

Texas Water Development Board



WATER Conditions

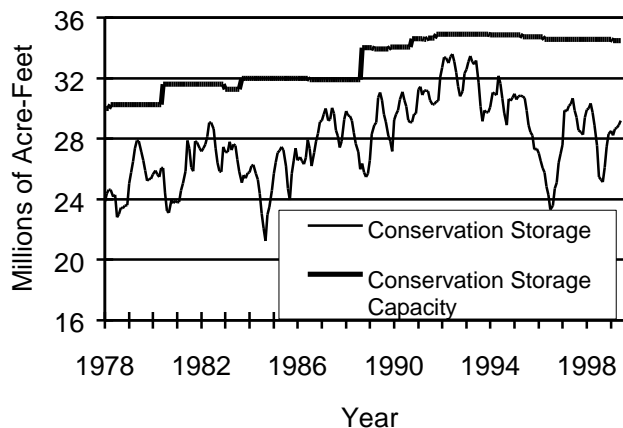
RESERVOIR STORAGE

June 1999

Near the end of June, the 77 reservoirs monitored for this report held 29,187,700 acre-feet in conservation storage. This is 85 percent of the conservation storage capacity of the State's major reservoirs. Compared to the end of May, storage increased 295,513 acre-feet (+0.9% of conservation storage capacity). Compared to this month last year, storage increased 1,639,791 acre-feet (+4.8%).

Of the monitored reservoirs, 28 held 100 percent or more of conservation storage near the end of June. Compared to the end of May, conservation storage increased in the High Plains (+3%), Low Rolling Plains (+8%), North Central (+1%), East (+1%), Trans Pecos (+6%), and Edwards Plateau (+0.3%) regions, and decreased in the South Central (-3%) and Southern (-1%) regions. Conservation storage remained at 100% in the Upper Coast Region. Compared to the end of June 1998, conservation storage increased in all regions except for the North Central region, where storage decreased 2%.

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.

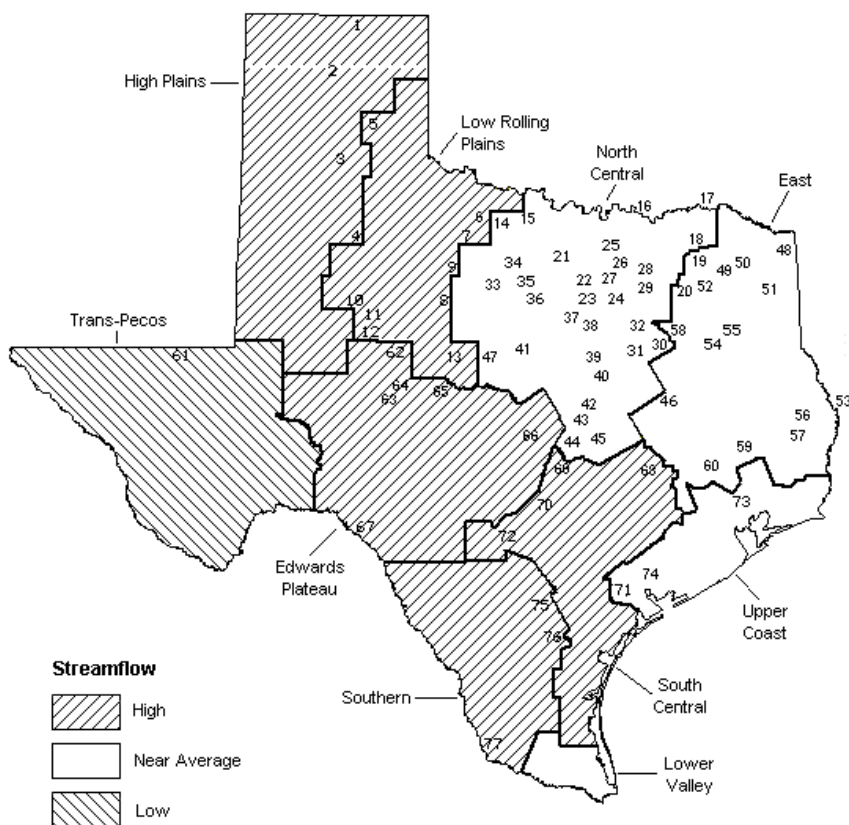
STREAMFLOW

Of 26 reporting index stations in June, computed thirty-day mean flows were very high (0% - 5% exceedance probability) at 2 stations (both in the Low Rolling Plains Region), high (5% - 30% exceedance) at 10 stations, near normal (30% - 70% exceedance) at 13 stations, and low (70% - 95% exceedance) at only 1 station. In comparison to May, flows increased at 18 index stations and decreased at 8 stations.

Increasing flows were reported at stations in all regions of the state. Flows in the Trans-Pecos Region, however, remained low, while flows the North Central, East Texas, and Upper Coast regions were near normal. Flows in the High Plains, Low Rolling Plains, Edwards Plateau, and Southern regions were above average. The 30-day average flow at DMF Brazos River near Aspermont, Texas had the lowest exceedance frequency (highest relative flow) of all index stations at 1.5% exceedance. The lowest relative flows in June, as in April and May, were recorded at Pecos River near Girvin, Texas, where flows were at 80.0% exceedance frequency.

