

Texas Water Development Board



W **A** **T** **E** **R**
Conditions

RESERVOIR STORAGE

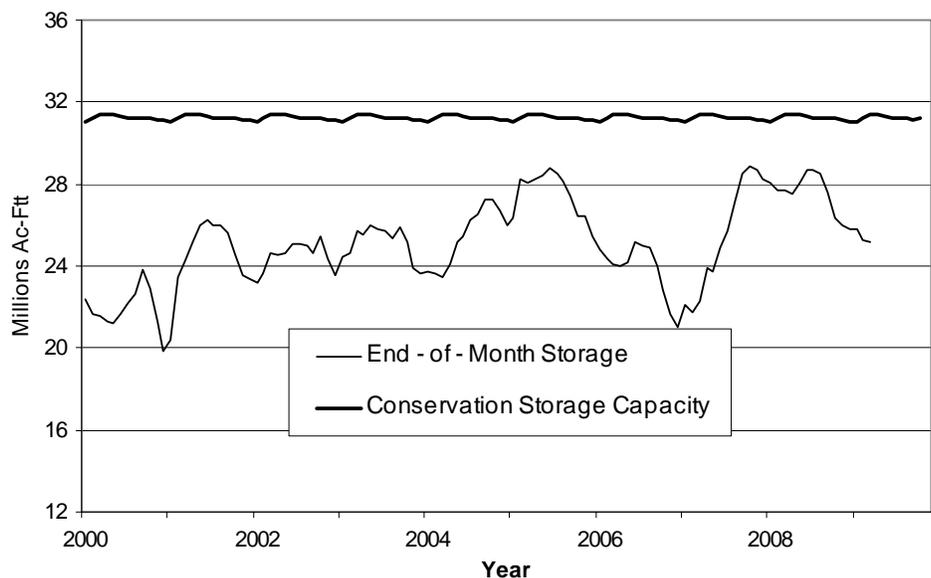
November 2008

Near the end of November, the 109 reservoirs monitored for this report were 81 percent full*, on average, holding 25.20 million acre-feet in conservation storage, about 0.67 million acre-feet less than October and 2.47 million acre-feet less than November of 2007.

Storage was at 100% in 11 reservoirs, including both Falcon and Amistad! Eight out of these 11 reservoirs are in the East Region. On the other hand, four lakes were below 10% full: O C Fisher Lake was still effectively empty, Palo Duro (3%) was almost empty, and Lake Meredith (8%) and J B Thomas (9%) stayed just below the 10% level.

Regionally, the Southern Region (95%) is the only region having storage at or above 90% of capacity, and the High Plains (13%) and Trans-Pecos Regions (27%) remained very low. Storage increased during the month in three regions and decreased in the remaining six. Storage increased in only two of the nine regions over the past 12 month period.

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS



* Figures are based on end of the month data at 109 major reservoirs that represent 95 percent of the total conservation storage capacity of the 175 major water supply reservoirs in Texas. By definition, a major reservoir has a conservation storage capacity of 5,000 acre-feet or greater.

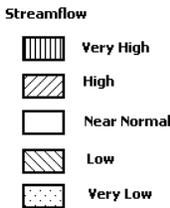
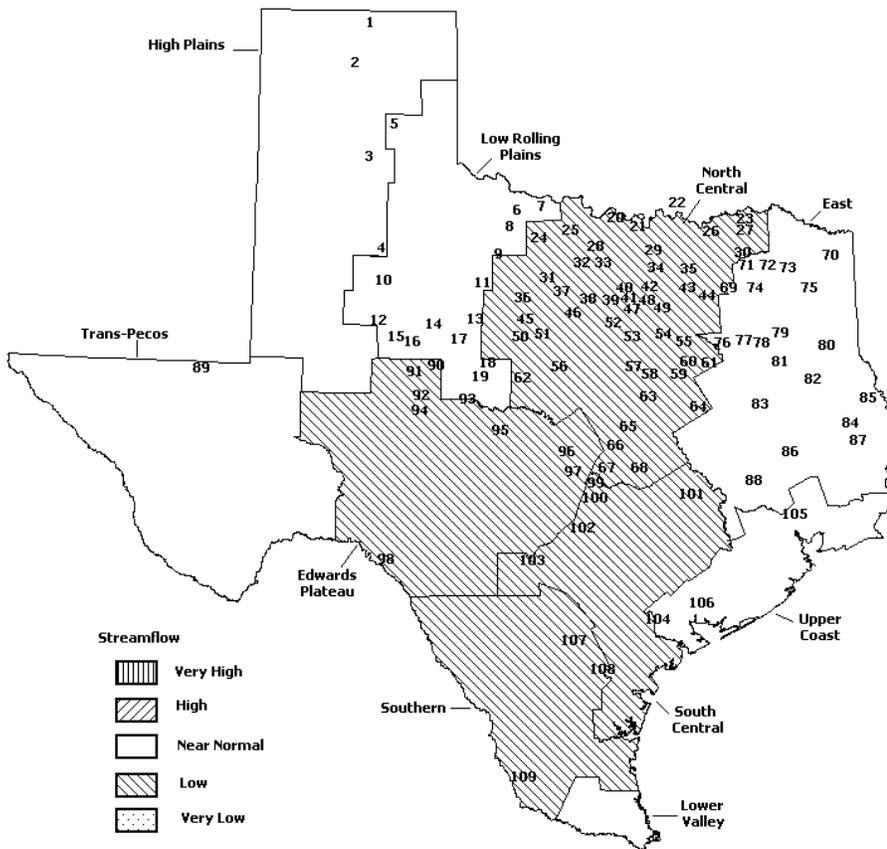
STREAMFLOW

Of 29 reporting index stations in November, computed 30-day mean flows were very high (<5%) at 1 station, high (5% - 30%) at 2 stations, low (70% - 95%) at 14 stations, and near normal (30% - 70%) at the remaining 12 stations. Compared to October, flows increased at 13 index stations, decreased at 14 stations, and were unchanged at 2 stations.

On a regional basis, flows in November were low in North Central, Edwards Plateau, Southern and South Central Regions, and normal in all other regions. Streamflow in the Lower Valley Region is not monitored.

