Texas Water Development Board

WATER Conditions

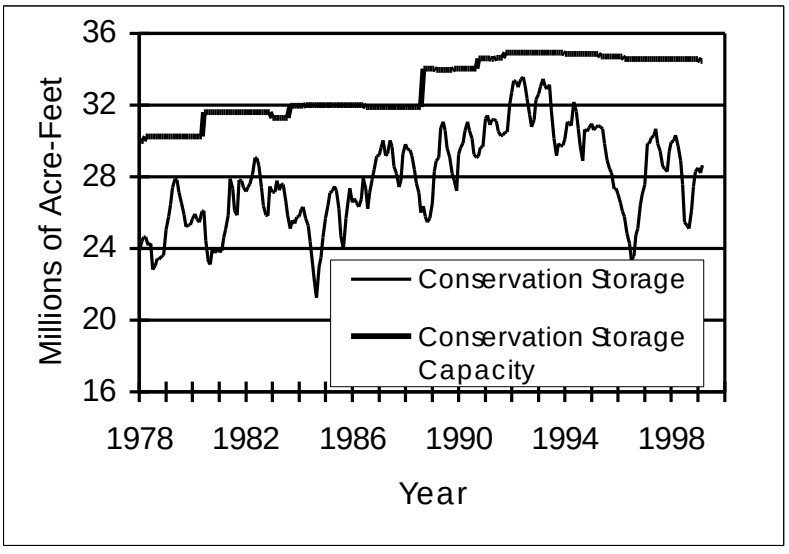
RESERVOIR STORAGE

March 1999

Near the end of March, the 77 reservoirs monitored for this report held 28,638 ,000 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 February, storage increased 416,000 acre-feet (+1.2% of conservation storage capacity). Compared to this month last year, storage decreased 1,704,000 acre-feet (-5%).

Of the monitored reservoirs, 30 held 100 percent or more of conservation storage near the end of March. Conservation storage increased or remained full in all regions of the state except for the High Plains, where storage decreased by 2,399 acre-feet (-0.4%), and the Southern Region where storage decreased by 11,268 acre-feet (-0.5%). The largest absolute and percentage increases occurred in the North Central Region where storage increased by over 356,000 acre-feet (+3%). All regions except the Upper Coast region were below conservation storage levels for March 1998.

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.

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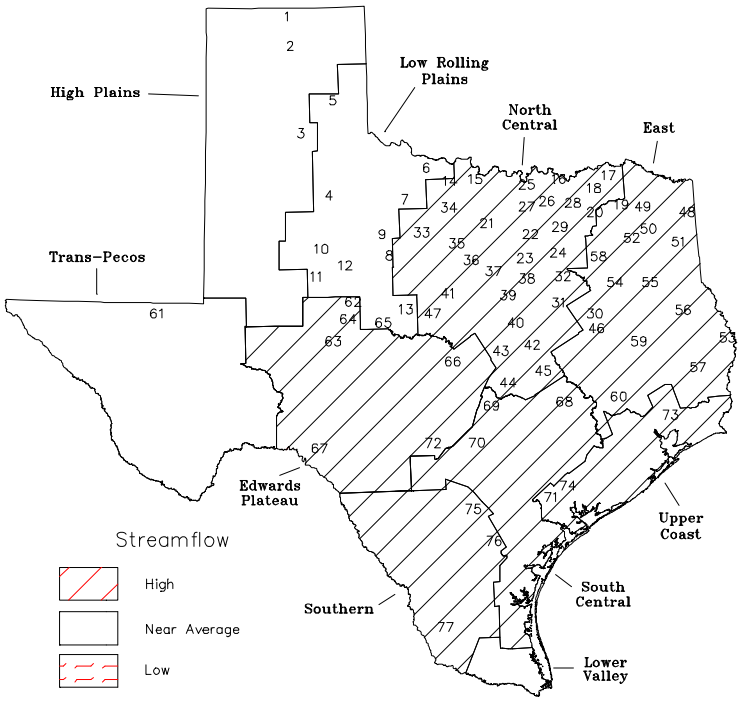
STREAMFLOW

Thirty-day mean flows at index stations were high (5% - 30% exceedance probability) at 15 stations and near normal (30% - 70% exceedance probability) at 10 stations in March. Only one station (Double Mountain Fork Brazos River near Aspermont, TX) reported low flow conditions. Throughout the state, March flows increased at 17 index stations, decreased at 8 stations, and remained the same at 1 station in comparison to February flows.

Flows were high at all three index stations in the Southern climatic region, and at 10 of 17 recording stations in the South Central, Upper Coast, East Texas, North Central, and Edwards Plateau regions. Flows at four of six recording stations in the remaining regions were near normal. The 30-day average flow at Middle Yegua Creek near Dime Box, Texas had the lowest exceedance frequency (highest relative flow) of all index stations at 10.9% exceedance. The lowest relative flows were recorded at DMF Brazos River near Aspermont at 71.7% exceedance frequency.

