

# Texas Water Development Board



# WATER Conditions

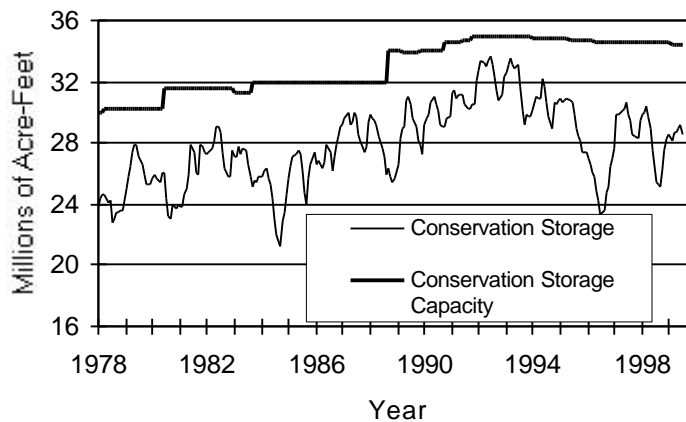
## RESERVOIR STORAGE

*July 1999*

Near the end of July, the 77 reservoirs monitored for this report held 28,554,204 acre-feet in conservation storage. This is 83 percent of the conservation storage capacity of the State's major reservoirs. Compared to the end of June, storage decreased 633,497 acre-feet (-1.8% of conservation storage capacity). Compared to this month last year, storage increased 3,093,174 acre-feet (+9.0%).

Of the monitored reservoirs, 17 held 100 percent or more of conservation storage near the end of July. Compared to the end of June, conservation storage decreased in the High Plains (-1%), Low Rolling Plains (-5%), North Central (-3%), East (-2%), Edwards Plateau (-1%), South Central (-1%), and Upper Coast (-2%) regions, and increased in the Trans-Pecos (+2%) and Southern (+4%) regions. Compared to the end of July 1998, conservation storage increased in all regions, with the greatest increases occurring in the High Plains (+21%) and East (+14%) regions.

