Texas Water Development Board

WATER Conditions

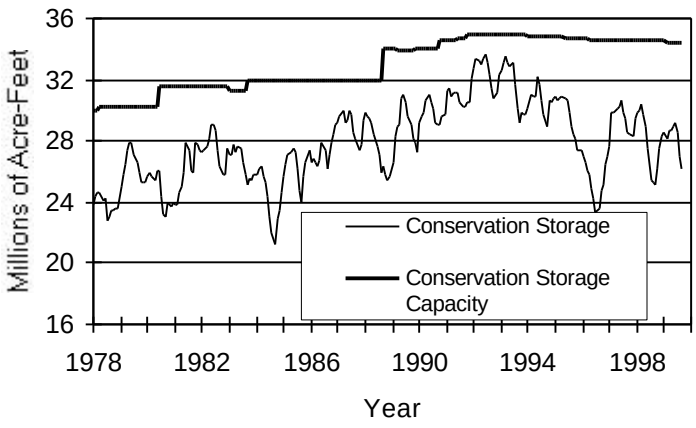
RESERVOIR STORAGE

September 1999

Near the end of September, the 77 reservoirs monitored for this report held 26.17 million acre-feet in conservation storage. This is 76 percent of the conservation storage capacity of the State's major reservoirs. Compared to the end of August, storage decreased 0.86 million acre-feet (-2.5% of conservation storage capacity). Compared to this month last year, storage increased 0.33 million acre-feet (+1.0%).

Of the monitored reservoirs, only 4 held 100 percent or more of conservation storage near the end of September. Compared to the end of August, conservation storage increased in only the Southern Region (+4.2%) due to residual runoff from Hurricane Bret. Storage in other regions decreased from -1% to -4%. Compared to the end of September 1998, conservation storage increased in all regions except the Low Rolling Plains, Upper Coast, and Southern Region, with the greatest increases occurring in the High Plains (+19%) and Trans-Pecos (+10%) 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.

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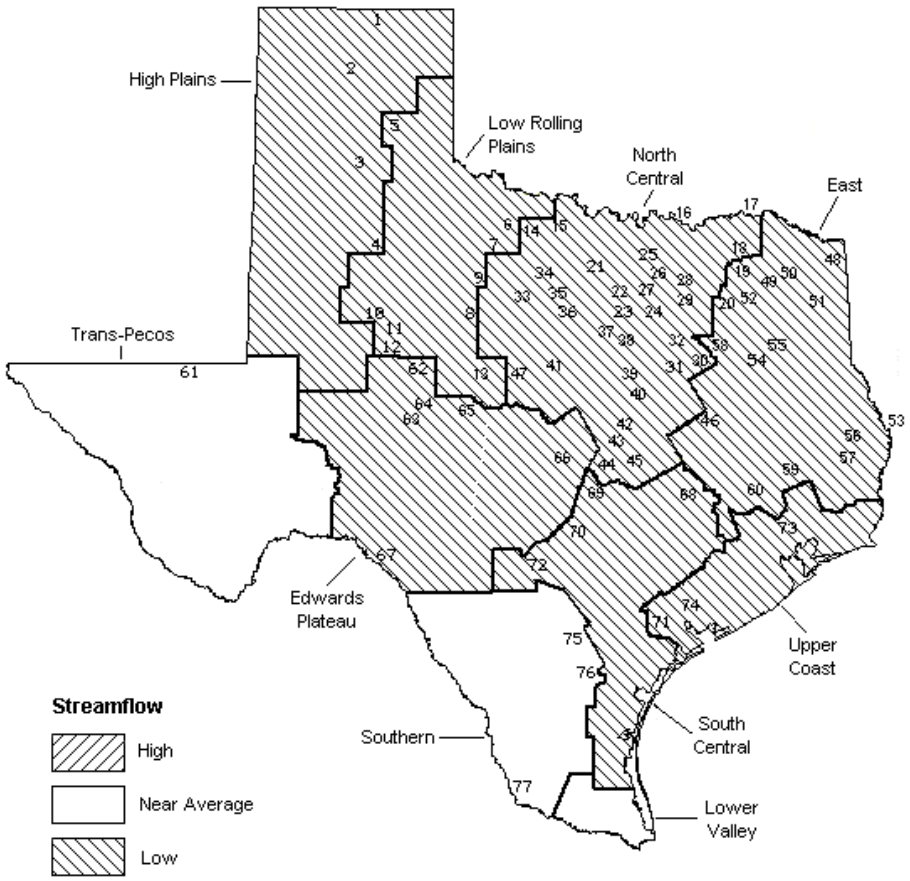
STREAMFLOW

Of 22 reporting index stations in September, computed 30-day mean flows were high (5% - 30% exceedance) at 2 stations, near normal (30% - 70% exceedance) at 5 stations, and low (70% - 95% exceedance) at 15 stations. In comparison to August, flows decreased at 12 index stations and increased at 5 stations.

