

Texas Water Development Board



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

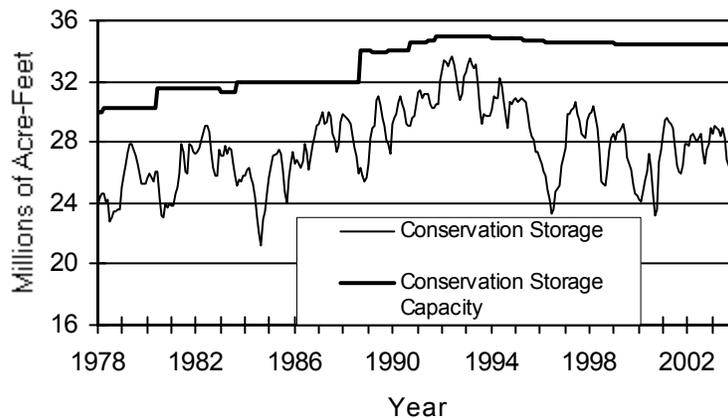
RESERVOIR STORAGE

December 2003

Near the end of December, the 77 reservoirs monitored for this report held 26.44 million acre-feet in conservation storage, or 76.7 percent of the conservation storage capacity of the state's major reservoirs. Statewide total storage is below normal for this time of year. Storage decreased during the month by 102,170 acre-feet (-0.3% of conservation storage capacity). Compared to the previous year, storage is less, down 2.47 million acre-feet (-7.2%).

Storage in the Upper Coast Region is near capacity (96%), while the High Plains (24%) and Trans-Pecos (18%) Regions remained lower than one-third. Storage is at 100% in 4 reservoirs. Compared to this time last year, the Edwards Plateau had the largest increase in storage (+8.6%), while the North Central and South Central regions had the steepest decline (-12.2%).

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.

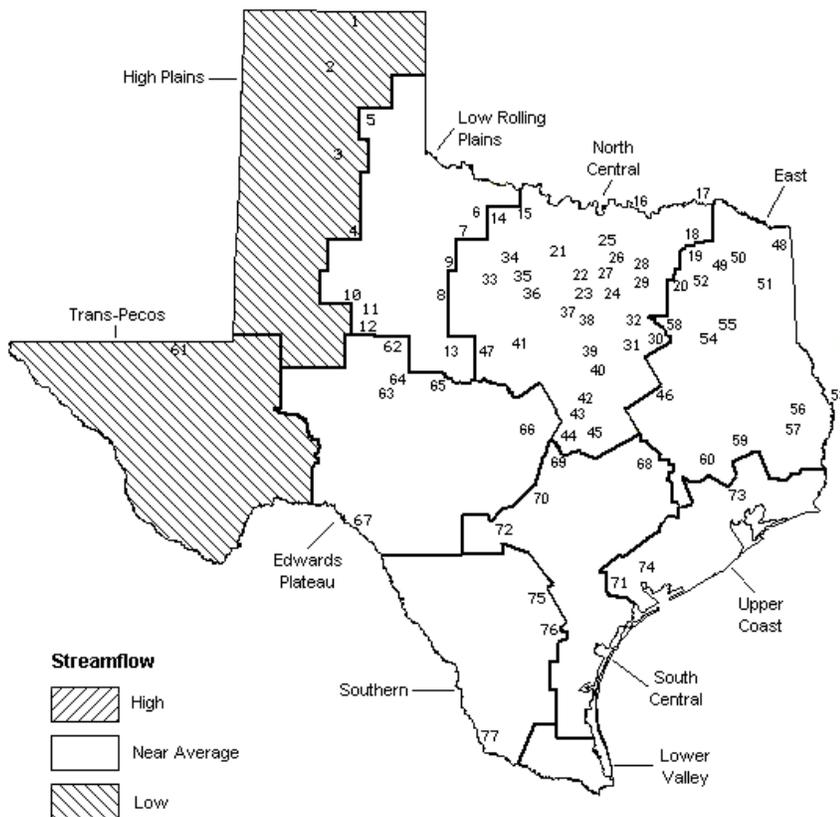
STREAMFLOW

Of 29 reporting index stations in December, computed 31-day mean flows were high (5% - 30% exceedance) at 4 stations, near normal (30% - 70% exceedance) at 16 stations, low (70% - 95% exceedance) at 7 stations, and very low (>95%) at 2 stations. In comparison to November, flows increased at 9 index stations and decreased at 20.

On a regional basis, flows in December were low in the Trans-Pecos and High Plains Regions, and near normal everywhere else.