### 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.

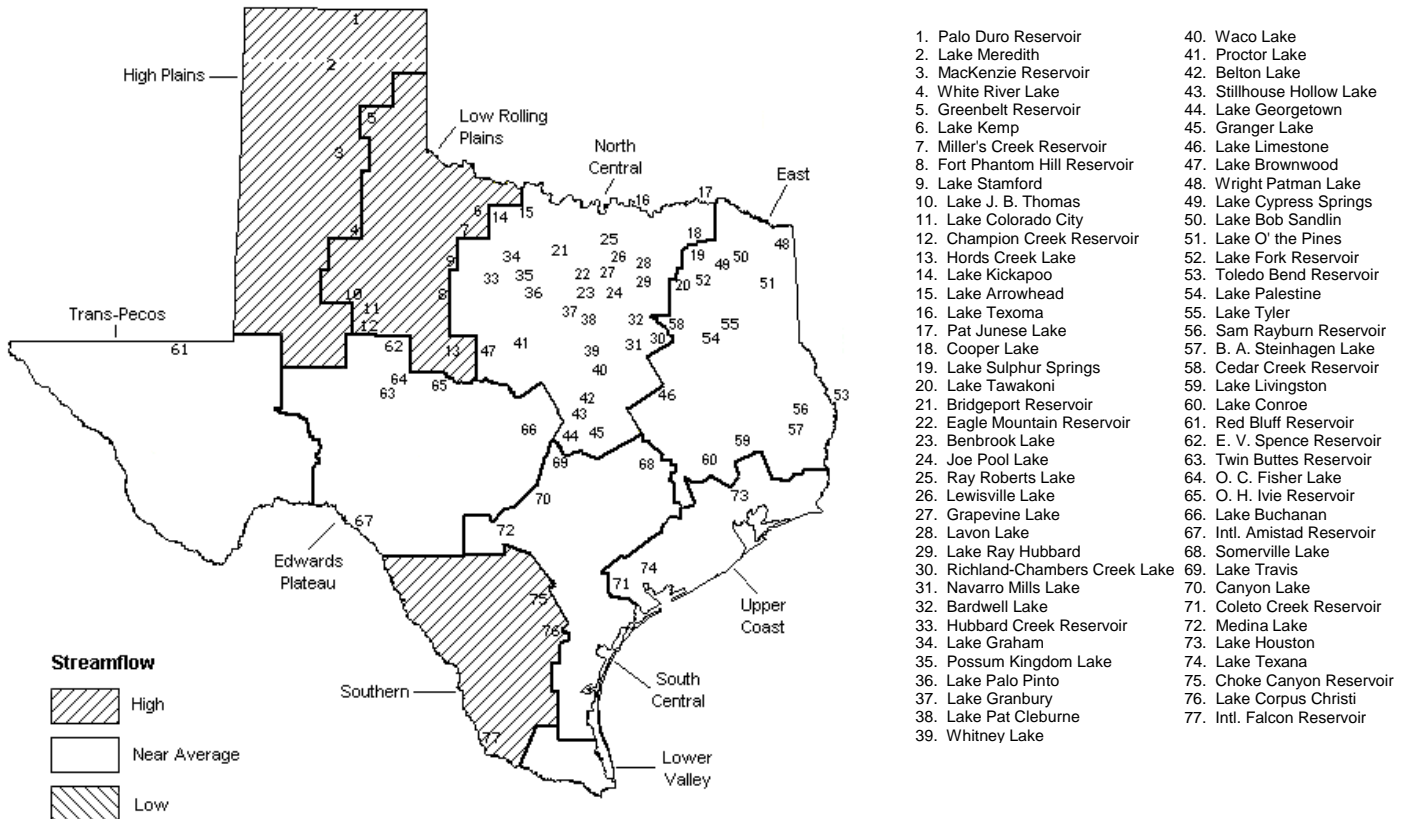
# STREAMFLOW

Of 25 reporting index stations in July, computed thirty-day mean flows were very high (0% - 5% exceedance probability) at 2 stations, high (5% - 30% exceedance) at 3 stations, near normal (30% - 70% exceedance) at 16 stations, and low (70% - 95% exceedance) at only 4 stations. In comparison to June, flows decreased at 17 index stations and increased at 7 stations.

Flows decreased in comparison to June at index stations in all regions of the state except for the single index station in the Trans-Pecos region where flows increased. Flows in the High Plains, Low Rolling Plains, and Southern regions were above average in July. The 30-day average flow at the Pease River near Vernon, Texas had the lowest exceedance frequency (highest relative flow) of all index stations at 0.0% exceedance. The lowest relative flows in July were recorded at the Denton Creek near Justin, Texas, where flows were at 83.9% exceedance frequency.

