Water use, 1965

[Results in millions of gallons per day; a, less than 0.1]

Source	Saline River basin					Red River basin except Saline Bayou basin					Dugdemona River, Castor Creek, and Saline Bayou basins				
	Public supplies	Industrial supplies	Irrigation	Other	Total	Public supplies	Industrial supplies	Irrigation	Other	Total	Public supplies	Industrial supplies	Irrigation	Other	Total
Surface water	6.3	8.4	a	0.2	14.9	34.1	460.1	4.4	5.8	484.4	0	0.2	0	0.5	0.7
Trinity Group						1.0	0	0	.1	1.1					
Woodbine Formation						0	0	0	a	a					
Tokio Formation						.5	.3	0	.6	1.4					
Naeatoch Sand						1.1	a	0	.9	2.0					
Minor Wilcox aquifers	a	.2	a	.1	.3	3.8	4.7	a	1.9	10.4	a	.1	a	.2	.3
Carrizo Sand	.1	0	0	0	.1	a	0	0	a	a					
Cane River Formation	0	0	0	a	a	.2	.1	0	1.3	1.6					
Sparta Sand						2.2	4.1	0	.7	7.0	3.2	14.9	0	.1	18.2
Cockfield Formation						0	0	0	.3	.3	0	0	0	.3	.3
Quaternary deposits						.6	5.9	4.0	1.5	16.0	.1	0	0	a	.1
Total	6.4	8.6	a	.3	15.3	43.5	455.2	12.4	13.1	524.2	3.3	15.2	a	1.5	20.0

Maximum, minimum, and median concentrations of selected constituents in ground water in the Dugdemona River, Castor Creek, and Saline Bayou basins

[Data in parts per million, except specific conductance, pH, color, and temperature]

Constituent	Minor Wilcox aquifers			Sparta Sand		
	Max	Min	Median	Max	Min	Median
Silica (SiO_2)	51	11	15	28	11	24
Iron (Fe)	4.8	.06	.10	6.2	.09	1.0
Calcium (Ca)	7.8	2.2	3.4	3.8	.0	1.6
Magnesium (Mg)	2.6	.6	1.6	1.8	.0	.4
Sodium (Na)	381	6.2	115	100	5.2	32
Carbonate plus bicarbonate (CO_3+HCO_3)	930	13	251	282	5	104
Sulfate (SO_4)	30	.2	1.8	100	.0	8.5
Chloride (Cl)	92	2.0	20	98	2.0	8.0
Fluoride (F)	4.8	.1	.6	1.5	.0	.1
Nitrate (NO_3)	5.2	.1	1.1	14	.0	1.0
Dissolved solids	903	80	247	297	35	100
Hardness as $CaCO_3$	30	8	15	92	0	10
Specific conductance (micromhos at 25°C)	1,440	84	500	464	42	139
pH	8.6	5.8	7.9	8.1	5.5	6.8
Color	70	10	30	50	0	10
Temperature (°F)	78	67	70	74	67	71

Hydraulic characteristics of aquifers

[Averaged by aquifer; number in parenthesis denotes number of tests used to compute average. gpd—gallons per day; gpm—gallons per minute]

Aquifer	Coefficient			Specific capacity (gpm per ft of drawdown)
	Transmissibility (gpd per ft)	Storage	Permeability (gpd per sq ft)	
Dugdemona River, Castor Creek, and Saline Bayou basins				
Sparta Sand	(2) 18,000	(1) 0.0012	(2) 170	
Red River basin except Saline Bayou basin				
Tokio Formation	(2) 2,900	(1) 0.00004		
Naeatoch Sand	(3) 2,530			
Minor Wilcox aquifers	(10) 6,600	(2) .0004	(10) 92	(6) 3
Carrizo Sand	(2) 1,800		(3) 42	(3) 2
Sparta Sand	(10) 31,000	(5) .0006	(2) 620	(7) 9
Quaternary deposits	(11) 22,000	(11) .0006	(10) 1,500	(6) 13

