

Texas Water Development Board



WATER Conditions

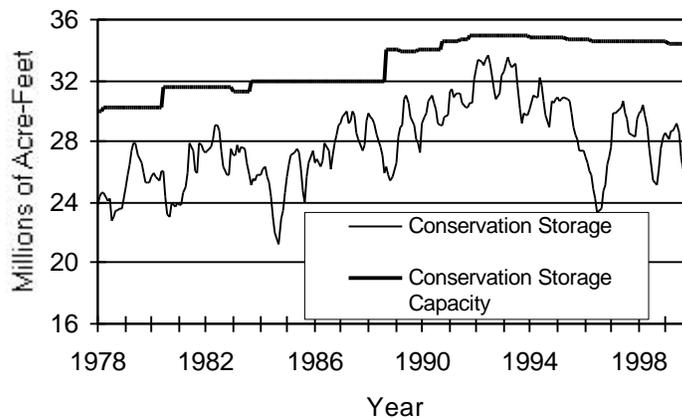
RESERVOIR STORAGE

December 1999

Near the end of December, the 77 reservoirs monitored for this report held 24.5 million acre-feet in conservation storage. This is 71.1 percent of the conservation storage capacity of the State's major reservoirs, the lowest percentage of total capacity for a December in 22 years of record, and the sixth-lowest for all months in the record. Compared to the end of November, storage decreased 0.16 million acre-feet (-0.5% of conservation storage capacity). Compared to this month last year, storage decreased 3.81 million acre-feet (-11.1%).

Of the monitored reservoirs, only 3 held 100 percent of conservation storage near the end of December. Changes in regional storages during December were small, all less than 1% of conservation storage capacity. Storage decreased in all regions except the Low Rolling Plains and Trans Pecos regions, which each increased by less than 0.5%. The largest changes since the end of December 1998 occurred in the High Plains (+11%), North Central (-9%), East (-16%), South Central (-22%), and Upper Coast (-23%).

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.

