

Texas Water Development Board



Water **Conditions**

RESERVOIR STORAGE

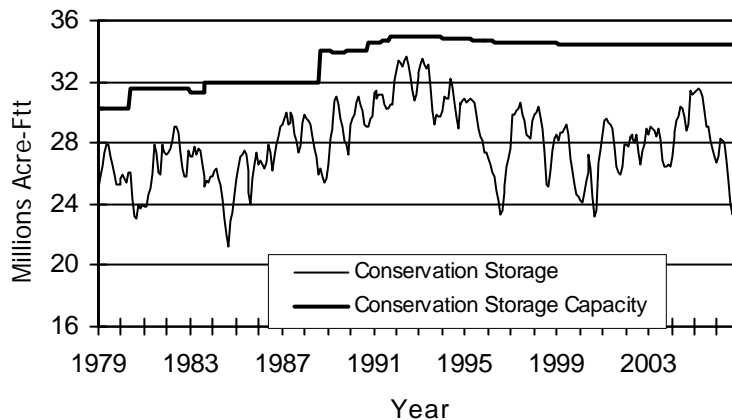
November 2006

Near the end of November, the 77 reservoirs monitored for this report held 24.58 million acre-feet in conservation storage, or 71 percent of the conservation storage capacity of the state's major reservoirs. Statewide total storage is at a record low level for this time of year since 1978. Storage decreased during the month by 0.24 million acre-feet (-1% of conservation storage capacity). Compared to last year, storage decreased by 2.5 million acre-feet (-7%).

Storage was at 96% of capacity in the Upper Coast Region but below 90% in all other Regions, with the lowest in the High Plains Region (19%). Storage was at 100% in 3 reservoirs and Texas' share of Amistad is at 106%. During November, storage increased in 20 reservoirs, decreased in 54 reservoirs, and remained unchanged in 3 reservoirs. Regionally, storage decreased in all but South Central Region, although percentage wise the decreases are small. Compared to this time last year, storage decreased in all Regions except the East Region where storage increased by 6%. The sharpest decrease was in the Edwards Plateau Region where storage decreased by 22%.

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Current data are based on elevation near end of month at 77 reservoirs that represent 98 percent of total conservation storage capacity in Texas reservoirs having a capacity of 5,000 acre-feet or more.



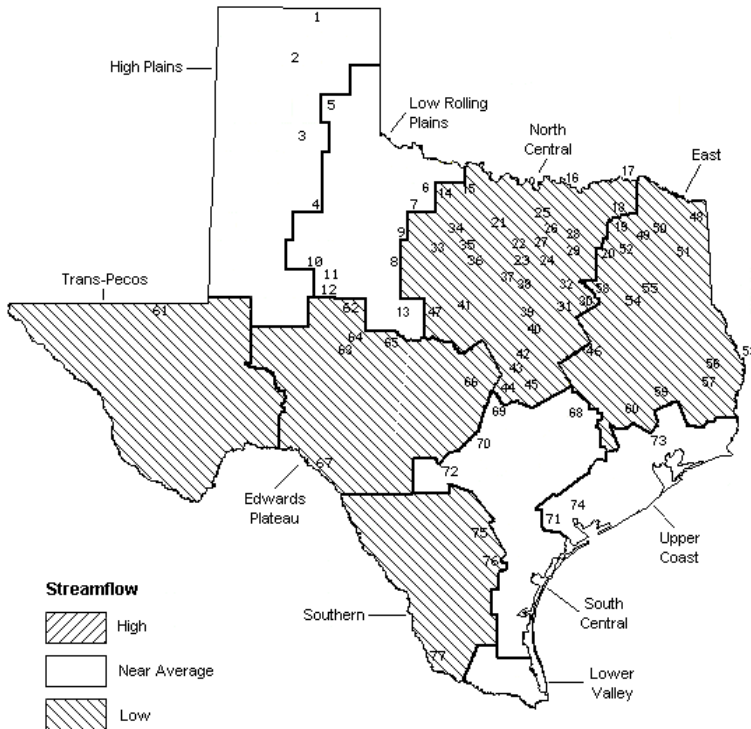
STREAMFLOW

Of 29 reporting index stations in November, computed 30-day mean flows were high (5% - 30%) at 4 stations, low (70% - 95%) at 14 stations, very low (>95%) at 3 station, and near normal (30% - 70% exceedance) at the remaining 8 stations. Compared to October, flows have increased at 6 index stations, decreased at 20 stations, and remained unchanged at 3 stations.