DECEMBER 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	Conservation	Change since		Change since		
		Storage Capacity (acre-feet)	Storage Late Dec. 2003 (acre-feet) (%)	Late November 2003 (acre-feet) (%)	Late December 2002 (acre-feet) (%)			
HIGH PLAINS								
Palo Duro Reservoir	1	60,900	2,800	5	-170	0	-720	-1
Lake Meredith (Texas)	2	500,000	137,710	28	-4,170	-1	-59,870	-12
Lake Meredith (Texas and Oklahoma)	(2)	779,560	137,710	18	-4,170	-1	-59,870	-8
MacKenzie Reservoir	3	46,250	5,790	13	-220	0	-2,260	-5
White River Lake	4	31,850	5,410	17	-260	-1	-680	-2
TOTAL		639,000	151,710	24	-4,820	-1	-63,530	-10
LOW ROLLING PLAINS								
Greenbelt Reservoir	5	58,200	23,660	41	-60	0	250	0
Lake Kemp	6	319,600	166,980	52	-3,830	-1	-74,140	-23
Miller's Creek Reservoir	7	27,890	11,810	42	-430	-2	-3,480	-12
Fort Phantom Hill Reservoir	8	70,030	28,920	41	-2,180	-3	-15,080	-22
Lake Stamford	9	52,700	31,290	59	-1,500	-3	-9,100	-17
Lake J. B. Thomas	10	202,300	20,900	10	-850	0	-140	0
Lake Colorado City	11	30,800	20,210	66	-410	-1	3,560	12
Champion Creek Reservoir	12	41,600	3,340	8	-110	0	1,050	3
Hords Creek Lake	13	8,600	2,410	28	-110	-1	-80	-1
TOTAL		811,720	309,520	38	-9,480	-1	-97,160	-12
NORTH CENTRAL								
Lake Kickapoo	14	106,000	59,680	56	-2,050	-2	-22,430	-21
Lake Arrowhead	15	262,100	117,890	45	-3,480	-1	-36,360	-14
Lake Texoma	16	2,722,300	2,166,280	80	-59,540	-2	-501,360	-18
Pat Mayse Lake	17	124,500	103,240	83	-1,760	-1	-21,260	-17
Cooper Lake	18	273,000	213,020	78	-11,320	-4	-59,980	-22
Lake Sulphur Springs	19	17,710	15,600	88	-100	-1	-1,930	-11
Lake Tawakoni	20	936,200	782,100	84	-5,500	-1	-125,400	-13
Bridgeport Reservoir	21	374,830	226,000	60	-9,300	-2	-53,900	-14
Eagle Mountain Reservoir	22	178,380	138,800	78	1,200	1	-7,200	-4
Benbrook Lake	23	88,200	74,740	85	2,900	3	-7,620	-9
Joe Pool Lake	24	175,800	174,170	99	-1,620	-1	-1,630	-1
Ray Roberts Lake	25	798,760	722,250	90	-8,110	-1	-76,510	-10
Lewisville Lake	26	555,000	504,480	91	-9,510	-2	-50,520	-9
Grapevine Lake	27	187,700	149,240	80	-7,320	-4	-23,950	-13
Lavon Lake	28	443,800	331,070	75	-4,970	-1	-74,250	-17
Lake Ray Hubbard	29	413,420	334,600	81	-12,200	-3	-78,820	-19
Richland-Chambers Creek Lake	30	1,103,820	1,013,000	92	-19,000	-2	-90,820	-8
Navarro Mills Lake	31	55,810	48,820	87	-680	-1	-6,990	-13
Bardwell Lake	32	53,580	43,050	80	-480	-1	-6,110	-11
Hubbard Creek Reservoir	33	317,800	121,240	38	-2,550	-1	-30,560	-10
Lake Graham	34	45,000	22,090	49	-640	-1	-7,740	-17
Possum Kingdom Lake	35	551,820	416,000	75	-11,600	-2	-68,400	-12
Lake Palo Pinto	36	27,650	13,030	47	-690	-2	-9,890	-36
Lake Granbury	37	135,680	132,100	97	-600	0	-1,000	-1
Lake Pat Cleburne	38	25,300	19,910	79	-370	-1	-870	-3
Whitney Lake	39	622,800	436,340	70	-6,300	-1	-26,580	-4
Waco Lake	40	144,500	144,500	100	0	0	0	0
Proctor Lake	41	55,590	47,960	86	-1,490	-3	-7,630	-14
Belton Lake	42	434,500	430,400	99	-2,580	-1	-4,100	-1
Stillhouse Hollow Lake	43	226,060	218,560	97	-1,120	0	-7,500	-3
Lake Georgetown	44	37,010	21,570	58	-1,870	-5	-15,440	-42
Granger Lake	45	54,280	46,160	85	120	0	-8,120	-15
Lake Limestone	46	215,750	200,700	93	-500	0	-15,050	-7
Lake Brownwood	47	143,400	126,990	89	-2,110	-1	-5,900	-4
TOTAL		11,908,050	9,615,580	81	-185,140	-2	-1,455,820	-12

