

# Texas Water Development Board



# WATER Conditions

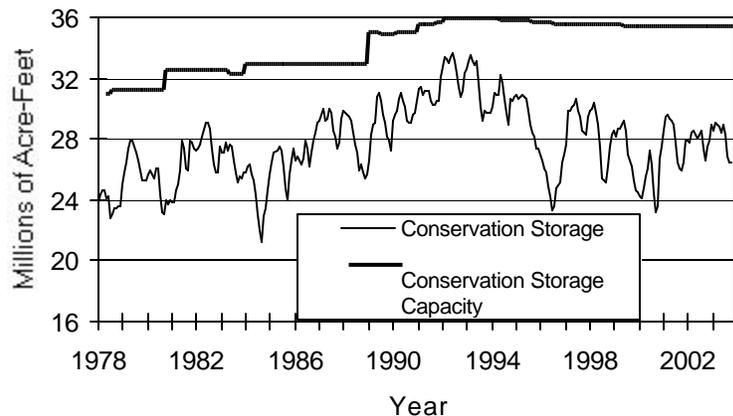
## RESERVOIR STORAGE

*October 2003*

Near the end of October, the 77 reservoirs monitored for this report held 26.47 million acre-feet in conservation storage, or 76.8 percent of the conservation storage capacity of the state's major reservoirs. Statewide total storage is below normal for this time of year. Storage increased during the month by 22,770 acre-feet (0.07% of conservation storage capacity). Compared to the previous year, storage is slightly less, down 0.97 million acre-feet (-2.8%).

Storage in the Upper Coast Region is near capacity (99%), while the High Plains (26%) and Trans-Pecos (16%) Regions remained lower than one-third. Storage is at 100% in 7 reservoirs, up 3 from last month. Compared to this time last year, the Edwards Plateau had the largest increase in storage (+6%), while the Low Rolling Plains, North Central, and East regions had the steepest decline (-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.

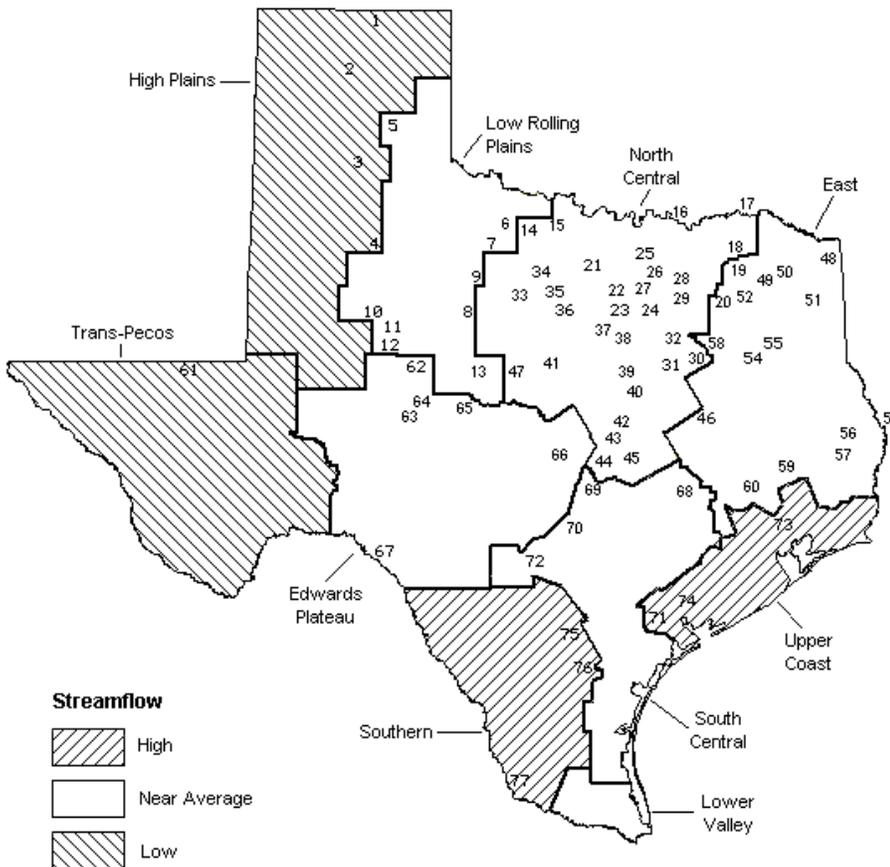
# STREAMFLOW

Of 29 reporting index stations in October, computed 31-day mean flows were very high (<5% exceedance) at 2 stations, high (5% - 30% exceedance) at 9 stations, near normal (30% - 70% exceedance) at 8 stations, low (70% - 95% exceedance) at 8 stations, and very low (>95% exceedance) at 2 stations. In comparison to September, flows increased at 12 index stations and decreased at 17.

