Baker

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THE SILT LOAD OF TEXAS STREAMS--PART II

(A progress report as of October 1, 1939 to September 30, 1940)

Prepared cooperatively by
TEXAS BOARD OF WATER ENGINEERS
and
UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Division of Irrigation

Compiled by
D. W. Bloodgood, Associate Irrigation Engineer
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Austin, Texas December, 1941

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THE SILT LOAD OF TEXAS STREAMS -- NO. 2
(A progress report as of October 1, 1939 to September 30, 1940)

By Dean W. Bloodgood, Associate Irrigation Engineer, Division of Irrigation, Soil Conservation Service,[1]/ and A. A. Meador, Testing Engineer, State Board of Water Engineers.

INTRODUCTION

This report contains silt data for one water year that ended September 30, 1940, and is a continuation of those silt data that were recorded in a previous report as of September 30, 1939.

In the previous report, which has been designated as No. 1 of the proposed series of yearly progress reports, many silt data and other information pertaining to silt investigations have been recorded. Briefly, this report contained silt data from 27 stations which were located on 10 main watersheds of Texas. These data were obtained from 1899 to 1939, but the largest number of silt determinations were under cooperative investigations from 1924 to 1939. During this long period of time many of the 27 original stations were discontinued for various reasons, so, by the end of September 30, 1939, only 13 of the original stations were maintained. The technique used in making the determinations and description of silt sampling equipment is also explained in Part 1 of this series of proposed progress reports.

During the water year of 1939-40, two of the 13 stations used in 1938-39 were discontinued on account of construction of Denison Dam on the Red River and the lack of cooperative funds for continuing the Rosser station on the Trinity River. No new stations were contemplated during 1940. However, if sufficient funds had been available, new ones would have been established as there is an interest and a demand for silt information on other streams of Texas where proposed dams are planned.

The following cooperators assisted in furnishing water samples for silt determinations and other information: Water Department, City of Houston, Texas; International Boundary Commission, El Paso, Texas; Work Projects Administration (Project No. 17276) Austin, Texas; and Surface Water Division, Water Resources Branch, United States Geological Survey.

1/ Under the supervision of W. W. McLaughlin, Chief, Division of Irrigation, Soil Conservation Service, United States Department of Agriculture.

SILT RECORD
(As of Sept. 30, 1940)

Prepared by
TEXAS BOARD OF WATER ENGINEERS
and
UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Division of Irrigation

Stream: SABINE
Station: LOGANSPORT (Samples 1/6, 1/2, and 5/6, were taken from highway bridge in downtown Shreveport).

Water Year	Discharge			Average per cent of silt by weight
	Water Acre-feet	Silt Tons	Silt Acre-feet	
1932-33 1/	2,545,700	503,740	330	.015
1933-34 2/	69,200	5,780	4	.006
1934-35 3/	13,910	400	0	.002
1935-36	841,400	137,020	89	.012
1936-37	1,690,000	270,430	176	.012
1937-38	3,155,000	537,990	353	.013
1938-39	1,326,000	291,500	190	.016
1939-40	1,303,000	458,990	301	.026
TOTALS	10,944,210	2,205,850	1,443	

For period of 6.156 years.

Average discharge in acre-feet per year	1,777,810
Average acre-feet of silt per year	234
Average acre-feet of silt per year per square mile of contributing watershed	.048
Average tons of silt per year	358,330
Average per cent of silt by weight	.015
Drainage area in square miles	4,858

1/ Station was established December 1, 1932.
2/ Station was discontinued December 27, 1933.
3/ Station was re-established September 1, 1935.

Note: A water-year extends from October 1 to the following September 30, inclusive.

