

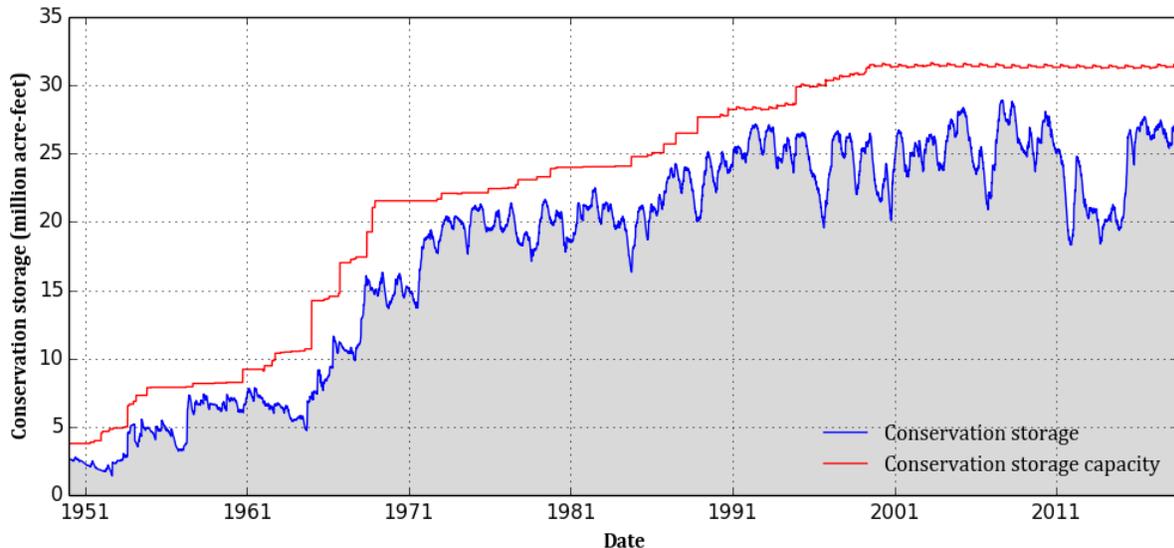
July 2018 RESERVOIR STORAGE*

At the end of July 2018, total conservation storage* in 118 of the state’s major water supply reservoirs plus Elephant Butte Reservoir in New Mexico was 24.31 million acre-feet or 75 percent of total conservation storage capacity. This is approximately 0.97 million acre-feet less than a month ago and 2.41 million acre-feet less than storage at this time last year.

Four (4) reservoirs held 100 percent of conservation storage capacity, primarily in the North Central (2 reservoirs) and East (1 reservoir) regions. Four reservoirs, Palo Duro (1 percent), Twin Buttes (4 percent), and O. C. Fisher (8 percent) remained below 10 percent full. Elephant Butte reservoir is 7 percent full.

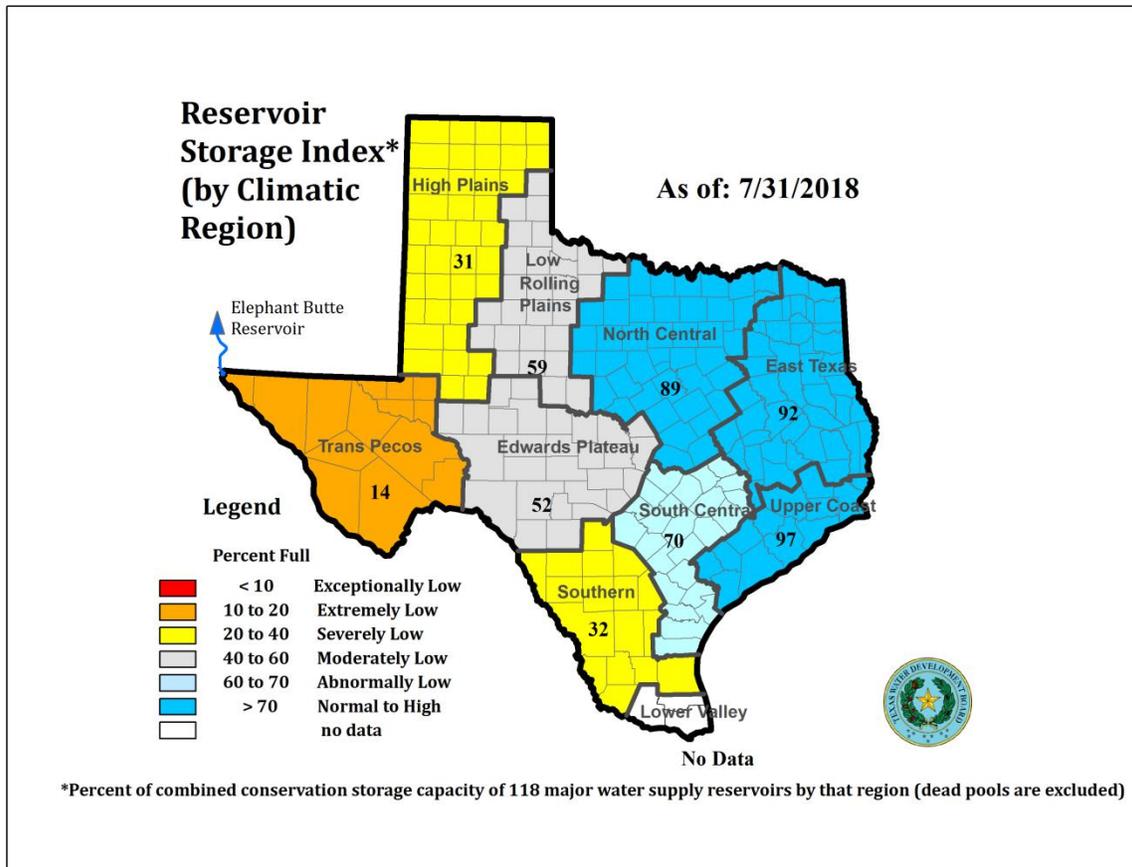
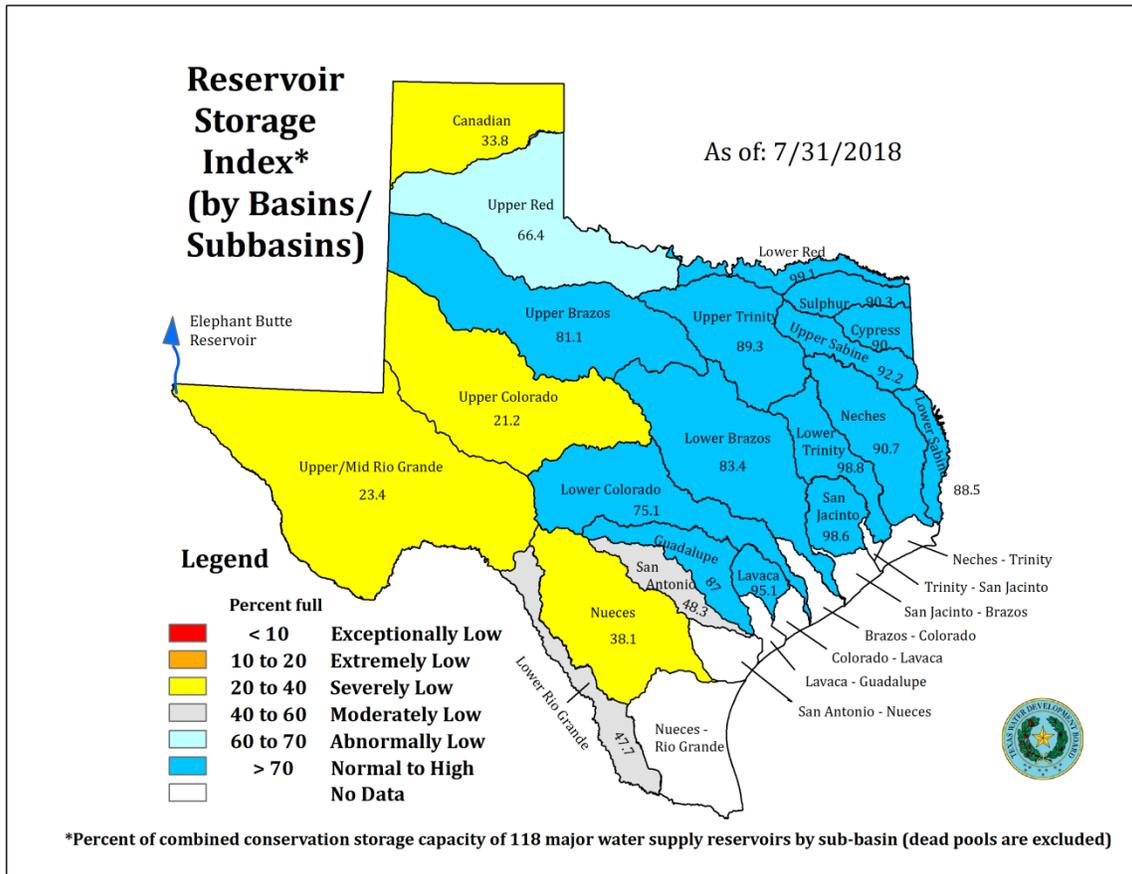
Total combined storage was at or above normal (storage ≥70 percent) in the Upper Coast (97 percent), East (92 percent), North Central (89 percent), and South Central (70 percent) regions. The High Plains (31 percent) and Trans-Pecos (14 percent) regions had the lowest percentage of storage. Overall, storage decreased in all regions over the past month.