On a regional basis, flows in November were low in the North Central, East Texas, Southern, and Edwards Regions, very low in Trans-Pecos, 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 | 40. Waco Lake |
| 2. Lake Meredith | 41. Proctor Lake |
| 3. MacKenzie Reservoir | 42. Belton Lake |
| 4. White River Lake | 43. Stillhouse Hollow Lake |
| 5. Greenbelt Reservoir | 44. Lake Georgetown |
| 6. Lake Kemp | 45. Granger Lake |
| 7. Miller's Creek Reservoir | 46. Lake Limestone |
| 8. Fort Phantom Hill Reservoir | 47. Lake Brownwood |
| 9. Lake Stamford | 48. Wright Patman Lake |
| 10. Lake J. B. Thomas | 49. Lake Cypress Springs |
| 11. Lake Colorado City | 50. Lake Bob Sandlin |
| 12. Champion Creek Reservoir | 51. Lake O' the Pines |
| 13. Hords Creek Lake | 52. Lake Fork Reservoir |
| 14. Lake Kickapoo | 53. Toledo Bend Reservoir |
| 15. Lake Arrowhead | 54. Lake Palestine |
| 16. Lake Texoma | 55. Lake Tyler |
| 17. Pat Mayse Lake | 56. Sam Rayburn Reservoir |
| 18. Cooper Lake | 57. B. A. Steinhagen Lake |
| 19. Lake Sulphur Springs | 58. Cedar Creek Reservoir |
| 20. Lake Tawakoni | 59. Lake Livingston |
| 21. Bridgeport Reservoir | 60. Lake Conroe |
| 22. Eagle Mountain Reservoir | 61. Red Bluff Reservoir |
| 23. Benbrook Lake | 62. E. V. Spence Reservoir |
| 24. Joe Pool Lake | 63. Twin Buttes Reservoir |
| 25. Ray Roberts Lake | 64. O. C. Fisher Lake |
| 26. Lewisville Lake | 65. O. H. Ivie Reservoir |
| 27. Grapevine Lake | 66. Lake Buchanan |
| 28. Lavon Lake | 67. Intl. Amistad Reservoir |
| 29. Lake Ray Hubbard | 68. Somerville Lake |
| 30. Richland-Chambers Creek Lake | 69. Lake Travis |
| 31. Navarro Mills Lake | 70. Canyon Lake |
| 32. Bardwell Lake | 71. Coletto Creek Reservoir |
| 33. Hubbard Creek Reservoir | 72. Medina Lake |
| 34. Lake Graham | 73. Lake Houston |
| 35. Possum Kingdom Lake | 74. Lake Texana |
| 36. Lake Palo Pinto | 75. Choke Canyon Reservoir |
| 37. Lake Granbury | 76. Lake Corpus Christi |
| 38. Lake Pat Cleburne | 77. Intl. Falcon Reservoir |
| 39. Whitney Lake | |

