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> STATE OF TEXAS BOARD OF WATER ENGINEERS and UNITED STATES DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE DIVISION OF IRRIGATION AND WATER CONSERVATION



PROGRESS REPORT NO. 13 of SILT LOAD OF TEXAS STREAMS (1950-1951)

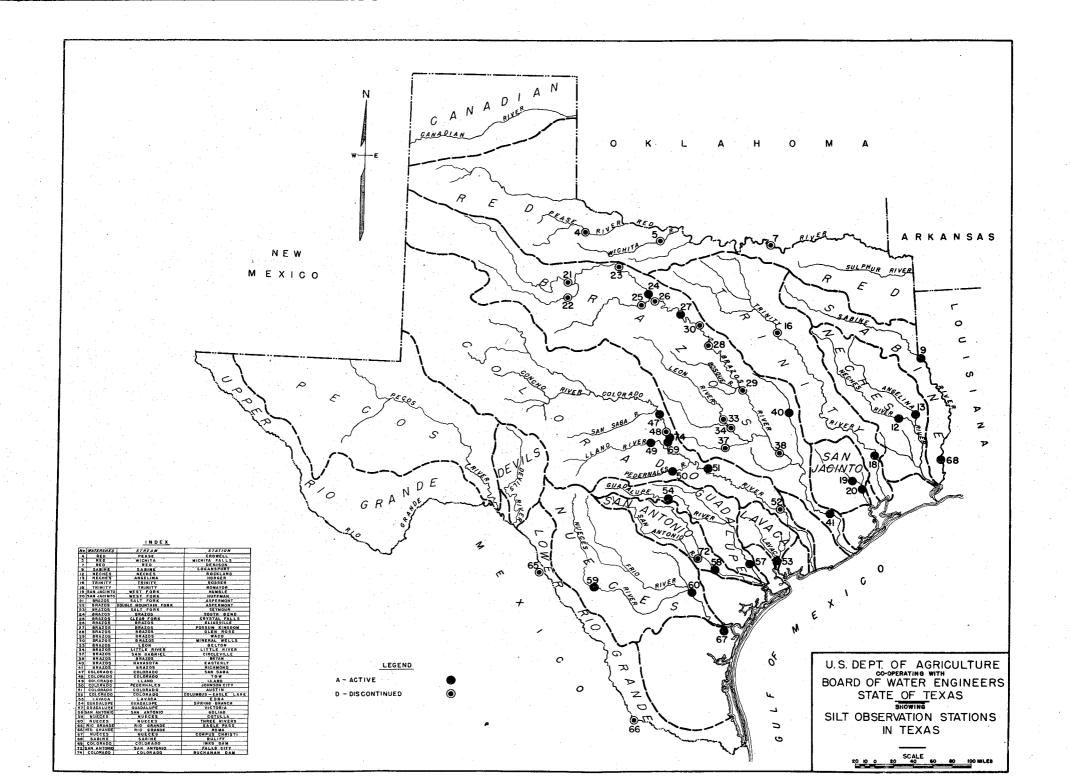
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August, 1952



. • STATE OF TEXAS BOARD OF WATER ENGINEERS and UNITED STATES DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE DIVISION OF IRRIGATION AND WATER CONSERVATION

PROGRESS REPORT NO. 13

of

SILT LOAD OF TEXAS STREAMS

(1950 - 1951)

(The silt data contained in this report were obtained under a cooperative agreement between the Board of Water Engineers and U. S. Department of Agriculture, Soil Conservation Service, Division of Irrigation and Water Conservation.)

Austin, Texas August, 1952

ORGANIZATION

STATE OF TEXAS

BOARD OF WATER ENGINEERS H. A. Beckwith, Chairman A. P. Rollins, Member James S. Guleke, Member

UNITED STATES DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE DIVISION OF IRRIGATION ENGINEERING AND WATER CONSERVATION

11

Cooperating in Studies on Silt of Texas Streams

R. M. Salter, Chief of Service M. L. Nichols, Chief of Research Geo. D. Clyde, Chief, Division of Irrigation Engineering

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Progress Report No. 13

of

THE SILT LOAD OF TEXAS STREAMS, 1950-1951

by

Dean W. Bloodgood, Irrigation Engineer Division of Irrigation Engineering and Water Conservation Soil Conservation Service U. S. Department of Agriculture

and

James E. Mortensen, Testing Engineer Texas Board of Water Engineers

INTRODUCTION

During the water year of October 1, 1950 to September 30, 1951, the silt load of Texas streams was the lowest of most previous years' records. The average annual silt load for 19 active stations located on 10 of the principal watersheds of Texas over record periods ranging from 9 to 27 years is 36,309 acre feet. This amount is exclusive of any silt by-passing Possum Kingdom, Buchanan, Inks, and Corpus Christi Dams. For the water year ending September 30, 1951, the silt load for the same number of stations was 5,648 acre feet, about 16 percent of normal. The normal annual discharge of most of the silt-carrying streams is 27,703,689 acre feet, while for the water year ending September 30, 1951, the total flow was 7,833,840 acre feet, which is about 28 percent of the normal flow. These subnormal conditions are due mostly to the continued drouth and lack of hard or torrential rains on the upper portions of the watersheds.

The silt load by-passing the four dams for the 1951 water year was 135 acre feet, which is 49 percent of the normal load of 277 acre feet. The amount of water released from the dams for the water year was 2,452,720 acre feet, 11 percent above the normal release of 2,318,142 acre feet. The large release of the stored water for this water year is due mostly to the increased rice acreage being irrigated in the lower portions of the Brazos and Colorado watersheds.

During the water year, the cooperative silt laboratory received 9,367 water samples from 23 stations for silt determinations. The number of water samples also included those received from the stations located at the four dams.

The thirteenth progress silt report is one of a series of such reports that has been published annually since 1939 through a cooperative agreement between the Texas Board of Water Engineers and the Division of Irrigation Engineering and Water Conservation, Soil Conservation Service, United States Department of Agriculture.

Some of the silt determinations are made possible through the cooperation of several agencies in Texas which are interested in the silt pollution of streams and reservoirs. These cooperating agencies are the Lower Colorado River Authority, Brazos River Conservation and Reclamation District, and the water departments of the Cities of Houston and Corpus Christi. The Surface Water Division, United States Geological Survey, has also offered helpful and congenial cooperation in furnishing river discharge data and other information.

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Brazos River Watershed at

2

EASTERLY STATION ON NAVASOTA RIVER

seed at and addrogs pulles ago **for** age

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Water Year 1950-1951

(October 1, 1950 to September 30, 1951)

Month	Discharge of Stream	THE REPORT OF	d of Stream	Percentage of Dry Silt by Weight
1950	acft.	tons	ac.≓ft,	per.
October	150	10	Q	.005
November	460	70	0	.011
December	280	30	0	.008
1951				
January	380	30	Ø	.006
February	740	70	0	.007
March	1,630	870		.039
April	1,240	330	0	.020
May	4,710	2,200		.034
June	3,180	950	1	.022
July	60	20	o	.024
August	0	0	0	.000
September	4,080	3,190	2	.057
Totals	16,910	7,770	5	

U.S.G.S. yearly discharge in acre-feet	5,910
Total silt for year in acre-feet	5
Acre-feet of silt per year per square mile of contributing watershed -	.005
Average percent of silt by weight for year -	.034
Drainage area in square miles (net)	949

for

Brazos River Watershed

Station: E	AVASOTA- ASTERLY oree King		Samples were ta n U. S. Highway	ken from bridge No. 79)
Water Year	Discharge of Stream	Silt Load	of Stream	Average Percentage of Dry Silt by Weight
$\frac{1}{1941-42}$ $\frac{1942-43}{1943-44}$ $\frac{1944-45}{1945-46}$ $\frac{1945-46}{1946-47}$ $\frac{1947-48}{1948-49}$ $\frac{1948-49}{1949-50}$ $\frac{1950-51}{1950-51}$	acft. 199,750 84,820 592,670 556,120 617,980 441,190 99,160 105,970 256,050 16,910	tons 142,600 59,600 889,340 607,980 513,050 193,110 79,980 89,010 137,000 7,770	acft. 94 39 584 400 337 127 53 58 88 58	pct. .052 .052 .110 .080 .061 .032 .059 .062 .039 .034
TOTALS	2,970,620	2,719,440	1,785	

For period of 9.748 years

Average discharge in acre-feet per year	304,741
Average acre-feet of silt per year	183
Average acre-feet of silt per year per square mile	
of contributing watershed	192
Average tons of silt per year	
Average percent of silt by weight	
Drainage area in square miles (net)	949

1/ Station was established January 1, 1942.