NOVEMBER STREAMFLOW CONDITIONS

Reservoirs Shown on Map



- | | |
|------------------------------------|-----------------------------------|
| 1. Palo Duro Reservoir | 56. Proctor Lake |
| 2. Meredith, Lake | 57. Whitney Lake |
| 3. MacKenzie Reservoir | 58. Aquilla Lake |
| 4. White River Lake | 59. Navarro Mills Lake |
| 5. Greenbelt Lake | 60. Halbert, Lake |
| 6. Electra, Lake | 61. Richland-Chambers Reservoir |
| 7. N. Fork Buffalo Creek Reservoir | 62. Lake Brownwood |
| 8. Kemp, Lake | 63. Waco Lake |
| 9. Miller's Creek Reservoir | 64. Limestone, Lake |
| 10. Alan Henry Reservoir | 65. Belton Lake |
| 11. Stamford, Lake | 66. Stillhouse Hollow Lake |
| 12. Lake J. B. Thomas | 67. Georgetown, Lake |
| 13. Fort Phantom Hill, Lake | 68. Granger Lake |
| 14. Sweetwater, Lake | 69. Tawakoni, Lake |
| 15. Colorado City, Lake | 70. Wright Patman Lake |
| 16. Champion Creek Reservoir | 71. Sulphur Springs, Lake |
| 17. Abilene, Lake | 72. Cypress Springs, Lake |
| 18. Coleman, Lake | 73. Bob Sandlin, Lake |
| 19. Hords Creek Lake | 74. Fork Reservoir, Lake |
| 20. Farmers Creek Reservoir | 75. O' the Pines, Lake |
| 21. Hubert H Moss Lake | 76. Cedar Creek Reservoir Trinity |
| 22. Texoma, Lake | 77. Athens, Lake |
| 23. Pat Mayse Lake | 78. Palestine, Lake |
| 24. Lake Kickapoo | 79. Tyler, Lake |
| 25. Lake Arrowhead | 80. Murvaul, Lake |
| 26. Bonham, Lake | 81. Jacksonville, Lake |
| 27. Crook, Lake | 82. Nacogdoches, Lake |
| 28. Amon G Carter, Lake | 83. Houston County Lake |
| 29. Ray Roberts, Lake | 84. Sam Rayburn Reservoir |
| 30. Jim Chapman Lake | 85. Toledo Bend Reservoir |
| 31. Graham, Lake | 86. Livingston, Lake |
| 32. Lost Creek Reservoir | 87. B. A. Steinhagen Lake |
| 33. Bridgeport Reservoir | 88. Conroe, Lake |
| 34. Lewisville Lake | 89. Red Bluff Reservoir |
| 35. Lavon Lake | 90. Oak Creek Reservoir |
| 36. Hubbard Creek Reservoir | 91. E. V. Spence Reservoir |
| 37. Possum Kingdom Lake | 92. O. C. Fisher Lake |
| 38. Mineral Wells, Lake | 93. O. H. Ivie Reservoir |
| 39. Weatherford, Lake | 94. Twin Buttes Reservoir |
| 40. Eagle Mountain Lake | 95. Vradly Creek Reservoir |
| 41. Worth, Lake | 96. Buchanan, Lake |
| 42. Grapevine Lake | 97. Lyndon B Johnson, Lake |
| 43. Lake Ray Hubbard | 98. Amistad Reservoir, Intl. |
| 44. New Terrell City Lake | 99. Travis, Lake |
| 45. Daniel, Lake | 100. Austin, Lake |
| 46. Palo Pinto, Lake | 101. Somerville Lake |
| 47. Benbrook Lake | 102. Canyon Lake |
| 48. Arlington, Lake | 103. Medina Lake |
| 49. Joe Pool Lake | 104. Coletto Creek Reservoir |
| 50. Cisco, Lake | 105. Lake Houston |
| 51. Leon, Lake | 106. Texana, Lake |
| 52. Lake Granbury | 107. Choke Canyon Reservoir |
| 53. Pat Cleburne, Lake | 108. Lake Corpus Christi |
| 54. Waxahacie, Lake | 109. Falcon Reservoir, Intl. |
| 55. Bardwell Lake | |