SILT RECORD

Sabine River at Logansport 1939-40

Month (1939)	Discharge			Silt percent by weight
	Water	Silt		
	(acre-feet)	(tons)	(acre-feet)	
October	1,200	23	0	.001
November	5,200	46	0	.001
December	103,100	17,540	12	.012
(1940)				
January	49,190	6,160	4	.009
February	240,200	43,920	29	.013
March	57,490	18,760	12	.024
April	208,600	121,940	80	.043
May	147,700	57,150	38	.028
June	251,500	153,150	100	.045
July	141,500	26,130	17	.014
August	27,830	3,010	2	.008
September	69,480	11,160	7	.012
Totals	1,302,990	458,989	301	

U. S. G. S. yearly discharge in acre-feet ---------- 1,303,000

Total silt for year in acre-feet ---------- 301

Acre-feet of silt per year per sq. mile of contributing watershed ---------- .062

Average percent of silt by weight for year ---------- .026

Drainage area in square miles (net) ---------- 4,858

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Stream: NECHES
Station: NEAR ROCKLAND (Samples were taken from bridge on Woodville-Lufkin highway - one daily in midstream.)

Water Year	Discharge			Average per cent of silt by weight
	Water Acre-feet	Silt tons	Silt Acre-feet	
1929-30 1/	10,620	290	0	.002
1930-31	1,490,000	229,220	151	.011
1931-32	2,560,000	193,940	128	.006
1932-33	1,400,000	144,700	95	.008
1933-34	1,550,000	174,070	112	.008
1934-35	2,602,000	297,100	194	.008
1935-36	1,041,000	140,280	91	.010
1936-37	928,400	110,180	71	.009
1937-38	1,400,000	225,940	147	.012
1938-39	854,400	140,590	91	.012
1939-40	1,098,000	227,590	149	.015
TOTALS	14,934,420	1,883,900	1,229	

For period of 10.148 years.

Average discharge in acre-feet per year	1,471,660
Average acre-feet of silt per year	121
Average acre-feet of silt per year per square mile of contributing watershed	.034
Average tons of silt per year	185,640
Average per cent of silt by weight	.009
Drainage area in square miles	3,539

1/ Station was established August 8, 1930.

Note: A water-year extends from October 1 to the following September 30, inclusive.

SILT RECORD

Neches River near Rockland 1939-40

Month (1939)	Discharge			Silt percent by weight
	Water (acre-feet)	Silt (tons)	(acre-feet)	
October	998	110	0	.008
November	3,340	270	0	.006
December	122,000	19,300	13	.012
(1940) January	80,780	4,970	3	.005
February	304,400	46,080	30	.011
March	45,290	7,180	5	.012
April	132,300	54,050	35	.030
May	131,300	27,680	18	.015
June	154,000	56,050	37	.027
July	94,920	9,820	6	.008
August	13,920	1,090	1	.006
September	14,340	990	1	.005
Totals	1,097,588	227,590	149	

U. S. G. S. yearly discharge in acre-feet ---------- 1,093,000

Total silt for year in acre-feet ---------- 149

Acre-feet of silt per year per sq. mile of contributing watershed ---------- .042

Average percent of silt by weight for year ---------- .015

Drainage area in square miles (net) ---------- 3,539

SILT RECORD
(As of Sept. 30, 1940)

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Stream: TRINITY
Station: ROMAYOR (Samples were taken from the railroad bridge)

Water Year	Discharge			Average per cent of silt by weight
	Water Acre-feet	Tons of silt	Silt Acre-feet	
1935-36 1/	42,130	5,220	4	.009
1936-37	3,901,000	3,481,600	2,285	.066
1937-38	6,753,000	6,741,220	4,423	.073
1938-39	2,165,000	3,199,280	2,099	.109
1939-40	3,218,000	4,999,040	3,280	.114
TOTALS	16,079,130	18,426,360	12,091	

For period of 4.142 years.

Average discharge in acre-feet per year	3,881,970
Average acre-feet of silt per year	2,919
Average acre-feet of silt per year per square mile of contributing watershed	.170
Average tons of silt per year	4,448,660
Average per cent of silt by weight	.084
Drainage area in square miles (net)	17,190

1/ Station was established August 10, 1936.

Note: A water-year extends from October 1 to the following September 30, inclusive.

