

# Texas Water Development Board



# WATER Conditions

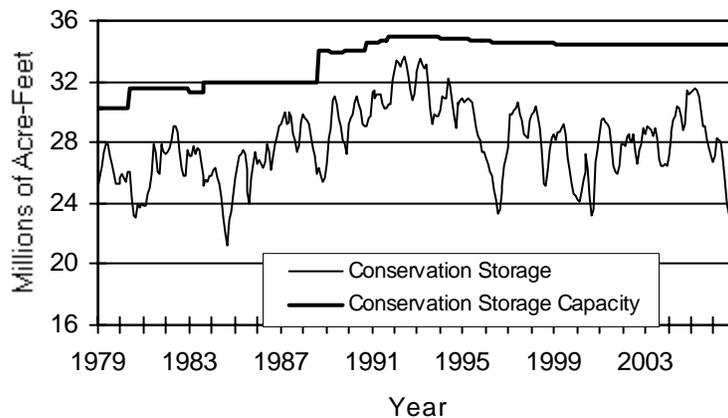
## RESERVOIR STORAGE

September 2006

Near the end of September, the 77 reservoirs monitored for this report held 23.38 million acre-feet in conservation storage, or 68 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 0.63 million acre-feet (-2% of conservation storage capacity). Compared to last year, storage decreased by 4.82 million acre-feet (-14%).

Storage was near 100% of capacity in the Upper Coast Region but below 90% in all other Regions, with the lowest in the High Plains Region (20%). Storage was at 100% in 2 reservoirs and Texas' share of Amistad is at 106%. During September, storage increased in 16 reservoirs, decreased in 58 reservoirs, and remained unchanged in 3 reservoirs. Regionally, storage increased in the High Plains, Trans-Pecos, and Upper Coast Regions in the range of up to 4%, but decreased in remaining 6 regions by up to 3%. Compared to this time last year, the storage decreased in all regions except the Upper Coast where storage increased by 8%. The sharpest decrease was in the South Central Region (-25%).

### 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.

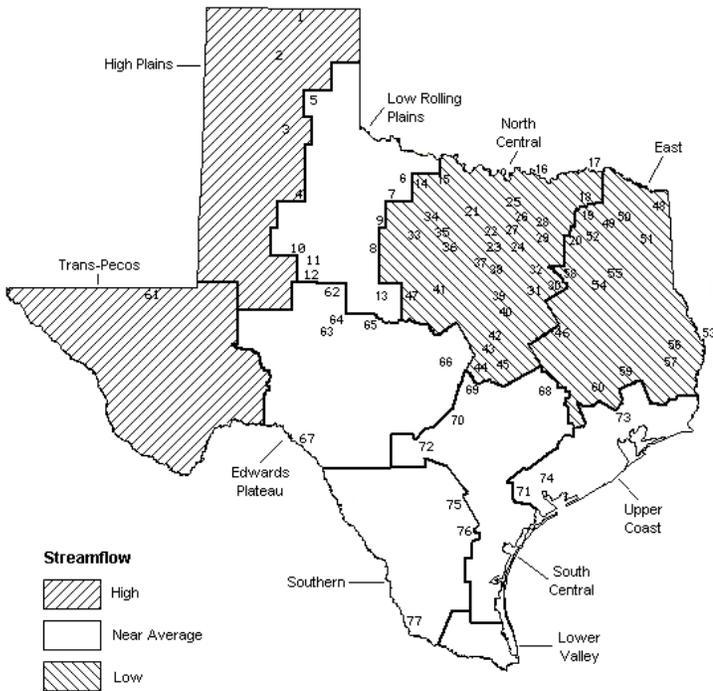
# STREAMFLOW

Of 29 reporting index stations in September, computed 30-day mean flows were high (5% - 30%) at 5 stations, low (70% - 95%) at 12 stations, very low (>95%) at 1 station, and near normal (30% - 70% exceedance) at the remaining 11 stations. Compared to August, flows have increased at 19 index stations and decreased at 7 stations.

On a regional basis, flows in September were high in High Plains and Trans-Pecos Regions, low in North Central and East Texas Regions, and normal in all other Regions. Streamflow in the Lower Valley Region is not monitored.

