

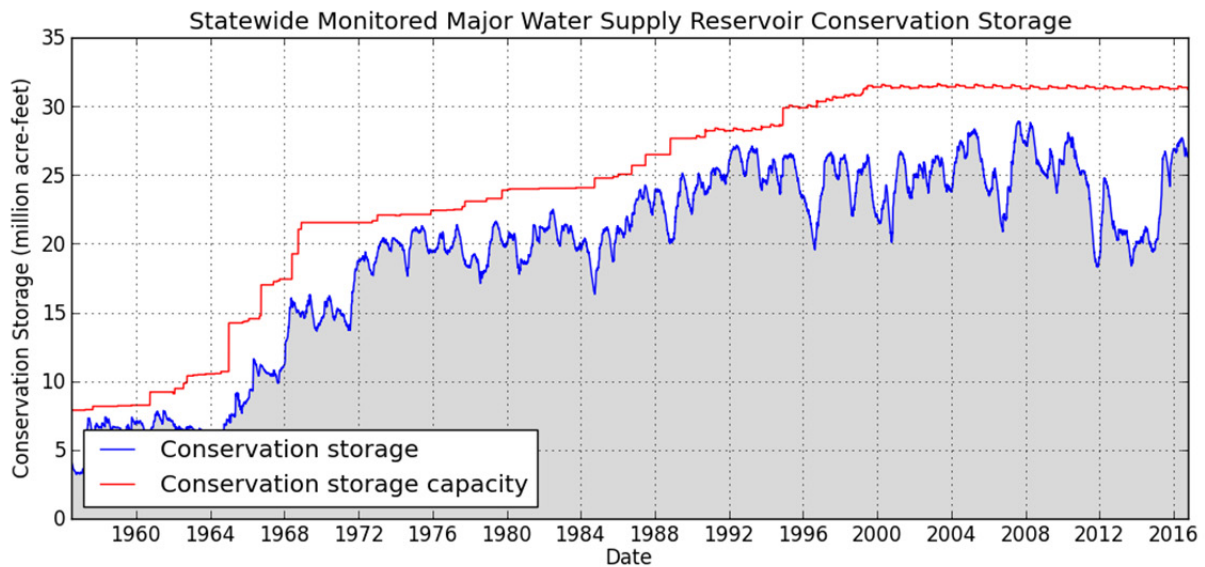
SEPTEMBER 2016 RESERVOIR STORAGE*

At the end of the month, total conservation storage in 114 of the state's major water supply reservoirs was at 26.54 million acre-feet or 87% of total conservation storage capacity. This is approximately 0.41 million acre-feet less than a month ago but 1.64 million acre-feet more than the storage at this time last year.

Twenty-seven (27) reservoirs held 100% of conservation storage capacity, primarily in the North Central (13) and East (5) regions. One (1) reservoir, Palo Duro (2%), remained below 10% full.

Total combined storage was at or above normal (storage \geq 70%) in the South Central (99%), Upper Coast (99%), North Central (96%), East (93%), Trans-Pecos (83%), and Low Rolling Plains (78%) regions. The region with the lowest percentage of storage was the High Plains (21%) region. Overall, storage increased in three regions but declined in six regions over the past month.

Elephant Butte reservoir held 131,768 acre-feet or 7% of storage capacity. This is 1,618 acre-feet less than a month ago.



* Storage is based on end of the month data in 114 major reservoirs that represent 96% of the total conservation storage capacity of 188 major water supply reservoirs in Texas. 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.

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of Lake or Reservoir	Conservation Storage Capacity (acre-feet)	Conservation Storage end of September 2016		Change since end of August 2016		Change since end of September 2015		
		(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)	
HIGH PLAINS								
Palo Duro Reservoir	61,066	1,445	2	-207	-0	-121	-0	
Meredith, Lake (Texas)	500,000	119,492	24	-3,610	-1	15,799	3	
Meredith, Lake (Texas & Oklahoma)	779,556	119,492	15	-3,610	-0	15,799	2	
MacKenzie Reservoir	46,450	7,163	15	22	0	-422	-1	
White River Lake	29,880	7,812	26	-179	-1	-2,150	-7	
TOTAL	637,396	135,912	21	-3,974	-1	13,106	2	
LOW ROLLING PLAINS								
Greenbelt Lake	59,968	16,608	28	108	0	4,095	7	
N. Fork Buffalo Crk Reservoir	15,400	11,812	77	264	2	902	6	
Kemp, Lake	245,307	234,567	96	13,115	5	58,371	24	
Millers Creek Reservoir	26,768	26,768	100	2,693	10	2,652	10	
Alan Henry Reservoir	94,808	88,282	93	2,548	3	-2,128	-2	
Stamford, Lake	51,570	51,519	100	5,397	10	7,728	15	
J B Thomas, Lake	199,931	126,820	63	-225	-0	-21,513	-11	
Fort Phantom Hill, Lake	70,030	70,030	100	3,656	5	27,328	39	
Sweetwater, Lake	12,267	2,632	21	-46	-0	1,306	11	
Colorado City, Lake	30,758	8,031	26	657	2	-831	-3	
Champion Creek Reservoir	41,580	11,724	28	1,463	4	6,293	15	
Abilene, Lake	7,900	7,900	100	53	1	7,634	97	
Coleman, Lake	38,075	36,352	95	515	1	10,497	28	
Hords Creek Lake	8,443	7,210	85	-170	-2	4,010	47	
TOTAL	902,805	700,255	78	30,028	3	106,344	12	
NORTH CENTRAL								
Nocona, Lake (Farmers Crk)	21,444	19,888	93	-208	-1	78	0	
Hubert H Moss Lake	24,058	22,039	92	-135	-1	-437	-2	
Texoma, Lake (Texas)	1,258,113	1,239,556	99	16,103	1	56,308	4	
Texoma, Lake (Texas & Oklahoma)	2,525,281	1,239,556	49	16,103	1	56,308	2	
*Pat Mayse Lake	113,683	105,786	93	-3,311	-3	no data		
Kickapoo, Lake	86,345	82,125	95	-800	-1	3,988	5	
Arrowhead, Lake	230,359	216,111	94	5,830	3	1,814	1	
Bonham, Lake	11,027	8,851	80	-405	-4	180	2	
Crook, Lake	9,195	8,081	88	-244	-3	303	3	
Amon G Carter, Lake	19,266	19,266	100	0	0	1,034	5	
Ray Roberts, Lake	788,167	776,872	99	-11,295	-1	-11,295	-1	
Jim Chapman Lake (Cooper)	260,332	221,513	85	-15,215	-6	-6,733	-3	
Graham, Lake	45,288	45,288	100	0	0	5,371	12	
*Lost Creek Reservoir	11,950	11,836	99	-51	-0	381	3	
Bridgeport, Lake	366,236	366,236	100	0	0	42,505	12	
Lewisville Lake	563,228	550,876	98	-12,352	-2	-12,352	-2	
Lavon Lake	406,388	352,614	87	-16,240	-4	9,225	2	
Hubbard Creek Reservoir	318,067	295,720	93	-1,285	-0	192,557	61	
Possum Kingdom Lake	523,873	516,385	99	-6,019	-1	12,250	2	
*Mineral Wells, Lake	6,760	6,760	100	0	0	608	9	
Weatherford, Lake	17,812	17,422	98	-303	-2	3,058	17	
Eagle Mountain Lake	179,880	178,761	99	-1,119	-1	14,952	8	
Worth, Lake	33,495	30,858	92	-2,637	-8	1,816	5	
Grapevine Lake	164,703	164,703	100	0	0	0	0	
Ray Hubbard, Lake	452,040	434,307	96	-2,258	-0	34,116	8	
New Terrell City Lake	8,583	8,146	95	-239	-3	492	6	
Palo Pinto, Lake	26,766	25,082	94	-279	-1	2,585	10	
Benbrook Lake	85,648	77,421	90	-4,787	-6	14,983	17	
Arlington, Lake	40,188	28,313	70	-4,145	-10	-2,080	-5	
Joe Pool Lake	175,358	168,052	96	-3,690	-2	-4,280	-2	
*Cisco, Lake	25,895	25,895	100	0	0	8,242	32	