On a regional basis, flows in October were high in the Southern and Upper Coast Regions, low in the Trans-Pecos and High Plains Regions, and near normal everywhere else.

## OCTOBER 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 Oct. 2003 (acre-feet) (%)	Late September 2003 (acre-feet) (%)	(%)	Late October 2002 (acre-feet) (%)	(%)	
<b>HIGH PLAINS</b>								
Palo Duro Reservoir	1	60,900	3,140	5	-200	0	-700	-1
Lake Meredith (Texas)	2	500,000	148,020	30	-4,360	-1	-54,960	-11
Lake Meredith (Texas and Oklahoma)	(2)	779,560	148,020	19	-4,360	-1	-54,960	-7
MacKenzie Reservoir	3	46,250	6,180	13	-190	0	-2,100	-5
White River Lake	4	31,850	5,960	19	-360	-1	60	0
TOTAL		639,000	163,300	26	-5,110	-1	-57,700	-9
<b>LOW ROLLING PLAINS</b>								
Greenbelt Reservoir	5	58,200	23,990	41	-570	-1	800	1
Lake Kemp	6	319,600	174,430	55	-13,660	-4	-49,570	-16
Miller's Creek Reservoir	7	27,890	12,600	45	-630	-2	-3,030	-11
Fort Phantom Hill Reservoir	8	70,030	32,620	47	-1,590	-2	-14,130	-20
Lake Stamford	9	52,700	33,730	64	-1,630	-3	-7,260	-14
Lake J. B. Thomas	10	202,300	21,890	11	-170	0	560	0
Lake Colorado City	11	30,800	21,070	68	-320	-1	4,120	13
Champion Creek Reservoir	12	41,600	3,550	9	320	1	1,230	3
Hords Creek Lake	13	8,600	2,610	30	750	9	-20	0
TOTAL		811,720	326,490	40	-17,500	-2	-67,300	-8
<b>NORTH CENTRAL</b>								
Lake Kickapoo	14	106,000	64,170	61	-3,880	-4	-19,110	-18
Lake Arrowhead	15	262,100	123,890	47	-5,110	-2	-30,110	-11
Lake Texoma	16	2,722,300	2,274,000	84	-72,720	-3	-266,700	-10
Pat Mayse Lake	17	124,500	105,830	85	-3,210	-3	-16,280	-13
Cooper Lake	18	273,000	239,570	88	-15,930	-6	-33,430	-12
Lake Sulphur Springs	19	17,710	15,930	90	-160	-1	-1,780	-10
Lake Tawakoni	20	936,200	796,300	85	-16,000	-2	-113,600	-12
Bridgeport Reservoir	21	374,830	243,600	65	-15,000	-4	-40,300	-11
Eagle Mountain Reservoir	22	178,380	137,700	77	-2,400	-1	-9,200	-5
Benbrook Lake	23	88,200	72,140	82	1,170	1	-3,130	-4
Joe Pool Lake	24	175,800	175,800	100	0	0	0	0
Ray Roberts Lake	25	798,760	737,290	92	-15,510	-2	-49,360	-6
Lewisville Lake	26	555,000	515,750	93	-28,430	-5	-39,250	-7
Grapevine Lake	27	187,700	161,620	86	-6,840	-4	-7,900	-4
Lavon Lake	28	443,800	340,690	77	-19,780	-4	-51,870	-12
Lake Ray Hubbard	29	413,420	348,700	84	-19,200	-5	-61,400	-15
Richland-Chambers Creek Lake	30	1,103,820	1,053,000	95	-11,000	-1	5,000	0
Navarro Mills Lake	31	55,810	50,470	90	1,240	2	-2,770	-5
Bardwell Lake	32	53,580	44,400	83	1,320	2	1,900	4
Hubbard Creek Reservoir	33	317,800	125,870	40	-4,030	-1	-26,930	-8
Lake Graham	34	45,000	23,450	52	-1,160	-3	-7,010	-16
Possum Kingdom Lake	35	551,820	446,200	81	-10,200	-2	-35,400	-6
Lake Palo Pinto	36	27,650	14,710	53	-1,390	-5	-9,280	-34
Lake Granbury	37	135,680	132,400	98	-500	0	-300	0
Lake Pat Cleburne	38	25,300	20,880	83	-450	-2	-40	0
Whitney Lake	39	622,800	452,120	73	4,590	1	-56,140	-9
Waco Lake	40	144,500	144,500	100	5,120	4	0	0
Proctor Lake	41	55,590	51,330	92	7,480	13	-4,260	-8
Belton Lake	42	434,500	434,210	100	19,080	4	4,790	1
Stillhouse Hollow Lake	43	226,060	220,880	98	260	0	-5,180	-2
Lake Georgetown	44	37,010	25,240	68	-1,910	-5	-11,770	-32
Granger Lake	45	54,280	46,610	86	-870	-2	-7,670	-14
Lake Limestone	46	215,750	203,900	95	7,000	3	-10,700	-5
Lake Brownwood	47	143,400	131,300	92	8,570	6	-1,520	-1
TOTAL		11,908,050	9,974,450	84	-199,850	-2	-910,700	-8

## CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of Lake or Reservoir	No. on Map	Conservation Storage Capacity (acre-feet)	Conservation Storage Late Oct. 2003		Change since Late September 2003		Change since Late October 2002	
			(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)	(%)
<b>EAST</b>								
Wright Patman Lake	48	142,700	142,700	100	0	0	0	0
Lake Cypress Springs	49	66,800	62,730	94	-1,140	-2	-4,070	-6
Lake Bob Sandlin	50	202,300	182,300	90	-4,800	-2	-20,000	-10
Lake O' the Pines	51	252,000	227,430	90	-6,510	-3	-15,630	-6
Lake Fork Reservoir	52	635,200	580,200	91	-12,300	-2	-55,000	-9
Toledo Bend Reservoir	53	4,472,900	3,485,000	78	-86,000	-2	-154,000	-3
Lake Palestine	54	411,300	373,440	91	-1,690	0	-1,210	0
Lake Tyler	55	73,700	69,820	95	-1,680	-2	-3,880	-5
Sam Rayburn Reservoir	56	2,876,300	2,309,440	80	-132,900	-5	-14,920	-1
B. A. Steinhagen Lake	57	94,200	87,890	93	6,360	7	-260	0
Cedar Creek Reservoir	58	637,050	570,700	90	-10,500	-2	-47,600	-7
Lake Livingston	59	1,750,000	1,735,000	99	3,000	0	-15,000	-1
Lake Conroe	60	429,900	415,300	97	2,200	1	-3,200	-1
TOTAL		12,044,350	10,241,950	85	-245,960	-2	-334,770	-3
<b>TRANS-PECOS</b>								
Red Bluff Reservoir	61	307,000	50,590	16	130	0	5,660	2
TOTAL		307,000	50,590	16	130	0	5,660	2
<b>EDWARDS PLATEAU</b>								
E. V. Spence Reservoir	62	488,760	50,610	10	-1,380	0	4,930	1
Twin Buttes Reservoir	63	177,800	4,460	3	30	0	-1,540	-1
O.C. Fisher Lake	64	119,200	3,260	3	-60	0	-360	0
O. H. Ivie Reservoir	65	554,340	205,310	37	11,110	2	-14,890	-3
Lake Buchanan	66	896,980	839,990	94	50,870	6	-26,140	-3
Amistad Reservoir (Texas)	67	1,771,030	1,138,000	64	183,000	10	413,000	23
Amistad Reservoir (Texas and Mexico)	(67)	3,151,300	1,467,000	47	233,000	7	517,000	16
TOTAL		4,008,110	2,241,630	56	243,570	6	375,000	9
<b>SOUTH CENTRAL</b>								
Somerville Lake	68	155,060	153,030	99	1,120	1	-2,030	-1
Lake Travis	69	1,144,100	970,700	85	10,850	1	-134,500	-12
Canyon Lake	70	385,600	377,530	98	3,930	1	-8,070	-2
Coletto Creek Reservoir	71	35,060	32,280	92	380	1	980	3
Medina Lake	72	254,000	236,600	93	-2,700	-1	-17,400	-7
TOTAL		1,973,820	1,770,140	90	13,580	1	-161,020	-8
<b>UPPER COAST</b>								
Lake Houston	73	128,860	128,860	100	0	0	0	0
Lake Texana	74	157,900	155,140	98	2,910	2	-2,760	-2
TOTAL		286,760	284,000	99	2,910	1	-2,760	-1

## CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

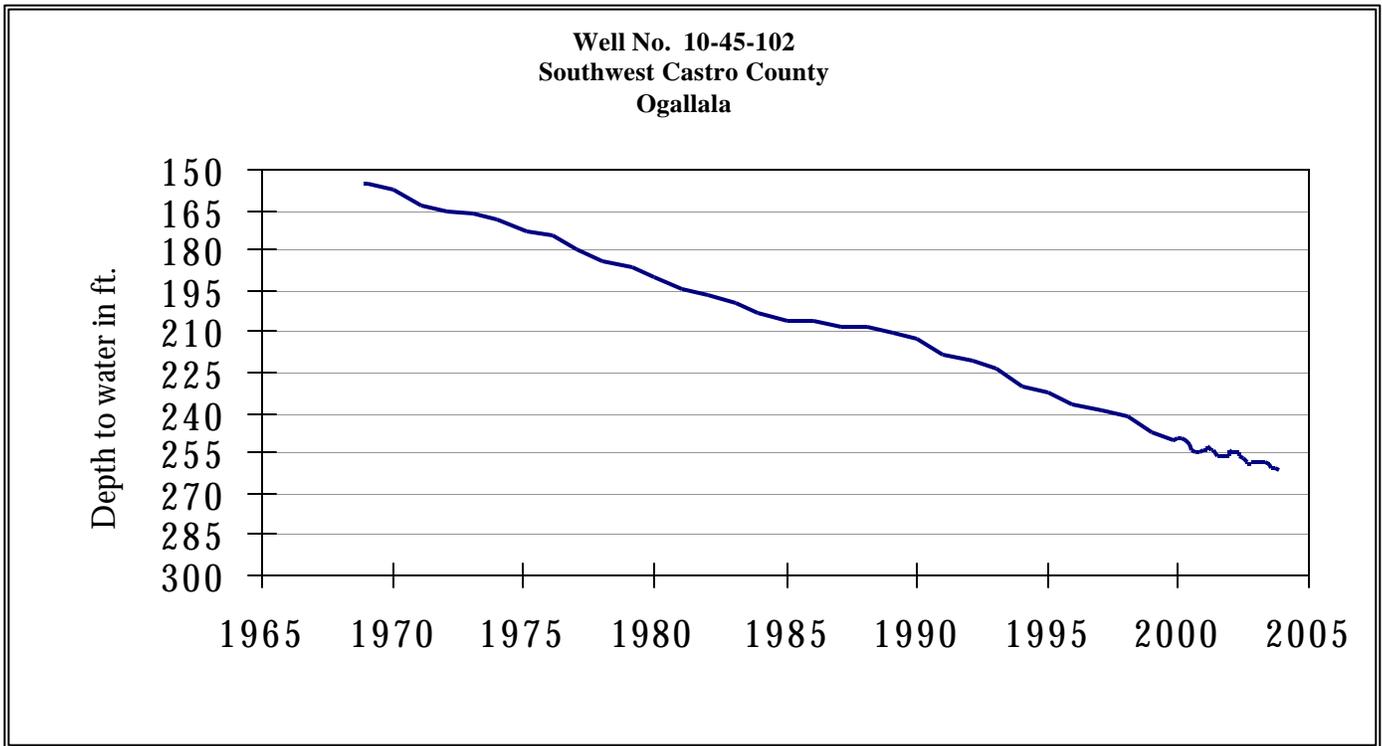
Name of Lake or Reservoir	No. on Map	Conservation	Conservation		Change since		Change since		
		Storage Capacity (acre-feet)	Storage Late Oct. 2003 (acre-feet)	(%)	Late September 2003 (acre-feet)	(%)	Late October 2002 (acre-feet)	(%)	
<b>SOUTHERN</b>									
Choke Canyon Reservoir	75	695,260	692,000	100	2,000	0	-3,260	0	
Lake Corpus Christi	76	241,240	241,240	100	0	0	780	0	
Falcon Reservoir (Texas)	77	1,555,120	486,000	31	229,000	15	188,000	12	
Falcon Reservoir (Texas and Mexico)	(77)	2,653,290	1,080,000	41	495,500	19	420,000	16	
TOTAL		2,491,620	1,419,240	57	231,000	9	185,520	7	
<b>STATE TOTAL</b>		34,470,430	26,471,790	77	22,770	0	-968,070	-3	