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of Lake or Reservoir	No. on Map	Conservation Storage Capacity (acre-feet)	Conservation Storage Late Nov. 2006 (acre-feet)	(%)	Change since Late October 2006 (acre-feet)	(%)	Change since Late November 2005 (acre-feet)	(%)
HIGH PLAINS								
Palo Duro Reservoir	1	60,900	770	1	-90	0	-1,520	-2
Lake Meredith (Texas)	2	500,000	105,930	21	-3,670	-1	-44,260	-9
Lake Meredith (Texas and Oklahoma)	(2)	779,560	105,930	14	-3,670	0	-44,260	-6
MacKenzie Reservoir	3	46,250	8,750	19	-110	0	-1,140	-2
White River Lake	4	31,850	4,440	14	-260	-1	-1,970	-6
TOTAL		639,000	119,890	19	-4,130	-1	-48,890	-8
LOW ROLLING PLAINS								
Greenbelt Reservoir	5	58,200	17,960	31	-220	0	-3,880	-7
Lake Kemp	6	319,600	215,950	68	3,450	1	-65,170	-20
Miller's Creek Reservoir	7	27,890	20,900	75	-560	-2	-6,100	-22
Fort Phantom Hill Reservoir	8	70,030	38,600	55	-2,650	-4	-10,870	-16
Lake Stamford	9	52,700	33,880	64	-1,080	-2	-17,400	-33
Lake J. B. Thomas	10	202,300	32,370	16	-2,400	-1	-29,200	-14
Lake Colorado City	11	30,800	23,650	77	-460	-1	-4,990	-16
Champion Creek Reservoir	12	41,600	5,150	12	-110	0	650	2
Hords Creek Lake	13	8,600	4,720	55	-110	-1	-2,210	-26
TOTAL		811,720	393,180	48	-4,140	-1	-139,170	-17
NORTH CENTRAL								
Lake Kickapoo	14	106,000	70,170	66	-2,240	-2	-25,580	-24
Lake Arrowhead	15	262,100	176,550	67	1,500	1	-53,930	-21
Lake Texoma	16	2,722,300	2,373,260	87	-76,490	-3	-68,690	-3
Pat Mayse Lake	17	124,500	79,600	64	100	0	-16,540	-13
Cooper Lake	18	273,000	84,450	31	-860	0	-68,160	-25
Lake Sulphur Springs	19	17,710	13,940	79	360	2	2,150	12
Lake Tawakoni	20	936,200	503,100	54	-10,500	-1	-137,400	-15
Bridgeport Reservoir	21	374,830	190,800	51	-2,000	-1	-67,100	-18
Eagle Mountain Reservoir	22	178,380	113,500	64	-5,100	-3	-26,700	-15
Benbrook Lake	23	88,200	58,100	66	7,740	9	12,060	14
Joe Pool Lake	24	175,800	163,830	93	2,700	2	10,650	6
Ray Roberts Lake	25	798,760	590,720	74	-930	0	-122,100	-15
Lewisville Lake	26	555,000	394,180	71	8,910	2	-68,630	-12
Grapevine Lake	27	187,700	102,140	54	-3,130	-2	-37,860	-20
Lavon Lake	28	443,800	178,030	40	4,960	1	-106,610	-24
Lake Ray Hubbard	29	413,420	332,100	80	4,200	1	-9,200	-2
Richland-Chambers Creek Lake	30	1,103,820	726,700	66	-21,300	-2	-231,300	-21
Navarro Mills Lake	31	55,810	23,530	42	-800	-1	-17,400	-31
Bardwell Lake	32	53,580	38,760	72	-490	-1	2,220	4
Hubbard Creek Reservoir	33	317,800	154,200	49	-2,190	-1	-33,520	-11
Lake Graham	34	45,000	34,670	77	-680	-2	-9,170	-20
Possum Kingdom Lake	35	551,820	509,580	92	2,160	0	4,470	1
Lake Palo Pinto	36	27,650	12,970	47	-370	-1	-3,030	-11
Lake Granbury	37	135,680	124,150	92	8,890	7	-6,380	-5
Lake Pat Cleburne	38	25,300	22,360	88	3,860	15	3,100	12
Whitney Lake	39	622,800	444,300	71	-2,720	0	-96,270	-15
Waco Lake	40	144,500	117,990	82	-5,350	-4	-26,510	-18
Proctor Lake	41	55,590	26,010	47	-1,060	-2	-11,660	-21
Belton Lake	42	434,500	351,610	81	-8,290	-2	-60,170	-14
Stillhouse Hollow Lake	43	226,060	206,140	91	-3,570	-2	-16,370	-7
Lake Georgetown	44	37,010	15,820	43	-830	-2	-9,760	-26
Granger Lake	45	54,280	48,050	89	-40	0	-5,830	-11
Lake Limestone	46	215,750	178,720	83	-5,480	-3	4,670	2
Lake Brownwood	47	143,400	95,140	66	-1,860	-1	-27,340	-19
TOTAL		11,908,050	8,555,170	72	-110,900	-1	-1,323,890	-11

