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# SUSPENDED SEDIMENT AND BED MATERIAL STUDIES ON THE LOWER MISSISSIPPI RIVER

by

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# Preface

The study reported herein is a part of continuing studies in connection with potamology investigations being conducted by the U. S. Army Engineer District, Vicksburg, on the portion of the Lower Mississippi River within its jurisdiction. These studies are conducted to gain a better understanding of the fluvial processes of the river and to apply this knowledge toward effective and economical stabilization works for flood control and navigation.

This report is the first in a new series of potamology investigation reports to be published by the Corps of Engineers. Previous potamology investigation reports published under the old series are not listed.

This study was performed under the direction of Mr. J. E. Henley, Chief, Engineering Division. The analysis and report were prepared by Mr. L. G. Robbins of the Potamology Section with the assistance of Messrs. J. L. Stewart and D. R. Williams.

COL G. E. Galloway, CE, was District Engineer, and LTC C. W. Steelman, CE, was Deputy District Engineer of the Vicksburg District during the preparation of this report.

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## Conversion Factors, U. S. Customary to Metric (SI) Units of Measurement

U. S. customary units of measurement used in this report can be converted to metric (SI) units as follows:

| Multiply | By | To Obtain |
|---|---|---|
| inches | 25.4 | millimetres |
| inches | 2.54 | centimetres |
| feet | 0.3048 | metres |
| miles (U. S. statute) | 1.609344 | kilometres |
| square miles (U. S. statute) | 2.589988 | square kilometres |
| cubic yards | 0.7645549 | cubic metres |
| ounces (U. S. fluid) | $2.957353 \times 10^{-5}$ | cubic metres |
| pounds (mass) | 0.4535924 | kilograms |
| tons (2000 lbm) | 907.1847 | kilograms |
| feet per second | 0.3048 | metres per second |
| cubic feet per second | 0.02831685 | cubic metres per second |
| Fahrenheit degrees | 5/9 | Celsius degrees or Kelvins* |

* To obtain Celsius (C) temperature readings from Fahrenheit (F) readings, use the following formula: $C = (5/9)(F - 32)$. To obtain Kelvin (K) readings, use $K = (5/9)(F - 32) + 273.15$.

# SUSPENDED SEDIMENT AND BED MATERIAL STUDIES ON THE LOWER MISSISSIPPI RIVER

## Introduction

The ultimate purpose of sediment studies in the U. S. Army Engineer District, Vicksburg, is to develop a workable knowledge of the basic principles controlling the transport of sediment in the Lower Mississippi River and to apply this knowledge toward effective and economical stabilization works for flood control and navigation. The more immediate purpose of this report, however, is to present the data that have been collected and analyzed to date (1929-1974) and to show what trends exist in the quantities and sizes of suspended and bed sediments for the Vicksburg District. For this report, measurements of all available bed-material samples are presented, but presentation of suspended sediment measurements has been limited to data collected at the three main discharge ranges since data at these ranges have been collected at regular, frequent intervals. Some analysis of the data is made, but no theoretical aspects of sediment transport are presented. The information presented in the tables and graphs of this report may be considered as a step toward the realization of the ultimate purpose of sediment studies in the Lower Mississippi River.

Previous reports that include information on the fluvial sediment for the portion of the Mississippi River under jurisdiction of the Vicksburg District may be found in References 1 through 9.

Because the Mississippi River is an alluvial river, it is a very dynamic system which adjusts its widths, depths, slopes, and meander sizes according to the sequence of water discharges imposed on the system, the sequence of sediment discharges acquired from erosional and degradational processes, and the proneness of the banks to erosion or deposition. Any major changes, either natural or artificial, in the shape, pattern, or alignment of the channel involve the transportation and redistribution of large quantities of sediment. Consequently, most of the problems encountered in channel maintenance are caused by the movement of sediment into and within the system. Therefore, a knowledge of the magnitude and trends of sediment movement is necessary for designing an efficient navigation and flood control channel.

## Data Collection

From 1929 to 1931, suspended sediment samples were collected intermittently on the Mississippi River at Arkansas City and Vicksburg, Then during the low water season of 1932, bed-material samples were taken from the thalweg at several locations throughout the District.

In 1966, the Vicksburg District began a potamology data collection program on the Mississippi River.[10] This program was initiated to provide a data base for studies leading to a better understanding of the basic principles controlling water and sediment transport. The 300 miles* of the Vicksburg District portion of the river has been divided into 25 study reaches as shown in Plates 1 and 2, and data have been collected in each study reach as need and capability have permitted. These data include hydrographic surveys, bed-form profiles, discharges and horizontal velocity distribution, bed-material and suspended sediment samples, and water-surface profiles. In addition, routine sediment sampling was established at the three discharge ranges located at Arkansas City, Vicksburg, and Natchez in 1967, 1968, and 1972, respectively. From 1967 through April 1972, sediment samples were collected monthly at the discharge ranges; since May 1972, sediment samples have been collected weekly.

## Discharge Characteristics

The Mississippi River serves as the major drainage outlet for runoff from over 41 percent of the continental United States. The drainage

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* A table of factors for converting U. S. customary units of measurement to metric (SI) units is presented on page x.

basin covers more than 1,245,000 square miles, has a contributing area of 1,129,970 square miles, includes all or parts of 31 states and two Canadian provinces, and roughly resembles a funnel emptying into the Gulf of Mexico. Waters from as far east as New York and as far west as Montana contribute to flows in the lower river.

The main tributaries to the lower river above Vicksburg are the Ohio, St. Francis, White, Arkansas, and Yazoo Rivers. The Ohio River normally contributes more water to the Lower Mississippi during the winter and early spring months, and the Middle Mississippi normally contributes more during the summer and early fall.

Flows in the Lower Mississippi River follow a general monthly trend as shown in Figure 1. Discharges are generally highest from February through June due to snow melt and early spring rains. At Vicksburg, the mean annual flow from 1929 to 1974 was 569,000 cfs.

High flows redistribute large quantities of sediment, both in suspension and along the bed, and it is these flows which bring about the most dramatic changes in channel pattern and alignment. During high flow, banks are cut, pool areas are scoured, and sediment is deposited in crossings, middle bars, and overbank areas. Most of the annual peak discharges have occurred in April and May but several have occurred in February and March as shown in Figure 2. The highest discharges of record at Vicksburg from 1897 to 1975 are shown in Table 1.

The Mississippi River is subject to periods of low flow, particularly from September through November as shown in Figure 3. During this period, it is sometimes necessary to dredge some of the crossings which have built up with sediment deposited during the high flows in order to keep the navigation channel open.

## Channel Characteristics

In a natural river, the discharge, type of hydrograph, type of bed and bank material, and sediment concentration are the major determinants of the plan and profile geometry. Leopold and Maddock[11] showed that up to a bank-full stage in a natural river section the width, depth, and velocity vary with discharge as simple power functions. These functions can be written as:

$$W = aQ^b \ , \quad \overline{D} = cQ^f \ , \quad \overline{V} = kQ^m$$

where

$W$ = width of flow, ft

$a, b, c, f, k$, and $m$ = constants for a particular cross section

$Q$ = water discharge, cfs

$\overline{D}$ = mean depth of flow in the cross section, ft

$\overline{V}$ = mean velocity of flow in the cross section, fps

Then from continuity these functions can be combined to give

$$Q = W\overline{D}\overline{V} = (aQ^b)(cQ^f)(kQ^m)$$

and it follows that

$$b + f + m = 1$$

and

$$(a)(c)(k) = 1$$

Data from the Mississippi River at the Arkansas City, Vicksburg, and Natchez discharge ranges were used to plot the relations of width, depth, and velocity to discharge and are shown in Figures 4, 5, and 6, respectively. In order to develop graphs of this type and to be able to compare data from year to year, the data need to be consistently taken at the same cross section for any particular location. The Arkansas City, Vicksburg, and Natchez discharge ranges have been located at their respective cross sections since 1928, 1942, and 1956, respectively, and so data from each range were plotted in order to determine the range of values for the exponents $b$ , $f$ , and $m$ and to see if there have been any significant changes. An increase or decrease in the value of the exponents would indicate a larger or smaller rate of increase of the dependent variables with discharge. Values of the exponents for the three discharge ranges are summarized in Table 2.

In the Vicksburg District, several cutoffs were made on the Mississippi River during the 1930's. In the upper end of the District around Arkansas City, cutoffs were not made until 1933. Since data prior to cutoffs were available at Arkansas City, the values of $b$, $f$, and $m$ were computed for water years 1929 and 1933 to compare with those after cutoffs. Table 2 shows in general, with some deviations, that since 1929 the values of $b$ and $m$ have increased and values of $f$ have decreased at Arkansas City. An increase in $b$ indicates a larger rate of increase of width with discharge, while a decrease in $f$ indicates a smaller rate of increase of depth with discharge. This would suggest that the cross section has become more dish shaped. An increase in $m$ indicates a larger rate of increase in velocity with discharge. These changes may have been initiated by the cutoff program which increased the river gradient. However, since values of $b$, $f$, and $m$ were not computed for all the years since 1929, other fluctuations may have also occurred.

At Vicksburg, from 1950 to 1972, values of $b$ tended to increase and values of $f$ tended to decrease. This trend may have been due to the outward growth of a low sandbar on the right side of the channel. Then, during 1973 and 1974, there was a decrease in the value of $b$ and an increase in the value of $f$. These later trends were probably due to the flood flows which caused the sandbar to retreat. Values of $m$ decreased during 1950-1971 and then began to increase during the following years.

At Natchez, no specific trends in the exponents were noted for the years for which values of $b$, $f$, and $m$ were computed. However, Figure 6 shows that since 1971 there has been an increase in depth and a decrease in velocity at the Natchez cross section. These trends are probably due to the flood flows.

The average values of the exponents $b$, $f$, and $m$ at the three discharge ranges determined from the data in Table 2 are:

| | b | f | m |
|---|---|---|---|
| Arkansas City | 0.170 | 0.282 | 0.547 |
| Vicksburg | 0.280 | 0.185 | 0.534 |
| Natchez | 0.051 | 0.366 | 0.583 |

These values show that the width increases at a faster rate with discharge than the depth at Vicksburg, while the converse is true at the other stations. However, because the three discharge ranges are each located in rather narrow sections of the river, values of b , f , and m at these ranges should not necessarily be considered representative of the reaches of river between them. The average values of the exponents b , f , and m from several studies on various river systems are summarized in Table 2A.

Because the mean annual flow of the Mississippi River is essentially the same throughout the Vicksburg District, the relationships of b , f , and m to discharge in the downstream direction, as Leopold and Maddock[11] computed for other rivers, were not relevant.

## Suspended Sediment

Suspended sediment measurements are being made routinely on the Mississippi River in the Vicksburg District at the Arkansas City, Vicksburg, and Natchez discharge ranges. The purpose of these measurements is to establish long-range trends in sediment characteristics and sediment transport.

Suspended sediment samples taken at Arkansas City and Vicksburg from 1929 to 1931 were obtained using the Vicksburg sediment trap, which secured samples of about 8 oz of water.[3,4] This trap consisted of a 12-in. nipple of 1-1/4-in. galvanized pipe with a swinging check valve on each end. About 50 lb of pig lead were cast around the pipe in the shape of two cones placed base to base, and near the apex of the top cone a small iron rod was inserted with an eyehole in the end for attaching the hauling line. The suspending cable was attached so that the valves opened upward and the trap hung at about 1-1/2 in. off-plumb, leaning in the direction necessary to prevent the valve checks from assuming a neutral position when open. As the trap was lowered, the check valves were forced open by the resistance of the water, allowing unimpeded flow through the pipe. At the proper depth, the downward motion was suddenly checked; the valves closed and were held closed by the reversed pressure of the water as the trap was brought upward. At eight sampling verticals spaced about equally across the river, samples were taken from the surface, middepth, and near the bottom, and then combined horizontally to form a composite sample; the sediment concentration of each was multiplied by the percent of total discharge carried in the respective vertical divisions. The sum of these was taken as the mean concentration of sediment through the cross section.

Since 1967, suspended sediment samples have been taken with the P-61 sampler.[17] Sampling verticals are located at centroids of equal portions of flow as defined by streamflow measurements. Six verticals are sampled across each range, and four suspended samples are taken in each vertical at centroids of equal quarters of flow. These centroids are located at 10.7, 32.3, 57.0, and 84.0 percent of the total depth. All suspended sediment samples are analyzed for concentration, and the results are expressed in parts per million (ppm) by weight. The concentration of sand in each suspended sample is determined, and the concentration of fine sediment (particles finer than 0.062 mm) is determined for one sample in each vertical. The sands are separated from the fines by washing the samples over the Tyler Standard Sieve No. 230. The average of these samples is then taken to be the mean concentration of sediment throughout the cross section. The suspended sediment load passing through the cross section is then determined by using the following equation:

$$Q_s = \frac{C \times Q}{371}$$

where

$Q_s$ = suspended sediment discharge, tons/day

$C$ = suspended sediment concentration, ppm by weight

371 = constant for conversion of units

Suspended sediment measurements taken during 1929-1931 and 1967-1974 at Arkansas City, Vicksburg, and Natchez are presented in Tables 3, 4, and 5, respectively.

During 1929-1931, measured suspended sediment yields varied as follows:

| Location | Yield, tons/day | | Concentration ppm | Q Weighted Concentration ppm |
|---|---|---|---|---|
| Arkansas City | Mean | 599,000 | 519 | 485 |
| | Max. | 2,629,000 | 2,650 | |
| | Min. | 39,000 | 116 | |
| Vicksburg | Mean | 577,000 | 479 | 528 |
| | Max. | 3,171,000 | 2,338 | |
| | Min. | 25,000 | 68 | |

Suspended sediment measurements made during 1967-1974 varied as follows:

| Location | Yield, tons/day | | Concentration ppm | Q Weighted Concentration ppm |
|---|---|---|---|---|
| Arkansas City | Mean | 587,000 | 275 | 305 |
| | Max. | 2,124,000 | 1,054 | |
| | Min. | 51,000 | 68 | |
| Vicksburg | Mean | 695,000 | 296 | 324 |
| | Max. | 2,865,000 | 1,021 | |
| | Min. | 66,000 | 79 | |
| Natchez | Mean | 642,000 | 271 | 276 |
| | Max. | 1,917,000 | 714 | |
| | Min. | 69,000 | 89 | |

Comparison of the data for the periods 1929-1931 and 1967-1974 indicates that the suspended sediment concentrations have decreased since 1931 by roughly 40 percent. Much of this decrease could be due largely to the bank stabilization program. The bank revetment construction history for the Vicksburg District is shown in Figure 7 which indicates that the major part of the work has been done since 1945. Figure 8 shows the caving bank history for the Vicksburg District for three periods of time: 1877-1892, 1931-1941, and 1965-1972. Between 1892 and 1972, there has been a 92 percent reduction in the total volume of bank caving. Of this total reduction, 27 percent occurred between 1892 and 1941, and 65 percent occurred between 1941 and 1972. Thus, the impact that bank stabilization has had on reducing the quantity of material entering the river from caving banks can be realized.

Figures 9, 10, and 11 show the annual average measured suspended sediment yield and concentration for the three discharge ranges for water years 1968 through 1974. During 1969, the Vicksburg discharge range showed very high sediment yields and concentrations. These high measurements were probably due to increased turbulence and scour resulting from the construction of the piers for the new highway bridge which is about 0.3 mile upstream of the range.

During 1967-1974, measured suspended fines (material finer than 0.062 mm) were found to vary as follows:

| Location | Yield, tons/day | | Concentration ppm | Q Weighted Concentration ppm |
|---|---|---|---|---|
| Arkansas City | Mean | 376,000 | 188 | 196 |
| | Max. | 1,505,000 | 940 | |
| | Min. | 43,000 | 54 | |
| Vicksburg | Mean | 404,000 | 188 | 188 |
| | Max. | 1,448,000 | 678 | |
| | Min. | 56,000 | 69 | |
| Natchez | Mean | 402,000 | 188 | 173 |
| | Max. | 980,000 | 591 | |
| | Min. | 62,000 | 79 | |

Figures 12, 13, and 14 show the annual average fine suspended sediment yield and concentration for Arkansas City, Vicksburg, and Natchez, respectively, for water years 1968 through 1974.

Figures 15, 16, and 17 present the monthly trends for measured suspended sediment which are similar to that of streamflow (Figure 4). The higher suspended sediment yields and concentrations generally occur between December and May. The extreme maximum suspended sediment yields occurred in December and February, while the extreme maximum concentrations occurred in November and December. Minimum suspended sediment yields and concentrations generally occur from August through October. Monthly average weighted mean concentrations ranged from 122 to 434 ppm. Monthly average measured suspended sediment yields ranged from 109,000 to 1,238,000 tons per day.

Monthly trends of measured fine suspended sediment yield and concentration (material finer than 0.062 mm) are shown in Figures 18, 19, and 20. The higher suspended fines yields occur from December through June. Monthly average weighted mean fines concentrations ranged from 103 to 301 ppm. Monthly average measured suspended fines yields ranged from 91,000 to 643,000 tons per day.

Figures 21, 22, and 23 show the monthly trends of the ratio of measured fine to measured total suspended sediment at Arkansas City, Vicksburg, and Natchez, respectively, during 1967-1974. The ratio is a minimum from December through May when there is an increase in suspended sands with discharge. The extreme minimum of the ratio is 0.20, and the extreme maximum is 0.97. The monthly average suspended fines content varies between 48 and 86 percent of the total measured suspended sediment. The average ratio of measured fine to measured total suspended sediment at Arkansas City, Vicksburg, and Natchez is 0.70, 0.67, and 0.70, respectively.

Because the sediment sampling frequency at the discharge ranges was increased from monthly to weekly in May 1972, it was possible to compute annual sediment yields for subsequent water years. The results were as follows:

| Water Year and Location | Total Yield 1000 tons | Fines Yield 1000 tons | Q Weighted Mean Concentration, ppm | |
|---|---|---|---|---|
| | | | Total | Fines |
| 1973 | | | | |
| Arkansas City | 254,100 | 160,900 | 277 | 175 |
| Vicksburg | 315,800 | 164,400 | 323 | 168 |
| Natchez | 284,900 | 155,100 | 298 | 162 |
| 1974 | | | | |
| Arkansas City | 289,900 | 185,400 | 355 | 227 |
| Vicksburg | 295,300 | 178,700 | 347 | 210 |
| Natchez | 249,900 | 167,600 | 296 | 198 |

From these figures, it appears that there is more material in suspension at Vicksburg than at the other stations. This may be due to the added turbulence caused by the bridge piers upstream of the Vicksburg discharge range or to the input from the Yazoo River.

A study was made to determine whether or not the relation of measured suspended sediments to discharge has changed over the years. In this study, the total suspended sediment yields, fine sediment yields, total suspended sediment concentrations, and the suspended sand concentrations were plotted against the corresponding water discharges, and a least-squares regression line was drawn to represent the relation for each year of record (Figures 24-35). The lines were not intended to be rating curves but only lines of general trend. In most cases, simple power functions approximated the relationship between the suspended sediments and the discharge and can be expressed as follows:

$$Q_s = pQ^j \ , \quad Q_{sf} = tQ^x \ , \quad C_T = rQ^y \ , \quad C_s = nQ^z$$

where

p,t,r,n,j,x,y, and z = constants for a particular cross section

$Q_{sf}$ = suspended fines discharge (material finer than 0.062 mm), tons/day

$C_T$ = total suspended sediment concentration, ppm by weight

$C_s$ = concentration of suspended sands, ppm by weight

However, it was found that for the 1973 water year the simple power function did not represent the relation between the total suspended sediment concentration ($C_T$) and discharge. This was primarily due to the decrease in total suspended sediment concentration when the stage went above bank-full. The decrease was found to be most pronounced in the material finer than 0.062 mm and can probably be partially attributed to dilution.

During the period 1929-1931, the exponent $j$ was found to be 0.965 and 1.209 at Arkansas City and Vicksburg, respectively. From 1968 to 1974, the value of $j$ was larger and varied from 1.269 to 2.430 at the same two ranges. A larger value of $j$ indicates a steeper sloping line and, thus, a greater rate of increase of suspended sediment with discharge. At Natchez, data were available during 1972-1974, and $j$ was found to vary from 1.104 to 1.496. The values of all the exponents are summarized for each year of record in Table 2.

Figures 24, 25, and 26 show the relation of suspended sediment yield and discharge. The measured suspended sediment yield at any given discharge less than 800,000 cfs was significantly lower in 1968-1974 than in 1929-1931 (Figures 24 and 25). As discussed earlier, this reduction could be due largely to the bank stabilization program. Since 1968, the relation of sediment yield to discharge has fluctuated from year to year at Arkansas City and Natchez. However, at Vicksburg there was a general trend for the high discharges to carry less sediment each year from 1969 to 1973; then, in 1974, there was an increase in sediments for the high discharges. The annual variation in the relation between suspended sediments and discharge is also shown in Figures 27-35.

For each year of record, graphs were made in which the relation between suspended sediment and discharge was plotted according to water temperature and rising or falling stage. No consistent relationships were found from these graphs for water temperature or stage. However, if any one particular rise within a year's hydrograph was considered separately, then the differences in suspended sediments for rising and falling stages could be detected. During 1973, for a given discharge, the suspended sediment yield and concentrations for rising stages were generally greater than for falling stages. Relationships between sediment concentrations and temperature probably exist, but in most cases they were obscured by other factors.

The annual variations in the average water temperature at the three discharge ranges for the period 1962-1974 are shown in Figures 36, 37, and 38. The variations were found to be very consistent from year to year; and there was essentially no difference in the average water temperatures between the three ranges even though the upstream and downstream ranges are separated by 204 river miles.

Figures 39, 40, and 41 show the relationship of stage, suspended sediment concentration, depth below average low water plane (ALWP), and velocity to discharge during the major rise of 1973. These figures show that in general for a given discharge the suspended sediment concentration and velocity were greater when the discharge was increasing than when it was decreasing. Also, the stage and mean depth below ALWP were generally less for increasing discharge than for decreasing discharge, except at Natchez where the relationship of depths below ALWP to discharge was reversed and fluctuated considerably.

## Bed Material

Samples of bed material obtained in the Vicksburg District were collected with a drag bucket prior to 1967. During 1967, the District began using the BM-54 bed-material sampler[17] except for collection of bed samples on the left side of the Vicksburg discharge range. At Vicksburg, the river channel is adjacent to a limestone bluff which has a base extending out into the bed of the river. Because of the rock bottom, the drag bucket is used rather than risk damaging the BM-54 sampler. The BM-54 has been designed such that it is less likely than the drag bucket to permit fine material to be washed out as the sample is taken and then raised through the water column.

During 1967, the Vicksburg District took 77 companion samples using the drag bucket and the BM-54 to determine if there was any difference in the samples obtained. The $D_{84}$, $D_{50}$, and $D_{16}$ sizes for corresponding samples were compared as follows:

| | Average Size, mm | | |
|---|---|---|---|
| | $D_{84}$ | $D_{50}$ | $D_{16}$ |
| Drag bucket | 1.213 | 0.422 | 0.281 |
| BM-54 | 1.138 | 0.422 | 0.265 |
| Percent difference | 6.6 | 0.0 | 6.0 |

In almost all sample pairs, the compared sizes were very close; however, the BM-54 apparently retained slightly more of the finer material while the drag bucket gathered larger gravel-size material.

From August through September of 1932, which was during low water, a survey of bed materials of the Mississippi River was made between Cairo, Illinois, and New Orleans, Louisiana.[5] In this survey, 531 samples were taken from the thalweg of the river of which 304 samples were in the Vicksburg District.

Since 1967, bed-material samples have been taken in the Vicksburg District in conjunction with the suspended sediment samples. Bed-material samples are obtained at the same sampling verticals as the suspended sediment samples which are located at centroids of equal portions of flow. Six samples are taken routinely across each of the three main discharge ranges. During 1966-1972, periodic bed samples were taken at special potamology sediment ranges located throughout the Vicksburg District's portion of the river. During each sampling, 4 to 12 bed samples were taken across each range depending on the width of the cross section. Since 1972, the special potamology sediment ranges have been changed, and samples at these ranges are now taken only at the center of flow. Consequently, when comparisons of samples are made, the procedures used in sampling must be kept in mind.

The sieve method has been used to analyze all bed-material samples; however, since 1966, no mechanical analysis has been made of samples which are finer than the 200 sieve (0.074 mm). Material finer than 0.074 mm is classified as silt-clay material.

Bed-material samples are analyzed individually, and the results are averaged to give the representative particle-size distribution for the entire cross section. The procedure for computation of the representative size distribution is to determine the percent of the total weight retained on each sieve, sum the percent retained on each fraction, and then divide each total by the number of samples to compute the average percent retained as well as the cumulative percent finer distribution (composite size distribution). Representative size distributions for each of the 25 study reaches for 1932 and 1966-1974 are presented in Tables 6-15. Physical data of the bed material are presented in Table 16.

Figures 42, 43, and 44 show the variation in average bed-material sizes at the Arkansas City, Vicksburg, and Natchez discharge ranges, respectively, for the period 1967-1974. The procedure for computing the average sizes was to form a composite size distribution from each year's set of bed-sediment data for each of the three discharge ranges. Then, from each composite size distribution, the $D_{84}$, $D_{50}$, and $D_{16}$ were determined.

At Arkansas City (Figure 42), there was a significant increase in the $D_{84}$ during 1968. At that time, there was an exposed gravel layer on the right side of the channel. Following 1968, the layer washed out and the $D_{84}$ of the cross section decreased.

At Vicksburg (Figure 43), the $D_{84}$ increased during 1968-1970. This increase may have been due to increased turbulence resulting from the construction of the new bridge piers, beginning early in 1969 just upstream of the discharge range. The increase in the $D_{84}$, $D_{50}$, and $D_{16}$ sizes during 1973 was probably due to the unusually high flows of that year.

At Natchez (Figure 44), there has been a general increase, with some minor deviations, in the $D_{84}$, $D_{50}$, and $D_{16}$ sizes during 1970-1974. This increase may be due to the migration of larger sizes downstream; however, the period of record at this station is too short to draw any definite conclusions.

Figures 45-54 show the variation in the composition of bed material in the Vicksburg District for 1932 and 1966-1974. To interpret the curves, the vertical distances between adjacent jagged lines represent the percentage of the material falling in the range between the lines. Comparison of these figures shows that there has been a general increase in the percentage of material finer than 0.295 mm since 1932. Conversely, there has been a decrease in the percentage of material larger than 0.589 mm. The percentage of material between 0.295 and 0.589 mm was greater in 1966 than in 1932; however, by 1974, the percentage had decreased to approximately what it was in 1932.

Figure 55 shows the variation in the median size ($D_{50}$) of bed materials in the Vicksburg District for the periods 1932, 1968, 1971, and 1974. The $D_{50}$ for these periods varies from 0.106 to 0.577 mm. The general trend has been a decrease in the $D_{50}$ size since 1932, which is contrary to what one might expect. However, the variation in sampling techniques and in the number of samples taken each year within each reach needs to be kept in mind when interpreting the averages.

A sediment size classification which has been recommended by the Subcommittee on Sediment Terminology of the Committee on Dynamics of Streams of the American Geophysical Union[18] is presented in Table 17. Numerous sediment size scales have been devised by various scientific groups to systematize the size designation. However, specialists in sedimentation are prone to adhere to the original Wentworth scale, or some variation thereof. The size classification in Table 17 embraces and expands the Wentworth scale. This table also shows that the median diameter of bed material in the Vicksburg District falls within the range of very fine to coarse sand.

The variations in the weighted average bed-material sizes (representative bed-material sizes for the District as a whole) for the years 1932 and 1966-1974 are shown in Figure 56. The procedure used in computing the weighted average bed-material sizes was to determine a composite size distribution for each study reach which was assumed to be representative of that reach. These composite distributions were then averaged using the study reach length as the weighting factor. The $D_{84}$, $D_{50}$, and $D_{16}$ were then determined from the weighted average size distribution. In 1966, the $D_{84}$ and the $D_{50}$ were smaller than in 1932, while the $D_{16}$ was larger. Since 1966, there has been a general decrease in the representative bed-material sizes except during 1967 and 1973. The size variation between 1966 and 1967 may be due to sampling, while the size increase during 1973 may be due to the flood of that year. The flood flows of 1973 gave the river a much greater sediment transport capability which probably resulted in a coarsening of the bed material. During the period of record, the weighted average $D_{50}$ has varied from 0.376 to 0.304 mm between miles 422.8 and 606.0 above head of passes (AHP).

It is interesting to note that even though there has been a general decrease in sampled bed-material sizes for the District as a whole, there has been a significant increase in the extent of exposed gravel deposits on middle bars and islands throughout the District since the floods of 1973, 1974, and 1975. Aerial reconnaissance during the low-water seasons following the floods revealed extensive gravel deposits from the northern end of the District to as far south as Natchez Island, mile 357, which is about 78 miles below Vicksburg. It is believed that these gravels were carried in transport during the flood flows, because they are on top of islands and middle bars which were built up in elevation during the high water. Evidently, during the high flows, the river scoured down into some of the old gravel layers and transported this bed material up onto the island and sandbar surfaces. Gravel deposits were generally found at the head end of islands, middle bars, and point bars.

Several field trips were made during the 1973-1975 low-water seasons to investigate the size of material in the gravel deposits and to examine the sand waves left by the high flows. Photos 1 and 2 were taken 26 September 1975 at the upstream end of the middle bar located in the left channel at Cottonwood, approximately mile 470 AHP. It was in this area that the largest sizes of material were found. Photo 1 is a typical view of the gravel cover that was exposed on the crests of dunes. This gravel layer was continuous, lying immediately below the shallow sand cover shown in the photograph. Photo 2 shows some of the larger sizes of material which measured 8 to 12 cm (3 to 5 in.) along their major axis.

Photos 3 and 4 were taken 23 September 1975 of the Togo Island Dike No. 2, located approximately at mile 416 AHP. Photo 3 is a general view of the dike looking inshore from about 350 ft out. The interstices in the quarry stone were found to be filled with gravel, some of which were 6 cm (2+ in.) in diameter along their major axis (Photo 4). It was interesting to find gravel on top of the dike since the dike crown is roughly 10 to 15 ft above the riverbed. It is rather doubtful that the gravel rolled up the side of the dike; therefore, the material must have been carried in suspension, possibly due to the turbulence caused by the dike during high water. This gives an indication of the sizes of material that the river can carry in suspension. However, gravel-size material is never found in the suspended sediment samples since the nozzle on the P-61 suspended sediment sampler is only 0.48 cm (3/16 in.) in diameter.

Photo 5 was taken 3 October 1973 at the head of Middle Ground

Island (mile 409 AHP) showing a general view of the gravel cover that was left following the 1973 flood. The following year (7 August 1974) a second field trip was made to Middle Ground Island. Photos 6 and 7 show the typical sizes of material found with the larger sizes measuring 3 to 4 in. along the major axis. A trench was cut to show the thickness of the gravel cover and underlying sand. As shown in Photo 7, the gravel was found to be an armor layer roughly the thickness of the larger materials, and the underlying sand was found to have gravel interspersed throughout.

Photos 8 and 9 were taken 22 September 1975 at the head of the middle bar around mile 388.4 AHP. Photo 8 is a view of the extensive gravel cover, and Photo 9 is a close-up showing the size of material found. Some of the larger sizes of material measured 6 to 8 cm (2 to 3 in.) along their major axes.

The extent and size of material found in the gravel deposits throughout the Vicksburg District indicate that there is larger material transported by the river during high flows than is ever sampled during routine sampling. The quantity of sediment transported in the Mississippi River has always been described as being very large in volume, but the sizes of material transported are evidently larger than usually suspected.

Huge quantities of sediment are transported along the riverbed in the form of large sand waves. During the field trip to Rodney (22 September 1975), well-preserved sand waves from the 1975 high water were found on the lower end of the middle bar around mile 387 AHP. Photos 10, 11, and 12 show some typical views of the sand waves, most of which ranged from 6 to 10 ft in height at their crest. Longitudinal profiles were made during 1973 and 1974 at various points on the hydrograph in order to make comparisons of the bed forms within the main channel. Plates 3 and 4 show longitudinal profile comparisons for high and low stages in the Ozark-Eutaw Reach (see Plate 1 for location). Plate 3 shows that at a 36-ft stage, sand waves approached 30 ft in amplitude and 400 to 600 ft in length, while at a 12-ft stage, they diminished to around 5 or 10 ft in amplitude and 300 to 500 ft in length. The general smoothing out of the bed during low stages is more dramatically illustrated in Plate 4.

The massiveness of the bed load on the Lower Mississippi is exemplified by the extensive gravel deposits and the enormous sand waves; however, the magnitude of this load is something that cannot be effectively measured thus far.

## Roughness Characteristics

The roughness coefficient and slopes are two important hydraulic parameters; at the same time, they are two of the more difficult parameters to isolate and study. In a river the size of the Mississippi, the roughness varies considerably across any one cross section, and the water-surface plane takes on a complex geometry of intersecting sloping planes. Thus, an attempt to determine a roughness coefficient that is representative of an entire cross section or reach is difficult and subject to considerable error.

Various studies have been made of the hydraulic characteristics of the Mississippi. A rather thorough study of the Vicksburg District's portion of the Lower Mississippi was made by M. G. Anding[19] in 1970. In his study, Anding made an intensive analysis of data from one typical meandering reach and one typical straight reach. The hydraulic parameters were plotted in profile to indicate the wide variation in data from range to range, to show the differences in magnitude between high and low stages, and to compare meandering reaches with straight reaches. Data from the Ozark-Eutaw Reach were selected to illustrate results in a meandering reach, and Cracraft-Carolina data were used for a straight reach (see Plate 1 for location).

In Anding's study, the roughness factor "n" represents a coefficient in the equation

$$\overline{V} = \frac{1.486}{"n"} \overline{D}^{2/3} S^{1/2} \qquad (1)$$

where S is the slope of the energy grade line.

Figure 57 shows the variation of the roughness "n" and energy slope for a meandering reach at a low stage of 4 ft above ALWP. The energy slope generally varies directly with "n" . Values of "n" vary throughout the reach from 0.02 to 0.04 and average about 0.03.

Figure 58 shows data for the meandering reach at a higher stage of 30 ft above ALWP. There is a significant increase in slope with stage, but there is a very limited change in the roughness "n" from low to high stage.

Figure 59 shows the same parameters for a straight reach at a low stage of 2 ft above ALWP. In this case, the slope is roughly comparable to that of the high stage in the meandering reach. The roughness "n" varies throughout the reach from approximately 0.026 to 0.048 and averages 0.033, which is a little higher than for the meandering reach.

Figure 60 shows data for the straight reach at a high stage of 28 ft above ALWP. When Figures 59 and 60 are compared, a significant decrease in energy slope is noted with again a very limited change in "n" .

Comparison of average slope for a meandering reach and a straight reach exemplifies the change in slope with stage and the relative reversals of slope from high to low stage. At low stages, the meandering reach has flatter slopes.

Figure 61 presents the variation of "n" with stage for both the meandering reach and the straight reach. In addition, this figure shows that there is little or no change of "n" with changes in stage. There is also no great variation in the average value of "n" for a meandering reach compared with a straight reach. However, there was a wide variation in "n" from range to range as shown in Figures 57-60.

To compute the roughness coefficient it is necessary to measure longitudinal differences in the water-surface elevation; as Anding points out, the pattern of slopes in the Lower Mississippi River is very complex. The water surface consists of planes which slope not only longitudinally but also transversely.

Surveys of the study reaches which were used to determine water-surface elevations for Anding's study included gages located on one or sometimes both banks of the river at intervals of 3,000 to 5,000 ft. Slopes were then computed between these gages. However, it must be kept in mind that the river can be greater than 5,000 ft in width; thus, 5,000 ft between gages is a very short segment of river in relative terms. Due to the complex water-surface plane, a roughness coefficient computed using slopes between 5,000-ft segments of river may not be a true indication of the actual roughness since the computation may be biased by the transverse slope.

A recent study has been made by the Potamology Section of the variation of the roughness "n" with discharge at the Arkansas City discharge range, mile 565.9 AHP. In this study, a much longer segment of river was used to determine the water-surface slope. The slope computations were made by determining the difference in water-surface elevation between the local gage at mile 565.9 AHP and the Arkansas City gage at mile 554.1 AHP, a distance of 11.8 miles. Plate 5 shows the location of the Arkansas City discharge range and the gages used in slope computations. The locations of dikes and bank revetment are also shown along with the dates of construction. This section of river is quite sinuous and contains a variety of cross-sectional shapes including divided flows at higher stages. Figure 62 shows a summary of the variation of the water-surface slope with discharge for water years 1969-1974. The data show that the slope decreases with increasing discharge and that the extreme values vary by a factor of 2 for any one discharge.

The cross section at the discharge range, mile 565.9 AHP, and the water-surface slope were used for computing "n" in Equation 1. Data were not available for the computation of the energy slope, and so the water-surface slope was substituted. In general, for open-channel flow the water-surface slope can be assumed to approximate the energy slope.

The computed "n" values were plotted against the corresponding water discharges, and a line was drawn to represent the relation for each year. Figure 63 shows a summary of the variation of "n" with discharge for water years 1969-1974. The data show that "n" decreases with increasing discharge and varies over a larger range than shown in Anding's study. The values of "n" range from a high of 0.087 at low discharge to a low of 0.018 at high discharge. From 1969 to 1970, there was a general increase in "n" , while from 1970 to 1972, there was a general decrease. During 1973 and 1974, values of "n" were much higher than previous years for discharges less than 1,000,000 cfs. The increase in "n" was probably due in part to large volumes of bed sediments transported in the form of sand waves during the high water of those years (Plates 3 and 4 and Photos 10, 11, and 12). For discharges greater than 1,000,000 cfs, "n" values were roughly the same for 1969-1974.

For each water year during 1969-1974, the relation between the roughness "n" and discharge was plotted according to rising or falling stage and water temperature. No consistent relationships were found for the rising or falling stages; however, there did seem to be some correlation with the water temperature in that the warmer temperatures tended to plot above the cooler ones.

When the major rise for each year's hydrograph was considered separately, then the differences in the roughness between the rising and falling stages could be detected. As shown in Figure 64, during the major rise of 1971, the "n" values were higher on the rising limb than on the falling limb. Conversely, during 1973, the "n" values were lower on the rising limb than on the falling limb. Data plotted for other years showed no consistent relationships.

In order to see what long-term changes may have occurred in the roughness coefficient at the Arkansas City discharge range, data from 1929 to 1932 were used to compute the roughness "n" . Water-surface slope was again used in the computation of "n" ; however, a problem was encountered because no explanation was given with the data as to what gages had been used in the computation of water-surface slope. After examining some of the old comprehensive surveys, it appeared that the slopes may have been computed for a very short segment of river. As discussed earlier, this may introduce more errors in the computations.

Figure 65 shows the variation of the roughness "n" with discharge for the 1929-1932 period. The plotted points are quite scattered with "n" varying from 0.025 to 0.054. The large scatter in "n" values may be due in part to the way slope was computed. The data are plotted according to rising and falling stages, but there does not seem to be any apparent correlation with the rises or falls. Water-temperature data were not given, so determination of the variation of "n" with temperature was not possible.

Due to the different locations of gages used in computing the slopes for the recent data and the 1929-1932 data, there can be no true comparison of "n" for the two different time periods.

In order to see if the results from the Arkansas City discharge range were typical, data from the Helena discharge range, mile 662.7 AHP, were used to see how "n" varied with discharge. The Helena discharge range was chosen, since there were no other discharge ranges within the Vicksburg District which had a gage close by with published data for determining slope. Slope computations were made by determining the difference in water-surface elevation between the Helena gage at mile 663.3 AHP and the high-water gage 126 at mile 652.5 AHP, a distance of 10.8 miles. Water-surface slope and the cross section at the discharge range, mile 662.7 AHP, were used in the computation of the roughness "n" , and the data were plotted the same as for the Arkansas City discharge range. Plate 6 shows the location of the Helena discharge range and the gages used in slope computations. In addition, the dikes and bank revetment locations are shown with their respective dates of construction. This reach is much straighter than the Arkansas City area, and there is a bridge crossing the river at Helena about 1 mile downstream of the discharge range. Like the Arkansas City area, the Helena Reach has divided flows at medium to high stage.

Figure 66 shows a summary of the variation of "n" with discharge for water years 1957 and 1965-1973. The plotted data show again that "n" decreases with increasing discharge. The values of "n" range from a low of 0.018 at high discharge to a high of 0.067 at low discharge. The values of "n" at Helena for low discharge are less than they are at Arkansas City. From 1957 to 1966, there was an increase in "n" , while from 1966 to 1972 there was a general decrease. It would be difficult to say whether or not river training structures caused this change without a more detailed study of channel geometry changes. During 1973, values of "n" were much higher than previous years. This increase in "n" was probably due in part to large volumes of bed sediments transported in the form of sand waves during the flood as was mentioned earlier.

No consistent relationships were found from graphs in which the relation of "n" and discharge was plotted according to rising or falling stage and water temperature. However, if the major rise for each year's hydrograph was considered separately, then the differences in the roughnesses between the rising and falling stages could be detected. As shown in Figures 67 and 68, in most cases the "n" values were larger on the falling limb than on the rising limb.

Figure 69 shows the variation of the roughness "n" in the Vicksburg District for flood discharges during 1945, 1973, and 1974. These "n" values were obtained from the "Mississippi River Flowline Study" done by the Hydraulics Branch of the Vicksburg District. The mean, minimum, and maximum computed "n" values and the peak discharges were as follows:

| | Year | | |
|---|---|---|---|
| | 1945 | 1973 | 1974 |
| Mean | 0.026 | 0.030 | 0.027 |
| Minimum | 0.021 | 0.020 | 0.020 |
| Maximum | 0.036 | 0.038 | 0.032 |
| Peak Q , cfs, at Vicksburg | 1,922,000 | 1,962,000 | 1,526,000 |

The 1973 "n" values tended to be the highest, and the 1945 values tended to be the lowest; however, while the 1973 discharge was the highest for these 3 yr, the 1974 discharge was lowest. This would suggest that the value of "n" is greatly dependent on the channel conditions set up by previous flows. The bed forms (roughness elements) of the river are constantly changing with the hydrograph; however, changes in the roughness tend to lag behind changes in the hydrograph.[20] The change in roughness is dependent on the rate of change in the hydrograph; therefore, a fast rise or fall will probably occur with a different roughness than a slow rise or fall. Also, because the geometry of a stream is related to the discharge, a period of low flows will develop a different channel than a period of high flows; thus, the floods occurring after each will be different.

In summary, the wide variation that occurs in "n" at a range for any one discharge clearly exemplifies the problems associated with trying to pick a value of "n" to use in hydraulic computations for alluvial river systems. Values of "n" varied by a factor of 2 at low discharges and by a factor of 1.3 at high discharges. Consequently, great care needs to be taken in the use of roughness coefficients.

Since the roughness "n" is a computed parameter which is dependent on several hydraulic variables, it is difficult to isolate "n" and study it in relation to channel improvement works. Isolating "n" does not separate the effects of the individual variables used in computing "n" . In order to fully understand the changes in the roughness coefficient, it would be necessary to make a detailed study of the changes in slopes, velocities, cross-sectional geometry, plane geometry, and other related fluvial geomorphic parameters of the river in relation to channel improvement works.

## Summary

Flows in the Lower Mississippi River follow a general monthly trend in which the discharges are usually highest during the period from February through June due to snowmelt and early spring rains. Most of the annual peak discharges have occurred in April and May, but several have occurred in February and March. Most of the annual low flows have occurred from September through November. At Vicksburg, the mean annual flow for the period 1929-1974 was 569,000 cfs.

In a natural river section, the width, depth, and velocity vary with discharge as simple power functions as follows:

$$W = aQ^b \ , \quad \overline{D} = cQ^f \ , \quad \overline{V} = kQ^m$$

Average values of the exponents b , f , and m were determined for the three discharge ranges and are as follows:

| | b | f | m |
|---|---|---|---|
| Arkansas City | 0.170 | 0.282 | 0.547 |
| Vicksburg | 0.280 | 0.185 | 0.534 |
| Natchez | 0.051 | 0.366 | 0.583 |

Because the three discharge ranges are each located in rather narrow sections of the river, values of b , f , and m at these ranges should not be considered representative of the reaches of river between them.

Suspended sediment measurements at Arkansas City and Vicksburg show that the concentration of suspended sediments has decreased since 1931 by roughly 40 percent. This decrease could be due largely to the bank stabilization program which has reduced bank caving by 92 percent. The higher suspended sediment yields and concentrations generally occur from December through May, while minimum yields and concentrations generally occur from August through October. The average ratios of measured fine to measured total suspended sediment at Arkansas City, Vicksburg, and Natchez during 1967-1974 were 0.70, 0.67, and 0.70, respectively.

The suspended sediment yield was found to vary with the 0.965 to 1.209 power of the water discharge during 1929-1931. For the period 1968-1974, the sediment yield varied with the 1.104 to 2.430 power of the water discharge. The suspended sediment yield at any given discharge less than 800,000 cfs was significantly lower in 1968-1974 than in 1929-1931.

The median size of the bed material generally falls between 0.106 and 0.577 mm. There has been a general decrease in the representative bed-material sizes since 1932, with the weighted average $D_{50}$ varying from 0.376 to 0.304 mm between miles 422.8 and 606.0 AHP. However, there has been a significant increase in the extent of exposed gravel deposits on middle bars and islands throughout the District since the floods of 1973, 1974, and 1975. Extensive gravel deposits were found from the northern end of the District to as far south as Natchez Island, mile 357, which is about 78 miles below Vicksburg. The larger sizes of materials measured 8 to 12 mm (3 to 5 in.) along their major axes.

The massiveness of the bed load carried by the Mississippi River is exemplified by longitudinal profiles made during high water. These profiles show sand waves that approach 30 ft in amplitude and 400 to 600 ft in length moving down the channel.

Studies of the hydraulic characteristics of the Lower Mississippi River by Anding[19] showed that when the roughness coefficient "n" was averaged for a reach of river there was little change of "n" with changes in stage. However, there was a fairly wide variation in "n" from range to range. Recent study has suggested that the "n" values are greatly dependent on the gage locations used for the water-surface slope computations due to the complex geometry of the water-surface plane. Consequently, in the present study, slopes were computed over longer reaches of river, and the values of "n" at a range were found to decrease with increasing discharge and to vary over a larger range of values than shown by Anding. Values of "n" at a range varied from a high of 0.087 at low discharge to a low of 0.018 at high discharge. At low discharges, values of "n" varied by a factor of 2; at high discharges, values of "n" varied by a factor of 1.3. This exemplifies the problems associated with trying to pick a value of "n" to use in hydraulic computations for alluvial river systems. During 1973 and 1974, values of "n" were much higher than in previous years, and this was probably due in part to the large sand waves that developed in the channel during the high flows. Values of "n" for overbank flow were not investigated in this report.

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# Appendix A: Tables

Table 1

Highest Discharges of Record on the Mississippi River
at Vicksburg, Mississippi
1897 to 1975

| Rank According to Flow | Year | Discharge (cfs) | Canal Gage* 0=46.25' msl | Rank According to Stage | Days Overbank |
|---|---|---|---|---|---|
| 1 | 1927 | 2,278,000 est. | 58.4 | 1 | 185 |
| 2 | 1937 | 2,060,000 | 55.5 | 2 | 43 |
| 3 | 1973 | 1,962,000 | 53.5 | 6 | 89 |
| 4 | 1945 | 1,922,000 | 49.8 | 15 | 47 |
| 5 | 1950 | 1,876,000 | 47.7 | 23 | 29 |
| 6 | 1975 | 1,832,000 | 49.9 | 14 | 32 |
| 7 | 1913 | 1,783,000 | 52.2 | 8 | 42 |
| 8 | 1912 | 1,780,000 | 51.7 | 11 | 72 |
| 9 | 1897 | 1,777,000 | 52.5 | 7 | 75 |
| 10 | 1922 | 1,752,000 | 54.9 | 4 | 70 |
| 11 | 1929 | 1,741,000 | 55.1 | 3 | 106 |
| 12 | 1916 | 1,735,000 | 53.9 | 5 | 90 |
| 13 | 1907 | 1,721,000 | 49.7 | 16 | 73 |
| 14 | 1943 | 1,671,000 | 45.8 | 28 | 9 |
| 15 | 1920 | 1,649,000** | 50.9 | 12 | 78 |
| 16 | 1944 | 1,609,000 | 45.6 | 30 | 3 |
| 17 | 1903 | 1,606,000** | 51.8 | 10 | 82 |
| 18 | 1961 | 1,578,000 | 47.3 | 24 | 12 |

* These are peak gage readings in feet mean sea level (msl) and are not necessarily coincident with the peak discharge.

** May have been exceeded during period of no record.

Table 2

Values of Exponents in the Equations for the at-a-Station Channel Characteristics:

$W = aQ^b$, $\overline{D} = cQ^f$, $\overline{V} = kQ^m$, $Q_s = pQ^j$, $Q_{sf} = tQ^x$, $C_T = rQ^y$, $C_s = nQ^z$

| Location and Water Year | b | f | m | j | x | y | z |
|---|---|---|---|---|---|---|---|
| Arkansas City (mile 565.9) | | | | | | | |
| 1929 | 0.061 | 0.498 | 0.440 | 0.965* | | 0.006* | |
| 1933 | 0.197 | 0.329 | 0.474 | | | | |
| 1950 | 0.119 | 0.345 | 0.536 | | | | |
| 1967 | 0.060 | 0.360 | 0.580 | | | | |
| 1968 | 0.122 | 0.298 | 0.580 | 1.493 | 1.175 | 0.492 | 1.768 |
| 1969 | 0.160 | 0.236 | 0.595 | 1.780 | 1.476 | 0.780 | 1.606 |
| 1970 | 0.187 | 0.228 | 0.583 | 1.796 | 1.438 | 0.798 | 1.927 |
| 1971 | 0.186 | 0.289 | 0.518 | 1.948 | 1.565 | 0.949 | 1.550 |
| 1972 | 0.192 | 0.300 | 0.516 | 1.725 | 1.453 | 0.725 | 1.346 |
| 1973 | 0.261 | 0.163 | 0.576 | 1.366 | 1.086 | --- | 1.230 |
| 1974 | 0.334 | 0.051 | 0.615 | 1.872 | 1.517 | 0.872 | 1.595 |
| Vicksburg (mile 435.41) | | | | | | | |
| 1929-31 | | | | 1.209 | | 0.210 | |
| 1943 | 0.247 | 0.222 | 0.531 | | | | |
| 1950 | 0.074 | 0.352 | 0.573 | | | | |
| 1968 | 0.325 | 0.127 | 0.548 | 1.566 | 1.275 | 0.567 | 1.506 |
| 1969 | 0.314 | 0.168 | 0.518 | 2.417 | 2.108 | 1.415 | 2.334 |
| 1970 | 0.324 | 0.162 | 0.514 | 2.047 | 1.872 | 1.047 | 1.559 |
| 1971 | 0.339 | 0.157 | 0.499 | 1.912 | 1.653 | 0.910 | 1.503 |
| 1972 | 0.354 | 0.117 | 0.529 | 1.930 | 1.662 | 0.929 | 1.565 |
| 1973 | 0.290 | 0.154 | 0.556 | 1.275 | 0.888 | --- | 1.109 |
| 1974 | 0.254 | 0.208 | 0.538 | 1.754 | 1.334 | 0.753 | 1.512 |
| Natchez (mile 362.34) | | | | | | | |
| 1970 | 0.056 | 0.385 | 0.559 | | | | |
| 1971 | 0.051 | 0.377 | 0.571 | | | | |
| 1972 | 0.064 | 0.392 | 0.544 | 1.462 | 1.120 | 0.462 | 1.159 |
| 1973 | 0.036 | 0.319 | 0.645 | 1.123 | 0.698 | --- | 1.150 |
| 1974 | 0.048 | 0.355 | 0.596 | 1.258 | 0.886 | --- | 1.270 |

Note: $W$ = width of flow.
$Q$ = water discharge.
$\overline{D}$ = average depth.
$\overline{V}$ = average velocity
$Q_s$ = suspended sediment discharge.
$Q_{sf}$ = suspended fines discharge (<0.062 mm).
$C_T$ = total suspended concentration.
$C_s$ = concentration of suspended sands.
a,b,c,f,k,m,p,j,t,x,r,y,n, and z = constants for a particular cross section.

* For 1929-1931.

Table 2A

Comparison of Average Values of Exponents in the Equations for the at-a-Station Channel Characteristics with Those from Previous Studies:

$W = aQ^b, \quad \bar{D} = cQ^f, \quad \bar{V} = kQ^m$

| Location | Reference | b | f | m |
|---|---|---|---|---|
| Great Plains and Southwest | (11) | 0.26 | 0.40 | 0.34 |
| Middle Mississippi River St. Louis, Mo. | (12) | 0.07 | 0.43 | 0.50 |
| Lower Mississippi River | | | | |
| Arkansas City, Ark. | | 0.17 | 0.28 | 0.55 |
| Vicksburg, Miss. | | 0.28 | 0.19 | 0.53 |
| Natchez, Miss. | | 0.05 | 0.37 | 0.58 |
| 10 stations on the Big Black River, Miss. | (13) | 0.05 | 0.17 | 0.78 |
| Ephemeral streams in semiarid U.S. | (14) | 0.29 | 0.36 | 0.34 |
| 158 gaging stations in U.S. | (14) | 0.12 | 0.45 | 0.43 |
| Scioto River, Ohio | (15) | 0.00 | 0.30 | 0.70 |
| Various Tenn. Valley | (15) | 0.06 | 0.48 | 0.46 |
| Codorous Creek, Penn. | (15) | 0.00 | 0.40 | 0.60 |
| Brandywine Creek, Penn. | (16) | 0.04 | 0.41 | 0.55 |

Note: $W$ = width of flow.
$Q$ = water discharge.
$\bar{D}$ = average depth.
$\bar{V}$ = average velocity.

Table 3

Summary of Suspended Sediment Measurements, Mississippi River, for Arkansas City Discharge Range, Mile 565.9 AHP,* 2 April 1929-23 December 1974

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield** (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines** | Concentration (ppm): Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1929 | | | | | | | | | | | |
| April | 2 | 1,400 | 5.95 | 63.9 | 3,680 | 0.909 | | | 1,676 | | 444 | |
| | 5 | 1,394 | 6.04 | 62.7 | 3,680 | | | | 1,541 | | 410 | |
| | 8 | 1,367 | 5.78 | 64.2 | 3,680 | | | | 1,390 | | 377 | |
| | 11 | 1,384 | 5.79 | 64.8 | 3,680 | | | | 1,597 | | 428 | |
| | 15 | 1,443 | 5.96 | 65.7 | 3,687 | 0.928 | | | 2,062 | | 530 | |
| | 18 | 1,449 | 5.96 | 66.0 | 3,690 | | | | 1,896 | | 485 | |
| | 22 | 1,497 | 6.05 | 67.1 | 3,690 | | | | 2,450 | | 607 | |
| | 25 | 1,551 | 6.38 | 66.0 | 3,690 | 0.795 | | | 2,016 | | 482 | |
| May | 3 | 1,358 | 5.62 | 65.6 | 3,680 | 1.04 | | | 2,498 | | 682 | |
| | 6 | 1,279 | 5.25 | 66.1 | 3,680 | 0.833 | | | 1,952 | | 566 | |
| | 9 | 1,384 | 5.75 | 65.4 | 3,680 | | | | 1,706 | | 457 | |
| | 13 | 1,343 | 5.57 | 65.4 | 3,680 | 0.890 | | | 1,474 | | 407 | |
| | 16 | 1,431 | 5.88 | 66.0 | 3,680 | | | | 1,231 | | 319 | |
| | 20 | 1,619 | 6.34 | 69.3 | 3,690 | 1.21 | | | 1,140 | | 261 | |
| | 23 | 1,627 | 6.26 | 70.4 | 3,690 | | | | 1,220 | | 278 | |
| | 27 | 1,757 | 6.73 | 70.8 | 3,690 | 1.21 | | | 1,535 | | 324 | |
| | 30 | 1,712 | 6.43 | 72.1 | 3,690 | | | | 1,376 | | 298 | |
| June | 3 | 1,632 | 6.18 | 71.6 | 3,690 | 1.04 | | | 845 | | 192 | |
| | 6 | 1,552 | 5.95 | 70.6 | 3,690 | | | | 720 | | 172 | |
| | 10 | 1,474 | 5.73 | 69.8 | 3,690 | 1.10 | | | 771 | | 194 | |

(Continued)

* AHP--above head of passes, miles.
** Fines--material finer than 0.062 mm.

