TEXAS WATER DEVELOPMENT BOARD

REPORT 120

BIOCHEMICAL-OXYGEN-DEMAND, DISSOLVED-OXYGEN, SELECTED-NUTRIENTS, AND PESTICIDE RECORDS OF TEXAS SURFACE WATERS, 1969 WATER YEAR

By

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Prepared by the U.S. Geological Survey in cooperation with the Texas Water Development Board

TEXAS WATER DEVELOPMENT BOARD

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FOREWORD

During the course of formulating a comprehensive plan for the optimum development, distribution, and use of the water resources of the State, it became apparent to the Texas Water Development Board that data on many important parameters which influence the overall water-quality characteristics of streams were lacking in many areas of the State. An extensive cooperative program between the Board and the U.S. Geological Survey to continuously monitor the chemical quality of Texas streams has been underway for many years, and the network of monitoring stations has been substantially expanded during the past decade. This network, however, provides data only on specific inorganic chemical constituents of the water. Other parameters, such as nutrients, pesticides, and various physical properties are not determined. These characteristics can profoundly influence the use of the water resource, as well as the ecological balance in streams and associated reservoirs.

During the period 1957 through 1965, the Texas State Department of Health in cooperation with the Texas Parks and Wildlife Department operated a network of approximately 272 sampling stations in the State at which "grab" samples (not depth integrated) were collected at least once a month and subsequently forwarded to the State Department of Health laboratory in Austin for analyses. Some of these stations were located at or near existing stream gages operated by the U.S. Geological Survey in its cooperative program with the Board; however, flow data were not reported as a part of this sampling program. The parameters measured and reported under this program included total dissolved solids, chloride, sulfate, chlorine demand, dissolved oxygen, biochemical oxygen demand, and pH. This program, although of great value in pollution abatement activities, did not provide information on additional physical and quality parameters needed for comprehensive stream quality evaluation. With the passage of the Texas Water Quality Act of 1967, certain water pollution control activities of the State Department of Health were transferred to the newly created Texas Water Quality Board. This water-quality monitoring program was thus terminated, to be subsequently replaced by the Texas Water Quality Board's own network of water-quality surveillance stations.

It was during that interim period that the Texas Water Development Board initiated the cooperative data-collection program with the U.S. Geological Survey

for which 1969 water year records are included in this report. Under this program, data are collected on many important water quality parameters other than inorganic chemical constituents. These include nitrate and phosphate, important nutrients which may under certain conditions produce excessive biological growths and associated oxygen depletion, undesirable taste and odor problems, and other nuisance conditions. Also included in the program is identification, at strategically selected stations, of most of the widely used pesticides.

This report presents the results of the second year of operation of the network, the initial year's data having been previously published as Texas Water Development Board Report 108. A sampling year is based on the standard U.S. Geological Survey "water year," which runs from October 1 through September 30 and is designated by the calendar year in which it ends. (Water year 1969 extends from October 1, 1968 to September 30, 1969.)

The present program is continuously being improved, through the addition of more parameters (ammonia nitrogen and nitrate nitrogen were added during the 1969 water year) and increasing capability and accuracy of analytical techniques as a result of technological advances. Additional pesticides have been added to those reported during the 1968 water year.

The results of pesticide analyses during the first two years of the sampling program indicate the difficulty in obtaining reasonably reliable data on pesticide loads carried by streams. Most pesticides commonly accumulate in soils and adhere to sediment particles which are carried into streams largely during periods of high runoff. Thus, frequency and timing of sampling strongly influence the results obtained from a routine data-collection program. In addition, even though the pesticide concentrations determined are indicative of the concentrations carried by both the suspended sediment load of the stream and the water (as a result of utilizing the depth-integrated sampling technique), quantities of pesticides as well as other organic materials which may have accumulated on the bed of the stream at the sampling site are not detected. Under the present program, the recorded absence of detectable pesticide concentrations at many stations probably accurately reflects such conditions. At other stations, the frequency and timing of sampling and the sampling technique limit accurate assessment of pesticide loads and other organic

material contributed to the stream. This assumption is supported by the comparatively high pesticide residues frequently measured by the Texas Parks and Wildlife Department in organs and tissues of some marine organisms such as fish and shellfish, many of which accumulate or "store" pesticide residues through continued intake of water and food which may contain comparatively low pesticide concentrations. Because of this, bottom sediment samples will be collected and analyzed at many stations in the network during the 1970 water year.

As stressed in the report, the data presented are representative of the condition of the stream only at the sampling site and under the conditions of flow and climate indicated. Through repetitive sampling, however,

sufficient data can be accumulated which, through accepted mathematical equations and predictive techniques, provide reasonably reliable evaluations of the quality and condition of the streams between sampling sites. The network is designed to provide additional data on the physical and water-quality characteristics of Texas streams at critical locations such as near points of inflow and outflow from existing reservoirs and near sites where new reservoirs are proposed. Where continued data collection shows evidence of deteriorating stream conditions, this program provides additional data for pollution abatement activities and implementation of appropriate water-quality management programs by State and local agencies with statutory responsibilities in this area.

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BIOCHEMICAL-OXYGEN-DEMAND, DISSOLVED-OXYGEN, SELECTED-NUTRIENTS, AND PESTICIDE RECORDS OF TEXAS SURFACE WATERS, 1969 WATER YEAR

INTRODUCTION

A network of daily and periodic chemical-quality stations on streams in Texas is operated by the U.S. Geological Survey in cooperation with the Texas Water Development Board and with other State, Federal, and local agencies. Before 1968, analyses of water from this network usually included only the principal inorganic constituents and related properties. Other water-quality parameters or constituents may profoundly influence the water resource and the ecological balance in streams and reservoirs. Therefore, to supplement the information being obtained on the inorganic quality of the surfacewater resources of the State, the Geological Survey in cooperation with the Texas Water Development Board began in January 1968 the periodic determination of BOD (biochemical oxygen demand), dissolved oxygen, and selected nutrients and pesticides at strategically located sites on most of the principal streams. Records of these periodic determinations through September 1968 were compiled by Dupuy, Manigold, and Schulze (1970).

During the 1969 water year (October 1968 through September 1969), the periodic sampling program for BOD, dissolved oxygen, nutrients, and pesticides was expanded to include sites on streams in the urban areas of Houston and San Antonio. Locations of sites included in the program during the 1969 water year are shown on Figure 1. Most of the sites are at stream-gaging stations where additional water-quality data are collected on a continuous, daily, or periodic basis.

BOD, dissolved-oxygen, and nutrients records for the 1969 water year are given in Table 1; pesticides records are given in Table 2. Because these constituents or properties are nonconservative—that is, they are affected by several factors such as biological activity, sunlight intensity, air and water temperatures, and stream-channel characteristics and associated water depth and velocities—the records in Tables 1 and 2 for a particular stream are representative of conditions only at the sampling sites and during the times of sampling. However, data accumulated through repetitive sampling

at strategic sites on a stream should be sufficiently representative to allow for reliable evaluations of the stream's quality.

DEFINITIONS OF TERMS AND ABBREVIATIONS

The terms and abbreviations for water-quality and hydrologic data in this report are defined as follows:

Discharge represents the total fluid measured in the stream.

Cubic feet per second (cfs) is a unit expressing rates of discharge. One cubic foot per second is equal to the discharge of a stream of rectangular cross section, 1 foot wide and 1 foot deep, flowing water at an average velocity of 1 foot per second.

Milligrams per liter (mg/l) is a unit for expressing the weight of solute (in milligrams) per unit volume (liter) of solution.

Micrograms per liter (μ g/I) is a unit for expressing the weight of solute (in micrograms) per unit volume (liter) of solution. One μ /I is equal to 0.001 mg/I.

Specific conductance is a measure of the ability of a water to conduct an electrical current and is expressed in micromhos per centimeter at 25°C. Because the specific conductance is related to the number and types of ions in solution, it can be used for approximating the dissolved-solids content of the water. The following general relation is applicable:

Specific conductance X $(0.65 \pm 0.05) = mg/l$ dissolved solids.

Nutrients are substances required to promote and sustain life. Excessive nutrients tend to enrich water and may cause undesirable weed and algal growths and associated nuisances. In this report consideration has been limited to the most significant nutrients, nitrogen and phosphorus.

Biochemical oxygen demand (BOD) is a measure of the amount of oxygen required by aerobic bacteria while stabilizing decomposable organic matter. Thus, the determination of BOD provides an indication of the quantity of organic material in the water at the sampling point. Because complete stabilization may require a period too long for practical purposes, the 5-day BOD test has been accepted as standard. The BOD data presented in this report are based on the standard 5-day BOD test.

Dissolved oxygen (DO) in surface water is necessary for the support of aquatic life and the aerobic decomposition of organic material, and thus is one of the most important indicators of the biological, chemical, or sanitary quality of the water.

Percent saturation of dissolved oxygen is the ratio of the quantity of oxygen dissolved in a water at a given temperature and salinity to the maximum equilibrium quantity of oxygen dissolved in the water when exposed to water-saturated air.

Pesticides include insecticides and herbicides.

Insecticides are substances or a mixture of substances intended to prevent, destroy, or repel insects. Technical names for insecticides analyzed for are:

Aldrin should contain not less than 95 percent of 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-1,4-endo-exo-5,8-dimethanonaphthalene.

Chlordane 1,2,4,5,6,7,8,8-octachloro-3a,4,7,7a-tetrahydro-4,7-methanoindane

DDD 1,1-dichloro-2,2-bis (p-chlorophenyl) ethane

DDE 1,1-dichloro-2,2-bis (p-chlorophenyl) ethylene

DDT 1,1,1-trichloro-2,2-bis (p-chlorophenyl) ethane

Dieldrin should contain not less than 85 percent of 1,2,3,4,10,10-hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4-endo-exo-5,8-dimethanonaphthalene.

Endrin 1,2,3,4,10,10-hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4-endo-endo-5,8-dimethanonaphthalene

Heptachlor 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-4,7-methanoindene

Heptachlor epoxide 1,4,5,6,7,8,8-heptachloro-2,3-epoxy-3a,4,7,7a-tetrahydro-4,7-methanoindan

Lindane 1,2,3,4,5,6-hexachlorocyclohexane, 99 percent or more of gamma isomer

α -BHC Alpha-1,2,3,4,5,6-hexachlorocyclohexane

Methyl parathion O,O-dimethyl O-p-nitrophenyl phosphorothioate

Parathion O,O-diethyl O-p-nitrophenyl phosphorothioate

Toxaphene Chlorinated camphene containing 67 to 69 percent chlorine

Herbicides are substances or a mixture of substances intended to control or destroy any vegetation. Technical names for herbicides analyzed for are:

2,4-D 2,4-dichlorophenoxyacetic acid

2,4,5-T 2,4,5-trichlorophenoxyacetic acid

Silvex 2-(2,4,5-trichlorophenoxy) propionic acid

COLLECTION OF SAMPLES

Samples for BOD were refrigerated until analysis was begun (within 4 days after collection). Samples for nutrient analysis were collected in 1-liter polyethylene bottles and immediately treated with chloroform. A depth-integrated sample was collected with a BOD sampler (provides for a threefold displacement of water in a BOD bottle without aeration) for streamside measurement of dissolved oxygen and temperature. Depth-integrated samples for pesticide analysis were collected in 1-quart Boston round glass bottles and sealed with a Teflon-lined screw cap. Two samples, one for insecticide analysis and the other for herbicides, were collected at each station.

ANALYTICAL PROCEDURES

The BOD was determined by incubating the samples at a temperature of 20°C for 5 days and measuring the decrease in dissolved oxygen (American Public Health Association and others, 1965, p. 415-421).

Dissolved oxygen was measured in the field with a temperature-compensated instrument. Calibration of the instrument was checked frequently by the Winkler method (azide modification) using saturated distilled water (Rainwater and Thatcher, 1960, p. 233-235). Temperature was measured with a glass thermometer at the time of sampling and is reported in degrees Celsius.

A modification of the persulfate digestion method developed by Gales and others (1966) was used for the determination of total inorganic and organic phosphorus as phosphate (PO₄).

A modification of the diazotization method (Rider and Mellon, 1945, p. 76) was used for the determination of nitrite (NO₂). The methods used for the determination of ammonia (NH⁴) and nitrate (NO₃) are those described by Rainwater and Thatcher (1960, p. 211-226). Where no ammonia or nitrite values are reported in Table 1, the values reported for nitrate include all inorganic forms of nitrogen as nitrate.

Water for pesticide determinations was normally received in the laboratory within 3 days after sampling and was stored at about 1°C until analysis was begun, usually 4 to 7 days after receipt. Methods for pesticide analysis were those developed in the U.S. Geological Survey laboratories. Suspended solids were not removed prior to extraction. Insecticides were extracted from the samples with hexane and analyzed by electron capture gas chromatography (Lamar and others, 1966, p. 187-199). Samples for herbicide analysis were acidified and extracted with ether. The herbicides were converted to their methyl esters to facilitate analysis and were analyzed by electron capture gas chromatography. The methyl ester values were converted to the equivalent acid values for reporting (Goerlitz and Lamar, 1967, p. 1-21).

Some data are included for five insecticides that had not been previously reported in the periodic sampling program. In late October 1968, chlordane was added to the analytical scheme. Toxaphene was identified in one sample received from Greens Bayou in Houston (8-0760). Alpha-BHC was found in several samples and the concentration is included under lindane in Table 2. Although insecticides of primary interest in the periodic program are of the chlorinated type, one sample from the Arroyo Colorado at El Fuste (8-4703) was screened for methyl and ethyl parathion, and results were positive.

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Table 1.--Biochemical-oxygen-demand and selected nutrients records of Texas surface waters, 1969

(Results in milligrams per liter except as indicated)

	Time	Discharge	Ammonia	Nitrate	Nitrite	Phosphate	Specific conductance	pН	Tem-	Disso oxyg (DO	7)	Bio- chem-
Date	(24 hour)	(cfs)	(NH ₄)	(NO ₃)	(NO ₂)	(PO ₄)	(micromhos at 25°C)	(field)		mg/l	Per- cent sat- ura- tion	ical oxygen demand (BOD)
		7-2274.7.	CANADI	AN RIVER	NEAR TA	SCOSA, TEX	AS (35°31'1	0", 102°	15'30")		
Jan. 7, 1969		22		1.4		0.04	4,260		11			0.7
Feb. 10	1540 1145	5.3 35		.4 2.0		.16 3.3	4,230 1,990		13 26			1.2
Aug. 6	1215	63		. 4		.15	1,390		27			1.4
Aug. 27	1000	2,200		1.5		.75	910	8.0	22	6.6	75	5.1
Sept. 5 Sept. 23	1100 1515	1,010 800		. 6		.09	936 960	7.9	23 24	7.0	82	2.8 1.7
		7-2275.	CANADIA	N RIVER	NEAR AMA	RILLO, TEX	AS (35°28'1	0", 101°	52'45")		
Jan. 7, 1969 Feb. 10	1220 1020	32 11		23 82		6.8 24	3,340 2,590		3			4.8
June 5	1650	39		10		.14	2,860		32			5.7
Aug. 6	1850	106		5.0		.11	1,550		30			3.1
Aug. 26	1600	1,960		3.6		1.5	928		25	6.8	81	4.2
Sept. 5	1515	954		2.3		. 16	931		24			1.4
		7-2280.	CANADIA	N RIVER	NEAR CAN	ADIAN, TEX	(35°56'	, 100°	22')		
Nov. 21, 1968		61		4.4		0.12	2,400		13			1.1
Dec. 19		29		4.5		.14	2,480		1			1.3
Mar. 6, 1969 April 10		270 22		8.2		.33	2,520 1,100		10 20			7.6 2.5
June 17		540		1.1		. 68	1,470		20			.8
Aug. 26	1120	280		1.3		. 30	1,350		24	7.0	81	5.7
		7-3127.	WICHIT	A RIVER	NEAR CHA	RLIE, TEXA	s (34°03'20	", 98°17	'41")			
Dec. 9, 1968	1607	98		9.0		4.2	4,950	8.0	7	10.9	93	1.4
Feb. 6, 1969		77		16		7.5	4,050	7.8	10	10.5	96	6.4
June 4	1405 1114	226 117		4.3		3.2 2.9	3,690 4,270	8.0 8.2	22 31	9.3 7.2	107 96	5.8 6.2
Aug. 14	1405	220		3.3		2.4	2,960	7.3	26	4.6	57	3.4
		7-3355.	RED RI	VER AT A	RTHUR CI	TY, TEXAS	(33°52'30",	95°30'1	.0'')			
Oct. 8, 1968	1145	1,970		0.0		0.12	1,080	7.7	19	9.0	96	2.0
Dec. 10	0800	3,200		. 0		.18	889	8.0	6	11.5	95	. 7
Feb. 3, 1969 April 9	1215	20,600 11,400		. 2		. 20	522 1,310	7.4 7.9	18	11.9 9.2	106 100	1.9 1.6
June 2		13,600		1.3		.16	1,240	7.8	23	7.7	89	1.0
July 9	0920	2,800		1.0		. 20	1,140	7.7	30	5.8	76	2.5
Aug. 13	1705	3,390		. 1		. 20	1,140	8.2	30	9.0	118	2.7
		7-336	8.2. RE	D RIVER	NEAR Dek	ALB, TEXAS	(33°41'15"	, 94°41'	39'')			
Oct. 8, 1968	1000	6,100		0.0		0.16	1,220	7.8	18	9.6	102	1.9
Dec. 10	1115	6,400		.8		.12	1,660	7.7	7	13.0	110	. 8
Feb. 3, 1969	1535	44,200		. 2		. 20	314	7.6	10	10.5	96 105	1.9
April 9	1845 1600	11,300 18,300		. 0 1 . 5		.12	1,060 1,040	7.7 7.7	20 25	9.3 7.7	105 92	1.9
July 8	1740	3,300		. 4		. 28	1,090	7.7	32	7.4	100	2.5
Aug. 13	1437	3,640		. 2		. 16	1,240	8.1	30	8.1	116	3.2
		7-33	370. RED	RIVER A	AT INDEX,	ARKANSAS	(33°33'07",	94°0212	28'')			
Oct. 7, 1968	1835	4,340		0.0		0.23	849	7.7	20	9.4	102	2.6
Dec. 10	1300	8,080		.0		.12	630	7.9	8	12.1	105	1.2
	1700	65,900		. 3		.32	237	7.4	10 21	10.3	94	1.6
Feb. 3, 1969	1/											
Feb. 3, 1969 April 9	1450	14,800 21 800		. 0		.15	1,150	7.9 7.8		9.3 7.2	107 87	1.7
Feb. 3, 1969	1450 1720 1625	14,800 21,800 6,260		.0 .6 1.2		. 15 . 10 . 30 . 24	1,010 1,110	7.8 8.0	26 33	7.2	87 95	1.3

Table 1.--Biochemical-oxygen-demand and selected nutrients records of Texas surface waters, 1969--continued

(Results in milligrams per liter except as indicated)

