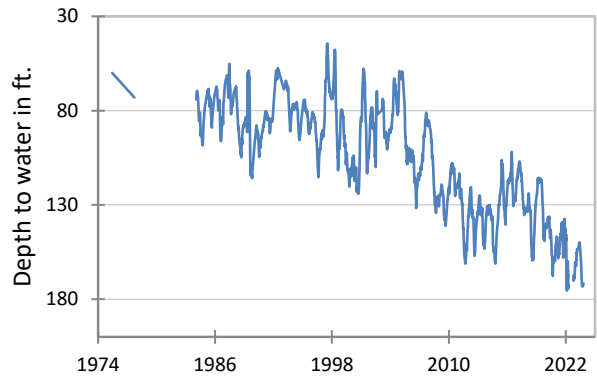
**(4) State Well #33-19-101
Southeast Dallas, Dallas County
Twin Mountains Formation-Trinity Aquifer**



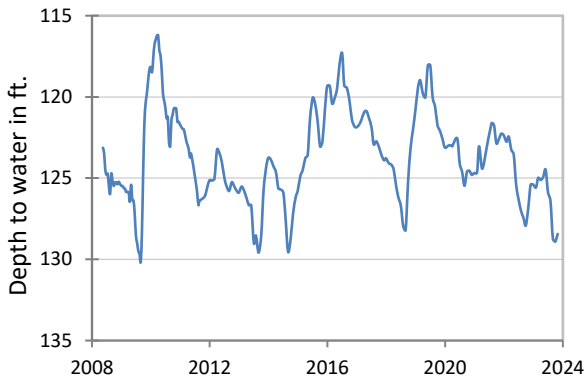
(5) State Well #40-35-404
Gatesville, Coryell County
Hosston Formation-Trinity Aquifer



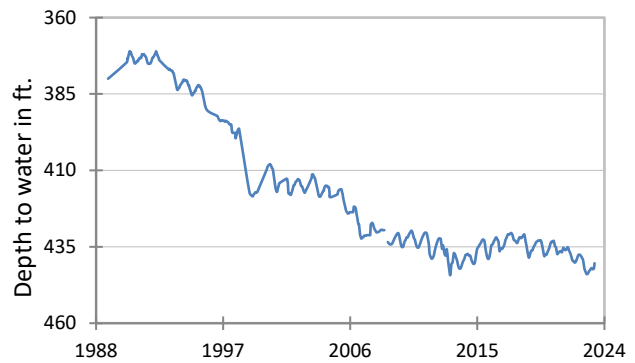
(6) State Well #68-02-609
Waring, Kendall County
Travis Peak Formation-Trinity Aquifer



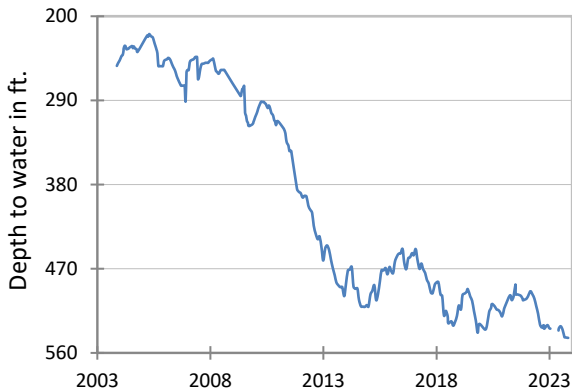
(7) State Well #58-04-816
Near Salado, Bell County
Edwards (Balcones Fault Zone) Aquifer



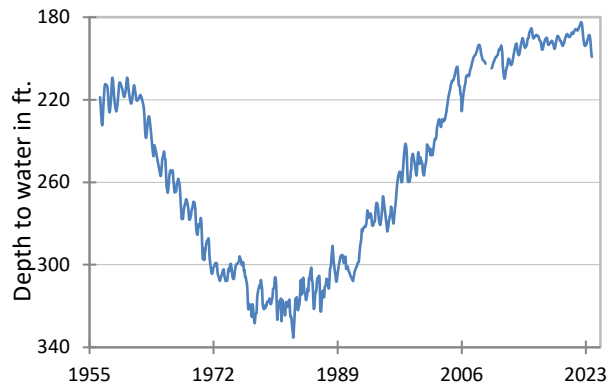
***(9) State Well #34-30-907**
Red Springs, Smith County
Carrizo-Wilcox Aquifer