## SEPTEMBER 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 Sept. 2006 (acre-feet)	(%)	Change since Late August 2006 (acre-feet)	(%)	Change since Late September 2005 (acre-feet)	(%)
<b>HIGH PLAINS</b>								
Palo Duro Reservoir	1	60,900	910	1	0	0	-1,470	-2
Lake Meredith (Texas)	2	500,000	111,840	22	1,040	0	-49,620	-10
Lake Meredith (Texas and Oklahoma)	(2)	779,560	111,840	14	1,040	0	-49,620	-6
MacKenzie Reservoir	3	46,250	8,720	19	40	0	-1,470	-3
White River Lake	4	31,850	3,750	12	430	1	-3,330	-10
<b>TOTAL</b>		<b>639,000</b>	<b>125,220</b>	<b>20</b>	<b>1,510</b>	<b>0</b>	<b>-55,890</b>	<b>-9</b>
<b>LOW ROLLING PLAINS</b>								
Greenbelt Reservoir	5	58,200	18,590	32	-50	0	-4,250	-7
Lake Kemp	6	319,600	168,750	53	-980	0	-114,450	-36
Miller's Creek Reservoir	7	27,890	19,370	69	-860	-3	-8,520	-31
Fort Phantom Hill Reservoir	8	70,030	43,250	62	-400	-1	-10,170	-15
Lake Stamford	9	52,700	35,960	68	-1,590	-3	-16,740	-32
Lake J. B. Thomas	10	202,300	35,820	18	-1,590	-1	-29,900	-15
Lake Colorado City	11	30,800	24,440	79	190	1	-4,790	-16
Champion Creek Reservoir	12	41,600	5,340	13	-30	0	-450	-1
Hords Creek Lake	13	8,600	4,940	57	-200	-2	-2,360	-27
<b>TOTAL</b>		<b>811,720</b>	<b>356,460</b>	<b>44</b>	<b>-5,510</b>	<b>-1</b>	<b>-191,630</b>	<b>-24</b>
<b>NORTH CENTRAL</b>								
Lake Kickapoo	14	106,000	66,870	63	-2,420	-2	-31,460	-30
Lake Arrowhead	15	262,100	176,300	67	-3,000	-1	-32,540	-12
Lake Texoma	16	2,722,300	2,222,170	82	24,820	1	-276,220	-10
Pat Mayse Lake	17	124,500	79,600	64	-3,330	-3	-22,980	-18
Cooper Lake	18	273,000	93,760	34	-15,400	-6	-91,400	-33
Lake Sulphur Springs	19	17,710	13,720	77	-560	-3	970	5
Lake Tawakoni	20	936,200	538,000	57	-33,200	-4	-158,300	-17
Bridgeport Reservoir	21	374,830	196,000	52	-4,600	-1	-82,500	-22
Eagle Mountain Reservoir	22	178,380	127,000	71	-8,600	-5	-17,100	-10
Benbrook Lake	23	88,200	48,050	54	-2,150	-2	-4,630	-5
Joe Pool Lake	24	175,800	159,720	91	-2,740	-2	-700	0
Ray Roberts Lake	25	798,760	605,330	76	-28,390	-4	-138,880	-17
Lewisville Lake	26	555,000	389,130	70	5,890	1	-120,090	-22
Grapevine Lake	27	187,700	109,540	58	-5,840	-3	-41,460	-22
Lavon Lake	28	443,800	177,780	40	-17,560	-4	-145,660	-33
Lake Ray Hubbard	29	413,420	320,100	77	-10,100	-2	-40,700	-10
Richland-Chambers Creek Lake	30	1,103,820	767,000	69	-35,000	-3	-251,000	-23
Navarro Mills Lake	31	55,810	25,260	45	-1,910	-3	-20,080	-36
Bardwell Lake	32	53,580	37,130	69	-1,270	-2	-3,450	-6
Hubbard Creek Reservoir	33	317,800	160,500	51	-4,440	-1	-34,320	-11
Lake Graham	34	45,000	36,380	81	-1,700	-4	-150	0
Possum Kingdom Lake	35	551,820	450,180	82	-4,300	-1	-73,220	-13
Lake Palo Pinto	36	27,650	13,770	50	-790	-3	-4,960	-18
Lake Granbury	37	135,680	118,800	88	-6,320	-5	-15,200	-11
Lake Pat Cleburne	38	25,300	19,040	75	-1,390	-5	-1,490	-6
Whitney Lake	39	622,800	454,840	73	-19,470	-3	-137,950	-22
Waco Lake	40	144,500	128,240	89	-8,100	-6	-16,260	-11
Proctor Lake	41	55,590	27,900	50	-1,710	-3	-14,320	-26
Belton Lake	42	434,500	363,430	84	-11,630	-3	-65,870	-15
Stillhouse Hollow Lake	43	226,060	211,260	93	-4,510	-2	-13,980	-6
Lake Georgetown	44	37,010	17,130	46	-1,140	-3	-12,690	-34
Granger Lake	45	54,280	44,790	83	-990	-2	-9,490	-17
Lake Limestone	46	215,750	182,880	85	-4,700	-2	-4,220	-2
Lake Brownwood	47	143,400	98,440	69	-3,180	-2	-29,700	-21
<b>TOTAL</b>		<b>11,908,050</b>	<b>8,480,040</b>	<b>71</b>	<b>-219,730</b>	<b>-2</b>	<b>-1,912,000</b>	<b>-16</b>