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Brazos River Watershed at SOUTH BEND STATION ON BRAZOS RIVER

for

Water Year 1950-1951 (October 1, 1950 to September 30, 1951)

Month	Discharge of Stream	Silt Load	of Stream	Percentage of Dry Silt by Weight
1050	acft.	tons	acft.	pct.
<u>1950</u>	national and a second		-0	1.00
October	13,360	72,830	52	.400
November	2,240	810	1	.027
December	2,520	370	0	.011
<u>1951</u>				
January	2,270	140	0	.005
February	2,940	1,970	1	.049
March	1,920	110	0	.004
April	1,480	100	Ø	.005
May	81,960	835,890	548	•749
June	126,900	1,139,350	747	,660
July	19,200	73,150	48	.280
August	16,620	422,500	277	.187
September	11,930	122,220	80	•753
Totals	-283,3 ¹ 40	2,669,440	1,754	
U.S.G.S. ye	arly discharge	e in acre-feet	😁 🗰 🎍 🖘 🖬	- 283,340
Total silt	for year in ac	re-feet	e - a - a	□ 1,754
	f silt per yea f contributing	ar per square mile g watershed		142
Average per	cent of silt b	by weight for year		.692
Drainage ar	ea in square n	niles (net)		- 12,360

- 5

for

Brazos River Watershed

Stream: BRAZOS Station: SOUTH BEND Sampler: O. W. Hill

(Samples taken from bridge on State Highway No. 67)

Water Year	Discharge of Stream	Silt Load	l of Stream	Average Percentage of Dry Silt by Weight
	acft.	tons	ac.⇒ft.	pct.
$ \begin{array}{r} 1941-42 \\ 1942-43 \\ 1943-44 \\ 1944-45 \\ 1945-46 \\ 1946-47 \\ 1947-48 \\ 1948-49 \\ 1948-49 \\ 1949-50 \\ 1950-51 \\ \end{array} $	672,230 491,060 171,360 394,460 363,890 747,030 391,140 514,710 688,230 283,340	4,581,930 3,846,100 1,071,620 2,258,250 3,116,920 4,414,900 2,718,220 6,193,420 7,234,440 2,669,440	3,005 2,523 703 1,482 2,044 2,897 1,783 4,062 4,746 1,754	.501 .575 .459 .421 .629 .434 .510 .884 .772 .692
TOTALS	4,717,450	38,105,240	24,999	

For period of 9.710 years

Average	discharge	in acı	re-fee	t per	year	* = '	-	-	#**		æ		i an	485,831	ł
	acre-feet									. •			-	2,575	5
Average	acre-feet	of sil	t per	year	per	squ	are	mil	e						
	of contrib	outing	water	shed	an co		c 2.		-					.208	
	tons of si							ça .	, da	8	÷.	÷	-3	,924,330)
	percent of						÷					, en la companya de l		•593	3
Drainage	e area in s	square	miles	(net) -		₩.	e	-			-	æ	12,360)

 $\frac{1}{3}$ Station was established January 15, 1942.

Brazos River Watershed at POSSUM KINGDOM DAM STATION ON BRAZOS RIVER

for

WatereYear 1950-1951 (October 1, 1950 to September 30, 1951)

Month	Discharge of Stream	Silt Lo	ad of Stream	Percentage of Dry Silt by Weight
<u>1950</u>	acft.	tons	acft.	pct.
1983 B 28	88,070	8,320	5	.007
November	31,120	1,840	\mathbf{l}	.004
December	43,870	1,920		.003
<u>1951</u>				
January	81,840	3,260	2	.003
February	42,880	2,960	2	.005
March	9,280	310	Ô	.002
April	42,530	1,510		.003
May	30,620	870		.002
June	78,150	2,580	2	.002
July	154,950	4,830	3	.002
August	127,360	9,280	6	.005
September	63,650	4,450	3	•005
Totals	794,320	42,130	27	in the second
Yearly discha	urge in acre-fee	t = = = =		- 794,320
Total silt fo	or year in acre-	feet		- 27

Drainage area in square miles (net) -

<u>1</u>/

<u>l</u>/ Discharge figures for this station obtained from Brazos River Conservation and Reclamation District

for

Brazos River Watershed

Stream: BRAZOS Station: POSSUM KINGDOM DAM Sampler: J. P. Cochran

(Samples taken in tailrace and over spillway)

Water Year	Discharge of Stream	Silt Load of	Stream	Average Percentage of Dry Silt by Weight
	acft.	tons	acft.	pct.
1/ 1941-42 1942-43 1943-44 1944-45 1945-46 1945-46 1946-47 1947-48 1947-48 1948-49 1948-50 1950-51	588,030 851,290 92,040 307,410 293,110 946,860 323,380 531,620 632,520 794,320	55,070 625,770 15,590 51,350 41,250 75,280 31,060 61,470 60,030	36 410 10 32 27 49 22 40 39 27	.007 .054 .012 .010 .006 .007 .008 .007 .004
TOTALS	5,360,580	1,059,000	692	

For period of 9.710 years

Average discharge in acre-feet per year		552,068
Average acre-feet of silt per year		71
Average acre-feet of silt per year per square mile		
of contributing watershed	é e	a – e
Average tons of silt per year		109,063
Average percent of silt by weight		.015
Drainage area in square miles (net)	, and a the second s	

 $\frac{1}{1}$ Station was established January 15, 1942.

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Brazos River Watershed at RICHMOND STATION ON BRAZOS RIVER

for

Water Year 1950-1951 (October-1, 1950 to September 30, 1951)

Month	Discharge of Stream	Silt Load	of Stream	Percentage of Dry Silt by Weight			
1050	acft.	tons	acft.	pet.			
<u>1950</u>	n an		and a second s				
October	149,100	39,970	26	. 020			
November	54,070	3,710	2	.005			
December	52,900	7,310	5	.010			
1951							
January	56,340	3,540	2	.005			
February.	66,900	5,650	4	• 006			
March	61,220	29,000	19	.035			
April	74,640	129,650	85	.128			
May	73,860	30,150	20	.030			
June	248,000	778,600	511	.231			
July	59,300	8,800	6	.011			
August	51,910	5,650	н. 1 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	.008			
September	78,360	37,140	24	.035			
Totals	1,026,600	1,079,170	708				
U.S.G.S, yea	arly discharge	in acre-feet -	an co ta la la la co	- 1,026,600			
Total silt i	for year in acr	e-feet	αμέ <u>σ</u> α αδι αση αίας (Ξ)	- 708			
	f silt per year f contributing	per square mile watershed - +		020			
Average perc	cent of silt by	weight for year		077			
Drainage are	ea in square mi	les (net)		- 34,810			

- 9 -

for

Brazos River Watershed

Station: RIC	AZOS CHMOND J. Butler		amples taken 1 U. S. Highwa	
Water Year	Discharge of Stream	Silt Load		Average Percentage of Dry Silt by Weight
	acft.	tons	acft.	pct.
$\frac{1}{1923-24}$ $\frac{1}{1924-25}$ $\frac{1925-26}{1925-26}$ $\frac{1927-28}{1927-28}$ $\frac{1929-30}{1930-31}$ $\frac{1931-32}{1932-33}$ $\frac{2-3}{1932-33}$ $\frac{1932-33}{1935-36}$ $\frac{1935-36}{1936-37}$ $\frac{1937-38}{1937-38}$ $\frac{1937-38}{1937-38}$ $\frac{1937-38}{1939-40}$ $\frac{1940-41}{1941-42}$ $\frac{1942-43}{1942-43}$ $\frac{1942-43}{1945-46}$ $\frac{1945-46}{1945-46}$ $\frac{1946-47}{1947-48}$ $\frac{1948-49}{1949-50}$ $\frac{1950-51}{1950-51}$	494,900 1,237,300 8,762,800 5,562,600 3,318,400 6,000,000 5,218,900 5,639,000 8,041,000 2,563,100 3,372,670 7,334,480 6,031,540 5,405,790 7,203,600 1,966,110 3,161,120 16,124,370 8,522,910 3,255,310 7,626,500 9,804,730 7,399,590 6,345,770 1,950,620 3,362,850 4,186,500 1,026,600	714,220 12,676,710 44,939,350 34,377,320 28,163,890 32,284,200 38,686,330 27,766,660 63,649,510 15,175,520 23,318,780 63,472,990 40,330,500 25,531,710 55,656,280 14,742,470 23,679,220 97,306,510 71,490,110 11,426,360 46,735,630 57,254,020 35,484,230 21,011,530 3,950,720 14,456,500 9,543,800 1,079,170	468 8,314 29,476 21,739 18,472 21,174 25,373 18,212 41,749 9,954 15,294 41,633 26,453 16,747 36,544 9,668 15,531 63,824 46,891 7,496 30,654 37,555 23,275 13,783 2,591 9,482 6,259 708	.106 .753 .377 .454 .623 .395 .545 .362 .582 .435 .508 .636 .491 .347 .568 .551 .550 .443 .616 .258 .429 .352 .243 .149 .316 .167 .077
TOTALS	150,919,060	914,904,240	599,319	n de la constante a production de la constante Martin francés de la constante

For period of 27.306 years

	Average discharge in acre-feet per year 5,526,956 Average acre-feet of silt per year 21,948
	Average acre-feet of silt per year per square mile
	of contributing watershed631
	Average tons of silt per year
	Average percent of silt by weight
0	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

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

Colorado River Watershed at LLANO STATION ON LLANO RIVER

for

Water Year 1950-1951 (October 1, 1950 to September 30, 1951)

Month	Discharge of Stream	Silt Load	l of Stream	Percentage of Dry Silt by Weight
1050	acft.	tons	acft.	pct.
1950	· · · · · · · · · · · · · · · · · · ·			and the second second
October	4,600	240	0	.004
November	3,900	200	0	.004
December	4,360	240	0	.004
1951				
January	4,210	400	0	. 007
February	4,430	480	۰ 0	.008
March	4,330	530	0	.009
April	3,870	430	0	.008
May	.212,380	5,710	4	•034
June	5,330	470	0	.006
July	530	130	0	.018
August	2,580	520	0	.015
September	3,630	1,000	1	.020
Totals	54,150	10,350	7 *	dependent for all of the second s
	rly discharge in	acre-feet -	1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -	- 54,150
Total silt f	or year in acre-	feet	æ, æ, æ, æ, æ, æ,	, 7
	silt per year p			

of contributing watershed - - - - .002 Average percent of silt by weight for year - - - .014 Drainage area in square miles (net) - - - - 4,000 * Includes months of small silt tons

for

Colorado River Watershed

Stream:	LLANO	
Station:	LLANO -	
Sampler:	Mrs. Tracy M. Ward	

(Samples were taken at U.S. Gaging Station $\frac{1}{2}$ mile downstream from bridge on State Highway No. 16)

