Texas Water Conditions Report

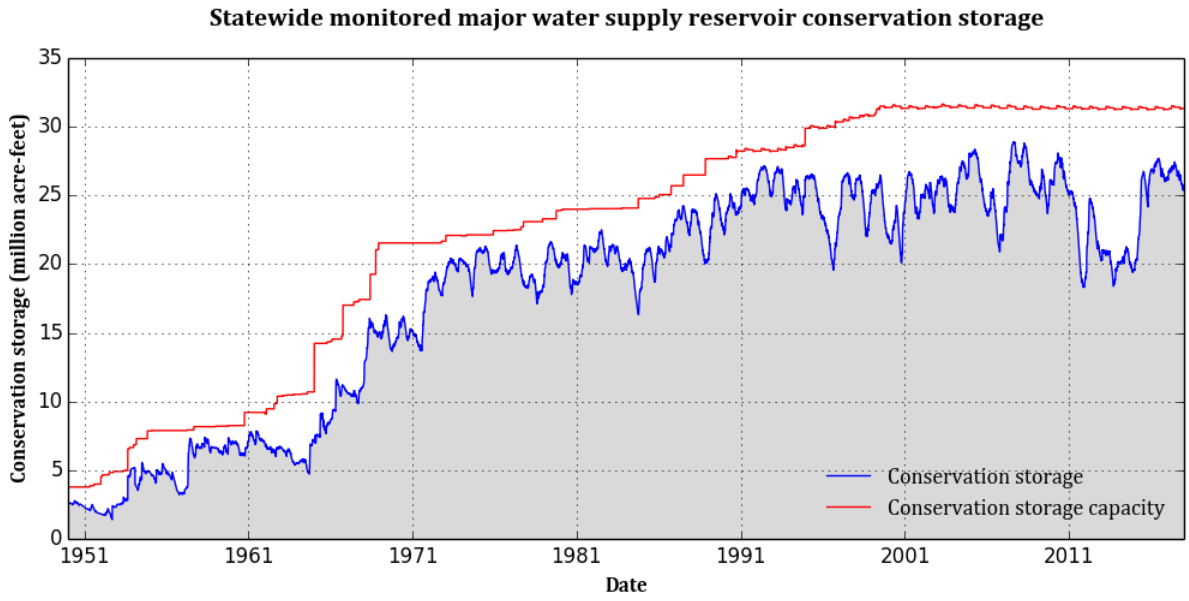
Texas Water Development Board

*December 2017 RESERVOIR STORAGE**

At the end of December 2017, total conservation storage* in 117 of the state's major water supply reservoirs was 25.82 million acre-feet or 81 percent of total conservation storage capacity. This is approximately 0.12 million acre-feet more than a month ago but 0.53 million acre-feet less than storage at this time last year. No data was reported for Pat Mayse Lake in December.

Twenty (20) reservoirs held 100 percent of conservation storage capacity, primarily in the North Central (6 reservoirs) and East (12 reservoirs) regions. Two reservoirs, Palo Duro (1 percent) and Twin Buttes (7 percent) remained below 10 percent full.

Total combined storage was at or above normal (storage ≥70 percent) in the Upper Coast (93 percent), North Central (92 percent), East (92 percent), South Central (83 percent), and Low Rolling Plains (71 percent) regions. The High Plains (34 percent) and Trans-Pecos (29 percent) regions had the lowest percentage of storage. Overall, storage increased in four but decreased in five regions over the past month.



*Storage is based on end of the month data in 117 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.

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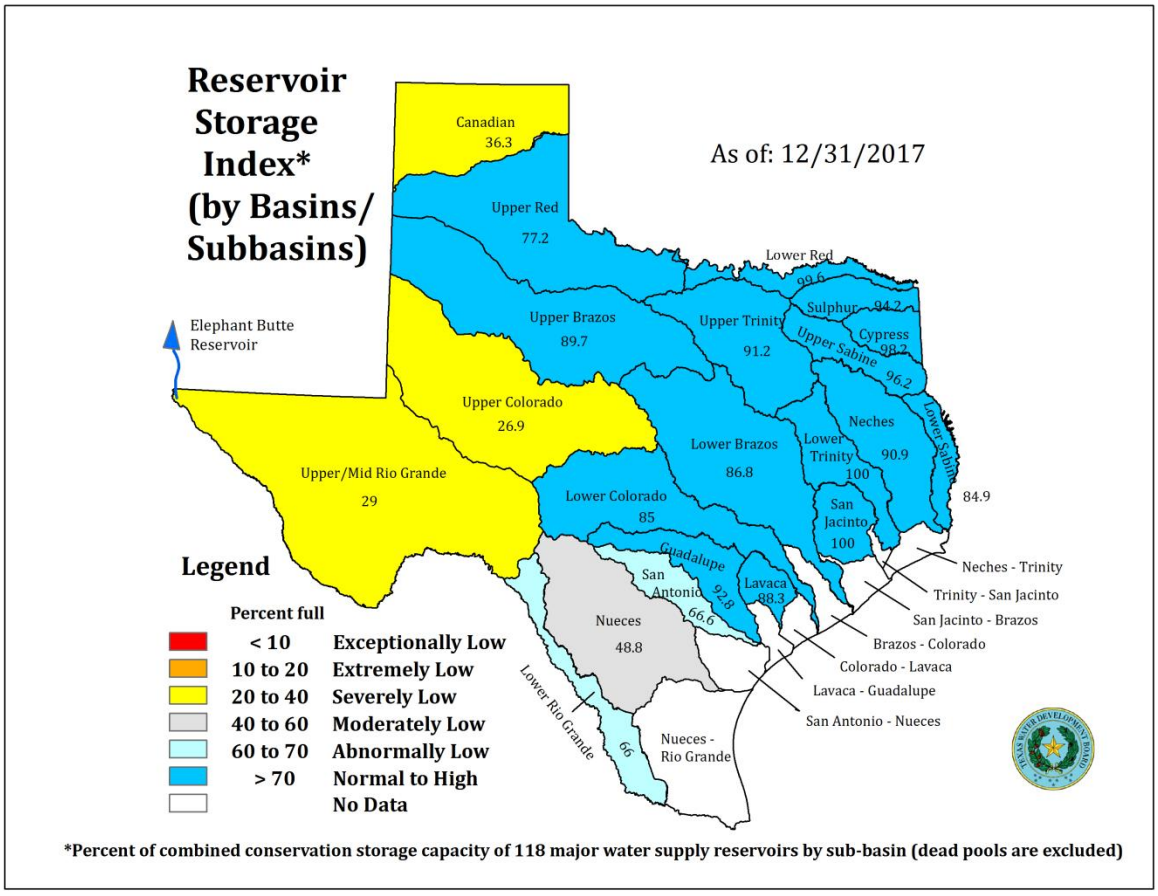
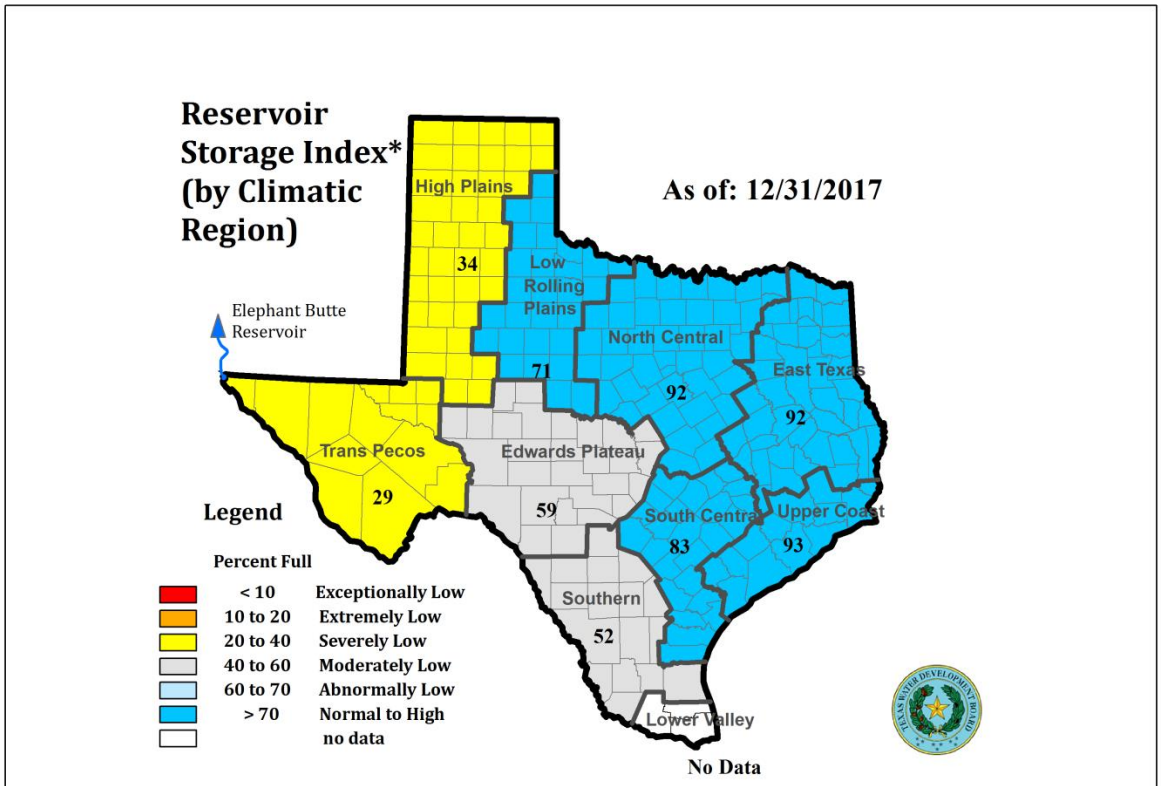
DECEMBER 2017 RESERVOIR CONDITIONS



