

Texas Water Development Board



WATER Conditions

RESERVOIR STORAGE

December 2009

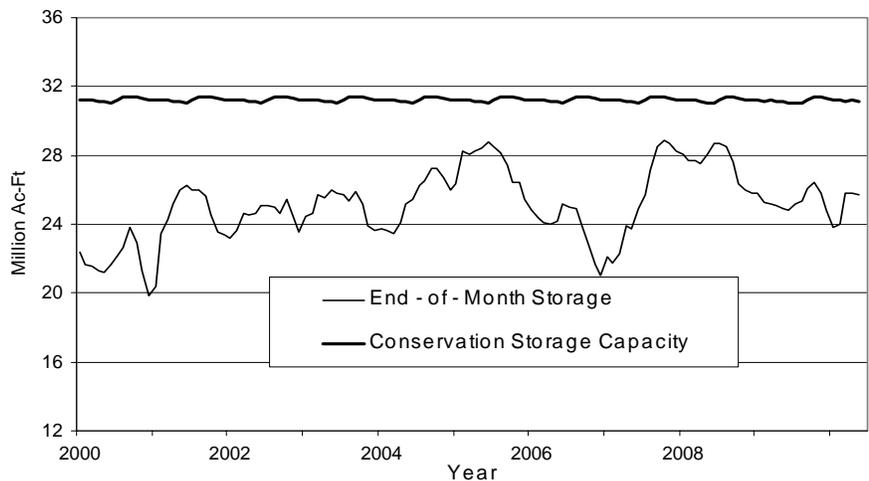
Total storage in the state's major reservoirs remains virtually unchanged compared to that in November. Near the end of the month, the 109 reservoirs monitored for this report held 25.72 million acre-feet in conservation storage*, or 83 percent of the conservation storage capacity of the state's major water supply reservoirs.

Storage was at 100% in 45 reservoirs, the same as last month, mainly in the Upper Coast, East and North Central Regions. There were seven lakes at or below 10% full, one more than last month: O C Fisher Lake was still effectively empty, Palo Duro Reservoir (1%) was nearly empty, Lake Meredith was at 4%, Lake J. B. Thomas and E.V. Spence Reservoir were at 5%, Lake Electra 9%, and White River Lake was 10% full.

Three regions had combined storage above 90%: Upper Coast 100%, East 98%, and North Central 94%. The High Plains (6%) and Trans-Pecos regions (23%) remained very low. Storage decreased in 3 regions and increased in 5 over the month. Compared to last November, storage increased in 3 regions but decreased in 6 regions.

* Only the Texas share of storage in border reservoirs is counted.

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS



Figures are based on the end of the month data at 109 major reservoirs that represent 95 percent of the total conservation storage capacity of the 175 major water supply reservoirs in Texas. Reservoirs with a conservation storage capacity of 5,000 acre-feet or greater are included.