Water Year	Discharge of Stream	Silt Load	of Stream	Average Percentage of Dry Silt by Weight
	acft.	tons	acft.	pct.
<u>1941-42</u> 1942-43 1943-44 1944-45 1945-46 1946-47 1946-47 1947-48 1948-49 1948-50 1950-51	65,990 235,470 196,070 156,920 142,740 141,550 327,420 187,600 113,980 54,150	252,700 381,560 120,450 90,120 249,740 28,750 1,471,400 82,260 14,300 10,350	166 250 79 60 164 18 965 53 8 7	.281 .119 .045 .042 .129 .015 .330 .032 .009 .014
TOTALS	1,621,890	2,701,630	1,770	an a

For period of 9.167 years

	14 C								
Average dis	charge in	acre-feet	per year		· · · · ·	,	çaş .	176,927	
Average acr					~ ~		64	193	
Average acr	e-feet of	silt per ;	year per	square	mile			i sa ta	
of	contributi	ng watersl	ned	een een	an an	em 100	-	.048	
Average ton	s of silt	per year	ബ ബ	100 cm	<u>م</u> ې مه	• en _ en _	-	294,713	
Average per					, en (en (en (en (en (en (en (en (en (en	₩ 9 ===	0	.122	
Drainage ar	ea in squa	re miles ((net) -					4,000	

1/ Station was established August 1, 1942.

Colorado River Watershed at JOHNSON CITY STATION ON PEDERNALES RIVER

for

Water Year 1950-1951 (October 1, 1950 to September 30, 1951)

Month	Discharge of Stream	Silt Load	Silt Load of Stream		
1950	acft.	tons	acft.	by Weight pct.	
±2200		· · · ·	<i></i>	анан алан алан алан алан алан алан алан	
October	190	0	0	.000	
November	230	20	Ο	.006	
December	510	20	0	.003	
<u>1951</u>					
January	510	10	0 0	.001	
February	650	40	0 0	.005	
March	1,940	5,850	4	.221	
April	990	110	O ()	.008	
May	2,620	900	1	.025	
June	8,360	13,270	9	.117	
July	40	0	0	۰ 000	
August	0	0	0	•000	
September	1,420	3,190	2	.165	
Totals	17,460	23,410	16	an a	
U.S.G.S. yearly	y discharge in	n acre-feet -		- 17,460	
Total silt for	year in acre-	-feet		16	
Acre-feet of s of c	ilt per year j ontributing wa			017	
Average percen	t of silt by y	weight for year	• • • • • • • • • • • • • •	.098	
Drainage area	in square mile	es (net)	හා නෙ නැ නො කා •	947	

for

Colorado River Watershed

Station:	PEDERNALES JOHNSON CITY John W. Grisham	(Samples were taken from highway bridge on U. S. Hwy. 281, about $l\frac{1}{2}$ miles north of Johnson City)			
Water Year	Discharge of Stream	Silt	Load of Stream	Average Percentage of Dry Silt by Weight	
1941-42 1942-43 1943-44 1944-45 1945-46 1946-47 1946-47 1947-48 1948-49 1949-50 1950-51	acft. 22,630 79,850 167,700 187,000 94,140 128,460 31,690 37,660 18,290 17,460	tons 107,030 150,740 724,550 191,740 132,430 107,670 42,340 54,560 9,100 23,410	acft. 70 99 476 126 88 71 27 35 5 16	pct. .347 .139 .317 .075 .103 .062 .098 .106 .037 .098	
TOTALS	784,880	L,543,570	1,013		

For period of 9.167 years

Average discharge in acre-feet per year	-		82	85,620
Average acre-feet of silt per year		6 28		111
Average acre-feet of silt per year per square mile				
of contributing watershed	oda		-	.117
Average tons of silt per year	010	æ		168,383
Average percent of silt by weight	-	-	520	.144
Drainage area in square miles (net)	. .		. eta.	947

 $\frac{1}{}$ Station was established August 1, 1942.

Colorado River Watershed at SAN SABA STATION ON COLORADO RIVER

for

Water Year 1950-1951 (October 1, 1950 to September 30, 1951)

Month	Discharge th of Silt Load of Stream Stream			Percentage of Dry Silt by Weight
1050	acft.	tons	acft.	pct.
<u>1950</u>				
October	8,090	1,030	1	.009
November	3,110	250	0	.006
December	3,590	190	0	.004
1951				
January	3,900	270	0	.005
February	4,640	360	0	.006
March	4,140	280	Q	.005
April	6,670	1,310	l	.014
May	118,200	1,014,400	665	.630
June	219,500	833,650	547	.279
July	14,800	20,670	14	.103
August	30,290	255,710	168	.620
September	6,530	1,370	1	.015
Totals	423,460	2,129,490	1,397	
U.S.G.S. year]	Ly discharge	in acre-feet -	ದರ್ ರಾಶಿ ಕನೆ ರಾಶಿ ಶನ್.	- 423,460
Total silt for	r year in acı	e-feet	ಹಾ ಹಂ ಪ್ರಾಕರಿ ಶಾ ಶಾ	- 1,397
	silt per year contributing	r per square mil watershed	e 	075
Average percen	nt of silt by	v weight for yea	7/0 an ao ao ao ao ao	. 369
Drainage area	in square m	iles (net)	ca es es es es	- 18,700

for

Colorado River Watershed

Stream: COLORADO Station: NEAR SAN SABA Sampler: Robert A. Broyles

(Samples were taken from Red Bluff bridge about midway between San Saba and Lometa) 2/

Water Year	Discharge of Stream	Silt Load c	of Stream	Average Percentage of Dry Silt by Weight
1/ 1929-30 1930-31 1931-32 1932-33 1933-34 1934-35 1935-36 1935-36 1936-37 1937-38 1938-39 1939-40 1940-41 1941-42 1942-43 1942-43 1943-44 1944-45 1945-46 1945-46 1946-47 1947-48 1948-49 1949-50 1950-51	acft. 24,000 1,373,750 2,223,900 475,300 504,380 2,564,290 2,276,400 1,197,100 2,809,340 819,430 773,690 2,052,980 1,285,920 475,090 592,790 870,370 416,390 517,540 604,200 947,390 367,430 423,460	tons 143,140 5,136,520 9,934,850 1,303,620 2,121,550 14,423,520 7,520,550 2,688,230 8,923,940 3,709,100 3,191,810 8,613,430 4,571,140 703,520 2,129,300 2,655,490 1,511,040 2,588,150 3,389,580 4,641,420 1,709,240 2,129,490	acft. 94 3,369 6,516 855 1,391 9,459 4,933 1,764 5,853 2,432 2,094 5,650 2,998 461 1,397 1,743 992 1,696 2,222 3,043 1,120 1,397	pct. .439 .275 .328 .201 .309 .413 .243 .165 .233 .333 .303 .303 .308 .261 .109 .264 .224 .267 .367 .412 .360 .342 .369
TOTALS	23,595,140	93,738,630	61,479	

For period of 21.055 years

Average discharge in acre-feet per year	1,120,643
Average acre-feet of silt per year	2,920
Average acre-feet of silt per year per square mile	
of contributing watershed	.156
Average tons of silt per year	4,452,084
Average percent of silt by weight	.186
Drainage area in square miles (net)	18,700

Station was established September 11, 1930.

1/2/ Water samples were discontinued at old Red Bluff bridge and started one-half mile upstream at the new Red Bluff bridge on May 24, 1940.

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Colorado River Watershed at INKS DAM STATION ON COLORADO RIVER

for

Water Year 1950-1951 (October 1, 1950 to September 30, 1951)

Month	Discharge of Stream	Silt Load	Percentage of Dry Silt by Weight	
1950	ac.₌ft.	tons	acft.	pct.
October	8,120	400	0	•004
November	23,080	1,040	1	.003
December	9,480	260)		.002
<u>1951</u>				
January	4,230	120		.002
February	25,910	700)		.002
March	6,840	280)		.003
April	23,890	860	1	.003
May	88,450	3,700	2	.003
June	113,800	3,490	2	.002
July	99,000	5,430	4	.004
August	134,520	7,970	5	.004
September	80,810	2,200	2	.002
Totals	618,130	26,450	18	
Yearly disch	arge in acre-fe	et		- 618,130
Total silt f	or year in acre	-feet		- 26,450
	silt per year contributing w			c. ¢22
Average perc	ent of silt by	weight for year	?	.003
1/ Dischar	a in square mil ge figures for	this station of	otained from	9. 868

Lower Colorado River Authority

1/

for

Colorado River Watershed

Water Year	Discharge			Arrono
	of	Silt Lo	ad of Stream	Average Percentage of
	Stream			Dry Silt by Weight
	acft.	tons	ac.∝ft.	pct.
1941-42 1942-43 1943-44 1944-45 1945-46 1945-46 1946-47 1947-48 1948-49 1949-50 1950-51	285,200 662,460 768,040 751,950 678,460 498,980 580,500 582,660 319,340 618,130	41,270 67,090 127,980 157,540 134,030 27,870 56,700 30,170 14,240 26,450	27 44 84 104 88 20 38 18 9 18	.011 .007 .012 .015 .015 .004 .007 .004 .003 .003

For period of 9.167 years

Average discharge in acre-feet per year	626,783
Average acre-feet of silt per year	49
Average acre-feet of silt per year per square mile	
of contributing watershed	ant 1975 data
Average tons of silt per year	74,543
Average percent of silt by weight	.009
Drainage area in square miles (net)	600 468 calo

 \underline{l}^{\prime} Station was established August 1, 1942.