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

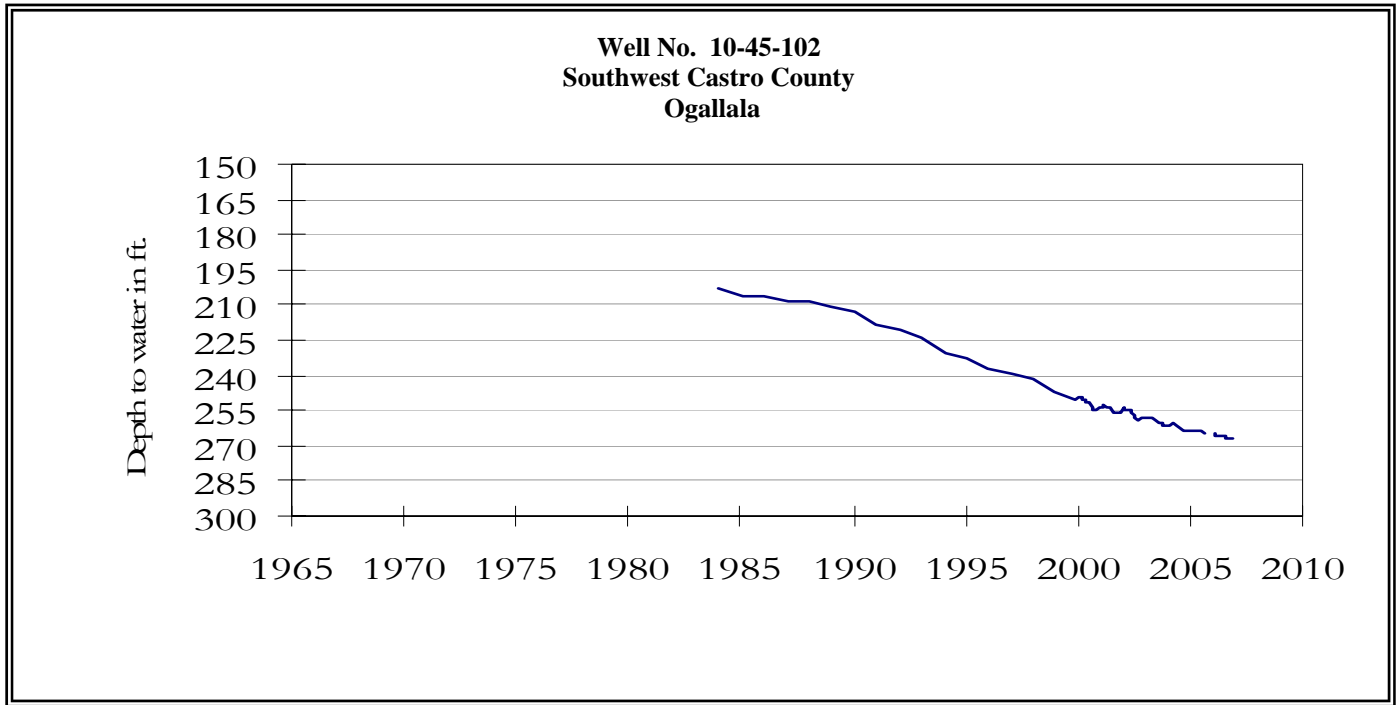
Name of Lake or Reservoir	No. on Map	Conservation Storage Capacity (acre-feet)	Conservation Storage Late Nov. 2006 (acre-feet) (%)		Change since Late October 2006 (acre-feet) (%)		Change since Late November 2005 (acre-feet) (%)		
EAST									
Wright Patman Lake	48	142,700	142,700	100	0	0	0	0	
Lake Cypress Springs	49	66,800	52,180	78	140	0	-5,720	-9	
Lake Bob Sandlin	50	202,300	122,400	61	-2,500	-1	-37,000	-18	
Lake O' the Pines	51	252,000	164,110	65	840	0	-17,500	-7	
Lake Fork Reservoir	52	635,200	542,300	85	700	0	-32,300	-5	
Toledo Bend Reservoir	53	4,472,900	3,375,000	75	60,000	1	356,000	8	
Lake Palestine	54	411,300	301,610	73	2,750	1	-39,970	-10	
Lake Tyler	55	73,700	46,360	63	-280	0	-14,380	-20	
Sam Rayburn Reservoir	56	2,876,300	2,659,620	92	-68,860	-2	291,740	10	
B. A. Steinhagen Lake	57	94,200	460	0	-30,320	-32	-55,170	-59	
Cedar Creek Reservoir	58	637,050	437,700	69	-7,800	-1	-85,200	-13	
Lake Livingston	59	1,750,000	1,750,000	100	0	0	332,000	19	
Lake Conroe	60	429,900	414,100	96	22,900	5	72,700	17	
TOTAL		12,044,350	10,008,540	83	-22,430	0	765,200	6	
TRANS-PECOS									
Red Bluff Reservoir	61	307,000	100,440	33	9,360	3	-5,030	-2	
TOTAL		307,000	100,440	33	9,360	3	-5,030	-2	
EDWARDS PLATEAU									
E. V. Spence Reservoir	62	488,760	69,720	14	-2,280	0	-26,700	-5	
Twin Buttes Reservoir	63	177,800	34,580	19	-730	0	-12,250	-7	
O.C. Fisher Lake	64	119,200	8,030	7	-350	0	-6,240	-5	
O. H. Ivie Reservoir	65	554,340	224,100	40	-5,800	-1	-68,100	-12	
Lake Buchanan	66	896,980	473,690	53	-15,240	-2	-300,950	-34	
Amistad Reservoir (Texas)	67	1,771,030	1,882,000	106	-13,000	-1	-454,000	-26	
Amistad Reservoir (Texas and Mexico)	(67)	3,151,300	2,588,000	82	5,000	0	-190,000	-6	
TOTAL		4,008,110	2,692,120	67	-37,400	-1	-868,240	-22	
SOUTH CENTRAL									
Somerville Lake	68	155,060	153,480	99	-1,580	-1	32,040	21	
Lake Travis	69	1,144,100	621,430	54	-11,450	-1	-273,910	-24	
Canyon Lake	70	385,600	322,510	84	-2,810	-1	-40,740	-11	
Coletto Creek Reservoir	71	35,060	23,850	68	-1,510	-4	-2,400	-7	
Medina Lake	72	254,000	98,220	39	-4,880	-2	-105,380	-41	
TOTAL		1,973,820	1,219,490	62	-22,230	-1	-390,390	-20	
UPPER COAST									
Lake Houston	73	128,860	128,860	100	0	0	0	0	
Lake Texana	74	157,900	146,710	93	-9,440	-6	-4,720	-3	
TOTAL		286,760	275,570	96	-9,440	-3	-4,720	-2	
SOUTHERN									
Choke Canyon Reservoir	75	695,260	516,200	74	-13,600	-2	-106,800	-15	
Lake Corpus Christi	76	241,240	96,810	40	-9,890	-4	-54,190	-22	
Falcon Reservoir (Texas)	77	1,555,120	603,000	39	-20,000	-1	-322,000	-21	
Falcon Reservoir (Texas and Mexico)	(77)	2,653,290	1,044,000	39	-37,000	-1	-502,000	-19	
TOTAL		2,491,620	1,216,010	49	-43,490	-2	-482,990	-19	
STATE TOTAL		34,470,430	24,580,410	71	-244,800	-1	-2,498,120	-7	