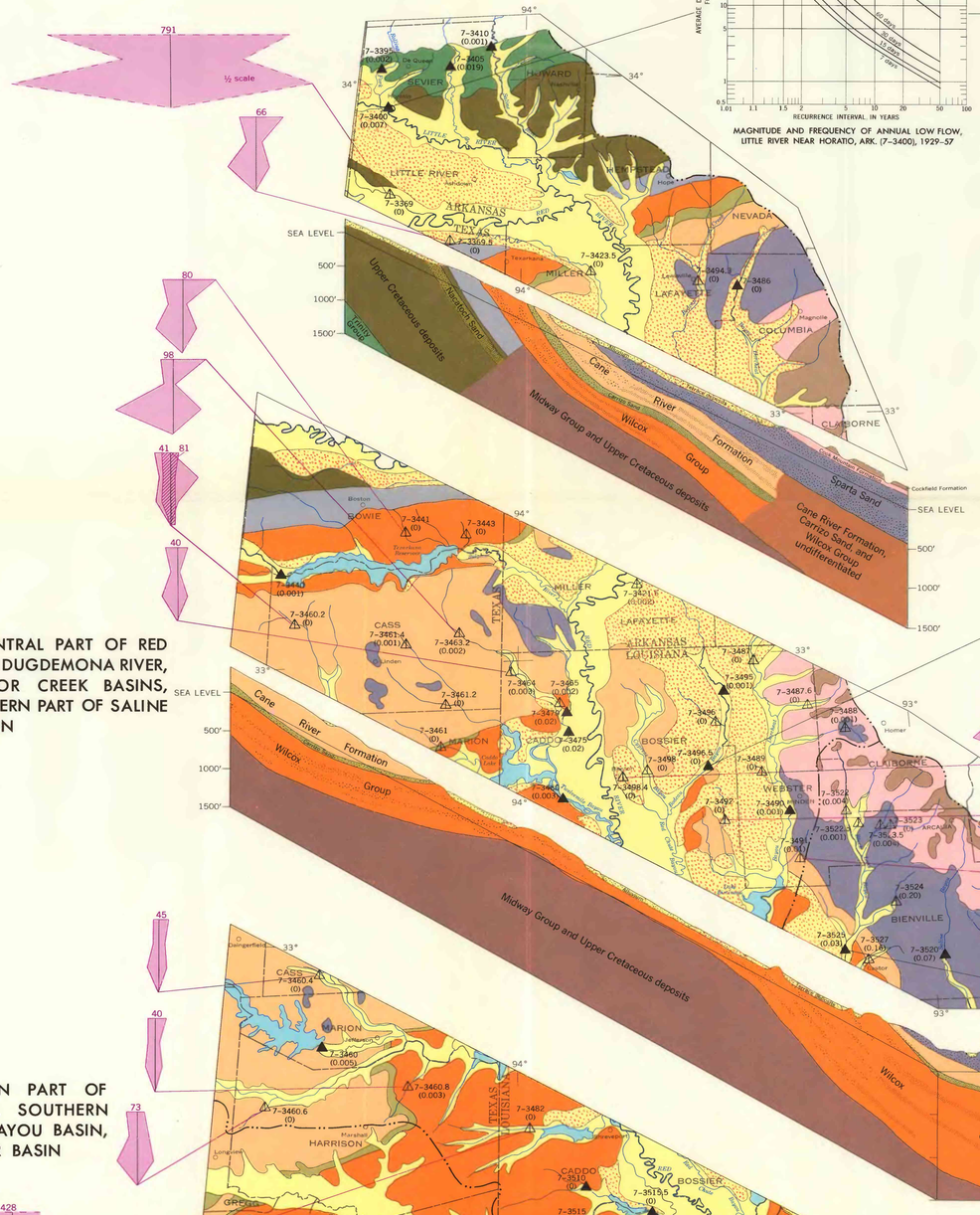
Maximum, minimum, and median concentrations of selected constituents in ground water in the Red River basin except Saline Bayou basin

[Data in parts per million, except specific conductance, pH, color, and temperature]