SILT RECORD

Trinity River near Romayor 1939-40

Month (1939)	Discharge			Silt percent by weight
	Water	Silt		
	(acre-feet)	(tons)	(acre-feet)	
October	14,650	1,010	1	.005
November	21,100	1,440	1	.005
December	245,300	360,580	237	.108
(1940) January	51,760	21,260	14	.030
February	342,600	455,330	299	.097
March	45,770	13,030	9	.021
April	395,300	871,090	571	.162
May	568,000	1,290,290	846	.167
June	612,200	1,197,290	785	.144
July	818,400	770,610	505	.069
August	64,800	10,240	7	.012
September	38,290	6,870	5	.013
Totals	3,218,170	4,999,040	3,280	

U. S. G. S. yearly discharge in acre-feet ---------- 3,218,000

Total silt for year in acre-feet ---------- 3,280

Acre-feet of silt per year per sq. mile of contributing watershed ---------- 0.191

Average percent of silt by weight for year ---------- 0.114

Drainage area in square miles (net) ---------- 17,190

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Stream: WEST FORK OF SAN JACINTO
Station: NEAR HUMBLE (Samples were taken from highway bridge about 2 miles north of Humble)

Water Year	Discharge			Average per cent of silt by weight
	Water Acre-feet	Silt Tons	Silt Acre-feet	
1932-33 1/	253,210	144,800	93	.042
1933-34 2/	7,450	520	0	.005
1936-37 3/	12,540	1,370	1	.008
1937-38	491,900	150,650	97	.022
1938-39	319,500	120,660	77	.028
1939-40	282,700	162,070	105	.042
TOTALS	1,367,300	580,070	373	

For period of 4.337 years

Average discharge in acre-feet per year	315,260
Average acre-feet of silt per year	86
Average acre-feet of silt per year per square mile of watershed	.047
Average tons of silt per year	133,750
Average per cent of silt by weight	.031
Drainage area in square miles	1,811

1/ Station established December 1, 1932.

2/ Station discontinued December 31, 1933.

3/ Station re-established July 1, 1937.

Note: A water-year extends from October 1 to the following September 30, inclusive.

SILT RECORD

W. Fork of San Jacinto near Humble 1939-40

Month (1939)	Discharge			Silt percent by weight
	Water (acre-feet)	Silt (tons)	(acre-feet)	
October	1,930	76	0	.003
November	2,700	85	0	.002
December	12,510	2,770	2	.016
(1940) January	7,620	1,510	1	.015
February	57,790	23,180	15	.029
March	8,380	1,380	1	.012
April	15,930	4,900	3	.023
May	24,800	11,350	7	.034
June	110,700	110,260	72	.073
July	35,040	6,140	4	.013
August	2,860	200	0	.005
September	2,420	220	0	.007
Totals	282,680	162,071	105	

U. S. G. S. yearly discharge in acre-feet ---------- 282,700

Total silt for year in acre-feet ---------- 105

Acre-feet of silt per year per sq. mile of contributing watershed ---------- .058

Average percent of silt by weight for year ---------- .042

Drainage area in square miles (net) ---------- 1,811

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Stream: BRAZOS
Station: ROSENBERG--RICHMOND

Water Year	Discharge			Average per cent of silt by weight
	Water Acre-feet	Silt tons	Silt Acre-feet	
1923-24 1/	494,900	714,220	468	.106
1924-25	1,237,300	12,676,710	8,314	.753
1925-26	8,762,800	44,939,350	29,476	.377
1926-27	5,562,600	34,377,320	21,739	.454
1927-28	3,318,400	28,163,890	18,472	.623
1928-29	6,000,000	32,284,200	21,174	.395
1929-30	5,218,900	38,686,330	25,373	.545
1930-31 2-3/	5,640,000	27,766,660	18,212	.362
1931-32	8,040,000	63,649,510	41,749	.582
1932-33	2,560,000	15,175,520	9,954	.435
1933-34	3,370,000	23,318,780	15,294	.508
1934-35	7,334,000	63,472,990	41,633	.636
1935-36	6,032,000	40,330,500	26,453	.491
1936-37	5,406,000	25,531,710	16,747	.347
1937-38	7,204,000	55,656,280	36,544	.568
1938-39	1,966,000	14,742,470	9,668	.551
1939-40	3,161,000	23,679,220	15,531	.550
TOTALS	81,307,900	545,165,660	356,801	

For period of 16.306 years.