Flows generally decreased in comparison to August at index stations in all regions of the state except for the East Texas region and the Southern Region. Flows on Nueces River near Tilden in the Southern Region increased due to residual runoff from Hurricane Bret in August. Five stations, in the Low Rolling Plains, North Central, and Edwards Plateau Regions, recorded no (0) streamflow.

SEPTEMBER STREAMFLOW CONDITIONS



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 September 1999 (acre-feet)	(%)	Change since Late August 1999 (acre-feet)	(%)	Change since Late September 1998 (acre-feet)	(%)
HIGH PLAINS								
Palo Duro Reservoir	1	60,900	23,902	39	-2,547	-4	19,702	32
Lake Meredith (Texas)	2	500,000	413,900	83	-10,000	-2	91,900	18
Lake Meredith (Texas and Oklahoma)	(2)	779,560	413,900	53	-10,000	-1	91,900	12
MacKenzie Reservoir	3	46,250	10,360	22	-20	0	3,170	7
White River Lake	4	31,850	18,270	57	-780	-2	8,240	26
TOTAL		639,000	466,432	73	-13,347	-2	123,012	19
LOW ROLLING PLAINS								
Greenbelt Reservoir	5	58,200	26,490	46	-700	-1	1,490	3
Lake Kemp	6	319,600	164,900	52	-21,300	-7	6,900	2
Miller's Creek Reservoir	7	27,890	12,410	44	-820	-3	-2,720	-10
Fort Phantom Hill Reservoir	8	70,030	21,820	31	-1,450	-2	-7,450	-11
Lake Stamford	9	52,700	7,600	14	-1,100	-2	-13,000	-25
Lake J. B. Thomas	10	202,300	32,640	16	-3,600	-2	24,520	12
Lake Colorado City	11	30,800	11,780	38	-3,790	-12	-4,320	-14
Champion Creek Reservoir	12	41,600	6,120	15	-1,500	-4	-6,080	-15
Hords Creek Lake	13	8,600	3,987	46	-158	-2	-1,652	-19
TOTAL		811,720	287,747	35	-34,418	-4	-2,312	0
NORTH CENTRAL								
Lake Kickapoo	14	106,000	56,716	54	-3,306	-3	3,476	3
Lake Arrowhead	15	262,100	145,300	55	-9,600	-4	-36,700	-14
Lake Texoma	16	2,722,300	2,406,787	88	-763	0	233,340	9
Pat Mayse Lake	17	124,500	105,710	85	-3,267	-3	3,704	3
Cooper Lake	18	273,000	226,284	83	-6,505	-2	-46,716	-17
Lake Sulphur Springs	19	17,710	14,551	82	-724	-4	-1,329	-8
Lake Tawakoni	20	936,200	829,600	89	-40,000	-4	33,600	4
Bridgeport Reservoir	21	374,830	263,988	70	-17,212	-5	-36,012	-10
Eagle Mountain Reservoir	22	178,380	138,167	77	-3,228	-2	-9,833	-6
Benbrook Lake	23	88,200	59,475	67	-6,989	-8	-9,925	-11
Joe Pool Lake	24	175,800	161,718	92	-4,595	-3	7,718	4
Ray Roberts Lake	25	798,760	653,891	82	-20,954	-3	-73,109	-9
Lewisville Lake	26	555,000	356,770	64	-34,604	-6	-103,230	-19
Grapevine Lake	27	187,700	140,705	75	-6,666	-4	-9,295	-5
Lavon Lake	28	443,800	319,927	72	-33,043	-7	20,927	5
Lake Ray Hubbard	29	413,420	413,420	100	0	0	8,420	2
Richland-Chambers Creek Lake	30	1,103,820	1,018,035	92	-36,274	-3	-21,965	-2
Navarro Mills Lake	31	55,810	44,139	79	-3,315	-6	-761	-1
Bardwell Lake	32	53,580	44,471	83	-2,585	-5	-729	-1
Hubbard Creek Reservoir	33	317,800	222,300	70	-10,700	-3	-47,700	-15
Lake Graham	34	45,000	44,230	98	-770	-2	3,030	7
Possum Kingdom Lake	35	551,820	446,000	81	-25,200	-5	176,000	32
Lake Palo Pinto	36	42,200	33,842	80	-2,727	-6	-6,158	-15
Lake Granbury	37	135,680	131,087	97	-1,913	-1	6,087	4
Lake Pat Cleburne	38	25,300	18,970	75	-1,504	-6	4,100	16
Whitney Lake	39	622,800	432,151	69	-11,221	-2	-18,849	-3
Waco Lake	40	144,500	125,580	87	-9,324	-6	4,580	3
Proctor Lake	41	55,590	24,604	44	-4,245	-8	-12,796	-23
Belton Lake	42	434,500	402,130	93	-17,102	-4	-5,870	-1
Stillhouse Hollow Lake	43	226,060	217,662	96	-4,765	-2	1,662	1
Lake Georgetown	44	37,010	31,800	86	-3,149	-9	3,401	9
Granger Lake	45	54,280	50,283	93	-2,580	-5	-3,997	-7
Lake Limestone	46	215,750	188,200	87	-7,100	-3	10,200	5
Lake Brownwood	47	143,400	92,790	65	-6,380	-4	-23,470	-16
TOTAL		11,922,600	9,861,283	83	-342,310	-3	51,801	0