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of Lake or Reservoir	No. on Map	Conservation Storage		Change since		Change since		
		Capacity (acre-feet)	Late Nov. 2008 (acre-feet) (%)	Late October 2008 (acre-feet) (%)	Late November 2007 (acre-feet) (%)			
HIGH PLAINS								
Palo Duro Reservoir	1	60,897	1,657	3	0	0	739	1
Meredith, Lake (Texas)	2	500,000	65,048	13	151	0	12,112	2
Meredith, Lake (Texas & Oklahoma)	(2)	779,556	65,048	8	151	0	12,112	2
MacKenzie Reservoir	3	46,429	5,998	13	-124	0	-1,475	-3
White River Lake	4	29,880	7,101	24	-243	-1	5,449	18
TOTAL		637,206	79,804	13	-216	0	16,825	3
LOW ROLLING PLAINS								
Greenbelt Lake	5	59,500	18,595	31	-264	0	-3,005	-5
*Electra, Lake	6	5,626	1,031	18	-61	-1	-759	-13
N. Fork Buffalo Crk Reservoir	7	15,400	4,194	27	-230	-1	-838	-5
Kemp, Lake	8	245,308	172,319	70	-4,041	-2	-72,989	-30
Millers Creek Reservoir	9	27,888	17,144	61	-604	-2	-6,577	-24
Alan Henry Reservoir	10	94,808	94,378	100	-430	0	2,414	3
Stamford, Lake	11	51,570	37,631	73	-1,340	-3	-13,592	-26
J B Thomas, Lake	12	199,931	18,066	9	-1,953	-1	-9,667	-5
Fort Phantom Hill, Lake	13	70,030	65,082	93	-2,174	-3	-3,638	-5
Sweetwater, Lake	14	10,006	7,770	78	-194	-2	435	4
Colorado City, Lake	15	31,793	22,428	71	-434	-1	-5,145	-16
Champion Creek Reservoir	16	41,618	9,082	22	-151	0	-319	-1
Abilene, Lake	17	6,099	4,140	68	-239	-4	-1,561	-26
Coleman, Lake	18	38,076	28,953	76	-663	-2	-6,548	-17
Hords Creek Lake	19	5,684	3,075	54	-149	-3	-1,892	-33
TOTAL		903,337	503,888	56	-12,927	-1	-123,681	-14
NORTH CENTRAL								
Nocona, Lake (Farmers Crk)	20	21,445	17,626	82	-505	-2	-2,043	-10
Hubert H Moss Lake	21	24,058	21,386	89	-306	-1	-1,124	-5
Texoma, Lake (Texas)	22	1,315,070	1,244,482	95	10,683	1	23,920	2
Texoma, Lake (Texas & Oklahoma)	(22)	2,630,141	2,488,964	95	21,366	1	47,839	2
*Pat Mayse Lake	23	118,100	107,904	91	-1,871	-2	-8,680	-7
Kickapoo, Lake	24	85,825	41,939	49	-1,852	-2	-21,216	-25
Arrowhead, Lake	25	235,997	163,600	69	-4,988	-2	-47,800	-20
Bonham, Lake	26	11,026	8,472	77	-243	-2	-1,319	-12
Crook, Lake	27	9,195	8,781	95	-93	-1	82	1
Amon G Carter, Lake	28	19,903	16,745	84	-474	-2	-1,779	-9
Ray Roberts, Lake	29	798,758	740,737	93	-8,586	-1	-50,739	-6
Jim Chapman Lake (Cooper)	30	260,332	175,682	67	-13,523	-5	-112,918	-43
Graham, Lake	31	45,260	41,871	93	-949	-2	1,999	4
*Lost Creek Reservoir	32	11,950	10,631	89	-161	-1	-815	-7
Bridgeport, Lake	33	366,236	285,414	78	-9,711	-3	-46,375	-13
Lewisville Lake	34	543,988	432,474	80	1,590	0	-93,524	-17
Lavon Lake	35	443,844	355,093	80	3,748	1	-22,481	-5
Hubbard Creek Reservoir	36	318,067	266,181	84	-6,415	-2	-18,804	-6
Possum Kingdom Lake	37	540,340	504,158	93	-5,127	-1	-8,855	-2
*Mineral Wells, Lake	38	7,065	5,320	75	-88	-1	-1,017	-14
Weatherford, Lake	39	18,645	12,872	69	-328	-2	-3,354	-18
Eagle Mountain Lake	40	182,500	150,467	82	786	0	-13,233	-7
Worth, Lake	41	24,500	17,666	72	-1,614	-7	-4,409	-18
Grapevine Lake	42	164,702	124,872	76	-1,572	-1	-33,436	-20
Ray Hubbard, Lake	43	452,040	431,057	95	5,325	1	-15,197	-3
New Terrell City Lake	44	8,583	7,631	89	-16	0	-672	-8
Daniel, Lake	45	9,435	7,075	75	-305	-3	-1,153	-12
Palo Pinto, Lake	46	27,150	16,339	60	-908	-3	-6,624	-24
Benbrook Lake	47	85,648	58,737	69	929	1	-21,997	-26
Arlington, Lake	48	38,740	25,040	65	1,926	5	-12,219	-32

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of Lake or Reservoir	No. on Map	Conservation Storage Capacity (acre-feet)	Conservation Storage		Change since Late October 2008		Change since Late November 2007		
			Late Nov. (acre-feet)	2008 (%)	(acre-feet)	(%)	(acre-feet)	(%)	
NORTH CENTRAL (Continue)									
Joe Pool Lake	49	142,861	126,316	88	1,122	1	-6,357	-4	
*Cisco, Lake	50	26,000	19,791	76	-336	-1	-1,700	-7	
Leon, Lake	51	26,421	21,860	83	-459	-2	-3,228	-12	
Granbury, Lake	52	128,046	116,109	91	5,010	4	-3,289	-3	
Pat Cleburne, Lake	53	25,730	20,238	79	-139	-1	-4,139	-16	
Waxahachie, Lake	54	10,779	9,539	88	164	2	-103	-1	
Bardwell Lake	55	46,122	36,891	80	-781	-2	-8,209	-18	
Proctor Lake	56	55,457	37,559	68	-400	-1	-17,230	-31	
Whitney, Lake	57	553,349	383,105	69	-9,041	-2	-58,452	-11	
Aquilla Lake	58	45,092	35,695	79	-1,125	-2	-6,818	-15	
Navarro Mills Lake	59	55,817	43,575	78	-1,399	-3	-8,375	-15	
*Halbert, Lake	60	6,033	3,681	61	-160	-3	-1,159	-19	
Richland-Chambers Reservoir	61	1,103,816	949,923	86	-20,665	-2	-96,105	-9	
*Brownwood, Lake	62	131,429	106,123	81	-2,429	-2	-18,062	-14	
Waco, Lake	62	198,943	179,551	90	-2,693	-1	-19,392	-10	
Limestone, Lake	64	208,015	182,897	88	-5,790	-3	-5,552	-3	
Belton Lake	65	435,225	410,389	94	-7,099	-2	-24,836	-6	
Stillhouse Hollow Lake	66	227,771	202,425	89	-3,937	-2	-25,346	-11	
Georgetown, Lake	67	36,823	16,402	45	-102	0	-20,141	-55	
Granger Lake	68	52,525	40,024	76	-1,114	-2	-12,501	-24	
Tawakoni, Lake	69	888,126	743,091	84	-16,816	-2	-74,951	-8	
TOTAL		10,592,782	8,985,436	85	-102,837	-1	-941,727	-9	
EAST									
Wright Patman Lake	70	122,593	122,593	100	-12,656	-10	0	0	
*Sulphur Springs, Lake	71	17,838	14,814	83	99	1	-1,069	-6	
Cypress Springs, Lake	72	67,689	67,689	100	103	0	1,105	2	
Bob Sandlin, Lake	73	200,579	196,869	98	-1,448	-1	5,788	3	
Fork Reservoir, Lake	74	604,927	590,408	98	4,224	1	-2,639	0	
O the Pines, Lake	75	238,933	238,933	100	0	0	0	0	
Cedar Creek Reservoir in Trinity	76	644,686	573,221	89	0	0	-36,201	-6	
Athens, Lake	77	29,435	28,359	96	269	1	-932	-3	
Palestine, Lake	78	370,907	370,907	100	218	0	6,520	2	
Tyler, Lake	79	73,256	73,256	100	0	0	4,823	7	
Murvaul, Lake	80	38,284	37,942	99	2,619	7	4,471	12	
Jacksonville, Lake	81	30,300	29,098	96	148	0	-1,202	-4	
Nacogdoches, Lake	82	39,521	34,981	89	-177	0	-375	-1	
Houston County Lake	83	17,113	17,113	100	153	1	305	2	
Sam Rayburn Reservoir	84	2,857,077	2,093,895	73	-4,688	0	-192,055	-7	
Toledo Bend Reservoir (Texas)	85	2,236,450	1,903,118	85	40,364	2	29,948	1	
Toledo Bend Reservoir (TX & LA)	(85)	4,472,900	3,806,237	85	80,729	2	59,897	1	
*Livingston, Lake	86	1,741,867	1,741,867	100	12,867	1	0	0	
B A Steinhagen Lake	87	66,966	54,701	82	-6,217	-9	-9,543	-14	
Conroe, Lake	88	416,188	396,513	95	8,560	2	-3,305	-1	
TOTAL		9,814,609	8,586,277	87	44,438	0	-194,361	-2	
TRANS-PECOS									
Red Bluff Reservoir	89	289,670	77,275	27	13,971	5	-25,140	-9	
TOTAL		289,670	77,275	27	13,971	5	-25,140	-9	

