

Texas Water Development Board



WATER Conditions

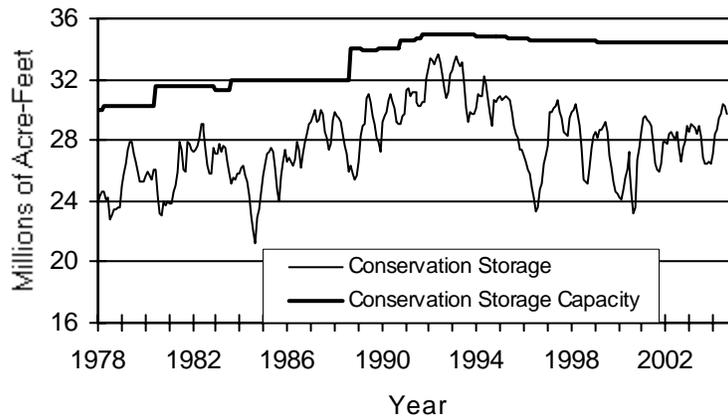
RESERVOIR STORAGE

August 2004

Near the end of August, the 77 reservoirs monitored for this report held 29.7 million acre-feet in conservation storage, or 86 percent of the conservation storage capacity of the state's major reservoirs. Statewide total storage is above normal for this time of year. Storage decreased during the month by 548,360 acre-feet (2% of conservation storage capacity). Compared to the previous year, storage is greater, up 2.81 million acre-feet (8%).

Storage is at capacity in the South Central Region, near capacity in the North Central (93%), East (94%), and Upper Coast (98%) Regions, while the High Plains (27%) and Trans-Pecos (22%) Regions remained lower than one-third. Storage is at 100% in 24 reservoirs. Compared to this time last year, all regions have increases in storage except High Plains, with the Edwards Plateau Region having the largest increase (+23%). The total storage in High Plains is the same as this time last year.

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

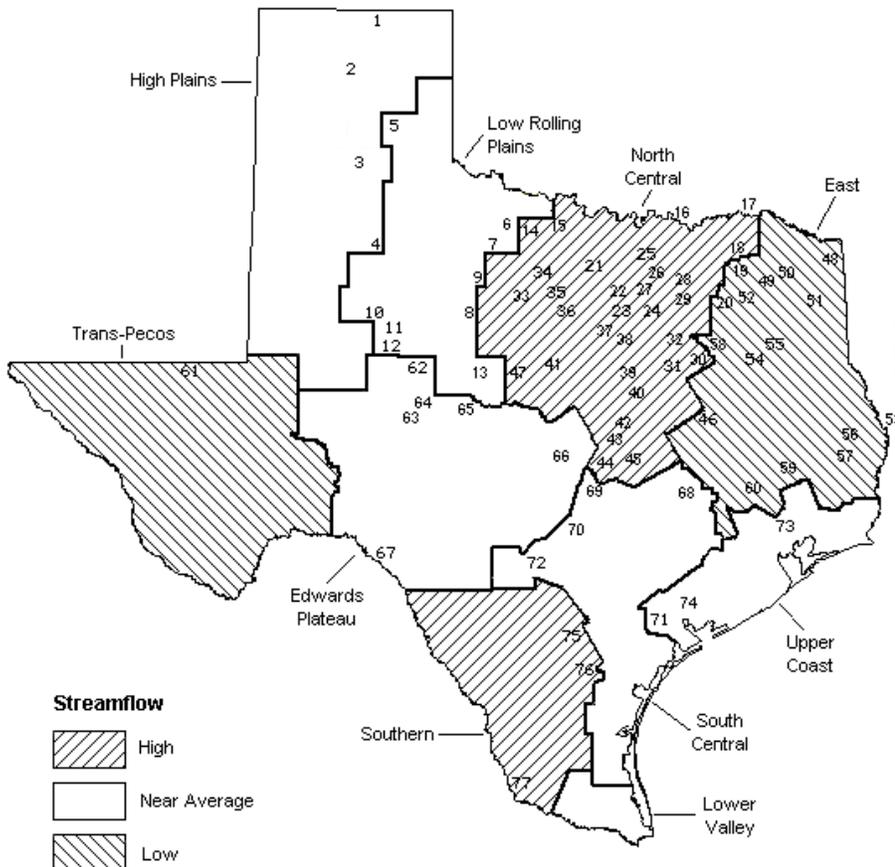
Of 29 reporting index stations in August, computed 30-day mean flows were high (5% - 30% exceedance) at 10 stations, near normal (30% - 70% exceedance) at 14 stations, and low (70 - 95%) at 5 stations. In comparison to July, flows increased at 7 index stations and decreased at 22 stations.

On a regional basis, flows in August were high in the North Central and Southern Regions, low in the East Texas and Trans-Pecos Regions, and near normal everywhere else.