STREAMFLOW CONDITIONS FOR MARCH COMPARED WITH PAST RECORD



Reservoirs Shown on Map

1. Palo Duro Reservoir
2. Lake Meredith
3. MacKenzie Reservoir
4. White River Lake
5. Greenbelt Reservoir
6. Lake Kemp
7. Miller's Creek Reservoir
8. Fort Phantom Hill Reservoir
9. Lake Stamford
10. Lake J. B. Thomas
11. Lake Colorado City
12. Champion Creek Reservoir
13. Hords Creek Lake
14. Lake Kickapoo
15. Lake Arrowhead
16. Lake Texoma
17. Pat Mayse Lake
18. Cooper Lake
19. Lake Sulphur Springs
20. Lake Tawakoni
21. Bridgeport Reservoir
22. Eagle Mountain Reservoir
23. Benbrook Lake
24. Joe Pool Lake
25. Ray Roberts Lake
26. Lewisville Lake
27. Grapevine Lake
28. Lavon Lake
29. Lake Ray Hubbard
30. Richland-Chambers Creek Lake
31. Navarro Mills Lake
32. Bardwell Lake
33. Hubbard Creek Reservoir
34. Lake Graham
35. Possum Kingdom Lake
36. Lake Palo Pinto
37. Lake Granbury
38. Lake Pat Cleburne
39. Whitney Lake
40. Waco Lake
41. Proctor Lake
42. Belton Lake
43. Stillhouse Hollow Lake
44. Lake Georgetown
45. Granger Lake
46. Lake Limestone
47. Lake Brownwood
48. Wright Patman Lake
49. Lake Cypress Springs
50. Lake Bob Sandlin
51. Lake O' the Pines
52. Lake Fork Reservoir
53. Toledo Bend Reservoir
54. Lake Palestine
55. Lake Tyler
56. Sam Rayburn Reservoir
57. B. A. Steinhagen Lake
58. Cedar Creek Reservoir
59. Lake Livingston
60. Lake Conroe
61. Red Bluff Reservoir
62. E. V. Spence Reservoir
63. Twin Buttes Reservoir
64. O. C. Fisher Lake
65. O. H. Ivie Reservoir
66. Lake Buchanan
67. Intl. Amistad Reservoir
68. Somerville Lake
69. Lake Travis
70. Canyon Lake
71. Coleto Creek Reservoir
72. Medina Lake
73. Lake Houston
74. Lake Texana
75. Choke Canyon Reservoir
76. Lake Corpus Christi
77. Intl. Falcon Reservoir