Statewide monitored major water supply reservoir conservation storage



*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.

JULY 2018 RESERVOIR CONDITIONS



*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	Conservation storage capacity		Conservation storage end of July 2018		Change since end of June 2018		Change since end of July 2017	
	(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)	(acre-feet)**	(%)
HIGH PLAINS								
MacKenzie Reservoir	46,450		6,128	13	-172	-0	-659	-1
Meredith, Lake	500,000		188,886	38	-5,833	-1	69,693	14
Palo Duro Reservoir	61,066		626	1	-198	-0	8	0
White River Lake	29,880		4,360	15	-254	-1	-2,176	-7
TOTAL	637,396		200,000	31	-6,457	-1	66,866	10
LOW ROLLING PLAINS								
Abilene, Lake	7,900		2,856	36	-404	-5	-3,937	-50
Alan Henry Reservoir	94,808		75,312	79	-2,099	-2	-8,792	-9
Champion Creek Reservoir	41,580		20,642	50	-686	-2	-345	-1
Coleman, Lake	38,075		30,214	79	-931	-2	-6,085	-16
Colorado City, Lake	30,758		9,757	32	-550	-2	-3,922	-13
Fort Phantom Hill, Lake	70,030		55,132	79	-2,599	-4	-12,496	-18
Greenbelt Lake	59,968		13,278	22	-475	-1	-2,366	-4
Hords Creek Lake	8,443		4,491	53	-267	-3	-1,843	-22
J. B. Thomas, Lake	199,931		75,110	38	-3,799	-2	-35,888	-18
Kemp, Lake	245,307		170,813	70	-26,301	-11	-55,600	-23
Millers Creek Reservoir	26,768		19,666	73	-1,139	-4	-7,102	-27
North Fork Buffalo Creek Reservoir	15,400		13,142	85	47	0	1,511	10
Stamford, Lake	51,570		36,760	71	-2,657	-5	-14,810	-29
Sweetwater, Lake	12,267		1,774	14	-156	-1	-933	-8
TOTAL	902,805		528,947	59	-42,016	-5	-152,608	-17
NORTH CENTRAL								
Amon G Carter, Lake	19,266		17,846	93	-927	-5	-227	-1
Aquilla Lake	43,243		36,967	85	-3,219	-7	-6,276	-15
Arlington, Lake	40,188		32,072	80	-4,696	-12	-4,414	-11
Arrowhead, Lake	230,359		186,710	81	-10,056	-4	-19,054	-8
Bardwell Lake	46,122		41,905	91	-2,165	-5	-3,529	-8
Belton Lake	435,225		383,917	88	-15,523	-4	-49,369	-11
Benbrook Lake	85,648		57,887	68	-10,254	-12	-23,261	-27
Bonham, Lake	11,027		9,363	85	-746	-7	673	6
Bridgeport, Lake	366,236		314,424	86	-24,472	-7	-45,310	-12
*Brownwood, Lake	128,839		89,407	69	-6,251	-5	-34,201	-27
*Cisco, Lake	29,003		21,907	76	-498	-2	-3,916	-14
Crook, Lake	9,195		8,295	90	-504	-5	-869	-9
Eagle Mountain Lake	179,880		153,184	85	-5,040	-3	-16,774	-9
Georgetown, Lake	36,823		21,896	59	-2,129	-6	-4,379	-12
Graham, Lake	45,288		38,195	84	-1,861	-4	-5,865	-13
Granbury, Lake	132,949		118,830	89	-4,808	-4	-12,492	-9
Granger Lake	51,822		49,280	95	-2,419	-5	-2,542	-5
Grapevine Lake	164,703		145,478	88	-11,589	-7	-19,225	-12
*Halbert, Lake	6,033		4,876	81	-181	-3	-160	-3
Hubbard Creek Reservoir	318,067		243,207	76	-8,351	-3	-58,246	-18
Hubert H Moss Lake	24,058		22,706	94	-495	-2	-612	-3
Jim Chapman Lake (Cooper)	260,332		214,366	82	-18,853	-7	-11,244	-4
Joe Pool Lake	175,358		162,866	93	-5,333	-3	-11,606	-7
Kickapoo, Lake	86,345		63,820	74	-3,242	-4	-7,784	-9
Lavon Lake	406,388		343,389	84	-31,083	-8	-48,680	-12
Leon, Lake	27,762		19,761	71	-975	-4	-6,928	-25
Lewisville Lake	563,228		485,828	86	-34,517	-6	-70,936	-13
Limestone, Lake	203,780		166,822	82	-9,258	-5	-23,158	-11
*Lost Creek Reservoir	11,950		11,160	93	-308	-3	-266	-2
*Mineral Wells, Lake	5,273		4,347	82	-312	-6	-856	-16
Mountain Creek, Lake	22,850		21,604	95	-766	-3	-1,246	-5