## STREAMFLOW CONDITIONS FOR JUNE COMPARED WITH PAST RECORD

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 Late July 1999		Change since Late June 1999		Change since Late July 1998		
			(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)	(%)	
<b>HIGH PLAINS</b>									
Palo Duro Reservoir	1	60,900	29,346	48	-3,386	-6	25,146	41	
Lake Meredith (Texas)	2	500,000	410,700	82	-4,700	-1	83,410	17	
Lake Meredith (Texas and Oklahoma)	(2)	779,560	410,700	53	-4,700	-1	83,410	11	
MacKenzie Reservoir	3	46,250	10,640	23	232	1	3,360	7	
White River Lake	4	31,850	29,490	93	-1,120	-4	20,330	64	
TOTAL		639,000	480,176	75	-8,974	-1	132,246	21	
<b>LOW ROLLING PLAINS</b>									
Greenbelt Reservoir	5	58,200	28,270	49	-1,100	-2	2,270	4	
Lake Kemp	6	319,600	219,800	69	-24,700	-8	16,800	5	
Miller's Creek Reservoir	7	27,890	14,180	51	-1,180	-4	-1,850	-7	
Fort Phantom Hill Reservoir	8	70,030	26,320	38	-3,210	-5	-8,440	-12	
Lake Stamford	9	52,700	10,020	19	-1,470	-3	-14,040	-27	
Lake J. B. Thomas	10	202,300	39,390	19	-5,590	-3	29,940	15	
Lake Colorado City	11	30,800	15,990	52	-220	-1	-10	0	
Champion Creek Reservoir	12	41,600	9,290	22	-1,660	-4	-5,610	-13	
Hords Creek Lake	13	8,600	4,407	51	-252	-3	-1,793	-21	
TOTAL		811,720	367,667	45	-39,382	-5	17,267	2	
<b>NORTH CENTRAL</b>									
Lake Kickapoo	14	106,000	63,710	60	-5,142	-5	4,570	4	
Lake Arrowhead	15	262,100	166,900	64	-11,500	-4	-32,100	-12	
Lake Texoma	16	2,722,300	2,613,886	96	-108,414	-4	154,386	6	
Pat Mayse Lake	17	124,500	114,371	92	-4,829	-4	5,871	5	
Cooper Lake	18	273,000	245,591	90	-9,497	-3	-5,409	-2	
Lake Sulphur Springs	19	17,710	16,488	93	-1,095	-6	1,148	6	
Lake Tawakoni	20	936,200	914,600	98	-21,600	-2	133,350	14	
Bridgeport Reservoir	21	374,830	297,858	79	-13,207	-4	-31,142	-8	
Eagle Mountain Reservoir	22	178,380	149,172	84	-11,312	-6	-5,788	-3	
Benbrook Lake	23	88,200	78,777	89	-7,697	-9	1,287	1	
Joe Pool Lake	24	175,800	172,752	98	-3,048	-2	14,852	8	
Ray Roberts Lake	25	798,760	699,716	88	-22,561	-3	-52,294	-7	
Lewisville Lake	26	555,000	439,227	79	-31,271	-6	-27,373	-5	
Grapevine Lake	27	187,700	156,835	84	-8,450	-5	-3,335	-2	
Lavon Lake	28	443,800	401,510	90	-32,794	-7	63,210	14	
Lake Ray Hubbard	29	413,420	413,420	100	0	0	-13,580	-3	
Richland-Chambers Creek Lake	30	1,103,820	1,098,377	100	-5,443	0	51,157	5	
Navarro Mills Lake	31	55,810	52,275	94	-3,535	-6	7,725	14	
Bardwell Lake	32	53,580	50,714	95	-2,866	-5	6,634	12	
Hubbard Creek Reservoir	33	317,800	238,300	75	-11,700	-4	-46,700	-15	
Lake Graham	34	45,000	45,000	100	0	0	8,310	18	
Possum Kingdom Lake	35	551,820	378,461	69	-23,984	-4	-49,539	-9	
Lake Palo Pinto	36	42,200	40,195	95	-2,005	-5	7,455	18	
Lake Granbury	37	135,680	132,693	98	805	1	3,693	3	
Lake Pat Cleburne	38	25,300	22,547	89	-1,688	-7	1,247	5	
Whitney Lake	39	622,800	471,114	76	-17,386	-3	-36,586	-6	
Waco Lake	40	144,500	144,500	100	0	0	22,780	16	
Proctor Lake	41	55,590	35,538	64	-4,219	-8	-10,462	-19	
Belton Lake	42	434,500	434,500	100	0	0	22,500	5	
Stillhouse Hollow Lake	43	226,060	226,060	100	0	0	4,090	2	
Lake Georgetown	44	37,010	37,010	100	0	0	5,030	14	
Granger Lake	45	54,280	54,280	100	0	0	1,380	3	
Lake Limestone	46	215,750	209,000	97	-6,750	-3	32,000	15	
Lake Brownwood	47	143,400	107,700	75	-4,500	-3	-19,210	-13	
TOTAL		11,922,600	10,723,077	90	-375,688	-3	219,157	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 June 1999		Change since Late July 1998		
			Late July 1999 (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	66,800	100	0	0	9,690	15	
Lake Bob Sandlin	50	202,300	197,726	98	-4,574	-2	25,166	12	
Lake O' the Pines	51	252,000	252,000	100	0	0	30,860	12	
Lake Fork Reservoir	52	635,200	635,200	100	0	0	53,820	8	
Toledo Bend Reservoir	53	4,472,900	4,167,000	93	-184,000	-4	677,000	15	
Lake Palestine	54	411,300	405,300	99	-6,000	-1	46,860	11	
Lake Tyler	55	73,700	73,700	100	0	0	6,580	9	
Sam Rayburn Reservoir	56	2,876,300	2,809,141	98	-67,159	-2	551,041	19	
B. A. Steinhagen Lake	57	94,200	85,504	91	1,895	2	604	1	
Cedar Creek Reservoir	58	637,050	637,050	100	15,350	2	78,050	12	
Lake Livingston	59	1,750,000	1,735,000	99	-15,000	-1	205,000	12	
Lake Conroe	60	429,900	415,100	97	-2,900	-1	31,130	7	
TOTAL		12,044,350	11,622,221	96	-262,388	-2	1,715,801	14	
<b>TRANS-PECOS</b>									
Red Bluff Reservoir	61	307,000	88,130	29	6,280	2	31,200	10	
TOTAL		307,000	88,130	29	6,280	2	31,200	10	
<b>EDWARDS PLATEAU</b>									
E. V. Spence Reservoir	62	484,800	74,200	15	-2,020	0	-11,200	-2	
Twin Buttes Reservoir	63	177,800	16,642	9	-3,085	-2	-4,258	-2	
O.C. Fisher Lake	64	119,200	10,566	9	-728	-1	-5,034	-4	
O. H. Ivie Reservoir	65	554,340	383,100	69	-13,600	-2	-88,760	-16	
Lake Buchanan	66	896,980	846,183	94	-24,288	-3	28,263	3	
Amistad Reservoir (Texas)	67	1,771,030	1,013,000	57	22,000	1	514,000	29	
Amistad Reservoir (Texas and Mexico)	(67)	3,151,300	1,309,000	42	49,000	2	529,000	17	
TOTAL		4,004,150	2,343,691	59	-21,721	-1	433,011	11	
<b>SOUTH CENTRAL</b>									
Somerville Lake	68	155,060	155,060	100	0	0	26,060	17	
Lake Travis	69	1,144,100	1,018,052	89	-38,014	-3	147,162	13	
Canyon Lake	70	385,600	385,600	100	0	0	19,240	5	
Coletto Creek Reservoir	71	35,060	30,630	87	-1,350	-4	4,300	12	
Medina Lake	72	254,000	250,000	98	12,500	5	39,000	15	
TOTAL		1,973,820	1,839,342	93	-26,864	-1	235,762	12	
<b>UPPER COAST</b>									
Lake Houston	73	128,860	123,100	96	-5,760	-4	9,100	7	
Lake Texana	74	157,900	157,900	100	0	0	19,910	13	
TOTAL		286,760	281,000	98	-5,760	-2	29,010	10	