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

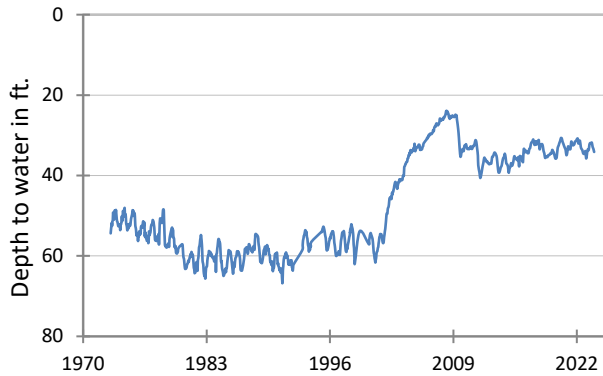


(11) State Well #65-14-409
North Houston, Harris County
Evangeline Formation-Gulf Coast Aquifer

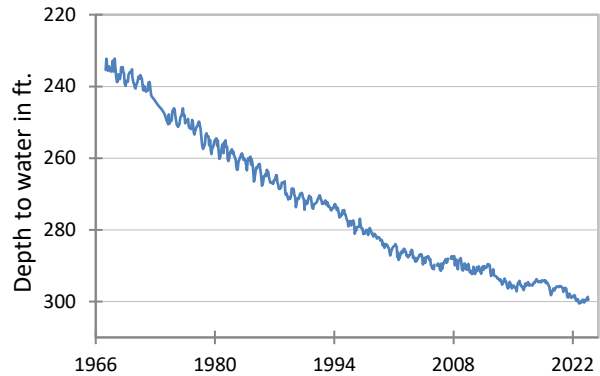


* Recorder well #9 has been offline or the well has experienced issues since May 2023.

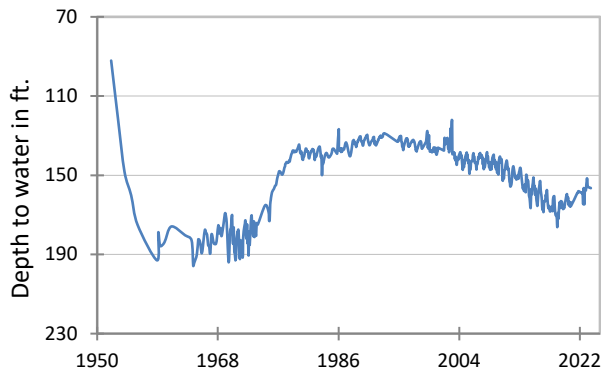
(12) State Well #80-17-502
Near Bloomington, Victoria County
Lissie Formation-Gulf Coast Aquifer



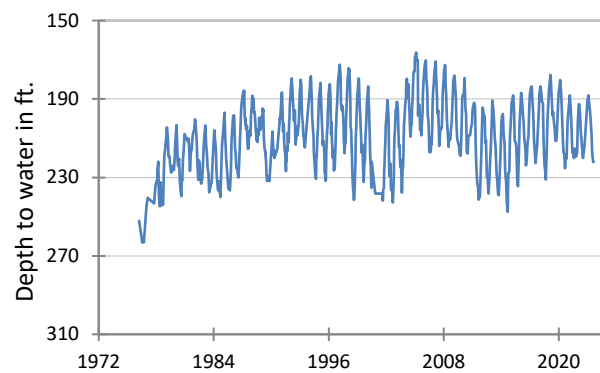
(13) State Well #49-13-301
El Paso, El Paso County
Hueco-Mesilla Bolsons Aquifer



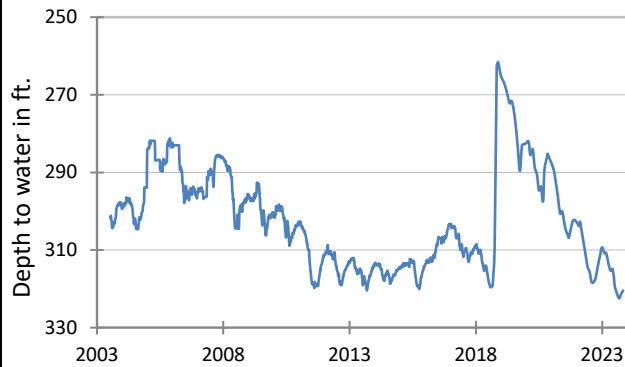
***(14) State Well #46-44-501**
Near Pecos, Reeves County
Pecos Valley Aquifer