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Colorado River Watershed atBUCHANAN DAM STATION ON COLORADO RIVER

for

Water Year 1950-1951 (October 1, 1950 to September 30, 1951)

Month	Discharge of Stream	of Silt Load of Stream			
1950	ácft.	tons	acft.	by Weight pct.	
October	8,120	300	Q	.003	
November	23,080	690	0	.002	
December	9,470	260	0	.002	
1951					
January	4,230	120	Ο	.002	
February	25,910	1,020	1	.003	
March	6,840	210	.	.002	
April	23,890	1,050	1	.003	
May	88,450	4,390	3	.004	
June	113,790	6,830		.004	
July	99,000	6,420	4	.005	
August	134,520	7,230	5	.004	
September	80,810	2,910	2	.003	
Totals	618,110	31,430	20	ander og generatienen er er stallen her er en de delet i de	
Yearly dischar	rge in acre-fee	et	a) taa taay ah aas tay ahaa taay ah ah ah tay	618,110	
Total silt for	r year in acre-	-feet	ಕಿ ಪ್ರಾಯಾ ನವ ಮು ನವ	20	
	silt per year p contributing wa	per square mile atershed	10. mai 100 an 100 an 1	gin 100 au	
Average perce	nt of silt by w	weight for year	wa, an wa ¢a ⊂	.004	
Drainage area	in square mile	es (net)	ar, nan ana ana ana an	ल्ला इस्ट का	

 $\frac{1}{Discharge}$ figures for this station obtained from Lower Colorado River Authority. - 19 -

1/

for

Colorado River Watershed

Stream: COLORADO Station: BUCHANAN DAM Sampler: Lloyd Myers		(Samples taken a	t power house)
Discharge Water Year of Stream	Silt Los	ad of Stream	Average Percentage of Dry Silt by Weight
a.c.∞ft.	tons	acft.	pct.
$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	46,530 35,300 16,910 <u>31,430</u>	30 24 13 20	•006 •005 •004 •004
TOTALS 2,077,620	130,170	87	

For period of 4.000 years

	discharge in acre-feet o						••••	9 99	,= 	ब्द्र क्र	519,405 22
Average	acre-feet of	f silt per	year	per	squa	ire	mile				
	of contribu	ting water	shed -	-	-	÷		. 🛥	4 0.	000 ena	time can una
Average	tons of sil	t per year		, w		-		÷.	.cm		32,543
Average	percent of	silt by we	ight -	, cria			~ *	-	420		.005
Drainage	e area in squ	uare miles	(net)	ø	wins (æ		-	-	ant sep-	් සුප කා නො

 \downarrow Station was established October 1, 1947.

Colorado River Watershed at AUSTIN STATION ON COLORADO RIVER

for

Water Year 1950-1951 (October 1, 1950 to September 30, 1951)

Month	Discharge of Stream	of Silt Load of Stream			
3050	acft.	tons	acft.	by Weight pct.	
1950					
October	35,410	1,800	· · · · · ·	004	
November	41,490	3,450	2	.006	
December	45,120	10,350	7	.017	
1951					
January	50,790	2,750	2	.004	
February	35,710	2,780	2	.006	
March	14,470	480	0	.002	
April	44,890	2,830	2	.005	
May	107,600	7,530	5	.005	
June	98,330	8,460	6	.006	
July	120,900	7,790	5	.005	
August	121,900	9,480	6	.006	
September	47,950	2,700	2	.004	
Totals	764,560	60,400	40		
U.S.G.S. year	rly discharge i	n acre-feet -	ай бы бы бу бо ос ос	- 764,560	
Total silt fo	or year in acre	-feet		- 40	
	silt per year contributing w			න. ඡාණ ක	
Average perc	ent of silt by	weight for ye	81	,006	
Drainage are	a in square mil	les (net) - 2			

Star for

Colorado River Watershed

Stream:	COLORADO	
Station:	AUSTIN	
Sampler:	Mrs. G. L.	Pliler

(Samples taken from Montopolis

Bridge)

			1 P	1
Carde and a second s	Discharge		en e	Average
Water Year	of	Silt Load of	f Stream	Percentage of
	Stream		· · · · · ·	Dry Silt
				by Weight
an farmin farin manager fra standard an	acft.	tons	acft.	pct.
1/				• •
1936-37	48,040	1,830	1	.003
1937-38*	3,609,570	8,881,220	5,826	.181
1938-39 2/	986,630	735,150	481	.055
1939-40*	1,334,120	906,750	596	.050
1940-41	3,869,250	979,240	642	.019
1941-42	986,440	121,570	80	.009
1942-43	1,787,770	328,050	215	.013
1943-44	1,392,380	186,590	122	.010
1944-45	1,750,770	444,540	292	.019
1945-46	1,554,930	256,770	170	.012
1946-47	1,523,070	234,770	155	.011
1947-48	957,750	122,060	82	.009
1948-49	878,750	104,440	67	.009
1949-50	914,530	71,700	49	.006
1950-51	764,560	60,400	40	.006
	a	and the second		1.5 C
TOTALS	22,358,560	13,435,080	8,818	· · · · · · · · · · · · · · · · · · ·
	· · ·			

For period of 14.164 years

Average	discharge	in acr	e-feet p	er yeai	ര്ണം അം		, ,	aab (aab	app	1,578,548
	acre-feet		- · ·	17	യ്ത	a n a n		ani ang.	· • • • • • • • • • • • • • • • • • • •	623
Average	acre-feet	of sil	t per ye	ar per	square	e mile				
ere di Area. A di Area	of contril	outing	watershe	d -	കംകം	*.* <u> </u>				- k 024
Average	tons of s	ilt per	year	ee ees		-		40 ang	 anne .	948,537
Average	percent of	fsilt	by weigh	t		~ ~			œ	.044
Drainag	e area in a	square	niles (n	et) -	600, 600 - 1	enti coo		ene ^y in inst	പക്രവം ഗ	26,260
	. A.									e

1/ Station was established August 2, 1937, and samples taken from

Congress Avenue bridge. 2/ Samples taken from Montopolis Bridge.

* 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 1¹/₂ to 4 miles downstream therefrom. Rehabilitation was completed and the impounding of water was begun on January 7, 1940.

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Guadalupe River Watershed at SPRING BRANCH STATION ON GUADALUPE RIVER

for

Water Year 1950-1951 (October 1, 1950 to September 30, 1951)

Month	Discharge of Stream	Silt Lo	ad of Stream	Percentage of Dry Silt by Weight
1950	acft.	tons	acft.	pct.
October	2,010	190	0	.007
November	2,140	160	Ο	.005
December	2,960	160	0	.004
<u>1951</u>				÷ -
January	2,950	150	Ö	.004
February	2,980	190	0	.005
March	5,070	900	1	.013
April	3,930	520	0	.010
May	11,170	10,250	7	.067
June	7,090	2,220	1	.023
July	820	90	0	.008
August	60	0	0	.000
September	50	0	0	.000
Totals	41,230	14,830	9	an a
U.S.G.S. year	ly discharge in	acre-feet -		- 41,230
Total silt fo	r year in acre-:	feet	ಜನ ಎಸ್ ಎನ ವರು ಡಾ ಡಾ ೆ ,	- 9
	silt per year pe contributing wat	-	-e	006
Average perce	nt of silt by we	eight for yea	ur	026
Drainage area	in square mile:	s (net) -		- 1,432

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Carlos - Ales

for

Guadalupe River Watershed

Station: SPR	DALUPE ING BRANCH red Beierle	of Sr	oles taken 4 mil oring Branch from Highway No. 46)	
Water Year	Discharge of Stream	Silt Load	l of Stream	Average Percentage of Dry Silt by Weight
	acft.	tons	acft.	pct.
$1941-42 \frac{1}{1942-43}$ 1943-44 1944-45 1945-46 1946-47 1947-48 1948-49 1949-50 1949-50	167,150 145,610 272,850 304,860 185,080 307,960 59,460 119,610 63,680	164,150 79,630 401,650 190,830 148,700 128,040 60,110 50,240 34,430	108 52 262 126 96 84 38 33 20	.072 .040 .108 .046 .059 .031 .074 .031 .040
1950-51 TOTALS	<u>41,230</u> 1,667,490	<u> 14,830</u> 1,272,610	<u> </u>	.026

For period of 9.748 years

60
85
59
51
56
32

 $\underline{1}$ / Station was established January 1, 1942.