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of Lake or Reservoir	No. on Map	Conservation Storage Capacity (acre-feet)	Conservation Storage Late Mar 1999 (acre-feet)	(%)	Change since Late Feb 1999 (acre-feet)	(%)	Change since Late Mar 1998 (acre-feet)	(%)
HIGH PLAINS								
Palo Duro Reservoir	1	60,900	8,027	13	-584	-1	2,867	5
Lake Meredith (Texas)	2	500,000	327,900	66	-1,600	0	-62,030	-12
Lake Meredith (Texas and Oklahoma)	(2)	779,560	327,900	42	-1,600	0	-62,030	-8
MacKenzie Reservoir	3	46,250	7,005	15	-57	0	-2,225	-5
White River Lake	4	31,850	8,100	25	-158	0	-4,380	-14
TOTAL		639,000	351,032	55	-2,399	0	-65,768	-10
LOW ROLLING PLAINS								
Greenbelt Reservoir	5	58,200	25,880	44	-3,980	-7	-3,320	-6
Lake Kemp	6	319,600	168,900	53	12,400	4	-123,020	-38
Miller's Creek Reservoir	7	27,890	15,420	55	1,817	7	2,880	10
Fort Phantom Hill Reservoir	8	70,030	26,119	37	202	0	-32,761	-47
Lake Stamford	9	52,700	18,510	35	170	0	-12,510	-24
Lake J. B. Thomas	10	202,300	6,870	3	450	0	-8,330	-4
Lake Colorado City	11	30,800	14,340	47	0	0	-4,410	-14
Champion Creek Reservoir	12	41,600	10,040	24	-230	-1	-10,130	-24
Hords Creek Lake	13	8,600	4,774	56	-80	-1	-1,856	-22
TOTAL		811,720	290,853	36	10,749	1	-193,457	-24
NORTH CENTRAL								
Lake Kickapoo	14	106,000	66,788	63	13,773	13	-4,512	-4
Lake Arrowhead	15	262,100	181,800	69	8,900	3	-52,270	-20
Lake Texoma	16	2,722,300	2,581,269	95	232,442	9	-141,031	-5
Pat Mayse Lake	17	124,500	121,322	97	3,360	3	-3,178	-3
Cooper Lake	18	273,000	257,501	94	-4,520	-2	-15,499	-6
Lake Sulphur Springs	19	17,710	15,192	86	548	3	-2,518	-14
Lake Tawakoni	20	936,200	936,200	100	0	0	0	0
Bridgeport Reservoir	21	374,830	303,903	81	21,927	6	-70,927	-19
Eagle Mountain Reservoir	22	178,380	151,700	85	7,031	4	-26,680	-15
Benbrook Lake	23	88,200	87,334	99	3,263	4	-866	-1
Joe Pool Lake	24	175,800	175,800	100	0	0	0	0
Ray Roberts Lake	25	798,760	705,043	88	-7,236	-1	-93,717	-12
Lewisville Lake	26	555,000	443,100	80	-6,646	-1	-111,900	-20
Grapevine Lake	27	187,700	157,237	84	2,205	1	-30,463	-16
Lavon Lake	28	443,800	443,800	100	1,236	0	0	0
Lake Ray Hubbard	29	413,420	413,420	100	0	0	-76,280	-18
Richland-Chambers Creek Lake	30	1,103,820	1,103,820	100	0	0	0	0
Navarro Mills Lake	31	55,810	55,810	100	0	0	0	0
Bardwell Lake	32	53,580	53,580	100	0	0	0	0
Hubbard Creek Reservoir	33	317,800	256,800	81	9,500	3	-57,500	-18
Lake Graham	34	45,000	44,730	99	6,630	15	-270	-1
Possum Kingdom Lake	35	551,820	282,872	51	37,432	7	-268,948	-49
Lake Palo Pinto	36	42,200	32,385	77	7,352	17	-9,815	-23
Lake Granbury	37	135,680	130,928	96	4,453	3	-4,752	-4
Lake Pat Cleburne	38	25,300	25,300	100	0	0	0	0
Whitney Lake	39	622,800	456,403	73	9,636	2	-166,397	-27
Waco Lake	40	144,500	144,500	100	0	0	-50	0
Proctor Lake	41	55,590	36,092	65	3,322	6	-19,498	-35
Belton Lake	42	434,500	434,500	100	0	0	0	0
Stillhouse Hollow Lake	43	226,060	226,060	100	0	0	0	0
Lake Georgetown	44	37,010	37,010	100	0	0	0	0
Granger Lake	45	54,280	54,280	100	0	0	0	0
Lake Limestone	46	215,750	215,750	100	1,950	1	0	0
Lake Brownwood	47	143,400	110,300	77	96	0	-32,400	-23
TOTAL		11,922,600	10,745,707	90	356,654	3	-1,186,293	-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 Mar 1999 (acre-feet)	(%)	Change since Late Feb 1999 (acre-feet)	(%)	Change since Late Mar 1998 (acre-feet)	(%)
EAST								
Wright Patman Lake	48	142,700	142,700	100	0	0	0	0
Lake Cypress Springs	49	66,800	66,800	100	0	0	0	0
Lake Bob Sandlin	50	202,300	202,300	100	0	0	0	0
Lake O' the Pines	51	252,000	252,000	100	0	0	0	0
Lake Fork Reservoir	52	635,200	635,200	100	0	0	8,460	1
Toledo Bend Reservoir	53	4,472,900	4,201,000	94	-2,000	0	-179,000	-4
Lake Palestine	54	411,300	411,300	100	0	0	0	0
Lake Tyler	55	73,700	73,700	100	0	0	0	0
Sam Rayburn Reservoir	56	2,876,300	2,876,300	100	0	0	0	0
B. A. Steinhagen Lake	57	94,200	84,237	89	32,936	35	-1,283	-1
Cedar Creek Reservoir	58	637,050	637,050	100	0	0	0	0
Lake Livingston	59	1,750,000	1,750,000	100	0	0	0	0
Lake Conroe	60	429,900	416,400	97	1,700	0	430	0
TOTAL		12,044,350	11,748,987	98	32,636	0	-171,393	-1
TRANS-PECOS								
Red Bluff Reservoir	61	307,000	72,120	23	820	0	-26,620	-9
TOTAL		307,000	72,120	23	820	0	-26,620	-9
EDWARDS PLATEAU								
E. V. Spence Reservoir	62	484,800	69,830	14	-2,380	0	-32,770	-7
Twin Buttes Reservoir	63	177,800	15,005	8	680	0	-30,995	-17
O.C. Fisher Lake	64	119,200	11,797	10	-315	0	-4,103	-3
O. H. Ivie Reservoir	65	554,340	411,900	74	-4,600	-1	-101,160	-18
Lake Buchanan	66	896,980	846,823	94	35,451	4	-50,157	-6
Amistad Reservoir (Texas)	67	1,771,030	1,009,000	57	-2,000	0	152,890	9
Amistad Reservoir (Texas and Mexico)	(67)	3,151,300	1,386,000	44	-50,000	-2	-80,570	-3
TOTAL		4,004,150	2,364,355	59	26,836	1	-66,295	-2
SOUTH CENTRAL								
Somerville Lake	68	155,060	155,060	100	0	0	0	0
Lake Travis	69	1,144,100	1,144,100	100	0	0	0	0
Canyon Lake	70	385,600	385,600	100	5,155	1	1,180	0
Coleto Creek Reservoir	71	35,060	31,820	91	160	0	-3,240	-9
Medina Lake	72	254,000	247,004	97	-3,596	-1	-6,996	-3
TOTAL		1,973,820	1,963,584	99	1,719	0	-9,056	0
UPPER COAST								
Lake Houston	73	128,860	128,860	100	0	0	5,860	5
Lake Texana	74	157,900	157,900	100	0	0	90	0
TOTAL		286,760	286,760	100	0	0	5,950	2