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of Lake or Reservoir	No. on Map	Conservation Storage Capacity (acre-feet)	Conservation Storage Late Dec. 2003 (acre-feet) (%)	Change since Late November 2003 (acre-feet) (%)	Change since Late December 2002 (acre-feet) (%)
EAST					
Wright Patman Lake	48	142,700	142,700 100	0 0	0 0
Lake Cypress Springs	49	66,800	63,470 95	770 1	-3,330 -5
Lake Bob Sandlin	50	202,300	179,500 89	200 0	-22,800 -11
Lake O' the Pines	51	252,000	222,940 88	480 0	-10,130 -4
Lake Fork Reservoir	52	635,200	573,400 90	-2,000 0	-61,800 -10
Toledo Bend Reservoir	53	4,472,900	3,758,000 84	92,000 2	-391,000 -9
Lake Palestine	54	411,300	380,680 93	10,370 3	-23,340 -6
Lake Tyler	55	73,700	67,780 92	0 0	-5,920 -8
Sam Rayburn Reservoir	56	2,876,300	2,396,210 83	48,570 2	-480,090 -17
B. A. Steinhagen Lake	57	94,200	81,530 87	-2,990 -3	-2,990 -3
Cedar Creek Reservoir	58	637,050	550,700 86	-8,000 -1	-86,350 -14
Lake Livingston	59	1,750,000	1,750,000 100	0 0	0 0
Lake Conroe	60	429,900	417,800 97	800 0	-3,500 -1
TOTAL		12,044,350	10,584,710 88	140,200 1	-1,091,250 -9
TRANS-PECOS					
Red Bluff Reservoir	61	307,000	55,400 18	260 0	-1,090 0
TOTAL		307,000	55,400 18	260 0	-1,090 0
EDWARDS PLATEAU					
E. V. Spence Reservoir	62	488,760	45,440 9	-2,550 -1	2,900 1
Twin Buttes Reservoir	63	177,800	4,350 2	-70 0	-880 0
O.C. Fisher Lake	64	119,200	2,970 2	-200 0	-460 0
O. H. Ivie Reservoir	65	554,340	195,760 35	-5,000 -1	-18,340 -3
Lake Buchanan	66	896,980	831,390 93	-4,300 0	-52,480 -6
Amistad Reservoir (Texas)	67	1,771,030	1,200,000 68	16,000 1	415,000 23
Amistad Reservoir (Texas and Mexico)	(67)	3,151,300	1,526,000 48	24,000 1	493,000 16
TOTAL		4,008,110	2,279,910 57	3,880 0	345,740 9
SOUTH CENTRAL					
Somerville Lake	68	155,060	151,690 98	-2,020 -1	-3,370 -2
Lake Travis	69	1,144,100	942,800 82	-17,050 -1	-201,300 -18
Canyon Lake	70	385,600	378,030 98	-80 0	-7,210 -2
Coletto Creek Reservoir	71	35,060	31,740 91	0 0	-240 -1
Medina Lake	72	254,000	224,900 89	-6,800 -3	-29,100 -11
TOTAL		1,973,820	1,729,160 88	-25,950 -1	-241,220 -12
UPPER COAST					
Lake Houston	73	128,860	128,860 100	0 0	0 0
Lake Texana	74	157,900	146,320 93	-9,020 -6	-11,580 -7
TOTAL		286,760	275,180 96	-9,020 -3	-11,580 -4