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of lake or reservoir	Conservation storage capacity		Conservation storage end of July 2018		Change since end of June 2018		Change since end of July 2017	
	(acre-feet)	(acre-feet)	(%)	(acre-feet)**	(%)	(acre-feet)**	(%)	
<i>(North Central continued)</i>								
Navarro Mills Lake	49,827	43,829	88	-3,165	-6	-4,874	-10	
New Terrell City Lake	8,583	7,936	92	-176	-2	-647	-8	
Nocona, Lake (Farmers Crk)	21,444	19,577	91	-793	-4	-1,109	-5	
Palo Pinto, Lake	26,766	18,303	68	-2,105	-8	-7,079	-26	
Pat Cleburne, Lake	26,008	22,397	86	-1,480	-6	-3,190	-12	
*Pat Mayse Lake	113,683	107,216	94	-4,613	-4	-6,467	-6	
Possum Kingdom Lake	538,139	485,483	90	-17,574	-3	-45,705	-8	
Proctor Lake	54,762	31,388	57	-4,869	-9	-22,135	-40	
Ray Hubbard, Lake	439,559	384,456	87	-23,769	-5	-45,794	-10	
Ray Roberts, Lake	788,167	751,012	95	-18,857	-2	-24,177	-3	
Richland-Chambers Reservoir	1,087,839	1,022,871	94	-36,467	-3	-47,055	-4	
Squaw Creek, Lake	151,250	151,250	100	0	0	0	0	
Stillhouse Hollow Lake	227,771	185,327	81	-7,466	-3	-42,058	-18	
Tawakoni, Lake	871,685	810,641	93	-25,317	-3	-2,124	-0	
Texoma, Lake (Texas)	1,258,113	1,258,113	100	0	0	1,492	0	
Texoma, Lake (Texas & Oklahoma)	2,525,281	2,535,708	100	-62,854	-2	22,459	1	
Waco, Lake	189,418	164,780	87	-10,356	-5	-19,173	-10	
Waxahachie, Lake	10,780	9,042	84	-728	-7	-1,167	-11	
Weatherford, Lake	17,812	14,217	80	-1,401	-8	-2,452	-14	
Whitney, Lake	553,344	454,051	82	-40,561	-7	-38,301	-7	
Worth, Lake	33,495	27,230	81	-2,567	-8	-3,096	-9	
TOTAL	10,635,685	9,461,434	89	-423,095	-4	-807,863	-8	
EAST								
Athens, Lake	29,503	27,951	95	-965	-3	-1,405	-5	
B A Steinhagen Lake	66,961	64,139	96	3,772	6	2,966	4	
Bob Sandlin, Lake	190,822	183,805	96	-3,574	-2	-6,325	-3	
Caddo, Lake	29,898	26,998	90	-2,900	-10	-1,640	-5	
Cedar Creek Reservoir in Trinity	644,686	595,297	92	-21,994	-3	-38,654	-6	
Cherokee, Lake	40,094	34,455	86	-2,626	-7	-5,639	-14	
Conroe, Lake	410,988	403,350	98	-4,765	-1	-2,283	-1	
Cypress Springs, Lake	66,756	63,496	95	-1,557	-2	-2,293	-3	
Fork Reservoir, Lake	605,061	559,426	92	-11,532	-2	-29,922	-5	
Houston County Lake	17,113	15,693	92	-830	-5	-1,214	-7	
Jacksonville, Lake	25,670	24,514	95	-500	-2	-1,063	-4	
*Livingston, Lake	1,785,348	1,764,475	99	-19,435	-1	-20,873	-1	
Martin, Lake	75,726	65,131	86	-4,026	-5	-7,317	-10	
Monticello, Lake	34,740	28,165	81	-768	-2	-6,575	-19	
Murvaul, Lake	38,285	34,350	90	-1,093	-3	-2,639	-7	
Nacogdoches, Lake	39,522	34,937	88	-1,086	-3	-3,761	-10	
O' the Pines, Lake	268,566	226,110	84	-13,142	-5	-35,239	-13	
Palestine, Lake	367,303	335,604	91	-11,931	-3	-26,179	-7	
Sam Rayburn Reservoir	2,857,077	2,583,847	90	-45,705	-2	-200,365	-7	
Striker, Lake	16,934	15,267	90	-715	-4	-1,667	-10	
*Sulphur Springs, Lake	17,747	14,469	82	-691	-4	-3,278	-18	
Toledo Bend Reservoir (Texas)	2,236,450	1,979,548	89	-37,196	-2	-218,235	-10	
Toledo Bend Reservoir (Texas & Louisiana)	4,472,900	3,963,195	89	-74,392	-2	-436,471	-10	
Tyler, Lake	72,073	66,306	92	-2,340	-3	-3,807	-5	
Wright Patman Lake	231,496	231,496	100	0	0	0	0	
TOTAL	10,168,819	9,378,829	92	-185,599	-2	-617,407	-6	

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of lake or reservoir	Conservation storage capacity (acre-feet)	Conservation storage end of July 2018		Change since end of June 2018		Change since end of July 2017	
		(acre-feet)	(%)	(acre-feet)**	(%)	(acre-feet)**	(%)
TRANS-PECOS							
Elephant Butte Reservoir (Texas)	852,491	56,225	7	-42,895	-5	-102,668	-12
Elephant Butte Reservoir (Texas & New Mexico)	1,973,358	130,150	7	-99,294	-5	-237,658	-12
Red Bluff Reservoir	151,110	86,457	57	-4,106	-3	-17,686	-12
TOTAL	1,003,601	142,682	14	-47,001	-5	-120,354	-12
EDWARDS PLATEAU							
*Amistad Reservoir (Texas)	1,840,849	1,176,019	64	-60,651	-3	-218,104	-12
*Amistad Reservoir (Texas & Mexico)	3,275,532	1,558,205	48	-59,102	-2	-79,042	-2
Brady Creek Reservoir	28,808	14,123	49	-661	-2	-3,630	-13
Buchanan, Lake	816,904	697,058	85	-38,008	-5	-96,714	-12
E. V. Spence Reservoir	517,272	53,891	10	-3,078	-1	-19,605	-4
Inks, Lake	13,962	12,915	93	15	0	-52	-0
Lyndon B Johnson, Lake	115,249	111,616	97	1,346	1	1,163	1
Marble Falls, Lake	6,901	6,825	99	54	1	-22	-0
Nasworthy	9,615	7,081	74	-616	-6	-616	-6
Oak Creek Reservoir	39,210	15,961	41	-894	-2	-5,417	-14
O. C. Fisher Lake	119,445	9,848	8	-492	-0	-4,647	-4
*O. H. Ivie Reservoir	554,340	78,268	14	-8,270	-1	-43,553	-8
Twin Buttes Reservoir	182,454	7,142	4	-2,237	-1	-11,756	-6
TOTAL	4245009	2190747	52	-113,492	-3	-402,953	-10
SOUTH CENTRAL							
*Austin, Lake	23,972	22,972	96	200	1	246	1
Canyon Lake	378,781	332,745	88	-6,994	-2	-31,959	-8
*Coletto Creek Reservoir	31,040	23,890	77	-1,513	-5	-2,486	-8
Medina Lake	254,823	123,033	48	-10,456	-4	-82,378	-32
Somerville Lake	147,104	128,753	88	-11,272	-8	-13,294	-9
Travis, Lake	1,113,348	723,242	65	-55,210	-5	-251,177	-23
TOTAL	1,949,068	1,354,635	70	-85,245	-4	-381,048	-20
UPPER COAST							
Houston, Lake	120,686	120,686	100	0	0	0	0
Texana, Lake	159,566	151,757	95	-6,982	-4	9,807	6
TOTAL	280,252	272,443	97	-6,982	-2	9,807	3
SOUTHERN							
Choke Canyon Reservoir	662,820	164,859	25	-7,873	-1	-62,899	-9
Corpus Christi, Lake	256,062	185,593	72	-14,252	-6	-7,673	-3
*Falcon Reservoir (Texas)	1,551,007	440,766	28	-37,492	-2	66,459	4
*Falcon Reservoir (Texas & Mexico)	2,646,817	538,008	20	-61,945	-2	7,155	0
TOTAL	2,469,889	791,218	32	-59,617	-2	-4,113	-0
STATEWIDE TOTAL							
STATEWIDE TOTAL	32,282,909	24,313,854	75	-969,504	-3	-2,409,673	-7