Table 3 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Concentration (ppm): Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1929 | | | | | | | | | | | | |
| June | 13 | 1,323 | 5.39 | 63.7 | 3,680 | | | | 1,834 | | 514 | |
| | 17 | 1,283 | 5.29 | 66.0 | 3,680 | 1.08 | | | 1,886 | | 545 | |
| | 20 | 1,185 | 5.06 | 63.7 | 3,670 | | | | 1,940 | | 607 | |
| | 24 | 977 | 4.55 | 58.5 | 3,670 | 0.928 | | | 2,477 | | 941 | |
| | 25 | 925 | 4.35 | 58.0 | 3,660 | | | | 2,629 | | 1,055 | |
| April - June 1929 | Avg. | 1,414 | 5.77 | 66.1 | 3,683 | | | | 1,674 | | 463 | |
| | Max. | 1,757 | 6.73 | 72.1 | 3,690 | | | | 2,629 | | 1,055 | |
| | Min. | 925 | 4.35 | 58.0 | 3,660 | | | | 720 | | 172 | |
| 1930 | | | | | | | | | | | | |
| September | 2 | 124 | 1.81 | 23.3 | 2,960 | 0.587 | | | 54 | | 160 | |
| | 3 | 126 | 1.91 | 22.3 | 2,960 | | | | 63 | | 186 | |
| | 6 | 123 | 1.81 | 23.2 | 2,940 | 0.549 | | | 41 | | 122 | |
| | 8 | 123 | 1.83 | 22.9 | 2,940 | 0.549 | | | 39 | | 116 | |
| | 12 | 121 | 1.85 | 22.2 | 2,940 | 0.511 | | | 57 | | 174 | |
| | 16 | 135 | 1.94 | 23.6 | 2,960 | 0.568 | | | 91 | | 249 | |
| | 17 | 139 | 1.93 | 24.2 | 2,960 | 0.549 | | | 109 | | 290 | |
| | 20 | 135 | 1.82 | 24.9 | 3,000 | 0.492 | | | 110 | | 301 | |
| | 22 | 175 | 2.17 | 26.7 | 3,020 | 0.549 | | | 154 | | 328 | |
| | 25 | 189 | | | | | | | 257 | | 503 | |
| | 29 | 169 | | | | | | | 193 | | 424 | |

(Continued)

Table 3 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Concentration (ppm): Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1930 | | | | | | | | | | | | |
| October | 3 | 145 | | | | | | | 156 | | 398 | |
| | 6 | 131 | | | | | | | 148 | | 419 | |
| | 11 | 123 | 1.79 | 23.5 | 2,940 | 0.530 | | | 128 | | 384 | |
| | 15 | 145 | | | | | | | 136 | | 347 | |
| | 16 | 143 | | | | | | | 130 | | 337 | |
| | 20 | 137 | | | | | | | 101 | | 272 | |
| | 21 | 134 | | | | | | | 97 | | 269 | |
| | 24 | 144 | | | | | | | 771 | | 1,983 | |
| | 25 | 134 | | | | | | | 959 | | 2,650 | |
| | 29 | 125 | 1.82 | 23.4 | 2,940 | 0.549 | | | 580 | | 1,719 | |
| | 30 | 134 | 1.98 | 23.0 | 2,940 | 0.663 | | | 579 | | 1,600 | |
| | 31 | 135 | | | | | | | 551 | | 1,511 | |
| November | 1 | 136 | | | | | | | 483 | | 1,317 | |
| | 3 | 134 | | | | | | | 387 | | 1,070 | |
| | 4 | 132 | | | | | | | 305 | | 855 | |
| | 5 | 131 | | | | | | | 263 | | 743 | |
| | 6 | 128 | | | | | | | 237 | | 685 | |
| | 7 | 125 | | | | | | | 226 | | 670 | |
| | 8 | 123 | | | | | | | 221 | | 666 | |
| | 11 | 118 | | | | | | | 183 | | 574 | |

(Continued)

(Sheet 3 of 18)

Table 3 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Measured Suspended Sediment: Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Concentration (ppm): Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1930 | | | | | | | | | | | | |
| November | 12 | 118 | | | | | | | 143 | | 449 | |
| | 14 | 117 | | | | | | | 140 | | 442 | |
| | 15 | 117 | | | | | | | 134 | | 423 | |
| | 17 | 111 | 1.69 | 22.5 | 2,900 | | | | 135 | | 450 | |
| | 18 | 117 | 1.76 | 22.8 | 2,900 | 0.549 | | | 156 | | 495 | |
| | 19 | 120 | | | | | | | 154 | | 475 | |
| | 20 | 118 | | | | | | | 146 | | 458 | |
| | 21 | 120 | | | | | | | 147 | | 455 | |
| | 22 | 124 | | | | | | | 153 | | 456 | |
| | 24 | 128 | | | | | | | 135 | | 390 | |
| | 25 | 132 | | | | | | | 168 | | 471 | |
| | 26 | 138 | | | | | | | 171 | | 458 | |
| | 28 | 149 | | | | | | | 167 | | 415 | |
| December | 1 | 150 | | | | | | | 141 | | 349 | |
| | 2 | 151 | | | | | | | 144 | | 354 | |
| | 3 | 151 | | | | | | | 202 | | 496 | |
| | 4 | 156 | | | | | | | 209 | | 497 | |
| | 5 | 158 | | | | | | | 280 | | 657 | |
| | 6 | 171 | | | | | | | 305 | | 660 | |
| | 8 | 175 | | | | | | | 238 | | 509 | |

(Continued)

Table 3 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Measured Suspended Sediment: Total Yield (1000 Tons/Day) | Measured Suspended Sediment: Concentration (ppm): Fines | Measured Suspended Sediment: Concentration (ppm): Total | Measured Suspended Sediment: Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1930 | | | | | | | | | | | | |
| December | 9 | 190 | | | | | | | 674 | | 1,314 | |
| | 11 | 218 | | | | | | | 739 | | 1,255 | |
| | 12 | 217 | | | | | | | 766 | | 1,308 | |
| | 15 | 197 | | | | | | | 333 | | 617 | |
| | 16 | 196 | | | | | | | 330 | | 623 | |
| | 17 | 199 | | | | | | | 268 | | 499 | |
| | 22 | 185 | | | | | | | 176 | | 352 | |
| | 23 | 177 | | | | | | | 168 | | 352 | |
| | 24 | 169 | | | | | | | 135 | | 295 | |
| | 26 | 155 | | | | | | | 90 | | 247 | |
| | 27 | 150 | | | | | | | 114 | | 282 | |
| | 29 | 143 | | | | | | | 934 | | 242 | |
| | 30 | 140 | | | | | | | 911 | | 241 | |
| | 31 | 135 | | | | | | | 867 | | 237 | |
| 1931 | | | | | | | | | | | | |
| January | 2 | 136 | | | | | | | 79 | | 216 | |
| | 3 | 137 | | | | | | | 86 | | 222 | |
| | 5 | 134 | | | | | | | 72 | | 198 | |
| | 6 | 132 | | | | | | | 74 | | 208 | |
| | 7 | 131 | | | | | | | 71 | | 202 | |

(Continued)

Table 3 (Continued)

| Date | | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Concentration (ppm): Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1931 | | | | | | | | | | | | | |
| January | 8 | | 132 | | | | | | | 63 | | 178 | |
| | 9 | | 134 | | | | | | | 64 | | 176 | |
| | 10 | | 136 | | | | | | | 73 | | 200 | |
| | 12 | | 141 | | | | | | | 78 | | 204 | |
| | 15 | | 161 | | | | | | | 103 | | 236 | |
| | 16 | | 168 | | | | | | | 102 | | 224 | |
| | | Avg. | 144 | | | | | | | 245 | | 537 | |
| Sep 1930 - Jan 1931 | | Max. | 218 | | | | | | | 959 | | 2,650 | |
| | | Min. | 111 | | | | | | | 39 | | 116 | |
| 1967 | | | | | | | | | | | | | |
| April | 28 | | 638 | 4.43 | 41.1 | 3,480 | 0.512 | 62 | 585 | 727 | 340 | 423 | 0.80 |
| July | 17 | | 715 | 4.77 | 42.9 | 3,500 | 0.538 | 77 | 565 | 717 | 293 | 372 | 0.79 |
| August | 28 | | 281 | 2.81 | 30.7 | 3,260 | 0.819 | 78 | 123 | 167 | 163 | 221 | 0.74 |
| September | 5 | | 263 | 2.72 | 30.0 | 3,230 | 0.846 | 73 | 83 | 91 | 117 | 128 | 0.91 |
| | | Avg. | 474 | 3.68 | 36.2 | 3,367 | 0.679 | 72 | 339 | 425 | 228 | 286 | 0.81 |
| Apr - Sep 1967 | | Max. | 715 | 4.77 | 42.9 | 3,500 | 0.846 | 78 | 585 | 727 | 340 | 423 | 0.91 |
| | | Min. | 263 | 2.72 | 30.0 | 3,230 | 0.512 | 62 | 83 | 91 | 117 | 128 | 0.74 |

(Continued)

Table 3 (Continued)

| Date | | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1967 | | | | | | | | | | | | | |
| November | 6 | | 361 | 3.25 | 33.1 | 3,350 | 0.759 | 56 | 239 | 311 | 246 | 320 | 0.77 |
| 1968 | | | | | | | | | | | | | |
| February | 12 | | 984 | 5.69 | 48.7 | 3,550 | 0.570 | 42 | 674 | 1,117 | 254 | 421 | 0.60 |
| March | 15 | | 334 | 2.98 | 34.1 | 3,280 | 0.783 | 47 | 329 | 367 | 365 | 408 | 0.89 |
| | 29 | | 1,049 | 5.93 | 49.7 | 3,360 | 0.599 | 50 | 809 | 1,320 | 286 | 467 | 0.61 |
| April | 22 | | 853 | 5.33 | 45.5 | 3,520 | 0.563 | 60 | 324 | 586 | 141 | 255 | 0.55 |
| June | 3 | | 972 | 5.65 | 48.2 | 3,570 | 0.602 | 71 | 933 | 1,357 | 356 | 518 | 0.69 |
| | 13 | | 1,051 | 5.74 | 41.3 | 4,430 | 0.579 | 74 | 402 | 739 | 142 | 261 | 0.54 |
| July | 15 | | 408 | 3.40 | 34.9 | 3,440 | 0.822 | 81 | 233 | 246 | 212 | 224 | 0.95 |
| September | 6 | | 196 | 2.25 | 27.6 | 3,160 | 0.822 | 78 | 54 | 57 | 103 | 108 | 0.95 |
| Water Year 1967 - 68 | | Avg. | 690 | 4.47 | 40.3 | 3,518 | 0.678 | 62 | 444 | 678 | 234 | 331 | 0.73 |
| | | Max. | 1,051 | 5.93 | 49.7 | 4,430 | 0.822 | 81 | 933 | 1,357 | 365 | 518 | 0.95 |
| | | Min. | 196 | 2.25 | 27.6 | 3,160 | 0.563 | 42 | 54 | 57 | 103 | 108 | 0.54 |
| October | 28 | | 300 | 2.88 | 32.0 | 3,250 | 0.782 | 65 | 125 | 141 | 154 | 174 | 0.89 |
| November | 18 | | 328 | 3.01 | 33.0 | 3,300 | 0.721 | 52 | 95 | 116 | 108 | 131 | 0.82 |
| December | 20 | | 403 | 3.42 | 35.1 | 3,360 | 0.719 | 43 | 144 | 201 | 133 | 185 | 0.72 |

(Continued)

Table 3 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1969 | | | | | | | | | | | | |
| January | 20 | 419 | 3.49 | 34.8 | 3,450 | 0.708 | 38 | 191 | 277 | 169 | 245 | 0.69 |
| February | 27 | 886 | 5.18 | 48.3 | 3,540 | 0.502 | 43 | 380 | 688 | 159 | 288 | 0.55 |
| March | 12 | 638 | 4.17 | 44.0 | 3,480 | 0.620 | 44 | 291 | 502 | 169 | 292 | 0.58 |
| April | 30 | 1,163 | 6.06 | 43.2 | 4,440 | 0.588 | 60 | 727 | 1,197 | 232 | 382 | 0.61 |
| August | 8 | 488 | 3.67 | 37.7 | 3,450 | 0.766 | 82 | 230 | 295 | 175 | 224 | 0.78 |
| September | 5 | 247 | 2.35 | 33.2 | 3,160 | 0.873 | 80 | 53 | 61 | 79 | 92 | 0.86 |
| Water Year 1968 - 69 | Avg. | 541 | 3.80 | 37.9 | 3,492 | 0.698 | 56 | 248 | 386 | 153 | 224 | 0.72 |
| | Max. | 1,163 | 6.06 | 48.3 | 4,440 | 0.873 | 82 | 727 | 1,197 | 232 | 382 | 0.89 |
| | Min. | 247 | 2.35 | 32.0 | 3,160 | 0.502 | 38 | 53 | 61 | 79 | 92 | 0.55 |
| October | 2 | 250 | 2.40 | 32.6 | 3,190 | 0.867 | 71 | 71 | 82 | 105 | 121 | 0.87 |
| November | 7 | 301 | 2.71 | 34.6 | 3,210 | 0.837 | 54 | 84 | 119 | 103 | 147 | 0.70 |
| 1970 | | | | | | | | | | | | |
| February | 13 | 714 | 4.70 | 43.4 | 3,500 | 0.656 | 37 | 481 | 1,022 | 250 | 531 | 0.47 |
| March | 9 | 632 | 4.30 | 42.1 | 3,490 | 0.671 | 48 | 440 | 666 | 258 | 391 | 0.66 |
| | 27 | 681 | 4.45 | 43.7 | 3,500 | 0.663 | 45 | 209 | 384 | 114 | 209 | 0.55 |
| May | 20 | 1,114 | 5.51 | 45.4 | 4,450 | 0.444 | 70 | 504 | 904 | 168 | 301 | 0.56 |
| June | 5 | 612 | 4.08 | 42.9 | 3,500 | 0.772 | 72 | 313 | 464 | 190 | 281 | 0.68 |

(Continued)

Table 3 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1970 | | | | | | | | | | | | |
| June | 15 | 730 | 4.56 | 45.2 | 3,540 | 0.709 | 73 | 791 | 1,070 | 402 | 544 | 0.74 |
| July | 13 | 324 | 2.75 | 36.9 | 3,200 | 1.00 | 80 | 123 | 140 | 141 | 160 | 0.88 |
| August | 21 | 309 | 2.81 | 34.4 | 3,200 | 0.922 | 81 | 176 | 188 | 211 | 226 | 0.93 |
| September | 11 | 249 | 2.39 | 32.7 | 3,180 | 1.03 | 80 | 89 | 97 | 132 | 144 | 0.92 |
| Water Year 1969 - 70 | Avg. | 538 | 3.70 | 39.4 | 3,451 | 0.779 | 65 | 298 | 467 | 188 | 278 | 0.72 |
| | Max. | 1,114 | 5.51 | 45.4 | 4,450 | 1.03 | 81 | 791 | 1,070 | 402 | 544 | 0.93 |
| | Min. | 249 | 2.39 | 32.6 | 3,180 | 0.444 | 37 | 71 | 82 | 103 | 121 | 0.47 |
| October | 8 | 494 | 3.63 | 39.8 | 3,420 | 0.796 | 68 | 336 | 441 | 252 | 331 | 0.76 |
| November | 6 | 522 | 3.84 | 40.6 | 3,350 | 0.848 | 57 | 246 | 393 | 175 | 279 | 0.63 |
| December | 7 | 357 | 3.05 | 36.0 | 3,250 | 0.890 | 49 | 91 | 131 | 95 | 136 | 0.70 |
| 1971 | | | | | | | | | | | | |
| January | 18 | 702 | 4.62 | 43.3 | 3,510 | | 40 | 365 | 935 | 193 | 494 | 0.39 |
| February | 25 | 884 | 5.23 | 47.6 | 3,546 | 0.681 | 41 | 732 | 1,327 | 307 | 557 | 0.55 |
| March | 22 | 1,005 | 5.74 | 49.0 | 3,570 | 0.526 | 48 | 485 | 1,027 | 179 | 379 | 0.47 |
| April | 23 | 443 | 3.60 | 35.6 | 3,460 | 0.920 | 60 | 116 | 185 | 97 | 155 | 0.63 |
| May | 17 | 653 | 4.87 | 39.0 | 3,440 | 0.754 | 64 | 454 | 692 | 258 | 393 | 0.66 |

(Continued)

Table 3 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1971 | | | | | | | | | | | | |
| July | 2 | 366 | 3.33 | 33.7 | 3,260 | 0.930 | 82 | 295 | 414 | 299 | 420 | 0.71 |
| August | 13 | 412 | 3.65 | 34.5 | 3,280 | | 80 | 155 | 204 | 140 | 184 | 0.76 |
| September | 20 | 252 | 2.83 | 29.8 | 2,990 | | 77 | 71 | 94 | 104 | 138 | 0.75 |
| Water Year 1970 - 71 | Avg. | 554 | 4.03 | 39.0 | 3,371 | | 61 | 304 | 531 | 191 | 315 | 0.64 |
| | Max. | 1,005 | 5.74 | 49.0 | 3,570 | | 82 | 732 | 1,327 | 307 | 557 | 0.76 |
| | Min. | 252 | 2.83 | 29.8 | 2,990 | | 40 | 71 | 94 | 95 | 136 | 0.39 |
| October | 22 | 222 | 2.65 | 28.4 | 2,950 | 1.05 | 69 | 43 | 64 | 72 | 107 | 0.67 |
| November | 15 | 312 | 3.15 | 32.4 | 3,060 | 0.786 | 57 | 79 | 138 | 94 | 164 | 0.57 |
| 1972 | | | | | | | | | | | | |
| January | 3 | 516 | 4.16 | 36.3 | 3,420 | 0.729 | 48 | 184 | 452 | 132 | 325 | 0.41 |
| February | 11 | 565 | 4.19 | 39.7 | 3,400 | 0.734 | 40 | 216 | 425 | 142 | 279 | 0.51 |
| March | 21 | 871 | 5.12 | 47.5 | 3,580 | 0.607 | 50 | 364 | 622 | 155 | 265 | 0.58 |
| April | 17 | 677 | 4.42 | 43.6 | 3,510 | 0.701 | 57 | 290 | 540 | 159 | 296 | 0.54 |
| May | 1 | 1,096 | 5.80 | 43.2 | 4,370 | 0.603 | 61 | 641 | 1,126 | 217 | 381 | 0.57 |
| | 8 | 1,239 | 6.20 | 44.5 | 4,490 | 0.594 | 62 | 461 | 989 | 138 | 296 | 0.47 |
| | 15 | 1,090 | 5.65 | 43.2 | 4,470 | 0.592 | 64 | 438 | 729 | 149 | 248 | 0.60 |
| | 22 | 923 | 4.88 | 42.8 | 4,420 | 0.602 | 66 | 498 | 739 | 200 | 297 | 0.67 |
| | 30 | 601 | 4.30 | 41.5 | 3,520 | 0.767 | 68 | 228 | 318 | 141 | 196 | 0.72 |

(Continued)

Table 3 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1972 | | | | | | | | | | | | |
| June | 5 | 431 | 3.39 | 38.1 | 3,330 | 1.02 | 72 | 128 | 171 | 110 | 147 | 0.75 |
| | 12 | 353 | 3.02 | 35.6 | 3,290 | 1.11 | 78 | 142 | 167 | 149 | 176 | 0.85 |
| | 19 | 319 | 2.90 | 34.8 | 3,160 | 1.16 | 78 | 89 | 107 | 103 | 124 | 0.83 |
| | 26 | 392 | 3.27 | 35.6 | 3,370 | 1.02 | 78 | 151 | 184 | 143 | 174 | 0.82 |
| July | 3 | 444 | 3.73 | 36.4 | 3,460 | 0.790 | 79 | 233 | 287 | 195 | 240 | 0.81 |
| | 10 | 567 | 4.14 | 39.1 | 3,500 | 0.607 | 79 | 296 | 407 | 194 | 266 | 0.73 |
| | 17 | 411 | 3.45 | 35.3 | 3,370 | 0.971 | 79 | 115 | 150 | 104 | 135 | 0.77 |
| | 24 | 405 | 3.46 | 34.7 | 3,370 | 0.974 | 82 | 128 | 156 | 117 | 143 | 0.82 |
| | 31 | 362 | 3.29 | 32.8 | 3,350 | 0.979 | 82 | 81 | 118 | 83 | 121 | 0.69 |
| August | 7 | 400 | 3.42 | 34.7 | 3,370 | 0.966 | 82 | 158 | 187 | 147 | 173 | 0.85 |
| | 14 | 441 | 3.71 | 35.3 | 3,374 | 0.900 | 80 | 197 | 245 | 166 | 206 | 0.81 |
| | 21 | 383 | 3.42 | 33.4 | 3,350 | 0.976 | 82 | 159 | 183 | 154 | 177 | 0.87 |
| | 28 | 384 | 3.46 | 33.4 | 3,350 | 0.965 | 82 | 100 | 122 | 97 | 118 | 0.82 |
| September | 5 | 294 | 3.13 | 32.0 | 3,080 | 1.06 | 79 | 59 | 78 | 74 | 98 | 0.76 |
| | 11 | 276 | 2.94 | 32.5 | 3,010 | 1.06 | 79 | 61 | 73 | 82 | 98 | 0.84 |
| | 18 | 284 | 2.96 | 31.4 | 3,050 | 1.05 | 78 | 69 | 80 | 90 | 105 | 0.86 |
| | 25 | 370 | 3.46 | 32.6 | 3,280 | 0.958 | 77 | 234 | 281 | 235 | 282 | 0.83 |
| Water Year 1971 - 72 | Avg. | 522 | 3.85 | 36.8 | 3,473 | 0.869 | 71 | 209 | 326 | 137 | 201 | 0.72 |
| | Max. | 1,239 | 6.20 | 47.5 | 4,490 | 1.16 | 82 | 641 | 1,126 | 235 | 381 | 0.87 |
| | Min. | 222 | 2.65 | 28.4 | 2,950 | 0.592 | 40 | 43 | 64 | 72 | 98 | 0.41 |

(Continued)

Table 3 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Concentration (ppm): Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1972 | | | | | | | | | | | | |
| October | 2 | 339 | 3.23 | 32.2 | 3,260 | 0.955 | 72 | 253 | 281 | 277 | 308 | 0.90 |
| | 10 | 415 | 3.68 | 33.7 | 3,350 | 0.888 | 70 | 166 | 240 | 148 | 215 | 0.69 |
| | 16 | 398 | 3.59 | 33.4 | 3,320 | 0.888 | 68 | 115 | 183 | 107 | 171 | 0.63 |
| | 24 | 348 | 3.28 | 32.6 | 3,250 | 0.958 | 60 | 91 | 139 | 97 | 148 | 0.66 |
| November | 3 | 498 | 4.22 | 33.9 | 3,480 | 0.891 | 59 | 485 | 626 | 361 | 466 | 0.77 |
| | 6 | 574 | 4.56 | 35.9 | 3,510 | 0.729 | 58 | 360 | 636 | 233 | 411 | 0.57 |
| | 15 | 821 | 5.47 | 42.0 | 3,570 | 0.648 | 54 | 412 | 686 | 186 | 310 | 0.60 |
| | 24 | 1,014 | 5.93 | 47.6 | 3,590 | 0.586 | 47 | 760 | 1,186 | 278 | 434 | 0.64 |
| | 27 | 965 | 5.88 | 45.7 | 3,590 | 0.632 | 46 | 544 | 923 | 209 | 355 | 0.59 |
| December | 5 | 853 | 5.65 | 42.1 | 3,590 | 0.587 | 46 | 255 | 531 | 111 | 231 | 0.48 |
| | 13 | 920 | 5.75 | 44.7 | 3,580 | 0.599 | 42 | 387 | 652 | 156 | 263 | 0.59 |
| | 18 | 1,081 | 6.18 | 40.1 | 4,370 | 0.571 | 40 | 533 | 1,125 | 183 | 386 | 0.47 |
| | 26 | 1,238 | 6.88 | 40.5 | 4,440 | 0.534 | 40 | 347 | 884 | 104 | 265 | 0.39 |
| 1973 | | | | | | | | | | | | |
| January | 2 | 1,198 | 6.62 | 40.8 | 4,440 | 0.552 | 41 | 329 | 814 | 102 | 252 | 0.40 |
| | 12 | 1,141 | 6.23 | 41.2 | 4,440 | 0.555 | 37 | 830 | 1,442 | 270 | 469 | 0.58 |
| | 15 | 1,051 | 5.77 | 41.1 | 4,430 | 0.520 | 37 | 473 | 853 | 167 | 301 | 0.55 |
| | 22 | 689 | 4.62 | 42.0 | 3,550 | 0.671 | 42 | 288 | 472 | 155 | 254 | 0.61 |
| | 29 | 994 | 5.46 | 41.1 | 4,430 | 0.592 | 40 | 1,007 | 1,329 | 376 | 496 | 0.76 |

(Continued)

Table 3 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Total | Ratio of $\frac{\text{Fines}}{\text{Total}}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1973 | | | | | | | | | | | | |
| February | 5 | 1,079 | 5.68 | 42.9 | 4,430 | 0.518 | 42 | 439 | 832 | 151 | 286 | 0.53 |
| | 12 | 1,125 | 5.86 | 43.2 | 4,440 | 0.525 | 40 | 1,319 | 1,762 | 435 | 581 | 0.75 |
| | 20 | 1,130 | 5.85 | 43.3 | 4,460 | 0.563 | 40 | 469 | 902 | 154 | 296 | 0.52 |
| March | 2 | 662 | 4.30 | 43.5 | 3,540 | 0.660 | 44 | 236 | 369 | 132 | 207 | 0.64 |
| | 5 | 597 | 4.09 | 41.4 | 3,530 | 0.751 | 46 | 188 | 328 | 117 | 204 | 0.57 |
| | 12 | 870 | 5.18 | 46.8 | 3,590 | 0.692 | 51 | 893 | 1,196 | 381 | 510 | 0.75 |
| | 30 | 1,684 | 7.65 | 48.9 | 4,500 | 0.498 | 54 | 776 | 1,189 | 171 | 262 | 0.65 |
| April | 2 | 1,751 | 7.48 | 52.0 | 4,500 | 0.493 | 55 | 665 | 1,152 | 141 | 244 | 0.58 |
| | 9 | 1,787 | 7.26 | 54.8 | 4,490 | 0.504 | 54 | 641 | 1,074 | 133 | 223 | 0.60 |
| | 16 | 1,694 | 6.91 | 54.4 | 4,500 | 0.534 | 53 | 703 | 1,237 | 154 | 271 | 0.57 |
| | 30 | 1,818 | 6.97 | 57.7 | 4,520 | 0.539 | 60 | 662 | 1,343 | 135 | 274 | 0.49 |
| May | 8 | 1,773 | 6.52 | 50.7 | 5,360 | 0.547 | 63 | 640 | 1,171 | 134 | 245 | 0.55 |
| | 14 | 1,789 | 6.53 | 51.0 | 5,370 | 0.538 | 65 | 545 | 1,022 | 113 | 212 | 0.53 |
| | 23 | 1,653 | 6.38 | 57.3 | 4,520 | 0.539 | 66 | 450 | 744 | 101 | 167 | 0.60 |
| | 28 | 1,471 | 6.03 | 54.1 | 4,510 | 0.578 | 68 | 373 | 646 | 94 | 163 | 0.58 |
| June | 4 | 1,204 | 5.47 | 49.0 | 4,490 | 0.644 | 70 | 461 | 733 | 142 | 226 | 0.63 |
| | 12 | 1,173 | 5.41 | 48.3 | 4,490 | 0.677 | 73 | 443 | 680 | 140 | 215 | 0.65 |
| | 18 | 1,092 | 5.18 | 47.2 | 4,470 | 0.684 | 77 | 386 | 624 | 131 | 212 | 0.62 |
| | 25 | 877 | 4.59 | 43.2 | 4,420 | 0.799 | 79 | 499 | 608 | 211 | 257 | 0.87 |
| July | 3 | 692 | 4.17 | 46.6 | 3,560 | 0.888 | 79 | 369 | 416 | 198 | 223 | 0.89 |

(Continued)

Table 3 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1973 | | | | | | | | | | | | |
| July | 9 | 582 | 3.66 | 45.0 | 3,530 | 0.955 | 80 | 268 | 304 | 171 | 194 | 0.88 |
| | 17 | 489 | 3.30 | 42.3 | 3,500 | 1.01 | 81 | 273 | 294 | 207 | 223 | 0.93 |
| | 23 | 400 | 2.88 | 41.4 | 3,360 | 1.08 | 82 | 155 | 167 | 144 | 155 | 0.93 |
| August | 3 | 608 | 3.87 | 44.9 | 3,500 | 0.891 | 81 | 667 | 716 | 407 | 437 | 0.93 |
| | 6 | 507 | 3.43 | 42.5 | 3,480 | 0.937 | 80 | 320 | 347 | 234 | 254 | 0.92 |
| | 13 | 339 | 2.63 | 44.9 | 2,870 | 1.05 | 81 | 113 | 122 | 124 | 134 | 0.93 |
| | 20 | 408 | 3.02 | 45.8 | 2,950 | 1.03 | 81 | 126 | 143 | 115 | 130 | 0.88 |
| | 27 | 353 | 2.87 | 44.4 | 2,770 | 1.04 | 81 | 168 | 178 | 177 | 187 | 0.95 |
| September | 10 | 307 | 2.52 | 43.3 | 2,820 | 0.431 | 80 | 61 | 70 | 74 | 84 | 0.88 |
| | 17 | 269 | 2.26 | 42.5 | 2,800 | 1.13 | 77 | 45 | 51 | 62 | 71 | 0.87 |
| | 24 | 240 | 2.03 | 42.3 | 2,790 | 1.12 | 74 | 50 | 56 | 78 | 86 | 0.91 |
| Water Year 1972 - 73 | Avg. | 918 | 4.96 | 44.2 | 3,883 | 0.718 | 60 | 429 | 683 | 177 | 265 | 0.68 |
| | Max. | 1,818 | 7.65 | 57.7 | 5,370 | 1.13 | 82 | 1,319 | 1,762 | 435 | 581 | 0.95 |
| | Min. | 240 | 2.03 | 32.2 | 2,770 | 0.43 | 37 | 45 | 51 | 62 | 71 | 0.39 |
| October | 2 | 300 | 2.48 | 42.8 | 2,830 | 1.11 | 74 | 77 | 86 | 95 | 106 | 0.90 |
| | 9 | 569 | 3.82 | 42.8 | 3,480 | 0.974 | 72 | 761 | 851 | 496 | 555 | 0.89 |
| | 15 | 576 | 3.86 | 42.9 | 3,480 | 0.947 | 70 | 503 | 554 | 324 | 357 | 0.91 |
| | 23 | 608 | 4.00 | 43.5 | 3,490 | 0.942 | 67 | 800 | 898 | 488 | 548 | 0.89 |
| | 29 | 541 | 3.68 | 42.3 | 3,470 | 0.941 | 64 | 478 | 550 | 328 | 377 | 0.87 |

(Continued)

Table 3 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Concentration (ppm): Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1973 | | | | | | | | | | | |
| November | 5 | 474 | 3.46 | 39.8 | 3,440 | 0.974 | 60 | 317 | 381 | 248 | 298 | 0.83 |
| | 14 | 412 | 3.17 | 45.0 | 2,890 | 0.955 | 55 | 120 | 152 | 108 | 137 | 0.79 |
| | 19 | 347 | 2.81 | 43.2 | 2,860 | 0.968 | 55 | 99 | 116 | 106 | 124 | 0.85 |
| December | 7 | 1,176 | 5.97 | 44.4 | 4,440 | 0.746 | 52 | 1,322 | 2,124 | 417 | 670 | 0.62 |
| | 11 | 1,199 | 5.91 | 45.4 | 4,470 | 0.669 | 49 | 905 | 1,839 | 280 | 569 | 0.49 |
| | 17 | 1,160 | 5.80 | 45.0 | 4,440 | 0.668 | 44 | 722 | 1,313 | 231 | 420 | 0.55 |
| | 1974 | | | | | | | | | | | |
| January | 7 | 1,131 | 5.92 | 43.3 | 4,410 | 0.666 | 38 | 570 | 1,479 | 187 | 485 | 0.39 |
| | 21 | 1,304 | 6.65 | 43.9 | 4,460 | 0.647 | 44 | 552 | 1,504 | 157 | 428 | 0.37 |
| | 28 | 1,340 | 6.63 | 45.0 | 4,490 | 0.624 | 46 | 683 | 1,680 | 189 | 465 | 0.41 |
| February | 4 | 1,427 | 6.80 | 46.7 | 4,500 | 0.616 | 47 | 781 | 1,650 | 203 | 429 | 0.47 |
| | 11 | 1,475 | 7.11 | 46.2 | 4,500 | 0.612 | 43 | 692 | 1,757 | 174 | 442 | 0.39 |
| | 19 | 1,156 | 5.88 | 44.0 | 4,470 | 0.632 | 45 | 380 | 888 | 122 | 285 | 0.43 |
| March | 1 | 1,050 | 5.47 | 43.5 | 4,420 | 0.629 | 45 | 594 | 965 | 210 | 341 | 0.62 |
| | 9 | 852 | 4.81 | 49.4 | 3,590 | 0.599 | 52 | 278 | 489 | 121 | 213 | 0.57 |
| | 15 | 982 | 5.38 | 50.8 | 3,600 | 0.658 | 54 | 490 | 741 | 185 | 280 | 0.66 |
| | 18 | 1,044 | 5.45 | 43.3 | 4,430 | 0.653 | 54 | 492 | 794 | 175 | 282 | 0.62 |

(Continued)

Table 3 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1974 | | | | | | | | | | | | |
| April | 5 | 1,016 | 5.41 | 42.4 | 4,430 | 0.634 | 53 | 288 | 553 | 105 | 202 | 0.52 |
| | 8 | 954 | 5.20 | 51.0 | 3,600 | 0.644 | 53 | 360 | 566 | 140 | 220 | 0.64 |
| | 15 | 1,013 | 5.26 | 43.6 | 4,420 | 0.639 | 55 | 440 | 781 | 161 | 286 | 0.56 |
| | 26 | 1,025 | 5.26 | 43.9 | 4,430 | 0.631 | 58 | 481 | 738 | 174 | 267 | 0.65 |
| | 29 | 942 | 5.14 | 50.9 | 3,610 | 0.647 | 63 | 434 | 614 | 171 | 242 | 0.71 |
| May | 6 | 801 | 4.65 | 48.1 | 3,580 | 0.676 | 66 | 538 | 667 | 249 | 309 | 0.81 |
| | 13 | 725 | 4.48 | 52.0 | 3,110 | 0.847 | 66 | 379 | 520 | 194 | 266 | 0.73 |
| | 20 | 728 | 4.49 | 52.1 | 3,110 | 0.828 | 69 | 348 | 479 | 175 | 244 | 0.72 |
| | 28 | 943 | 5.28 | 49.7 | 3,600 | 0.677 | 71 | 1,505 | 1,739 | 592 | 684 | 0.87 |
| June | 3 | 1,067 | 5.53 | 43.4 | 4,440 | 0.576 | 71 | 1,265 | 1,596 | 440 | 555 | 0.79 |
| | 10 | 1,195 | 5.77 | 46.4 | 4,470 | 0.697 | 71 | 1,018 | 1,047 | 316 | 325 | 0.97 |
| | 17 | 1,302 | 6.08 | 47.6 | 4,500 | 0.664 | 74 | 786 | 807 | 224 | 230 | 0.97 |
| | 24 | 1,109 | 5.45 | 45.5 | 4,470 | 0.567 | 74 | 717 | 945 | 240 | 316 | 0.76 |
| July | 1 | 845 | 4.65 | 50.8 | 3,580 | 0.642 | 74 | 485 | 617 | 213 | 271 | 0.79 |
| | 8 | 821 | 4.77 | 48.2 | 3,570 | 0.655 | 77 | 485 | 651 | 219 | 294 | 0.74 |
| | 15 | 616 | 4.03 | 49.9 | 3,060 | 0.623 | 82 | 367 | 480 | 221 | 289 | 0.76 |
| | 22 | 427 | 3.09 | 47.8 | 2,890 | 0.734 | 83 | 167 | 190 | 145 | 165 | 0.88 |
| | 29 | 354 | 2.76 | 45.2 | 2,840 | 0.803 | 84 | 142 | 155 | 149 | 162 | 0.92 |
| August | 5 | 306 | 2.56 | 42.5 | 2,820 | 0.788 | 80 | 45 | 56 | 54 | 68 | 0.79 |
| | 12 | 303 | 2.56 | 41.8 | 2,830 | 0.793 | 80 | 93 | 100 | 114 | 123 | 0.93 |

(Continued)

Table 3 (Continued)

| Date | | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Concentration (ppm): Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1974 | | | | | | | | | | | | | |
| August | 19 | | 398 | 3.16 | 43.5 | 2,900 | 0.716 | 79 | 121 | 159 | 113 | 148 | 0.76 |
| | 26 | | 334 | 2.76 | 42.5 | 2,850 | 0.687 | 81 | 68 | 78 | 76 | 87 | 0.87 |
| September | 6 | | 474 | 3.59 | 45.2 | 2,920 | 0.664 | 75 | 216 | 259 | 169 | 202 | 0.84 |
| | 20 | | 463 | 3.41 | 46.5 | 2,930 | 0.648 | 73 | 96 | 141 | 77 | 113 | 0.68 |
| | 23 | | 450 | 3.40 | 45.3 | 2,920 | 0.639 | 70 | 113 | 131 | 93 | 108 | 0.86 |
| | 30 | | 349 | 2.86 | 42.7 | 2,860 | 0.727 | 68 | 79 | 96 | 84 | 102 | 0.82 |
| Water Year 1973 - 74 | | Avg. | 810 | 4.61 | 45.6 | 3,679 | 0.725 | 63 | 482 | 744 | 207 | 300 | 0.72 |
| | | Max. | 1,475 | 7.11 | 52.1 | 4,500 | 1.11 | 84 | 1,505 | 2,124 | 592 | 684 | 0.97 |
| | | Min. | 300 | 2.48 | 39.8 | 2,820 | 0.567 | 38 | 45 | 56 | 54 | 68 | 0.37 |
| October | 7 | | 299 | 2.46 | 42.9 | 2,840 | 0.717 | 64 | 61 | 74 | 76 | 92 | 0.83 |
| | 15 | | 233 | 2.11 | 39.3 | 2,810 | 0.751 | 64 | 48 | 55 | 77 | 88 | 0.87 |
| | 21 | | 251 | 2.14 | 41.4 | 2,840 | 0.722 | 62 | 44 | 56 | 65 | 83 | 0.78 |
| November | 1 | | 260 | 2.26 | 40.6 | 2,830 | 0.732 | 64 | 105 | 123 | 150 | 175 | 0.86 |
| | 8 | | 414 | 3.18 | 45.0 | 2,890 | 0.671 | 60 | 1,049 | 1,176 | 940 | 1,054 | 0.89 |
| | 11 | | 555 | 3.80 | 49.5 | 2,950 | 0.719 | 58 | 1,032 | 1,306 | 690 | 873 | 0.79 |
| | 25 | | 619 | 4.21 | 49.8 | 2,950 | 0.738 | 52 | 462 | 696 | 277 | 417 | 0.66 |
| December | 2 | | 646 | 4.32 | 50.5 | 2,960 | 0.738 | 48 | 315 | 542 | 181 | 311 | 0.58 |
| | 9 | | 564 | 3.90 | 49.1 | 2,950 | 0.727 | 44 | 88 | 438 | 58 | 288 | 0.20 |

(Continued)

Table 3 (Concluded)

| Date | | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Concentration (ppm): Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1974 | | | | | | | | | | | | | |
| December | 16 | | 618 | 4.05 | 51.4 | 2,970 | 0.737 | 43 | 218 | 373 | 131 | 224 | 0.58 |
| | 23 | | 636 | 4.17 | 51.3 | 2,970 | 0.740 | 44 | 177 | 315 | 103 | 184 | 0.56 |
| | | Avg. | 463 | 3.33 | 46.4 | 2,905 | 0.727 | 55 | 327 | 469 | 250 | 344 | 0.69 |
| Oct - Dec 1974 | | Max. | 646 | 4.32 | 51.4 | 2,970 | 0.751 | 64 | 1,049 | 1,306 | 940 | 1,054 | 0.89 |
| | | Min. | 233 | 2.11 | 39.3 | 2,810 | 0.671 | 43 | 44 | 55 | 58 | 83 | 0.20 |

Table 4

Summary of Suspended Sediment Measurements, Mississippi River, for Vicksburg Discharge Range, Mile 435.41 AHP,* 13 March 1929-23 December 1974

| Date | | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield** (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines** | Concentration (ppm): Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1929 | | | | | | | | | | | | | |
| March | 13 | | 967 | 5.12 | 60.9 | 3,100 | | | | 2,678 | | 1,028 | |
| | 16 | | 1,011 | 5.17 | 62.5 | 3,130 | | | | 2,068 | | 758 | |
| | 19 | | 1,074 | 5.38 | 63.5 | 3,140 | | | | 3,171 | | 1,096 | |
| | 22 | | 1,168 | 5.98 | 61.7 | 3,170 | | | | 1,771 | | 562 | |
| | 25 | | 1,241 | 5.90 | 63.2 | 3,330 | | | | 1,838 | | 549 | |
| | 28 | | 1,280 | 6.05 | 63.4 | 3,330 | | | | 2,127 | | 616 | |
| April | 1 | | 1,336 | 6.04 | 65.6 | 3,370 | | | | 2,072 | | 575 | |
| | 11 | | 1,419 | 6.41 | 65.4 | 3,390 | | | | 1,653 | | 432 | |
| | 17 | | 1,452 | 6.55 | 65.4 | 3,390 | | | | 2,290 | | 585 | |
| | 24 | | 1,571 | 6.68 | 69.4 | 3,390 | | | | 2,356 | | 556 | |
| May | 1 | | 1,535 | 6.81 | 66.5 | 3,390 | | | | 2,207 | | 533 | |
| | 8 | | 1,462 | 6.81 | 63.4 | 3,390 | | | | 2,063 | | 523 | |
| | 15 | | 1,433 | 6.43 | 65.8 | 3,390 | | | | 1,539 | | 398 | |
| | 24 | | 1,587 | 6.93 | 67.6 | 3,390 | | | | 1,610 | | 376 | |
| | 31 | | 1,669 | 7.35 | 66.9 | 3,390 | | | | 2,098 | | 466 | |
| June | 6 | | 1,670 | 6.85 | 71.9 | 3,400 | | | | 1,478 | | 328 | |
| | | Avg. | 1,367 | 6.28 | 65.2 | 3,318 | | | | 2,064 | | 586 | |
| Mar - Jun 1929 | | Max. | 1,670 | 7.35 | 71.9 | 3,400 | | | | 3,171 | | 1,096 | |
| | | Min. | 967 | 5.12 | 60.9 | 3,100 | | | | 1,478 | | 328 | |

(Continued)

* AHP--above head of passes, miles.
** Fines--material finer than 0.062 mm.

Table 4 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1930 | | | | | | | | | | | | |
| August | 28 | 129 | 1.40 | 38.8 | 2,360 | | | | 33 | | 95 | |
| September | 4 | 132 | 1.44 | 38.8 | 2,360 | | | | 30 | | 84 | |
| | 5 | 137 | 1.50 | 38.6 | 2,360 | | | | 28 | | 77 | |
| | 9 | 135 | 1.47 | 39.0 | 2,350 | | | | 25 | | 68 | |
| | 10 | 132 | 1.44 | 39.2 | 2,350 | | | | 27 | | 75 | |
| | 13 | 137 | 1.49 | 39.1 | 2,350 | | | | 33 | | 89 | |
| | 15 | 146 | 1.59 | 38.9 | 2,360 | | | | 41 | | 104 | |
| | 18 | 138 | 1.50 | 39.1 | 2,360 | | | | 66 | | 176 | |
| | 23 | 164 | 1.71 | 39.4 | 2,430 | | | | 115 | | 260 | |
| | 27 | 184 | | | | | | | 148 | | 297 | |
| October | 1 | 171 | | | | | | | 174 | | 376 | |
| | 4 | 156 | | | | | | | 139 | | 330 | |
| | 8 | 139 | | | | | | | 111 | | 295 | |
| | 10 | 134 | | | | | | | 115 | | 319 | |
| | 13 | 132 | | | | | | | 122 | | 341 | |
| | 14 | 139 | | | | | | | 126 | | 336 | |
| | 17 | 149 | | | | | | | 136 | | 339 | |
| | 18 | 148 | | | | | | | 119 | | 299 | |
| | 22 | 140 | | | | | | | 99 | | 262 | |
| | 23 | 140 | | | | | | | 91 | | 240 | |

(Continued)

Table 4 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Measured Suspended Sediment: Total Yield (1000 Tons/Day) | Measured Suspended Sediment: Concentration (ppm) Fines | Measured Suspended Sediment: Concentration (ppm) Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1930 | | | | | | | | | | | | |
| October | 27 | 139 | | | | | | | 305 | | 814 | |
| | 28 | 137 | | | | | | | 701 | | 1,895 | |
| | 31 | 133 | | | | | | | 840 | | 2,338 | |
| November | 3 | 139 | | | | | | | 599 | | 1,595 | |
| | 7 | 134 | | | | | | | 415 | | 1,148 | |
| | 8 | 132 | | | | | | | 331 | | 930 | |
| | 11 | 127 | | | | | | | 211 | | 616 | |
| | 12 | 126 | | | | | | | 185 | | 545 | |
| | 13 | 125 | | | | | | | 182 | | 538 | |
| | 14 | 129 | 1.43 | 39.0 | 2,320 | | | | 200 | | 573 | |
| | 15 | 124 | 1.36 | 39.2 | 2,320 | | | | 198 | | 592 | |
| | 17 | 127 | | | | | | | 169 | | 493 | |
| | 19 | 127 | | | | | | | 131 | | 383 | |
| | 24 | 147 | 1.61 | 39.1 | 2,340 | | | | 179 | | 451 | |
| | 25 | 132 | | | | | | | 155 | | 435 | |
| | 26 | 134 | | | | | | | 146 | | 403 | |
| | 27 | 137 | | | | | | | 149 | | 403 | |
| | 28 | 139 | | | | | | | 145 | | 386 | |
| | 29 | 143 | | | | | | | 156 | | 403 | |
| December | 2 | 156 | | | | | | | 176 | | 419 | |

(Continued)

Table 4 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Concentration (ppm): Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1930 | | | | | | | | | | | | |
| December | 3 | 156 | | | | | | | 162 | | 385 | |
| | 4 | 154 | | | | | | | 145 | | 349 | |
| | 5 | 158 | | | | | | | 161 | | 378 | |
| | 10 | 199 | 1.92 | 41.6 | 2,480 | | | | 362 | | 674 | |
| | 11 | 195 | | | | | | | 308 | | 585 | |
| | 17 | 202 | | | | | | | 548 | | 1,005 | |
| | 23 | 194 | | | | | | | 266 | | 509 | |
| | 24 | 185 | | | | | | | 241 | | 483 | |
| | 29 | 157 | | | | | | | 128 | | 302 | |
| | 30 | 154 | | | | | | | 131 | | 315 | |
| 1931 | | | | | | | | | | | | |
| January | 2 | 143 | | | | | | | 96 | | 249 | |
| | 5 | 145 | | | | | | | 82 | | 210 | |
| | 7 | 147 | | | | | | | 95 | | 239 | |
| | 8 | 145 | | | | | | | 89 | | 227 | |
| | 9 | 145 | | | | | | | 81 | | 208 | |
| | 16 | 164 | | | | | | | 88 | | 198 | |
| | 19 | 182 | | | | | | | 121 | | 246 | |
| | 21 | 190 | | | | | | | 118 | | 230 | |
| | 23 | 182 | | | | | | | 117 | | 239 | |
| | 26 | 171 | | | | | | | 94 | | 204 | |

(Continued)

Table 4 (Continued)

| Date | | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Concentration (ppm): Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Avg. | 149 | | | | | | | 180 | | 451 | |
| Aug 1930 - Jan 1931 | | Max. | 202 | | | | | | | 840 | | 2,338 | |
| | | Min. | 124 | | | | | | | 25 | | 68 | |
| 1968 | | | | | | | | | | | | | |
| January | 29 | | 572 | 5.35 | 40.1 | 2,670 | | 42 | 177 | 335 | 115 | 217 | 0.53 |
| February | 26 | | 584 | 5.12 | 41.8 | 2,730 | | 39 | 216 | 392 | 137 | 249 | 0.55 |
| March | 18 | | 410 | 4.69 | 45.1 | 1,940 | | 48 | 320 | 411 | 290 | 372 | 0.78 |
| April | 1 | | 1,055 | 7.08 | 50.2 | 2,970 | | 51 | 671 | 1,254 | 236 | 441 | 0.54 |
| May | 27 | | 813 | 6.02 | 47.0 | 2,870 | | 70 | 344 | 524 | 157 | 239 | 0.66 |
| | 31 | | 826 | 6.16 | 46.7 | 2,870 | | 71 | 492 | 681 | 221 | 306 | 0.72 |
| July | 22 | | 404 | 4.07 | 41.3 | 2,400 | | 82 | 174 | 205 | 160 | 188 | 0.85 |
| September | 13 | | 206 | 2.65 | 42.2 | 1,840 | | 71 | 63 | 70 | 114 | 126 | 0.90 |
| | | Avg. | 609 | 5.14 | 44.3 | 2,536 | | 59 | 307 | 484 | 179 | 267 | 0.69 |
| Jan - Sep 1968 | | Max. | 1,055 | 7.08 | 50.2 | 2,970 | | 82 | 671 | 1,254 | 290 | 441 | 0.90 |
| | | Min. | 206 | 2.65 | 40.1 | 1,840 | | 39 | 63 | 70 | 114 | 126 | 0.53 |
| October | 25 | | 294 | 3.53 | 41.5 | 2,010 | | 54 | 106 | 122 | 134 | 154 | 0.87 |
| December | 16 | | 557 | 4.93 | 43.1 | 2,620 | | 43 | 245 | 458 | 163 | 305 | 0.53 |

(Continued)

Table 4 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Concentration (ppm): Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1969 | | | | | | | | | | | | |
| February | 3 | 1,041 | 6.63 | 52.9 | 2,970 | | 43 | 1,448 | 2,865 | 516 | 1,021 | 0.51 |
| April | 7 | 849 | 6.11 | 48.6 | 2,860 | | 52 | 682 | 1,064 | 298 | 465 | 0.64 |
| May | 23 | 757 | 5.65 | 46.9 | 2,860 | | 68 | 741 | 1,012 | 363 | 496 | 0.73 |
| July | 14 | 751 | 5.78 | 46.6 | 2,790 | | 84 | 1,085 | 1,326 | 536 | 655 | 0.82 |
| August | 8 | 509 | 4.59 | 43.4 | 2,560 | | 82 | 296 | 354 | 216 | 258 | 0.84 |
| September | 5 | 287 | 3.30 | 44.0 | 1,980 | | 81 | 92 | 104 | 119 | 135 | 0.88 |
| Water Year 1968 - 69 | Avg. | 631 | 5.07 | 45.9 | 2,581 | | 63 | 587 | 913 | 293 | 436 | 0.73 |
| | Max. | 1,041 | 6.63 | 52.9 | 2,970 | | 84 | 1,448 | 2,865 | 536 | 1,021 | 0.88 |
| | Min. | 287 | 3.30 | 41.5 | 1,980 | | 43 | 92 | 104 | 119 | 135 | 0.51 |
| October | 10 | 249 | 3.10 | 42.7 | 1,880 | | 72 | 81 | 95 | 120 | 142 | 0.85 |
| | 27 | 544 | 4.95 | 43.3 | 2,540 | | 60 | 365 | 604 | 249 | 412 | 0.60 |
| December | 18 | 363 | 3.86 | 46.5 | 2,020 | | 44 | 74 | 138 | 76 | 141 | 0.54 |
| | 29 | 385 | 4.07 | 46.2 | 2,050 | | 44 | 153 | 223 | 147 | 215 | 0.68 |
| 1970 | | | | | | | | | | | | |
| February | 9 | 594 | 5.17 | 46.0 | 2,500 | | 39 | 434 | 714 | 271 | 446 | 0.61 |
| March | 6 | 647 | 5.18 | 45.8 | 2,730 | | 45 | 413 | 616 | 237 | 353 | 0.67 |
| April | 6 | 727 | 5.59 | 46.9 | 2,770 | | 52 | 417 | 647 | 213 | 330 | 0.65 |

(Continued)

Table 4 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm) Fines | Concentration (ppm) Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1970 | | | | | | | | | | | | |
| April | 17 | 977 | 6.60 | 49.3 | 3,000 | | 57 | 772 | 1,319 | 293 | 501 | 0.58 |
| June | 1 | 836 | 5.93 | 48.1 | 2,930 | | 75 | 575 | 699 | 255 | 310 | 0.82 |
| July | 20 | 327 | 3.83 | 38.6 | 2,210 | | 84 | 108 | 137 | 123 | 155 | 0.79 |
| August | 3 | 254 | 3.36 | 38.4 | 1,970 | | 79 | 73 | 88 | 107 | 129 | 0.83 |
| September | 14 | 251 | 3.27 | 39.0 | 1,970 | | 82 | 56 | 66 | 83 | 97 | 0.86 |
| Water Year 1969 - 70 | Avg. | 513 | 4.58 | 44.2 | 2,381 | | 61 | 293 | 446 | 181 | 269 | 0.71 |
| | Max. | 977 | 6.60 | 49.3 | 3,000 | | 84 | 772 | 1,319 | 293 | 501 | 0.86 |
| | Min. | 249 | 3.10 | 38.4 | 1,880 | | 39 | 56 | 66 | 76 | 97 | 0.54 |
| October | 2 | 541 | 5.10 | 41.4 | 2,560 | | 74 | 513 | 671 | 352 | 460 | 0.77 |
| | 26 | 477 | 4.68 | 41.3 | 2,470 | | 62 | 199 | 285 | 155 | 222 | 0.70 |
| December | 7 | 416 | 4.08 | 42.1 | 2,420 | | 50 | 100 | 175 | 89 | 156 | 0.57 |
| 1971 | | | | | | | | | | | | |
| January | 22 | 662 | 5.09 | 47.4 | 2,740 | | 40 | 327 | 535 | 183 | 300 | 0.61 |
| March | 12 | 1,311 | 7.53 | 56.9 | 3,060 | | 44 | 1,018 | 2,035 | 288 | 576 | 0.50 |
| April | 2 | 779 | 5.69 | 49.1 | 2,790 | | 49 | 479 | 754 | 228 | 359 | 0.64 |
| | 23 | 525 | 5.05 | 44.4 | 2,340 | | 60 | 181 | 267 | 128 | 189 | 0.68 |
| May | 28 | 716 | 5.68 | 45.2 | 2,790 | | 70 | 434 | 612 | 225 | 317 | 0.71 |

(Continued)

Table 4 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1971 | | | | | | | | | | | | |
| June | 28 | 468 | 4.59 | 44.7 | 2,280 | | 82 | 438 | 498 | 347 | 395 | 0.88 |
| August | 9 | 401 | 4.22 | 46.1 | 2,060 | | 81 | 266 | 384 | 246 | 355 | 0.69 |
| September | 20 | 256 | 3.22 | 41.8 | 1,900 | | 79 | 57 | 68 | 83 | 99 | 0.84 |
| Water Year 1970 - 71 | Avg. | 596 | 4.99 | 45.5 | 2,492 | | 63 | 365 | 571 | 211 | 312 | 0.69 |
| | Max. | 1,311 | 7.53 | 56.9 | 3,060 | | 82 | 1,018 | 2,035 | 352 | 576 | 0.88 |
| | Min. | 256 | 3.22 | 41.3 | 1,900 | | 40 | 57 | 68 | 83 | 99 | 0.50 |
| October | 8 | 293 | 3.56 | 42.6 | 1,930 | | 74 | 82 | 103 | 104 | 131 | 0.79 |
| November | 5 | 299 | 3.53 | 43.8 | 1,930 | | 64 | 76 | 159 | 94 | 197 | 0.48 |
| | 19 | 304 | 3.62 | 43.7 | 1,920 | | 58 | 99 | 134 | 121 | 164 | 0.74 |
| December | 13 | 558 | 5.31 | 45.9 | 2,290 | | 50 | 1,020 | 1,363 | 678 | 906 | 0.75 |
| 1972 | | | | | | | | | | | | |
| January | 7 | 566 | 4.96 | 46.2 | 2,470 | | 46 | 319 | 503 | 209 | 330 | 0.63 |
| February | 11 | 587 | 5.24 | 44.1 | 2,540 | | 41 | 304 | 513 | 192 | 324 | 0.59 |
| March | 10 | 852 | 6.45 | 46.6 | 2,830 | | 49 | 838 | 1,341 | 365 | 584 | 0.63 |
| April | 17 | 606 | 5.41 | 42.7 | 2,620 | | 58 | 227 | 405 | 139 | 248 | 0.56 |
| May | 1 | 1,039 | 6.93 | 49.0 | 3,060 | | 62 | 720 | 1,092 | 257 | 390 | 0.66 |

(Continued)

Table 4 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Concentration (ppm): Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1972 | | | | | | | | | | | | |
| May | 8 | 1,147 | 6.91 | 54.2 | 3,060 | | 62 | 541 | 1,484 | 175 | 480 | 0.36 |
| | 15 | 1,110 | 6.98 | 51.8 | 3,070 | | 66 | 497 | 877 | 166 | 293 | 0.57 |
| | 22 | 966 | 6.40 | 49.7 | 3,040 | | 69 | 641 | 914 | 246 | 351 | 0.70 |
| | 30 | 682 | 5.68 | 43.0 | 2,790 | | 74 | 333 | 441 | 181 | 240 | 0.75 |
| June | 5 | 459 | 4.70 | 41.1 | 2,380 | | 76 | 189 | 265 | 153 | 214 | 0.71 |
| | 12 | 373 | 4.22 | 40.9 | 2,160 | | 79 | 134 | 178 | 133 | 177 | 0.75 |
| | 19 | 326 | 3.94 | 40.2 | 2,060 | | 80 | 120 | 140 | 137 | 159 | 0.86 |
| | 26 | 412 | 4.53 | 41.6 | 2,190 | | 80 | 153 | 214 | 138 | 193 | 0.72 |
| July | 3 | 449 | 4.84 | 41.1 | 2,260 | | 80 | 232 | 289 | 192 | 239 | 0.80 |
| | 10 | 600 | 5.71 | 40.1 | 2,620 | | 78 | 463 | 615 | 286 | 380 | 0.75 |
| | 17 | 453 | 4.87 | 40.5 | 2,300 | | 80 | 134 | 190 | 110 | 156 | 0.71 |
| | 24 | 414 | 4.57 | 38.9 | 2,330 | | 83 | 151 | 198 | 135 | 177 | 0.76 |
| | 31 | 405 | 4.37 | 41.9 | 2,210 | | 85 | 106 | 145 | 97 | 133 | 0.73 |
| August | 7 | 420 | 4.57 | 40.9 | 2,250 | | 84 | 195 | 246 | 172 | 217 | 0.79 |
| | 14 | 453 | 4.68 | 42.3 | 2,290 | | 83 | 173 | 241 | 142 | 197 | 0.72 |
| | 21 | 416 | 4.50 | 41.1 | 2,250 | | 84 | 206 | 239 | 184 | 213 | 0.86 |
| | 28 | 402 | 4.31 | 42.0 | 2,220 | | 83 | 131 | 163 | 121 | 150 | 0.81 |
| September | 5 | 327 | 3.83 | 41.5 | 2,060 | | 82 | 92 | 111 | 104 | 126 | 0.83 |
| | 11 | 314 | 3.71 | 43.0 | 1,970 | | 81 | 70 | 85 | 83 | 101 | 0.82 |
| | 18 | 306 | 3.58 | 43.4 | 1,970 | | 80 | 75 | 92 | 91 | 112 | 0.81 |

(Continued)

Table 4 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Concentration (ppm): Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1972 | | | | | | | | | | | | |
| September | 25 | 382 | 5.03 | 36.5 | 2,080 | | 79 | 223 | 233 | 217 | 226 | 0.96 |
| Water Year 1971 - 72 | Avg. | 531 | 4.90 | 43.3 | 2,372 | | 72 | 285 | 432 | 184 | 260 | 0.72 |
| | Max. | 1,147 | 6.98 | 54.2 | 3,070 | | 85 | 1,020 | 1,484 | 678 | 906 | 0.96 |
| | Min. | 293 | 3.53 | 36.5 | 1,920 | | 41 | 70 | 85 | 83 | 101 | 0.36 |
| October | 2 | 389 | 4.35 | 42.6 | 2,100 | | 75 | 288 | 338 | 275 | 322 | 0.85 |
| | 10 | 429 | 4.79 | 40.7 | 2,200 | | 72 | 183 | 268 | 158 | 232 | 0.68 |
| | 16 | 435 | 4.72 | 41.5 | 2,220 | | 71 | 157 | 238 | 134 | 203 | 0.66 |
| | 24 | 388 | 4.32 | 42.0 | 2,140 | | 63 | 113 | 177 | 108 | 169 | 0.64 |
| | 30 | 430 | 4.59 | 42.4 | 2,210 | | 60 | 109 | 245 | 94 | 211 | 0.45 |
| November | 6 | 604 | 5.35 | 44.7 | 2,530 | | 60 | 596 | 915 | 366 | 562 | 0.65 |
| | 13 | 868 | 6.34 | 49.1 | 2,790 | | 57 | 821 | 1,511 | 351 | 646 | 0.54 |
| | 20 | 918 | 6.56 | 49.0 | 2,860 | | 51 | 564 | 1,136 | 228 | 459 | 0.50 |
| | 27 | 1,013 | 6.94 | 49.3 | 2,960 | | 47 | 639 | 1,240 | 234 | 454 | 0.52 |
| December | 4 | 955 | 6.68 | 48.6 | 2,940 | | 46 | 363 | 906 | 141 | 352 | 0.40 |
| | 18 | 1,100 | 7.53 | 48.5 | 3,010 | | 41 | 578 | 1,450 | 195 | 489 | 0.40 |
| | 26 | 1,226 | 7.81 | 51.0 | 3,080 | | 40 | 618 | 1,705 | 187 | 516 | 0.36 |
| 1973 | | | | | | | | | | | | |
| January | 2 | 1,216 | 7.65 | 51.6 | 3,080 | | 42 | 367 | 1,249 | 112 | 381 | 0.29 |

(Continued)

Table 4 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1973 | | | | | | | | | | | | |
| January | 8 | 1,217 | 7.65 | 51.6 | 3,080 | | 41 | 430 | 1,292 | 131 | 394 | 0.33 |
| | 15 | 1,215 | 7.45 | 52.9 | 3,080 | | 38 | 652 | 1,503 | 199 | 459 | 0.43 |
| | 22 | 883 | 6.09 | 49.7 | 2,920 | | 43 | 376 | 662 | 158 | 278 | 0.57 |
| | 29 | 1,039 | 7.02 | 48.7 | 3,040 | | 42 | 879 | 1,554 | 314 | 555 | 0.57 |
| February | 5 | 1,150 | 7.06 | 53.1 | 3,070 | | 43 | 549 | 1,200 | 177 | 387 | 0.46 |
| | 12 | 1,173 | 7.15 | 53.2 | 3,080 | | 42 | 648 | 1,325 | 205 | 419 | 0.49 |
| | 20 | 1,221 | 7.14 | 55.3 | 3,090 | | 41 | 602 | 1,478 | 183 | 449 | 0.41 |
| | 26 | 1,113 | 6.70 | 53.9 | 3,080 | | 42 | 408 | 954 | 136 | 318 | 0.43 |
| March | 5 | 747 | 5.41 | 49.8 | 2,770 | | 48 | 336 | 511 | 167 | 254 | 0.66 |
| | 12 | 853 | 5.84 | 50.9 | 2,870 | | 54 | 623 | 835 | 271 | 363 | 0.75 |
| | 19 | 1,234 | 7.22 | 55.2 | 3,100 | | 55 | 1,101 | 1,799 | 331 | 541 | 0.61 |
| | 26 | 1,432 | 7.70 | 58.7 | 3,170 | | 54 | 892 | 1,675 | 231 | 434 | 0.53 |
| April | 2 | 1,740 | 8.57 | 62.3 | 3,260 | | 56 | 844 | 2,504 | 180 | 534 | 0.34 |
| | 9 | 1,762 | 8.55 | 62.4 | 3,300 | | 55 | 788 | 2,066 | 166 | 435 | 0.38 |
| | 18 | 1,776 | 8.54 | 63.0 | 3,300 | | 56 | 680 | 1,728 | 142 | 361 | 0.39 |
| | 21 | 1,763 | 8.64 | 61.8 | 3,300 | | 59 | 527 | 1,407 | 111 | 296 | 0.38 |
| | 23 | 1,724 | 8.58 | 60.9 | 3,300 | | 59 | 502 | 1,269 | 108 | 273 | 0.40 |
| | 28 | 1,808 | 8.91 | 61.5 | 3,300 | | 61 | 507 | 1,291 | 104 | 265 | 0.39 |
| | 30 | 1,820 | 8.83 | 62.4 | 3,300 | | 61 | 535 | 1,241 | 109 | 253 | 0.43 |
| May | 2 | 1,859 | 9.02 | 62.4 | 3,300 | | 64 | 551 | 656 | 110 | 131 | 0.84 |

(Continued)

Table 4 (Continued)

| | Date | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Concentration (ppm): Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1973 | | | | | | | | | | | |
| May | 7 | 1,869 | 9.12 | 62.1 | 3,300 | | 65 | 655 | 1,436 | 130 | 285 | 0.46 |
| | 9 | 1,887 | 9.03 | 63.3 | 3,300 | | 65 | 549 | 595 | 108 | 117 | 0.44 |
| | 14 | 1,881 | 8.71 | 65.5 | 3,300 | | 66 | 629 | 1,252 | 124 | 247 | 0.50 |
| | 16 | 1,887 | 8.70 | 65.8 | 3,300 | | 66 | 544 | 1,358 | 107 | 267 | 0.40 |
| | 21 | 1,802 | 8.42 | 64.8 | 3,300 | | 68 | 423 | 1,005 | 87 | 207 | 0.42 |
| | 23 | 1,814 | 8.52 | 64.5 | 3,300 | | 69 | 406 | 1,002 | 83 | 205 | 0.40 |
| | 28 | 1,616 | 8.37 | 58.5 | 3,300 | | 70 | 301 | 344 | 69 | 79 | 0.87 |
| | 30 | 1,580 | 8.45 | 56.7 | 3,300 | | 70 | 349 | 733 | 82 | 172 | 0.48 |
| June | 4 | 1,405 | 7.55 | 57.1 | 3,260 | | 73 | 413 | 659 | 109 | 174 | 0.63 |
| | 6 | 1,362 | 7.52 | 55.7 | 3,250 | | 74 | 367 | 609 | 100 | 166 | 0.60 |
| | 11 | 1,354 | 7.48 | 55.9 | 3,240 | | 75 | 445 | 741 | 122 | 203 | 0.60 |
| | 13 | 1,330 | 7.39 | 55.6 | 3,240 | | 76 | 445 | 667 | 124 | 186 | 0.67 |
| | 18 | 1,270 | 7.06 | 56.3 | 3,200 | | 79 | 366 | 575 | 107 | 168 | 0.64 |
| | 20 | 1,211 | 6.84 | 55.7 | 3,180 | | 80 | 375 | 552 | 115 | 169 | 0.68 |
| | 25 | 1,039 | 6.26 | 53.5 | 3,100 | | 81 | 364 | 462 | 130 | 165 | 0.79 |
| | 27 | 984 | 6.04 | 52.6 | 3,100 | | 82 | 366 | 454 | 138 | 171 | 0.81 |
| July | 2 | 861 | 5.66 | 53.5 | 2,840 | | 82 | 485 | 545 | 209 | 235 | 0.89 |
| | 5 | 792 | 5.39 | 52.3 | 2,810 | | 82 | 416 | 470 | 195 | 220 | 0.89 |
| | 9 | 693 | 4.99 | 50.0 | 2,780 | | 82 | 409 | 456 | 219 | 244 | 0.90 |
| | 11 | 624 | 4.69 | 48.2 | 2,760 | | 82 | 336 | 378 | 200 | 225 | 0.89 |

(Continued)

Table 4 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1973 | | | | | | | | | | | | |
| July | 16 | 584 | 4.63 | 46.5 | 2,710 | | 83 | 231 | 268 | 147 | 170 | 0.86 |
| | 18 | 542 | 4.44 | 47.5 | 2,570 | | 83 | 250 | 283 | 171 | 194 | 0.88 |
| | 23 | 469 | 4.04 | 47.0 | 2,470 | | 84 | 291 | 314 | 230 | 248 | 0.93 |
| | 25 | 441 | 3.94 | 46.3 | 2,420 | | 85 | 215 | 234 | 181 | 197 | 0.92 |
| | 30 | 536 | 4.47 | 47.6 | 2,520 | | 86 | 264 | 316 | 183 | 219 | 0.84 |
| August | 6 | 606 | 4.63 | 48.2 | 2,720 | | 82 | 541 | 583 | 331 | 357 | 0.93 |
| | 13 | 399 | 3.73 | 45.5 | 2,350 | | 84 | 149 | 165 | 139 | 153 | 0.91 |
| | 20 | 436 | 3.96 | 46.8 | 2,350 | | 83 | 142 | 167 | 121 | 142 | 0.85 |
| | 27 | 424 | 3.93 | 45.2 | 2,390 | | 81 | 192 | 210 | 168 | 184 | 0.91 |
| September | 4 | 339 | 3.42 | 44.2 | 2,240 | | 79 | 87 | 97 | 95 | 106 | 0.90 |
| | 10 | 336 | 3.36 | 45.9 | 2,180 | | 80 | 75 | 88 | 83 | 97 | 0.86 |
| | 17 | 322 | 3.23 | 46.2 | 2,160 | | 78 | 71 | 81 | 82 | 93 | 0.88 |
| | 24 | 299 | 3.04 | 47.4 | 2,070 | | 75 | 81 | 88 | 100 | 109 | 0.92 |
| Water Year 1972 - 73 | Avg. | 1,068 | 6.47 | 52.8 | 2,896 | | 65 | 440 | 841 | 162 | 281 | 0.63 |
| | Max. | 1,887 | 9.12 | 65.8 | 3,300 | | 86 | 1,101 | 2,504 | 366 | 646 | 0.93 |
| | Min. | 299 | 3.04 | 40.7 | 2,070 | | 38 | 71 | 81 | 69 | 79 | 0.29 |
| October | 1 | 312 | 3.19 | 46.3 | 2,110 | | 75 | 93 | 103 | 110 | 123 | 0.89 |
| | 9 | 555 | 4.70 | 47.0 | 2,510 | | 73 | 657 | 754 | 439 | 504 | 0.87 |
| | 15 | 609 | 4.80 | 47.0 | 2,700 | | 70 | 658 | 773 | 401 | 471 | 0.85 |