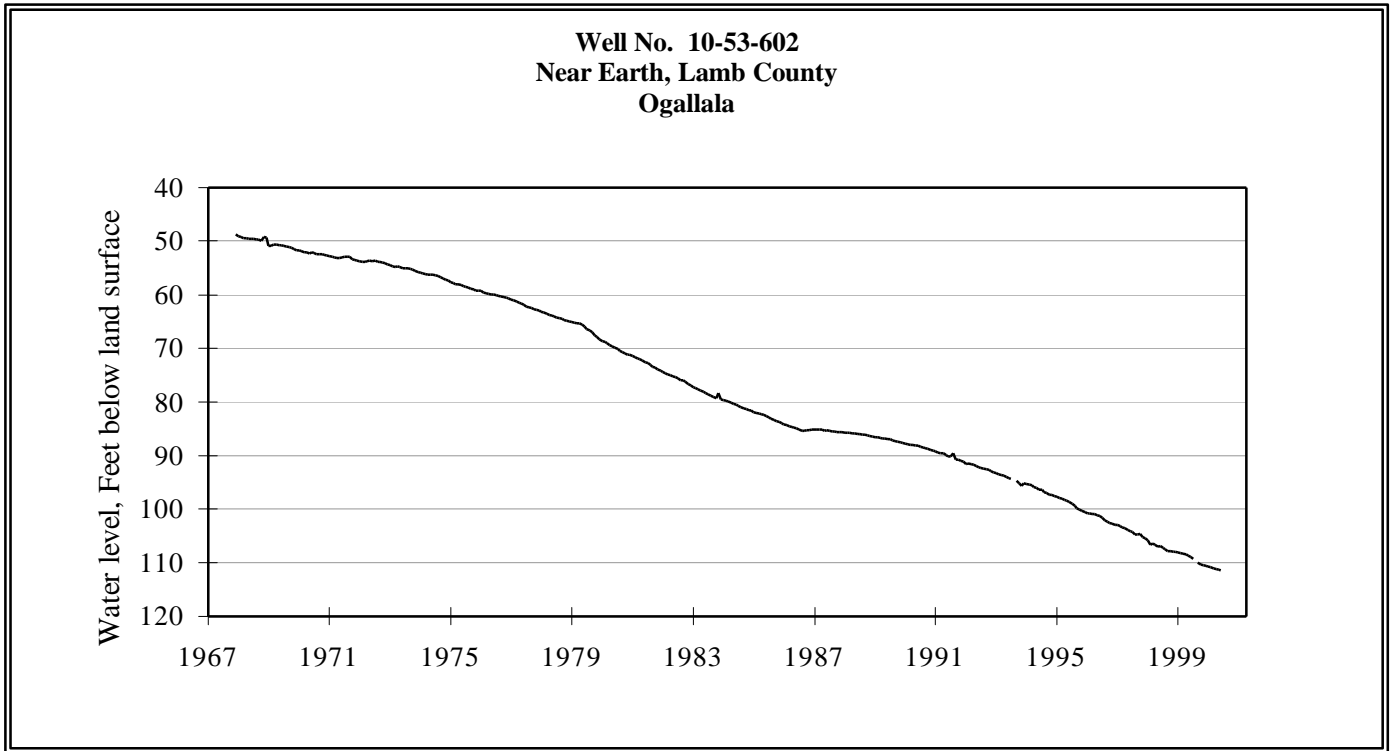
## CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of Lake or Reservoir	No. on Map	Conservation Storage Capacity (acre-feet)	Conservation Storage Late July 1999 (acre-feet)	%	Change since Late June 1999 (acre-feet)	%	Change since Late July 1998 (acre-feet)	%
<b>SOUTHERN</b>								
Choke Canyon Reservoir	75	695,260	345,000	50	-8,000	-1	107,660	15
Lake Corpus Christi	76	241,240	176,900	73	-5,000	-2	75,060	31
Falcon Reservoir (Texas)	77	1,555,120	287,000	18	114,000	7	97,000	6
Falcon Reservoir (Texas and Mexico)	(77)	2,653,290	510,000	19	195,000	7	249,000	9
TOTAL		2,491,620	808,900	32	101,000	4	279,720	11
<b>STATE TOTAL</b>		34,481,020	28,554,204	83	-633,497	-2	3,093,174	9