*Percent of combined conservation storage capacity of 118 major water supply reservoirs by sub-basin (dead pools are excluded)



*Percent of combined conservation storage capacity of 118 major water supply reservoirs by that region (dead pools are excluded)

*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 (acre-feet)	Conservation storage end of December 2017 (acre-feet)	(%)	Change since end of November 2017 (acre-feet)**	(%)	Change since end of December 2016 (acre-feet)**	(%)
HIGH PLAINS							
MacKenzie Reservoir	46,450	6,832	15	-61	-0	-69	-0
Meredith, Lake	500,000	202,829	41	-366	-0	87,330	17
Palo Duro Reservoir	61,066	676	1	-85	-0	-366	-1
White River Lake	29,880	5,934	20	-200	-1	-1,423	-5
TOTAL	**637,396**	**216,271**	**34**	**-712**	**-0**	**85,472**	**13**
LOW ROLLING PLAINS							
Abilene, Lake	7,900	4,779	60	-286	-4	-2,930	-37
Alan Henry Reservoir	94,808	81,294	86	-1,274	-1	-8,438	-9
Champion Creek Reservoir	41,580	19,460	47	-200	-0	3,904	9
Coleman, Lake	38,075	33,819	89	-348	-1	-1,876	-5
Colorado City, Lake	30,758	12,444	40	-194	-1	-2,284	-7
Fort Phantom Hill, Lake	70,030	63,297	90	-1,656	-2	-4,713	-7
Greenbelt Lake	59,968	15,264	25	-72	-0	-825	-1
Hords Creek Lake	8,443	5,420	64	-83	-1	-1,549	-18
J. B. Thomas, Lake	199,931	96,808	48	-2,578	-1	-31,931	-16
Kemp, Lake	245,307	223,049	91	-2,922	-1	-21,800	-9
Millers Creek Reservoir	26,768	24,636	92	-570	-2	-2,132	-8
North Fork Buffalo Creek Reservoir	15,400	11,384	74	-220	-1	-948	-6
Stamford, Lake	51,570	48,872	95	-1,038	-2	-988	-2
Sweetwater, Lake	12,267	2,393	20	-33	-0	-285	-2
TOTAL	**902,805**	**642,919**	**71**	**-11,474**	**-1**	**-76,795**	**-9**
NORTH CENTRAL							
Amon G Carter, Lake	19,266	19,196	100	-70	-0	-70	-0
Aquilla Lake	43,243	35,978	83	-547	-1	-5,888	-14
Arlington, Lake	40,188	33,582	84	4,113	10	2,351	6
Arrowhead, Lake	230,359	198,493	86	-2,541	-1	-19,864	-9
Bardwell Lake	46,122	39,928	87	-297	-1	-4,915	-11
Belton Lake	435,225	401,057	92	-2,898	-1	-34,168	-8
Benbrook Lake	85,648	77,146	90	4,319	5	6,414	7
Bonham, Lake	11,027	10,159	92	659	6	2,079	19
Bridgeport, Lake	366,236	321,617	88	-7,030	-2	-43,222	-12
*Brownwood, Lake	128,839	108,714	84	-1,609	-1	-20,125	-16
*Cisco, Lake	29,003	24,045	83	-243	-1	-2,017	-7
Crook, Lake	9,195	9,153	100	674	7	1,425	15
Eagle Mountain Lake	179,880	167,040	93	913	1	-8,137	-5
Georgetown, Lake	36,823	24,956	68	1,780	5	-10,835	-29
Graham, Lake	45,288	43,161	95	-509	-1	-1,856	-4
Granbury, Lake	132,949	130,675	98	1,446	1	-1,703	-1
Granger Lake	51,822	51,822	100	0	0	0	0
Grapevine Lake	164,703	162,187	98	3,167	2	-2,516	-2
*Halbert, Lake	6,033	5,567	92	117	2	781	13
Hubbard Creek Reservoir	318,067	274,084	86	-3,047	-1	-34,894	-11
Hubert H Moss Lake	24,058	22,050	92	-93	-0	-342	-1
Jim Chapman Lake (Cooper)	260,332	236,895	91	7,988	3	37,389	14
Joe Pool Lake	175,358	170,118	97	3,076	2	3,076	2
Kickapoo, Lake	86,345	73,086	85	-1,500	-2	-6,274	-7
Lavon Lake	406,388	355,480	87	8,538	2	18,746	5
Leon, Lake	27,762	23,323	84	-358	-1	-78	-0
Lewisville Lake	563,228	525,290	93	12,971	2	-34,969	-6
Limestone, Lake	203,780	159,107	78	217	0	-18,351	-9
*Lost Creek Reservoir	11,950	11,614	97	-84	-1	-273	-2
*Mineral Wells, Lake	5,273	4,576	87	0	0	-697	-13
Mountain Creek, Lake	22,850	22,850	100	0	0	0	0