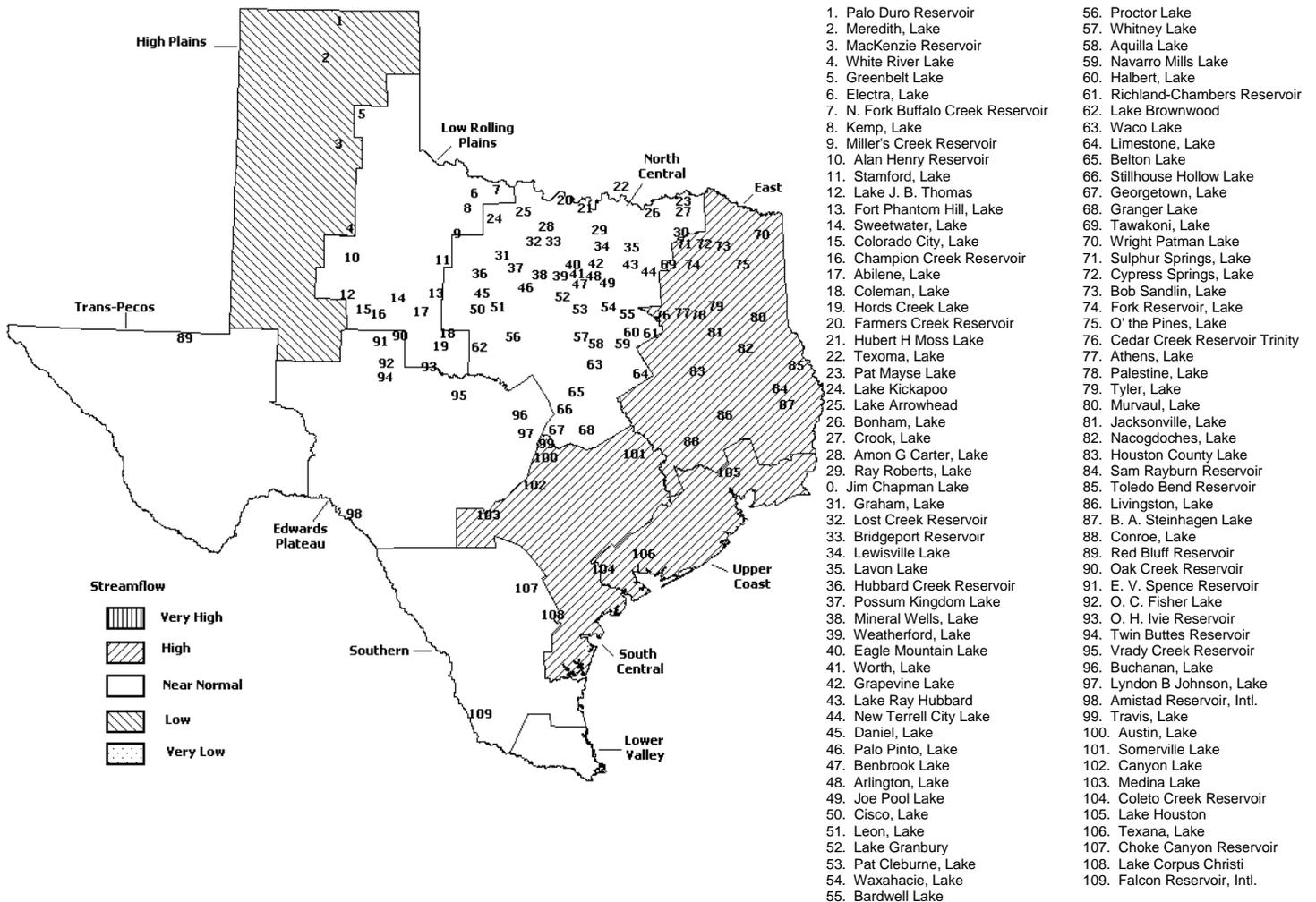
STREAMFLOW

Of 29 reporting index stations in December, computed 30-day mean flows were very high (<5% exceedance frequency) at 1 station, high (5% - 30%) at 10 stations, low (70% - 95%) at 7 stations, and near normal (30% - 70%) at the remaining 11 stations. Compared to November, flows have increased at 14 index stations and decreased at 14 stations.

On a regional basis, flows in November were high in the East, South Central, and Upper Coast regions, low in High Plains region, but near normal everywhere else. Streamflow in the Lower Valley Region is not monitored.

DECEMBER STREAMFLOW CONDITIONS

Reservoirs Shown on Map



CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of Lake or Reservoir	No. on Map	Conservation Storage		Change since Late November 2009		Change since Late December 2008		
		Capacity (acre-feet)	Late Dec. (acre-feet)	2009 (%)	(acre-feet) (%)	(acre-feet) (%)	(acre-feet) (%)	
HIGH PLAINS								
Palo Duro Reservoir	1	60,897	341	1	-50	0	-838	-1
Meredith, Lake (Texas)	2	500,000	28,305	6	-2,547	-1	-35,632	-7
Meredith, Lake (Texas & Oklahoma)	(2)	779,556	28,305	4	-2,547	0	-35,632	-5
MacKenzie Reservoir	3	46,429	5,755	12	-72	0	-82	0
White River Lake	4	29,880	2,978	10	-119	0	-3,935	-13
TOTAL		637,206	37,379	6	-2,788	0	-40,487	-6
LOW ROLLING PLAINS								
Greenbelt Lake	5	59,500	15,198	26	-50	0	-3,233	-5
*Electra, Lake	6	5,626	499	9	26	0	-476	-8
N. Fork Buffalo Crk Reservoir	7	15,400	4,545	30	351	2	460	3
Kemp, Lake	8	245,308	163,138	67	3,412	1	-6,841	-3
Millers Creek Reservoir	9	27,888	12,393	44	-57	0	-4,122	-15
Alan Henry Reservoir	10	94,808	86,951	92	-103	0	-6,487	-7
Stamford, Lake	11	51,570	35,318	68	0	0	-1,077	-2
J B Thomas, Lake	12	199,931	9,423	5	-118	0	-7,035	-4
Fort Phantom Hill, Lake	13	70,030	46,185	66	-652	-1	-17,268	-25
Sweetwater, Lake	14	10,006	5,895	59	33	0	-1,723	-17
Colorado City, Lake	15	31,793	17,587	55	-134	0	-4,432	-14
Champion Creek Reservoir	16	41,618	7,668	18	2,171	5	-1,324	-3
Abilene, Lake	17	6,099	1,799	29	-37	-1	-2,101	-34
Coleman, Lake	18	38,076	21,465	56	-187	0	-6,868	-18
Hords Creek Lake	19	5,684	1,396	25	-61	-1	-1,533	-27
TOTAL		903,337	429,460	48	4,594	1	-64,060	-7
NORTH CENTRAL								
Nocona, Lake (Farmers Crk)	20	21,445	19,787	92	326	2	2,603	12
Hubert H Moss Lake	21	24,058	24,058	100	235	1	2,957	12
Texoma, Lake (Texas)	22	1,262,640	1,247,429	99	-61,105	-5	5,157	0
Texoma, Lake (Texas & Oklahoma)	(22)	2,525,281	2,494,858	99	-122,210	-5	10,314	0
*Pat Mayse Lake	23	118,100	118,100	100	0	0	10,990	9
Kickapoo, Lake	24	85,825	45,762	53	749	1	5,414	6
Arrowhead, Lake	25	235,997	152,505	65	458	0	-7,296	-3
Bonham, Lake	26	11,026	10,943	99	61	1	2,733	25
Crook, Lake	27	9,195	9,195	100	11	0	434	5
Amon G Carter, Lake	28	19,903	18,712	94	159	1	2,453	12
Ray Roberts, Lake	29	798,758	798,758	100	0	0	68,824	9
Jim Chapman Lake (Cooper)	30	260,332	260,332	100	0	0	97,782	38
Graham, Lake	31	45,260	36,893	82	-268	-1	-4,124	-9
*Lost Creek Reservoir	32	11,950	11,950	100	39	0	1,527	13
Bridgeport, Lake	33	366,236	270,646	74	-506	0	-9,889	-3
Lewisville Lake	34	543,988	543,988	100	0	0	110,976	20
Lavon Lake	35	443,844	443,844	100	0	0	88,001	20
Hubbard Creek Reservoir	36	318,067	209,442	66	-1,271	0	-51,568	-16
Possum Kingdom Lake	37	540,340	459,427	85	-2,409	0	-42,022	-8
*Mineral Wells, Lake	38	7,065	6,676	94	-36	-1	1,457	21
Weatherford, Lake	39	18,645	15,478	83	-85	0	3,066	16
Eagle Mountain Lake	40	182,500	173,588	95	-2,184	-1	28,577	16
Worth, Lake	41	24,500	20,872	85	-1,371	-6	1,852	8
Grapevine Lake	42	164,702	164,702	100	0	0	43,456	26
Ray Hubbard, Lake	43	452,040	452,040	100	0	0	25,898	6
New Terrell City Lake	44	8,583	8,583	100	0	0	1,073	13
Daniel, Lake	45	9,435	4,307	46	-6	0	-2,505	-27
Palo Pinto, Lake	46	27,150	19,583	72	-371	-1	4,301	16
Benbrook Lake	47	85,648	85,648	100	0	0	25,946	30
Arlington, Lake	48	38,740	35,139	91	-2,708	-7	8,974	23