## 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 August 2006		Change since Late September 2005		
			Late Sept. 2006 (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	52,960	79	-1,360	-2	-7,300	-11	
Lake Bob Sandlin	50	202,300	126,800	63	-6,300	-3	-43,400	-21	
Lake O' the Pines	51	252,000	166,910	66	-12,510	-5	-32,770	-13	
Lake Fork Reservoir	52	635,200	550,700	87	-14,500	-2	-47,900	-8	
Toledo Bend Reservoir	53	4,472,900	2,862,000	64	-99,000	-2	-292,000	-7	
Lake Palestine	54	411,300	302,460	74	-14,630	-4	-56,910	-14	
Lake Tyler	55	73,700	47,000	64	-2,760	-4	-18,680	-25	
Sam Rayburn Reservoir	56	2,876,300	2,380,020	83	-124,720	-4	-163,690	-6	
B. A. Steinhagen Lake	57	94,200	270*	0	90	0	-53,140	-56	
Cedar Creek Reservoir	58	637,050	460,700	72	-27,900	-4	-93,800	-15	
Lake Livingston	59	1,750,000	1,454,000	83	-3,000	0	16,000	1	
Lake Conroe	60	429,900	336,800	78	-4,800	-1	-30,800	-7	
<b>TOTAL</b>		<b>12,044,350</b>	<b>8,883,320</b>	<b>74</b>	<b>-311,390</b>	<b>-3</b>	<b>-824,390</b>	<b>-7</b>	
<b>TRANS-PECOS</b>									
Red Bluff Reservoir	61	307,000	90,330	29	2,950	1	-1,170	0	
<b>TOTAL</b>		<b>307,000</b>	<b>90,330</b>	<b>29</b>	<b>2,950</b>	<b>1</b>	<b>-1,170</b>	<b>0</b>	
<b>EDWARDS PLATEAU</b>									
E. V. Spence Reservoir	62	488,760	75,410	15	3,540	1	-24,370	-5	
Twin Buttes Reservoir	63	177,800	35,420	20	840	0	-8,820	-5	
O.C. Fisher Lake	64	119,200	8,690	7	-430	0	-6,690	-6	
O. H. Ivie Reservoir	65	554,340	201,000	36	-41,500	-7	-97,700	-18	
Lake Buchanan	66	896,980	534,700	60	-43,200	-5	-252,340	-28	
Amistad Reservoir (Texas)	67	1,771,030	1,869,000	106	18,000	1	-499,000	-28	
Amistad Reservoir (Texas and Mexico)	(67)	3,151,300	2,461,000	78	94,000	3	-307,000	-10	
<b>TOTAL</b>		<b>4,008,110</b>	<b>2,724,220</b>	<b>68</b>	<b>-62,750</b>	<b>-2</b>	<b>-888,920</b>	<b>-22</b>	
<b>SOUTH CENTRAL</b>									
Somerville Lake	68	155,060	125,460	81	-500	0	-10,230	-7	
Lake Travis	69	1,144,100	633,820	55	-36,700	-3	-333,780	-29	
Canyon Lake	70	385,600	328,000	85	-4,060	-1	-41,290	-11	
Coletto Creek Reservoir	71	35,060	26,350	75	670	2	-1,560	-4	
Medina Lake	72	254,000	107,200	42	-4,700	-2	-115,700	-46	
<b>TOTAL</b>		<b>1,973,820</b>	<b>1,220,830</b>	<b>62</b>	<b>-45,290</b>	<b>-2</b>	<b>-502,560</b>	<b>-25</b>	
<b>UPPER COAST</b>									
Lake Houston	73	128,860	128,860	100	0	0	60	0	
Lake Texana	74	157,900	156,560	99	11,210	7	23,660	15	
<b>TOTAL</b>		<b>286,760</b>	<b>285,420</b>	<b>100</b>	<b>11,210</b>	<b>4</b>	<b>23,720</b>	<b>8</b>	
<b>SOUTHERN</b>									
Choke Canyon Reservoir	75	695,260	540,000	78	3,000	0	-104,000	-15	
Lake Corpus Christi	76	241,240	108,600	45	27,910	12	-61,200	-25	
Falcon Reservoir (Texas)	77	1,555,120	561,000	36	-33,000	-2	-300,000	-19	
Falcon Reservoir (Texas and Mexico)	(77)	2,653,290	946,000	36	36,000	1	-416,000	-16	
<b>TOTAL</b>		<b>2,491,620</b>	<b>1,209,600</b>	<b>49</b>	<b>-2,090</b>	<b>0</b>	<b>-465,200</b>	<b>-19</b>	
<b>STATE TOTAL</b>		<b>34,470,430</b>	<b>23,375,440</b>	<b>68</b>	<b>-631,090</b>	<b>-2</b>	<b>-4,818,040</b>	<b>-14</b>	