Average discharge in acre-feet per year	4,986,380
Average acre-feet of silt per year	21,882
Average acre-feet of silt per year per square mile of contributing watershed	.629
Average tons of silt per year	33,433,440
Average per cent of silt by weight	.493
Drainage area in square miles (net)	34,810

1/ Station was established at Rosenberg June 11, 1924.
2/ Station was discontinued at Rosenberg April 12, 1932.
3/ Station was established at Richmond April 13, 1932.

Note: A water-year extends from October 1 to the following September 30, inclusive.

SILT RECORD

Brazos River at Richmond 1939-40

Month (1939)	Discharge			Silt percent by weight
	Water	Silt		
	(acre-feet)	(tons)	(acre-feet)	
October	32,820	670	0	.001
November	34,770	210	0	.000
December	57,790	65,620	43	.083
(1940)				
January	43,750	18,430	12	.031
February	150,100	243,310	160	.118
March	42,590	4,380	3	.008
April	192,200	1,943,020	1,274	.743
May	306,300	1,898,850	1,245	.455
June	641,900	5,232,570	3,432	.599
July	1,307,000	11,508,410	7,548	.647
August	244,500	2,667,210	1,749	.801
September	107,400	96,540	63	.066
Totals	3,161,120	23,679,220	15,531	

U. S. G. S. yearly discharge in acre-feet ---------- 3,161,000

Total silt for year in acre-feet ---------- 15,531

Acre-feet of silt per year per sq. mile of contributing watershed ---------- 0.446

Average percent of silt by weight for year ---------- 0.550

Drainage area in square miles (net) ---------- 34,810

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Stream: COLORADO
Station: NEAR SAN SABA (Samples were taken from Red Bluff bridge about midway between San Saba and Lometa)

Water Year	Discharge			Average per cent of silt by weight
	Water Acre-feet	Silt Tons	Silt Acre-feet	
1929-30 1/	24,000	143,140	94	.439
1930-31	1,370,000	5,136,520	3,369	.275
1931-32	2,220,000	9,934,850	6,516	.328
1932-33	475,000	1,303,620	855	.201
1933-34	504,000	2,121,550	1,391	.309
1934-35	2,564,000	14,423,520	9,459	.413
1935-36	2,276,000	7,520,550	4,933	.243
1936-37	1,197,000	2,688,230	1,764	.165
1937-38	2,809,000	8,923,940	5,853	.233
1938-39	819,400	3,709,100	2,432	.335
1939-40	773,700	3,191,810	2,094	.303
TOTALS	15,032,100	59,096,830	38,760	

For period of 10.055 years.

Average discharge in acre-feet per year	1,494,990
Average acre-feet of silt per year	3,855
Average acre-feet of silt per year per square mile of contributing watershed	.205
Average tons of silt per year	5,877,360
Average per cent of silt by weight	.289
Drainage area in square miles (net)	18,800

1/ Station was established September 11, 1930

Note: A water-year extends from October 1 to the following September 30, inclusive.

SILT RECORD

Colorado River near San Saba 1939-40

Month (1939)	Discharge			Silt percent by weight
	Water	Silt		
	(acre-feet)	(tons)	(acre-feet)	
October	10,640	720	0	.005
November	11,460	280	0	.002
December	11,710	380	0	.002
(1940)				
January	11,190	98	0	.001
February	21,190	7,470	5	.026
March	9,110	1,170	1	.009
April	94,120	585,250	384	.457
May	90,560	491,790	323	.399
June	237,100	1,016,530	667	.315
July	119,400	546,830	359	.336
August	108,800	425,420	279	.287
September	48,410	115,870	76	.176
Totals	773,690	3,191,808	2,094	

U. S. G. S. yearly discharge in acre-feet ---------- 773,700

Total silt for year in acre-feet ---------- 2,094

Acre-feet of silt per year per sq. mile of contributing watershed ---------- .111

Average percent of silt by weight for year ---------- .303

Drainage area in square miles (net) ---------- 18,800

SILT RECORD
(As of Sept. 30, 1940)

Prepared by
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Stream: COLORADO
Station: AUSTIN (Samples were taken from Congress Avenue or Montopolis bridges).

