

# Texas Water Development Board



# WATER Conditions

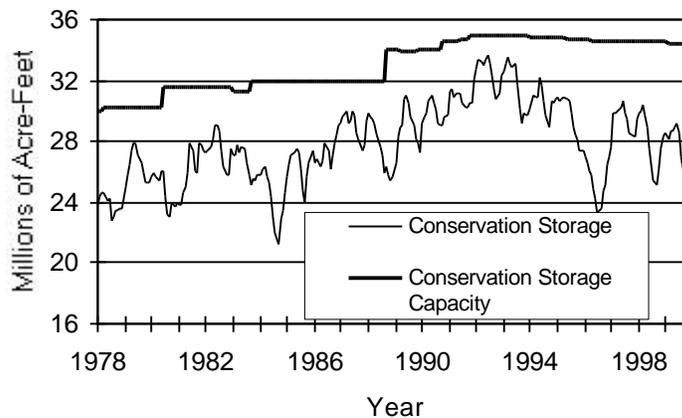
## RESERVOIR STORAGE

*October 1999*

Near the end of September, the 77 reservoirs monitored for this report held 25.29 million acre-feet in conservation storage. This is 73 percent of the conservation storage capacity of the State's major reservoirs. Compared to the end of August, storage decreased 0.88 million acre-feet (-2.5% of conservation storage capacity). Compared to this month last year, storage decreased 0.55 million acre-feet (-1.6%).

Of the monitored reservoirs, only 4 held 100 percent or more of conservation storage near the end of October. Storage during the month increased in only six reservoirs, and in only the Trans Pecos Region (+2.1%). Storage in other regions decreased by up to 5%. Compared to the end of October 1998, conservation storage increased most in the High Plains (+17%) and Trans-Pecos (+12%) regions, and decreased the greatest in the Southern (-22%) and Upper Coast (-19%) regions. Annual changes in other regions were less than 5%.