STREAMFLOW CONDITIONS FOR JUNE COMPARED WITH PAST RECORD

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 Junese 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 | | Change since Late May 1999 | | Change since Late June 1998 | | |
|---------------------------------------|------------------|--|-------------------------------|-----|-------------------------------|-----|--------------------------------|-----|--|
| | | | Late June 1999 (acre-feet) | (%) | (acre-feet) | (%) | (acre-feet) | (%) | |
| HIGH PLAINS | | | | | | | | | |
| Palo Duro Reservoir | 1 | 60,900 | 32,732 | 54 | -1,413 | -2 | 27,932 | 46 | |
| Lake Meredith (Texas) | 2 | 500,000 | 415,400 | 83 | 15,800 | 3 | 63,360 | 13 | |
| Lake Meredith (Texas and Oklahoma) | (2) | 779,560 | 415,400 | 53 | 15,800 | 2 | 63,360 | 8 | |
| MacKenzie Reservoir | 3 | 46,250 | 10,408 | 23 | -35 | 0 | 1,948 | 4 | |
| White River Lake | 4 | 31,850 | 30,610 | 96 | 4,540 | 14 | 20,560 | 65 | |
| TOTAL | | 639,000 | 489,150 | 77 | 18,892 | 3 | 113,800 | 18 | |
| LOW ROLLING PLAINS | | | | | | | | | |
| Greenbelt Reservoir | 5 | 58,200 | 29,370 | 50 | 2,120 | 4 | 2,120 | 4 | |
| Lake Kemp | 6 | 319,600 | 244,500 | 77 | 23,900 | 7 | 6,580 | 2 | |
| Miller's Creek Reservoir | 7 | 27,890 | 15,360 | 55 | 210 | 1 | 4,920 | 18 | |
| Fort Phantom Hill Reservoir | 8 | 70,030 | 29,530 | 42 | 4,210 | 6 | -15,780 | -23 | |
| Lake Stamford | 9 | 52,700 | 11,490 | 22 | -7,436 | -14 | -14,050 | -27 | |
| Lake J. B. Thomas | 10 | 202,300 | 44,980 | 22 | 35,950 | 18 | 33,730 | 17 | |
| Lake Colorado City | 11 | 30,800 | 16,210 | 53 | 1,020 | 3 | -550 | -2 | |
| Champion Creek Reservoir | 12 | 41,600 | 10,950 | 26 | 3,580 | 9 | -6,120 | -15 | |
| Hords Creek Lake | 13 | 8,600 | 4,659 | 54 | 13 | 0 | -2,041 | -24 | |
| TOTAL | | 811,720 | 407,049 | 50 | 63,567 | 8 | 8,809 | 1 | |
| NORTH CENTRAL | | | | | | | | | |
| Lake Kickapoo | 14 | 106,000 | 68,852 | 65 | -1,152 | -1 | 5,052 | 5 | |
| Lake Arrowhead | 15 | 262,100 | 178,400 | 68 | -1,900 | -1 | -37,620 | -14 | |
| Lake Texoma | 16 | 2,722,300 | 2,722,300 | 100 | 0 | 0 | 26,800 | 1 | |
| Pat Mayse Lake | 17 | 124,500 | 119,200 | 96 | -5,300 | -4 | 4,400 | 4 | |
| Cooper Lake | 18 | 273,000 | 255,088 | 93 | 1,885 | 1 | -6,382 | -2 | |
| Lake Sulphur Springs | 19 | 17,710 | 17,583 | 99 | -127 | -1 | 1,693 | 10 | |
| Lake Tawakoni | 20 | 936,200 | 936,200 | 100 | 0 | 0 | 58,900 | 6 | |
| Bridgeport Reservoir | 21 | 374,830 | 311,065 | 83 | -815 | 0 | -49,535 | -13 | |
| Eagle Mountain Reservoir | 22 | 178,380 | 160,484 | 90 | -584 | 0 | -3,876 | -2 | |
| Benbrook Lake | 23 | 88,200 | 86,474 | 98 | -1,726 | -2 | 2,104 | 2 | |
| Joe Pool Lake | 24 | 175,800 | 175,800 | 100 | 0 | 0 | 10,860 | 6 | |
| Ray Roberts Lake | 25 | 798,760 | 722,277 | 90 | -1,903 | 0 | -54,143 | -7 | |
| Lewisville Lake | 26 | 555,000 | 470,498 | 85 | -9,542 | -2 | -58,272 | -10 | |
| Grapevine Lake | 27 | 187,700 | 165,285 | 88 | -2,434 | -1 | -6,495 | -3 | |
| Lavon Lake | 28 | 443,800 | 434,304 | 98 | -9,496 | -2 | 46,274 | 10 | |
| Lake Ray Hubbard | 29 | 413,420 | 413,420 | 100 | 0 | 0 | -45,880 | -11 | |
| Richland-Chambers Creek Lake | 30 | 1,103,820 | 1,103,820 | 100 | 0 | 0 | 60,300 | 5 | |
| Navarro Mills Lake | 31 | 55,810 | 55,810 | 100 | 0 | 0 | 6,500 | 12 | |
| Bardwell Lake | 32 | 53,580 | 53,580 | 100 | 0 | 0 | 5,630 | 11 | |
| Hubbard Creek Reservoir | 33 | 317,800 | 250,000 | 79 | 1,200 | 0 | -45,500 | -14 | |
| Lake Graham | 34 | 45,000 | 45,000 | 100 | 0 | 0 | 0 | 0 | |
| Possum Kingdom Lake | 35 | 551,820 | 402,445 | 73 | 77,760 | 14 | -74,005 | -13 | |
| Lake Palo Pinto | 36 | 42,200 | 42,200 | 100 | 9,411 | 22 | 6,340 | 15 | |
| Lake Granbury | 37 | 135,680 | 131,888 | 97 | -805 | -1 | -3,792 | -3 | |
| Lake Pat Cleburne | 38 | 25,300 | 24,235 | 96 | -1,008 | -4 | 1,335 | 5 | |
| Whitney Lake | 39 | 622,800 | 488,500 | 78 | 24,902 | 4 | -80,190 | -13 | |
| Waco Lake | 40 | 144,500 | 144,500 | 100 | 0 | 0 | 11,350 | 8 | |
| Proctor Lake | 41 | 55,590 | 39,757 | 72 | 3,908 | 7 | -13,183 | -24 | |
| Belton Lake | 42 | 434,500 | 434,500 | 100 | 0 | 0 | 7,310 | 2 | |
| Stillhouse Hollow Lake | 43 | 226,060 | 226,060 | 100 | 0 | 0 | 0 | 0 | |
| Lake Georgetown | 44 | 37,010 | 37,010 | 100 | 0 | 0 | 2,240 | 6 | |
| Granger Lake | 45 | 54,280 | 54,280 | 100 | 0 | 0 | 0 | 0 | |
| Lake Limestone | 46 | 215,750 | 215,750 | 100 | 1,950 | 1 | 23,780 | 11 | |
| Lake Brownwood | 47 | 143,400 | 112,200 | 78 | 2,200 | 2 | -27,700 | -19 | |
| TOTAL | | 11,922,600 | 11,098,765 | 93 | 86,424 | 1 | -225,705 | -2 | |