Guadalupe River Watershed at VICTORIA STATION ON GUADALUPE RIVER

for

Water Year 1950-1951 (October 1, 1950 to September 30, 1951)

Month	Discharge of Stream	Silt Lo	ad of Stream	Percentage of Dry Silt by Weight
1950	acft.	tons	acft.	pct.
October	21,800	1,700	1 1	.006
November	21,040	1,960	1	.007
December	25,120	1,590	1	.005
<u>1951</u>	· .			
January	24,170	1,390	l	.004
February	23,530	1,380	· 1	.004
March	26,280	1,160	l	.003
April	27,090	1,480	, 1	.004
May	. 34,690	4,580	3	.010
June	135,600	193,980	127	.105
July	19,060	2,260	1	.009
August	11,430	680	1	.004
September	22,340	2,970	2	.010
Totals	392,150	215,130	141	ann an
U.S.G.S. year	rly discharge in	n acre-feet -		- 392,150
Total silt fo	or year in acre-	-feet		- 215,130
	silt per year p contributing wa		e 	027
Average perc	ent of silt by w	veight for yea	r	040
Drainage area	a in square mile	es (net)		- 5,311

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for

Guadalupe River Watershed

Stream: GUADALUPE Station: VICTORIA Sampler: A. E. Anders

(Samples taken from bridge on U. S. Highway No. 59)

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•s •

Water Year	Discharge of Stream	Average Percentage of Dry Silt by Weight		
	acft.	tons	acft.	pet.
1944-45 1945-46 1946-47 1947-48 1948-49 1949-50 1950-51	38,430 1,319,520 1,595,300 509,960 871,660 767,750 392,150	19,480 949,130 777,690 169,560 607,450 430,030 215,130	13 624 511 111 398 282 141	.037 .053 .036 .024 .051 .041 .040
TOTALS	5,494,770	3,168,470	2,080	an an Araba An Araba Araba an Araba

For period of 6.083 years

Average discharge in acre-feet per year	903,299
Average acre-feet of silt per year	342
Average acre-feet of silt per year per square mile	
of contributing watershed	.064
Average tons of silt per year	520,873
Average percent of silt by weight	.042
Drainage area in square miles (net)	5,311

 $\frac{1}{5}$ Station was established September 1, 1945. Record for one month.

Lavaca River Watershed at EDNA STATION ON LAVACA RIVER

for

Month	Discharge of Stream	Silt	Silt Load of Stream		
1950	acft.	tons	acft.	by Weight pct.	
October	320	50	0	.011	
November	340	20	0	.004	
December	670	40	O	.004	
1951					
January	910	50	0	. 004	
February	1,000	40	0	.003	
March	1,200	110	0	.007	
April	940	650	0	.051	
May	700	90	0	.009	
June	19,170	37,580	25	.144	
July	420	40	0	.007	
August	120	10	0	.006	
September	8,420	15,550	10	.136	
Totals	34,210	54,230	35		
U.S.G.S. year	rly discharge i	n acre-feet -	,	- 34,210	
Total silt fo	or year in acre	-feet		- 35	
	silt per year contributing w		.le	039 .	
Average perce	ent of silt by	weight for ye	ear	- 116	
Drainage area	a in square mil	.es (net)		- 887	

for

Lavaca River Watershed

Stream: Station: Sampler:	LAVACA EDNA Mrs. Id	a Berryhill		U.S. I		rom bridge on 59 between a)
Water Year		ischarge of Stream	Silt	Load of	Stream	Average Percentage of Dry Silt by Weight
1944-45 1945-46 1946-47 1947-48 1948-49 1948-50 1950-51	/ 2 1 1	980 66,330 50,340 14,240 05,870 90,950 34,210	tons 570 327,240 192,850 98,200 205,400 119,490 54,230		acft. 0 215 126 66 134 78 <u>35</u>	pct. .090 .057 .063 .143 .096 .116
TOTALS	8	62,920	997,980		654	

For period of 6.083 years

Average discharge in acre-feet per year	141,858
Average acre-feet of silt per year	108
Average acre-feet of silt per year per square mile	
of contributing watershed	.122
Average tons of silt per year	164,060
Average percent of silt by weight	.085
Drainage area in square miles (net)	887

 $\frac{1}{\text{Station established September 1, 1945.}}$

Neches River Watershed at HORGER STATION ON ANGELINA RIVER

for

Month	Discharge of Stream	Silt Load	Percentage of Dry Silt by Weight	
1950	acft.	tons	acft.	pct.
October	22,580	1,490	1	.005
November	27,290	3,250	2	.009
December	37,610	4,870	3	.010
1951				
January	77,020	24,300	16	.023
February	106,900	16,050	ll	.011
March	160,300	26,260	17	.012
April	166,300	27,170	18	.012
May	53,990	9,560	6	.013
June	31,680	4,310	3	.010
July	9,570	1,300	l	.010
August	2,880	310	0	. 008
September	4,840	590	0	.009
Totals	700,960	119,460	78	ng ng pangang p
U.S.G.S. year	rly discharge in	n acre-feet		700,960
Total silt fo	or year in acre-	-feet	· · · · · · · · · · · · · · · · · · ·	78
	silt per year p contributing wa			023
Average perce	ent of silt by w	weight for year		013
Drainage area	a in square mile	es (net)		3,435

Neches River Watershed

fo

Station: H	NGELINA ORGER . W. Moye		(Samples taken f State Highway No Zavalla and Jasp	. 63 between
Water Year	Discharge of	Silt Loa	d of Stream	Average Percentage of
•	Stream			Dry Silt by Weight
1/	acft.	tons	acft.	pet.
1944-45 1945-46 1946-47 1947-48 1948-49 1949-50 1950-51	19,470 3,869,300 3,200,750 1,619,040 1,544,530 3,690,020 700,960	11,020 1,826,050 393,530 227,070 276,680 481,440 119,460	7 1,198 259 149 180 317 78	.042 .035 .009 .010 .013 .010 .017
TOTALS	14,644,070	3,335,250	2,188	

For period of 6.083 years

Average discharge in acre-feet per year	, an	2,407,376
Average acre-feet of silt per year		360
Average acre-feet of silt per year per square mile		
of contributing watershed	·	. 105
Average tons of silt per year	-	548,290
Average percent of silt by weight	80	.017
Drainage area in square miles (net)	-	3,435

 $\frac{1}{}$ Station was established September 1, 1945.

Neches River Watershed at ROCKLAND STATION ON NECHES RIVER

for

Month	Discharge of Stream	Silt Load	of Stream	Percentage of Dry Silt by Weight
1050	ac.ft.	tons	acft.	pct.
1950				1990 -
October	11,480	760	1	.005
November	11,700	810	1	.005
December	18,890	1,170	1	.005
1951	×			
January	29,740	2,370	2	. 006
February	46,600	4,640	3	.007
March	94,600	7,750	5	. 006
April	98,550	7,710	5	.006
May	38,330	8,260	5	.016
June	24,180	3,680	2	.011
July	12,950	1,510	ļ	•009
August	2,520	260	0	۰ 008
September	4,500	530	0	.009
Totals	394,040	39,450	26	
U.S.G.S. yea:	rly discharge i	n acre-feet -		- 394,040
Total silt f	or year in acre	feet		- 39,450
	silt per year ; contributing w			007
Average perc	ent of silt by	weight for year		007
Drainage are	a in square mil	es (net)		- 3,539

for

Neches River Watershed

Stream:	NECHES	
Station:	ROCKLAND	
Sampler:	George W. Jones	

(Samples were taken from bridge on U. S. Highway 69 between Woodville and Lufkin)

Water Year	Discharge of Stream	Silt Load	of Stream	Average Percentage of Dry Silt by Weight
energian and a second	acft.	tons	acft.	pct.
1/ 1929-30 1930-31 1931-32 1932-33 1933-34 1933-34 1935-36 1936-37 1936-37 1937-38 1938-39 1939-40 1940-41 1940-41 1940-41 1941-42 1942-43 1943-44 1944-45 1945-46 1945-46 1945-46 1945-46 1945-48 1948-49 1949-50 1950-51	10,620 1,490,250 2,560,930 1,395,940 1,552,630 2,601,910 1,040,600 928,420 1,400,070 854,380 1,097,590 3,578,370 2,522,390 748,520 3,230,410 3,396,060 3,230,410 3,396,060 3,534,920 3,255,520 1,250,360 1,172,870 3,824,440 394,040	290 229,220 193,940 144,700 174,070 297,100 140,280 110,180 225,940 140,590 227,590 586,140 550,920 316,090 1,865,580 1,967,220 1,285,240 379,210 118,760 183,820 330,240 39,450	$\begin{array}{c} 0\\ 151\\ 128\\ 95\\ 112\\ 194\\ 91\\ 71\\ 147\\ 91\\ 149\\ 384\\ 361\\ 207\\ 1,223\\ 1,290\\ 845\\ 249\\ 77\\ 119\\ 216\\ 26\end{array}$.002 .011 .006 .008 .008 .008 .010 .009 .012 .012 .012 .015 .012 .015 .012 .016 .031 .042 .043 .027 .009 .007 .012 .009 .009 .009 .007
TOTALS	41,841,240	9,506,570	6,226	

For period of 21.148 years

Average discharge in acre-feet per year	1,978,496 294
Average acre-feet of silt per year per square mile	
of contributing watershed	.083
Average tons of silt per year	449,526
Average percent of silt by weight	.017
Drainage area in square miles (net)	3,539

 $\frac{1}{}$ Station was established August 8, 1930.