(Continued)

Table 4 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Concentration (ppm): Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1973 | | | | | | | | | | | | |
| October | 23 | 611 | 4.81 | 47.4 | 2,680 | | 67 | 568 | 677 | 345 | 411 | 0.84 |
| | 29 | 583 | 4.86 | 44.8 | 2,680 | | 66 | 558 | 677 | 355 | 431 | 0.82 |
| November | 5 | 501 | 4.47 | 45.7 | 2,450 | | 61 | 316 | 381 | 234 | 282 | 0.83 |
| | 12 | 517 | 4.34 | 48.0 | 2,480 | | 57 | 209 | 273 | 150 | 196 | 0.77 |
| | 19 | 422 | 3.94 | 45.9 | 2,330 | | 56 | 125 | 159 | 110 | 140 | 0.79 |
| | 26 | 460 | 4.18 | 46.4 | 2,370 | | 60 | 187 | 245 | 151 | 198 | 0.76 |
| December | 3 | 1,020 | 6.54 | 55.1 | 2,830 | | 56 | 1,116 | 1,471 | 406 | 535 | 0.76 |
| | 10 | 1,233 | 6.97 | 57.3 | 3,090 | | 50 | 1,130 | 2,729 | 340 | 821 | 0.41 |
| | 17 | 1,257 | 6.98 | 57.9 | 3,110 | | 46 | 908 | 1,894 | 268 | 559 | 0.48 |
| | 26 | 813 | 5.38 | 54.9 | 2,750 | | 43 | 388 | 686 | 177 | 313 | 0.57 |
| 1974 | | | | | | | | | | | | |
| January | 7 | 1,112 | 6.43 | 58.4 | 2,960 | | 39 | 665 | 1,439 | 222 | 480 | 0.46 |
| | 15 | 1,280 | 6.74 | 61.3 | 3,100 | | 37 | 600 | 1,459 | 174 | 423 | 0.41 |
| | 21 | 1,258 | 6.52 | 61.5 | 3,140 | | 42 | 427 | 451 | 126 | 133 | 0.95 |
| February | 4 | 1,437 | 7.52 | 60.1 | 3,180 | | 46 | 620 | 1,495 | 160 | 386 | 0.41 |
| | 19 | 1,377 | 7.25 | 60.1 | 3,160 | | 48 | 471 | 1,284 | 127 | 346 | 0.37 |
| | 25 | 1,076 | 6.18 | 56.3 | 3,090 | | 46 | 522 | 1,267 | 180 | 437 | 0.41 |
| March | 8 | 1,044 | 6.25 | 54.6 | 3,060 | | 54 | 470 | 898 | 167 | 319 | 0.52 |

(Continued)

Table 4 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Measured Suspended Sediment: Total Yield (1000 Tons/Day) | Measured Suspended Sediment: Concentration (ppm) Fines | Measured Suspended Sediment: Concentration (ppm) Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1974 | | | | | | | | | | | | |
| March | 22 | 1,147 | 6.95 | 53.6 | 3,080 | | 54 | 541 | 1,002 | 175 | 324 | 0.54 |
| | 29 | 1,229 | 7.15 | 55.5 | 3,100 | | 51 | 444 | 1,332 | 134 | 402 | 0.33 |
| April | 5 | 1,101 | 6.59 | 54.0 | 3,090 | | 56 | 329 | 733 | 111 | 247 | 0.45 |
| | 12 | 1,002 | 6.26 | 56.1 | 2,850 | | 57 | 448 | 772 | 166 | 286 | 0.58 |
| | 15 | 1,015 | 6.30 | 55.5 | 2,900 | | 58 | 506 | 1,135 | 185 | 415 | 0.45 |
| | 22 | 1,081 | 6.67 | 55.9 | 2,900 | | 60 | 481 | 994 | 165 | 341 | 0.48 |
| | 29 | 1,032 | 6.41 | 55.5 | 2,900 | | 65 | 517 | 1,021 | 186 | 367 | 0.51 |
| May | 6 | 870 | 5.88 | 52.7 | 2,810 | | 67 | 603 | 811 | 257 | 346 | 0.74 |
| | 13 | 753 | 5.54 | 49.1 | 2,770 | | 68 | 398 | 593 | 196 | 292 | 0.67 |
| | 20 | 722 | 5.51 | 47.6 | 2,750 | | 72 | 395 | 508 | 203 | 261 | 0.78 |
| | 28 | 939 | 6.30 | 52.7 | 2,830 | | 73 | 731 | 1,012 | 289 | 400 | 0.72 |
| June | 3 | 1,021 | 6.46 | 54.5 | 2,900 | | 73 | 1,200 | 1,522 | 436 | 553 | 0.79 |
| | 10 | 1,154 | 6.83 | 54.7 | 3,090 | | 74 | 958 | 1,306 | 308 | 420 | 0.73 |
| | 17 | 1,350 | 7.16 | 60.8 | 3,100 | | 75 | 728 | 1,248 | 200 | 343 | 0.58 |
| | 28 | 1,118 | 6.32 | 57.3 | 3,090 | | 76 | 684 | 928 | 227 | 308 | 0.74 |
| July | 1 | 1,005 | 5.88 | 59.0 | 2,900 | | 76 | 615 | 864 | 227 | 319 | 0.71 |
| | 8 | 909 | 5.79 | 55.9 | 2,810 | | 78 | 757 | 907 | 309 | 370 | 0.84 |
| | 15 | 717 | 5.05 | 51.4 | 2,760 | | 82 | 404 | 539 | 209 | 279 | 0.75 |
| | 22 | 487 | 4.12 | 48.8 | 2,420 | | 86 | 251 | 306 | 191 | 233 | 0.82 |
| | 29 | 405 | 3.68 | 47.2 | 2,330 | | 84 | 177 | 212 | 162 | 194 | 0.84 |

(Continued)

Table 4 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Concentration (ppm): Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1974 | | | | | | | | | | | | |
| August | 5 | 351 | 3.38 | 45.8 | 2,270 | | 83 | 105 | 140 | 111 | 148 | 0.75 |
| | 16 | 353 | 3.46 | 45.1 | 2,260 | | 83 | 75 | 93 | 79 | 98 | 0.81 |
| | 19 | 415 | 3.88 | 45.7 | 2,340 | | 81 | 139 | 164 | 124 | 147 | 0.84 |
| | 30 | 346 | 3.43 | 44.5 | 2,270 | | 82 | 80 | 96 | 86 | 103 | 0.83 |
| September | 3 | 367 | 3.56 | 45.4 | 2,270 | | 77 | 134 | 157 | 135 | 159 | 0.85 |
| | 9 | 532 | 4.47 | 48.8 | 2,440 | | 83 | 274 | 369 | 191 | 257 | 0.74 |
| | 16 | 562 | 4.57 | 48.6 | 2,530 | | 76 | 238 | 367 | 157 | 242 | 0.65 |
| | 30 | 385 | 3.70 | 43.9 | 2,370 | | 69 | 108 | 142 | 104 | 137 | 0.76 |
| Water Year 1973 - 74 | Avg. | 830 | 5.49 | 52.1 | 2,748 | | 65 | 479 | 780 | 208 | 323 | 0.68 |
| | Max. | 1,437 | 7.52 | 61.5 | 3,180 | | 86 | 1,200 | 2,729 | 439 | 821 | 0.95 |
| | Min. | 312 | 3.19 | 43.9 | 2,110 | | 37 | 75 | 93 | 79 | 98 | 0.33 |
| October | 7 | 350 | 3.50 | 44.1 | 2,270 | | 67 | 75 | 100 | 80 | 106 | 0.75 |
| | 15 | 295 | 3.14 | 43.4 | 2,160 | | 67 | 87 | 107 | 109 | 134 | 0.81 |
| | 21 | 298 | 3.20 | 43.1 | 2,160 | | 64 | 82 | 105 | 102 | 131 | 0.78 |
| | 29 | 313 | 3.32 | 43.3 | 2,180 | | 64 | 63 | 100 | 75 | 119 | 0.63 |
| November | 11 | 509 | 4.46 | 47.1 | 2,420 | | 61 | 805 | 943 | 587 | 687 | 0.85 |
| | 25 | 636 | 4.89 | 51.0 | 2,550 | | 54 | 411 | 715 | 240 | 417 | 0.58 |
| December | 2 | 670 | 5.00 | 50.8 | 2,640 | | 49 | 522 | 921 | 289 | 510 | 0.57 |

(Continued)

Table 4 (Concluded)

| Date | | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Total | Ratio of $\frac{\text{Fines}}{\text{Total}}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1974 | | | | | | | | | | | | | |
| December | 9 | | 575 | 4.53 | 50.6 | 2,510 | | 47 | 214 | 488 | 138 | 315 | 0.44 |
| | 16 | | 647 | 4.94 | 50.6 | 2,590 | | 46 | 242 | 553 | 139 | 317 | 0.44 |
| | 23 | | 673 | 4.99 | 51.7 | 2,610 | | 45 | 194 | 510 | 107 | 281 | 0.38 |
| Oct 1974 - Dec 1974 | | Avg. | 497 | 4.20 | 47.6 | 2,409 | | 56 | 270 | 454 | 187 | 302 | 0.62 |
| | | Max. | 673 | 5.00 | 51.7 | 2,640 | | 67 | 805 | 943 | 587 | 687 | 0.85 |
| | | Min. | 295 | 3.14 | 43.1 | 2,160 | | 45 | 63 | 100 | 75 | 106 | 0.38 |

Table 5

Summary of Suspended Sediment Measurements, Mississippi River, for Natchez Discharge Range, Mile 362.34 AHP,* 29 April 1970-26 December 1974

| Date | | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield** (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines** | Concentration (ppm): Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1970 | | | | | | | | | | | | | |
| April | 29 | | 933 | 5.59 | 56.4 | 2,960 | | 65 | 800 | 1,107 | 318 | 440 | 0.72 |
| October | 7 | | 614 | 4.48 | 48.2 | 2,840 | | 69 | 602 | 798 | 364 | 482 | 0.76 |
| 1971 | | | | | | | | | | | | | |
| September | 29 | | 312 | 3.14 | 36.2 | 2,750 | | 78 | 102 | 133 | 121 | 158 | 0.77 |
| | | Avg. | 620 | 4.40 | 46.9 | 2,850 | | 71 | 501 | 679 | 268 | 360 | 0.75 |
| Apr 1970-Sept 1971 | | Max. | 933 | 5.59 | 56.4 | 2,960 | | 78 | 800 | 1,107 | 364 | 482 | 0.77 |
| | | Min. | 312 | 3.14 | 36.2 | 2,750 | | 65 | 102 | 133 | 121 | 158 | 0.72 |
| 1972 | | | | | | | | | | | | | |
| January | 14 | | 775 | 5.46 | 49.3 | 2,880 | | 45 | 516 | 886 | 247 | 424 | 0.58 |
| April | 19 | | 604 | 4.31 | 49.1 | 2,850 | | 59 | 230 | 353 | 141 | 217 | 0.65 |
| May | 10 | | 1,056 | 6.03 | 59.9 | 2,920 | | 63 | 444 | 908 | 156 | 319 | 0.49 |
| | 16 | | 1,071 | 6.12 | 59.9 | 2,920 | | 64 | 488 | 944 | 169 | 327 | 0.52 |
| | 25 | | 901 | 5.27 | 58.8 | 2,910 | | 70 | 454 | 707 | 187 | 291 | 0.64 |
| June | 1 | | 647 | 4.40 | 51.0 | 2,880 | | 74 | 340 | 443 | 195 | 254 | 0.77 |
| | 7 | | 443 | 3.60 | 44.4 | 2,770 | | 76 | 221 | 287 | 185 | 240 | 0.77 |
| | 14 | | 375 | 3.35 | 40.9 | 2,740 | | 78 | 263 | 313 | 260 | 310 | 0.84 |
| | 21 | | 321 | 3.03 | 38.7 | 2,740 | | 80 | 175 | 200 | 202 | 231 | 0.87 |
| | 28 | | 402 | 3.47 | 41.7 | 2,780 | | 80 | 196 | 238 | 181 | 220 | 0.82 |
| July | 6 | | 481 | 3.94 | 43.3 | 2,820 | | 78 | 372 | 471 | 287 | 363 | 0.79 |
| | 13 | | 534 | 4.14 | 45.6 | 2,830 | | 77 | 327 | 420 | 227 | 292 | 0.78 |
| | 20 | | 426 | 3.58 | 42.8 | 2,780 | | 80 | 144 | 194 | 125 | 169 | 0.74 |
| | 27 | | 420 | 3.62 | 41.7 | 2,780 | | 83 | 169 | 205 | 149 | 181 | 0.82 |

(Continued)

* AHP--above head of passes, miles.
** Fines--material finer than 0.062 mm.

Table 5 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Concentration (ppm): Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1972 | | | | | | | | | | | | |
| August | 2 | 373 | 3.36 | 40.7 | 2,730 | | 84 | 111 | 150 | 110 | 149 | 0.74 |
| | 10 | 404 | 3.61 | 40.0 | 2,800 | | 83 | 204 | 252 | 187 | 231 | 0.81 |
| | 17 | 417 | 3.53 | 42.0 | 2.810 | | 82 | 189 | 339 | 168 | 302 | 0.56 |
| | 24 | 390 | 3.42 | 41.2 | 2,770 | | 83 | 199 | 289 | 189 | 275 | 0.69 |
| | 30 | 377 | 3.37 | 40.6 | 2,760 | | 82 | 143 | 185 | 141 | 182 | 0.77 |
| September | 7 | 324 | 3.06 | 38.7 | 2,740 | | 83 | 109 | 134 | 125 | 154 | 0.81 |
| | 14 | 287 | 2.81 | 37.4 | 2,730 | | 80 | 94 | 116 | 121 | 150 | 0.81 |
| | 27 | 370 | 3.36 | 39.6 | 2,780 | | 78 | 253 | 320 | 254 | 321 | 0.79 |
| Water Year 1971-72 | | Avg. 518 | 3.95 | 44.9 | 2,805 | | 76 | 256 | 380 | 182 | 255 | 0.73 |
| | | Max. 1,071 | 6.12 | 59.9 | 2,920 | | 84 | 516 | 944 | 287 | 424 | 0.87 |
| | | Min. 287 | 2.81 | 37.4 | 2,730 | | 45 | 94 | 116 | 110 | 149 | 0.49 |
| October | 5 | 344 | 3.25 | 38.3 | 2,770 | | 72 | 218 | 302 | 235 | 326 | 0.72 |
| | 12 | 430 | 3.84 | 40.0 | 2,800 | | 71 | 213 | 286 | 184 | 247 | 0.74 |
| | 18 | 428 | 3.69 | 41.4 | 2,800 | | 70 | 168 | 251 | 146 | 218 | 0.67 |
| November | 1 | 409 | 3.65 | 40.3 | 2,780 | | 60 | 129 | 153 | 117 | 139 | 0.84 |
| | 9 | 648 | 4.70 | 48.3 | 2,860 | | 58 | 583 | 973 | 334 | 557 | 0.60 |
| | 16 | 828 | 5.41 | 52.8 | 2,900 | | 53 | 571 | 1,143 | 256 | 512 | 0.50 |
| | 22 | 957 | 5.98 | 55.0 | 2,910 | | 48 | 696 | 1,303 | 270 | 505 | 0.53 |
| | 30 | 976 | 5.88 | 56.8 | 2,920 | | 44 | 547 | 1,108 | 208 | 421 | 0.49 |
| December | 6 | 907 | 5.53 | 56.4 | 2,910 | | 45 | 301 | 354 | 123 | 145 | 0.85 |
| | 14 | 896 | 5.50 | 56.0 | 2,910 | | 42 | 490 | 1,024 | 203 | 424 | 0.48 |
| | 22 | 1,150 | 6.35 | 61.6 | 2,940 | | 40 | 595 | 691 | 192 | 223 | 0.86 |

(Continued)

Table 5 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1973 | | | | | | | | | | | | |
| January | 4 | 1,263 | 6.48 | 66.3 | 2,940 | | 39 | 443 | 551 | 130 | 162 | 0.80 |
| | 17 | 1,166 | 6.20 | 63.9 | 2,940 | | 38 | 493 | 1,006 | 157 | 320 | 0.49 |
| | 24 | 867 | 5.29 | 56.4 | 2,910 | | 42 | 449 | 788 | 192 | 337 | 0.57 |
| February | 8 | 1,124 | 6.39 | 60.1 | 2,930 | | 40 | 354 | 482 | 117 | 159 | 0.74 |
| | 14 | 1,112 | 6.25 | 60.8 | 2,930 | | 40 | 935 | 1,367 | 312 | 456 | 0.68 |
| | 22 | 1,148 | 6.07 | 64.5 | 2,930 | | 40 | 396 | 866 | 128 | 280 | 0.46 |
| March | 1 | 963 | 5.47 | 60.3 | 2,920 | | 42 | 340 | 605 | 131 | 233 | 0.56 |
| | 7 | 710 | 4.55 | 54.0 | 2,890 | | 47 | 360 | 568 | 188 | 297 | 0.63 |
| | 15 | 947 | 5.77 | 56.4 | 2,910 | | 54 | 812 | 860 | 318 | 337 | 0.94 |
| | 28 | 1,417 | 7.09 | 66.9 | 2,990 | | 53 | 794 | 1,448 | 208 | 379 | 0.55 |
| April | 3 | 1,560 | 7.96 | 65.6 | 2,990 | | 56 | 601 | 1,093 | 143 | 260 | 0.55 |
| | 10 | 1,753 | 7.66 | 76.3 | 3,000 | | 54 | 600 | 1,484 | 127 | 314 | 0.40 |
| | 17 | 1,720 | 7.75 | 74.0 | 3,000 | | 54 | 589 | 1,437 | 127 | 310 | 0.41 |
| | 20 | 1,712 | 8.04 | 71.0 | 3,000 | | 57 | 512 | 734 | 111 | 159 | 0.70 |
| | 24 | 1,655 | 7.66 | 72.0 | 3,000 | | 58 | 424 | 1,209 | 95 | 271 | 0.35 |
| | 27 | 1,790 | 7.85 | 76.0 | 3,000 | | 60 | 531 | 1,428 | 110 | 296 | 0.37 |
| May | 1 | 1,854 | 8.17 | 75.7 | 3,000 | | 61 | 630 | 1,204 | 126 | 241 | 0.52 |
| | 4 | 1,866 | 8.22 | 75.7 | 3,000 | | 62 | 548 | 1,318 | 109 | 262 | 0.42 |
| | 8 | 1,868 | 7.82 | 79.7 | 3,000 | | 64 | 483 | 1,420 | 96 | 282 | 0.34 |
| | 11 | 1,903 | 8.03 | 79.0 | 3,000 | | 65 | 533 | 1,246 | 104 | 243 | 0.43 |
| | 15 | 1,912 | 8.00 | 79.7 | 3,000 | | 65 | 562 | 1,479 | 109 | 287 | 0.38 |
| | 18 | 2,017 | 8.37 | 80.3 | 3,000 | | 65 | 549 | 1,386 | 101 | 255 | 0.40 |
| | 22 | 1,875 | 7.47 | 83.7 | 3,000 | | 68 | 435 | 960 | 86 | 190 | 0.45 |
| | 25 | 1,911 | 7.93 | 80.3 | 3,000 | | 69 | 438 | 984 | 85 | 191 | 0.45 |
| | 29 | 1,712 | 7.26 | 78.7 | 3,000 | | 69 | 374 | 928 | 81 | 201 | 0.40 |

(Continued)

Table 5 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Concentration (ppm): Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1973 | | | | | | | | | | | | |
| June | 1 | 1,549 | 6.59 | 78.6 | 2,990 | | 71 | 334 | 739 | 80 | 177 | 0.45 |
| | 5 | 1,378 | 6.10 | 76.1 | 2,970 | | 72 | 323 | 691 | 87 | 186 | 0.47 |
| | 8 | 1,333 | 6.41 | 70.3 | 2,960 | | 73 | 420 | 704 | 117 | 196 | 0.60 |
| | 12 | 1,268 | 6.13 | 69.9 | 2,960 | | 74 | 410 | 646 | 120 | 189 | 0.63 |
| | 14 | 1,263 | 6.16 | 69.3 | 2,960 | | 75 | 388 | 630 | 114 | 185 | 0.62 |
| | 19 | 1,230 | 6.03 | 68.9 | 2,960 | | 78 | 325 | 547 | 98 | 165 | 0.59 |
| | 21 | 1,191 | 5.84 | 68.9 | 2,960 | | 78 | 299 | 501 | 93 | 156 | 0.60 |
| | 26 | 1,028 | 5.35 | 64.0 | 3,000 | | 80 | 338 | 457 | 122 | 165 | 0.74 |
| | 29 | 927 | 4.85 | 64.7 | 2,950 | | 80 | 482 | 585 | 193 | 234 | 0.82 |
| July | 3 | 845 | 4.57 | 63.1 | 2,930 | | 80 | 469 | 528 | 206 | 232 | 0.89 |
| | 6 | 762 | 4.23 | 61.4 | 2,930 | | 81 | 370 | 477 | 180 | 232 | 0.78 |
| | 10 | 656 | 3.88 | 58.1 | 2,910 | | 81 | 373 | 405 | 211 | 229 | 0.92 |
| | 13 | 612 | 3.75 | 56.4 | 2,890 | | 81 | 416 | 470 | 252 | 285 | 0.88 |
| | 17 | 551 | 3.51 | 54.5 | 2,880 | | 82 | 258 | 294 | 174 | 198 | 0.88 |
| | 20 | 506 | 3.29 | 53.8 | 2,860 | | 82 | 351 | 386 | 257 | 283 | 0.91 |
| | 24 | 453 | 3.08 | 51.4 | 2,860 | | 84 | 361 | 386 | 296 | 316 | 0.94 |
| | 26 | 420 | 2.98 | 49.1 | 2,870 | | 83 | 273 | 294 | 241 | 260 | 0.93 |
| August | 2 | 604 | 3.85 | 53.6 | 2,930 | | 80 | 612 | 698 | 376 | 429 | 0.88 |
| | 8 | 554 | 3.62 | 52.6 | 2,910 | | 82 | 479 | 536 | 321 | 359 | 0.89 |
| | 16 | 353 | 2.76 | 45.1 | 2,840 | | 82 | 201 | 217 | 211 | 228 | 0.93 |
| | 23 | 396 | 3.00 | 46.3 | 2,850 | | 82 | 168 | 192 | 157 | 180 | 0.87 |
| | 30 | 362 | 2.83 | 45.1 | 2,840 | | 81 | 176 | 190 | 180 | 195 | 0.92 |

(Continued)

Table 5 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1973 | | | | | | | | | | | | |
| September | 6 | 322 | 2.62 | 43.5 | 2,830 | | 79 | 151 | 158 | 174 | 182 | 0.96 |
| | 14 | 329 | 2.70 | 43.3 | 2,820 | | 81 | 82 | 92 | 92 | 104 | 0.88 |
| | 20 | 289 | 2.49 | 41.1 | 2,820 | | 77 | 62 | 69 | 79 | 89 | 0.89 |
| | 27 | 265 | 2.32 | 40.7 | 2,800 | | 76 | 68 | 74 | 95 | 103 | 0.92 |
| Water Year 1972-73 | Avg. | 1,052 | 5.49 | 61.2 | 2,924 | | 65 | 417 | 732 | 166 | 258 | 0.66 |
| | Max. | 2,017 | 8.37 | 33.7 | 3,000 | | 84 | 935 | 1,484 | 376 | 557 | 0.96 |
| | Min. | 265 | 2.32 | 38.3 | 2,770 | | 38 | 62 | 69 | 79 | 89 | 0.34 |
| October | 4 | 304 | 2.53 | 42.4 | 2,830 | | 77 | 93 | 102 | 114 | 125 | 0.91 |
| | 12 | 553 | 3.76 | 50.5 | 2,910 | | 73 | 723 | 836 | 485 | 561 | 0.86 |
| | 18 | 571 | 3.73 | 52.4 | 2,920 | | 68 | 425 | 449 | 276 | 292 | 0.95 |
| | 26 | 583 | 3.91 | 51.0 | 2,920 | | 68 | 632 | 662 | 402 | 421 | 0.95 |
| November | 1 | 555 | 3.78 | 50.7 | 2,900 | | 63 | 443 | 521 | 296 | 348 | 0.85 |
| | 9 | 496 | 3.52 | 48.6 | 2,900 | | 59 | 303 | 385 | 227 | 288 | 0.79 |
| | 21 | 382 | 3.03 | 44.2 | 2,850 | | 56 | 133 | 165 | 129 | 160 | 0.81 |
| | 29 | 615 | 4.13 | 51.0 | 2,920 | | 58 | 980 | 1,184 | 591 | 714 | 0.83 |
| December | 5 | 946 | 5.23 | 61.8 | 2,930 | | 54 | 966 | 1,249 | 379 | 490 | 0.77 |
| | 15 | 1,191 | 6.05 | 66.3 | 2,970 | | 48 | 770 | 1,917 | 240 | 597 | 0.40 |
| | 20 | 1,131 | 5.95 | 64.0 | 2,970 | | 44 | 497 | 540 | 162 | 177 | 0.92 |
| | 27 | 879 | 4.88 | 60.8 | 2,960 | | 43 | 483 | 723 | 204 | 305 | 0.67 |
| 1974 | | | | | | | | | | | | |
| January | 9 | 1,156 | 5.90 | 65.8 | 2,980 | | 40 | 505 | 657 | 162 | 211 | 0.77 |
| | 17 | 1,261 | 6.21 | 69.5 | 2,920 | | 39 | 476 | 547 | 140 | 161 | 0.87 |

(Continued)

Table 5 (Continued)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm) Fines | Concentration (ppm) Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1974 | | | | | | | | | | | | |
| January | 24 | 1,310 | 6.24 | 70.7 | 2,970 | | 47 | 441 | 879 | 125 | 249 | 0.50 |
| | 31 | 1,418 | 6.69 | 71.1 | 2,980 | | 48 | 661 | 1,494 | 173 | 391 | 0.44 |
| February | 7 | 1,485 | 6.78 | 73.2 | 2,990 | | 48 | 600 | 1,745 | 150 | 436 | 0.34 |
| | 21 | 1,335 | 5.86 | 76.5 | 2,980 | | 47 | 374 | 651 | 104 | 181 | 0.57 |
| | 28 | 1,136 | 5.31 | 72.1 | 2,970 | | 46 | 367 | 799 | 120 | 261 | 0.46 |
| March | 7 | 1,090 | 5.32 | 69.0 | 2,970 | | 50 | 382 | 599 | 130 | 204 | 0.62 |
| | 14 | 933 | 4.66 | 67.6 | 2,960 | | 55 | 375 | 604 | 149 | 240 | 0.62 |
| | 21 | 1,079 | 5.32 | 68.4 | 2,970 | | 54 | 532 | 896 | 183 | 308 | 0.59 |
| | 28 | 1,199 | 5.71 | 70.7 | 2,970 | | 51 | 478 | 1,160 | 148 | 359 | 0.41 |
| April | 4 | 1,168 | 5.62 | 69.8 | 2,980 | | 55 | 312 | 667 | 99 | 212 | 0.47 |
| | 11 | 1,028 | 5.17 | 67.2 | 2,960 | | 57 | 599 | 823 | 216 | 297 | 0.73 |
| | 18 | 1,086 | 5.38 | 68.0 | 2,970 | | 58 | 442 | 623 | 151 | 213 | 0.71 |
| | 25 | 1,101 | 5.48 | 67.7 | 2,970 | | 61 | 516 | 736 | 174 | 248 | 0.70 |
| May | 2 | 989 | 5.12 | 65.4 | 2,950 | | 65 | 445 | 557 | 167 | 209 | 0.80 |
| | 9 | 816 | 4.51 | 61.8 | 2,930 | | 68 | 550 | 649 | 250 | 295 | 0.85 |
| | 16 | 774 | 4.23 | 62.9 | 2,910 | | 69 | 469 | 503 | 225 | 241 | 0.93 |
| June | 6 | 1,019 | 5.34 | 64.5 | 2,960 | | 74 | 838 | 1,035 | 305 | 377 | 0.81 |
| | 20 | 1,298 | 6.09 | 71.5 | 2,980 | | 75 | 644 | 920 | 184 | 263 | 0.70 |
| | 27 | 1,180 | 5.57 | 71.1 | 2,980 | | 74 | 604 | 906 | 190 | 285 | 0.67 |
| July | 3 | 958 | 4.86 | 66.8 | 2,950 | | 76 | 555 | 661 | 215 | 256 | 0.84 |
| | 11 | 845 | 4.59 | 63.0 | 2,920 | | 89 | 524 | 638 | 230 | 280 | 0.82 |
| | 18 | 626 | 3.82 | 56.7 | 2,890 | | 83 | 574 | 645 | 340 | 382 | 0.89 |
| | 25 | 447 | 3.13 | 50.5 | 2,830 | | 84 | 381 | 423 | 316 | 351 | 0.90 |
| | 31 | 387 | 2.87 | 48.4 | 2,790 | | 82 | 250 | 266 | 240 | 255 | 0.94 |

(Continued)

Table 5 (Concluded)

| Date | | Streamflow (1000 cfs) | Avg. Vel. (fps) | Avg. Depth (ft) | Width (ft) | Water Surface Slope ($10^{-4}$ ft/ft) | Water Temp. (°F) | Measured Suspended Sediment: Fines Yield (1000 Tons/Day) | Total Yield (1000 Tons/Day) | Concentration (ppm): Fines | Concentration (ppm): Total | Ratio of Fines/Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1974 | | | | | | | | | | | | |
| August | 8 | 341 | 2.66 | 46.0 | 2,780 | | 82 | 157 | 178 | 171 | 194 | 0.88 |
| | 21 | 419 | 3.08 | 48.2 | 2,820 | | 81 | 159 | 192 | 141 | 170 | 0.83 |
| | 28 | 364 | 2.84 | 45.7 | 2,800 | | 82 | 87 | 100 | 89 | 102 | 0.87 |
| September | 4 | 381 | 2.93 | 46.6 | 2,790 | | 75 | 146 | 164 | 142 | 160 | 0.89 |
| | 11 | 567 | 3.73 | 53.1 | 2,860 | | 75 | 264 | 339 | 173 | 222 | 0.78 |
| | 25 | 502 | 3.44 | 51.2 | 2,850 | | 72 | 137 | 180 | 101 | 133 | 0.76 |
| | Avg. | 861 | 4.66 | 60.6 | 2,921 | | 63 | 461 | 681 | 209 | 287 | 0.74 |
| Water Year 1973-74 | Max. | 1,485 | 6.78 | 76.5 | 2,990 | | 89 | 980 | 1,917 | 591 | 714 | 0.95 |
| | Min. | 304 | 2.53 | 42.4 | 2,780 | | 39 | 87 | 100 | 89 | 102 | 0.34 |
| October | 2 | 391 | 2.96 | 47.1 | 2,800 | | 68 | 118 | 145 | 112 | 138 | 0.81 |
| | 9 | 347 | 2.71 | 45.9 | 2,790 | | 66 | 119 | 135 | 127 | 144 | 0.88 |
| | 16 | 297 | 2.50 | 43.3 | 2,750 | | 66 | 151 | 158 | 188 | 197 | 0.95 |
| | 23 | 311 | 2.55 | 44.2 | 2,760 | | 64 | 73 | 87 | 87 | 104 | 0.84 |
| November | 13 | 618 | 3.99 | 54.0 | 2,870 | | 59 | 934 | 1,086 | 561 | 652 | 0.86 |
| | 20 | 700 | 4.17 | 57.5 | 2,920 | | 55 | 757 | 926 | 401 | 491 | 0.82 |
| | 27 | 686 | 4.08 | 57.9 | 2,900 | | 53 | 403 | 551 | 218 | 298 | 0.73 |
| December | 4 | 731 | 4.25 | 58.9 | 2,920 | | 48 | 420 | 674 | 213 | 342 | 0.62 |
| | 11 | 653 | 4.01 | 56.2 | 2,900 | | 46 | 211 | 368 | 120 | 209 | 0.57 |
| | 18 | 730 | 4.27 | 58.6 | 2,900 | | 45 | 301 | 535 | 153 | 272 | 0.56 |
| | 26 | 705 | 4.35 | 55.9 | 2,900 | | 47 | 317 | 716 | 167 | 377 | 0.44 |
| | Avg. | 561 | 3.62 | 52.7 | 2,855 | | 56 | 346 | 489 | 213 | 293 | 0.74 |
| Oct-Dec 1974 | Max. | 731 | 4.35 | 58.9 | 2,920 | | 68 | 934 | 1,086 | 561 | 652 | 0.95 |
| | Min. | 297 | 2.50 | 43.3 | 2,750 | | 45 | 73 | 87 | 87 | 104 | 0.44 |

Table 6

Mechanical Analysis of Material from Bed of Mississippi River, Vicksburg District, for Calendar Year 1932

| Reach Miles Below Cairo, Ill. | Reach Length in Mi. | No. of Samples | | Gravel | | | | | Sand | | | | | | | | | Silt | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | | | |
| | | | | 38.10 | 13.33 | 6.680 | 3.327 | 2.362 | 1.651 | 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.104 | 0.074 | 0.040 | 0.008 | 0.004 |
| Cessions-Henrico | | | (1)* | | 1.06 | 1.12 | 2.24 | 1.38 | 1.66 | 1.84 | 2.18 | 7.98 | 24.54 | 21.08 | 14.06 | 15.58 | 0.48 | 4.80 | 0.00 | |
| 368.8 - 378.0 | 9.2 | 5 | (2) | 100.00 | 98.94 | 97.82 | 95.58 | 94.20 | 92.54 | 90.70 | 88.52 | 80.54 | 56.00 | 34.92 | 20.86 | 5.28 | 4.80 | 0.00 | | |
| | | | (3) | | | | 100.00 | 99.90 | 99.90 | 99.80 | 99.60 | 98.30 | 85.70 | 64.30 | 45.30 | 23.40 | 22.70 | 0.00 | | |
| | | | (4) | 100.00 | 94.70 | 92.80 | 89.50 | 83.60 | 76.60 | 69.40 | 63.40 | 55.60 | 42.30 | 20.60 | 6.20 | 0.10 | 0.00 | | | |
| Smith Pt.-Terrene | | | (1) | | 0.00 | 0.30 | 1.33 | 0.97 | 0.93 | 1.00 | 1.90 | 6.43 | 12.73 | 24.60 | 28.97 | 18.93 | 0.97 | 0.94 | 0.00 | |
| 378.0 - 389.9 | 11.9 | 3 | (2) | | 100.00 | 99.70 | 98.37 | 97.40 | 96.47 | 95.47 | 93.57 | 87.14 | 74.41 | 49.81 | 20.84 | 1.91 | 0.94 | 0.00 | | |
| | | | (3) | | | | | | 100.00 | 99.90 | 99.60 | 98.40 | 95.00 | 71.70 | 35.90 | 2.70 | 2.10 | 0.00 | | |
| | | | (4) | | 100.00 | 99.10 | 95.10 | 92.30 | 89.50 | 86.70 | 81.70 | 64.90 | 37.30 | 16.80 | 5.60 | 0.70 | 0.20 | 0.00 | | |
| Terrene-Ozark | | | (1) | | 8.41 | 2.53 | 2.48 | 1.25 | 1.33 | 1.39 | 2.02 | 6.61 | 17.46 | 15.67 | 18.94 | 19.52 | 1.19 | 1.20 | 0.00 | |
| 389.9 - 402.0 | 12.1 | 19 | (2) | 100.00 | 91.59 | 89.06 | 86.58 | 85.33 | 84.00 | 82.61 | 80.59 | 73.98 | 56.52 | 40.85 | 21.91 | 2.39 | 1.20 | 0.00 | | |
| | | | (3) | | | | | | | 100.00 | 99.90 | 99.60 | 98.20 | 95.10 | 75.70 | 19.10 | 13.80 | 0.00 | | |
| | | | (4) | 100.00 | 27.20 | 26.20 | 24.30 | 22.90 | 21.80 | 18.30 | 14.90 | 10.20 | 5.40 | 2.00 | 0.50 | 0.00 | | | | |
| Ozark-Eutaw | | | (1) | | 8.26 | 2.30 | 1.78 | 0.96 | 1.12 | 1.24 | 1.61 | 4.77 | 18.09 | 21.85 | 15.39 | 6.41 | 1.27 | 1.78 | 4.27 | 8.90 |
| 402.0 - 429.3 | 27.3 | 17 | (2) | 100.00 | 91.74 | 89.44 | 87.66 | 86.70 | 85.58 | 84.34 | 82.73 | 77.96 | 59.87 | 38.02 | 22.63 | 16.22 | 14.95 | 13.17 | 8.90 | 0.00 |
| | | | (3) | | | | | | | | | | | | 100.00 | 97.10 | 90.80 | 85.40 | 65.00 | 0.00 |
| | | | (4) | 100.00 | 20.20 | 12.60 | 8.70 | 7.30 | 6.20 | 5.40 | 4.50 | 3.00 | 1.20 | 0.40 | 0.10 | 0.00 | | | | |
| Choctaw Bar | | | (1) | | 4.17 | 2.95 | 1.55 | 0.65 | 0.75 | 1.06 | 1.85 | 6.23 | 21.76 | 29.47 | 15.38 | 9.59 | 1.34 | 3.25 | 0.00 | |
| 429.3 - 443.0 | 13.7 | 14 | (2) | 100.00 | 95.83 | 92.88 | 91.33 | 90.68 | 89.93 | 88.87 | 87.02 | 80.79 | 59.03 | 29.56 | 14.18 | 4.59 | 3.25 | 0.00 | | |
| | | | (3) | | | | | | 100.00 | 99.90 | 99.90 | 99.80 | 96.40 | 72.10 | 49.40 | 34.00 | 20.10 | 0.00 | | |
| | | | (4) | 100.00 | 56.00 | 23.90 | 12.60 | 9.10 | 7.00 | 5.80 | 5.00 | 3.80 | 1.70 | 0.30 | 0.10 | 0.00 | | | | |
| Greenville | | | (1) | | 3.61 | 3.87 | 2.04 | 1.03 | 1.29 | 1.68 | 3.18 | 8.23 | 21.77 | 25.97 | 16.76 | 4.82 | 0.57 | 0.65 | 1.21 | 0.65 |
| 443.0 - 491.7 | 48.7 | 53 | (2) | 100.00 | 96.39 | 92.52 | 90.48 | 89.45 | 88.16 | 86.48 | 83.30 | 75.07 | 53.30 | 27.33 | 10.57 | 5.75 | 5.18 | 4.53 | 3.32 | 2.67 |
| | | | (3) | | | | | | | | | | | | | 100.00 | 94.80 | 90.80 | 70.80 | 62.40 |
| | | | (4) | 100.00 | 56.20 | 13.10 | 0.70 | 0.20 | 0.10 | 0.10 | 0.00 | | | | | | | | | |
| Lakeport | | | (1) | | 7.72 | 5.88 | 3.63 | 1.90 | 1.90 | 2.13 | 3.07 | 7.67 | 17.13 | 23.90 | 12.93 | 11.73 | 0.28 | 0.13 | 0.00 | |
| 491.7 - 498.7 | 7.0 | 6 | (2) | 100.00 | 92.28 | 86.40 | 82.77 | 80.87 | 78.97 | 76.84 | 73.77 | 66.10 | 48.97 | 25.07 | 12.14 | 0.41 | 0.13 | 0.00 | | |
| | | | (3) | | | | 100.00 | 99.90 | 99.90 | 99.70 | 99.60 | 98.90 | 89.80 | 77.30 | 52.30 | 1.40 | 0.40 | 0.00 | | |
| | | | (4) | 100.00 | 72.90 | 56.60 | 50.80 | 44.30 | 38.40 | 32.80 | 26.10 | 14.20 | 5.80 | 3.20 | 0.60 | 0.10 | 0.00 | | | |

(Continued)



* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

Table 6 (Continued)

| Reach Miles Below Cairo, Ill. | Reach Length in Mi. | No. of Samples | | Gravel | | | | | Sand (Size of Sieve Opening in mm.) | | | | | | | | | Silt | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 38.10 | 13.33 | 6.680 | 3.327 | 2.362 | 1.651 | 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.104 | 0.074 | 0.040 | 0.008 | 0.004 |
| Kentucky Bend | | | (1)* | | 3.99 | 1.19 | 2.68 | 1.16 | 1.14 | 1.53 | 2.51 | 9.44 | 26.56 | 23.18 | 18.70 | 7.05 | 0.62 | 0.25 | 0.00 | |
| 498.7 - 509.4 | 10.7 | 8 | (2) | 100.00 | 96.01 | 94.82 | 92.14 | 90.98 | 89.84 | 88.31 | 85.80 | 76.36 | 49.80 | 26.62 | 7.92 | 0.87 | 0.25 | 0.00 | | |
| | | | (3) | | | | | | 100.00 | 99.90 | 99.90 | 98.80 | 91.00 | 78.50 | 32.40 | 3.70 | 1.00 | 0.00 | | |
| | | | (4) | 100.00 | 68.10 | 58.60 | 48.90 | 45.00 | 42.20 | 40.20 | 38.00 | 33.60 | 20.40 | 3.00 | 0.50 | 0.10 | 0.10 | 0.00 | | |
| Cracraft-Carolina | | | (1) | | 13.30 | 1.45 | 1.09 | 0.55 | 0.78 | 1.20 | 1.94 | 6.03 | 17.49 | 26.92 | 19.85 | 7.81 | 1.32 | 0.27 | 0.00 | |
| 509.4 - 520.7 | 11.3 | 10 | (2) | 100.00 | 86.70 | 85.25 | 84.16 | 83.61 | 82.83 | 81.63 | 79.69 | 73.66 | 56.17 | 29.25 | 9.40 | 1.59 | 0.27 | 0.00 | | |
| | | | (3) | | | | | | 100.00 | 99.90 | 99.90 | 99.60 | 98.70 | 82.10 | 31.90 | 9.90 | 1.10 | 0.00 | | |
| | | | (4) | 100.00 | 1.50 | 1.10 | 1.00 | 1.00 | 1.00 | 0.90 | 0.80 | 0.70 | 0.50 | 0.30 | 0.20 | 0.10 | 0.00 | | | |
| Carolina-Baleshed | | | (1) | | | 0.00 | 0.21 | 0.11 | 0.17 | 0.23 | 0.46 | 1.65 | 9.32 | 25.00 | 45.76 | 15.59 | 1.05 | 0.45 | 0.00 | |
| 520.7 - 534.3 | 13.6 | 11 | (2) | | | 100.00 | 99.79 | 99.68 | 99.51 | 99.28 | 98.82 | 97.17 | 87.85 | 62.85 | 17.09 | 1.50 | 0.45 | 0.00 | | |
| | | | (3) | | | | | | | 100.00 | 99.90 | 99.80 | 98.70 | 91.80 | 62.00 | 14.00 | 3.70 | 0.00 | | |
| | | | (4) | | | 100.00 | 99.00 | 98.40 | 97.90 | 97.30 | 96.30 | 92.60 | 63.30 | 22.80 | 3.90 | 0.10 | 0.10 | 0.00 | | |
| Baleshed Landing | | | (1) | | 1.61 | 0.95 | 0.73 | 0.52 | 0.70 | 1.18 | 2.33 | 8.29 | 26.68 | 24.97 | 19.84 | 11.25 | 0.17 | 0.78 | 0.00 | |
| 534.3 - 544.0 | 9.7 | 15 | (2) | 100.00 | 98.39 | 97.44 | 96.71 | 96.19 | 95.49 | 94.31 | 91.98 | 83.69 | 57.01 | 32.04 | 12.20 | 0.95 | 0.78 | 0.00 | | |
| | | | (3) | | | | | 100.00 | 99.90 | 99.90 | 99.80 | 99.80 | 99.40 | 93.00 | 78.10 | 10.30 | 10.00 | 0.00 | | |
| | | | (4) | 100.00 | 84.10 | 81.40 | 78.10 | 75.60 | 72.60 | 68.30 | 62.30 | 48.80 | 17.40 | 2.20 | 0.40 | 0.10 | 0.00 | | | |
| Ajax Bar | | | (1) | | 21.87 | 2.97 | 2.90 | 1.23 | 1.07 | 1.23 | 1.63 | 4.50 | 20.60 | 25.77 | 13.57 | 2.50 | 0.10 | 0.06 | 0.00 | |
| 544.0 - 548.9 | 4.9 | 3 | (2) | 100.00 | 78.13 | 75.16 | 72.26 | 71.03 | 69.96 | 68.73 | 67.10 | 62.60 | 42.00 | 16.23 | 2.66 | 0.16 | 0.06 | 0.00 | | |
| | | | (3) | | | | | 100.00 | 99.90 | 99.80 | 99.80 | 98.80 | 60.50 | 37.00 | 7.00 | 0.30 | 0.10 | 0.00 | | |
| | | | (4) | 100.00 | 34.40 | 27.20 | 22.20 | 20.10 | 18.10 | 16.10 | 13.90 | 9.90 | 5.30 | 2.30 | 0.50 | 0.10 | 0.00 | | | |
| Ajax-Cottonwood | | | (1) | | 3.35 | 1.42 | 1.52 | 1.08 | 1.45 | 2.20 | 4.20 | 15.03 | 28.48 | 22.37 | 12.72 | 5.95 | 0.17 | 0.06 | 0.00 | |
| 548.9 - 556.2 | 7.3 | 6 | (2) | 100.00 | 96.65 | 95.23 | 93.71 | 92.63 | 91.18 | 88.98 | 84.78 | 69.75 | 41.27 | 18.90 | 6.18 | 0.23 | 0.06 | 0.00 | | |
| | | | (3) | | | | | | | | 100.00 | 99.30 | 87.40 | 59.30 | 22.70 | 0.60 | 0.20 | 0.00 | | |
| | | | (4) | 100.00 | 84.20 | 83.00 | 82.50 | 81.90 | 80.30 | 75.30 | 65.90 | 38.50 | 5.80 | 2.40 | 0.90 | 0.10 | 0.00 | | | |
| Cottonwood Bar | | | (1) | | 0.00 | 0.07 | 0.53 | 0.13 | 0.27 | 0.43 | 1.20 | 5.63 | 19.40 | 32.77 | 29.80 | 9.40 | 0.33 | 0.04 | 0.00 | |
| 556.2 - 561.0 | 4.8 | 3 | (2) | | 100.00 | 99.93 | 99.40 | 99.27 | 99.00 | 98.57 | 97.37 | 91.74 | 72.34 | 39.57 | 9.77 | 0.37 | 0.04 | 0.00 | | |
| | | | (3) | | | 100.00 | 99.80 | 99.60 | 99.30 | 98.80 | 97.50 | 92.80 | 75.70 | 48.20 | 16.80 | 0.90 | 0.10 | 0.00 | | |
| | | | (4) | | 100.00 | 99.80 | 98.90 | 98.80 | 98.50 | 98.10 | 97.20 | 90.50 | 66.70 | 33.20 | 5.10 | 0.10 | 0.00 | | | |

(Continued)



* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

Table 6 (Continued)

| Reach Miles Below Cairo, Ill. | Reach Length in Mi. | No. of Samples | | Gravel | | | | | Sand | | | | | | | | | Silt | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | | | |
| | | | | 38.10 | 13.33 | 6.680 | 3.327 | 2.362 | 1.651 | 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.104 | 0.074 | 0.040 | 0.008 | 0.004 |
| Cottonwood - Belle Is. | | | (1)* | | 1.13 | 1.99 | 1.40 | 0.79 | 1.25 | 1.93 | 3.28 | 10.35 | 28.16 | 26.69 | 8.49 | 2.03 | 1.39 | 3.36 | 3.79 | 0.86 |
| 561.0 - 574.0 | 13.0 | 8 | (2) | 100.00 | 98.87 | 96.88 | 95.48 | 94.69 | 93.44 | 91.51 | 88.23 | 77.88 | 49.72 | 23.03 | 14.54 | 12.51 | 11.12 | 7.76 | 3.97 | 3.11 |
| | | | (3) | | | | | | | | | | | | | 100.00 | 90.30 | 64.30 | 34.00 | 27.10 |
| | | | (4) | 100.00 | 95.50 | 86.20 | 82.70 | 81.60 | 80.30 | 77.80 | 68.00 | 51.00 | 17.30 | 2.10 | 0.20 | 0.10 | 0.10 | 0.00 | | |
| Belle Is.-Milliken | | | (1) | | 24.23 | 3.65 | 2.11 | 0.93 | 0.90 | 1.33 | 2.81 | 12.36 | 27.10 | 15.04 | 6.46 | 2.91 | 0.10 | 0.07 | 0.00 | |
| 574.0 - 585.5 | 11.5 | 10 | (2) | 100.00 | 75.77 | 72.12 | 70.01 | 69.08 | 68.18 | 66.85 | 64.04 | 51.68 | 24.58 | 9.54 | 3.08 | 0.17 | 0.07 | 0.00 | | |
| | | | (3) | | | | 100.00 | 99.90 | 99.80 | 99.80 | 99.20 | 94.00 | 66.80 | 32.50 | 8.90 | 0.60 | 0.10 | 0.00 | | |
| | | | (4) | 100.00 | 5.40 | 0.40 | 0.00 | | | | | | | | | | | | | |
| Milliken-Vicksburg | | | (1) | | 9.66 | 1.87 | 1.10 | 0.61 | 0.79 | 1.30 | 2.15 | 7.20 | 18.75 | 19.37 | 18.15 | 16.42 | 0.62 | 0.70 | 1.11 | 0.22 |
| 585.5 - 603.6 | 18.1 | 37 | (2) | 100.00 | 90.34 | 88.47 | 87.37 | 86.76 | 85.97 | 84.67 | 82.52 | 75.32 | 56.57 | 37.20 | 19.05 | 2.63 | 2.01 | 1.31 | 0.20 | 0.00 |
| | | | (3) | | | | | | | | | | | | 100.00 | 99.20 | 93.60 | 80.50 | 39.40 | 31.30 |
| | | | (4) | 100.00 | 8.60 | 0.00 | | | | | | | | | | | | | | |
| Racetrack-Towhead | | | (1) | | 1.00 | 1.03 | 0.53 | 0.27 | 0.28 | 0.40 | 0.90 | 5.44 | 20.01 | 24.21 | 27.12 | 11.46 | 1.43 | 3.09 | 0.92 | 0.55 |
| 603.6 - 621.6 | 18.0 | 23 | (2) | 100.00 | 99.00 | 97.97 | 97.44 | 97.17 | 96.89 | 96.49 | 95.59 | 90.15 | 70.14 | 45.93 | 18.81 | 7.35 | 5.92 | 2.83 | 1.91 | 1.36 |
| | | | (3) | | | | | | | | | | | | 100.00 | 93.80 | 71.50 | 63.90 | 42.80 | 30.20 |
| | | | (4) | 100.00 | 83.60 | 67.80 | 64.50 | 63.00 | 62.00 | 60.80 | 59.20 | 51.00 | 18.30 | 4.70 | 1.20 | 0.10 | 0.00 | | | |
| Pt. Pleasant | | | (1) | | 0.00 | 0.63 | 0.54 | 0.34 | 0.43 | 0.76 | 1.56 | 6.35 | 17.67 | 17.75 | 9.13 | 20.60 | 6.56 | 4.44 | 6.13 | 4.90 |
| 621.6 - 644.0 | 22.4 | 13 | (2) | | 100.00 | 99.37 | 98.83 | 98.49 | 98.06 | 97.30 | 95.74 | 89.39 | 71.72 | 53.97 | 44.84 | 24.24 | 17.68 | 13.24 | 7.11 | 2.21 |
| | | | (3) | | | | | | | | | | | | | 100.00 | 95.40 | 90.40 | 49.90 | 28.70 |
| | | | (4) | | 100.00 | 94.10 | 89.90 | 87.10 | 83.40 | 77.10 | 65.50 | 38.10 | 13.50 | 4.40 | 0.50 | 0.10 | 0.10 | 0.00 | | |
| Grand Gulf | | | (1) | | 4.43 | 2.88 | 0.70 | 0.25 | 0.28 | 0.35 | 0.92 | 5.20 | 16.52 | 21.47 | 21.83 | 8.77 | 1.50 | 1.92 | 5.03 | 2.55 |
| 644.0 - 659.3 | 15.3 | 6 | (2) | 100.00 | 95.57 | 92.69 | 91.99 | 91.74 | 91.46 | 91.11 | 90.19 | 84.99 | 68.47 | 47.00 | 25.17 | 16.40 | 14.90 | 12.98 | 7.95 | 5.40 |
| | | | (3) | | | | | | | | | | | | 100.00 | 95.50 | 88.50 | 77.90 | 47.70 | 32.40 |
| | | | (4) | 100.00 | 73.40 | 56.10 | 52.20 | 50.80 | 49.60 | 48.00 | 44.30 | 29.30 | 14.30 | 4.60 | 1.20 | 0.20 | 0.10 | 0.00 | | |
| Rodney | | | (1) | | 10.82 | 3.14 | 2.10 | 1.22 | 1.00 | 1.20 | 2.04 | 9.14 | 25.00 | 26.12 | 13.58 | 3.08 | 0.22 | 1.34 | 0.00 | |
| 659.3 - 676.5 | 17.2 | 5 | (2) | 100.00 | 89.18 | 86.04 | 83.94 | 82.72 | 81.72 | 80.52 | 78.48 | 69.34 | 44.34 | 18.22 | 4.64 | 1.56 | 1.34 | 0.00 | | |
| | | | (3) | | | 100.00 | 99.70 | 99.60 | 99.40 | 99.30 | 98.90 | 97.40 | 88.30 | 38.40 | 12.50 | 6.90 | 6.30 | 0.00 | | |
| | | | (4) | 100.00 | 67.20 | 60.10 | 57.20 | 55.90 | 54.80 | 53.60 | 51.80 | 44.80 | 20.80 | 6.00 | 1.40 | 0.10 | 0.10 | 0.00 | | |

(Continued)



* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

Table 6 (Concluded)

| Reach Miles Below Cairo, Ill. | Reach Length in Mi. | No. of Samples | | Gravel | | | | | Sand | | | | | | | | | | Silt | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | | | |
| | | | | 38.10 | 13.33 | 6.680 | 3.327 | 2.362 | 1.651 | 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.104 | 0.074 | 0.040 | 0.008 | 0.004 |
| Waterproof | | | (1)* | | 0.00 | 0.20 | 0.53 | 0.53 | 0.55 | 0.90 | 1.63 | 6.83 | 19.23 | 25.75 | 25.53 | 17.73 | 0.41 | 0.18 | 0.00 | |
| 676.5 - 593.7 | 17.2 | 4 | (2) | | 100.00 | 99.80 | 99.27 | 98.74 | 98.19 | 97.29 | 95.66 | 88.83 | 69.60 | 43.85 | 18.32 | 0.59 | 0.18 | 0.00 | | |
| | | | (3) | | | | | 100.00 | 99.90 | 99.90 | 99.80 | 98.60 | 92.10 | 84.50 | 51.40 | 1.80 | 0.40 | 0.00 | | |
| | | | (4) | | 100.00 | 99.20 | 97.30 | 95.40 | 93.70 | 90.50 | 85.00 | 65.80 | 35.90 | 15.70 | 4.40 | 0.10 | 0.10 | 0.00 | | |
| Natchez | | | (1) | | 1.78 | 1.37 | 1.11 | 0.36 | 0.37 | 0.62 | 1.21 | 7.95 | 18.93 | 21.27 | 31.58 | 13.09 | 0.21 | 0.10 | 0.00 | |
| 693.7 - 713.8 | 20.1 | 10 | (2) | 100.00 | 98.22 | 96.85 | 95.74 | 95.38 | 95.01 | 94.39 | 93.18 | 85.23 | 66.30 | 45.03 | 13.45 | 0.36 | 0.15 | 0.05 | 0.00 | |
| | | | (3) | | | | | | 100.00 | 99.90 | 99.90 | 99.80 | 99.60 | 95.30 | 42.90 | 1.10 | 0.20 | 0.00 | | |
| | | | (4) | 100.00 | 90.70 | 85.60 | 80.60 | 77.90 | 75.90 | 72.10 | 66.80 | 51.90 | 6.90 | 1.90 | 0.30 | 0.10 | 0.00 | | | |
| St. Catherine | | | (1) | | 0.89 | 0.76 | 0.53 | 0.20 | 0.28 | 0.38 | 0.67 | 3.88 | 17.01 | 28.70 | 22.22 | 22.18 | 1.88 | 0.42 | 0.00 | |
| 713.8 - 738.9 | 25.1 | 10 | (2) | 100.00 | 99.11 | 98.35 | 97.82 | 97.62 | 97.34 | 96.96 | 96.29 | 92.41 | 75.40 | 46.70 | 24.48 | 2.30 | 0.42 | 0.00 | | |
| | | | (3) | | | | | | 100.00 | 99.90 | 99.90 | 99.70 | 99.40 | 99.00 | 97.50 | 11.20 | 2.30 | 0.00 | | |
| | | | (4) | 100.00 | 91.10 | 85.40 | 82.90 | 82.30 | 81.50 | 80.70 | 79.60 | 73.50 | 31.30 | 6.30 | 1.30 | 0.10 | 0.10 | 0.00 | | |
| Bougere | | | (1) | | 0.00 | 0.24 | 1.10 | 0.68 | 0.78 | 1.74 | 2.68 | 10.64 | 19.80 | 23.70 | 17.70 | 20.42 | 0.38 | 0.14 | 0.00 | |
| 738.9 - 755.0 | 16.1 | 5 | (2) | | 100.00 | 99.76 | 98.66 | 97.98 | 97.20 | 95.46 | 92.78 | 82.14 | 62.34 | 38.64 | 20.94 | 0.52 | 0.14 | 0.00 | | |
| | | | (3) | | | | | | 100.00 | 99.90 | 99.90 | 99.80 | 99.70 | 99.60 | 85.50 | 1.50 | 0.30 | 0.00 | | |
| | | | (4) | | 100.00 | 99.10 | 97.00 | 95.30 | 92.90 | 88.50 | 82.30 | 56.50 | 15.50 | 2.40 | 0.70 | 0.10 | 0.10 | 0.00 | | |

* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

Table 7

Mechanical Analysis of Material from Bed of Mississippi River, Vicksburg District, for Calendar Year 1966

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel 38.10 | Gravel 19.05 | Gravel 9.525 | Gravel 4.699 | Gravel 2.362 | Sand 1.168 | Sand 0.833 | Sand 0.589 | Sand 0.417 | Sand 0.295 | Sand 0.208 | Sand 0.147 | Sand 0.104 | Sand 0.074 | Silt Clay 0.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| Cessions-Henrico 616.0 - 606.0 | 10.0 | 5 | (1) * | | 0.00 | 1.22 | 0.64 | 1.10 | 3.06 | 4.52 | 12.18 | 26.05 | 25.72 | 18.86 | 5.78 | 0.73 | 0.09 | 0.05 |
| | | | (2) | | 100.00 | 98.78 | 98.14 | 97.04 | 93.98 | 89.46 | 77.26 | 51.23 | 25.50 | 6.64 | 0.86 | 0.13 | 0.05 | 0.00 |
| | | | (3) | | | | | 100.00 | 99.87 | 99.62 | 98.74 | 94.51 | 57.98 | 20.88 | 1.70 | 0.19 | 0.06 | 0.00 |
| | | | (4) | | 100.00 | 96.69 | 95.57 | 94.40 | 86.60 | 73.77 | 47.89 | 14.54 | 2.75 | 0.51 | 0.15 | 0.07 | 0.04 | 0.00 |
| Smith Pt.-Terrene 606.0 - 594.2 | 11.8 | 4 | (1) | | | 0.00 | 0.24 | 0.71 | 2.12 | 3.33 | 9.52 | 34.75 | 26.70 | 17.43 | 4.19 | 0.82 | 0.13 | 0.05 |
| | | | (2) | | | 100.00 | 99.76 | 99.05 | 96.94 | 93.60 | 84.08 | 49.33 | 22.63 | 5.19 | 1.00 | 0.18 | 0.05 | 0.00 |
| | | | (3) | | | | | 100.00 | 99.83 | 99.56 | 97.67 | 83.09 | 54.21 | 10.92 | 1.61 | 0.24 | 0.06 | 0.00 |
| | | | (4) | | | 100.00 | 99.38 | 97.69 | 92.12 | 84.38 | 67.50 | 32.53 | 8.37 | 1.86 | 0.44 | 0.11 | 0.05 | 0.00 |
| Terrene-Ozark 594.2 - 581.0 | 13.2 | 24 | (1) | 0.00 | 0.20 | 1.31 | 0.48 | 0.69 | 1.53 | 2.04 | 6.49 | 23.51 | 35.69 | 17.66 | 7.92 | 2.04 | 0.33 | 0.12 |
| | | | (2) | 100.00 | 99.80 | 98.49 | 98.01 | 97.33 | 95.80 | 93.76 | 87.27 | 63.76 | 28.06 | 10.40 | 2.48 | 0.45 | 0.12 | 0.00 |
| | | | (3) | | | | | | 100.00 | 99.93 | 99.66 | 98.72 | 95.23 | 66.42 | 16.87 | 2.84 | 0.59 | 0.00 |
| | | | (4) | 100.00 | 95.27 | 88.33 | 83.69 | 77.04 | 64.93 | 53.96 | 39.79 | 14.52 | 1.75 | 0.48 | 0.15 | 0.07 | 0.04 | 0.00 |
| Ozark-Eutaw 581.0 - 565.9 | 15.1 | 20 1** | (1) | 0.00 | 0.77 | 0.84 | 0.64 | 0.42 | 0.87 | 1.07 | 5.19 | 24.32 | 34.50 | 19.73 | 5.59 | 0.86 | 0.15 | 5.06 |
| | | | (2) | 100.00 | 99.23 | 98.39 | 97.75 | 97.34 | 96.47 | 95.40 | 90.22 | 65.90 | 31.39 | 11.66 | 6.07 | 5.21 | 5.06 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.67 | 98.16 | 92.61 | 31.72 | 4.28 | 0.71 | 0.18 | 0.00 |
| | | | (4) | 100.00 | 89.67 | 79.22 | 71.73 | 66.48 | 58.09 | 50.92 | 34.21 | 5.11 | 1.46 | 0.60 | 0.14 | 0.06 | 0.03 | 0.00 |
| Choctaw Bar 565.9 - 550.4 | 15.5 | 8 | (1) | 0.00 | 1.58 | 4.29 | 1.82 | 1.09 | 1.49 | 1.79 | 7.88 | 24.78 | 29.31 | 18.37 | 6.28 | 1.12 | 0.14 | 0.06 |
| | | | (2) | 100.00 | 98.42 | 94.13 | 92.31 | 91.22 | 89.74 | 87.95 | 80.07 | 55.29 | 25.98 | 7.61 | 1.33 | 0.21 | 0.06 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.85 | 94.94 | 73.71 | 20.52 | 4.28 | 0.42 | 0.10 | 0.00 |
| | | | (4) | 100.00 | 87.34 | 63.47 | 54.27 | 48.68 | 43.13 | 39.09 | 26.83 | 11.76 | 3.64 | 0.94 | 0.22 | 0.07 | 0.04 | 0.00 |
| Greenville 550.4 - 531.2 | 19.2 | 48 | (1) | 0.00 | 0.31 | 0.51 | 0.29 | 0.28 | 0.60 | 0.99 | 4.19 | 20.10 | 31.88 | 22.04 | 13.26 | 4.10 | 0.81 | 0.66 |
| | | | (2) | 100.00 | 99.69 | 99.19 | 98.90 | 98.62 | 98.02 | 97.04 | 92.85 | 72.75 | 40.87 | 18.84 | 5.58 | 1.47 | 0.66 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.90 | 99.34 | 97.45 | 85.70 | 42.85 | 23.26 | 19.08 | 0.00 |
| | | | (4) | 100.00 | 85.31 | 83.78 | 82.04 | 79.13 | 75.27 | 69.96 | 57.38 | 12.89 | 3.68 | 1.09 | 0.25 | 0.07 | 0.04 | 0.00 |
| Lakeport 531.2 - 524.2 | 7.0 | 4 | (1) | | 0.00 | 3.35 | 1.46 | 1.42 | 2.46 | 3.29 | 8.13 | 29.89 | 33.76 | 8.90 | 5.34 | 1.77 | 0.17 | 0.06 |
| | | | (2) | | 100.00 | 96.65 | 95.19 | 93.77 | 91.31 | 88.02 | 79.89 | 50.00 | 16.24 | 7.35 | 2.01 | 0.24 | 0.06 | 0.00 |
| | | | (3) | | | | 100.00 | 99.86 | 99.32 | 97.56 | 90.34 | 59.71 | 28.22 | 15.62 | 4.20 | 0.43 | 0.07 | 0.00 |
| | | | (4) | | 100.00 | 94.92 | 92.17 | 89.78 | 86.22 | 83.03 | 74.60 | 36.43 | 5.52 | 1.55 | 0.32 | 0.09 | 0.05 | 0.00 |