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CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

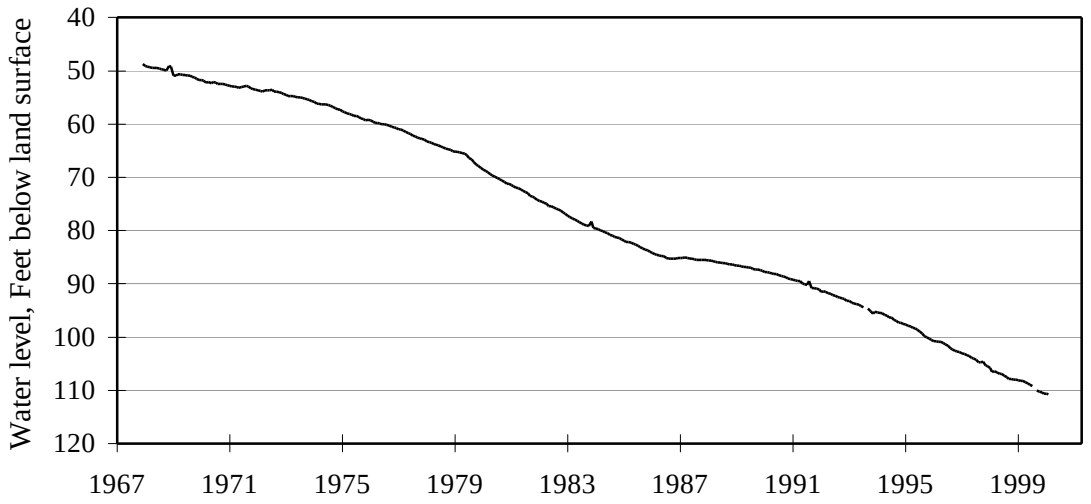
Name of Lake or Reservoir	No. on Map	Conservation Storage Capacity (acre-feet)	Conservation Storage Late Mar 1999 (acre-feet)	(%)	Change since Late Feb 1999 (acre-feet)	(%)	Change since Late Mar 1998 (acre-feet)	(%)
			SOUTHERN					
Choke Canyon Reservoir	75	695,260	358,359	52	1,401	0	79,499	11
Lake Corpus Christi	76	241,240	186,263	77	4,331	2	5,163	2
Falcon Reservoir (Texas)	77	1,555,120	270,000	17	-17,000	-1	-75,360	-5
Falcon Reservoir (Texas and Mexico)	(77)	2,653,290	529,000	20	-28,000	-1	-47,410	-2
TOTAL		2,491,620	814,622	33	-11,268	0	9,302	0
STATE TOTAL		34,481,020	28,634,842	83	415,747	1	-1,706,808	-5

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.

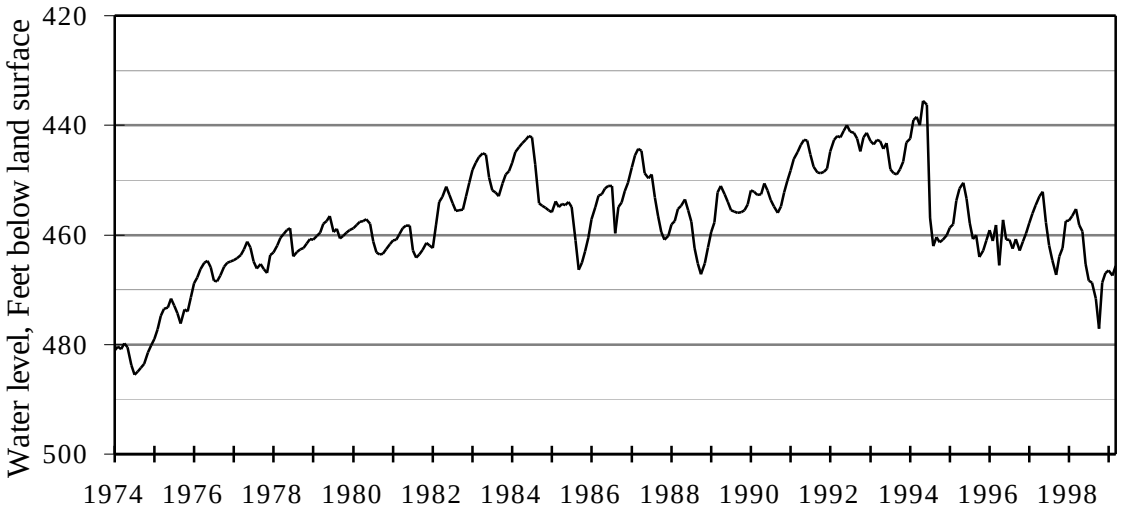
GROUND WATER LEVELS IN OBSERVATION WELLS