### 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.

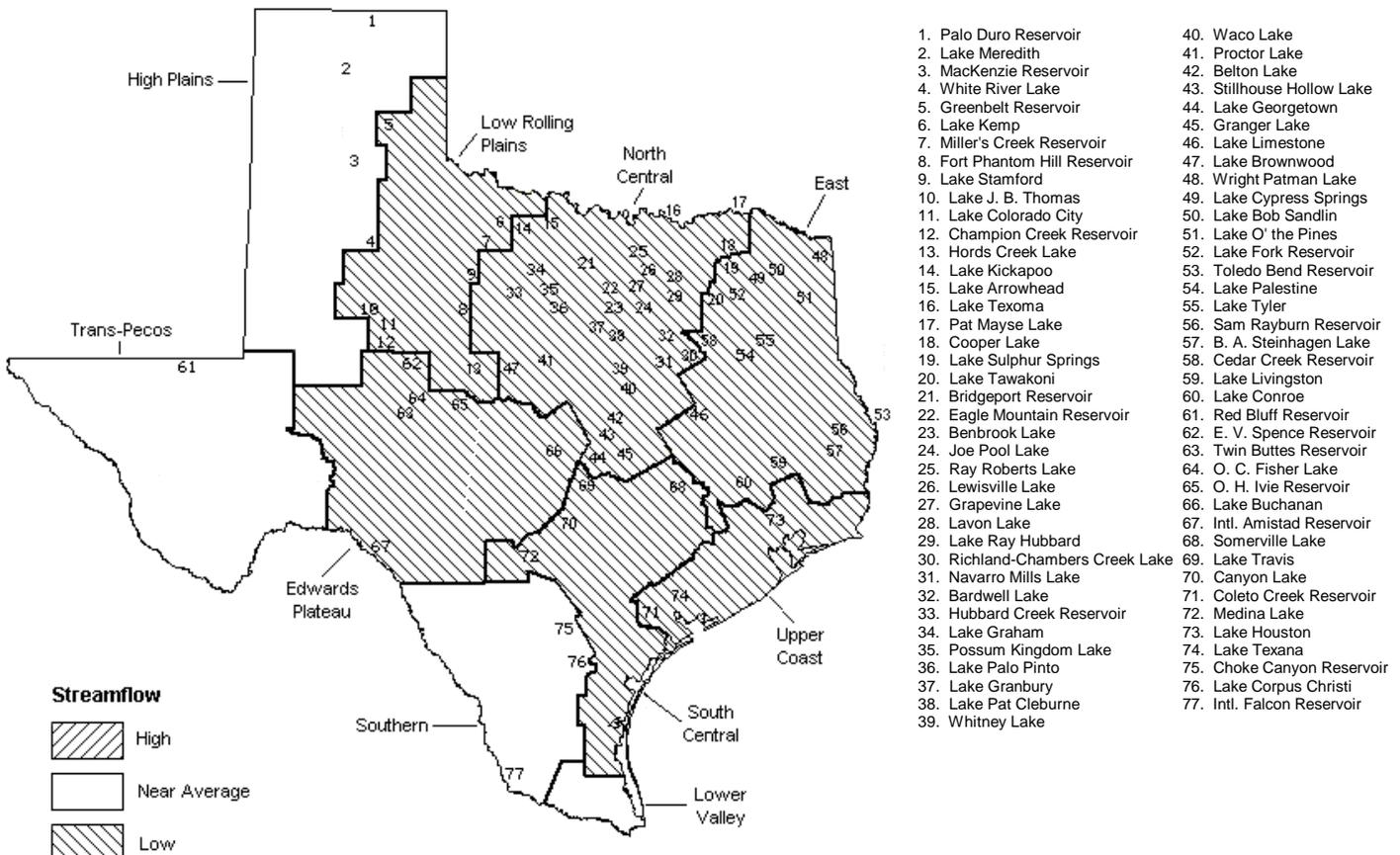
# STREAMFLOW

Of 20 reporting index stations in October, computed 30-day mean flows were near normal (30% - 70% exceedance) at 6 stations, low (70% - 95% exceedance) at 13 stations, and very low (0% - 5% exceedance) at 1 station. In comparison to September, flows decreased at 10 index stations, increased at 4 stations, and remained the same at 4 stations.

Flows in October were below normal in all regions of the state except for the High Plains, Trans-Pecos, and Southern regions, where flows remained near normal. Flows generally decreased in comparison to September at index stations in all regions of the state except for the Trans-Pecos and the Southern regions. Three stations, in the Low Rolling Plains, North Central, and Edwards Plateau regions, recorded no (0) streamflow.