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

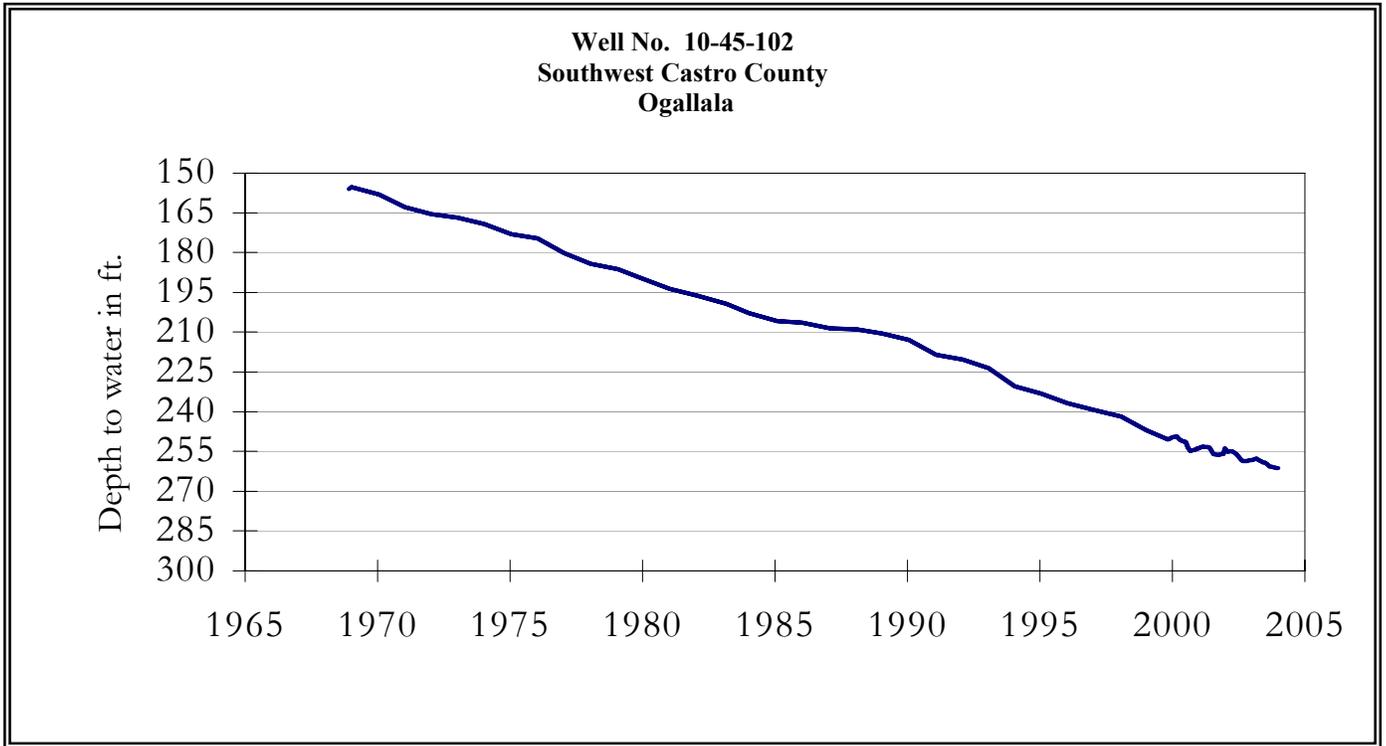
Name of Lake or Reservoir	No. on Map	Conservation Storage Capacity (acre-feet)	Conservation Storage Late Dec. 2003 (acre-feet) (%)	Change since Late November 2003 (acre-feet) (%)	Change since Late December 2002 (acre-feet) (%)
SOUTHERN					
Choke Canyon Reservoir	75	695,260	680,000 98	-6,000 -1	-14,000 -2
Lake Corpus Christi	76	241,240	239,900 99	-1,100 0	-1,340 -1
Falcon Reservoir (Texas)	77	1,555,120	516,000 33	-5,000 0	161,000 10
Falcon Reservoir (Texas and Mexico)	(77)	2,653,290	1,148,000 43	11,000 0	435,000 16
TOTAL		2,491,620	1,435,900 58	-12,100 0	145,660 6
STATE TOTAL		34,470,430	26,437,070 77	-102,170 0	-2,470,250 -7

Note:

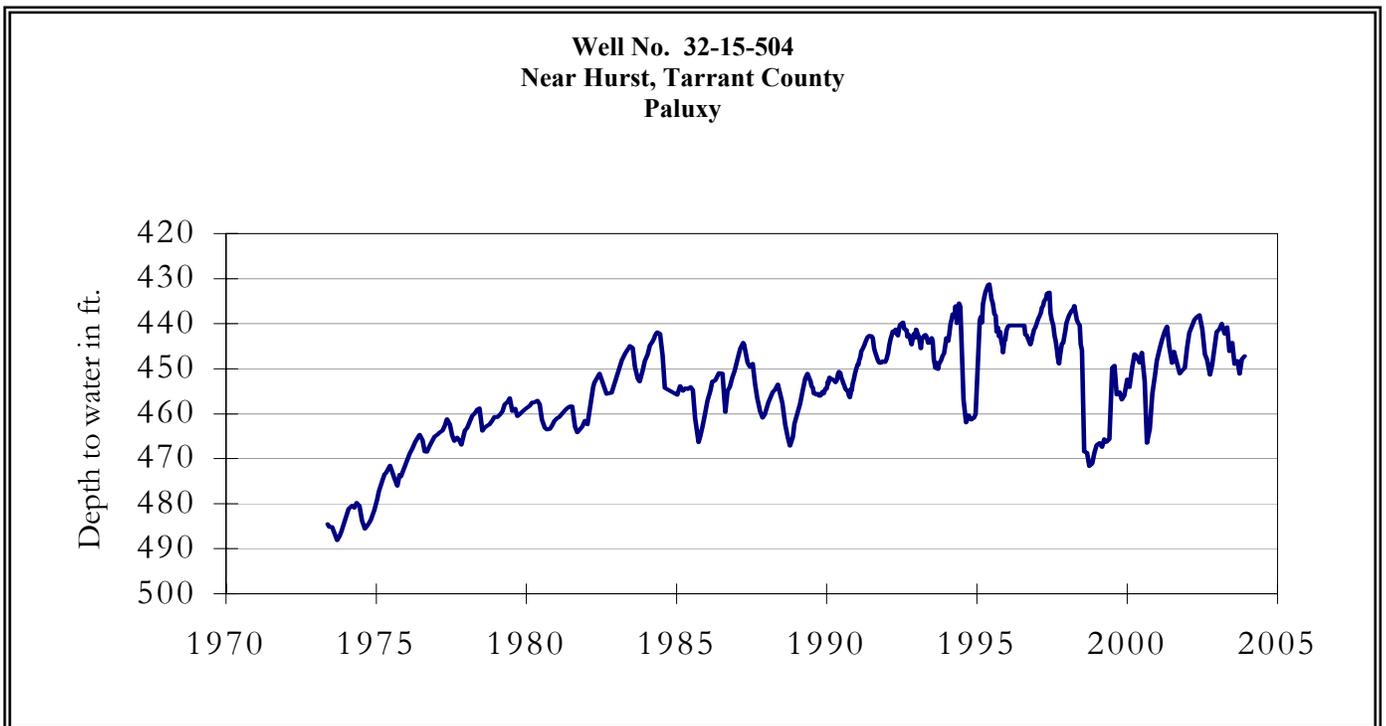
Conservation storage capacity is the space available to store water above the level of invert of lowest outlet works and below the level of top of conservation pool or normal maximum operating level. Conservation storage refers to the volume of water held within the conservation storage space. Not included 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 % 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). Preliminary figures are shown for the Texas' share of conservation storage in all reservoirs.