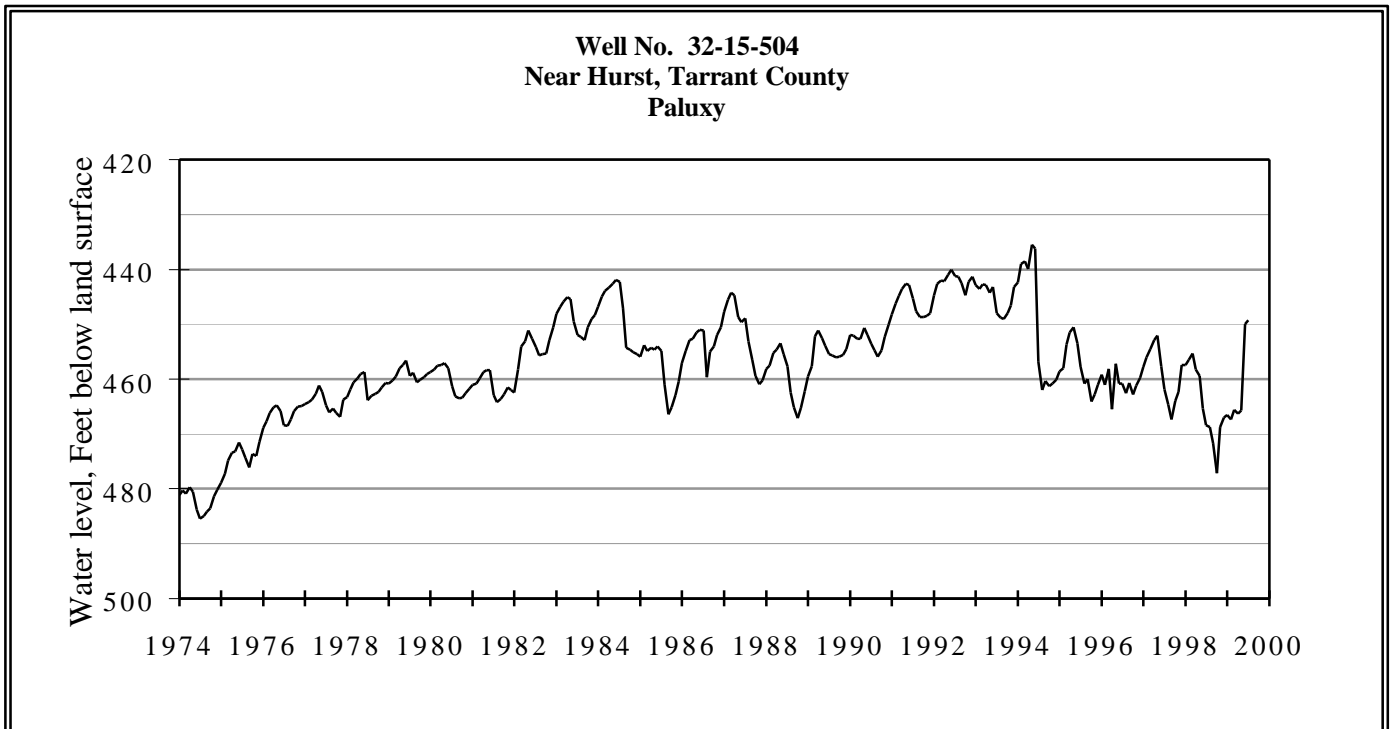
NOTES: Conservation storage capacity is the space available to store water above the level of invert of lowest outlet works and below the level of top of conservation pool or normal maximum operating level. Conservation storage refers to the volume of water held within the conservation storage space. 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.

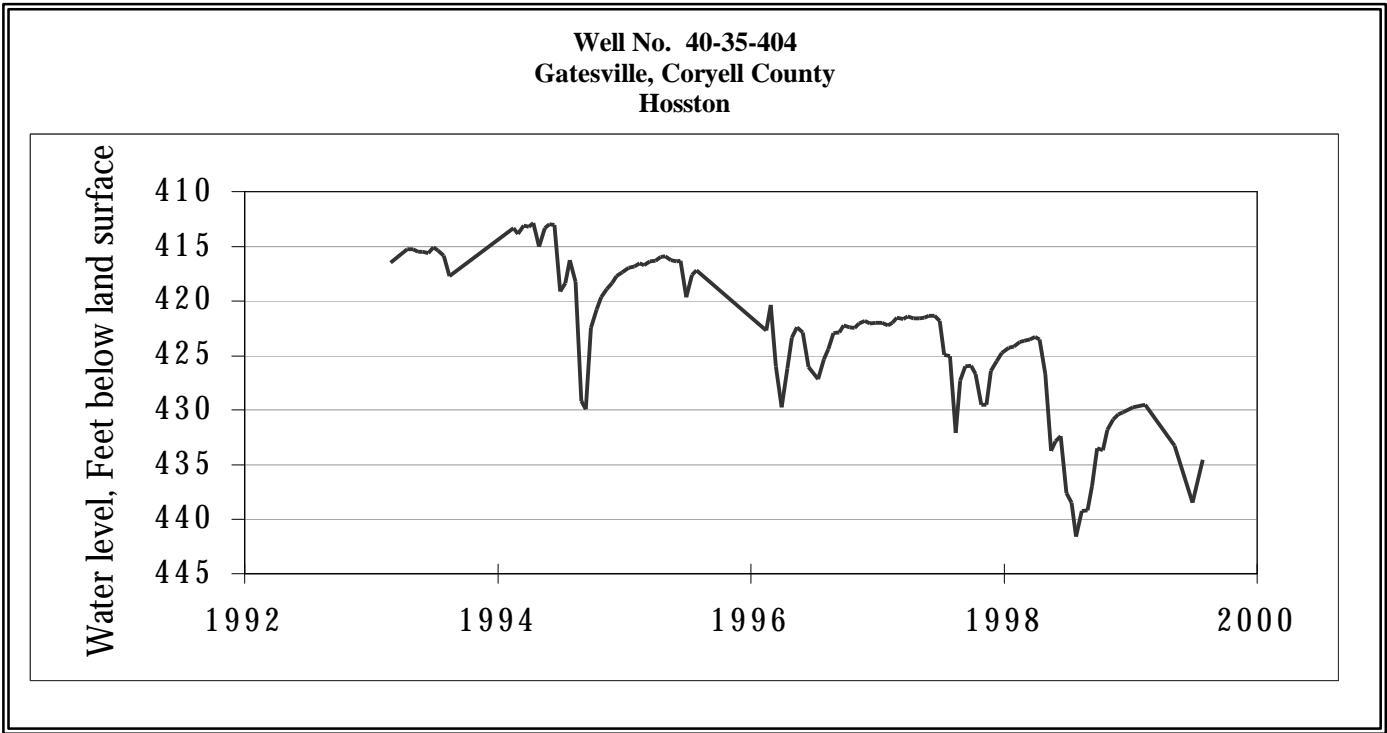
# JULY GROUND WATER LEVELS IN OBSERVATION WELLS