AUGUST 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 Aug. 2004 (acre-feet) (%) | Change since Late July 2004 (acre-feet) (%) | Change since Late August 2003 (acre-feet) (%) | | |
|---------------------------------------|------------------|--|--|--|--|----------------|----------|
| HIGH PLAINS | | | | | | | |
| Palo Duro Reservoir | 1 | 60,900 | 5,290 | 9 | -920 -2 | 1,710 | 3 |
| Lake Meredith (Texas) | 2 | 500,000 | 152,730 | 31 | 9,070 2 | 120 | 0 |
| Lake Meredith (Texas and Oklahoma) | (2) | 779,560 | 152,730 | 20 | 9,070 1 | 120 | 0 |
| MacKenzie Reservoir | 3 | 46,250 | 7,340 | 16 | -200 0 | 770 | 2 |
| White River Lake | 4 | 31,850 | 7,120 | 22 | 170 1 | 310 | 1 |
| TOTAL | | 639,000 | 172,480 | 27 | 8,120 1 | 2,910 | 0 |
| LOW ROLLING PLAINS | | | | | | | |
| Greenbelt Reservoir | 5 | 58,200 | 22,780 | 39 | -830 -1 | 530 | 1 |
| Lake Kemp | 6 | 319,600 | 201,450 | 63 | 29,170 9 | 10,110 | 3 |
| Miller's Creek Reservoir | 7 | 27,890 | 15,470 | 55 | 1,160 4 | 1,540 | 6 |
| Fort Phantom Hill Reservoir | 8 | 70,030 | 39,810 | 57 | 8,640 12 | 3,650 | 5 |
| Lake Stamford | 9 | 52,700 | 31,440 | 60 | -620 -1 | -5,640 | -11 |
| Lake J. B. Thomas | 10 | 202,300 | 24,860 | 12 | 3,600 2 | 2,930 | 1 |
| Lake Colorado City | 11 | 30,800 | 21,830 | 71 | 100 0 | -90 | 0 |
| Champion Creek Reservoir | 12 | 41,600 | 4,360 | 10 | 1,120 3 | 1,480 | 4 |
| Hords Creek Lake | 13 | 8,600 | 3,450 | 40 | 670 8 | 1,510 | 18 |
| TOTAL | | 811,720 | 365,450 | 45 | 43,010 5 | 16,020 | 2 |
| NORTH CENTRAL | | | | | | | |
| Lake Kickapoo | 14 | 106,000 | 70,020 | 66 | 3,710 4 | 240 | 0 |
| Lake Arrowhead | 15 | 262,100 | 152,810 | 58 | 26,010 10 | 19,500 | 7 |
| Lake Texoma | 16 | 2,722,300 | 2,564,020 | 94 | -145,750 -5 | 214,170 | 8 |
| Pat Mayse Lake | 17 | 124,500 | 113,200 | 91 | -3,910 -3 | 1,210 | 1 |
| Cooper Lake | 18 | 273,000 | 184,890 | 68 | -13,530 -5 | -85,500 | -31 |
| Lake Sulphur Springs | 19 | 17,710 | 16,730 | 94 | 80 0 | -10 | 0 |
| Lake Tawakoni | 20 | 936,200 | 865,400 | 92 | -6,800 -1 | 37,900 | 4 |
| Bridgeport Reservoir | 21 | 374,830 | 346,300 | 92 | 7,300 2 | 81,900 | 22 |
| Eagle Mountain Reservoir | 22 | 178,380 | 164,000 | 92 | -9,900 -6 | 23,400 | 13 |
| Benbrook Lake | 23 | 88,200 | 77,290 | 88 | -4,500 -5 | 8,610 | 10 |
| Joe Pool Lake | 24 | 175,800 | 175,800 | 100 | 0 0 | 3,840 | 2 |
| Ray Roberts Lake | 25 | 798,760 | 798,760 | 100 | 0 0 | 42,630 | 5 |
| Lewisville Lake | 26 | 555,000 | 555,000 | 100 | 0 0 | 0 | 0 |
| Grapevine Lake | 27 | 187,700 | 184,190 | 98 | -3,510 -2 | 17,760 | 9 |
| Lavon Lake | 28 | 443,800 | 425,960 | 96 | -15,230 -3 | 57,060 | 13 |
| Lake Ray Hubbard | 29 | 413,420 | 396,700 | 96 | -10,500 -3 | 22,800 | 6 |
| Richland-Chambers Creek Lake | 30 | 1,103,820 | 1,103,820 | 100 | 0 0 | 23,820 | 2 |
| Navarro Mills Lake | 31 | 55,810 | 55,810 | 100 | 0 0 | 5,580 | 10 |
| Bardwell Lake | 32 | 53,580 | 46,620 | 87 | -360 -1 | 2,810 | 5 |
| Hubbard Creek Reservoir | 33 | 317,800 | 126,820 | 40 | -400 0 | -6,080 | -2 |
| Lake Graham | 34 | 45,000 | 31,440 | 70 | 5,580 12 | 6,050 | 13 |
| Possum Kingdom Lake | 35 | 551,820 | 540,300 | 98 | 80,300 15 | 78,600 | 14 |
| Lake Palo Pinto | 36 | 27,650 | 20,290 | 73 | -550 -2 | 4,060 | 15 |
| Lake Granbury | 37 | 135,680 | 133,200 | 98 | -500 0 | 100 | 0 |
| Lake Pat Cleburne | 38 | 25,300 | 25,300 | 100 | 0 0 | 3,210 | 13 |
| Whitney Lake | 39 | 622,800 | 622,800 | 100 | 2,910 0 | 181,820 | 29 |
| Waco Lake | 40 | 144,500 | 144,500 | 100 | 0 0 | 11,670 | 8 |
| Proctor Lake | 41 | 55,590 | 55,590 | 100 | 1,690 3 | 9,750 | 18 |
| Belton Lake | 42 | 434,500 | 434,500 | 100 | 0 0 | 17,700 | 4 |
| Stillhouse Hollow Lake | 43 | 226,060 | 226,060 | 100 | 0 0 | 4,930 | 2 |
| Lake Georgetown | 44 | 37,010 | 34,430 | 93 | -1,930 -5 | 5,210 | 14 |
| Granger Lake | 45 | 54,280 | 54,280 | 100 | 0 0 | 4,320 | 8 |
| Lake Limestone | 46 | 215,750 | 208,920 | 97 | -2,480 -1 | 8,820 | 4 |
| Lake Brownwood | 47 | 143,400 | 132,540 | 92 | 5,040 4 | 9,560 | 7 |
| TOTAL | | 11,908,050 | 11,088,290 | 93 | -87,230 -1 | 817,440 | 7 |