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of Lake or Reservoir	No. on Map	Conservation Storage Capacity (acre-feet)	Conservation Storage Late September 1999 (acre-feet)	(%)	Change since Late August 1999 (acre-feet)	(%)	Change since Late September 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	1,870	3
Lake Bob Sandlin	50	202,300	178,745	88	-18,855	-9	-21,255	-11
Lake O' the Pines	51	252,000	246,415	98	-5,585	-2	17,415	7
Lake Fork Reservoir	52	635,200	609,500	96	-16,800	-3	-19,500	-3
Toledo Bend Reservoir	53	4,472,900	3,631,000	81	-157,000	-4	241,000	5
Lake Palestine	54	411,300	368,600	90	-15,900	-4	15,240	4
Lake Tyler	55	73,700	73,700	100	0	0	9,120	12
Sam Rayburn Reservoir	56	2,876,300	2,360,819	82	-196,867	-7	220,819	8
B. A. Steinhagen Lake	57	94,200	88,866	94	3,998	4	4,966	5
Cedar Creek Reservoir	58	637,050	616,822	97	-20,228	-3	66,822	10
Lake Livingston	59	1,750,000	1,684,000	96	4,000	0	144,000	8
Lake Conroe	60	429,900	388,600	90	-9,100	-2	-9,400	-2
TOTAL		12,044,350	10,456,567	87	-432,337	-4	671,097	6
TRANS-PECOS								
Red Bluff Reservoir	61	307,000	79,020	26	-1,780	-1	29,990	10
TOTAL		307,000	79,020	26	-1,780	-1	29,990	10
EDWARDS PLATEAU								
E. V. Spence Reservoir	62	484,800	66,780	14	-3,190	-1	-13,720	-3
Twin Buttes Reservoir	63	177,800	10,170	6	-2,217	-1	-8,330	-5
O.C. Fisher Lake	64	119,200	9,023	8	-769	-1	-5,326	-4
O. H. Ivie Reservoir	65	554,340	349,300	63	-16,000	-3	-101,700	-18
Lake Buchanan	66	896,980	717,839	80	-26,254	-3	-60,933	-7
Amistad Reservoir (Texas)	67	1,771,030	1,065,000	60	9,000	1	228,000	13
Amistad Reservoir (Texas and Mexico)	(67)	3,151,300	1,376,000	44	28,000	1	177,000	6
TOTAL		4,004,150	2,218,112	55	-39,430	-1	37,991	1
SOUTH CENTRAL								
Somerville Lake	68	155,060	142,928	92	-6,611	-4	-12,132	-8
Lake Travis	69	1,144,100	941,157	82	-67,448	-6	34,264	3
Canyon Lake	70	385,600	368,978	96	-7,456	-2	-8,022	-2
Coleto Creek Reservoir	71	35,060	26,740	76	-1,220	-3	-8,439	-24
Medina Lake	72	254,000	226,600	89	-10,900	-4	-4,400	-2
TOTAL		1,973,820	1,706,403	86	-93,635	-5	1,271	0
UPPER COAST								
Lake Houston	73	128,860	110,100	85	-4,100	-3	-18,760	-15
Lake Texana	74	157,900	136,300	86	-8,300	-5	-21,600	-14
TOTAL		286,760	246,400	86	-12,400	-4	-40,360	-14

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CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