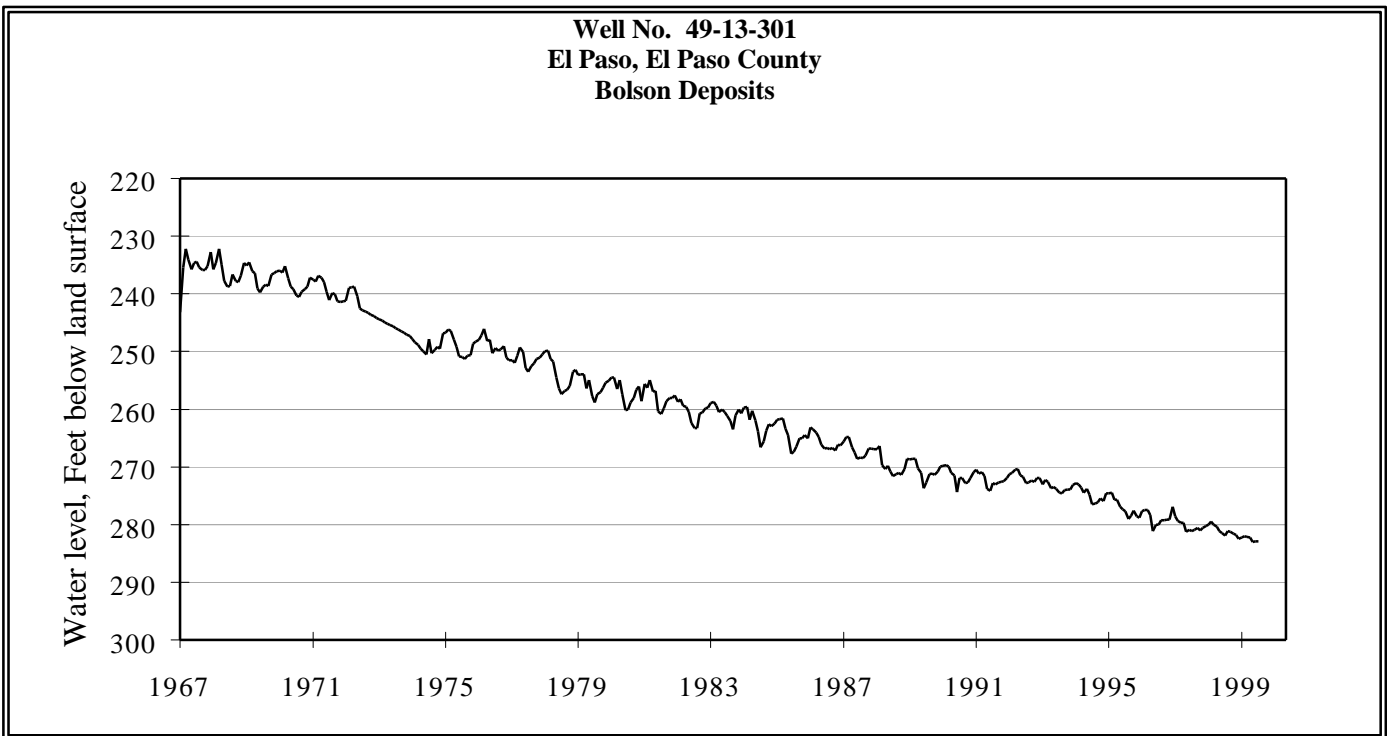
The July water-level measurement in this Ogallala aquifer well, elevation 3667 feet above sea level, was 111.42 feet below land surface. This was 0.10 of a foot below last month's measurement, 2.72 feet below last year's measurement, and 83.27 feet below the initial measurement recorded in 1950.