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

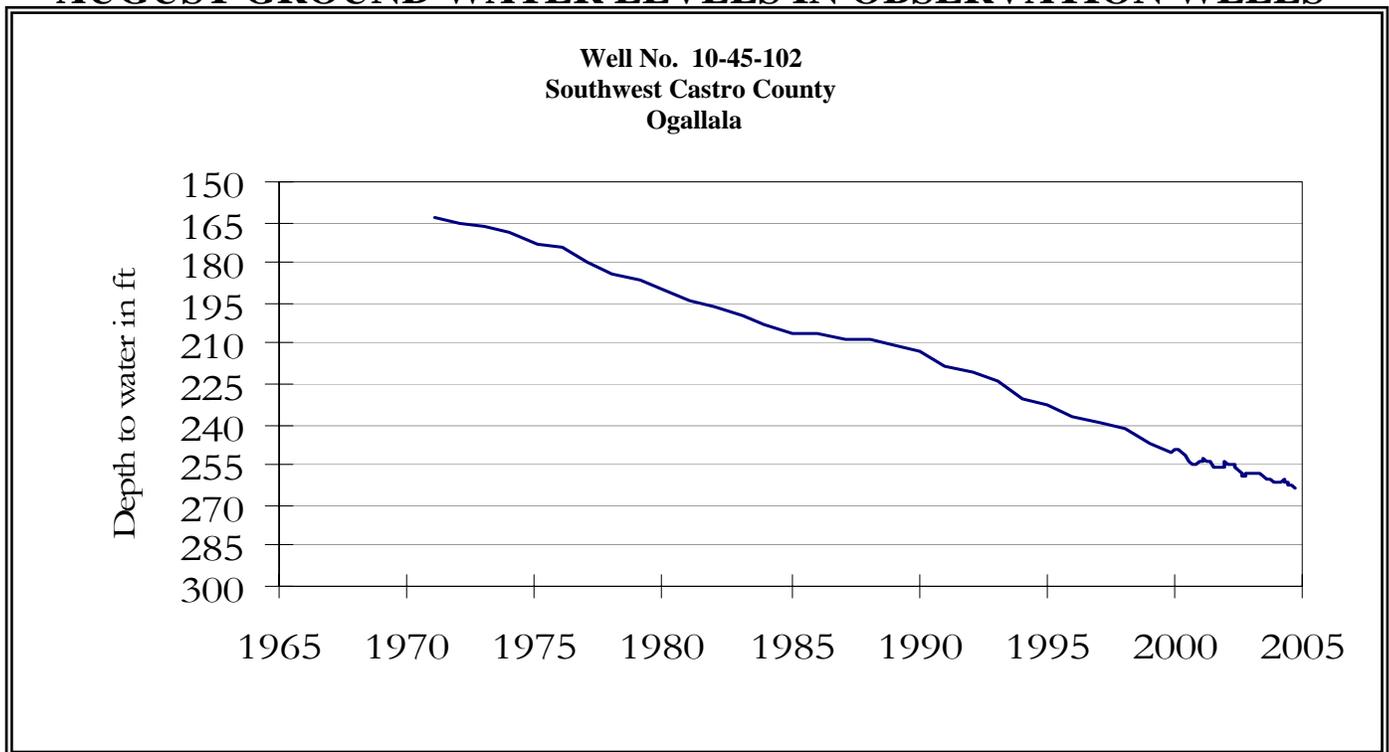
| Name of Lake or Reservoir | No. on Map | Conservation Storage Capacity (acre-feet) | Conservation Storage Late Aug. 2004 (acre-feet) (%) | Change since Late July 2004 (acre-feet) (%) | Change since Late August 2003 (acre-feet) (%) |
|---|------------------|--|--|--|--|
| EAST | | | | | |
| Wright Patman Lake | 48 | 142,700 | 142,700 100 | 0 0 | 0 0 |
| Lake Cypress Springs | 49 | 66,800 | 65,840 99 | -960 -1 | 1,230 2 |
| Lake Bob Sandlin | 50 | 202,300 | 196,800 97 | -5,000 -2 | 6,300 3 |
| Lake O' the Pines | 51 | 252,000 | 252,000 100 | 0 0 | 29,060 12 |
| Lake Fork Reservoir | 52 | 635,200 | 635,200 100 | 0 0 | 35,300 6 |
| Toledo Bend Reservoir | 53 | 4,472,900 | 4,029,000 90 | -329,000 -7 | 238,000 5 |
| Lake Palestine | 54 | 411,300 | 404,520 98 | -750 0 | 18,060 4 |
| Lake Tyler | 55 | 73,700 | 73,700 100 | 0 0 | 0 0 |
| Sam Rayburn Reservoir | 56 | 2,876,300 | 2,656,340 92 | -218,070 -8 | 59,280 2 |
| B. A. Steinhagen Lake | 57 | 94,200 | 73,500 78 | 4,340 5 | -17,250 -18 |
| Cedar Creek Reservoir | 58 | 637,050 | 617,300 97 | -5,600 -1 | 21,500 3 |
| Lake Livingston | 59 | 1,750,000 | 1,750,000 100 | 6,000 0 | 0 0 |
| Lake Conroe | 60 | 429,900 | 402,000 94 | -8,600 -2 | -5,500 -1 |
| TOTAL | | 12,044,350 | 11,298,900 94 | -557,640 -5 | 385,980 3 |
| TRANS-PECOS | | | | | |
| Red Bluff Reservoir | 61 | 307,000 | 66,330 22 | -1,970 -1 | 14,320 5 |
| TOTAL | | 307,000 | 66,330 22 | -1,970 -1 | 14,320 5 |
| EDWARDS PLATEAU | | | | | |
| E. V. Spence Reservoir | 62 | 488,760 | 44,760 9 | 2,870 1 | -7,470 -2 |