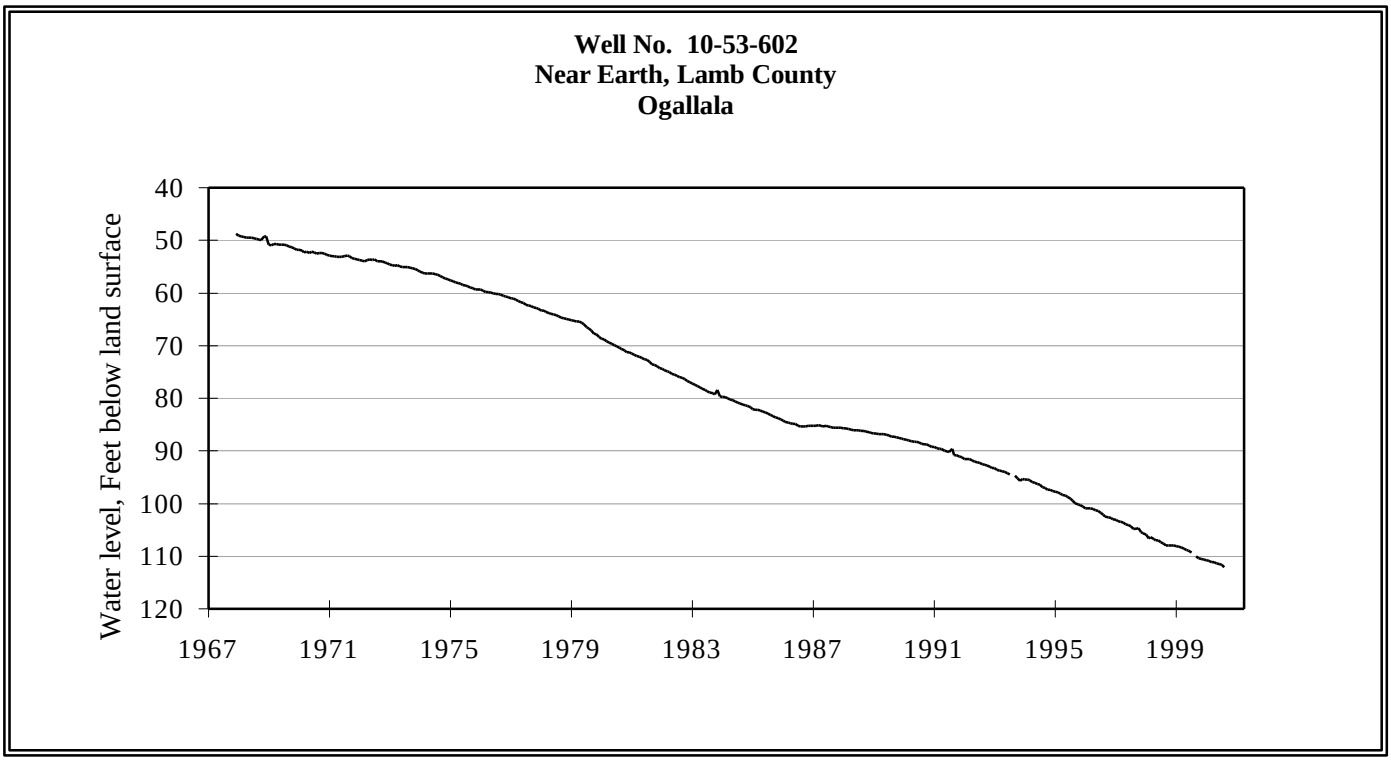
Name of Lake or Reservoir	No. on Map	Conservation Storage Capacity (acre-feet)	Conservation Storage Late September 1999 (acre-feet)	(%)	Change since Late August 1999 (acre-feet)	(%)	Change since Late September 1998 (acre-feet)	(%)
			SOUTHERN					
Choke Canyon Reservoir	75	695,260	319,945	46	-17,055	-2	15,398	2
Lake Corpus Christi	76	241,240	183,833	76	4,833	2	-2,430	-1
Falcon Reservoir (Texas)	77	1,555,120	341,000	22	117,000	8	13,000	1
Falcon Reservoir (Texas and Mexico)	(77)	2,653,290	644,000	24	205,000	8	74,000	3
TOTAL		2,491,620	844,778	34	104,778	4	-544,032	-22
STATE TOTAL		34,481,020	26,166,742	76	-864,879	-3	328,458	1

NOTES:

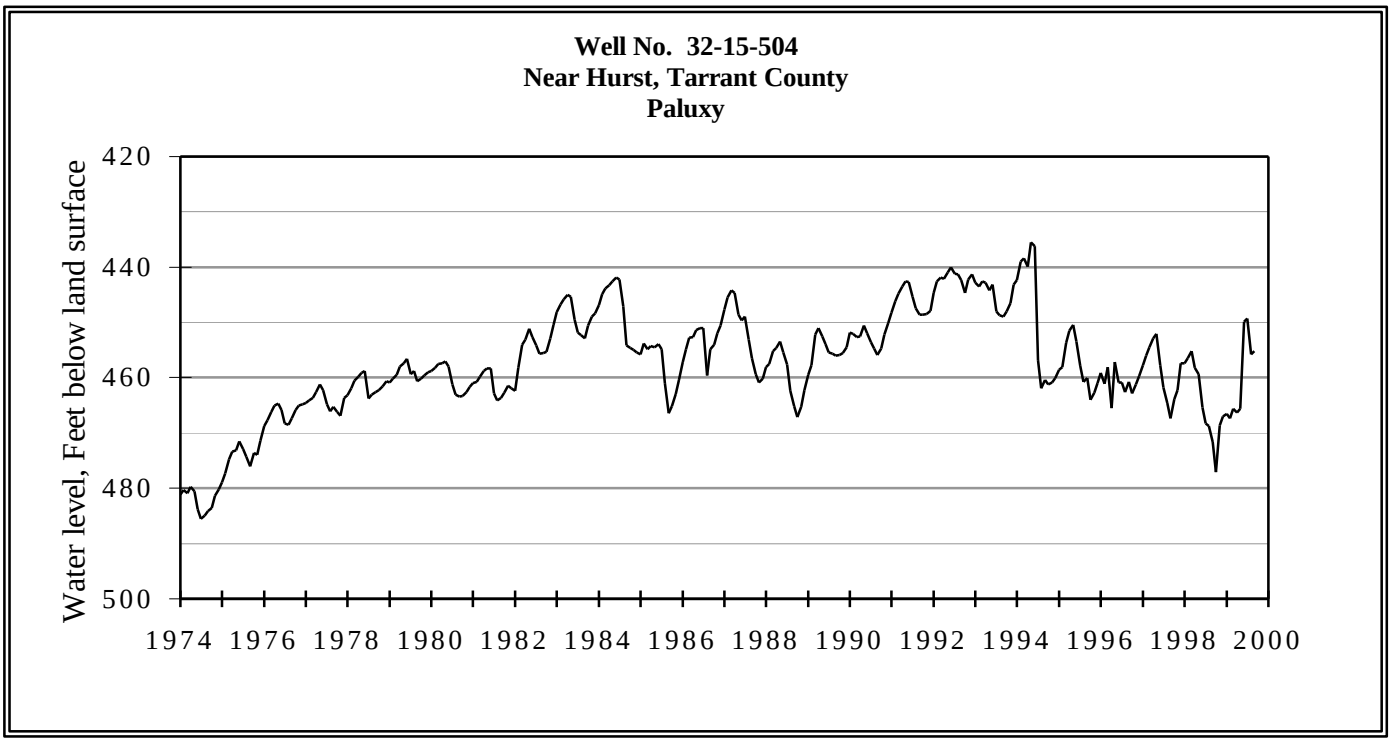
Conservation storage capacity is the space available to store water above the level of invert of lowest outlet works and below the level of top of conservation pool or normal maximum operating level. Conservation storage refers to the volume of water held within the conservation storage space. Not included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