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 November 2009		Change since Late December 2008		
			Late Dec. (acre-feet)	2009 (%)	(acre-feet)	(%)	(acre-feet)	(%)	
NORTH CENTRAL (Continue)									
Joe Pool Lake	49	142,861	142,861	100	0	0	18,509	13	
*Cisco, Lake	50	26,000	16,610	64	-86	0	-2,820	-11	
Leon, Lake	51	26,421	17,622	67	-304	-1	-3,662	-14	
Granbury, Lake	52	128,046	124,799	97	151	0	13,144	10	
Pat Cleburne, Lake	53	25,730	25,730	100	0	0	5,961	23	
Waxahachie, Lake	54	10,779	10,779	100	0	0	249	2	
Bardwell Lake	55	46,122	46,122	100	0	0	9,567	21	
Proctor Lake	56	55,457	28,375	51	-677	-1	-8,164	-15	
Whitney, Lake	57	553,349	467,938	85	-56,949	-10	98,891	18	
Aquilla Lake	58	45,092	45,092	100	0	0	10,569	23	
Navarro Mills Lake	59	55,817	55,817	100	0	0	13,665	24	
*Halbert, Lake	60	6,033	5,390	89	-6	0	1,906	32	
Richland-Chambers Reservoir	61	1,103,816	1,103,816	100	0	0	177,082	16	
*Brownwood, Lake	62	131,429	88,240	67	-767	-1	-15,742	-12	
Waco, Lake	62	198,943	198,943	100	0	0	22,163	11	
Limestone, Lake	64	208,015	208,015	100	0	0	29,378	14	
Belton Lake	65	435,225	416,421	96	-18,804	-4	12,673	3	
Stillhouse Hollow Lake	66	227,771	227,771	100	0	0	28,929	13	
Georgetown, Lake	67	36,823	36,823	100	0	0	19,988	54	
Granger Lake	68	52,525	52,525	100	0	0	13,108	25	
Tawakoni, Lake	69	888,126	888,126	100	0	0	169,008	19	
TOTAL		10,540,352	9,876,202	94	-147,724	-1	1,041,449	10	
EAST									
Wright Patman Lake	70	122,593	122,593	100	0	0	0	0	
*Sulphur Springs, Lake	71	17,838	17,838	100	0	0	3,140	18	
Cypress Springs, Lake	72	67,689	67,689	100	0	0	0	0	
Bob Sandlin, Lake	73	200,579	200,579	100	0	0	3,348	2	
Fork Reservoir, Lake	74	604,927	604,399	100	-528	0	20,855	3	
O the Pines, Lake	75	238,933	238,933	100	0	0	0	0	
Cedar Creek Reservoir in Trinity	76	644,686	644,686	100	0	0	73,282	11	
Athens, Lake	77	29,435	29,435	100	0	0	1,005	3	
Palestine, Lake	78	370,907	370,907	100	0	0	0	0	
Tyler, Lake	79	73,256	73,256	100	0	0	0	0	
Murvaul, Lake	80	38,284	38,284	100	0	0	0	0	
Jacksonville, Lake	81	30,300	30,300	100	149	0	568	2	
Nacogdoches, Lake	82	39,521	39,521	100	748	2	4,441	11	
Houston County Lake	83	17,113	17,113	100	0	0	0	0	
Sam Rayburn Reservoir	84	2,857,077	2,727,781	95	34,194	1	575,753	20	
Toledo Bend Reservoir (Texas)	85	2,236,450	2,166,552	97	-36,741	-2	251,890	11	
Toledo Bend Reservoir (TX & LA)	(85)	4,472,900	4,333,105	97	-73,482	-2	503,781	11	
*Livingston, Lake	86	1,741,867	1,741,867	100	0	0	0	0	
B A Steinhagen Lake	87	66,966	51,031	76	-6,056	-9	-1,398	-2	
Conroe, Lake	88	416,188	416,188	100	0	0	21,163	5	
TOTAL		9,814,609	9,598,952	98	-8,234	0	954,047	10	
TRANS-PECOS									
Red Bluff Reservoir	89	289,670	67,682	23	2,903	1	-10,556	-4	
TOTAL		289,670	67,682	23	2,903	1	-10,556	-4	

CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

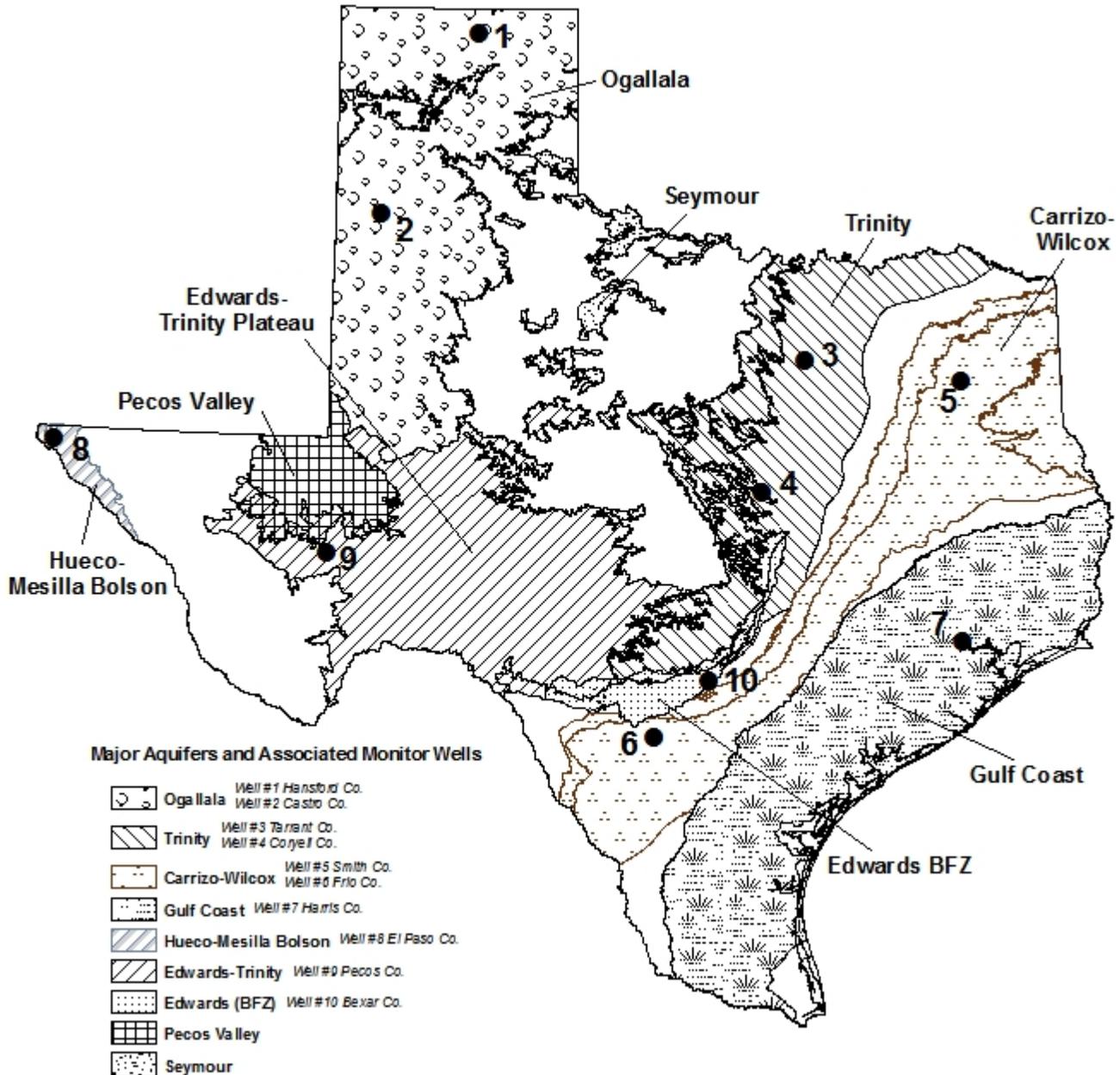
Name of Lake or Reservoir	No. on Map	Conservation Storage Capacity (acre-feet)	Conservation Storage		Change since Late November 2009		Change since Late December 2008		
			Late Dec. (acre-feet)	2009 (%)	(acre-feet)	(%)	(acre-feet)	(%)	
EDWARDS PLATEAU									
Oak Creek Reservoir	90	39,260	23,373	60	-32	0	-7,220	-18	
E V Spence Reservoir	91	517,272	24,906	5	-62	0	-28,723	-6	
O C Fisher Lake	92	79,483	0	0	0	0	0	0	
*O H Ivie Reservoir	93	554,335	233,820	42	-4,241	-1	-72,357	-13	
Twin Buttes Reservoir	94	177,850	28,607	16	1,134	1	-18,497	-10	
Brady Creek Reservoir	95	29,110	14,843	51	-62	0	336	1	
Buchanan, Lake	96	875,610	436,826	50	6,617	1	-136,333	-16	
Lyndon B Johnson, Lake	97	113,690	112,725	99	2,378	2	-65	0	
*Amistad Reservoir (Texas)	98	1,840,849	1,728,000	94	4,000	0	-129,000	-7	
*Amistad Reservoir (TX & Mexico)	(98)	3,275,532	3,148,000	96	4,000	0	-127,532	-4	
TOTAL		4,227,459	2,603,100	62	9,732	0	-391,859	-9	
SOUTH CENTRAL									
Travis, Lake	99	1,113,902	706,381	63	41,382	4	-1,474	0	
*Austin, Lake	100	21,804	20,866	96	182	1	46	0	
Somerville Lake	101	147,104	147,104	100	0	0	30,202	21	
Canyon Lake	102	378,781	305,405	81	4,963	1	10,367	3	
Medina Lake	103	254,823	65,213	26	-678	0	-78,554	-31	
*Coledo Creek Reservoir	104	31,040	31,040	100	0	0	7,689	25	
TOTAL		1,947,454	1,276,009	66	45,849	2	-31,724	-2	
UPPER COAST									
Houston, Lake	105	128,863	128,863	100	0	0	0	0	
Texana, Lake	106	153,246	153,246	100	0	0	37,474	24	
TOTAL		282,109	282,109	100	0	0	37,474	13	
SOUTHERN									
Choke Canyon Reservoir	107	695,262	473,228	68	-1,663	0	-93,893	-14	
Corpus Christi, Lake	108	256,961	85,628	33	4,296	2	-83,188	-32	
*Falcon Reservoir (Texas)	109	1,551,034	991,000	64	21,000	1	-659,000	-42	
*Falcon Reservoir (TX & Mexico)	(109)	2,646,817	1,700,000	64	27,000	1	-946,817	-36	
TOTAL		2,503,257	1,549,856	62	23,633	1	-836,081	-33	
STATE TOTAL		31,145,453	25,720,749	83	-72,035	0	658,203	2	