Water year	Discharge			Average per cent of silt by weight
	Water Acre-feet	Silt tons	Silt Acre-feet	
1936-37[1]/	48,040	1,830	1	.003
1937-38*	3,610,000	8,881,220	5,826	.181
1938-39	986,600	735,150	481	.055
1939-40	1,334,000	906,750	596	.050
Totals	5,978,640	10,524,950	6,904	

For period of 3.164 years

Average discharge in acre-feet per year	1,889,580
Average acre-feet of silt per year	2,182
Average acre-feet of silt per year per square mile of contributing watershed	.083
Average tons of silt per year	3,326,470
Average per cent of silt by weight	.129
Drainage area in square miles (net)	26,350

1/ Station was established August 2, 1937

Note: A water-year extends from October 1 to the following September 30, inclusive.

(*) Rehabilitation of the old Austin Dam (now termed Tom Miller Dam) was started August 1, 1938. This construction at times doubtless distorted the silt load of samples which were taken from 1½ to 4 miles downstream therefrom.

SILT RECORD

Colorado River at Austin 1939-40

Month (1939)	Discharge			Silt percent by weight
	Water	Silt		
	(acre-feet)	(tons)	(acre-feet)	
October	123,300	377,820	248	.225
November	67,490	78,270	51	.085
December	64,340	52,940	35	.060
(1940)				
January	54,440	21,340	14	.029
February	75,950	11,520	8	.011
March	86,590	13,700	9	.012
April	109,000	44,290	29	.030
May	91,510	22,480	15	.018
June	202,900	115,300	76	.042
July	288,400	160,680	105	.041
August	81,770	3,920	3	.004
September	88,430	4,490	3	.004
Totals	1,334,120	906,750	596	

U. S. G. S. yearly discharge in acre-feet ---------- 1,334,000

Total silt for year in acre-feet ---------- 596

Acre-feet of silt per year per sq. mile of contributing watershed ---------- .023

Average percent of silt by weight for year ---------- .050

Drainage area in square miles (net) ---------- 26,350

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Stream: COLORADO
Station: COLUMBUS - Eagle Lake

Water Year	Discharge			Average per cent of silt by weight
	Water Acre-feet	Silt tons	Silt Acre-feet	
1929-30 1/	69,500	20,020	13	.021
1930-31	3,360,000	13,104,840	8,597	.287
1931-32	3,690,000	15,526,560	10,183	.309
1932-33 2/	1,179,800	2,772,790	1,819	.173
1937-38 3/	4,067,000	11,791,610	7,735	.213
1938-39	1,135,100	230,470	151	.015
1939-40	2,038,000	4,387,420	2,878	.158
TOTALS	15,539,400	47,833,710	31,376	

For period of 5.912 years.

Average discharge in acre-feet per year - - - - -	2,628,450
Average acre-feet of silt per year - - - - - -	5,307
Average acre-feet of silt per year per square mile of contributing watershed- - - - - - -	.182
Average tons of silt per year - - - - - - - - - -	8,090,950
Average per cent of silt by weight - - - - - - -	.226
Drainage area in square miles (net) - - - - - - -	29,140

1/ Station was established at Columbus August 3, 1930.

2/ Station was discontinued at Columbus August 31, 1933.

3/ Station was established at Eagle Lake, December 1, 1937.

Note: A water-year extends from October 1 to the following September 30, inclusive.

SILT RECORD

Colorado River near Eagle Lake 1939-40

Month (1939)	Discharge			Silt percent by weight
	Water	Silt		
	(acre-feet)	(tons)	(acre-feet)	
October	116,100	52,330	34	.033
November	80,600	17,600	12	.016
December	70,200	9,920	7	.010
(1940)				
January	64,960	9,670	6	.011
February	97,590	21,260	14	.016
March	78,100	10,680	7	.010
April	126,800	78,510	51	.045
May	135,000	91,240	60	.050
June	319,300	435,370	286	.100
July	764,300	3,650,810	2,395	.351
August	91,850	5,150	3	.004
September	93,680	4,880	3	.004
Totals	2,038,480	4,387,420	2,878	

U. S. G. S. yearly discharge in acre-feet ---------- 2,038,000

Total silt for year in acre-feet ---------- 2,878

Acre-feet of silt per year per sq. mile of contributing watershed ---------- .099

Average percent of silt by weight for year ---------- .158

Drainage area in square miles (net) ---------- 29,140

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(As of Sept. 30, 1940)

Prepared by
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Stream: NUECES
Station: NEAR THREE RIVERS (Samples were taken 2 miles south of Three Rivers from railroad bridge, except at extreme low stage when samples were taken at low dam).