* Conservation volume is used as conservation storage capacity, because the dead storage is unknown.

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

Note:

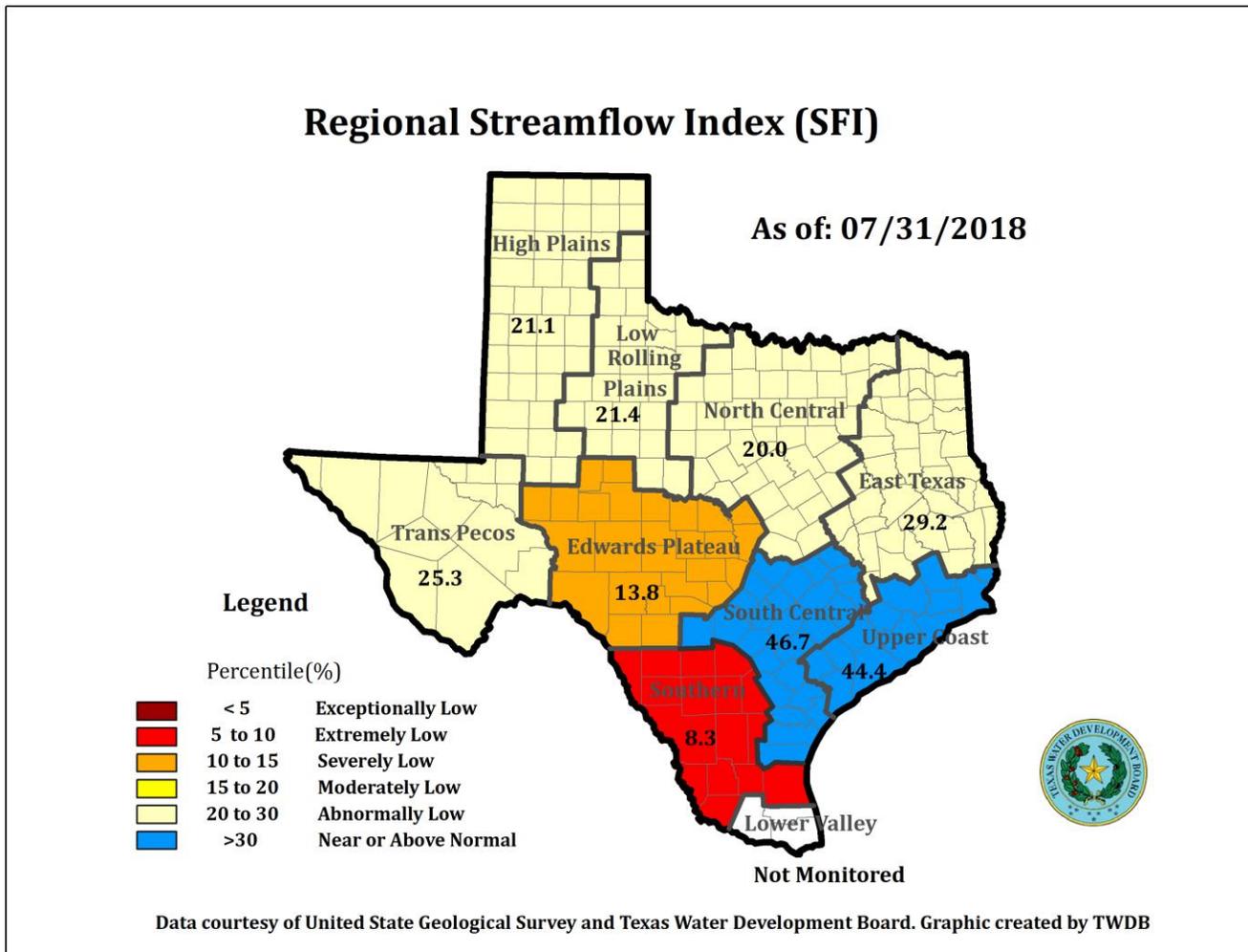
Conservation storage capacity is the space available to store water above the lowest outlet and below the top of conservation pool (some may have seasonal variations), or normal maximum operating level. Conservation storage refers to the volume of water held within the conservation storage space. Not included is any water in flood control storage (above the top of 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 $100 * (\text{current conservation storage} - \text{past conservation storage}) / \text{conservation storage capacity}$.

JULY 2018 STREAMFLOW CONDITIONS

The computed 31-day mean flow status for 29 reporting index stations monitored this month is presented below. Mean flow increased at 18 index stations, decreased at 11 stations.