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

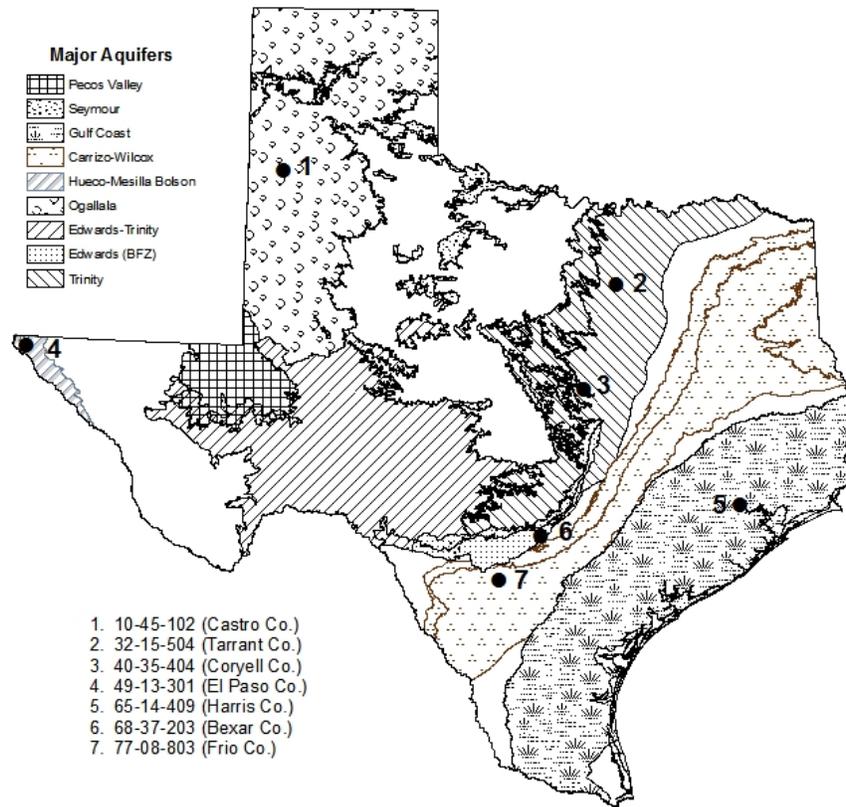
Name of Lake or Reservoir	No. on Map	Conservation Storage Capacity (acre-feet)	Conservation Storage		Change since Late October 2008		Change since Late November 2007		
			Late Nov. (acre-feet)	2008 (%)	(acre-feet)	(%)	(acre-feet)	(%)	
EDWARDS PLATEAU									
Oak Creek Reservoir	90	39,260	31,232	80	-643	-2	-7,089	-18	
E V Spence Reservoir	91	517,272	55,770	11	-2,223	0	-20,879	-4	
O C Fisher Lake	92	79,483	0	0	0	0	0	0	
*O H Ivie Reservoir	93	554,335	312,014	56	-6,781	-1	-59,974	-11	
Twin Buttes Reservoir	94	177,850	48,180	27	-1,369	-1	-16,904	-10	
Brady Creek Reservoir	95	29,110	14,955	51	-460	-2	-953	-3	
Buchanan, Lake	96	875,610	582,966	67	-19,186	-2	-252,176	-29	
Lyndon B Johnson, Lake	97	113,690	112,982	99	-386	0	-65	0	
*Amistad Reservoir (Texas)	98	1,840,849	1,849,000	100	-8,000	0	-402,000	-22	
*Amistad Reservoir (TX & Mexico)	(98)	3,275,532	3,342,000	100	36,000	1	541,000	17	
TOTAL		4,227,459	3,007,099	71	-39,048	-1	-760,040	-18	
SOUTH CENTRAL									
Travis, Lake	99	1,113,902	719,471	65	-7,480	-1	-381,096	-34	
*Austin, Lake	100	21,804	21,183	97	574	3	393	2	
Somerville Lake	101	147,104	119,099	81	-1,898	-1	-28,005	-19	
Canyon Lake	102	378,781	299,459	79	-4,235	-1	-79,322	-21	
Medina Lake	103	254,823	151,815	60	-8,685	-3	-103,008	-40	
*Coletto Creek Reservoir	104	31,040	23,178	75	-345	-1	-7,838	-25	
TOTAL		1,947,454	1,334,205	69	-22,069	-1	-598,876	-31	
UPPER COAST									
Houston, Lake	105	128,863	128,863	100	0	0	0	0	
Texana, Lake	106	153,246	117,697	77	-6,647	-4	-34,815	-23	
TOTAL		282,109	246,560	87	-6,647	-2	-34,815	-12	
SOUTHERN									
Choke Canyon Reservoir	107	695,262	575,509	83	-11,728	-2	-109,154	-16	
Corpus Christi, Lake	108	256,961	174,994	68	-8,215	-3	-79,256	-31	
*Falcon Reservoir (Texas)	109	1,551,034	1,629,000	105	78,000	5	377,000	24	
*Falcon Reservoir (TX & Mexico)	(109)	2,646,817	2,792,000	100	246,000	9	1,024,000	39	
TOTAL		2,503,257	2,379,503	95	58,057	2	188,590	8	
STATE TOTAL		31,197,883	25,200,047	81	-67,278	0	-2,473,225	-8	