Note:

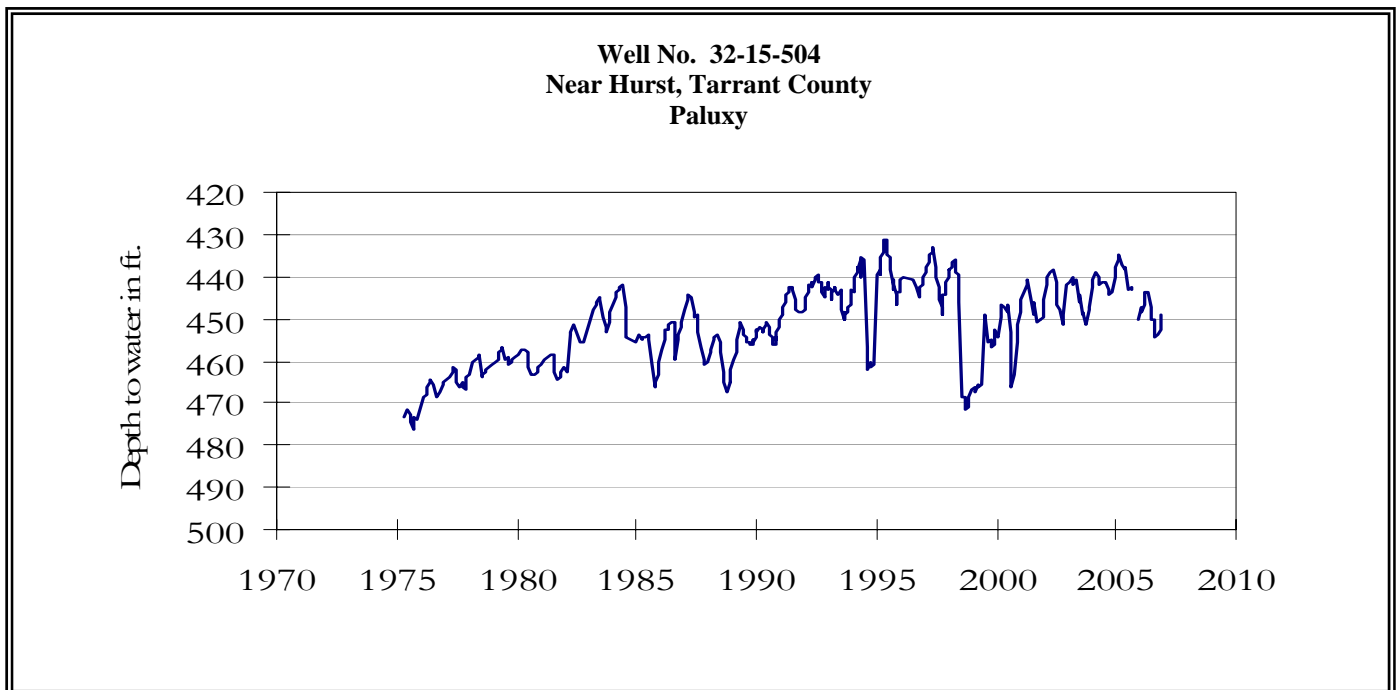
Conservation storage capacity is the space available to store water above the level of invert of lowest outlet works and below the level of top of conservation pool or normal maximum operating level. Conservation storage refers to the volume of water held within the conservation storage space. Not included is any water in flood control storage (above the top of conservation pool or normal maximum operating level), or any water in so called dead storage (in the bottom of the reservoir, below the invert of lowest outlet works and consequently not removable by gravity flow alone.) Percentage of conservation storage is based on the conservation storage capacity of the reservoir and the conservation storage in the reservoir for date shown. Percent change is given by $\% \text{ Change} = 100 * (\text{current conservation storage} - \text{past conservation storage}) / \text{conservation storage capacity}$.

Current data are based on elevations near end of month at 77 reservoirs that together represent 98 percent of the total conservation storage capacity of major Texas reservoirs (those with capacity of 5,000 acre-feet or more each). Preliminary figures are shown for the Texas' share of conservation storage in all reservoirs.