**Note:**

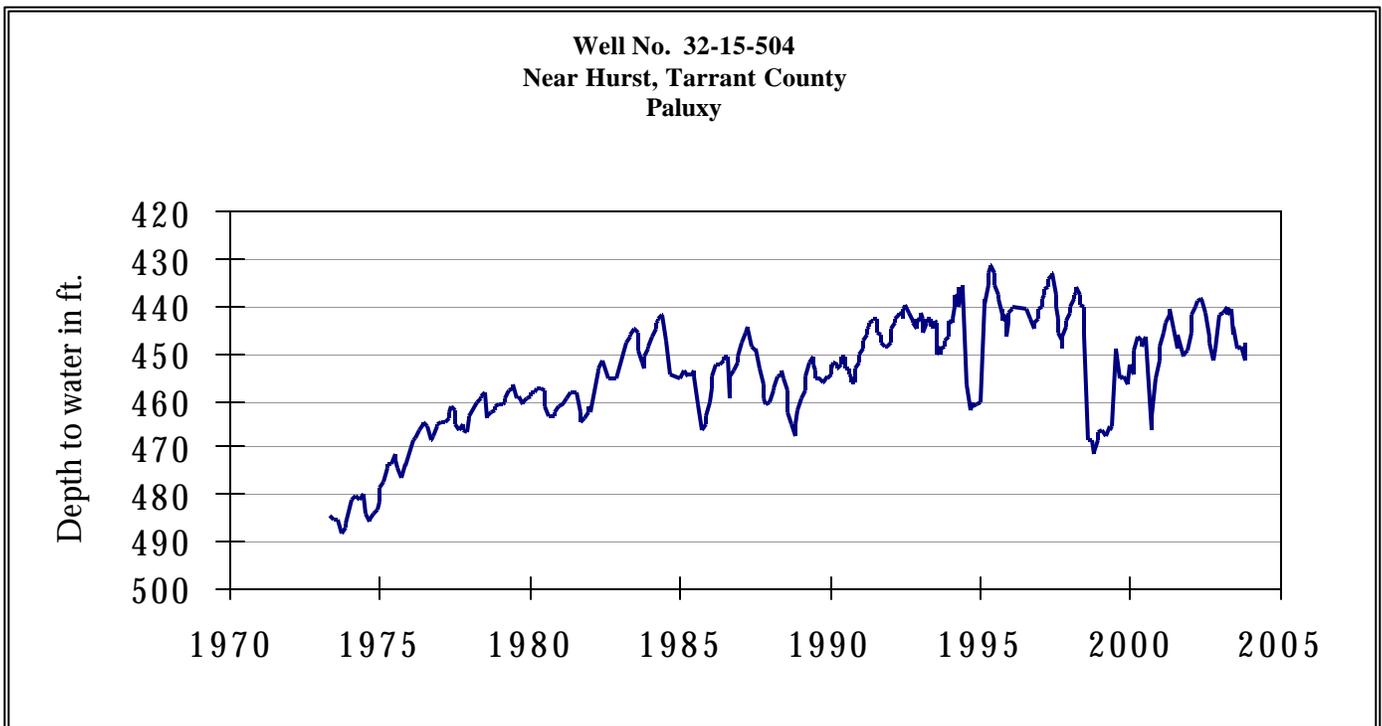
Conservation storage capacity is the space available to store water above the level of invert of lowest outlet works and below the level of top of conservation pool or normal maximum operating level. Conservation storage refers to the volume of water held within the conservation storage space. Not included 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). 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 may be subject to revision on completion of international water accounting. Texas (United States' share) and Mexico and are not included in State total.