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 May 1999 | | Change since Late June 1998 | | |
|---|------------------|--|-------------------------------|-----|-------------------------------|-----|--------------------------------|-----|---|
| | | | Late June 1999 (acre-feet) | (%) | (acre-feet) | (%) | (acre-feet) | (%) | |
| EAST | | | | | | | | | |
| Wright Patman Lake | 48 | 142,700 | 142,700 | 100 | 0 | 0 | 0 | 0 | 0 |
| Lake Cypress Springs | 49 | 66,800 | 66,800 | 100 | 0 | 0 | 1,420 | 2 | |
| Lake Bob Sandlin | 50 | 202,300 | 202,300 | 100 | 0 | 0 | 18,940 | 9 | |
| Lake O' the Pines | 51 | 252,000 | 252,000 | 100 | 0 | 0 | 14,730 | 6 | |
| Lake Fork Reservoir | 52 | 635,200 | 635,200 | 100 | 0 | 0 | 35,480 | 6 | |
| Toledo Bend Reservoir | 53 | 4,472,900 | 4,351,000 | 97 | 190,000 | 4 | 471,000 | 11 | |
| Lake Palestine | 54 | 411,300 | 411,300 | 100 | 0 | 0 | 28,200 | 7 | |
| Lake Tyler | 55 | 73,700 | 73,700 | 100 | 0 | 0 | 1,190 | 2 | |
| Sam Rayburn Reservoir | 56 | 2,876,300 | 2,876,300 | 100 | 0 | 0 | 355,750 | 12 | |
| B. A. Steinhagen Lake | 57 | 94,200 | 83,609 | 89 | -5,520 | -6 | 4,759 | 5 | |
| Cedar Creek Reservoir | 58 | 637,050 | 621,700 | 98 | -15,350 | -2 | -10,200 | -2 | |
| Lake Livingston | 59 | 1,750,000 | 1,750,000 | 100 | 0 | 0 | 100,000 | 6 | |
| Lake Conroe | 60 | 429,900 | 418,000 | 97 | 4,300 | 1 | 19,130 | 4 | |
| TOTAL | | 12,044,350 | 11,884,609 | 99 | 173,430 | 1 | 1,040,399 | 9 | |
| TRANS-PECOS | | | | | | | | | |
| Red Bluff Reservoir | 61 | 307,000 | 81,850 | 27 | 18,470 | 6 | 13,700 | 4 | |
| TOTAL | | 307,000 | 81,850 | 27 | 18,470 | 6 | 13,700 | 4 | |
| EDWARDS PLATEAU | | | | | | | | | |
| E. V. Spence Reservoir | 62 | 484,800 | 76,220 | 16 | 11,220 | 2 | -15,900 | -3 | |
| Twin Buttes Reservoir | 63 | 177,800 | 19,727 | 11 | 3,731 | 2 | -12,903 | -7 | |
| O.C. Fisher Lake | 64 | 119,200 | 11,294 | 9 | 220 | 0 | -5,886 | -5 | |
| O. H. Ivie Reservoir | 65 | 554,340 | 396,700 | 72 | -2,800 | -1 | -94,560 | -17 | |
| Lake Buchanan | 66 | 896,980 | 870,471 | 97 | -867 | 0 | 31,161 | 3 | |
| Amistad Reservoir (Texas) | 67 | 1,771,030 | 991,000 | 56 | 0 | 0 | 427,560 | 24 | |
| Amistad Reservoir (Texas and Mexico) | (67) | 3,151,300 | 1,260,000 | 40 | 57,000 | 2 | 424,970 | 13 | |
| TOTAL | | 4,004,150 | 2,365,412 | 59 | 11,504 | 0 | 329,472 | 8 | |
| SOUTH CENTRAL | | | | | | | | | |
| Somerville Lake | 68 | 155,060 | 155,060 | 100 | 0 | 0 | 19,640 | 13 | |
| Lake Travis | 69 | 1,144,100 | 1,056,066 | 92 | -58,399 | -5 | 158,546 | 14 | |
| Canyon Lake | 70 | 385,600 | 385,600 | 100 | 0 | 0 | 12,980 | 3 | |
| Coletto Creek Reservoir | 71 | 35,060 | 31,980 | 91 | 510 | 1 | 2,840 | 8 | |
| Medina Lake | 72 | 254,000 | 237,500 | 94 | -2,400 | -1 | 8,500 | 3 | |
| TOTAL | | 1,973,820 | 1,866,206 | 95 | -60,289 | -3 | 202,506 | 10 | |
| UPPER COAST | | | | | | | | | |
| Lake Houston | 73 | 128,860 | 128,860 | 100 | 0 | 0 | 1,860 | 1 | |
| Lake Texana | 74 | 157,900 | 157,900 | 100 | 0 | 0 | 15,380 | 10 | |
| TOTAL | | 286,760 | 286,760 | 100 | 0 | 0 | 17,240 | 6 | |