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

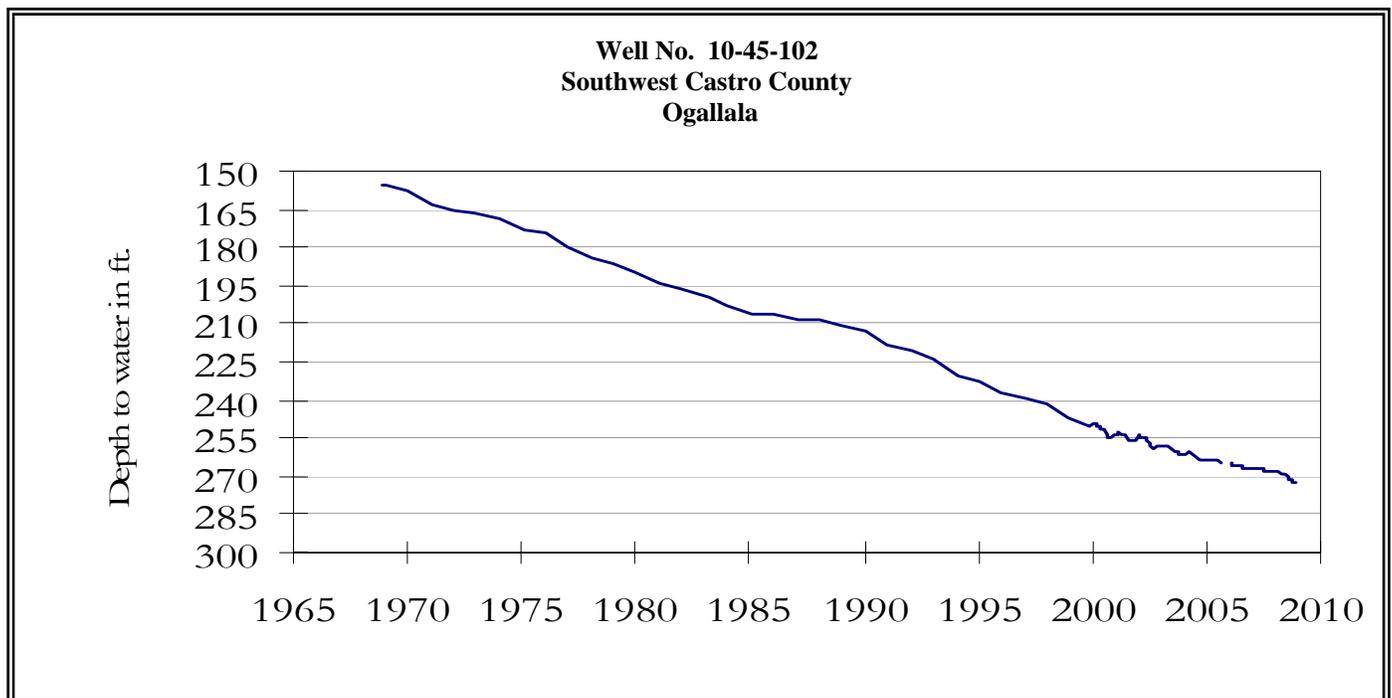
Note

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 $100 * (\text{current conservation storage} - \text{past conservation storage}) / \text{conservation storage capacity}$. Figures shown are for the Texas share of conservation storage in all reservoirs.

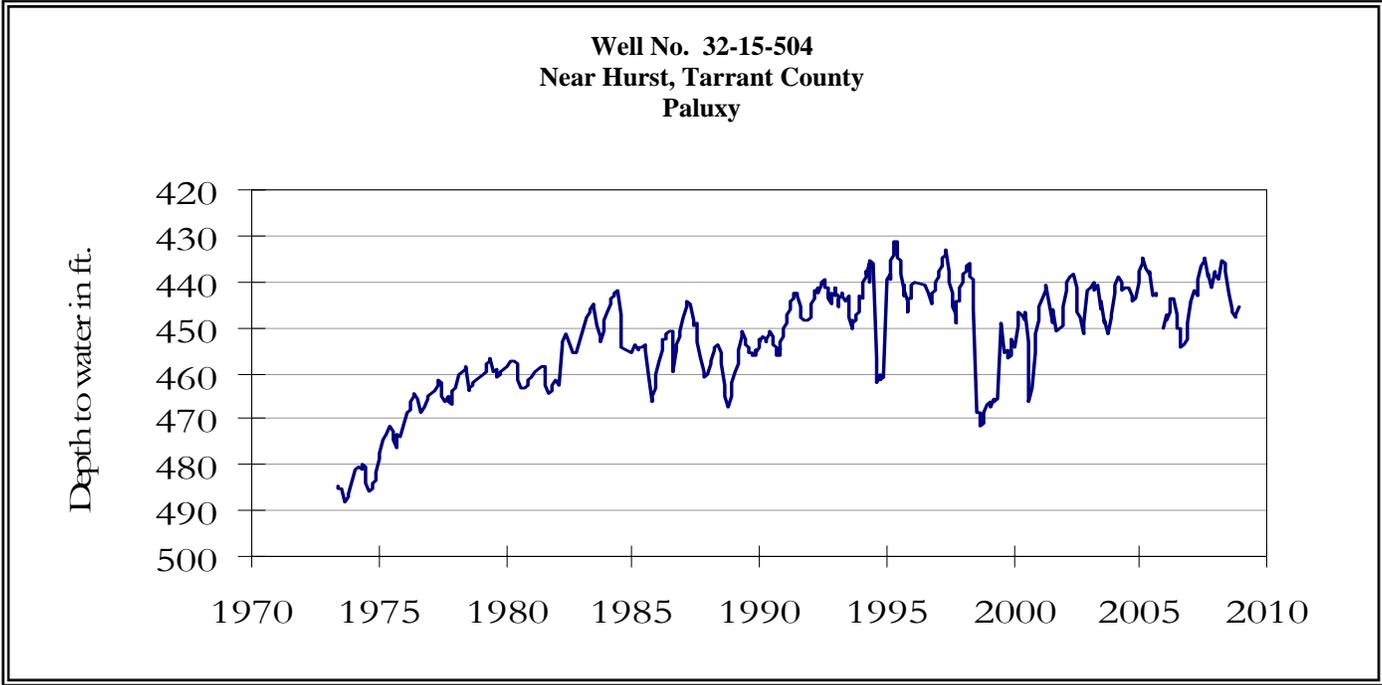
GROUND WATER LEVELS IN OBSERVATION WELLS