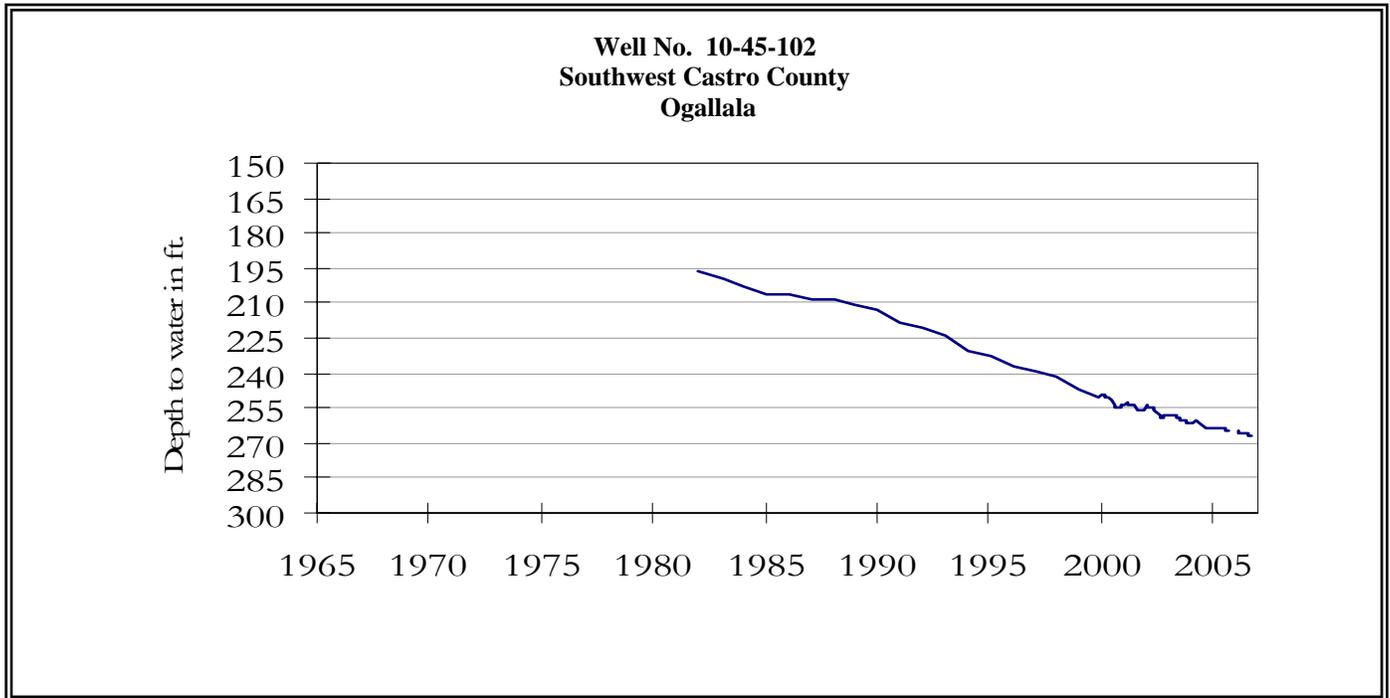
\* Due to lake's maintenance need.