	Time	Discharge	Ammonia Ni	itrato	Nitrito	Dhoobbata	Specific conductance	-11	Tem-	oxyg		Bio- chem-
Date	(24 hour)	(cfs)		(NO ₃)	(NO ₂)	(PO ₄)	(micromhos at 25°C)	pH (field)	pera- ture (°C)	mg/1	Per- cent sat- ura- tion	ical oxyge deman (BOD)
		7- 3432.	SULPHUR	RIVER	NEAR TAL	CO, TEXAS	(33°23'20",	95°07'	50'')			
Oct. 8, 1968		20		0.0		0.15	591	7.4	20	8.0	86	1.5
Dec. 10 Feb. 3, 1969	1000 1400	132		. 0		. 38	1,090	7.8	6	12.0	99	1.4
April 9	2010	118		. 5		. 46	188 662	7.3 7.6	10 21	11.3	104 92	3.2 2. 7
June 2	1440	136		. 8		. 14	452	7.5	26	6.2	76	2.2
uly 8	1900	11		.6		.26	658	7.4	32	5.2	70	2.0
ug. 13	1545	2.2		. 2		.18	795	7.6	31	6.1	81	1.3
	7 - 3	460.7. LIT	TLE CYPRESS	S CREEI	K NEAR JE	EFFERSON,	TEXAS (32°4	2'46", 9	4°20'4	4")		
ct. 7, 1958		55		0.0		0.19	154	6.4	19	7.3	78	0.9
ec. 10 eb. 4, 1969	1500	800 560		. 4		. 20 . 24	149 206	6.3	8	11.1	97 75	1.0
pril 9	1215	2,570		.4		. 23	109	6.4	20	6.5	74	1.7
June 2	1935	408		2.9		. 36	169	6.6	24	5.3	62	1.6
uly 8	1425	9.0		2.1		. 54	237	6.7	30	3.5	46	1.3
ug. 13,	0930	. 1 3		1.6		. 22	238	6.7	28	2.9	37	1.6
		8-0175.	SABINE RI	IVER N	EAR EMORY	, TEXAS	(32 46 23",	95 ⁻ 47'56	")			
et. 8, 1958	1500	0.8		0.0		0 24	243 1,220	7.0 7.1	22	7.7	88	4.1
eb. 4, 1969	1330	90		.0		. 20	185	7.6	10 10	8.9 11. 2	8 2 103	1.7
pril 8	1440	850		. 0		.15	213	7.4	15	11.5	118	1.8
une 3	11:00	850		5.0		. 1 2	195	7.4	23	6.6	76	1.9
uly 7	1540	3.0		. ()		. 30	262	7.3	31	6.5	87	2.1
ug. 12	1515	. 2		1.2		. 44	292	8.1	31	9.8	131	7.7
		8-0200. S	ABINE RIVER	R NEAR	GLADEWA:	TIR. TEXAS	(32 32'	. 94 571)			
							(3= 3=	, , , , ,				
	1435	114		0.0		0.24	262	6.7	20	7.4	80	1.0
nec. 10	1435 1705 1115	114 2,350 3,140		1.0		0.24				10.7	93	1.5
Det. 7, 1998 Dec. 10 Teb. 4, 1959	1705	2, 310()				0.24 .28 .26 .23	262 241	6.7	20 8			
Dec. 10 Teb. 4, 1969 April 9	1705 1115 0940 0920	2,350 3,140 5,040 5,720		1.0		0.24 .28 .20 .23	262 241 297 218 215	6.7 6.6 6.8 7.1 7.0	20 8 11 20 24	10.7 9.3 6.9 4.5	93 87 78 53	1.5 2.4 2.0 1.7
bec. 10	1705 1115 0940 0920 1140	2,350 3,140 5,040 5,720 234		1.0 .5 .0 .8 1.2		0.24 .28 .26 .23 .22 .30	262 241 297 218 215 405	6.7 6.6 6.8 7.1 7.0 7.1	20 8 11 20 24 30	10.7 9.3 6.9 4.5 5.4	93 87 78 53 71	1.5 2.4 2.0 1.7 2.1
bec. 10	1705 1115 0940 0920	2,350 3,140 5,040 5,720		1.0		0.24 .28 .20 .23	262 241 297 218 215	6.7 6.6 6.8 7.1 7.0	20 8 11 20 24	10.7 9.3 6.9 4.5	93 87 78 53	1.5 2.4 2.0 1.7
ec. 10	1705 1115 0940 0920 1140	2,350 3,140 5,040 5,720 234	. SABINE I	1.0 .5 .0 .8 1.2	NEAR TATE	0.24 .28 .26 .23 .22 .30	262 241 297 218 215 405	6.7 6.6 6.8 7.1 7.0 7.1	20 8 11 20 24 30 32	10.7 9.3 6.9 4.5 5.4	93 87 78 53 71	1.5 2.4 2.0 1.7 2.1
ec. 10	1705 1115 0940 0920 1140 1655	2, 360 3, 150 6, 040 5, 720 234 26 8-0220	. SABINU I	1.0 .5 .0 .8 1.2 .7	NEAR TATE	0.24 .28 .20 .23 .22 .30 .22	262 241 297 218 215 405 280 (32 22'11",	6.7 6.6 6.8 7.1 7.0 7.1 7.1	20 8 11 20 24 30 32 8")	10.7 9.3 6.9 4.5 5.4 2.4	93 87 78 53 71 32	1.5 2.4 2.0 1.7 2.1 1.7
hec. 10	1705 1115 0940 0920 1140 1655	2,360 3,140 6,040 5,720 234 26	. SABINE I	1.0 .5 .0 .8 1.2 .7	NEAR TATE	0.24 .28 .26 .23 .22 .30 .22	262 241 297 218 215 405 280	6.7 6.6 6.8 7.1 7.0 7.1 7.1	20 8 11 20 24 30 32	10.7 9.3 6.9 4.5 5.4 2.4	93 87 78 53 71 32	1.5 2.4 2.0 1.7 2.1 1.7
ec. 10	1505 1115 0940 0920 1140 1655	2, 360 3, 150 6, 040 5, 720 234 26 8-0220 169 3, 660	. SABINE I	1.0 .5 .0 .8 1.2 .7 RIVER :	NEAR TATE	0.24 .28 .26 .23 .22 .30 .22 .22 .31 .22 .32 .32 .22	262 241 297 218 215 405 280 (32 22 11",	6.7 6.6 6.8 7.1 7.0 7.1 7.1 94 27'2	20 8 11 20 24 30 32 8")	10.7 9.3 6.9 4.5 5.4 2.4	93 87 78 53 71 32	1.5 2.4 2.0 1.7 2.1 1.7
ec. 10	1705 1115 0940 0920 1140 1655 1500 1600 0905 1110 0745	2,360 3,140 6,040 5,720 234 26 8-0220 169 3,650 3,050 11,500 9,280	. SABINE I	1.0 .5 .8 1.2 .7 RIVER :	NEAR TATE	0.24 .28 .26 .23 .22 .30 .22 .22 .31 .32 .22 .32 .32 .32 .32	262 241 297 218 215 405 280 (32 22'11", 485 1,500 430 209 220	6.7 6.6 6.8 7.1 7.0 7.1 7.1 94 27'2 6.7 6.6 6.8 7.3 7.8	20 8 11 20 24 30 32 8")	10.7 9.3 6.9 4.5 5.4 2.4 3.8 10.0 7.7 5.9 4.5	93 87 78 53 71 32 43 89 72 67 54	1.5 2.4 2.0 1.7 2.1 1.7 18 1.9 2.3 1.8 1.5
cc. 10 cb. 4, 1959 pril 9 une 3 uly 8 ug. 12 cc. 7, 1958 cc. 10 cb. 4, 1959 pril 9 une 3 uny 8 unue 3 uny 8 unue 3 uny 8 unue 3 uny 8 uny 8 uny 8 uny 8	1705 1115 0940 0920 1140 1655 1550 1600 0905 1110	2,360 3,120 6,040 5,720 234 26 8-0220 109 3,650 3,050 11,500	. SABINE I	1.0 .5 .0 .8 1.2 .7 RIVER :	NEAR TATH	0.24 .28 .20 .23 .22 .30 .22 .22 .36 .32 .22 .24 .66	262 241 297 218 215 405 280 (32 22 111", 485 1,500 430 209 220 496	6.7 6.6 6.8 7.1 7.0 7.1 7.1 94 27'2 6.7 6.6 6.8 7.3 7.8	20 8 11 20 24 30 32 8") 22 9 11 20 25 32	10.7 9.3 6.9 4.5 5.4 2.4 3.8 10.0 7.7 5.9 4.5	93 87 78 53 71 32 43 89 72 67 54 57	1.5 2.4 2.0 1.7 2.1 1.7
ct. 7, 1958 ct. 7, 1958 ct. 7, 1958 ct. 10 ct. 10 ct. 11 ct. 12 c	1705 1115 0940 0920 1140 1655 1560 0905 1110 0745 1330	2,360 3,140 5,040 5,720 234 26 8-0220 159 3,650 3,050 11,500 9,280 111 81		1.0 .5 .8 1.2 .7 RIVER :		0.24 .28 .26 .23 .22 .30 .22 M, TEXAS	262 241 297 218 215 405 280 (32 22'11", 485 1,500 430 209 220	6.7 6.6 6.8 7.1 7.0 7.1 7.1 94 27'2 6.7 6.6 6.8 7.3 7.8 7.1	20 8 11 20 24 30 32 8") 22 9 11 20 25 32 32	10.7 9.3 6.9 4.5 5.4 2.4 3.8 10.0 7.7 5.9 4.5	93 87 78 53 71 32 43 89 72 67 54 57 14	1.5 2.4 2.0 1.7 2.1 1.7
bec. 10	1705 1115 0940 0920 1140 1655 1550 1600 0905 1110 0745 1330 1800	2,360 3,140 5,040 5,720 234 26 8-0220 159 3,650 3,050 11,500 9,280 111 81		1.0 .5 .8 1.2 .7 RIVER :		0.24 .28 .26 .23 .22 .30 .22 .21 .22 .21 .36 .32 .22 .24 .66 .3.7	262 241 297 218 215 405 280 (32 22'11", 485 1,500 430 209 220 496 725	6.7 6.6 6.8 7.1 7.0 7.1 7.1 94 27'2 6.7 6.6 6.8 7.3 7.8 7.1 7.2	20 8 11 20 24 30 32 8") 22 9 11 20 25 32 32 32	10.7 9.3 6.9 4.5 5.4 2.4 3.8 10.0 7.7 5.9 4.5 4.2 93 34 24	93 87 78 53 71 32 43 89 72 67 54 57 14	1.5 2.4 2.0 1.7 2.1 1.7
bec. 10	1705 1115 0940 0920 1140 1655 1550 1600 0905 1110 0745 1330 1800	2,360 3,140 5,040 5,720 234 26 8-0220 159 3,650 3,050 11,500 9,280 111 81		1.0 .5 .8 1.2 .7 RIVER :		0.24 .28 .26 .23 .22 .30 .22 M, TEXAS	262 241 297 218 215 405 280 (32 22'11", 485 1,500 430 209 220 496 725	6.7 6.6 6.8 7.1 7.0 7.1 7.1 94 27'2 6.7 6.6 6.8 7.3 7.8 7.1	20 8 11 20 24 30 32 8") 22 9 11 20 25 32 32	10.7 9.3 6.9 4.5 5.4 2.4 3.8 10.0 7.7 5.9 4.5	93 87 78 53 71 32 43 89 72 67 54 57 14	1.5 2.4 2.0 1.7 2.1 1.7
bec. 10	1705 1115 0940 0920 1140 1655 1550 1600 0905 1110 0745 1330 1800	2,360 3,140 5,040 5,720 234 26 8-0220 159 3,650 3,050 11,500 9,280 111 81		1.0 .5 .8 1.2 .7 RIVER :		0.24 .28 .26 .23 .22 .30 .22 .22 .24 .66 .3.7	262 241 297 218 215 405 280 (32 22'11". 485 1,500 430 209 220 496 725	6.7 6.6 6.8 7.1 7.0 7.1 7.1 94 27'2 6.7 6.6 6.8 7.3 7.8 7.1 7.2	20 8 11 20 24 30 32 8") 22 9 11 20 25 32 32 32	10.7 9.3 6.9 4.5 5.4 2.4 3.8 10.0 7.7 5.9 4.5 4.2 .9	93 87 78 53 71 32 43 89 72 67 54 57 14	1.5 2.4 2.0 1.7 2.1 1.7 18 1.9 2.3 1.8 1.5 7.7 18
bec. 10	1705 1115 0940 0920 1140 1655 1550 1600 0905 1110 0745 1330 1800 0025346	2,360 3,140 5,040 5,720 234 26 8-0220 159 3,650 3,050 11,500 9,280 111 81		1.0 .5 .8 1.2 .7 RIVER 2 0.1 .8 .2 .0 .7 1.3 4.3 LEDO BI		0.24 .28 .20 .23 .22 .30 .22 .22 .M, TEXAS 1.1 .36 .32 .22 .24 .66 .3.7	262 241 297 218 215 405 280 (32 22'11", 485 1,500 430 209 220 496 725 VILLE, TENAS	6.7 6.6 6.8 7.1 7.0 7.1 7.1 94 27'2 6.7 6.6 6.8 7.3 7.8 7.1 7.2 (31°11 6.4 6.8 6.7 6.6 6.8	20 8 11 20 24 30 32 21 22 9 11 20 25 32 32 32 32 32 32 32 32 32 32	10.7 9.3 6.9 4.5 5.4 2.4 3.8 10.0 7.7 5.9 4.5 4.2 .9 93 34 24	93 87 78 53 71 32 43 89 72 67 54 57 14 4'')	1.5 2.4 2.0 1.7 2.1 1.7 18 1.9 2.3 1.8 1.5 7.7 18
ec. 10 eb. 4, 1959 pril 9 une 3 uly 8 uz. 12 ec. 10 eb. 4, 1959 pril 9 une 3 uly 8 ec. 10 eb. 4, 1959 pril 9 une 12 8- fet. 15, 1968 ec. 5 ec. 5 eb. 5, 1669 pril 10 une 12 une 12	1705 1115 0940 0920 1140 1655 1350 1600 0905 1110 0745 1330 1800 0800 0955 0810 0845	2,360 3,140 5,040 5,720 234 26 8-0220 159 3,650 3,050 11,500 9,280 111 81		1.0 .5 .8 1.2 .7 RIVER : 0.1 .8 .2 .0 .7 1.3 4.3 LEDO BI		0.24 .28 .20 .23 .22 .30 .22 .22 .M, TENAS 1.1 .36 .32 .22 .24 .66 3.7	262 241 297 218 215 405 280 (32 22 11", 485 1,500 430 209 220 496 725 VILLE, TENAS	6.7 6.6 6.8 7.1 7.0 7.1 7.1 7.1 6.7 6.6 6.8 7.3 7.1 7.2 (31°11 6.4 6.8 6.7 6.8 6.7	20 8 11 20 24 30 32 8") 22 9 11 20 25 32 32 32 47",	10.7 9.3 6.9 4.5 5.4 2.4 3.8 10.0 7.7 5.9 4.5 4.2 .9 93 34 24	93 87 78 53 71 32 43 89 72 67 54 57 14 4'')	1.5 2.4 2.0 01.7 2.1 1.7 18 1.9 2.3 1.8 1.5 7.7 18
ec. 10 eb. 4, 1959 pril 9 une 3 uly 8 uz. 12 ec. 10 eb. 4, 1959 pril 9 une 3 uly 8 ec. 10 eb. 4, 1959 pril 9 une 12 8- fet. 15, 1968 ec. 5 ec. 5 eb. 5, 1669 pril 10 une 12 une 12	1705 1115 0940 0920 1140 1655 1550 1600 0905 1110 0745 1330 1800 0025346	2,360 3,140 5,040 5,720 234 26 8-0220 159 3,650 3,050 11,500 9,280 111 81		1.0 .5 .8 1.2 .7 RIVER 2 0.1 .8 .2 .0 .7 1.3 4.3 LEDO BI		0.24 .28 .20 .23 .22 .30 .22 .22 .M, TEXAS 1.1 .36 .32 .22 .24 .66 .3.7	262 241 297 218 215 405 280 (32 22'11", 485 1,500 430 209 220 496 725 VILLE, TENAS	6.7 6.6 6.8 7.1 7.0 7.1 7.1 94 27'2 6.7 6.6 6.8 7.3 7.8 7.1 7.2 (31°11 6.4 6.8 6.7 6.6 6.8	20 8 11 20 24 30 32 21 22 9 11 20 25 32 32 32 32 32 32 32 32 32 32	10.7 9.3 6.9 4.5 5.4 2.4 3.8 10.0 7.7 5.9 4.5 4.2 .9 93 34 24	93 87 78 53 71 32 43 89 72 67 54 57 14 4'')	1.5 2.4 2.0 1.7 2.1 1.7 18 1.9 2.3 1.8 1.5 7.7 18
bec. 10	1705 1115 0940 0920 1140 1655 1550 1600 0905 1110 0745 1330 1800 1030 0800 0955 0810 0845 1315	2,360 3,140 5,040 5,720 234 26 8-0220 109 3,650 3,050 11,500 9,280 111 81	IVER AT TOL	1.0 .5 .8 1.2 .7 RIVER :: 0.1 .8 .2 .0 .7 1.3 4.3	END DAM Y	0.24 .28 .26 .23 .22 .30 .22 .21 .36 .32 .22 .24 .66 3.7	262 241 297 218 215 405 280 (32 22 11", 485 1,500 430 209 220 496 725 VILLE, TENAS	6.7 6.6 6.8 7.1 7.0 7.1 7.1 94 27'2 6.7 6.6 6.8 7.3 7.8 7.1 7.2 (31'11 6.4 6.8 6.7 6.3 6.3 6.4	20 8 11 20 24 30 32 8") 22 9 11 20 25 32 32 32 447".	10.7 9.3 6.9 4.5 5.4 2.4 3.8 10.0 7.7 5.9 4.5 4.5 4.5 9.9 93*34*24* 2.8 10.5 7.2 7.2 7.2 7.3	93 87 78 53 71 32 43 89 72 67 54 57 14 4'')	1.5 2.4 2.0 01.7 2.1 1.7 18 1.9 2.3 1.8 1.5 7.7 18
bec. 10	1705 1115 0940 0920 1140 1655 1550 1600 0905 1110 0745 1330 1800 0955 0810 09845 1315 1. SAB	2,300 3,140 8,040 5,720 234 26 8-0220 109 3,650 3,050 11,500 9,280 111 81 . SABINE R	IVER AT TOL	1.0 .5 .8 1.2 .7 RIVER : 0.1 .8 .2 .0 .7 1.3 4.3 4.3 LEDO BI 0.0 .3 .8 .3 .4 .0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	END DAM Y	0.24 .28 .20 .23 .22 .30 .22 .21 .36 .32 .22 .24 .66 .3.7 NEAR BURKEN 0.14 .15 .45 .16 .13 .00 IR NEAR BUI 0.13	262 241 297 218 215 405 280 (32 22 11", 485 1,500 430 209 220 496 725 VILLE, TENAS 190 202 225 187 168 158 RKEVILLE, TE	6.7 6.6 6.8 7.1 7.0 7.1 7.1 7.1 6.7 6.6 6.8 7.3 7.1 7.2 (31 11 6.4 6.8 6.7 6.8 6.3 6.4	20 8 11 20 24 30 32 8") 22 9 11 20 25 32 32 32 447" 20 14 14 17 20 25 70 70 70 70 70 70 70 70 70 70	10.7 9.3 6.9 4.5 5.4 2.4 3.8 10.0 7.7 5.9 4.5 4.2 .9 93 34 24 2.8 10.5 7.7 2.4 3.9	93 87 78 53 71 32 43 89 72 67 54 57 14 4'') 31 101 69 79 26 46	1.5 2.4 2.0 1.7 2.1 1.7 18 1.9 2.3 1.8 1.5 7.7 18
bec. 10	1705 1115 0940 0920 1140 1655 1550 1600 0905 1110 0745 1330 1800 0800 0955 0810 0845 1315	2,360 3,140 5,720 5,720 234 26 8-0220 159 3,650 3,050 11,500 9,280 111 81 SABINE R	IVER AT TOL	1.0 .5 .8 1.2 .7 RIVER : 0.1 .8 .2 .0 .7 1.3 4.3 LEDO BI 0.0 .3 .8 .3 .4 .0	END DAM Y	0.24 .28 .20 .23 .22 .30 .22 .M., TENAS 1.1 .36 .32 .22 .24 .66 3.7 SEAR BURKEN 0.14 .15 .45 .16 .13 .00 UR NEAR BUI	262 241 297 218 215 405 280 (32 22'11", 485 1,500 430 209 220 496 725 VILLE, TENAS	6. 7 6. 6 6. 8 7. 1 7. 0 7. 1 7. 1 7. 1 94 27' 2 6. 7 6. 6 6. 8 7. 3 7. 1 7. 2 (31' 11 6. 4 6. 8 6. 7 6. 8 6. 3 6. 4 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	20 8 11 20 24 30 32 8") 22 9 11 20 25 32 32 32 44 17 20 25 6 6 7 8 7 8 8 8 8 8 9 10 11 11 11 11 12 13 14 15 16 16 16 16 16 16 16 16 16 16	10.7 9.3 6.9 4.5 5.4 2.4 3.8 10.0 7.7 5.9 4.5 4.5 4.5 4.5 7.2 7.7 2.4 3.9	93 87 78 53 71 32 43 89 72 67 54 57 14 4'')	1.5 2.4 2.0 0 1.7 2.1 1.7 18 1.9 2.3 1.8 1.5 7.7 18
Det. 7, 1958 Det. 7, 1958 Det. 7, 1958 Det. 10, 1959 Det. 11, 1959 Det. 15, 1959 Det. 15, 1969	1705 1115 0940 0940 1140 1655 1550 1600 0905 1110 0745 1330 0800 0955 0810 0845 1315 . SAB	2,360 3,120 5,720 234 26 8-0220 109 3,660 3,050 11,500 9,280 111 81 . SABINE R	IVER AT TOL	1.0 .5 .8 1.2 .7 RIVER : 0.1 .8 .2 .0 .7 1.3 4.3 LEDO BI 0.0 .3 .8 .3 .4 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0	END DAM Y	0.24 .28 .20 .23 .22 .30 .22 .31 .11 .36 .32 .22 .24 .66 3.7 SEAR BURKEN 0.14 .15 .45 .16 .13 .00 IR NEAR BUI 0.13 .17 .21	262 241 297 218 215 405 280 (32 22'11", 485 1,500 430 209 220 496 725 VILLE, TENAS 190 202 225 187 168 158 RKEVILLE, TE	6.7 6.6 6.8 7.1 7.0 7.1 7.1 94 27'2 6.7 6.6 6.8 7.3 7.1 7.2 (31'11 6.4 6.8 6.7 6.8 6.3 6.4	20 8 11 20 24 30 32 8") 22 9 11 20 25 32 32 ''47" . 20 14 14 17 20 25 14 14 17 20 25 14 11 1	10.7 9.3 6.9 4.5 5.4 2.4 3.8 10.0 7.7 5.9 4.5 4.5 4.5 4.5 4.5 4.5 4.5 4.5	93 87 78 53 71 32 43 89 72 67 54 57 14 4'') 31 101 69 79 26 46 1'10"')	1.5 2.4 2.0 0 1.7 2.1 1.7 18 1.9 2.3 1.8 1.5 7.7 18
bec. 10	1705 1115 0940 0920 1140 1655 1550 1600 0905 1110 0745 1330 1800 0800 0955 0810 0845 1315	2,360 3,140 5,720 5,720 234 26 8-0220 159 3,650 3,050 11,500 9,280 111 81 SABINE R	IVER AT TOL	1.0 .5 .8 1.2 .7 RIVER : 0.1 .8 .2 .0 .7 1.3 4.3 LEDO BI 0.0 .3 .8 .3 .4 .0	END DAM Y	0.24 .28 .20 .23 .22 .30 .22 .M., TENAS 1.1 .36 .32 .22 .24 .66 3.7 SEAR BURKEN 0.14 .15 .45 .16 .13 .00 UR NEAR BUI	262 241 297 218 215 405 280 (32 22'11", 485 1,500 430 209 220 496 725 VILLE, TENAS	6. 7 6. 6 6. 8 7. 1 7. 0 7. 1 7. 1 7. 1 94 27' 2 6. 7 6. 6 6. 8 7. 3 7. 1 7. 2 (31' 11 6. 4 6. 8 6. 7 6. 8 6. 3 6. 4 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	20 8 11 20 24 30 32 8") 22 9 11 20 25 32 32 32 44 17 20 25 6 6 7 8 7 8 8 8 8 8 9 10 11 11 11 11 12 13 14 15 16 16 16 16 16 16 16 16 16 16	10.7 9.3 6.9 4.5 5.4 2.4 3.8 10.0 7.7 5.9 4.5 4.5 4.5 4.5 7.2 7.7 2.4 3.9	93 87 78 53 71 32 43 89 72 67 54 57 14 4'')	1.5 2.4 2.0 0 1.7 2.1 1.7 18 1.9 2.3 1.8 1.5 7.7 18

Table 1.--Biochemical-oxygen-demand and selected nutrients records of Texas surface waters, 1969--continued

(Results in milligrams per liter except as indicated)

_	Time	Discharge	Ammonia	Nitrate	Nitrite	Phosphate	Specific conductance	-11	Tem-	Disso oxyg (D(gen	Bio- chem-
Date	(24 hour)	(cfs)	(NH ₄)	(NO ₃)	(NO ₂)	(PO ₄)	(micromhos at 25°C)	pH (field)	pera- ture (°C)	mg/l	Per- cent sat- ura- tion	ical oxygen demand (BOD)
		8-0305	SABINE	RIVER	NEAR RULI	FF, TEXAS	(30°18'13"	93°44'	37")			
Oct. 16, 1968		4,580		0.1		0.07	166	6.9	25	7.4	88	0.7
Dec. 3	1200 1135	13,300		. 0		. 24	81 115	6.2 6.4	13	8.3	78	2.8
pril 15	0905	35,100		. 3		. 10	146	6.5	15 18	9.0 7.8	88 81	1.9
une 5	1640	18,600		. 4		.12	164	6.6	22	6.7	74	1.0
ug. 21	1620	3,450		. 2		. 22	154	7.0	30	7.0	83	1.4
		8-032	5. NECHI	ES RIVER	NEAR AL	ro, TEXAS	(31°34'45",	95°09'5	5'')	History		
ct. 7, 1968		476		0.0		0.09	259	6.7	20	7.6	84	1.2
ec. 3eb. 3, 1969	1300 1510	3,030 1,020		3.2		.35	192 273	6.8	12 14	8.9 9.6	81 91	1.5
pril 8	1345	4,460		. 1		.18	161	6.7	20	6.4	70	1.0
une 10	1400	1,180		1.2		.18	171	6.7	26	9.6	116	1.5
ug. 18	1220	28		. 0		. 18	391	6.8	31	6.0	80	1.8
		8-0335.	NECHES	RIVER N	EAR ROCK	LAND, TEXAS	31°01'45	", 94°23	'46")			
ct. 15, 1968	1300	532		0.1		0.13	247	6.8	25	7.1	85	0.5
)ec. 4	1230	3,200		. 2		.21	132	6.7	12	8.2	75	3.4
eb. 4, 1969	1510	1,700		. 2		.18	327	6.5	13	10.4	98	1.4
pril 9	1 24 5 1 2 5 0	6,840 1,700		.0 3.4		. 21	178 179	6.6	21 26	6.4 5.9	71 72	1.3
ug. 19	0935	49		.0		. 30	395	6.7	30	5.4	70	2.6
		8-0370.	ANGELI	NA RIVER	NEAR LU	FKIN, TEXAS	31 27 26	". 94°43	'34")			
Oct. 14, 1968	1800	450		0.1		0.14	143	6.7	24	7.2	84	0.9
ec. 3	1530	2,540		. 1		. 32	162	6.7	12	8.4	78	1.6
eb. 3, 1969	1 6 3 0 1 5 3 0	2,140 3,560		. 2		. 26 . 29	219 154	6.3	14 21	9.4 6.4	90 71	1.3
lune 10	1550	423		2.6		. 44	168	6.5	26	9.0	110	1.8
uig. 18	1415	5.2		. 3		₽25	312	7.0	31	6.1	82	1.1
		8-0370.8.	BAYOU	LaNANA N	EAR NACO	CDOCHES, TI	EXAS (31°31	'10", 94	°39'21	")		
Oct. 14, 1998	1700			0.h		1.6	267	7.0	24	2.9	34	3.4
Dec. 3	1430			.4		1.9	167	6.6	14	8.3	79	3.8
eb. 3, 1959	1700			4.5		. 30	165	6.2	13 19	9.2 6.8	87 72	2.8
pril 8	1615			1.0		. 73	158 89	6.5	23	10.1	116	1.3
ug. 18	1340			0.0		11	525	7.1	28	. 3	4	12
		8-0372.	PAPER	MILL CRE	EK NEAR	HERTY, TEXA	AS (31°23'3	2", 94°3	9'46'')			
Det. 14, 1968	1 900			0.0		1.2	1,250	6.9	36	5.3	76	19
Dec. 4	0800			. 2		1.2	1,500	7.0	26	5.3	64	25
feb. 3, 1960 April 9	1825			1.6		. 70 1. 2	1,460 1,580	7.1 7.5	31 32	3.6 4.2	48 57	22 34
June 10	1700			1.7		1.4	1,420	7.3	38	5.0	74	19
ug. 18	1600			. 5		. 86	1,560	7.4	38	3.6	53	9 . 6
	372.5.	ANGELINA	RIVER B	ELOW PAI	PER MILL	CREEK NEAR	HERTY, TEXA	S (31°2	26'22",	94°37'	11'')	
	,,,,,,,,					0.30	485	6.7	10	7.3	65	4.6
€-(Feb. 4. 1969	()945			0.1				6 6				2 4
8-0 Seb. 4. 1969				0.1 1.2 2.1		1.0	401 743	6.6 6.9	28 30	7.2 3.0	90 39	3.6
8-0 Feb. 4. 1969 June 10	()945 1815	8-0373.3.	ANGELI	1.2	R NEAR ET	1.0	401 743	6.9	30			
8-0 Teb. 4. 1969 June 10 Aug. 18	()945 1815	8-0373.3.	ANGELI	1.2	R NEAR ET	1.0	401 743	6.9	30			
8-0 Feb. 4, 1969, June 10 Aug. 18 Oct. 15, 1968 Dec. 4	0945 1815 1530 0830 0930	8-0373.3.	ANGELI	1.2 2.1 NA RIVER	R NEAR ET	0.14 .25	401 743 S (31°22'24 188 245	6.9 6.4 6.9	30 3'27") 23 11	1.5	17 50	1.5
Feb. 4, 1969 June 10 Aug. 18 Det. 13, 1958 Dec. 4, Feb. 4, 1969	0945 1815 1530 0830 0930 1150	8-0373.3.	ANGELI	1, 2 2, 1 NA RIVEF 0, 1 0, 2	R NEAR ET	0.14 .25 .19	401 743 S (31°22'24 188 245 264	6.9 6.4 6.4 6.4	30 3'27") 23 11 13	1.5 5.6 5.0	17 50 47	1.5
8-0 Feb. 4, 1969, June 10 Aug. 18 Oct. 15, 1968 Dec. 4	0945 1815 1530 0830 0930	8-0373.3.	ANGELI	1.2 2.1 NA RIVER	R NEAR ET	0.14 .25	401 743 S (31°22'24 188 245	6.9 6.4 6.9	30 3'27") 23 11	1.5	17 50	1.5

Table 1.--Biochemical-oxygen-demand and selected nutrients records of Texas surface waters, 1969--continued

(Results in milligrams per liter except as indicated)