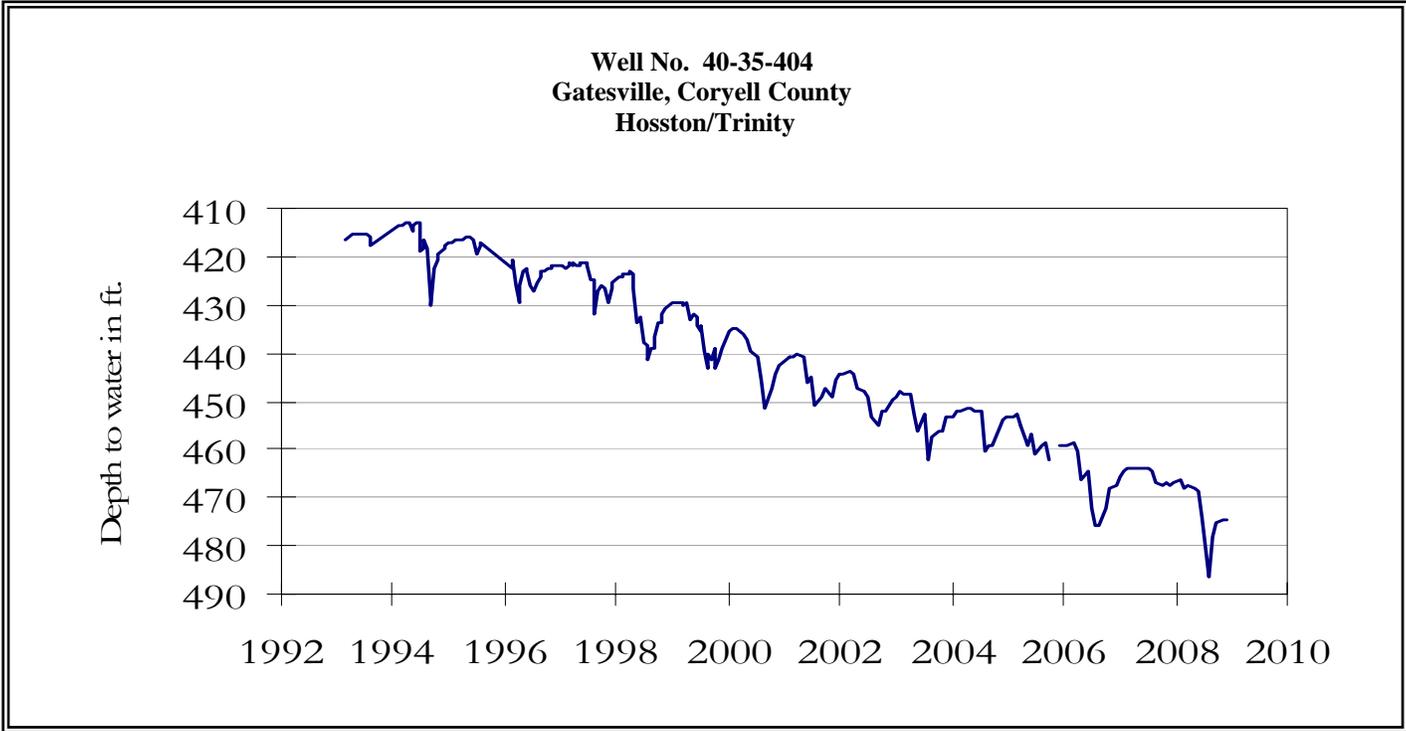
NOVEMBER GROUNDWATER LEVELS IN OBSERVATION WELLS



The late November water level measurement in this Ogallala Aquifer well, elevation 3,816 feet above sea level, was 272.79 feet below land surface. This measurement was 0.66 feet below last month's measurement, 4.43 feet below last year's measurement, and 116.79 feet below the initial measurement recorded in 1968. No water level measurements were recorded for September through December 2005.