Streamflow Status	Number of Stations
Near or Above Normal (>30%)	8
Abnormally Low (20-30%)	6
Moderately Low (15-20%)	5
Severely Low (10-15%)	3
Extremely Low (5-10%)	6
Exceptionally Low (<5%)	1

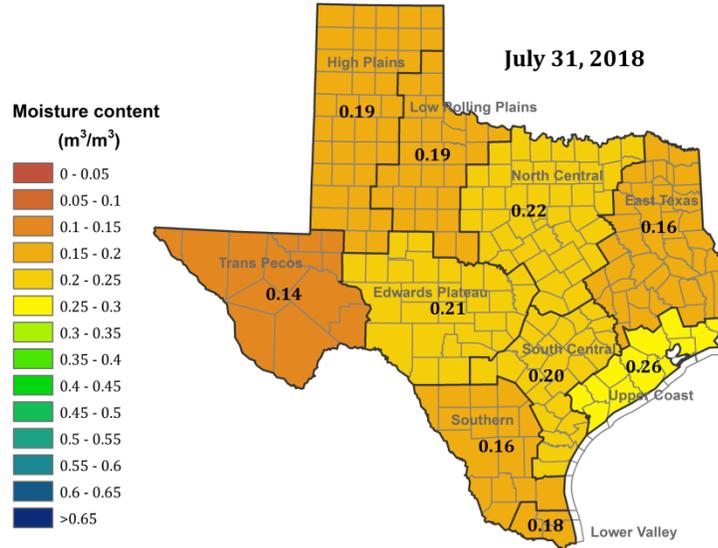
On a regional basis, as shown below, stream flows were abnormally low in High Plains, Low Rolling Plains, North Central, East Texas and Trans-Pecos regions, severely low in the Edwards Plateau region, extremely low in the Southern region, but near or above normal in the South Central and Upper Coast regions. Streamflow in the Lower Valley region is not monitored.



*Streamflow Index is defined as the percentile flow that exceeds a given percent of observed flows.

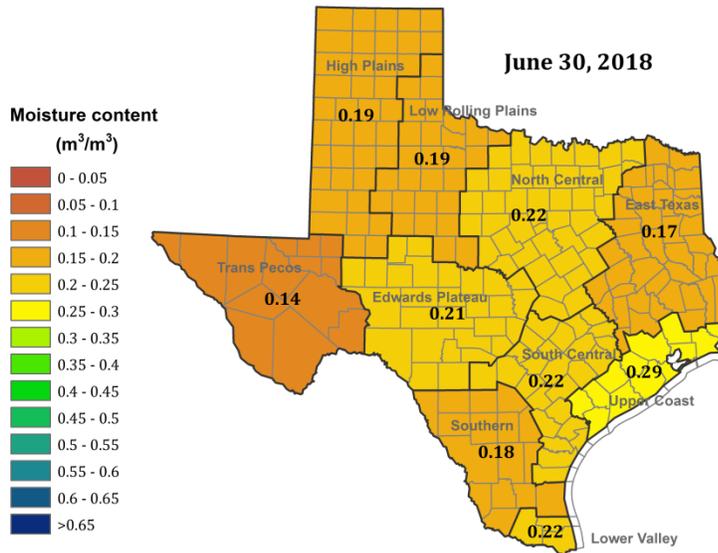
JULY 2018 SOIL MOISTURE CONDITIONS

Soil Moisture Condition



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

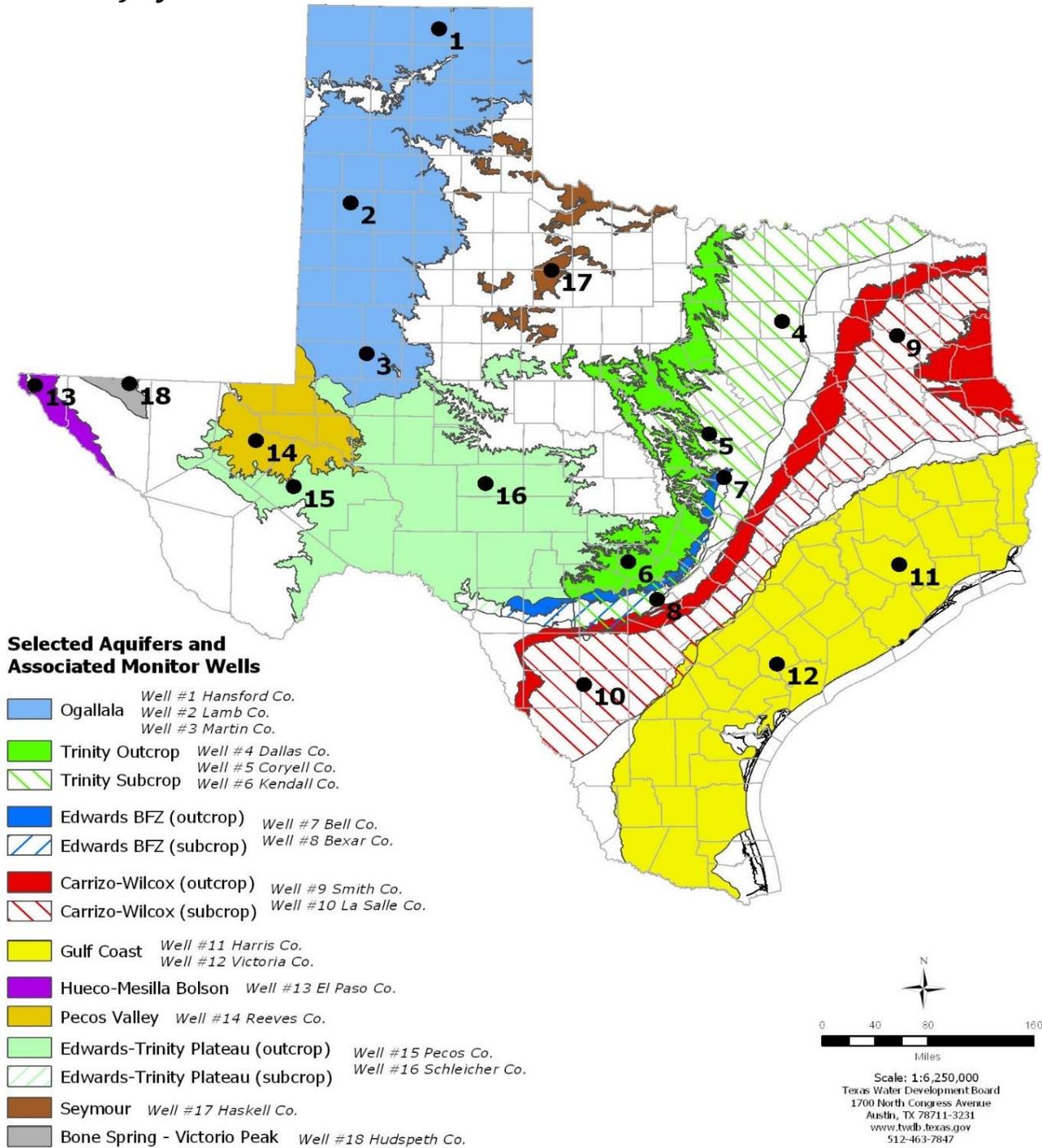
Soil Moisture Condition



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

Soil moisture at the end of July 2018 (*top image*), as compared to that at the end of June 2018 (*bottom image*), decreased in five out of the ten regions, ranging from 6 to 18 percent, with greatest decreases in Lower Valley region. Moisture condition remained unchanged in other five regions.