Note:

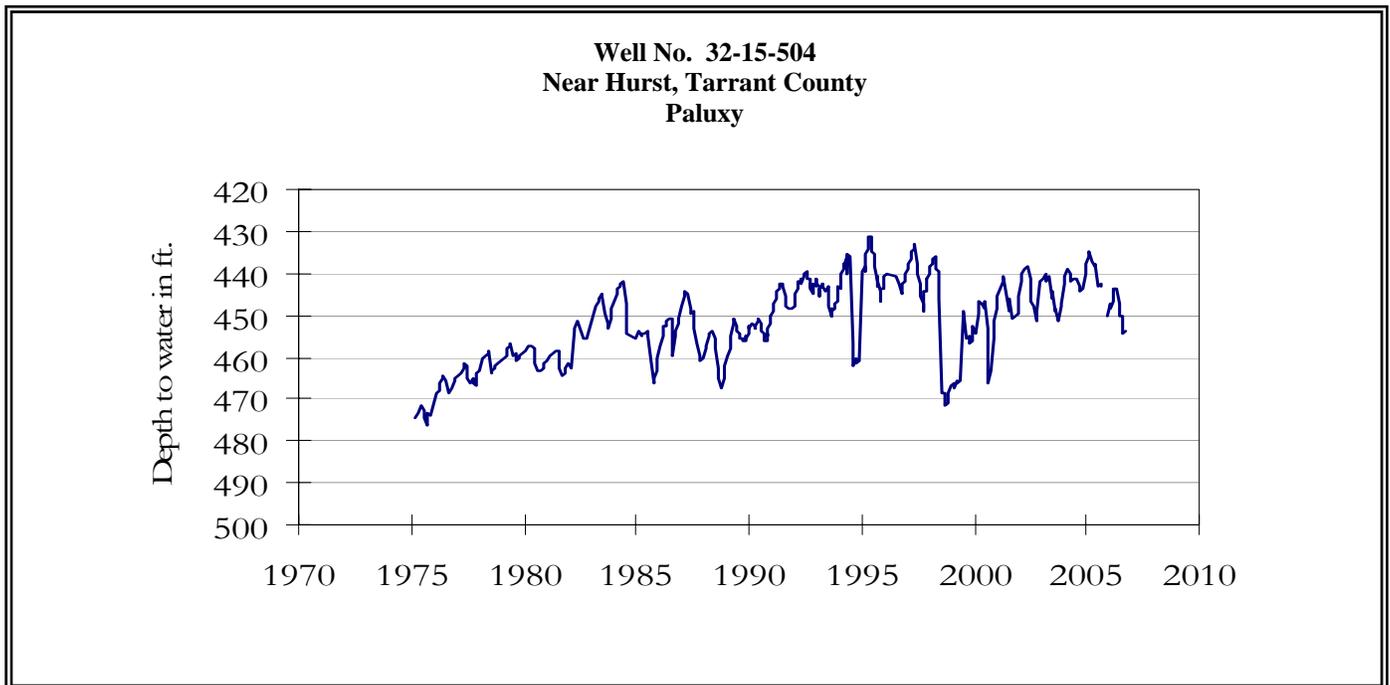
Conservation storage capacity is the space available to store water above the level of invert of lowest outlet works and below the level of top of conservation pool or normal maximum operating level. Conservation storage refers to the volume of water held within the conservation storage space. Not included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