	Time	2.					Specific		Tem-	Disso oxyg (DC	gen	Bio- chem-
Date	(24 hour)	Discharge (cfs)	(NH ₄)	itrate (NO ₃)	(NO ₂)	Phosphate (PO ₄)	conductance (micromhos at 25°C)	pH (field)	pera- ture (°C)	mg/l	Per- cent sat- ura- tion	ical oxygen demand (BOD)
3	3-0394.	ANGELINA	RIVER BELO	W SAM	RAYBURN 1	DAM NEAR JA	ASPER, TEXAS	(31°03	'30",	94°06'20)'')	
et. 15, 1968	1345	2,800		0.0		0.00	178	6.4	24	4.8	56	0.6
Dec. 4	1340	4,010		. 6		.03	179	6.9	16	8.6	85	1.0
eb. 4, 1969	1625	3,860		1.2		.05	173	6.7	12	11.6	107	. 4
April 9	1420	11,800		. 6		. 11	165	6.9	15	9.6	94	. 3
une 11	1415	18,500		. 3		.08	139	6.4	22	7.8	89	1.0
ug. 19	1100	2,740	181	.0		.10	146	6.4	25	2.9	35	1.2
		8-0410.	NECHES F	RIVER A	T EVADAL	E, TEXAS	(30°21'22",	94 - 05 36	")			
oct. 16, 1968	1435	4.140		0.0		0.08	181	7.2	26	7.6	92	1.2
Dec. 3	1510	5,150		2.5		. 18	156	6.7	13	8.8	83	2.2
Feb. 6, 1969	1335	5,870		. 5		.09	218	6.7	18	9.8	103	2.1
\pril 14	1520	21,900		. 6		. 12	164	6.6	20	7.8	84	1.0
June 5	1245 1730	21,300 2,100		1.9 .1		. 24	148 160	6.7 7.1	22 31	6.7 6.2	75 83	1.1 2.1
	8-048	30. WEST F	ORK TRINIT	TY RIVE	R AT FOR	T WORTH, T	EXAS (32°45	'40", 97	°19'55	")		
2-1-0-1010	1.10.5	1 120) 5		0 /:0	27.2	7 6	21	6 6	72	7 9
Oct. 9, 1968	1305	1,130		2.5		0.40	242 539	7.6	21 10	6.6 5.4	73 50	7.8 4.4
Dec. 11	1515	31		. 6		. 64		7.3	12	5.4	48	3.5
Feb. b, 1969	1545	25		4.4		. 60	415 390	7.4	20	5.9	67	1.5
\pril 10	1145	800		.0		. 22		8.3	24	8.7	106	1.4
day 15	1720	3-,180		1.0		.22	363 397	7.5	22	6.1	69	3.2
June 4	1630 1500	300 65		4.3		3.6	394	7.5	30	5.7	75	2.1
June 26	1045	16		. 3		.48	422	7.6	30	6.6	87	3.7
July 10	0900	31		1.6		.46	429	7.4	31	. 6	8	3.8
July 24	1525	16		1.2		. 36	504	7.5	40	5.4	82	4.2
Aug. 14	1520	34		4.7		.48	295	7.2	27	. 3	4	3.6
Sept. 18	1430	22		. 1		. 48	436	7.6	26	7.3	89	5.7
	8-0495	. WEST FOR	K TRINITY	RIVER	AT CRAND	PRAIRIE,	TEXAS (32°4	5'46". 9	16 [†] 59 † 4	-2")	3	
								7.3	21	4.7	52	28
Oct 9 1968	1210	6.74		19		2.4	541			4.7	2 -	
Oct. 9, 1968		674 144		19		2.4 15	541 2,290	7.2	14	3.1	31	15
Dec. 11	1430	144							14 11			15 8.1
Dec. 11 Feb. 5. 1969				44		15	2,290	7.2		3.1	31	
Dec. ll Feb. 5. 1969 April 8	1430 0840	144 139		44 43		15 13	2,290 943	7.2 7.4	11	3.1	31 41	8.1
Dec. 11 Feb. 5. 1969 April 8 May 15	1430 0840 0845	144 139 884		44 43 1.1		15 13 1.6	2,290 943 495	7.2 7.4 6.2	11 19 24 25	3.1 4.4 6.3	31 41 70	8.1 11 4.2 11
Dec. 11	1430 0840 0845 1630	144 139 884 3,840		44 43 1.1 3.9		15 13 1.6 .98	2,290 943 495 408	7.2 7.4 6.2 7.4	11 19 24 25 29	3.1 4.4 6.3 6.9 4.8 2.7	31 41 70 84 57 35	8.1 11 4.2 11 7.7
Dec. 11	1430 0840 0845 1630 1015	144 139 884 3,840 480		44 43 1.1 3.9		15 13 1.6 .98 4.9	2,290 943 495 408 740	7.2 7.4 6.2 7.4 7.6	11 19 24 25	3.1 4.4 6.3 6.9 4.8	31 41 70 84 57 35 32	8.1 11 4.2 11 7.7 7.0
Dec. 11	1430 0840 0845 1630 1015 1205	144 139 884 3,840 480 360		44 43 1.1 3.9 16 7.6		15 13 1.6 .98 4.9 4.6 7.0	2,290 943 495 408 746 585	7.2 7.4 6.2 7.4 7.6 7.5	11 19 24 25 29 30 32	3.1 4.4 6.3 6.9 4.8 2.7 2.4 4.0	31 41 70 84 57 35 32 54	8.1 11 4.2 11 7.7 7.0 14
Dec. 11	1430 0840 0845 1630 1015 1205 1155	144 139 884 3,840 480 360 280		44 43 1.1 3.9 16 7.6 24		15 13 1.6 .98 4.9 4.6 7.0	2,290 943 495 408 746 585 723 839 1,080	7.2 7.4 6.2 7.4 7.6 7.5 7.3 7.5	11 19 24 25 29 30 32 34	3.1 4.4 6.3 6.9 4.8 2.7 2.4 4.0 4.6	31 41 70 84 57 35 32 54 64	8.1 11 4.2 11 7.7 7.0 14
Dec. 11	1430 0840 0845 1630 1015 1205 1155 2045	144 139 884 3,840 480 360 280 180		44 43 1.1 3.9 16 7.6 24 29 54 31		15 13 1.6 .98 4.9 4.6 7.0 10 22 4.5	2,290 943 495 408 746 585 723 839 1,080 736	7.2 7.4 6.2 7.4 7.6 7.5 7.3 7.5 7.4	11 19 24 25 29 30 32 34 29	3.1 4.4 6.3 6.9 4.8 2.7 2.4 4.0 4.6 3.0	31 41 70 84 57 35 32 54 64 38	8.1 11 4.2 11 7.7 7.0 14 17
Dec. 11	1430 0840 0845 1630 1015 1205 1155 2045 1630	144 139 884 3,840 480 360 280 180 125		44 43 1.1 3.9 16 7.6 24 29 54		15 13 1.6 .98 4.9 4.6 7.0	2,290 943 495 408 746 585 723 839 1,080	7.2 7.4 6.2 7.4 7.6 7.5 7.3 7.5	11 19 24 25 29 30 32 34	3.1 4.4 6.3 6.9 4.8 2.7 2.4 4.0 4.6	31 41 70 84 57 35 32 54 64	8.1 11 4.2 11 7.7 7.0 14
	1430 0840 0845 1630 1015 1205 1155 2045 1630 1440	144 139 884 3,840 480 360 280 180 125 228	TRINITY	44 43 1.1 3.9 16 7.6 24 29 54 31 50	BELOW DA	15 13 1.6 .98 4.9 4.6 7.0 10 22 4.5	2,290 943 495 408 740 585 723 839 1,080 736 1,150	7.2 7.4 6.2 7.6 7.5 7.3 7.5 7.4 7.4	11 19 24 25 29 30 32 34 29 27	3.1 4.4 6.3 6.9 4.8 2.7 2.4 4.0 4.6 3.0	31 41 70 84 57 35 32 54 64 38	8.1 11 4.2 11 7.7 7.0 14 17
Dec. 11	1430 0840 0845 1630 1015 1205 1155 2045 1630 1440 1215	144 139 884 3,840 480 360 280 180 125 228 140	TRINITY	44 43 1.1 3.9 16 7.6 24 29 54 31 50	BELOW DA	15 13 1.6 .98 4.9 4.6 7.0 10 22 4.5 57	2,290 943 495 408 740 585 723 839 1,080 736 1,150	7.2 7.4 6.2 7.6 7.5 7.3 7.5 7.4 7.4	11 19 24 25 29 30 32 34 29 27	3.1 4.4 6.3 6.9 4.8 2.7 2.4 4.0 4.6 3.0 2.7	31 41 70 84 57 35 32 54 64 38 33	8 · 1 11 4 · 2 11 7 · 7 7 · 0 14 17 14 22
Dec. 11	1430 0840 0845 1630 1015 1205 1155 2045 1630 1240 1215	144 139 884 3,840 480 360 280 180 125 228 140	TRINITY	44 43 1.1 3.9 16 7.6 24 29 54 31 50	BELOW DA	15 13 1.6 .98 4.9 4.6 7.0 10 22 4.5 57	2,290 943 495 408 740 585 723 839 1,080 736 1,150	7.2 7.4 6.2 7.4 7.6 7.5 7.3 7.5 7.4 7.4 7.8	11 19 24 25 29 30 32 34 29 27	3.1 4.4 6.3 6.9 4.8 2.7 2.4 4.0 4.6 3.0 2.7	31 41 70 84 57 35 32 54 64 38 33	8.1 11 4.2 11 7.7 7.0 14 17 14 22
Dec. 11	1430 0840 0845 1630 1015 1205 1155 2045 1630 1440 1215	144 139 884 3,840 480 360 280 180 125 228 140 8-0574.1.	TRINITY	44 43 1.1 3.9 16 7.6 24 29 54 31 50 RIVER	BELOW DA	15 13 1.6 .98 4.9 4.6 7.0 10 22 4.5 57	2,290 943 495 408 746 585 723 839 1,080 736 1,150 AS (32 42 27 27	7.2 7.4 6.2 7.4 7.6 7.5 7.3 7.5 7.4 7.4 7.8	11 19 24 25 29 30 32 34 29 27 4'08")	3.1 4.4 6.3 6.9 4.8 2.7 2.4 4.0 2.7 0.1 3.1 3.3	31 41 70 84 57 35 32 54 64 38 33	8.1 11 4.2 11 7.7 7.0 14 17 14 22
Dec. 11	1430 0845 0845 1630 1015 1205 1155 2045 1630 1440 1215	144 139 884 3,840 480 360 280 180 125 228 140 8-0574.1.	TRINITY	44 43 1.1 3.9 16 7.6 24 29 54 31 50 RIVER	BELOW DA	15 13 1.6 .98 4.9 4.6 7.0 10 22 4.5 57	2,290 943 495 408 746 585 723 839 1,080 736 1,150 AS (32 42 27	7.2 7.4 6.2 7.4 7.6 7.5 7.3 7.5 7.4 7.4 7.8	11 19 24 25 29 30 32 34 29 27 4'08")	3.1 4.4 6.3 6.9 4.8 2.7 2.4 4.0 4.6 3.0 2.7	31 41 70 84 57 35 32 54 64 38 33	8.1 11 4.2 11 7.7 7.0 14 17 14 22
Dec. 11	1430 0845 0845 1630 1015 1205 2045 1630 1440 1215	144 139 884 3,840 480 360 280 180 125 228 140 8-0574.1.	TRINITY	44 43 1.1 3.9 16 7.6 24 29 54 31 50 RIVER	BELOW DA	15 13 1.6 .98 4.9 4.6 7.0 10 22 4.5 57	2,290 943 495 408 746 585 723 839 1,080 736 1,150	7.2 7.4 6.2 7.4 7.6 7.5 7.3 7.5 7.4 7.4 7.8	11 19 24 25 29 30 32 34 29 27 4'08") 24 14 12 17 23	3.1 4.4 6.3 6.9 4.8 2.7 2.4 4.0 4.6 3.0 2.7	31 41 70 84 57 35 32 54 64 38 33	8.1 11 4.2 11 7.7 7.0 14 17 14 22 25 23 18 3.7 6.0
Dec. 11	1430 0840 0845 1630 1015 1205 1155 2045 1630 1440 1215	144 139 884 3,840 480 360 280 125 228 140 8-0574.1.	TRINITY	44 43 1.1 3.9 16 7.6 24 29 54 31 50 RIVER	BELOW DA	15 13 1.6 .98 4.9 4.6 7.0 10 22 4.5 57	2,290 943 495 408 740 585 723 839 1,080 736 1,150 48 (32 42'27	7.2 7.4 6.2 7.4 7.6 7.5 7.3 7.5 7.4 7.4 7.8	11 19 24 25 29 30 32 34 29 27 4'08") 24 14 12 17 23 22	3.1 4.4 6.3 6.9 4.8 2.7 2.4 4.0 4.6 3.0 2.7	31 41 70 84 57 35 54 64 38 33 1 31 32 97 65 58	8.1 11 4.2 11 7.7 7.0 14 17 14 22 25 23 18 3.7 6.0
Dec. 11	1430 0840 0845 1630 1015 1205 2045 1630 1440 1215 1045 1330 0930 1015 1555 1615	144 139 884 3,840 480 360 280 180 125 228 140 8-0574.1.	TRINITY	44 43 1.1 3.9 16 7.6 24 29 54 31 50 RIVER 38 35 34 5.2 3.9 4.5	BELOW DA	15 13 1.6 .98 4.9 4.6 7.0 10 22 4.5 57 MLLAS, TEXA	2,290 943 495 408 740 585 723 839 1,080 736 1,150 AS (32 42'27 903 904 806 400 417 443 458	7.2 7.4 6.2 7.4 7.6 7.5 7.4 7.4 7.4 7.8 7.1 7.2 7.3 7.6 7.3 7.6 7.3	11 19 24 25 29 30 32 34 29 27 4'08") 24 14 12 17 23 22 26	3.1 4.4 6.3 6.9 4.8 2.7 2.4 4.0 4.6 3.0 2.7 0.1 3.1 3.3 9.1 5.5 5.1 4.5	31 41 70 84 57 35 32 54 64 38 33 31 31 32 97 65 58	8.1 11 4.2 11 7.7 7.0 14 17 14 22 25 23 18 3.7 6.0 13
Dec. 11	1430 0840 0845 1630 1015 1205 2045 1630 1440 1215 1045 1330 0930 1015 1525 1635 1635 1636	144 139 884 3,840 480 360 280 180 125 228 140 8-0574.1. 460 440 470 5,530 9,060 5,590 1,820 1,700	TRINITY	44 43 1.1 3.9 16 7.6 24 29 54 31 50 RIVER 38 35 34 5.2 3.9 4.5	BELOW DA	15 13 1.6 .98 4.9 4.6 7.0 10 22 4.5 57 MLLAS, TEXA	2,290 943 495 408 740 585 723 839 1,080 736 1,150 AS (32 42 27 903 904 806 400 417 443 458 481	7.2 7.4 6.2 7.4 7.6 7.5 7.3 7.5 7.4 7.8 7.1 7.2 7.3 7.6 7.3 7.6 7.3	11 19 24 25 29 30 32 34 29 27 4'08") 24 14 12 17 23 22 26 28	3.1 4.4 6.3 6.9 4.8 2.7 2.4 4.0 4.6 3.0 2.7	31 41 70 84 57 35 32 54 64 38 33 31 31 32 97 65 58 55 67	8.1 11 4.2 11 7.7 7.0 14 17 14 22 25 23 18 3.7 6.0 13 6.7 8.7
Dec. 11. Feb. 5. 1969 April 8. May 15. June 1. June 26. July 7. July 23. Aug. 14. Aug. 28. Sept. 18. Dec. 11. Feb. 5. 1969 April 8. May 15. June 26.	1430 0840 0845 1630 1015 1205 1155 2045 1630 1240 1215 1045 1330 0930 1015 1525 1615 1150 1235	144 139 884 3,840 480 360 280 180 125 228 140 8-0574.1. 460 440 470 5,530 9,660 5,590 1,820	TRINITY	44 43 1.1 3.9 16 7.6 24 29 54 31 50 RIVER 38 35 34 5.2 3.9 4.5 12 11	BELOW DA	15 13 1.6 .98 4.9 4.6 7.0 10 22 4.5 57 MLAS, TENA 19 17 16 2.0 1.1 1.6 2.2 3.9	2,290 943 495 408 740 585 723 839 1,080 736 1,150 48 (32 42'27 903 904 806 400 417 443 458 481 879	7.2 7.4 6.2 7.4 7.6 7.5 7.3 7.5 7.4 7.4 7.8 7.1 7.2 7.3 7.6 7.4 7.6 7.3 7.5	11 19 24 25 29 30 32 34 29 27 4'08") 24 14 12 17 23 22 26 28 31	3.1 4.4 6.3 6.9 4.8 2.7 2.4 4.0 4.6 3.0 2.7 0.1 3.1 3.3 9.1 5.5 5.1 4.5	31 41 70 84 57 35 32 54 64 38 33 33 1 31 32 97 65 58 55 67	8.1 11 4.2 11 7.7 7.0 14 17 14 22 25 23 18 3.7 6.0 13 6.7 8.7 22
Dec. 11	1430 0840 0845 1630 1015 1205 1155 2045 1630 1240 1215 1045 1330 0930 1015 1525 1615 1150 1235 1255	144 139 884 3,840 480 360 280 180 125 228 140 8-0574.1. 460 440 470 5,530 9,060 5,590 1,820 1,700	TRINITY	44 43 1.1 3.9 16 7.6 24 29 54 31 50 RIVER 38 35 34 5.2 3.9 4.5 12 11 45 36	BELOW DA	15 13 1.6 .98 4.9 4.6 7.0 10 22 4.5 57 MLLAS, TENA 19 17 16 2.0 1.1 1.6 2.2 3.9 17	2,290 943 495 408 740 585 723 839 1,080 7,36 1,150 AS (32 42'27 903 904 806 400 417 443 458 481 879 868	7.2 7.4 6.2 7.4 7.6 7.5 7.4 7.4 7.8 7.1 7.2 7.3 7.6 7.3 7.6 7.3 7.6 7.3 7.6 7.7	11 19 24 25 29 30 32 34 29 27 4'08") 24 11 12 17 23 22 26 28 31 31	3.1 4.4 6.3 6.9 4.8 2.7 2.4 4.0 4.6 3.0 2.7 0.1 3.1 3.3 9.1 5.5 5.1 4.5 5.3	31 41 70 84 57 35 54 64 38 33 31 32 97 65 58 55 67 7	8.1 11 4.2 11 7.7 7.0 14 17 14 22 25 23 18 3.7 6.0 13 6.7 8.7 22
Oct. 9. 1968 Oct. 9. 1968 Dec. 11. Feb. 5. 1969 July 23. Aug. 14. Aug. 28. Sept. 18. Oct. 9. 1968 Dec. 11. Feb. 5. 1969 April 8. May 15. June 3. June 26. July 23.	1430 0840 0845 1630 1015 1205 2045 1630 1440 1215 1045 1330 0930 1015 1525 1636	144 139 884 3,840 480 360 280 180 125 228 140 8-0574.1. 460 440 470 5,530 9,060 5,590 1,820 1,700 620	TRINITY	44 43 1.1 3.9 16 7.6 24 29 54 31 50 RIVER 38 35 34 5.2 3.9 4.5 12 11	BELOW DA	15 13 1.6 .98 4.9 4.6 7.0 10 22 4.5 57 MLAS, TENA 19 17 16 2.0 1.1 1.6 2.2 3.9	2,290 943 495 408 740 585 723 839 1,080 736 1,150 48 (32 42'27 903 904 806 400 417 443 458 481 879	7.2 7.4 6.2 7.4 7.6 7.5 7.3 7.5 7.4 7.4 7.8 7.1 7.2 7.3 7.6 7.4 7.6 7.3 7.5	11 19 24 25 29 30 32 34 29 27 4'08") 24 14 12 17 23 22 26 28 31	3.1 4.4 6.3 6.9 4.8 2.7 2.4 4.0 4.6 3.0 2.7 0.1 3.1 3.3 9.1 5.5 5.1 4.5	31 41 70 84 57 35 32 54 64 38 33 33 1 31 32 97 65 58 55 67	8.1 11 4.2 11 7.7 7.0 14 17 14 22 25 23 18 3.7 6.0 13 6.7 8.7 22

Table 1.--Biochemical-oxygen-demand and selected nutrients records of Texas surface waters, 1969--continued

(Results in milligrams per liter except as indicated)

	Time	Diaghana	Amari	Nitro	Niewit	Dh each at	Specific	.,,	Tem-	Disso oxyg (DC	gen	Bio- chem-
Date	(24 hour)	Discharge (cfs)	(NH ₄)	(NO ₃)	(NO ₂)	(PO ₄)	conductance (micromhos at 25°C)	pH (field)	pera- ture (°C)	mg/1	Per- cent sat- ura- tion	ical oxyger demand (BOD)
	8-0	620. EAST	FORK TRI	NITY RIV	ER NEAR	CRANDALL,	TEXAS (32°38	8'18", 9	6°29'0	5'')		
Oct. 9, 1968 Dec. 11 Feb. 5, 1969	0930 1210 1015	16 19 404		41 40 .0		19 21 1.9	563 689 407	7.0 7.3 7.9	22 12 10	0.2 5.6 9.7	2 54 89	20 11 5.9
April 8 May 15 June 3	1105 1440 1530	842 1,200 2,580		3.2 2.8 1.8		1.0 1.0 .32	366 284 321	7.9 7.2 7.9	20 23 22	7.9 6.9 7.4	94 82 84	3.5 2.7 2.9
June 26 July 7 July 23	1110 1335 1905	1,800 460 21		3.3 3.6 39		.50 1.5 30	319 332 809	7.7 7.4 7.7	28 30 31	6.6 4.6 7.2	82 61 96	1.8 5.0 20
Aug. 12 Aug. 28 Sept. 18	1320 1210 1045	24 32 27		45 61 60		36 40 46	711 709 688	7.7 7.4 7.3	3 2 28 25	8.7 7.3 3.1	118 94 37	19 30 29
		8-0625.	TRINITY	RIVER N	EAR ROSS	ER, TEXAS	(32°25'35",	96°27'4	5'')			
Oct. 8, 1968 Dec. 11	1850 1115	450 526		31 31		19 7.8	848 796	7.2 7.4	22 12	2.9	33 50	11 10
Feb. 5. 1969	1105 1240	980 6,460		7.6 6.0		6.0 1.7	556 430	7.5 7.7	11 19	7.1 6.9	66 77	9.0 3.8
May 15	1 240	11,300		5.7 3.9		1.2	381	7.5	22	4.3	51	3.2
June 3 June 26	1445 1040	9,110 4,450		7.7		.56 2.1	3 74 4 7 7	7.3 7.3	22 28	5.0	5 7 3 9	5.2
July 7	1655	1,950		9.6		1.7	442	7.5	29	4.3	55	6.9
July 23	1820	442		31 21		16 18	756 772	7.5 7.6	31 31	3.6	48 45	12 19
Aug. 28	1145	748		34		16	798	7.0	28	1.4	18	12
Sept. 17	1510	454		40		16	806	7.5	27	4.8	59	22
		8-0627.	TRINITY	RIVER A	T TRINID	AD, TEXAS	(32 08 05",	96°06'2	10")			
Oct. 8, 1968	1630	397		56		19	863	7.5	23	4.4	51	15
Dec. 11	1000 1630	560 1,960		58 12		11 1.6	771 410	7.8 7.5	10 11	5.6 7.9	51 74	9.6
Teb. 4, 1969 April 8	1645	6,970		6.0		1.3	410	7.6	18	7.1	77	3.1
May 15	0940	28,400		3. 8		. 80	378	7.4	24	4.8	58	3.1
June 3	1320	13,000		3.1		. 52	378 362	7.5 7.7	24 27	5.7 4.9	67 60	3.1
June 25 July 8	1350	6,580		8.8		.80 3.2	439	7.7	28	3.7	47	3.0
July 23	1700	626		17		11	719	7.6	32	6.5	88	16
Aug. 12	1550	520		21		12 19	647 874	7.5 7.4	33 28	3.4	47 16	10 24
Aug. 28 Sept. 17	1345	824 500		30 47		17	773	7.4	27	1.3	30	28
		8-0653.5.	TRINITY	RIVER N	EAR CROC	CKETT, TEXA	S (31°20'20	'', 95°39	9' 25'')			
Oct. 7, 1968	1110 1145	775 8,440		8.2		3.8	667 488	7.1 7.3	22 12	5.8	66 60	4 . 5 7 . 5
Feb. 3. 1969	1335	4,900		24		7.0	926	7.2	14	6.1	59	22
April 8	1245	16,900 14,000		6.2		. 64	329	7.5 7.4	20	6.4	69	2.7
June 10 Aug. 18	1300	515		20		13	389 858	7.6	26 32	9.0 7.8	110 105	1.8
		8-0665	TRINIT	Y RIVER	AT ROMAY	OR, TEXAS	(30°25'30'',	94°51'0)2'')			
Oct. 16, 1968	1615	1.330		8.5		4.4	525	7.6	26	9.0	110	3.0
Пес. 3 Гев. 6, 1969	1700 1530	3.450 2,820		6.0 9.6		.87 4.0	262 606	7.2 6.7	11 18	9.4	85 97	3.3
April 14	1 230	37,600		3.2		. 64	323	7.2	20	8.6	95	1.3
June 5	1030 1405	24,900 1,420		1.3		. 43	367 430	7.0 7.2	24 32	7.5 6.3	8 9 8 5	1.9
	8-068	30. WEST FO	DRK SAN J	ACINTO F	RIVER NEA	AR CONROE,	TEMAS (30°1	4'41", 9	95°27'2	?6'')		
Oct. 16, 1968		135		0.1		0.43	246	6.9	26	7.1	87	1.2
Dec. 3 Feb. 6, 1969	1830 1650	3,460 400		. 0		. 73 . 29	161 594	7.0 6.7	10 16	9.3	82 92	2.4
April 14		5,340		. 7		. 44	175	6.4	20	6.7	72	2.7
June 5	0815	60 10		.8		. 26	358 257	6.8 7.5	20 36	7.8	86 60	1.7
Aug. 22	1520											

Table 1.--Biochemical-oxygen-demand and selected nutrients records of Texas surface waters, 1969--continued

(Results in milligrams per liter except as indicated)