NOVEMBER GROUND WATER LEVELS IN OBSERVATION WELLS

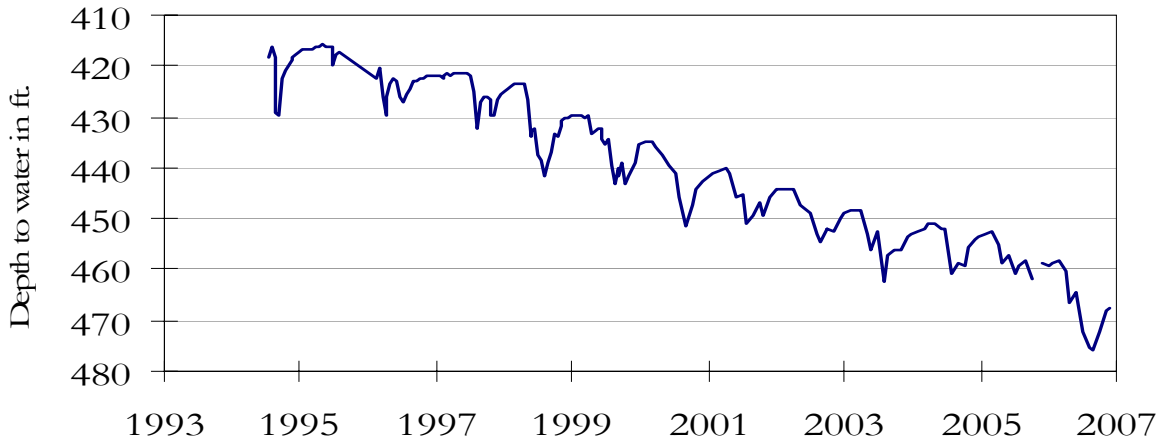


The late November water-level measurement in this Ogallala Aquifer well, elevation 3,816 feet above sea level, was 267.14 feet below land surface. This measurement was 0.03 feet below last month's measurement and 111.14 feet below the initial measurement recorded in 1968. No water level measurements were recorded for September through December 2005.



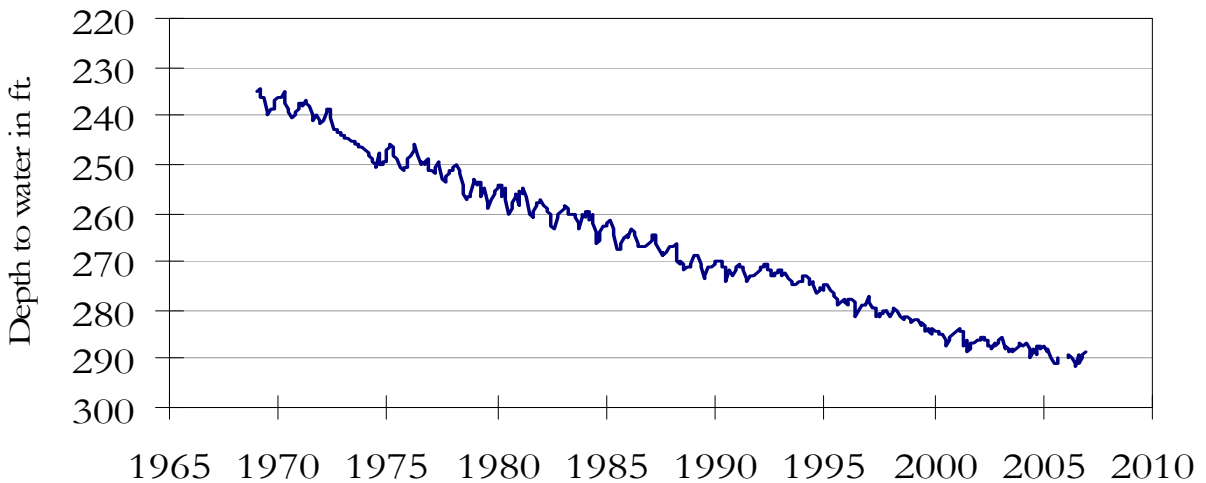
The late November water-level measurement in this Paluxy Formation Trinity Aquifer well, elevation 535 feet above sea level, was 449.06 feet below land surface. This measurement was 3.24 feet above last month's measurement, 1.06 feet above last year's measurement, and 71.06 feet below the initial measurement recorded in 1953. No water level measurements were recorded for September or October 2005.