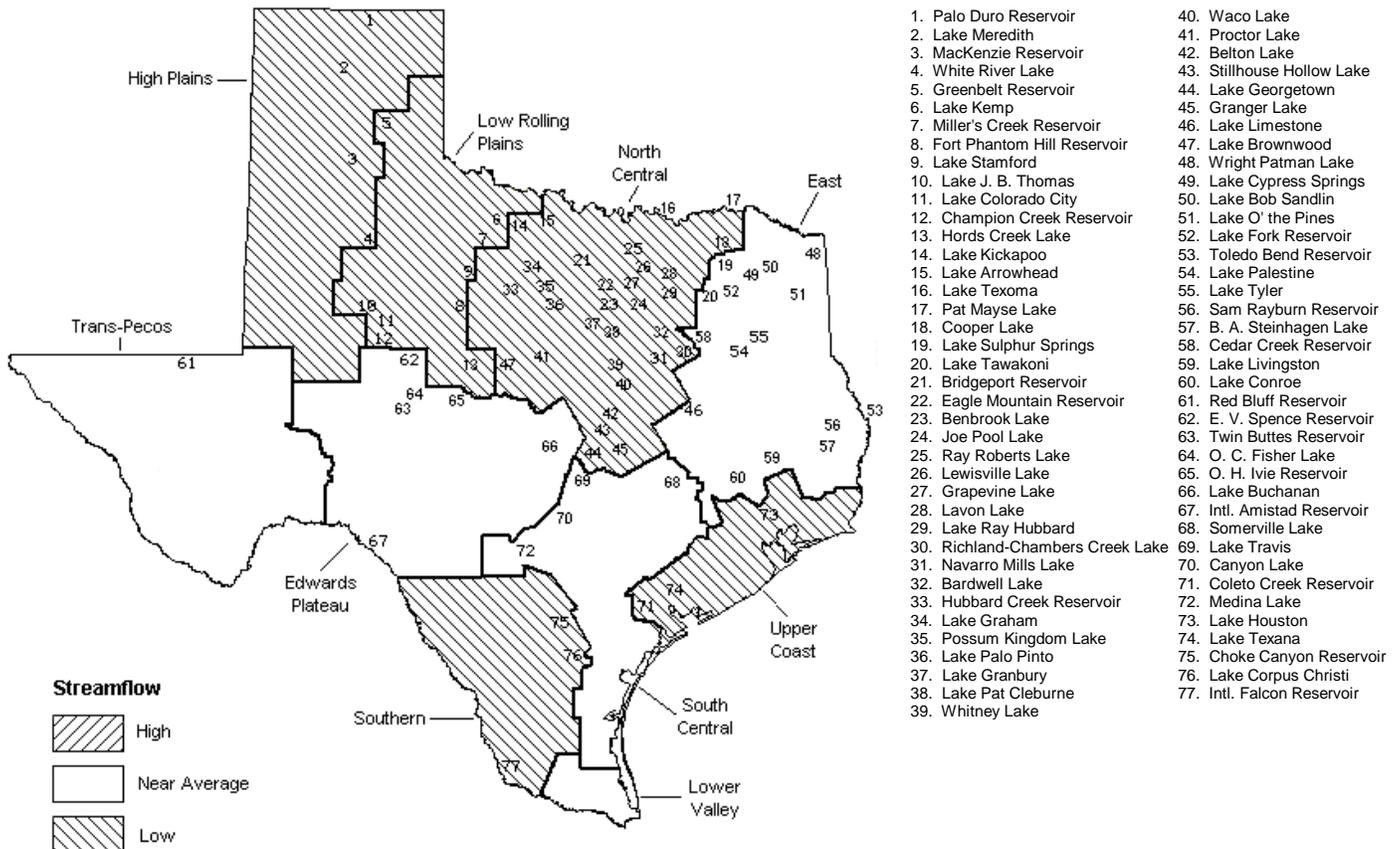
STREAMFLOW

Of 20 reporting index stations in December, computed 30-day mean flows were high (5% - 30% exceedance) at 1 station, near normal (30% - 70% exceedance) at 8 stations, low (70% - 95% exceedance) at 8 stations, and very low (0% - 5% exceedance) at 3 stations. In comparison to November, flows increased at 13 index stations, decreased at 1 station, and remained the same at 2 stations.

Flows in December were below normal in five of nine climatic regions. Near normal flows occurred in the Trans Pecos, Edwards Plateau, South Central, and East regions. The only index station showing a decrease in comparison to November flows was the Nueces River near Tilden station. Flows at two stations, Elm Creek at Ballinger and Denton Creek near Justin, recorded no flow for November and December.

DECEMBER STREAMFLOW CONDITIONS

Reservoirs Shown on Map



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 December 1999 (acre-feet) (%)	Late November 1999 (acre-feet) (%)	(%)	Late December 1998 (acre-feet) (%)	(%)	
HIGH PLAINS								
Palo Duro Reservoir	1	60,900	18,708	31	-1,512	-2	8,329	14
Lake Meredith (Texas)	2	500,000	387,000	77	-6,200	-1	53,500	11
Lake Meredith (Texas and Oklahoma)	(2)	779,560	387,000	50	-6,200	-1	53,500	7
MacKenzie Reservoir	3	46,250	9,820	21	-60	0	2,843	6
White River Lake	4	31,850	16,740	53	-370	-1	7,976	25
TOTAL		639,000	432,268	68	-8,142	-1	72,648	11
LOW ROLLING PLAINS								
Greenbelt Reservoir	5	58,200	25,440	44	-10	0	310	1
Lake Kemp	6	319,600	151,100	47	-1,700	-1	5,400	2
Miller's Creek Reservoir	7	27,890	10,870	39	-600	-2	-3,414	-12
Fort Phantom Hill Reservoir	8	70,030	20,460	29	-40	0	-5,457	-8
Lake Stamford*	9	52,700	11,810	22	5,070	10	-6,988	-13
Lake J. B. Thomas	10	202,300	29,790	15	-1,110	-1	22,818	11
Lake Colorado City	11	30,800	14,420	47	-540	-2	-710	-2
Champion Creek Reservoir	12	41,600	5,050	12	-90	0	-5,450	-13
Hords Creek Lake	13	8,600	3,399	40	-149	-2	-1,734	-20
TOTAL		811,720	274,039	34	2,531	0	6,475	1
NORTH CENTRAL								
Lake Kickapoo	14	106,000	53,015	50	-507	0	780	1
Lake Arrowhead	15	262,100	132,900	51	-3,500	-1	-40,200	-15
Lake Texoma	16	2,722,300	2,313,076	85	0	0	66,028	2
Pat Mayse Lake	17	124,500	111,077	89	8,574	7	-8,669	-7
Cooper Lake	18	273,000	225,345	83	7,240	3	-47,655	-17
Lake Sulphur Springs	19	17,710	14,013	79	223	1	-1,453	-8
Lake Tawakoni	20	936,200	759,500	81	-11,500	-1	-176,700	-19
Bridgeport Reservoir	21	374,830	216,739	58	-5,129	-1	-69,508	-19
Eagle Mountain Reservoir	22	178,380	137,645	77	-373	0	-8,797	-5
Benbrook Lake	23	88,200	65,014	74	4,941	6	-15,077	-17
Joe Pool Lake	24	175,800	157,478	90	1,188	1	-18,322	-10
Ray Roberts Lake	25	798,760	595,767	75	-14,744	-2	-120,014	-15
Lewisville Lake	26	555,000	325,205	59	1,351	0	-137,057	-25
Grapevine Lake	27	187,700	130,731	70	-1,784	-1	-23,041	-12
Lavon Lake	28	443,800	303,764	68	18,417	4	-130,750	-29
Lake Ray Hubbard	29	413,420	413,420	100	0	0	-73,080	-18
Richland-Chambers Creek Lake	30	1,103,820	953,894	86	-14,066	-1	-149,926	-14
Navarro Mills Lake	31	55,810	40,418	72	-171	0	-15,392	-28
Bardwell Lake	32	53,580	37,632	70	202	0	-15,948	-30
Hubbard Creek Reservoir	33	317,800	204,400	64	-5,000	-2	-49,400	-16
Lake Graham	34	45,000	39,780	88	-1,520	-3	510	1
Poosum Kingdom Lake	35	551,820	426,900	77	-4,100	-1	180,495	33
Lake Palo Pinto	36	42,200	29,891	71	-981	-2	3,740	9
Lake Granbury	37	135,680	120,700	89	-4,900	-4	-9,593	-7
Lake Pat Cleburne	38	25,300	16,708	66	-534	-2	-8,592	-34
Whitney Lake	39	622,800	427,600	69	700	0	-44,237	-7
Waco Lake	40	144,500	108,334	75	-2,351	-2	-36,166	-25
Proctor Lake	41	55,590	21,102	38	-434	-1	-12,825	-23
Belton Lake	42	434,500	376,175	87	-5,648	-1	-58,325	-13
Stillhouse Hollow Lake	43	226,060	212,607	94	-306	0	-13,453	-6
Lake Georgetown	44	37,010	26,033	70	-1,500	-4	-10,977	-30
Granger Lake	45	54,280	49,605	91	598	1	-4,675	-9
Lake Limestone	46	215,750	173,800	81	-1,900	-1	-41,950	-19
Lake Brownwood	47	143,400	84,520	59	-1,960	-1	-28,693	-20
TOTAL		11,922,600	9,304,788	78	-39,474	0	-1,118,922	-9