## SEPTEMBER GROUND WATER LEVELS IN OBSERVATION WELLS

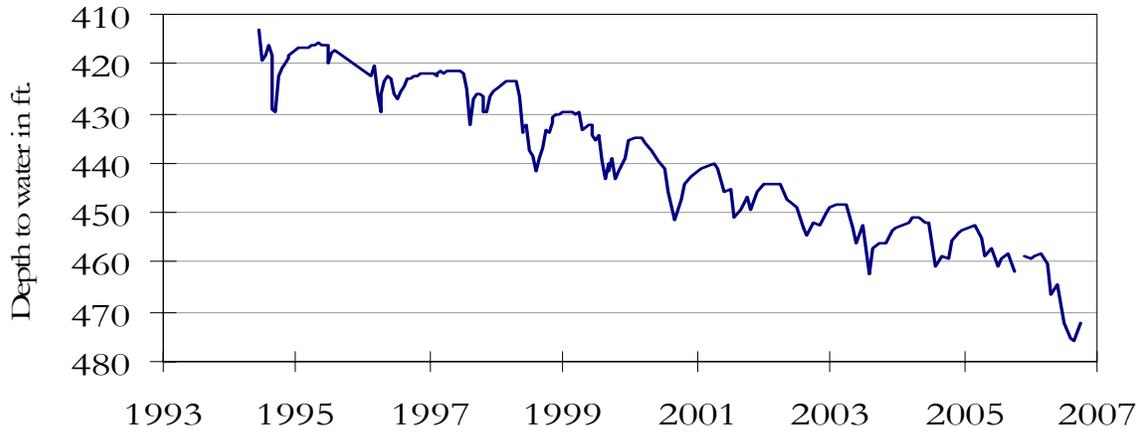


The late September water-level measurement in this Ogallala Aquifer well, elevation 3,816 feet above sea level, was 266.86 feet below land surface. This measurement was 0.13 feet below last month's measurement and 110.86 feet below the initial measurement recorded in 1968. No water level measurements were recorded for September through December 2005.



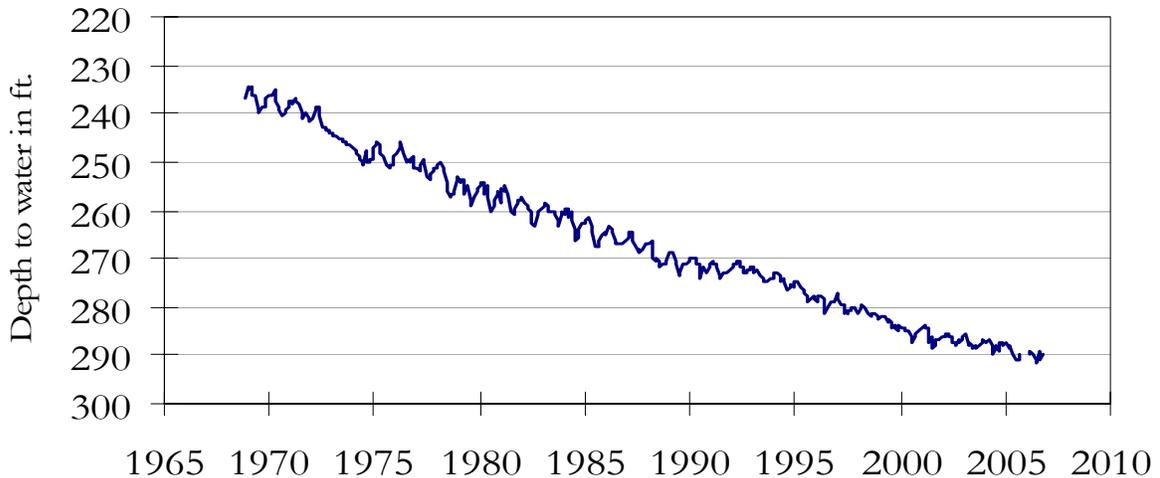
The late September water-level measurement in this Paluxy Formation Trinity Aquifer well, elevation 535 feet above sea level, was 453.74 feet below land surface. This measurement was 0.92 feet above last month's measurement and 75.74 feet below the initial measurement recorded in 1953. No water level measurements were recorded for September or October 2005.