## OCTOBER STREAMFLOW CONDITIONS

Reservoirs Shown on Map



## 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 September 1999		Change since Late October 1998		
			Late October 1999 (acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)	(%)	
<b>HIGH PLAINS</b>									
Palo Duro Reservoir	1	60,900	21,951	36	-1,951	-3	17,751	29	
Lake Meredith (Texas)	2	500,000	405,031	81	-8,869	-2	83,031	17	
Lake Meredith (Texas and Oklahoma)	(2)	779,560	405,031	52	-8,869	-1	83,031	11	
MacKenzie Reservoir	3	46,250	10,060	22	-300	-1	2,870	6	
White River Lake	4	31,850	17,640	55	-630	-2	7,610	24	
TOTAL		639,000	454,682	71	-11,750	-2	111,262	17	
<b>LOW ROLLING PLAINS</b>									
Greenbelt Reservoir	5	58,200	25,770	44	-720	-1	770	1	
Lake Kemp	6	319,600	153,000	48	-11,900	-4	-5,000	-2	
Miller's Creek Reservoir	7	27,890	11,880	43	-530	-2	-3,250	-12	
Fort Phantom Hill Reservoir	8	70,030	20,820	30	-1,000	-1	-8,450	-12	
Lake Stamford	9	52,700	7,100	13	-500	-1	-13,500	-26	
Lake J. B. Thomas	10	202,300	33,120	16	480	0	25,000	12	
Lake Colorado City	11	30,800	15,600	51	3,820	12	-500	-2	
Champion Creek Reservoir	12	41,600	5,290	13	-830	-2	-6,910	-17	
Hords Creek Lake	13	8,600	3,799	44	-188	-2	-1,840	-21	
TOTAL		811,720	276,379	34	-11,368	-1	-13,680	-2	
<b>NORTH CENTRAL</b>									
Lake Kickapoo	14	106,000	54,994	52	-1,722	-2	1,754	2	
Lake Arrowhead	15	262,100	140,400	54	-4,900	-2	-41,600	-16	
Lake Texoma	16	2,722,300	2,353,403	86	-53,384	-2	179,956	7	
Pat Mayse Lake	17	124,500	103,222	83	-2,488	-2	1,216	1	
Cooper Lake	18	273,000	221,470	81	-4,814	-2	-51,530	-19	
Lake Sulphur Springs	19	17,710	14,147	80	-404	-2	-1,733	-10	
Lake Tawakoni	20	936,200	797,800	85	-31,800	-3	1,800	0	
Bridgeport Reservoir	21	374,830	232,448	62	-31,540	-8	-67,552	-18	
Eagle Mountain Reservoir	22	178,380	140,113	79	1,946	1	-7,887	-4	
Benbrook Lake	23	88,200	57,184	65	-2,291	-3	-12,216	-14	
Joe Pool Lake	24	175,800	158,743	90	-2,975	-2	4,743	3	
Ray Roberts Lake	25	798,760	631,901	79	-21,990	-3	-95,099	-12	
Lewisville Lake	26	555,000	337,526	61	-19,244	-3	-122,474	-22	
Grapevine Lake	27	187,700	136,690	73	-4,015	-2	-13,310	-7	
Lavon Lake	28	443,800	298,587	67	-21,340	-5	-413	0	
Lake Ray Hubbard	29	413,420	413,420	100	0	0	8,420	2	
Richland-Chambers Creek Lake	30	1,103,820	991,974	90	-26,061	-2	-48,026	-4	
Navarro Mills Lake	31	55,810	42,268	76	-1,871	-3	-2,632	-5	
Bardwell Lake	32	53,580	38,562	72	-5,909	-11	-6,638	-12	
Hubbard Creek Reservoir	33	317,800	215,500	68	-6,800	-2	-54,500	-17	
Lake Graham	34	45,000	41,990	93	-2,240	-5	790	2	
Possum Kingdom Lake	35	551,820	437,000	79	-9,000	-2	167,000	30	
Lake Palo Pinto	36	42,200	32,019	76	-1,823	-4	-7,981	-19	
Lake Granbury	37	135,680	130,800	96	-287	0	5,800	4	
Lake Pat Cleburne	38	25,300	18,058	71	-912	-4	3,188	13	
Whitney Lake	39	622,800	430,500	69	-1,651	0	-20,500	-3	
Waco Lake	40	144,500	115,280	80	-10,300	-7	-5,720	-4	
Proctor Lake	41	55,590	22,619	41	-1,985	-4	-14,781	-27	
Belton Lake	42	434,500	389,701	90	-12,429	-3	-18,299	-4	
Stillhouse Hollow Lake	43	226,060	214,878	95	-2,784	-1	-1,122	0	
Lake Georgetown	44	37,010	29,325	79	-2,475	-7	926	3	
Granger Lake	45	54,280	49,455	91	-828	-2	-4,825	-9	
Lake Limestone	46	215,750	182,600	85	-5,600	-3	4,600	2	
Lake Brownwood	47	143,400	89,050	62	-3,740	-3	-27,210	-19	
TOTAL		11,922,600	9,563,627	80	-297,656	-2	-245,855	-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 September 1999		Change since Late October 1998		
			Late October 1999 (acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)	(%)	
<b>EAST</b>									
Wright Patman Lake	48	142,700	142,700	100	0	0	0	0	0
Lake Cypress Springs	49	66,800	66,660	100	-140	0	1,730	3	3
Lake Bob Sandlin	50	202,300	184,300	91	5,555	3	-15,700	-8	-8
Lake O' the Pines	51	252,000	230,775	92	-15,640	-6	1,775	1	1
Lake Fork Reservoir	52	635,200	597,400	94	-12,100	-2	-31,600	-5	-5
Toledo Bend Reservoir	53	4,472,900	3,564,000	80	-67,000	-1	174,000	4	4
Lake Palestine	54	411,300	357,500	87	-11,100	-3	4,140	1	1
Lake Tyler	55	73,700	73,361	100	-339	0	8,781	12	12
Sam Rayburn Reservoir	56	2,876,300	2,214,000	77	-146,819	-5	74,000	3	3
B. A. Steinhagen Lake	57	94,200	88,735	94	-131	0	4,835	5	5
Cedar Creek Reservoir	58	637,050	590,983	93	-25,839	-4	40,983	6	6
Lake Livingston	59	1,750,000	1,658,000	95	-26,000	-1	118,000	7	7
Lake Conroe	60	429,900	380,900	89	-7,700	-2	-17,100	-4	-4
TOTAL		12,044,350	10,149,314	84	-307,253	-3	363,844	3	3
<b>TRANS-PECOS</b>									
Red Bluff Reservoir	61	307,000	85,340	28	6,320	2	36,310	12	12
TOTAL		307,000	85,340	28	6,320	2	36,310	12	12
<b>EDWARDS PLATEAU</b>									
E. V. Spence Reservoir	62	484,800	64,020	13	-2,760	-1	-16,480	-3	-3
Twin Buttes Reservoir	63	177,800	8,341	5	-1,829	-1	-10,159	-6	-6
O.C. Fisher Lake	64	119,200	8,596	7	-427	0	-5,753	-5	-5
O. H. Ivie Reservoir	65	554,340	340,300	61	-9,000	-2	-110,700	-20	-20
Lake Buchanan	66	896,980	619,175	69	-98,664	-11	-159,597	-18	-18
Amistad Reservoir (Texas)	67	1,771,030	1,048,000	59	-17,000	-1	211,000	12	12
Amistad Reservoir (Texas and Mexico)	(67)	3,151,300	1,376,000	44	0	0	177,000	6	6
TOTAL		4,004,150	2,088,432	52	-129,680	-3	-91,689	-2	-2
<b>SOUTH CENTRAL</b>									
Somerville Lake	68	155,060	140,704	91	-2,224	-1	-14,356	-9	-9
Lake Travis	69	1,144,100	851,832	74	-89,325	-8	-55,061	-5	-5
Canyon Lake	70	385,600	363,766	94	-5,212	-1	-13,234	-3	-3
Coleta Creek Reservoir	71	35,060	26,140	75	-600	-2	-9,039	-26	-26
Medina Lake	72	254,000	218,200	86	-8,400	-3	-12,800	-5	-5
TOTAL		1,973,820	1,600,642	81	-105,761	-5	-104,490	-5	-5
<b>UPPER COAST</b>									
Lake Houston	73	128,860	104,600	81	-5,500	-4	-24,260	-19	-19
Lake Texana	74	157,900	126,500	80	-9,800	-6	-31,400	-20	-20
TOTAL		286,760	231,100	81	-15,300	-5	-55,660	-19	-19

## CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

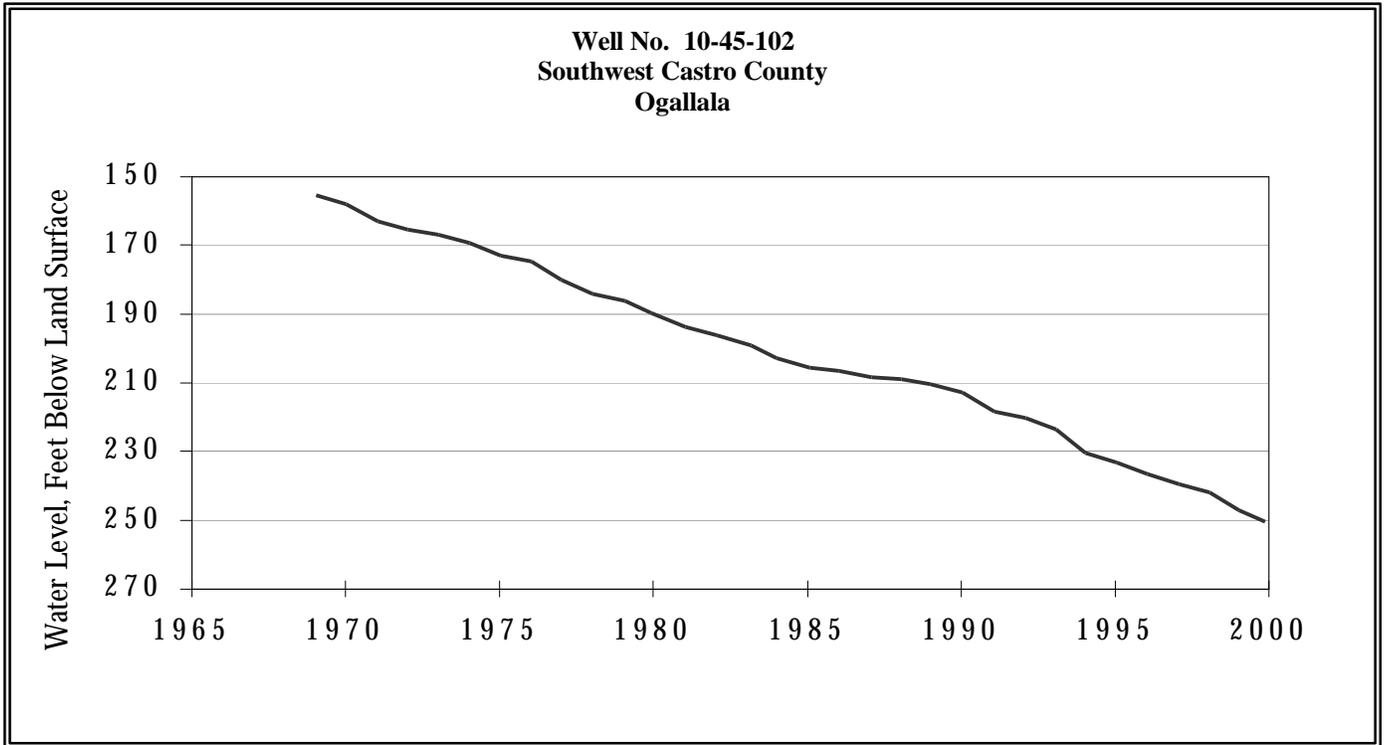
Name of Lake or Reservoir	No. on Map	Conservation Storage Capacity (acre-feet)	Conservation Storage Late October 1999 (acre-feet)	%	Change since Late September 1999 (acre-feet)	%	Change since Late October 1998 (acre-feet)	%
<b>SOUTHERN</b>								
Choke Canyon Reservoir	75	695,260	311,000	45	-8,945	-1	6,453	1
Lake Corpus Christi	76	241,240	173,200	72	-10,633	-4	-13,063	-5
Falcon Reservoir (Texas)	77	1,555,120	356,000	23	15,000	1	28,000	2
Falcon Reservoir (Texas and Mexico)	(77)	2,653,290	679,000	26	35,000	1	109,000	4
TOTAL		2,491,620	840,200	34	-4,578	0	-548,610	-22
<b>STATE TOTAL</b>		34,481,020	25,289,716	73	-877,026	-3	-548,568	-2