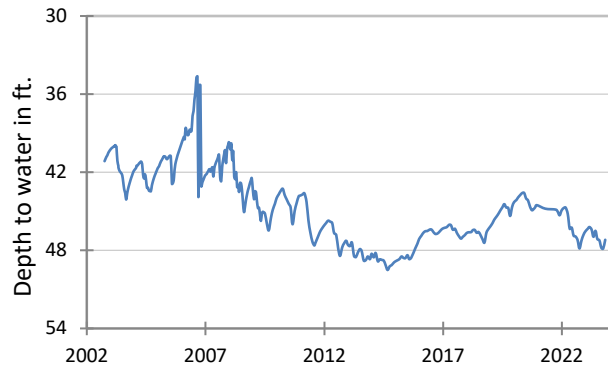
***(15) State Well #52-16-802**
Fort Stockton, Pecos County
Edwards-Trinity (Plateau) Aquifer



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

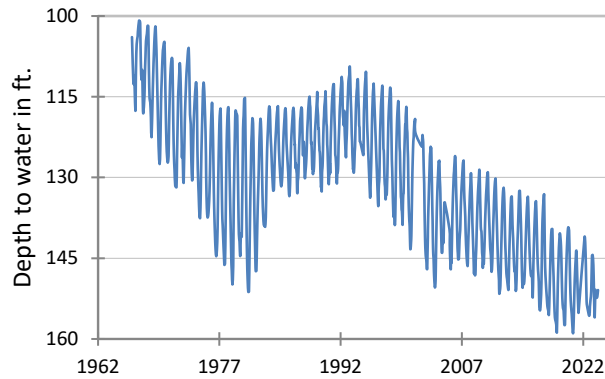


(17) State Well #21-35-748
Near O'Brien, Haskell County
Seymour Aquifer

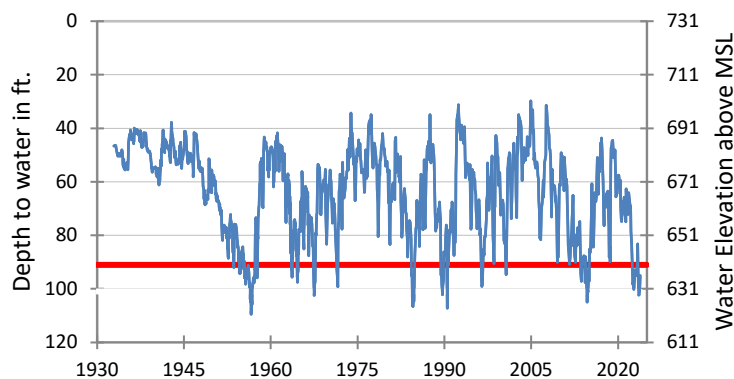


* Recorder wells #14 and #15 were offline since in September 2023 and did not record data.

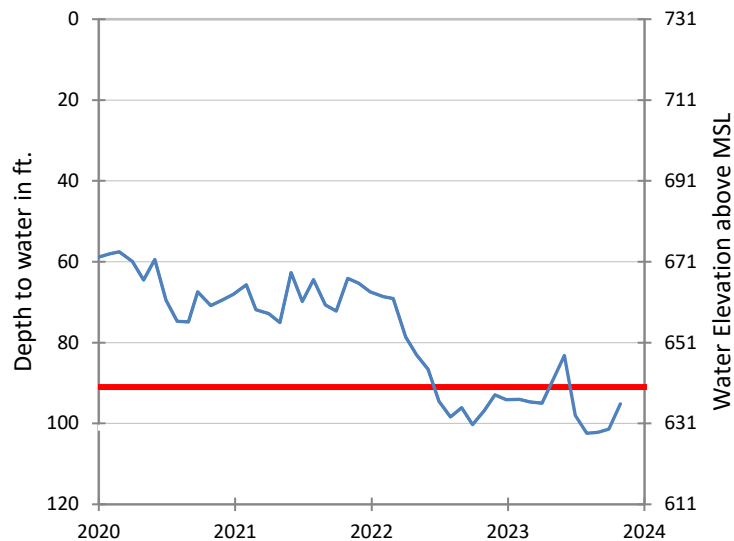
**(18) State Well #48-07-516
Dell City, Hudspeth County
Bone Spring-Victorio Peak Aquifer**