# OCTOBER GROUND WATER LEVELS IN OBSERVATION WELLS

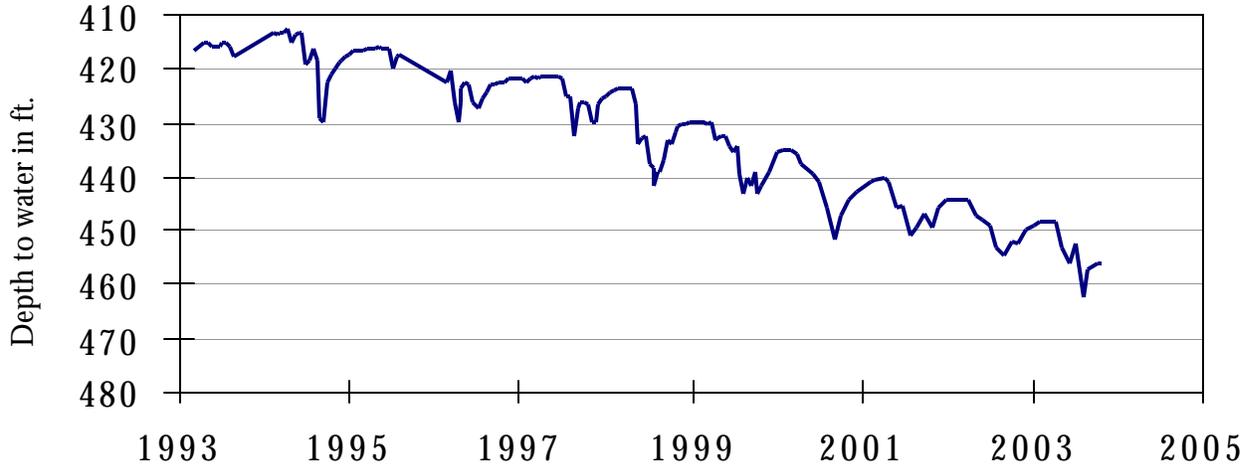


The late October water-level measurement in this Ogallala aquifer well, elevation 3,816 feet above sea level, was 261.00 feet below land surface. This measurement was 0.17 feet below last month's measurement, 2.39 feet below last year's measurement, and 105.00 feet below the initial measurement recorded in 1968.



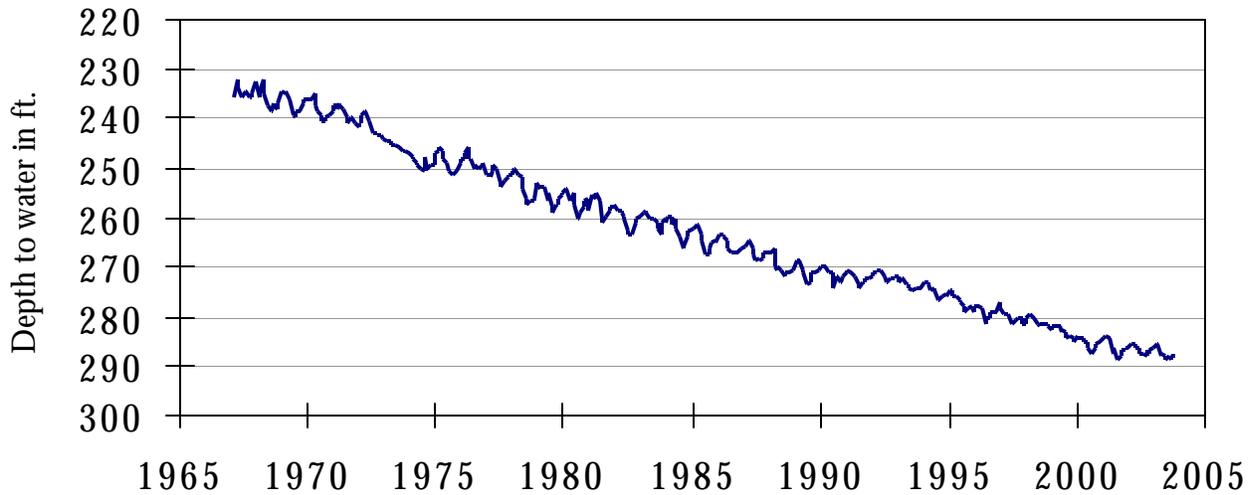
The late October water-level measurement in this Paluxy Formation Trinity aquifer well, elevation 535 feet above sea level, was 447.90 feet below land surface. This measurement was 3.29 feet above last month's measurement, 1.20 feet above last year's measurement, and 54.51 feet below the initial measurement recorded in 1953.