* Conservation volume is used as conservation storage capacity because the dead storage is unknown.

Note

Conservation storage capacity is the space available to store water above the lowest outlet and below the 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 the dead storage. Conservation storage percentage is based on the conservation storage capacity of the reservoir and the conservation storage in the reservoir on date shown. Percent change is given by $100 \times (\text{current conservation storage} - \text{past conservation storage}) / \text{conservation storage capacity}$. Figures shown are for the Texas share of conservation storage in all reservoirs.

GROUNDWATER LEVELS IN OBSERVATION WELLS

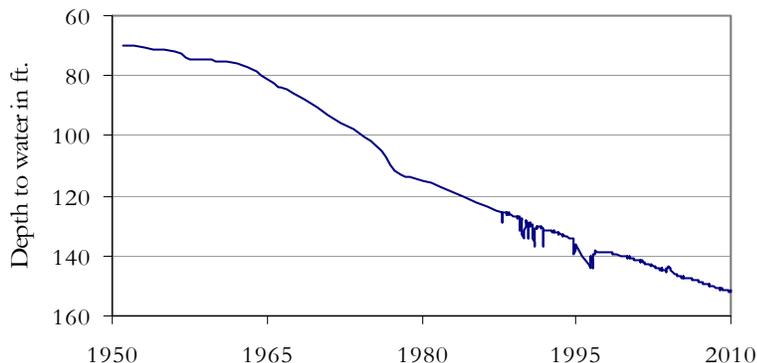


December, 2009

Water level measurements were available for nine out of the ten key monitoring wells. Water levels rose in eight of these nine monitoring wells since the beginning of December, ranging from 0.04 feet in the Castro County Ogallala well to 15.03 feet in the Frio County Carrizo-Wilcox well. The Bexar County Edwards (BFZ) index well recorded the only decline. The level in this J-17 well in San Antonio was 61.40 feet below land surface, 0.50 feet below last month's measurement, and 9.60 feet above the Stage 1 critical management level.