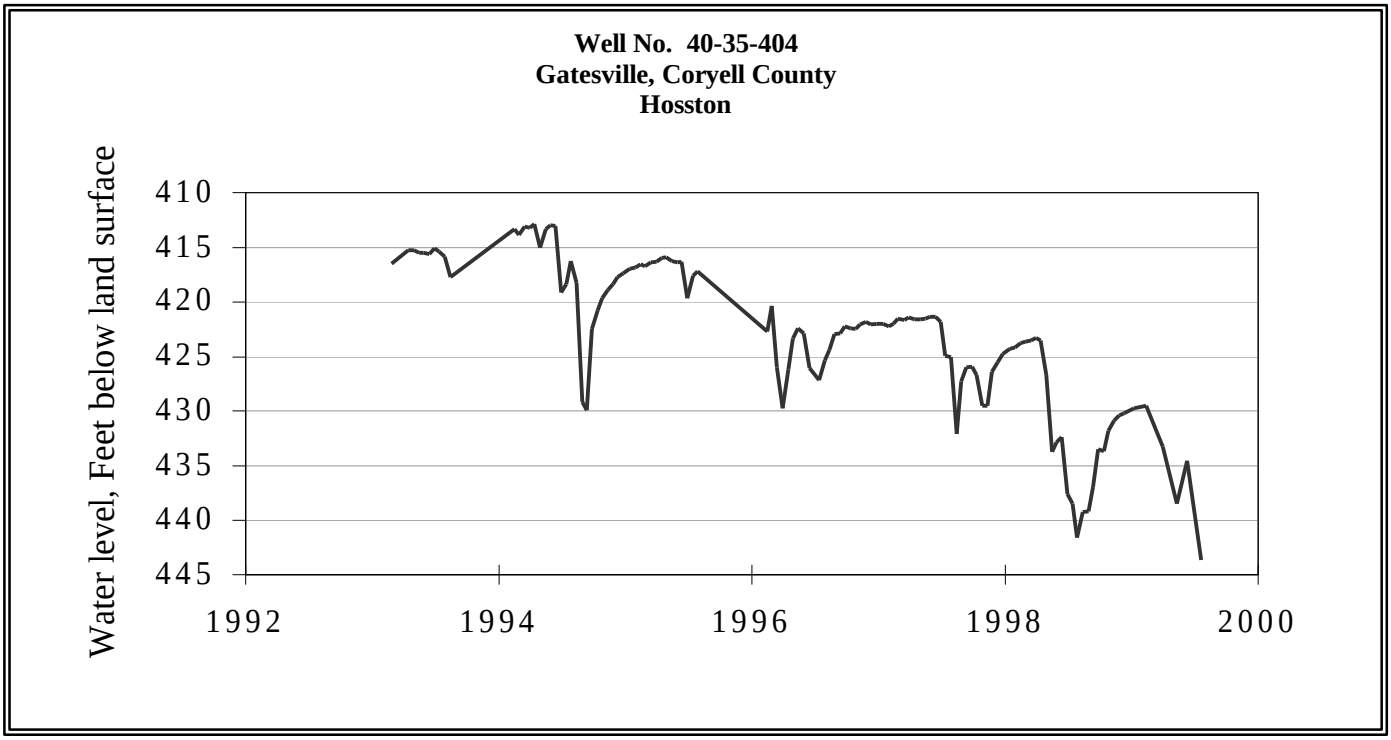
SEPTEMBER GROUND WATER LEVELS IN OBSERVATION WELLS