July 2018 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 wells since the beginning of July, ranging from an increase of 0.01 feet in the Hansford County Ogallala Aquifer well (#1 on map) to 4.10 feet in the Bexar County Edwards (Balcones Fault Zone) Aquifer well (#8 on map). Water levels declined in 14 monitoring wells, ranging from a decline of 0.15 feet in the Lamb County Ogallala Aquifer well (#2 on map) to -12.27 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 84.01 feet below land surface or 646.59 feet above mean sea level. Water levels declined 3.41 feet below the Stage 2 critical management level for the San Antonio portion of the Edwards (Balcones Fault Zone) Aquifer. Stage 2 drought restrictions have been in effect since July 27th.

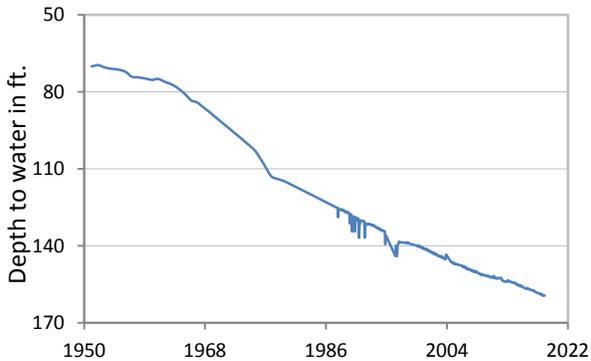
*Well numbers used in this publication on the aquifer map to indicate the monitoring well location (numbers 1 - 17) are different than the TWDB's seven-digit state well number.

Monitoring Well	July	June	Month Change	Year Change	Historical Change	First Measured
(1) Hansford 0354301	159.34	159.35	0.01	-0.88	-89.22	1951
(2) Lamb 1053602	148.79	148.64	-0.15	-1.16	-120.62	1951
(3) Martin 2739903	143.24	143.87	0.63	-0.19	-38.35	1964
(4) Dallas 3319101	495.20	493.84	-1.36	-3.53	-273.20	1954
(5) Coryell 4035404	543.73	531.46	-12.27	-17.93	-251.73	1955
(6) Kendall 6802609	159.23	152.88	-6.35	-34.83	-99.23	1975
(7) Bell 5804816	127.97	126.69	-1.28	-5.05	-4.46	2008
(8) Bexar 6837203	84.01	88.11	4.10	-7.60	-37.37	1932
(9) Smith 3430907	437.24	434.97	-2.27	-4.60	-137.24	1977
(10) La Salle 7738103	528.32	520.74	-7.58	-46.78	-275.25	2003
(11) Harris 6514409	193.54	192.55	-0.99	-3.36	-58.04*	1947**
(12) Victoria 8017502	34.49	33.88	-0.61	-2.08	-0.49	1958
(13) El Paso 4913301	294.22	294.27	0.05	0.20	-62.32	1964
(14) Reeves 4644501	172.13	170.51	-1.62	-3.79	-80.04	1952
(15) Pecos 5216802	226.50	223.92	-2.58	-3.82	20.38	1976
(16) Schleicher 5512134	319.60	317.74	-1.86	-9.39	-17.70	2003
(17) Haskell 2135748	46.83	46.59	-0.24	-0.20	-3.83	2002
(18) Hudspeth 4807516	156.65	155.98	-0.67	-2.68	-52.73	1966

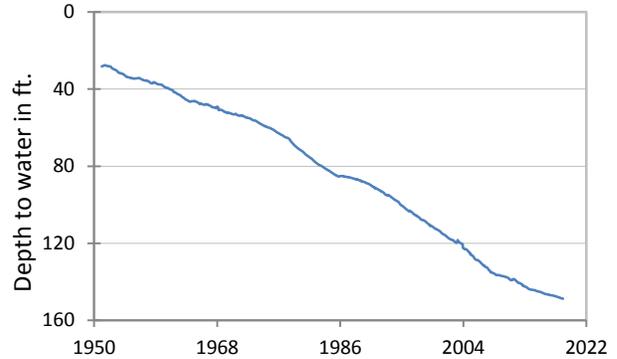
*Change since the original measurement of 135.5 feet below land surface in 1947 (**measurement not shown on the hydrograph)

July 2018 OBSERVATION WELL HYDROGRAPHS

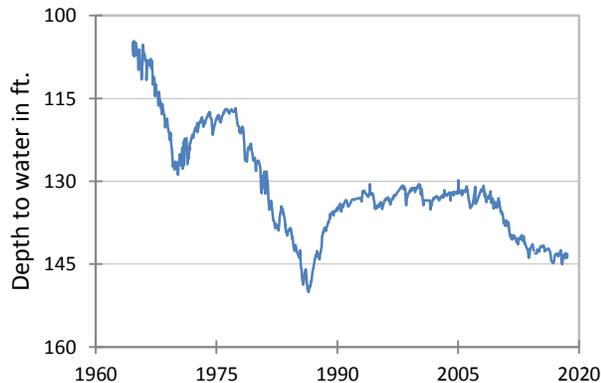
(1) State Well #03-54-301
Near Spearman, Hansford County
Ogallala Aquifer



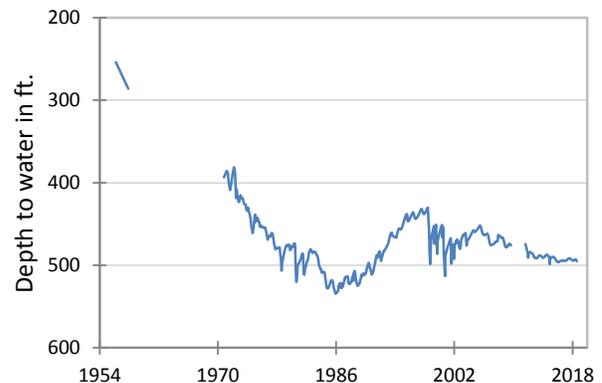
(2) State Well #10-53-602
Near Earth, Lamb County
Ogallala Aquifer



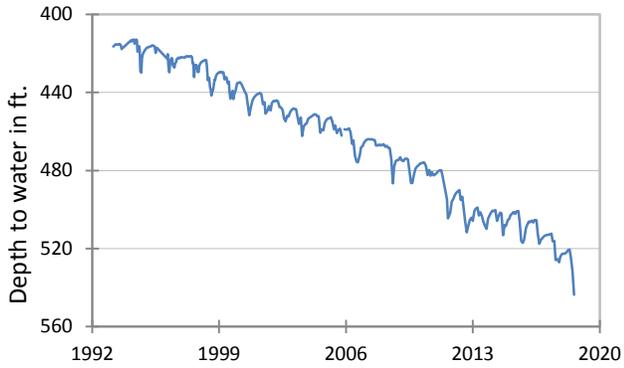
(3) State Well #27-39-903
Northwest Martin County
Ogallala Aquifer