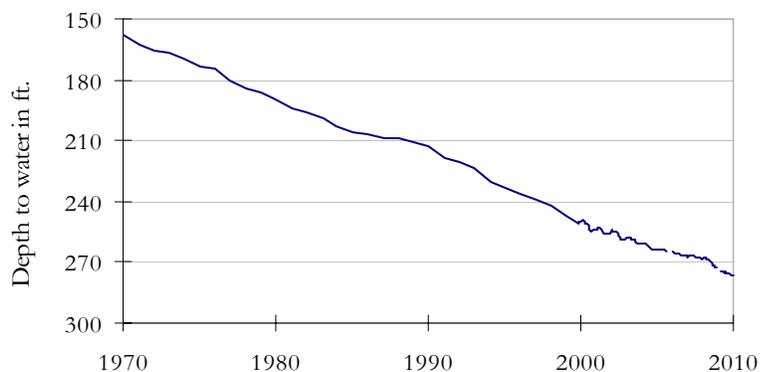
DECEMBER GROUNDWATER LEVELS IN OBSERVATION WELLS

**(1) State Well ID 03-54-301
Near Spearman, Hansford County
Ogallala Aquifer**



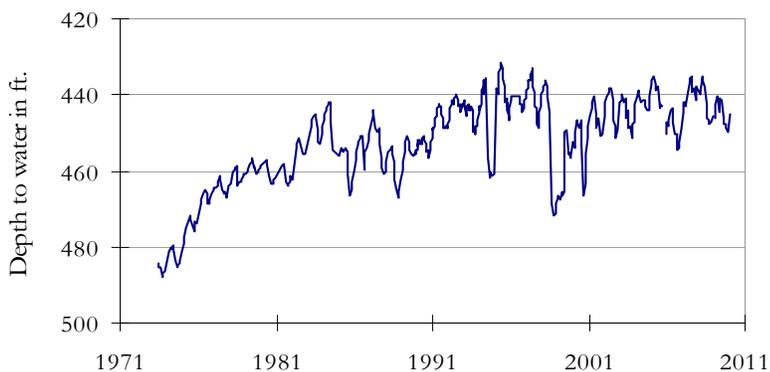
The late December water level measurement in this Ogallala Aquifer well, elevation 2,962 feet above sea level, was 151.67 feet below land surface. This measurement was 0.18 feet above last month's measurement, 0.51 feet below last year's measurement, and 81.55 feet below the initial measurement recorded in 1951.

**(2) State Well ID 10-45-102
Southwest Castro County
Ogallala Aquifer**



The late December water level measurement in this Ogallala Aquifer well, elevation 3,816 feet above sea level, was 276.23 feet below land surface. This measurement was 0.04 feet above last month's measurement, and 120.23 feet below the initial measurement recorded in 1968.

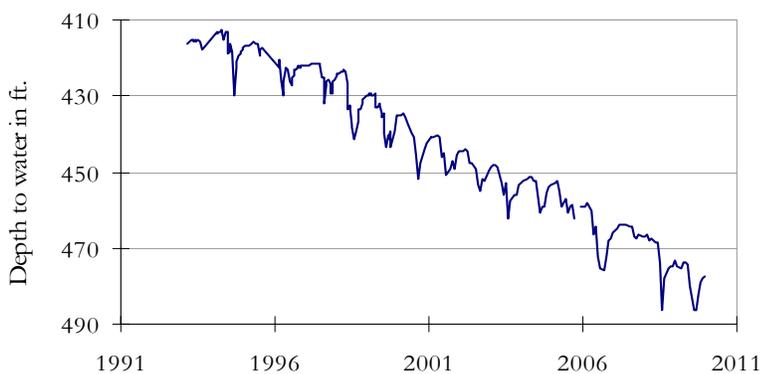
**(3) State Well ID 32-15-504
Near Hurst, Tarrant County
Paluxy Formation-Trinity Aquifer**



The late December water level measurement in this Paluxy Formation Trinity Aquifer well, elevation 535 feet above sea level, was 445.22 feet below land surface. This measurement was 4.35 feet above last month's measurement, and 67.22 feet below the initial measurement recorded in 1955.

* ID is used in this publication to differentiate between the monitoring well number (1 - 10) as displayed on the aquifer map and the TWDB's six- or seven-digit state well "identification" number.