	Time	Discharge	Ammonia	Nitrate	Nitrite	Phoenhata	Specific conductance	27	Tem-	Disso oxy; (D	gen	Bio- chem-
Date	(24 hour)	(cfs)	(NH ₄)	(NO ₃)	(NO ₂)	(PO ₄)	(micromhos at 25°C)	pH (field)	pera- ture (°C)	mg/l	Per- cent sat- ura- tion	ical oxygen demand (BOD)
		8-0740.	BUFFALO	BAYOU A	r HOUSTON	, TEXAS	(29°45'36",	95°24'30	")			
Oct. 21, 1968	1345	79	0.00	0.0	0.07	4.7	514	7.1	24	5.9	69	6.0
Feb. 14, 1969		1700	1.2	1.8	. 15	4.6	285	7.2	13	9.2	87	12
April 25	1245	39	1.7	. 2		15	897		22	3.8	43	9.3
May 21	1100	705	2 0	.5		1.2	200	6.8	25	5.7	68	3.6
June 26	1235	39	3.8	5.0	1.5	11	822	7.2	30	4.2	55	5.4
		8-0745.	WHITEOA	K BAYOU A	AT HOUSTO	N, TEXAS	(29°46'30",	95°23'4	9'')			
Oct. 21, 1968	1330	6.7	10	2.0	0.30	3.0	1,220	6.7	24	5.9	69	12
Feb. 14, 1969	1045	1,750	.00	2.0	.05	4.6	363	7.5	12	9.9	93	14
April 25	1305	9.1	23	1.7	1.2	18	1,330		26	12.4	151	7.2
May 21	1150	23	5.4	1.9	. 90	12	763	6.8	30	8.4	109	7.5
June 26	1300	9.5	7.3	1.6	1.1	8.1	1, 160	8.2	32	10.3	139	12
July 15	2235	600	4.4	. 6	1.1	. 93	281	6.5	26	4.2	51	20
	8-0747.	.8. KEEGANS	S BAYOU a	AT KEEGAN	N ROAD NE	AR HOUSTO	N, TEXAS (29	9 39 55"	, 95°30	0'20")		
Feb. 14, 1969	1210	48	0.06	5.5	0.06	1.5	146	6.7	13	7.6	7 2	5.4
	8-0748	B. KEEGANS	BAZOL A	T ROARK I	ROAD NEAR	HOUSTON,	TEXAS (29°	39'23",	95°33'	43")		
Oct. 21, 1968	1425	0.90	0.00	0.5	0.00	0.14	653	8.0	19	8.4	89	2.6
Feb. 14, 1969		66	.00	1.8	.06	. 90	203	6.7	14	8.2	78	4 9
April 11		2.6	7.7	. 0		. 50	623		21	8.1	90	2.5
	1120	2.6		. 5		. 60	859			10.4		5.7
April 25				.6 .1		. 60 . 50				10.4 9.4	129	5.7 3.3
April 25	1120	2.6				. 60	859					
April 25 May 23 June 26 8-07	1120 1435 1135	2.6 .56 .62	==	. 1	.06	. 60 . 50 . 90	859 565	6.9 8.1	33 29	9.4	129 88	3.3
April 25 May 23 June 26	1120 1435 1135	2.6 .56 .62	==	. 1	.06	. 60 . 50 . 90	859 565 700	6.9 8.1	33 29	9.4	129 88	3.3
April 25 May 23 June 26 8-07	1120 1435 1135 749. W	2.6 .56 .62	HOLE BAYO	.1 .4 OU AT LA	.06	.60 .50 .90	859 565 700 OUSTON, TEXA	6.9 8.1 8 (29°3	33 29 9'01'',	9.4 6.9 95°29'	129 88 11'')	3.3
April 25 May 23 June 26 8-07	1120 1435 1135 749. W	2.6 .56 .62 ILLOW WATERN	0.61 4.5	.1 .4 DU AT LAS	.06 NDSDOWNE 0.34 .03	.60 .50 .90 STREET, H	859 565 700 OUSTON, TEXAS	6.9 8.1 S (29°3 6.8 7.2	33 29 9'01", 12 22	9.4 6.9 95°29'	129 88 11'')	9.3
April 25	1120 1435 1135 749. WI	2.6 .56 .62 ILLOW WATERN 140 3.0	0.61 4.5 BRAYS	.1 .4 DU AT LAS	.06 NDSDOWNE 0.34 .03 1.1	.60 .50 .90 STREET, H	859 565 700 OUSTON, TEXA: 223 608	6.9 8.1 S (29°3 6.8 7.2	33 29 9'01", 12 22	9.4 6.9 95°29' 7.6 3.5	129 88 11'')	9.3
April 25	1120 1435 1135 749. WI	2.6 .56 .62 ILLON WATERI 140 3.0 8-0750	0.61 4.5	3 . 7 . 2 BAYOU A	.06 NDSDOWNE 0.34 .03 T HOUSTON	.60 .50 .90 STREET, H 8.3 11	859 565 700 OUSTON, TEXAS 223 608 (29 41'49",	6.9 8.1 8 (29°3 6.8 7.2 95°24'43 8.3 6.7	33 29 9'01", 12 22 "')	9.4 6.9 95°29' 7.6 3.5	129 88 11") 71 40	9.3 12 8.0 7.8
April 25	1120 1435 1135 149. WI 0920 1630	2.6 .56 .62 ILLOW WATERI 140 3.0 8-0750 31 2.570 2.670	0.61 4.5 BRAYS	.1 .4 DU AT LA: 3.7 .2 BAYOU A' 27 4.5 3.5	.06 NDSDOWNE 0.34 .03 r HOUSTON 1.1 .12	.60 .50 .90 STREET, H 8.3 11 . TENAS	859 565 700 OUSTON, TEXAS 223 608 (29 41'49", 831 249 235	6.9 8.1 8 (29°3 6.8 7.2 95°24'43 8.3 6.7 6.8	33 29 9'01", 12 22 "') 28 13 10	9.4 6.9 95°29' 7.6 3.5	129 88 11") 71 40	9.3 12 8.0 7.8
April 25	1120 1435 1135 249. W: 0920 1630 1510 1030 1620 1030	2.6 .56 .62 ILLOW WATER! 140 3.0 8-0750. 31 2.570 2.670 38	0.61 4.5 BRAYS	.1 .4 DU AT LAX 3.7 .2 BAYOU A' 27 4.5 3.5 .4	.06 NDSDOWNE 0.34 .03 r HOUSTON 1.1 .12 .50	. 60 . 50 . 90 STREET, H 8.3 11 2. TENAS 14 . 62 	859 565 700 OUSTON, TEXAS 223 608 (29 41'49", 831 249 235 828	6.9 8.1 8 (29°3 6.8 7.2 95°24'43 8.3 6.7 6.8	33 29 9'01", 12 22 "') 28 13 10 24	9.4 6.9 95°29' 7.6 3.5	129 88 11") 71 40	3.3 2.6 9.3 12 8.0 7.8 10 17
April 25	1120 1435 1135 249. W1 0920 1630 1510 1030 1620 1030 1215	2.6 .56 .62 ILLOW WATERI 140 3.0 8-0750 31 2.670 2.670 38 200	0.61 4.5 BRAYS	.1 .4 .5 .4 .54	.06 NDSDOWNE 0.34 .03 r HOUSTON 1.1 .1250	.60 .50 .90 STREET, H 8.3 11 2. TENAS 14 .62 22 6.4	859 565 700 OUSTON, TEXA: 223 608 (29 41'49", 831 249 235 828 480	6.9 8.1 8 (29°3 6.8 7.2 95°24'43 8.3 6.7 6.8	33 29 9'01", 12 22 "') 28 13 10 24 22	9.4 6.9 95°29' 7.6 3.5	129 88 11") 71 40 161 75 82 67 73	3.3 2.6 9.3 12 8.0 7.8 10 17 31
April 25	1120 1435 1135 249. W: 0920 1630 1510 1030 1620 1030	2.6 .56 .62 ILLOW WATER 140 3.0 8-0750 31 2.570 2.670 38	0.61 4.5 BRAYS	.1 .4 DU AT LAX 3.7 .2 BAYOU A' 27 4.5 3.5 .4	.06 NDSDOWNE 0.34 .03 r HOUSTON 1.1 .12 .50	. 60 . 50 . 90 STREET, H 8.3 11 2. TENAS 14 . 62 	859 565 700 OUSTON, TEXAS 223 608 (29 41'49", 831 249 235 828	6.9 8.1 8 (29°3 6.8 7.2 95°24'43 8.3 6.7 6.8	33 29 9'01", 12 22 "') 28 13 10 24	9.4 6.9 95°29' 7.6 3.5	129 88 11") 71 40	3.3 2.6 9.3 12 8.0 7.8 10 17
April 25	1120 1435 1135 249. W1 0920 1630 1510 1030 1620 1030 1215	2.6 .56 .62 ILLOW WATERI 140 3.0 8-0750 31 2.670 2.670 38 200	0.61 4.5 BRAYS	.1 .4 .5 .4 .54	.06 NDSDOWNE 0.34 .03 r HOUSTON 1.1 .1250	.60 .50 .90 STREET, H 8.3 11 2. TENAS 14 .62 22 6.4	859 565 700 OUSTON, TEXA: 223 608 (29 41'49", 831 249 235 828 480	6.9 8.1 8 (29°3 6.8 7.2 95°24'43 8.3 6.7 6.8	33 29 9'01", 12 22 "') 28 13 10 24 22	9.4 6.9 95°29' 7.6 3.5	129 88 11") 71 40 161 75 82 67 73	9.3 12 8.0 7.8 10 17 31
April 25	1120 1435 1135 (49. W) 0920 1630 1510 1030 1620 1030 1215 1430	2.6 .56 .62 ILLOW WATER! 140 3.0 8-0750. 31 2.670 2.670 38 200 450 38 502	0.61 4.5 BRAYS	.1 .4 DU AT LAX 3.7 .2 BAYOU A' 27 4.5 3.5 .4 2.0 .0	.06 NDSDOWNE 0.34 .03 r HOUSTON 1.1 .1250 1.5	. 60 .50 .90 STREET, H 8.3 11 . TENAS 14 .62 22 6.4 1.9	859 565 700 OUSTON, TEXAS 223 608 (29 41'49", 831 249 235 828 480 354 896 263	6.9 8.1 8 (29°3 6.8 7.2 95°24'43 8.3 6.7 6.8	28 13 10 24 22 21 24 22	9.4 6.9 95°29' 7.6 3.5 13.0 8.0 9.3 5.8 6.4 10.4 8.0	129 88 11") 71 40 161 75 82 67 73 71 122 90	9.3 12 8.0 7.8 10 17 31 22 7.2 2.4
April 25	1120 1435 1135 249. W: 0920 1630 1510 1030 1620 1030 1215 1430 1020 1145 1240	2.6 .56 .62 ILLOW WATERI 140 3.0 8-0750 31 2.670 2.670 38 200 450 38 502 1,800	0.61 4.5 BRAYS 3.1 .76 -1.6 1.2 1.3	.1 .4 .4 .4 .5 .3 .7 .2 .2 .27 .4 .5 .3 .5 .4 .4 .2 .0 .0 .1 .5	.06 NDSDOWNE 0.34 .03 THOUSTON 1.1 .1250 1.5 1.8	.60 .50 .90 STREET, H 8.3 11 2. TEXAS 14 .62 22 6.4 1.9 13 4.2 2.4	859 565 700 OUSTON, TEXAS 223 608 (29 41 49", 831 249 235 828 480 354 896 263 138	6.9 8.1 8 (29°3 6.8 7.2 95°24'43 8.3 6.7 6.8 6.9 6.8	28 13 10 24 22 21 24 22 22	9.4 6.9 95°29' 7.6 3.5 13.0 8.0 9.3 5.8 6.4 6.4 10.4 8.0 7.8	129 88 11") 71 40 161 75 82 67 73 71 122 90 89	8.0 7.8 10 17 31 22 7.2 2.4 4 3.6
April 25	1120 1435 1135 249. W: 0920 1630 1510 1030 1620 1030 1215 1430 1020 1145 1240 1500	2.6 .56 .62 ILLOW WATERI 140 3.0 8-0750. 31 2.670 2.670 38 200 450 38 502 1,800 1,400	0.61 4.5 BRAYS 3.1 .76 -1.6 1.2 1.3	.1 .4 .4 .4 .5 .3 .7 .2 .2 .27 .4 .5 .3 .5 .4 .4 .2 .0 .0 .1 .5	.06 NDSDOWNE 0.34 .03 THOUSTON 1.1 .1250 1.5 1.8	.60 .50 .90 STREET, H 8.3 11 2. TEXAS 14 .62 22 6.4 1.9 13 4.2 2.4 3.8	859 565 700 OUSTON, TEXA: 223 608 (29 41'49", 831 249 235 828 480 354 896 263 138 196	6.9 8.1 8 (29°3 6.8 7.2 95°24'43 8.3 6.7 6.8 6.9 6.8 6.9	28 13 10 24 22 21 24 22 21 24 22 22	9.4 6.9 95°29' 7.6 3.5 13.0 8.0 9.3 5.8 6.4 6.4 10.4 8.0 7.8 6.6	129 88 11") 71 40 161 75 82 67 73 71 122 90 89 75	8.0 7.8 10 17 31 22 7.2 2.4 3.6
April 25	1120 1435 1135 249. W: 0920 1630 1510 1030 1620 1030 1215 1430 1020 1145 1240	2.6 .56 .62 ILLOW WATERI 140 3.0 8-0750 31 2.670 2.670 38 200 450 38 502 1,800	0.61 4.5 BRAYS 3.1 .76 1.6 1.2 1.3	.1 .4 DU AT LAX 3.7 .2 BAYOU A' 27 4.5 3.5 .4 2.0 .0 1.5	.06 NDSDOWNE 0.34 .03 r HOUSTON 1.1 .12 .50 .1.5 1.8	.60 .50 .90 STREET, H 8.3 11 2. TEXAS 14 .62 	859 565 700 OUSTON, TEXAS 223 608 (29 41 49", 831 249 235 828 480 354 896 263 138	6.9 8.1 8 (29°3 6.8 7.2 95°24'43 8.3 6.7 6.8 6.9 6.8	28 13 10 24 22 21 24 22 22	9.4 6.9 95°29' 7.6 3.5 13.0 8.0 9.3 5.8 6.4 6.4 10.4 8.0 7.8	129 88 11") 71 40 161 75 82 67 73 71 122 90 89	8.0 7.8 10 17 31 22 7.2 2.4 3.6
April 25	1120 1435 1135 249. W: 0920 1630 1510 1030 1620 1030 1215 1430 1020 1145 1240 1500 1345	2.6 .56 .62 ILLOW WATERI 140 3.0 8-0750. 31 2.670 2.670 38 200 450 38 502 1,800 1,400	0.61 4.5 BRAYS 3.1 .76 -1.6 1.2 1.3 8.9	.1 .4 .4	.06 NDSDOWNE 0.34 .03 T HOUSTON 1.1 .1250 1.5 1.8 1.7	.60 .50 .90 STREET, H 8.3 11 2. TEXAS 14 .62 22 6.4 1.9 13 4.2 2.4 3.8 2.4	859 565 700 OUSTON, TEXA: 223 608 (29 41'49", 831 249 235 828 480 354 896 263 138 196	6.9 8.1 8 (29°3 6.8 7.2 95°24'43 8.3 6.7 6.8 6.9 6.8 6.9	28 13 10 24 22 21 24 22 21 24 22 22	9.4 6.9 95°29' 7.6 3.5 13.0 8.0 9.3 5.8 6.4 6.4 10.4 8.0 7.8 6.6	129 88 11") 71 40 161 75 82 67 73 71 122 90 89 75	8.0 7.8 10 17 31 22 7.2 2.4 3.6
April 25	1120 1435 1135 249. W: 0920 1630 1510 1030 1620 1030 1215 1430 1020 1145 1240 1500	2.6 .56 .62 ILLOW WATERI 140 3.0 8-0750 2.670 38 200 450 450 38 502 1.800 1,400 62	0.61 4.5 BRAYS 3.1 .76 -1.6 1.2 1.3	.1 .4 .4 .4 .5 .3 .7 .2 .2 .27 .4 .5 .3 .5 .4 .4 .2 .0 .0 .1 .5	.06 NDSDOWNE 0.34 .03 THOUSTON 1.1 .1250 1.5 1.8	.60 .50 .90 STREET, H 8.3 11 2. TEXAS 14 .62 22 6.4 1.9 13 4.2 2.4 3.8	859 565 700 OUSTON, TEXA: 223 608 (29 41'49", 831 249 235 828 480 354 896 263 138 196 782	6.9 8.1 S (29°3 6.8 7.2 95°24'43 8.3 6.7 6.8 6.9 6.9 6.9	28 13 10 24 22 21 24 22 21 24 22 22 29	9.4 6.9 95°29' 7.6 3.5 13.0 8.0 9.3 5.8 6.4 6.4 10.4 8.0 7.8 6.6 5.8	129 88 11") 71 40 161 75 82 67 73 71 122 90 89 75 74	8.0 9.3 12 8.0 7.8 10 17 31 22 7.2 2.4 3.6 12 13
April 25	1120 1435 1135 249. W: 0920 1630 1510 1030 1620 1030 1215 1430 1020 1145 1240 1345 0825	2.6 .56 .62 ILLOW WATERI 140 3.0 8-0750 31 2,670 2,670 38 200 450 38 502 1,800 1,400 62	0.61 4.5 BRAYS 3.1 .76 -1.6 1.2 1.3 8.9	.1 .4 DU AT LAX 3.7 .2 BAYOU A' 27 4.5 3.5 .4 2.0 1.5 2.2 2.6	.06 NDSDOWNE 0.34 .03 r HOUSTON 1.1 .1250 1.5 1.8 1.7 .82	.60 .50 .90 STREET, H 8.3 11 2. TEXAS 14 .62 22 6.4 1.9 13 4.2 2.4 3.8 2.4 7.0	859 565 700 OUSTON, TEXAS 223 608 (29 41'49", 831 249 235 828 480 354 896 263 138 196 782 444	6.9 6.9 7.2 95*24'43 8.3 6.7 6.8 	33 29 9'01", 12 22 "") 28 13 10 24 22 21 24 22 22 22 29 25	9.4 6.9 95°29' 7.6 3.5 13.0 8.0 9.3 5.8 6.4 10.4 8.0 7.8 6.6 5.8 5.2	129 88 11") 71 40 161 75 82 67 73 71 122 90 89 75 74 61	3.3 2.6 9.3 12 8.0 7.8 10 17 31 22 7.2 2.4 3.6 12 13 8.7
April 25	1120 1435 1135 249. W: 0920 1630 1510 1030 1620 1030 1215 1430 1020 1145 1240 1500 1345 0825 1610	2.6 .56 .62 ILLOW WATERI 140 3.0 8-0750 31 2.670 38 200 450 38 502 1.800 1,400 62 141 73	0.61 4.5 BRAYS 3.1 .76 1.6 1.2 1.3 8.9	.1 .4 DU AT LAX 3.7 .2 BAYOU A' 27 4.5 3.5 .4 2.0 .0 1.5 2.2 2.6 7.9	.06 NDSDOWNE 0.34 .03 r HOUSTON 1.1 .12 .50 1.5 1.8 1.7 .82 1.8	.60 .50 .90 STREET, H 8.3 11 7. TENAS 14 .62 	859 565 700 OUSTON, TEXAS 223 608 (29 41'49", 831 249 235 828 480 354 896 263 138 196 782 444 637	6.9 6.9 8.1 8.29°3 6.8 7.2 95°24'43 8.3 6.7 6.8 6.9 6.9 6.9 7.2 7.7		9.4 6.9 95°29' 7.6 3.5 13.0 8.0 9.3 5.8 6.4 10.4 8.0 7.8 6.6 5.8 5.2 9.4	129 88 11") 71 40 161 75 82 67 73 71 122 90 89 75 74 61 95	8.0 7.8 10 17 31 22 7.2 4 3.6 12 13 8.7 9.0
April 25	1120 1435 1135 249. W: 0920 1630 1510 1030 1620 1030 1215 1430 1020 1145 1240 1500 1345 0825 1610 0815	2.6 .56 .62 ILLOW WATERI 140 3.0 8-0750 2.670 38 200 450 450 1,400 62 141 73 30	0.61 4.5 BRAYS 3.1 .76 -1.6 1.2 1.3 8.9 	.1 .4 .4 .5 .3.7 .2 .260	.06 NDSDOWNE 0.34 .03 T HOUSTON 1.1 .1250 1.5 1.8 1.7 .82 1.8 1.3	.60 .50 .90 STREET, H 8.3 11 7. TENAS 14 .62 22 6.4 1.9 13 4.2 2.4 3.8 2.4 7.0 7.0 21 30 13	859 565 700 OUSTON, TEXAS 223 608 (29 41'49", 831 249 235 828 480 354 896 263 138 196 782 444 637 751 801 776	6.9 6.9 8.1 8 (29°3 6.8 7.2 95°24'43 8.3 6.7 6.8 6.9 6.9 6.9 7.2 7.7		9.4 6.9 95°29' 7.6 3.5 13.0 8.0 9.3 5.8 6.4 6.4 10.4 8.0 7.8 6.6 5.8 5.2 9.4	129 88 11") 71 40 161 75 82 67 73 71 122 90 89 75 74 61 95 80	3.3 2.6 9.3 12 8.0 7.8 10 17 31 22 7.2 2.4 3.6 12 13 8.7 9.0 6.0
April 25	1120 1435 1135 249. W3 0920 1630 1510 1030 1620 1030 1215 1430 1020 1145 1240 1500 1345 0825 1610 0815	2.6 .56 .62 ILLOW WATERI 140 3.0 8-0750. 31 2.670 2.670 38 502 1.800 1,400 62 141 73 30 37	0.61 4.5 BRAYS 3.1 .76 -1.6 1.2 1.3 8.9 	.1 .4 DU AT LAX 3.7 .2 BAYOU A' 27 4.5 3.5 .4 2.0 .0 1.5 2.2 2.6 7.99 2.9 9.6	.06 NDSDOWNE 0.34 .03 r HOUSTON 1.1 .1250 1.8 1.7 .82 1.8 1.3 1.6	.60 .50 .90 STREET, H 8.3 11 2. TEXAS 14 .62 22 6.4 1.9 13 4.2 2.4 3.8 2.4 7.0 7.0 21 30	859 565 700 OUSTON, TEXA: 223 608 (29 41'49", 831 249 235 828 480 354 896 263 138 196 782 444 637 751 801	6.9 6.9 7.2 95*24'43 8.3 6.7 6.8 6.9 6.9 7.2 7.7 7.2 7.3		9.4 6.9 95°29' 7.6 3.5 13.0 8.0 9.3 5.8 6.4 10.4 8.0 7.8 6.6 5.8 5.2 9.4 6.8	129 88 11") 71 40 161 75 82 67 73 71 122 90 89 75 74 61 95 80 106	3.3 2.6 9.3 12 8.0 7.8 10 17 31 22 7.2 2.4 3.6 12 13 8.7 9.0 6.0 9.6
April 25	1120 1435 1135 249. W: 0920 1630 1510 1030 1620 1030 1215 1430 1020 1145 1240 1500 0825 1610 0815 1000 1230 1400	2.6 .56 .62 ILLOW WATER! 140 3.0 8-0750 31 2.570 2.670 38 200 450 38 502 1.800 1,400 62 141 73 30 37 43	0.61 4.5 BRAYS 3.1.76 6.2.2 1.3 8.9 4.9 2.0 3.8 4.7 7.1 4.9 4.7	.1 .4 DU AT LAX 3.7 .2 BAYOU A' 27 4.5 3.5 .4 2.0 1.5 2.2 2.6 7.9 2.2.6 18 19	.06 NDSDOWNE 0.34 .03 1.1 .12 .50 .51 .8 1.7 .82 1.8 1.3 1.6 2.0 2.0	.60 .50 .90 STREET, H 8.3 11 7. TENAS 14 .62 22 .6.4 1.9 13 4.2 2.4 3.8 2.4 7.0 7.0 21 30 13 8.4	859 565 700 OUSTON, TEXAS 223 608 (29 41'49", 831 249 235 828 480 354 896 263 138 196 782 444 637 751 801 776 776	6.9 6.8 7.2 95 ⁵ 24 ¹ 43 8.3 6.7 6.8 6.9 6.9 6.9 7.2 7.7 7.2 7.3 7.4 7.8	28 13 10 24 22 21 24 22 21 24 22 22 29 24 25 29 24 25 27 26	9.4 6.9 95°29' 7.6 3.5 13.0 8.0 9.3 5.8 6.4 10.4 8.0 7.8 6.5 8.0 9.3 11.4 6.4 10.4 8.0 7.8 6.8 9.3	129 88 11") 71 40 161 75 82 67 73 71 122 90 89 75 74 61 95 80 106 138 135	8.0 7.8 10 17 31 22 7.2 2.4 3.6 12 13 8.7 9.0 6.0 9.6
April 25	1120 1435 1135 249. W: 0920 1630 1510 1030 1215 1430 1145 1240 1500 1345 0825 1610 0815 1000 1230 1400 1600	2.6 .56 .62 ILLOW WATERI 140 3.0 8-0750 2.670 38 200 450 450 450 1,800 1,400 62 141 73 30 37 43 43	0.61 4.5 BRAYS 3.1.76 1.66 1.2 1.3 8.9 4.9 2.0 3.8 4.7 7.11 4.9 4.7	.1 .4 .4	.06 NDSDOWNE 0.34 .03 T HOUSTON 1.1 .1250 1.5 1.8 1.7 .82 1.8 1.3 1.6 2.0 2.0 3.2	.60 .50 .90 STREET, H 8.3 11 2. TEXAS 14 .62 22 6.4 1.9 13 4.2 2.4 3.8 2.4 7.0 7.0 21 30 13 8.4 7.4	859 565 700 OUSTON, TEXAS 223 608 (29 41 49", 831 249 235 828 480 354 896 263 138 196 782 444 637 751 801 776 776 778	6.9 6.8 7.2 95 ² 24 ¹ 43 8.3 6.7 6.8 		9.4 6.9 95°29' 7.6 3.5 13.0 8.0 9.3 5.8 6.4 6.4 10.4 8.0 7.8 6.6 5.8 9.3 11.1 10.1	129 88 11") 71 40 161 75 82 67 73 71 122 90 89 75 74 61 95 80 106 138 135 123	3.3 2.6 9.3 12 8.0 7.8 10 17 31 22 7.2 2.4 3.6 6.1 2 13 8.7 9.6 19 9.6
April 25	1120 1435 1135 249. W: 0920 1630 1510 1030 1620 1030 1215 1430 1020 1145 1240 1500 1345 0825 1610 0815 1000 1230 1400 1600 1800	2.6 .56 .62 ILLOW WATERI 140 3.0 8-0750. 31 2.670 2.670 38 200 450 450 21,800 1,400 62 141 73 30 37 43 43 43 43	0.61 4.5 BRAYS 3.1.76 6.2.2 1.3 8.9 4.9 2.0 3.8 4.7 7.1 4.9 4.7	.1 .4 DU AT LAX 3.7 .2 BAYOU A' 27 4.5 3.5 .4 2.0 1.5 2.2 2.6 7.9 2.2.6 18 19	.06 NDSDOWNE 0.34 .03 1.1 .12 .50 .51 .8 1.7 .82 1.8 1.3 1.6 2.0 2.0	.60 .50 .90 STREET, H 8.3 11 7. TENAS 14 .62 22 .6.4 1.9 13 4.2 2.4 3.8 2.4 7.0 7.0 21 30 13 8.4	859 565 700 OUSTON, TEXAS 223 608 (29 41'49", 831 249 235 828 480 354 896 263 138 196 782 444 637 751 801 776 776	6.9 6.8 7.2 95 ⁵ 24 ¹ 43 8.3 6.7 6.8 6.9 6.9 6.9 7.2 7.7 7.2 7.3 7.4 7.8	28 13 10 24 22 21 24 22 21 24 22 22 29 24 25 29 24 25 27 26	9.4 6.9 95°29' 7.6 3.5 13.0 8.0 9.3 5.8 6.4 10.4 8.0 7.8 6.5 8.0 9.3 11.4 6.4 10.4 8.0 7.8 6.8 9.3	129 88 11") 71 40 161 75 82 67 73 71 122 90 89 75 74 61 95 80 106 138 135	8.0 7.8 10 17 31 22 7.2 2.4 3.6 12 13 8.7 9.0 6.0 9.6
April 25	1120 1435 1135 249. W: 0920 1630 1510 1030 1215 1430 1145 1240 1500 1345 0825 1610 0815 1000 1230 1400 1600	2.6 .56 .62 ILLOW WATERI 140 3.0 8-0750 2.670 38 200 450 450 450 1,800 1,400 62 141 73 30 37 43 43	0.61 4.5 BRAYS 3.1 .76 -1.6 1.2 1.3 8.9 4.9 2.0 3.8 4.7 7.1 4.9 4.7 5.3 8.2	.1 .4 DU AT LAX 3.7 .2 BAYOU A' 27 4.5 3.5 .4 4.2.0 .0 1.5 2.2 2.6 7.99 2.2 9.6 18 19 19 5.4	.06 NDSDOWNE 0.34 .03 T HOUSTON 1.1 .1250 1.5 1.8 1.7 .82 1.8 1.3 1.6 2.0 2.0 3.2 2.2	.60 .50 .90 STREET, H 8.3 11 2. TEXAS 14 .62 22 6.4 1.9 13 4.2 2.4 3.8 2.4 7.0 7.0 21 30 13 8.4 7.4	859 565 700 OUSTON, TEXA: 223 608 (29 41'49", 831 249 235 828 480 354 896 263 138 196 782 444 637 751 801 776 776 776 778 888	6.9 6.8 7.2 95*24*43 8.3 6.7 6.8 6.9 6.9 6.9 7.2 7.7 7.2 7.3 7.4 7.3 7.4	28 13 10 24 22 21 24 22 21 24 22 22 25 29 24 25 27 26 26	9.4 6.9 95°29' 7.6 3.5 13.0 8.0 9.3 5.8 6.4 6.4 10.4 8.0 7.8 6.6 5.8 5.2 9.4 6.8 8.9 11.2 11.1	129 88 11") 71 40 161 75 82 67 73 71 122 90 89 75 74 61 95 80 106 138 135 123 107	8.0 7.8 10 17 31 22 7.2 2.4 3.6 12 13 8.7 9.0 6.0 9.6 19 20

Table 1.--Biochemical-oxygen-demand and selected nutrients records of Texas surface waters, 1969--continued

(Results in milligrams per liter except as indicated)

		Time	Discharge	Ammonia	Nitrate	Nitrite	Phosphate	Specific conductance	pН	Tem-	Disso oxyg (DC	gen	Bio- chem-
	Date —	(24 hour)	(cfs)	(NH ₄)	(NO ₃)	(NO ₂)	(PO ₄)	(micromhos at 25°C)	(field)		mg/1	Per- cent sat- ura- tion	oxygen demand (BOD)
			8-0755.	SIMS B	AYOU AT	HOUSTON,	TEXAS (2	9°40'27", 95	°17′21′′)				
	21, 1968		17	48	0.4	0.80	1.4	1,970	7.4	24	5.2	61	9.2
	14, 1969 28	1215 1440	1,460 30	1.2	2.2	.12	7.0 8.0	566 1,790	7.2 7.6	13 24	8.8	83 52	19 9.3
lay 23	3	1310	26	6.3	. 2	. 53	14	1,440	6.8	29	2.0	26	6.3
June 2	26	2005	19	9.7	. 3	. 45	19	1,940	7.9	32	2.5	34	14
		8-0756	.5. BERRY	BAYOU AT	FOREST	OAKS STR	EET, HOUST	ON, TEXAS (29°40'35	'', 95°	14'37")		
	14, 1969		290	0.41	2.6	0.08	1.6	349	6.8	14	7.1	68	8.7
lay 2	3	1140	6.6	9.2	. 2		25	3,140	6.8	27	1.4	17	20
	8-075	57.5.	HUNTING BAY	OU TRIBU	TARY AT	CAVALCAD	E STREET,	HOUSTON, TEX	AS (29°	48'00"	, 95°20	'02'')	
Oct. 2	21, 1908	1245						2.030	7.3	27	2.0	25	43
	- 8	8-0757.	7. HUNTING	BAYOU A	т U.S.	HIGHWAY	90-A, HOUS	TON, TEXAS	(29°47'4	3", 95	°16'21'')	
Det.	21, 1968	1215	3.0	2.6	0.0	0.05	5.8	1,260	8.1	21	13.0	141	5.9
	14, 1969	1005	397	2.9	3.0	. 14	1.8	369	6.7	12	7.2	67	22
	25	1500 1030	5.9 6.0	2.2 3.6	4.6 .1	. 34	2.4	1,390 1,300	6.8	24 26	4.2	49	3.6
	26	2100	2.5	2.4	2.3	. 26	. 90	1,150	7.2	31	8.8	117	5.7
Aug. 1	18	2250	267		11	- 50	5.0	317		26	2.8	34	11
			8-0760.	GREENS	BAYOU A	T HOUSTO	N, TEXAS	(29°55'05",	95°18'24	")			
	21. 1968	1055	1.1	0.00	3.6	0.30	5.9 2.4	1,050	8.5	18 12	9.4 9.8	99 89	5.2
	14. 1969 25	0850 1415	8.1	.00	. 2	.00	3.6	1,000	7.0	24	12.6	148	9.6
May 23	3	0910	11		2.7	. 4h	2.4	7 30	6.8	27	5.8	72	2.7
	26	1635	3.2 146		1.7 2.1	.70 .74	5.3 5.8	985 246	7.6	31 26	4.3 5.4	57 66	4.6 7.2
_			8-0765.	HALLS	BAYOU AT	HOUSTON	, TEXAS (29 51 '42'', 9	5 20 '05")			_
)c-F-	21, 1968	1130	4.0	14	1.5	0.02	28	3,530	8.0	20	5.0	56	25
	14, 1969	0930	412	.00	4.2	.08	4.8	309	7.6	12	8.2	76	10
	25	1345	8.4 6.5	8.3 7.4	. 3	. 22	26 21	2,770 1,910	6.9	24 26	15.0	174 17	15 7.5
	3	1800	3.3	16	. 5	.14	38	3,560	7.9	32	4.1	55	28
July 1	15	2330	53	2.3	. 3	.11	8.8	417	6.4	26	7.7	94	20
			8-0840.	CLEAR FO	RK BRAZO	S AT NUG	ENT, TEXAS	(32°41'25"	, 99°40'	10")			
	18, 1969	1210	8.3		7.6		0.07	4,640		6			2.3
	3 22	1525	6.2 .64		9.8		. 10	4,580 3,140	7.7 8.2	9 28	9.8 17.8	84 228	1.5
	22	1700	1,730		1.0		.14	554	7.1	26	6.0	73	1.7
			8-0841.	DEADMAN	CREEK N	EAR NUCE	NT, TEXAS	(32 40 36",	99 37 '0	0")		1	
	18, 1969	1240	14		34		29	1.950		7			19
	22	1445 1700			3.2 1.1		37 15	1,700 2,250	8.2	10 31	10.8 7.0	96 93	6.7 5.1
	22	1815	24		19		10	1,490	7.5	26	6.2	76	4.5
			3-09	20. NOL	AN RIVER	AT BLUM	, TEXAS (32°09'02". 9	7°24'10'	')			
	9, 1968	1500	5.0		0.0		15	723	8.0	22	8.7	99	4.4
Oct. S	9	1130	3.7		5.0		5.2	507	7.5	6	11.4	94	. 5
Dec.	5, 1969	1830	4.2		4.6		23 21	764 712	8.3 8.0	12	13.5	130 138	5.9 8.4
Dec. (Feb. 5		1300											0.4
Dec. ^c Feb. 1	18	1300 1520	3.7 12		4.0		2.9	523	8.8	28	12.5	161	3.0
Dec. C Feb. 1 April June	18												3.0 2.4 2.8

Table 1.--Biochemical-oxygen-demand and selected nutrients records of Texas surface waters, 1969--continued

(Results in milligrams per liter except as indicated)