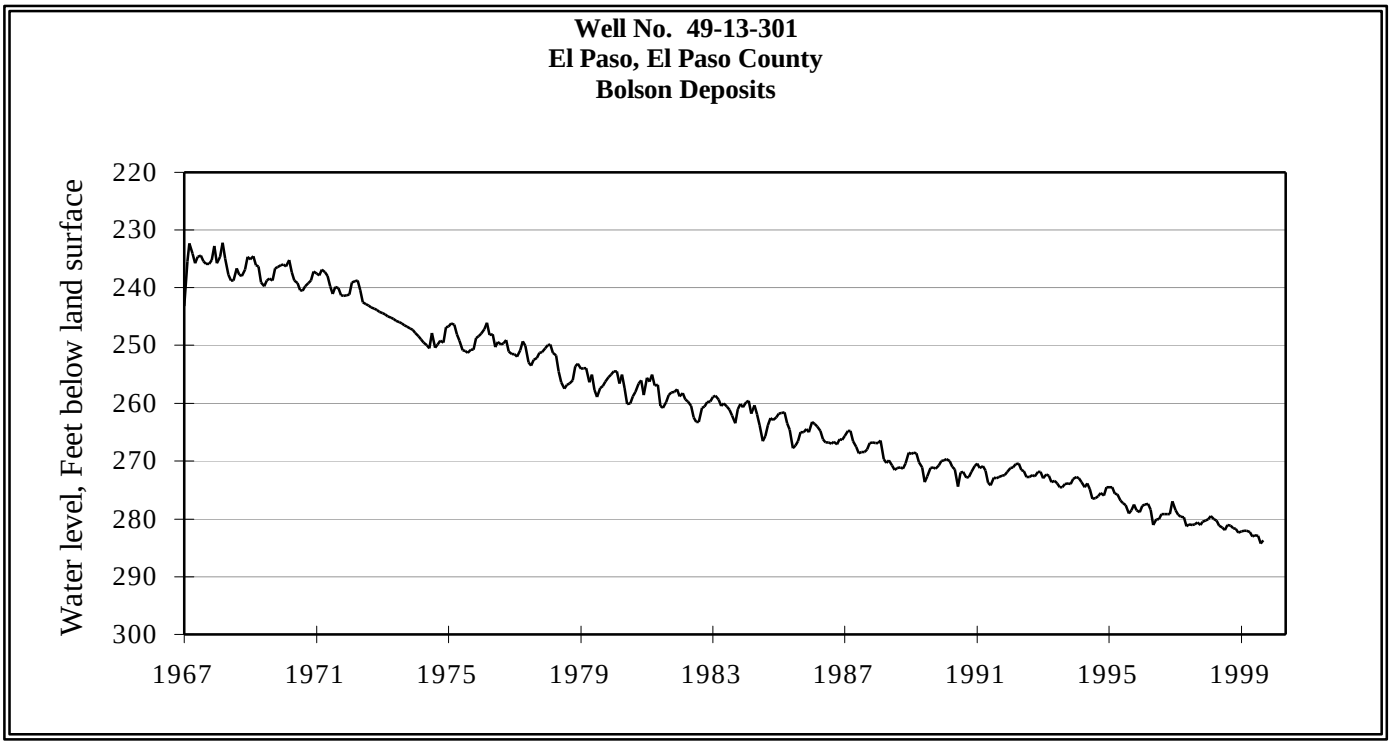
The September water-level measurement in this Ogallala aquifer well, elevation 3667 feet above sea level, was 112.1 feet below land surface. This was 0.56 of a foot below last month's measurement, 2.5 feet below last year's measurement, and 83.95 feet below the initial measurement recorded in 1950.