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of Lake or Reservoir	No. on Map	Conservation Storage Capacity (acre-feet)	Conservation Storage Late December 1999		Change since Late November 1999		Change since Late December 1998		
			(acre-feet)	(%)	(acre-feet)	(%)	(acre-feet)	(%)	
EAST									
Wright Patman Lake	48	142,700	142,700	100	0	0	0	0	
Lake Cypress Springs	49	66,800	62,040	93	-4,680	-7	-4,760	-7	
Lake Bob Sandlin	50	202,300	183,900	91	12,198	6	-18,400	-9	
Lake O' the Pines	51	252,000	230,938	92	4,051	2	-21,062	-8	
Lake Fork Reservoir	52	635,200	591,100	93	500	0	-44,100	-7	
Toledo Bend Reservoir	53	4,472,900	3,490,000	78	-16,000	0	-710,000	-16	
Lake Palestine	54	411,300	352,200	86	1,400	0	-59,100	-14	
Lake Tyler	55	73,700	71,928	98	-178	0	-1,772	-2	
Sam Rayburn Reservoir	56	2,876,300	1,941,000	67	-101,000	-4	-935,300	-33	
B. A. Steinhagen Lake	57	94,200	71,647	76	-10,346	-11	-8,389	-9	
Cedar Creek Reservoir	58	637,050	562,332	88	-12,901	-2	-74,718	-12	
Lake Livingston	59	1,750,000	1,750,000	100	74,000	4	15,000	1	
Lake Conroe	60	429,900	375,600	87	-2,000	0	-40,600	-9	
TOTAL		12,044,350	9,825,385	82	-54,956	0	-1,903,201	-16	
TRANS-PECOS									
Red Bluff Reservoir	61	307,000	86,740	28	1,400	0	18,140	6	
TOTAL		307,000	86,740	28	1,400	0	18,140	6	
EDWARDS PLATEAU									
E. V. Spence Reservoir	62	484,800	58,390	12	-3,460	-1	-15,600	-3	
Twin Buttes Reservoir	63	177,800	6,491	4	-1,023	-1	-7,355	-4	
O.C. Fisher Lake	64	119,200	8,020	7	-226	0	-4,961	-4	
O. H. Ivie Reservoir	65	554,340	323,000	58	-8,400	-2	-105,200	-19	
Lake Buchanan	66	896,980	611,875	68	-3,360	0	-196,579	-22	
Amistad Reservoir (Texas)	67	1,771,030	1,040,000	59	-3,000	0	78,000	4	
Amistad Reservoir (Texas and Mexico)	(67)	3,151,300	1,386,000	44	6,000	0	21,000	1	
TOTAL		4,004,150	2,047,776	51	-19,469	0	-251,695	-6	
SOUTH CENTRAL									
Somerville Lake	68	155,060	139,966	90	735	0	-15,094	-10	
Lake Travis	69	1,144,100	825,831	72	-9,809	-1	-318,269	-28	
Canyon Lake	70	385,600	356,773	93	-3,408	-1	-28,827	-7	
Coletto Creek Reservoir	71	35,060	23,520	67	-710	-2	-11,540	-33	
Medina Lake	72	254,000	199,200	78	-9,100	-4	-54,800	-22	
TOTAL		1,973,820	1,545,290	78	-22,292	-1	-428,530	-22	
UPPER COAST									
Lake Houston	73	128,860	106,400	83	5,500	4	-22,460	-17	
Lake Texana	74	157,900	113,200	72	-6,900	-4	-44,700	-28	
TOTAL		286,760	219,600	77	-1,400	0	-67,160	-23	