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



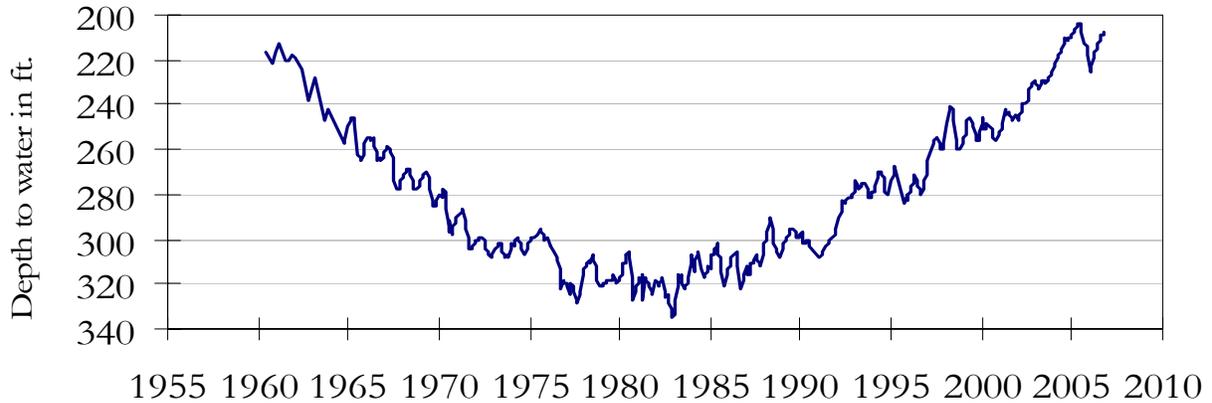
The late September water-level measurement in this Hosston Formation Trinity Aquifer well, elevation 823 feet above sea level, was 472.16 feet below land surface. This water level was 3.59 feet above last month's measurement, 10.11 feet below last year's measurement, and 180.16 feet below the initial 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**



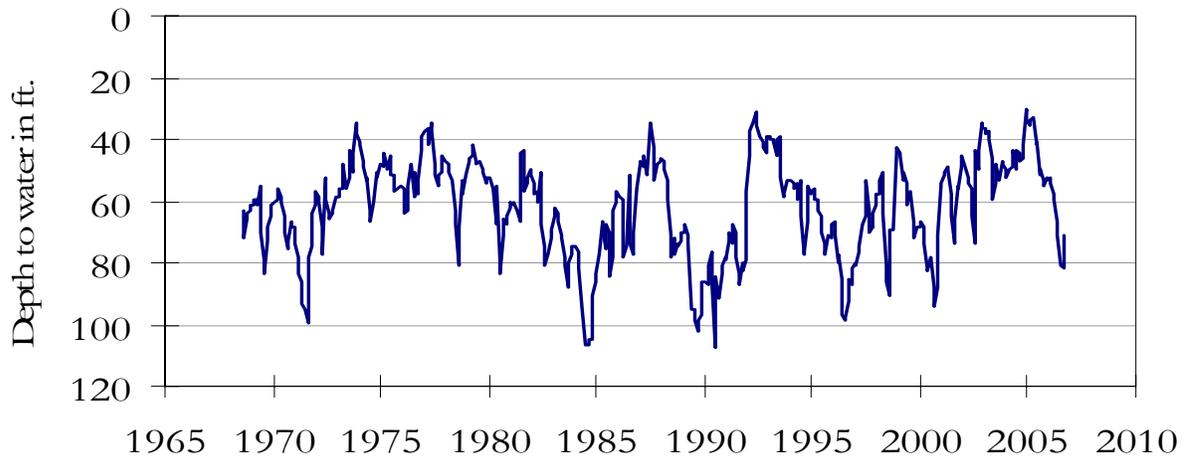
The late September water-level measurement in this Hueco Bolson Aquifer well, elevation 3,882 feet above sea level, was 289.77 feet below land surface. This was 1.16 feet above last month's measurement, identical to last year's measurement, and 57.87 feet below the initial measurement in 1964. No water level measurements were recorded for October or December 2005.

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



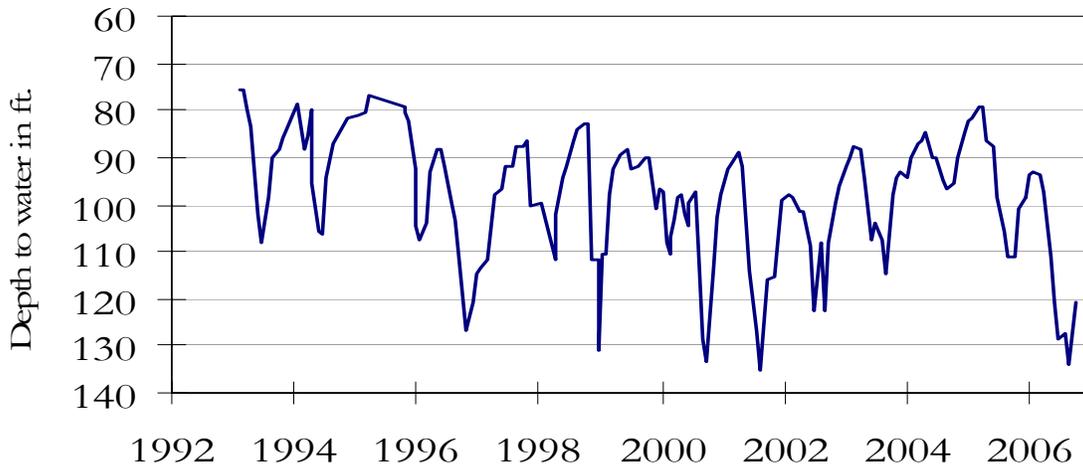
The late September water-level measurement in this Evangeline Formation Gulf Coast Aquifer well, elevation 66 feet above sea level, was 208.03 feet below land surface. This was 0.58 feet above last month's measurement, 6.07 feet above last year's measurement, and 72.53 feet below the initial measurement recorded in 1947.