| Twin Buttes Reservoir | 63 | 177,800 | 4,560 3 | -330 0 | 360 0 |
| O.C. Fisher Lake | 64 | 119,200 | 1,730 1 | -160 0 | -1,790 -2 |
| O. H. Ivie Reservoir | 65 | 554,340 | 171,080 31 | -2,700 0 | -26,920 -5 |
| Lake Buchanan | 66 | 896,980 | 875,000 98 | 21,970 2 | 102,410 11 |
| Amistad Reservoir (Texas) | 67 | 1,771,030 | 1,776,000 100 | 102,000 6 | 840,000 47 |
| Amistad Reservoir (Texas and Mexico) | (67) | 3,151,300 | 2,066,000 66 | 178,000 6 | 882,000 28 |
| TOTAL | | 4,008,110 | 2,873,130 72 | 123,650 3 | 906,590 23 |
| SOUTH CENTRAL | | | | | |
| Somerville Lake | 68 | 155,060 | 154,610 100 | -450 0 | 3,250 2 |
| Lake Travis | 69 | 1,144,100 | 1,144,100 100 | 0 0 | 171,850 15 |
| Canyon Lake | 70 | 385,600 | 384,320 100 | -1,280 0 | 8,270 2 |
| Coletto Creek Reservoir | 71 | 35,060 | 31,020 88 | -750 -2 | 2,140 6 |
| Medina Lake | 72 | 254,000 | 254,000 100 | 0 0 | 12,300 5 |
| TOTAL | | 1,973,820 | 1,968,050 100 | -2,480 0 | 197,810 10 |
| UPPER COAST | | | | | |
| Lake Houston | 73 | 128,860 | 128,860 100 | 0 0 | 0 0 |
| Lake Texana | 74 | 157,900 | 153,330 97 | -3,940 -2 | 12,850 8 |
| TOTAL | | 286,760 | 282,190 98 | -3,940 -1 | 12,850 4 |
| SOUTHERN | | | | | |
| Choke Canyon Reservoir | 75 | 695,260 | 695,260 100 | 3,260 0 | 17,260 2 |
| Lake Corpus Christi | 76 | 241,240 | 240,100 100 | -1,140 0 | 9,740 4 |
| Falcon Reservoir (Texas) | 77 | 1,555,120 | 642,000 41 | -72,000 -5 | 428,000 28 |
| Falcon Reservoir (Texas and Mexico) | (77) | 2,653,290 | 1,610,000 61 | -63,000 -2 | 1,208,000 46 |
| TOTAL | | 2,491,620 | 1,577,360 63 | -69,880 -3 | 455,000 18 |
| STATE TOTAL | | 34,470,430 | 29,692,180 86 | -548,360 -2 | 2,808,920 8 |