	Time	Discharge	Ammonia Nitrate	Nitrite Phosphate	Specific conductance	pН	Tem-	Disso oxyg (DC))	Bio- chem-
Date	(24 hour)	(cfs)	(NH ₄) (NO ₃)	(NO ₂) (PO ₄)	(micromhos at 25°C)	(field)		mg/l	Per- cent sat- ura- tion	oxygen demand (BOD)
		8-0935.	AQUILLA CREEK	NEAR AQUILLA, TEXA	31°50'40'	', 97°12	'06")			
Oct. 9, 1968	1600	1,900	0.8	0.29	119	7.5	20	7.6	84	6.0
Dec. 9	1040	9.7 5.9	6.1 .0	. 78 . 84	798 1.090	7.7 7.7	6 11	11.0	91 114	1.9 21
Seb. 5, 1969	1145	22	11	1.5	876	7.8	8	11.2	97	4.1
April 10	1610	68	6.1	1.0	810	7.9	24	6.4	78	1.2
June 3	1750	17	3.9	. 18	1,080	7.7	22	7.7	87	2.0
July 9	1540	1.1	1.9	. 18	1,380	7.4 7.6	32 32	9.7 12	131 162	2.6 1.5
lug. 11	1320	. 4	. 4	.08	1,240	7.0		12	102	1.5
		8-0965	BRAZOS RIVER	AT WACO, TEXAS (1°33'40". 97	°07'42'')				
oct. 9, 1958	1800	2,050	0.0	0.09	1.070	7.5	24	8.2	95	1.6
Dec. 9	0920	698 178	1.0	.06 .12	527 1,170	7.7 8.0	10 12	9.3	85 130	1.0
Feb. 5, 1969	1655	635	3.0	.12	548	8.0	8	10.6	92	1.3
\pril 10	1710	226	. 6	. 57	946	8.1	27	8.6	109	1.9
June 4	0830	4,650	. 5	.06	1,140	7.7	21	7.1	79	1.7
July 9	1700	1,800	. 1	.18	1,410	7.6	31	7.5	100	1.2
\ug. 11	1415	2,150	. 3	. 08	1,530	7.9	33	7.6	104	1.0
		8-0982.9.	BRAZOS RIVER AT	T HIGHBANK, TEXAS	(31 08 02",	96 49 20) · · ·)			
Oct. 10, 1968	0930	784	00	0.62	1.180	7.8	21	9.6	107	2.7
Dec. 3	0945	3,060	. 5	. 56	376	7.0	11	9.4	85	3.7
Feb. 3, 1969	1200	264	1.8	. 76	1,180	8.4	12	12.2	114	2.4
April 8	1100	836	6.3	. 54	539	7.9 7.9	20 26	8.0 9.0	88 110	2.0
June 10	1115 1000	4,220	. 4	. 16	1,370 1,500	7.6	29	7.4	95	4.0
vug. 10										
Aug. 10,	8-1	039. SOUTH		EK NEAR BRIGGS, TE	(30°54'4	0", 98°(02'10")			
	8-1	039. SOUTH	(HYDROL		(30°54'4	7.9	02'10")	10.2	85	0.3
Feb. 19, 1969 Mar. 27	1000	0. 22	(HYDROL	OGIC BENCH MARK ST 0.04 .00	(30°54'4 ATION) 461 480	7.9 8.3	8 14	10.2	91	. 2
Feb. 19, 1969 Mar. 27 April 30	1000 0940 0930	0. 22 1. 7 19	0.8 .1 .7	0.04 .00 .05	(30°54'4) ATION) 461 480 497	7.9 8.3 7.9	8 14 19	10.2 9.6 9.0	91 96	. 2
Fob. 19. 1969 Mar. 27 April 30 day 28	1000	0. 22	0.8 .1 .7 1.2	OGIC BENCH MARK ST 0.04 .00	(30°54'4 ATION) 461 480	7.9 8.3	8 14	10.2	91	. 2
Feb. 19, 1969 Mar. 27 April 30 4ay 28	1000 0940 0930 1050	0.22 1.7 19	0.8 .1 .7 1.2	0.04 0.00 0.05 0.02	(30°54'4 ATION) 461 480 497 493	7.9 8.3 7.9 8.1 7.8	8 14 19 24 26	10.2 9.6 9.0 8.0	91 96 94	. 2 . 3 . 7
Feb. 19. 1969 Mar. 27 April 30 May 28 June 30	1000 0940 0930 1050	0. 22 1. 7 19 10 .49 8-1065	(HYDROL 0.8 .1 .7 1.2 1.7 . LITTLE RIVER	0.04 .00 .05 .02 .02	(30 49'53",	7.9 8.3 7.9 8.1 7.8	8 14 19 24 26	10.2 9.6 9.0 8.0 6.8	91 96 94	. 2 . 3 . 7
Feb. 19, 1969 Mar. 27 April 30 May 28 June 30 Oct. 10, 1968 Dec. 3	1000 0940 0930 1050 1000	0. 22 1. 7 19 10 .49 8-1065	(HYDROL 0.8 .1 .7 1.2 1.7 . LITTLE RIVER 7.2 8.6	0.04 .00 .05 .02 .02 .02 AT CAMERON, TENAS	(30 49'53", 642 306	7.9 8.3 7.9 8.1 7.8 96 57'0	8 14 19 24 26 01")	10.2 9.6 9.0 8.0 6.8	91 96 94 83 93 89	2.7 3.1
Feb. 19, 1969 Mar. 27 April 30 May 28 June 30 Oct. 10, 1968 Dec. 3 Feb. 3, 1969	1000 0940 0930 1050 1000	0. 22 1. 7 19 10 .49 8-1065 212 2.850 261	(HYDROL 0.8 .1 .7 1.2 1.7 . LITTLE RIVER 7.2 8.6 10	0.04 .00 .05 .02 .02 AT CAMERON, TEXAS	(30 49'53", (30 49'53", 642 306 715	7.9 8.3 7.9 8.1 7.8 96 57'0 7.6 7.0 7.8	8 14 19 24 26 01")	10.2 9.6 9.0 8.0 6.8	91 96 94 83 93 89 97	2.7 3.1 1.2
Fub. 19, 1969 Mar. 27 April 30 Bay 28 June 30 Oct. 10, 1968 Dec. 3 Feb. 3, 1969 April 8	1000 0940 0930 1050 1000	0. 22 1.7 19 10 .49 8-1065 212 2.850 261 1,640	(HYDROL 0.8 .1 .7 1.2 1.7 . LITTLE RIVER 7.2 8.6 10 5.2	0.04 .00 .05 .02 .02 AT CAMERON, TENAS 0.39 .53 .94	(30 49 53", (30 49 53", 642 306 715 531	7.9 8.3 7.9 8.1 7.8 96 57'0 7.6 7.0 7.8 8.0	8 14 19 24 26 01")	10.2 9.6 9.0 8.0 6.8 8.1 10.1 10.2 8.4	91 96 94 83 93 89 97 91	2.7 3.1 1.2 1.3
Feb. 19, 1969 Har: 27 April 30 Hay 28 June 30 Oct. 10, 1968 Dec. 3 Feb. 3, 1969 April 8 June 10	1000 0940 0930 1050 1000	0. 22 1. 7 19 10 .49 8-1065 212 2.850 261	(HYDROL 0.8 .1 .7 1.2 1.7 . LITTLE RIVER 7.2 8.6 10	0.04 .00 .05 .02 .02 AT CAMERON, TEXAS	(30 49'53", (30 49'53", 642 306 715	7.9 8.3 7.9 8.1 7.8 96 57'0 7.6 7.0 7.8	8 14 19 24 26 01")	10.2 9.6 9.0 8.0 6.8	91 96 94 83 93 89 97	2.7 3.1 1.2
Feb. 19, 1969 Har: 27 April 30 Hay 28 June 30 Oct. 10, 1968 Dec. 3 Feb. 3, 1969 April 8 June 10	1000 0940 0930 1050 1000 1000	0. 22 1.7 19 10 .49 8-1065 212 2.850 261 1,640 813	(HYDROL. 0.8 .1 .7 1.2 2.1.7 . LITTLE RIVER 7.2 8.6 10 5.2 6.1 4.0	0.04 .00 .05 .02 .02 AT CAMERON, TENAS 0.39 .53 .94 .41	(30 49'53", 642 306 715 531 627 466	7.9 8.3 7.9 8.1 7.8 96 57'0 7.6 7.0 7.8 8.0 7.7	8 14 19 24 26 01") 23 10 14 20 26 29	8.1 10.2 9.6 9.0 8.0 6.8	91 96 94 83 93 89 97 91 102	2.7 3.1 1.2 1.3
Feb. 19, 1969 Mar. 27 April 30 May 28 June 30 Oct. 10, 1968 Dec. 3 Feb. 3, 1969 April 8 June 10 Aug. 18	1000 0940 0930 1050 1000 1030 0830 1010 1000 1015 0900	0. 22 1. 7 19 10 .49 8-1065 212 2.850 261 1,640 813 222	(HYDROL. 0.8 .1 .7 1.2 2.1.7 . LITTLE RIVER 7.2 8.6 10 5.2 6.1 4.0	0.04 .00 .05 .02 .02 AT CAMERON, TEXAS 0.39 .53 .94 .41 .22 .70	(30 49'53", 642 306 715 531 627 466	7.9 8.3 7.9 8.1 7.8 96 57'0 7.6 7.0 7.8 8.0 7.7	8 14 19 24 26 01") 23 10 14 20 26 29	8.1 10.2 9.6 9.0 8.0 6.8	91 96 94 83 93 89 97 91 102	2.7 3.1 1.2 1.3
Feb. 19, 1969 Mar. 27 April 30 May 28 June 30 Det. 10, 1968 Dec. 3 Feb. 3, 1969 April 8 June 10 Aug. 18 Oct. 9, 1968 Dec. 5	1000 0940 0930 1050 1000 1030 0830 1010 1000 1015 0900	0. 22 1. 7 19 10 .49 8-1065 212 2.850 261 1,640 813 222 8-1140 5.200 16,900	(HYDROL. 0.8 .1 .7 1.2 1.7 . LITTLE RIVER 7.2 8.6 10 5.2 6.1 4.0 . BRAZOS RIVER 0.0 7.4	0.04 .00 .05 .02 .02 .02 AT CAMERON, TENAS 0.39 .53 .94 .41 .22 .70 AT RICHMOND, TENA	(30 49'53", 642 306 715 531 627 466 5 (29 34'56"	7.9 8.3 7.9 8.1 7.8 96 57'0 7.6 7.0 7.8 8.0 7.7 7.3	8 14 19 24 26 01") 23 10 14 20 26 29 7 27")	10.2 9.6 9.0 8.0 6.8 8.1 10.1 10.2 8.4 8.4 5.7	91 96 94 83 93 89 97 91 102 73	2. 7 3. 1 2. 7 3. 1 1. 2 2. 1. 3 3 1. 1 5. 8
Feb. 19, 1969 Mar. 27 April 30 May 28 June 30 Oct. 10, 1968 Dec. 3 Feb. 3, 1969 April 8 June 10 Aug. 18 Oct. 9, 1968 Dec. 5 Feb. 6, 1969	1000 0940 0930 1050 1000 1000 1010 1000 1015 0900	0. 22 1.7 19 10 .49 8-1065 212 2.850 261 1,640 813 222 8-1140 5.200 16,900 1,520	(HYDROL. 0.8 .1 .7 1.2 2.1.7 . LITTLE RIVER 7.2 8.6 10 5.2 6.1 4.0 . BRAZOS RIVER 0.0 7.4 .1	0.04 .00 .05 .02 .02 AT CAMERON, TEXAS 0.39 .53 .94 .41 .22 .70 AT RICHNOND, TEXA	(30 49'53", 642 306 715 531 627 466 5 (29 34'56"	7.9 8.3 7.9 8.1 7.8 96 57'0 7.6 7.0 7.8 8.0 7.7 7.3	8 14 19 24 26 01") 23 10 14 20 26 29 '27")	8.1 10.2 9.6 9.0 8.0 6.8 8.1 10.1 10.2 8.4 8.4 5.7	91 96 94 83 93 89 97 91 102 73	2. 7 3.1 1.2 1.3 1.1 5.8
Feb. 19, 1969 Far. 27 April 30 Ay 28 June 30 Det. 10, 1968 Dec. 3 Feb. 3, 1969 April 8 June 10 Aug. 18 Dec. 5 Feb. 6, 1969 April 17	1000 0940 0930 1050 1000 1000 1015 0900 1445 1635 1625	0. 22 1.7 19 10 .49 8-1065 212 2.850 261 1,640 813 222 8-1140 5.200 16,900 1,520 44,400	(HYDROL. 0.8 .1 .7 1.2 1.7 LITTLE RIVER 7.2 8.6 10 5.2 6.1 4.0	0.04 .00 .05 .02 .02 .02 AT CANERON, TEXAS 0.39 .53 .94 .41 .22 .70 AT RICHMOND, TEXA	(30 49'53", 642 306 715 531 627 466 6 (29 34'56"	7.9 8.3 7.9 8.1 7.8 96 57'0 7.6 7.0 7.8 8.0 7.7 7.3 95°45	8 14 19 24 26 01") 23 10 14 20 26 29 '27")	8.1 10.2 9.6 9.0 8.0 6.8 8.1 10.1 10.2 8.4 8.4 5.7	91 96 94 83 93 89 97 91 102 73	2.7 3.1 1.2 1.3 1.1 5.8
Feb. 19, 1969 dar. 27 April 30 day 28 June 30 Det. 10, 1968 Dec. 3 Feb. 3, 1969 April 8 June 10 Aug. 18 Dec. 5 Feb. 6, 1969 April 17 June 6	1000 0940 0930 1050 1000 1000 1010 1000 1015 0900	0. 22 1.7 19 10 .49 8-1065 212 2.850 261 1,640 813 222 8-1140 5.200 16,900 1,520	(HYDROL. 0.8 .1 .7 1.2 2.1.7 . LITTLE RIVER 7.2 8.6 10 5.2 6.1 4.0 . BRAZOS RIVER 0.0 7.4 .1	0.04 .00 .05 .02 .02 AT CAMERON, TEXAS 0.39 .53 .94 .41 .22 .70 AT RICHNOND, TEXA	(30 49'53", 642 306 715 531 627 466 5 (29 34'56"	7.9 8.3 7.9 8.1 7.8 96 57'0 7.6 7.0 7.8 8.0 7.7 7.3	8 14 19 24 26 01") 23 10 14 20 26 29 '27")	8.1 10.2 9.6 9.0 8.0 6.8 8.1 10.1 10.2 8.4 8.4 5.7	91 96 94 83 93 89 97 91 102 73	2.7 3.1 1.2 1.3 1.1 5.8
Feb. 19, 1969 Mar. 27 April 30 May 28 June 30 Oct. 10, 1968 Dec. 3 Feb. 3, 1969 April 8 June 10 Aug. 18 Oct. 9, 1968 Dec. 5 Feb. 6, 1969 April 17 June 6	1000 0940 0930 1050 1000 1010 1010 1010 1015 0900 1445 1635 1555 1625 1415	0. 22 1. 7 19 10 .49 8-1065 212 2.850 261 1.640 813 222 8-1140 5.200 16,900 1,520 44,400 12,200	(HYDROL. 0.8 .1 .7 .1.2 .1.7 . LITTLE RIVER 7.2 8.6 10 5.2 6.1 4.0 . BRAZOS RIVER 0.0 7.4 .1 1.4 2.2	0.04 .00 .05 .02 .02 .02 AT CAMERON, TENAS 0.39 .53 .94 .41 .22 .70 AT RICHMOND, TENA 0.26 .36 .28 .32	(30 49 53", 642 306 715 531 627 466 6 (29 34 56"	7.9 8.3 7.9 8.1 7.8 96 57'0 7.6 7.0 7.8 8.0 7.7 7.3	8 14 19 24 26 01") 23 10 14 20 26 29 25 12 16 21 24 32	8.1 10.2 9.6 9.0 8.0 6.8 8.1 10.1 10.2 8.4 8.4 5.7	91 96 94 83 93 89 97 91 102 73 76 80 96 76 83	2.7 3.1 1.2 1.3 1.1 5.8 2.2 3.4 4.8 3.9 2.9
Feb. 19. 1969 Mar. 27 April 30 May 28 June 30 Oct. 10, 1968 Dec. 3 Feb. 3, 1969 April 8 June 10 Aug. 18 Oct. 9, 1968 Dec. 5 Feb. 6, 1969 April 17 June 6 Aug. 22	1000 0940 0930 1050 1000 1000 1010 1015 0900 1445 1635 1625 1415 1435	0. 22 1. 7 19 10 .49 8-1065 212 2.850 261 1,640 813 222 8-1140 5.200 16,900 1,520 24,400 12,200 1,550	(HYDROL. 0.8 .1 .7 .1.2 .1.7 . LITTLE RIVER 7.2 8.6 10 5.2 6.1 4.0 . BRAZOS RIVER 0.0 7.4 .1 1.4 2.2	0.04 .00 .05 .02 .02 .02 AT CAMERON, TEXAS 0.39 .53 .94 .41 .22 .70 AT RICHMOND, TEXA 0.26 .36 .28 .32	(30 49 53", 642 306 715 531 627 466 6 (29 34 56"	7.9 8.3 7.9 8.1 7.8 96 57'0 7.6 7.0 7.8 8.0 7.7 7.3	8 14 19 24 26 01") 23 10 14 20 26 29 25 12 16 21 24 32	8.1 10.2 9.6 9.0 8.0 6.8 8.1 10.1 10.2 8.4 8.4 5.7	91 96 94 83 93 89 97 91 102 73 76 80 96 76 83	2.7 3.1 1.2 1.3 1.1 5.8 2.2 3.4 4.8 3.9 2.9
Feb. 19, 1969 Mar. 27 April 30 May 28 June 30 Oct. 10, 1968 Dec. 3 Feb. 3. 1969 April 8 June 10 Aug. 18 Oct. 9, 1968 Aug. 22 Oct. 9, 1968 Dec. 5 Oct. 9, 1968 Dec. 5	1000 0940 0930 1050 1000 1000 1010 1010 1010 1015 1635 1635 1435 1435	0. 22 1. 7 19 10 .49 8-1065 212 2.850 261 1,640 813 222 8-1140 5.200 16,900 1,520 44,400 12,200 1,550 8-1166.5	(HYDROL. 0.8 .1 .7 .1.2 .1.7 . LITTLE RIVER 7.2 8.6 10 5.2 6.1 4.0 . BRAZOS RIVER 0.0 7.4 .1 1.4 2.2 BRAZOS RIVER 0.0 4.8	0.04 .00 .05 .02 .02 .02 .02 .03 .53 .94 .41 .22 .70 .04 .06 .07 .07 .07 .08 .09 .09 .09 .09 .09 .09 .09 .09 .09 .09	(30 49'53", 642 306 715 531 627 466 5 (29 34'56") 369 305 872 235 852 (AS (29°20'5	7.9 8.3 7.9 8.1 7.8 96 57'0 7.6 7.0 7.8 8.0 7.7 7.3 7.95°45 7.1 7.8 8.0 7.4 8.1	8 14 19 24 26 01") 23 10 14 20 26 29 (27") 25 16 21 124 32 34'56")	8.1 10.2 9.6 9.0 8.0 6.8 8.1 10.1 10.2 8.4 8.4 5.7 6.8 7.0 8.1	91 96 94 83 93 89 97 91 102 73 76 80 96 76 83 109	2.7 3.1 1.2 1.3 1.1 5.8 2.2 3.4 4.8 3.9 5.2
Feb. 19. 1969 Mar. 27 April 30 May 28 June 30 Oct. 10. 1968 Dec. 3 Feb. 3. 1969 April 8 June 10 Aug. 18 Oct. 9, 1968 Dec. 5 Feb. 6. 1969 April 17 June 6 Aug. 22 Oct. 9, 1968 Dec. 5 Feb. 6. 1969	1000 0940 0930 1050 1000 1000 1010 0830 1010 1000 1015 1635 1635 1625 1415 1435	0. 22 1. 7 19 10 .49 8-1065 212 2.850 261 1,640 813 222 8-1140 5.200 1,520 44,400 12,200 1,550 8-1166.5 5,600 21,300 1,990	(HYDROL. 0.8 .1 .7 1.2 2.1.7 . LITTLE RIVER 7.2 8.6 10 5.2 6.1 4.0 . BRAZOS RIVER 0.0 7.4 .1 1.4 2.2 BRAZOS RIVER 0.0 4.8 .0	0.04 .00 .05 .02 .02 AT CAMERON, TEXAS 0.39 .53 .94 .41 .22 .70 AT RICHNOND, TEXA 0.26 .36 .38 .32 .07 NEAR ROSHARON, TEX 0.21 .45 .28	(30 49'53", 461 480 497 493 499 (30 49'53", 642 306 715 531 627 466 S (29 34'56" 369 305 872 235 852 AS (29'20'5	7.9 8.3 7.9 8.1 7.8 96 57'0 7.6 7.0 7.8 8.0 7.7 7.3 7.95°45 7.1 8.8 8.0 7.4 8.1 	8 14 19 24 26 01") 23 10 14 20 26 29 27") 25 12 16 21 24 32 32 34 56")	10.2 9.6 9.0 8.0 6.8 8.1 10.1 10.2 8.4 8.4 5.7 6.8 7.0 8.1	91 96 94 83 93 89 97 91 102 73 76 80 96 76 83 109	2.7 3.1 1.2 1.3 1.1 5.8 2.2 3.4 4.8 3.9 2.9 5.2
Feb. 19, 1969 Mar. 27 April 30 May 28 June 30 Oct. 10, 1968 Dec. 3 Feb. 3, 1969 April 8 June 10 Aug. 18 Oct. 9, 1968 June 6 Aug. 22 Oct. 9, 1968 Bec. 5 Feb. 6, 1969 April 17 June 6 Aug. 21	1000 0940 0930 1050 1000 1000 1010 1015 0900 1445 1635 1625 1415 1435	0. 22 1. 7 19 10 .49 8-1065 212 2.850 261 1.640 813 222 8-1140 5.200 1,520 44,400 12,200 1,550 8-1166.5	(HYDROL. 0.8 .1 .7 .1.2 .1.7 . LITTLE RIVER 7.2 8.6 10 5.2 6.1 4.0 . BRAZOS RIVER 0.0 7.4 .1 1.4 2.2 BRAZOS RIVER 0.0 4.8 0.0 1.8	0.04 .00 .05 .02 .02 .02 .02 .03 .53 .94 .41 .22 .70 .AT RICHMOND, TEXA 0.26 .36 .28 .32 .07 NEAR ROSHARON, TEX 0.21 .45 .28 .31	(30 49 53", 642 306 715 531 627 466 8 (29 34 56") 369 305 872 235 852 (AS (29 20 5	7.9 8.3 7.9 8.1 7.6 7.6 7.0 7.8 8.0 7.7 7.3 7.95°45 7.1 7.8 8.1 8", 95°3	8 14 19 24 26 01") 23 10 14 20 26 29 25 12 16 21 24 32 34 56") 26 13 1 5 20	10.2 9.6 9.0 8.0 6.8 8.1 10.1 10.2 8.4 5.7 6.4 8.6 9.7 6.8 7.0 8.1	91 96 94 83 93 89 97 91 102 73 76 80 96 76 83 109	2.7 3.1 1.2 1.3 1.1 5.8 2.2 3.4 4.8 3.9 9.2.9 5.2
Feb. 19, 1969 Mar. 27 April 30 May 28 June 30 Oct. 10, 1968 Dec. 3 Feb. 3, 1969 April 8 June 10 Aug. 18 Oct. 9, 1968 Dec. 5 Feb. 6, 1969 April 17 June 6 Aug. 22 Oct. 9, 1968 Dec. 5 Feb. 6, 1969 April 17 June 6 Aug. 22 Oct. 9, 1968 Dec. 5 Feb. 6, 1969 Dec. 5 Feb. 6, 1969 Feb. 6, 1969 Feb. 6, 1969 Feb. 6, 1969	1000 0940 0930 1050 1000 1000 1010 0830 1010 1000 1015 1635 1635 1625 1415 1435	0. 22 1. 7 19 10 .49 8-1065 212 2.850 261 1,640 813 222 8-1140 5.200 1,520 44,400 12,200 1,550 8-1166.5 5,600 21,300 1,990	(HYDROL. 0.8 .1 .7 1.2 2.1.7 . LITTLE RIVER 7.2 8.6 10 5.2 6.1 4.0 . BRAZOS RIVER 0.0 7.4 .1 1.4 2.2 BRAZOS RIVER 0.0 4.8 .0	0.04 .00 .05 .02 .02 AT CAMERON, TEXAS 0.39 .53 .94 .41 .22 .70 AT RICHNOND, TEXA 0.26 .36 .38 .32 .07 NEAR ROSHARON, TEX 0.21 .45 .28	(30 49'53", 461 480 497 493 499 (30 49'53", 642 306 715 531 627 466 S (29 34'56" 369 305 872 235 852 AS (29'20'5	7.9 8.3 7.9 8.1 7.8 96 57'0 7.6 7.0 7.8 8.0 7.7 7.3 7.95°45 7.1 8.8 8.0 7.4 8.1 	8 14 19 24 26 01") 23 10 14 20 26 29 27") 25 12 16 21 24 32 32 34 56")	10.2 9.6 9.0 8.0 6.8 8.1 10.1 10.2 8.4 8.4 5.7 6.8 7.0 8.1	91 96 94 83 93 89 97 91 102 73 76 80 96 76 83 109	2.7 3.1 1.2 1.3 1.1 5.8 2.2 3.4 4.8 3.9 5.2

Table 1.--Biochemical-oxygen-demand and selected nutrients records of Texas surface waters, 1969--continued

(Results in milligrams per liter except as indicated)