**NOTES:**

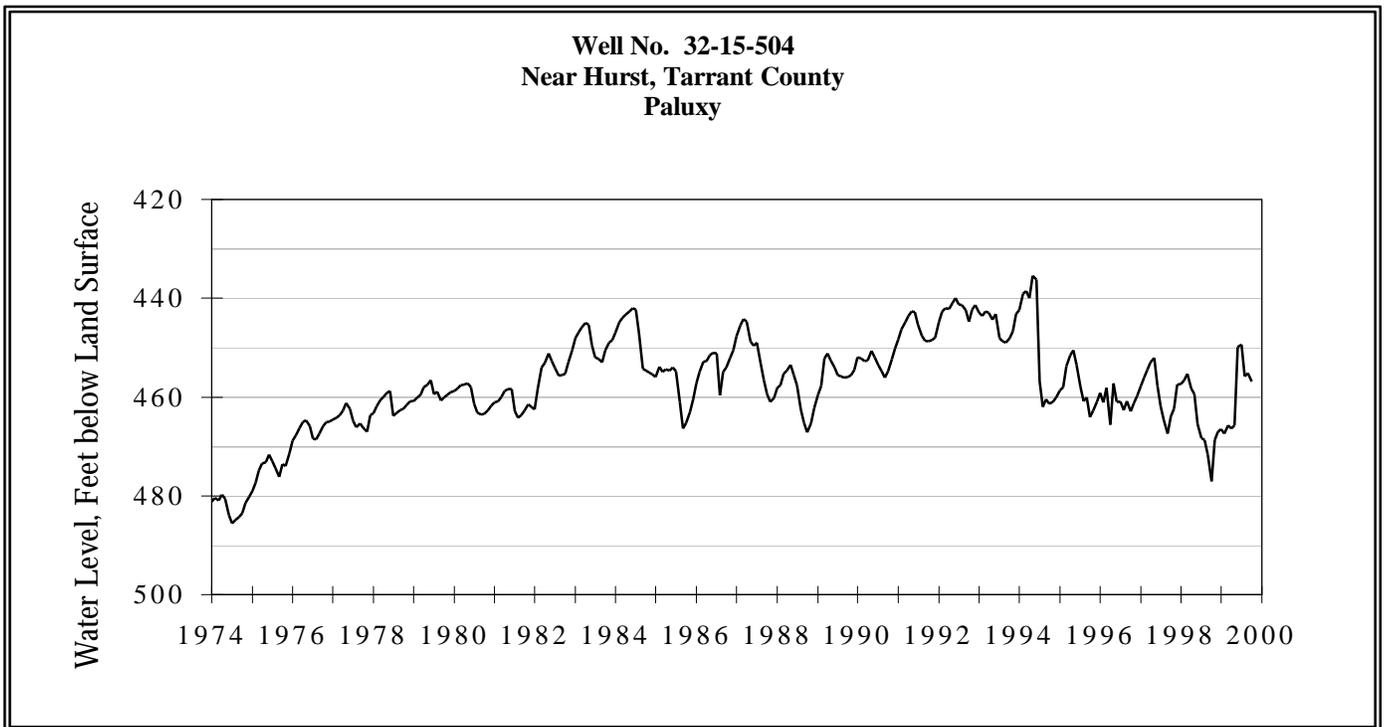
Conservation storage capacity is the space available to store water above the level of invert of lowest outlet works and below the level of top of conservation pool or normal maximum operating level. Conservation storage refers to the volume of water held within the conservation storage space. Not included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