(Continued)

* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.
** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

Table 7 (Continued)

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel | | | | | Sand | | | | | | | | | Silt Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| | | | | 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | 0.000 |
| Kentucky Bend | 9.4 | 4 | (1)* | | 0.00 | 0.50 | 0.17 | 0.11 | 0.36 | 0.98 | 5.10 | 22.83 | 43.82 | 17.06 | 7.51 | 1.37 | 0.12 | 0.08 |
| 524.2 - 514.8 | | | (2) | | 100.00 | 99.50 | 99.33 | 99.22 | 98.86 | 97.88 | 92.78 | 69.94 | 26.12 | 9.07 | 1.56 | 0.19 | 0.08 | 0.00 |
| | | | (3) | | | | | | 100.00 | 99.93 | 99.39 | 95.08 | 51.85 | 19.06 | 2.42 | 0.27 | 0.13 | 0.00 |
| | | | (4) | | 100.00 | 98.02 | 97.32 | 97.00 | 96.31 | 94.59 | 84.69 | 50.16 | 11.08 | 3.43 | 0.48 | 0.11 | 0.05 | 0.00 |
| Cracraft-Carolina | 8.2 | 68 | (1) | | 0.00 | 0.98 | 0.80 | 0.79 | 1.58 | 1.71 | 4.93 | 17.84 | 32.54 | 20.82 | 8.52 | 2.81 | 1.08 | 5.60 |
| 514.8 - 506.6 | | 3** | (2) | | 100.00 | 99.02 | 98.22 | 97.43 | 95.85 | 94.14 | 89.21 | 71.36 | 38.82 | 18.00 | 9.49 | 6.68 | 5.60 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.95 | 99.36 | 97.25 | 90.09 | 57.21 | 43.86 | 36.11 | 0.00 |
| | | | (4) | | 100.00 | 87.49 | 72.77 | 57.57 | 43.47 | 34.83 | 23.08 | 7.11 | 1.20 | 0.40 | 0.24 | 0.07 | 0.03 | 0.00 |
| Carolina-Baleshed | 11.0 | | (1) | | | | | | | | | | | | | | | |
| 506.6 - 495.6 | | | (2) | | | | | | | | | | | | | | | |
| | | | (3) | | | | | | | | | | | | | | | |
| | | | (4) | | | | | | | | | | | | | | | |
| Baleshed Landing | 10.0 | 27 | (1) | 0.00 | 0.13 | 1.11 | 1.00 | 0.82 | 2.01 | 2.91 | 9.46 | 27.07 | 27.24 | 16.55 | 8.26 | 2.58 | 0.72 | 0.16 |
| 495.6 - 485.6 | | | (2) | 100.00 | 99.87 | 98.76 | 97.76 | 96.94 | 94.94 | 92.03 | 82.57 | 55.51 | 28.27 | 11.72 | 3.46 | 0.88 | 0.16 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.19 | 96.22 | 88.05 | 77.73 | 26.21 | 11.07 | 1.83 | 0.00 |
| | | | (4) | 100.00 | 96.36 | 91.32 | 88.21 | 86.19 | 82.90 | 70.91 | 50.23 | 12.45 | 0.96 | 0.27 | 0.17 | 0.06 | 0.03 | 0.00 |
| Ajax Bar | 5.8 | 118 | (1) | 0.00 | 0.36 | 1.01 | 0.75 | 0.64 | 1.10 | 1.39 | 4.47 | 18.72 | 34.24 | 25.39 | 7.56 | 1.79 | 0.45 | 2.13 |
| 485.6 - 479.8 | | 2** | (2) | 100.00 | 99.64 | 98.63 | 97.88 | 97.24 | 96.14 | 94.76 | 90.29 | 71.57 | 37.33 | 11.93 | 4.37 | 2.58 | 2.13 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.44 | 95.73 | 66.12 | 30.29 | 22.16 | 15.69 | 0.00 |
| | | | (4) | 100.00 | 83.31 | 37.18 | 15.43 | 5.63 | 0.86 | 0.49 | 0.40 | 0.33 | 0.24 | 0.15 | 0.09 | 0.04 | 0.02 | 0.00 |
| Ajax-Cottonwood | 7.8 | | (1) | | | | | | | | | | | | | | | |
| 479.8 - 472.0 | | | (2) | | | | | | | | | | | | | | | |
| | | | (3) | | | | | | | | | | | | | | | |
| | | | (4) | | | | | | | | | | | | | | | |
| Cottonwood Bar | 4.2 | 12 | (1) | 0.00 | 1.16 | 0.73 | 0.47 | 0.65 | 1.57 | 3.46 | 10.69 | 34.64 | 25.23 | 10.03 | 4.77 | 2.86 | 2.03 | 1.70 |
| 472.0 - 467.8 | | | (2) | 100.00 | 98.84 | 98.11 | 97.64 | 96.99 | 95.42 | 91.97 | 81.28 | 46.63 | 21.40 | 11.37 | 6.60 | 3.74 | 1.74 | 0.00 |
| | | | (3) | | | | | | 100.00 | 99.93 | 99.61 | 98.57 | 88.91 | 72.45 | 58.10 | 41.22 | 19.66 | 0.00 |
| | | | (4) | 100.00 | 92.38 | 88.09 | 86.88 | 83.31 | 76.83 | 65.90 | 43.86 | 23.06 | 2.17 | 0.52 | 0.12 | 0.06 | 0.03 | 0.00 |

(Continued)



* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

Table 7 (Continued)

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | Sand 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | Silt Clay 0.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| Cottonwood-Belle Is. | 6.4 | | (1)* | | | | | | | | | | | | | | | |
| 467.8 - 461.4 | | | (2) | | | | | | | | | | | | | | | |
| | | | (3) | | | | | | | | | | | | | | | |
| | | | (4) | | | | | | | | | | | | | | | |
| Belle Is.-Milliken | 9.6 | 4 | (1) | 0.00 | 6.86 | 1.06 | 0.51 | 0.24 | 0.35 | 1.04 | 4.76 | 21.67 | 27.95 | 24.37 | 8.65 | 2.12 | 0.30 | 0.12 |
| 461.4 - 451.8 | | | (2) | 100.00 | 93.14 | 92.07 | 91.57 | 91.32 | 90.97 | 89.94 | 85.18 | 63.50 | 35.56 | 11.18 | 2.54 | 0.42 | 0.12 | 0.00 |
| | | | (3) | | | | | 100.00 | 99.95 | 99.90 | 99.80 | 99.50 | 90.05 | 31.52 | 7.00 | 1.20 | 0.30 | 0.00 |
| | | | (4) | 100.00 | 78.00 | 73.75 | 73.11 | 72.63 | 72.21 | 71.03 | 65.96 | 40.56 | 12.37 | 3.17 | 0.64 | 0.11 | 0.04 | 0.00 |
| Milliken-Vicksburg | 16.8 | | (1) | | | | | | | | | | | | | | | |
| 451.8 - 435.0 | | | (2) | | | | | | | | | | | | | | | |
| | | | (3) | | | | | | | | | | | | | | | |
| | | | (4) | | | | | | | | | | | | | | | |
| Racetrack-Towhead | 12.2 | 9 | (1) | 0.00 | 2.63 | 0.76 | 0.47 | 0.15 | 0.18 | 0.27 | 1.99 | 12.84 | 30.39 | 29.82 | 11.74 | 6.20 | 2.06 | 0.51 |
| 435.0 - 422.8 | | | (2) | 100.00 | 97.37 | 96.62 | 96.14 | 95.99 | 95.81 | 95.54 | 93.55 | 80.71 | 50.32 | 20.50 | 8.77 | 2.57 | 0.51 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.96 | 99.73 | 95.58 | 70.45 | 56.98 | 18.56 | 3.81 | 0.00 |
| | | | (4) | 100.00 | 76.36 | 76.36 | 75.27 | 74.82 | 74.64 | 74.18 | 69.84 | 52.54 | 17.49 | 3.64 | 0.56 | 0.14 | 0.00 | |
| Pt. Pleasant | 15.4 | 13 | (1) | | 0.00 | 2.33 | 0.63 | 0.48 | 0.66 | 1.12 | 4.92 | 18.93 | 41.95 | 19.41 | 7.32 | 1.83 | 0.34 | 0.08 |
| 422.8 - 407.4 | | | (2) | | 100.00 | 97.67 | 97.04 | 96.56 | 95.90 | 94.78 | 89.86 | 70.93 | 28.98 | 9.57 | 2.25 | 0.42 | 0.08 | 0.00 |
| | | | (3) | | | | | 100.00 | 99.96 | 99.83 | 99.27 | 96.13 | 63.09 | 18.91 | 9.02 | 1.94 | 0.31 | 0.00 |
| | | | (4) | | 100.00 | 79.94 | 77.55 | 76.42 | 75.98 | 75.73 | 65.23 | 19.88 | 3.09 | 0.71 | 0.25 | 0.10 | 0.03 | 0.00 |
| Grand Gulf | 12.2 | | (1) | | | | | | | | | | | | | | | |
| 407.4 - 395.2 | | | (2) | | | | | | | | | | | | | | | |
| | | | (3) | | | | | | | | | | | | | | | |
| | | | (4) | | | | | | | | | | | | | | | |
| Rodney | 13.8 | 3 | (1) | | | | 0.00 | 0.07 | 0.03 | 0.04 | 0.63 | 5.71 | 25.53 | 46.33 | 17.38 | 3.41 | 0.73 | 0.13 |
| 395.2 - 381.4 | | | (2) | | | | 100.00 | 99.93 | 99.90 | 99.85 | 99.22 | 93.52 | 67.99 | 21.66 | 4.28 | 0.87 | 0.13 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.89 | 99.54 | 99.08 | 43.58 | 7.85 | 1.65 | 0.23 | 0.00 |
| | | | (4) | | | | 100.00 | 99.87 | 99.81 | 99.72 | 98.89 | 86.11 | 27.06 | 3.22 | 0.76 | 0.20 | 0.04 | 0.00 |

(Continued)

* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

Table 7 (Concluded)

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel 38.10 | Gravel 19.05 | Gravel 9.525 | Gravel 4.699 | Gravel 2.362 | Sand 1.168 | Sand 0.833 | Sand 0.589 | Sand 0.417 | Sand 0.295 | Sand 0.208 | Sand 0.147 | Sand 0.104 | Sand 0.074 | Silt Clay 0.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| Waterproof 381.4 - 368.2 | 13.2 | 4 | (1)* | | 0.00 | 0.50 | 0.14 | 0.08 | 0.10 | 0.18 | 1.40 | 12.36 | 52.41 | 19.30 | 10.68 | 2.54 | 0.26 | 0.05 |
| | | | (2) | | 100.00 | 99.50 | 99.37 | 99.29 | 99.19 | 99.00 | 97.61 | 85.25 | 32.84 | 13.54 | 2.85 | 0.31 | 0.05 | 0.00 |
| | | | (3) | | | | | 100.00 | 99.97 | 99.97 | 99.90 | 96.45 | 58.93 | 31.10 | 5.04 | 0.51 | 0.11 | 0.00 |
| | | | (4) | | 100.00 | 98.01 | 97.82 | 97.55 | 97.21 | 96.66 | 93.32 | 73.72 | 20.66 | 5.06 | 0.81 | 0.15 | 0.03 | 0.00 |
| Natchez 368.2 - 355.2 | 13.0 | | (1) | | | | | | | | | | | | | | | |
| | | | (2) | | | | | | | | | | | | | | | |
| | | | (3) | | | | | | | | | | | | | | | |
| | | | (4) | | | | | | | | | | | | | | | |
| St. Catherine 355.2 - 338.6 | 16.6 | | (1) | | | | | | | | | | | | | | | |
| | | | (2) | | | | | | | | | | | | | | | |
| | | | (3) | | | | | | | | | | | | | | | |
| | | | (4) | | | | | | | | | | | | | | | |
| Bougere 338.6 - 320.4 | 18.2 | | (1) | | | | | | | | | | | | | | | |
| | | | (2) | | | | | | | | | | | | | | | |
| | | | (3) | | | | | | | | | | | | | | | |
| | | | (4) | | | | | | | | | | | | | | | |

* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

Table 8

Mechanical Analysis of Material from Bed of Mississippi River, Vicksburg District, for Calendar Year 1967

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel | | | | | Sand | | | | | | | | | Silt Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| | | | | 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | 0.000 |
| Cessions-Henrico | 10.0 | | (1)* | | | | | | | | | | | | | | | |
| 616.0 - 606.0 | | | (2) | | | | | | | | | | | | | | | |
| | | | (3) | | | | | | | | | | | | | | | |
| | | | (4) | | | | | | | | | | | | | | | |
| Smith Pt.-Terrene | 11.8 | | (1) | | | | | | | | | | | | | | | |
| 606.0 - 594.2 | | | (2) | | | | | | | | | | | | | | | |
| | | | (3) | | | | | | | | | | | | | | | |
| | | | (4) | | | | | | | | | | | | | | | |
| Terrene-Ozark | 13.2 | 28 | (1) | 0.00 | 0.40 | 2.51 | 1.72 | 1.60 | 2.70 | 2.81 | 9.15 | 19.45 | 34.94 | 18.88 | 4.76 | 0.73 | 0.19 | 0.17 |
| 594.2 - 581.0 | | 0** | (2) | 100.00 | 99.60 | 97.09 | 95.37 | 93.78 | 91.08 | 88.27 | 79.12 | 59.67 | 24.73 | 5.85 | 1.09 | 0.36 | 0.17 | 0.00 |
| | | | (3) | | | | | | 100.00 | 99.91 | 99.62 | 96.14 | 83.51 | 31.88 | 12.01 | 5.11 | 1.52 | 0.04 |
| | | | (4) | 100.00 | 88.94 | 71.82 | 54.96 | 42.26 | 27.00 | 15.94 | 3.70 | 0.43 | 0.10 | 0.03 | 0.03 | 0.03 | 0.03 | 0.00 |
| Ozark-Eutaw | 15.1 | 40 | (1) | 0.00 | 2.42 | 3.40 | 1.80 | 1.05 | 1.82 | 1.92 | 5.77 | 16.55 | 37.02 | 19.41 | 5.05 | 0.84 | 0.30 | 2.65 |
| 581.0 - 565.9 | | 1** | (2) | 100.00 | 97.58 | 94.18 | 92.38 | 91.33 | 89.51 | 87.59 | 81.82 | 65.27 | 28.25 | 8.84 | 3.79 | 2.95 | 2.65 | 0.00 |
| includes discharge range | | | (3) | | | | | | | | 100.00 | 98.99 | 89.79 | 29.97 | 13.12 | 6.46 | 2.03 | 0.00 |
| | | | (4) | 100.00 | 52.68 | 13.19 | 6.57 | 4.74 | 3.52 | 2.77 | 1.74 | 1.03 | 0.47 | 0.14 | 0.00 | | | |
| Choctaw Bar | 15.5 | 86 | (1) | 0.00 | 0.86 | 2.67 | 1.77 | 1.44 | 2.22 | 2.07 | 6.25 | 16.70 | 30.18 | 23.65 | 9.91 | 1.65 | 0.32 | 0.32 |
| 565.9 - 550.4 | | 0** | (2) | 100.00 | 99.14 | 96.47 | 94.70 | 93.26 | 91.04 | 88.97 | 82.72 | 66.03 | 35.85 | 12.20 | 2.29 | 0.64 | 0.32 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.85 | 99.64 | 75.05 | 26.39 | 22.38 | 16.66 | 0.00 |
| | | | (4) | 100.00 | 80.51 | 65.14 | 58.16 | 39.07 | 12.39 | 4.59 | 0.95 | 0.48 | 0.30 | 0.09 | 0.05 | 0.00 | | |
| Greenville | 19.2 | 73 | (1) | 0.00 | 1.10 | 1.13 | 1.12 | 1.08 | 1.78 | 1.97 | 7.03 | 21.06 | 37.35 | 17.53 | 6.79 | 1.38 | 0.34 | 0.35 |
| 550.4 - 531.2 | | 0** | (2) | 100.00 | 98.90 | 97.78 | 96.66 | 95.58 | 93.80 | 91.83 | 84.80 | 63.74 | 26.39 | 8.85 | 2.07 | 0.69 | 0.35 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.78 | 99.33 | 96.56 | 41.60 | 27.06 | 16.65 | 0.00 |
| | | | (4) | 100.00 | 77.41 | 73.27 | 70.68 | 58.20 | 41.60 | 30.47 | 13.47 | 3.93 | 0.51 | 0.15 | 0.06 | 0.04 | 0.00 | |
| Lakeport Towhead | 7.0 | 21 | (1) | | 0.00 | 1.76 | 0.79 | 0.79 | 1.58 | 1.69 | 5.46 | 19.06 | 34.17 | 26.95 | 6.83 | 0.72 | 0.10 | 0.11 |
| 531.2 - 524.2 | | 0** | (2) | | 100.00 | 98.24 | 97.45 | 96.66 | 95.08 | 93.39 | 87.93 | 68.87 | 34.71 | 7.76 | 0.93 | 0.21 | 0.11 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.94 | 99.60 | 82.82 | 38.12 | 4.19 | 0.84 | 0.51 | 0.00 |
| | | | (4) | | 100.00 | 90.81 | 89.32 | 84.38 | 77.41 | 71.93 | 59.84 | 35.22 | 7.37 | 0.51 | 0.09 | 0.06 | 0.05 | 0.00 |

(Continued)

* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

Table 8 (Continued)

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | Sand 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | Silt Clay 0.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| Kentucky Bend | 9.4 | 27 | (1)* | 0.00 | 0.92 | 1.20 | 1.09 | 1.00 | 2.10 | 2.42 | 6.92 | 25.60 | 38.05 | 15.57 | 4.42 | 0.51 | 0.11 | 0.09 |
| 524.2 - 514.8 | | 0** | (2) | 100.00 | 99.08 | 97.88 | 96.78 | 95.79 | 93.69 | 91.27 | 84.35 | 58.75 | 20.70 | 5.13 | 0.71 | 0.20 | 0.09 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.75 | 96.29 | 61.36 | 25.70 | 3.78 | 0.60 | 0.20 | 0.00 |
| | | | (4) | 100.00 | 92.42 | 86.24 | 81.54 | 76.99 | 68.76 | 61.83 | 46.35 | 12.92 | 2.79 | 0.57 | 0.10 | 0.04 | 0.04 | 0.00 |
| Cracraft-Carolina | 8.2 | 35 | (1) | 0.00 | 1.33 | 2.90 | 1.54 | 0.87 | 1.86 | 2.10 | 6.88 | 23.48 | 31.39 | 16.35 | 9.07 | 1.71 | 0.39 | 0.12 |
| 514.8 - 506.6 | | 0** | (2) | 100.00 | 98.67 | 95.77 | 94.23 | 93.36 | 91.50 | 89.40 | 82.52 | 59.03 | 27.64 | 11.29 | 2.23 | 0.52 | 0.12 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 98.52 | 97.38 | 83.21 | 24.57 | 9.54 | 2.61 | 0.00 |
| | | | (4) | 100.00 | 79.31 | 25.57 | 7.66 | 7.02 | 6.47 | 6.31 | 5.92 | 4.89 | 3.04 | 0.77 | 0.05 | 0.00 | | |
| Carolina-Baleshed | 11.0 | 8 | (1) | 0.00 | 2.48 | 3.29 | 4.06 | 4.64 | 14.72 | 7.65 | 8.57 | 14.92 | 19.85 | 13.56 | 4.59 | 1.22 | 0.32 | 0.12 |
| 506.6 - 495.6 | | 0** | (2) | 100.00 | 97.52 | 94.23 | 90.16 | 85.52 | 70.80 | 63.15 | 54.58 | 39.66 | 19.81 | 6.26 | 1.66 | 0.44 | 0.12 | 0.00 |
| | | | (3) | | | | | 100.00 | 99.94 | 99.88 | 99.51 | 93.87 | 57.83 | 13.24 | 4.27 | 1.61 | 0.55 | 0.00 |
| | | | (4) | 100.00 | 84.30 | 84.30 | 78.22 | 71.74 | 41.82 | 31.34 | 24.85 | 9.36 | 3.28 | 0.69 | 0.12 | 0.04 | 0.00 | |
| Baleshed Landing | 10.0 | 53 | (1) | 0.00 | 0.56 | 0.98 | 0.96 | 1.27 | 2.52 | 2.21 | 5.84 | 16.45 | 31.23 | 27.17 | 7.59 | 1.02 | 0.20 | 2.00 |
| 495.6 - 485.6 | | 1** | (2) | 100.00 | 99.44 | 98.47 | 97.50 | 96.24 | 93.71 | 91.50 | 85.67 | 69.22 | 37.99 | 10.82 | 3.22 | 2.20 | 2.00 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.62 | 90.72 | 27.52 | 7.59 | 3.32 | 0.99 | 0.00 |
| | | | (4) | 100.00 | 85.52 | 75.39 | 68.53 | 56.67 | 32.16 | 19.36 | 8.82 | 5.44 | 1.32 | 0.17 | 0.00 | | | |
| Ajax Bar | 5.8 | 20 | (1) | 0.00 | 1.46 | 1.46 | 1.14 | 0.83 | 1.69 | 2.43 | 7.08 | 19.38 | 30.55 | 24.10 | 8.61 | 1.05 | 0.14 | 0.07 |
| 485.6 - 479.8 | | 0** | (2) | 100.00 | 98.54 | 97.08 | 95.94 | 95.11 | 93.42 | 90.99 | 83.91 | 64.53 | 33.97 | 9.87 | 1.26 | 0.21 | 0.07 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.94 | 97.90 | 31.42 | 3.39 | 0.48 | 0.17 | 0.00 |
| | | | (4) | 100.00 | 88.81 | 81.20 | 76.00 | 74.08 | 70.90 | 61.96 | 32.26 | 6.62 | 1.24 | 0.49 | 0.09 | 0.00 | | |
| Ajax-Cottonwood | 7.8 | | (1) | | | | | | | | | | | | | | | |
| 479.8 - 472.0 | | | (2) | | | | | | | | | | | | | | | |
| | | | (3) | | | | | | | | | | | | | | | |
| | | | (4) | | | | | | | | | | | | | | | |
| Cottonwood Bar | 4.2 | 35 | (1) | 0.00 | 1.26 | 2.41 | 1.45 | 0.98 | 2.29 | 3.25 | 9.25 | 18.03 | 23.86 | 24.31 | 11.04 | 1.52 | 0.24 | 0.09 |
| 472.0 - 467.8 | | 0** | (2) | 100.00 | 98.74 | 96.32 | 94.87 | 93.89 | 91.60 | 88.35 | 79.10 | 61.07 | 37.21 | 12.90 | 1.85 | 0.33 | 0.09 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.94 | 99.48 | 94.56 | 62.61 | 8.83 | 1.68 | 0.56 | 0.00 |
| | | | (4) | 100.00 | 72.26 | 57.52 | 43.19 | 36.13 | 29.74 | 25.74 | 17.44 | 6.60 | 1.37 | 0.24 | 0.06 | 0.00 | | |

(Continued)

* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

Table 8 (Continued)

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel | | | | | Sand | | | | | | | | | Silt Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| | | | | 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | 0.000 |
| Cottonwood-Belle Is | 6.4 | 8 | (1)* | | 0.00 | 1.51 | 1.49 | 0.95 | 2.04 | 1.99 | 4.60 | 13.70 | 15.76 | 28.51 | 19.12 | 6.79 | 2.52 | 1.01 |
| 467.8 - 461.4 | | 0** | (2) | | 100.00 | 98.49 | 97.00 | 96.05 | 94.01 | 92.01 | 87.42 | 73.71 | 57.95 | 29.44 | 10.32 | 3.53 | 1.01 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.78 | 99.31 | 88.18 | 59.31 | 24.22 | 7.27 | 0.00 |
| | | | (4) | | 100.00 | 88.40 | 76.87 | 70.01 | 56.16 | 46.29 | 30.54 | 14.80 | 8.68 | 5.27 | 0.89 | 0.15 | 0.05 | 0.00 |
| Belle Is-Milliken | 9.6 | 16 | (1) | | 0.00 | 0.98 | 0.58 | 0.38 | 0.86 | 1.46 | 5.98 | 26.13 | 41.92 | 15.79 | 4.80 | 0.90 | 0.15 | 0.07 |
| 461.4 - 451.8 | | 0** | (2) | | 100.00 | 99.02 | 98.44 | 98.06 | 97.21 | 95.74 | 89.76 | 63.64 | 21.71 | 5.92 | 1.12 | 0.22 | 0.07 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.94 | 96.90 | 47.83 | 19.62 | 5.03 | 0.52 | 0.15 | 0.00 |
| | | | (4) | | 100.00 | 90.40 | 88.87 | 88.70 | 88.36 | 77.88 | 44.06 | 9.25 | 2.06 | 0.70 | 0.23 | 0.06 | 0.00 | |
| Milliken-Vicksburg | 16.8 | | (1) | | | | | | | | | | | | | | | |
| 451.8 - 435.0 | | | (2) | | | | | | | | | | | | | | | |
| Includes discharge range | | | (3) | | | | | | | | | | | | | | | |
| | | | (4) | | | | | | | | | | | | | | | |
| Racetrack-Towhead | 12.2 | | (1) | | | | | | | | | | | | | | | |
| 435.0 - 422.8 | | | (2) | | | | | | | | | | | | | | | |
| | | | (3) | | | | | | | | | | | | | | | |
| | | | (4) | | | | | | | | | | | | | | | |
| Pt. Pleasant | 15.4 | | (1) | | | | | | | | | | | | | | | |
| 422.8 - 407.4 | | | (2) | | | | | | | | | | | | | | | |
| | | | (3) | | | | | | | | | | | | | | | |
| | | | (4) | | | | | | | | | | | | | | | |
| Grand Gulf | 12.2 | | (1) | | | | | | | | | | | | | | | |
| 407.4 - 395.2 | | | (2) | | | | | | | | | | | | | | | |
| | | | (3) | | | | | | | | | | | | | | | |
| | | | (4) | | | | | | | | | | | | | | | |
| Rodney | 13.8 | | (1) | | | | | | | | | | | | | | | |
| 395.2 - 381.4 | | | (2) | | | | | | | | | | | | | | | |
| | | | (3) | | | | | | | | | | | | | | | |
| | | | (4) | | | | | | | | | | | | | | | |

(Continued)



* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

Table 8 (Concluded)

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | Gravel | | | | | Sand | | | | | | | | | Silt Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| | | | 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | 0.000 |
| Waterproof | 13.2 | (1)* | | | | | | | | | | | | | | | |
| 381.4 - 368.2 | | (2) | | | | | | | | | | | | | | | |
| | | (3) | | | | | | | | | | | | | | | |
| | | (4) | | | | | | | | | | | | | | | |
| Natchez | 13.0 | (1) | | | | | | | | | | | | | | | |
| 368.2 - 355.2 | | (2) | | | | | | | | | | | | | | | |
| Includes discharge range | | (3) | | | | | | | | | | | | | | | |
| | | (4) | | | | | | | | | | | | | | | |
| St. Catherine | 16.6 | (1) | | | | | | | | | | | | | | | |
| 355.2 - 338.6 | | (2) | | | | | | | | | | | | | | | |
| | | (3) | | | | | | | | | | | | | | | |
| | | (4) | | | | | | | | | | | | | | | |
| Bougere | 18.2 | (1) | | | | | | | | | | | | | | | |
| 338.6 - 320.4 | | (2) | | | | | | | | | | | | | | | |
| | | (3) | | | | | | | | | | | | | | | |
| | | (4) | | | | | | | | | | | | | | | |

* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

Table 9

Mechanical Analysis of Material from Bed of Mississippi River, Vicksburg District, for Calendar Year 1968

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel | | | | | Sand | | | | | | | | | Silt Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| | | | | 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | 0.000 |
| Cessions-Henrico | 10.0 | | (1)* | | | | | | | | | | | | | | | |
| 616.0 - 606.0 | | | (2) | | | | | | | | | | | | | | | |
| | | | (3) | | | | | | | | | | | | | | | |
| | | | (4) | | | | | | | | | | | | | | | |
| Smith Pt.-Terrene | 11.8 | 15 | (1) | 0.00 | 5.73 | 0.30 | 0.84 | 0.57 | 1.12 | 2.08 | 8.51 | 20.62 | 25.89 | 18.54 | 7.24 | 1.46 | 0.33 | 6.75 |
| 606.0 - 594.2 | | 1** | (2) | 100.00 | 94.27 | 93.97 | 93.12 | 92.56 | 91.43 | 89.35 | 80.84 | 60.22 | 34.33 | 15.79 | 8.55 | 7.09 | 6.75 | 0.00 |
| | | | (3) | | | | | | 100.00 | 99.86 | 99.58 | 98.44 | 88.12 | 53.18 | 17.26 | 3.96 | 0.71 | 0.00 |
| | | | (4) | 100.00 | 14.02 | 14.02 | 12.05 | 11.44 | 10.82 | 10.46 | 9.72 | 7.26 | 0.92 | 0.31 | 0.11 | 0.00 | | |
| Terrene-Ozark | 13.2 | 70 | (1) | 0.00 | 1.21 | 1.17 | 0.71 | 0.45 | 0.99 | 1.69 | 5.85 | 20.35 | 34.32 | 17.87 | 7.34 | 2.31 | 1.73 | 4.01 |
| 594.2 - 581.0 | | 1** | (2) | 100.00 | 98.79 | 97.61 | 96.90 | 96.45 | 95.46 | 93.77 | 87.92 | 67.57 | 33.25 | 15.39 | 8.05 | 5.74 | 4.01 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.80 | 97.93 | 84.94 | 82.07 | 80.30 | 63.60 | 0.00 |
| | | | (4) | 100.00 | 66.54 | 52.31 | 47.83 | 41.15 | 36.59 | 32.03 | 22.80 | 6.93 | 0.86 | 0.32 | 0.00 | | | |
| Ozark-Eutaw | 15.1 | 111 | (1) | 0.00 | 1.35 | 2.52 | 2.07 | 1.80 | 2.40 | 2.17 | 4.77 | 18.18 | 33.01 | 20.63 | 6.73 | 1.59 | 0.59 | 2.18 |
| 581.0 - 565.9 | | 2** | (2) | 100.00 | 98.65 | 96.13 | 94.06 | 92.26 | 89.86 | 87.69 | 82.92 | 64.74 | 31.73 | 11.10 | 4.37 | 2.78 | 2.19 | 0.00 |
| includes discharge range | | | (3) | | | | | | | | 100.00 | 99.74 | 96.02 | 62.17 | 32.92 | 16.97 | 13.09 | 0.00 |
| | | | (4) | 100.00 | 68.35 | 25.10 | 21.89 | 16.95 | 12.61 | 11.41 | 9.72 | 3.55 | 0.44 | 0.13 | 0.03 | 0.00 | | |
| Choctaw Bar | 15.5 | 75 | (1) | 0.00 | 0.59 | 2.44 | 1.74 | 1.23 | 2.77 | 2.88 | 6.72 | 20.30 | 35.00 | 19.50 | 5.04 | 0.85 | 0.36 | 0.58 |
| 565.9 - 550.4 | | 0** | (2) | 100.00 | 99.41 | 96.97 | 95.24 | 94.01 | 91.23 | 88.35 | 81.64 | 61.33 | 26.33 | 6.83 | 1.79 | 0.94 | 0.58 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.66 | 97.91 | 72.98 | 22.18 | 12.00 | 10.07 | 0.00 |
| | | | (4) | 100.00 | 72.75 | 59.22 | 56.58 | 45.99 | 26.17 | 19.73 | 7.34 | 0.99 | 0.28 | 0.09 | 0.00 | | | |
| Greenville | 19.2 | 104 | (1) | 0.00 | 0.56 | 1.02 | 0.72 | 0.62 | 1.37 | 1.60 | 4.94 | 21.11 | 31.06 | 19.04 | 8.36 | 2.92 | 2.04 | 4.65 |
| 550.4 - 531.2 | | 3** | (2) | 100.00 | 99.44 | 98.42 | 97.71 | 97.09 | 95.72 | 94.12 | 89.18 | 68.07 | 37.01 | 17.98 | 9.61 | 6.69 | 4.65 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.80 | 99.59 | 98.26 | 91.43 | 77.10 | 44.99 | 0.00 |
| | | | (4) | 100.00 | 79.41 | 72.69 | 66.47 | 63.71 | 57.53 | 44.10 | 29.87 | 11.60 | 1.75 | 0.28 | 0.00 | | | |
| Lakeport Towhead | 7.0 | 38 | (1) | 0.00 | 0.58 | 0.72 | 0.76 | 0.55 | 1.26 | 1.97 | 5.23 | 21.75 | 34.76 | 22.70 | 7.98 | 1.29 | 0.34 | 0.11 |
| 531.2 - 524.2 | | 0** | (2) | 100.00 | 99.42 | 98.70 | 97.94 | 97.39 | 96.13 | 94.16 | 88.93 | 67.18 | 32.42 | 9.72 | 1.75 | 0.45 | 0.11 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.94 | 99.51 | 96.82 | 43.57 | 24.54 | 9.03 | 2.08 | 0.00 |
| | | | (4) | 100.00 | 87.67 | 83.90 | 80.31 | 79.61 | 76.60 | 67.88 | 40.93 | 18.88 | 2.10 | 0.23 | 0.05 | 0.00 | | |

(Continued)

* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

Table 9 (Continued)

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel | | | | | Sand | | | | | | | | | Silt Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| | | | | 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | 0.000 |
| Kentucky Bend | 9.4 | 69 | (1)* | 0.00 | 1.22 | 1.96 | 1.37 | 0.94 | 1.34 | 1.47 | 4.13 | 18.74 | 33.15 | 19.04 | 7.94 | 2.18 | 1.02 | 5.48 |
| 524.2 - 514.8 | | 3** | (2) | 100.00 | 98.78 | 96.82 | 95.45 | 94.50 | 93.16 | 91.68 | 87.55 | 68.81 | 35.66 | 16.62 | 8.68 | 6.51 | 5.48 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.81 | 98.91 | 95.85 | 65.94 | 52.40 | 38.47 | 0.00 |
| | | | (4) | 100.00 | 72.55 | 51.02 | 24.73 | 14.87 | 7.54 | 6.53 | 5.41 | 3.37 | 1.88 | 0.57 | 0.10 | 0.00 | | |
| Cracraft-Carolina | 8.2 | 74 | (1) | 0.00 | 0.96 | 2.32 | 1.35 | 1.09 | 2.07 | 2.42 | 6.13 | 19.85 | 28.86 | 20.00 | 10.09 | 2.74 | 1.08 | 1.04 |
| 514.8 - 506.6 | | 0** | (2) | 100.00 | 99.04 | 96.72 | 95.37 | 94.29 | 92.21 | 89.79 | 83.66 | 63.81 | 34.95 | 14.95 | 4.87 | 2.13 | 1.04 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.42 | 97.67 | 83.21 | 51.21 | 37.53 | 30.10 | 0.00 |
| | | | (4) | 100.00 | 73.53 | 49.34 | 32.17 | 19.74 | 15.76 | 14.62 | 12.92 | 5.70 | 0.91 | 0.16 | 0.00 | | | |
| Carolina-Baleshed | 11.0 | 43 | (1) | 0.00 | 2.00 | 2.40 | 1.82 | 1.66 | 2.92 | 2.95 | 6.97 | 25.18 | 32.77 | 14.59 | 5.02 | 1.23 | 0.35 | 0.13 |
| 506.6 - 495.6 | | 0** | (2) | 100.00 | 98.00 | 95.60 | 93.77 | 92.12 | 89.20 | 86.25 | 79.28 | 54.10 | 21.33 | 6.74 | 1.71 | 0.48 | 0.13 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.94 | 99.74 | 78.10 | 32.90 | 14.48 | 4.26 | 1.43 | 0.00 |
| | | | (4) | 100.00 | 36.37 | 21.78 | 12.74 | 9.97 | 8.12 | 7.38 | 6.60 | 4.55 | 2.28 | 0.54 | 0.00 | | | |
| Baleshed Landing | 10.0 | 105 | (1) | 0.00 | 0.27 | 1.48 | 1.14 | 0.91 | 1.61 | 1.79 | 4.82 | 19.09 | 36.32 | 22.15 | 6.05 | 0.98 | 0.32 | 3.10 |
| 495.6 - 485.6 | | 3** | (2) | 100.00 | 99.73 | 98.25 | 97.11 | 96.21 | 94.60 | 92.81 | 87.99 | 68.90 | 32.59 | 10.44 | 4.39 | 3.42 | 3.10 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.37 | 82.11 | 35.95 | 24.19 | 19.18 | 10.65 | 0.00 |
| | | | (4) | 100.00 | 85.71 | 68.77 | 50.73 | 39.00 | 19.46 | 12.10 | 6.72 | 3.60 | 0.40 | 0.10 | 0.00 | | | |
| Ajax Bar | 5.8 | 55 | (1) | 0.00 | 0.90 | 1.08 | 0.57 | 0.29 | 0.71 | 0.89 | 3.19 | 16.08 | 34.43 | 28.24 | 8.17 | 1.73 | 0.86 | 2.86 |
| 485.6 - 479.8 | | 1** | (2) | 100.00 | 99.10 | 98.02 | 97.45 | 97.16 | 96.45 | 95.56 | 92.38 | 76.30 | 41.87 | 13.63 | 5.45 | 3.73 | 2.86 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.62 | 98.08 | 96.09 | 85.48 | 68.54 | 43.77 | 0.00 |
| | | | (4) | 100.00 | 60.40 | 32.56 | 17.99 | 14.28 | 9.84 | 8.97 | 7.91 | 6.56 | 4.09 | 0.92 | 0.19 | 0.06 | 0.00 | |
| Ajax-Cottonwood | 7.8 | 9 | (1) | | 0.00 | 0.24 | 0.37 | 0.38 | 0.84 | 1.11 | 3.02 | 20.47 | 42.02 | 24.52 | 4.63 | 0.77 | 0.41 | 1.23 |
| 479.8 - 472.0 | | 0** | (2) | | 100.00 | 99.76 | 99.39 | 99.01 | 98.17 | 97.06 | 94.04 | 73.57 | 31.56 | 7.03 | 2.40 | 1.63 | 1.23 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.68 | 97.22 | 68.54 | 27.92 | 15.21 | 12.71 | 10.42 | 0.00 |
| | | | (4) | | 100.00 | 97.81 | 95.84 | 95.42 | 94.52 | 90.39 | 80.34 | 54.04 | 8.84 | 1.05 | 0.22 | 0.11 | 0.00 | |
| Cottonwood Bar | 4.2 | 43 | (1) | 0.00 | 0.74 | 1.12 | 0.56 | 0.59 | 1.54 | 2.47 | 5.67 | 14.86 | 24.49 | 27.76 | 11.96 | 3.76 | 1.57 | 2.91 |
| 472.0 - 467.8 | | 1** | (2) | 100.00 | 99.26 | 98.13 | 97.58 | 96.99 | 95.45 | 92.98 | 87.32 | 72.45 | 47.96 | 20.20 | 8.25 | 4.48 | 2.91 | 0.00 |
| | | | (3) | | | | | | | | | 100.00 | 99.53 | 98.74 | 79.12 | 39.09 | 12.45 | 0.00 |
| | | | (4) | 100.00 | 86.41 | 68.29 | 64.17 | 62.83 | 60.72 | 43.64 | 9.01 | 1.60 | 0.23 | 0.06 | 0.00 | | | |

(Continued)

* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

Table 9 (Continued)

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | Sand 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | Silt Clay 0.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| Cottonwood-Belle Is | 6.4 | 15 | (1)* | | 0.00 | 0.85 | 0.47 | 0.83 | 3.17 | 4.21 | 9.70 | 17.18 | 20.56 | 25.75 | 12.45 | 3.38 | 1.15 | 0.30 |
| 467.8 - 461.4 | | 0** | (2) | | 100.00 | 99.15 | 98.68 | 97.85 | 94.68 | 90.47 | 80.76 | 63.58 | 43.03 | 17.27 | 4.83 | 1.45 | 0.30 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.84 | 97.46 | 58.81 | 21.96 | 6.75 | 1.14 | 0.00 |
| | | | (4) | | 100.00 | 93.78 | 89.53 | 82.36 | 53.17 | 34.14 | 17.26 | 9.90 | 3.42 | 0.80 | 0.13 | 0.00 | | |
| Belle Is-Milliken | 9.6 | 18 | (1) | 0.00 | 0.48 | 0.48 | 0.57 | 0.74 | 1.47 | 2.35 | 7.28 | 23.06 | 34.87 | 17.65 | 6.66 | 2.78 | 1.15 | 0.48 |
| 461.4 - 451.8 | | 0** | (2) | 100.00 | 99.52 | 99.04 | 98.48 | 97.74 | 96.27 | 93.92 | 86.64 | 63.58 | 28.71 | 11.06 | 4.40 | 1.62 | 0.48 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.77 | 99.61 | 98.77 | 55.32 | 23.19 | 6.70 | 0.00 |
| | | | (4) | 100.00 | 91.35 | 86.27 | 82.71 | 78.81 | 70.59 | 58.01 | 34.16 | 5.80 | 0.71 | 0.14 | 0.05 | 0.00 | | |
| Milliken-Vicksburg | 16.8 | 89 | (1) | 0.00 | 0.13 | 0.65 | 0.58 | 0.54 | 1.17 | 1.57 | 5.64 | 22.34 | 32.15 | 18.33 | 8.43 | 1.60 | 0.77 | 6.11 |
| 451.8 - 435.0 | | 5** | (2) | 100.00 | 99.87 | 99.22 | 98.64 | 98.10 | 96.93 | 95.36 | 89.72 | 67.38 | 35.23 | 16.90 | 8.47 | 6.87 | 6.10 | 0.00 |
| Includes discharge range | | | (3) | | | | | | | | | 100.00 | 99.35 | 95.79 | 88.26 | 70.65 | 34.11 | 0.00 |
| | | | (4) | 100.00 | 93.76 | 87.79 | 80.32 | 70.33 | 57.13 | 44.36 | 22.22 | 2.50 | 0.60 | 0.12 | 0.00 | | | |
| Racetrack-Towhead | 12.2 | 4 | (1) | | | 0.00 | 0.06 | 0.59 | 0.99 | 2.16 | 7.55 | 15.71 | 32.17 | 31.95 | 7.96 | 0.74 | 0.13 | 0.00 |
| 435.0 - 422.8 | | 0** | (2) | | | 100.00 | 99.94 | 99.35 | 98.36 | 96.20 | 88.66 | 72.95 | 40.78 | 8.83 | 0.87 | 0.13 | 0.00 | |
| | | | (3) | | | | | | | 100.00 | 99.87 | 97.72 | 65.56 | 15.70 | 13.92 | 1.65 | 0.14 | 0.00 |
| | | | (4) | | | 100.00 | 99.77 | 98.56 | 96.33 | 90.71 | 73.62 | 46.33 | 19.37 | 2.36 | 1.96 | 0.26 | 0.11 | 0.00 |
| Pt. Pleasant | 15.4 | | (1) | | | | | | | | | | | | | | | |
| 422.8 - 407.4 | | | (2) | | | | | | | | | | | | | | | |
| | | | (3) | | | | | | | | | | | | | | | |
| | | | (4) | | | | | | | | | | | | | | | |
| Grand Gulf | 12.2 | | (1) | | | | | | | | | | | | | | | |
| 407.4 - 395.2 | | | (2) | | | | | | | | | | | | | | | |
| | | | (3) | | | | | | | | | | | | | | | |
| | | | (4) | | | | | | | | | | | | | | | |
| Rodney | 13.8 | 52 | (1) | 0.00 | 0.35 | 0.69 | 0.42 | 0.34 | 0.53 | 1.29 | 5.89 | 16.48 | 27.20 | 31.17 | 10.94 | 3.03 | 1.10 | 0.56 |
| 395.2 - 381.4 | | 0** | (2) | 100.00 | 99.65 | 98.96 | 98.54 | 98.20 | 97.67 | 96.38 | 90.49 | 74.01 | 46.81 | 15.64 | 4.69 | 1.66 | 0.56 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.83 | 99.24 | 64.34 | 36.78 | 21.95 | 16.58 | 0.00 |
| | | | (4) | 100.00 | 81.81 | 71.47 | 68.60 | 66.43 | 64.98 | 60.26 | 39.82 | 12.11 | 2.49 | 0.96 | 0.25 | 0.05 | 0.00 | |

(Continued)

* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.
** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

Table 9 (Concluded)

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | Gravel 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | Sand 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | Silt Clay 0.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| Waterproof 381.4 - 368.2 | 13.2 | (1)* | | | | | | | | | | | | | | | |
| | | (2) | | | | | | | | | | | | | | | |
| | | (3) | | | | | | | | | | | | | | | |
| | | (4) | | | | | | | | | | | | | | | |
| Natchez 368.2 - 355.2 Includes discharge range | 13.0 | (1) | | | | | | | | | | | | | | | |
| | | (2) | | | | | | | | | | | | | | | |
| | | (3) | | | | | | | | | | | | | | | |
| | | (4) | | | | | | | | | | | | | | | |
| St. Catherine 355.2 - 338.6 | 16.6 | (1) | | | | | | | | | | | | | | | |
| | | (2) | | | | | | | | | | | | | | | |
| | | (3) | | | | | | | | | | | | | | | |
| | | (4) | | | | | | | | | | | | | | | |
| Bougere 338.6 - 320.4 | 18.2 | (1) | | | | | | | | | | | | | | | |
| | | (2) | | | | | | | | | | | | | | | |
| | | (3) | | | | | | | | | | | | | | | |
| | | (4) | | | | | | | | | | | | | | | |

* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

Table 10

Mechanical Analysis of Material from Bed of Mississippi River, Vicksburg District, for Calendar Year 1969

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel | | | | | Sand | | | | | | | | | Silt Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| | | | | 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | 0.000 |
| Cessions-Henrico | 10.0 | | (1)* | | | | | | | | | | | | | | | |
| 616.0 - 606.0 | | | (2) | | | | | | | | | | | | | | | |
| | | | (3) | | | | | | | | | | | | | | | |
| | | | (4) | | | | | | | | | | | | | | | |
| Smith Pt.-Terrene | 11.8 | 136 | (1) | 0.00 | 0.72 | 1.52 | 0.66 | 0.77 | 1.52 | 2.24 | 7.59 | 25.45 | 26.41 | 17.05 | 8.63 | 2.92 | 1.10 | 3.41 |
| 606.0 - 594.2 | | 4** | (2) | 100.00 | 99.28 | 97.76 | 97.10 | 96.33 | 94.80 | 92.56 | 84.97 | 59.52 | 33.11 | 16.06 | 7.43 | 4.51 | 3.41 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.94 | 99.61 | 99.04 | 91.50 | 44.52 | 15.51 | 0.00 |
| | | | (4) | 100.00 | 15.02 | 2.04 | 1.33 | 1.16 | 1.07 | 0.98 | 0.89 | 0.62 | 0.53 | 0.00 | | | | |
| Terrene-Ozark | 13.2 | 55 | (1) | 0.00 | 0.22 | 0.57 | 0.35 | 0.31 | 0.63 | 1.28 | 5.26 | 23.02 | 35.87 | 20.19 | 6.63 | 1.75 | 1.58 | 2.31 |
| 594.2 - 581.0 | | 0** | (2) | 100.00 | 99.78 | 99.21 | 98.85 | 98.54 | 97.91 | 96.63 | 91.36 | 68.34 | 32.47 | 12.27 | 5.64 | 3.89 | 2.31 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.54 | 98.99 | 98.29 | 94.87 | 82.59 | 47.14 | 0.00 |
| | | | (4) | 100.00 | 92.73 | 90.32 | 88.24 | 85.67 | 75.82 | 62.94 | 38.27 | 12.35 | 2.29 | 0.37 | 0.04 | 0.00 | | |
| Ozark-Eutaw | 15.1 | 76 | (1) | 0.00 | 0.11 | 2.39 | 1.34 | 1.23 | 2.24 | 2.57 | 5.96 | 19.38 | 31.13 | 18.95 | 7.11 | 2.66 | 0.77 | 4.18 |
| 581.0 - 565.9 | | 3** | (2) | 100.00 | 99.89 | 97.50 | 96.16 | 94.93 | 92.69 | 90.12 | 84.16 | 64.78 | 33.65 | 14.70 | 7.59 | 4.93 | 4.16 | 0.00 |
| includes discharge range | | | (3) | | | | | | | | 100.00 | 99.86 | 98.47 | 92.36 | 62.41 | 17.09 | 5.14 | 0.00 |
| | | | (4) | 100.00 | 95.28 | 38.83 | 28.16 | 24.27 | 19.42 | 15.05 | 11.17 | 3.47 | 0.58 | 0.23 | 0.00 | | | |
| Choctaw Bar | 15.5 | 109 | (1) | 0.00 | 1.78 | 1.83 | 1.17 | 0.90 | 1.20 | 1.46 | 4.38 | 19.23 | 35.30 | 19.80 | 7.61 | 1.97 | 0.97 | 2.40 |
| 565.9 - 550.4 | | 2** | (2) | 100.00 | 98.22 | 96.39 | 95.22 | 94.32 | 93.12 | 91.66 | 87.28 | 68.05 | 32.75 | 12.95 | 5.34 | 3.37 | 2.40 | 0.00 |
| | | | (3) | | | | | | | | | 100.00 | 99.75 | 97.20 | 67.86 | 48.05 | 25.84 | 0.00 |
| | | | (4) | 100.00 | 34.26 | 16.12 | 4.50 | 2.17 | 1.40 | 1.09 | 0.78 | 0.31 | 0.00 | | | | | |
| Greenville | 19.2 | 123 | (1) | 0.00 | 0.20 | 0.77 | 0.53 | 0.57 | 1.10 | 1.53 | 4.94 | 19.98 | 33.79 | 20.05 | 8.80 | 2.06 | 0.90 | 4.79 |
| 550.4 - 531.2 | | 5** | (2) | 100.00 | 99.80 | 99.04 | 98.51 | 97.94 | 96.84 | 95.31 | 90.37 | 70.39 | 36.60 | 16.54 | 7.75 | 5.69 | 4.79 | 0.00 |
| | | | (3) | | | | | | | | | 100.00 | 99.80 | 97.32 | 83.54 | 51.52 | 30.62 | 0.00 |
| | | | (4) | 100.00 | 89.86 | 85.96 | 83.62 | 73.20 | 53.23 | 37.52 | 23.92 | 12.43 | 1.58 | 0.29 | 0.10 | 0.00 | | |
| Lakeport Towhead | 7.0 | 41 | (1) | 0.00 | 1.49 | 1.48 | 1.23 | 0.78 | 1.32 | 1.75 | 4.47 | 14.64 | 28.68 | 20.74 | 8.10 | 3.83 | 4.47 | 7.02 |
| 531.2 - 524.2 | | 0** | (2) | 100.00 | 98.51 | 97.03 | 95.80 | 95.02 | 93.69 | 91.75 | 87.48 | 72.84 | 44.17 | 23.42 | 15.32 | 11.49 | 7.02 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.75 | 99.16 | 94.29 | 86.38 | 72.25 | 49.52 | 0.00 |
| | | | (4) | 100.00 | 43.75 | 43.75 | 39.25 | 39.00 | 38.25 | 36.75 | 31.50 | 12.06 | 1.80 | 0.17 | 0.00 | | | |

(Continued)

* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.
** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

Table 10 (Continued)

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel | | | | | Sand | | | | | | | | | Silt Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| | | | | 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | 0.000 |
| Kentucky Bend | 9.4 | 75 | (1)* | 0.00 | 0.80 | 0.74 | 0.63 | 0.57 | 1.06 | 1.62 | 5.63 | 21.58 | 36.26 | 20.57 | 6.50 | 1.07 | 0.23 | 2.74 |
| 524.2 - 514.8 | | 2** | (2) | 100.00 | 99.20 | 98.46 | 97.83 | 97.25 | 96.20 | 94.57 | 88.94 | 67.37 | 31.11 | 10.53 | 4.04 | 2.97 | 2.74 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.73 | 97.28 | 75.78 | 16.71 | 2.86 | 1.11 | 0.00 |
| | | | (4) | 100.00 | 71.04 | 58.65 | 52.51 | 49.70 | 47.25 | 44.44 | 36.00 | 14.00 | 2.50 | 0.29 | 0.06 | 0.00 | | |
| Cracraft-Carolina | 8.2 | 58 | (1) | 0.00 | 0.24 | 1.08 | 0.63 | 0.61 | 1.42 | 1.86 | 4.76 | 15.82 | 30.94 | 27.28 | 11.89 | 2.25 | 0.66 | 0.57 |
| 514.8 - 506.6 | | 0** | (2) | 100.00 | 99.76 | 98.68 | 98.05 | 97.45 | 96.03 | 94.17 | 89.41 | 73.58 | 42.65 | 15.37 | 3.48 | 1.23 | 0.57 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.85 | 96.18 | 71.16 | 36.51 | 27.69 | 17.11 | 0.00 |
| | | | (4) | 100.00 | 85.95 | 80.75 | 79.27 | 78.57 | 54.44 | 26.40 | 5.37 | 0.88 | 0.22 | 0.11 | 0.00 | | | |
| Carolina-Baleshed | 11.0 | 35 | (1) | 0.00 | 0.70 | 1.82 | 1.56 | 1.41 | 2.27 | 2.82 | 7.40 | 23.57 | 37.08 | 15.44 | 4.92 | 0.80 | 0.17 | 0.04 |
| 506.6 - 495.6 | | 0** | (2) | 100.00 | 99.30 | 97.47 | 95.92 | 94.51 | 92.24 | 89.42 | 82.02 | 58.45 | 21.37 | 5.93 | 1.01 | 0.21 | 0.04 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.91 | 98.17 | 61.50 | 22.65 | 4.58 | 0.92 | 0.12 | 0.00 |
| | | | (4) | 100.00 | 84.93 | 70.21 | 48.63 | 35.59 | 22.22 | 15.94 | 10.63 | 4.35 | 1.29 | 0.61 | 0.11 | 0.00 | | |
| Baleshed Landing | 10.0 | 59 | (1) | 0.00 | 0.67 | 0.93 | 0.94 | 0.99 | 1.48 | 1.34 | 3.95 | 17.63 | 38.12 | 21.69 | 7.93 | 2.48 | 1.14 | 0.68 |
| 495.6 - 485.6 | | 0** | (2) | 100.00 | 99.31 | 98.38 | 97.43 | 96.44 | 94.97 | 93.63 | 89.67 | 72.04 | 33.92 | 12.23 | 4.30 | 1.82 | 0.68 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.84 | 98.52 | 92.85 | 81.97 | 55.59 | 26.89 | 0.00 |
| | | | (4) | 100.00 | 74.24 | 66.49 | 53.56 | 37.07 | 18.22 | 9.76 | 4.86 | 2.88 | 0.98 | 0.36 | 0.10 | 0.00 | | |
| Ajax Bar | 5.8 | 29 | (1) | 0.00 | 0.74 | 1.07 | 0.61 | 0.30 | 0.48 | 0.55 | 1.71 | 10.63 | 33.22 | 24.30 | 10.64 | 4.98 | 3.39 | 7.38 |
| 485.6 - 479.8 | | 1** | (2) | 100.00 | 99.26 | 98.19 | 97.58 | 97.28 | 96.80 | 96.25 | 94.54 | 83.91 | 50.69 | 26.39 | 15.74 | 10.76 | 7.38 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.82 | 98.77 | 97.55 | 89.38 | 78.22 | 57.56 | 0.00 |
| | | | (4) | 100.00 | 78.55 | 48.06 | 31.52 | 24.67 | 16.36 | 11.64 | 6.55 | 2.42 | 1.27 | 0.64 | 0.18 | 0.00 | | |
| Ajax-Cottonwood | 7.8 | 33 | (1) | | 0.00 | 0.30 | 0.54 | 0.51 | 1.04 | 1.69 | 5.12 | 19.97 | 26.20 | 25.67 | 8.68 | 2.89 | 2.19 | 5.20 |
| 479.8 - 472.0 | | 1** | (2) | | 100.00 | 99.70 | 99.16 | 98.65 | 97.61 | 95.92 | 90.80 | 70.83 | 44.63 | 18.96 | 10.28 | 7.39 | 5.20 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.79 | 98.06 | 96.46 | 88.58 | 69.06 | 34.82 | 0.00 |
| | | | (4) | | 100.00 | 94.31 | 92.75 | 91.58 | 84.49 | 74.92 | 50.83 | 12.21 | 1.40 | 0.25 | 0.08 | 0.00 | | |
| Cottonwood Bar | 4.2 | 62 | (1) | 0.00 | 0.54 | 1.09 | 0.56 | 0.51 | 0.91 | 1.49 | 4.28 | 16.85 | 33.88 | 25.87 | 10.07 | 2.56 | 0.92 | 0.47 |
| 472.0 - 467.8 | | 0** | (2) | 100.00 | 99.46 | 98.36 | 97.80 | 97.29 | 96.39 | 94.90 | 90.62 | 73.76 | 39.89 | 14.02 | 3.95 | 1.39 | 0.47 | 0.00 |
| | | | (3) | | | | | | | | | 100.00 | 99.05 | 90.74 | 60.81 | 47.97 | 22.97 | 0.00 |
| | | | (4) | 100.00 | 74.84 | 51.82 | 44.05 | 41.19 | 40.36 | 39.31 | 34.96 | 12.12 | 2.84 | 0.70 | 0.08 | 0.00 | | |

(Continued)

* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

Table 10 (Continued)

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | Sand 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | Silt Clay 0.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| Cottonwood-Belle Is | 6.4 | 3 | (1)* | | | 0.00 | 0.15 | 0.14 | 0.97 | 0.87 | 1.08 | 9.23 | 31.33 | 35.74 | 15.59 | 4.27 | 0.53 | 0.10 |
| 467.8 - 461.4 | | 0** | (2) | | | 100.00 | 99.85 | 99.72 | 98.75 | 97.88 | 96.80 | 87.56 | 56.24 | 20.50 | 4.90 | 0.63 | 0.10 | 0.00 |
| | | | (3) | | | | | 100.00 | 99.91 | 99.83 | 99.66 | 98.63 | 93.68 | 35.64 | 8.55 | 0.92 | 0.15 | 0.00 |
| | | | (4) | | | 100.00 | 99.67 | 99.49 | 96.66 | 94.19 | 91.62 | 78.83 | 26.32 | 4.11 | 0.56 | 0.11 | 0.06 | 0.00 |
| Belle Is-Milliken | 9.6 | 27 | (1) | | 0.00 | 0.62 | 0.56 | 0.66 | 2.07 | 2.50 | 6.82 | 22.37 | 34.42 | 16.52 | 5.73 | 2.36 | 1.03 | 4.34 |
| 461.4 - 451.8 | | 1** | (2) | | 100.00 | 99.38 | 98.83 | 98.17 | 96.10 | 93.60 | 86.78 | 64.41 | 29.99 | 13.47 | 7.74 | 5.38 | 4.34 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.77 | 99.26 | 92.12 | 52.57 | 25.51 | 9.30 | 0.00 |
| | | | (4) | | 100.00 | 85.93 | 82.37 | 81.63 | 59.22 | 39.64 | 24.68 | 12.13 | 2.84 | 0.69 | 0.17 | 0.06 | 0.00 | |
| Milliken-Vicksburg | 16.8 | 89 | (1) | 0.00 | 0.25 | 0.84 | 1.03 | 1.12 | 1.95 | 2.78 | 7.93 | 25.77 | 30.44 | 15.10 | 6.42 | 2.39 | 1.18 | 2.80 |
| 451.8 - 435.0 | | 1** | (2) | 100.00 | 99.75 | 98.91 | 97.88 | 96.76 | 94.81 | 92.03 | 84.10 | 58.33 | 27.89 | 12.79 | 6.37 | 3.98 | 2.80 | 0.00 |
| Includes discharge range | | | (3) | | | | | | | | 100.00 | 99.78 | 97.42 | 92.76 | 79.58 | 41.45 | 17.10 | 0.00 |
| | | | (4) | 100.00 | 89.82 | 88.49 | 71.52 | 55.86 | 42.38 | 36.00 | 18.47 | 6.70 | 1.67 | 0.27 | 0.05 | 0.00 | | |
| Racetrack-Towhead | 12.2 | 8 | (1) | 0.00 | 6.63 | 4.86 | 1.57 | 1.62 | 2.25 | 2.17 | 6.41 | 22.47 | 34.77 | 13.08 | 3.32 | 0.65 | 0.17 | 0.02 |
| 435.0 - 422.8 | | 0** | (2) | 100.00 | 93.37 | 88.51 | 86.94 | 85.32 | 83.06 | 80.90 | 74.49 | 52.01 | 17.24 | 4.16 | 0.85 | 0.19 | 0.02 | 0.00 |
| | | | (3) | | | | | 100.00 | 99.85 | 99.77 | 98.95 | 88.49 | 26.63 | 9.38 | 2.18 | 0.44 | 0.07 | 0.00 |
| | | | (4) | 100.00 | 46.93 | 46.93 | 46.93 | 46.93 | 46.93 | 46.66 | 37.28 | 18.93 | 5.71 | 1.21 | 0.23 | 0.06 | 0.00 | |
| Pt. Pleasant | 15.4 | | (1) | | | | | | | | | | | | | | | |
| 422.8 - 407.4 | | | (2) | | | | | | | | | | | | | | | |
| | | | (3) | | | | | | | | | | | | | | | |
| | | | (4) | | | | | | | | | | | | | | | |
| Grand Gulf | 12.2 | | (1) | | | | | | | | | | | | | | | |
| 407.4 - 395.2 | | | (2) | | | | | | | | | | | | | | | |
| | | | (3) | | | | | | | | | | | | | | | |
| | | | (4) | | | | | | | | | | | | | | | |
| Rodney | 13.8 | 107 | (1) | 0.00 | 0.50 | 1.34 | 1.30 | 0.91 | 1.15 | 1.51 | 5.71 | 18.35 | 27.58 | 25.87 | 11.91 | 2.66 | 0.68 | 0.54 |
| 395.2 - 381.4 | | 0** | (2) | 100.00 | 99.50 | 98.17 | 96.87 | 95.96 | 94.81 | 93.29 | 87.59 | 69.23 | 41.66 | 15.78 | 3.87 | 1.21 | 0.54 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.70 | 98.68 | 95.68 | 36.37 | 29.23 | 24.98 | 0.00 |
| | | | (4) | 100.00 | 81.67 | 59.50 | 38.70 | 26.74 | 20.22 | 17.93 | 14.13 | 9.45 | 1.30 | 0.49 | 0.10 | 0.00 | | |

(Continued)

* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

Table 10 (Concluded)

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | Gravel 38.10 | 19.05 | 9.525 | 4.699 | Sand 2.362 | 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | Silt Clay 0.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Waterproof 381.4 - 368.2 | 13.2 | (1)* | | | | | | | | | | | | | | | |
| | | (2) | | | | | | | | | | | | | | | |
| | | (3) | | | | | | | | | | | | | | | |
| | | (4) | | | | | | | | | | | | | | | |
| Natchez 368.2 - 355.2 Includes discharge range | 13.0 | (1) | | | | | | | | | | | | | | | |
| | | (2) | | | | | | | | | | | | | | | |
| | | (3) | | | | | | | | | | | | | | | |
| | | (4) | | | | | | | | | | | | | | | |
| St. Catherine 355.2 - 338.6 | 16.6 | (1) | | | | | | | | | | | | | | | |
| | | (2) | | | | | | | | | | | | | | | |
| | | (3) | | | | | | | | | | | | | | | |
| | | (4) | | | | | | | | | | | | | | | |
| Bougere 338.6 - 320.4 | 18.2 | (1) | | | | | | | | | | | | | | | |
| | | (2) | | | | | | | | | | | | | | | |
| | | (3) | | | | | | | | | | | | | | | |
| | | (4) | | | | | | | | | | | | | | | |

Size of Sieve Opening in mm.

* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

Table 11

Mechanical Analysis of Material from Bed of Mississippi River, Vicksburg District, for Calendar Year 1970

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel | | | | | Sand | | | | | | | | | Silt Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| | | | | 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | 0.000 |
| Cessions-Henrico | 10.0 | | (1)* | | | | | | | | | | | | | | | |
| 616.0 - 606.0 | | | (2) | | | | | | | | | | | | | | | |
| | | | (3) | | | | | | | | | | | | | | | |
| | | | (4) | | | | | | | | | | | | | | | |
| Smith Pt.-Terrene | 11.8 | 29 | (1) | 0.00 | 2.50 | 2.28 | 1.40 | 1.03 | 1.39 | 2.12 | 7.64 | 23.58 | 27.64 | 14.96 | 4.05 | 0.85 | 0.14 | 10.41 |
| 606.0 - 594.2 | | 3** | (2) | 100.00 | 97.50 | 95.21 | 93.81 | 92.78 | 91.38 | 89.26 | 81.62 | 58.05 | 30.41 | 15.44 | 11.39 | 10.55 | 10.41 | 0.00 |
| | | | (3) | | | | | | 100.00 | 99.93 | 99.39 | 92.34 | 65.79 | 29.26 | 6.36 | 1.21 | 0.22 | 0.00 |
| | | | (4) | 100.00 | 60.34 | 39.77 | 29.16 | 23.41 | 20.13 | 18.11 | 14.55 | 7.55 | 2.52 | 0.05 | 0.00 | | | |
| Terrene-Ozark | 13.2 | 44 | (1) | | 0.00 | 0.10 | 0.46 | 0.25 | 0.56 | 1.42 | 5.83 | 22.10 | 28.74 | 19.65 | 10.13 | 3.03 | 1.67 | 6.05 |
| 594.2 - 581.0 | | 2** | (2) | | 100.00 | 99.90 | 99.44 | 99.19 | 98.63 | 97.21 | 91.37 | 69.28 | 40.54 | 20.89 | 10.75 | 7.73 | 6.05 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.93 | 99.85 | 99.24 | 98.11 | 81.36 | 36.02 | 0.00 |
| | | | (4) | | 100.00 | 97.66 | 92.64 | 92.18 | 87.23 | 80.57 | 49.28 | 7.98 | 3.65 | 0.64 | 0.13 | 0.05 | 0.00 | |
| Ozark-Eutaw | 15.1 | 91 | (1) | 0.00 | 0.78 | 1.40 | 1.50 | 1.57 | 1.89 | 1.77 | 4.19 | 18.31 | 38.55 | 21.90 | 5.85 | 1.38 | 0.61 | 0.33 |
| 581.0 - 565.9 | | 0** | (2) | 100.00 | 99.22 | 97.82 | 96.32 | 94.75 | 92.86 | 91.09 | 86.90 | 68.59 | 30.04 | 8.14 | 2.29 | 0.91 | 0.30 | 0.00 |
| includes discharge range | | | (3) | | | | | | | | 100.00 | 99.81 | 98.75 | 98.23 | 93.37 | 58.92 | 21.00 | 0.00 |
| | | | (4) | 100.00 | 70.95 | 64.25 | 43.44 | 23.60 | 13.68 | 10.27 | 7.11 | 3.13 | 0.45 | 0.13 | 0.00 | | | |
| Choctaw Bar | 15.5 | 76 | (1) | 0.00 | 1.09 | 1.70 | 1.19 | 1.16 | 1.36 | 1.65 | 4.87 | 18.78 | 33.13 | 23.30 | 7.89 | 2.24 | 0.81 | 0.83 |
| 565.9 - 550.4 | | 0** | (2) | 100.00 | 98.91 | 97.22 | 96.03 | 94.87 | 93.50 | 91.86 | 86.99 | 68.20 | 35.07 | 11.77 | 3.88 | 1.64 | 0.83 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.86 | 99.28 | 91.28 | 74.29 | 53.71 | 27.77 | 0.00 |
| | | | (4) | 100.00 | 56.97 | 31.32 | 19.61 | 13.75 | 12.42 | 11.89 | 11.09 | 7.81 | 1.79 | 0.07 | 0.00 | | | |
| Greenville | 19.2 | 54 | (1) | 0.00 | 0.11 | 0.54 | 0.70 | 0.79 | 1.47 | 2.07 | 5.36 | 18.61 | 32.83 | 18.50 | 8.93 | 3.29 | 0.66 | 6.14 |
| 550.4 - 531.2 | | 3** | (2) | 100.00 | 99.89 | 99.35 | 98.65 | 97.86 | 96.39 | 94.32 | 88.96 | 70.35 | 37.52 | 19.02 | 10.09 | 6.80 | 6.14 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.87 | 98.96 | 96.63 | 81.39 | 35.31 | 28.19 | 20.84 | 0.00 |
| | | | (4) | 100.00 | 93.96 | 88.80 | 88.14 | 82.82 | 74.04 | 61.99 | 34.43 | 10.44 | 2.26 | 0.41 | 0.09 | 0.00 | | |
| Lakeport Towhead | 7.0 | 19 | (1) | | 0.00 | 1.51 | 1.01 | 1.33 | 1.70 | 1.85 | 4.99 | 16.67 | 28.42 | 22.38 | 8.27 | 3.28 | 1.86 | 6.73 |
| 531.2 - 524.2 | | 1** | (2) | | 100.00 | 98.49 | 97.49 | 96.15 | 94.45 | 92.60 | 87.61 | 70.94 | 42.52 | 20.14 | 11.87 | 8.59 | 6.73 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.62 | 95.97 | 89.79 | 75.56 | 55.97 | 26.34 | 0.00 |
| | | | (4) | | 100.00 | 89.03 | 80.54 | 66.62 | 50.67 | 40.85 | 28.91 | 13.79 | 2.58 | 0.51 | 0.09 | 0.00 | | |

(Continued)



* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

Table 11 (Continued)

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | Sand 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | Silt Clay 0.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| Kentucky Bend 524.2 - 514.8 | 9.4 | 52 0** | (1)* | 0.00 | 1.39 | 2.01 | 1.87 | 1.41 | 2.11 | 2.72 | 7.22 | 24.00 | 31.45 | 15.03 | 6.74 | 2.21 | 0.83 | 1.01 |
| | | | (2) | 100.00 | 98.61 | 96.60 | 94.73 | 93.31 | 91.21 | 88.49 | 81.27 | 57.27 | 25.82 | 10.79 | 4.05 | 1.83 | 1.01 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.17 | 98.53 | 96.91 | 70.42 | 37.37 | 24.70 | 0.00 |
| | | | (4) | 100.00 | 57.84 | 23.19 | 9.00 | 3.41 | 2.18 | 1.77 | 1.36 | 0.95 | 0.41 | 0.14 | 0.00 | | | |
| Cracraft-Carolina 514.8 - 506.6 | 8.2 | 18 0** | (1) | | 0.00 | 1.55 | 0.70 | 0.19 | 0.28 | 0.46 | 1.71 | 11.41 | 35.35 | 35.02 | 11.55 | 1.58 | 0.15 | 0.04 |
| | | | (2) | | 100.00 | 98.45 | 97.75 | 97.56 | 97.28 | 96.81 | 95.10 | 83.69 | 48.33 | 13.32 | 1.77 | 0.19 | 0.04 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.92 | 99.39 | 87.59 | 32.70 | 4.24 | 0.40 | 0.18 | 0.00 |
| | | | (4) | | 100.00 | 78.04 | 74.29 | 73.39 | 72.14 | 70.36 | 64.82 | 41.25 | 6.79 | 0.62 | 0.09 | 0.00 | | |
| Carolina-Baleshed 506.6 - 495.6 | 11.0 | 11 0** | (1) | | 0.00 | 0.64 | 0.58 | 0.31 | 0.51 | 1.23 | 4.97 | 19.35 | 28.69 | 26.83 | 9.88 | 2.57 | 1.98 | 2.47 |
| | | | (2) | | 100.00 | 99.36 | 98.78 | 98.47 | 97.96 | 96.73 | 91.77 | 72.41 | 43.72 | 16.90 | 7.02 | 4.45 | 2.47 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.15 | 95.42 | 76.80 | 59.86 | 34.80 | 26.57 | 16.82 | 0.00 |
| | | | (4) | | 100.00 | 93.97 | 91.88 | 91.72 | 91.64 | 91.48 | 77.79 | 41.03 | 12.48 | 2.24 | 0.33 | 0.07 | 0.00 | |
| Baleshed Landing 495.6 - 485.6 | 10.0 | 43 0** | (1) | 0.00 | 0.37 | 1.04 | 1.04 | 0.61 | 0.97 | 1.69 | 5.83 | 20.03 | 34.40 | 21.46 | 8.88 | 2.99 | 0.59 | 0.09 |
| | | | (2) | 100.00 | 99.63 | 98.59 | 97.55 | 96.94 | 95.97 | 94.28 | 88.45 | 68.42 | 34.02 | 12.56 | 3.67 | 0.69 | 0.09 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.75 | 95.73 | 90.68 | 50.87 | 9.71 | 1.17 | 0.00 |
| | | | (4) | 100.00 | 83.97 | 82.26 | 55.38 | 45.70 | 41.94 | 35.48 | 19.89 | 6.99 | 2.59 | 0.96 | 0.00 | | | |
| Ajax Bar 485.6 - 479.8 | 5.8 | 23 1** | (1) | | 0.00 | 0.18 | 0.27 | 0.25 | 0.46 | 0.76 | 2.97 | 15.20 | 33.60 | 23.33 | 10.38 | 5.01 | 2.06 | 5.56 |
| | | | (2) | | 100.00 | 99.82 | 99.56 | 99.31 | 98.85 | 98.09 | 95.12 | 79.93 | 46.33 | 23.00 | 12.63 | 7.62 | 5.56 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.56 | 97.64 | 96.14 | 84.98 | 55.90 | 23.61 | 0.00 |
| | | | (4) | | 100.00 | 95.96 | 93.76 | 92.84 | 90.91 | 86.67 | 72.96 | 45.26 | 10.97 | 0.74 | 0.10 | 0.00 | | |
| Ajax-Cottonwood 479.8 - 472.0 | 7.8 | 15 2** | (1) | | 0.00 | 0.35 | 0.38 | 0.40 | 0.90 | 1.53 | 5.50 | 17.61 | 31.58 | 23.18 | 4.02 | 1.01 | 0.13 | 13.39 |
| | | | (2) | | 100.00 | 99.65 | 99.27 | 98.87 | 97.97 | 96.44 | 90.93 | 73.32 | 41.74 | 18.56 | 14.53 | 13.52 | 13.39 | 0.00 |
| | | | (3) | | | | | | 100.00 | 99.91 | 99.56 | 96.09 | 60.85 | 13.74 | 4.35 | 0.59 | 0.13 | 0.00 |
| | | | (4) | | 100.00 | 94.72 | 91.40 | 86.49 | 76.26 | 67.25 | 45.13 | 10.07 | 0.49 | 0.16 | 0.08 | 0.00 | | |
| Cottonwood Bar 472.0 - 467.8 | 4.2 | 17 0** | (1) | 0.00 | 0.25 | 0.46 | 0.92 | 1.30 | 1.84 | 1.91 | 4.42 | 15.58 | 15.03 | 25.19 | 23.55 | 7.99 | 1.40 | 0.15 |
| | | | (2) | 100.00 | 99.75 | 99.29 | 98.36 | 97.06 | 95.22 | 93.31 | 88.89 | 73.31 | 58.28 | 33.09 | 9.54 | 1.55 | 0.15 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.84 | 99.42 | 92.73 | 33.71 | 6.24 | 0.35 | 0.00 |
| | | | (4) | 100.00 | 95.71 | 94.25 | 87.04 | 71.05 | 50.93 | 35.21 | 17.96 | 7.01 | 2.23 | 0.35 | 0.09 | 0.00 | | |

(Continued)



* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

Table 11 (Continued)

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | Sand 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | Silt Clay 0.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| Cottonwood-Belle Is | 6.4 | 5 | (1)* | 0.00 | 2.39 | 1.54 | 2.07 | 1.68 | 3.90 | 5.88 | 11.35 | 16.65 | 11.76 | 23.91 | 14.64 | 3.69 | 0.42 | 0.12 |
| 467.8 - 461.4 | | 0** | (2) | 100.00 | 97.61 | 96.07 | 94.00 | 92.32 | 88.42 | 82.54 | 71.19 | 54.54 | 42.79 | 18.87 | 4.23 | 0.54 | 0.12 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.57 | 98.26 | 71.52 | 16.67 | 2.17 | 0.51 | 0.00 |
| | | | (4) | 100.00 | 88.03 | 84.17 | 78.64 | 77.22 | 73.36 | 65.00 | 48.20 | 19.49 | 3.15 | 0.79 | 0.17 | 0.00 | | |
| Belle Is-Milliken | 9.6 | 11 | (1) | | 0.00 | 1.33 | 0.59 | 0.58 | 1.22 | 1.56 | 4.89 | 23.51 | 32.50 | 15.48 | 5.85 | 2.52 | 0.66 | 9.30 |
| 461.4 - 451.8 | | 1** | (2) | | 100.00 | 98.67 | 98.08 | 97.50 | 96.28 | 94.72 | 89.89 | 66.32 | 33.81 | 18.33 | 12.49 | 9.97 | 9.30 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.75 | 98.14 | 86.08 | 64.05 | 33.67 | 8.95 | 1.77 | 0.00 |
| | | | (4) | | 100.00 | 93.42 | 91.30 | 87.89 | 76.18 | 64.62 | 47.05 | 18.77 | 3.15 | 0.26 | 0.05 | 0.00 | | |
| Milliken-Vicksburg | 16.8 | 80 | (1) | 0.00 | 2.00 | 3.13 | 2.01 | 2.26 | 2.67 | 2.98 | 7.81 | 22.25 | 31.39 | 15.06 | 5.42 | 1.48 | 0.21 | 1.35 |
| 451.8 - 435.0 | | 1** | (2) | 100.00 | 98.00 | 94.87 | 92.86 | 90.60 | 87.93 | 84.95 | 77.14 | 54.89 | 23.50 | 8.44 | 3.02 | 1.54 | 1.33 | 0.00 |
| Includes discharge range | | | (3) | | | | | | | 100.00 | 99.81 | 99.27 | 94.25 | 86.99 | 22.27 | 4.09 | 3.33 | 0.00 |
| | | | (4) | 100.00 | 21.62 | 5.28 | 3.28 | 2.96 | 2.80 | 2.64 | 1.99 | 0.80 | 0.18 | 0.04 | 0.00 | | | |
| Racetrack-Towhead | 12.2 | 8 | (1) | 0.00 | 0.96 | 2.34 | 0.88 | 1.13 | 1.66 | 1.78 | 4.80 | 14.66 | 29.91 | 30.21 | 9.83 | 1.52 | 0.26 | 0.05 |
| 435.0 - 422.8 | | 0** | (2) | 100.00 | 99.04 | 96.70 | 95.82 | 94.69 | 93.02 | 91.24 | 86.44 | 71.78 | 41.87 | 11.66 | 1.82 | 0.31 | 0.05 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.70 | 90.58 | 21.41 | 3.47 | 0.79 | 0.20 | 0.00 |
| | | | (4) | 100.00 | 92.32 | 85.03 | 85.03 | 84.70 | 83.02 | 73.58 | 57.98 | 29.82 | 7.78 | 1.51 | 0.38 | 0.09 | 0.00 | |
| Pt. Pleasant | 15.4 | 104 | (1) | 0.00 | 1.75 | 2.65 | 1.55 | 1.20 | 1.35 | 1.96 | 6.93 | 21.00 | 24.34 | 19.50 | 8.57 | 4.23 | 1.87 | 3.11 |
| 422.8 - 407.4 | | 2** | (2) | 100.00 | 98.25 | 95.60 | 94.05 | 92.86 | 91.51 | 89.55 | 82.62 | 61.62 | 37.28 | 17.78 | 9.21 | 4.98 | 3.11 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.94 | 99.57 | 98.63 | 93.37 | 71.07 | 51.57 | 0.00 |
| | | | (4) | 100.00 | 64.24 | 24.31 | 17.13 | 12.98 | 11.60 | 10.77 | 9.67 | 6.77 | 1.40 | 0.13 | 0.00 | | | |
| Grand Gulf | 12.2 | 57 | (1) | | 0.00 | 0.31 | 0.15 | 0.15 | 0.18 | 0.43 | 3.58 | 16.53 | 30.72 | 29.68 | 10.05 | 2.66 | 1.15 | 4.42 |
| 407.4 - 395.2 | | 2** | (2) | | 100.00 | 99.69 | 99.54 | 99.39 | 99.21 | 98.78 | 95.20 | 78.67 | 47.96 | 18.28 | 8.23 | 5.57 | 4.42 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.88 | 99.64 | 98.91 | 94.12 | 80.36 | 44.43 | 0.00 |
| | | | (4) | | 100.00 | 91.17 | 91.08 | 90.33 | 88.64 | 86.67 | 70.61 | 32.87 | 4.10 | 0.32 | 0.06 | 0.00 | | |
| Rodney | 13.8 | 90 | (1) | 0.00 | 0.95 | 0.90 | 0.84 | 1.07 | 1.75 | 2.52 | 8.31 | 21.60 | 23.49 | 22.74 | 9.92 | 2.97 | 0.60 | 2.33 |
| 395.2 - 381.4 | | 2** | (2) | 100.00 | 99.05 | 98.15 | 97.30 | 96.24 | 94.48 | 91.96 | 83.65 | 62.05 | 38.56 | 15.82 | 5.90 | 2.93 | 2.33 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.75 | 97.74 | 85.67 | 33.96 | 9.27 | 2.43 | 0.00 |
| | | | (4) | 100.00 | 45.75 | 43.40 | 43.40 | 43.40 | 41.27 | 36.32 | 22.88 | 6.37 | 0.45 | 0.00 | | | | |

(Continued)



* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

Table 11 (Concluded)

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel | | | | | Sand | | | | | | | | | Silt Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| | | | | 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | 0.000 |
| Waterproof | 13.2 | 63 | (1)* | 0.00 | 0.38 | 0.27 | 0.25 | 0.22 | 0.25 | 0.40 | 2.11 | 9.85 | 22.21 | 35.43 | 16.24 | 6.71 | 2.01 | 3.64 |
| 381.4 - 368.2 | | 0** | (2) | 100.00 | 99.62 | 99.35 | 99.09 | 98.87 | 98.62 | 98.21 | 96.10 | 86.25 | 64.03 | 28.60 | 12.36 | 5.65 | 3.64 | 0.00 |
| | | | (3) | | | | | | | | | 100.00 | 99.89 | 98.03 | 91.62 | 55.38 | 14.46 | 0.00 |
| | | | (4) | 100.00 | 76.06 | 72.38 | 70.60 | 70.04 | 69.38 | 66.26 | 45.10 | 12.58 | 6.01 | 0.70 | 0.09 | 0.00 | | |
| Natchez | 13.0 | 76 | (1) | | 0.00 | 0.26 | 0.45 | 0.56 | 0.69 | 0.90 | 3.90 | 17.15 | 31.67 | 28.52 | 10.66 | 2.07 | 0.40 | 2.77 |
| 368.2 - 355.2 | | 2** | (2) | | 100.00 | 99.74 | 99.29 | 98.73 | 98.04 | 97.14 | 93.24 | 76.09 | 44.42 | 15.90 | 5.24 | 3.17 | 2.77 | 0.00 |
| Includes discharge range | | | (3) | | | | | | | | | 100.00 | 99.37 | 54.58 | 12.20 | 5.39 | 2.82 | 0.00 |
| | | | (4) | | 100.00 | 89.10 | 87.62 | 84.94 | 77.54 | 71.74 | 58.21 | 23.64 | 4.42 | 1.10 | 0.22 | 0.00 | | |
| St. Catherine | 16.6 | | (1) | | | | | | | | | | | | | | | |
| 355.2 - 338.6 | | | (2) | | | | | | | | | | | | | | | |
| | | | (3) | | | | | | | | | | | | | | | |
| | | | (4) | | | | | | | | | | | | | | | |
| Bougere | 18.2 | | (1) | | | | | | | | | | | | | | | |
| 338.6 - 320.4 | | | (2) | | | | | | | | | | | | | | | |
| | | | (3) | | | | | | | | | | | | | | | |
| | | | (4) | | | | | | | | | | | | | | | |

* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

Table 12

Mechanical Analysis of Material from Bed of Mississippi River, Vicksburg District, for Calendar Year 1971

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel | | | | | Sand | | | | | | | | | Silt Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| | | | | 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | 0.000 |
| Cessions-Henrico | 10.0 | | (1)* | | | | | | | | | | | | | | | |
| 616.0 - 606.0 | | | (2) | | | | | | | | | | | | | | | |
| | | | (3) | | | | | | | | | | | | | | | |
| | | | (4) | | | | | | | | | | | | | | | |
| Smith Pt.-Terrene | 11.8 | 28 | (1) | | 0.00 | 0.57 | 0.77 | 0.46 | 0.68 | 1.60 | 7.23 | 18.85 | 29.27 | 23.72 | 8.43 | 1.14 | 0.08 | 7.21 |
| 606.0 - 594.2 | | 2** | (2) | | 100.00 | 99.43 | 98.66 | 98.20 | 97.52 | 95.92 | 88.69 | 69.85 | 40.58 | 16.86 | 8.43 | 7.29 | 7.21 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.82 | 96.75 | 73.29 | 9.39 | 1.03 | 0.52 | 0.00 |
| | | | (4) | | 100.00 | 91.90 | 90.69 | 89.18 | 85.77 | 77.79 | 53.96 | 26.79 | 3.10 | 0.43 | 0.00 | | | |
| Terrene-Ozark | 13.2 | 23 | (1) | | 0.00 | 0.58 | 0.39 | 0.88 | 1.61 | 2.34 | 5.29 | 13.46 | 27.20 | 24.89 | 12.40 | 5.47 | 0.85 | 4.66 |
| 594.2 - 581.0 | | 1** | (2) | | 100.00 | 99.42 | 99.04 | 98.16 | 96.55 | 94.21 | 88.93 | 75.47 | 48.27 | 23.38 | 10.98 | 5.51 | 4.66 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.23 | 98.34 | 94.92 | 61.58 | 11.16 | 2.87 | 0.00 |
| | | | (4) | | 100.00 | 93.49 | 91.16 | 86.21 | 78.71 | 63.00 | 32.56 | 16.90 | 4.03 | 0.78 | 0.23 | 0.00 | | |
| Ozark-Eutaw | 15.1 | 66 | (1) | 0.00 | 0.25 | 0.24 | 0.22 | 0.36 | 0.60 | 1.14 | 4.90 | 18.31 | 39.81 | 25.66 | 6.77 | 1.39 | 0.23 | 0.12 |
| 581.0 - 565.9 | | 0** | (2) | 100.00 | 99.75 | 99.51 | 99.29 | 98.93 | 98.33 | 97.19 | 92.29 | 73.98 | 34.17 | 8.51 | 1.74 | 0.35 | 0.12 | 0.00 |
| includes discharge range | | | (3) | | | | | | | | | 100.00 | 97.07 | 30.99 | 14.40 | 4.83 | 1.61 | 0.00 |
| | | | (4) | 100.00 | 91.83 | 89.32 | 85.79 | 82.98 | 76.50 | 64.10 | 38.30 | 11.64 | 1.58 | 0.48 | 0.05 | 0.00 | | |
| Choctaw Bar | 15.5 | 23 | (1) | | 0.00 | 1.14 | 0.83 | 0.92 | 0.89 | 1.07 | 4.44 | 21.78 | 37.57 | 18.40 | 6.17 | 1.68 | 1.96 | 3.13 |
| 565.9 - 550.4 | | 0** | (2) | | 100.00 | 98.86 | 98.03 | 97.11 | 96.21 | 95.14 | 90.70 | 68.92 | 31.35 | 12.95 | 6.78 | 5.09 | 3.13 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.83 | 99.40 | 98.79 | 98.09 | 96.08 | 85.11 | 52.82 | 0.00 |
| | | | (4) | | 100.00 | 86.36 | 80.00 | 73.41 | 68.14 | 62.95 | 52.02 | 24.80 | 4.65 | 0.49 | 0.00 | | | |
| Greenville | 19.2 | 49 | (1) | 0.00 | 0.54 | 0.59 | 0.66 | 0.78 | 1.22 | 1.86 | 6.80 | 22.20 | 39.01 | 18.17 | 5.33 | 1.20 | 0.64 | 0.97 |
| 550.4 - 531.2 | | 0** | (2) | 100.00 | 99.46 | 98.86 | 98.20 | 97.42 | 96.20 | 94.33 | 87.53 | 65.33 | 26.32 | 8.15 | 2.82 | 1.62 | 0.97 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 97.82 | 91.35 | 77.28 | 60.44 | 47.64 | 27.45 | 0.00 |
| | | | (4) | 100.00 | 81.28 | 81.28 | 81.18 | 80.85 | 80.47 | 73.66 | 56.67 | 21.61 | 4.58 | 0.41 | 0.08 | 0.00 | | |
| Lakeport Towhead | 7.0 | 24 | (1) | 0.00 | 0.35 | 0.37 | 0.54 | 0.50 | 0.96 | 1.60 | 5.54 | 19.80 | 40.78 | 20.26 | 7.26 | 1.70 | 0.22 | 0.12 |
| 531.2 - 524.2 | | 0** | (2) | 100.00 | 99.65 | 99.28 | 98.74 | 98.24 | 97.28 | 95.68 | 90.15 | 70.34 | 29.56 | 9.30 | 2.04 | 0.34 | 0.12 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.95 | 97.59 | 81.96 | 49.78 | 16.30 | 3.46 | 0.93 | 0.00 |
| | | | (4) | 100.00 | 91.64 | 88.92 | 87.26 | 86.01 | 75.65 | 65.42 | 47.31 | 21.94 | 3.58 | 0.29 | 0.05 | 0.00 | | |

(Continued)



* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

Table 12 (Continued)

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel | | | | | Sand | | | | | | | | | Silt Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| | | | | 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | 0.000 |
| Kentucky Bend 524.2 - 514.8 | 9.4 | 68 0** | (1)* | 0.00 | 0.40 | 1.47 | 1.21 | 1.54 | 2.68 | 2.98 | 7.15 | 22.24 | 34.85 | 17.88 | 5.40 | 1.30 | 0.49 | 0.43 |
| | | | (2) | 100.00 | 99.60 | 98.13 | 96.92 | 95.38 | 92.70 | 89.72 | 82.58 | 60.34 | 25.49 | 7.62 | 2.22 | 0.92 | 0.43 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.85 | 98.99 | 89.77 | 80.69 | 54.14 | 26.55 | 9.08 | 0.00 |
| | | | (4) | 100.00 | 72.64 | 70.10 | 69.13 | 60.15 | 48.81 | 43.77 | 33.57 | 12.71 | 2.42 | 0.16 | 0.06 | 0.00 | | |
| Cracraft-Carolina 514.8 - 506.6 | 8.2 | 38 1** | (1) | | 0.00 | 0.16 | 0.52 | 0.62 | 1.09 | 1.76 | 4.80 | 16.75 | 34.60 | 23.05 | 8.41 | 2.81 | 1.17 | 4.25 |
| | | | (2) | | 100.00 | 99.84 | 99.32 | 98.71 | 97.61 | 95.86 | 91.05 | 74.30 | 39.70 | 16.65 | 8.23 | 5.42 | 4.25 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.73 | 94.85 | 75.26 | 49.84 | 45.25 | 31.24 | 0.00 |
| | | | (4) | | 100.00 | 96.56 | 95.65 | 92.07 | 76.13 | 48.20 | 16.76 | 3.65 | 1.94 | 0.81 | 0.12 | 0.00 | | |
| Carolina-Baleshed 506.6 - 495.6 | 11.0 | 27 0** | (1) | | 0.00 | 0.63 | 0.24 | 0.43 | 0.77 | 1.41 | 4.20 | 12.75 | 29.50 | 26.84 | 13.60 | 6.52 | 2.66 | 0.44 |
| | | | (2) | | 100.00 | 99.37 | 99.13 | 98.70 | 97.93 | 96.52 | 92.32 | 79.57 | 50.07 | 23.23 | 9.63 | 3.11 | 0.44 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.48 | 98.96 | 95.43 | 68.34 | 23.55 | 4.25 | 0.00 |
| | | | (4) | | 100.00 | 86.32 | 84.47 | 80.77 | 77.07 | 72.22 | 62.68 | 32.01 | 9.06 | 0.36 | 0.00 | | | |
| Baleshed Landing 495.6 - 485.6 | 10.0 | 78 0** | (1) | 0.00 | 0.49 | 1.21 | 0.54 | 0.78 | 1.36 | 1.78 | 4.60 | 13.84 | 27.80 | 20.48 | 15.58 | 6.19 | 1.65 | 3.71 |
| | | | (2) | 100.00 | 99.51 | 98.30 | 97.76 | 96.98 | 95.63 | 93.85 | 89.25 | 75.41 | 47.61 | 27.14 | 11.55 | 5.36 | 3.71 | 0.00 |
| | | | (3) | | | | | | | | | 100.00 | 99.78 | 97.91 | 64.38 | 30.34 | 23.60 | 0.00 |
| | | | (4) | 100.00 | 85.49 | 79.12 | 74.07 | 69.36 | 66.76 | 62.78 | 50.19 | 17.98 | 5.16 | 1.46 | 0.15 | 0.00 | | |
| Ajax Bar 485.6 - 479.8 | 5.8 | 37 1** | (1) | | 0.00 | 0.09 | 0.25 | 0.31 | 0.73 | 1.24 | 4.42 | 15.12 | 28.80 | 27.03 | 14.52 | 3.70 | 0.55 | 3.25 |
| | | | (2) | | 100.00 | 99.91 | 99.66 | 99.35 | 98.62 | 97.38 | 92.96 | 77.84 | 49.04 | 22.02 | 7.50 | 3.80 | 3.25 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.82 | 95.87 | 88.03 | 35.55 | 13.36 | 11.21 | 0.00 |
| | | | (4) | | 100.00 | 97.93 | 97.49 | 96.12 | 91.89 | 85.20 | 72.48 | 44.83 | 9.73 | 1.11 | 0.11 | 0.00 | | |
| Ajax-Cottonwood 479.8 - 472.0 | 7.8 | 29 1** | (1) | 0.00 | 1.25 | 2.17 | 1.11 | 1.51 | 2.32 | 2.73 | 7.00 | 16.97 | 24.44 | 17.06 | 12.32 | 5.53 | 1.60 | 4.00 |
| | | | (2) | 100.00 | 98.75 | 96.58 | 95.47 | 93.96 | 91.65 | 88.92 | 81.91 | 64.95 | 40.51 | 23.45 | 11.13 | 5.60 | 4.00 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.69 | 99.19 | 98.67 | 89.87 | 72.08 | 32.21 | 8.44 | 0.00 |
| | | | (4) | 100.00 | 89.82 | 62.85 | 57.30 | 53.06 | 50.77 | 49.40 | 35.55 | 5.50 | 0.75 | 0.17 | 0.00 | | | |
| Cottonwood Bar 472.0 - 467.8 | 4.2 | 29 0** | (1) | 0.00 | 0.84 | 0.54 | 0.27 | 0.32 | 0.54 | 0.96 | 3.70 | 16.68 | 35.20 | 23.46 | 11.62 | 4.08 | 1.41 | 0.39 |
| | | | (2) | 100.00 | 99.16 | 98.62 | 98.35 | 98.04 | 97.49 | 96.53 | 92.83 | 76.16 | 40.95 | 17.50 | 5.88 | 1.80 | 0.39 | 0.00 |
| | | | (3) | | | | | | | | | 100.00 | 98.87 | 82.67 | 51.10 | 22.09 | 5.25 | 0.00 |
| | | | (4) | 100.00 | 75.54 | 68.97 | 64.50 | 60.98 | 56.57 | 50.41 | 36.45 | 18.43 | 3.38 | 0.22 | 0.08 | 0.00 | | |

(Continued)

* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

Table 12 (Continued)

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | Sand 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | Silt Clay 0.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| Cottonwood-Belle Is | 6.4 | 12 | (1)* | 0.00 | 1.11 | 6.82 | 4.24 | 2.61 | 1.64 | 1.77 | 5.35 | 13.74 | 28.19 | 23.69 | 8.96 | 1.55 | 0.22 | 0.11 |
| 467.8 - 461.4 | | 0** | (2) | 100.00 | 98.89 | 92.06 | 87.83 | 85.22 | 83.59 | 81.82 | 76.47 | 62.73 | 34.54 | 10.85 | 1.88 | 0.33 | 0.11 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.69 | 94.12 | 30.70 | 5.87 | 0.86 | 0.46 | 0.00 |
| | | | (4) | 100.00 | 86.65 | 63.74 | 47.06 | 34.12 | 28.24 | 26.27 | 23.53 | 17.25 | 7.20 | 0.70 | 0.26 | 0.06 | 0.00 | |
| Belle Is-Milliken | 9.6 | 16 | (1) | | 0.00 | 1.62 | 0.56 | 0.68 | 0.69 | 1.10 | 5.81 | 24.48 | 31.54 | 23.30 | 7.87 | 1.87 | 0.42 | 0.07 |
| 461.4 - 451.8 | | 0** | (2) | | 100.00 | 98.38 | 97.82 | 97.14 | 96.45 | 95.35 | 89.54 | 65.06 | 33.53 | 10.22 | 2.35 | 0.49 | 0.07 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.68 | 90.65 | 35.34 | 9.92 | 2.02 | 0.32 | 0.00 |
| | | | (4) | | 100.00 | 83.33 | 82.27 | 78.25 | 72.15 | 69.00 | 63.21 | 30.35 | 3.87 | 0.97 | 0.18 | 0.04 | 0.00 | |
| Milliken-Vicksburg | 16.8 | 87 | (1) | 0.00 | 0.05 | 0.82 | 0.86 | 1.15 | 2.08 | 3.26 | 10.10 | 26.47 | 29.78 | 14.37 | 5.41 | 1.81 | 1.35 | 2.47 |
| 451.8 - 435.0 | | 1** | (2) | 100.00 | 99.95 | 99.13 | 98.27 | 97.12 | 95.04 | 91.78 | 81.68 | 55.21 | 25.43 | 11.06 | 5.65 | 3.84 | 2.49 | 0.00 |
| Includes discharge range | | | (3) | | | | | | | 100.00 | 99.91 | 99.48 | 97.80 | 94.75 | 90.82 | 75.41 | 36.07 | 0.00 |
| | | | (4) | 100.00 | 95.00 | 90.10 | 82.88 | 71.27 | 56.66 | 45.79 | 20.62 | 4.38 | 0.86 | 0.28 | 0.00 | | | |
| Racetrack-Towhead | 12.2 | 8 | (1) | | 0.00 | 0.89 | 0.26 | 0.66 | 1.16 | 2.48 | 9.88 | 20.16 | 26.46 | 19.77 | 16.12 | 1.73 | 0.33 | 0.10 |
| 435.0 - 422.8 | | 0** | (2) | | 100.00 | 99.11 | 98.85 | 98.19 | 97.03 | 94.55 | 84.67 | 64.51 | 38.05 | 18.28 | 2.16 | 0.44 | 0.10 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 97.92 | 86.43 | 66.84 | 38.75 | 3.91 | 1.04 | 0.46 | 0.00 |
| | | | (4) | | 100.00 | 92.86 | 92.31 | 91.48 | 89.29 | 84.34 | 66.15 | 29.92 | 6.79 | 1.56 | 0.20 | 0.00 | | |
| Pt. Pleasant | 15.4 | 144 | (1) | 0.00 | 1.12 | 1.21 | 0.81 | 0.61 | 0.66 | 1.06 | 4.68 | 16.53 | 27.17 | 23.65 | 12.83 | 4.81 | 1.68 | 3.17 |
| 422.8 - 407.4 | | 2** | (2) | 100.00 | 98.88 | 97.67 | 96.86 | 96.25 | 95.59 | 94.53 | 89.85 | 73.31 | 46.15 | 22.49 | 9.66 | 4.85 | 3.17 | 0.00 |
| | | | (3) | | | | | | | | | 100.00 | 99.70 | 98.52 | 88.74 | 84.17 | 77.50 | 0.00 |
| | | | (4) | 100.00 | 35.94 | 18.37 | 6.58 | 2.72 | 1.25 | 0.91 | 0.57 | 0.34 | 0.23 | 0.00 | | | | |
| Grand Gulf | 12.2 | 62 | (1) | 0.00 | 0.32 | 0.80 | 0.92 | 0.23 | 0.48 | 0.96 | 5.15 | 15.80 | 23.37 | 21.77 | 14.58 | 5.21 | 2.52 | 7.88 |
| 407.4 - 395.2 | | 4** | (2) | 100.00 | 99.68 | 98.88 | 97.95 | 97.72 | 97.24 | 96.29 | 91.13 | 75.33 | 51.96 | 30.19 | 15.62 | 10.40 | 7.88 | 0.00 |
| | | | (3) | | | | | | | | | 100.00 | 99.69 | 97.84 | 86.21 | 49.56 | 22.87 | 0.00 |
| | | | (4) | 100.00 | 88.85 | 79.59 | 40.82 | 39.80 | 38.78 | 36.73 | 1.02 | 0.00 | | | | | | |
| Rodney | 13.8 | 43 | (1) | | 0.00 | 0.68 | 0.91 | 1.09 | 1.06 | 1.55 | 5.41 | 17.54 | 23.43 | 23.83 | 18.69 | 4.87 | 0.73 | 0.20 |
| 395.2 - 381.4 | | 0** | (2) | | 100.00 | 99.32 | 98.41 | 97.32 | 96.26 | 94.71 | 89.30 | 71.76 | 48.32 | 24.49 | 5.80 | 0.93 | 0.20 | 0.00 |
| | | | (3) | | | | | | | | | 100.00 | 99.84 | 94.37 | 39.30 | 9.64 | 1.75 | 0.00 |
| | | | (4) | | 100.00 | 93.30 | 89.49 | 79.35 | 68.54 | 61.19 | 47.03 | 16.42 | 4.60 | 0.94 | 0.13 | 0.00 | | |

(Continued)



* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

Table 12 (Concluded)

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel | | | | | Sand | | | | | | | | | Silt Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| | | | | 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | 0.000 |
| Waterproof | 13.2 | 21 | (1)* | | 0.00 | 0.19 | 0.18 | 0.17 | 0.18 | 0.33 | 2.06 | 10.73 | 29.75 | 31.32 | 17.84 | 5.14 | 1.24 | 0.86 |
| 381.4 - 368.2 | | 0** | (2) | | 100.00 | 99.81 | 99.63 | 99.46 | 99.28 | 98.95 | 96.88 | 86.16 | 56.40 | 25.08 | 7.24 | 2.10 | 0.86 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.91 | 99.72 | 98.32 | 59.87 | 18.99 | 10.89 | 0.00 |
| | | | (4) | | 100.00 | 97.24 | 96.04 | 94.84 | 92.74 | 88.60 | 70.71 | 40.22 | 8.52 | 1.38 | 0.24 | 0.06 | 0.00 | |
| Natchez | 13.0 | 31 | (1) | 0.00 | 1.87 | 0.38 | 0.16 | 0.21 | 0.27 | 0.64 | 4.07 | 17.40 | 28.19 | 25.05 | 9.72 | 1.81 | 0.32 | 9.93 |
| 368.2 - 355.2 | | 3** | (2) | 100.00 | 98.13 | 97.75 | 97.59 | 97.38 | 97.11 | 96.47 | 92.40 | 75.00 | 46.81 | 21.76 | 12.04 | 10.23 | 9.91 | 0.00 |
| Includes discharge range | | | (3) | | | | | | | | 100.00 | 99.94 | 97.82 | 61.28 | 12.69 | 3.35 | 1.44 | 0.00 |
| | | | (4) | 100.00 | 42.11 | 33.33 | 33.33 | 32.46 | 32.02 | 31.58 | 31.14 | 23.57 | 12.23 | 1.36 | 0.18 | 0.00 | | |
| St. Catherine | 16.6 | 22 | (1) | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 | 0.10 | 0.16 | 1.12 | 9.07 | 25.09 | 31.17 | 23.17 | 5.07 | 2.14 | 2.86 |
| 355.2 - 338.6 | | 0** | (2) | 100.00 | 100.00 | 100.00 | 99.98 | 99.96 | 99.86 | 99.70 | 98.58 | 89.51 | 64.41 | 33.24 | 10.07 | 5.00 | 2.86 | 0.00 |
| | | | (3) | | | | | | | | | 100.00 | 99.05 | 95.84 | 93.85 | 86.79 | 58.55 | 0.00 |
| | | | (4) | 100.00 | 100.00 | 100.00 | 99.56 | 99.55 | 99.10 | 98.28 | 90.87 | 57.32 | 13.07 | 3.07 | 0.45 | 0.09 | 0.07 | 0.00 |
| Bougere | 18.2 | | (1) | | | | | | | | | | | | | | | |
| 338.6 - 320.4 | | | (2) | | | | | | | | | | | | | | | |
| | | | (3) | | | | | | | | | | | | | | | |
| | | | (4) | | | | | | | | | | | | | | | |

* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.
** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

Table 13

Mechanical Analysis of Material from Bed of Mississippi River, Vicksburg District, for Calendar Year 1972

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel | | | | | Sand | | | | | | | | | Silt Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| | | | | 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | 0.000 |
| Cessions-Henrico | 10.0 | 4 | (1)* | | 0.00 | 0.37 | 0.09 | 0.09 | 0.32 | 1.22 | 6.19 | 24.32 | 27.64 | 25.59 | 8.68 | 1.95 | 1.11 | 2.42 |
| 616.0 - 606.0 | | 0** | (2) | | 100.00 | 99.63 | 99.53 | 99.45 | 99.13 | 97.91 | 91.72 | 67.39 | 39.75 | 14.16 | 5.48 | 3.53 | 2.42 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.94 | 99.62 | 92.58 | 28.47 | 15.88 | 13.17 | 9.42 | 0.00 |
| | | | (4) | | 100.00 | 98.50 | 98.13 | 97.94 | 97.47 | 95.79 | 85.00 | 40.88 | 11.13 | 1.59 | 0.19 | 0.00 | | |
| Smith Pt.-Terrene | 11.8 | 28 | (1) | | 0.00 | 1.79 | 0.38 | 0.50 | 0.72 | 1.44 | 5.38 | 15.30 | 25.68 | 22.88 | 7.07 | 1.98 | 1.47 | 15.41 |
| 606.0 - 594.2 | | 4** | (2) | | 100.00 | 98.21 | 97.83 | 97.33 | 96.61 | 95.17 | 89.79 | 74.49 | 48.81 | 25.93 | 18.86 | 16.88 | 15.41 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.08 | 94.07 | 84.58 | 72.92 | 50.40 | 23.72 | 0.00 |
| | | | (4) | | 100.00 | 51.92 | 50.00 | 48.08 | 47.12 | 46.15 | 45.19 | 25.80 | 4.95 | 0.38 | 0.08 | 0.00 | | |
| Terrene-Ozark | 13.2 | 28 | (1) | | | 0.00 | 0.07 | 0.22 | 0.43 | 0.69 | 3.34 | 13.10 | 24.56 | 23.19 | 13.41 | 9.53 | 4.30 | 7.17 |
| 594.2 - 581.0 | | 0** | (2) | | | 100.00 | 99.93 | 99.71 | 99.28 | 98.59 | 95.25 | 82.15 | 57.59 | 34.40 | 20.99 | 11.46 | 7.16 | 0.00 |
| | | | (3) | | | | | | | | | 100.00 | 99.48 | 98.09 | 94.13 | 89.29 | 73.84 | 0.00 |
| | | | (4) | | | 100.00 | 98.96 | 94.89 | 86.93 | 78.87 | 61.47 | 25.45 | 8.08 | 2.56 | 0.11 | 0.00 | | |
| Ozark-Eutaw | 15.1 | 243 | (1) | 0.00 | 0.21 | 0.47 | 0.46 | 0.39 | 0.56 | 0.80 | 3.73 | 17.72 | 38.55 | 27.13 | 7.40 | 1.64 | 0.57 | 0.35 |
| 581.0 - 565.9 | | 0** | (2) | 100.00 | 99.79 | 99.32 | 98.86 | 98.47 | 97.91 | 97.11 | 93.38 | 75.66 | 37.11 | 9.98 | 2.58 | 0.94 | 0.37 | 0.00 |
| includes discharge range | | | (3) | | | | | | | | | 100.00 | 99.30 | 93.01 | 70.38 | 42.17 | 22.38 | 0.00 |
| | | | (4) | 100.00 | 57.73 | 42.00 | 31.73 | 28.00 | 26.00 | 25.18 | 23.91 | 8.35 | 0.63 | 0.32 | 0.00 | | | |
| Choctaw Bar | 15.5 | 49 | (1) | 0.00 | 0.28 | 0.96 | 0.76 | 0.79 | 0.94 | 1.51 | 6.83 | 23.36 | 35.71 | 18.06 | 7.45 | 1.16 | 0.15 | 2.06 |
| 565.9 - 550.4 | | 1** | (2) | 100.00 | 99.72 | 98.76 | 98.00 | 97.21 | 96.27 | 94.76 | 87.93 | 64.57 | 28.86 | 10.80 | 3.35 | 2.19 | 2.04 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.37 | 96.60 | 59.97 | 12.15 | 1.88 | 0.27 | 0.00 |
| | | | (4) | 100.00 | 86.37 | 65.47 | 54.93 | 48.26 | 45.67 | 44.88 | 42.89 | 21.25 | 3.53 | 0.71 | 0.12 | 0.00 | | |
| Greenville | 19.2 | 7 | (1) | | 0.00 | 0.68 | 0.38 | 0.52 | 0.91 | 2.12 | 9.54 | 30.74 | 29.95 | 19.69 | 4.34 | 0.88 | 0.24 | 0.02 |
| 550.4 - 531.2 | | 0** | (2) | | 100.00 | 99.32 | 98.94 | 98.42 | 97.51 | 95.39 | 85.86 | 55.12 | 25.17 | 5.48 | 1.14 | 0.25 | 0.02 | 0.00 |
| | | | (3) | | | | | | 100.00 | 99.73 | 98.58 | 89.17 | 66.70 | 19.27 | 3.91 | 0.71 | 0.12 | 0.00 |
| | | | (4) | | 100.00 | 95.24 | 94.52 | 94.07 | 92.91 | 89.53 | 73.46 | 27.32 | 3.38 | 0.33 | 0.06 | 0.00 | | |
| Lakeport Towhead | 7.0 | 2 | (1) | | 0.00 | 0.86 | 1.21 | 0.65 | 0.74 | 1.44 | 6.08 | 16.71 | 26.42 | 33.80 | 10.56 | 1.19 | 0.29 | 0.05 |
| 531.2 - 524.2 | | 0** | (2) | | 100.00 | 99.14 | 97.93 | 97.28 | 96.54 | 95.10 | 89.01 | 72.31 | 45.89 | 12.08 | 1.52 | 0.34 | 0.05 | 0.00 |
| | | | (3) | | | | | 100.00 | 99.81 | 99.52 | 98.75 | 91.94 | 78.21 | 21.40 | 2.78 | 0.67 | 0.10 | 0.00 |
| | | | (4) | | 100.00 | 98.27 | 95.85 | 94.56 | 93.26 | 90.67 | 79.27 | 52.68 | 13.56 | 2.76 | 0.26 | 0.00 | | |

(Continued)



* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

Table 13 (Continued)

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel | | | | | Sand | | | | | | | | | Silt Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| | | | | 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | 0.000 |
| Kentucky Bend | 9.4 | 2 | (1)* | | 0.00 | 1.44 | 0.42 | 0.81 | 0.76 | 1.68 | 6.12 | 19.95 | 37.83 | 25.01 | 5.22 | 0.59 | 0.16 | 0.00 |
| 524.2 - 514.8 | | 0** | (2) | | 100.00 | 98.56 | 98.14 | 97.32 | 96.56 | 94.88 | 88.76 | 68.81 | 30.98 | 5.96 | 0.74 | 0.16 | 0.00 | |
| | | | (3) | | | | | | 100.00 | 99.79 | 98.72 | 90.61 | 46.26 | 10.25 | 1.17 | 0.21 | 0.00 | |
| | | | (4) | | 100.00 | 97.11 | 96.27 | 94.65 | 93.13 | 89.98 | 78.80 | 47.01 | 15.69 | 1.68 | 0.31 | 0.10 | 0.00 | |
| Cracraft-Carolina | 8.2 | 2 | (1) | | | | | | | 0.00 | 0.49 | 12.96 | 42.00 | 33.98 | 9.15 | 1.11 | 0.28 | 0.03 |
| 514.8 - 506.6 | | 0** | (2) | | | | | | | 100.00 | 99.51 | 86.55 | 44.55 | 10.57 | 1.42 | 0.31 | 0.03 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.62 | 87.18 | 45.33 | 11.43 | 1.57 | 0.38 | 0.05 | 0.00 |
| | | | (4) | | | | | | | 100.00 | 99.40 | 85.91 | 43.77 | 9.71 | 1.27 | 0.24 | 0.00 | |
| Carolina-Baleshed | 11.0 | 7 | (1) | 0.00 | 0.58 | 2.09 | 1.94 | 2.48 | 3.36 | 3.81 | 9.00 | 19.92 | 27.95 | 20.63 | 6.73 | 1.19 | 0.29 | 0.03 |
| 506.6 - 495.6 | | 0** | (2) | 100.00 | 99.42 | 97.33 | 95.89 | 92.92 | 89.56 | 85.75 | 76.75 | 56.83 | 28.88 | 8.25 | 1.52 | 0.32 | 0.03 | 0.00 |
| | | | (3) | | | | 100.00 | 99.11 | 97.33 | 94.83 | 93.43 | 87.80 | 73.84 | 20.26 | 3.59 | 0.64 | 0.09 | 0.00 |
| | | | (4) | 100.00 | 95.92 | 90.08 | 83.46 | 77.03 | 70.05 | 64.16 | 52.17 | 24.75 | 3.94 | 0.61 | 0.05 | 0.00 | | |
| Baleshed Landing | 10.0 | 3 | (1) | | 0.00 | 1.07 | 0.57 | 0.18 | 0.49 | 1.03 | 4.54 | 17.92 | 33.02 | 27.28 | 11.36 | 1.96 | 0.46 | 0.12 |
| 495.6 - 485.6 | | 0** | (2) | | 100.00 | 98.93 | 98.35 | 98.17 | 97.68 | 96.65 | 92.11 | 74.20 | 41.18 | 13.90 | 2.54 | 0.58 | 0.12 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.94 | 99.42 | 84.02 | 39.27 | 8.04 | 1.85 | 0.43 | 0.00 |
| | | | (4) | | 100.00 | 91.41 | 88.15 | 87.61 | 86.85 | 85.65 | 80.43 | 43.24 | 16.97 | 2.66 | 0.50 | 0.06 | 0.00 | |
| Ajax Bar | 5.8 | 9 | (1) | | 0.00 | 0.19 | 0.56 | 0.51 | 1.00 | 1.70 | 4.57 | 12.50 | 21.09 | 32.16 | 9.64 | 2.94 | 1.05 | 12.09 |
| 485.6 - 479.8 | | 1** | (2) | | 100.00 | 99.81 | 99.25 | 98.74 | 97.74 | 96.03 | 91.46 | 78.96 | 57.87 | 25.72 | 16.08 | 13.14 | 12.09 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.84 | 98.89 | 28.52 | 24.73 | 14.83 | 8.45 | 0.00 |
| | | | (4) | | 100.00 | 98.31 | 97.54 | 95.21 | 91.52 | 83.91 | 64.62 | 26.66 | 14.25 | 1.60 | 0.25 | 0.00 | | |
| Ajax-Cottonwood | 7.8 | 1 | (1) | | | 0.00 | 0.69 | 0.00 | 0.15 | 0.23 | 1.52 | 9.37 | 16.83 | 48.74 | 18.20 | 3.27 | 0.99 | 0.00 |
| 479.8 - 472.0 | | 0** | (2) | | | 100.00 | 99.31 | 99.31 | 99.16 | 98.93 | 97.41 | 88.04 | 71.21 | 22.47 | 4.27 | 0.99 | 0.00 | |
| | | | (3) | | | 100.00 | 99.31 | 99.31 | 99.16 | 98.93 | 97.41 | 88.04 | 71.21 | 22.47 | 4.27 | 0.99 | 0.00 | |
| | | | (4) | | | 100.00 | 99.31 | 99.31 | 99.16 | 98.93 | 97.41 | 88.04 | 71.21 | 22.47 | 4.27 | 0.99 | 0.00 | |
| Cottonwood Bar | 4.2 | 3 | (1) | | 0.00 | 0.97 | 1.12 | 1.48 | 1.38 | 1.33 | 2.31 | 6.06 | 19.49 | 17.15 | 29.99 | 15.97 | 2.51 | 0.25 |
| 472.0 - 467.8 | | 0** | (2) | | 100.00 | 99.03 | 97.92 | 96.44 | 95.05 | 93.72 | 91.41 | 85.35 | 65.86 | 48.71 | 18.73 | 2.76 | 0.25 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.41 | 96.48 | 93.25 | 49.34 | 7.05 | 0.59 | 0.00 |
| | | | (4) | | 100.00 | 97.09 | 93.75 | 89.31 | 85.16 | 81.16 | 74.33 | 58.69 | 20.51 | 3.13 | 0.65 | 0.29 | 0.07 | 0.00 |

(Continued)



* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

Table 13 (Continued)

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | Sand 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | Silt Clay 0.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| Cottonwood-Belle Is | 6.4 | 5 | (1)* | | | 0.00 | 0.06 | 0.03 | 0.13 | 0.99 | 7.77 | 10.55 | 14.58 | 19.22 | 6.07 | 2.81 | 7.27 | 30.53 |
| 467.8 - 461.4 | | 1** | (2) | | | 100.00 | 99.94 | 99.91 | 99.78 | 98.79 | 91.02 | 80.47 | 65.89 | 46.67 | 40.60 | 37.80 | 30.53 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 97.48 | 95.98 | 94.53 | 92.57 | 84.93 | 51.50 | 0.00 |
| | | | (4) | | | 100.00 | 99.72 | 99.65 | 99.30 | 95.15 | 58.47 | 13.14 | 3.58 | 2.53 | 2.18 | 0.77 | 0.00 | |
| Belle Is-Milliken | 9.6 | 9 | (1) | | 0.00 | 1.48 | 2.16 | 2.78 | 6.01 | 6.78 | 10.80 | 18.52 | 20.77 | 16.39 | 10.77 | 2.59 | 0.70 | 0.24 |
| 461.4 - 451.8 | | 0** | (2) | | 100.00 | 98.52 | 96.36 | 93.59 | 87.58 | 80.80 | 69.99 | 51.47 | 30.70 | 14.31 | 3.54 | 0.95 | 0.24 | 0.00 |
| | | | (3) | | | | | | 100.00 | 99.78 | 98.89 | 97.11 | 94.97 | 68.72 | 21.32 | 6.42 | 1.86 | 0.00 |
| | | | (4) | | 100.00 | 87.52 | 80.21 | 72.29 | 55.30 | 34.15 | 15.09 | 5.30 | 1.58 | 0.51 | 0.09 | 0.00 | | |
| Milliken-Vicksburg | 16.8 | 237 | (1) | 0.00 | 0.42 | 1.93 | 1.80 | 1.57 | 2.03 | 2.63 | 9.16 | 27.48 | 32.45 | 14.62 | 4.74 | 0.91 | 0.23 | 0.03 |
| 451.8 - 435.0 | | 0** | (2) | 100.00 | 99.58 | 97.65 | 95.85 | 94.28 | 92.25 | 89.62 | 80.46 | 52.98 | 20.53 | 5.91 | 1.17 | 0.26 | 0.03 | 0.00 |
| Includes discharge range | | | (3) | | | | | | | | 100.00 | 99.15 | 95.61 | 69.14 | 17.52 | 3.68 | 2.14 | 0.00 |
| | | | (4) | 100.00 | 79.93 | 18.16 | 8.38 | 3.98 | 3.11 | 3.03 | 1.45 | 0.57 | 0.21 | 0.00 | | | | |
| Racetrack-Towhead | 12.2 | 11 | (1) | | 0.00 | 0.41 | 0.33 | 0.22 | 0.30 | 0.61 | 2.96 | 16.72 | 28.28 | 34.10 | 9.11 | 2.64 | 1.95 | 2.38 |
| 435.0 - 422.8 | | 0** | (2) | | 100.00 | 99.59 | 99.27 | 99.04 | 98.74 | 98.13 | 95.17 | 78.45 | 50.17 | 16.07 | 6.96 | 4.32 | 2.38 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.87 | 98.58 | 90.90 | 68.25 | 59.07 | 42.26 | 24.89 | 0.00 |
| | | | (4) | | 100.00 | 95.50 | 92.59 | 91.82 | 90.72 | 88.69 | 81.34 | 45.11 | 9.26 | 1.61 | 0.33 | 0.11 | 0.00 | |
| Pt. Pleasant | 15.4 | 17 | (1) | 0.00 | 2.95 | 0.68 | 0.95 | 0.58 | 0.53 | 0.76 | 3.46 | 10.85 | 17.52 | 24.33 | 21.33 | 9.75 | 4.14 | 2.18 |
| 422.8 - 407.4 | | 0** | (2) | 100.00 | 97.05 | 96.38 | 95.43 | 94.85 | 94.32 | 93.56 | 90.10 | 79.25 | 61.73 | 37.40 | 16.07 | 6.32 | 2.18 | 0.00 |
| | | | (3) | | | | | | | | | 100.00 | 99.54 | 94.92 | 70.06 | 50.00 | 26.02 | 0.00 |
| | | | (4) | 100.00 | 49.87 | 40.98 | 34.63 | 32.35 | 31.58 | 30.90 | 28.17 | 18.97 | 8.27 | 2.22 | 0.25 | 0.05 | 0.00 | |
| Grand Gulf | 12.2 | 4 | (1) | | 0.00 | 0.23 | 0.51 | 0.46 | 0.80 | 1.45 | 5.23 | 19.26 | 30.81 | 12.39 | 18.02 | 9.02 | 1.65 | 0.16 |
| 407.4 - 395.2 | | 0** | (2) | | 100.00 | 99.77 | 99.26 | 98.80 | 98.00 | 96.54 | 91.31 | 72.06 | 41.24 | 28.85 | 10.83 | 1.81 | 0.16 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.59 | 93.48 | 84.93 | 75.76 | 28.41 | 3.23 | 0.51 | 0.00 |
| | | | (4) | | 100.00 | 99.09 | 97.05 | 96.21 | 95.86 | 91.00 | 73.83 | 38.34 | 18.82 | 1.69 | 0.56 | 0.21 | 0.00 | |
| Rodney | 13.8 | 51 | (1) | | 0.00 | 0.25 | 0.42 | 0.39 | 0.71 | 1.18 | 5.16 | 14.51 | 26.13 | 25.18 | 16.94 | 5.47 | 2.10 | 1.54 |
| 395.2 - 381.4 | | 4** | (2) | | 100.00 | 99.75 | 99.33 | 98.94 | 98.23 | 97.05 | 91.89 | 77.38 | 51.25 | 26.07 | 9.13 | 3.66 | 1.56 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.87 | 99.46 | 94.19 | 73.73 | 67.65 | 50.90 | 0.00 |
| | | | (4) | | 100.00 | 95.45 | 90.97 | 82.47 | 73.43 | 65.19 | 48.06 | 17.96 | 1.62 | 0.14 | 0.00 | | | |

(Continued)



* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

Table 13 (Concluded)

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel | | | | | Sand | | | | | | | | | Silt Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| | | | | 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | 0.000 |
| Waterproof | 13.2 | 66 | (1)* | 0.00 | 0.15 | 0.40 | 0.15 | 0.07 | 0.08 | 0.16 | 1.51 | 10.58 | 31.47 | 30.82 | 16.14 | 4.79 | 2.35 | 1.33 |
| 381.4 - 368.2 | | 0** | (2) | 100.00 | 99.85 | 99.45 | 99.30 | 99.23 | 99.15 | 98.99 | 97.48 | 86.90 | 55.43 | 24.61 | 8.47 | 3.68 | 1.33 | 0.00 |
| | | | (3) | | | | | | | | | 100.00 | 99.65 | 98.79 | 92.86 | 74.87 | 34.97 | 0.00 |
| | | | (4) | 100.00 | 90.13 | 88.82 | 86.01 | 85.60 | 85.35 | 84.94 | 78.28 | 41.69 | 11.40 | 1.09 | 0.25 | 0.00 | | |
| Natchez | 13.0 | 298 | (1) | 0.00 | 0.09 | 0.64 | 0.38 | 0.20 | 0.32 | 0.84 | 5.68 | 22.81 | 30.65 | 25.63 | 9.08 | 2.27 | 0.95 | 0.46 |
| 368.2 - 355.2 | | 0** | (2) | 100.00 | 99.91 | 99.27 | 98.89 | 98.69 | 98.37 | 97.53 | 91.85 | 69.04 | 38.39 | 12.76 | 3.68 | 1.41 | 0.46 | 0.00 |
| Includes discharge range | | | (3) | | | | | | | | | 100.00 | 99.83 | 95.25 | 79.27 | 53.58 | 27.27 | 0.00 |
| | | | (4) | 100.00 | 83.19 | 58.93 | 51.03 | 49.84 | 47.85 | 44.77 | 30.95 | 9.95 | 1.54 | 0.11 | 0.00 | | | |
| St. Catherine | 16.6 | 80 | (1) | | 0.00 | 0.13 | 0.21 | 0.31 | 0.40 | 0.46 | 1.97 | 9.66 | 22.15 | 34.27 | 19.42 | 4.61 | 2.89 | 3.52 |
| 355.2 - 338.6 | | 1** | (2) | | 100.00 | 99.87 | 99.66 | 99.35 | 98.95 | 98.49 | 96.52 | 86.86 | 64.71 | 30.44 | 11.02 | 6.41 | 3.52 | 0.00 |
| | | | (3) | | | | | | | | | 100.00 | 99.84 | 96.62 | 92.75 | 79.71 | 41.13 | 0.00 |
| | | | (4) | | 100.00 | 91.60 | 90.81 | 89.95 | 84.24 | 72.90 | 48.53 | 15.31 | 2.43 | 1.01 | 0.09 | 0.00 | | |
| Bougere | 18.2 | 61 | (1) | 0.00 | 0.39 | 0.61 | 0.65 | 0.68 | 0.97 | 1.64 | 6.42 | 16.90 | 28.65 | 24.10 | 10.28 | 4.02 | 1.66 | 3.03 |
| 338.6 - 320.4 | | 1** | (2) | 100.00 | 99.61 | 99.00 | 98.35 | 97.67 | 96.70 | 95.06 | 88.64 | 71.74 | 43.09 | 18.99 | 8.71 | 4.69 | 3.03 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.72 | 99.31 | 96.70 | 76.20 | 50.00 | 45.00 | 0.00 |
| | | | (4) | 100.00 | 87.55 | 80.01 | 74.43 | 68.03 | 60.43 | 52.56 | 20.60 | 3.75 | 1.71 | 0.94 | 0.19 | 0.00 | | |

* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.
** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

Table 14

Mechanical Analysis of Material from Bed of Mississippi River, Vicksburg District, for Calendar Year 1973

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | Sand 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | Silt Clay 0.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| Cessions-Henrico | 10.0 | 19 | (1)* | | 0.00 | 0.93 | 0.52 | 0.28 | 0.73 | 1.69 | 7.86 | 26.86 | 32.99 | 17.58 | 7.27 | 2.39 | 0.74 | 0.17 |
| 616.0 - 606.0 | | 0** | (2) | | 100.00 | 99.07 | 98.55 | 98.27 | 97.54 | 95.85 | 87.99 | 61.13 | 28.15 | 10.56 | 3.30 | 0.90 | 0.17 | 0.00 |
| | | | (3) | | | | | | 100.00 | 99.91 | 99.64 | 97.36 | 95.81 | 88.68 | 45.27 | 14.11 | 2.79 | 0.00 |
| | | | (4) | | 100.00 | 90.39 | 87.35 | 85.30 | 80.14 | 70.67 | 45.51 | 17.39 | 3.53 | 0.71 | 0.14 | 0.00 | | |
| Smith Pt.-Terrene | 11.8 | 21 | (1) | | 0.00 | 1.00 | 0.67 | 0.66 | 1.46 | 2.94 | 8.95 | 21.54 | 17.56 | 12.53 | 10.69 | 2.50 | 0.36 | 19.13 |
| 606.0 - 594.2 | | 4** | (2) | | 100.00 | 99.00 | 98.33 | 97.67 | 96.22 | 93.27 | 84.32 | 62.79 | 45.22 | 32.69 | 22.00 | 19.49 | 19.13 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 98.93 | 95.32 | 90.01 | 79.10 | 22.32 | 2.26 | 0.69 | 0.00 |
| | | | (4) | | 100.00 | 92.04 | 90.71 | 88.35 | 81.09 | 69.40 | 31.90 | 6.43 | 0.92 | 0.34 | 0.16 | 0.00 | | |
| Terrene-Ozark | 13.2 | 47 | (1) | 0.00 | 0.43 | 0.21 | 0.26 | 0.25 | 0.64 | 0.95 | 3.60 | 15.04 | 30.97 | 24.02 | 9.43 | 2.07 | 1.27 | 10.85 |
| 594.2 - 581.0 | | 4** | (2) | 100.00 | 99.57 | 99.36 | 99.10 | 98.85 | 98.21 | 97.26 | 93.65 | 78.61 | 47.64 | 23.63 | 14.19 | 12.12 | 10.85 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.60 | 95.70 | 93.06 | 87.67 | 77.75 | 51.76 | 0.00 |
| | | | (4) | 100.00 | 79.91 | 79.91 | 79.96 | 77.81 | 75.71 | 71.21 | 58.92 | 22.34 | 2.47 | 1.24 | 0.28 | 0.00 | | |
| Ozark-Eutaw | 15.1 | 312 | (1) | 0.00 | 0.80 | 0.99 | 0.62 | 0.53 | 0.99 | 1.60 | 5.44 | 20.17 | 34.20 | 24.31 | 6.89 | 1.32 | 0.39 | 1.73 |
| 581.0 - 565.9 | | 1** | (2) | 100.00 | 99.20 | 98.21 | 97.59 | 97.06 | 96.07 | 94.47 | 89.03 | 68.86 | 34.66 | 10.35 | 3.46 | 2.14 | 1.75 | 0.00 |
| Includes discharge range | | | (3) | | | | | | | | 100.00 | 99.93 | 99.46 | 86.03 | 38.49 | 14.43 | 9.82 | 0.00 |
| | | | (4) | 100.00 | 26.84 | 24.88 | 22.57 | 16.86 | 13.54 | 11.40 | 8.08 | 2.21 | 0.35 | 0.07 | 0.00 | | | |
| Choctaw Bar | 15.5 | 38 | (1) | 0.00 | 0.47 | 0.77 | 0.75 | 0.57 | 0.65 | 1.09 | 4.98 | 19.75 | 33.60 | 28.58 | 7.01 | 1.37 | 0.29 | 0.13 |
| 565.9 - 550.4 | | 0** | (2) | 100.00 | 99.53 | 98.76 | 98.02 | 97.45 | 96.80 | 95.71 | 90.72 | 70.97 | 37.37 | 8.80 | 1.78 | 0.41 | 0.13 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 98.53 | 94.42 | 50.00 | 12.91 | 3.11 | 2.54 | 0.00 |
| | | | (4) | 100.00 | 82.21 | 81.04 | 76.76 | 76.51 | 76.51 | 71.81 | 45.30 | 7.75 | 1.04 | 0.41 | 0.08 | 0.00 | | |
| Greenville | 19.2 | 39 | (1) | 0.00 | 1.56 | 1.74 | 1.87 | 1.69 | 1.61 | 1.69 | 4.71 | 17.24 | 29.50 | 24.93 | 10.92 | 2.09 | 0.37 | 0.07 |
| 550.4 - 531.2 | | 0** | (2) | 100.00 | 98.44 | 96.70 | 94.83 | 93.14 | 91.53 | 89.84 | 85.13 | 67.88 | 38.39 | 13.45 | 2.53 | 0.44 | 0.07 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.83 | 98.72 | 91.89 | 26.96 | 4.10 | 0.80 | 0.00 |
| | | | (4) | 100.00 | 62.24 | 54.35 | 41.32 | 32.85 | 15.60 | 9.59 | 5.90 | 3.03 | 0.99 | 0.41 | 0.10 | 0.00 | | |
| Lakeport Towhead | 7.0 | 6 | (1) | | 0.00 | 0.89 | 0.62 | 0.73 | 0.60 | 0.88 | 2.86 | 12.63 | 29.68 | 37.89 | 10.40 | 1.88 | 0.88 | 0.07 |
| 531.2 - 524.2 | | 0** | (2) | | 100.00 | 99.11 | 98.50 | 97.76 | 97.16 | 96.28 | 93.42 | 80.79 | 51.11 | 13.23 | 2.83 | 0.95 | 0.07 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.63 | 97.53 | 88.39 | 23.58 | 7.59 | 2.56 | 0.37 | 0.00 |
| | | | (4) | | 100.00 | 94.67 | 93.69 | 93.10 | 92.11 | 90.63 | 85.31 | 69.53 | 23.86 | 5.97 | 0.74 | 0.25 | 0.00 | |

(Continued)

* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

Table 14 (Continued)

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel | | | | | Sand | | | | | | | | | Silt Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| | | | | 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | 0.000 |
| Kentucky Bend | 9.4 | 8 | (1)* | | | 0.00 | 0.15 | 0.20 | 0.58 | 1.28 | 3.81 | 16.97 | 37.85 | 30.29 | 6.37 | 1.06 | 0.43 | 1.01 |
| 524.2 - 514.8 | | 0** | (2) | | | 100.00 | 99.85 | 99.65 | 99.07 | 97.80 | 93.99 | 77.02 | 39.17 | 8.88 | 2.50 | 1.44 | 1.01 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 98.63 | 83.52 | 16.09 | 8.05 | 5.30 | 4.27 | 0.00 |
| | | | (4) | | | 100.00 | 98.81 | 97.85 | 95.14 | 90.61 | 78.58 | 42.44 | 9.95 | 2.47 | 0.56 | 0.00 | | |
| Cracraft-Carolina | 8.2 | 6 | (1) | | 0.00 | 1.39 | 0.74 | 0.80 | 1.90 | 3.03 | 7.19 | 16.75 | 30.15 | 26.18 | 8.58 | 1.38 | 0.64 | 1.25 |
| 514.8 - 506.6 | | 0** | (2) | | 100.00 | 98.61 | 97.87 | 97.06 | 95.17 | 92.14 | 84.95 | 68.20 | 38.04 | 11.86 | 3.27 | 1.89 | 1.25 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.27 | 95.37 | 77.49 | 27.97 | 13.44 | 9.77 | 7.27 | 0.00 |
| | | | (4) | | 100.00 | 94.34 | 93.67 | 92.67 | 87.35 | 79.18 | 56.70 | 16.49 | 3.83 | 1.08 | 0.25 | 0.00 | | |
| Carolina-Baleshed | 11.0 | 20 | (1) | 0.00 | 0.96 | 1.88 | 1.25 | 0.63 | 0.51 | 0.70 | 3.12 | 14.81 | 29.08 | 30.00 | 10.34 | 2.82 | 1.59 | 2.31 |
| 506.6 - 495.6 | | 0** | (2) | 100.00 | 99.04 | 97.16 | 95.91 | 95.28 | 94.77 | 94.06 | 90.95 | 76.14 | 47.06 | 17.06 | 6.72 | 3.90 | 2.31 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.73 | 99.12 | 94.67 | 71.86 | 51.28 | 29.22 | 0.00 |
| | | | (4) | 100.00 | 80.87 | 72.74 | 65.81 | 62.80 | 61.60 | 60.84 | 56.94 | 35.78 | 14.17 | 1.58 | 0.36 | 0.00 | | |
| Baleshed Landing | 10.0 | 8 | (1) | | 0.00 | 1.07 | 0.57 | 0.18 | 0.49 | 1.03 | 4.54 | 17.92 | 33.02 | 27.28 | 11.36 | 1.96 | 0.46 | 0.12 |
| 495.6 - 485.6 | | 0** | (2) | | 100.0 | 98.93 | 98.35 | 98.17 | 97.68 | 96.65 | 92.11 | 74.20 | 41.18 | 13.90 | 2.54 | 0.58 | 0.12 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.94 | 99.42 | 84.02 | 39.27 | 8.04 | 1.85 | 0.43 | 0.00 |
| | | | (4) | | 100.00 | 91.41 | 88.15 | 87.61 | 86.85 | 85.65 | 80.43 | 43.24 | 16.97 | 2.66 | 0.50 | 0.06 | 0.00 | |
| Ajax Bar | 5.8 | 17 | (1) | | 0.00 | 1.16 | 0.60 | 0.77 | 1.36 | 1.64 | 5.03 | 15.83 | 25.03 | 29.26 | 15.08 | 3.53 | 0.66 | 0.04 |
| 485.6 - 479.8 | | 0** | (2) | | 100.00 | 98.84 | 98.24 | 97.47 | 96.11 | 94.47 | 89.44 | 73.61 | 48.58 | 19.31 | 4.23 | 0.70 | 0.04 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.84 | 98.62 | 96.12 | 65.45 | 21.93 | 3.32 | 0.35 | 0.00 |
| | | | (4) | | 100.00 | 83.04 | 79.48 | 78.96 | 77.74 | 74.83 | 56.60 | 21.97 | 4.40 | 0.88 | 0.18 | 0.00 | | |
| Ajax-Cottonwood | 7.8 | 6 | (1) | 0.00 | 1.07 | 2.19 | 0.88 | 0.63 | 0.90 | 1.36 | 4.14 | 9.51 | 6.41 | 4.96 | 16.70 | 22.06 | 9.91 | 19.28 |
| 479.8 - 472.0 | | 1** | (2) | 100.00 | 98.93 | 96.74 | 95.86 | 95.23 | 94.33 | 92.96 | 88.82 | 79.31 | 72.91 | 67.95 | 51.25 | 29.19 | 19.28 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.80 | 99.49 | 98.53 | 93.88 | 69.08 | 26.83 | 6.08 | 0.00 |
| | | | (4) | 100.00 | 93.59 | 80.42 | 75.15 | 72.26 | 69.62 | 66.20 | 53.91 | 23.18 | 7.64 | 3.07 | 1.58 | 0.53 | 0.00 | 0.00 |
| Cottonwood Bar | 4.2 | 7 | (1) | 0.00 | 1.50 | 0.56 | 0.33 | 0.25 | 0.35 | 1.06 | 4.64 | 13.53 | 21.82 | 31.68 | 19.28 | 4.36 | 0.64 | 0.02 |
| 472.0 - 467.8 | | 0** | (2) | 100.00 | 98.50 | 97.94 | 97.61 | 97.37 | 97.02 | 95.96 | 91.31 | 77.79 | 55.97 | 24.29 | 5.01 | 0.65 | 0.02 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.87 | 99.28 | 97.95 | 77.07 | 26.82 | 3.48 | 0.11 | 0.00 |
| | | | (4) | 100.00 | 89.48 | 86.98 | 84.89 | 83.97 | 82.30 | 76.79 | 53.26 | 16.19 | 2.84 | 0.83 | 0.42 | 0.00 | | |

(Continued)



* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

Table 14 (Continued)

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel | | | | | | | | Sand | | | | | | Silt Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| | | | | 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | 0.000 |
| Cottonwood- | 6.4 | 9 | (1)* | | 0.00 | 0.83 | 1.04 | 1.71 | 3.27 | 2.51 | 4.92 | 19.36 | 31.47 | 21.49 | 8.46 | 2.40 | 0.81 | 1.74 |
| Belle Is. | | 0** | (2) | | 100.00 | 99.17 | 98.13 | 96.41 | 93.14 | 90.63 | 85.72 | 66.36 | 34.89 | 13.40 | 4.95 | 2.55 | 1.74 | 0.00 |
| 467.8 - 461.4 | | | (3) | | | | | | | | 100.00 | 98.91 | 87.09 | 69.96 | 32.86 | 20.07 | 14.86 | 0.00 |
| | | | (4) | | 100.00 | 94.61 | 87.86 | 76.51 | 55.71 | 45.07 | 33.50 | 16.47 | 3.76 | 0.57 | 0.14 | 0.06 | 0.00 | |
| Belle Is. - | 9.6 | 2 | (1) | 0.00 | 17.95 | 8.43 | 3.88 | 4.07 | 2.63 | 2.37 | 6.90 | 17.72 | 23.70 | 10.54 | 1.21 | 0.40 | 0.18 | 0.00 |
| Milliken | | 0** | (2) | 100.00 | 82.05 | 73.61 | 69.73 | 65.66 | 63.03 | 60.66 | 53.75 | 36.03 | 12.33 | 1.79 | 0.58 | 0.18 | 0.00 | |
| | | | (3) | | | 100.00 | 99.73 | 99.47 | 98.40 | 96.12 | 86.36 | 59.63 | 19.12 | 2.01 | 0.75 | 0.22 | 0.00 | |
| | | | (4) | 100.00 | 64.09 | 47.23 | 39.73 | 31.86 | 27.66 | 25.19 | 21.14 | 12.44 | 5.55 | 1.57 | 0.40 | 0.13 | 0.00 | |
| Milliken-Vicksburg | 16.8 | 397 | (1) | 0.00 | 2.27 | 3.62 | 2.90 | 2.43 | 3.29 | 4.83 | 14.08 | 30.69 | 27.17 | 6.77 | 1.50 | 0.32 | 0.09 | 0.02 |
| 451.8 - 435.0 | | 0** | (2) | 100.00 | 97.73 | 94.11 | 91.21 | 88.78 | 85.49 | 80.66 | 66.58 | 35.89 | 8.72 | 1.95 | 0.45 | 0.13 | 0.04 | 0.00 |
| Includes discharge range | | | (3) | | | | | | | | 100.00 | 99.47 | 98.82 | 80.64 | 21.60 | 3.04 | 0.77 | 0.00 |
| | | | (4) | 100.00 | 21.94 | 4.18 | 3.09 | 0.22 | 0.18 | 0.18 | 0.18 | 0.08 | 0.00 | | | | | |
| Racetrack-Towhead | 12.2 | 10 | (1) | | 0.00 | 0.36 | 0.19 | 0.11 | 0.18 | 0.22 | 1.93 | 10.87 | 18.79 | 35.18 | 18.59 | 7.29 | 3.55 | 2.74 |
| 435.0 - 422.8 | | 0** | (2) | | 100.00 | 99.64 | 99.45 | 99.34 | 99.15 | 98.94 | 97.00 | 86.14 | 67.35 | 32.17 | 13.58 | 6.29 | 2.74 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.90 | 98.51 | 86.76 | 57.59 | 40.33 | 22.62 | 0.00 |
| | | | (4) | | 100.00 | 96.38 | 95.10 | 94.23 | 93.56 | 92.49 | 84.51 | 61.17 | 9.96 | 1.39 | 0.24 | 0.08 | 0.00 | |
| Pt. Pleasant | 15.4 | 12 | (1) | | 0.00 | 0.54 | 0.59 | 0.54 | 0.69 | 0.88 | 3.49 | 10.33 | 17.53 | 15.84 | 9.40 | 4.69 | 1.77 | 33.71 |
| 422.8 - 407.4 | | 4** | (2) | | 100.00 | 99.46 | 98.87 | 98.32 | 97.63 | 96.76 | 93.27 | 82.94 | 65.41 | 49.57 | 40.17 | 35.48 | 33.71 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.88 | 98.58 | 95.87 | 89.94 | 56.65 | 20.39 | 3.61 | 0.00 |
| | | | (4) | | 100.00 | 93.51 | 88.83 | 83.61 | 77.66 | 72.11 | 55.38 | 33.65 | 15.38 | 3.09 | 0.19 | 0.10 | 0.00 | |
| Grand Gulf | 12.2 | 5 | (1) | | 0.00 | 2.19 | 1.14 | 1.37 | 1.60 | 1.47 | 4.12 | 16.58 | 32.33 | 26.44 | 10.32 | 1.57 | 0.54 | 0.33 |
| 407.4 - 395.2 | | 0** | (2) | | 100.00 | 97.81 | 96.67 | 95.30 | 93.70 | 92.24 | 88.12 | 71.54 | 39.20 | 12.76 | 2.44 | 0.87 | 0.33 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.50 | 92.05 | 77.86 | 49.43 | 8.70 | 2.40 | 0.92 | 0.00 |
| | | | (4) | | 100.00 | 89.06 | 83.36 | 77.36 | 70.15 | 64.07 | 51.99 | 22.52 | 4.24 | 1.20 | 0.25 | 0.08 | 0.00 | |
| Rodney | 13.8 | 14 | (1) | | 0.00 | 0.24 | 0.19 | 0.09 | 0.17 | 0.49 | 4.15 | 21.86 | 26.59 | 23.80 | 16.21 | 3.84 | 1.22 | 1.17 |
| 395.2 - 381.4 | | 0** | (2) | | 100.00 | 99.76 | 99.58 | 99.49 | 99.31 | 98.83 | 94.68 | 72.82 | 46.23 | 22.43 | 6.22 | 2.39 | 1.17 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.86 | 98.54 | 70.40 | 26.53 | 18.37 | 15.31 | 0.00 |
| | | | (4) | | 100.00 | 96.66 | 95.61 | 95.22 | 95.22 | 95.03 | 84.11 | 33.51 | 3.73 | 0.18 | 0.00 | | | |

(Continued)

* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.
** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

Table 14 (Concluded)

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | Sand 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | Silt Clay 0.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| Waterproof | 13.2 | 6 | (1)* | | 0.00 | 0.27 | 0.79 | 0.15 | 0.23 | 0.39 | 2.69 | 9.97 | 25.41 | 24.84 | 28.05 | 5.71 | 1.16 | 0.34 |
| 381.4 - 368.2 | | 0** | (2) | | 100.00 | 99.73 | 98.93 | 98.79 | 98.56 | 98.17 | 95.48 | 85.51 | 60.10 | 35.26 | 7.21 | 1.50 | 0.34 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.93 | 99.57 | 98.20 | 81.22 | 19.56 | 4.46 | 1.11 | 0.00 |
| | | | (4) | | 100.00 | 98.37 | 95.84 | 95.67 | 95.59 | 94.73 | 87.19 | 67.43 | 13.88 | 2.45 | 0.33 | 0.08 | 0.00 | |
| Natchez | 13.0 | 384 | (1) | 0.00 | 0.93 | 1.96 | 1.01 | 0.61 | 0.72 | 1.23 | 7.25 | 30.28 | 36.69 | 15.22 | 3.33 | 0.55 | 0.20 | 0.02 |
| 368.2 - 355.2 | | 0** | (2) | 100.00 | 99.07 | 97.11 | 96.10 | 95.49 | 94.77 | 93.54 | 86.29 | 56.01 | 19.32 | 4.10 | 0.77 | 0.22 | 0.02 | 0.00 |
| Includes discharge range | | | (3) | | | | | | | 100.00 | 99.62 | 99.23 | 96.65 | 45.88 | 7.44 | 3.92 | 0.88 | 0.00 |
| | | | (4) | 100.00 | 38.67 | 14.30 | 14.30 | 14.24 | 14.17 | 14.11 | 13.39 | 9.01 | 2.36 | 0.33 | 0.00 | | | |
| St. Catherine | 16.6 | 13 | (1) | 0.00 | 1.89 | 0.72 | 0.88 | 0.73 | 0.91 | 1.17 | 4.17 | 12.88 | 22.22 | 28.08 | 16.32 | 1.99 | 0.29 | 7.77 |
| 355.2 - 338.6 | | 1** | (2) | 100.00 | 98.11 | 97.40 | 96.52 | 95.79 | 94.89 | 93.72 | 89.55 | 76.68 | 54.46 | 26.37 | 10.05 | 8.06 | 7.77 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.51 | 96.85 | 75.87 | 8.80 | 1.29 | 0.50 | 0.00 |
| | | | (4) | 100.00 | 75.49 | 75.49 | 72.86 | 72.75 | 69.62 | 61.30 | 42.39 | 27.62 | 3.39 | 0.51 | 0.10 | 0.00 | | |
| Bougere | 18.2 | 19 | (1) | | 0.00 | 0.32 | 0.96 | 1.17 | 1.71 | 1.82 | 4.85 | 18.35 | 22.89 | 22.59 | 20.19 | 4.15 | 0.80 | 0.20 |
| 338.6 - 320.4 | | 0** | (2) | | 100.00 | 99.68 | 98.72 | 97.55 | 95.84 | 94.02 | 89.17 | 70.81 | 47.92 | 25.34 | 5.15 | 1.00 | 0.20 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.61 | 97.67 | 89.71 | 21.40 | 5.21 | 1.24 | 0.00 |
| | | | (4) | | 100.00 | 93.95 | 78.91 | 61.47 | 44.70 | 32.66 | 19.46 | 6.05 | 1.37 | 0.66 | 0.34 | 0.09 | 0.00 | |

* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

(Sheet 4 of 4)

Table 15

Mechanical Analysis of Material from Bed of Mississippi River, Vicksburg District, for Calendar Year 1974

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel | | | | | Sand | | | | | | | | | Silt Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| | | | | 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | 0.000 |
| Cessions-Henrico | 10.0 | 7 | (1)* | | | 0.00 | 0.07 | 0.08 | 0.11 | 0.31 | 2.87 | 9.71 | 26.93 | 32.90 | 11.57 | 1.00 | 0.10 | 14.34 |
| 616.0 - 606.0 | | 1** | (2) | | | 100.00 | 99.93 | 99.85 | 99.74 | 99.43 | 96.56 | 86.85 | 59.92 | 27.01 | 15.44 | 14.44 | 14.34 | 0.00 |
| | | | (3) | | | | | | 100.00 | 99.91 | 99.82 | 99.37 | 94.52 | 39.77 | 3.23 | 0.36 | 0.22 | 0.00 |
| | | | (4) | | | 100.00 | 99.52 | 99.36 | 99.04 | 97.85 | 86.54 | 54.06 | 33.20 | 5.98 | 0.33 | 0.00 | | |
| Smith Pt.-Terrene | 11.8 | 6 | (1) | | 0.00 | 1.94 | 0.87 | 1.16 | 2.04 | 2.07 | 4.65 | 12.26 | 15.14 | 11.21 | 13.51 | 1.67 | 0.11 | 33.38 |
| 606.0 - 594.2 | | 2** | (2) | | 100.00 | 98.06 | 97.19 | 96.03 | 94.00 | 91.93 | 87.28 | 75.02 | 59.88 | 48.67 | 35.16 | 33.49 | 33.38 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.88 | 99.77 | 99.41 | 83.12 | 9.38 | 0.59 | 0.12 | 0.00 |
| | | | (4) | | 100.00 | 88.38 | 83.13 | 76.46 | 65.67 | 55.25 | 36.06 | 15.59 | 5.55 | 1.35 | 0.27 | 0.09 | 0.00 | |
| Terrene-Ozark | 13.2 | 16 | (1) | | 0.00 | 0.29 | 0.76 | 1.07 | 1.78 | 1.77 | 5.26 | 17.97 | 26.16 | 10.58 | 5.87 | 1.93 | 0.32 | 26.22 |
| 594.2 - 581.0 | | 4** | (2) | | 100.00 | 99.71 | 98.94 | 97.87 | 96.09 | 94.31 | 89.05 | 71.08 | 44.93 | 34.35 | 28.48 | 26.55 | 26.22 | 0.00 |
| | | | (3) | | | | | | 100.00 | 99.92 | 99.70 | 97.93 | 91.19 | 71.68 | 33.85 | 14.34 | 13.82 | 0.00 |
| | | | (4) | | 100.00 | 95.95 | 85.68 | 71.24 | 46.83 | 29.73 | 10.03 | 1.57 | 0.54 | 0.24 | 0.10 | 0.00 | | |
| Ozark-Eutaw | 15.1 | 284 | (1) | 0.00 | 1.33 | 1.43 | 1.65 | 1.74 | 2.19 | 1.83 | 4.50 | 12.91 | 23.43 | 33.32 | 11.60 | 2.69 | 0.76 | 0.65 |
| 581.0 - 565.9 | | 0** | (2) | 100.00 | 98.67 | 97.24 | 95.59 | 93.85 | 91.66 | 89.83 | 85.33 | 72.42 | 48.99 | 15.67 | 4.07 | 1.38 | 0.62 | 0.00 |
| includes discharge range | | | (3) | | | | | | | | 100.00 | 99.87 | 98.31 | 87.00 | 78.52 | 66.91 | 45.48 | 0.00 |
| | | | (4) | 100.00 | 2.36 | 2.36 | 2.00 | 1.45 | 1.27 | 1.09 | 0.91 | 0.54 | 0.09 | 0.00 | | | | |
| Choctaw Bar | 15.5 | 22 | (1) | | 0.00 | 0.44 | 0.58 | 0.43 | 0.59 | 0.72 | 2.72 | 12.50 | 29.77 | 29.15 | 11.55 | 2.82 | 1.73 | 6.99 |
| 565.9 - 550.4 | | 1** | (2) | | 100.00 | 99.56 | 98.97 | 98.54 | 97.96 | 97.24 | 94.52 | 82.02 | 52.25 | 23.10 | 11.54 | 8.72 | 6.99 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 98.82 | 96.76 | 85.25 | 57.37 | 44.87 | 32.61 | 0.00 |
| | | | (4) | | 100.00 | 93.31 | 82.03 | 73.73 | 65.08 | 59.24 | 47.37 | 25.34 | 5.85 | 0.85 | 0.17 | 0.08 | 0.00 | |
| Greenville | 19.2 | 9 | (1) | | | 0.00 | 0.03 | 0.22 | 0.70 | 1.16 | 3.79 | 10.10 | 20.50 | 31.56 | 19.41 | 4.93 | 1.30 | 6.27 |
| 550.4 - 531.2 | | 0** | (2) | | | 100.00 | 99.97 | 99.76 | 99.06 | 97.90 | 94.11 | 84.01 | 63.51 | 31.95 | 12.54 | 7.57 | 6.27 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.91 | 99.74 | 98.28 | 77.64 | 50.14 | 43.58 | 34.84 | 0.00 |
| | | | (4) | | | 100.00 | 99.76 | 99.15 | 96.43 | 93.37 | 82.70 | 58.56 | 28.07 | 8.84 | 1.14 | 0.10 | 0.00 | |
| Lakeport Towhead | 7.0 | 18 | (1) | | 0.00 | 2.05 | 0.73 | 0.14 | 0.13 | 0.20 | 1.37 | 11.88 | 34.68 | 28.94 | 13.90 | 4.47 | 1.17 | 0.34 |
| 531.2 - 524.2 | | 0** | (2) | | 100.00 | 97.95 | 97.22 | 97.08 | 96.95 | 96.75 | 95.38 | 83.50 | 48.82 | 19.88 | 5.97 | 1.51 | 0.34 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.72 | 98.93 | 97.01 | 88.31 | 43.77 | 12.47 | 2.47 | 0.00 |
| | | | (4) | | 100.00 | 63.09 | 59.37 | 57.78 | 57.04 | 56.37 | 55.27 | 48.74 | 18.59 | 3.60 | 0.43 | 0.05 | 0.00 | |

(Continued)

* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.
** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

Table 15 (Continued)

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | Sand 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | Silt Clay 0.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| Kentucky Bend | 9.4 | 9 | (1)* | | 0.00 | 0.33 | 1.38 | 0.68 | 0.84 | 1.36 | 5.31 | 17.76 | 32.67 | 27.32 | 10.03 | 1.61 | 0.20 | 0.51 |
| 524.2 - 514.8 | | 0** | (2) | | 100.00 | 99.67 | 98.29 | 97.61 | 96.77 | 95.41 | 90.10 | 72.34 | 39.67 | 12.35 | 2.33 | 0.71 | 0.51 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.94 | 99.52 | 94.59 | 37.40 | 11.65 | 4.13 | 3.97 | 0.00 |
| | | | (4) | | 100.00 | 97.03 | 94.36 | 90.21 | 85.93 | 82.67 | 65.73 | 24.09 | 3.12 | 0.73 | 0.21 | 0.07 | 0.00 | |
| Cracraft-Carolina | 8.2 | 5 | (1) | | | 0.00 | 0.30 | 0.05 | 0.06 | 0.08 | 0.89 | 8.61 | 21.56 | 34.43 | 11.52 | 1.71 | 0.54 | 20.24 |
| 514.8 - 506.6 | | 1** | (2) | | | 100.00 | 99.70 | 99.65 | 99.59 | 99.51 | 98.62 | 90.01 | 68.45 | 34.02 | 22.49 | 20.78 | 20.24 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.69 | 96.34 | 89.49 | 27.03 | 4.73 | 1.80 | 0.63 | 0.00 |
| | | | (4) | | | 100.00 | 98.92 | 98.83 | 98.65 | 98.56 | 97.06 | 69.79 | 11.94 | 2.94 | 1.21 | 0.56 | 0.00 | |
| Carolina-Baleshed | 11.0 | 20 | (1) | 0.00 | 0.63 | 0.40 | 1.17 | 1.44 | 2.45 | 2.75 | 6.73 | 16.88 | 21.41 | 22.28 | 12.50 | 4.36 | 1.31 | 5.70 |
| 506.6 - 495.6 | | 1** | (2) | 100.00 | 99.37 | 98.98 | 97.80 | 96.37 | 93.92 | 91.17 | 84.44 | 67.55 | 46.14 | 23.87 | 11.36 | 7.01 | 5.70 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.76 | 99.20 | 97.45 | 71.82 | 27.47 | 9.16 | 0.00 |
| | | | (4) | 100.00 | 91.27 | 90.43 | 88.97 | 82.22 | 74.10 | 65.59 | 45.15 | 18.77 | 5.16 | 0.62 | 0.09 | 0.04 | 0.00 | |
| Baleshed Landing | 10.0 | 10 | (1) | | 0.00 | 1.15 | 0.98 | 1.06 | 1.69 | 2.26 | 7.20 | 25.13 | 33.42 | 17.68 | 8.20 | 0.87 | 0.19 | 0.16 |
| 495.6 - 485.6 | | 0** | (2) | | 100.00 | 98.85 | 97.87 | 96.81 | 95.11 | 92.86 | 85.65 | 60.52 | 27.11 | 9.42 | 1.22 | 0.35 | 0.16 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.36 | 94.12 | 78.87 | 50.53 | 5.20 | 2.00 | 0.70 | 0.00 |
| | | | (4) | | 100.00 | 88.50 | 85.76 | 82.82 | 75.50 | 65.30 | 45.11 | 17.59 | 1.71 | 0.34 | 0.07 | 0.00 | | |
| Ajax Bar | 5.8 | 28 | (1) | | 0.00 | 1.87 | 2.21 | 1.52 | 1.84 | 1.55 | 3.79 | 13.59 | 28.95 | 26.04 | 10.87 | 2.09 | 1.00 | 4.67 |
| 485.6 - 479.8 | | 1** | (2) | | 100.00 | 98.13 | 95.92 | 94.40 | 92.57 | 91.01 | 87.22 | 73.63 | 44.68 | 18.64 | 7.77 | 5.68 | 4.67 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.84 | 99.37 | 97.51 | 79.43 | 70.21 | 49.65 | 25.53 | 0.00 |
| | | | (4) | | 100.00 | 59.69 | 35.61 | 21.94 | 17.55 | 16.12 | 13.88 | 8.78 | 3.27 | 1.22 | 0.19 | 0.00 | | |
| Ajax-Cottonwood | 7.8 | 7 | (1) | 0.00 | 0.19 | 0.00 | 1.75 | 0.58 | 1.91 | 1.70 | 4.05 | 8.95 | 14.64 | 6.56 | 4.81 | 5.08 | 3.12 | 46.66 |
| 479.8 - 472.0 | | 3** | (2) | 100.00 | 99.81 | 99.81 | 98.06 | 97.48 | 95.57 | 93.87 | 89.82 | 80.87 | 66.22 | 59.67 | 54.85 | 49.77 | 46.66 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.80 | 99.49 | 98.98 | 96.11 | 73.57 | 42.01 | 21.41 | 0.00 |
| | | | (4) | 100.00 | 98.64 | 98.64 | 93.18 | 90.97 | 81.36 | 74.64 | 61.86 | 32.76 | 12.78 | 4.65 | 0.47 | 0.06 | 0.00 | 0.00 |
| Cottonwood Bar | 4.2 | 7 | (1) | | | 0.00 | 0.28 | 0.38 | 0.87 | 1.42 | 5.53 | 18.12 | 40.13 | 24.38 | 7.33 | 1.30 | 0.17 | 0.10 |
| 472.0 - 467.3 | | 0** | (2) | | | 100.00 | 99.72 | 99.34 | 98.47 | 97.05 | 91.52 | 73.40 | 33.27 | 8.89 | 1.57 | 0.26 | 0.10 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.79 | 96.19 | 95.46 | 43.61 | 7.53 | 0.72 | 0.12 | 0.00 |
| | | | (4) | | | 100.00 | 99.12 | 97.70 | 94.83 | 89.67 | 70.40 | 30.12 | 7.44 | 1.23 | 0.20 | 0.10 | 0.09 | 0.00 |

(Continued)

* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

Table 15 (Continued)

| Reach Mile AHP | Reach Length in Mi. | No. of Samples | | Gravel | | | | | Sand | | | | | | | | | Silt Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| | | | | 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | 0.000 |
| Cottonwood- | 6.4 | 11 | (1)* | 0.00 | 0.55 | 1.02 | 1.95 | 1.18 | 2.40 | 3.12 | 11.02 | 22.02 | 21.59 | 18.03 | 6.44 | 1.15 | 0.27 | 9.27 |
| Belle Is. | | 1** | (2) | 100.00 | 99.45 | 98.42 | 96.48 | 95.30 | 92.90 | 89.78 | 78.76 | 56.74 | 35.15 | 17.13 | 10.69 | 9.53 | 9.20 | 0.00 |
| 467.8 - 461.4 | | | (3) | | | | | | | | 100.00 | 98.33 | 94.64 | 47.39 | 11.13 | 2.88 | 0.82 | 0.00 |
| | | | (4) | 100.00 | 93.92 | 91.22 | 88.57 | 87.61 | 80.89 | 70.60 | 41.15 | 10.33 | 2.19 | 0.61 | 0.10 | 0.00 | | |
| Belle Is. - | 9.6 | 3 | (1) | 0.00 | 2.20 | 0.00 | 0.61 | 0.75 | 1.62 | 2.82 | 10.15 | 26.60 | 29.26 | 15.80 | 5.06 | 2.01 | 0.98 | 2.13 |
| Milliken | | 0** | (2) | 100.00 | 97.80 | 97.80 | 97.19 | 96.43 | 94.81 | 91.99 | 81.84 | 55.23 | 25.97 | 10.17 | 5.11 | 3.10 | 2.13 | 0.00 |
| 461.4 - 451.8 | | | (3) | | | | 100.00 | 99.93 | 98.72 | 97.80 | 93.62 | 80.62 | 53.74 | 28.19 | 14.54 | 8.81 | 6.17 | 0.00 |
| | | | (4) | 100.00 | 93.40 | 93.40 | 91.56 | 90.25 | 87.03 | 80.81 | 58.94 | 19.34 | 3.61 | 0.69 | 0.08 | 0.00 | | |
| Milliken- | 16.8 | 255 | (1) | 0.00 | 0.28 | 0.96 | 2.20 | 1.60 | 2.24 | 3.68 | 11.96 | 28.09 | 27.21 | 14.11 | 4.61 | 0.97 | 0.25 | 1.84 |
| Vicksburg | | 4** | (2) | 100.00 | 99.72 | 98.76 | 96.56 | 94.96 | 92.72 | 89.04 | 77.08 | 48.99 | 21.78 | 7.67 | 3.06 | 2.09 | 1.84 | 0.00 |
| 451.8 - 435.0 | | | (3) | | | | | | | | | | 100.00 | 95.47 | 48.12 | 37.91 | 23.86 | 0.00 |
| Includes discharge range | | | (4) | 100.00 | 77.17 | 58.06 | 11.24 | 2.81 | 2.81 | 2.81 | 2.25 | 1.03 | 0.25 | 0.00 | | | | |
| Racetrack-Towhead | 12.2 | 16 | (1) | | 0.00 | 0.12 | 0.03 | 0.09 | 0.15 | 0.35 | 2.07 | 8.35 | 17.51 | 37.23 | 22.83 | 6.87 | 2.67 | 1.74 |
| 435.0 - 422.8 | | 0** | (2) | | 100.00 | 99.88 | 99.84 | 99.76 | 99.61 | 99.25 | 97.18 | 88.84 | 71.32 | 34.10 | 11.27 | 4.40 | 1.74 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.78 | 99.60 | 94.49 | 53.43 | 27.75 | 12.14 | 0.00 |
| | | | (4) | | 100.00 | 98.02 | 98.02 | 98.02 | 97.95 | 96.18 | 85.15 | 41.92 | 8.83 | 2.11 | 0.20 | 0.07 | 0.00 | |
| Pt. Pleasant | 15.4 | 16 | (1) | 0.00 | 0.32 | 0.54 | 0.65 | 0.50 | 0.81 | 1.56 | 7.57 | 18.69 | 22.05 | 19.17 | 8.06 | 2.57 | 3.09 | 14.45 |
| 422.8 - 407.4 | | 2** | (2) | 100.00 | 99.68 | 99.15 | 98.49 | 97.99 | 97.19 | 95.63 | 88.07 | 69.38 | 47.33 | 28.16 | 20.10 | 17.54 | 14.45 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.41 | 99.16 | 98.46 | 95.67 | 75.14 | 29.47 | 0.00 |
| | | | (4) | 100.00 | 94.92 | 93.72 | 90.88 | 86.80 | 81.37 | 74.21 | 53.63 | 21.62 | 4.39 | 0.83 | 0.13 | 0.04 | 0.00 | |
| Grand Gulf | 12.2 | 6 | (1) | 0.00 | 5.49 | 3.29 | 2.28 | 1.62 | 0.93 | 0.86 | 3.66 | 11.25 | 23.09 | 34.46 | 6.95 | 1.76 | 1.84 | 2.51 |
| 407.4 - 395.2 | | 0** | (2) | 100.00 | 94.51 | 91.21 | 88.94 | 87.32 | 86.38 | 85.52 | 81.86 | 70.61 | 47.52 | 13.07 | 6.11 | 4.35 | 2.51 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.63 | 97.52 | 79.03 | 35.36 | 28.93 | 22.96 | 13.32 | 0.00 |
| | | | (4) | 100.00 | 67.05 | 47.28 | 34.35 | 24.95 | 19.83 | 16.35 | 9.15 | 3.78 | 2.26 | 1.16 | 0.24 | 0.06 | 0.06 | 0.00 |
| Rodney | 13.8 | 22 | (1) | | 0.00 | 0.34 | 0.27 | 0.14 | 0.20 | 0.30 | 1.58 | 8.91 | 15.07 | 31.87 | 15.02 | 4.09 | 3.25 | 18.95 |
| 395.2 - 381.4 | | 3** | (2) | | 100.00 | 99.66 | 99.39 | 99.25 | 99.05 | 98.74 | 97.17 | 88.25 | 73.18 | 41.31 | 26.29 | 22.20 | 18.95 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 98.94 | 98.45 | 77.83 | 73.73 | 67.65 | 50.90 | 0.00 |
| | | | (4) | | 100.00 | 92.54 | 91.48 | 90.87 | 89.46 | 87.01 | 75.42 | 35.21 | 6.29 | 1.39 | 0.28 | 0.06 | 0.00 | |

(Continued)



* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

Table 15 (Concluded)

| Reach Mile AHP | Reach Length In Mi. | No. of Samples | | Gravel | | | | | Sand | | | | | | | | | Silt Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size of Sieve Opening in mm. | | | | | | | | | | | | | | |
| | | | | 38.10 | 19.05 | 9.525 | 4.699 | 2.362 | 1.168 | 0.833 | 0.589 | 0.417 | 0.295 | 0.208 | 0.147 | 0.104 | 0.074 | 0.000 |
| Waterproof | 13.2 | 10 | (1)* | | | | 0.00 | 0.01 | 0.05 | 0.11 | 1.00 | 9.11 | 29.46 | 35.49 | 18.57 | 3.75 | 1.06 | 1.38 |
| 381.4 - 368.2 | | 0** | (2) | | | | 100.00 | 99.99 | 99.94 | 99.83 | 98.83 | 89.72 | 60.25 | 24.77 | 6.20 | 2.44 | 1.38 | 0.00 |
| | | | (3) | | | | | | | | 100.00 | 99.34 | 98.91 | 88.31 | 20.87 | 13.32 | 9.48 | 0.00 |
| | | | (4) | | | | 100.00 | 99.93 | 99.83 | 99.66 | 96.73 | 67.01 | 19.81 | 2.38 | 0.58 | 0.22 | 0.07 | 0.00 |
| Natchez | 13.0 | 260 | (1) | 0.00 | 0.32 | 1.49 | 1.69 | 0.93 | 1.25 | 1.99 | 9.55 | 28.81 | 29.14 | 16.12 | 5.72 | 1.54 | 0.45 | 1.00 |
| 368.2 - 355.2 | | 2** | (2) | 100.00 | 99.68 | 98.19 | 96.50 | 95.57 | 94.32 | 92.33 | 82.78 | 53.97 | 24.83 | 8.71 | 2.99 | 1.45 | 1.00 | 0.00 |
| Includes discharge range | | | (3) | | | | | | | 100.00 | 99.80 | 99.37 | 96.28 | 85.90 | 42.29 | 19.05 | 19.05 | 0.00 |
| | | | (4) | 100.00 | 83.19 | 58.93 | 51.03 | 49.84 | 47.85 | 44.77 | 30.95 | 9.95 | 1.54 | 0.11 | 0.00 | | | |
| St. Catherine | 16.6 | 10 | (1) | | | 0.00 | 0.35 | 0.45 | 1.17 | 0.94 | 2.30 | 5.85 | 8.66 | 18.19 | 15.21 | 4.61 | 4.00 | 38.30 |
| 355.2 - 338.6 | | 3** | (2) | | | 100.00 | 99.65 | 99.20 | 98.04 | 97.10 | 94.81 | 88.96 | 80.30 | 62.11 | 46.90 | 42.29 | 38.30 | 0.00 |
| | | | (3) | | | | | | | | | 100.00 | 99.57 | 82.95 | 70.60 | 62.19 | 47.49 | 0.00 |
| | | | (4) | | | 100.00 | 96.55 | 92.70 | 84.99 | 78.35 | 61.62 | 27.62 | 4.78 | 0.93 | 0.27 | 0.13 | 0.09 | 0.00 |
| Bougere | 18.2 | 4 | (1) | | | 0.00 | 0.55 | 0.11 | 0.33 | 0.52 | 4.34 | 17.62 | 31.65 | 29.47 | 11.28 | 1.52 | 0.90 | 1.74 |
| 338.6 - 320.4 | | 0** | (2) | | | 100.00 | 99.45 | 99.34 | 99.02 | 98.50 | 94.16 | 76.55 | 44.90 | 15.43 | 4.15 | 2.63 | 1.74 | 0.00 |
| | | | (3) | | | | | | | 100.00 | 99.81 | 96.06 | 78.44 | 27.35 | 11.91 | 8.06 | 5.43 | 0.00 |
| | | | (4) | | | 100.00 | 97.81 | 97.38 | 96.07 | 94.21 | 85.36 | 59.02 | 20.98 | 3.06 | 1.02 | 0.51 | 0.30 | 0.00 |

* (1) Average percent retained.
(2) Average percent finer.
(3) Maximum percent finer.
(4) Minimum percent finer.

** Number of samples in total finer than 0.074 mm. These are included in (1) and (2) only.

Table 16

Physical Data of Bed Material (mm Scale) for Mississippi River, Vicksburg District

| Potamology Study Reaches Miles AHP | | CALENDAR YEAR | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1932 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
| CESSIONS-HENRICO 616.0 - 606.0 | No. of Samples | 5 | 5 | --- | --- | --- | --- | --- | 4 | 19 | 7 |
| | $D_{84}$ | 0.685 | 0.713 | --- | --- | --- | --- | --- | 0.528 | 0.560 | 0.402 |
| | $D_{50}$ | 0.378 | 0.410 | --- | --- | --- | --- | --- | 0.335 | 0.371 | 0.266 |
| | $D_{16}$ | 0.168 | 0.247 | --- | --- | --- | --- | --- | 0.213 | 0.232 | 0.149 |
| | Mg | 0.389 | 0.446 | --- | --- | --- | --- | --- | 0.310 | 0.382 | 0.160 |
| | Ma | 0.935 | 0.726 | --- | --- | --- | --- | --- | 0.430 | 0.579 | 0.288 |
| | s | 2.863 | 1.655 | --- | --- | --- | --- | --- | 0.898 | 1.437 | 0.258 |
| SMITH PT.-TERRENE 606.0 - 594.2 | No. of Samples | 3 | 4 | --- | 15 | 136 | 29 | 28 | 28 | 21 | 6 |
| | $D_{84}$ | 0.541 | 0.589 | --- | 0.670 | 0.581 | 0.656 | 0.540 | 0.517 | 0.586 | 0.537 |
| | $D_{50}$ | 0.296 | 0.420 | --- | 0.364 | 0.368 | 0.377 | 0.330 | 0.300 | 0.324 | 0.217 |
| | $D_{16}$ | 0.174 | 0.258 | --- | 0.209 | 0.208 | 0.211 | 0.201 | 0.085 | 0.028 | 0.003 |
| | Mg | 0.319 | 0.417 | --- | 0.363 | 0.351 | 0.312 | 0.266 | 0.181 | 0.167 | 0.086 |
| | Ma | 0.477 | 0.503 | --- | 2.122 | 0.886 | 1.545 | 0.510 | 0.614 | 0.565 | 0.652 |
| | s | 0.824 | 0.489 | --- | 6.604 | 2.973 | 4.876 | 1.239 | 1.919 | 1.534 | 2.070 |
| TERRENE-OZARK 594.2 - 581.0 | No. of Samples | 19 | 24 | 28 | 70 | 55 | 44 | 23 | 28 | 47 | 16 |
| | $D_{84}$ | 1.651 | 0.561 | 0.709 | 0.551 | 0.527 | 0.525 | 0.519 | 0.438 | 0.472 | 0.534 |
| | $D_{50}$ | 0.361 | 0.365 | 0.379 | 0.349 | 0.349 | 0.331 | 0.302 | 0.263 | 0.303 | 0.315 |
| | $D_{16}$ | 0.169 | 0.232 | 0.251 | 0.211 | 0.222 | 0.176 | 0.169 | 0.123 | 0.157 | 0.007 |
| | Mg | 0.533 | 0.391 | 0.468 | 0.329 | 0.329 | 0.261 | 0.271 | 0.199 | 0.206 | 0.120 |
| | Ma | 2.913 | 0.703 | 1.071 | 0.945 | 0.554 | 0.410 | 0.489 | 0.305 | 0.497 | 0.454 |
| | s | 7.114 | 2.088 | 2.923 | 3.466 | 1.756 | 0.687 | 1.198 | 0.304 | 1.997 | 1.050 |

(Continued)

Note: $D_{84}$, 84 percent finer than given size; $D_{50}$, 50 percent finer than given size; $D_{16}$, 16 percent finer than given size; Mg, geometric mean size, mm; Ma, arithmetric mean size, mm; and s, standard deviation.

Table 16 (Continued)

| Potamology Study Reaches Miles AHP | | CALENDAR YEAR | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1932 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
| OZARK-EUTAW | No. of Samples | 17 | 20 | 40 | 111 | 76 | 91 | 66 | 243 | 312 | 284 |
| 581.0 - 565.9 | $D_{84}$ | 1.088 | 0.539 | 0.671 | 0.637 | 0.587 | 0.558 | 0.685 | 0.491 | 0.540 | 0.568 |
| | $D_{50}$ | 0.357 | 0.356 | 0.362 | 0.357 | 0.354 | 0.353 | 0.339 | 0.331 | 0.345 | 0.299 |
| includes discharge range | $D_{16}$ | 0.098 | 0.225 | 0.237 | 0.226 | 0.213 | 0.236 | 0.230 | 0.225 | 0.226 | 0.209 |
| | Mg | 0.344 | 0.314 | 0.435 | 0.414 | 0.346 | 0.407 | 0.348 | 0.339 | 0.354 | 0.373 |
| | Ma | 2.782 | 0.771 | 1.710 | 1.331 | 0.893 | 0.963 | 0.503 | 0.529 | 0.804 | 1.109 |
| | s | 7.064 | 2.822 | 5.003 | 3.987 | 2.457 | 3.076 | 1.614 | 1.684 | 2.911 | 3.714 |
| CHOCTAW BAR | No. of Samples | 14 | 8 | 86 | 75 | 109 | 76 | 23 | 49 | 38 | 22 |
| 565.9 - 550.4 | $D_{84}$ | 0.704 | 0.700 | 0.632 | 0.665 | 0.555 | 0.558 | 0.530 | 0.556 | 0.524 | 0.440 |
| | $D_{50}$ | 0.375 | 0.392 | 0.347 | 0.373 | 0.349 | 0.345 | 0.350 | 0.362 | 0.366 | 0.287 |
| | $D_{16}$ | 0.217 | 0.244 | 0.220 | 0.245 | 0.219 | 0.222 | 0.220 | 0.230 | 0.227 | 0.168 |
| | Mg | 0.461 | 0.503 | 0.427 | 0.450 | 0.378 | 0.391 | 0.328 | 0.359 | 0.366 | 0.230 |
| | Ma | 1.828 | 1.620 | 1.179 | 1.095 | 1.241 | 1.042 | 0.618 | 0.685 | 0.680 | 0.427 |
| | s | 5.276 | 4.506 | 3.520 | 3.140 | 4.194 | 3.490 | 1.629 | 2.111 | 2.355 | 1.097 |
| GREENVILLE | No. of Samples | 53 | 48 | 73 | 104 | 123 | 54 | 49 | 7 | 39 | 9 |
| 550.4 - 531.2 | $D_{84}$ | 0.897 | 0.506 | 0.581 | 0.541 | 0.528 | 0.537 | 0.558 | 0.577 | 0.576 | 0.417 |
| | $D_{50}$ | 0.399 | 0.326 | 0.367 | 0.341 | 0.338 | 0.336 | 0.364 | 0.393 | 0.338 | 0.254 |
| | $D_{16}$ | 0.233 | 0.193 | 0.240 | 0.192 | 0.204 | 0.185 | 0.242 | 0.251 | 0.216 | 0.156 |
| | Mg | 0.518 | 0.321 | 0.420 | 0.304 | 0.296 | 0.279 | 0.383 | 0.409 | 0.418 | 0.213 |
| | Ma | 1.890 | 0.542 | 0.991 | 0.739 | 0.585 | 0.551 | 0.712 | 0.567 | 1.242 | 0.308 |
| | s | 5.080 | 1.902 | 3.347 | 2.590 | 1.829 | 1.536 | 2.407 | 1.246 | 4.011 | 0.277 |
| LAKEPORT | No. of Samples | 6 | 4 | 21 | 38 | 41 | 19 | 24 | 2 | 6 | 18 |
| 531.2 - 524.2 | $D_{84}$ | 4.213 | 0.702 | 0.549 | 0.545 | 0.543 | 0.547 | 0.529 | 0.531 | 0.455 | 0.423 |
| | $D_{50}$ | 0.426 | 0.417 | 0.344 | 0.351 | 0.317 | 0.323 | 0.351 | 0.311 | 0.292 | 0.299 |
| | $D_{16}$ | 0.231 | 0.292 | 0.231 | 0.229 | 0.151 | 0.175 | 0.233 | 0.217 | 0.213 | 0.189 |
| | Mg | 0.708 | 0.492 | 0.389 | 0.383 | 0.274 | 0.276 | 0.371 | 0.353 | 0.323 | 0.313 |
| | Ma | 3.185 | 1.072 | 0.718 | 0.728 | 1.079 | 0.682 | 0.592 | 0.587 | 0.522 | 0.651 |
| | s | 6.938 | 2.623 | 1.945 | 2.516 | 3.863 | 1.865 | 1.943 | 1.510 | 1.443 | 2.064 |

(Continued)

Table 16 (Continued)

| Potamology Study Reaches Miles AHP | | CALENDAR YEAR | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1932 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
| KENTUCKY BEND 524.2 - 514.8 | No. of Samples | 8 | 4 | 27 | 69 | 75 | 52 | 68 | 2 | 8 | 9 |
| | $D_{84}$ | 0.780 | 0.516 | 0.586 | 0.552 | 0.544 | 0.671 | 0.631 | 0.542 | 0.481 | 0.523 |
| | $D_{50}$ | 0.418 | 0.356 | 0.385 | 0.343 | 0.353 | 0.385 | 0.376 | 0.351 | 0.326 | 0.329 |
| | $D_{16}$ | 0.242 | 0.240 | 0.265 | 0.202 | 0.228 | 0.235 | 0.245 | 0.239 | 0.226 | 0.218 |
| | Mg | 0.514 | 0.359 | 0.448 | 0.323 | 0.349 | 0.448 | 0.432 | 0.388 | 0.321 | 0.349 |
| | Ma | 1.723 | 0.469 | 0.970 | 1.108 | 0.778 | 1.271 | 0.886 | 0.647 | 0.377 | 0.530 |
| | s | 5.062 | 1.036 | 3.156 | 3.709 | 2.835 | 3.904 | 2.563 | 1.740 | 0.347 | 1.163 |
| CRACRAFT-CAROLINA 514.8 - 506.6 | No. of Samples | 10 | 68 | 35 | 74 | 58 | 18 | 38 | 2 | 6 | 5 |
| | $D_{84}$ | 3.011 | 0.533 | 0.635 | 0.601 | 0.523 | 0.421 | 0.509 | 0.408 | 0.578 | 0.379 |
| | $D_{50}$ | 0.385 | 0.332 | 0.377 | 0.353 | 0.320 | 0.300 | 0.327 | 0.309 | 0.338 | 0.245 |
| | $D_{16}$ | 0.234 | 0.192 | 0.230 | 0.212 | 0.210 | 0.214 | 0.203 | 0.220 | 0.220 | 0.021 |
| | Mg | 0.661 | 0.283 | 0.458 | 0.402 | 0.345 | 0.326 | 0.285 | 0.304 | 0.364 | 0.119 |
| | Ma | 3.977 | 0.584 | 1.327 | 1.121 | 0.650 | 0.594 | 0.439 | 0.322 | 0.670 | 0.269 |
| | s | 8.608 | 1.535 | 4.017 | 3.519 | 2.082 | 1.819 | 0.809 | 0.098 | 1.759 | 0.411 |
| CAROLINA-BALESHED 506.6 - 495.6 | No. of Samples | 11 | --- | 8 | 43 | 35 | 11 | 27 | 7 | 20 | 20 |
| | $D_{84}$ | 0.395 | --- | 2.196 | 0.745 | 0.646 | 0.513 | 0.470 | 0.779 | 0.501 | 0.584 |
| | $D_{50}$ | 0.267 | --- | 0.530 | 0.399 | 0.385 | 0.318 | 0.295 | 0.383 | 0.305 | 0.314 |
| | $D_{16}$ | 0.198 | --- | 0.267 | 0.260 | 0.261 | 0.202 | 0.173 | 0.237 | 0.201 | 0.167 |
| | Mg | 0.272 | --- | 0.764 | 0.511 | 0.464 | 0.302 | 0.298 | 0.478 | 0.326 | 0.288 |
| | Ma | 0.313 | --- | 2.219 | 1.525 | 1.042 | 0.491 | 0.451 | 1.116 | 0.970 | 0.736 |
| | s | 0.276 | --- | 5.034 | 4.507 | 3.098 | 1.249 | 1.186 | 3.057 | 3.400 | 2.525 |
| BALESHED LANDING 495.6 - 485.6 | No. of Samples | 15 | 27 | 53 | 105 | 59 | 43 | 78 | 3 | 8 | 10 |
| | $D_{84}$ | 0.597 | 0.621 | 0.569 | 0.548 | 0.527 | 0.546 | 0.517 | 0.514 | 0.504 | 0.576 |
| | $D_{50}$ | 0.378 | 0.389 | 0.337 | 0.348 | 0.341 | 0.346 | 0.304 | 0.331 | 0.324 | 0.374 |
| | $D_{16}$ | 0.222 | 0.228 | 0.222 | 0.227 | 0.221 | 0.220 | 0.162 | 0.227 | 0.214 | 0.237 |
| | Mg | 0.406 | 0.410 | 0.363 | 0.350 | 0.367 | 0.376 | 0.285 | 0.343 | 0.342 | 0.409 |
| | Ma | 0.965 | 0.721 | 0.798 | 0.776 | 0.798 | 0.723 | 0.712 | 0.391 | 0.551 | 0.681 |
| | s | 3.335 | 1.916 | 2.602 | 2.346 | 2.779 | 2.331 | 2.552 | 0.360 | 1.535 | 1.657 |

(Continued)

Table 16 (Continued)

| Potamology Study Reaches Miles AHP | | CALENDAR YEAR | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1932 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
| AJAX BAR 485.6 - 479.8 | No. of Samples | 3 | 118 | 20 | 55 | 29 | 23 | 37 | 9 | 17 | 28 |
| | $D_{84}$ | 17.670 | 0.524 | 0.592 | 0.492 | 0.418 | 0.457 | 0.480 | 0.479 | 0.523 | 0.543 |
| | $D_{50}$ | 0.477 | 0.335 | 0.354 | 0.320 | 0.292 | 0.306 | 0.298 | 0.271 | 0.301 | 0.314 |
| | $D_{16}$ | 0.293 | 0.220 | 0.227 | 0.214 | 0.148 | 0.165 | 0.180 | 0.146 | 0.193 | 0.191 |
| | Mg | 1.155 | 0.335 | 0.422 | 0.315 | 0.229 | 0.243 | 0.272 | 0.189 | 0.337 | 0.311 |
| | Ma | 6.421 | 0.685 | 1.125 | 0.800 | 0.709 | 0.373 | 0.376 | 0.397 | 0.586 | 0.814 |
| | s | 10.362 | 2.274 | 3.814 | 3.068 | 2.863 | 0.723 | 0.596 | 0.854 | 1.615 | 2.153 |
| AJAX-COTTONWOOD 479.8 - 472.0 | No. of Samples | 6 | --- | --- | 9 | 33 | 15 | 29 | 1 | 6 | 7 |
| | $D_{84}$ | 0.818 | --- | --- | 0.497 | 0.524 | 0.514 | 0.653 | 0.384 | 0.494 | 0.471 |
| | $D_{50}$ | 0.464 | --- | --- | 0.343 | 0.317 | 0.323 | 0.337 | 0.253 | 0.144 | 0.106 |
| | $D_{16}$ | 0.272 | --- | --- | 0.236 | 0.185 | 0.167 | 0.169 | 0.184 | 0.027 | 0.002 |
| | Mg | 0.550 | --- | --- | 0.339 | 0.270 | 0.201 | 0.342 | 0.269 | 0.116 | 0.044 |
| | Ma | 1.583 | --- | --- | 0.446 | 0.452 | 0.435 | 1.165 | 0.331 | 0.919 | 0.428 |
| | s | 4.676 | --- | --- | 0.840 | 0.963 | 0.971 | 3.777 | 0.578 | 3.604 | 1.582 |
| COTTONWOOD BAR 472.0 - 467.8 | No. of Samples | 3 | 12 | 35 | 43 | 62 | 17 | 29 | 3 | 7 | 7 |
| | $D_{84}$ | 0.513 | 0.643 | 0.708 | 0.545 | 0.514 | 0.528 | 0.491 | 0.407 | 0.489 | 0.510 |
| | $D_{50}$ | 0.329 | 0.431 | 0.355 | 0.304 | 0.327 | 0.263 | 0.322 | 0.214 | 0.276 | 0.341 |
| | $D_{16}$ | 0.224 | 0.244 | 0.217 | 0.184 | 0.214 | 0.162 | 0.199 | 0.139 | 0.179 | 0.230 |
| | Mg | 0.336 | 0.410 | 0.440 | 0.311 | 0.350 | 0.307 | 0.330 | 0.260 | 0.319 | 0.350 |
| | Ma | 0.405 | 0.934 | 1.241 | 0.786 | 0.723 | 0.581 | 0.689 | 0.543 | 0.856 | 0.412 |
| | s | 0.470 | 3.267 | 3.848 | 2.881 | 2.578 | 1.863 | 2.799 | 1.601 | 3.606 | 0.450 |
| COTTONWOOD-BELLE IS. 467.8 - 461.4 | No. of Samples | 8 | --- | 8 | 15 | 3 | 5 | 12 | 5 | 9 | 11 |
| | $D_{84}$ | 0.723 | --- | 0.540 | 0.661 | 0.401 | 0.906 | 1.395 | 0.468 | 0.571 | 0.695 |
| | $D_{50}$ | 0.418 | --- | 0.268 | 0.332 | 0.278 | 0.365 | 0.357 | 0.221 | 0.348 | 0.374 |
| | $D_{16}$ | 0.221 | --- | 0.163 | 0.201 | 0.188 | 0.194 | 0.224 | 0.004 | 0.217 | 0.196 |
| | Mg | 0.405 | --- | 0.310 | 0.369 | 0.285 | 0.469 | 0.549 | 0.078 | 0.364 | 0.297 |
| | Ma | 1.038 | --- | 0.686 | 0.603 | 0.330 | 1.535 | 2.018 | 0.258 | 0.654 | 0.885 |
| | s | 3.068 | --- | 1.918 | 1.410 | 0.343 | 4.680 | 4.646 | 0.283 | 1.503 | 2.684 |