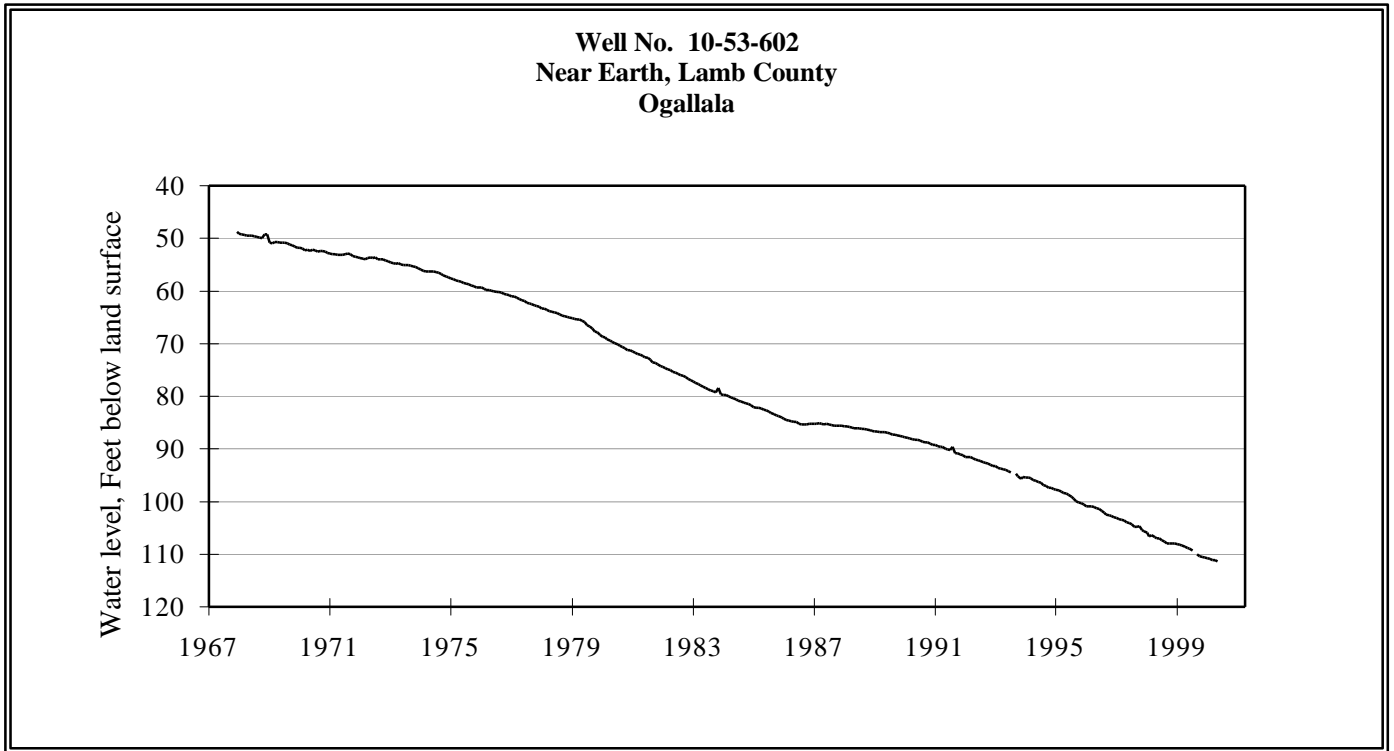
CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