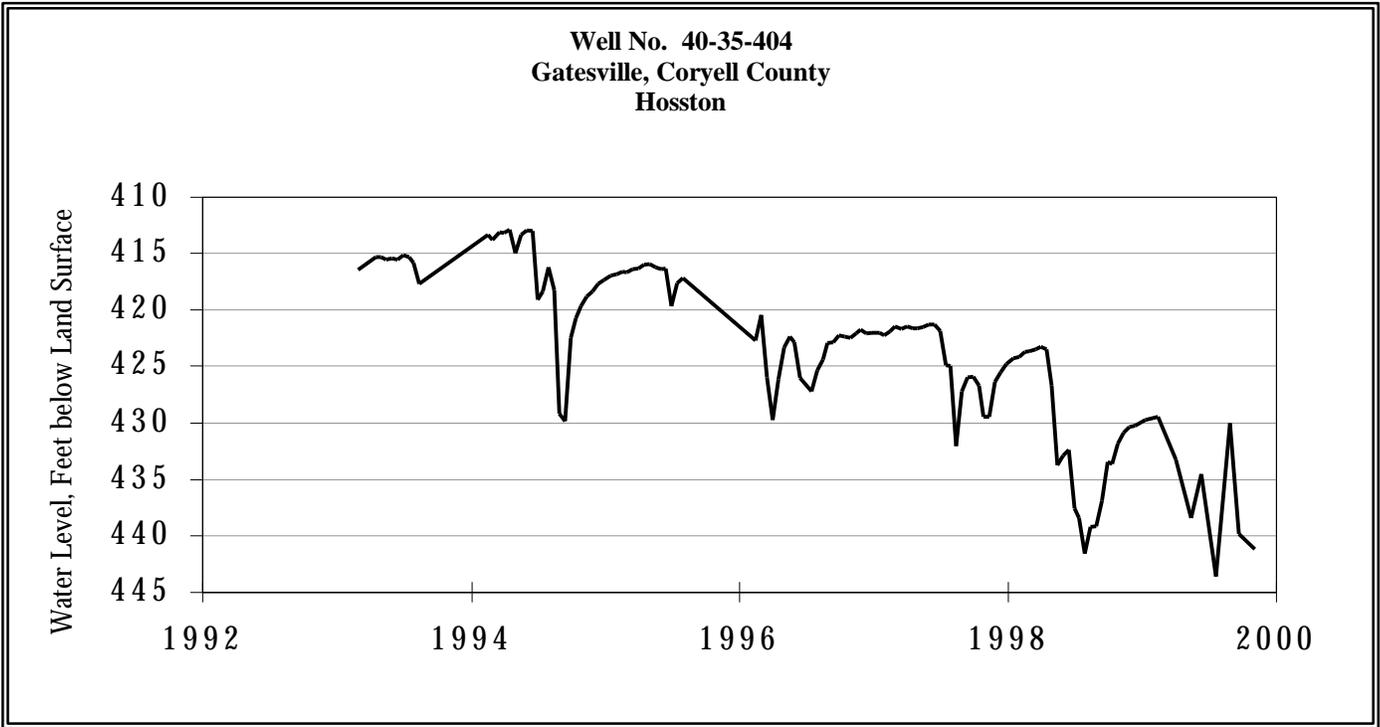
# OCTOBER GROUND WATER LEVELS IN OBSERVATION WELLS



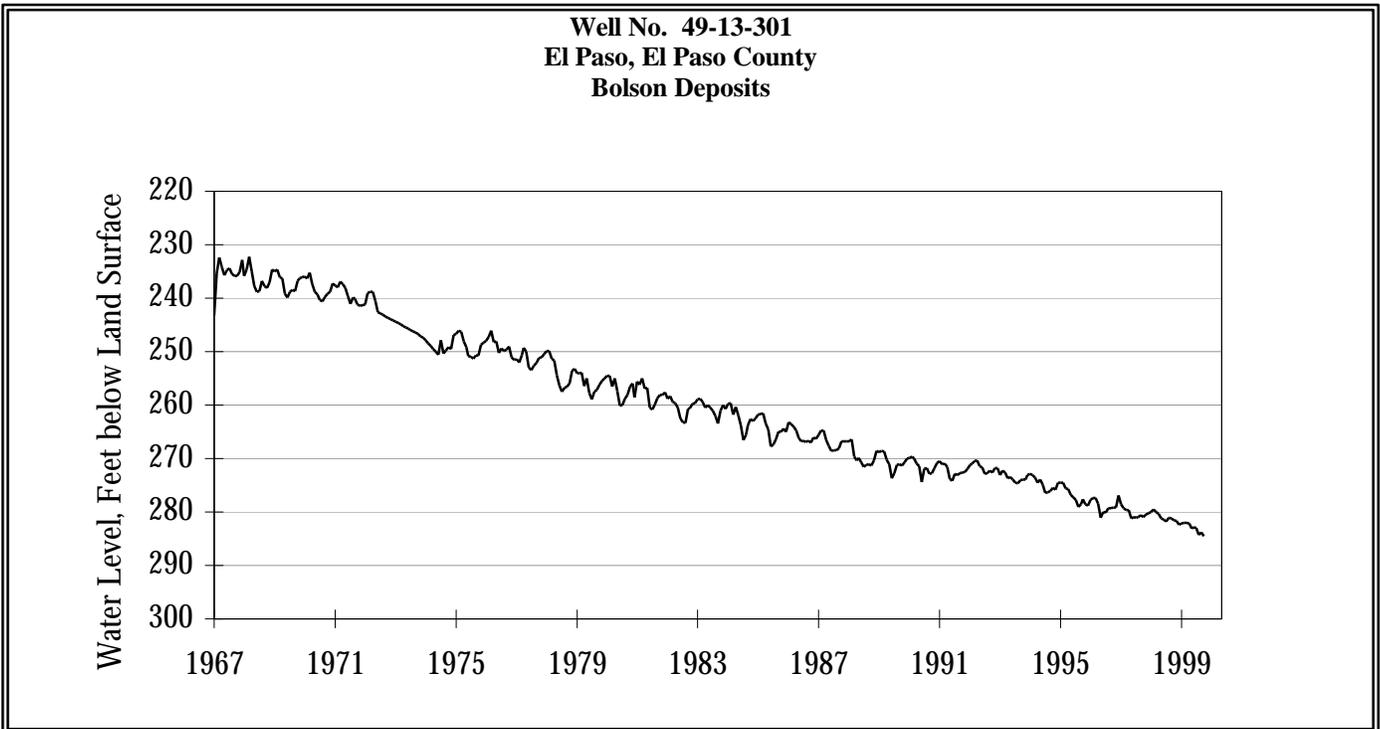
Water-level measurements in this Ogallala well, elevation 3816 feet above sea level, in the southwestern corner of Castro County will now be reported in lieu of those in the Lamb County well. The October water-level measurement was 250.57 feet below land surface. This measurement was 3.57 feet below the January 1999 measurement of 247.00 feet below land surface and 94.54 feet below the initial measurement recorded in 1968.