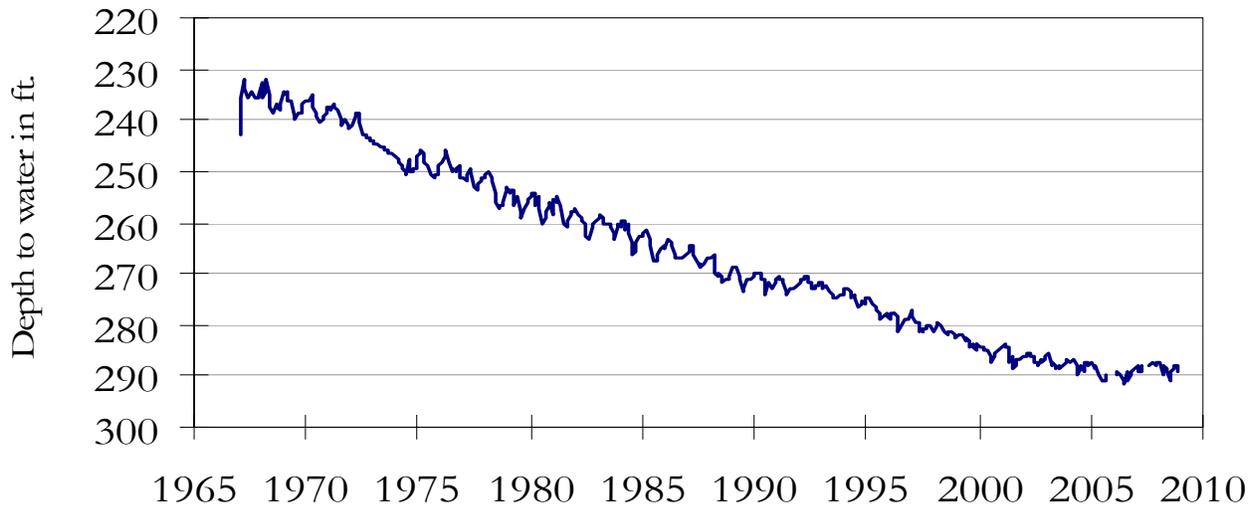


The late November water level measurement in this Paluxy Formation Trinity Aquifer well, elevation 535 feet above sea level, was 445.44 feet below land surface. This measurement was 1.68 feet above last month's measurement, 7.58 feet below last year's measurement, and 67.44 feet below the initial measurement recorded in 1953. No water level measurements were recorded for September or October 2005.



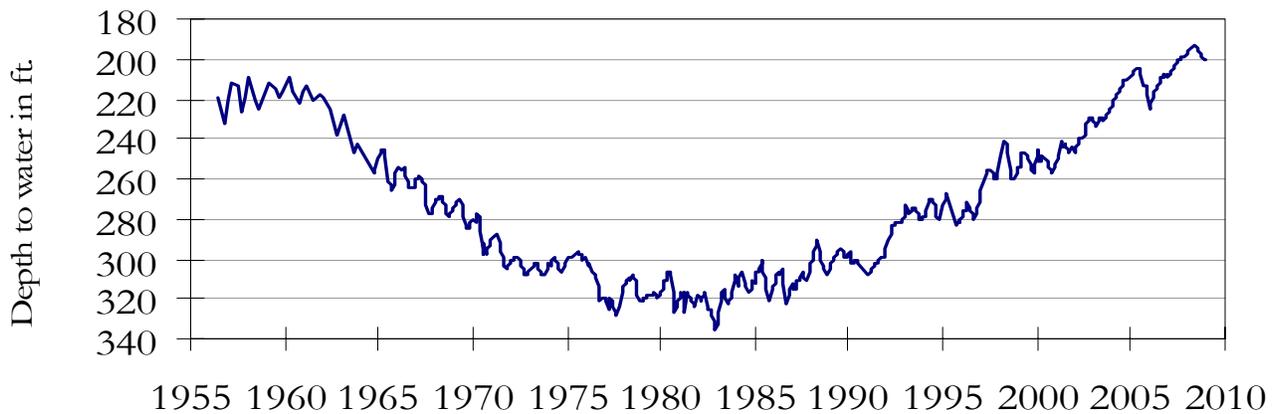
The late November water level measurement in this Hosston Formation Trinity Aquifer well, elevation 823 feet above sea level, was 474.59 feet below land surface. This water level was 0.11 feet above last month's measurement, 7.39 feet below last year's measurement, and 182.59 feet below the initial measurement recorded in 1955. No water level measurement was recorded for October 2005.

**Well No. 49-13-301
El Paso, El Paso County
Bolson Deposits**



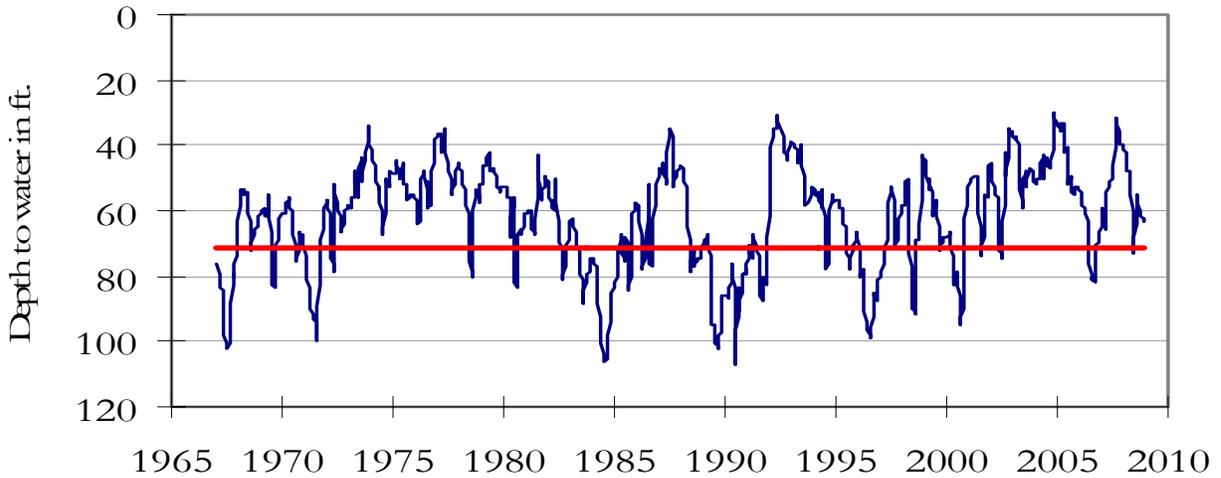
The late November water level measurement in this Hueco Bolson Aquifer well, elevation 3,882 feet above sea level, was 288.94 feet below land surface. This water level was 1.06 feet below last month's measurement, 0.76 feet below last year's measurement, and 57.04 feet below the initial measurement in 1964. No water level measurements were recorded for May through July 2007, and October or December 2005.