Nueces River Watershed at COTULLA STATION ON NUECES RIVER

for

Water Year 1950-1951 (October 1, 1950 to September 30, 1951)

Month	Discharge of Stream	Silt Load	of Stream	Percentage of Dry Silt by Weight
1950	acft.	tons	acft.	pct.
October	1,990	370	0	,014
November	0	0	0	. 000
December	0	0	0	,000
1951				
January	0	Ο.	0	. 000
February	0	0	0	.000
March	0	0	0	.000
April	0	0	0	
May	25,290	9,090	6	.026
June	3,770	550	1	. Oll
July	0	0	, O	.000
August	0	0	0	۰000
September	0	0	0	.000
Totals	31,050	10,010	7	ан у тайн улс нэ тэрээн хэлэг байн тэрээн байн тэрээн байн тэрээн байн тэрээн байн тэрээн байн тэрээн байн тэрэ г
U.S.G.S. yearly	discharge in	acre-feet -		31,050
Total silt for	year in acre-	feet		7
Acre-feet of si of co	lt per year pontributing wa			001
Average percent	; of silt by w	weight for year		024
Drainage area i	n square mile	es (net)		5,260

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for

Nueces River Watershed

Stream: NUECES Station: COTULLA Sampler: J. G. Jennings

(Samples taken from highway bridge in Cotulla)

and the section of th	Discharge	an a		Average
Water Year	of Stream	Silt Lo	ad of Stream	Percentage of Dry Silt by Weight
<u></u>	acft.	tons	acft.	pct.
1941-42 =/	141,380	64,130	42	°03 ₃
1942-43	64,240	33,270	22	.038
1943-44	482,520	367,860	241	.056
1944-45	82,440	65,460	43	. 058
1945-46	347,610	284,210	186	. 060
1946-47	92,610	16,550	11	.013
1947-48	72,900	29,100	19	. 029
1948-49	277,520	115,640	75	.031
1949-50	57,760	18,550	12	.024
1950-51	31,050	10,010	7	.024
TOTALS	1,650,030	1,004,780	658	
· · · · · · · · · · · · · · · · · · ·			# 11 s	

For period of 9,748 years

Average discharge in acre-feet per year		- 169,269
Average acre-feet of silt per year	لمعه	- 68
Average acre-feet of silt per year per square mile		
of contributing watershed	œ	013
Average tons of silt per year	÷.	- 103,076
Average percent of silt by weight		- 045
Drainage area in square miles (net)	-	- 5,260
		2 C 4

$\frac{1}{}$ Station was established January 1, 1942.

λ.

Nueces River Watershed at THREE RIVERS STATION ON NUECES RIVER

for

Month	Discharge of Stream	Silt Load of	Stream	Percentage of Dry Silt by Weight
1950	acft.	tons	acft.	pct.
October	17,270	8,970	6	.038
November	0	0,	0	.000
December	40	0	0	.000
<u>1951</u>				
January	240	30	of the O	.018
February	320	40	0	. 009
March	1,160	240	0	.015
April	580	50	· · · · · · · · · · · · · · · · · · ·	. 006
May	92,980	192,710	126	.152
June	139,700	210,020	138	.110
July	580	50	0	.006
August	270	40	• • • • • • • • • • • • • • • • • • •	.011
September	153,200	195,610	128	. 094
Totals	406,340	607,760	398	
U.S.G.S. yearl	y discharge in	n acre-feet		- 406,340
Total silt for	year in acre-	feet		- 398
	ilt per year p ontributing wa	er square mile atershed		026
Average percen	t of silt by v	weight for year		110
Drainage area	in square mile	es (net)		- 15,600

for

Nueces River Watershed

.77

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

Ustan Veen	Discharge		- A CH	Average
Water Year	of Stream	Silt Load	oi Stream	Percentage of Dry Silt
	acft.	tons	acft.	by Weight pct.
/ ۱	ation and the	COURS	ac. =10.	pec.
1927-28 =	318,930	617,920	405	.142
1928-29	741,300	1,303,600	855	.129
1929-30	596,510	721,440	473	.089
1930-31	455,880	443,420	291	.071
1931-32	1,006,200	581,880	381	.042
1932-33	287,120	275,050	179	.070
1933-34	253,800	668 ,3 20	438	.193
1934-35	2,547,150	2,383,630	1,565	. 069
1935-36	768,200	752,320	494	.072
1936-37	318,050	142,270	94	.033
1937-38	479,730	771,540	506	.118
1938-39	306,600	450,960	297	.108
1939-40	840,190	1,035,600	679	.091
1940-41	1,300,860	1,635,320	1,073	.092
1941-42	1,107,790	987,340	648	.065
1942-43	260,470	323,990	213	.091
1943-44	700,090	668,660	439	.070
1944-45	297,070	590,010	387	.146
1945-46	927,400	1,134,770	744	.090
1946-47	810,070	578,310	379	.052
1947-48	128,330	253,400	164	.145
1948-49	780,920	765,590	500	.072
1949-50	266,300	385,840	253	.106
1950-51	406,340	607.,760	. <u>398</u>	.110
TOTALS	15,905,300	18,078,940	11,855	

For period of 24.000 years

Average discharge in acre-feet per year 662,721 Average acre-feet of silt per year 494	
Average acre-feet of silt per year per square mile	
of contributing watershed032	
Average tons of silt per year 753,289	
Average percent of silt by weight	
Drainage area in square miles (net) 15,600	

1/ Station was established October 1, 1927.

Nueces River Watershed

at

CORPUS CHRISTI DAM STATION ON NUECES RIVER

for

Month	Discharge of Stream	Silt Load of Stream		Percentage of Dry Silt by Weight	
1050	acft.	tons	acft.	pct.	
1950					
October	13,290	570	0	.003	
November	3,550	310	0	.006	
December	2,930	160	0	.004	
<u>1951</u>					
January	2,610	200	0	.006	
February	2,500	230	0	,007	
March	2,620	200	0	٥00 م	
April	2,860	150	0	.004	
May	59,640	8,970	7	.011	
June	137,900	33,210	22	.018	
July	4,120	510	0	.009	
August	4,140	450	0	.008	
September	186,000	61,780	41	.024	
Totals	422,160	106,740	70	n an the second seco	
U.S.G.S. yearl	y discharge i	n acresfeet - 🧧		- 422,160	
Total silt for	year in acre	-feet	~ - - -	- 70	
	ilt per year ontributing w	per square mile atershed			
Average percen	t of silt by	weight for year	· · · · · · · · · · · · · · · · · · ·	019	
Drainage area	in square mil	es (net)			

for Blackfill or Slow Unita Nueces River Watershed

Stream:	NUECES	
Station:	CORPUS CHRISTI DAM	
Sampler:	Eddie Wright	

í١

(Samples taken below and adjacent to outlet gates)

Water Year	Discharge of Stream	Silt Load	of Stream	Average Percentage of Dry Silt by Weight
	acft.	tons	acft.	pct.
1941-42 1942-43 1943-44 1944-45 1945-46 1946-47 1947-48 1948-49 1949-50 1950-51	1,202,820 249,640 740,310 273,820 936,910 921,510 107,320 887,240 246,370 422,160	546,500 44,790 323,550 125,070 350,430 244,730 15,170 212,770 29,160 106,740	358 29 212 81 231 160 8 137 18 70	.033 .013 .032 .034 .027 .020 .010 .018 .009 .019
TOTALS	5,988,100	1,998,910	1,304	

For period of 9.660 years

Average discharge in acre-feet per year	- -	-	8	-	619,886
Average acre-feet of silt per year		-		6275	135
Average acre-feet of silt per year per square mile					
of contributing watershed	-	-	00	-	(co: 100 cc:)
Average tons of silt per year	-	-	an p	· 1980	206,927
Average percent of silt by weight	-	-	cito	ejet)	.025
Drainage area in square miles (net)	a	47	-	- 699	ෂා දා උ

Station was established February 2, 1942. 1/

Sabine River Watershed at LOGANSPORT STATION ON SABINE RIVER

for

Water Year 1950-1951 (October 1, 1950 to September 30, 1951)

Month	Discharge of Stream	Silt Load	l of Stream	Percentage of Dry Silt by Weight
1950	acft.	tons	acft.	pct.
October	32,420	5,720	4	.013
November	32,140	4,120	3	.009
December	30,420	3,120	2	.008
1951				
January	94,400	12,220	8	.010
February	237,600	43,300	28	.013
March	236,600	61,570	40	.019
April	120,300	23,560	15	.014
May	74,760	13,750	9	.014
June	114,900	37,000	24	.024
July	41,700	9,560	6	.017
August	6,450	860	1	.010
September	11,470	2,640	2	.017
Totals	1,033,160	217,420	142	
U.S.G.S. yes	arly discharge in	acre-feet - ·		- 1,033,160
Total silt f	for year in acre-	feet	· · · · · ·	- 142
	f silt per year p f contributing wa		• • • • • • •	029
Average perc	cent of silt by w	eight for year	[.]	015
Drainage are	ea in square mile	s (net)		- 4,858

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for

Sabine River Watershed

ALL APPRING Stream: SABINE LOGANSPORT, LA. Station: Sampler: R. E. Davenport

Samples were taken from U.S. Highway 84 bridge in downtown Logansport, La.)