The October water-level measurement in this Paluxy aquifer well, elevation 535 feet above sea level, was 456.86 feet below land surface. This measurement was 1.70 of feet below last month's measurement, 14.25 feet above last year's measurement, and 63.47 feet below the initial measurement recorded in 1953.

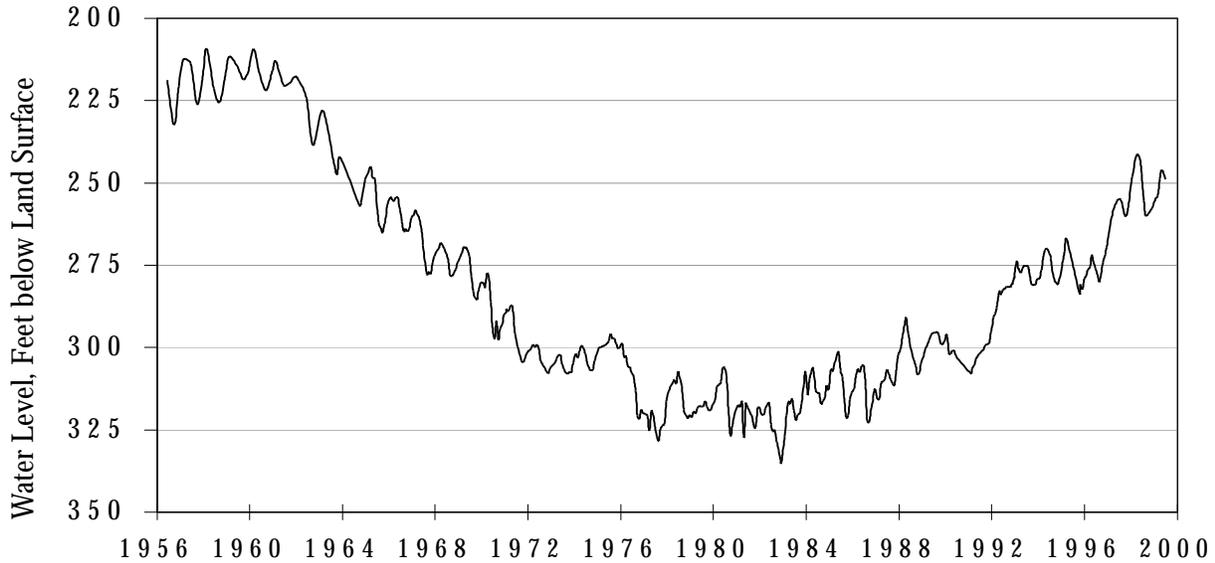


The October water-level measurement in this Hosston Formation aquifer well, elevation 823 feet above sea level, was 441.18 feet below land surface. This measurement was 1.30 feet below last month's measurement, 9.39 feet below last year's measurement, and 149.18 feet below the initial measurement recorded in 1955.



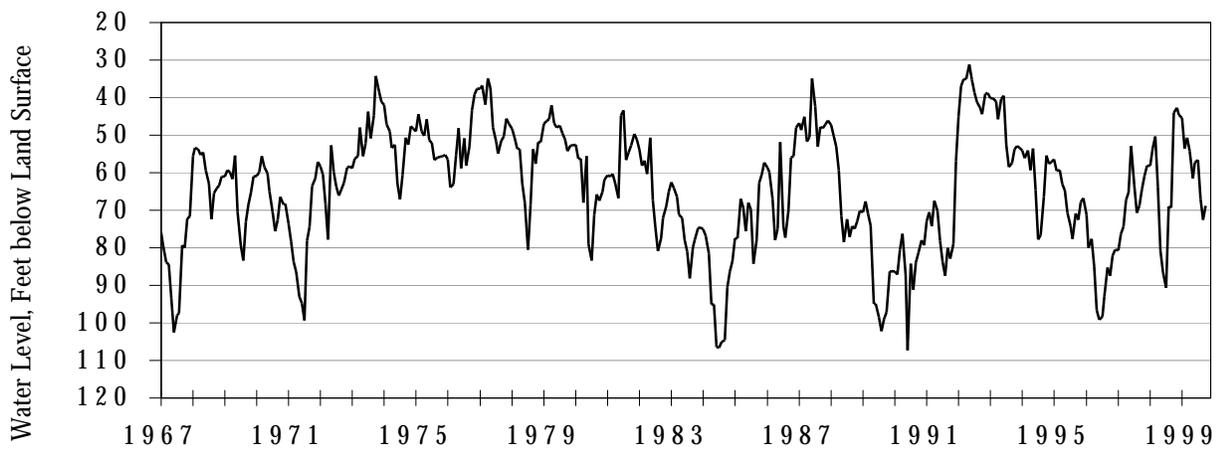
The October water-level measurement in this Bolson Deposits aquifer well, elevation 3882 feet above sea level, was 284.48 feet below land surface. This was 0.76 of a foot below last month's measurement, 2.93 feet below last year's measurement, and 52.58 feet below the initial measurement recorded in 1964.