Note:

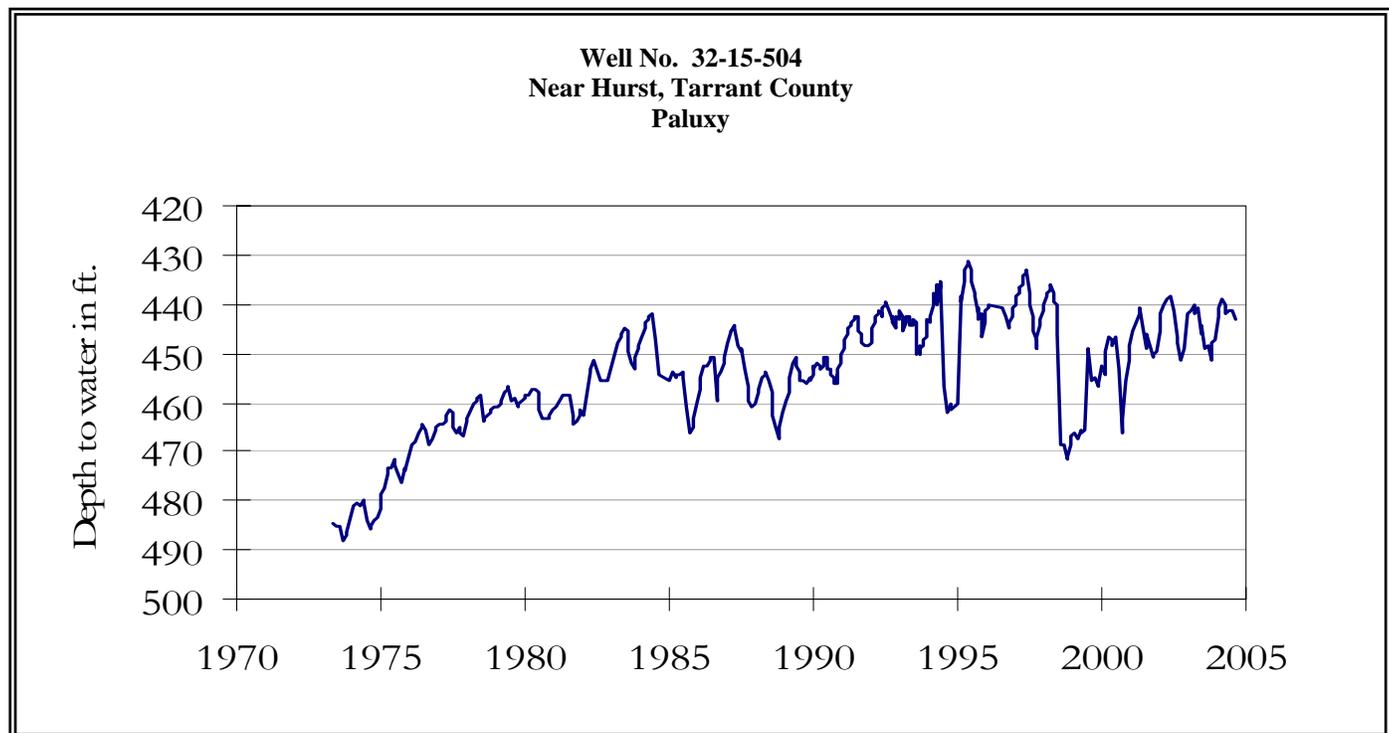
Conservation storage capacity is the space available to store water above the level of invert of lowest outlet works and below the level of top of conservation pool or normal maximum operating level. Conservation storage refers to the volume of water held within the conservation storage space. Not included 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.