**(4) State Well ID 40-35-404
Gatesville, Coryell County
Hosston Formation-Trinity Aquifer**



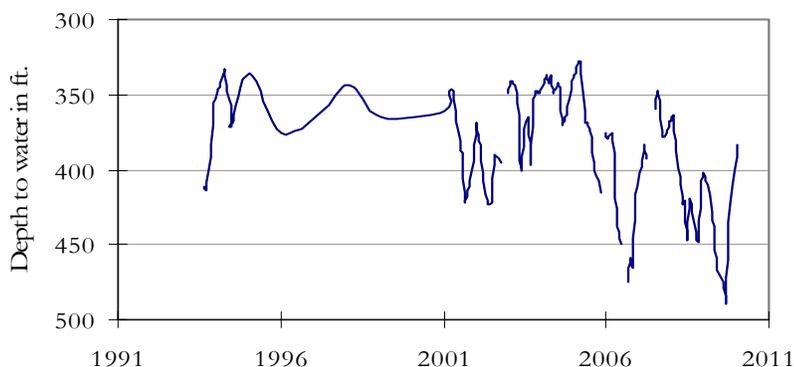
The late December water level measurement in this Hosston Formation Trinity Aquifer well, elevation 823 feet above sea level, was 477.38 feet below land surface. This water level was 0.59 feet above last month's measurement, 4.12 feet below last year's measurement, and 185.38 feet below the initial measurement recorded in 1955.

**(5) State Well ID 34-30-907
Red Springs, Smith County
Carrizo-Wilcox Aquifer**



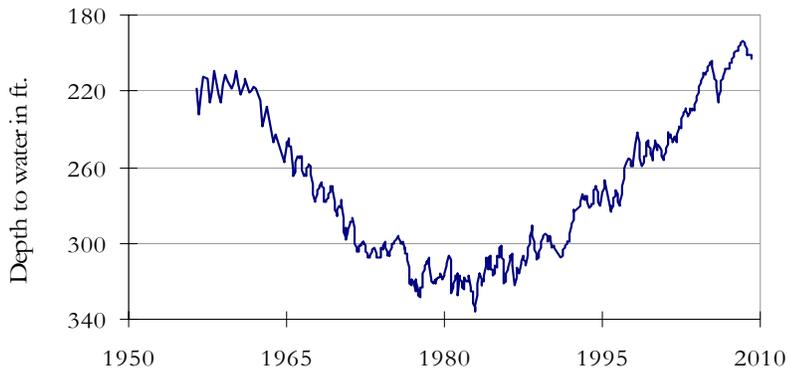
The late December water level measurement in this Carrizo-Wilcox Aquifer well, elevation 555 feet above sea level, was 431.91 feet below land surface. This water level was 0.84 feet above last month's measurement, 1.82 feet above last year's measurement, and 65.91 feet below the initial measurement recorded in 1987.

**(6) State Well ID 77-08-803
Pearsall, Frio County
Carrizo-Wilcox Aquifer**



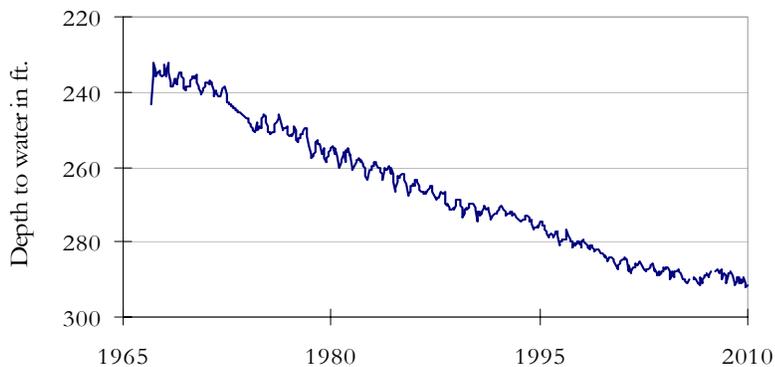
The late December water level measurement in this Carrizo-Wilcox Aquifer well, elevation 652 feet above sea level, was 384.10 feet below land surface. This was 15.03 feet above last month's measurement, 18.25 feet above last year's measurement, and 104.10 feet below the initial measurement recorded in 1963.

**(7) State Well ID 65-14-409
Alief, Harris County
Evangeline Formation-Gulf Coast Aquifer**



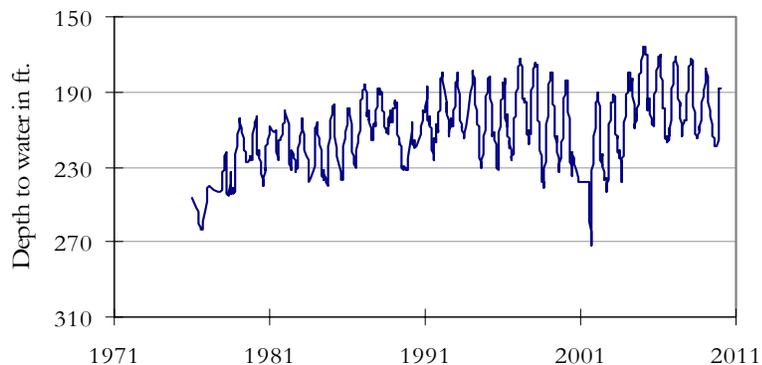
The late December water level measurement in this Evangeline Formation Gulf Coast Aquifer well, elevation 66 feet above sea level was not available. The last reading available, in March 2009, was 202.54 feet below land surface.