| Name of Lake or Reservoir | No. on Map | Conservation Storage Capacity (acre-feet) | Conservation Storage Late June 1999 (acre-feet) (%) | Change since Late May 1999 (acre-feet) (%) | Change since Late June 1998 (acre-feet) (%) |
|--|------------------|--|--|--|---|
| SOUTHERN | | | | | |
| Choke Canyon Reservoir | 75 | 695,260 | 353,000 51 | 2,482 0 | 104,000 15 |
| Lake Corpus Christi | 76 | 241,240 | 181,900 75 | 2,033 1 | 53,900 22 |
| Falcon Reservoir (Texas) | 77 | 1,555,120 | 173,000 11 | -21,000 -1 | -18,330 -1 |
| Falcon Reservoir (Texas and Mexico) | (77) | 2,653,290 | 315,000 12 | -15,000 -1 | 40,170 2 |
| TOTAL | | 2,491,620 | 707,900 28 | -16,485 -1 | 139,570 6 |
| STATE TOTAL | | 34,481,020 | 29,187,701 85 | 295,513 1 | 1,639,791 5 |

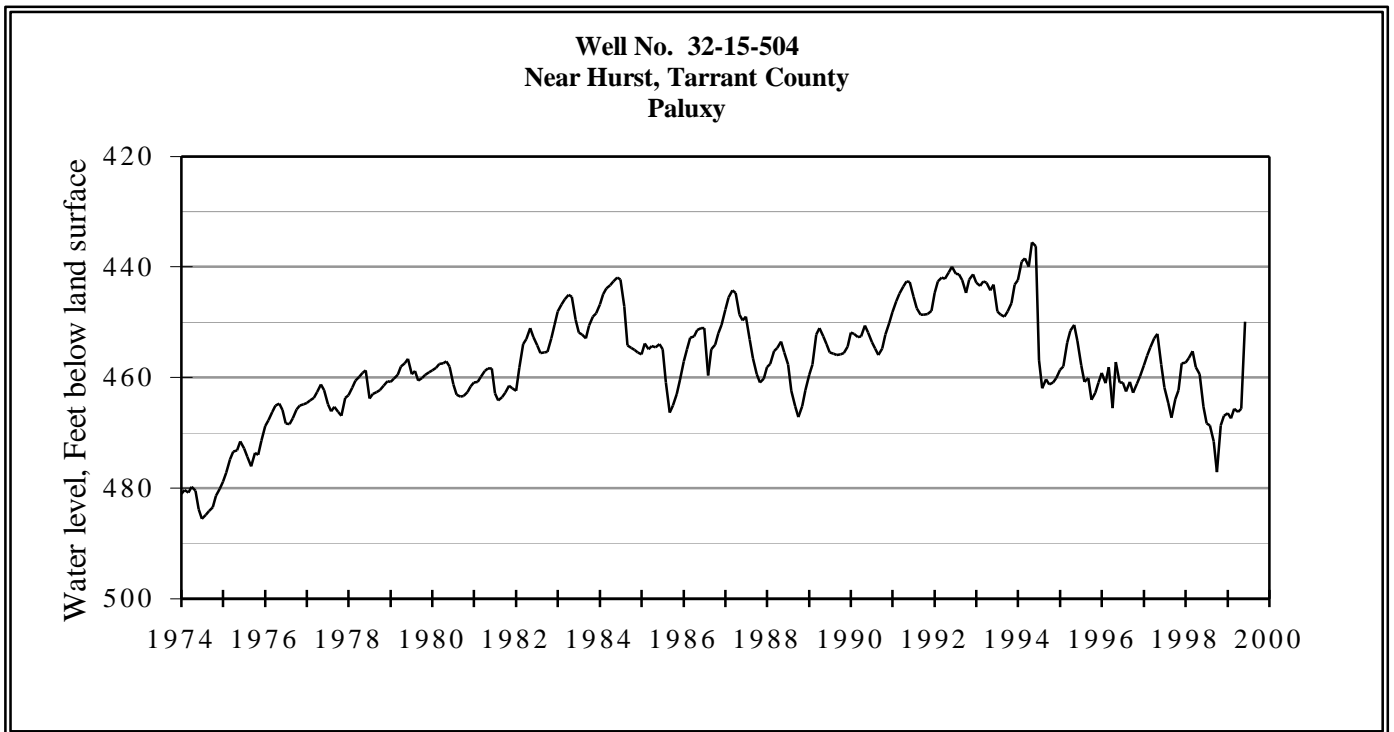
NOTES: Conservation storage capacity is the space available to store water above the level of invert of lowest outlet works and below the level of top of conservation pool or normal maximum operating level. Conservation storage refers to the volume of water held within the conservation storage space. 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 % Change = 100 * (current conservation storage - past conservation storage)/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). Figures in parentheses for Lake Meredith represent the total conservation storage excluding 58,014 acre-feet of dead storage and are not included in State total. Preliminary figures are shown for the United States' share of conservation storage in International Amistad and International Falcon Reservoirs; the estimates June be subject to revision on completion of international water accounting. Texas (United States' share) and Mexico and are not included in State total.