AUGUST GROUND WATER LEVELS IN OBSERVATION WELLS

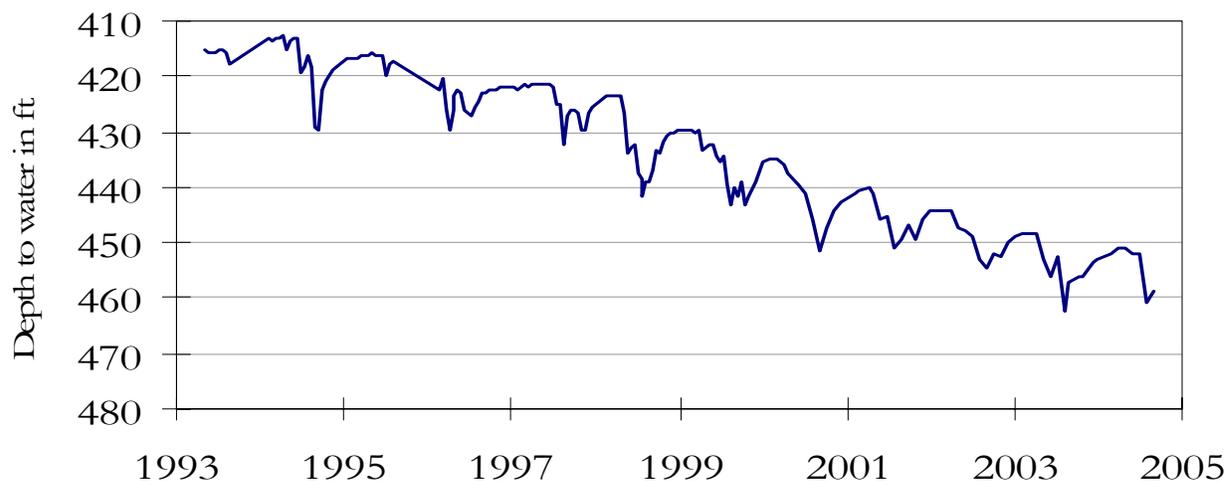


The late August water-level measurement in this Ogallala aquifer well, elevation 3,816 feet above sea level, was 263.50 feet below land surface. This measurement was 0.50 foot below last month's measurement, 2.90 feet below last year's measurement, and 107.50 feet below the initial measurement recorded in 1968.



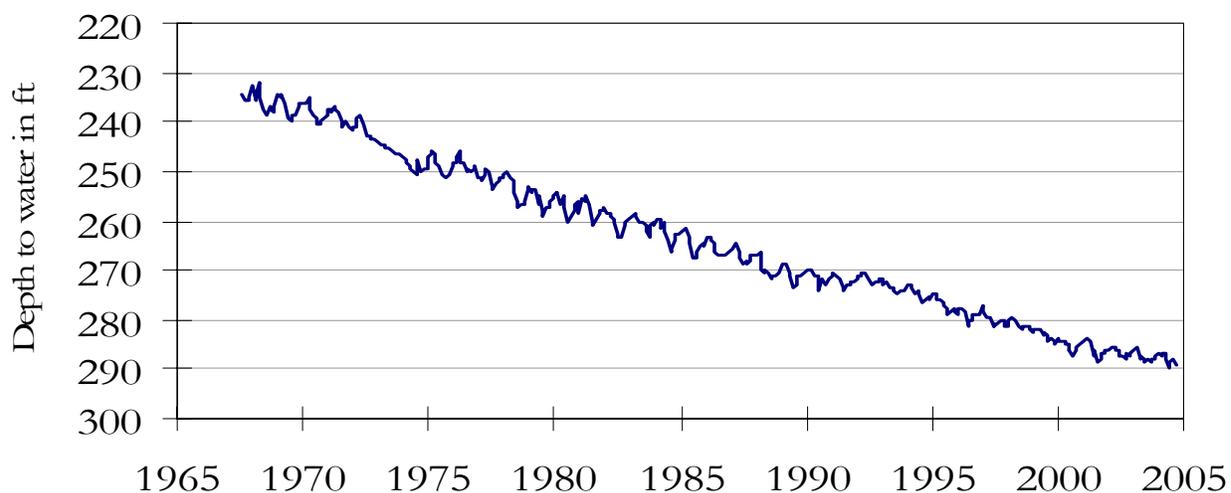
The late August water-level measurement in this Paluxy Formation Trinity aquifer well, elevation 535 feet above sea level, was 443.20 feet below land surface. This measurement was 2.00 feet above last month's measurement, 5.10 feet above last year's measurement, and 49.81 feet below the initial measurement recorded in 1953.