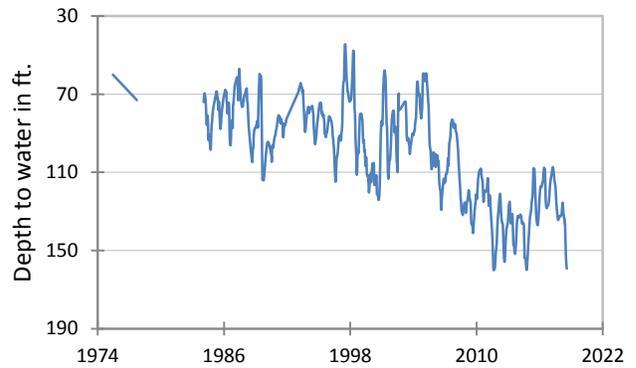
(4) State Well #33-19-101
Southeast Dallas, Dallas County
Twin Mountains Formation-Trinity Aquifer



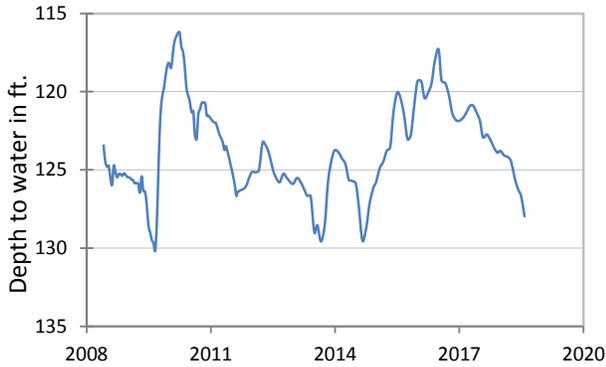
**(5) State Well #40-35-404
Gatesville, Coryell County
Hosston Formation-Trinity Aquifer**



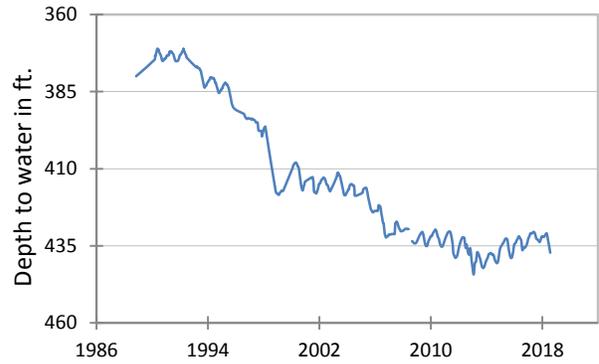
**(6) State Well #68-02-609
Waring, Kendall County
Cow Creek Formation-Trinity Aquifer**



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



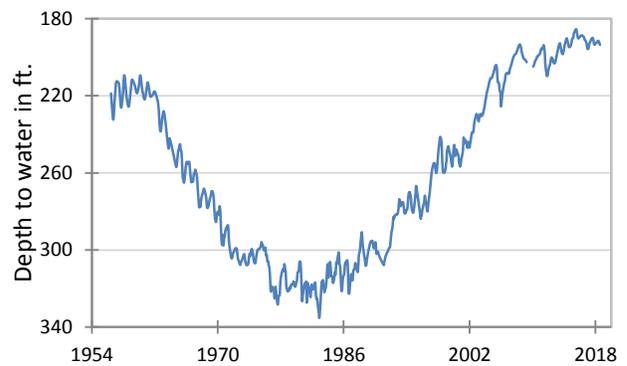
**(9) State Well #34-30-907
Red Springs, Smith County
Carrizo-Wilcox Aquifer**



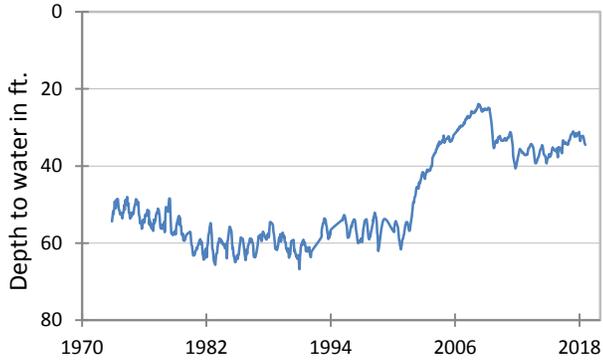
**(10) State Well #77-38-103
Near Cotulla, La Salle County
Carrizo-Wilcox Aquifer**



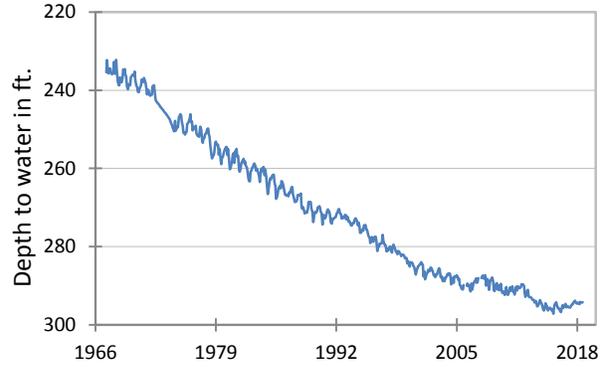
**(11) State Well #65-14-409
Alief, Harris County
Evangeline Formation-Gulf Coast Aquifer**



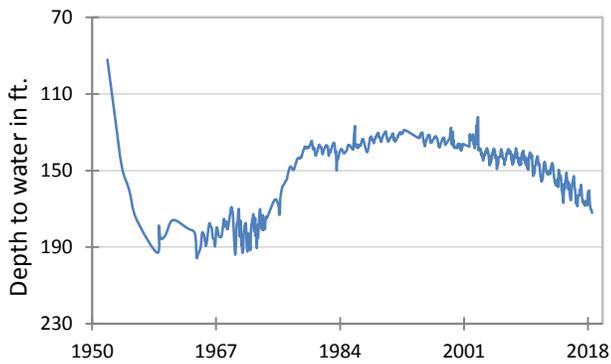
(12) State Well #80-17-502
Near Bloomington, Victoria County
Lissie Formation-Gulf Coast Aquifer



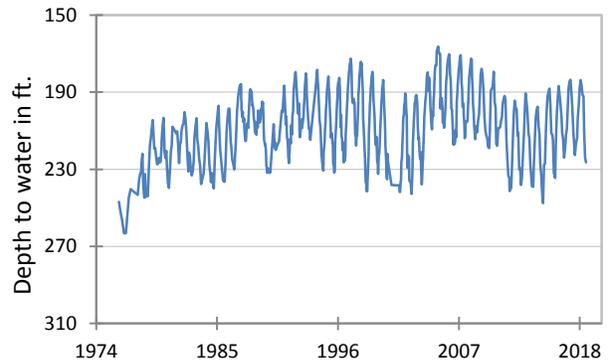
(13) State Well #49-13-301
El Paso, El Paso County
Hueco-Mesilla Bolson Aquifer



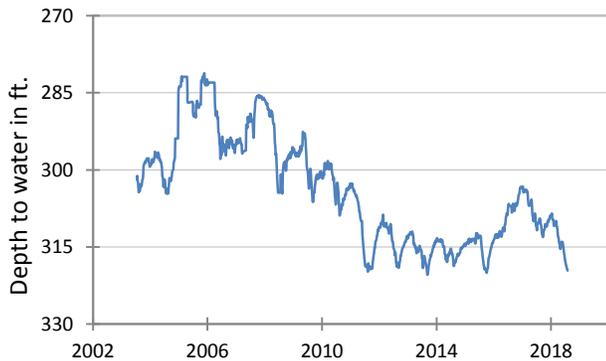
(14) State Well #46-44-501
Near Pecos, Reeves County
Pecos Valley Aquifer