**(8) State Well ID 49-13-301
El Paso, El Paso County
Hueco-Mesilla Bolson Aquifer**



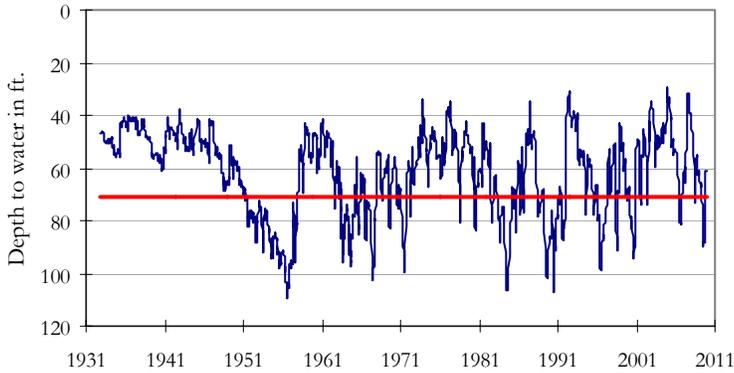
The late December water level measurement in this Hueco-Mesilla Bolson Aquifer well, elevation 3,882 feet above sea level, was 291.55 feet below land surface. This water level was 0.31 feet above last month's measurement, 0.42 feet below last year's measurement, and 59.65 feet below the initial measurement in 1964.

**(9) State Well ID 52-16-802
Fort Stockton, Pecos County
Edwards-Trinity (Plateau) Aquifer**



The late December water level measurement in this Edwards-Trinity Plateau Aquifer well, elevation 3,199 feet above sea level, was 188.05 feet below land surface. This water level was 1.17 feet above last month's measurement, 7.14 feet below last year's measurement, and 58.83 feet above the initial measurement in 1976.

**(10) State Well ID 68-37-203 (J-17)
In San Antonio, Bexar County
Edwards (BFZ) Aquifer**

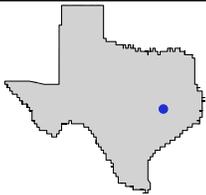


The late December water level measurement in this Edwards (BFZ) Aquifer well, elevation 731 feet above sea level, was 61.40 feet below land surface. This was 0.50 feet below last month's measurement, 0.02 feet below last year's measurement, and 14.76 feet below the initial measurement recorded in 1932.



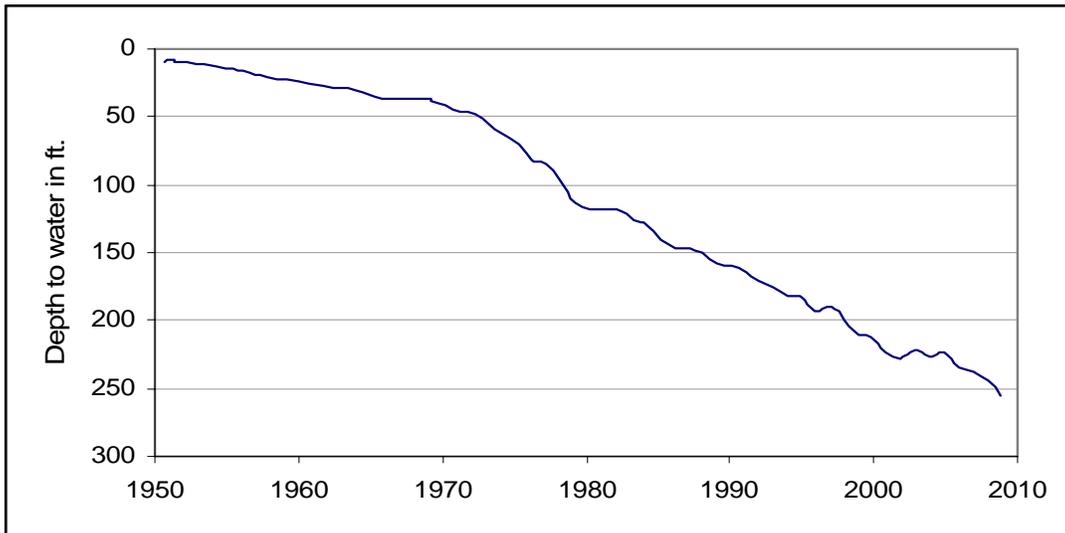
***** Water levels below the red line indicate Edwards Aquifer Authority Stage 1 drought restrictions. *****

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.

**State Well ID 32-43-805
Somervell County**



This water level observation well, located 4 miles east of Glen Rose, at an elevation of 640 feet above sea level, was completed in the Twin Mountains Formation of the Trinity Aquifer. Water level declines in excess of 500 feet have occurred in the Trinity Aquifer. The aquifer is mainly used for municipal supply.

*TEXAS WATER DEVELOPMENT BOARD
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