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of lake or reservoir	Conservation storage capacity (acre-feet)	Conservation storage end of December 2017 (acre-feet)	(%)	Change since end of November 2017 (acre-feet)**	(%)	Change since end of December 2016 (acre-feet)**	(%)
		(North Central continued)					
Navarro Mills Lake	49,827	41,180	83	-745	-1	-7,896	-16
New Terrell City Lake	8,583	7,844	91	58	1	-361	-4
Nocona, Lake (Farmers Crk)	21,444	19,230	90	-193	-1	-970	-5
Palo Pinto, Lake	26,766	22,287	83	-314	-1	-2,988	-11
Pat Cleburne, Lake	26,008	21,742	84	-357	-1	178	1
*Pat Mayse Lake		no data		-87,744	-337	-77,738	-299
Possum Kingdom Lake	523,873	503,175	96	-4,008	-1	-19,882	-4
Proctor Lake	54,762	42,293	77	-612	-1	-9,283	-17
Ray Hubbard, Lake	439,559	421,501	96	21,645	5	9,470	2
Ray Roberts, Lake	788,167	755,147	96	-1,106	-0	-31,886	-4
Richland-Chambers Reservoir	1,087,839	979,562	90	-5,323	-0	-43,309	-4
Squaw Creek, Lake	151,250	151,250	100	0	0	0	0
Stillhouse Hollow Lake	227,771	206,343	91	-3,996	-2	-21,428	-9
Tawakoni, Lake	871,685	848,966	97	18,034	2	76,075	9
Texoma, Lake (Texas)	1,258,113	1,258,113	100	0	0	0	0
Texoma, Lake (Texas & Oklahoma)	2,525,281	2,570,422	100	-78,049	-3	-20,517	-1
Waco, Lake	189,418	160,938	85	-2,105	-1	-28,480	-15
Waxahachie, Lake	10,780	9,066	84	558	5	-913	-8
Weatherford, Lake	17,812	15,547	87	-101	-1	-1,343	-8
Whitney, Lake	553,344	459,132	83	1,321	0	-22,706	-4
Worth, Lake	33,495	28,976	87	-295	-1	-1,915	-6
TOTAL	**10,507,736**	**9,695,241**	**92**	**-36,131**	**-0**	**-364,308**	**-3**
		EAST					
Athens, Lake	29,503	29,319	99	1,508	5	366	1
B A Steinhagen Lake	66,961	63,931	95	-2,925	-4	2,049	3
Bob Sandlin, Lake	190,822	183,721	96	2,529	1	3,618	2
Caddo, Lake	29,898	29,898	100	2,350	8	8,862	30
Cedar Creek Reservoir in Trinity	644,686	582,317	90	3,068	0	-3,693	-1
Cherokee, Lake	40,094	40,094	100	3,692	9	no data	
Conroe, Lake	410,988	410,988	100	11,427	3	0	0
Cypress Springs, Lake	66,756	63,591	95	1,509	2	-1,941	-3
Fork Reservoir, Lake	605,061	578,312	96	7,101	1	47,595	8
Houston County Lake	17,113	17,113	100	0	0	0	0
Jacksonville, Lake	25,670	25,670	100	622	2	0	0
*Livingston, Lake	1,785,348	1,785,348	100	74,384	4	0	0
Martin, Lake	75,726	62,791	83	2,030	3	-4,174	-6
Monticello, Lake	34,740	34,232	99	-40	-0	-304	-1
Murvaul, Lake	38,285	37,908	99	3,887	10	2,864	7
Nacogdoches, Lake	39,522	36,370	92	388	1	-1,540	-4
O' the Pines, Lake	241,363	241,363	100	2,637	1	17,463	7
Palestine, Lake	367,303	366,842	100	25,305	7	34,505	9
Sam Rayburn Reservoir	2,857,077	2,549,005	89	-58,185	-2	29,394	1
Striker, Lake	16,934	16,934	100	536	3	no data	
*Sulphur Springs, Lake	17,747	17,747	100	1,495	8	3,407	19
Toledo Bend Reservoir (Texas)	2,236,450	1,898,036	85	38,269	2	-9,588	-0
Toledo Bend Reservoir (Texas & Louisiana)	4,472,900	3,800,172	85	76,538	2	-19,175	-0
Tyler, Lake	72,073	72,073	100	4,693	7	4,153	6
Wright Patman Lake	122,593	122,593	100	0	0	0	0
TOTAL	**10,032,713**	**9,266,196**	**92**	**126,280**	**1**	**133,036**	**1**