Water Year	Discharge			Average per cent of silt by weight
	Water Acre-feet	Silt tons	Silt Acre-feet	
1/ 1927-28	318,927	617,917	405	.142
1928-29	741,299	1,303,605	855	.129
1929-30	596,507	721,443	473	.089
1930-31	456,000	443,420	291	.071
1931-32	1,010,000	581,880	381	.042
1932-33	287,000	275,050	179	.070
1933-34	254,000	668,320	438	.193
1934-35	2,547,000	2,383,630	1,565	.069
1935-36	768,200	752,320	494	.072
1936-37	318,000	142,270	94	.033
1937-38	479,700	771,540	506	.118
1938-39	306,600	450,960	297	.108
1939-40	840,200	1,035,600	679	.091
TOTALS	8,923,433	10,147,955	6,657	

For period of 13.000 years.

Average discharge in acre-feet per year	686,420
Average acre-feet of silt per year	512
Average acre-feet of silt per year per square mile of contributing watershed	.033
Average tons of silt per year	780,610
Average per cent of silt by weight	.084
Drainage area in square miles	15,600

1/ Station was established October 1, 1927.

Note: A water-year extends from October 1 to the following September 30, inclusive.

SILT RECORD

Nueces River near Three Rivers 1939-40

Month (1939)	Discharge			Silt percent by weight
	Water	Silt		
	(acre-feet)	(tons)	(acre-feet)	
October	35,450	47,460	31	.098
November	1,560	21	0	.001
December	1,150	6	0	.000
(1940)				
January	1,360	5	0	.000
February	3,720	4,480	3	.089
March	18,450	29,640	19	.118
April	120,500	165,900	109	.101
May	76,620	170,020	111	.163
June	227,800	328,600	216	.106
July	274,000	123,400	81	.033
August	60,860	145,900	96	.176
September	18,720	20,170	13	.079
Totals	840,190	1,035,602	679	

U. S. G. S. yearly discharge in acre-feet ---------- 840,200

Total silt for year in acre-feet ---------- 679

Acre-feet of silt per year per sq. mile of contributing watershed ---------- .044

Average percent of silt by weight for year ---------- .091

Drainage area in square miles (net) ---------- 15,600

SILT RECORD
(As of Sept. 30, 1940)

Prepared by
TEXAS BOARD OF WATER ENGINEERS
and
UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Division of Irrigation

Stream: RIO GRANDE
Station: EAGLE PASS (Samples were taken from railroad bridge at 1/6, 1/2, and 5/6 starting from the American side).

Water Year	Discharge			Average per cent of silt by weight
	Water Acre-feet	Silt tons	Silt Acre-feet	
1933-34 1/	956,000	2,666,280	1,749	.205
1934-35 2/	2,722,260	9,872,380	6,474	.266
1935-36	3,068,000	12,763,170	8,373	.306
1936-37	2,177,600	12,789,460	8,389	.431
1937-38	4,237,100	26,546,130	17,410	.460
1938-39	2,189,100	4,037,870	2,649	.136
1939-40	1,965,000	5,747,650	3,770	.215
Totals	17,315,060	74,422,940	48,814	

For period of 6.405 years

Average discharge in acre-feet per year	2,703,370
Average acre-feet of silt per year	7,621
Average acre-feet of silt per year per square mile of contributing watershed	.061
Average tons of silt per year	11,619,510
Average per cent of silt by weight	.316
Drainage area in square miles (net)	125,260

1/ Station was established April 2, 1934
2/ May 15 to June 17 both inclusive excluded because of insufficient sampling.