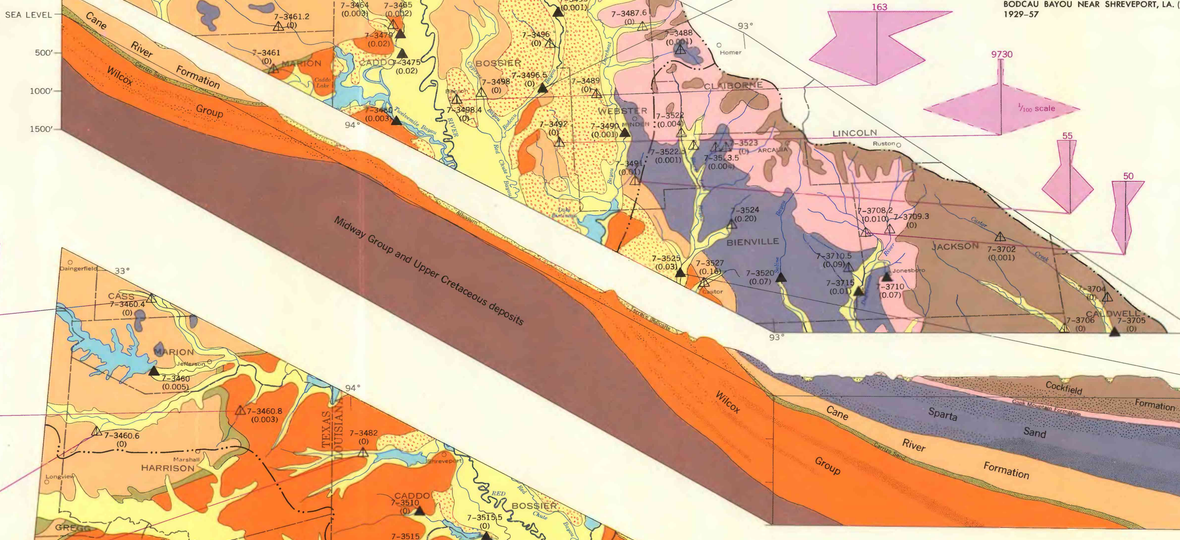
Constituent	Trinity Group			Woodbine Formation [1]			Tokio Formation [1]			Naeatoch Sand			Minor Wilcox aquifers			Carrizo Sand			Reklaw Formation, Queen City Sand, and Weches Greensand			Sparta Sand			Quaternary deposits		
	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median
Silica (SiO_2)													66	9.0	18	14	10	11	23	9.1	17	58	6.6	14	56	16	21
Iron (Fe)	11	0.01	0.50	5.1	0.07	0.18	49	0.04	0.38	2.5	0.03	0.18	55	.00	12	15	.03	12	20	.02	1.0	18	.02	28	26	0.01	1.3
Calcium (Ca)													134	.0	8.9	44	.4	2.8	20	.0	3.3	83	2.0	7.1	248	3.8	62
Magnesium (Mg)													55	.0	4.2	16	.4	1.9	20	.0	2.4	29	.1	1.7	142	1.8	40
Sodium (Na)													849	2.1	122	133	5.3	81	408	.8	56	237	9.9	69	242	5.6	39
Carbonate plus bicarbonate (CO_3+HCO_3)	580	20	260	622	20	350	784	42	330	622	10	200	756	0	207	335	82	164	708	0	121	553	25	193	911	4	279
Sulfate (SO_4)	560	1.0	18	166	7.0	56	260	1.0	35	110	.2	5.0	300	.0	4.2	100	.0	24	81	.0	3.5	20	.5	5.7	544	.0	10
Chloride (Cl)	365	3.0	6.0	72	4.8	8.8	1,020	3.8	14	3,550	3.8	82	984	1.0	53	94	2.0	13	344	1.8	32	230	6.0	6.5	610	4.3	22
Fluoride (F)										2.8	.6	2.0	4.8	.0	.3	.7	.1	.2	1.8	.0	.2	1.0	.0	.1	1.0	.0	.2
Nitrate (NO_3)	2.8	.0	1.1	2.5	.1	1.0	130	.1	1.9	21	.0	1.7	110	.0	.0	2.0	.0	.1	9.0	.0	.9	67	.1	1.0	560	.0	2.2
Dissolved solids													2,160	17	371	603	166	362	994	20	199	1,270	94	316	1,850	51	626
Hardness as $CaCO_3$	200	4	22	86	6	8	555	2	10	353	4	28	690	3	42	230	3	11	378	8	20	925	8	22	1,810	11	200
Specific conductance (micromhos at 25°C)	3,340	40	462	987	63	934	3,760	96	578	11,200	38	802	2,470	38	783	692	218	478	1,450	45	342	2,650	129	842	2,680	54	965
pH	9.2	6.1	8.3	9.1	7.0	8.7	9.0	6.6	8.4	9.0	7.1	8.5	8.6	4.8	7.8	8.4	7.7	8.2	7.5	4.7	5.9	8.6	6.0	7.7	8.2	5.1	7.4
Color													1,000	0	15	12	8	10				80	7	20	20	4	10
Temperature (°F)	77	63	66				100	64	67	80	55	68	76	64	68							75	67	70	71	64	67

[1] Aquifer in Upper Cretaceous deposits in northern part of block 1.