The July water-level measurement in this Paluxy aquifer well, elevation 535 feet above sea level, was 449.30 feet below land surface. This measurement was 0.58 of a foot above month's measurement, 19.05 feet above last year's measurement, and 55.91 feet below the initial measurement recorded in 1953.

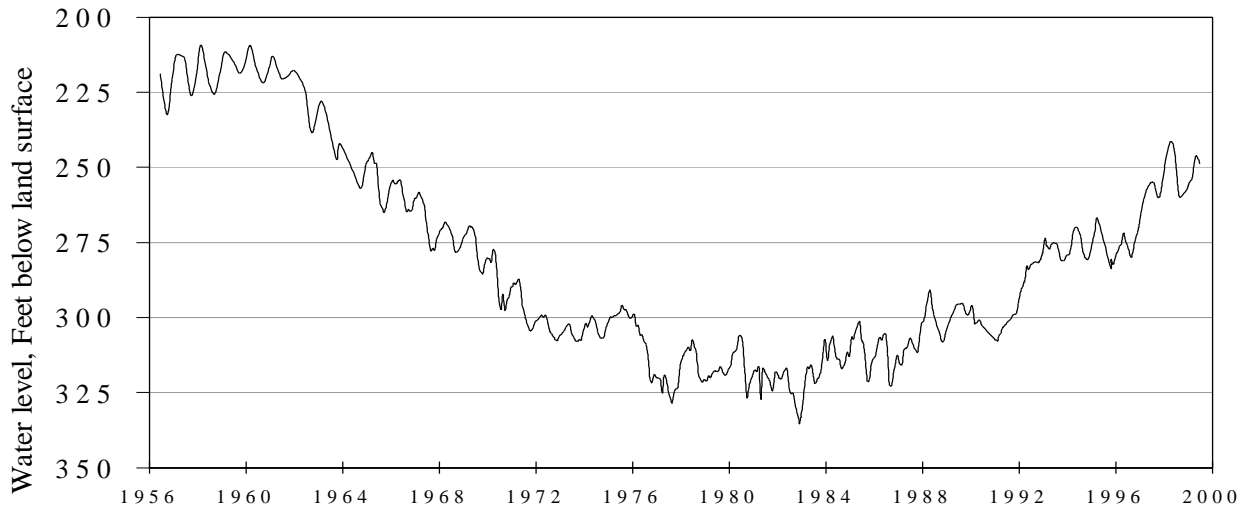


The July water-level measurement in this Hosston Formation aquifer well, elevation 823 feet above sea level, was 434.57 feet below land surface. This measurement was 3.88 feet above the June measurement, 7.00 feet above last year's measurement, and 142.57 feet below the initial measurement recorded in 1955.



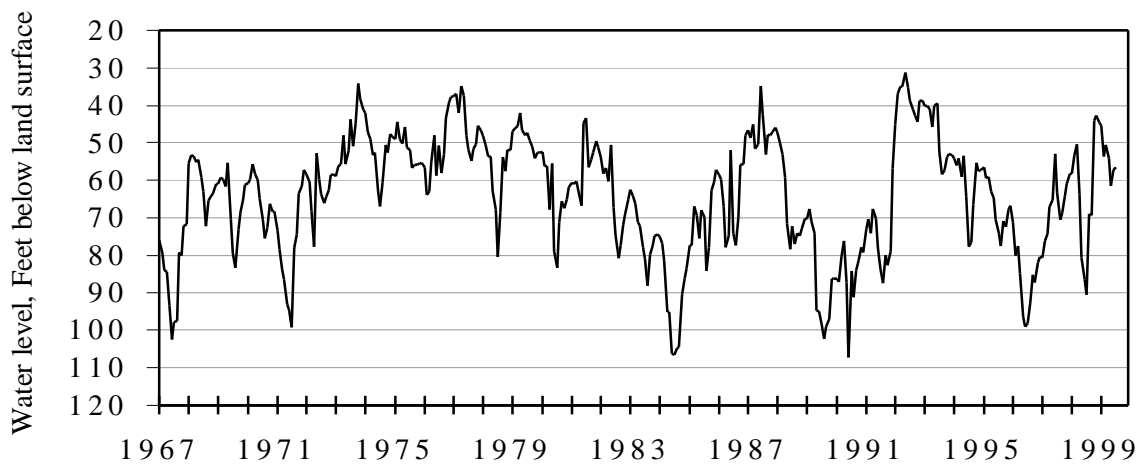
The July water-level measurement in this Bolson Deposits aquifer well, elevation 3882 feet above sea level, was 282.90 feet below land surface. This was 0.07 of a foot below last month's measurement, 1.02 feet below last year's measurement, and 51.00 feet below the initial measurement recorded in 1964.