Well No. 10-53-602
Near Earth, Lamb County
Ogallala

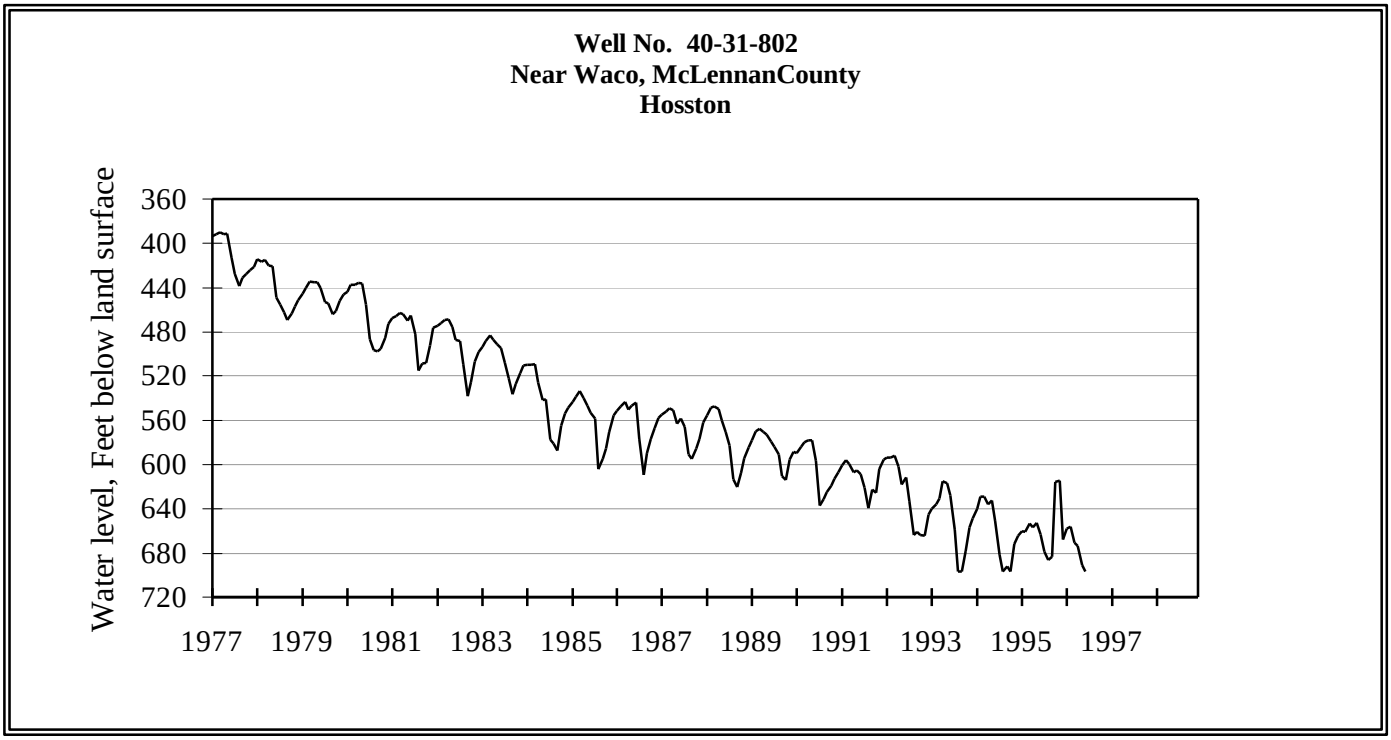


The March water-level measurement in this Ogallala aquifer well, elevation 3667 feet above sea level, was 110.80 feet below land surface. This was 0.09 of a foot below last month's measurement, 2.60 feet below last year's measurement, and 82.65 feet below the initial measurement recorded in 1950.