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of Lake or Reservoir	Conservation Storage Capacity (acre-feet)	Conservation Storage end of September 2016		Change since end of August 2016		Change since end of September 2015		
		(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)	
<i>(North Central continued)</i>								
Leon, Lake	27,762	24,026	87	-639	-2	-574	-2	
Granbury, Lake	125,756	124,770	99	-986	-1	3,977	3	
Pat Cleburne, Lake	26,008	22,953	88	-1,184	-5	1,448	6	
Waxahachie, Lake	10,780	10,172	94	-512	-5	1,248	12	
Bardwell Lake	46,122	45,434	99	-688	-1	2,772	6	
Proctor Lake	54,762	50,546	92	-985	-2	-1,075	-2	
Whitney, Lake	553,344	489,493	88	-20,223	-4	-9,473	-2	
Aquilla Lake	43,243	43,243	100	0	0	5,690	13	
Navarro Mills Lake	49,827	49,827	100	0	0	4,562	9	
*Halbert, Lake	6,033	4,956	82	-356	-6	106	2	
Richland-Chambers Reservoir	1,087,839	1,069,926	98	-17,913	-2	27,424	3	
*Brownwood, Lake	128,839	121,470	94	-1,192	-1	3,793	3	
Waco, Lake	189,418	188,043	99	-1,375	-1	16,545	9	
Limestone, Lake	203,780	190,702	94	-6,307	-3	21,421	11	
Belton Lake	435,225	435,225	100	0	0	9,770	2	
Stillhouse Hollow Lake	227,771	227,771	100	0	0	7,771	3	
Georgetown, Lake	36,823	36,045	98	-778	-2	9,906	27	
Granger Lake	51,822	51,822	100	0	0	246	0	
Tawakoni, Lake	871,685	804,643	92	-24,856	-3	-19,852	-2	
Mountain Creek, Lake	22,850	22,850	100	0	0	0	0	
Squaw Creek, Lake	151,250	151,250	100	0	0	0	0	
TOTAL	10,625,086	10,189,930	96	-143,078	-1	455,374	4	
EAST								
Wright Patman Lake	231,496	231,496	100	0	0	4,054	2	
*Sulphur Springs, Lake	17,747	15,522	87	-858	-5	691	4	
Cypress Springs, Lake	66,756	62,803	94	-1,105	-2	1,221	2	
Bob Sandlin, Lake	190,822	183,129	96	-3,737	-2	7,351	4	
Caddo, Lake	29,898	29,898	100	0	0	180	1	
Martin, Lake	75,726	69,016	91	-3,432	-5	4,203	6	
Monticello, Lake	34,740	33,910	98	-830	-2	-241	-1	
Fork Reservoir, Lake	605,061	558,927	92	-11,023	-2	4,222	1	
O the Pines, Lake	268,566	249,904	93	-18,662	-7	-2,521	-1	
Cedar Creek Reservoir in Trinity	644,686	601,533	93	-20,214	-3	17,986	3	
Athens, Lake	29,503	27,986	95	-587	-2	1,206	4	
Palestine, Lake	367,303	336,041	91	-12,611	-3	6,087	2	
Tyler, Lake	72,073	66,485	92	-1,662	-2	3,592	5	
Murvaul, Lake	38,285	35,210	92	-1,542	-4	2,071	5	
Jacksonville, Lake	25,670	25,600	100	-70	-0	1,781	7	
Nacogdoches, Lake	39,522	37,552	95	-1,599	-4	3,542	9	
Houston County Lake	17,113	17,113	100	0	0	1,864	11	
Sam Rayburn Reservoir	2,857,077	2,654,159	93	-111,118	-4	-22,808	-1	
Toledo Bend Reservoir (Texas)	2,236,450	1,920,420	86	-175,362	-8	5,600	0	
Toledo Bend Reservoir (TX & LA)	4,472,900	1,920,420	43	-175,362	-4	5,600	0	
*Livingston, Lake	1,785,348	1,785,348	100	0	0	0	0	
B A Steinhagen Lake	66,961	61,274	92	-2,142	-3	no data		
Conroe, Lake	410,988	407,541	99	-3,447	-1	24,963	6	
TOTAL	10,111,791	9,410,867	93	-370,001	-4	65,044	1	
TRANS-PECOS								
Red Bluff Reservoir	151,110	124,950	83	-4,149	-3	-6,984	-5	
TOTAL	151,110	124,950	83	-4,149	-3	-6,984	-5	
EDWARDS PLATEAU								
Oak Creek Reservoir	39,210	19,590	50	720	2	9,640	25	
E V Spence Reservoir	517,272	53,441	10	3,832	1	17,479	3	
O C Fisher Lake	115,742	16,156	14	345	0	4,818	4	
*O H Ivie Reservoir	554,340	123,186	22	4,497	1	47,732	9	