(Continued)

Table 16 (Continued)

| Potamology Study Reaches Miles AHP | | CALENDAR YEAR 1932 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BELLE IS.-MILLIKEN BEND | No. of Samples | 10 | 4 | 16 | 18 | 27 | 11 | 16 | 9 | 2 | 3 |
| 461.4 - 451.8 | $D_{84}$ | 19.044 | 0.578 | 0.546 | 0.566 | 0.564 | 0.541 | 0.545 | 0.977 | 20.542 | 0.634 |
| | $D_{50}$ | 0.577 | 0.353 | 0.373 | 0.364 | 0.361 | 0.350 | 0.353 | 0.407 | 0.547 | 0.392 |
| | $D_{16}$ | 0.342 | 0.223 | 0.260 | 0.229 | 0.219 | 0.181 | 0.227 | 0.216 | 0.311 | 0.237 |
| | Mg | 1.415 | 0.475 | 0.398 | 0.381 | 0.321 | 0.257 | 0.381 | 0.479 | 1.454 | 0.402 |
| | Ma | 7.092 | 2.495 | 0.597 | 0.674 | 0.553 | 0.615 | 0.670 | 0.945 | 7.077 | 1.119 |
| | s | 10.698 | 7.238 | 1.479 | 2.245 | 1.246 | 1.702 | 1.846 | 1.990 | 10.790 | 4.167 |
| MILLIKEN BEND-VICKSBURG | No. of Samples | 37 | --- | --- | 89 | 89 | 80 | 87 | 237 | 397 | 255 |
| 451.8 - 435.0 | $D_{84}$ | 1.051 | --- | --- | 0.539 | 0.588 | 0.799 | 0.638 | 0.673 | 1.052 | 0.720 |
| | $D_{50}$ | 0.371 | --- | --- | 0.346 | 0.379 | 0.395 | 0.392 | 0.404 | 0.489 | 0.422 |
| includes discharge range | $D_{16}$ | 0.195 | --- | --- | 0.200 | 0.224 | 0.248 | 0.235 | 0.265 | 0.324 | 0.256 |
| | Mg | 0.525 | --- | --- | 0.283 | 0.363 | 0.495 | 0.378 | 0.472 | 0.663 | 0.438 |
| | Ma | 3.086 | --- | --- | 0.560 | 0.715 | 1.647 | 0.664 | 1.007 | 1.936 | 0.875 |
| | s | 7.533 | --- | --- | 1.621 | 2.037 | 4.643 | 1.576 | 2.778 | 4.929 | 2.253 |
| RACETRACK-TOWHEAD | No. of Samples | 23 | 9 | --- | 4 | 8 | 8 | 8 | 11 | 10 | 16 |
| 435.0 - 422.8 | $D_{84}$ | 0.530 | 0.456 | --- | 0.532 | 1.565 | 0.556 | 0.582 | 0.468 | 0.401 | 0.379 |
| | $D_{50}$ | 0.313 | 0.294 | --- | 0.326 | 0.409 | 0.324 | 0.345 | 0.294 | 0.248 | 0.241 |
| | $D_{16}$ | 0.191 | 0.182 | --- | 0.225 | 0.285 | 0.219 | 0.198 | 0.207 | 0.154 | 0.158 |
| | Mg | 0.317 | 0.324 | --- | 0.348 | 0.676 | 0.396 | 0.364 | 0.283 | 0.232 | 0.233 |
| | Ma | 0.740 | 1.197 | --- | 0.407 | 3.142 | 1.068 | 0.561 | 0.415 | 0.345 | 0.294 |
| | s | 2.742 | 4.686 | --- | 0.362 | 7.446 | 3.500 | 1.391 | 0.995 | 0.911 | 0.537 |
| POINT PLEASANT | No. of Samples | 13 | 13 | --- | --- | --- | 104 | 144 | 17 | 12 | 16 |
| 422.8 - 407.4 | $D_{84}$ | 0.533 | 0.529 | --- | --- | --- | 0.631 | 0.521 | 0.485 | 0.432 | 0.546 |
| | $D_{50}$ | 0.256 | 0.351 | --- | --- | --- | 0.353 | 0.310 | 0.249 | 0.210 | 0.308 |
| | $D_{16}$ | 0.094 | 0.234 | --- | --- | --- | 0.194 | 0.174 | 0.147 | 0.003 | 0.088 |
| | Mg | 0.195 | 0.384 | --- | --- | --- | 0.379 | 0.305 | 0.284 | 0.072 | 0.187 |
| | Ma | 0.486 | 0.761 | --- | --- | --- | 1.389 | 0.899 | 1.301 | 0.375 | 0.561 |
| | s | 1.680 | 2.174 | --- | --- | --- | 4.350 | 3.386 | 4.943 | 1.201 | 1.984 |

(Continued)

Table 16 (Continued)

| Potamology Study Reaches Miles AHP | | 1932 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CALENDAR YEAR | | | | | | | | | |
| GRAND GULF | No. of Samples | 6 | --- | --- | --- | --- | 57 | 62 | 4 | 5 | 6 |
| 407.4 - 395.2 | $D_{84}$ | 0.577 | --- | --- | --- | --- | 0.466 | 0.504 | 0.517 | 0.541 | 0.721 |
| | $D_{50}$ | 0.310 | --- | --- | --- | --- | 0.302 | 0.286 | 0.325 | 0.331 | 0.306 |
| | $D_{16}$ | 0.134 | --- | --- | --- | --- | 0.192 | 0.148 | 0.162 | 0.217 | 0.214 |
| | Mg | 0.333 | --- | --- | --- | --- | 0.260 | 0.228 | 0.311 | 0.379 | 0.443 |
| | Ma | 1.858 | --- | --- | --- | --- | 0.384 | 0.590 | 0.434 | 0.800 | 2.553 |
| | s | 5.560 | --- | --- | --- | --- | 0.845 | 2.131 | 0.873 | 2.182 | 6.822 |
| RODNEY | No. of Samples | 5 | 3 | --- | 52 | 107 | 90 | 43 | 51 | 14 | 22 |
| 395.2 - 381.4 | $D_{84}$ | 3.394 | 0.367 | --- | 0.514 | 0.551 | 0.598 | 0.531 | 0.488 | 0.498 | 0.378 |
| | $D_{50}$ | 0.451 | 0.258 | --- | 0.307 | 0.328 | 0.349 | 0.302 | 0.290 | 0.310 | 0.229 |
| | $D_{16}$ | 0.279 | 0.186 | --- | 0.209 | 0.209 | 0.209 | 0.178 | 0.169 | 0.181 | 0.029 |
| | Mg | 0.732 | 0.258 | --- | 0.328 | 0.365 | 0.360 | 0.328 | 0.281 | 0.296 | 0.119 |
| | Ma | 3.617 | 0.280 | --- | 0.587 | 0.815 | 0.886 | 0.545 | 0.409 | 0.387 | 0.311 |
| | s | 7.904 | 0.131 | --- | 2.082 | 2.662 | 3.100 | 1.365 | 0.870 | 0.764 | 0.915 |
| WATERPROOF | No. of Samples | 4 | 4 | --- | --- | --- | 63 | 21 | 66 | 6 | 10 |
| 381.4 - 368.2 | $D_{84}$ | 0.540 | 0.414 | --- | --- | --- | 0.403 | 0.407 | 0.404 | 0.409 | 0.390 |
| | $D_{50}$ | 0.320 | 0.330 | --- | --- | --- | 0.257 | 0.275 | 0.277 | 0.256 | 0.267 |
| | $D_{16}$ | 0.199 | 0.217 | --- | --- | --- | 0.159 | 0.174 | 0.173 | 0.164 | 0.177 |
| | Mg | 0.327 | 0.319 | --- | --- | --- | 0.237 | 0.270 | 0.264 | 0.269 | 0.255 |
| | Ma | 0.431 | 0.417 | --- | --- | --- | 0.455 | 0.345 | 0.407 | 0.389 | 0.288 |
| | s | 0.619 | 1.026 | --- | --- | --- | 1.927 | 0.696 | 1.437 | 0.965 | 0.122 |
| NATCHEZ | No. of Samples | 10 | --- | --- | --- | --- | 76 | 31 | 298 | 384 | 260 |
| 368.2 - 355.2 | $D_{84}$ | 0.576 | --- | --- | --- | --- | 0.489 | 0.499 | 0.523 | 0.574 | 0.616 |
| | $D_{50}$ | 0.320 | --- | --- | --- | --- | 0.314 | 0.307 | 0.336 | 0.394 | 0.398 |
| includes discharge range | $D_{16}$ | 0.214 | --- | --- | --- | --- | 0.208 | 0.169 | 0.217 | 0.273 | 0.244 |
| | Mg | 0.378 | --- | --- | --- | --- | 0.292 | 0.230 | 0.339 | 0.450 | 0.420 |
| | Ma | 1.017 | --- | --- | --- | --- | 0.431 | 0.922 | 0.514 | 1.044 | 0.869 |
| | s | 3.550 | --- | --- | --- | --- | 0.893 | 3.929 | 1.469 | 3.361 | 2.470 |

(Continued)

Table 16 (Concluded)

| Potamology Study Reaches Miles AHP | | CALENDAR YEAR | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1932 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
| ST. CATHERINE 355.2 - 338.6 | No. of Samples | 10 | --- | --- | --- | --- | --- | 22 | 80 | 13 | 10 |
| | $D_{84}$ | 0.497 | --- | --- | --- | --- | --- | 0.387 | 0.399 | 0.507 | 0.342 |
| | $D_{50}$ | 0.307 | --- | --- | --- | --- | --- | 0.251 | 0.254 | 0.279 | 0.158 |
| | $D_{16}$ | 0.160 | --- | --- | --- | --- | --- | 0.161 | 0.161 | 0.167 | 0.002 |
| | Mg | 0.311 | --- | --- | --- | --- | --- | 0.288 | 0.229 | 0.253 | 0.052 |
| | Ma | 0.633 | --- | --- | --- | --- | --- | 0.277 | 0.328 | 1.036 | 0.243 |
| | s | 2.550 | --- | --- | --- | --- | --- | 0.171 | 0.641 | 4.057 | 0.522 |
| BOUGERE 338.6 - 320.4 | No. of Samples | 5 | --- | --- | --- | --- | --- | --- | 61 | 19 | 4 |
| | $D_{84}$ | 0.626 | --- | --- | --- | --- | --- | --- | 0.536 | 0.534 | 0.483 |
| | $D_{50}$ | 0.348 | --- | --- | --- | --- | --- | --- | 0.321 | 0.304 | 0.312 |
| | $D_{16}$ | 0.176 | --- | --- | --- | --- | --- | --- | 0.188 | 0.177 | 0.209 |
| | Mg | 0.355 | --- | --- | --- | --- | --- | --- | 0.302 | 0.329 | 0.299 |
| | Ma | 0.502 | --- | --- | --- | --- | --- | --- | 0.622 | 0.511 | 0.383 |
| | s | 0.750 | --- | --- | --- | --- | --- | --- | 2.153 | 1.102 | 0.536 |

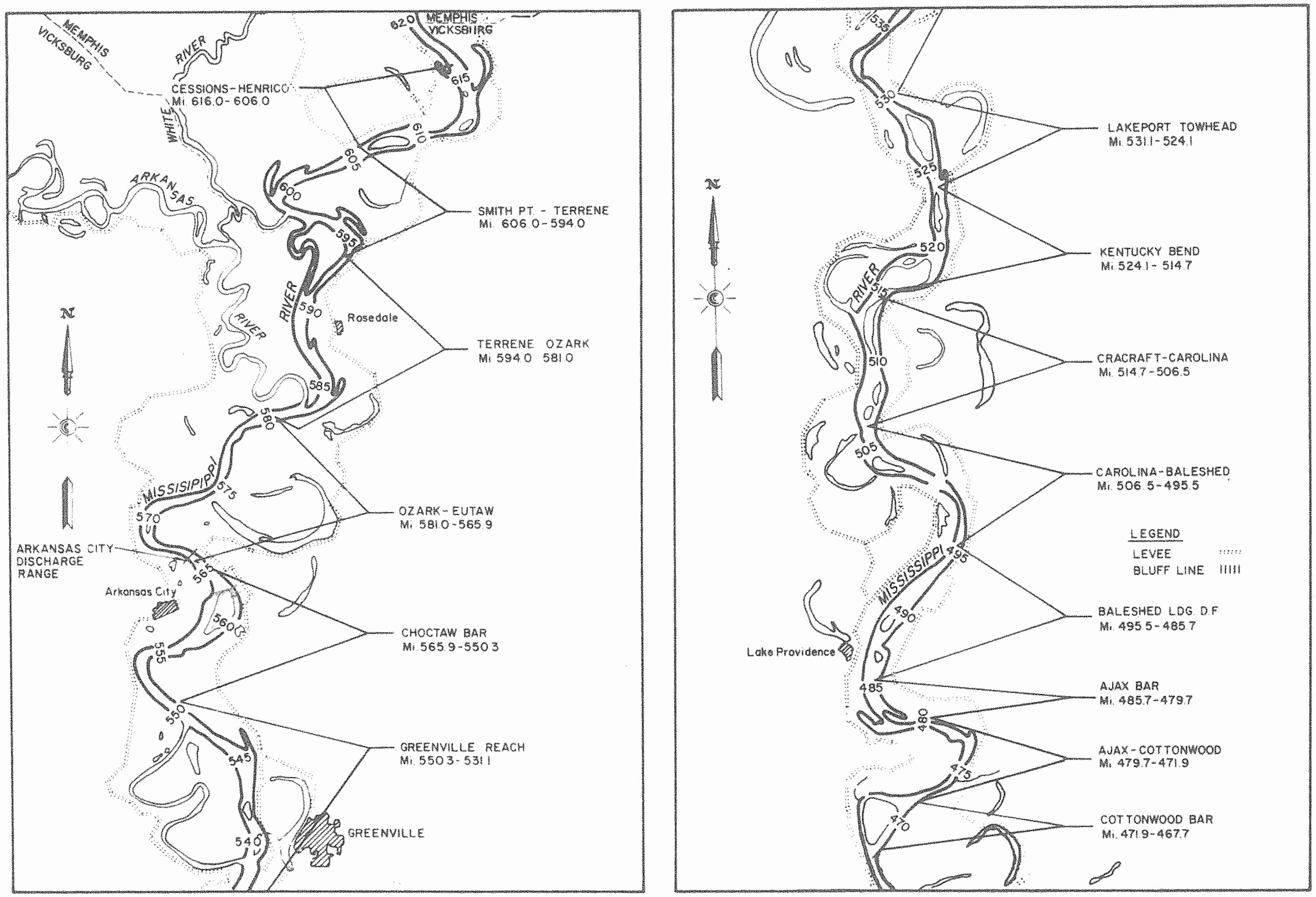
Table 17

Scale of Sizes in Metric (SI) and U. S. Customary Units

| Class and Subclass | Metric (SI) mm | U. S. Customary in. |
|---|---|---|
| Boulders | | |
| Very large | 4,096-2,048 | 160-80 |
| Large | 2,048-1,024 | 80-40 |
| Medium | 1,024-512 | 40-20 |
| Small | 512-256 | 20-10 |
| Cobbles | | |
| Large | 256-128 | 10-5 |
| Small | 128-64 | 5-2.5 |
| Gravel | | |
| Very coarse | 64-32 | 2.5-1.3 |
| Coarse | 32-16 | 1.3-0.6 |
| Medium | 16-8 | 0.6-0.3 |
| Fine | 8-4 | 0.3-0.16 |
| Very fine | 4-2 | 0.16-0.078 |
| Sand | | |
| Very coarse | 2.000-1.000 | 0.078-0.039 |
| Coarse | 1.000-0.500 | 0.039-0.020 |
| Medium | 0.500-0.250 | 0.020-0.0098 |
| Fine | 0.250-0.125 | 0.0098-0.0049 |
| Very fine | 0.125-0.062 | 0.0049-0.0025 |
| Silt | | |
| Coarse | 0.062-0.031 | 0.0025-0.0012 |
| Medium | 0.031-0.016 | 0.0012-0.00062 |
| Fine | 0.016-0.008 | 0.00062-0.00031 |
| Very fine | 0.008-0.004 | 0.00031-0.00015 |
| Clay | | |
| Coarse | 0.004-0.0020 | 0.00015-0.000077 |
| Medium | 0.0020-0.0010 | 0.000077-0.000038 |
| Fine | 0.0010-0.0005 | 0.000038-0.000019 |
| Very fine | 0.0005-0.00024 | 0.000019-0.000010 |

Note: After Subcommittee on Sediment Terminology, A.G.U., 1947.

Appendix B: Plates

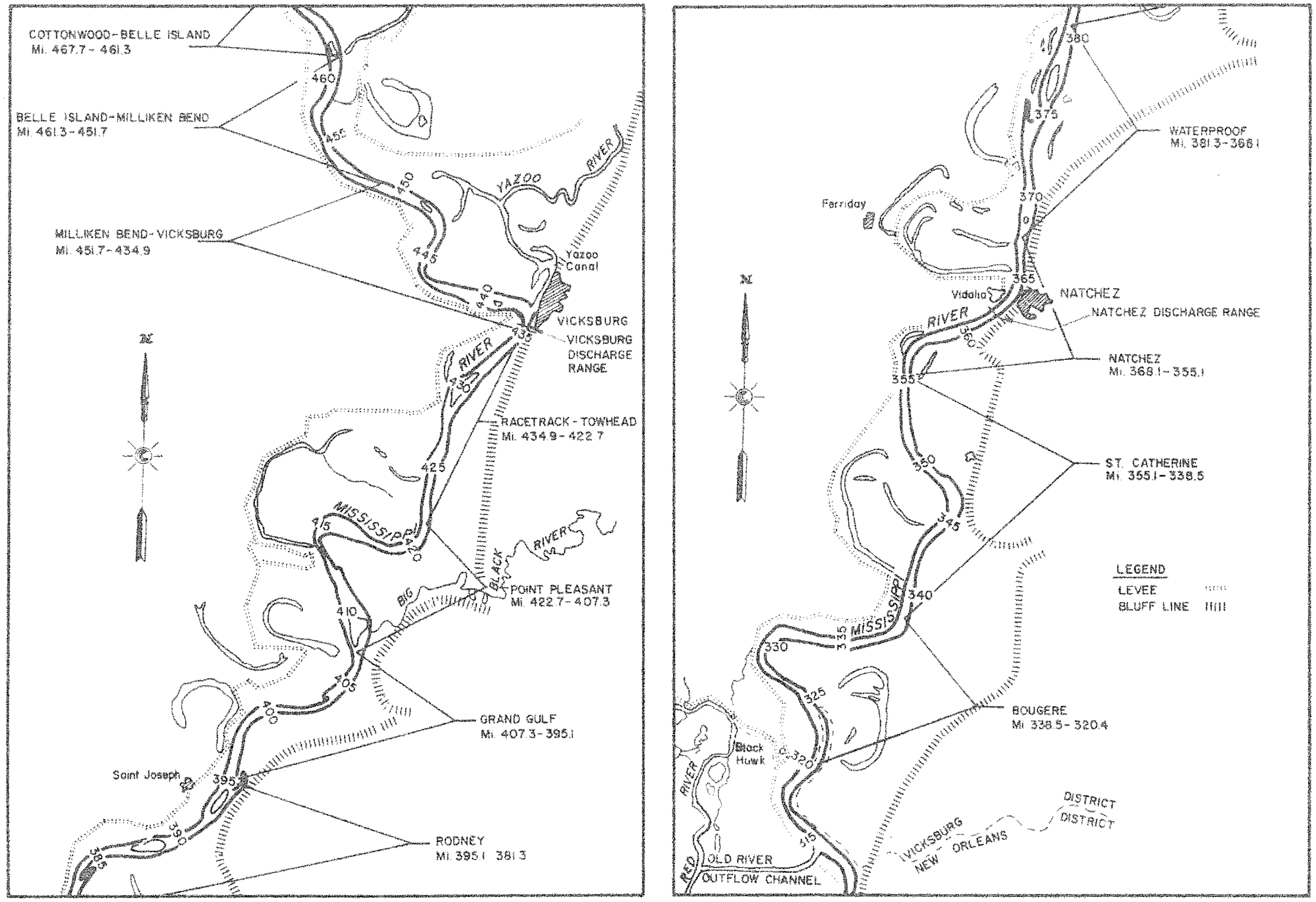



VICKSBURG DISTRICT INDEX MAP

MILE 620 TO 465

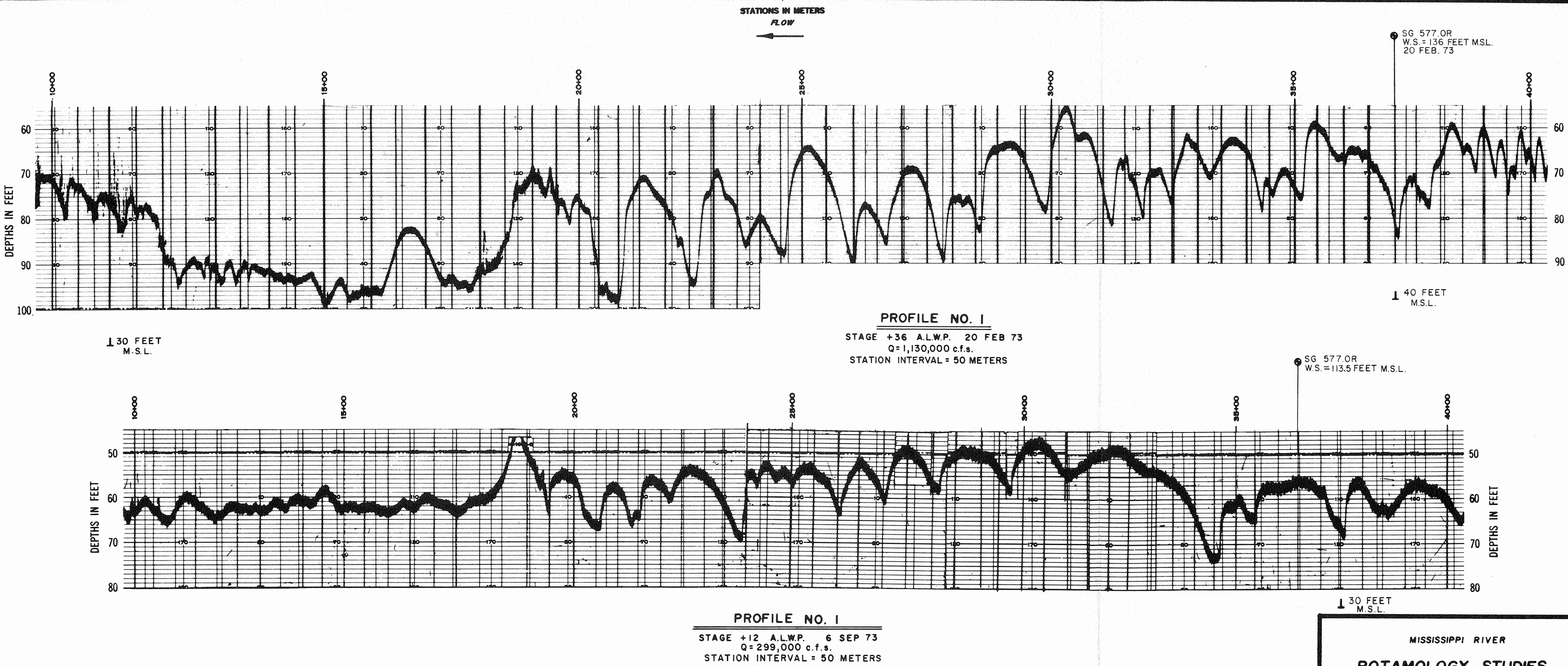
PLATE 1

PLATE 2




VICKSBURG DISTRICT INDEX MAP

MILE 465 TO 300




MISSISSIPPI RIVER

POTAMOLOGY STUDIES

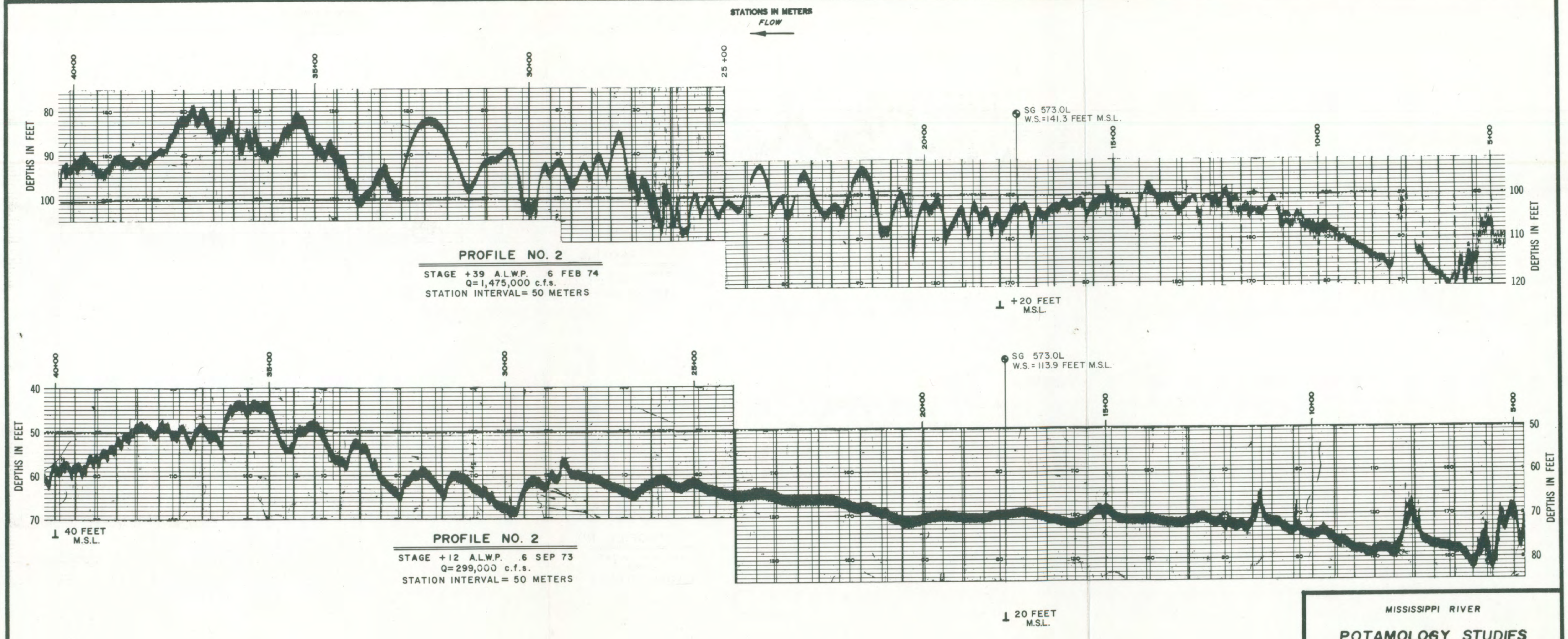
LONGITUDINAL PROFILE COMPARISON

HIGH AND LOW STAGE

OZARK-EUTAW

1973

PLATE 3



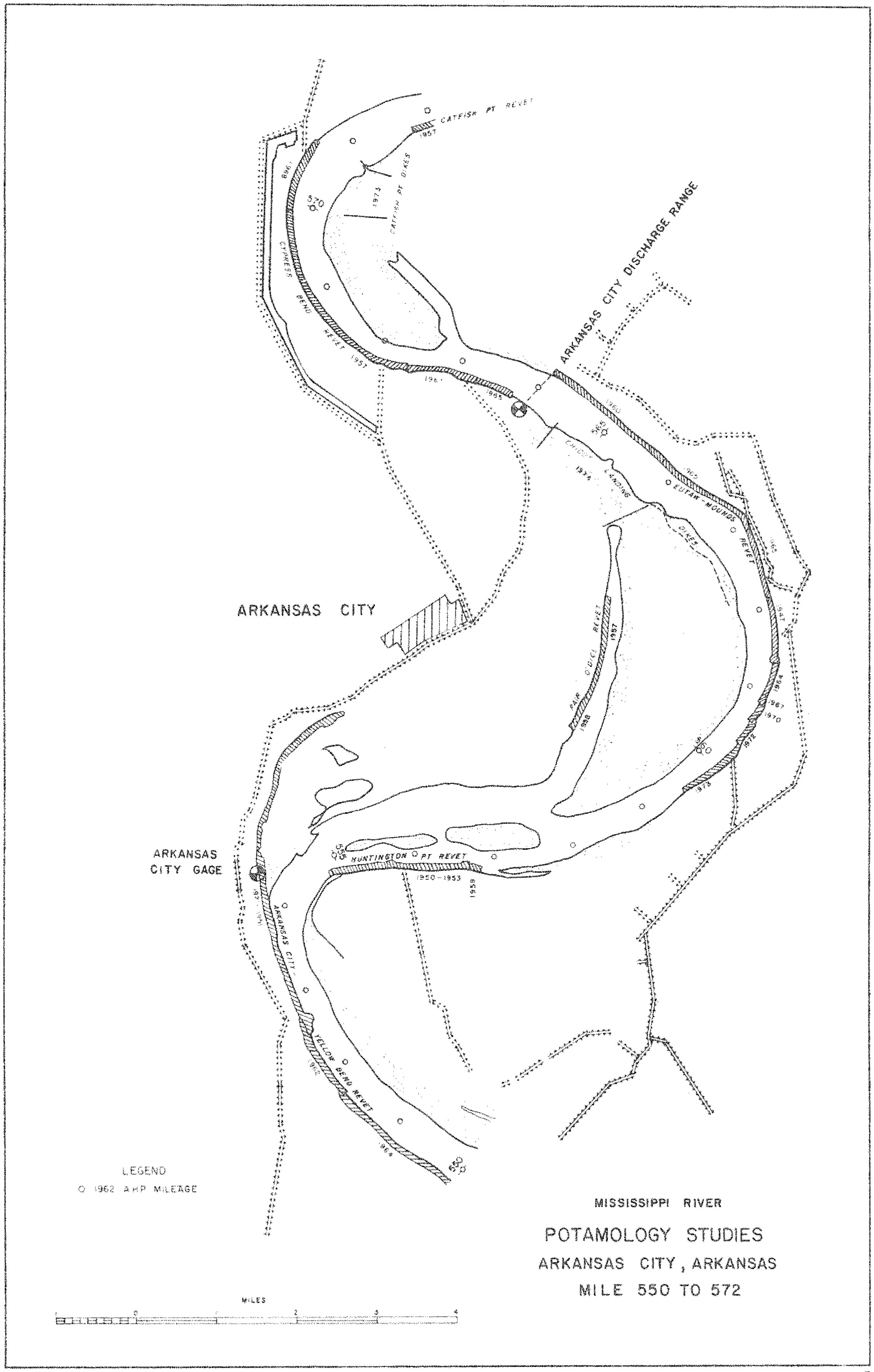

MISSISSIPPI RIVER

**POTAMOLOGY STUDIES**

***LONGITUDINAL PROFILE COMPARISON***

HIGH AND LOW STAGE

OZARK-EUTAW
1973-74



CATFISH PT REVET
1957
CATFISH PT DIKES
1973
570
1968
CYPRESS BEND REVET 1957
1961
1965
ARKANSAS CITY DISCHARGE RANGE
1960
565
CHICOT LANDING
1974
1965
EUTAW-MOUNDS REVET
DIKES
ARKANSAS CITY
PAIR O'DICE REVET
1957
1958
1964
1967
1970
1972
1973
560
ARKANSAS CITY GAGE
555
HUNTINGTON PT REVET
1950-1953
1959
ARKANSAS CITY
YELLOW BEND REVET
1964
550
LEGEND
○ 1962 AHP MILEAGE
MILES
1 0 1 2 3 4
MISSISSIPPI RIVER
POTAMOLOGY STUDIES
ARKANSAS CITY, ARKANSAS
MILE 550 TO 572


PLATE 5

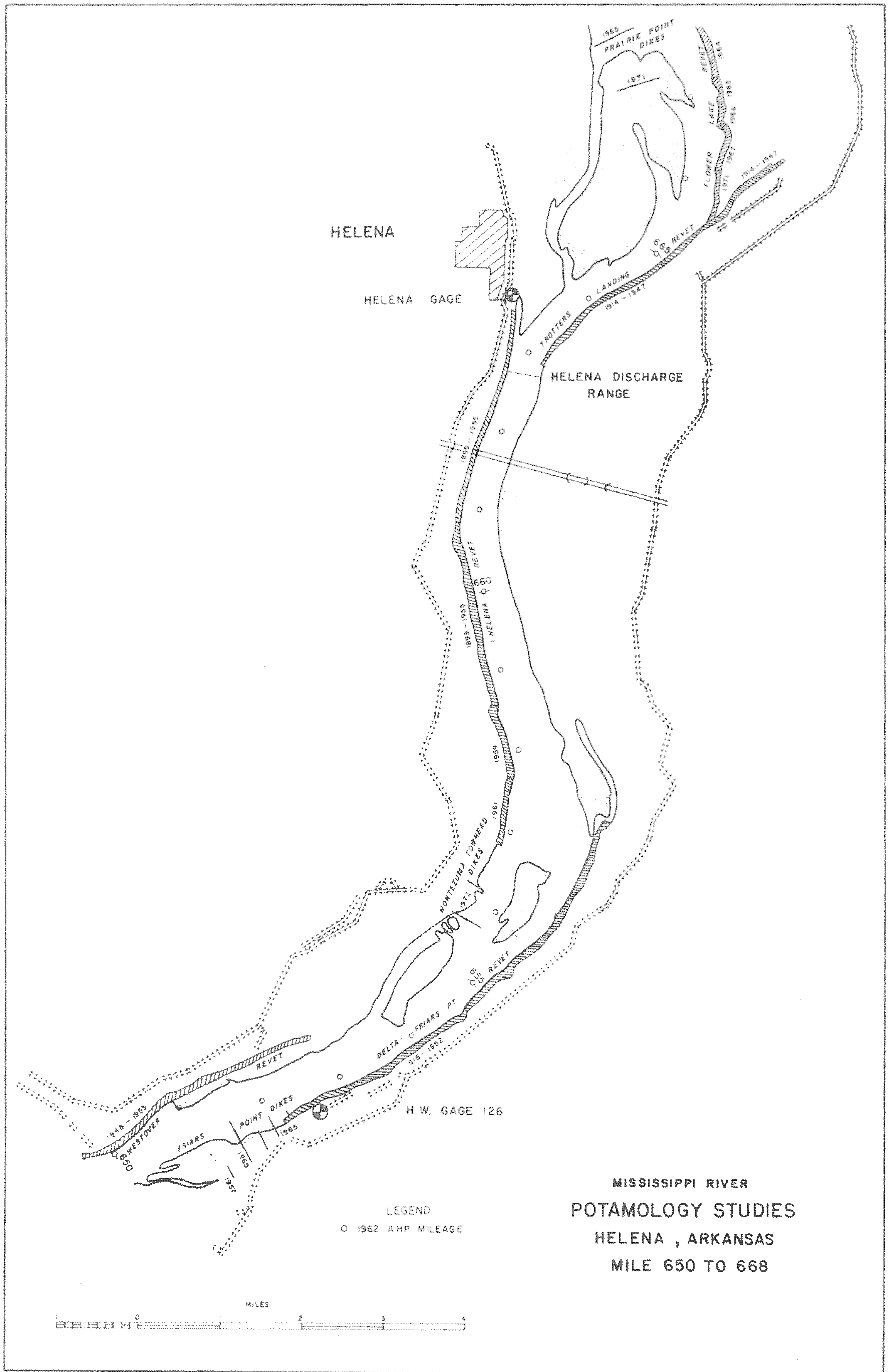
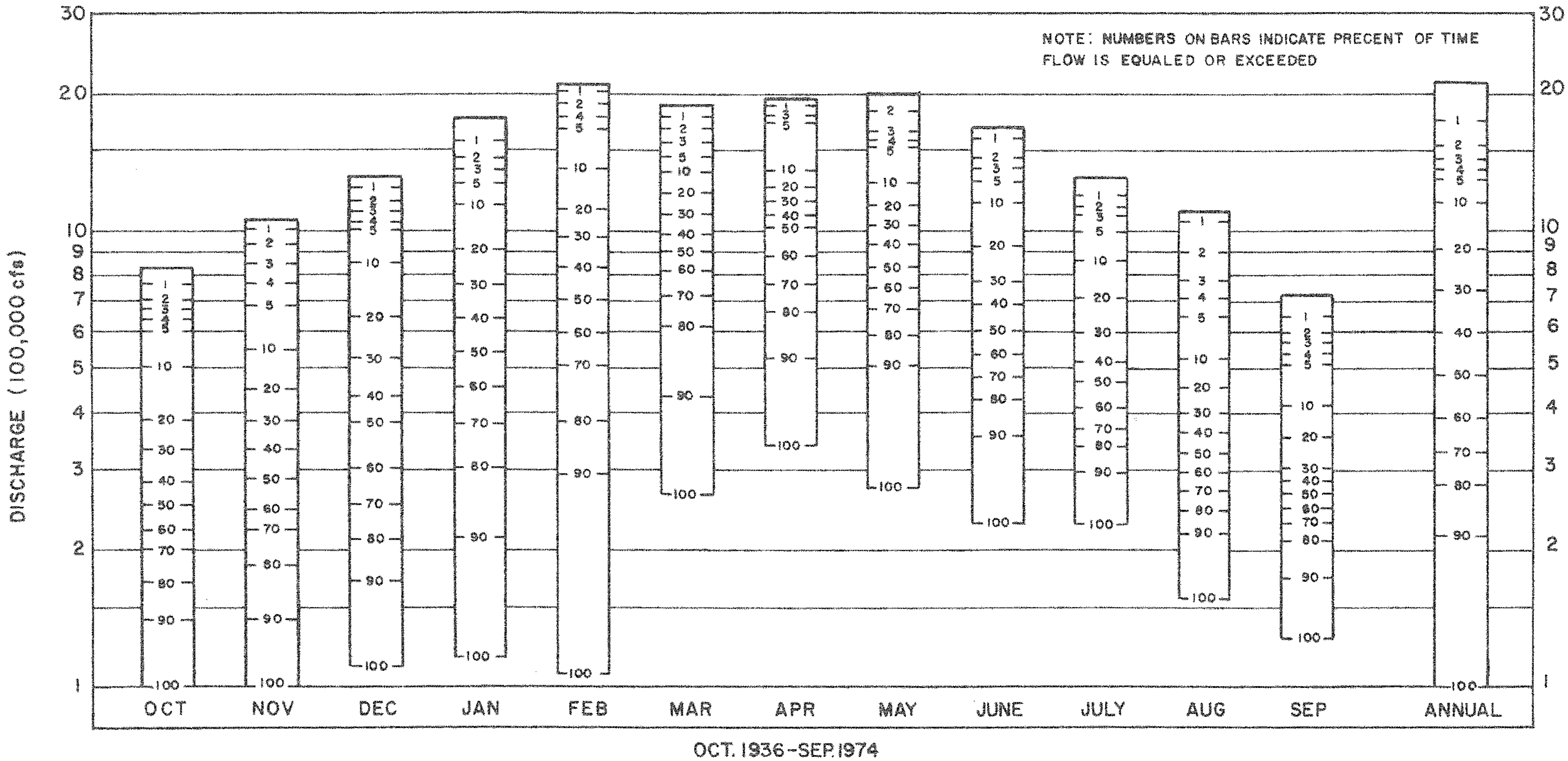

HELENA
HELENA GAGE
PRAIRIE POINT DIKES
FLOWER LAKE REVET
TROTTERS LANDING
REVET
HELENA DISCHARGE RANGE
HELENA REVET
MONTEZUMA TOWHEAD DIKES
DELTA - FRIARS PT REVET
REVET
WESTOVER
FRIARS POINT DIKES
H.W. GAGE 126
LEGEND
1962 AHP MILEAGE
MILES
MISSISSIPPI RIVER
POTAMOLOGY STUDIES
HELENA , ARKANSAS
MILE 650 TO 668

PLATE 6

# Appendix C: Figures




MISSISSIPPI RIVER

POTAMOLOGY STUDIES

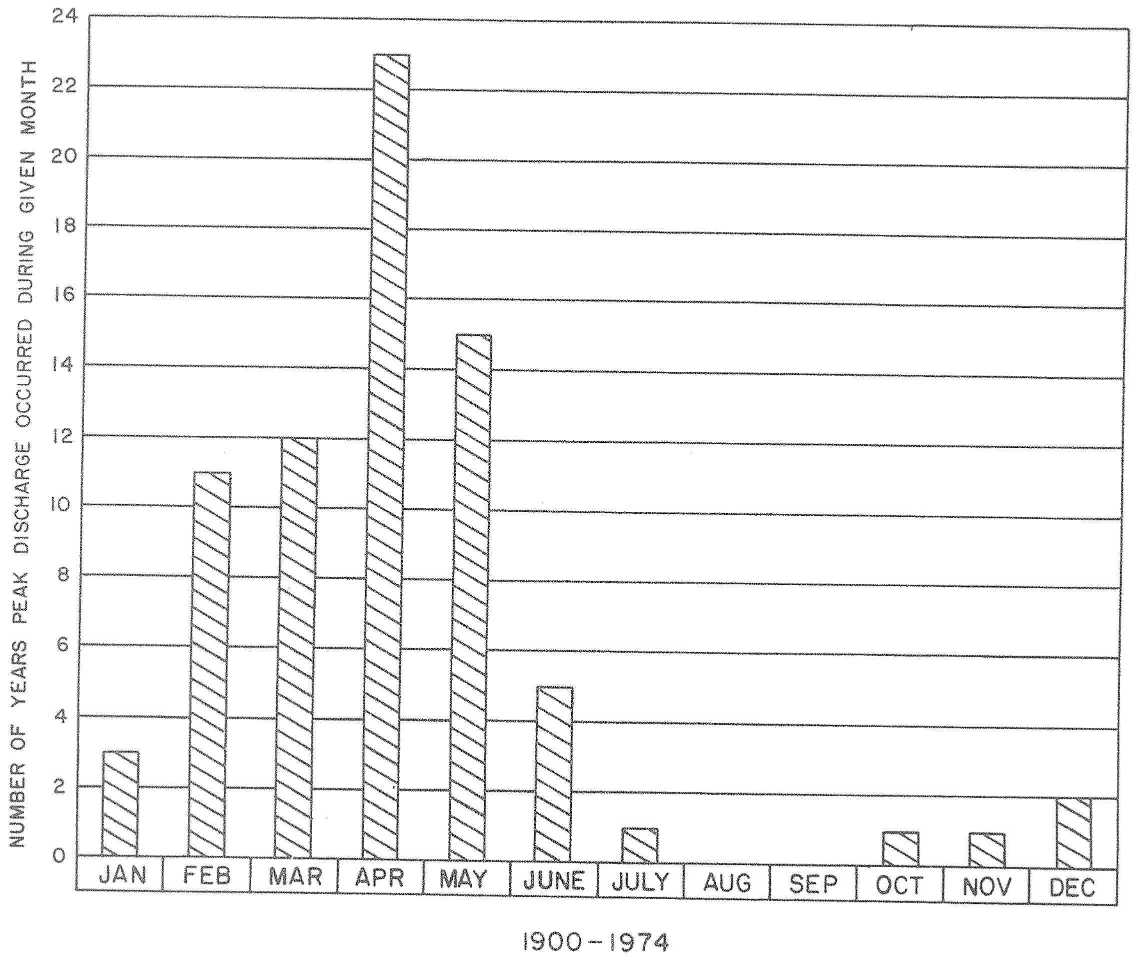
DISCHARGE DURATION BY MONTHS

VICKSBURG DISCHARGE RANGE

MILE 435.41 AHP

OCT. 1936 - SEP. 1974

FIGURE 1




MISSISSIPPI RIVER

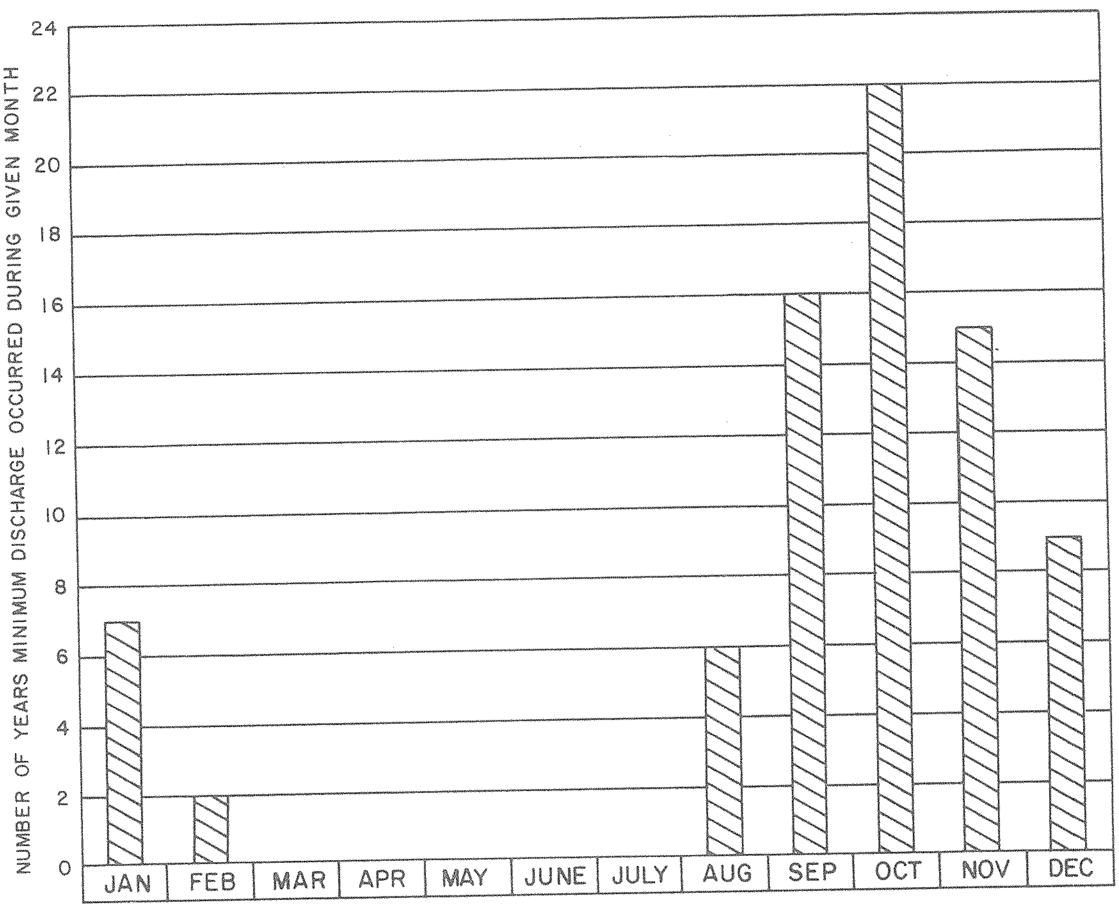
POTAMOLOGY STUDIES

OCCURRENCE OF PEAK DISCHARGES, 1900-1974

ARKANSAS CITY DISCHARGE RANGE

MILE 565.9 AHP

FIGURE 2




1900 - 1974

MISSISSIPPI RIVER

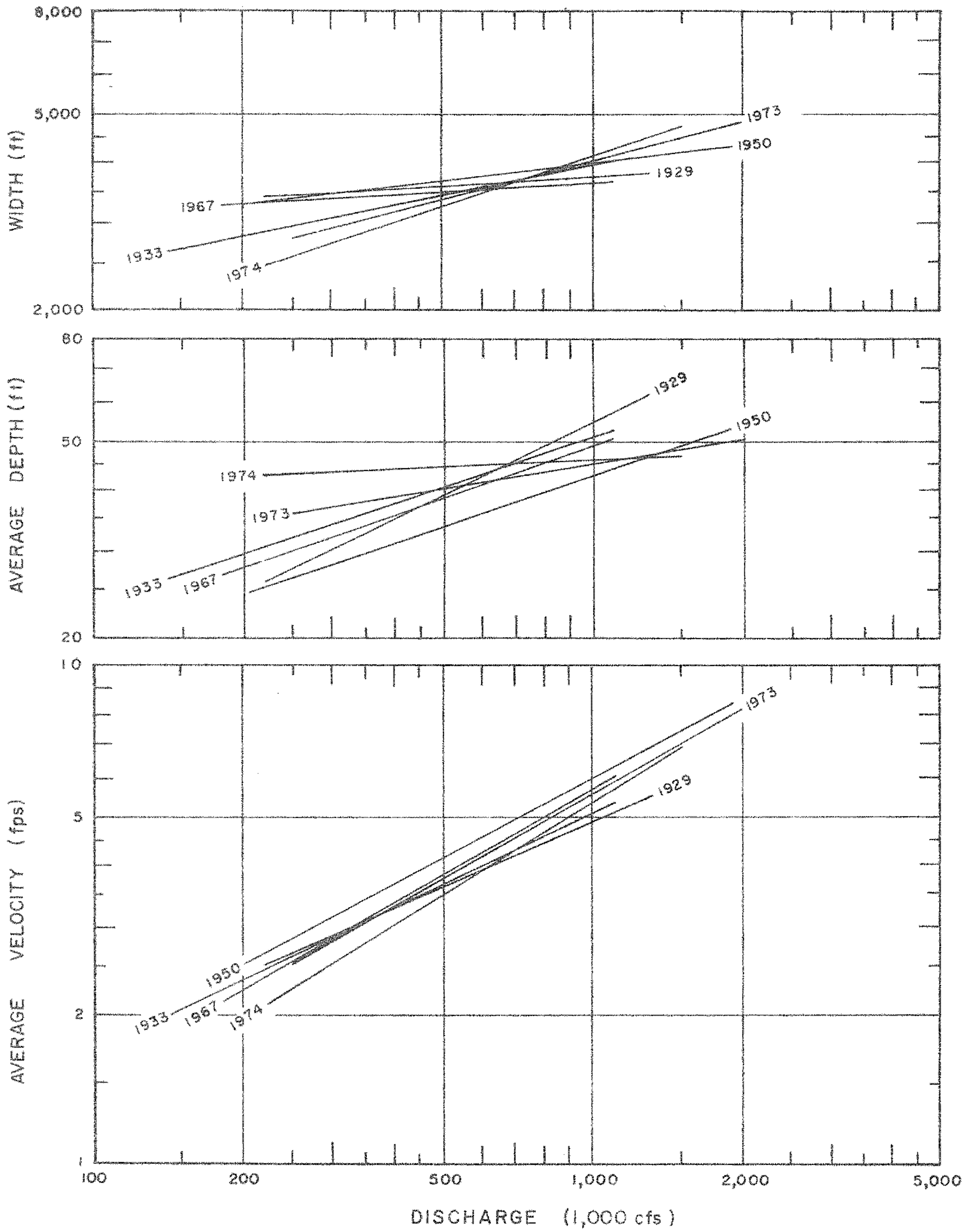
POTAMOLOGY STUDIES

OCCURRENCE OF MINIMUM DISCHARGES, 1900–1974

ARKANSAS CITY DISCHARGE RANGE

MILE 565.9 AHP

FIGURE 3




MISSISSIPPI RIVER

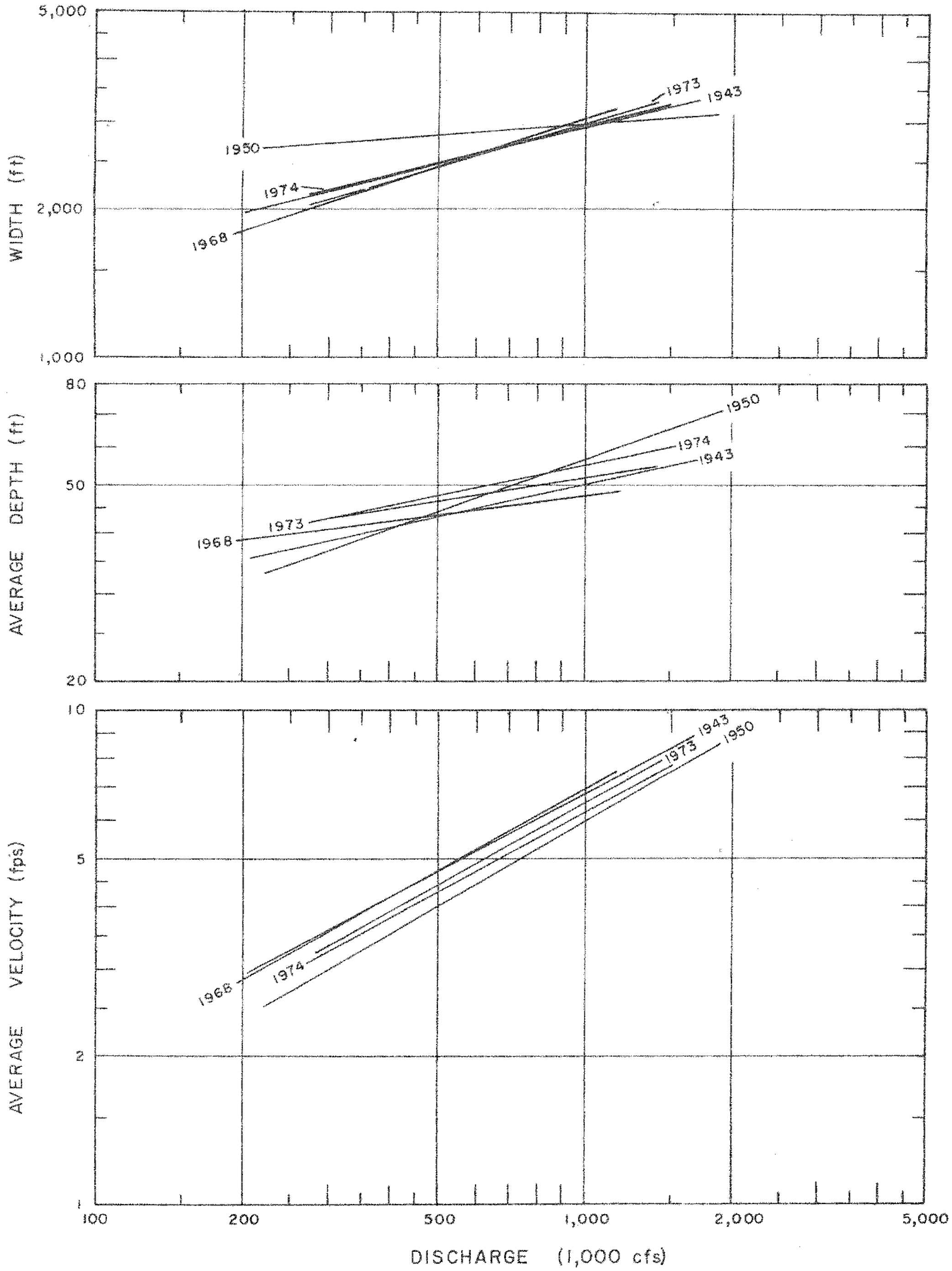
POTAMOLOGY STUDIES

RELATION OF WIDTH, DEPTH, AND VELOCITY TO DISCHARGE BY WATER YEAR

ARKANSAS CITY DISCHARGE RANGE

MILE 565.9 AHP

FIGURE 4

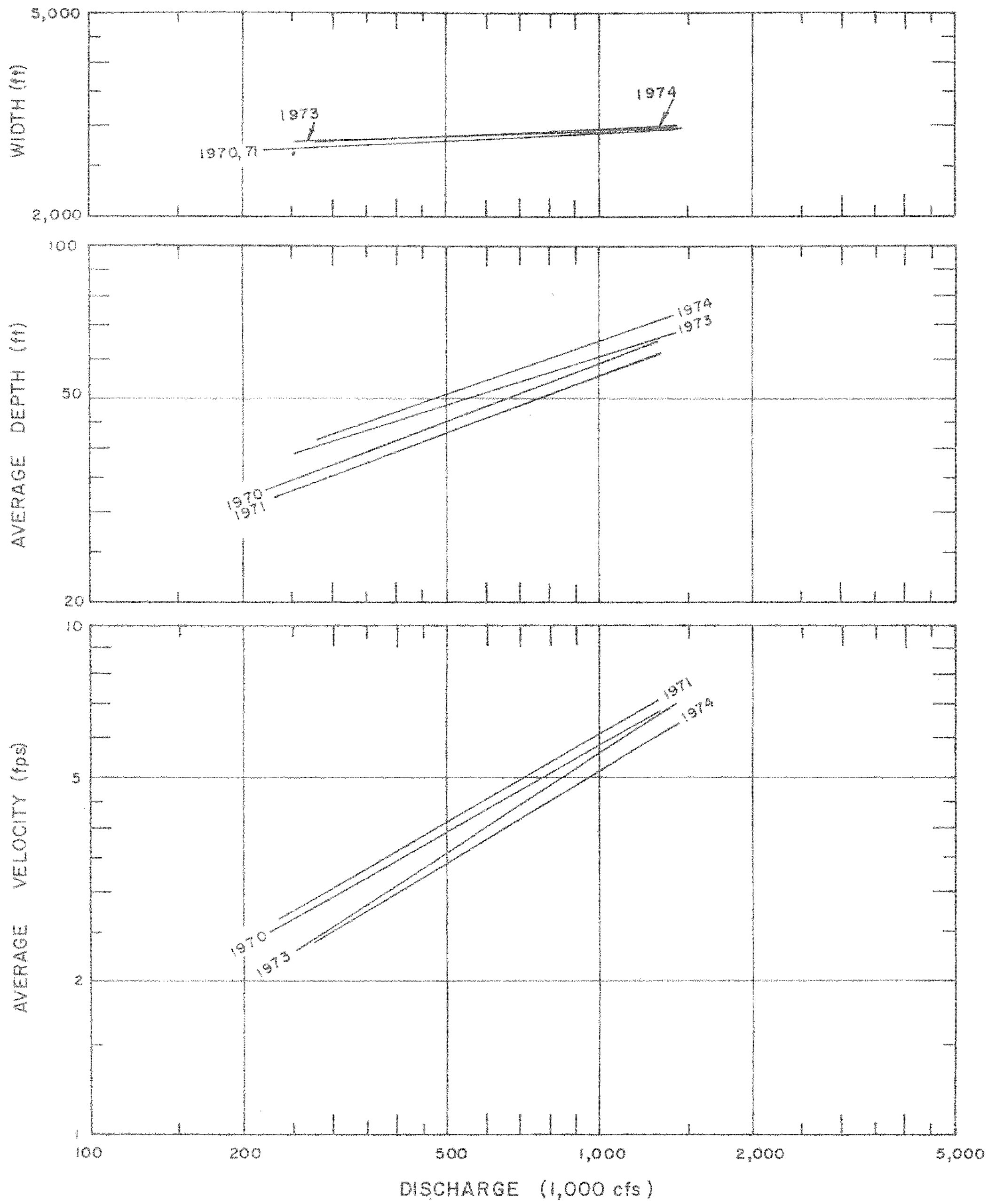



MISSISSIPPI RIVER

POTAMOLOGY STUDIES

RELATION OF WIDTH, DEPTH, AND VELOCITY
TO DISCHARGE BY WATER YEAR
VICKSBURG DISCHARGE RANGE
MILE 435.41 AHP

FIGURE 5




MISSISSIPPI RIVER

POTAMOLOGY STUDIES

RELATION OF WIDTH, DEPTH, AND VELOCITY TO DISCHARGE BY WATER YEAR

NATCHEZ DISCHARGE RANGE

MILE 362.34 AHP

FIGURE 6

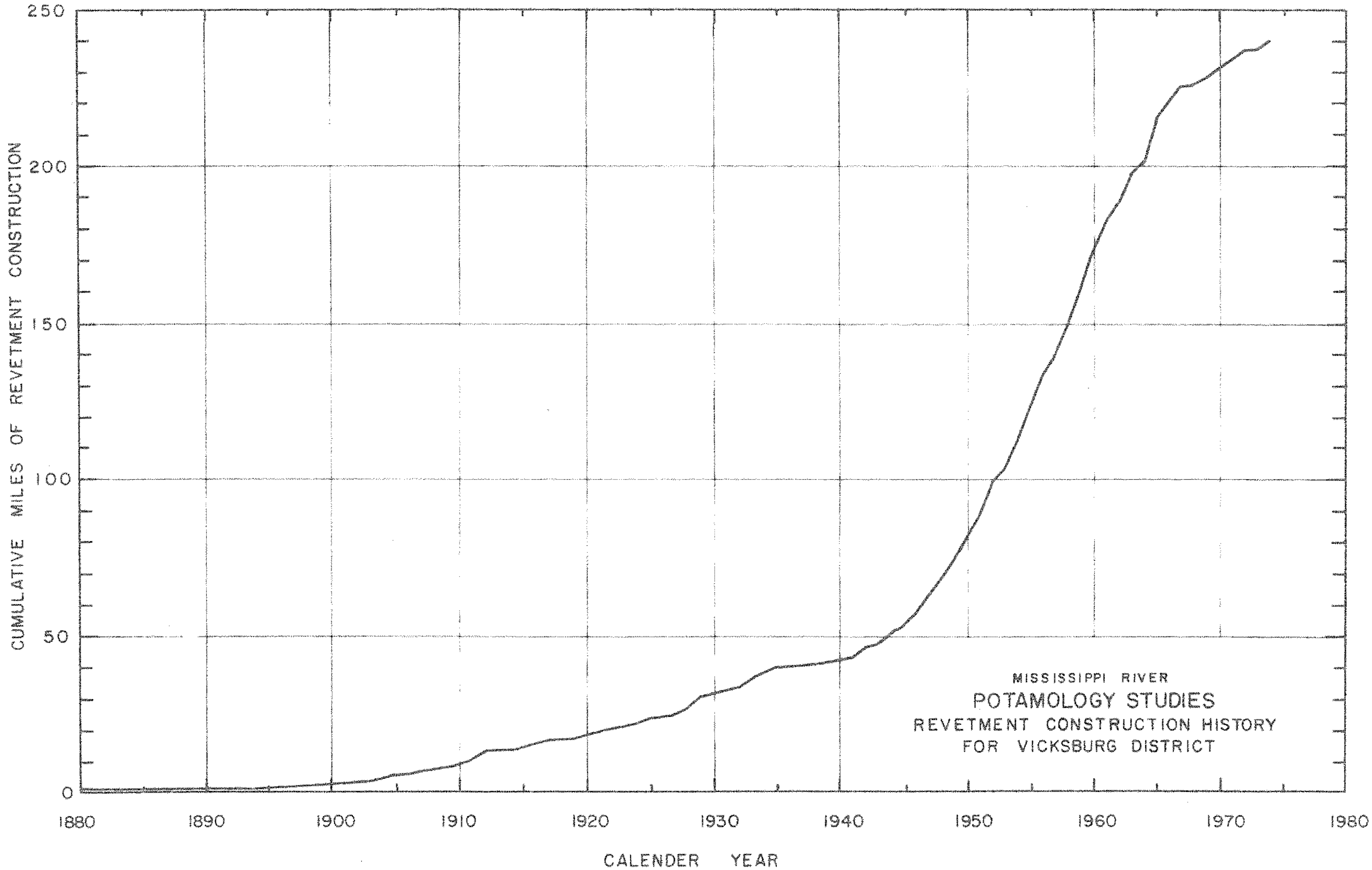
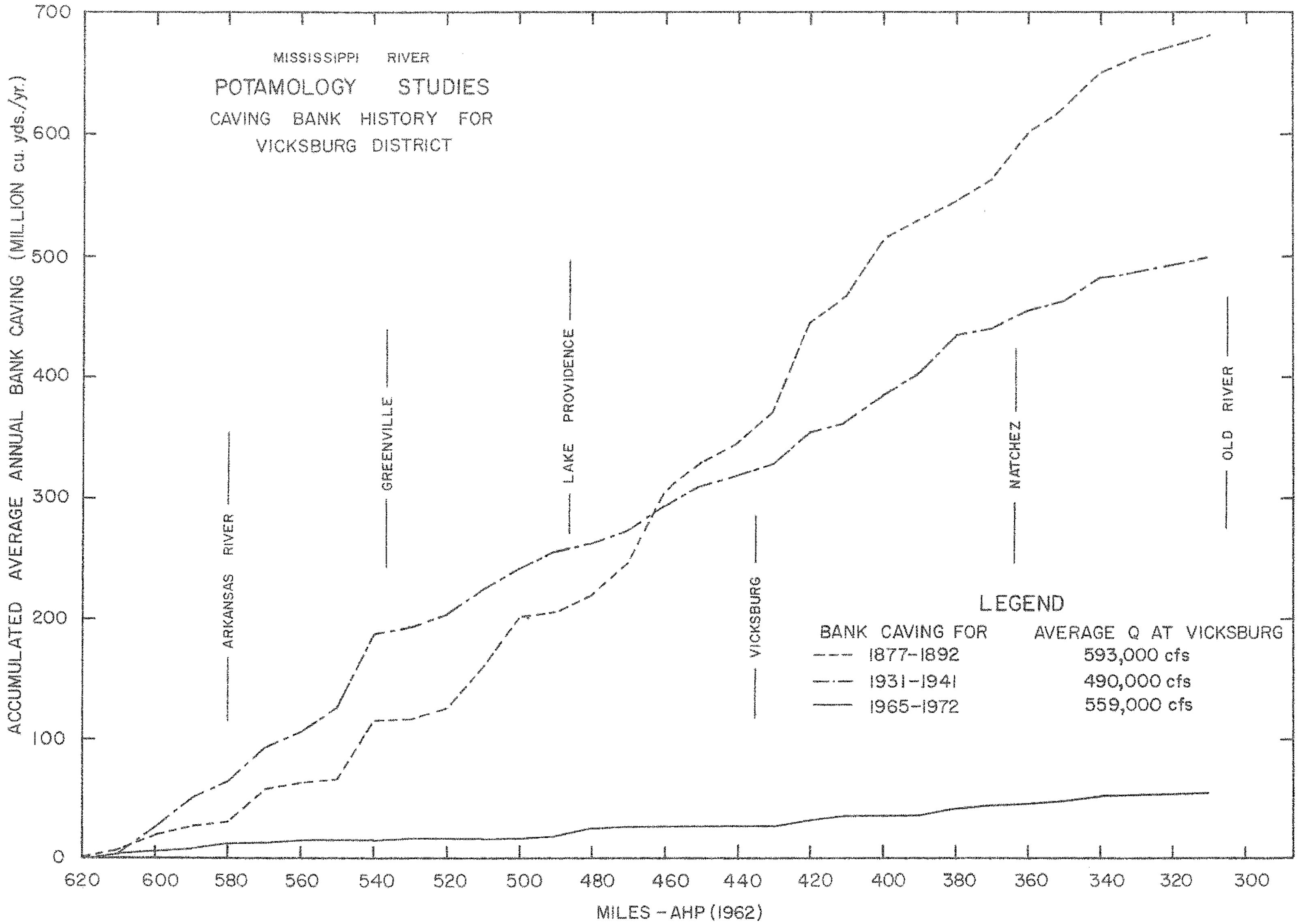
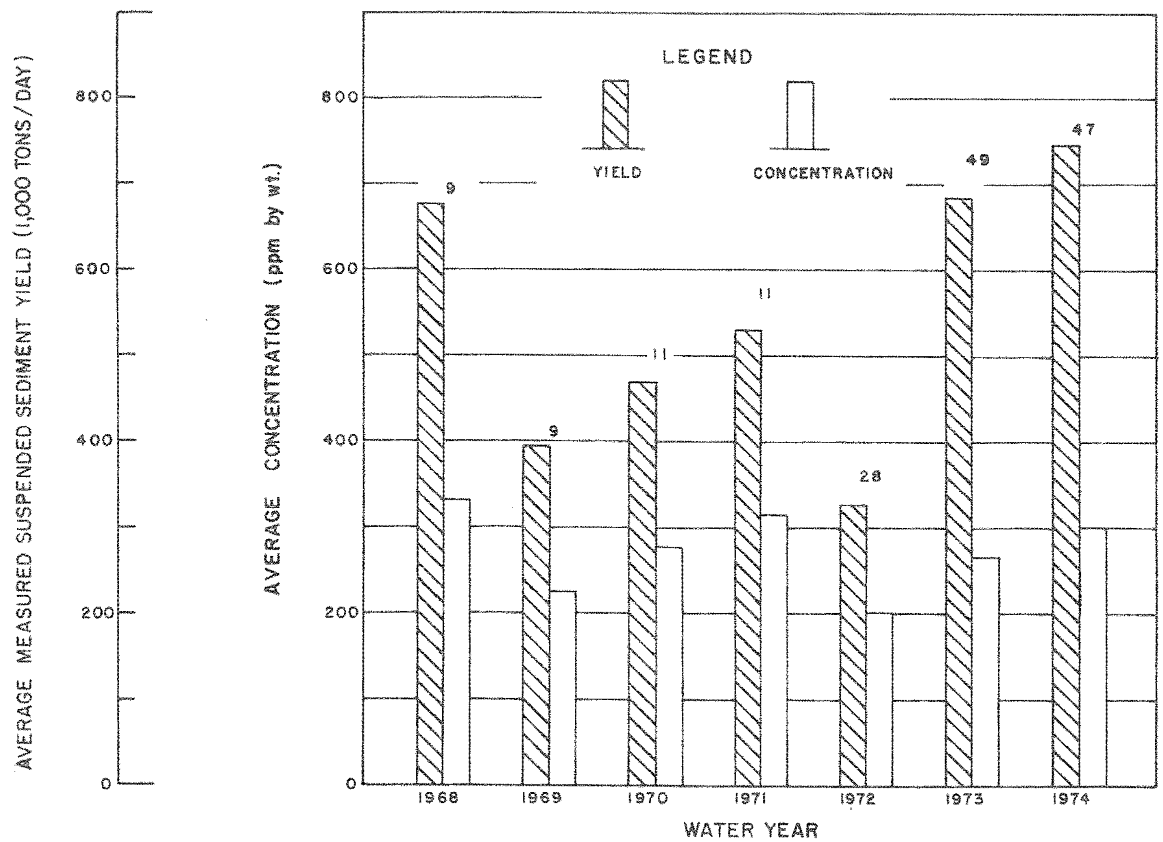

MISSISSIPPI RIVER
POTAMOLOGY STUDIES
REVETMENT CONSTRUCTION HISTORY
FOR VICKSBURG DISTRICT
CUMULATIVE MILES OF REVETMENT CONSTRUCTION
CALENDER YEAR
0
50
100
150
200
250
1880
1890
1900
1910
1920
1930
1940
1950
1960
1970
1980

FIGURE 7

FIGURE 8



MISSISSIPPI RIVER
POTAMOLOGY STUDIES
CAVING BANK HISTORY FOR
VICKSBURG DISTRICT
ACCUMULATED AVERAGE ANNUAL BANK CAVING (MILLION cu. yds./yr.)
0
100
200
300
400
500
600
700
620
600
580
560
540
520
500
480
460
440
420
400
380
360
340
320
300
MILES – AHP (1962)
ARKANSAS RIVER
GREENVILLE
LAKE PROVIDENCE
VICKSBURG
NATCHEZ
OLD RIVER
LEGEND
BANK CAVING FOR
AVERAGE Q AT VICKSBURG
1877–1892
593,000 cfs
1931–1941
490,000 cfs
1965–1972
559,000 cfs




NOTE:
NUMBER ABOVE BARS INDICATE NUMBER OF MEASUREMENTS MADE.