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

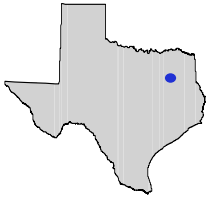


The late October water level measurement in this Edwards (Balcones Fault Zone) Aquifer well, located at an elevation of 731 feet above mean sea level, was 95.10 feet below land surface, or 635.90 feet above mean sea level. This was 6.30 feet above last month's measurement, 1.80 feet above last year's measurement, and 48.46 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. The Edwards Aquifer Authority declared Stage 3 water restrictions effective November 1, 2023, as a result of well J-17 water levels and area spring flow levels.

HYDROGRAPH OF THE MONTH

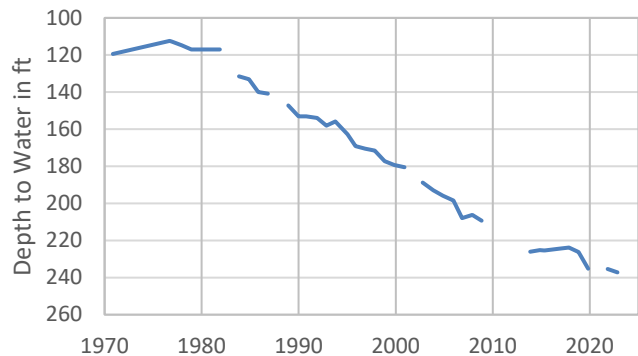


Each month this space features a new hydrograph (marked with the • symbol on the map) depicting different aquifers and their conditions in Texas.

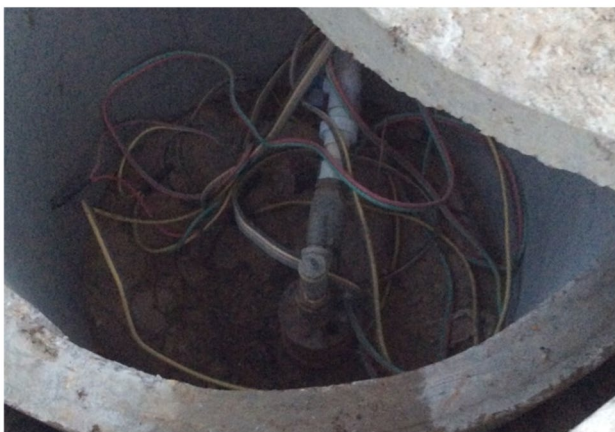
The Carrizo-Wilcox Aquifer is a major aquifer extending from the Louisiana border to the border of Mexico in a wide band adjacent to and northwest of the Gulf Coast Aquifer. It consists of the Wilcox Group and the overlying Carrizo Formation of the Claiborne Group. The aquifer is primarily composed of sand locally interbedded with gravel, silt, clay, and lignite. The Carrizo-Wilcox Aquifer reaches 3,000 feet in thickness, with the freshwater saturated thickness of the sands averaging 670 feet. Isolated areas of slightly saline to moderately saline groundwater exist in the eastern and central portions of the aquifer and are more widespread in the southwest. In the deeper subsurface portions of the aquifer, high iron and manganese content exceed secondary drinking water standards. The groundwater, although hard, is generally fresh in the outcrop, whereas softer groundwater occurs in the subsurface. Irrigation accounts for more than half the water pumped, while municipal supply accounts for another 40 percent.¹

Carrizo-Wilcox Aquifer

Well # 34-43-603, 500 feet deep
Domestic, Henderson County



The initial water level measurement of 119.50 feet below land surface was recorded by a groundwater consultant in 1970. Since 1976, TWDB staff have returned almost every year to collect water level measurements. Over the period of record, the hydrograph shows a relatively consistent rate of water level decline at approximately -2.8 feet per year on average.



Photos of well #34-43-603 well head (left) and general setting (right)

1. Peter G. George, Ph.D., P.G., Robert E. Mace, Ph.D., P.G., Rima Petrossian, P.G. *Aquifers of Texas: Report 380*; 2011. <https://www.twdb.texas.gov/groundwater/aquifer/majors/carrizo-wilcox.asp>