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of Lake or Reservoir	No. on Map	Conservation Storage Capacity (acre-feet)	Conservation Storage Late December 1999 (acre-feet) (%)	Change since Late November 1999 (acre-feet) (%)	Change since Late December 1998 (acre-feet) (%)
------------------------------	------------------	--	--	--	--

SOUTHERN

Choke Canyon Reservoir	75	695,260	297,000	43	-6,000	-1	-64,873	-9
Lake Corpus Christi	76	241,240	149,700	62	-13,800	-6	-36,563	-15
Falcon Reservoir (Texas)	77	1,555,120	318,000	20	2,000	0	-40,000	-3
Falcon Reservoir (Texas and Mexico)	(77)	2,653,290	636,000	24	-16,000	-1	-9,000	0
TOTAL		2,491,620	764,700	31	-17,800	-1	-141,436	-6

STATE TOTAL	34,481,020	24,500,586	71	-159,602	0	-3,813,681	-11
--------------------	------------	------------	----	----------	---	------------	-----

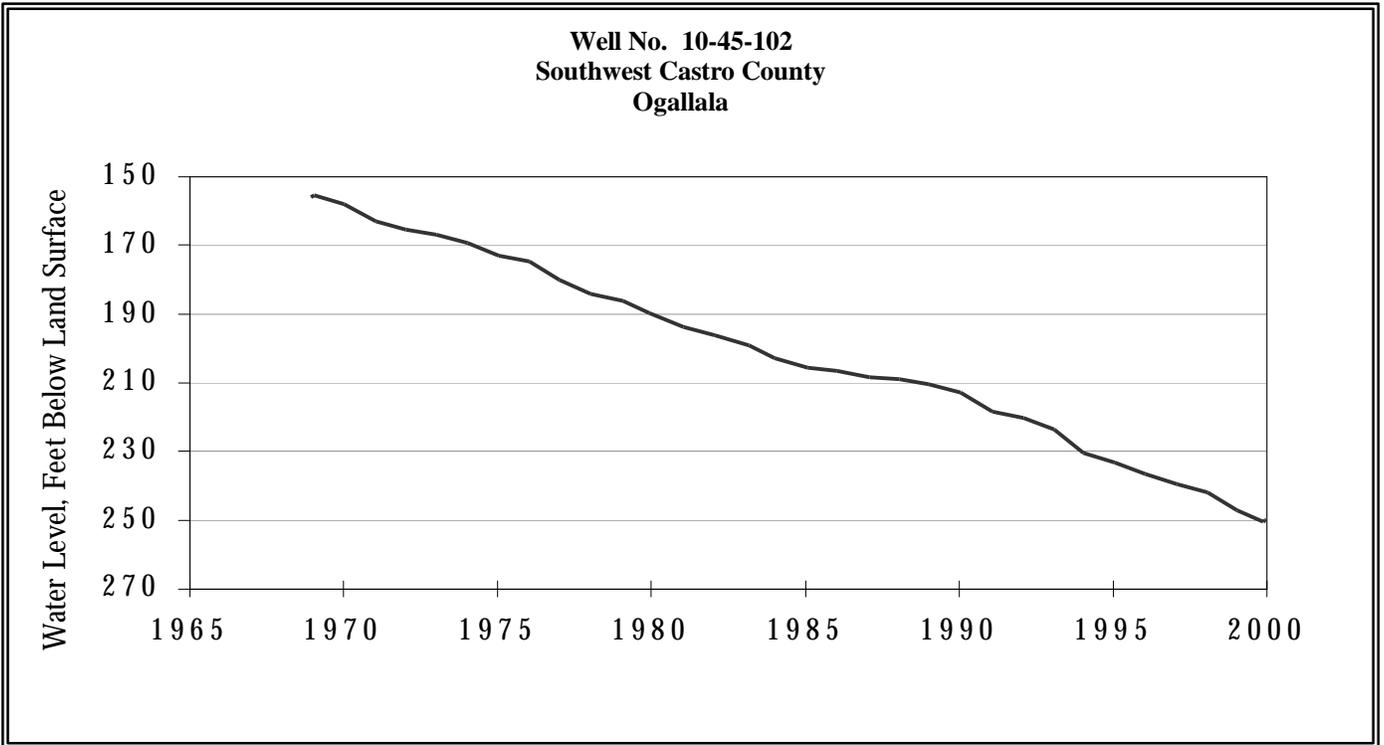
NOTES:

* Relatively large increase in Lake Stamford storage due to use of updated volume table based on 1999 TWDB lake survey.