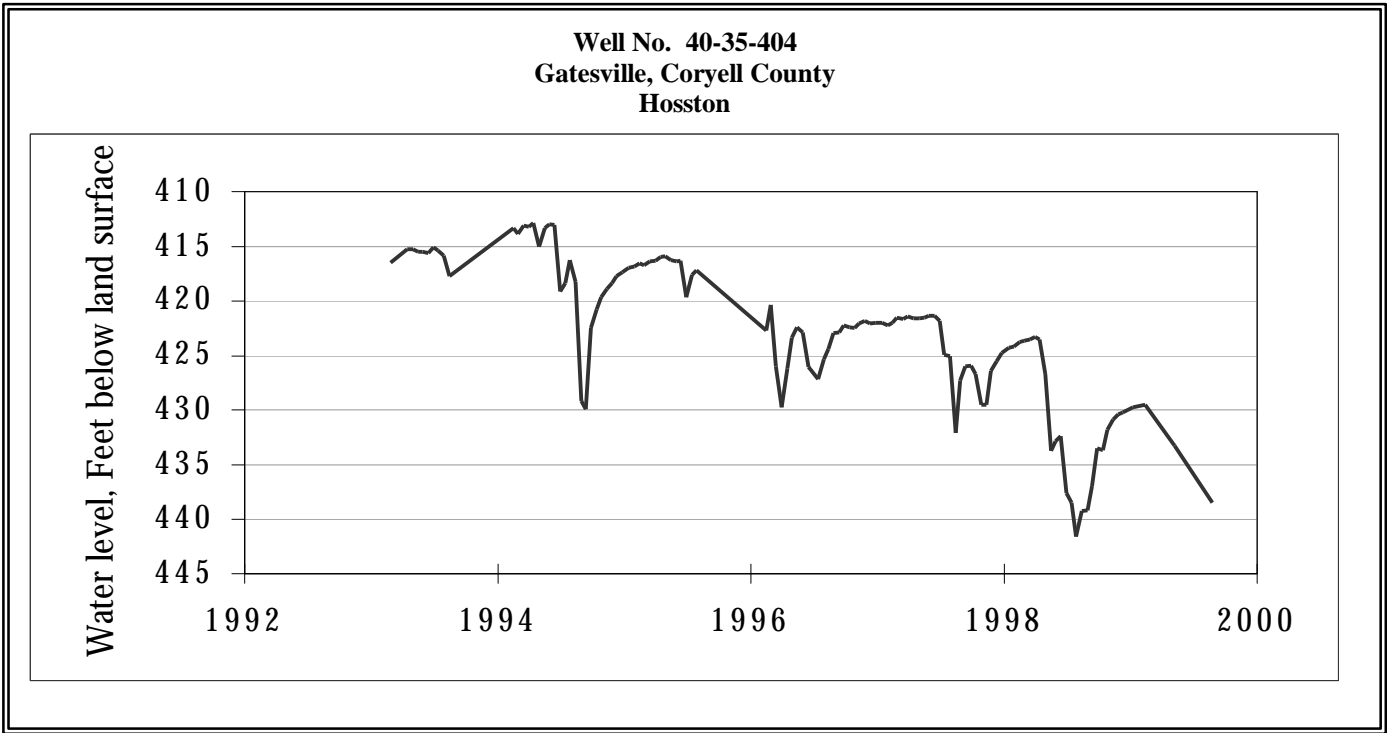
GROUND WATER LEVELS IN OBSERVATION WELLS



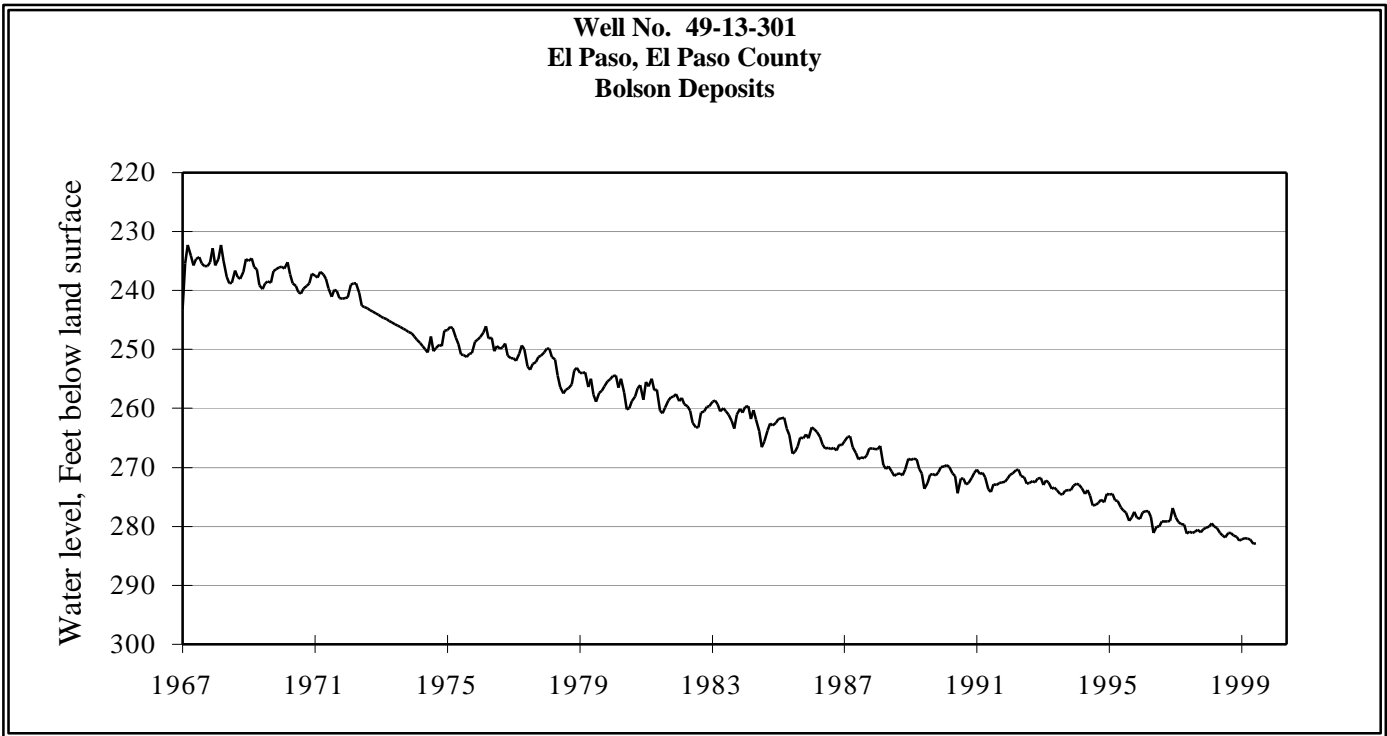
The June water-level measurement in this Ogallala aquifer well, elevation 3667 feet above sea level, was 111.32 feet below land surface. This was 0.16 of a foot below last month's measurement, 2.62 feet below last year's measurement, and 83.17 feet below the initial measurement recorded in 1950.