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS								
Name of Lake or Reservoir	Conservation Storage Capacity (acre-feet)	Conservation Storage end of September 2016		Change since end of August 2016		Change since end of September 2015		
		(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)**	(%)	
<i>(Edwards Plateau continued)</i>								
Twin Buttes Reservoir	182,454	17,337	10	813	0	7,124	4	
Nasworthy	9,615	8,036	84	-12	-0	no data		
Brady Creek Reservoir	28,808	16,937	59	2,755	10	7,782	27	
Buchanan, Lake	816,904	814,736	100	3,470	0	241,912	30	
Inks, Lake	13,962	12,937	93	60	0	-76	-1	
Lyndon B Johnson, Lake	115,249	110,331	96	-305	-0	-366	-0	
*Amistad Reservoir (Texas)	1,840,849	1,522,386	83	57,029	3	389,807	21	
*Amistad Reservoir (TX & Mexico)	3,275,532	1,522,386	46	57,029	2	389,807	12	
TOTAL	4,234,405	2,715,073	64	73,204	2	725,852	17	
SOUTH CENTRAL								
Travis, Lake	1,113,348	1,113,348	100	0	0	254,806	23	
*Austin, Lake	23,972	22,726	95	30	0	-92	-0	
Somerville Lake	147,104	147,104	100	0	0	650	0	
Canyon Lake	378,781	378,781	100	0	0	21,184	6	
Medina Lake	254,823	246,402	97	-5,277	-2	77,456	30	
*Coletto Creek Reservoir	31,040	27,182	88	-1,489	-5	-439	-1	
TOTAL	1,949,068	1,935,543	99	-6,736	-0	353,565	18	
UPPER COAST								
Houston, Lake	120,686	120,686	100	0	0	0	0	
Texana, Lake	159,566	155,909	98	-3,473	-2	14,046	9	
TOTAL	280,252	276,595	99	-3,473	-1	14,046	5	
SOUTHERN								
Choke Canyon Reservoir	662,820	281,856	43	-1,874	-0	53,423	8	
Corpus Christi, Lake	256,961	217,886	85	6,594	3	0	0	
*Falcon Reservoir (Texas)	1,551,007	553,085	36	12,274	1	-142,774	-9	
*Falcon Reservoir (TX & Mexico)	2,646,817	553,085	21	12,274	0	-142,774	-5	
TOTAL	2,470,788	1,052,827	43	16,994	1	-89,351	-4	
STATEWIDE TOTAL								
STATEWIDE TOTAL	31,362,701	26,541,952	87	-411,185	-1	1,636,996	5	
Elephant Butte Reservoir	1,973,358	131,768	7	-1,608	-0	-36,572	-2	

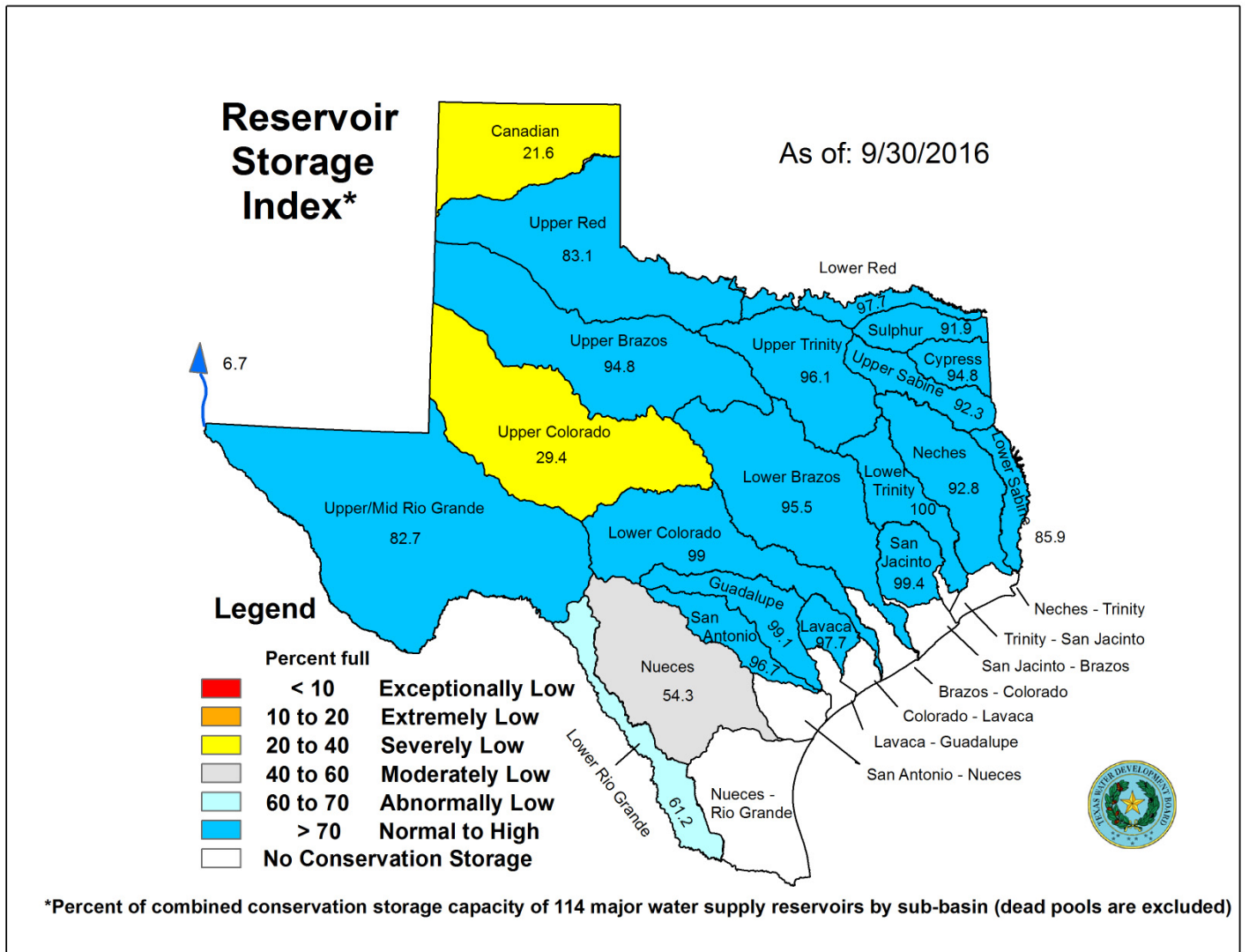
* Conservation volume is used as conservation storage capacity because the dead storage is unknown.