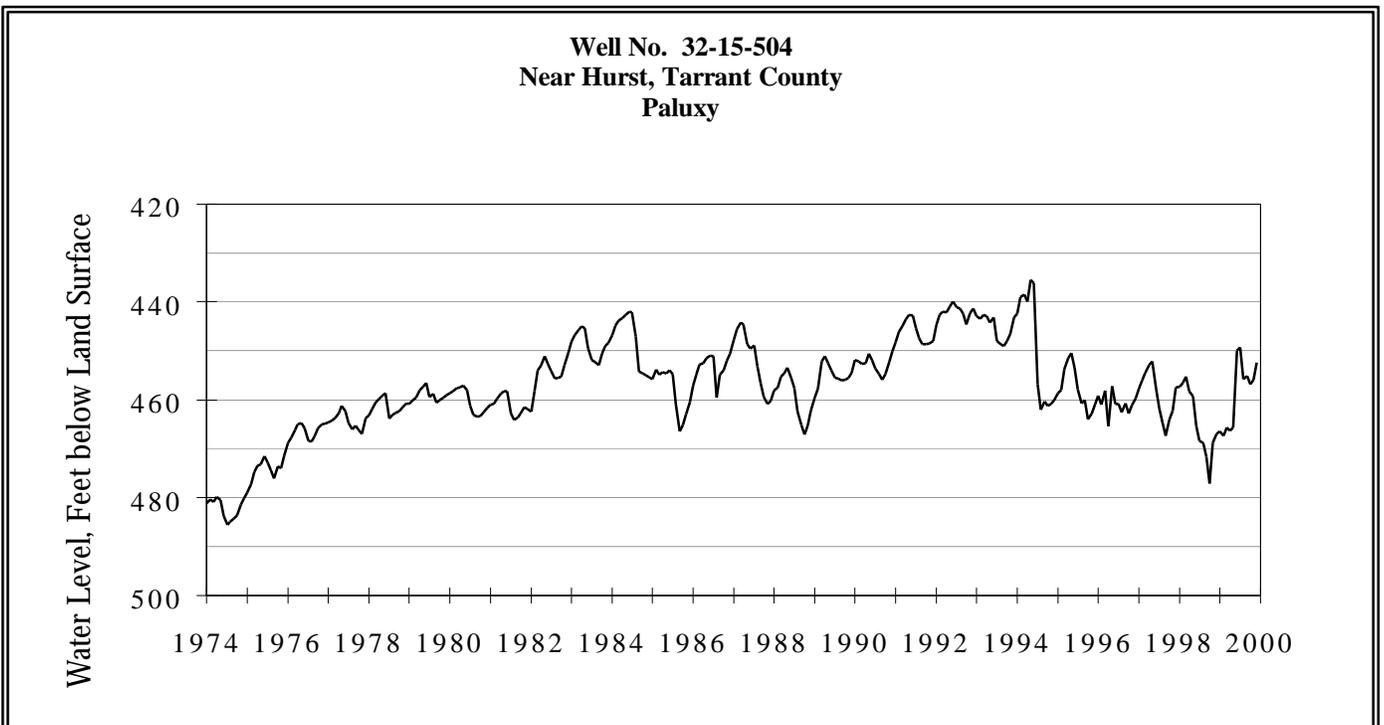
Conservation storage capacity is the space available to store water above the level of invert of lowest outlet works and below the level of top of conservation pool or normal maximum operating level. Conservation storage refers to the volume of water held within the conservation storage space. Not included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

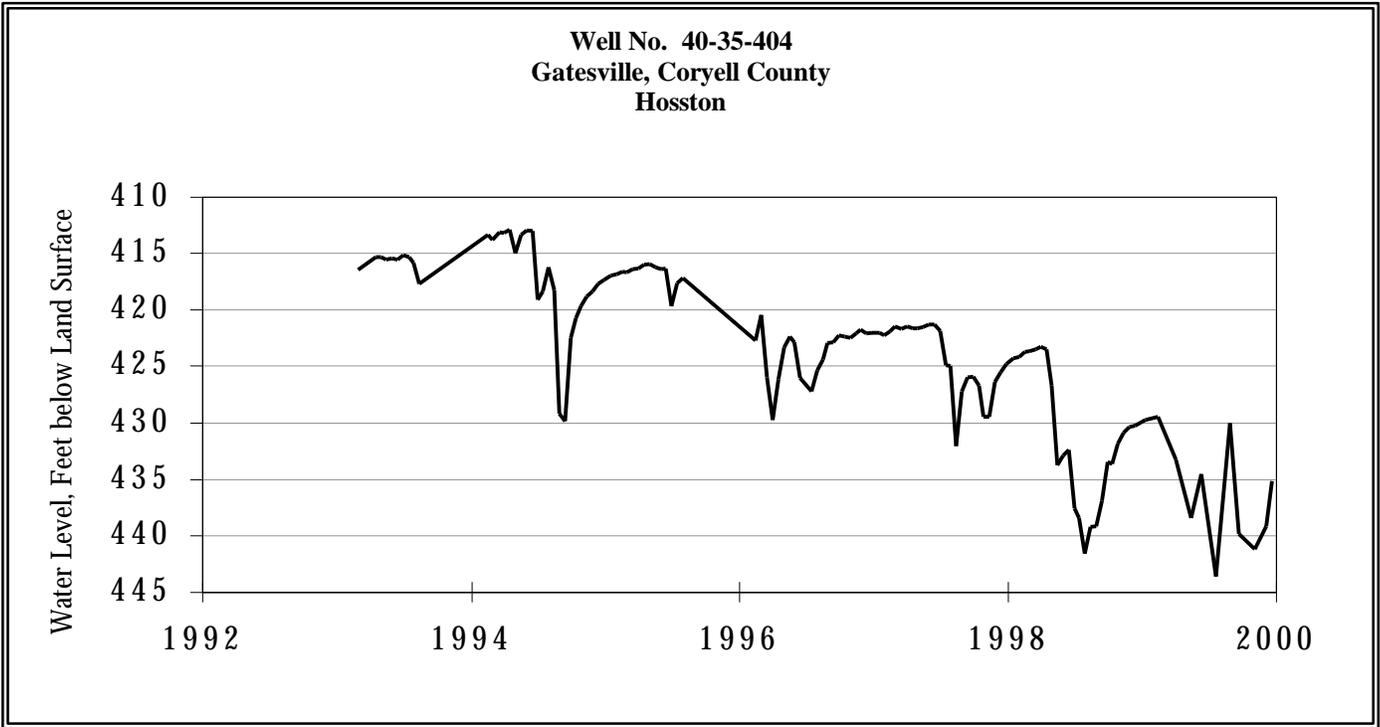
DECEMBER GROUND WATER LEVELS IN OBSERVATION WELLS