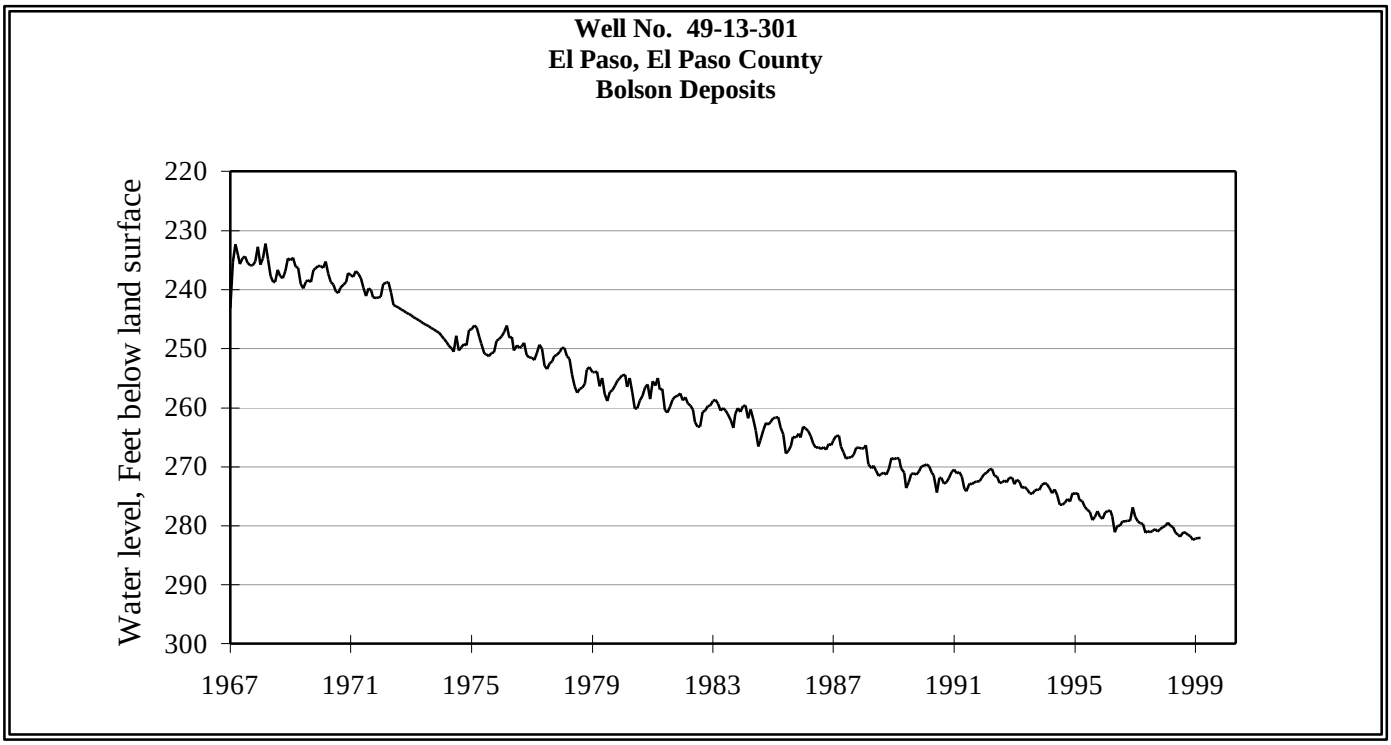
Well No. 32-15-504
Near Hurst, Tarrant County
Paluxy