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



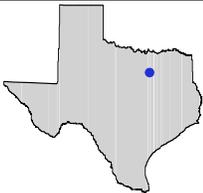
The late September water-level measurement in this Edwards (BFZ) Aquifer well, elevation 731 feet above sea level, was 71.32 feet below land surface. This was 10.33 feet above last month's measurement, 16.42 feet below last year's measurement, and 24.68 feet below the initial measurement recorded in 1962.

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



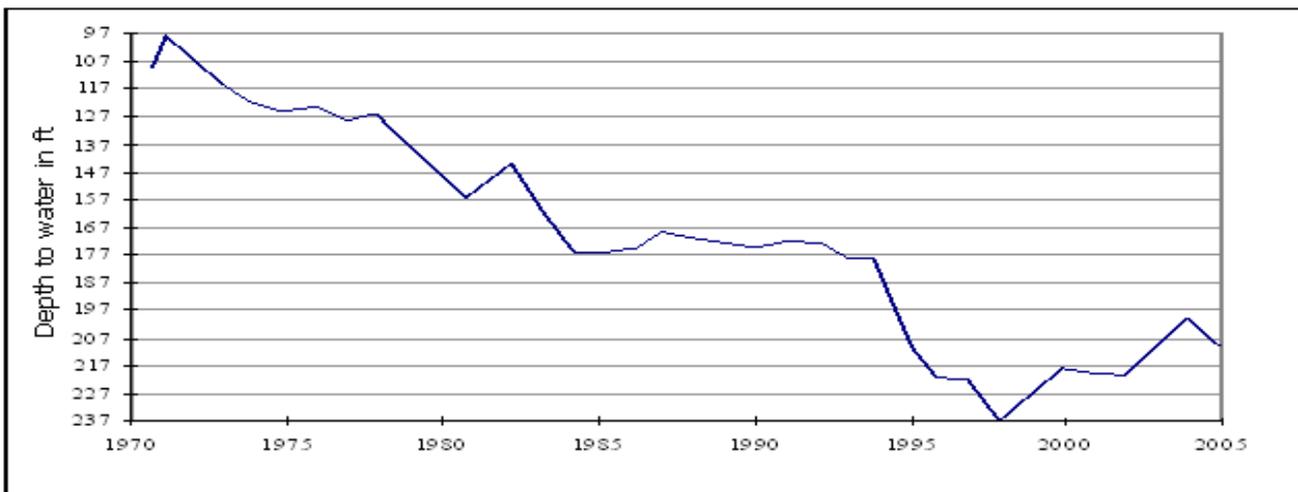
The late September water-level measurement in this Carrizo Aquifer well, elevation 446 feet above sea level, was 120.62 feet below land surface. This measurement was 13.65 feet above last month's measurement, 9.69 feet below last year's measurement, and 85.26 feet below the initial measurement recorded 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. 18-11-801  
Grayson County**



This water level observation well, located 5 miles west of Denison, at an elevation of 740 feet ASL, was completed in the Woodbine Aquifer. Since the 1970's, significant water-level declines have occurred within this aquifer due to heavy municipal and industrial pumpage.

September, 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 September, ranging from 0.58 feet in the Harris Co. Evangeline well to 13.65 feet in the Atascosa Co. Carrizo well. Water levels declined 0.13 feet in the Castro Co. Ogallala well. The J-17 well recorded a water level of 71.32 ft. below land surface. This water level is 8.68 feet above the Stage 1 critical management level.

*TEXAS WATER DEVELOPMENT BOARD*

*1700 N. CONGRESS AVE.*

*P.O. BOX 13231*

*AUSTIN TX 78711-3231*