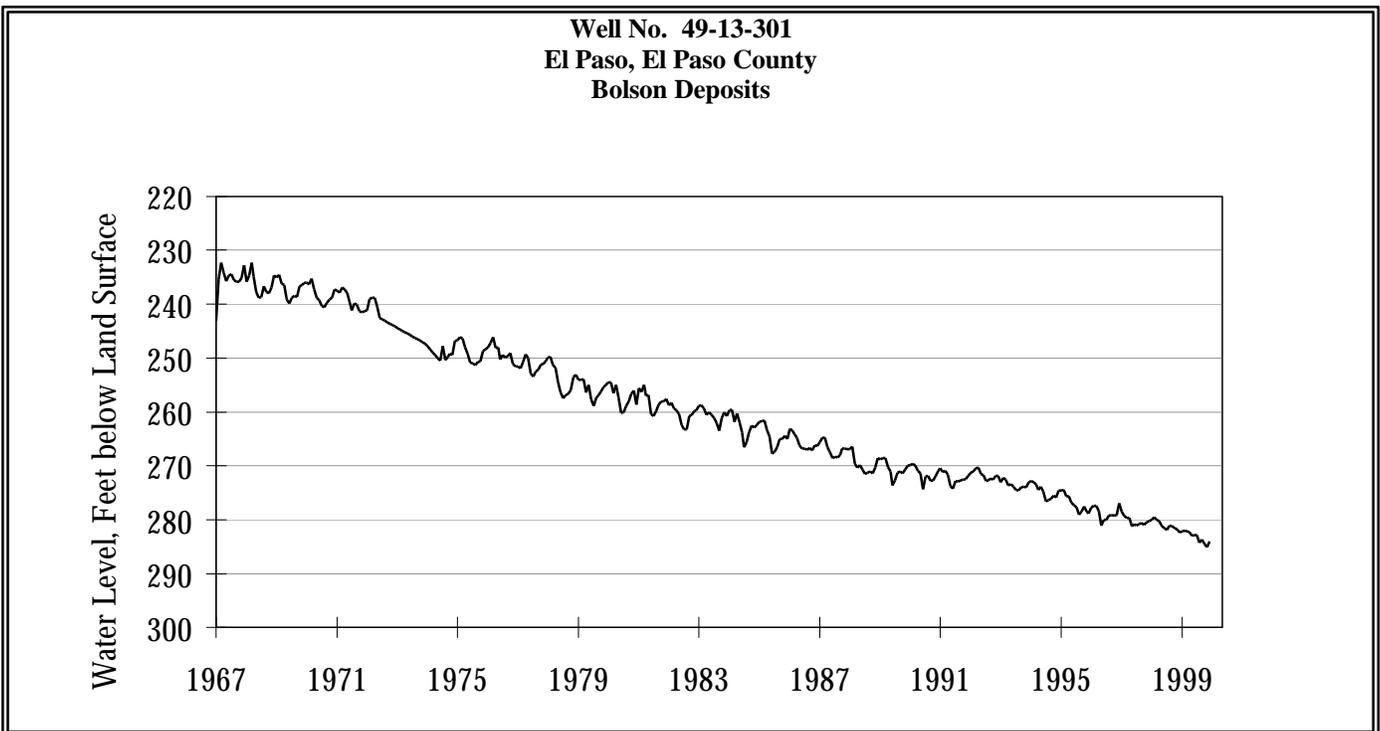
The December water-level measurements in this Ogallala well, elevation 3,816 feet above sea level, was 249.75 feet below land surface. This measurement was 0.29 feet above last month's measurement and 93.73 feet below the initial measurement recorded in 1968.