**Well No. 65-14-409
Alief, Harris County
Evangeline**



The late November water level measurement in this Evangeline Formation Gulf Coast Aquifer well, elevation 66 feet above sea level, was 200.70 feet below land surface. This was 0.22 feet below last month's measurement, 2.72 feet below last year's measurement, and 65.20 feet below the initial measurement recorded in 1947.

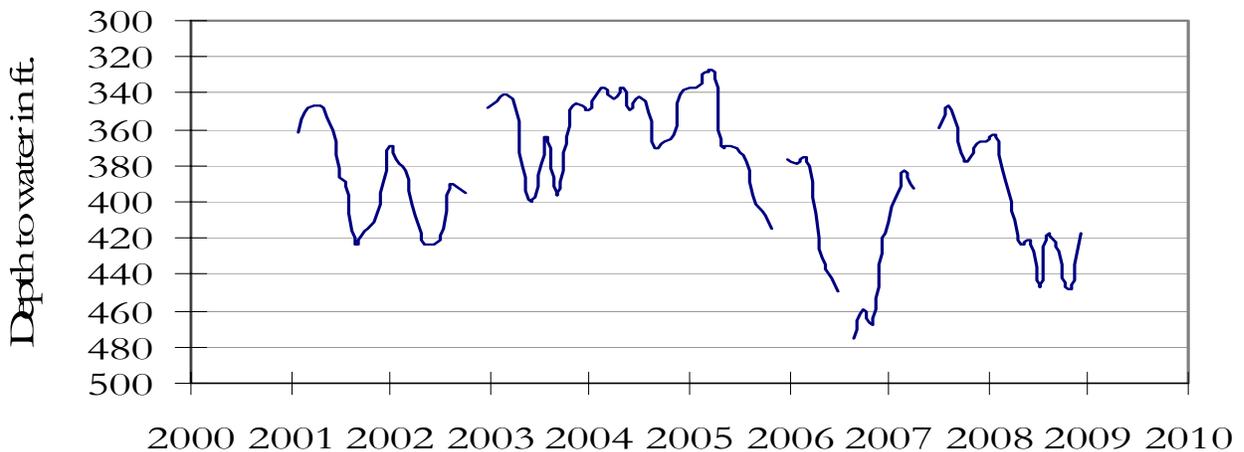
Well No. 68-37-203 (J-17)
In San Antonio, Bexar County
Edwards and Associated Limestones



The late November water level measurement in this Edwards (BFZ) Aquifer well, elevation 731 feet above sea level, was 62.41 feet below land surface. This was 0.56 feet above last month's measurement, 22.84 feet below last year's measurement, and 15.77 feet below the initial measurement recorded in 1962.

***** Water levels below the red line indicate Edwards Aquifer Authority Stage 1 drought restrictions. *****

Well No. 77-08-803
Pearsall, Frio County
Carrizo



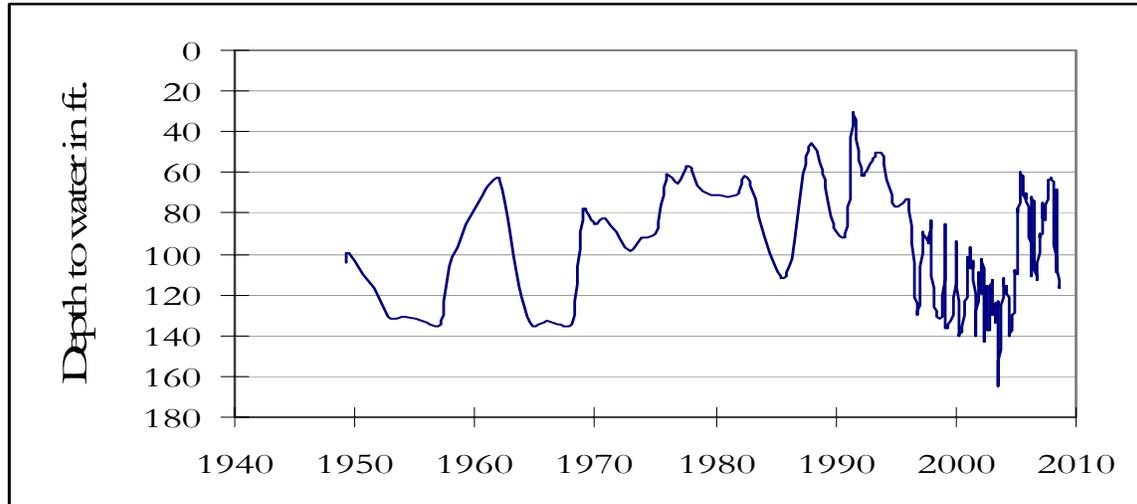
The late November water level measurement in this Carrizo-Wilcox Aquifer well, elevation 652 feet above sea level, was 417.56 feet below land surface. This was 30.53 feet above last month's measurement, 50.28 feet below last year's measurement, and 137.56 feet below the initial measurement recorded in 1963. No water level measurements were recorded for April and May 2007, July 2006, November 2005, and October through November 2002.

HYDROGRAPH OF THE MONTH



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

Well No 43-46-301 Tom Green County



This water level observation well, located 2 miles southeast of Wall, at an elevation of 1884 feet ASL, was completed in the Lipan aquifer. Due to drought and heavy irrigation pumping in the late 1990s, some areas experienced significant water level declines, and the aquifer could not be pumped through the entire irrigation season. Other areas could only pump at a reduced rate.

November, 2008

Water level measurements were available for all seven key monitoring wells. Water levels rose in four of the reporting monitoring wells since the beginning of November, ranging from 0.11 feet in the Coryell Co. Trinity well to 30.53 feet in the Frio Co. Carrizo well. Water levels declined in the remaining monitoring wells, ranging from 0.22 feet in the Harris Co. Gulf Coast well to 1.06 feet in the El Paso Co. Hueco Bolson Well. The J-17 well in San Antonio recorded a water level of 62.41 feet below land surface, 0.56 feet above last month's measurement. This water level is 8.59 feet above the Stage 1 critical management level.

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