**Monthly and yearly changes do not include reservoirs that did not have data in last monthly 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, 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 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. Figures shown are for the Texas share of conservation storage in all reservoirs.

SEPTEMBER 2016 RESERVOIR CONDITIONS



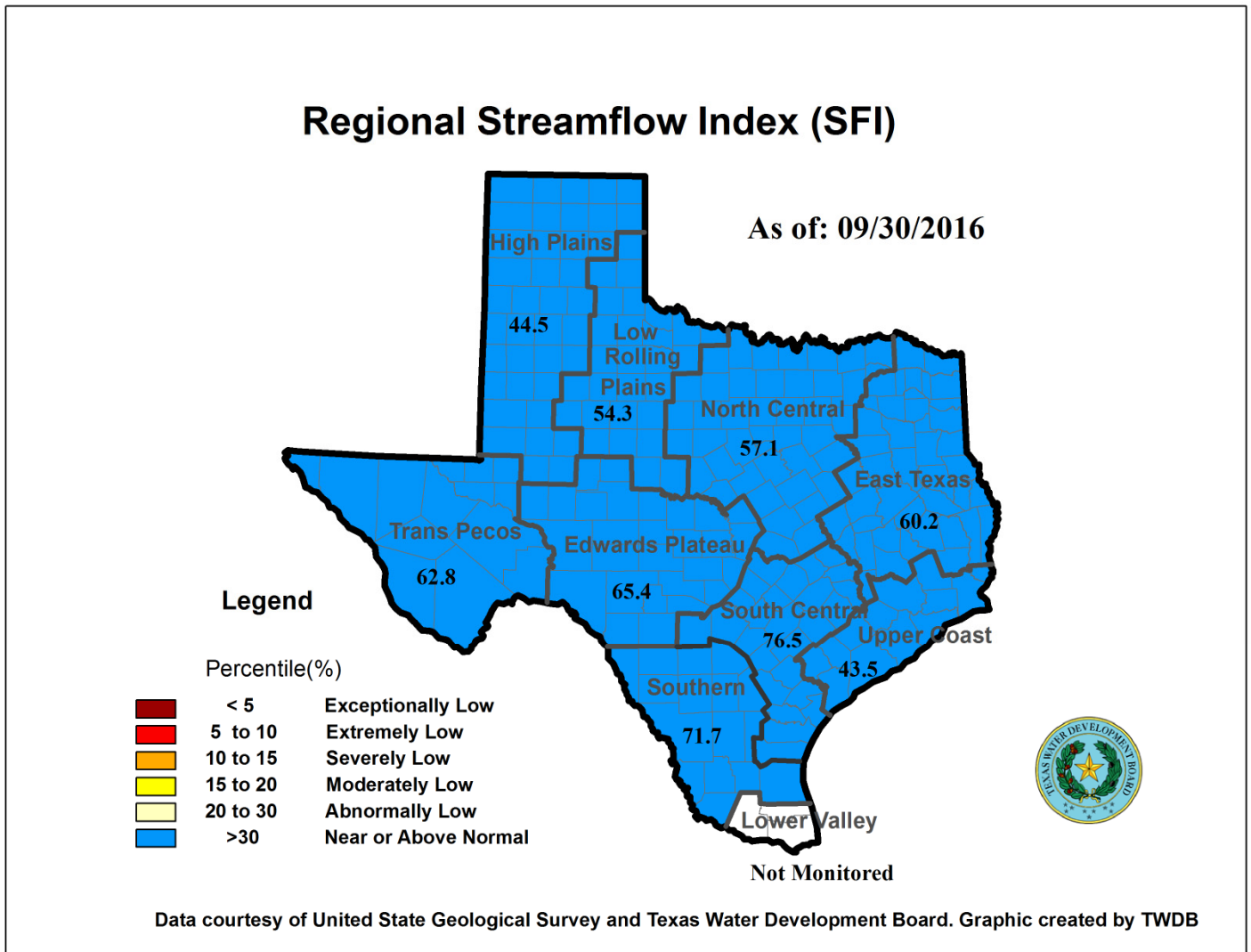
*Reservoir Storage Index is defined as the percent full of conservation storage capacity.

SEPTEMBER 2016 STREAMFLOW CONDITIONS

The computed 30-day mean flow status for 29 reporting index stations monitored this month is presented below. Mean flow increased at nine index stations and decreased at 20 stations.