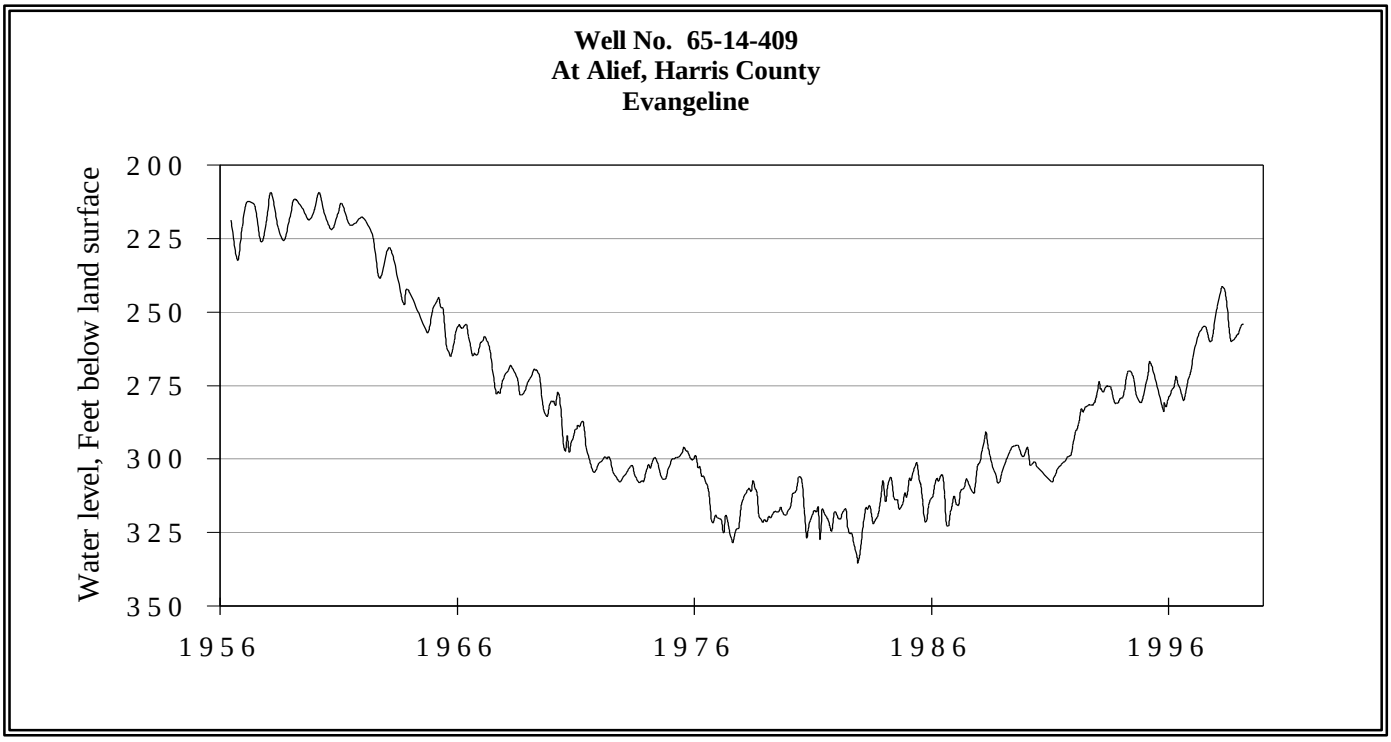
The March water-level measurement in this Paluxy aquifer well, elevation 535 feet above sea level, was 465.64 feet below land surface. This measurement was 1.75 feet above last month's measurement, 10.35 feet below last year's measurement, and 72.25 feet below the initial measurement recorded in 1953.



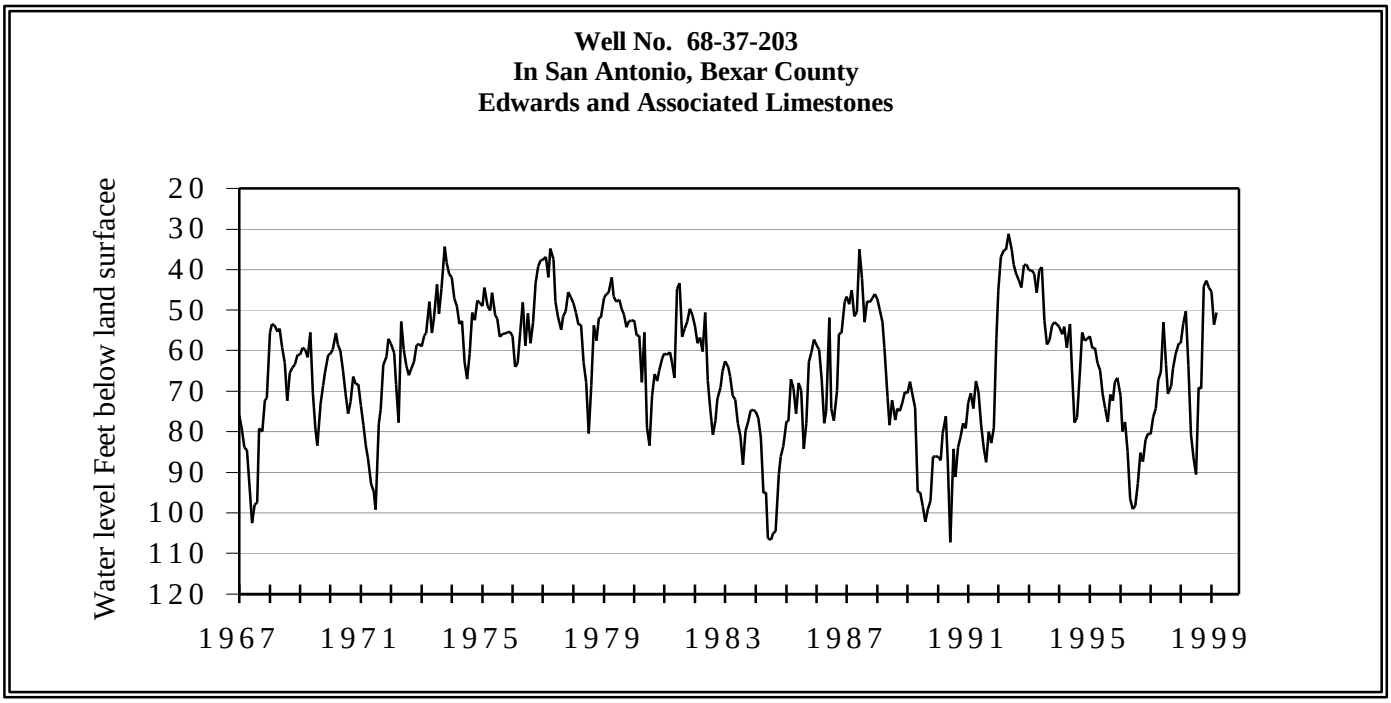
The March water-level measurement in this Hosston Formation aquifer well, elevation 593 feet above sea level, was not available this month due to continued casing problems.