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of lake or reservoir	Conservation storage capacity (acre-feet)	Conservation storage end of December 2017 (acre-feet)	(%)	Change since end of November 2017 (acre-feet)**	(%)	Change since end of December 2016 (acre-feet)**	(%)
TRANS-PECOS							
Elephant Butte Reservoir (Texas)	852,491	182,033	21	29,435	3	94,889	11
Elephant Butte Reservoir (Texas & New Mexico)	1,973,358	421,372	21	68,137	3	219,651	11
Red Bluff Reservoir	151,110	109,296	72	1,940	1	-22,154	-15
TOTAL	**1,003,601**	**291,329**	**29**	**31,375**	**3**	**72,735**	**7**
EDWARDS PLATEAU							
*Amistad Reservoir (Texas)	1,840,849	1,395,222	76	9,075	0	-157,123	-9
*Amistad Reservoir (Texas & Mexico)	3,275,532	2,000,251	61	34,443	1	-335,178	-10
Brady Creek Reservoir	28,808	15,979	55	-152	-1	-1,879	-7
Buchanan, Lake	860,607	763,866	89	-634	-0	-51,736	-6
E. V. Spence Reservoir	517,272	65,758	13	-1,189	-0	-4,079	-1
Inks, Lake	13,962	12,945	93	-105	-1	135	1
Lyndon B Johnson, Lake	115,249	110,820	96	184	0	428	0
Marble Falls, Lake	6,901	6,793	98	-32	-0	-43	-1
Nasworthy	9,615	7,673	80	-449	-5	-120	-1
Oak Creek Reservoir	39,210	19,345	49	-245	-1	-1,773	-5
O. C. Fisher Lake	119,445	12,067	10	-462	-0	-5,490	-5
*O. H. Ivie Reservoir	554,340	108,257	20	-1,557	-0	-21,957	-4
Twin Buttes Reservoir	182,454	13,087	7	402	0	-8,104	-4
TOTAL	**4,288,712**	**2,531,812**	**59**	**4,836**	**0**	**-251,741**	**-6**
SOUTH CENTRAL							
*Austin, Lake	23,972	22,834	95	62	0	169	1
Canyon Lake	378,781	351,522	93	-78	-0	-27,259	-7
*Coleto Creek Reservoir	31,040	28,718	93	-141	-0	3,636	12
Medina Lake	254,823	169,762	67	-5,231	-2	-65,511	-26
Somerville Lake	147,104	147,104	100	0	0	0	0
Travis, Lake	1,113,348	904,449	81	-4,094	-0	-208,899	-19
TOTAL	**1,949,068**	**1,624,389**	**83**	**-9,482**	**-0**	**-297,864**	**-15**
UPPER COAST							
Houston, Lake	120,686	120,686	100	0	0	0	0
Texana, Lake	159,566	140,820	88	-4,015	-3	-14,726	-9
TOTAL	**280,252**	**261,506**	**93**	**-4,015**	**-1**	**-14,726**	**-5**
SOUTHERN							
Choke Canyon Reservoir	662,820	202,840	31	-3,037	-0	-65,497	-10
Corpus Christi, Lake	256,062	245,484	96	-2,335	-1	3,681	1
*Falcon Reservoir (Texas)	1,551,007	843,212	54	28,404	2	248,272	16
*Falcon Reservoir (Texas & Mexico)	2,646,817	1,450,725	55	34,329	1	547,845	21
TOTAL	**2,469,889**	**1,291,536**	**52**	**23,032**	**1**	**186,456**	**8**
STATEWIDE TOTAL							
STATEWIDE TOTAL	**32,072,172**	**25,821,199**	**81**	**123,709**	**0**	**-527,735**	**-2**

* 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:

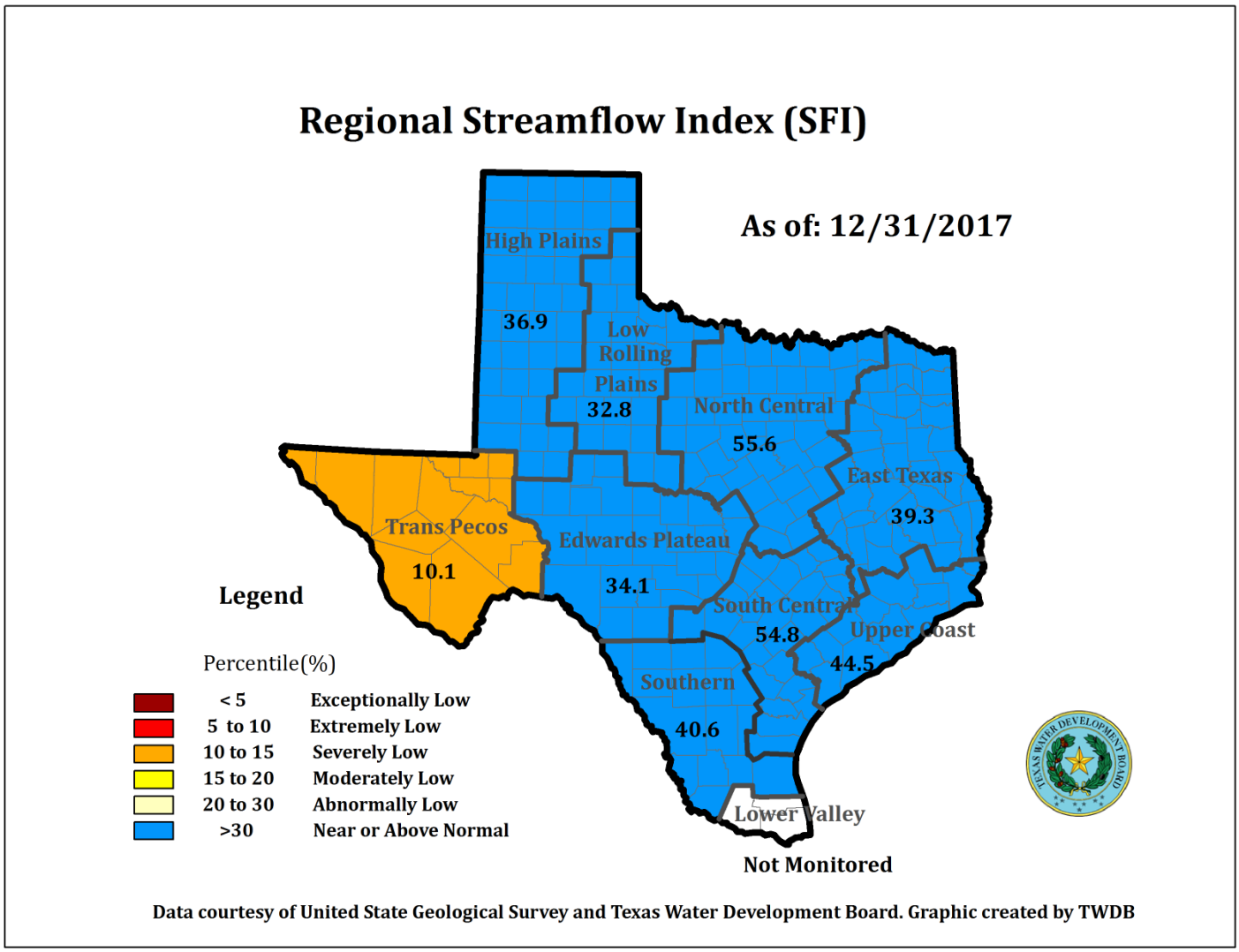
Conservation storage capacity is the space available to store water above the lowest outlet and below the top of conservation pool (some may have seasonal variations), or normal maximum operating level. Conservation storage refers to the volume of water held within the conservation storage space. Not 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 * (current conservation storage - past conservation storage)/conservation storage capacity.

DECEMBER 2017 STREAMFLOW CONDITIONS

The computed 30-day mean flow status for 29 reporting index stations monitored this month is presented below. Mean flow increased at 19 index stations and decreased at 10 stations.