	Time	Discharge	Ammonia Nitrate Nitr	ita Phoenhata	Specific conductance	- 11	Tem-	Disso oxyg (DO	gen	Bio- chem-
Date	(24 hour)	(cfs)	(NH ₄) (NO ₃) (NO		(micromhos at 25°C)	pH (field)	pera- ture (°C)	mg/1	Per- cent sat- ura- tion	ical oxygen demand (BOD)
	-	8-1361.5.	CONCHO RIVER NEAR VE	CRIBEST, TEXAS	(31°32'07''	, 100°13	'05")			
Feb. 19, 1969	1005		41	0.10	2,600		9			4.4
July 1 Sept. 22	1120 1400		1.4 7.6	. 27 1.1	2,320 1,150	7.6 8.3	29 26	6.2 8.8	79 107	5.4 6.7
		8-1365. (CONCHO RIVER NEAR PAIN	T ROCK, TEXAS	(31°31'05''	, 99°55'	10")			
Oct. 23, 1968	1030	6.8	2.4	0.08	2,250					2.4
Feb. 18, 1969	1230	6.8	14	.07	2,670		10			3.4
July 1	1020	8.4	4.3	. 19	2,050	7.8	30	6.3	82	3.9
Sept. 22	1230	38	5.7	\$54	983	8.5	28	7.3	92	3.9
		8-1470.	COLORADO RIVER NEAR SA	AN SABA, TEXAS	(31°13'05"	, 98°33'	50'')			
Oct. 25, 1968	1015	86	1.4	0.53	686	7.9	17	7.9	81	0.7
Dec. 19 Feb. 19. 1969	1010	180 165	. 4 1.0	. 17	1,070 1,290	8.1	10 10	9.5 10.8	85 95	1.6 2.1
April 30	1115	277	3.4	. 20	878	8.1	22	. 8.5	96	2. 8
June 30	1 200	437	2.6	.10	617	7.7	30	7.1	93	. 7
Aug. 29	1000	514	1.8	.62	752	8.0	26	6.5	79	1.8
	8-	1535. PED	ERNALES RIVER NEAR JOH	HNSON CITY, TE	XAS (30°17'.	27", 98°	24'01"	')		
Feb. 19, 1969		60	1.7	0.04	722	8.4	10	10.9	96	0.8
	1335	113 45	1.0	.05	603 477	8.2	20 32	8.8	96 115	1.1
June 30		45		.06	477	8.2	32	8.5		
April 30 June 30 8- Oct. 10. 1968	1400	45	. 8	.06	477	8.2 30°12'28	32 3", 97° 26	8.5 38'15") 6.3	76	
8- Oct. 10. 1968 Dec. 4	1400 -1586.5 1300 0730	45 . COLORADO 110 96	.8 D RIVER AT FARM ROAD (1.0 10	.06 073 BELOW AUST 4.8 4.6	477 IN, TEXAS (564 592	8.2 30°12'28 7.3 7.4	32 3", 97° 26 12	8.5 38'15") 6.3 7.3	76 68	4.4
8. Oct. 10. 1968 Dec. 4 Feb. 4, 1969	1400 -1586.5 1300 0730 0830	45 . COLORADO 110 96 58	.8 O RIVER AT FARM ROAD C 1.0 10 19	.06 073 BELOW AUST 4.8 4.6 6.5	477 IN, TEXAS (564 592 653	8.2 30°12'28 7.3 7.4 7.2	32 3", 97° 26 12 13	8.5 38'15") 6.3 7.3 5.4	76 68 51	4.4 7.2 9.0
Oct. 10. 1968 Dec. 4 Feb. 4, 1969 April 9	1400 -1586.5 1300 0730 0830 0815	110 96 58 940	.8 O RIVER AT FARM ROAD C 1.0 10 19 6.5	.06 973 BELOW AUST 4.8 4.6 6.5 1.2	477 IN, TEXAS (564 592	8.2 30°12'28 7.3 7.4	32 3", 97° 26 12	8.5 38'15") 6.3 7.3	76 68	4.4
8- Oct. 10. 1968 Occ. 4 April 9 June 11	1400 -1586.5 1300 0730 0830	45 . COLORADO 110 96 58	.8 O RIVER AT FARM ROAD C 1.0 10 19	.06 073 BELOW AUST 4.8 4.6 6.5	564 592 653 528	8.2 30°12'28 7.3 7.4 7.2 7.6	32 3", 97° 26 12 13 24	8.5 38'15") 6.3 7.3 5.4 6.5	76 68 51 76	4.4 7.2 9.0 4.7
8- Oct. 10. 1968 Occ. 4 April 9 June 11	1400 -1586.5 1300 0730 0830 0815 0815	110 96 58 940 2,000	.8 O RIVER AT FARM ROAD G 1.0 10 19 6.5 .2	.06 973 BELOW AUST 4.8 4.6 6.5 1.2 .76 1.5	477 IN, TEXAS (564 592 653 528 501 510	8.2 7.3 7.4 7.2 7.6 7.5 7.5	32 26 12 13 24 24 30	8.5 38'15") 6.3 7.3 5.4 6.5 7.8	76 68 51 76 91	4.4 7.2 9.0 4.7 2.2
Sec. 10. 1968 Dec. 4 Feb. 4. 1969 April 9 June 11 Aug. 5	1400 -1586.5 1300 0730 0830 0815 0815 1130	45 . COLORADO 110 96 58 940 2,000 1,920 8-1592.	.8 O RIVER AT FARM ROAD C 1.0 10 19 6.5 .2 3.8 COLORADO RIVER AT BA	.06 4.8 4.6 6.5 1.2 .76 1.5 ASTROP, TEXAS	477 IN, TEXAS (564 592 653 528 501 510 (30°06'20"'.	8.2 7.3 7.4 7.2 7.5 7.5 7.7 97*19'(32 26 12 13 24 24 30 08")	8.5 38'15") 6.3 7.3 5.4 6.5 7.6	76 68 51 76 91 99	4.4 7.2 9.0 4.7 2.2 2.4
8. Oct. 10. 1968 Dec. 4 Feb. 4. 1969 April 9 June 11 Aug. 5	1400 -1586.5 1300 0730 0830 0815 0815 1130	45 COLORADO 110 96 58 940 2,000 1,920 8-1592.	.8 O RIVER AT FARM ROAD C 1.0 10 19 6.5 .2 3.8 COLORADO RIVER AT B. 0.0 .1	.06 4.8 4.6 6.5 1.2 .76 1.5 ASTROP, TEXAS 0.95 .65	477 IN, TEXAS (564 592 653 528 501 510 (30°06'20".	8.2 7.3 7.4 7.2 7.6 7.5 7.5 97°19°0	32 26 12 13 24 24 30 28")	8.5 38'15") 6.3 7.3 5.4 6.5 7.8 7.6	76 68 51 76 91 99	4.4 7.2 9.0 4.7 2.2 2.4
8. Det. 10. 1968 Dec. 4 Feb. 4. 1969 April 9 June 11 Aug. 5 Dec. 4 Feb. 4. 1069	1400 -1586.5 1300 0730 0830 0815 0815 1130	45 . COLORADO 110 96 58 940 2,000 1,920 8-1592.	.8 O RIVER AT FARM ROAD C 1.0 10 19 6.5 .2 3.8 COLORADO RIVER AT BA	.06 4.8 4.6 6.5 1.2 .76 1.5 ASTROP, TEXAS	477 IN, TEXAS (564 592 653 528 501 510 (30°06'20"'.	8.2 7.3 7.4 7.2 7.5 7.5 7.7 97*19'(32 26 12 13 24 24 30 08")	8.5 38'15") 6.3 7.3 5.4 6.5 7.6	76 68 51 76 91 99	4.4 7.2 9.0 4.7 2.2 2.4
Det. 10. 1968 Feb. 4. 1969 June 11 Aug. 5 Det. 10. 1968 Det. 10. 1968 Feb. 4. 1969 April 9	1400 -1586.5 1300 0730 0830 0815 1130 	45 . COLORADO 110 96 58 940 2,000 1,920 8-1592. 463 408 164	.8 O RIVER AT FARM ROAD C 1.0 10 19 6.5 .2 3.8 COLORADO RIVER AT B. 0.0 .1 9.2 5.3 .1	.06 4.8 4.6 6.5 1.2 .76 1.5 ASTROP, TEXAS 0.95 .65 4.0	477 IN, TEXAS (564 592 653 528 501 510 (30°06'20". 536 424 675 543 509	8.2 30°12'28 7.3 7.4 7.2 7.6 7.5 7.6 7.7 7.8 7.9 7.7	32 26 12 13 24 24 30 08")	8.5 38'15") 6.3 7.3 5.4 6.5 7.8 7.6 7.5 10.1 11.0 8.1 7.3	76 68 51 76 91 99	4.4 7.2 9.0 4.7 2.2 2.4
Det. 10. 1968 Det. 10. 1968 Det. 4. 1969 June 11 Det. 10. 1968 Det. 10. 1968 Det. 4. 1969 Det. 4. 1969 April 9 June 11 June 11	1400 -1586.5 1300 0730 0830 0815 1130 	45 COLORADO 110 96 58 940 2,000 1,920 8-1592. 463 408 164 740	.8 O RIVER AT FARM ROAD O 1.0 10 19 6.5 .2 3.8 COLORADO RIVER AT BA	.06 4.8 4.6 6.5 1.2 .76 1.5 ASTROP, TEXAS 0.95 .65 4.0 1.4	477 IN, TEXAS (564 592 653 528 501 510 (30°06'20".	8.2 7.3 7.4 7.2 7.6 7.5 7.5 97°19°0 7.6 7.7 7.8 7.9	32 26 12 13 24 24 30 08")	8.5 38'15") 6.3 7.3 5.4 6.5 7.8 7.6 7.5 10.1 11.0 8.1	76 68 51 76 91 99	4.4 7.2 9.0 4.7 2.2 2.4
Boct. 10. 1968 Det. 10. 1968 Pob. 4. 1969 April 9 June 11 Oct. 10. 1968 Dec. 4 Feb. 4. 1969 April 9 June 11 June 11 June 11 Bec. 4 June 11 June 11 Bec. 4 June 11 June 11	1400 -1586.5 1300 0730 0830 0815 1130 	45 COLORADO 110 96 58 940 2,000 1,920 8-1592. 463 408 164 740 1,780	.8 O RIVER AT FARM ROAD C 1.0 10 19 6.5 .2 3.8 COLORADO RIVER AT B. 0.0 .1 9.2 5.3 .1	.06 4.8 4.6 6.5 1.2 .76 1.5 ASTROP, TEXAS 0.95 .65 4.0 1.4 .53 .57	477 IN, TEXAS (564 592 653 528 501 510 (30°06'20". 536 424 675 543 509 517	8.2 30°12'28 7.3 7.4 7.2 7.6 7.5 7.6 7.7 7.8 7.9 7.7 8.0	32 26 12 13 24 24 30 08") 25 10 12 24 26 30	8.5 38'15") 6.3 7.3 5.4 6.5 7.8 7.6 7.5 10.1 11.0 8.1 7.3	76 68 51 76 91 99	.9 4.4 7.2 9.0 4.7 2.2 2.4
Sec. 10. 1968 Oct. 10. 1968 Dec. 4 Feb. 4. 1969 April 9 Aug. 5 Oct. 10. 1968 Dec. 4 Feb. 4. 1969 April 9 June 11 Aug. 5 Oct. 9. 1968	1400 1586.5 1300 0730 0830 0815 1130 1200 0830 0915 0900 1230	45 . COLORADO 110 96 58 940 2,000 1,920 8-1592. 463 408 164 740 1,780 1,140 8-1610.	.8 D RIVER AT FARM ROAD C 1.0 10 19 6.5 .2 3.8 COLORADO RIVER AT BA 0.0 .1 9.2 5.3 .1 2.3 COLORADO RIVER AT COLORADO RIVERADO RIVER AT COLORADO RIVER AT COLORADO RIVER AT COLORADO RIVER A	.06 4.8 4.6 6.5 1.2 .76 1.5 ASTROP, TEXAS 0.95 .65 4.0 1.4 .53 .57 OLUMBUS, TEXAS	477 IN, TEXAS (564 592 653 528 501 510 (30°06'20". 536 424 675 543 509 517 (29°42'20"	8.2 30°12'28 7.3 7.4 7.2 7.6 7.5 7.5 7.6 7.7 7.8 7.9 7.7 8.0	32 31, 97° 26 12 13 24 30 28") 25 10 12 24 26 30	8.5 38'15") 6.3 7.3 5.4 6.5 7.6 7.5 10.1 11.0 8.1 7.3 8.0	76 68 51 76 91 99 89 89 102 94 88 105	1.4 2.1 5.4 1.7 2.1
Oct. 10. 1968 Dec. 4 Feb. 4. 1969 April 9 June 11 Aug. 5 Oct. 10, 1968 Dec. 4 Feb. 4. 1969 April 9 June 11 Aug. 5 Oct. 10, 1968 Dec. 4 Dec. 4 Oct. 10, 1968 Dec. 4	1400 1586.5 1300 0730 0830 0815 1130 1200 0830 0915 0915 0900 1230	45 COLORADO 110 96 58 940 2,000 1,920 8-1592. 463 408 164 740 1,780 1,140 8-1610. 1,010 3,460	.8 O RIVER AT FARM ROAD COLORADO RIVER AT BARM ROAD COLORADO RIVER AT BARM ROAD COLORADO RIVER AT COL	.06 4.8 4.6 6.5 1.2 .76 1.5 ASTROP, TEXAS 0.95 .65 4.0 1.4 .53 .57 OLLYBUS, TEXAS	477 IN, TEXAS (564 592 653 528 501 510 (30°06'20". 536 424 675 543 509 517 (29°42'20' 512 265	8.2 30°12'28 7.3 7.4 7.2 7.6 7.5 7.7 7.8 7.9 7.9 7.4	32 32 31, 97° 26 12 13 24 30 30 308") 25 10 12 24 30 30 30 30 30 30 40 40 40 40 40 40 40 40 40 4	8.5 38'15") 6.3 7.3 5.4 6.5 7.6 7.5 10.1 11.0 8.1 7.3 8.0	76 68 51 76 91 99 89 102 94 88 105	1.4 2.1 5.4 3.4 2.1 4.1 3.7
Oct. 10. 1968 Duc. 4 Feb. 4. 1969 April 9 June 11 Aug. 5 Oct. 10. 1968 Dec. 4 Feb. 4. 1969 April 9 June 11 Aug. 5 Oct. 10. 1968 Dec. 4 Feb. 4. 1969 April 9 June 11 Aug. 5 Oct. 9. 1968 Dec. 4 Feb. 6, 1969 Feb. 6, 1969	1400 1586.5 1300 0730 0830 0815 0815 1130 1200 0830 0915 0900 1230	45 . COLORADO 110 96 58 940 2,000 1,920 8-1592. 463 408 164 740 1,780 1,140 8-1610. 1,010 3,460 331	.8 O RIVER AT FARM ROAD C 1.0 10 19 6.5 .2 3.8 COLORADO RIVER AT B. 0.0 .1 9.2 5.3 .1 2.3 COLORADO RIVER AT C 0.0 3.2 .0	.06 4.8 4.6 6.5 1.2 .76 1.5 ASTROP, TEXAS 0.95 .65 4.0 1.4 .53 .57 OLUMBUS, TEXAS	477 IN, TEXAS (564 592 653 528 501 510 (30°06'20". \$36 424 675 543 509 517 (29°42'20" 512 265 702	8.2 30°12'28 7.3 7.4 7.2 7.6 7.5 7.7 7.8 7.9 7.7 8.0	32 26 12 13 24 24 30 08") 25 10 12 24 26 30 005")	8.5 38'15") 6.3 7.3 5.4 6.5 7.6 7.5 10.1 11.0 8.1 7.3 8.0	76 68 51 76 91 99 89 102 94 88 105	1.4 2.1 5.4 3.4 1.7 2.1
Det. 10, 1968 Det. 10, 1968 June 11 Dec. 4 Dec. 4 Dec. 4 Dec. 4 Feb. 4, 1969 April 9 June 11 Dec. 4 Dec	1400 1586.5 1300 0730 0830 0815 1130 1200 0830 0915 0915 0900 1230	45 COLORADO 110 96 58 940 2,000 1,920 8-1592. 463 408 164 740 1,780 1,140 8-1610. 1,010 3,460	.8 O RIVER AT FARM ROAD COLORADO RIVER AT BARM ROAD COLORADO RIVER AT BARM ROAD COLORADO RIVER AT COL	.06 4.8 4.6 6.5 1.2 .76 1.5 ASTROP, TEXAS 0.95 .65 4.0 1.4 .53 .57 OLLYBUS, TEXAS	477 IN, TEXAS (564 592 653 528 501 510 (30°06'20". 536 424 675 543 509 517 (29°42'20' 512 265	8.2 30°12'28 7.3 7.4 7.2 7.6 7.5 7.7 7.8 7.9 7.9 7.4	32 32 31, 97° 26 12 13 24 30 30 308") 25 10 12 24 30 30 30 30 30 30 40 40 40 40 40 40 40 40 40 4	8.5 38'15") 6.3 7.3 5.4 6.5 7.6 7.5 10.1 11.0 8.1 7.3 8.0	76 68 51 76 91 99 89 102 94 88 105	1.4 2.1 5.4 3.4 2.1 4.1 3.7
Det. 10. 1968 Det. 10. 1968 Det. 4. 1969 April 9 Aug. 5 Det. 10. 1968 Det. 4. 1069 April 9 June 11 April 9 June 11 April 9 June 17 June 18 Det. 9. 1968	1400 1586.5 1300 0730 0830 0815 0815 1130 1200 0830 0915 0915 0900 1230 11530 1145 1015	45 COLORADO 110 96 58 940 2,000 1,920 8-1592. 463 408 164 740 1,780 1,140 8-1610. 1,010 3,460 331 4,310	.8 O RIVER AT FARM ROAD O 1.0 10 19 6.5 .2 3.8 COLORADO RIVER AT BARM ROAD O 1.1 9.2 5.3 .1 2.3 COLORADO RIVER AT C	.06 4.8 4.6 6.5 1.2 .76 1.5 ASTROP, TEXAS 0.95 .65 4.0 1.4 .53 .57 OLUMBUS, TEXAS	477 IN, TEXAS (564 592 653 528 501 510 (30°06'20". 536 424 675 543 509 517 (29°42'20' 512 265 702 486	8.2 7.3 7.4 7.2 7.6 7.5 97*19*0 7.6 7.7 7.8 7.9 7.7 8.0 7.9 7.4 7.9 7.7	32 26 12 13 24 24 30 08") 25 10 12 24 26 30 005") 26 11 14 22	8.5 38'15") 6.3 7.3 5.4 6.5 7.6 7.5 10.1 11.0 8.1 7.3 8.0	76 68 51 76 91 99 89 102 94 88 105	1.4 2.1 5.4 1.7 2.1 5.4 1.7 2.1
Det. 10. 1968 Det. 10. 1968 Det. 4. 1969 April 9 Aug. 5 Det. 10. 1968 Det. 4. 1069 April 9 June 11 April 9 June 11 April 9 June 17 June 18 Det. 9. 1968	1400 1586.5 1300 0730 0830 0815 1130 1200 0830 0915 0905 1230 1100 1145 1015 1235	45 COLORADO 110 96 58 940 2,000 1,920 8-1592. 463 408 164 740 1,780 1,140 8-1610. 1,010 3,460 331 4,310 2,660	.8 O RIVER AT FARM ROAD COLORADO RIVER AT BARM ROAD COLORADO RIVER AT BARM ROAD COLORADO RIVER AT COL	.06 273 BELOW AUST 4.8 4.6 6.5 1.2 .76 1.5 ASTROP, TEXAS 0.95 .65 4.0 1.4 .53 .57 OLUMBUS, TEXAS 0.56 .71 .95 .35 .38 .79	477 IN, TEXAS (564 592 653 528 501 510 (30°06'20". 536 424 675 543 509 517 (29°42'20" 512 265 702 486 506	8.2 30°12'28 7.3 7.4 7.2 7.5 7.5 7.7 7.8 7.9 7.7 8.0 7.9 7.4 7.8 7.9 7.4 7.8 7.9 7.4 7.9 7.7 8.0	32 32 31, 97° 26 12 13 24 30 30 30 30 30 30 30 30 30 30	8.5 38'15") 6.3 7.3 5.4 6.5 7.6 7.5 10.1 11.0 8.1 7.3 8.0	76 68 51 76 91 99 89 102 94 88 105	1.4 2.1 5.4 3.4 1.7 2.1
Oct. 10. 1968 Duc. 4 Feb. 4. 1969 April 9 June 11 Aug. 5 Oct. 10. 1968 Dec. 4 Feb. 4. 1969 April 9 June 11 Aug. 5 Oct. 9. 1968 Dec. 4 Feb. 6, 1969 April 22 June 3 Aug. 21	1400 -1586.5 1300 0730 0830 0815 1130 1200 0830 0915 0900 1230 -1520 1100 1145 10235 1040	45 COLORADO 110 96 58 940 2,000 1,920 8-1592. 463 408 164 740 1,780 1,140 8-1610. 1,010 3,460 331 4,310 2,660 1,910	.8 O RIVER AT FARM ROAD COLORADO RIVER AT BARM ROAD COLORADO RIVER AT BARM ROAD COLORADO RIVER AT WOOD COLORAD	.06 4.8 4.6 6.5 1.2 .76 1.5 ASTROP, TEXAS 0.95 .65 4.0 1.4 .53 .57 DLIMBUS, TEXAS 0.56 .71 .95 .35 .38 .79 HARTON, TEXAS	477 IN, TEXAS (564 592 653 528 501 510 (30°06'20". 536 424 675 543 509 517 (29°42'20" 512 265 702 486 506 480 (29°18'30",	8.2 30°12'28 7.3 7.4 7.2 7.6 7.5 7.6 7.7 7.8 0 7.9 7.7 8.0 7.9 7.4 7.9 7.7 8.0 96°06'1	32 32 31, 97° 26 12 13 24 30 28") 25 10 12 24 30 25 10 12 24 30 25 10 12 26 30 27 28 30 30 30 30 30 30 30 30 30 30	8.5 38'15") 6.3 7.3 5.4 6.5 7.6 7.5 10.1 11.0 8.1 7.3 8.0 9.5 9.1 9.6 8.4 7.6	76 68 51 76 68 51 76 91 99 89 102 94 88 105	1.4 2.1 5.4 1.7 2.1 5.4 1.7 2.1
Oct. 10. 1968 Dec. 4 Feb. 4. 1969 April 9 June 11 Aug. 5 Oct. 10, 1968 Dec. 4 Feb. 4. 1969 April 9 June 11 Aug. 5 Oct. 9, 1968 Dec. 4 Feb. 6, 1969 April 22 June 12 June 21 Oct. 9, 1968 Dec. 4	1400 1586.5 1300 0730 0830 0815 1130 1200 0830 0915 0900 1230 1100 1145 1015 1023 1040	45 COLORADO 110 96 58 940 2,000 1,920 8-1592. 463 408 164 740 1,780 1,140 8-1610. 1,010 3,460 331 4,310 2,660 1,910 8-1620.	.8 O RIVER AT FARM ROAD COLORADO RIVER AT BARM ROAD COLORADO RIVER AT BARM ROAD COLORADO RIVER AT COL	.06 273 BELOW AUST 4.8 4.6 6.5 1.2 .76 1.5 ASTROP, TEXAS 0.95 .65 4.0 1.4 .53 .57 OLUMBUS, TEXAS 0.56 .71 .95 .35 .38 .79 HARTON, TEXAS	477 IN, TEXAS (564 592 653 528 501 510 (30°06'20". 536 424 675 543 509 517 (29°42'20' 512 265 702 486 506 480 (29°18'30",	8.2 30°12'28 7.3 7.4 7.2 7.6 7.5 7.7 7.8 7.9 7.4 7.8 7.9 7.4 7.8 7.9 7.4 7.9 7.4 7.9 7.4 7.9	32 32 31, 97° 26 12 24 30 30 30 30 30 30 30 30 30 30	8.5 38'15") 6.3 7.3 5.4 6.5 7.6 7.5 10.1 11.0 8.1 7.3 8.0	76 68 51 76 68 51 76 68 91 99 89 102 94 88 105	1.4 2.1 5.4 3.4 1.7 2.1 4.1 3.7 6.7 1.1 2.5 3.1
Dune 30	1400 1586.5 1300 0730 0830 0815 0815 1130 1200 0830 0915 0900 1230 1100 1145 1015 1235 1040	45 COLORADIO 110 96 58 940 2,000 1,920 8-1592. 463 408 164 740 1,780 1,140 8-1610. 1,010 3,460 331 4,310 2,660 1,910 8-1620.	.8 O RIVER AT FARM ROAD CO 1.0 10 19 6.5 .2 3.8 COLORADO RIVER AT B. 0.0 .1 9.2 5.3 .1 2.3 COLORADO RIVER AT CO 0.0 3.2 .0 2.0 .0 .0 COLORADO RIVER AT W	.06 273 BELOW AUST 4.8 4.6 6.5 1.2 .76 1.5 ASTROP, TEXAS 0.95 .65 4.0 1.4 .53 .57 OLUMBUS, TEXAS 0.56 .71 .95 .35 .38 .79 HARTON, TEXAS	477 IN, TEXAS (564 592 653 528 501 510 (30°06'20". 536 424 675 543 509 517 (29°42'20" 512 265 702 486 506 480 (29°18'30", 526 236 656	8.2 30°12'28 7.3 7.4 7.2 7.6 7.5 7.7 7.8 7.9 7.4 7.9 7.4 7.8 7.9 7.4 7.9 7.4 7.9 7.4 7.9 7.4 7.9 7.7 7.8 7.9 7.7 8.0	32 31, 97° 26 12 13 24 30 28") 25 10 12 24 26 30 205") 26 11 14 22 26 30 25")	8.5 38'15") 6.3 7.3 5.4 6.5 7.6 7.5 10.1 11.0 8.1 7.3 8.0 9.5 9.1 9.6 8.4 7.6	76 68 51 76 91 99 89 102 94 88 105	1.4 2.1 5.4 3.4 1.7 2.1 4.1 3.7 6.7 1.1 2.5 3.4 5.7
Det. 10. 1968 Det. 10. 1968 Dec. 4 Feb. 4. 1969 April 9 June 11 Aug. 5 Dec. 4 Feb. 4. 1969 April 9 June 11 Aug. 5 Dec. 4 Feb. 4. 1969 April 9 June 11 Aug. 5 Dec. 4	1400 1586.5 1300 0730 0830 0815 1130 1200 0830 0915 0900 1230 1100 1145 1015 1023 1040	45 COLORADO 110 96 58 940 2,000 1,920 8-1592. 463 408 164 740 1,780 1,140 8-1610. 1,010 3,460 331 4,310 2,660 1,910 8-1620.	.8 O RIVER AT FARM ROAD COLORADO RIVER AT BARM ROAD COLORADO RIVER AT BARM ROAD COLORADO RIVER AT COL	.06 273 BELOW AUST 4.8 4.6 6.5 1.2 .76 1.5 ASTROP, TEXAS 0.95 .65 4.0 1.4 .53 .57 OLUMBUS, TEXAS 0.56 .71 .95 .35 .38 .79 HARTON, TEXAS	477 IN, TEXAS (564 592 653 528 501 510 (30°06'20". 536 424 675 543 509 517 (29°42'20' 512 265 702 486 506 480 (29°18'30",	8.2 30°12'28 7.3 7.4 7.2 7.6 7.5 7.7 7.8 7.9 7.4 7.8 7.9 7.4 7.8 7.9 7.4 7.9 7.4 7.9 7.4 7.9	32 32 31, 97° 26 12 24 30 30 30 30 30 30 30 30 30 30	8.5 38'15") 6.3 7.3 5.4 6.5 7.6 7.5 10.1 11.0 8.1 7.3 8.0	76 68 51 76 68 51 76 68 91 99 89 102 94 88 105	1.4 2.1 5.4 3.4 1.7 2.1 4.1 3.7 6.7 1.1 2.5 3.1

Table 1.--Biochemical-oxygen-demand and selected nutrients records of Texas surface waters, 1969--continued

(Results in milligrams per liter except as indicated)

	Time	Discharge	Ammonia	Nitrate	Nitrite	Phosphate	Specific conductance	-4	Tem-	Disse oxy (De		Bio- chem-
Date	(24 hour)	(cfs)	(NH ₄)	(NO ₃)	(NO ₂)	(PO ₄)	(micromhos at 25°C)	pH (field)	pera- ture (°C)	mg/1	Per- cent sat- ura- tion	ical oxyge deman (BOD)
		8-1645.	NAVIDAI	RIVER	NEAR GANA	ADO, TEXAS	(29°01'32"	, 96°33'	08")			
Oct. 9, 1968	1030	113		0.0		0.46	609	7. 7	26	6.8	82	1.7
Dec. 4	1 200	970		. 1		. 38	165	7.6	12	10.6	96	2.5
Feb. 4, 1969	1145	65		. 4		. 24	614	8.0	12	10.4	97	1.6
April 9	1115	96		. 8		. 23	744	8.3	23	8.6	99	1.2
June 11	1130 1515	115 97		. 4		. 30	679 769	8.0 7.8	26 30	8.0	98	2.0
aug. 7	1717					. , , , ,	703	7.0	30	0.1	107	2.0
8-16	95.8.	GUADALUPE	RIVER AT	LAKE DUI	NLAP BELO	OW NEW BRAI	UNFELS, TEXA	S (29°4	0'00",	98°94'	14'')	
Oct. 8, 1968	0945			0.9		0.20	512	7.5	26	6.1	73	0.8
Dec. 5	1830			4.2		. 09	502	7.8	20	10.0	110	. 8
Feb. 5, 1969 April 10	1530			5.1 5.1		. 28	498 501	7.9 7.7	17 24	9.3 7.3	96	1.0
June 12	1645			1.4		. 24	477	8.0	27	11.0	86 136	1.0
Aug. 7	1705			. 9		. 22	427	8.1	32	18.8	254	4.4
		8-1705.2.	GUADALUPI	E RIVER I	BELOW VIO	CTORIA, TEX	KAS (28°45'	10", 97°	00'30")	1		
Oct. 9, 1958	0910	003		0.7		0.38	614	7.8	27	7.4	91	0.6
Dec. 4	1315	8,780		. 2		. 45	257	7.0	11	10.4	94	2.5
Feb. 4, 1969	1430	933		5.9		. 57	705	7.9	18	9.2	98	1.2
April 9	1400	1,220		3.8		. 28	701	8.0	26	9.0	108	2.2
June 11	1 300	1,730		1.5		. 4 2	560	8.0	28	7.7	99	1.0
Aug. 5	1700	681		1.9		. 0 7	545	8.1	31	8.0	107	2.0
	8-1777	OLMOS CR	EEK AT D	RESDEN DI	RIVE AT S	SAN ANTONIO	O, TEXAS (2	9 29'56"	, 98 ⁻ 30	36")		
Nov. 27, 1958	1036	4.4		1.7		0.80	260		13			9.3
Feb. 13. 1969	l 4 3()	32		3.8	0.11	. 17	261		12	9.7	90	6.6
Mar. 15	1210	68		3.5	. 13	.86	175		12	10.2	93	5.0
May 3	()915	194		5.1	. 24	3.0	151		18	7.6	80	6.6
May 16	1350	106 63		3.8	. 09	1.0	176 248		21 25			7.4 13
		8-1778. 0	LMOS RESI	ERVOIR A	T SAN AN	TONIO, TEXA	AS (29 28'3)	0", 98-2	8'23")			
tar. 15, 1969	1700			6.2	(),[9	1.4	207		12	8.6	80	6.7
		8-1780. SA	N ANTONIO	O RIVER :	AT SAN A	NTONIO, TE	XAS (29 24)	33", 98	29' 38''))		
	1315	217		1 2		0.71			15			8.7
Nov. 27, 1968.							717		17		96	9.9
	1600	245		1.3 5.2	0.08	.80	217 231		14	10.0	90	
Nov. 27, 1968 Feb. 13, 1969 Mar. 15	1 600 14 30								14 14	9.6	91	8.1
Feb. 13, 1969 Mar. 15	14 30 1610	245 347 550		5.2 4.6 4.1	0.08	.80 1.3 1.7	231 377 214		14 20			6.9
Feb. 13, 1969 Mar. 15 May 3	14 30	2 4 5 3 4 7		5.2 4.6	0.08	.80 1.3	231 377		14	9.6	91	
feb. 13, 1969 Jar. 15 Jay 3 June 24	14 30 1610	245 347 550	EK AT ST	5.2 4.6 4.1 5.1	0.08	.80 1.3 1.7 .68	231 377 214 342	(29 27'2	14 20 28	9.6 8.0 	91 87 	6.9
Feb. 13, 1969 star. 15 stay 3 June 24 8 Nov. 27, 1968	14 30 1610 1345 -1783.	245 347 550 60 ALAZAN CRE	EK AT ST	5.2 4.6 4.1 5.1	0.08 .09 .26 	.80 1.3 1.7 .68 SAN ANTOI	231 377 214 342 NIO, TEXAS	(29 27'2	14 20 28 9", 98°	9.6 8.0 32'59"	91 87	6.9
Feb. 13, 1969 star, 15 June 24 8 Nov. 27, 1968 Feb. 13, 1969	14 30 1 610 1 3 45 -178 3. 0905 1 5 2 5	245 347 550 60 ALAZAN CRE 5.0	EK AT ST	5.2 4.6 4.1 5.1 . CLOUD:	0.08 .09 .26 STREET,	.80 1.3 1.7 .68 SAX ANTON	231 377 214 342 NIO, TEXAS	(29 27'2	14 20 28 9", 98°	9.6 8.0 32'59''' 9.7	91 87)	6.9 9.9 6.5 5.0
Feb. 13, 1969 star, 15 June 24 8 Xov. 27, 1968 Feb. 13, 1969 star, 15	14 30 1610 1345 -1783. 0905 1525 1310	245 347 550 60 ALAZAN CRE 5.0 17 6.6	EK AT ST	5.2 4.6 4.1 5.1 CLOUD:	0.08 .09 .26 STREET,	.80 1.3 1.7 .68 SAX ANTON	231 377 214 342 NIO, TEXAS	(29 27'2	14 20 28 9", 98°	9.6 8.0 32'59'' 9.7 10.0	91 87) 92 95	6.9 9.9 6.5 5.0 4.3
Feb. 13, 1969 Far. 15 Inne 24 8 Koy. 27, 1968 Feb. 13, 1969 Inne 15 Inne 34	14 30 1610 1345 -1783. 0905 1525 1310 1030	245 347 550 60 ALAZAN CRE 5.0 17 6.6 9.6	EK AT ST	5.2 4.6 4.1 5.1 CLOUD:	0.08 .09 .26 STREET,	.80 1.3 1.7 .68 SAN ANTOI	231 377 214 342 NIO, TENAS 206 182 278 311	(29 27'2	14 20 28 9", 98°	9.6 8.0 32'59''' 9.7 10.0 8.3	91 87) 92 95 88	6.9 9.9 6.5 5.0 4.3 5.4
Feb. 13, 1969 far. 15 lay 3 June 24 8 Nov. 27, 1968 Feb. 13, 1969 lay 16 lay 16	14 30 1610 1345 -1783. 0905 1525 1310	245 347 550 60 ALAZAN CRE 5.0 17 6.6	EK AT ST	5.2 4.6 4.1 5.1 CLOUD:	0.08 .09 .26 STREET,	.80 1.3 1.7 .68 SAX ANTON	231 377 214 342 NIO, TEXAS	(29 27'2	14 20 28 9", 98°	9.6 8.0 32'59'' 9.7 10.0	91 87) 92 95	6.9 9.9 6.5 5.0 4.3
8	14 30 1610 1345 -1783. 0905 1525 1310 1030 1150 1245	2.45 34.7 550 60 ALAZAN CRE 5.0 1.7 6.6 9.6		5.2 4.6 4.1 5.1 CLOUD:	0.08 .09 .26 STREET, 0.04 .14 .17 .00	.80 1.3 1.7 .68 SAN ANTOL	231 377 214 342 NIO, TEXAS 206 182 278 311 176		14 20 28 9", 98° 12 13 14 19 19	9.6 8.0 32'59''' 9.7 10.0 8.3	91 87 92 95 88 	6.9 9.9 6.5 5.0 4.3 5.4 4.1
8 Xev. 27, 1968 Seb. 13, 1969 8 Xev. 27, 1968 Feb. 13, 1969 Idar, 15 Iday 3 Iday 16 8-176	14 30 1610 1345 -1783. -0905 1525 1310 1030 1150 1245	2.45 347 550 60 ALAZAN CRE 5.0 17 6.6 9.6 118 40		5.2 4.6 4.1 5.1 . CLOUD: 0.5 2.2 5.6 11 3.8 2.8	0.08 .09 .26 STREET, 0.04 .14 .17 .00 .11	.80 1.3 1.7 .68 SAN ANTOI 0.68 .29 1.1 1.6 .98 .51	231 377 214 342 NIO, TEXAS 206 182 278 311 176 240		14 20 28 9", 98° 12 13 14 19 19 19	9.6 8.0 732'59" 9.7 10.0 8.3 	91 87 92 95 88 	6.9 9.9 6.5 5.0 4.3 5.4 4.1 3.9
8 Nov. 27, 1968 8 Nov. 27, 1968 15 8 Ann. 15 16 Ann. 15 16 Ann. 15 16 Ann. 15 16 Ann. 16 16 Ann. 17 17 Ann. 18 18 Ann. 18 Ann. 18 18 Ann. 18 Ann. 18 18 Ann.	14 30 1610 1345 -1783. 0905 1525 1310 1030 1150 1245	2.45 34.7 550 60 ALAZAN CRE 5.0 1.7 6.6 9.6 118 40		5.2 4.6 4.1 5.1 CLOUD:	0.08 .09 .26 STREET, 0.04 .14 .17 .00	.80 1.3 1.7 .68 SAN ANTOL	231 377 214 342 NIO, TEXAS 206 182 278 311 176 240		14 20 28 9", 98° 12 13 14 19 19	9.6 8.0 32'59" 9.7 10.0 8.3	91 87 92 95 88 	6.9 9.9 6.5 5.0 4.3 5.4 4.1

Table 1.--Biochemical-oxygen-demand and selected nutrients records of Texas surface waters, 1969--continued

(Results in milligrams per liter except as indicated)