Streamflow Status	Number of Stations
Near or Above Normal (>30%)	24
Abnormally Low (20-30%)	0
Moderately Low (15-20%)	3
Severely Low (10-15%)	1
Extremely Low (5-10%)	0
Exceptionally Low (<5%)	1

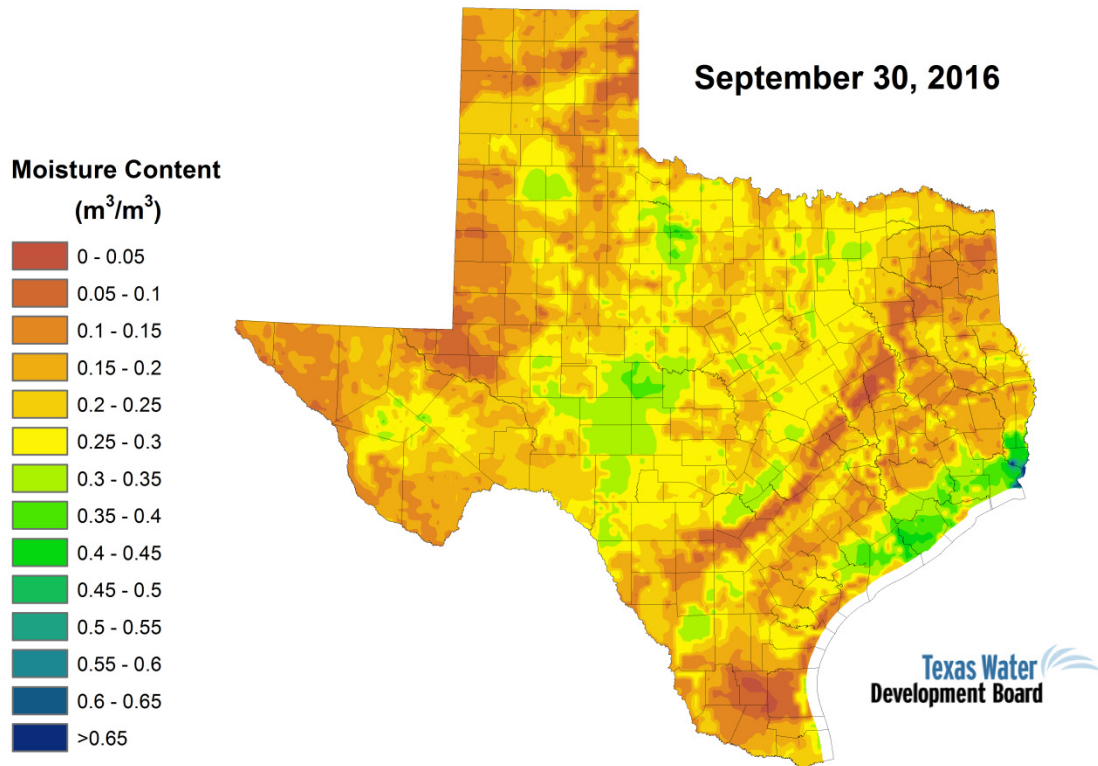
On a regional basis, as shown below, flows at index stations were near or above normal in all nine regions. Streamflow in the Lower Valley region is not monitored.



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

SEPTEMBER 2016 SOIL MOISTURE CONDITIONS

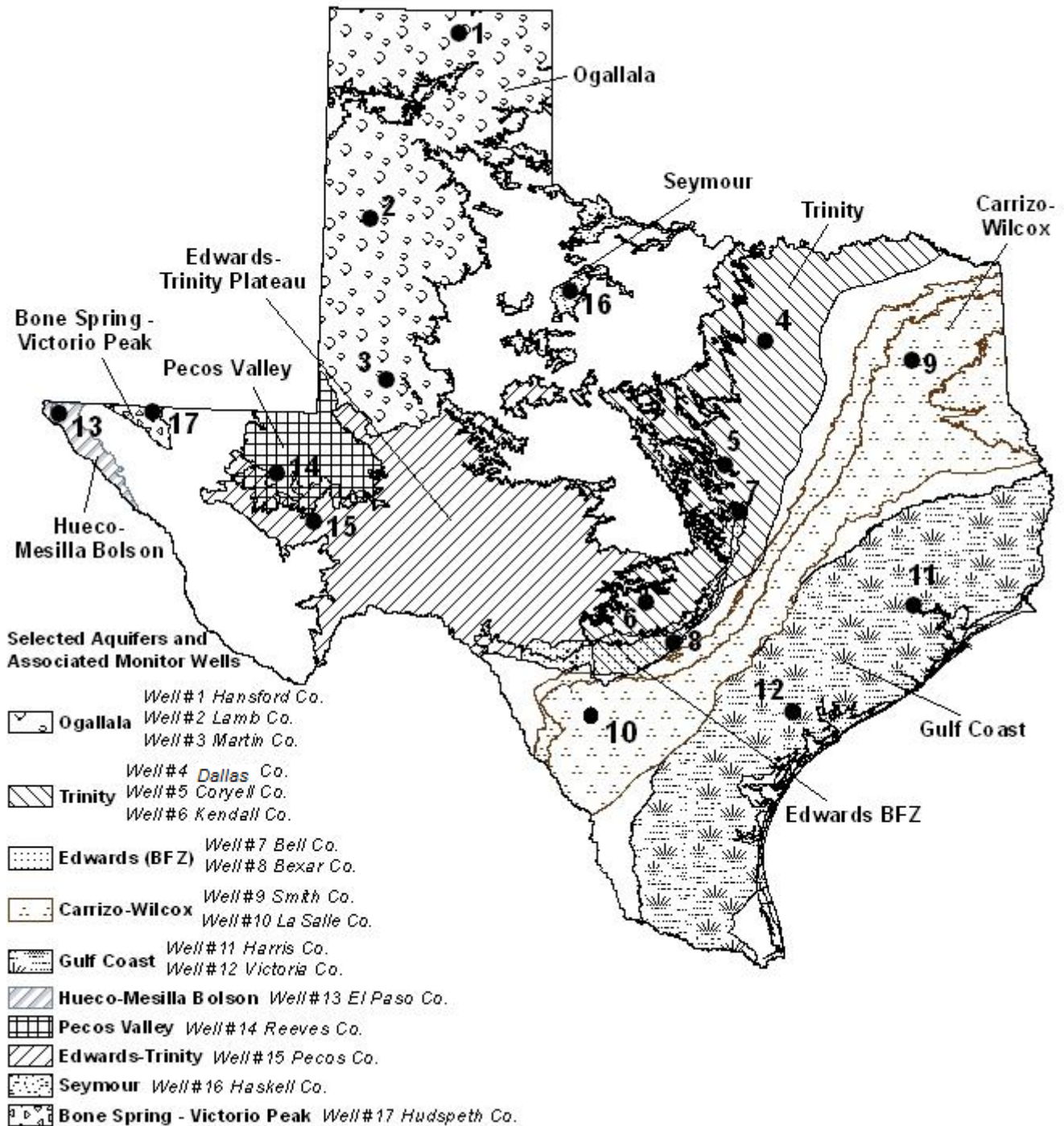
Soil Moisture Condition



Data from NASA Soil Moisture Active Passive (SMAP) Level 4 - Model - Value Added Version 2
Soil moisture content is shown as volume of water per unit volume of bulk soil. Root zone: 0 to 1 meter depth.