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,		and the second secon		
	Discharge	an a		Average
Water Year	of	Silt Load o	of Stream	Percentage of
	Stream			Dry Silt
1977 yan bara dan yang selam ingi serapakan dan selam pendara dia s			·	by Weight
- 1	acft.	tons	ac,-ft.	pct.
1932-33	2,545,700	503,740	330	.015
1933-34 2/	69,200	5,780	ر لا	.006
		400	0	.002
1934-35 3/	13,910 841,410		89	.012
1935-36		137,020		.012
1936-37	1,689,660	270,430	176	
1937-38	3,155,000	537,990	353	.013
1938-39	1,325,580	291,500	190	.016
1939-40	1,302,990	458,990	301	.026
1940-41	4,876,180	825,330	541	.012
1941-42	3,817,160	1,439,880	944	.028
1942-43	1,716,620	999,370	655	.043
1943-44	4,193,070	3,002,050	1,969	.053
1944-45	5,996,730	4,502,820	2,953	.055
1945-46	5,137,000	2,650,320	1,738	.038
1946-47	3,318,320	553,900	363	.012
1947-48	2,820,560	452,390	298	.012
1948-49	1,882,220	391,520	255	.015
1949-50	4,225,130	934,380	610	.016
1950-51	1,033,160	217,420	142	.015
TOTALS	49,959,600	18,175,230	11,911	

For period of 17.156 years

Average discharge in acre-feet per year	2,912,077.
Average acre-feet of silt per year	694
Average acre-feet of silt per year per square mile	Marina and Antonio Anto Antonio Antonio Antonio Antonio Antonio
of contributing watershed	.143
Average tons of silt per year	1,059,410
Average percent of silt by weight	.027
Drainage area in square miles (net)	4,858

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

San Antonio River Watershed at GOLIAD STATION ON SAN ANTONIO RIVER

for

Month	Discharge of Stream	of Silt Load of St		Percentage of Dry Silt by Weight
1050	acft.	tons	acft.	pct.
1950	en e		· · · ·	
October	8,070	810	1	。007
November	7,520	930	1	. 009
December	8,110	1,310	1	.012
1951				
January	7,660	1,070	1	.010
February	11,030	3,230	2	.022
March	10,730	2,410	2	.016
April	11,610	4,370	3	.028
May	30,340	90,670	59	.220
June	66,210	194,780	128	.216
July	7,470	1,290	1	.013
August	5,540	550	0	.007
September	46,980	93,130	61	.146
Totals	221,270	394,550	260	and and an
U.S.G.S. yearly	y discharge i	n acre-feet		221,270
Total silt for	year in acre	-feet	-	3. h 260
	ilt per year pontributing w	per square mile atershed	÷ • • • • •	.066
Avera g e percen	t of silt by v	weight for year		.131
Drainage area :	in square mild	es (net)		3,918

for

San Antonio River Watershed

Stream:	SAN ANTONIO	14	ਤ ਹੈਨੇ ਨੂੰ ਹੈ। ਤਸਦਾ ਹੁਣ	4. 1. 4 4. 1. 4
Station:	GOLIAD		in a line i	

Sampler: Polo Perez

(Samples were taken near Goliad from bridge on State Hwy. No. 29)

Discharge of Stream	Silt Load o	of Stream	Average Percentage of Dry Silt by Weight
acft.	tons	acft.	pct.
699,580	848.340	556	.089
		382	.094
365,060	725,630	475	.146
352,460	567,440	371	.118
663,080	1,387,180	910	.154
699,560	719,770	472	.076
226,510	237,020	155	.077
403,390	669,460	440	· 122
263,690	310,560	203	.087
221,270	394,550	260	•
4,347,780	6,441,690	4,224	4.
	of Stream ac.=ft. 699,580 453,180 365,060 352,460 663,080 699,560 226,510 403,390 263,690 221,270	of Silt Load of Stream acft. tons 699,580 848,340 453,180 581,740 365,060 725,630 352,460 567,440 663,080 1,387,180 699,560 719,770 226,510 237,020 403,390 669,460 263,690 310,560 221,270 394,550	of StreamSilt Load of Streamacft.tonsacft.699,580848,340556453,180581,740382365,060725,630475352,460567,440371663,0801,387,180910699,560719,770472226,510237,020155403,390669,460440263,690310,560203221,270394,550260

For period of 9.748 years

Average discharge in acre-feet per year	446,018
Average acre-feet of silt per year	433
Average acre-feet of silt per year per square mile	
of contributing watershed	.111
Average tons of silt per year	660,822
Average percent of silt by weight	.109
Drainage area in square miles (net)	3,918

1/ Station was established January 1, 1942.

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San Jacinto River Watershed at HUFFMAN STATION ON SAN JACINTO RIVER

for,

Water Year 1950-1951 (October 1, 1950 to September 30, 1951)

Month	Discharge of Stream	Silt Load c	of Stream	Percentage of Dry Silt by Weight
and the second	acft.	tons	acft.	pct.
1950	· · · · ·			
October	9,870	1,250	1	۰009
November	7,920	690	0	.006
December	9,290	410	0	.003
<u>1951</u>				
January	13,710	2,360	2	.013
February	16,440	2,100	1	.009
March	40,210	11,660	8	.021
April	25,210	6,470	4	.019
May	9,990	1,760	1 1 1	.013
June	9,870	3,190	2	.024
July	5,570	1,100	.1	.014
August	4,060	670	0	.012
September	19,100	10,040	7	.039
Totals	171,240	41,700	27	
		in acre-feet -		- 171,240
Total silt fo	or year in acre	e-feet	·····	- 27
	silt per year contributing w	per square mile watershed		010
Average perce	ent of silt by	weight for year		.018
Drainage area	a in square mi	les (net)		- 2,791

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for

San Jacinto River Watershed

Stream: SAN JACINTO

Station: HUFFMAN (Samples were taken at Sheldon Sampler: Phil Baker Scott Pumping Plant, City of Houston)

Water Year	Discharge of Stream	Silt Load	of Stream	Average Percentage of Dry Silt by Weight
1944-45 <u>1</u> / 1945-46 1946-47 1947-48 1948-49 194 9 -50 1950-51	ac.ft. 221,940 2,246,700 2,466,540 499,740 937,040 2,698,180 171,240	tons 163,730 1,345,020 2,096,730 108,300 374,450 938,770 41,700	acft. 107 881 1,377 70 246 614 27	pct. .054 .044 .062 .016 .029 .026 .018
TOTALS	9,241,380	5,068,700	3,322	

For period of 6.083 years

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Average discharge in acre-feet per year	-	1,519,214
Average acre-feet of silt per year	8	546
Average acre-feet of silt per year per square mile		
of contributing watershed		.196
Average tons of silt per year	-	833,257
Average percent of silt by weight	دت ی	.040
Drainage area in square miles (net)	-	2,791

1/ Station was established September 1, 1945.

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63.

San Jacinto River Watershed at HUMBLE STATION ON SAN JACINTO RIVER

for

Water Year 1950-1951 (October 1, 1950 to September 30, 1951)

Month	Discharge of Stream	Silt Load	l of Stream	Percentage of Dry Silt by Weight
1950	acft.	tons	acft.	pct.
October	5,680	650	0	.008
November	3,950	350	0	.006
December	4,300	350	0	.006
1951				
January	6,790	740		.008
February	10,440	1,160	1	.008
March	20,520	9,590	6	.034
April	15,140	5,340	4	.026
May	4,750	1,590	l	.025
June	4,800	1,740	1	.027
July	2,580	660	Q	.019
August	1,560	320	O	.015
September	13,210	5,560	4	.031
Totals	93,720	28,050	18	
	ly discharge in	n acre-feet -		- 93,720
Total silt fo	r year in acre	-feet		- 18
		oer square mile atershed		010

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Marine Converse of Southeast Actives

San Jacinto River Watershed

Stream:	WEST FORK OF SAN JACINTO (Samples were taken from	
Station:	NEAR HUMBLE to be added to be highway bridge about 2 miles	
Sampler:	L. C. Clark north of Humble)	

TT I	Discharge			Average
Water Year	of Stréam	Silt Load	of Stream	Percentage of Dry Silt
	04		OL	by Weight
n en	acft.	tons	acft.	pct.
2000 00 2/		711 000		
1932-33 1/	253,210	144,800	93	.042
1933-34 2/	7,450	520	0	,005
1936-37 <u>3</u> /	12,450	1,370	1	.008
1937-38	491,940	150,650	97	.022
1938-39	319,500	120,660	77	.028
1939-40	282,680	162,070	105	.042
1940-41	2,566,090	896,050	588	.026
1941-42	909,180	373,670	245	.030
1942-43	545,760	290,820	191	.039
1943-44	881,200	660,570	434	.055
1944-45	1,577,380	1,241,490	815	.058
1945-46	1,320,330	774,810	509	.043
1946-47	1,325,000	345,140	228	.019
1947-48	284,340	41,140	25	.011
1948-49	502,390	201,420	131	.029
1949-50	502,370	152,470	100	.022
1950-51	93,720	28,050	18	.022
<u>مەر ~~) مەر مەر مەر مەر مەر مەر مەر مەر مەر مەر</u>	23,120		~~~~	0 V
TOTALS	11,874,990	5,585,700	3,657	
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For period of 15.337 years

1. 2.

	Average	discharge in acre-feet per year	- 774,271
۰.	Average	acre-feet of silt per year	- 238
	Average	acre-feet of silt per year per square mile	
		of contributing watershed	131
	Average	tons of silt per year	- 364,198
•	Average	percent of silt by weight	035
		e area in square miles (net)	- 1,811

1/	Station	was	established December 1, 1932	14 () ()
2/	Station	was	discontinued December 31, 1933.	
3/	Station	was	reestablished July 1, 1937.	