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



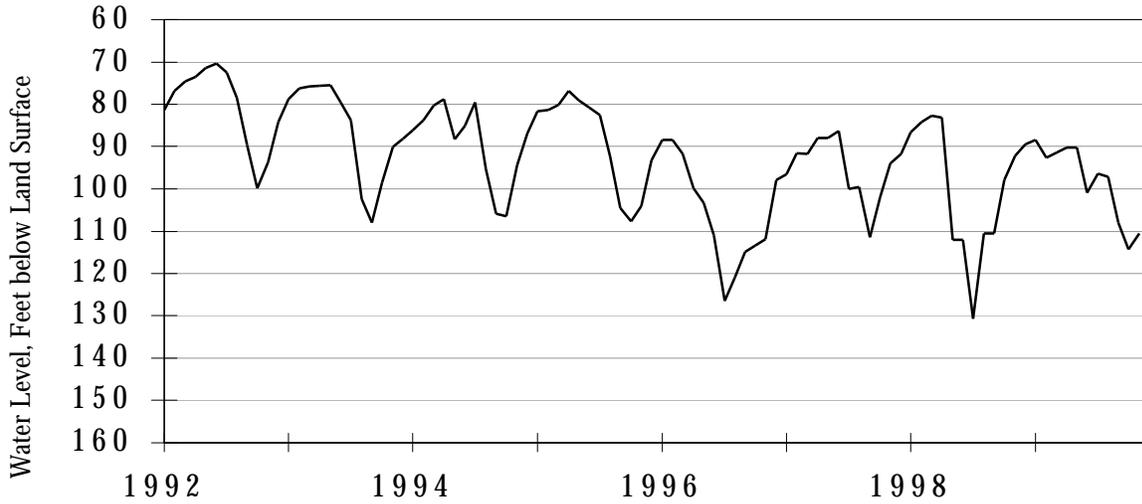
The October water-level measurement in this Evangeline aquifer well, elevation 66 feet above sea level, was 256.61 feet below land surface. This was 1.04 feet below last month's measurement, 2.93 feet above last year's measurement, and 153.38 feet below the initial measurement recorded in 1947.

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



The October water-level measurement in this Edwards aquifer well, elevation 731 feet above sea level, was 68.79 feet below land surface. This was 3.63 feet above last month's measurement, 24.69 feet below last year's measurement, and 9.17 feet below the initial measurement recorded in 1962.

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



The October water-level measurement in this Carrizo aquifer well, elevation 446 feet above sea level, was 110.47 feet below land surface. This was 3.87 feet above last month's measurement, 12.51 feet below last year's measurement, and 29.22 feet below the initial measurement recorded in 1965.

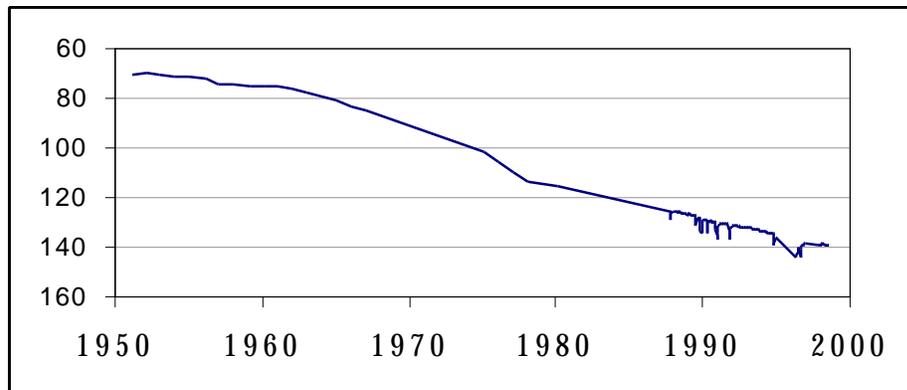
***HYDROGRAPH OF THE MONTH***



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. 03-54-301  
Hansford County**

Water Level,  
Feet Below Land Surface



This 185-foot-deep observation well, elevation 2,962 feet above sea level, was completed in the Ogallala aquifer. The graph illustrates a steady decline attributed to continuous increase in ground-water demands from the 1950s through the 1990s.