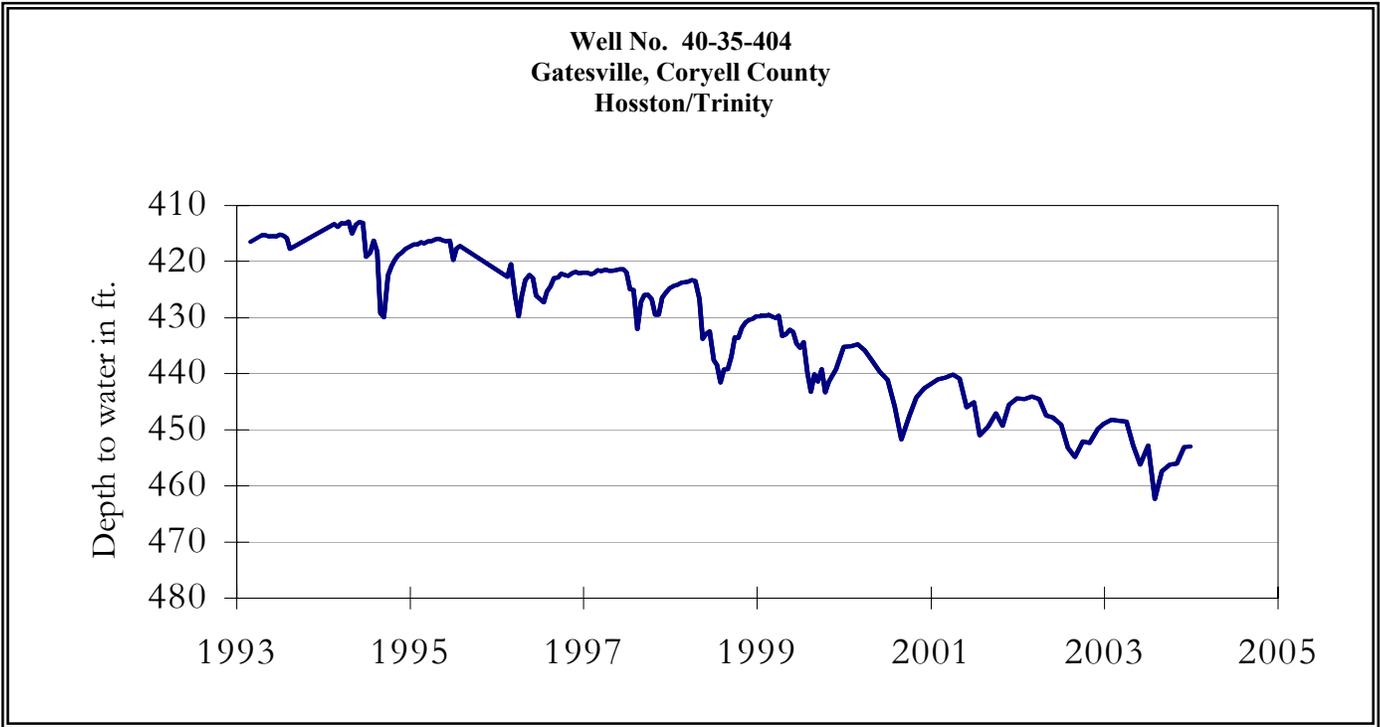
DECEMBER GROUND WATER LEVELS IN OBSERVATION WELLS



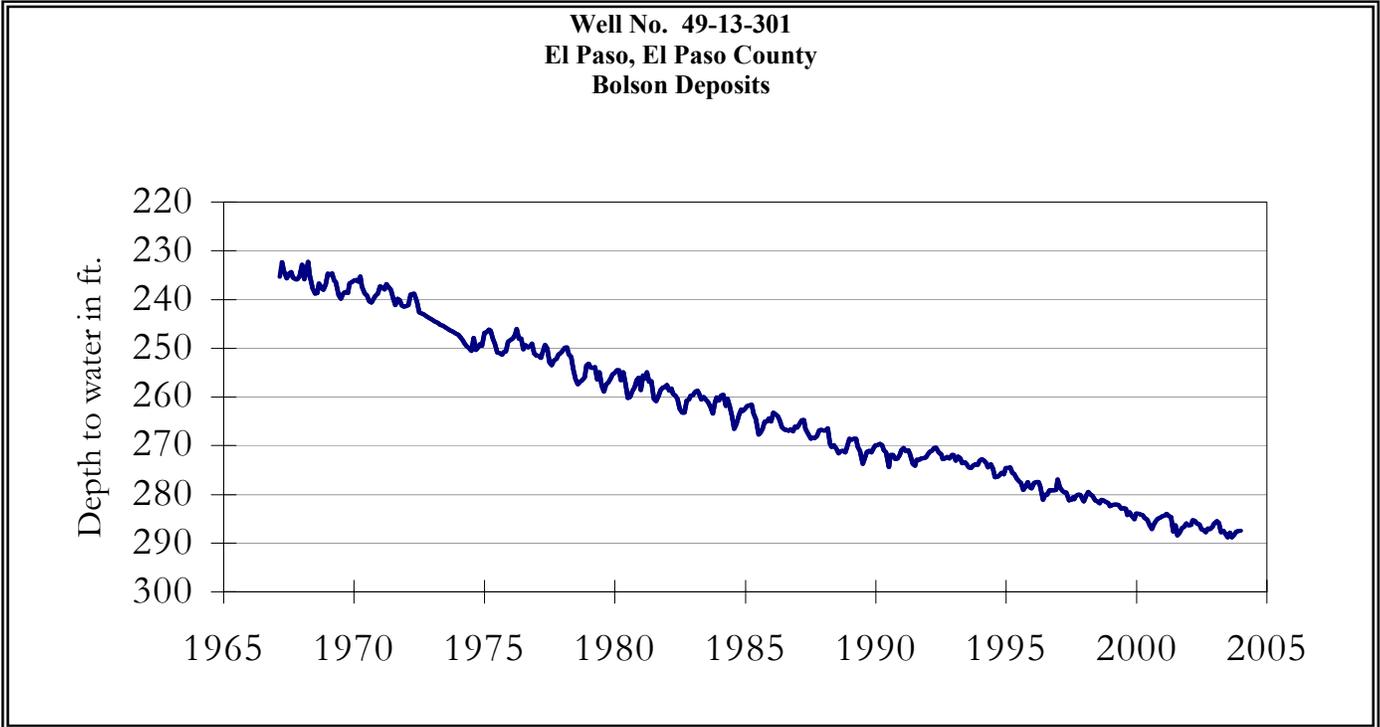
The late December water-level measurement in this Ogallala aquifer well, elevation 3,816 feet above sea level, was 261.17 feet below land surface. This measurement was 0.03 feet above last month's measurement, 2.91 feet below last year's measurement, and 105.17 feet below the initial measurement recorded in 1968.