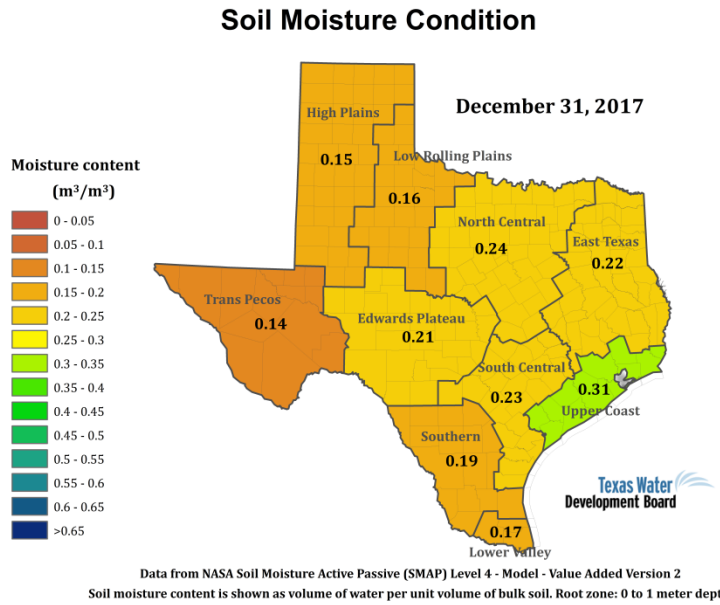
Streamflow Status	Number of Stations
Near or Above Normal (>30%)	19
Abnormally Low (20-30%)	4
Moderately Low (15-20%)	2
Severely Low (10-15%)	2
Extremely Low (5-10%)	0
Exceptionally Low (<5%)	2

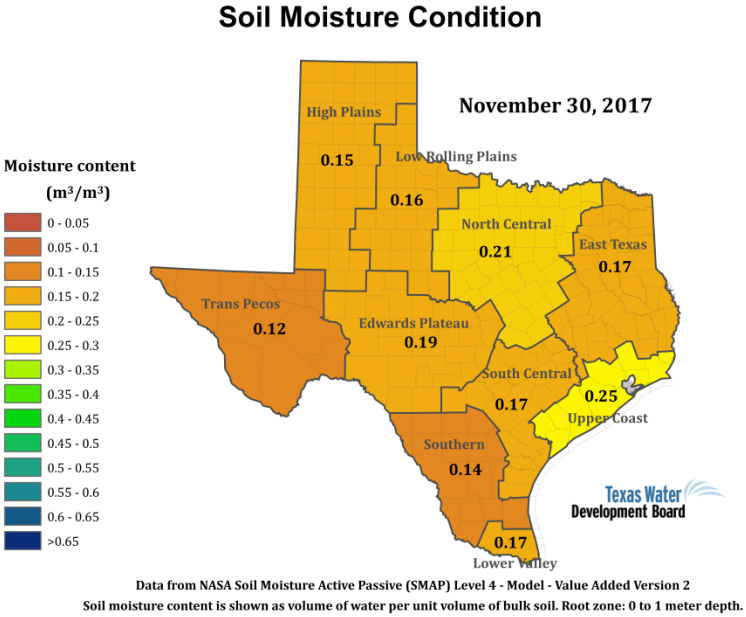
On a regional basis, as shown below, streamflows were near or above normal in all except the Trans Pecos region. Streamflow in the Lower Valley region is not monitored.



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

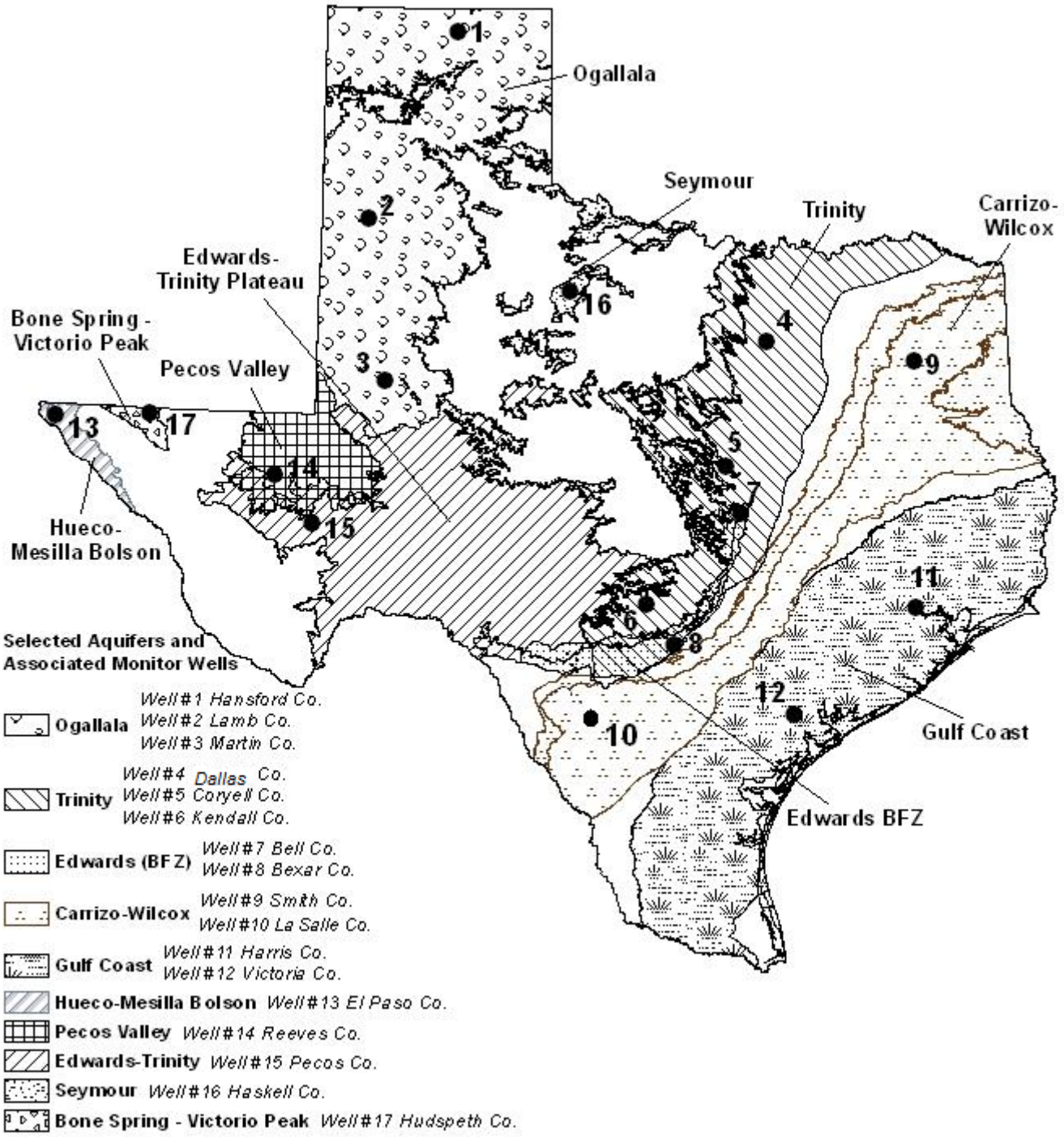
DECEMBER 2017 SOIL MOISTURE CONDITIONS





Soil moisture at the end of December 2017 (*top image*), as compared to soil moisture at the end of November 2017 (*bottom image*), increased in seven climate regions ranging from 10.5 - 35.7 percent. Soil moisture in the High Plains, Low Rolling Plains, and Lower Valley remained unchanged.