***Boar** Cefa** CNS4** CNS4**		Time	Discharge	Ammonia	Nitrate	Nitrite	Phosphate	Specific		Tem- pera-	Disse oxy	0)	Bio- chem-
Nov. 27, 1968 1259 2.7 0.3 0.64 83 12 Feb. 13, 1969 1300 6.5 1.9 0.94 .73 75 13 10.0 94 Nay 16 1030 10 4.2 .00 .51 73 20 8.6 93 Nay 16 1030 10 4.2 .00 .51 73 20 8.6 93 Nay 16 1030 10 4.2 .00 .51 73 20 8.6 93 Nay 16 1030 10 4.2 .00 .51 73 20 8.6 93 Nay 16 1030 10 4.2 .00 .51 73 20 8.6 93 Nay 16 1030 10 4.2 .00 .51 73 20 8.6 93 Nay 16 1030 10 4.2 .00 .51 73 20 8.6 93 Nay 18 1030 10 10 4.2 .00 .51 73 20 8.6 93 Nay 18 1030 10 10 4.2 .00 .51 73 20 8.6 93 Nay 18 1030 121 13 Feb. 13, 1968 1219 5.8 0.2 0.78 1.030 13 Feb. 13, 1968 1319 7.5 5.5 14 13 1,500 12 11.8 110 Nay 3 1220 55 7.2 21 2.2 1,210 20 8.2 89 Nay 16 1404 90 4.9 10 3.6 672 22 7.6 85 Nay 17 1990 12 4.9 20 1.2 830 23 Nay 16 1404 90 4.9 10 3.6 672 22 7.6 85 Nay 17 9333 95 2.5 0.6 64 203 20 7.0 76 Nay 17 9333 95 2.5 0.6 64 203 20 7.0 76 Nay 17 9333 95 2.5 0.6 64 203 20 7.0 76 Nay 17 9313 95 2.5 0.6 64 203 20 7.0 76 Nay 17 9313 95 2.5 0.6 64 203 20 7.0 76 Nay 17 9313 95 2.5 0.6 64 203 20 7.0 76 Nay 17 9313 95 2.5 0.6 64 203 20 7.0 76 Nay 18 19	Date	(24 hour)						(micromho	s (field)	ture	mg/1	sat- ura-	oxygen demand (BOD)
Feb. 13, 1969, 1300	8-1786	5.9. SA	ALADO CREEK	TRIBUTA	RY AT BI	TTERS RO	AD, SAN	ANTONIO, T	CEXAS (29°	31'36",	, 98°26	' 25")	
Nay 16													7.8 1.9
Nov. 27, 1968. 1219 5.8	May 16	1030	10		4.2	.00	.51	73		20	8.6	93	4.6 3.5 7.5
Feb. 13, 1969. 1335		8-1787.	. SALADO (CREEK (UP	PER STAT	ION) AT	SAN ANTONI	O, TEXAS	(29°30'57''	, 98°25	5'51")		
Nar. 15.													7.6
Nay 3													5.0
Nay 12 1900 12													2.5
Nay 16													3.7 5.2
Nav 16													4.8
Nay 17 0935 95 2.5 .06 .64 203 20 7.0 76													7.0
Same 24													2.9
Nov. 27, 1968. 1512 99 8.5 0.87 536 155 Feb. 13, 1969. 1704 45 4.6 0.06 61 532 14 8.8 85 Mar. 15. 1605 400 7.4 12 .88 412 14 8.4 81 Mar. 15. 1605 400 17.4 12 .88 412 14 8.4 81 Mar. 15. 1226 464 5.8 .20 1.2 .412 22 5.4 61 June 24. 1500 117 4.5 63 595 28 8-1805. MEDINA RIVER NEAR RIONEDINA, TENAS (29°29°53", 98°54°16") Oct. 8. 1998. 1120 18 1.0 0.06 465 7.4 24 6.9 82 0.00 1.345 21 1.3 .04 476 8.0 16 11.1 113 Feb. 5, 1969. 1410 13 1.2 .08 467 7.8 14 9.0 87 April 10. 1540 14 1.0 .03 443 7.6 22 8.8 100 May 15. 1540 14 1.0 .03 443 7.6 22 8.8 100 May 15. 1500 27 .5 .06 441 7.6 24 8.2 96 June 21. 1530 21 1.3 .00 4476 8.0 16 17.3 23 7.0 80 June 21. 1530 21 1.3 .3 .31 454 7.6 24 8.2 96 June 21. 1530 21 1.3 .3 .31 454 7.6 24 8.2 96 June 21. 1530 21 1.3 .3 .31 454 7.6 26 8.4 102 July 12. 1530 21 1.3 .3 .31 454 7.6 26 8.4 102 July 12. 1530 22 8.8 .05 468 7.0 25 7.2 86 July 23. 1440 23 7.7 .04 459 7.3 26 8.2 100 Aug. 7. 1530 22 .6 .04 467 7.5 26 7.6 92 Aug. 7. 1530 22 .8 8 .05 467 7.2 24 7.1 83 Sept. 25. 1015 19 .8 .08 464 7.3 22 6.4 73 May 17. 1420 42 1.8 .09 464 7.2 24 7.1 83 Sept. 25. 1015 19 .8 .08 464 7.3 22 6.4 73 May 17. 1420 42 1.8 .08 464 7.3 22 6.4 73 May 17. 1420 42 1.8 .09 442 24 8.1 9.9 442 22 May 17. 1420 42 1.8 .08 464 7.3 22 6.4 73 May 17. 1420 42 1.8 .09 44 99 324 22 May 17. 1420 42 1.8 .09 44 99 324 22 May 17. 1420 42 1.8 .09 44 99 324 22 May 17. 1420 42 1.8 .09 44 99 324 22 May 17. 1420 42 1.8 .09 44 99 324 22 May 17. 1420 42 1.8 .09 44 99 324 22 May 17. 1420 42 1.8 .09 44 99 324 22 May 17. 1420 42 1.8 .09 44 99 324 22 May 17. 1420 42 1.8 .09 44 99 324 22 May 17. 1420 42 1.8 .09 44 99 324 22 May 17. 1420 42 1.8 .09 44 99 324 22 May 17. 1420 42 1.8 .09 44 99 324 22 May 17. 1420 42 1.8 .09 44 99 324 22 May 17. 1420 42 1.8 .09 44 99 324 22 May 17. 1420 42 1.8 .09 44 99 324 22 May 17. 1420 42 1.8 .09 44 99 324 22 May 17. 1420 42 1.8 .09 42 99 38 7. 144 99 90 88 90 90 90 90 90 90 90 90 90 90 90 90 90													5.6
Feb. 13, 1969, 1704		8-1788.	SALADO C	CREEK (LOV	√ER STAT	ION) AT	SAN ANTONIO	O, TEXAS	(29°21'25"	, 98°24	4'45")		
Mar. 15.													5.4
Namy 3													5.6 4.8
Nay 17 1226													5.7
Sect. 8, 1968. 1120													5.9
Oct. 8, 1908. 1120 18 1.0 0.06 465 7.4 24 6.9 82 Dec. 5													6.0
Dec. 5			8-1805.	MEDINA	RIVER NE.	AR RIOME	DINA, TEXA	S (29 ⁻ 29	'53", 98°5	4'16'')			
Feb. 5, 1969 1410 13 1.2													0.4
April 10.													.3 .3
May 15.													1.5
June 3. 2015 23 1.0 .05 451 7.3 23 7.0 80 June 12. 1530 21 1.3 .31 454 7.6 26 8.4 102 July 12. 1020 24 .8 .05 468 7.0 25 7.2 86 July 23. 1440 23 .7 .04 459 7.3 26 8.2 100 Aug. 7. 1530 22 .6 .04 467 7.5 26 7.6 92 Aug. 20. 1630 22 .8 .05 467 7.2 24 7.1 83 Sept. 25. 1015 19 .8 .08 464 7.3 22 6.4 73 8-1814. HELOTES CREEK AT HELOTES, TEXAS (29°34°44", 98°41°29") May 12. 1959 .1750 3.2 0.2 0.05 0.06 444 24 May 16. 1530 98 2.0 .04 .09 324 22 May 17. 1420 42 1.824 442 24 8.3 97 8-1818. SAN ANTONIO RIVER NEAR ELMENDORF, TEXAS (29°14°15", 98°21°43") Oct. 8, 1968 .1300 191 28 9.4 823 7.5 26 3.5 43 Dec. 5. 1230 244 5.2 5.7 868 7.9 15 9.0 88 Feb. 5, 1969 .1230 108 6 2.1 931 7.7 16 6.4 64 April 10. 1410 85 23 15 958 7.6 24 4.7 56 May 15. 1430 1,010 5.8 8.2 703 7.5 25 5.6 67 June 3. 1200 161 24 3.7 842 7.2 26 5.3 65 June 3. 1200 161 24 3.7 842 7.2 26 5.3 65 June 3. 1200 161 24 3.7 842 7.2 26 5.3 65 June 3. 1200 161 24 3.7 842 7.2 26 5.3 65 June 3. 1200 161 24 3.7 842 7.2 26 5.3 65 June 12. 1320 136 7.6 8.9 928 7.7 28 5.1 65 July 12. 1230 96 27 10 946 7.5 30 5.4 71 July 23. 1310 110 25 16 899 7.5 30 5.5 72													.7
June 12.													.7
July 12. 1020 24 .8 .05 468 7.0 25 7.2 86 July 23. 1440 23 .7 .04 459 7.3 26 8.2 100 Aug. 7. .1530 .22 .6 .04 .467 7.5 .26 7.6 92 Aug. 20. .1630 .22 .8 .05 .467 7.2 .24 7.1 83 Sept. 25. .015 19 .8 .08 .464 7.3 .22 6.4 73 B-1814. HELOTES CREEK AT HELOTES, TEXAS (29°34'44", 98°41'29") May 15 1530 98 2.0 .04 .09 324 22 May 17 1420 42 1.8 .24 .442 24 8.3 .97 B-1818. SAN ANTONIO RIVER NEAR ELMENDORF, TEXAS (29°14'15", 98°21'43") .98°21'43") .90°21'43") .90°21'43") .90°21'43") .90°21'43") .90°21'43") .90°21'43")													. 5
July 23													. 7
Aug. 7 1530 22									7.3	26		100	. 3
Sept. 25		1530	22				.04	467	7.5	26	7.6	92	. 4
8-1814. HELOTES CREEN AT HELOTES, TEXAS (29°34'44", 98°41'29") May 12, 1969 1750 3.2 0.2 0.05 0.06 444 24 May 16 1530 98 2.0 0.4 0.9 324 22 May 17 1420 42 1.824 442 24 8.3 97 8-1818. SAN ANTONIO RIVER NEAR ELMENDORF, TEXAS (29°14'15", 98°21'43") Oct. 8, 1968 1300 191 28 9.4 823 7.5 26 3.5 43 Dec. 5 1230 244 5.2 5.7 868 7.9 15 9.0 88 Feb. 5, 1969 1230 108 6 2.1 931 7.7 16 6.4 64 April 10 1410 85 23 15 958 7.6 24 4.7 56 May 15 1430 1,010 5.8 8.2 703 7.5 25 5.6 67 May 15 1430 1,010 5.8 8.2 703 7.5 25 5.6 67 June 3 1200 161 24 3.7 842 7.2 26 5.3 65 June 12 1320 136 7.6 8.9 928 7.7 28 5.1 65 June 12 1320 136 7.6 8.9 928 7.7 28 5.1 65 July 12 1230 96 27 10 946 7.5 30 5.4 71 July 23 1310 110 25 16 899 7.5 30 5.5 72													. 4
May 12, 1959	Sept. 25	1015	19		.8		.08	464	7.3		6.4		. 4
Nay 16. 1530 98 2.0 .04 .09 324 22			8-1814.	HELOTE	S CREEK	AT HELOT	ES, TEXAS	(29°34'44	'', 98°41'2	9'')			
May 16	May 12, 1969	1750	3.2		0.2	0.05	0.06	444		24			1.0
Nay 17 1420 42 1.8 .24 442 24 8.3 97													. 8
Oct. 8, 1968 1300 191 28 9.4 823 7.5 26 3.5 43 Dec. 5 1230 244 5.2 5.7 868 7.9 15 9.0 88 Feb. 5, 1969 1230 108 .6 2.1 931 7.7 16 6.4 64 April 10 1410 85 23 15 958 7.6 24 4.7 56 May 15 1430 1,010 5.8 8.2 703 7.5 25 5.6 67 June 3 1200 161 24 3.7 842 7.2 26 5.3 65 June 12 1320 136 7.6 8.9 928 7.7 28 5.1 65 July 12 1230 96 27 10 946 7.5 30 5.4 71 July 23 1310 110 25 16 899 7.5 30 5.5 72										24	8.3	97	2.5
Dec. 5 1230 244 5.2 5.7 868 7.9 15 9.0 88 Feb. 5, 1969 1230 108 .6 2.1 931 7.7 16 6.4 64 April 10 1410 85 23 15 958 7.6 24 4.7 56 May 15 1430 1,010 5.8 8.2 703 7.5 25 5.6 67 June 3 1200 161 24 3.7 842 7.2 26 5.3 65 June 12 1320 136 7.6 8.9 928 7.7 28 5.1 65 July 12 1230 96 27 10 946 7.5 30 5.4 71 July 23 1310 110 25 16 899 7.5 30 5.5 72		8	3-1818. SA	ANTONIO	O RIVER	NEAR ELM	ENDORF, TE	XAS (29°1	4'15", 98°	21'43''))		
Feb. 5, 1969 1230 108 .6 2.1 931 7.7 16 6.4 64 April 10. .1410 85 23 15 958 7.6 24 4.7 56 May 15. .1430 1,010 5.8 8.2 703 7.5 25 5.6 67 June 3. .1200 161 24 3.7 842 7.2 26 5.3 65 June 12. .1320 136 7.6 8.9 928 7.7 28 5.1 65 July 12. .1230 96 27 10 946 7.5 30 5.4 71 July 23. .1310 110 25 16 899 7.5 30 5.5 72													14
April 10. 1410 85 23 15 958 7.6 24 4.7 56 May 15. 1430 1,010 5.8 8.2 703 7.5 25 5.6 67 June 3. 1200 161 24 3.7 842 7.2 26 5.3 65 June 12. 1320 136 7.6 8.9 928 7.7 28 5.1 65 July 12. 1230 96 27 10 946 7.5 30 5.4 71 July 23. 1310 110 25 16 899 7.5 30 5.5 72													8.4 13
May 15. 1430 1,010 5.8 8.2 703 7.5 25 5.6 67 June 3. 1200 161 24 3.7 842 7.2 26 5.3 65 June 12. 1320 136 7.6 8.9 928 7.7 28 5.1 65 July 12. 1230 96 27 10 946 7.5 30 5.4 71 July 23. 1310 110 25 16 899 7.5 30 5.5 72													5.3
June 3													21
June 12. 1320 136 7.6 8.9 928 7.7 28 5.1 65 July 12. 1230 96 27 10 946 7.5 30 5.4 71 July 23. 1310 110 25 16 899 7.5 30 5.5 72													12
July 12 1230 96 27 10 946 7.5 30 5.4 71 July 23 1310 110 25 16 899 7.5 30 5.5 72													3.9
July 23 1310 110 25 16 899 7.5 30 5.5 72													7.2
20 20 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7													3.8
100, 7 1510 15	Aug. 7	1310	74		30		20	926	7.6	30	5.2	68	3.5
Aug. 20 1500 70 26 16 869 7.5 30 5.0 65													5.4
Sept. 25 1200 153 18 2.1 714 7.5 26 6.0 73								714		26		73	5.1

Table 1.--Biochemical-oxygen-demand and selected nutrients records of Texas surface waters, 1969--continued

(Results in milligrams per liter except as indicated)

Date	Time	Discharge	Ammonia Nitrate	Nitrite Phosphate	Specific conductance	e pH	Tem-	Diss oxy (D	9)	Bio-
Date	hour)	(cfs)	(NH ₄) (NO ₃)	(NO ₂) (PO ₄)	(micromhos at 25°C)	(field)		mg/l	Per- cent sat- ura- tion	ical oxyge deman (BOD)
	8-	-1835. SAN	ANTONIO RIVER NI	EAR FALLS CITY, TE	XAS (28°57'	05", 98°	03'50'')		
Oct. 8, 1968	1415	215	11	4.7	873	7.5	26	5.9	71	1.4
Dec. 5	1130	331	2.6	3.0	626	7.4	12	8.9	82	5.9
Feb. 5, 1969	1130	174	20	4.5	1,010	7.8	16	7.1	70	2.4
April 10	1310	147	17	4.5	1,080	7.8	24	6.2	73	2.2
May 15	1330 1600	2,110	4.4	1.7	401	7.2	24	5.3	62	5.7
June J	1600	159	18	6.9	1,100	7.7	26	5.5	67	3.1
June 12	1220	194	. 6	3.8	1,000	7.6	27	5.5	68	1.6
July 12	1415	92	14	2.8	1,190	7.5	30	6.3	83	2.6
July 23	1 200	98	20	10	1,130	7.7	30	6.0	79	1.6
Aug. 7	1200	105	14	7.3	1,140	7.9	29	7.5	96	1.6
Aug. 20	1330	92	16	7.8	1,110	8.1	30	7.4	96	2.7
Sept. 25	1320	1,210	10	. 25	270	7.0	25	2.8	33	4.5
		8-1885.	SAN ANTONIO RIVER	R AT GOLIAD, TEXAS	(28°38'58"	, 97°23'	04")			
net. 8, 1968	1720	361	0.6	4.6	1,180	7.7	26	7.6	93	1.3
Dec. 5	0840	1,380	6.7	1.0	369	7.5	10	9.4	84	5.1
Feb. 4, 1969	1700	280	21	2.8	1,300	8.1	14	10.3	100	2.0
April 10	1010	335	14	10	1,200	7.9	24	8.0	94	2.3
May 15	1 200	3,510	2.3	. 96	228	7.7	22	6.1	69	3.8
June 3	1700	273	12	2.3	1,150	8.1	26	7.4	90	3.3
June 11	1430	439	. 2	1.6	631	7.7	27	7.1	88	1.4
July 12	1610	153	2.2	2.2	1,410	8.4	32	11.0	149	7.3
July 23	1030	176	5.0	3.4	1,340	8.1	30	7.7	100	3.9
Aug. 5	2100	156	5.3	4.4	1,350	8.1	29	8.0	103	2.9
Aug. 20	1130	120	7.2	4.4	1,390	8.0	28	6.6	85	2.4
Sop t. 25	1440	168	8.1	1.0	1,280	8.0	26	7.3	89	1.5
		8-1888.	GUADALUPE RIVER	NEAR TIVOLI, TEXAS	(28°30'20"	. 96°53'	04'')			
Det. 9, 1968	0800		3.8	1.7	780	7.7	26	6.0	73	0.9
Dec. 4	1445		5.7	1.9	582	7.9	14	9.6	91	2.3
Fub. 4, 1969	1530		8.3	2.0	872	8.1	16	8.2	84	1.2
April 9	1710		7.4	2.2	815	7.9	25	7.7	92	2.5
June 11	1615		.3	1.0	512	7.7	28	6.2	78	2.3
Aug. 5	1840		1.7	1.0	782	8.0	32	7.0	95	1.7
		8-1895.	MISSION RIVER A	T REFUGIO, TEXAS	(28°17'30",	97-16'4	4'')			
Oct. 8. 19n8	1831)	44	1.1	0.24	3,240	7.3	25	6.0	71	3.4
Dec. 4	1600	17	7.0	. 99	9,950	7.8	14	11.7	116	2.8
Feb. 4, 1969	1615	8.2	6.4	.00	18,800	7.5	14	8.0	82	2.6
\pril 10	0915	18	2.8	.16	8,610	7.8	24	6.9	83	2.3
June 11	1515	37	. 6	. 17	3,600	7.7	30	8.9	119	2.9
Aug. 5	1750	4.6	2.5	.12	14,800	7.8	30	6.9	91	1.5
		8-2100. N	ECES RIVER NEAR	THREE RIVERS, TEX	AS (28 [†] 26 [†] 1	0", 98°1	1'10")			
Det. 8, 1968	1540	519	0.9	0.42	402	7.5	27	6.6	81	4.0
Dec. 5	1000	113	1.3	. 48	1,170	7.9	11	10.9	98	2.0
Feb. 5, 1969	1030	19	. 4	.98	2,370	8.1	14	8.7	84	1.8
	1150	18	. 4	. 67	2,220	8.2	25	8.8	105	4.4
\pril 10	1150									
\pril 10 June 12	1030	48	1.8	.60 1.7	1,320	7.9 7.7	27 28	7.9	98	2.7

Table 2.--Pesticides in Texas surface waters, 1969

						I	nsecti	cides					Herb	icides	3
Date	Time (24 hour)	Discharge (cfs)	Aldrin	DDD	DDE	DDT	Dieldrin	Endrin	Heptachlor	Heptachlor epoxide	Lindane	Chlordane	2,4-D	Silvex	2,4,5-T
	7-	2275. CANA	DIAN RI	VER NE	AR AMAF	RILLO,	TEXAS	(35°	28'10"	, 101°5	52'45'')			
Oct. 3, 1968 Dec. 4 Feb. 10, 1969 May 1	1105 1555 1020 1735	5.3 12 11 8.6	0.00	0.00	0.00 .00 .00	0.00 .01 .00 .00	0.00 .01 .02 .00	0.00 .00 .00	0.00 .00 .00	0.00 .00 .00	0.04 .04 .07 .07	0.00	0.15 .00 .14 .60	0.00 .00 .00	0.05 .08 .00
		7-2995.7.	RED RI	VER NEA	R QUAN	AH, TE	XAS (34°24'	45", 9	9°44'0	0")				
Oct. 8. 1968 Nar. 17, 1969 May 26	1035 1515	100 105 16	0.00	0.01	.00	0.05	.00	0.00	0.00	0.00	0.01 .00 .00	0.00	0.00 .00 .11	0.01	0.04 .00 .00
	7	-3160. RED	RIVER	NEAR GA	INESVI	LLE, I	EXAS	(33°43	3'40",	97°09'	35")				
Oct. 1, 1968 May 5, 1969 June 13 July 10 Aug. 18 a Includes 0.20 µg	2100 1350 1330 1015 1145	871 5,550 1,480 460 260	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.01 .00 .00 .00	0.01 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.01 .00 a.21 .00	0.00 .00 .00	0.00 .13 .18 .00 .00	0.00 .00 .00 .03	0.03 .04 .12 .02
		7-3432, SUI	LPHUR R	IVER NE	AR TAL	CO, TE	XAS (33° 23'	20", 9	95°07'5	0")				
Oct. 8. 1968 April 9. 1969 June 2 July 8 Aug. 13	1310 2010 1440 1900 1600	20 118 136 11 2,2	0.00 .00 .00 .00	0.01 .00 .00 .00	0.01 .00 .00 .00	0.01 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00 .01	0,00 .00 .00	0.07 .12 .13 .00 .10	0.01 .00 .01 .00	0.00 .00 .03 .20
	7-3460.	7. LITTLE (CYPRESS	CREEK	NEAR J	EFFERS	ON, TE	XAS ((32°42'	46", 9	4 20 14	44'')			
Oct. 7, 1968 April 9, 1969 June 2 July 8 Aug. 13	1645 1215 1935 1425 0930	55 2,570 408 9.0 .13	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00	0,00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.03 .00 .00
		8-0220. SAI	BINE RI	VER NEA	AR TATU	M, TEN	CAS (3	2 22 1	11", 94	\$°27'28	3'')				
Oct. 7. 1968 April 9, 1969 June 3 July 8 Aug. 12	1550 1105 0745 1330 1800	169 11,500 9,280 111 81	0.00	0.00 .00 .00 .00	0.00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00	0.00 .00 .00	0.00 .00 .07 .00	0.00 .00 .00 .00	0.00 .03 .03 .00
		8-0305. SA	BINE RI	VER NE	AR RU'LI	IFF, TE	EXAS ((30°18	13",	93°44'3	37'')				
Oct. 16, 1968 April 14, 1969 May 1 June 5 Aug. 27	1300 1230 1820 1625 2015	4,580 35,100 30,900 18,600 1,680	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.01 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00	0.00	0.00	0.00
		8-0410. NE	CHES RI	VER AT	EVADAL	LE, TEN	CAS (3	30°21':	22", 9	4°05'36	5'')				
Oct. 16, 1968 April 14, 1969 May 2 June 5 Aug. 28	1435 1545 1200 1250 0850	4,140 21,900 20,300 21,300 2,060	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.02 .00 .00 .04	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00	0.00	0.00	0.00

Table 2.--Pesticides in Texas surface waters, 1969--continued

				,		1	nsecti	cides					Herb	icides	
Date	Time (24 hour)	Discharge (cfs)	Aldrin	рор	DDE	DDT	Dieldrin	Endrin	Heptachlor	Heptachlor epoxíde	Lindane	Chlordane	2,4-D	Silvex	2,4,5-T
		8-0625. TRI	INITY R	IVER N	EAR ROS	SSER, 1	TEXAS	(32°2	5'35",	96°27	'45'')				
Oct. 8, 1968 April 8, 1969 June 3	1850 1240 1435	450 6,460 9,110	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00 .01 .01	0.07	0,51 .21 .12	0.00	0.15
July 7 Aug. 12 a Includes 0.04 μg b Includes 0.13 μg	11 a	1,950 418 -BHC -BHC	.00	.00	.00	.01	.03	.00	.00	.00	a.05 b.16	. 22	.83	.00	. 69
	3	3-0665. TRI	NITY R	IVER AT	ROMA Y	OR, TE	XAS (30°25	30", 9	94°51'0)2")				
Oct. 16. 1968 April 14, 1969 April 24 June 5	1615 1230 1200 1030 1430	1,330 37,600 25,200 24,900 1,420	0.00 .00 .00 .00	0.00 .00 .00 .00	0.01 .00 .01 .00	0.01 .00 .00 .00	0.01 .01 .00 .00	0.00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.01 .00 .00 .00	0.00 .00 .00	0.00 .14 .20 .14	0.00 .00 .00 .00	0.03
8-	0720. 1	LAKE HOUSTON	AT MU	NICIPAL	INTAK	E NEAR	SHELD	ON, TE	EXAS ((29° 54 '	58", 9	5°08'28	3'')		
Oct. 22, 1968 Dec. 24 Mar. 13, 1969 April 25 June 9 July 14 Sept. 5	1015 1010 1645 0930 0930 1340		0.00 .00 .00 .00 .00	0.00 .00 .00 .01 .00 .00	0.00 .00 .00 .00 .00 .00	0.00 .00 .00 .03 .00 .00	0.00 .00 .00 .06 .00	0.00 .00 .00 .00 .00	0.00 .00 .00 .00 .00	0.00 .00 .00 .00 .00	0.00 .00 .00 .05 .00	0.00 .00 .00 .00	0.07 .00 .00 .09 .00	0.02 .00 .00 .00 .00	0.00 .00 .00 .09 .02 .04
		8-0740 BU	FFALO I	BAYOU A	T HOUS	TON, T	EXAS	(29°45	5'36",	95°24'	30'')				
Feb. 14, 1959 June 25		1,700	0.00	0.33	0.00	2.1	0.44	0.00	0.00	0.00	0.72	2.4	0.24	0.00	0.11
		8-0745. WH	ITEOAK	BAYOU	AT HOU	STON,	TEXAS	(29°4	6'30",	95°23	3'49'')				
Feb. 14, 1969 June 25 July 15 a Includes 0.05 ps	1045 1300 2240 2 1 × - BHO	1,750 9.5 600	0.00	0.07 .04 .51	0.00	0.09 4.03 .36	0.08 .02 .57	0.00	0.00	0.00	0.05 a.14 .33	0.00 .00 1.8	0.00	0.00	0.00
	8-0748.	KEEGANS BA	TA JOY	ROARK	ROAD .	EAR HO	USTON,	TEXAS	(29	391231	', 95°3	3'43")			
Oct ₁₀ 21, 1968 April 11, 1969 May 23	14 30 1 34 5 14 3 5	0.90 2.6 .56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00 .26 .00	0.00	0.00
8-074	9. WILI	LOW WATERHOL	E BAYOU	U AT LA	NDSDO	NE STR	ЕЕТ, Н	OUSTO	N, TEXA	AS (29	9°39'01	'', 95°2	29'11'')		
April II, 1969	1630	3. 0	0.00	0.04	0.00	0.37	0.07	0.00	0.00	0.00	0.04	0.06	0.35	0.08	0.20
		8-0750. BR	AYS BAY	TA UOY	HOUSTO	N. TEN	AS (2	!9°41'4	9", 95	5 24 1 43	3'')				
Oct. 21, 1968 Feb. 14, 1969 April 11 May 5 May 5 May 5 June 26	1510 1030 1225 1145 1240 1500 1420	31 2.670 215 502 1.800 1,400 40	0.00 .00 .00 .00 .00	0.00 .05 .32 .02 .03 .03	0.00 .00 a .04 .07 .10	0.08 .15 .29 .16 .27 .18	0.09 .09 .33 .05 .07 .05	0.00 .00 .00 .00 .00	0.00 .00 .00 .00 .00	0.00 .00 .00 .00 .00	0.04 .09 .14 .03 .09 .11 b.17	0.00 8.3 .28 .42 .36	0.00 .39 .28 .00 .42	0.00 .09 .00 .00	0.00
a Not detectable o b includes 0.10 μg			dield	rin int	erfere	nce.									
		8-0755.	SIMS BA	AYOU AT	HOUST	ON, TE	XAS (29°40'	27", 9	95°17'2	21'')				
lune 26, 1969 a Includes 0.04 με		19	0.00	0.02	0.00	0.02	0.08	0.00	0.00	0.00	a0.08	0.05	0.00	0.00	0.02

Table 2.--Pesticides in Texas surface waters, 1969--continued

								Insect	icides					Her	bicide	s
	Date	Time (24 hour)	Discharge (cfs)	Aldrin	ррр	DDE	DDT	Dieldrin	Endrin	Heptachlor	Heptachlor epoxide	Lindane	Chlordane	2,4-D	Silvex	2,4,5-T
	8-0	756.5.	BERRY BAYOU	AT FOR	REST OF	KS ST	REET, H	OUSTO	N, TEXA	AS (29	9°40′35	5", 95°	°14′37'')			
M	lay 23, 1969	1140	6.6	0.00	0.05	0.00	0.06	0.09	0.00	0.00	0.00	0.21	0.31	0.00	0.00	0.09
	8-07	57.7.	HUNTING BAYO	U AT U.	S. H	GHWAY	90A, H	OUSTO	N, TEXA	AS (29	°47'43	3", 95	°16'21")			
j	pril 25, 1969 June 26	1500 2100 2250	5.9 2.5 267	0.00	0.00 .00 .10	0.00	0.00	0.00	0.00	0.00	0.00	0.02 .00 a.08	0.00 .00 .15	0.20 .00 2.0	0.00	0.00 .00 .16
a	Includes 0.06 μg	1 of ~										_				
_		8	-0760. GREE	NS BAYO	OU NEAF	HOUST	TON, TE	EXAS (29°55'	05", 9	5°18'2	24")				
J A	Teb. 14, 1969 June 26 Jug. 18 Sample contained or Includes 0.04 µg			0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.02 .00 b.20	0.00	0.00	0.00	0.00 .00 .13
	· · · · · · · · · · · · · · · · · · ·		8-0765 ₊ HA	LLS BAY	OU AT	HOUST	ON, TEX	(AS (2	9°51'4	12", 95	s°20'05	5'')				
J	pril 25. 1969 June 26 July 15	1345 1800 2340	8.4 3.3 53	.00	0.00 .01 .03	0.00	0.00	0.00 .02 .06	0.00	0.00	0.00	0.00 .00 .10	0.00 .00 .19	0.13 .00 .00	0.04	0.06 .00 .28
		8-0873	. CLEAR FOR	BRAZO	S RIVE	RATE	LIASV	LLE, 1	EXAS	(32 57	' 30'',	98°46'	10")			
J	Dec. 11, 1968 day 6, 1969 dune 11 fuly 14	1530 1030 1800 1920	17 17,500 135 5.6	0.00	0.00	0.00 .00 .00	0.00	0.00	0.00	0.00	0.00	0.00 .01 .00 .00	0.00	1.4 .00 .00	0.00 .00 .00	0.05 .02 .05 .07
			8-0880. BR	AZOS RI	VER NE	AR SOU	TH BEN	D, TEN	AS (3	33°01'3	0", 98	3°38'50)")			
J J	Det. 3, 1968	0925 1015 0800 1700 0810	10 24,600 241 25 2.3	0.00	0.00	0.00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00	0.00	0.00 .00 .00 .00	0.00	0.00 .00 .00 .00	0.04 .00 .00 .00	0.00 .03 .03 .04
			8-0965 BI	RAZOS R	RIVER A	T WACC	, TEXA	AS (31	33'40)''. 97	07'42'	')				
D M A J	Det. 9, 1968 Asc. 20	1800 1015 0730 0950 1700 1012 1220	2,050 398 3,070 9,370 4,550 1,470 2,180	0.00 .00 .00 .00 .00	0.01 .00 .00 .00 .00	0.01 .00 .00 .00 .00	0.09 .00 .00 .00 .00	0.00 .00 .00 .00 .00	0.00 .00 .00 .00 .00	0.00 .00 .00 .00 .00	0.00 .00 .00 .00 .00	0.00 .00 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00 .09 .16	0.00 .00 .00 .00 .00	0.00 .00 .02 .02 .05
_			3-1140. BRA	ZOS RIV	ER AT	RICHMO	ND, TE	XAS (29°34'	56", 9	5°45'2	27'')				
// D J M // // // L L L L	ct. 7, 1968 cov. 26 cec. 23 an. 28, 1969 dar. 13 pril 18 fune 6 une 13 ung 22 ung 19	1330 1245 1210 1320 1115 0925 1415 1320 1115 1345	3,590 1,920 7,400 2,600 8,760 33,700 12,200 6,320 2,200 1,520	0.00 .00 .00 .00 .00 .00 .00	0.01 .00 .00 .00 .01 .01 .00 .00	0.01 .01 .01 .00 .02 .05 .00	0.01 .01 .01 .00 .04 .04 .00 .00	0.00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .18 .05 .06	0.00 .00 .00 .00 .00 .00 .00	0.02 .00 .00 .00 .02 .04 .02 .02