The late December water-level measurement in this Paluxy Formation Trinity aquifer well, elevation 535 feet above sea level, was 442.30 feet below land surface. This measurement was 4.9 feet above last month's measurement, 0.44 feet below last year's measurement, and 48.91 feet below the initial measurement recorded in 1953.

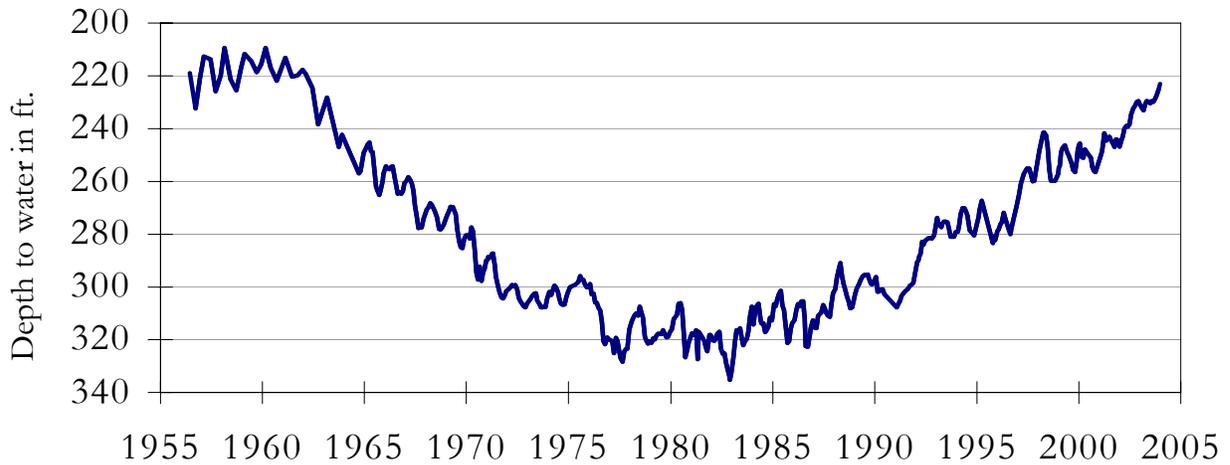


The late December water-level measurement in this Hosston Formation Trinity aquifer well, elevation 823 feet above sea level, was 453.00 feet below land surface. This measurement was 0.08 feet above last month's measurement, 4.16 feet below last year's measurement, and 161.42 feet below the initial measurement recorded in 1955.



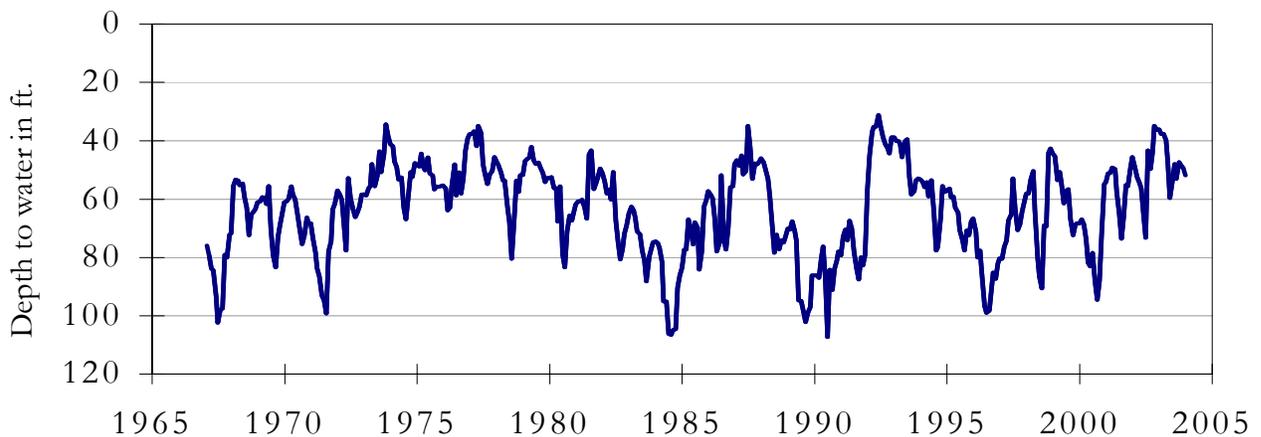
The late December water-level measurement in this Hueco Bolson aquifer well, elevation 3,882 feet above sea level, was 287.40 feet below land surface. This was 0.20 feet above last month's measurement, 1.36 feet below last year's measurement, and 55.50 feet below the initial measurement recorded in 1964.