DECEMBER 2017 GROUNDWATER LEVELS IN OBSERVATION WELLS



Water-level measurements were available for all 17 key monitoring wells in the state. Water levels rose in 14 monitoring wells since the beginning of December, ranging from an increase of 0.02 feet in the Hansford County Ogallala Aquifer well (#1 on map) to 9.77 feet in the Pecos County Edwards-Trinity (Plateau) Aquifer well (#15 on map). No change was recorded in the El Paso County Hueco-Mesilla Bolson well (#13 on map). Water levels declined in two monitoring wells, ranging from a decline of 0.05 feet in the Lamb County Ogallala Aquifer well (#2 on map) to 0.22 feet in the Dallas County Trinity Aquifer well (#4 on map). The J-17 well (#8 on map) in San Antonio recorded a water level of 64.41 feet below land surface or 666.59 feet above mean sea level. There are no restrictions currently in place for the San Antonio portion of the Edwards (Balcones Fault Zone) Aquifer, with water levels at 1 feet above the Stage I critical management level.

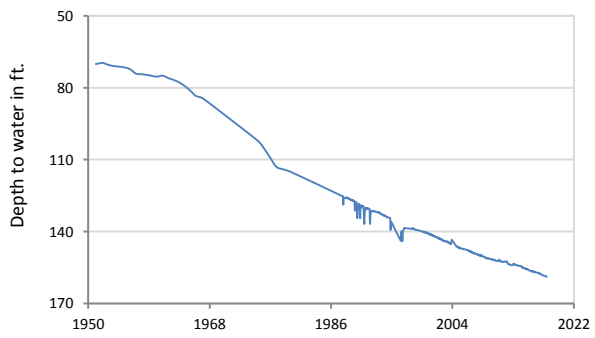
***IDs used in this publication on the aquifer map to indicate the monitoring well location (IDs 1 - 17) are different than the TWDB's six- or seven-digit state well identification number.**

Monitoring Well	December	November	Month Change	Year Change	Historical Change	First Measured
(1) Hansford 0354301	158.84	158.86	0.02	-1.37	-88.72	1951
(2) Lamb 1053602	148.11	148.06	-0.05	-1.09	-119.94	1951
(3) Martin 2739903	144.13	145.04	0.91	-0.64	-39.24	1964
(4) Dallas 3319101	493.93	493.71	-0.22	0.63	-271.61	1954
(5) Coryell 4035404	522.61	522.80	0.19	-9.22	-230.80	1955
(6) Kendall 6802609	131.97	132.86	0.89	-15.88	-71.97	1975
(7) Bell 5804816	123.78	123.90	0.12	-1.91	-0.27	2008
(8) Bexar 6837203	64.41	68.41	5.00	-18.90	-17.77	1932
(9) Smith 3430907	431.88	432.54	0.66	0.91	-131.88	1987
(10) La Salle 7738103	484.85	487.28	2.43	-29.26	-231.78	2003
(11) Harris 6514409	192.87	193.42	0.55	2.79	-57.37*	1947**
(12) Victoria 8017502	31.16	31.41	0.25	2.25	2.84	1958
(13) El Paso 4913301	294.53	294.53	0.00	0.65	-62.63	1964
(14) Reeves 4644501	162.33	168.16	5.83	-1.60	-70.24	1952
(15) Pecos 5216802	187.76	196.77	9.77	0.36	59.12	1976
(16) Haskell 2135748	46.67	46.82	0.15	-0.35	-3.67	2002
(17) Hudspeth 4807516	142.26	146.16	3.90	-1.92	-38.34	1966

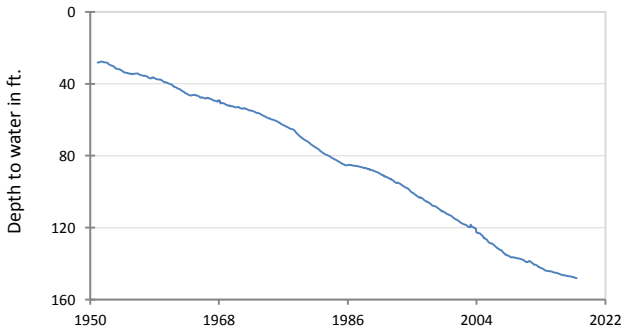
*Change since the original measurement of 135.5 feet below land surface in 1947 (**measurement not shown on the hydrograph)

DECEMBER 2017 GROUNDWATER LEVELS IN OBSERVATION WELLS

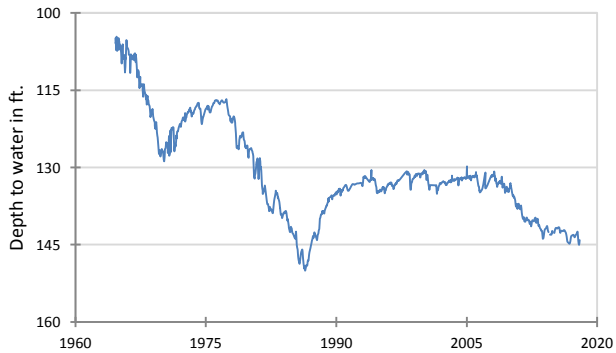
(1) State Well ID 03-54-301
Near Spearman, Hansford County
Ogallala Aquifer



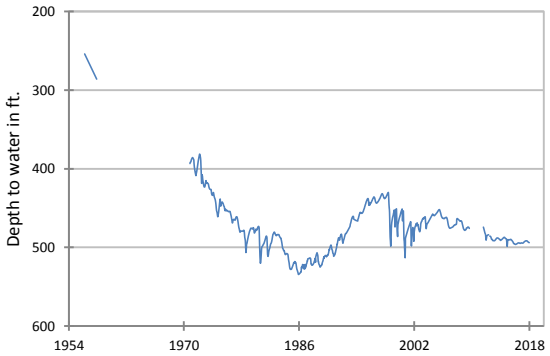
(2) State Well ID 10-53-602
Near Earth, Lamb County
Ogallala Aquifer



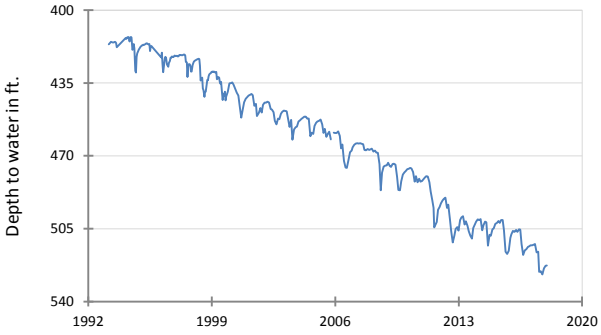
(3) State Well ID 27-39-903
Northwest Martin County
Ogallala Aquifer