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



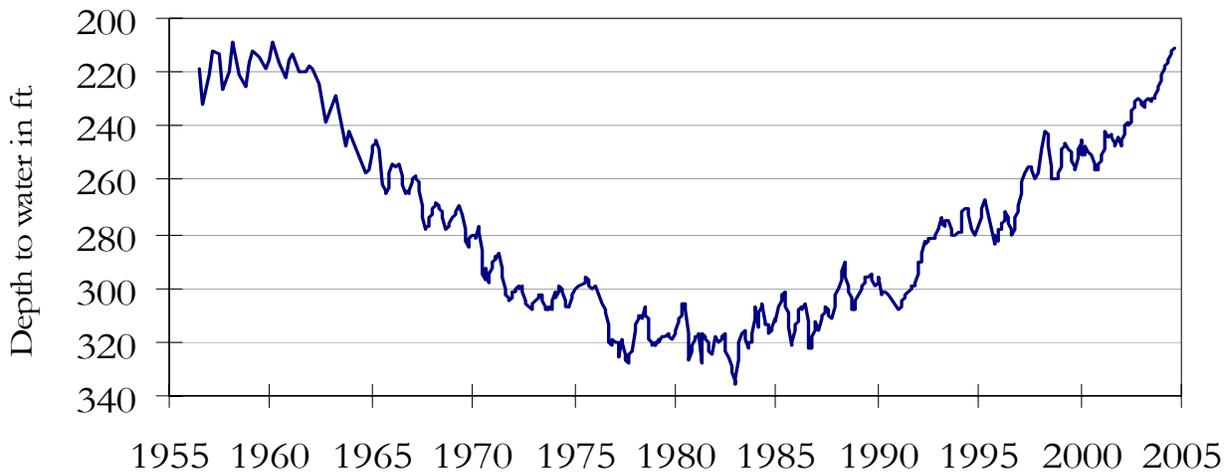
The late August water-level measurement in this Hosston Formation Trinity aquifer well, elevation 823 feet above sea level, was 458.90 feet below land surface. This water level was 1.70 above last month's measurement, 1.50 feet below last year's measurement, and 166.90 feet below the initial measurement recorded in 1955.

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



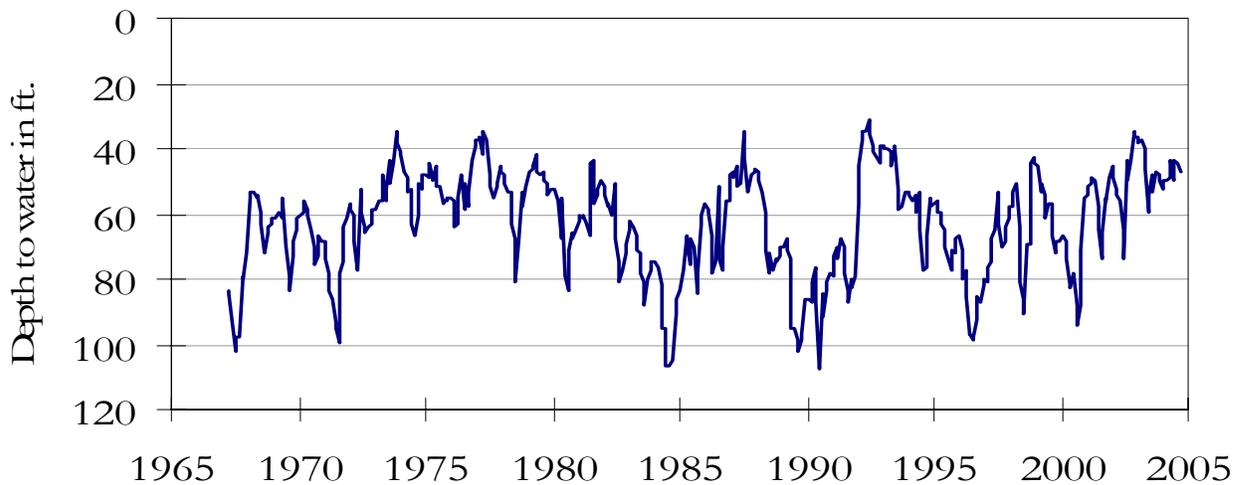
The late August water-level measurement in this Hueco Bolson aquifer well, elevation 3,882 feet above sea level, was 289.20 feet below land surface. This was 1.30 foot below last month's measurement, 0.40 feet below last year's measurement, and 57.30 feet below the initial measurement recorded in 1964.