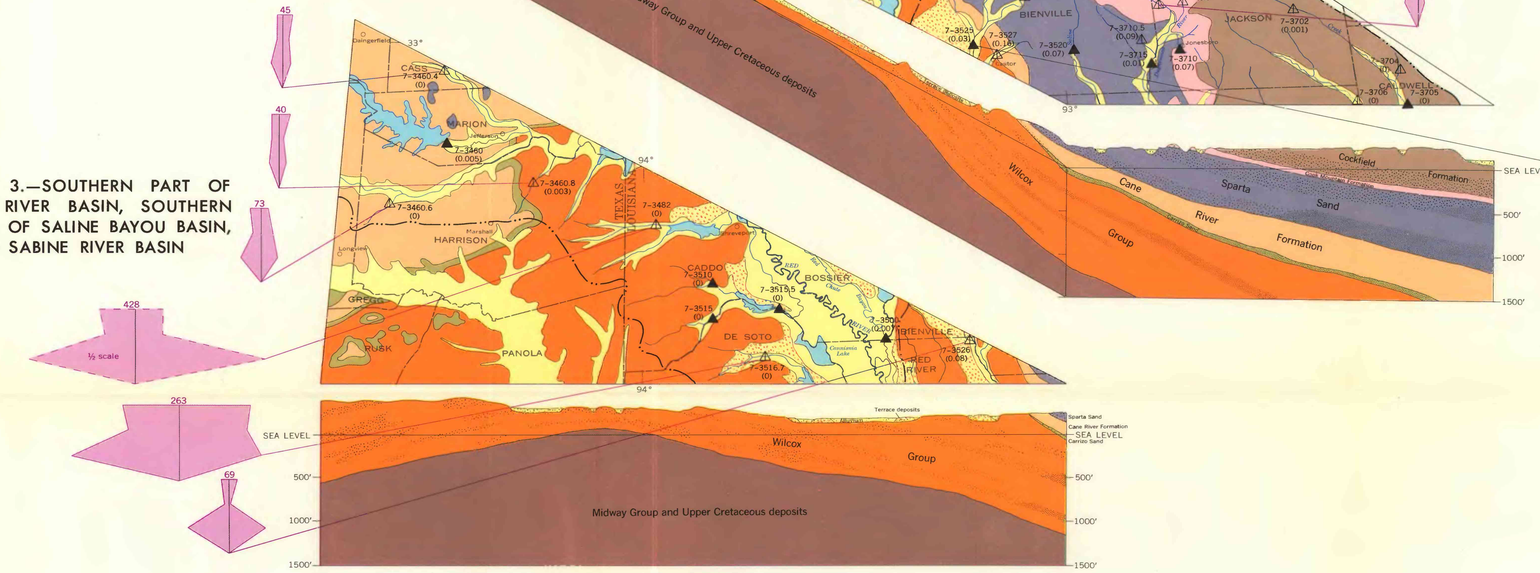
BLOCK 1.—NORTHERN PART OF RED RIVER BASIN

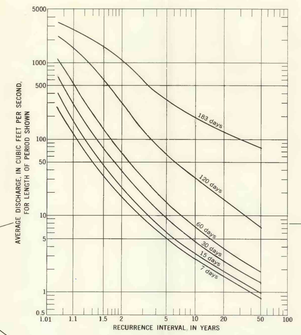


BLOCK 2.—CENTRAL PART OF RED RIVER BASIN, DUGDEMONA RIVER, AND CASTOR CREEK BASINS, AND NORTHERN PART OF SALINE BAYOU BASIN

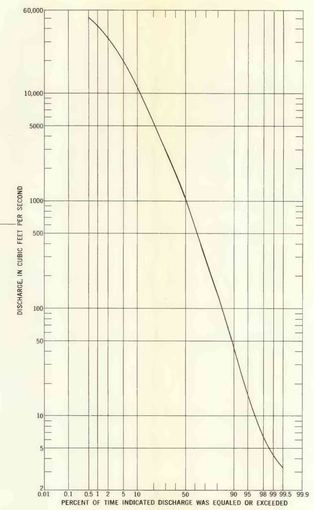


BLOCK 3.—SOUTHERN PART OF RED RIVER BASIN, SOUTHERN PART OF SALINE BAYOU BASIN, AND SABINE RIVER BASIN

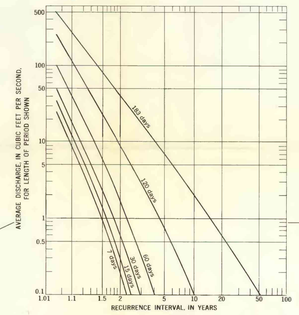




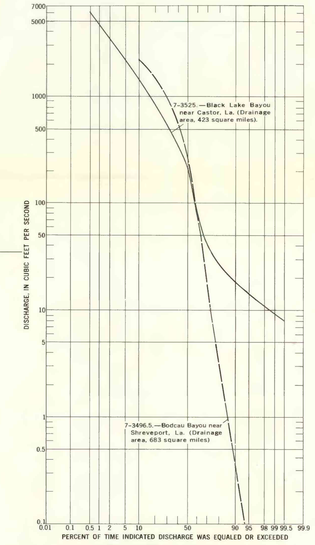
MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOW, LITTLE RIVER NEAR HORATIO, ARK. (7-3400), 1929-57