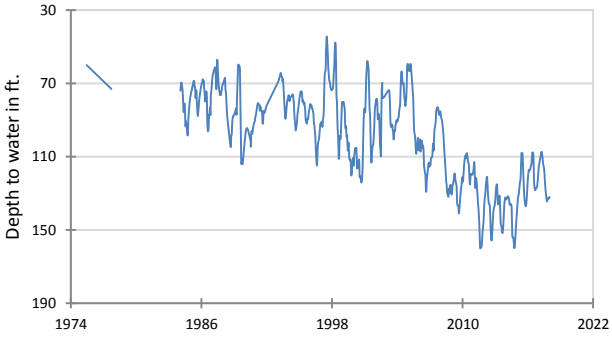
(4) State Well ID 33-19-101
Southeast Dallas, Dallas County
Twin Mountains Formation-Trinity Aquifer



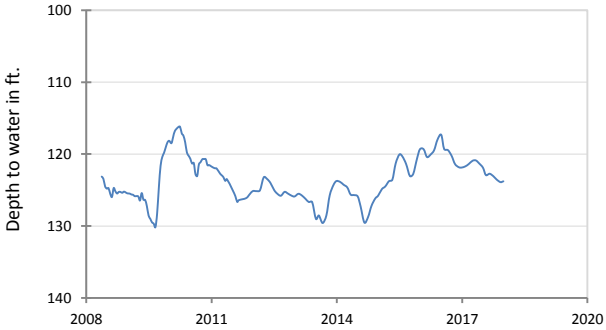
(5) State Well ID 40-35-404
Gatesville, Coryell County
Hosston Formation-Trinity Aquifer



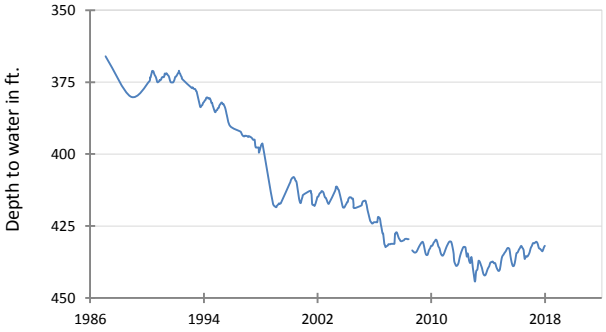
(6) State Well ID 68-02-609
Waring, Kendall County
Cow Creek Formation-Trinity Aquifer



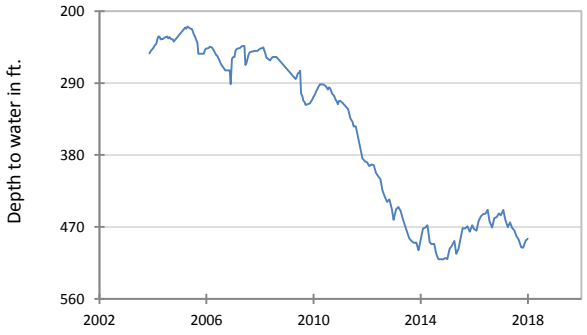
(7) State Well ID 58-04-816
Near Salado, Bell County
Edwards (Balcones Fault Zone) Aquifer



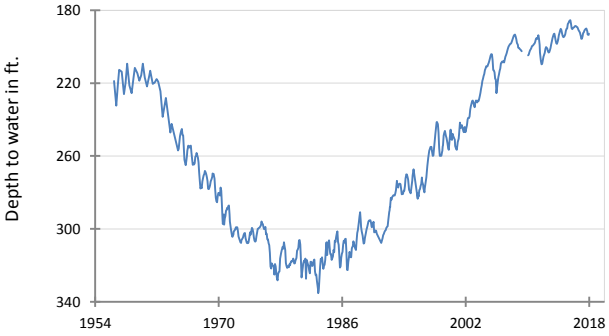
(9) State Well ID 34-30-907
Red Springs, Smith County
Carrizo-Wilcox Aquifer



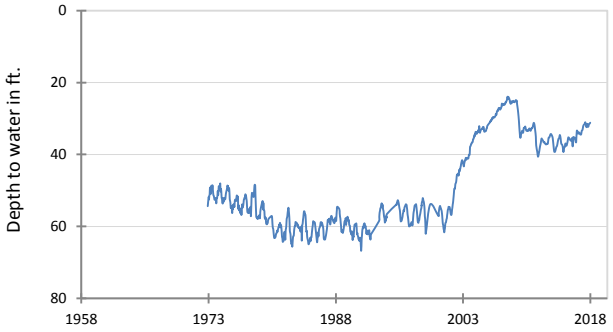
(10) State Well ID 77-38-103
Near Cotulla, La Salle County
Carrizo-Wilcox Aquifer



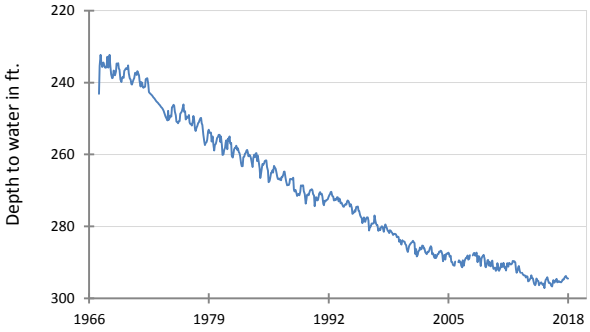
(11) State Well ID 65-14-409
Alief, Harris County
Evangeline Formation-Gulf Coast Aquifer



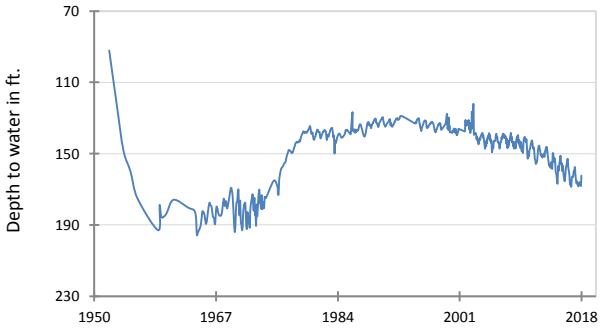
(12) State Well ID 80-17-502
Near Bloomington, Victoria County
Lissie Formation-Gulf Coast Aquifer