**Well No. 40-35-404
Gatesville, Coryell County
Hosston/Trinity**



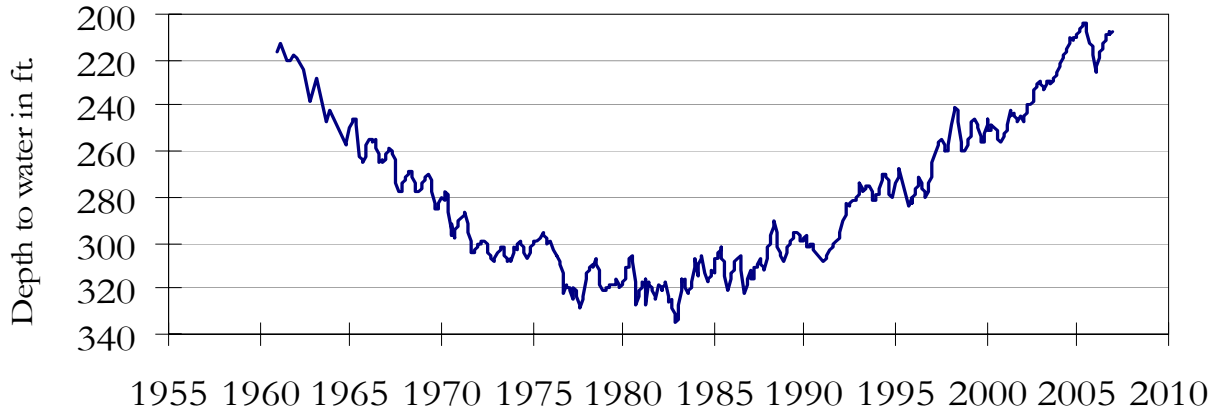
The late November water-level measurement in this Hosston Formation Trinity Aquifer well, elevation 823 feet above sea level, was 467.44 feet below land surface. This water level was 0.73 feet above last month's measurement, 8.55 feet below last year's measurement, and 175.44 feet below the initial measurement recorded in 1955. No water level measurement was recorded for October 2005.

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



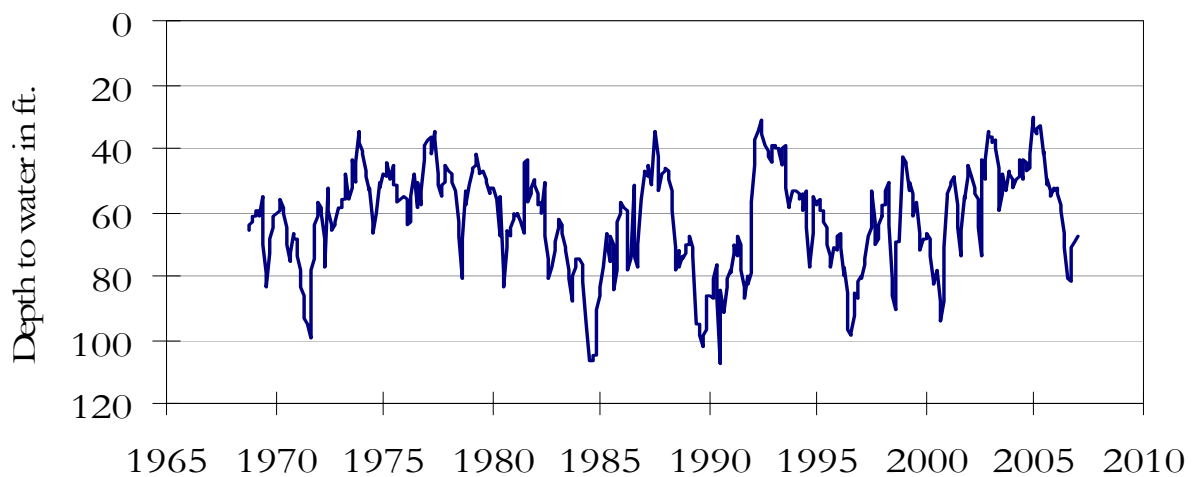
The late November water-level measurement in this Hueco Bolson Aquifer well, elevation 3,882 feet above sea level, was 288.74 feet below land surface. This was 0.46 feet above last month's measurement, 1.09 feet above last year's measurement, and 56.84 feet below the initial measurement in 1964. No water level measurements were recorded for October or December 2005.