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



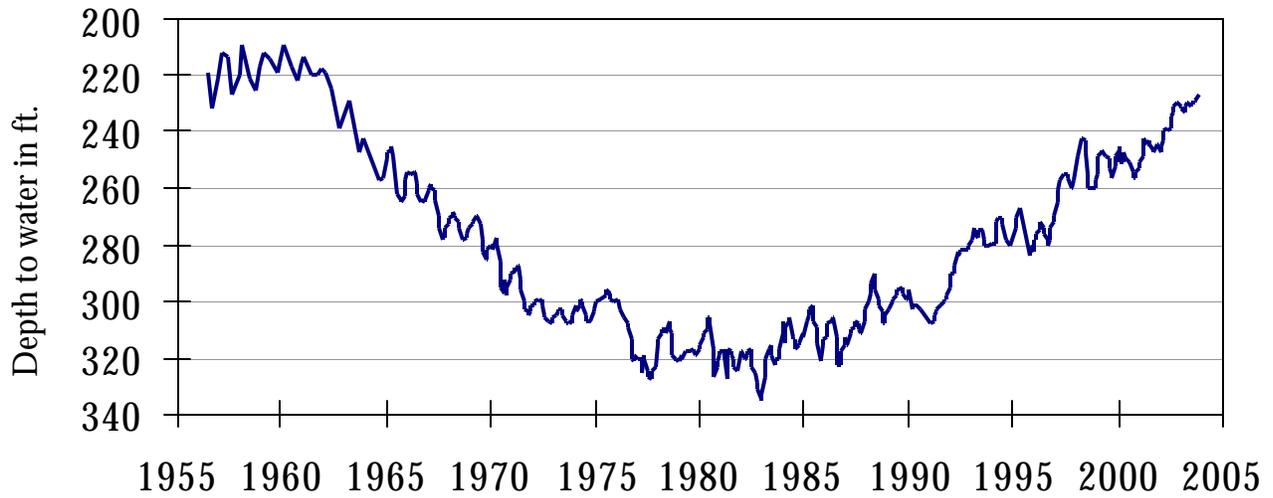
The late October water-level measurement in this Hosston Formation Trinity aquifer well, elevation 823 feet above sea level, was 456.00 feet below land surface. This measurement was 0.21 feet above last month's measurement, 3.67 feet below last year's measurement, and 164.00 feet below the initial measurement recorded in 1955.

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



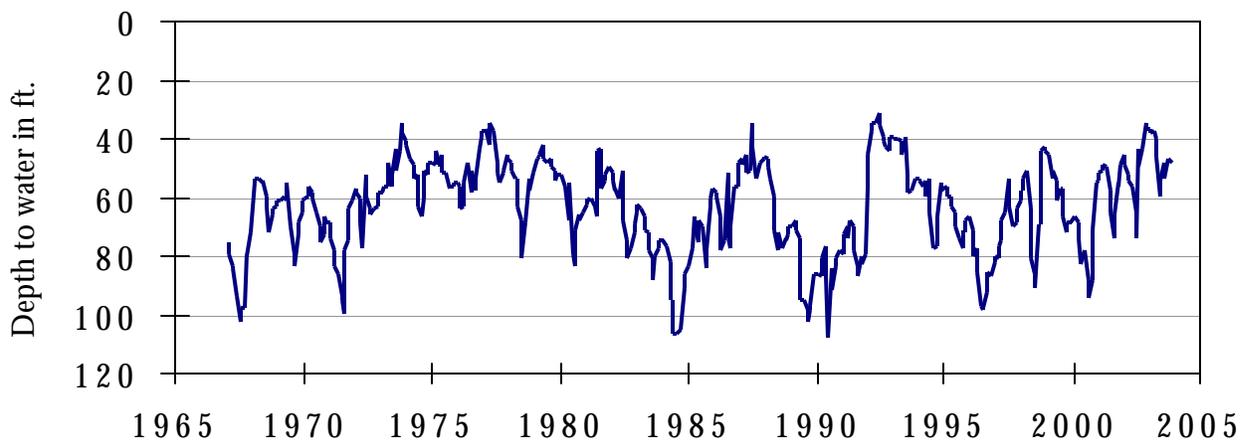
The late October water-level measurement in this Hueco Bolson aquifer well, elevation 3,882 feet above sea level, was 287.70 feet below land surface. This was 0.52 feet above last month's measurement, 0.52 feet below last year's measurement, and 55.80 feet below the initial measurement recorded in 1964.