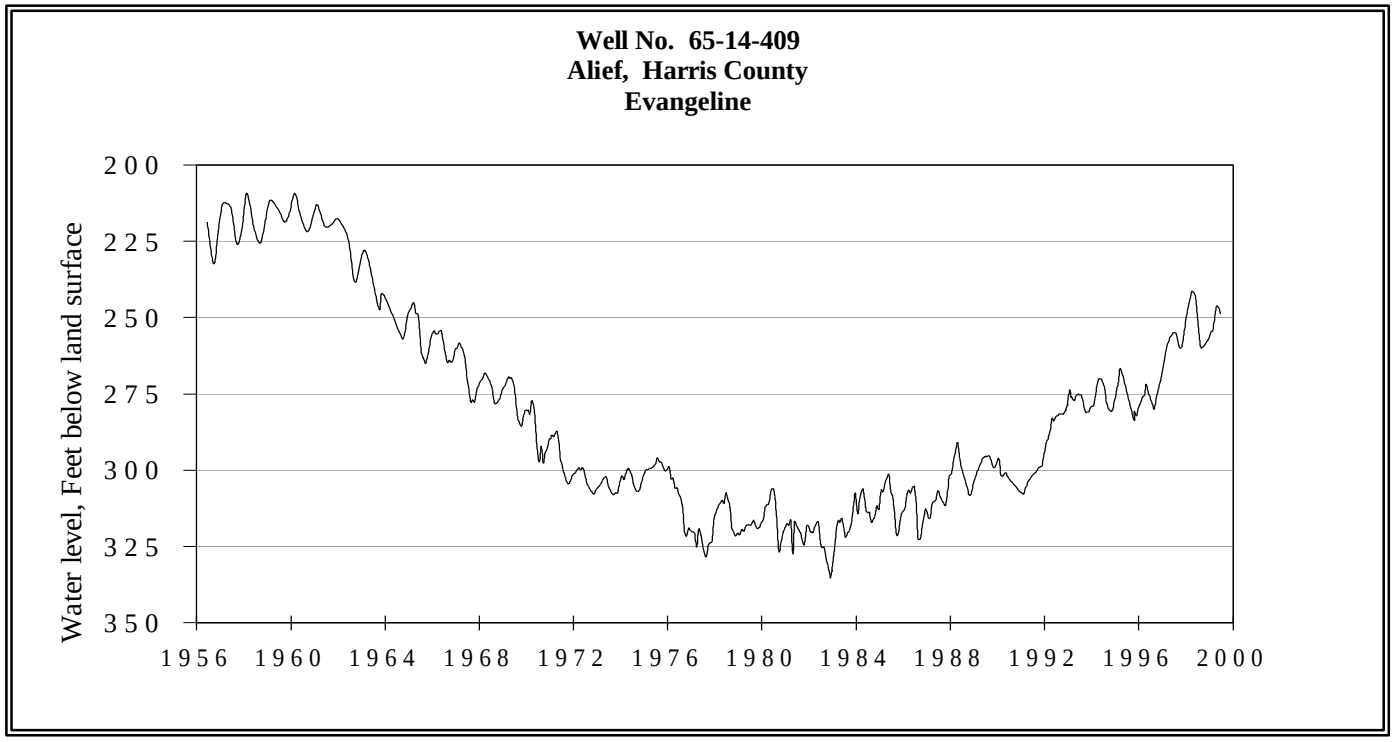
The September water-level measurement in this Paluxy aquifer well, elevation 535 feet above sea level, was 455.16 feet below land surface. This measurement was 0.6 of a foot above last month's measurement, 16.45 feet above last year's measurement, and 61.77 feet below the initial measurement recorded in 1953.



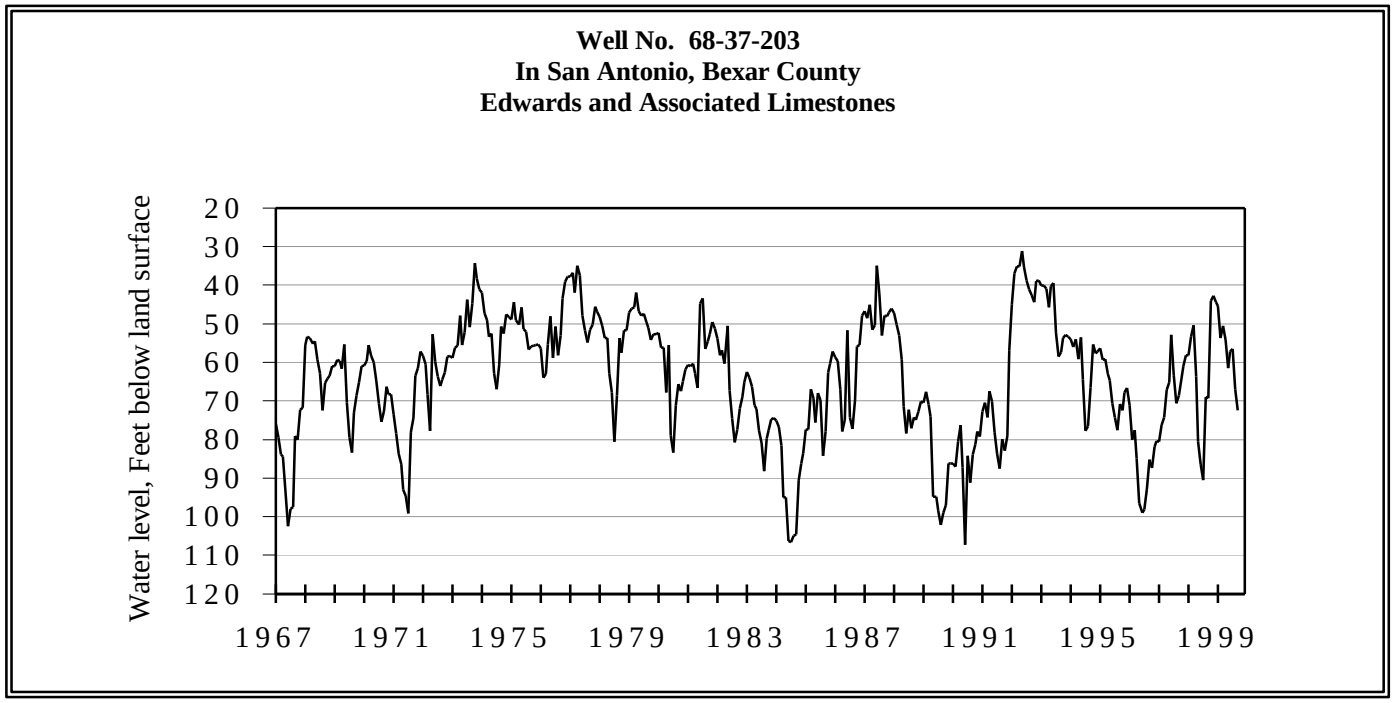
The September water-level measurement in this Hosston Formation aquifer well, elevation 823 feet above sea level, was 439.88 feet below land surface. This measurement was 3.74 feet above last month's measurement, 6.39 feet below last year's measurement, and 147.88 feet below the initial measurement recorded in 1955.