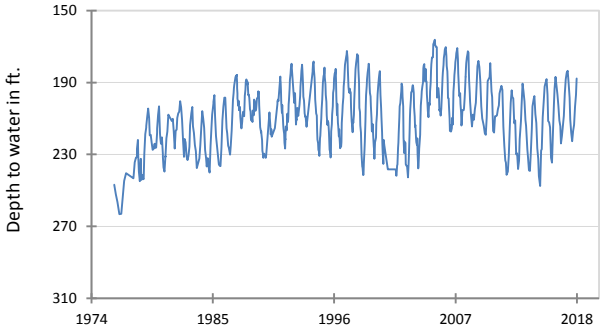
(13) State Well ID 49-13-301
El Paso, El Paso County
Hueco-Mesilla Bolson Aquifer



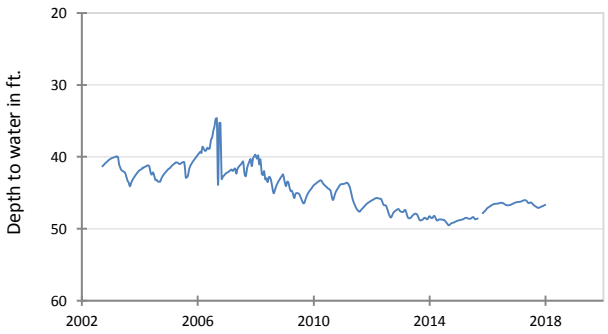
(14) State Well ID 46-44-501
Near Pecos, Reeves County
Pecos Valley Aquifer



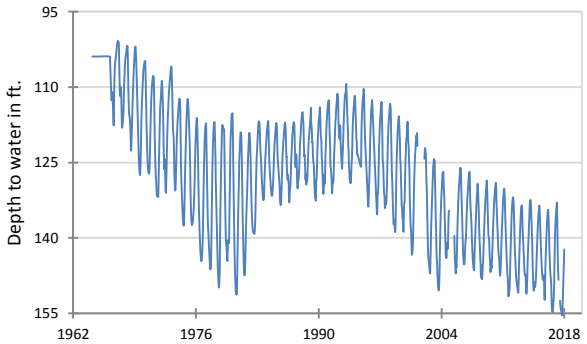
(15) State Well ID 52-16-802
Fort Stockton, Pecos County
Edwards-Trinity (Plateau) Aquifer



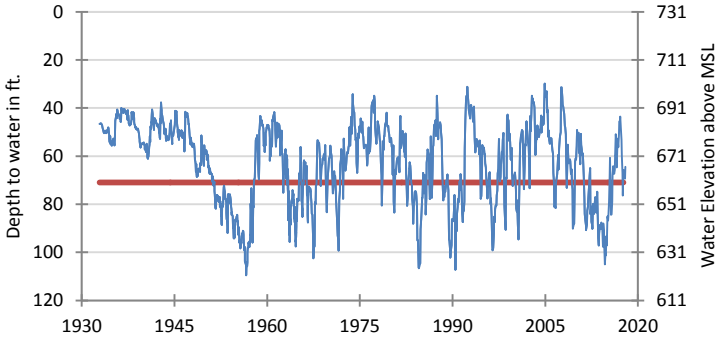
(16) State Well ID 21-35-748
Near O'Brien, Haskell County
Seymour Aquifer

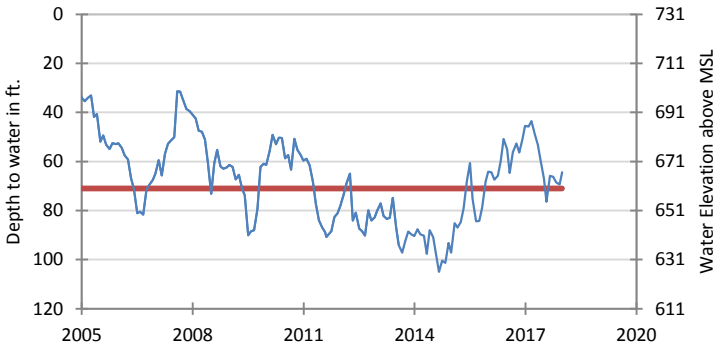


(17) State Well ID 48-07-516
Dell City, Hudspeth County
Bone Spring - Victorio Peak Aquifer



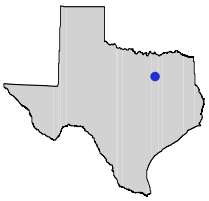
(8) State Well ID 68-37-203 (J-17)
In San Antonio, Bexar County
Edwards (Balcones Fault Zone) Aquifer





The late December water-level measurement in this Edwards (Balcones Fault Zone) Aquifer well, elevation 731 feet above mean sea level, was 64.41 feet below land surface, or 666.59 feet above mean sea level. This was 5.00 feet above last month's measurement, 18.90 feet below last year's measurement, and 17.77 feet below the initial measurement recorded in 1932.

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

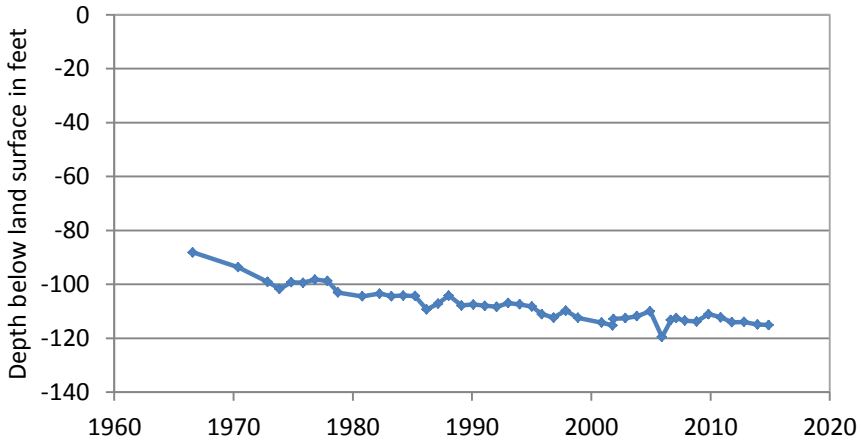


HYDROGRAPH OF THE MONTH

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

Woodbine Aquifer

Well # 3247202, 216 feet deep
Domestic/Livestock, eastern Johnson County



The Woodbine Aquifer is a minor aquifer located in northeast Texas. The aquifer overlies the Trinity Aquifer and consists of sandstone interbedded with shale and clay that form three distinct water bearing zones. The lower zones of the aquifer typically yield the most water, whereas the upper zone yields limited water and tends to be very high in iron. In general, water to a depth of 1,500 feet is fresh, containing less than 1,000 milligrams per liter of total dissolved solids. Water at depths below 1,500 feet is slight to moderately saline, containing from 1,000 to 4,000 milligrams per liter of total dissolved solids. The aquifer provides water for municipal, industrial, domestic, livestock, and small irrigation supplies. Large water level declines have moderated in the past decade as suppliers have switched to surface water sources.

The water level in this domestic and livestock well has gradually yet steadily declined from the initial measurement of 88.15 feet below land surface in 1966. The TWDB has been measuring this well since 1970. The lowest measurement was observed at 119.5 feet below land surface in 2005.