The June water-level measurement in this Paluxy aquifer well, elevation 535 feet above sea level, was 449.88 feet below land surface. This measurement was 15.77 of a foot above month's measurement, 15.48 feet above last year's measurement, and 56.49 feet below the initial measurement recorded in 1953.

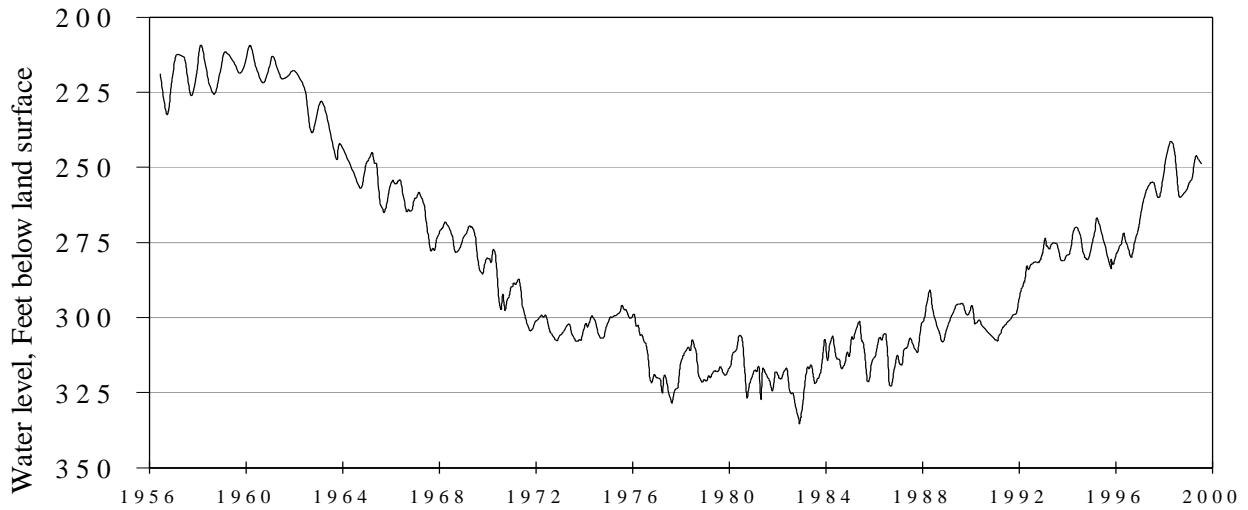


The June water-level measurement in this Hosston Formation aquifer well, elevation 823 feet above sea level, was 438.45 feet below land surface. This measurement was 5.22 feet below the April measurement, 0.73 of a foot above last year's measurement, and 146.45 feet below the initial measurement recorded in 1955.



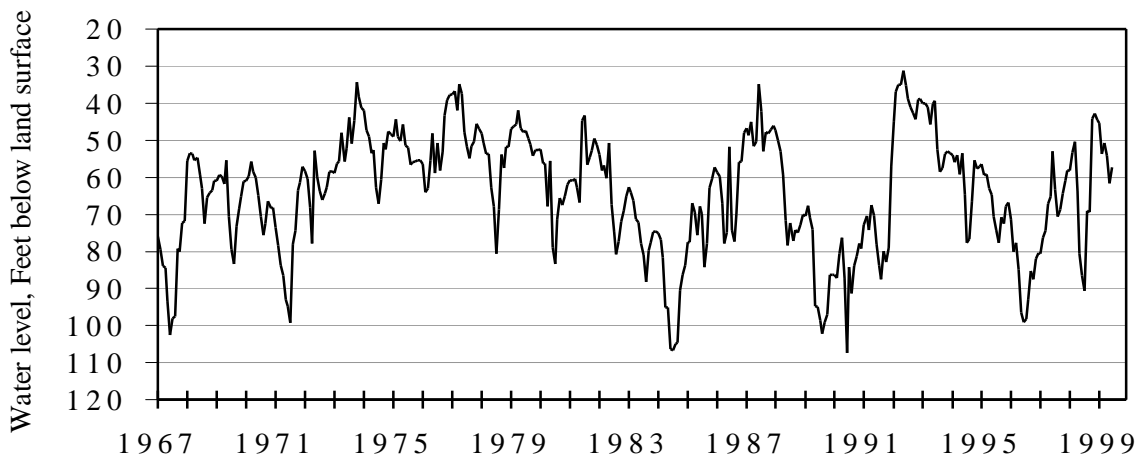
The June water-level measurement in this Bolson Deposits aquifer well, elevation 3882 feet above sea level, was 282.83 feet below land surface. This was 0.17 of a foot above last month's measurement, 1.34 feet below last year's measurement, and 50.93 feet below the initial measurement recorded in 1964.