The soil moisture pattern across the state for September showed higher amounts of soil moisture in southeastern, west-central, and north-central Texas, as depicted by soil moisture content values over 0.3. Much of the state had very low values of soil moisture with the lowest values (less than 0.1) being observed in South Texas, west Texas, the northern Panhandle, and along a belt extending from the southwest to the northeast, overlying the Carrizo-Wilcox outcrop.

SEPTEMBER 2016 GROUNDWATER LEVELS IN OBSERVATION WELLS



September 2016

Water-level measurements were available for all 17 key monitoring wells in the state. Water levels rose in 10 monitoring wells since the beginning of September, ranging from an increase of 0.01 feet in the Haskell County Seymour Aquifer well to 11.71 feet in the La Salle County Carrizo-Wilcox Aquifer well. Water levels declined in seven monitoring wells, ranging from a decline of 0.03 feet in the Lamb County Ogallala Aquifer well to 0.81 feet in the Bell County Edwards (Balcones Fault Zone) Aquifer well. The J-17 well in San Antonio recorded a water level of 52.71 feet below land surface or 678.29 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 18.29 feet above the Stage I critical management level.

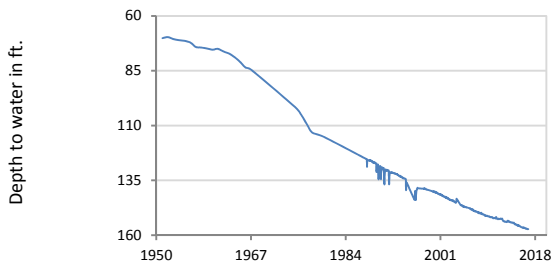
*IDs used in this publication on the aquifer map to indicate the monitoring well location (IDs 1 - 17) are different than the TWDB's six- or seven-digit state well identification number.

Monitoring Well	September	August	Month Change	Year Change	Historical Change	First Measured
(1) Hansford 0354301	157.23	157.26	0.03	-0.66	-87.11	1951
(2) Lamb 1053602	146.91	146.88	-0.03	-0.90	-118.74	1951
(3) Martin 2739903	144.72	144.57	-0.15	-2.02	-39.83	1964
(4) Dallas 3319101	494.83	494.70	-0.13	-1.28	-272.83	1954
(5) Coryell 4035404	515.44	517.54	2.10	1.68	-223.44	1955
(6) Kendall 6802609	127.16	128.23	1.07	8.95	-67.16	1975
(7) Bell 5804816	120.25	119.44	-0.81	2.80	3.26	2008
(8) Bexar 6837203	56.71	56.21	3.50	31.60	-6.07	1932
(9) Smith 3430907	435.65	435.50	-0.15	3.29	-135.65	1987
(10) La Salle 7738103	458.83	470.54	11.71	10.44	-205.76	2003
(11) Harris 6514409	191.51	191.10	-0.45	-1.78	-56.01*	1947**
(12) Victoria 8017502	34.18	33.84	-0.34	1.97	-0.18	1958
(13) El Paso 4913301	294.59	295.04	0.45	-0.41	-62.69	1964
(14) Reeves 4644501	162.95	163.16	0.21	-0.99	-70.86	1952
(15) Pecos 5216802	212.27	219.73	7.46	22.26	34.61	1976
(16) Haskell 2135748	46.72	46.73	0.01	1.22	-3.72	2002
(17) Hudspeth 4807516	152.92	154.70	1.78	0.62	-49.00	1966

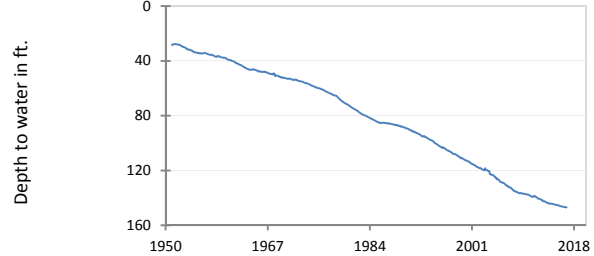
*Change since the original measurement of 135.5 feet below land surface in 1947 (**measurement not shown on the hydrograph)

SEPTEMBER 2016 GROUNDWATER LEVELS IN OBSERVATION WELLS

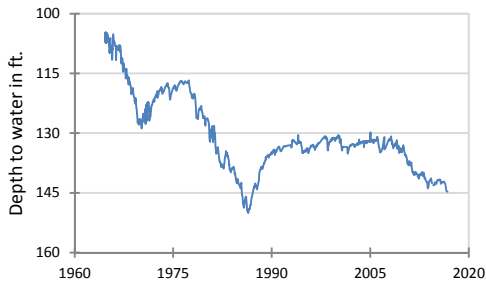
(1) State Well ID 03-54-301
Near Spearman, Hansford County
Ogallala Aquifer



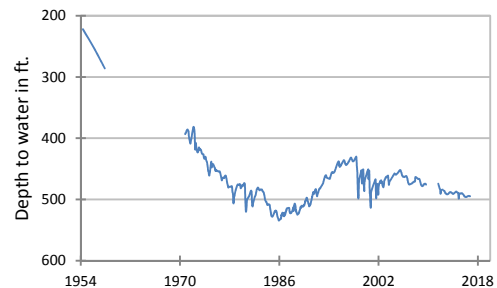
(2) State Well ID 10-53-602
Near Earth, Lamb County
Ogallala Aquifer