The December water-level measurement in this Paluxy aquifer well, elevation 535 feet above sea level, was 452.42 feet below land surface. This measurement was 3.55 of feet above last month's measurement, 14.58 feet above last year's measurement, and 59.03 feet below the initial measurement recorded in 1953.

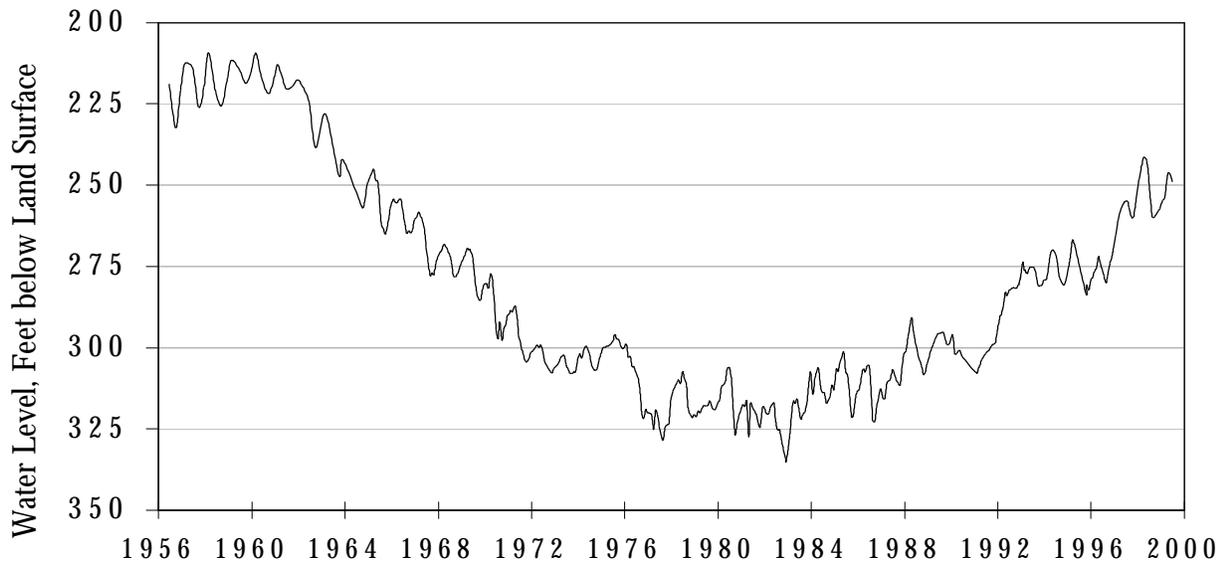


The December water-level measurement in this Hosston Formation aquifer well, elevation 823 feet above sea level, was 435.21 feet below land surface. This measurement was 3.94 feet above last month's measurement, 5.51 feet below last year's measurement, and 143.21 feet below the initial measurement recorded in 1955.



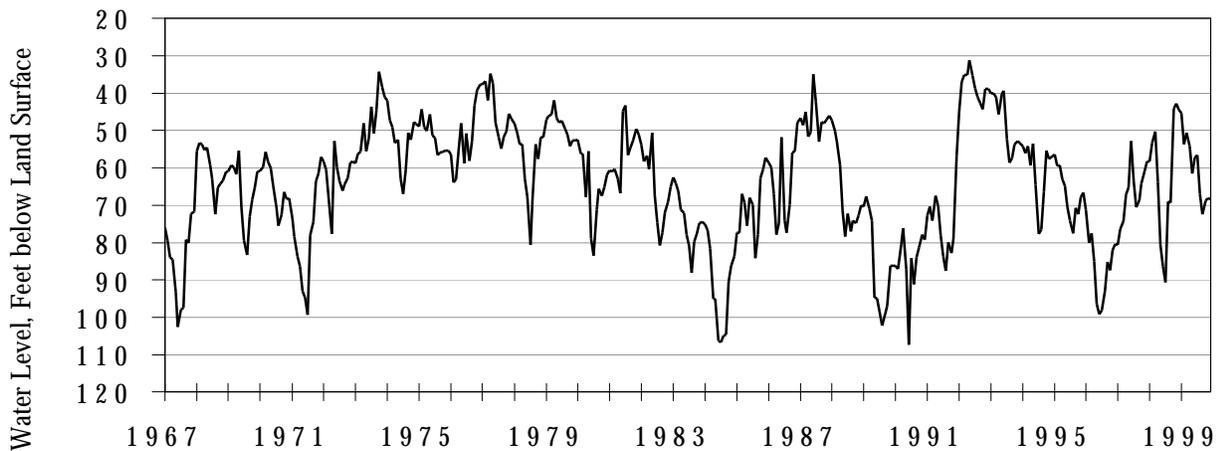
The December water-level measurement in this Bolson Deposits aquifer well, elevation 3,882 feet above sea level, was 283.95 feet below land surface. This was 1.11 of a foot above last month's measurement, 1.55 feet below last year's measurement, and 52.05 feet below the initial measurement recorded in 1964.