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



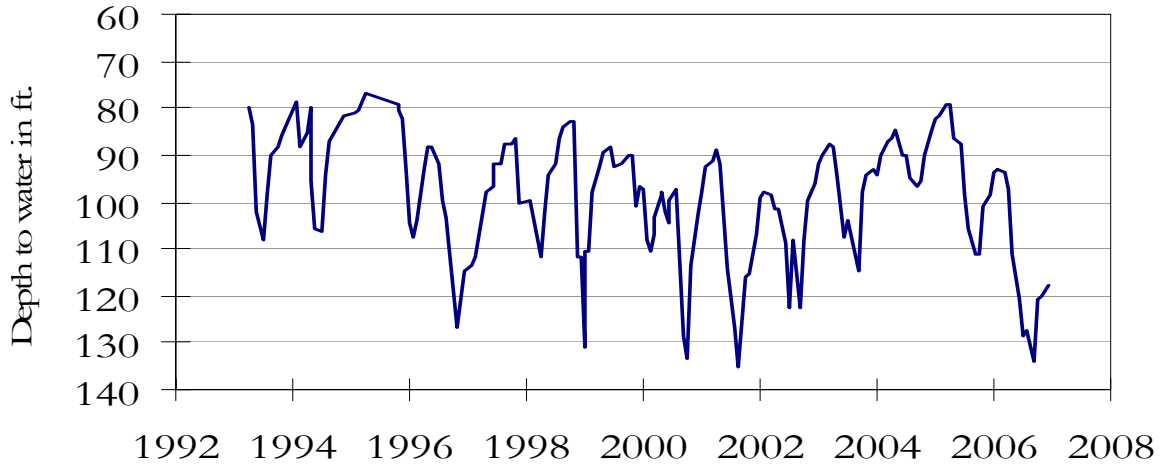
The late November water-level measurement in this Evangeline Formation Gulf Coast Aquifer well, elevation 66 feet above sea level, was 207.92 feet below land surface. This was 0.61 feet below last month's measurement, 10.08 feet above last year's measurement, and 72.42 feet below the initial measurement recorded in 1947.

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



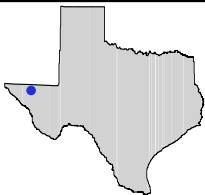
The late November water-level measurement in this Edwards (BFZ) Aquifer well, elevation 731 feet above sea level, was 67.50 feet below land surface. This was 2.00 feet above last month's measurement, 14.61 feet below last year's measurement, and 20.86 feet below the initial measurement recorded in 1962.

**Well No. 68-60-912
Between Poteet and Pleasanton, Atascosa County
Carrizo**



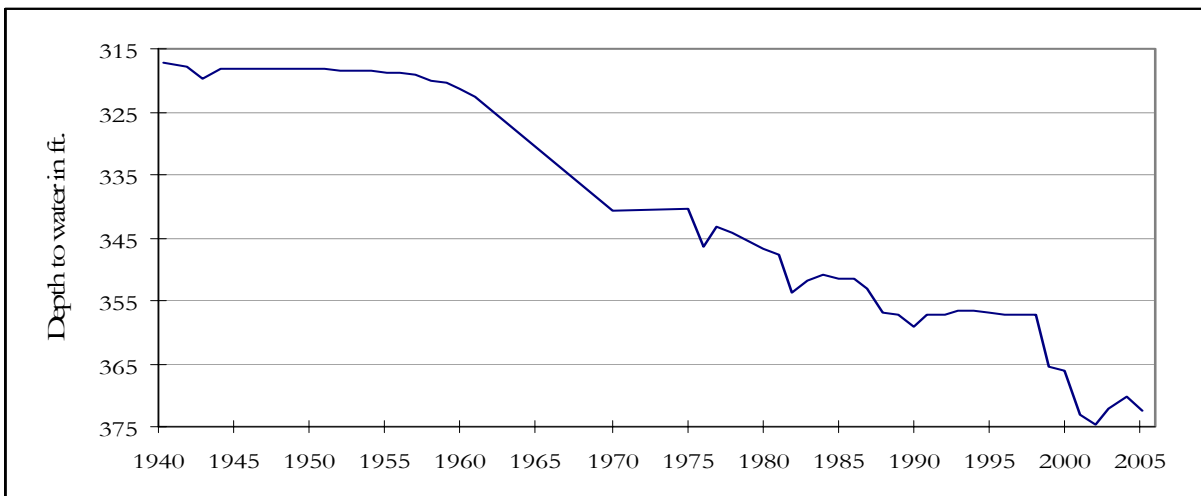
The late November water-level measurement in this Carrizo Aquifer well, elevation 446 feet above sea level, was 117.76 feet below land surface. This measurement was 2.38 feet above last month's measurement, 19.52 feet below last year's measurement, and 82.40 feet below the initial measurement recorded in 1965.

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. 4905205
El Paso County**



This water level observation well, located 10 miles north of El Paso, at an elevation of 4042 feet ASL, was completed in the Hueco-Mesilla Bolson Aquifer. Historical large-scale groundwater withdrawals, especially from municipal well fields in the downtown area of El Paso and Ciudad Juarez, have caused major water-level declines.

November, 2006

Water level measurements were available for all seven key monitoring wells. Water levels rose in six of the monitoring wells since the beginning of November, ranging from 0.46 feet in the El Paso Co. Hueco Bolson well to 3.24 feet in the Tarrant Co. Paluxy well. Water levels declined 0.03 feet in the Castro Co. Ogallala well. The J-17 well recorded a water level of 67.50 feet below land surface. This water level is 12.50 feet above the Stage 1 critical management level.

TEXAS WATER DEVELOPMENT BOARD

1700 N. CONGRESS AVE.

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