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Trinity River Watershed at ROMAYOR STATION ON TRINITY RIVER

for

Water Year 1950-1951 (October 1, 1950 to September 30, 1951)

Month	Discharge of Stream	Silt Load	Silt Load of Stream				þy		
1950	acft.	tons	acft.	pet,					
October	195,600	52,380	34	.020					
November	79,660	13,270	9	.012					
December	55,560	6,910	5	.009					
<u>1951</u>									
January	72,100	26,060	17	.027					
February	139,400	139,980	92	.074					
March	158,600	53,220	35	.025					
April	95,200	19,040	12	.015					
May	134,400	66,180	43	.036					
June	577,300	403,950	265	.051					
July	134,500	65,380	43	.036					
August	31,580	6,390	4	.015					
September	54,090	32,090	51	.044					
Totals	1,727,990	884,850	580	μη γ μα γ από το προγ ικό το που το το το το το το το τ					
U.S.G.S. year	ly discharge in	acre-feet	• • • •	1,727,990					
Total silt for year in acre-feet									
	silt per year p								
of	contributing wa	tershed		.032					
Average perce	nt of silt by w	eight for year		.038					

Drainage area in square miles (net)

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for

Trinity River Watershed

Stream:	TRINIT	ĽΥ	
Station:	ROMAY)R	
Sampler:	Claud	Allen	

(Samples taken from the railroad bridge)

Water Year	Discharge of Stream	Silt Load	of Stream	Average Percentage of Dry Silt by Weight
$\frac{1}{1935-36}$ 1935-36 1936-37 1937-38 1939-40 1940-41 1941-42 1942-43 1942-43 1943-44 1943-44 1944-45 1945-46 1945-46 1946-47 1947-48 1948-49	acft. 42,130 3,900,920 6,753,160 2,165,150 3,218,170 12,258,630 9,901,100 4,298,370 7,588,430 12,202,840 8,391,500 7,009,180 4,476,720 4,029,430	tons 5,220 3,481,600 6,741,220 3,199,280 4,999,040 9,657,990 9,447,990 4,914,950 11,433,850 13,559,310 8,643,330 5,290,980 3,284,720 3,411,700	acft. 4 2,285 4,423 2,099 3,280 6,335 6,197 3,224 7,501 8,893 5,670 3,468 2,154 2,238	pct. .009 .066 .073 .109 .114 .058 .070 .084 .111 .082 .076 .055 .054 .062
1949-50 1950-51 TOTALS	8,017,800 1,727,990 95,981,520	5,538,990 <u>884,850</u> 94,495,020	3,634 <u>580</u> 61,985	.051 .038

For period of 15.142 years

Average discharge in acre-feet per year	8	8	6,338,761
Average acre-feet of silt per year		cana :	4,094
Average acre-feet of silt per year per square mile			
of contributing watershed		-	.238
Average tons of silt per year	₽.	an i	6,240,590
Average percent of silt by weight	-	-	.072
Drainage area in square miles (net)	-	-	17,192

1/ Station was established August 10, 1936.

SUMMARY OF SILT DATA FOR SOME OF THE MAJOR TEXAS STREAMS

(For Water Year Ending September 30, 1951)

					Average			Amt. of		
Water-			Years	Total	Runoff	Averag	e Amount	Silt per	Silt	Net
shed	Stream	Silt Station	Samples	Length	of		of	Sq. Mi.	Ъу	Drainage
			Taken	Record	Stream	·	Silt	Watershed	Weight	Area
									per-	· · ·
				_years	ac-ft	ac_ft	tons	ac-ft	cent	sq.mi.
D		A		3 000		~ 0-0				
Brazos	Salt Fork	Aspermont $\frac{1}{7}$	1924-25	1,238	111,100	2,818	4,297,42		2.842	2,216
Brazos	Salt Fork	Seymour 1/	1924-30	6.107	398,864	6,501	9,912,15		1.826	5,250
Brazos	Dbl.Mt.Fork	Aspermont 1/	1924-33	9.244	135,280	2,665	4,062,40		2.206	1,510
Brazos	Clear Fork	Crystal Falls 1/	1925-29	3.307	214,440	568	866,02		.297	4,320
Brazos	Clear Fork	Eliasville <u>1</u> /	1924-25	1.244	177,240	529	808,63		• 335	5,740
Brazos	Little River	Little River 1/	1924-29	4.962	419,870	752	1,147,19		.201	5,253
Brazos	San Gabriel	Circleville 17	1924-29	5.403	110,744	222	339,59	.369	.225	602
Brazos	Leon	Belton <u>2</u> / -	1945-50	4.333	339,520	353	527,41	7.100	.114	3,547
Brazos	Navasota	Easterly	1942-51	9.748	304,741	183	278,97		.067	949
Brazos	Brazos	South Bend	1942-51	9.710	485,834	2,575	3,924,33	0.208	•593	12,360
Brazos	Brazos	Possum King.Dam	1942-51	9.710	552,068	71	109,06		.015	
Brazos	Brazos	Mineral Wells 1/	1924-34	10.332	953,550	6,506	9,920,06		.764	13,910
Brazos	Brazos	Glen Rose 1/	1924-29	4.588	1,181,370	8,378	12,773,81		•794	15,600
Brazos	Brazos	Waco 1/	1924-33	9.254	1,717,130	10,325	15,742,01		.673	19,260
Brazos	Brazos	Bryan 1/	1899-02	3.419	4,156,736	39,117			.941*	29,190
Brazos	Brazos	Richmond	1924-51	27.306	5,526,956	21,948	33,505,61		.445	34,810
Colorado	Llano	Llano	1942-51	9.167	176,927	193	294,71		.122	4,000
Colorado	Pedernales	Johnson City	1942-51	9.167	85,620	111	168,38		.144	947
Colorado	Colorado	San Saba	1930-51	21.055	1,120,643	2,920	4,452,08		.186	18,700
Colorado	Colorado	Tow 1/	1927-32	5.162	1,245,440	3,360	5,122,52		. 302	19,300
Colorado	Colorado	Inks Dam	1942-51	9.167	626,783	49	74,54	3	.009	
Colorado	Colorado	Buchanan Dam	1947-51	4.000	519,405	22	32,54		.005	
Colorado	Colorado		1937-51	14.164	1,578,548	623	948,53		.044	26,260
Colorado	Colorado	Columbus-E.Lake	30-33;37-41		3,167,710	5,898	8,991,96		.209	29,140
Guadalupe	Guadalupe	Spring Branch	1942-51	9.748	171,060	85	130,55		.056	1,432
Guadalupe	Guadalupe	Victoria	1945-51	6.083	903,299	342	520,87		.042	5,311
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Percent of silt by volume. ¥

Silt by months and summary data prior to 1940 contained in Progress Report No. 1. Station discontinued December 31, 1949. Station discontinued October 31, 1941.

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SUMMARY OF SILT DATA (Continued)

				· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·	2	-	· · · ·	
· · ·					Average			Amt. of		- Contraction of the second
Waters 🗧			Years	Total	Runoff	· Averag	ge Amount	Silt per	Silt	Net
shed	Stream	Silt Station	Samples	Length	of		of	Sq. Mi.	by	Drainage
			Taken	Record	Stream	5	Silt	Watershed	Weight	Area
			* 4						per-	
		•		years	ac-ft	ac-ft	tons	ac-ft	cent	sq.mi.
Lavaca	Lavaca	Edna	1945-51	6.083	141,858	108	164,060	.122	.085	887
Neches	Angelina	Horger	1945-51	6.083	2,407,376	360	548,290		.017	3,435
Neches	Neches	Rockland	1930-51	21.148	1,978,496	294	449,526		.017	3,539
Nueces	Nueces	Cotulla	1942-51	9.748	169,269	68	103,076		.045	5,260
Nueces	Nueces	Three Rivers	1927-51	24.000	662,721	494	753,289		.084	15,600
Nueces	Nueces	Corpus Chr.Dam	1942-51	9.660	619,886	135	206,927		.025	
Rio Grande	Rio Grande	Eagle Pass 4/	1934-43	9.068	3,180,057		14,904,545	.078	. 344	125,260
Rio Grande	Rio Grande	Roma 4/	1929-43	14.184	4,166,619	12,588	19,192,311		. 338	157,204
Red	Pease	Crowell 5/	1942-47	5.002	113,411	992	1,512,834	.412	.980	2,410
Red	Wichita	Wichita Falls 1,	/ 1900-02	2.014	566,420	5,516	. අප ස ම සම	1.776	·974 *	3,105
Red	Red	Denison 1/ -	30-33;36-37	6.260	3,326,780		20,793,380		.459	32,840
Sabine	Sabine	Logansport,La.	32-33;35-51	17.156	2,912,077	694	1,059,410		.027	4,858
Sabine	Sabine	Ruliff 6/	1945-46	1.083	11,408,860	3,124	5,771,404		.037	9,440
San Antonio	San Antonio	Falls City 1/	1927-33	5.967	127,120	142	216,730		.125	2,070
San Antonio	San Antonio	Goliad	1942-51	9.748	446,018	433	660,822	.111	.109	3,918
San Jacinto	West Fork		32-33;37-51	15.337	774,271	238	364,198		.035	1,811
San Jacinto	San Jacinto	Huffman	1945-51	6.083	1,519,214	546	833,257	.196	.040	2,791
Trinity	Trinity	Rosser <u>7</u> /	1938-40	1.598	760,700	986	1,504,920		.145	8,057
Trinity	Trinity	Romayor	1936-51	15.142	6,338,761	4,094	6,240,590	.238	.072	17,192

Percent of silt by volume. ×

/ Silt by months and summary data prior to 1940 contained in Progress Report No. 1. / Station discontinued May 31, 1943. / Station discontinued June 30, 1947. / Station established September 1, 1945 and discontinued September 30, 1946. / Station discontinued June 27, 1940.

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97 ઉપરદાશ્ય વધારાજી પ્રચાર કરી સગલ (૧૫, ૫૯૯) સ્ટાફ્ટ કુંદ્ર ઉપરાધવા કરી**પોર્ટ્ડો**, સારકાર વડા કરી હો, તેણે કે પટતે જે તે વાસ્તાવા કો ઉપરુદ્ધ જોક્ષા હે? ંદ્ર જાત [[/ ઉપયદાન જ ઉપરાધમાં સમય સમય સ્ટાફ સંદ્ર [1] તે?

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