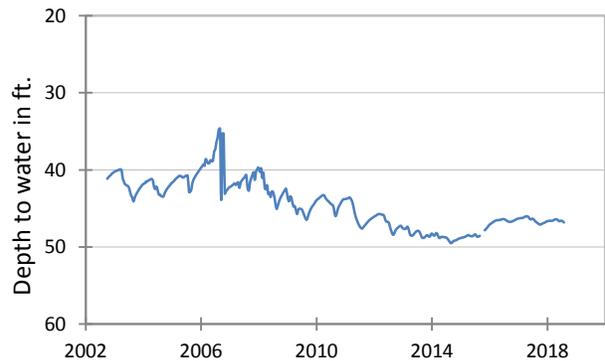
(15) State Well #52-16-802
Fort Stockton, Pecos County
Edwards-Trinity (Plateau) Aquifer



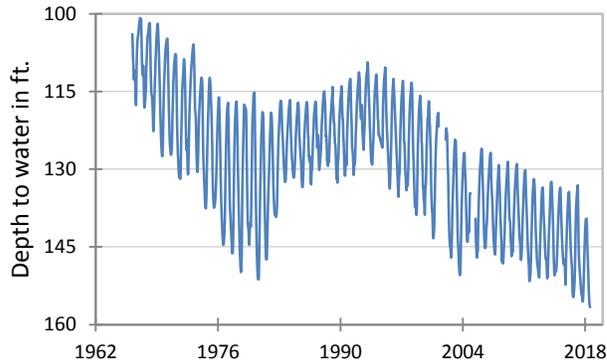
(16) State Well #55-12-134
Eldorado, Schleicher County
Trinity Aquifer



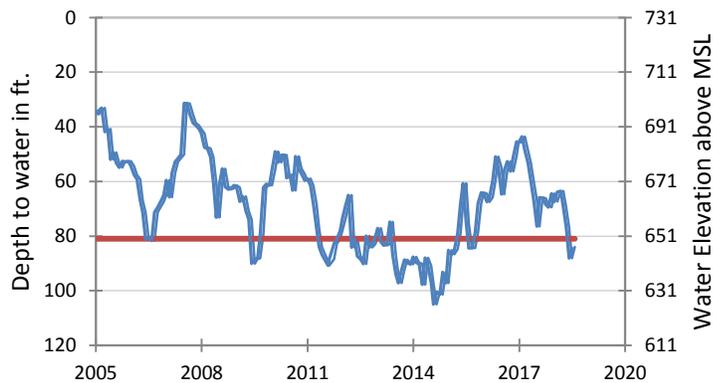
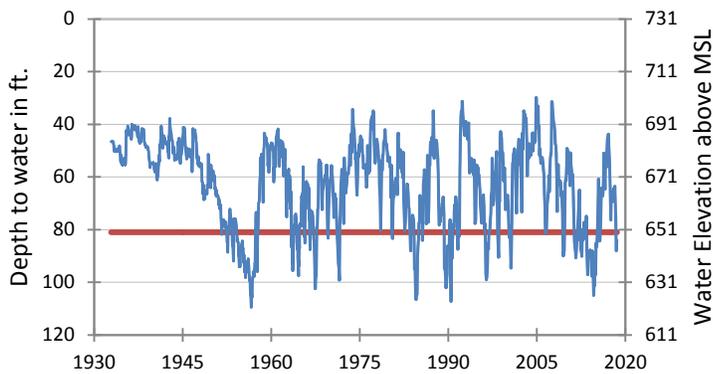
(17) State Well #21-35-748
Near O'Brien, Haskell County
Seymour Aquifer



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

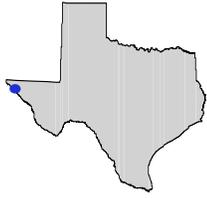


**(8) State Well #68-37-203 (J-17)
In San Antonio, Bexar County
Edwards (Balcones Fault Zone) Aquifer**



The late July water-level measurement in this Edwards (Balcones Fault Zone) Aquifer well, elevation 731 feet above mean sea level, was 84.01 feet below land surface, or 646.59 feet above mean sea level. This was 4.10 feet above last month's measurement, 7.60 feet below last year's measurement and 37.37 feet below the initial measurement recorded in 1932.

Water levels below the red line indicate periods in which Edwards Aquifer Authority Stage 2 drought restrictions are in effect.



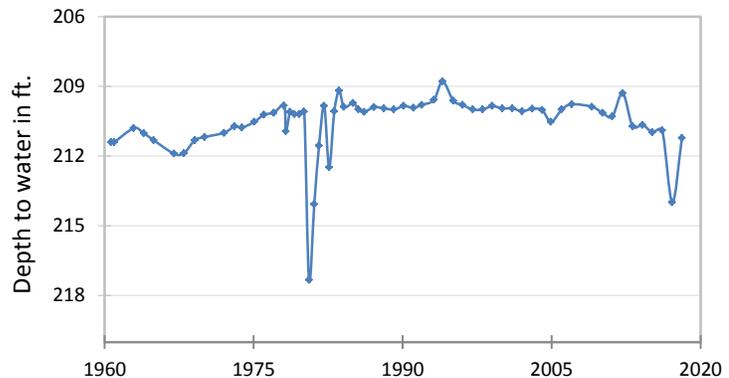
HYDROGRAPH OF THE MONTH

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

The Hueco-Mesilla Bolson Aquifer, located east and west of the Franklin Mountains in far West Texas, is recognized as a major aquifer. The aquifer is composed of basin-fill deposits of silt, sand, gravel, and clay in two basins, or bolsons: the Hueco Bolson, which has a maximum thickness of 9,000 feet, and the Mesilla Bolson, which has a maximum thickness of 2,000 feet. Although the Hueco and Mesilla bolsons share similar geology, very little water travels between them. The upper portion of the Hueco Bolson contains fresh to slightly saline water, ranging from less than 1,000 to 3,000 milligrams per liter of total dissolved solids. The Mesilla Bolson also contains fresh to saline water, ranging from less than 1,000 to 10,000 or more milligrams per liter of total dissolved solids. Its salinity typically increases to the south and in the shallower parts of the aquifer. In both aquifers, water-level declines have contributed to higher salinity.

Hueco-Mesilla Bolson

Well #49-40-104, 400 feet deep
unused, El Paso county



The initial measurement of 211.4 feet below land surface was observed by the USGS in 1960. The well was continually measured by the USGS until the TWDB took over consistent measuring in 1978. Despite relatively sharp declines (though of only a few feet) in the water level in 1980, 1982 and 2017—possibly due to localized nearby pumping—the latest water level is largely the same as the initial 1960 measurement.



Far away (left) and close-up (right) images of well #49-40-104.