The March water-level measurement in this Bolson Deposits aquifer well, elevation 3882 feet above sea level, was 282.09 feet below land surface. This was 0.05 of a foot below last month's measurement, 2.08 feet below last year's measurement, and 50.19 feet below the initial measurement recorded in 1964.

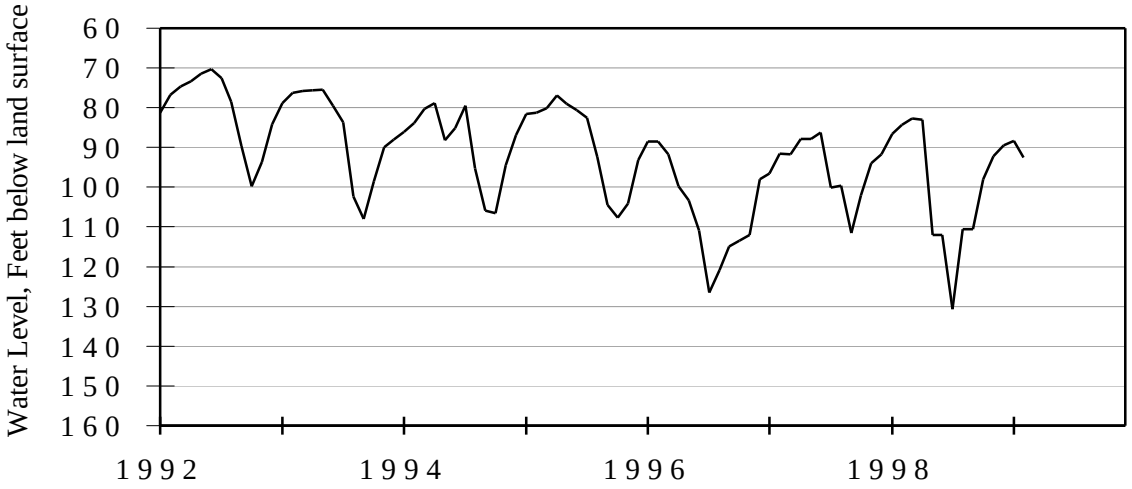


The March water-level measurement in this Evangeline aquifer well, elevation 66 feet above sea level, was 248.86 feet below land surface. This was 5.18 feet above last month's measurement, 1.98 feet below last year's measurement, and 113.32 feet below the initial measurement recorded in 1947.



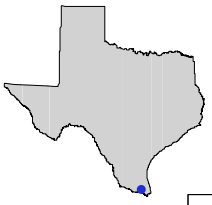
The March water-level measurement in this Edwards aquifer well, elevation 731 feet above sea level, was 50.6 feet below land surface. This was 3.0 feet above last month's measurement, 0.29 of a foot below last year's measurement, and 9.02 feet above the initial measurement recorded in 1962.

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



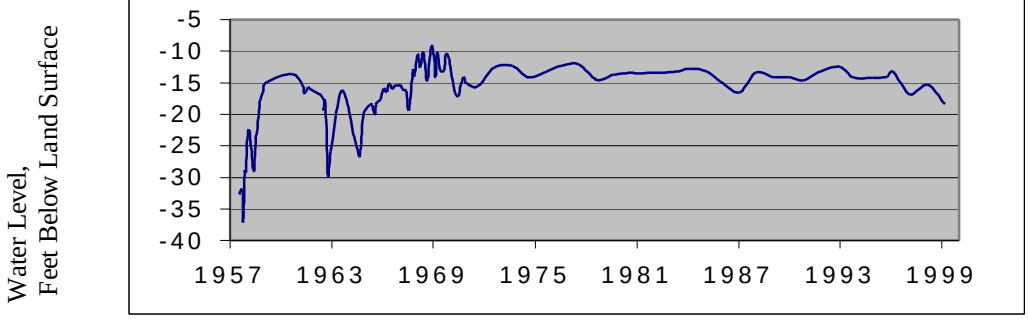
The March water-level measurement in this Carrizo aquifer well, elevation 446 feet above sea level, was not available.

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. 88-58-302
Harlingen, Cameron County



This 166-foot deep unused well, elevation 55 feet above sea level, was used for public-water supply by the City of Harlingen until an automatic recorder was installed from 1968 to 1971. The hydrograph reflects the relatively constant water level of the Gulf Coast Aquifer up until the last couple of drought-affected years.