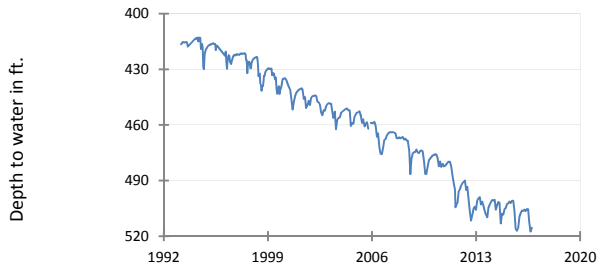
(3) State Well ID 27-39-903
Northwest Martin County
Ogallala Aquifer



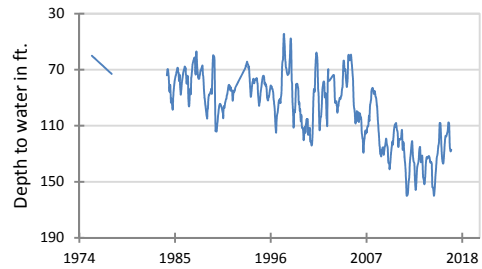
(4) State Well ID 33-19-101
Southeast Dallas, Dallas County
Twin Mountains Formation-Trinity Aquifer



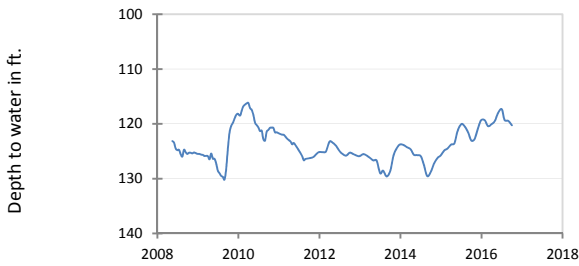
**(5) State Well ID 40-35-404
Gatesville, Coryell County
Hosston Formation-Trinity Aquifer**



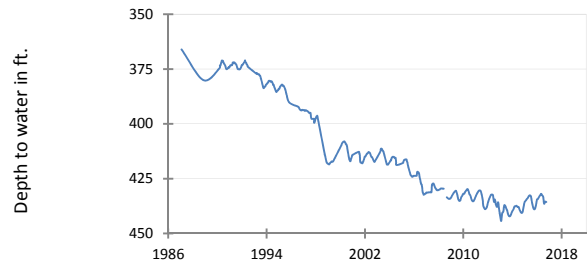
**(6) State Well ID 68-02-609
Waring, Kendall County
Cow Creek Formation-Trinity Aquifer**



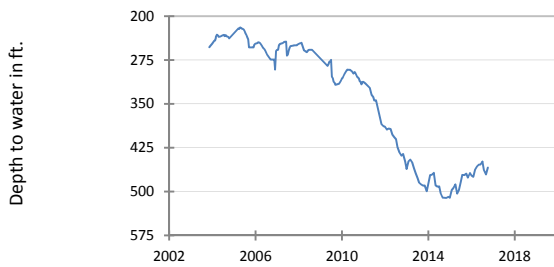
**(7) State Well ID 58-04-816
Near Salado, Bell County
Edwards (Balcones Fault Zone) Aquifer**



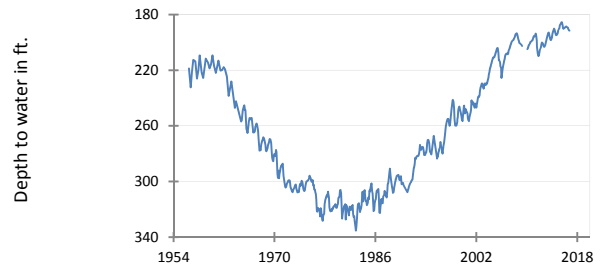
**(9) State Well ID 34-30-907
Red Springs, Smith County
Carrizo-Wilcox Aquifer**



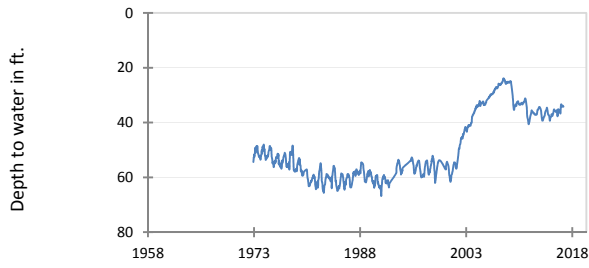
**(10) State Well ID 77-38-103
Near Cotulla, La Salle County
Carrizo-Wilcox Aquifer**



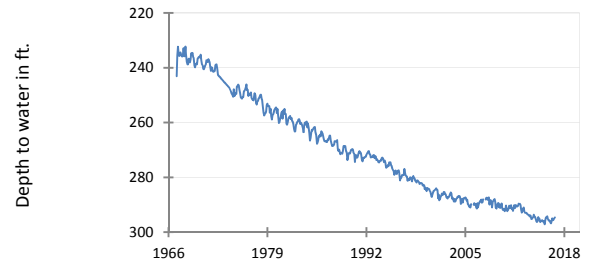
**(11) State Well ID 65-14-409
Alief, Harris County
Evangeline Formation-Gulf Coast Aquifer**



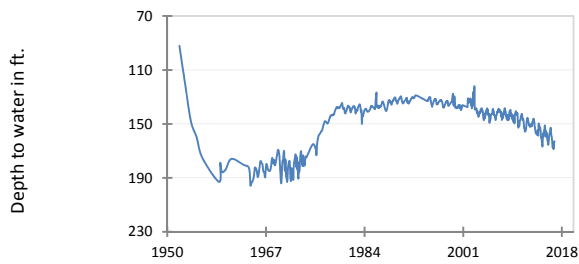
(12) State Well ID 80-17-502
Near Bloomington, Victoria County
Lissie Formation-Gulf Coast Aquifer



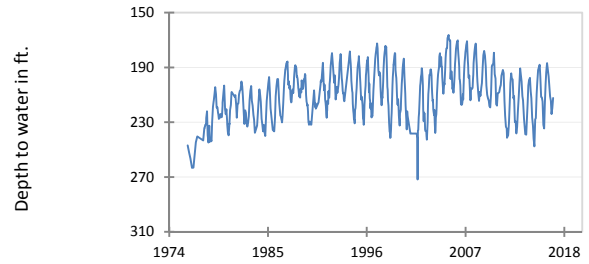
(13) State Well ID 49-13-301
El Paso, El Paso County
Hueco-Mesilla Bolson Aquifer