The September water-level measurement in this Bolson Deposits aquifer well, elevation 3882 feet above sea level, was 283.72 feet below land surface. This was 0.56 of a foot above last month's measurement, 2.53 feet below last year's measurement, and 51.82 feet below the initial measurement recorded in 1964.

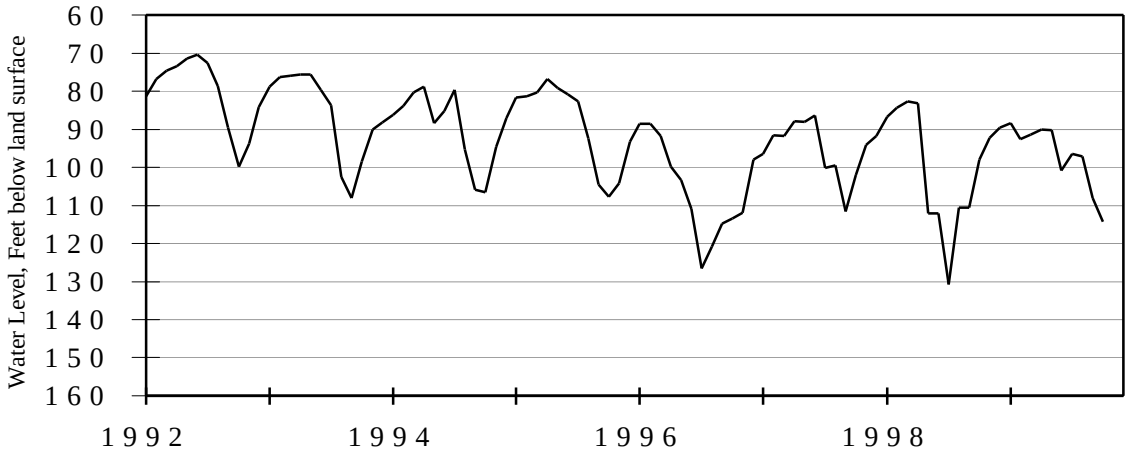


The September water-level measurement in this Evangeline aquifer well, elevation 66 feet above sea level, was 255.57 feet below land surface. This was 2.47 feet below last month's measurement, 4.13 feet above last year's measurement, and 147.88 feet below the initial measurement recorded in 1947.



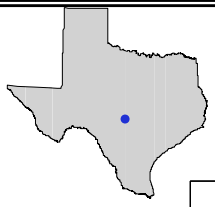
The September water-level measurement in this Edwards aquifer well, elevation 731 feet above sea level, was 72.42 feet below land surface. This was 5.42 feet below last month's measurement, 3.12 feet below last year's measurement, and 12.8 feet below the initial measurement recorded in 1962.

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



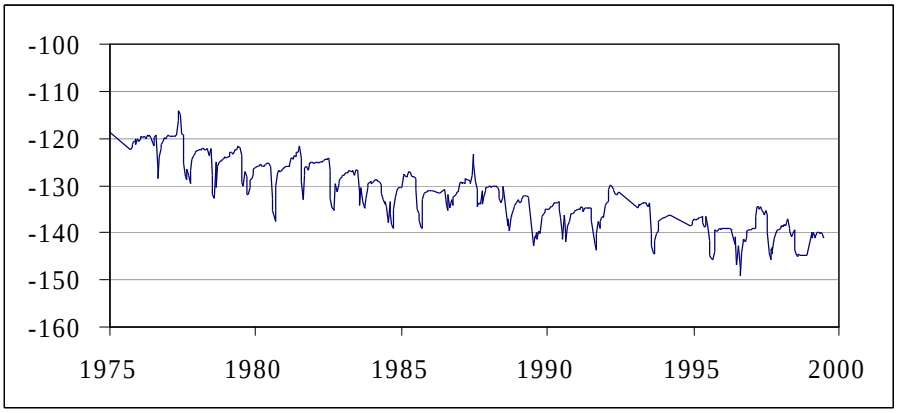
The September water-level measurement in this Carrizo aquifer well, elevation 446 feet above sea level, was 114.34 feet below land surface. This was 6.27 feet below last month's measurement, 3.78 feet below last year's measurement, and 33.09 feet below the initial measurement recorded in 1965.

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. 56-06-614
South-central McCulloch County



Water from this 641-foot deep recorder well was formerly used for water in road-building operations. At an elevation of 1,743 feet above sea level, the well was completed in a minor aquifer--the Hickory Sandstone. The graph illustrates a seasonally fluctuating but overall water-level decline attributed to irrigation in an area in Mason County to the south of the well.