Table 2.--Pesticides in Texas surface waters, 1969--continued

			,				Insect	icides					Herl	oicides	3
Date	Time (24 hour)	Discharge (cfs)	Aldrin	ррр	DDE	DDT	Dieldrin	Endrin	Heptachlor	Heptachlor epoxide	Lindane	Chlordane	2,4-D	Silvex	2,4,5-T
	8 -	1166.5. BRA	ZOS RI	ER NE	AR ROSI	HARON,	TEXAS	(29°	20 ′ 58''	, 95°34	4'56'')				_
Oct. 9, 1968 April 23, 1969 June 6 July 10 Aug. 27	1300 1735 1230 1605 1225	5,600 24,400 11,500 2,950 665	0.00 .00 .00 .00	0.01 .00 .00 .00	0.01 .03 .00 .00	0.01 .01 .00 .00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00 .01 .00 .00	0.00 .00 .00	0.00 .20 .00 .00	0.00 .00 .00 .00	0.00 .02 .02 .00 .10
	8 -	1365. CONCH	O RIVE	R NEAR	PAINT	ROCK,	TEXAS	(31°	31'05"	, 99°5	5'10'')				
Oct. 8, 1968 Mar. 24, 1969	1300 1025	6.4 38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8-	1470. COLOR	ADO RIV	ER NE	AR SAN	SABA,	TEXAS	(31°	13'05",	98°3	3'50")				
Oct. 3, 1968 April 30, 1969 June 30 Aug. 29	1645 1115 1200 1000	120 277 437 514	0.00 .00 .00	0.00 .00 .00	0 00 .00 .00 .00	0.00 .00 .00	0.00	0.00 .00 .00	0.00 .00 .00	0.00	0.00	0.00	0.00 .00 .00	0.00 .00 .00	0.00 .00 .13 .06
	8	-1620. COLO	RADO RI	VER AT	WHAR1	ON, T	EXAS ((29°18	30", 9	96°06'1	5")				
Oct. 1. 1968 Dec. 19 Jan. 21, 1969 Mar. 5 April 23 June 4 June 13 July 9 Aug. 21	1400 1215 1440 1255 0745 0950 1045 0950 1745	579 680 845 1,430 3,870 2,050 1,380 1,150 900	0.00 .00 .00 .01 .00 .00 .00	0.00 .00 .03 .00 .00 .00	0.00 .00 .00 .00 .01 .00 .00	0,00 .00 .00 .01 .02 .04 .00	0.00 .00 .00 .01 .00 .00 .00	0.00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00 .00	0.00 .02 .00 .00 .01 .03 .01
		8-1640. LA	VACA RI	VER NE	AR ED	KA, TEN	Ŀ\S (2	28°57'3	35". 96	41'10)")				
Oct. 9. 1968 Fob. 4, 1969 April 9 June 11 Aug. 5	1000 1200 1220 1200 1510	43 59 124 119 35	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .01 .00	0.01 .00 1.6 .00	0.00 .00 .00 .00	0.00 .00 .00 .00	0 00 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00	0.00 .00 .00 .08	0.00 .00 .00 .00	0.00 .00 .00 .02 .00
	8	-1645. NAVI	DAD RIV	ER NEA	R CANA	NDO, TI	EXAS (29 01'	32", 9	6*33'0	08'')				
Oct. 9. 1968 Feb. 4. 1969 April 9 June II	1030 1145 1115 1130 1515	113 65 96 115 97	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .02 .00	0.02 .00 2.3 .00	0.01 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00	0.00 .00 .00 .00	0.03 .00 .00 .00	0.00 .00 .00 .00
	- 3	1765.2. GU	AD.ALUPE	RIVER	BELOW	VICTO	RIA, T	EXAS	(28 45	'10",	97°00'	30'')			
oct. 9, 1968 Feb. 4, 1969 April 9 June 11 Aug. 5	0910 1430 1400 1300 1700	903 933 1,220 1,730 681	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .02 .00	0.00 .00 2.7 .00	0.00	0.00	0.00	0.00 .00 .00 .00	0.00 .00 .00 .00	0.00 .00 .00	0.00 .00 .00 .09	0.00 .00 .00 .00	0.00 .00 .00 .02
	8-1777.	OLMOS CREEK	AT DRI	ESDEN 1	ORIVE A	AT SAN	ANTON	IO, TE	XAS (29°291	56", 98	8°30'36'	')		
Nov. 27, 1968 Feb. 13, 1969 Mar. 15 May 3 May 16 June 24	1045 1430 1210 0915 1350 1045	4.4 32 68 194 106 63	0.00 .00 .00 .00 .00	0.01 .06 .02 .02 .03	0.02 .00 .00 .00 .00	0.05 .09 .06 .08 .11	0.00 .05 .03 .03 .06	0.00 .00 .00 .00	0.00 .00 .00 .00 .00	0.00 .00 .00 .00	0.01 .01 .02 .03 .02	0.00 .13 .18 .13 .15	0.29 .00 .00 .00 .18	0.00 .00 .00 .00 .00	0.12 .02 .07 .36 .13

Table 2.--Pesticides in Texas surface waters, 1969--continued

						I	nsecti	cides					Herb	icides	
Date	Time (24 hour)	Discharge (cfs)	Aldrin	DDD	DDE	DDT	Dieldrin	Endrin	Heptachlor	Heptachlor epoxide	Lindane	Chlordane	2,4-D	Silvex	2,4,5-T
	8 - 1	778. OLMOS	RESERVO	OIR AT	SAN AN	NTONIO,	TEXAS	(29	28 ' 30 '		8'23")		# management		
Mar. 15, 1969	1455		0.00	0.06	0.00	0.09	0.05	0.00	0.00	0.00	0.02	0.16	0.00	0.00	0.13
	8-17	80. SAN ANT	ONIO RI	VER AT	SAN A	NTONIC	, TEXA	S (29	°24'33	'', 98°	29'38")			
Nov. 27, 1968	1315	217	0.00	0.02	0.04	0.22	0.03	0.00	0.00	0.00	0.01	а	0.00	0.00	0.12
Feb. 13, 1969	1600	245	.00	. 21	.00	.49	.07	.00	.03	.00	.02	0.28	.00	.00	.09
lar. 15	1430	347	.00	. 19	. 13	.41	.06	.00	.00	.00	.12	.52	. 18	.00	.09
lay 3	1620	550	.00	. 14	.00	. 33	.14	.00	.00	.00	.03	.23	.00	.00	. 3
June 24	1345 sent at	60 less than 0.	.00 10 µg/1	.05	.01	.09	.03	.00	.00	.00	.01	.06	. 28	.00	. 1
		LAZAN CREEK			STREET	r AT SA	N ANTO	NIO T	FYAS	(29°27	1 20 !!	0803215	(110)		
Sov. 27, 1968 Feb. 13. 1969	0905 1525	5.0 17	0.00	0.09	0.02	0.18	0.03	0.00	0.00	0.00	0.01		0.00	0.00	0.0
dar. 15	1310	6.6	.00	.04	.00	. 18	.03	.00	.01	.00	.01	0.09	.00	.00	. 1
lay 3	1035	9.6	.00	.06	.01	. 12	.04	.00	.00	.00	.04	. 06	.00	.00	. 1
lay 16	1150	118	.00	.04	.01	.18	.03	.00	.00	.00	. 02	. 08	.00	.00	. 5
lay 16	1245	40	.00	.02	.01	. 10	.04	.00	. 00	.00	.01	.07	.19	.00	.7
a Chlordane prese								_							
8-1786	. PANTH	ER SPRINGS C	REEK AT	FARM	ROAD 2	2696. 8	SAN ANT	ONIO,	TEXAS	(29°3	7'31",	98°31'	06")		_
lay 16. 1969	1205 1335	4,190 847	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
lay 16	1615	77	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	. 0
8-1786	.9. SAL	ADO CREEK TE	RIBUTARY	AT B	TTERS	ROAD,	SAN AN	TONIO,	TEXAS	(29°	31'36'	', 98°26	5 1 25")		
Nov. 27, 1968	1259	2.7	0.00	0.02	0.04	0.09	0.05	0.00	0,00	0.00	0.01	а	0.00	0.00	0.00
Feb. 13, 1969	1300	6.5	.00	. 04	.00	. 21	.03	.00	.00	.01	.01	0.06	. 27	.09	. 0
Mar. 15	1105	1.8	.00	.04	.11	.62	.04	.00	.00	.04	. 14	.06	.18	.04	.0
iay 16	1030	10	.00	.03	.00	. 25	.04	.00	.00	.00	. 02	. 20	.00	.00	. 0
				.00	.00	.09	. 13	.00	.00	.00	.03	.12	. 25	.11	. 6
June 24	0835	2.5	.00												
a Chlordane pre	sent at	less than O.	15 дв/1												
a Chlordane pre	sent at		15 дв/1		ON) AT	SAN AN		TEXAS	G (29°	30'57'	', 98°2	25'51")			
a Chlordane pre 8- Nov. 27, 1968	1787. S	ALADO CREEK	15 μg/1 (UPPER 0.00	STAT10	0.01	0.08	NTONIO, 0.00	0.00	0.00	0.00	0.00	а	0.00	0.00	0.0
8- Nov: 27, 1968 Feb. 13, 1969	1787. S	ALADO CREEK 5.8 2.7	15 μg/1 (UPPER 0.00 .00	0.00 .01	0.01	0.08	0.00 .00	0.00	0.00	0.00	0.00	a 0.00	. 99	0.00	0.0
a Chlordane pre 8- Nov. 27, 1968 Feb. 13, 1969 dar. 15	1787. S 1219 1325 1130	1 Less than 0. ALADO CREEK 5.8 2.7 7.5	15 дg/1 (PPPER 0.00 .00	0.00 .01	0.01	0.08	0.00 .00	0.00	0.00	0.00	0.00	a 0.00 .00	. 99	0.00	0.0
8- Xov. 27, 1968 Feb. 13, 1969 dar. 15 tay 3	1787. S	ALADO CREEK 5.8 2.7	15 μg/1 (UPPER 0.00 .00	0.00 .01 .00	0.01	0.08 .02 .00	0.00 .00 .00	0.00	0.00	0.00	0.00	a 0.00	. 99	0.00	0.0 .5 .1
a Chlordane pre 8- Nov. 27, 1068 Feb. 13, 1969 dar. 15 Aday 12 Aday 12 Rep. 12 Rep. 13, 1969 Rep. 14, 1969 Rep. 14, 1969 Rep. 15 Rep. 15 Rep. 16, 1969 Rep. 17, 1068 Rep. 17, 1068 Rep. 18, 1069 Rep. 18,	1787. S 1219 1325 1130 1220	1 Less than 0. ALADO CREEK 5.8 2.7 7.5 55	15 µg/1 (UPPER 0.00 .00 .00	0.00 .01	0.01 .00 .00	0.08	0.00 .00	0.00 .00 .00	0.00	0.00 .00 .00	0.00	a 0.00 .00	.99 .14 2.6	0.00 .00 .00	0.0 .5 .1
8- Nov. 27, 1968 Feb. 13, 1969 day 3 day 12 day 16 day 16 day 16	1787. S 1219 1325 1130 1220 1900 1440 2125	1 Less than 0. ALADO CREEK 5.8 2.7 7.5 55 12	0.00 .00 .00 .00 .00	0.00 .01 .00 .00 .00	0.01 .00 .00 .00 .00	0.08 .02 .00 .00 .00	0.00 .00 .00 .00 .00	0.00 .00 .00 .00 .00	0.00 .00 .00 .00 .00	0.00 .00 .00 .00 .00	0.00 .00 .00 .00 .00	a 0.00 .00 .00 .00	.99 .14 2.6 1.9 .84	0.00 .00 .00 .14 .14	0.0 .5 .1 .7 .7
a Chlordane pre 8- 8- 8- 8- 8- 8- 8- 8- 8- 8	1787. S 1219 1325 1130 1220 1900 1440 2125 0940	1 ALADO CREEK 5.8 2.7 7.5 55 12 90 1,240 95	15 μg/1 (EPPER 0.00 .00 .00 .00 .00 .00 .00	0.00 .01 .00 .00 .00 .00	0.01 .00 .00 .00 .00 .00	0.08 .02 .00 .00 .00	0.00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .01	a 0.00 .00 .00 .00 .00	.99 .14 2.6 1.9 .84 .20	0.00 .00 .00 .14 .14 .09	0.0
a Chlordane pre 8- 8- 8- 8- 8- 8- 8- 8- 8- 8	1787. S 1219 1325 1130 1220 1900 1440 2125 0940	1 Less than 0. ALADO CREEK 5.8 2.7 7.5 55 12 90 1,240	0.00 .00 .00 .00 .00	0.00 .01 .00 .00 .00	0.01 .00 .00 .00 .00	0.08 .02 .00 .00 .00	0.00 .00 .00 .00 .00	0.00 .00 .00 .00 .00	0.00 .00 .00 .00 .00	0.00 .00 .00 .00 .00	0.00 .00 .00 .00 .00	a 0.00 .00 .00 .00	.99 .14 2.6 1.9 .84	0.00 .00 .00 .14 .14	0.0
a Chlordane pre 8- Nov. 27, 1968 Feb. 13, 1969 dar. 15 day 3 day 12 day 16 day 16 day 17	1787. S 1219 1325 1130 1220 1900 1440 2125 0940 0910	1 Less than 0. ALADO CREEK 5.8 2.7 7.5 55 12 90 1,240 95 12	0.00 .00 .00 .00 .00 .00 .00	0.00 .01 .00 .00 .00 .00	0.01 .00 .00 .00 .00 .00	0.08 .02 .00 .00 .00	0.00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .01	a 0.00 .00 .00 .00 .00	.99 .14 2.6 1.9 .84 .20	0.00 .00 .00 .14 .14 .09	0.0 .5 .1 .7 .7 .2 .0
a Chlordane pre 8- Nov. 27, 1068 Feb. 13, 1969 dar. 15 day 12 day 16 day 16 day 17 June 24 a Chlordane pre	1787. S 1219 1325 1130 1220 1900 1440 2125 0940 0910 sent at	1 Less than 0. ALADO CREEK 5.8 2.7 7.5 55 12 90 1,240 95 12	0.00 .00 .00 .00 .00 .00 .00 .00	0.00 .01 .00 .00 .00 .00 .00	0.01 .00 .00 .00 .00 .00 .01 .00	0.08 .02 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00 .00 .01	0.00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .01 .00	a 0.00 .00 .00 .00 .00 .00	.99 .14 2.6 1.9 .84 .20	0.00 .00 .00 .14 .14 .09	0.0 .5 .1 .7 .7 .2 .0
a Chlordane pre 8- Nov. 27, 1968 Feb. 13, 1969 day 15 day 12 day 16 day 16 day 17 June 24 a Chlordane pre	1787. S 1219 1325 1130 1220 1900 1440 2125 0940 0910 sent at 1788. S	1 Less than 0. ALADO CREEK 5.8 2.7 7.5 55 12 90 1.240 95 12 1 Less than 0. ALADO CREEK	15 дg 11 дg 12 дg 15 дg 15 дg 17 дg	0.00 .01 .00 .00 .00 .00 .00 .00 .00	0.01 .00 .00 .00 .00 .00 .01 .00 .00	0.08 .02 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00 .00 .01 .01	0.00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .01 .00 .01 .00	a 0.00 .00 .00 .00 .00 .00 .00	. 99 .14 2.6 1.9 .84 .20 .00	0.00 .00 .00 .14 .09 .00 .00	0.00 .55 .11 .77 .22 .00 .00
a Chlordane pre 8- Nov. 27, 1968 Feb. 13, 1969 day 15 day 16 day 16 day 17 June 24 a Chlordane pre 8- Nov. 27, 1968 Feb. 13, 1969	1787. S 1219 1325 1130 1220 1900 1440 0910 seent at 1788. S	1 less than 0. ALADO CREEK 5.8 2.7 7.5 55 12 90 1.240 95 12 1ess than 0. BALADO CREEK	15 µg 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0.00 .01 .00 .00 .00 .00 .00 .00 .00	0.01 .00 .00 .00 .00 .00 .01 .00	0.08 .02 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00 .01 .01	0.00 .00 .00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .01 .00 .01 .00	a 0.00 .00 .00 .00 .00 .00 .00 .00	. 99 .14 2.6 1.9 .84 .20 .20 .00	0.00 .00 .00 .14 .14 .09 .00 .00	0.00 .55 .11 .77 .22 .00 .00
a Chlordane pre 8- Nov. 27, 1968 Feb. 13, 1969 day 15 day 16 day 16 day 17 June 24 a Chlordane pre 8- Nov. 27, 1968 Feb. 13, 1969 dar 15	1787. S 1219 1325 1130 1220 1900 1440 2125 0940 0910 sent at 1788. S	1 less than 0. ALADO CREEK 5.8 2.7 7.5 5.5 12 90 1,240 95 12 1ess than 0. BALADO CREEK	15 µg 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0.00 .01 .00 .00 .00 .00 .00 .00 .00 .00	0.01 .00 .00 .00 .00 .01 .00 .00 .00 .00	0.08 .02 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00 .01 .01	0.00 .00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .01 .00 .01 .00	a 0.00 .00 .00 .00 .00 .00 .00 .00	. 99 . 14 2. 6 1. 9 . 84 . 20 . 20 . 00	0.00 .00 .00 .14 .14 .09 .00 .00	0.00 .55 .11 .77 .22 .00 .00
a Chlordane pre 8- Nov. 27, 1968 Feb. 13, 1969 lay 12. lay 16. lay 16. lay 17. June 24. a Chlordane pre 8- Nov. 27, 1968 Feb. 13, 1969 lay 3.	1787. S 1219 1325 1130 1220 1900 1440 2125 0940 0910 sent at 1788. S 1516 1704 16055 1510	1 Less than 0. ALADO CREEK 5.8 2.7 7.5 55 12 90 1.240 95 12 1ess than 0. ALADO CREEK 99 45 400 485	15 дв 11 дв 11 дв 15 дв 11 дв 12 дв	0.00 .01 .00 .00 .00 .00 .00 .00 .00 .00	0.01 .00 .00 .00 .00 .00 .01 .00 .00	0.08 .02 .00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .01 .01 .00	0.00 .00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .01 .00 .01 .00	a 0.00 .00 .00 .00 .00 .00 .00 .00	. 99 .14 2.6 1.9 .84 .20 .20 .00	0.00 .00 .00 .14 .14 .09 .00 .00	0.0 .5 .11 .77 .7 .2 .0 .0 .0
a Chlordane pre 8- Nov. 27, 1968 Feb. 13, 1969 Har 15 Hay 3 Hay 16 Hay 16 Hay 16 June 24 a Chlordane pre	1787. S 1219 1325 1130 1220 1900 1440 2125 0940 0910 sent at 1788. S	1 less than 0. ALADO CREEK 5.8 2.7 7.5 5.5 12 90 1,240 95 12 1ess than 0. BALADO CREEK	15 µg 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0.00 .01 .00 .00 .00 .00 .00 .00 .00 .00	0.01 .00 .00 .00 .00 .01 .00 .00 .00 .00	0.08 .02 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00 .01 .01	0.00 .00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .01 .00 .01 .00	a 0.00 .00 .00 .00 .00 .00 .00 .00	. 99 . 14 2. 6 1. 9 . 84 . 20 . 20 . 00	0.00 .00 .00 .14 .14 .09 .00 .00	0.00 .55 .11 .77 .77 .22 .00 .00
a Chlordane pre 8- 8- 8- 8- 8- 8- 8- 8- 8- 8	1787. S 1219 1325 1130 1220 1900 1440 0910 sent at 1788. S 1516 1704 1605 1510 1215 1500	1 less than 0. ALADO CREEK 5.8 2.7 7.5 55 12 90 1.240 95 12 1ess than 0. ALADO CREEK 99 45 400 485 464 117	15 дд 15 дд 17 дд 15 дд	0.00 011 000 011 000 000 000 000	0.01 .00 .00 .00 .00 .01 .00 .00 .00	0.08 .02 .00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00 .01 .01 .00 .01 .02 .04	0.00 .00 .00 .00 .00 .00 .00 .00 .00 .0	0.00 .00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .01 .00 .01 .00	a 0.00 .00 .00 .00 .00 .00 .00 .00 .00	0.00 0.00 0.12 0.99	0.00 .00 .00 .14 .14 .09 .00 .00 .00	0.0 .55 .11 .77 .22 .00 .00
a Chlordane pre 8- Nov. 27, 1968 Feb. 13, 1969 day 1. day 16 day 16 day 17 June 24 8- Nov. 27, 1968 Feb. 13, 1969 day 17 June 24 Nov. 27, 1968 Feb. 13, 1969 day 17 June 24 Nov. 27, 1968 September 15 May 3 May 17 June 24 Nov. 27, 1968 September 15 May 17 June 24	1787. S 1219 1325 1130 1220 1900 1440 0910 sent at 1788. S 1516 1704 1605 1510 1215 1500	1 less than 0. ALADO CREEK 5.8 2.7 7.5 55 12 90 1,240 95 12 1ess than 0. ALADO CREEK 99 45 400 485 464 117 1ess than 0.	15 дд 15 дд 17 дд 15 дд	0.00 0.00 .01 .00 .00 .00 .00 .00	0.01 .00 .00 .00 .00 .00 .00 .00 .00 .00	0.08 .02 .00 .00 .00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .01 .01 .00 NTONIO, .01 .02 .04 .04	0.00 .00 .00 .00 .00 .00 .00 .00 .00 .0	0.00 .00 .00 .00 .00 .00 .00 .00 .00 .0	0.00 .00 .00 .00 .00 .00 .00 .00 .00 .0	0.00 .00 .00 .00 .01 .00 .01 .00	a 0.00 .00 .00 .00 .00 .00 .00 .00 .00	0.00 0.00 0.12 0.99	0.00 .00 .00 .14 .14 .09 .00 .00 .00	0.00 .55 .11 .77 .77 .22 .00 .00
A Chlordane pre 8- Nov. 27, 1968 Feb. 13, 1969 Har 15 Hay 3 Hay 16 Hay 16 Hay 17 June 24 A Chlordane pre 8- Nov. 27, 1968 Feb. 13, 1969 May 3 Hay 17 June 24 A Chlordane pre 8- Chlordane pre 8- Chlordane pre 8- Chlordane pre 8- Chlordane pre Chlordane pre Chlordane pre	1787. S 1219 1325 1130 1220 1900 1440 2125 0940 0910 sent at 1788. S 1516 1704 1605 1510 1215 1500 sent at	1 less than 0. ALADO CREEK 5.8 2.7 7.5 55 12 90 1.240 95 12 1css than 0. BALADO CREEK 99 45 400 485 464 117 1ess than 0. 8-1814. HEI	15 дg 1 (PPPER 0.00 .00 .00 .00 .00 .00 .00 .00 .00 .	0.00 0.00 .01 .00 .00 .00 .00 .00	0.01 .00 .00 .00 .00 .01 .00 .00 .00 .00	0.08 .02 .00 .00 .00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .01 .01 .00 NTONIO, .01 .02 .04 .04	0.00 .00 .00 .00 .00 .00 .00 .00 .00 .0	0.00 .00 .00 .00 .00 .00 .00 .00 .00 .0	0.00 .00 .00 .00 .00 .00 .00 .00 .00 .0	0.00 .00 .00 .00 .00 .01 .00 .01 .00 .02 .02 .02 .02	a 0.00 .00 .00 .00 .00 .00 .00 .00 .00	0.00 0.00 .00 .12	0.00 .00 .14 .14 .09 .00 .00 .00	0.00 .55 .11 .77 .22 .00 .00 .00
a Chlordane pre 8- Nov. 27, 1968 Feb. 13, 1969 day 15 day 16 day 17 June 24 a Chlordane pre 8- Nov. 27, 1968 Feb. 13, 1969 day 17 June 24	1787. S 1219 1325 1130 1220 1900 1440 2125 0940 0910 sent at 1788. S 1516 1704 16055 1510 1215 1500 sent at	1 less than 0. ALADO CREEK 5.8 2.7 7.5 55 12 90 1,240 95 12 1ess than 0. ALADO CREEK 99 45 400 485 464 117 1ess than 0.	15 µg 1 (EPPER 0.00 .00 .00 .00 .00 .00 .00 .00 .00	0.00 0.00 .01 .00 .00 .00 .00 .00	0.01 .00 .00 .00 .00 .00 .00 .00 .00 .00	0.08 .02 .00 .00 .00 .00 .00 .00 .00 .00 .00	0.00 .00 .00 .00 .00 .01 .01 .00 NTONIO, .01 .02 .04 .04	0.00 .00 .00 .00 .00 .00 .00 .00 .00 .0	0.00 .00 .00 .00 .00 .00 .00 .00 .00 .0	0.00 .00 .00 .00 .00 .00 .00 .00 .00 .0	0.00 .00 .00 .00 .01 .00 .01 .00	a 0.00 .00 .00 .00 .00 .00 .00 .00 .00	0.00 0.00 0.12 0.99	0.00 .00 .14 .14 .09 .00 .00 .00	0.00 .55 .11 .77 .77 .22 .00 .00

Table 2.--Pesticides in Texas surface waters, 1969--continued

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]	Insecti	icides	_				Herb	oicides	3
Date	Time (24 hour)	Discharge (cfs)	Aldrin	DDD	DDE	DDT	Dieldrin	Endrin	Heptachlor	Heptachlor epoxide	Lindane	Chlordane	2,4-D	Silvex	2,4,5-T
	8-18	18. SAN AN	CONIO R	IVER N	EAR ELI	1ENDOR	F, TEX	AS (29	9°14'1	5'', 98	°21'43'	')			
Oct. 8, 1968	1300	191	0.00	0.03	0.00	0.00	0.02	0.00	0.00	0.00	0.00		0.00	0.00	0.0
eb. 5, 1969	1230	108	.00	.01	.00	.00	.01	.00	.00	.00	.02	0.00	.00	.00	. (
April 10	1410 1320	85 136	.00	.01	.00	.05	.02	.00	.00	.00	.03	. 00	.00	.09	. (
June 1 2	1310	74	.00	.02	.00	.00	.02	.00	.00	.00	.03	.00	.00	.00	. (
144.	1310		.00	.01	.00	.00	,04	.00	.00	.00	.04		.00	.00	
	8 - 1	1885. SAN A	NTONIO	RIVER	AT GOI	IAD, I	EXAS	(28°38	'58",	97°23'	04")				
Oct. 8, 1968	1720	361	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.01		0.00	0.00	0.0
eb. 4, 1969	1700	280	.00	.01	. 00	.00	.00	.00	.00	.00	.01	0.00	.00	.00	. (
April 10	1010	335 439	.00	.01	. 00	. 10	.01	.00	.00	.00	.01	. 00	.00	.00	. (
June 11	1430 2100	156	.00	.01	.00	.01	.01	.00	.00	.00	.01	.00	.08	.00	. (
	8-21	100. NUECES	RIVER	NEAR T	HREE F	IVERS,	TEXAS	(28°	26'10'	', 98°1	1'10")				
					0.00	0.01		0.00							
Oct. 8. 1968	1540	519 19	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Feb. 5, 1969 April 10	1030 1150	18	.00	.03	.02	3.3	.00	.00	.00	.00	.00	.00	. 22	. 00	. (
June 12	1030	48	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	. 00	. (
Aug. 7	0930	. 28	.00	.00	.00	.00	. 00	.00	.00	.00	.00	.00	.00	. 00	. 0
	8	8-4465. PEC	OS RIVE	ER NE:\F	GIRVI	N, TEX	AS (3	11.06.3	5", 10)2°25'C	0''')				
Nov. 20, 1968	1420	24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
May 6. 1969	1450	28	.00	. 00	. 00	.00	.00	.00	.00	.00	. 00	.00	.00	.00	. (
July 22	1 4 3 0	9.4	.00	. 00	. 00	.00	.00	. 00	.00	.00	. 00	.00	.00	. 00	. (
	8-46	692. RIO GR	ANDE BE	LOW AN	ZALDUA	S DAM,	TEXAS	(26	08'00'	', 98°2	20'05")				
Oct. 15. 1968	0745	540	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.0
iov. 20	1010	2,240	.00	.00	.00	.00	.00	.00	.00	.00	.00	0.00	.00	.02	. (
Dec. 26	1240	1,320	. 00	.00	. 00	.00	.00	. 00	.00	.00	.00	.00	.00	.00	. (
Jan. 16, 1969	0830 1020	3,090	.00	. 00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	. (
Feb. 17	0930	381	.00	. 00	.00	.00	.00	.00	.00	.00	.00	.00	.00	. 00	. (
April 14	1135	1,400	. 00	. 00	.00	.00	. 00	.00	.00	.00	.00	.00	.00	. 00	. (
Nav 15	0805	501	.00	.00	.01	. 00	. 00	.00	.00	.00	.00	.00	.00	. 00	. (
June 19	0740	4,310	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	. (
July 16	0735	1,910	.00	.02	. 01	.01	.00	.00	.00	.00	.01	.00	. 00	. 00	. (
Aug. 27 Sept. 18	0850 0730	509 699	. 00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	. (
	07 50	0,7,	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	. 00	.00	
	8	4703. ARROY	O COLOR	RADO AT	EL FL	STE, T	TEXAS	(26 07	1124",	97.54	33'')				
May 29, 1969	0915	64	0.00	0.02	0.05	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.0
June 19	1400	88	.00	.02	.03	.00	.01	.00	.00	.00	.01	.00	.00	.00	. (
	0915	89 55	.00	.03	.06	.02	.00	.00	.00	.00	.01 b.04	.00	. 00	.00	. (
July 15	1145														

b Includes $0.02 \mu g 1$ of α -BHC.