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



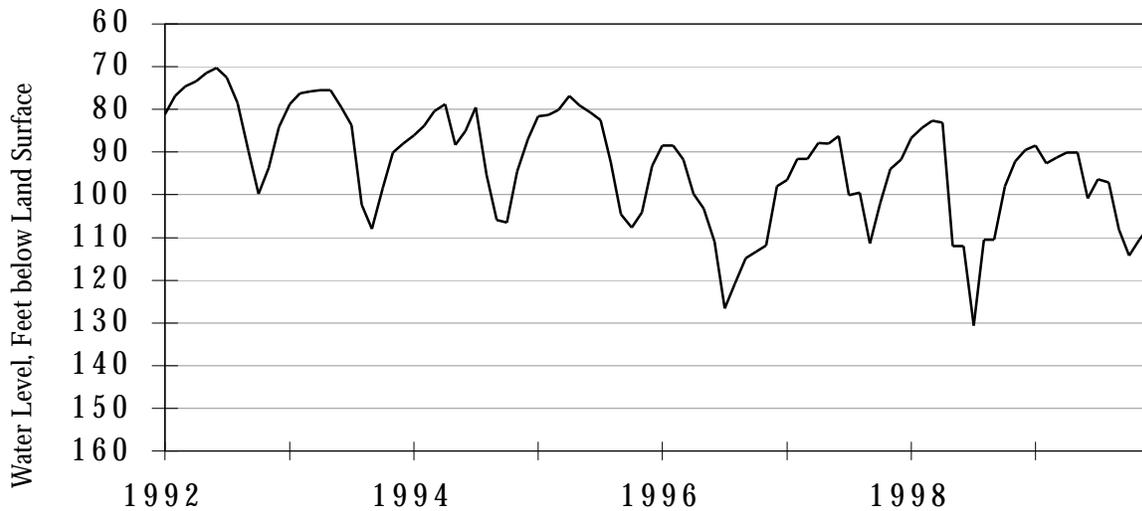
The December water-level measurement in this Evangeline aquifer well, elevation 66 feet above sea level, was 248.49 feet below land surface. This was 3.80 feet above last month's measurement, 8.63 feet above last year's measurement, and 145.26 feet below the initial measurement recorded in 1947.

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



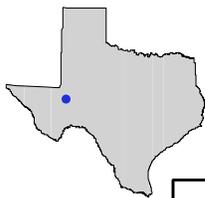
The December water-level measurement in this Edwards aquifer well, elevation 731 feet above sea level, was 68.31 feet below land surface. This was 0.11 feet below last month's measurement, 23.81 feet below last year's measurement, and 8.69 feet below the initial measurement recorded in 1962.

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



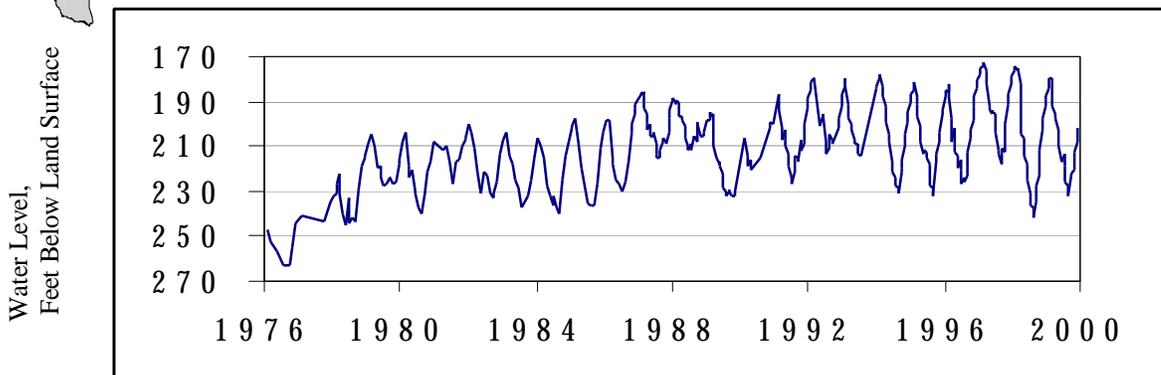
The December water-level measurement in this Carrizo aquifer well, elevation 446 feet above sea level, was 103.09 feet below land surface. This was 4.10 feet above last month's measurement, 13.56 feet below last year's measurement, and 21.84 feet below the initial measurement recorded in 1965.

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. 52-16-802
Pecos County**



This 500-foot-deep observation well, elevation 3,199 feet above sea level, is completed in the Edwards and Trinity Group aquifer, located just east of the City of Fort Stockton, Texas. The graph illustrates seasonal aquifer recharge.