Note: A water-year extends from October 1 to the following September 30, inclusive.
Note: The weight of a cubic foot of dried silt is recorded in the report of the International Boundary Commission as being sixty six and seven tenths (66.7) pounds, whereas in this report the weight is assumed to be seventy (70) pounds.

SILT RECORD

Rio Grande at Eagle Pass 1939-40

Month (1939)	Water	Silt		Silt percent by weight
	(acre-feet)	(tons)	(acre-feet)	
October	165,000	284,340	187	.127
November	160,000	292,940	192	.134
December	136,000	14,740	10	.008
(1940)				
January	131,490	3,620	2	.002
February	121,870	46,100	30	.028
March	106,060	24,350	16	.017
April	133,350	51,320	34	.028
May	201,430	1,104,390	724	.403
June	184,680	589,830	387	.235
July	170,500	678,110	445	.292
August	272,290	1,855,270	1,217	.501
September	182,500	802,640	526	.323
Totals	1,965,170	5,747,650	3,770	

I. B. C. yearly discharge in acre-feet ---------- 1,965,000

Total silt for year in acre-feet ---------- 3,770

Acre-feet of silt per year per sq. mile of contributing watershed ---------- .030

Average percent of silt by weight for year ---------- .215

Drainage area in square miles (net) ---------- 125,260

SILT RECORD
(As of Sept. 30, 1940)

Prepared by
TEXAS BOARD OF WATER ENGINEERS
and
UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
Division of Irrigation

Stream: RIO GRANDE
Station: ROMA (Samples taken from bridge).

Water Year 1/	Discharge			Average per cent of silt by weight
	Water Acre-feet	Silt tons	Silt Acre-feet	
1928-29	1,581,200	7,702,590	5,052	.358
1929-30	2,716,000	13,606,340	8,924	.368
1930-31	3,833,390	12,546,450	8,230	.240
1931-32	5,068,870	29,277,200	19,204	.424
1932-33	7,181,930	25,814,910	16,930	.264
1933-34	2,958,430	5,007,560	3,285	.124
1934-35	5,224,000	28,338,410	18,588	.399
1935-36	3,964,000	18,267,040	11,982	.339
1936-37	2,528,000	10,169,180	6,671	.296
1937-38	4,612,600	30,704,920	20,141	.489
1938-39	2,830,500	8,725,140	5,721	.226
1939-40	2,990,200	14,098,900	9,248	.346
Totals	45,489,120	204,258,640	133,976	

For period of 11.518 years.

Average discharge in acre-feet per year	3,949,390
Average acre-feet of silt per year	11,632
Average acre-feet of silt per year per square mile of contributing watershed.	.074
Average tons of silt per year	17,733,860
Average per cent of silt by weight	.330
Drainage area in square miles (net)	157,204

1/ Station was established March 26, 1929

Note: A water-year extends from October 1 to the following September 30, inclusive.

Note: The weight of a cubic foot of dried silt is recorded in the report of the International Boundary Commission as being sixty six and seven tenths (66.7) pounds, whereas in this report the weight is assumed to be seventy (70) pounds.

RIO GRANDE AT ROMA 1939-40

Month (1939)	Discharge			Silt percent by weight
	Water (acre-feet)	Silt (tons)	(acre-feet)	
October	289,000	1,309,830	859	.333
November	153,000	64,480	42	.031
December	139,000	19,890	13	.011
(1940)				
January	133,800	4,720	3	.003
February	125,100	21,490	14	.013
March	325,600	2,662,720	1,747	.601
April	145,900	335,010	220	.169
May	317,900	1,669,000	1,095	.386
June	426,400	2,406,150	1,578	.415
July	260,000	951,120	624	.269
August	347,600	2,655,200	1,742	.561
September	326,900	1,999,290	1,311	.449
Totals	2,990,200	14,098,900	9,248	

I. B. C. yearly discharge in acre-feet ---------- 2,990,200

Total silt for year in acre-feet ---------- 9,248

Acre-feet of silt per year per sq. mile of contributing watershed---------- .059

Average percent of silt by weight for year ---------- .346

Drainage area in square miles (net) ---------- 157,204