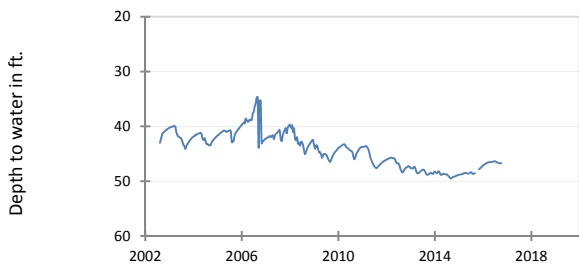
(14) State Well ID 46-44-501
Near Pecos, Reeves County
Pecos Valley Aquifer



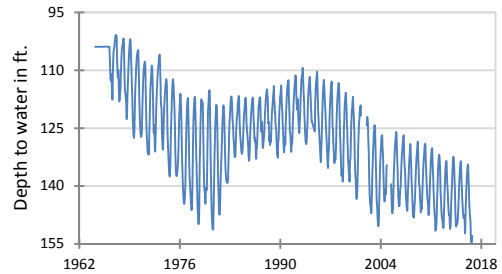
(15) State Well ID 52-16-802
Fort Stockton, Pecos County
Edwards-Trinity (Plateau) Aquifer



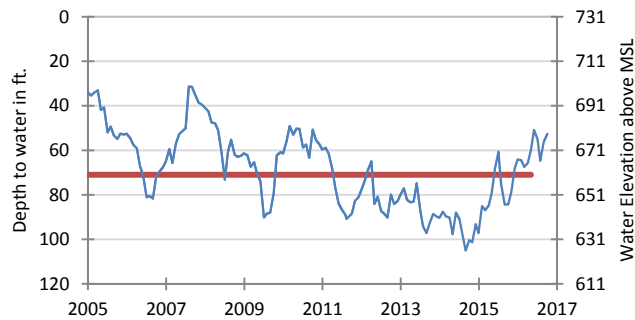
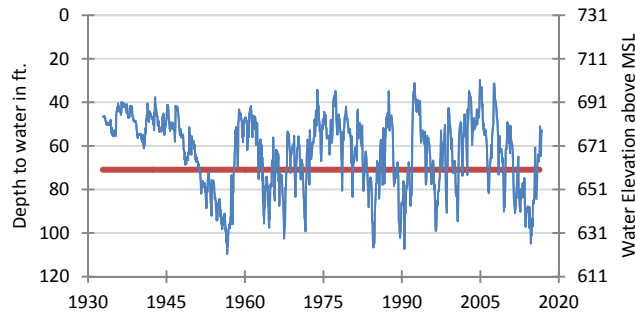
(16) State Well ID 21-35-748
Near O'Brien, Haskell County
Seymour Aquifer



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

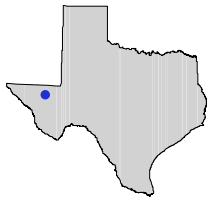


**(8) State Well ID 68-37-203 (J-17)
In San Antonio, Bexar County
Edwards (Balcones Fault Zone) Aquifer**



The late September water-level measurement in this Edwards (Balcones Fault Zone) Aquifer well, elevation 731 feet above mean sea level, was 52.71 feet below land surface, or 678.29 feet above mean sea level. This was 3.50 feet above last month's measurement, 31.60 feet above last year's measurement, and 6.07 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. *****



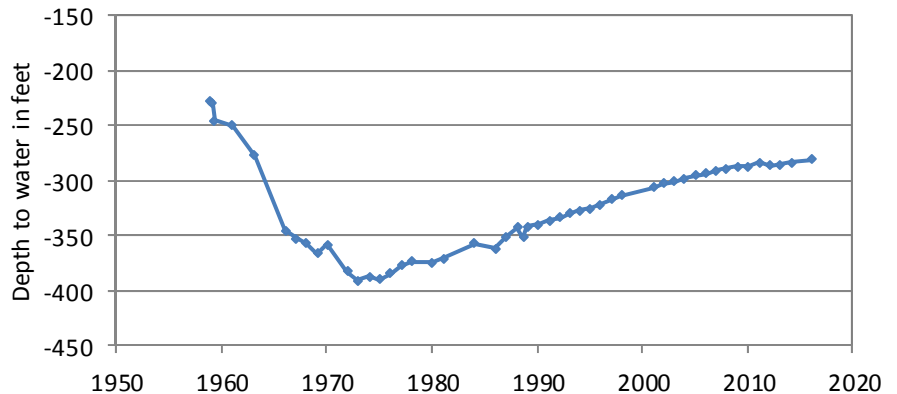
HYDROGRAPH OF THE MONTH

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

Rustler Aquifer

Well # 4635501, 865 feet deep
Irrigation, central Pecos County

The Rustler Aquifer is a minor aquifer located in Brewster, Culberson, Jeff Davis, Loving, Pecos, Reeves, and Ward counties. The aquifer consists of carbonates and evaporates of the Rustler Formation, which is the youngest unit of the late Permian Ochoan Series. The Rustler Formation is 250 to 670 feet thick and extends down dip into the subsurface toward the center of the Delaware Basin. Groundwater occurs in partly dissolved dolomite, limestone, and gypsum. Most of the water production comes from fractures and solution openings in the upper part of the formation. Although some parts of the aquifer produce freshwater containing less than 1,000 milligrams per liter of total dissolved solids, the water is generally slightly to moderately saline and contains total dissolved solids ranging between 1,000 and 4,600 milligrams per liter. The water is primarily used for irrigation, livestock, and water-flooding operations in oil-producing areas. Fluctuations in water levels over time most likely reflect long-term variations in water use patterns.



The first recorded water-level measurement for this irrigation well was 228.6 feet below land surface in 1958, by the USGS. This was the highest recorded water-level measurement. The TWDB began measuring this well in 1963, with a water-level measurement of 277.3 feet below land surface, and has measured every year since. The lowest recorded water-level measurement was 391.25 feet below land surface, measured in 1972. Since this 1972 measurement, water level has been on a steady increase, rising 110.51 feet, probably due to less irrigation or technological advances in irrigation since that time.