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



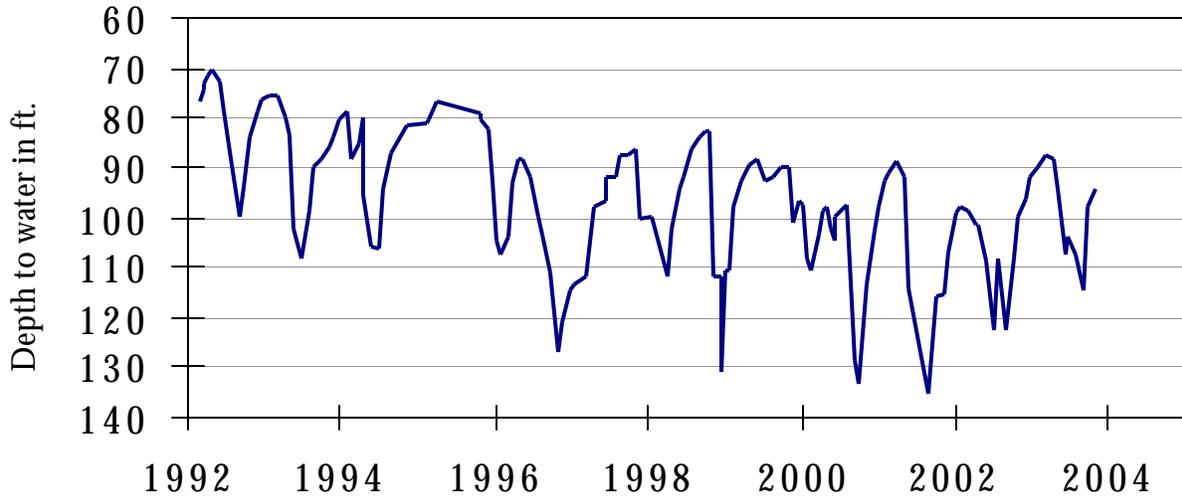
The late October water-level measurement in this Evangeline Formation Gulf Coast aquifer well, elevation 66 feet above sea level, was 227.00 feet below land surface. This was 1.59 feet above last month's measurement, 2.92 feet above last year's measurement, and 123.77 feet below the initial measurement recorded in 1947.

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



The late October water-level measurement in this Edwards (BFZ) aquifer well, elevation 731 feet above sea level, was 48.40 feet below land surface. This was 1.16 feet below last month's measurement, 13.55 feet below last year's measurement, and 11.22 feet above the initial measurement recorded in 1962.

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



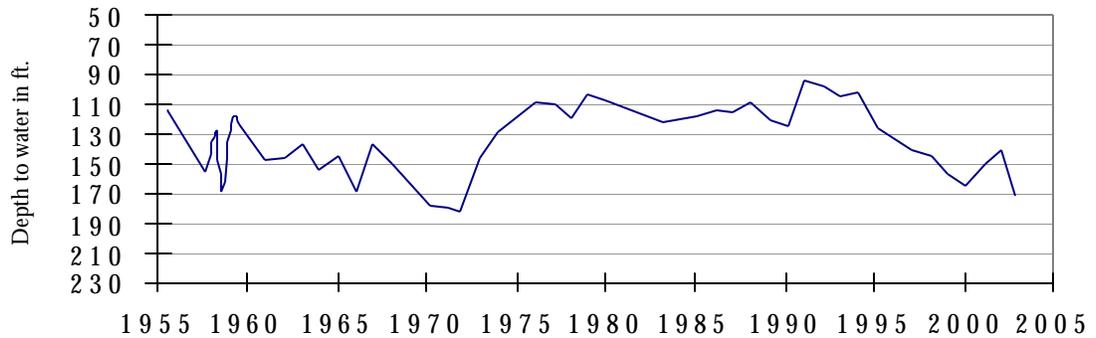
The late October water-level measurement in this Carrizo aquifer well, elevation 446 feet above sea level, was 94.11 feet below land surface. This measurement was 3.63 feet above last month's measurement, 5.65 feet above last year's measurement, and 12.86 feet below the initial measurement recorded in 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. 5243109  
Brewster County**



This 592 ft. observation well, located 3.5 miles west of the city of Alpine at an elevation of 4,612 feet above sea level, was completed in the Igneous Aquifer. Groundwater storage occurs in fissures and fractures within the igneous rocks. The majority of the Igneous Aquifer is for public supply by the cities of Alpine, Marfa and Fort Davis.

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