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



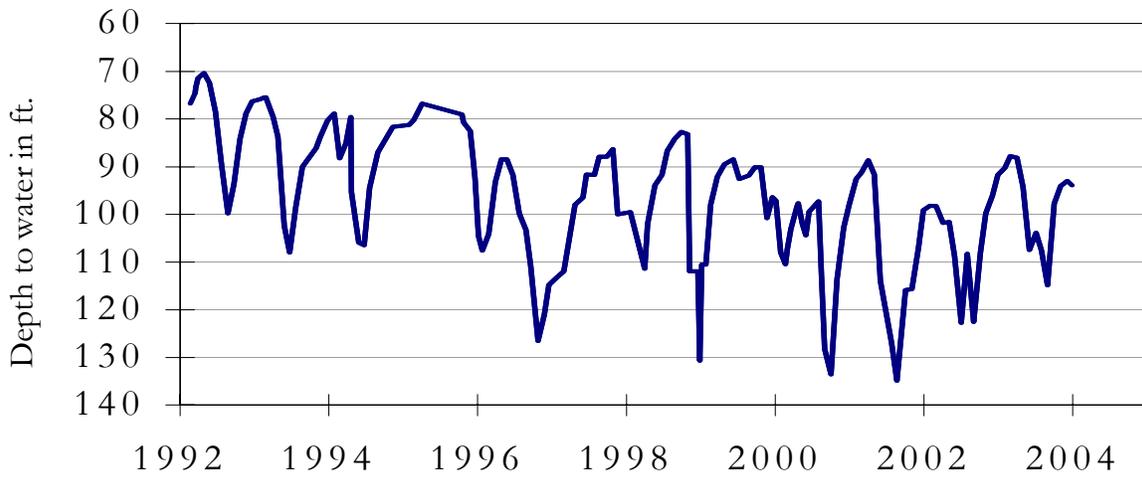
The late December water-level measurement in this Evangeline Formation Gulf Coast aquifer well, elevation 66 feet above sea level, was 223.10 feet below land surface. This was 2.20 feet above last month's measurement, 7.61 feet above last year's measurement, and 119.87 feet below the initial measurement recorded in 1947.

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



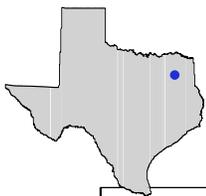
The late December water-level measurement in this Edwards (BFZ) aquifer well, elevation 731 feet above sea level, was 52.0 feet below land surface. This was 2.60 feet below last month's measurement, 13.09 feet below last year's measurement, and 7.62 feet above the initial measurement recorded in 1962.

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



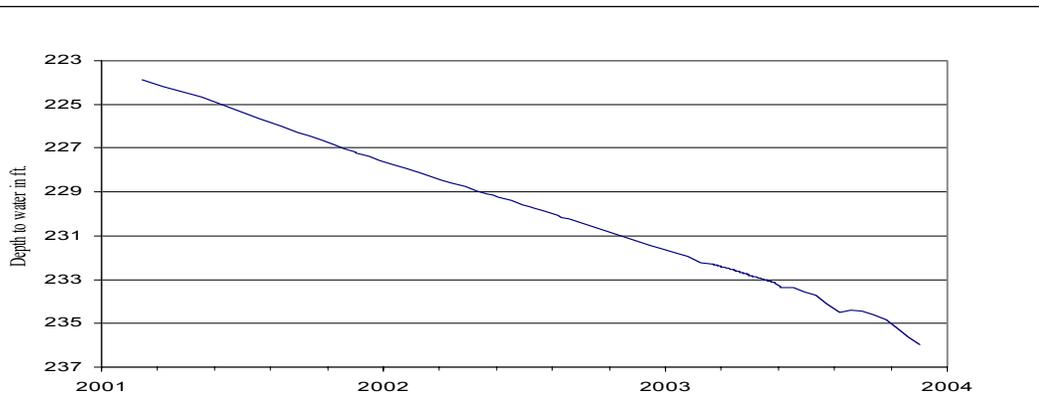
The late December water-level measurement in this Carrizo aquifer well, elevation 446 feet above sea level, was 94.00 feet below land surface. This measurement was 0.96 feet below last month's measurement, 3.00 feet above last year's measurement, and 12.75 feet below the initial measurement recorded 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. 18-52-201
Collin County**



This 371 foot deep observation well, located in Collin County at an elevation of 650 feet above sea level, was completed in the Woodbine aquifer. This hydrograph reflects regional water level decline in the past three years due to greater pumpage for municipal supply.

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