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



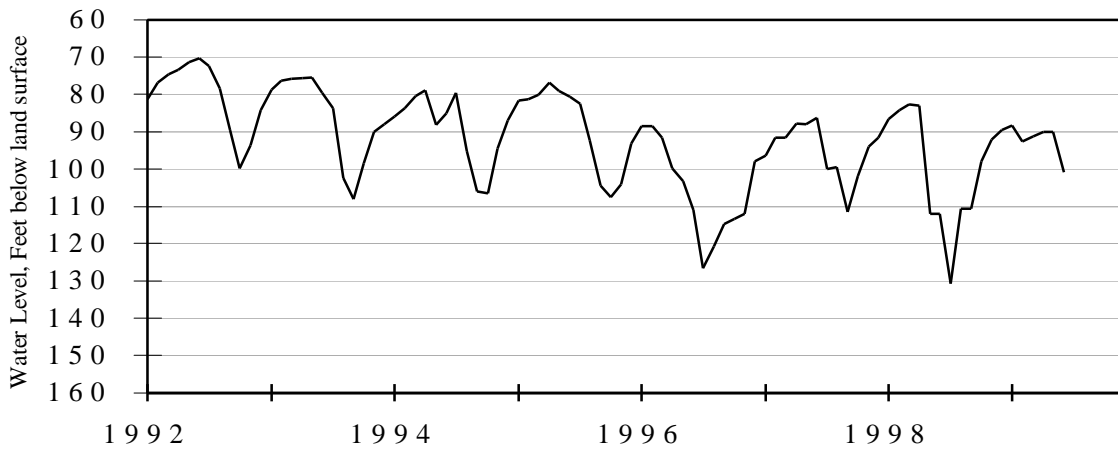
The June water-level measurement in this Evangeline aquifer well, elevation 66 feet above sea level, was 248.93 feet below land surface. This was 1.63 feet below last month's measurement, 6.59 feet above last year's measurement, and 118.70 feet below the initial measurement recorded in 1947.

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



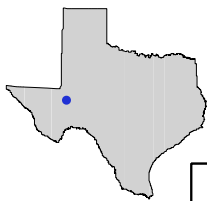
The June water-level measurement in this Edwards aquifer well, elevation 731 feet above sea level, was 57.20 feet below land surface. This was 4.30 feet above last month's measurement, 29.20 feet above last year's measurement, and 2.42 feet above the initial measurement recorded in 1962.

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



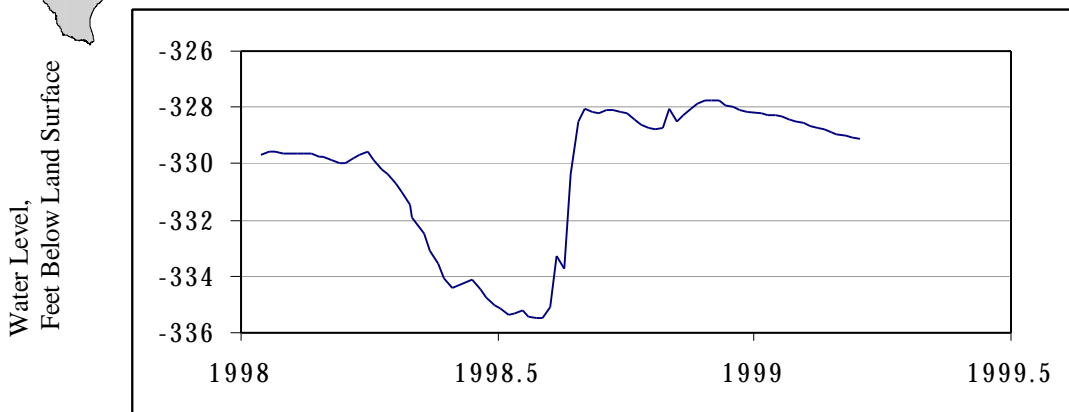
The June water-level measurement in this Carrizo aquifer well, elevation 446 feet above sea level, was 100.82 feet below land surface. This was 10.66 feet below last month's measurement, 11.19 feet above last year's measurement, and 19.57 feet below the initial measurement recorded in 1965.

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. 54-23-102
Ozona, Crockett County**



This 392-foot abandoned well, elevation 2410 feet above sea level, was completed in the Edwards-Trinity (Plateau) aquifer. The quick rebound that water levels experience after their decline in the dryer summer months has prompted Ozona water officials to suspect that the well was drilled into a localized, highly cavernous portion of the aquifer.