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



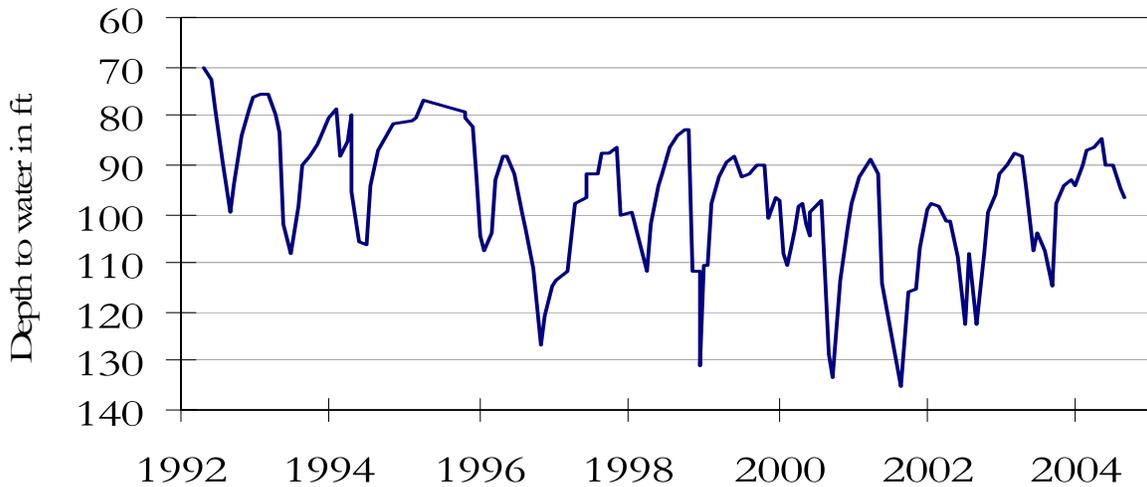
The late August water-level measurement in this Evangeline Formation Gulf Coast aquifer well, elevation 66 feet above sea level, was 210.80 feet below land surface. This was 1.20 foot above last month's measurement, 19.10 feet above last year's measurement, and 107.57 feet below the initial measurement recorded in 1947.

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



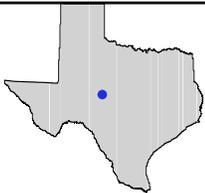
The late August water-level measurement in this Edwards (BFZ) aquifer well, elevation 731 feet above sea level, was 47.00 feet below land surface. This was 2.60 foot below last month's measurement, 6.00 feet above last year's measurement, and 12.62 feet above the initial measurement recorded in 1962.

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



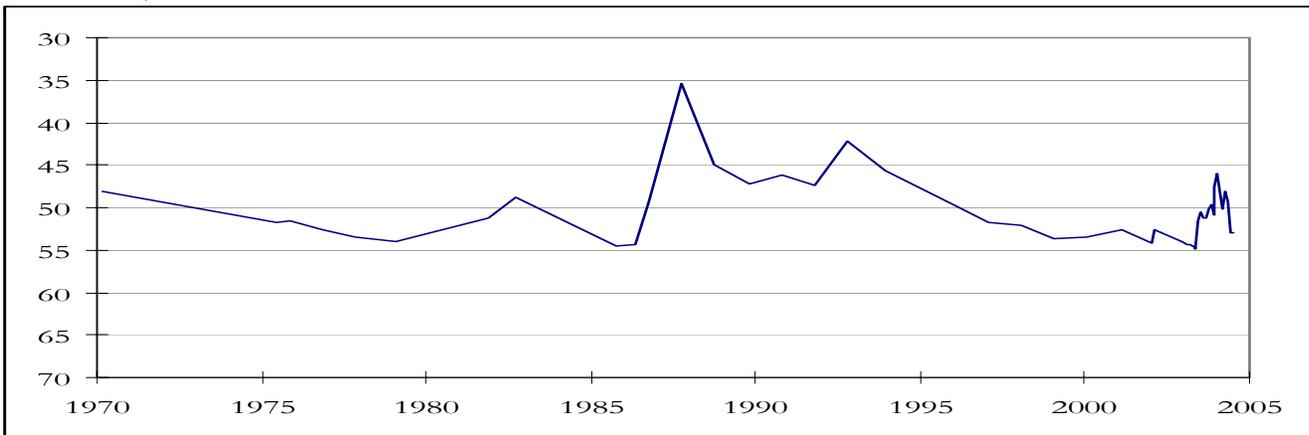
The late August water-level measurement in this Carrizo aquifer well, elevation 446 feet above sea level, was 96.83 feet below land surface. This measurement was 1.74 feet below last month's measurement, 18.09 feet above last year's measurement, and 15.58 feet below the initial measurement recorded in 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. 4332402
Runnels County**



This domestic observation well, located fifteen miles southwest of the town of Ballinger at an elevation of 1,777 feet ASL, was completed in the Lipan Aquifer alluvial deposits of the Leona Formation. Lipan water is used primarily for irrigation with limited use for domestic and livestock purposes. Water quality has been affected by oil field activities and irrigation practices. Recharge to the aquifer is primarily from the infiltration of local precipitation.

August 31, 2004

Water levels increased in three key monitoring wells since the beginning of August, ranging from 1.2 feet in the Alief well, Harris County (Evangeline aquifer) to 2.0 feet in the Near Hurst well, Tarrant County (Paluxy aquifer), and decreased in four key monitoring wells, ranging from 0.5 feet in the Southwest Castro County well (Ogallala aquifer) to 2.6 feet in San Antonio well, Bexar County (Edwards and Associated Limestones).

TEXAS WATER DEVELOPMENT BOARD

1700 N. CONGRESS AVE.

P.O. BOX 13231

AUSTIN TX 78711-3231