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



The July water-level measurement in this Evangeline aquifer well, elevation 66 feet above sea level, was 250.01 feet below land surface. This was 1.08 feet below last month's measurement, 5.51 feet above last year's measurement, and 146.78 feet below the initial measurement recorded in 1947.

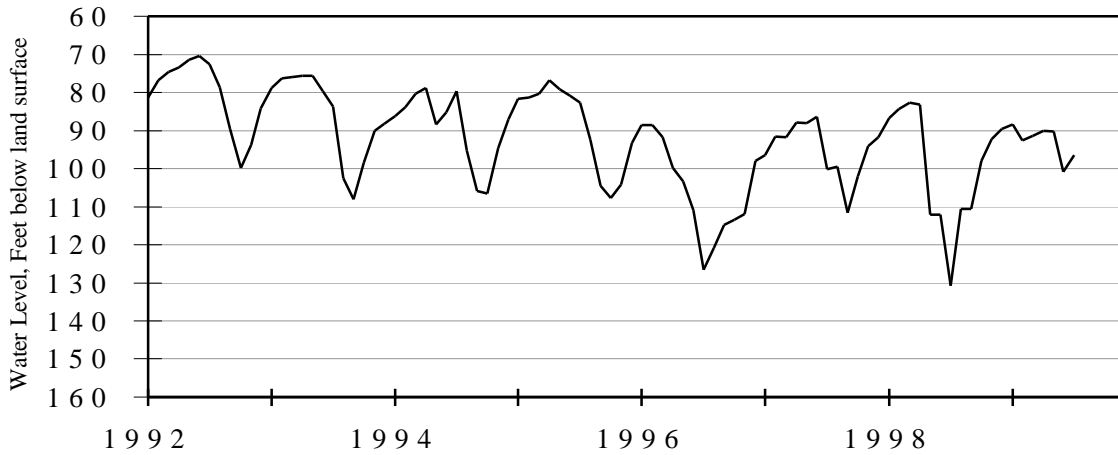
**Well No. 68-37-203  
In San Antonio, Bexar County  
Edwards and Associated Limestones**



The July water-level measurement in this Edwards aquifer well, elevation 731 feet above sea level, was 56.60 feet below land surface. This was 0.60 feet above last month's measurement, 34.01 feet above last year's measurement, and 3.02 feet above the initial measurement recorded in 1962.

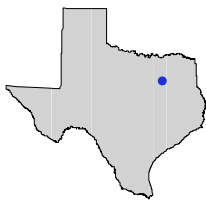


**Well No. 68-60-9123  
Between Poteet and Pleasanton, Atascosa County  
Carrizo**



The July water-level measurement in this Carrizo aquifer well, elevation 446 feet above sea level, was 96.40 feet below land surface. This was 4.42 feet above last month's measurement, 34.29 feet above last year's measurement, and 15.15 feet below the initial measurement recorded in 1965.

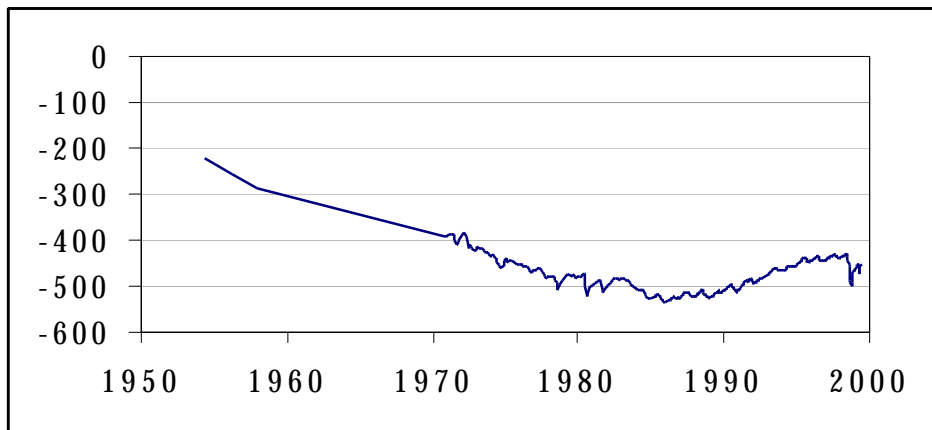
***HYDROGRAPH OF THE MONTH***



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. 33-19-101  
Dallas, Dallas County**

Water Level,  
Feet Below Land Surface



This 3,076-foot deep observation well, elevation 405 feet above sea level, was completed in the Twin Mountains Formation, or Trinity aquifer. The graph illustrates a steady water level decline attributed to ground-water demands from the 1950s through the late 1980s. Currently, water demand has switched from ground to surface water which has resulted in a fairly steady aquifer recharge.