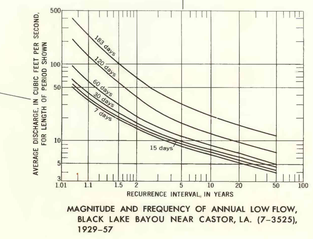
FLOW-DURATION CURVE FOR LITTLE RIVER NEAR HORATIO, ARK. (7-3400), 1929-57 (DRAINAGE AREA, 2,674 SQUARE MILES)



MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOW, BODCAU BAYOU NEAR SHREVEPORT, LA. (7-3496.5), 1929-57



FLOW-DURATION CURVES FOR BLACK LAKE BAYOU NEAR CASTOR, LA., AND BODCAU BAYOU NEAR SHREVEPORT, LA., 1929-57



MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOW, BLACK LAKE BAYOU NEAR CASTOR, LA. (7-3525), 1929-57

EXPLANATION

Pleistocene and Holocene	Terrace deposits	QUATERNARY
	Alluvium	
Eocene — Claiborne Group	Cockfield Formation	TERTIARY
	Cook Mountain Formation	
	Sparta Sand	
	Cane River Formation and equivalent	
	Carrizo Sand	
	Wilcox Group	
Paleocene	Midway Group	
Upper Cretaceous	Midway Group and Upper Cretaceous undifferentiated	CRETACEOUS
	Upper Cretaceous deposits *Lighter tone is Nacatoch Sand*	
Lower Cretaceous	Trinity Group	

Cane River Formation, Carrizo Sand, and Wilcox Group undifferentiated

WATER-BEARING ZONES

Fresh water (contains less than 1,000 parts per million dissolved solids)

Saline water (contains more than 1,000 parts per million dissolved solids)

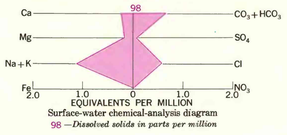
Contact

Basin boundary

7-3710 ▲(0.07) Daily-record station

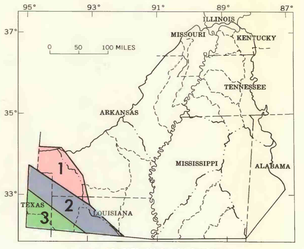
7-3702 △(0.001) Partial-record or short-term daily-record station

Upper number is station identification; number in parentheses is 7-day 2-year low flow, in cubic feet per second per square mile, adjusted to 1929-57. For a few of the stations that became subject to withdrawals for irrigation during the study period, low-flow data are shown for natural conditions



Surface-water chemical-analysis diagram

98—*Dissolved solids in parts per million*



AREA COVERED BY BLOCK DIAGRAMS

Note: The block diagrams are schematic, and depths and distances are not exact. For more detailed information about the aquifers and low flow of streams in these basins, refer to Prof. Papers 448-B, C, D, E, and F (Cushing and others, 1964; Boswell and others, 1965; Hosman and others, 1966; Boswell and others, 1966; and Speer and others, 1966). Additional water information for these basins is contained in the following publications:

Arkansas

Baker (1955)
Counts, Tait, Klein, and Billingsley (1965)
Hosman (1964)
Tait, Baker, and Billingsley (1952)

Louisiana

Newcome (1965)
Newcome and Page (1962)
Page and May (1964)
Page and Pyne (1964)
Rollo (1960)
Snider and Forbes (1961)
Snider, Winner, and Epstein (1962)

Texas

Baker, Dillard, Sanders, and Peckham (1963)
Baker, Long, Reeves, and Wood (1963)
Broadhurst and Breeding (1943a, 1943b.)
Broom and Alexander (1965)
Broom and Myers (1966)
Stockton, Arbingast, and Moore (1953)
Sundstrom, Hastings, and Broadhurst (1948)

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D.C.—1970—W68264

BLOCK DIAGRAMS, GRAPHS, AND CHEMICAL-ANALYSES DIAGRAMS SHOWING AVAILABILITY AND QUALITY OF WATER IN THE SOUTHWESTERN PART OF THE MISSISSIPPI EMBAYMENT