MISSISSIPPI RIVER

POTAMOLOGY STUDIES

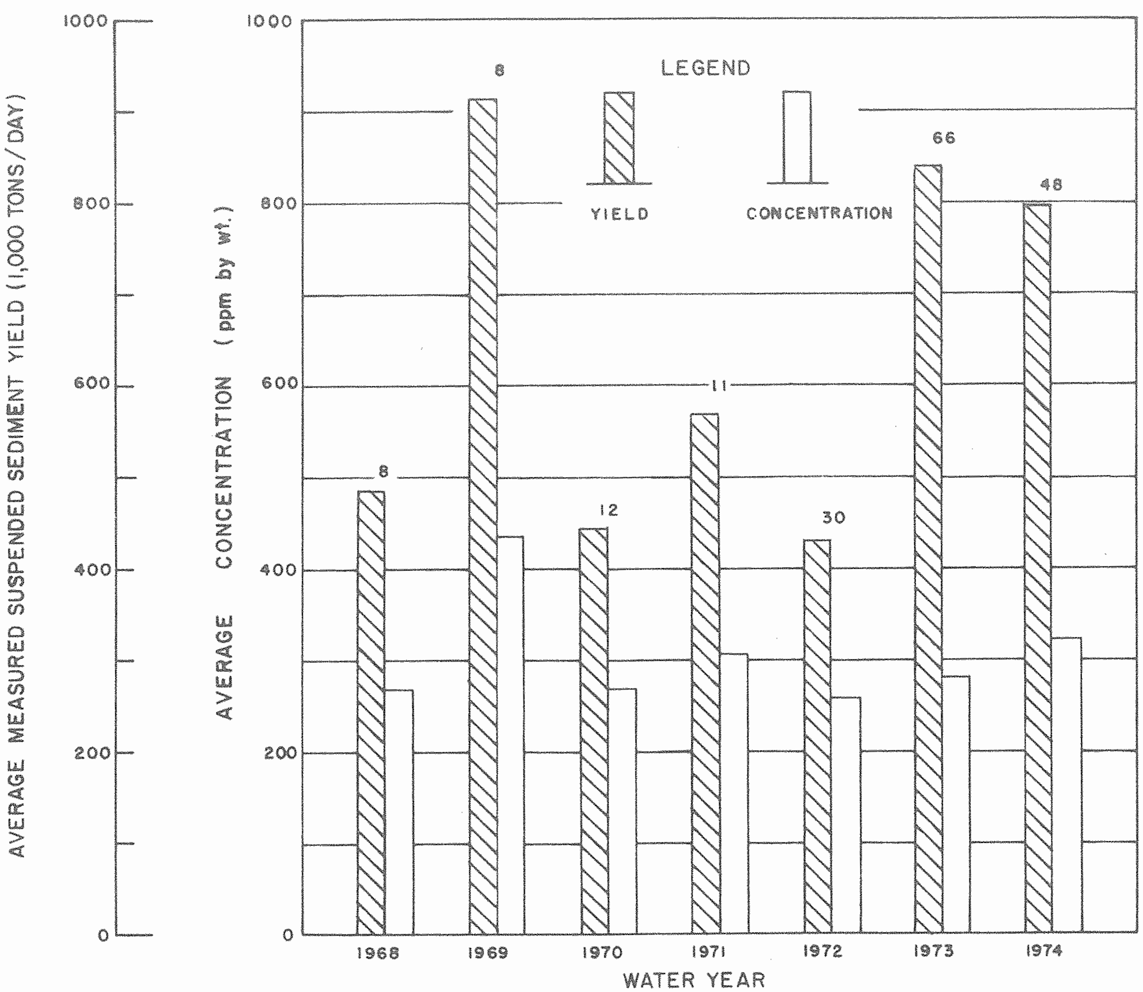
AVERAGE MEASURED SUSPENDED SEDIMENT YIELD AND CONCENTRATION, 1968-1974

ARKANSAS CITY DISCHARGE RANGE

MILE 565.9 AHP

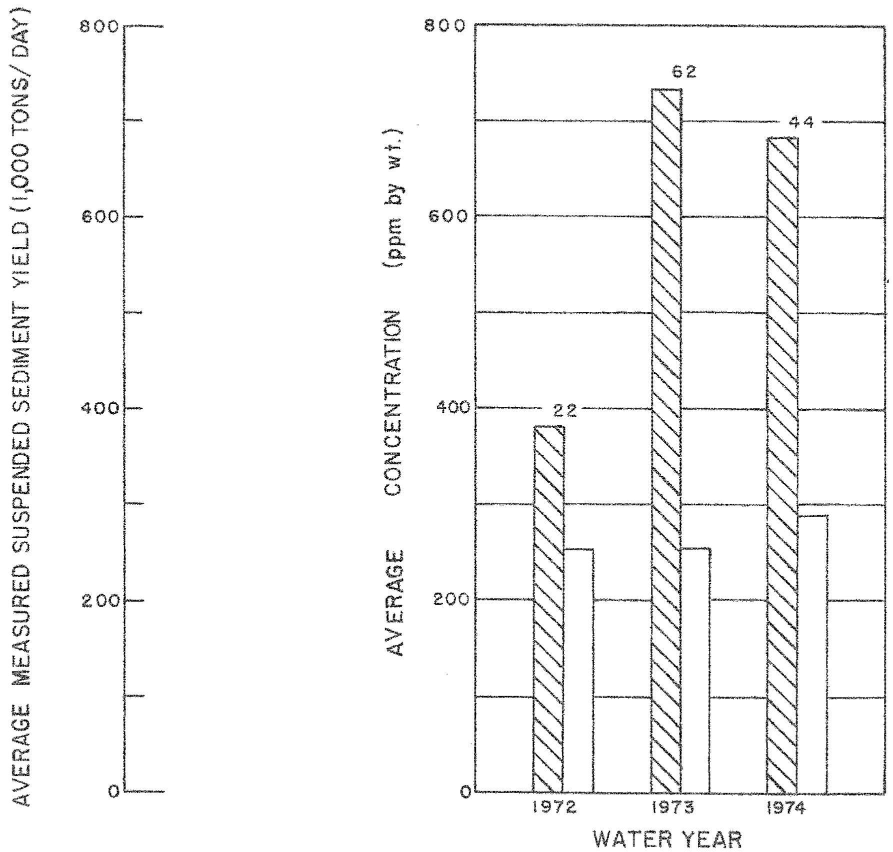
FIGURE 9

FIGURE 10




NOTE:
NUMBERS ABOVE BARS INDICATE NUMBER OF MEASUREMENTS MADE

MISSISSIPPI RIVER
POTAMOLOGY STUDIES
AVERAGE MEASURED SUSPENDED SEDIMENT YIELD AND CONCENTRATION, 1968-1974
VICKSBURG DISCHARGE RANGE
MILE 435.41 AHP




NOTE:
NUMBERS ABOVE BARS INDICATE NUMBER OF MEASUREMENTS MADE

LEGEND


MISSISSIPPI RIVER

POTAMOLOGY STUDIES

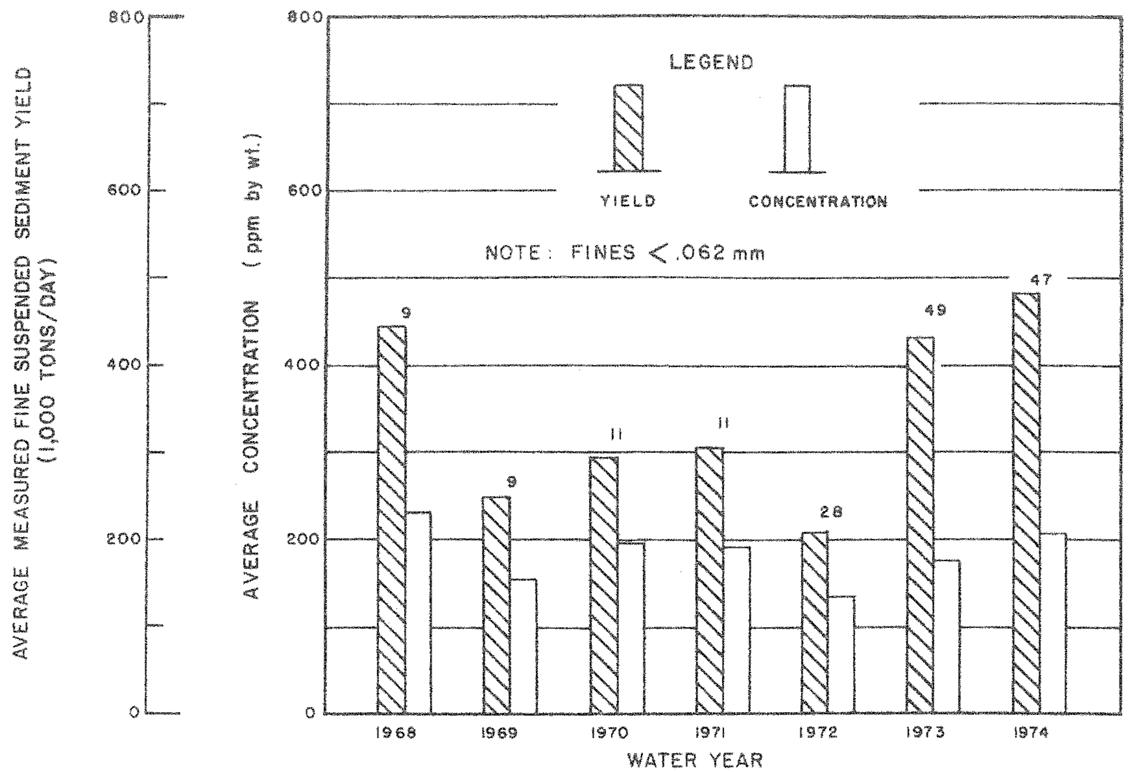
AVERAGE MEASURED SUSPENDED SEDIMENT YIELD AND CONCENTRATION, 1972-1974

NATCHEZ DISCHARGE RANGE

MILE 362.34 AHP

FIGURE 11

FIGURE 12




NOTE:
NUMBERS ABOVE BARS
INDICATE NUMBER OF
MEASUREMENTS MADE

MISSISSIPPI RIVER

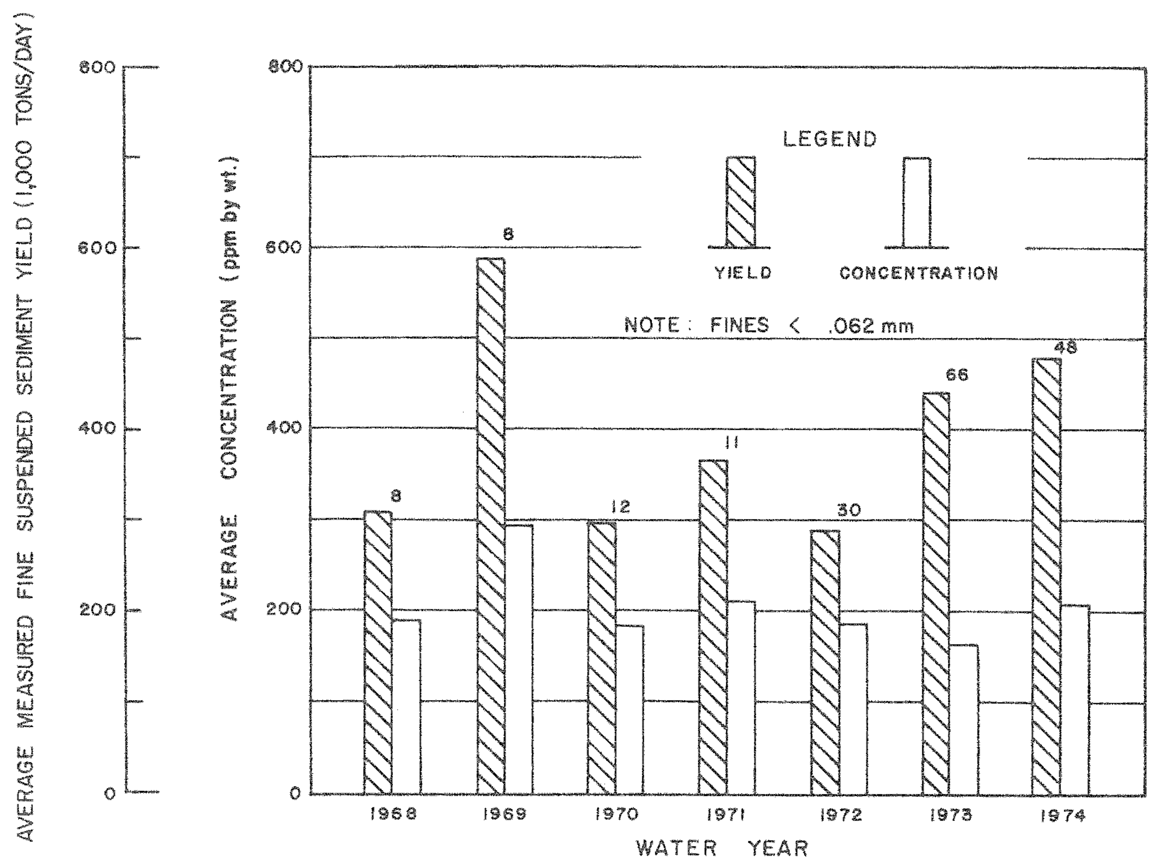
POTAMOLOGY STUDIES

AVERAGE MEASURED FINE SUSPENDED SEDIMENT

YIELD AND CONCENTRATION, 1968-1974

ARKANSAS CITY DISCHARGE RANGE

MILE 565.9 AHP




NOTE:
NUMBERS ABOVE BARS
INDICATE NUMBER OF
MEASUREMENTS MADE

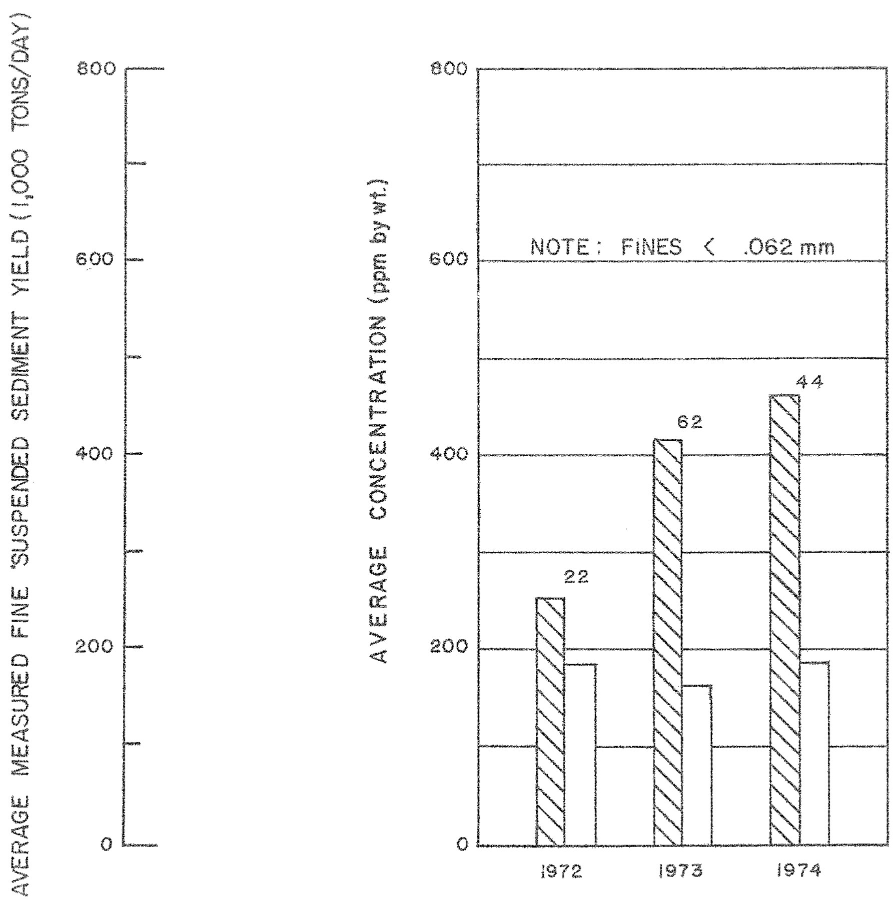
MISSISSIPPI RIVER

POTAMOLOGY STUDIES

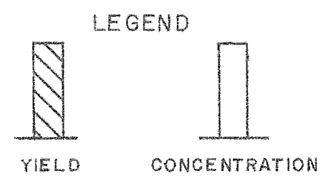
AVERAGE MEASURED FINE SUSPENDED SEDIMENT
YIELD AND CONCENTRATION, 1968-1974
VICKSBURG DISCHARGE RANGE
MILE 435.41 AHP

FIGURE 13

FIGURE 14




NOTE:
NUMBERS ABOVE BARS
INDICATE NUMBER OF
MEASUREMENTS MADE

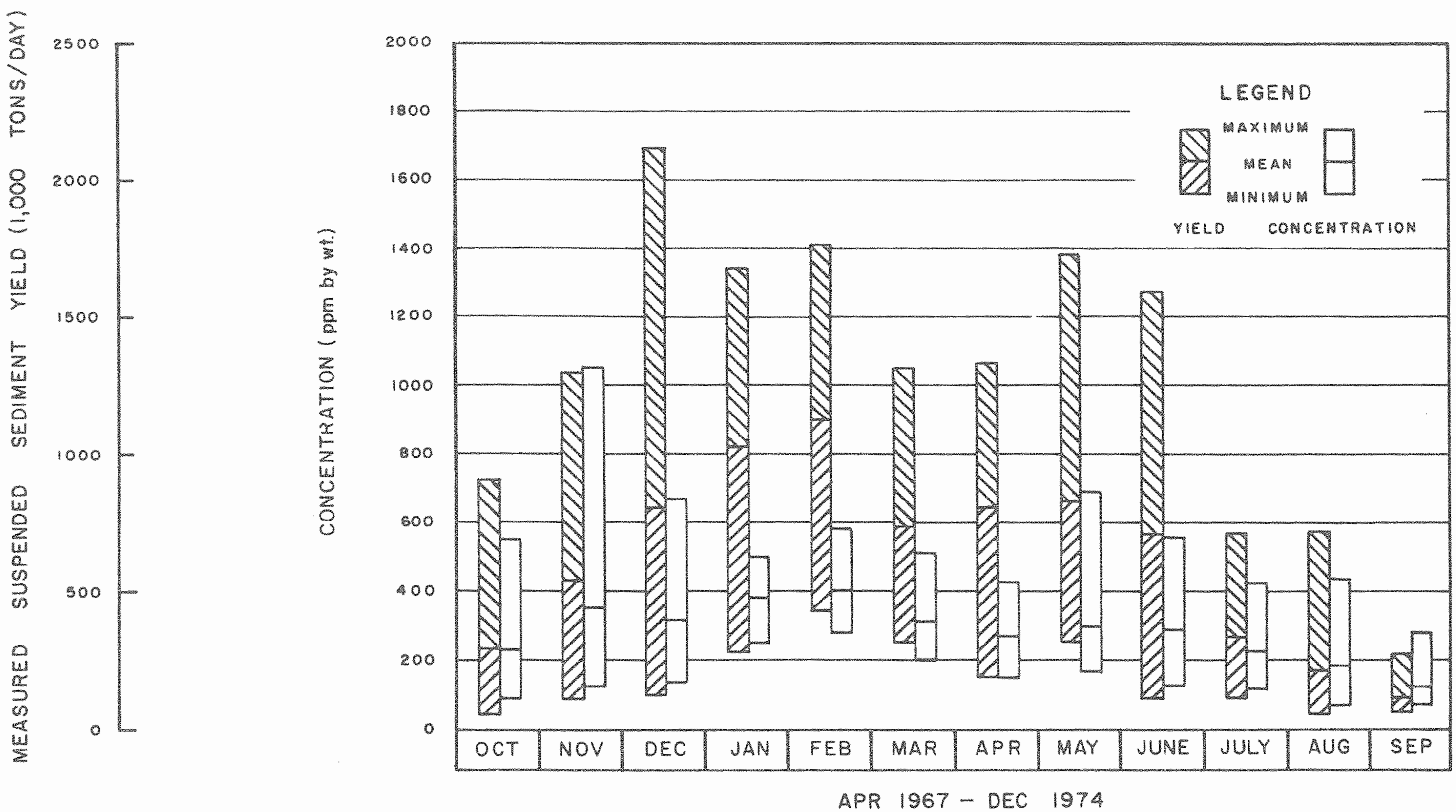



MISSISSIPPI RIVER

POTAMOLOGY STUDIES

AVERAGE MEASURED FINE SUSPENDED SEDIMENT
YIELD AND CONCENTRATION, 1972-1974
NATCHEZ DISCHARGE RANGE

MILE 362.34 AHP




MISSISSIPPI RIVER

POTAMOLOGY STUDIES

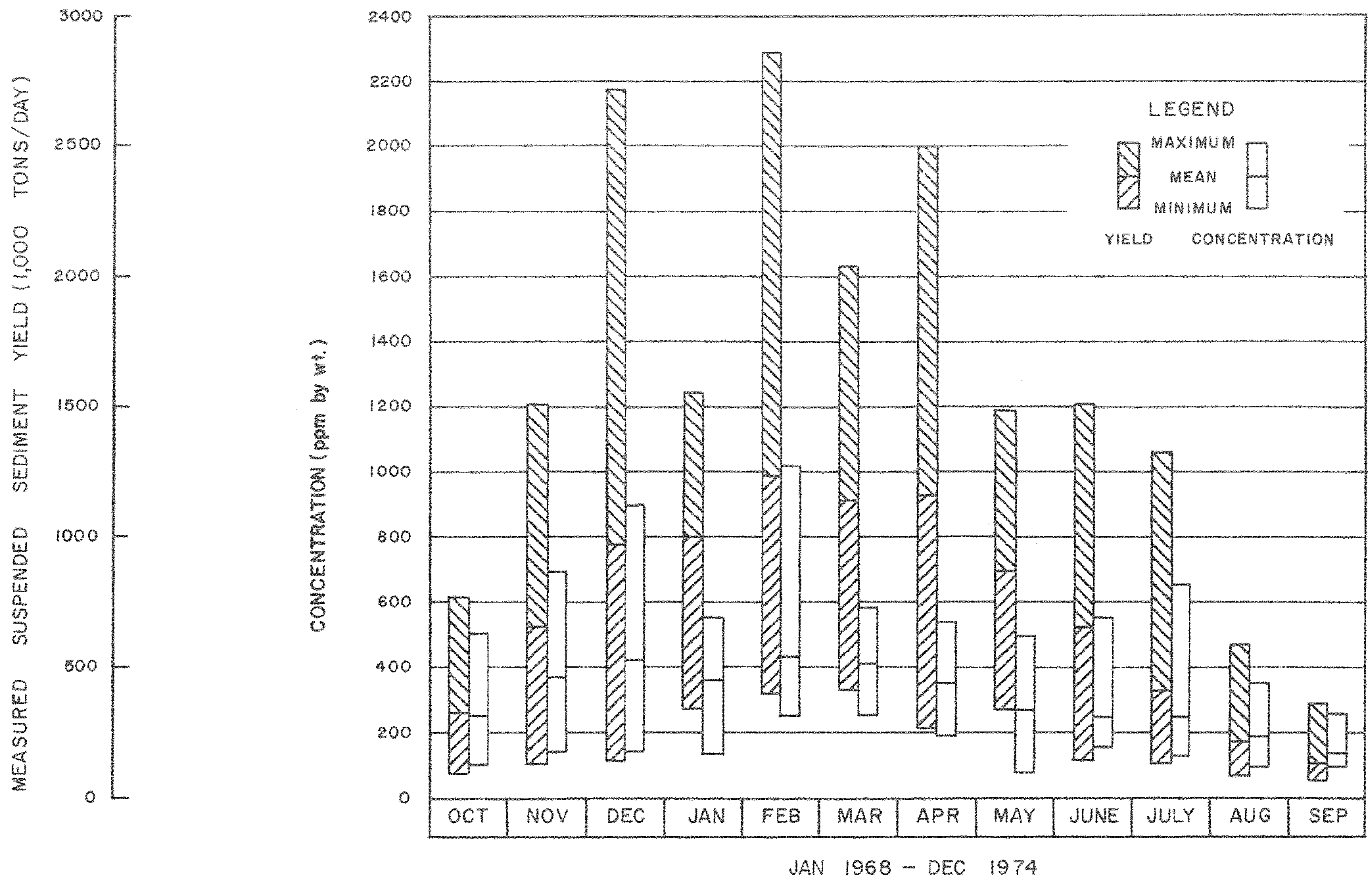
MONTHLY TREND OF MEASURED SUSPENDED SEDIMENT YIELD AND CONCENTRATIONS

ARKANSAS CITY DISCHARGE RANGE

MILE 565.9 AHP

FIGURE 15

FIGURE 16



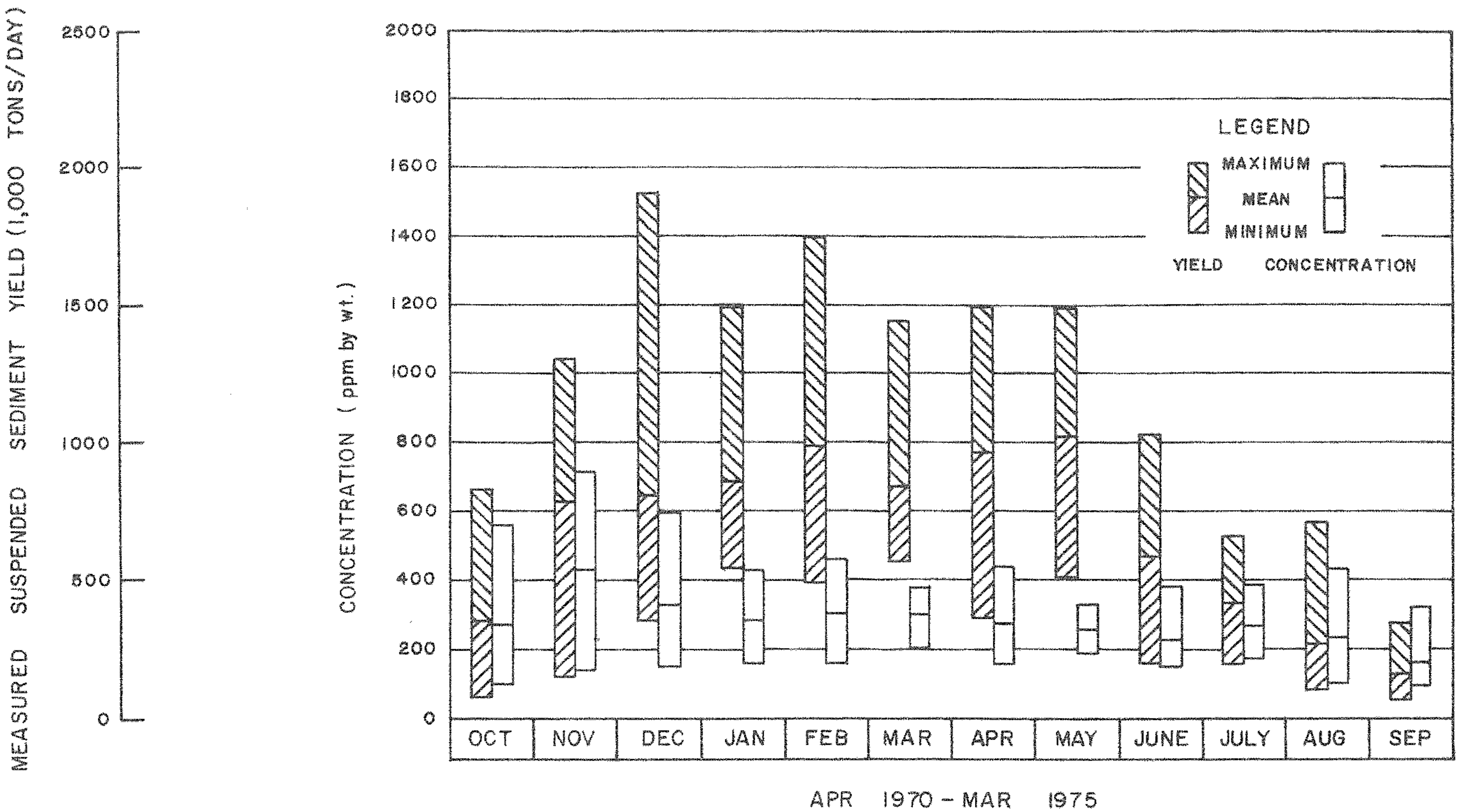

MISSISSIPPI RIVER

POTAMOLOGY STUDIES

MONTHLY TREND OF MEASURED SUSPENDED SEDIMENT YIELD AND CONCENTRATIONS

VICKSBURG DISCHARGE RANGE

MILE 435.41 AHP




MISSISSIPPI RIVER

POTAMOLOGY STUDIES

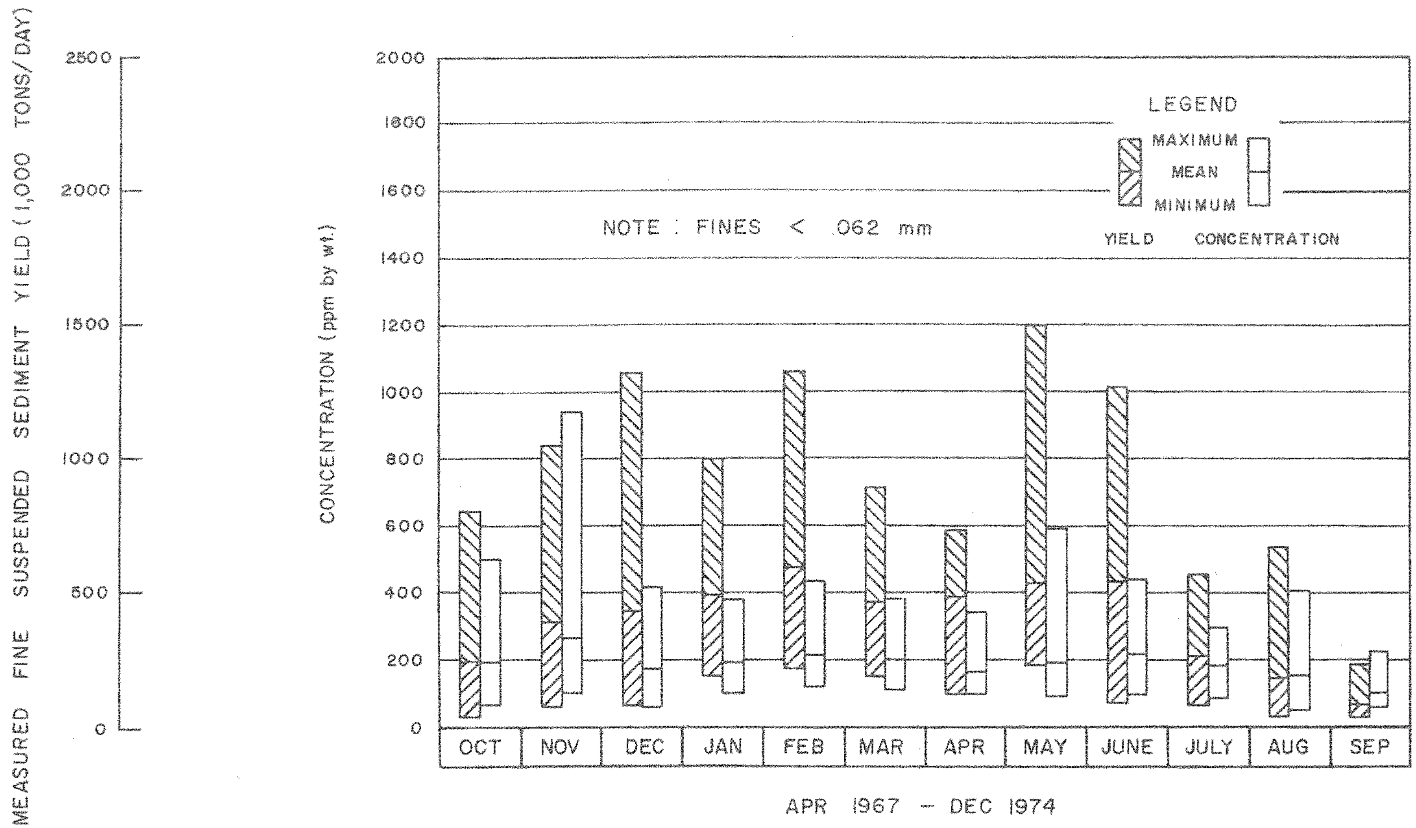
MONTHLY TREND OF MEASURED SUSPENDED SEDIMENT YIELD AND CONCENTRATIONS

NATCHEZ DISCHARGE RANGE

MILE 362.34 AHP

FIGURE 17

FIGURE 18



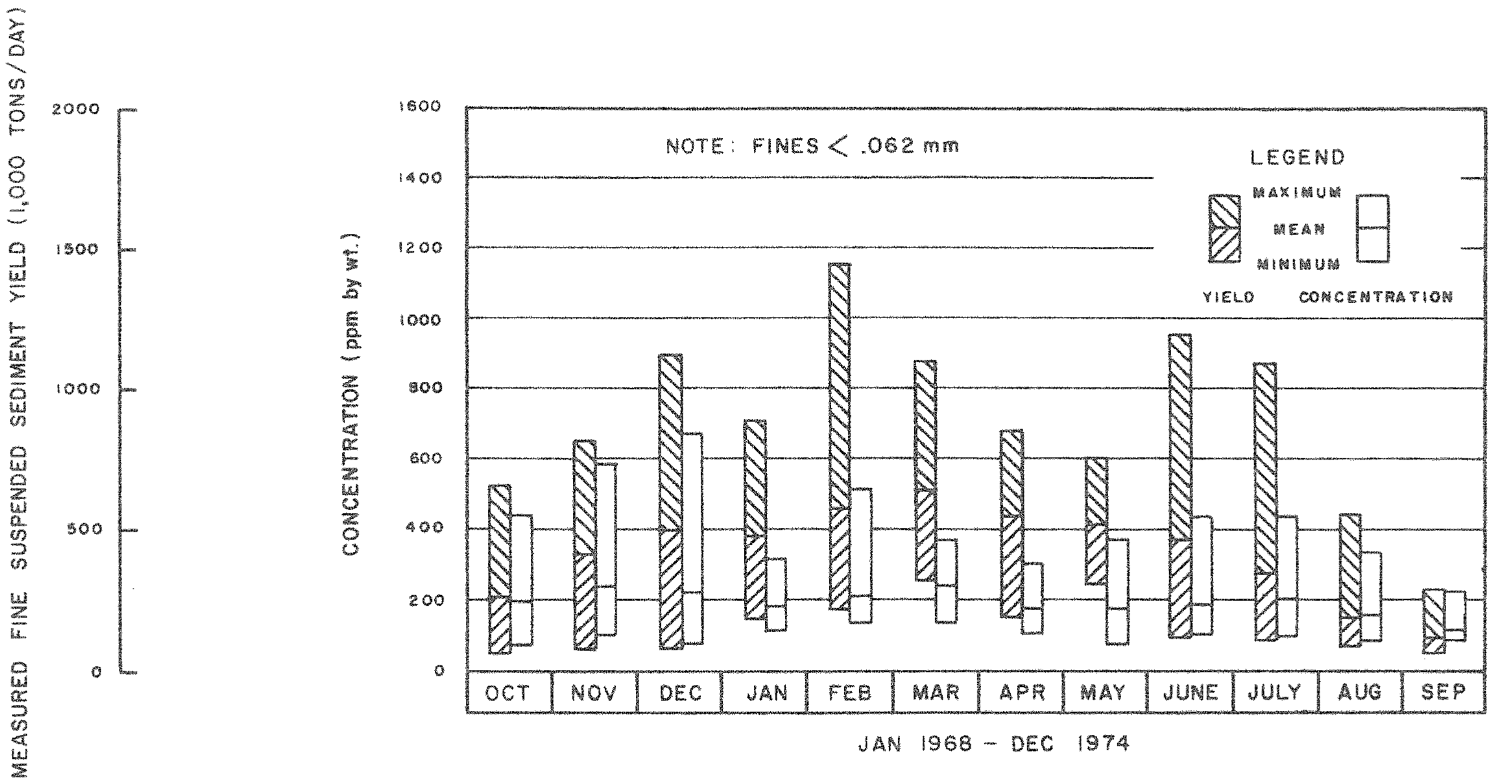

MISSISSIPPI RIVER

POTAMOLOGY STUDIES

MONTHLY TREND OF MEASURED FINE SUSPENDED SEDIMENT YIELD AND CONCENTRATIONS

ARKANSAS CITY DISCHARGE RANGE

MILE 565.9 AHP




MISSISSIPPI RIVER

POTAMOLOGY STUDIES

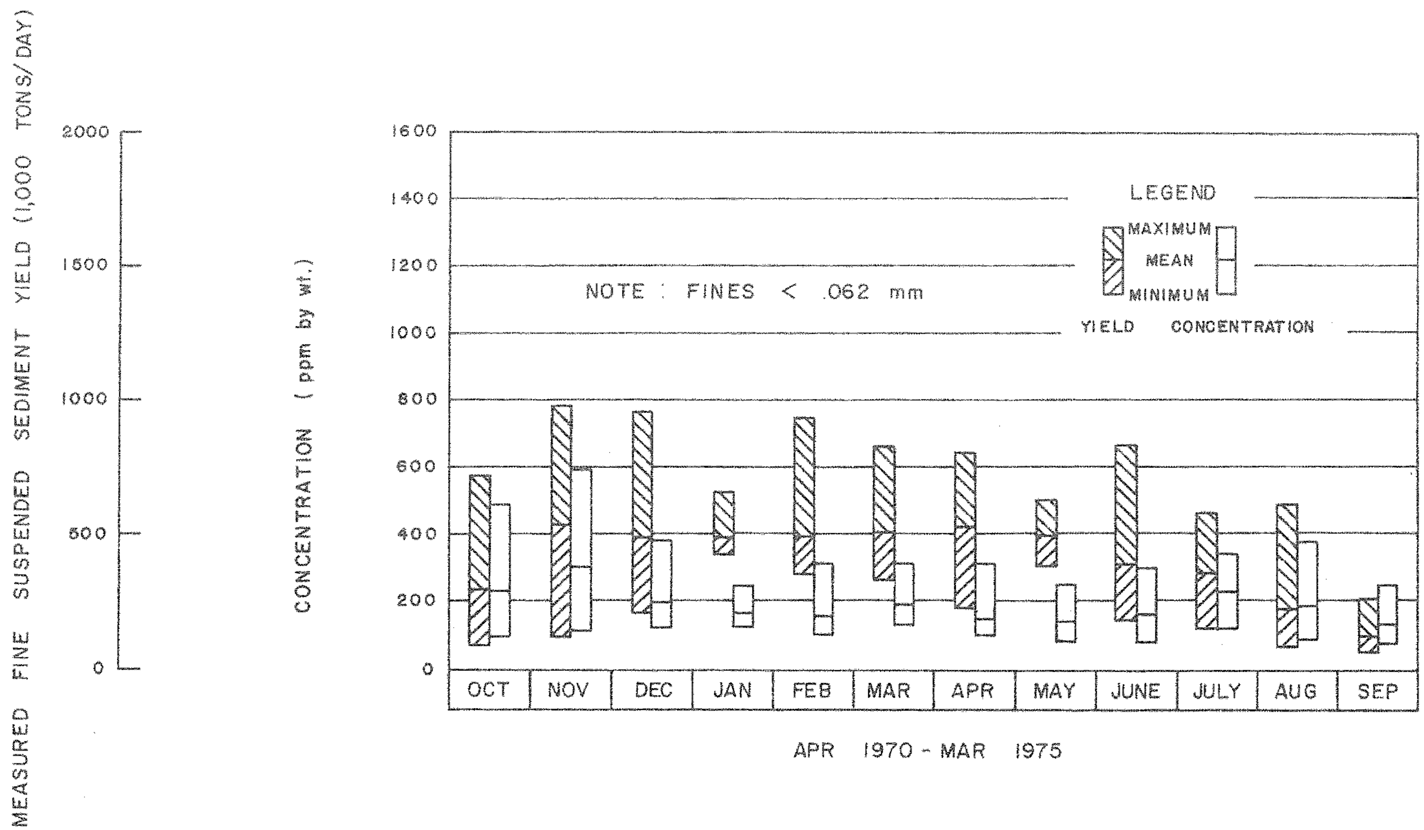
MONTHLY TREND OF MEASURED FINE SUSPENDED SEDIMENT YIELD AND CONCENTRATIONS

VICKSBURG DISCHARGE RANGE

MILE 435.41 AHP

FIGURE 19

FIGURE 20



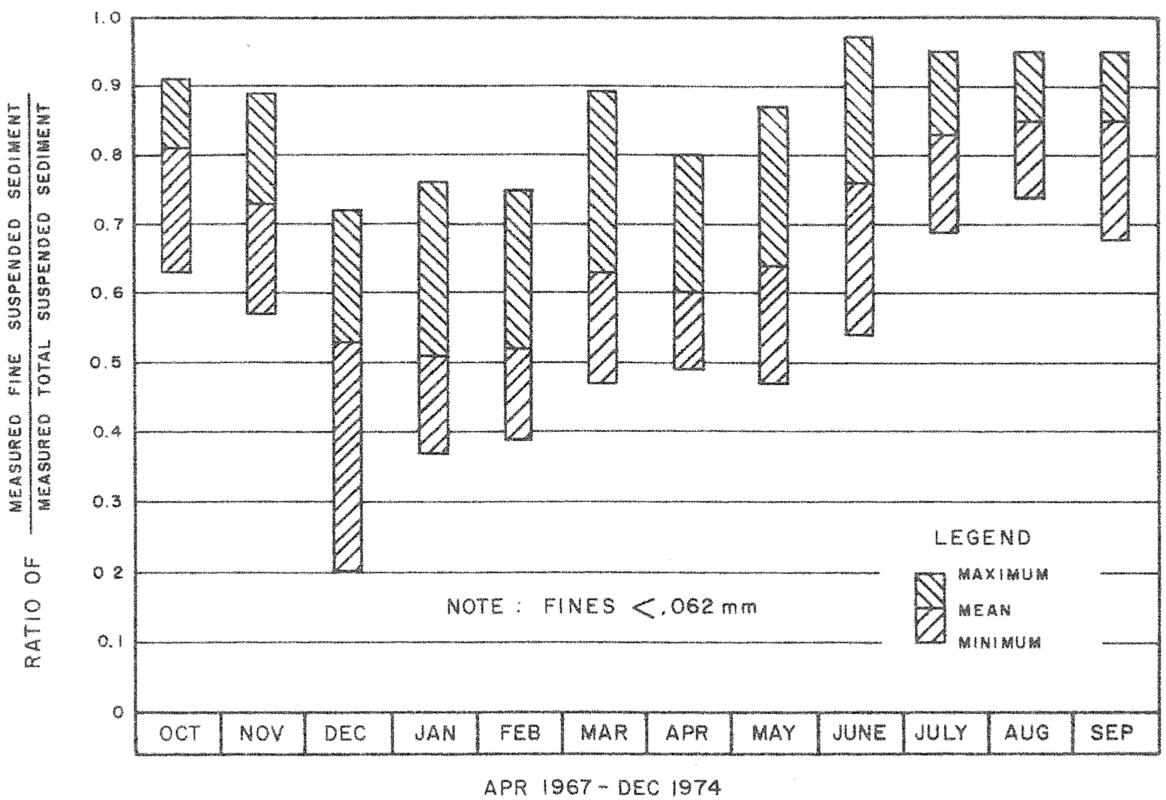

MISSISSIPPI RIVER

POTAMOLOGY STUDIES

MONTHLY TREND OF MEASURED FINE SUSPENDED SEDIMENT YIELD AND CONCENTRATIONS

NATCHEZ DISCHARGE RANGE

MILE 362.34 AHP



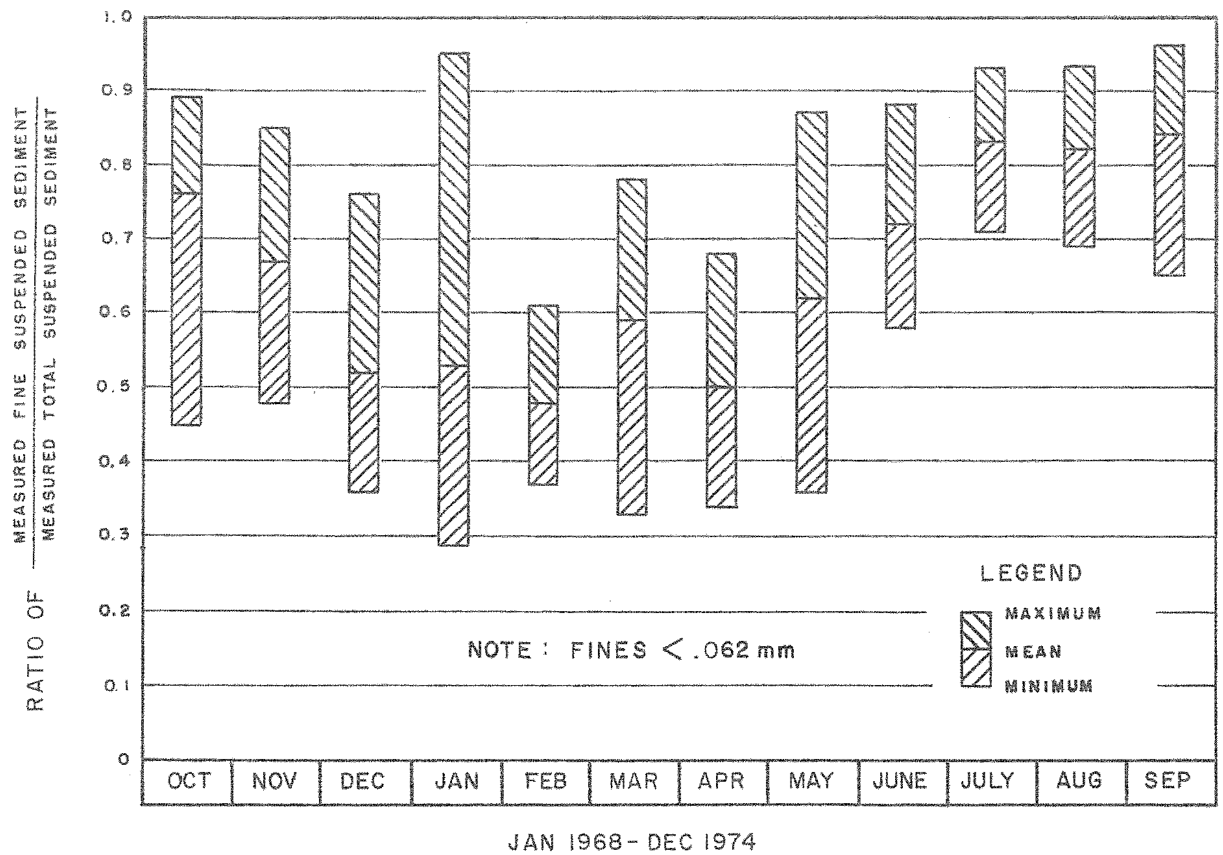

MISSISSIPPI RIVER

POTAMOLOGY STUDIES

MONTHLY TREND OF RATIO OF MEASURED FINE
TO MEASURED TOTAL SUSPENDED SEDIMENT
ARKANSAS CITY DISCHARGE RANGE
MILE 565.9 AHP

FIGURE 21

FIGURE 22



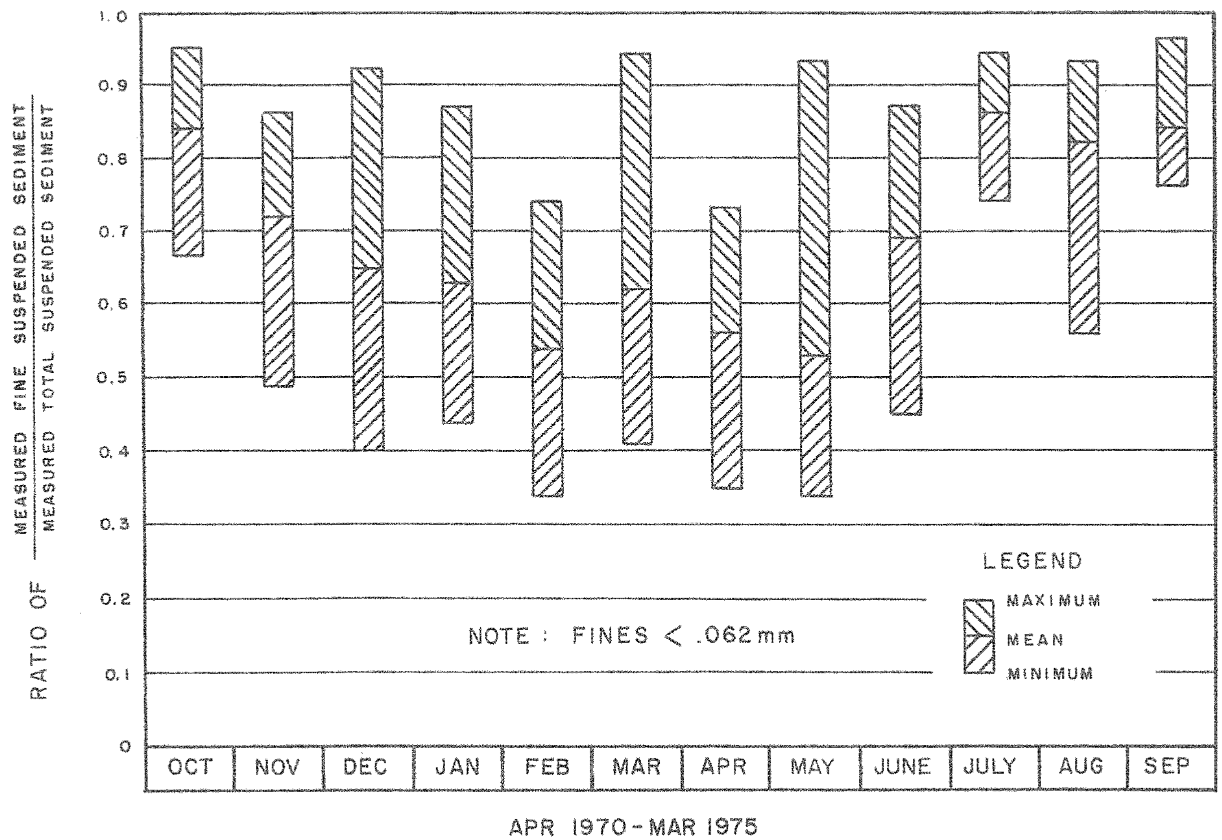

MISSISSIPPI RIVER

POTAMOLOGY STUDIES

MONTHLY TREND OF RATIO OF MEASURED FINE
TO MEASURED TOTAL SUSPENDED SEDIMENT

VICKSBURG DISCHARGE RANGE

MILE 435.41 AHP




MISSISSIPPI RIVER

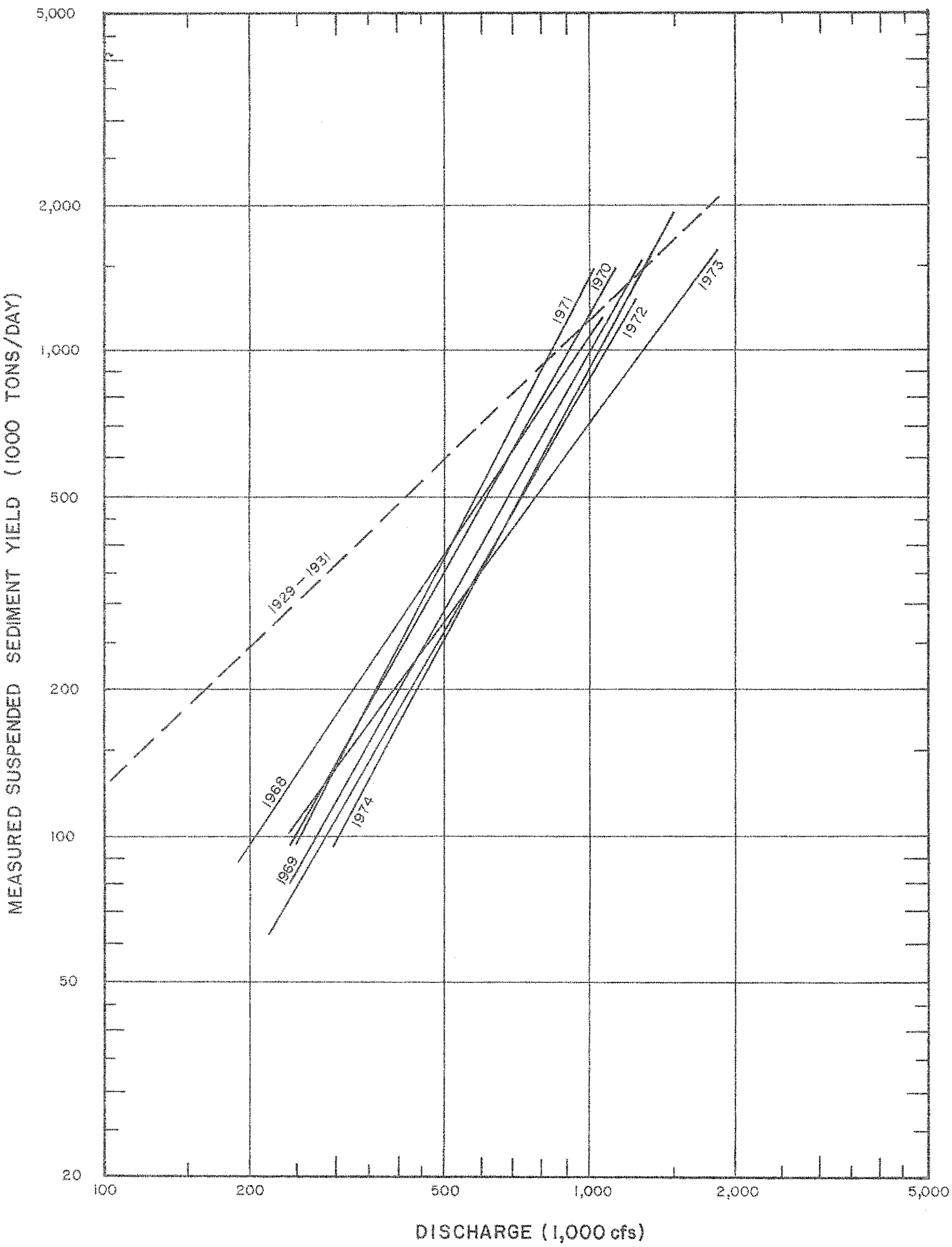
POTAMOLOGY STUDIES

MONTHLY TREND OF RATIO OF MEASURED FINE TO MEASURED TOTAL SUSPENDED SEDIMENT

NATCHEZ DISCHARGE RANGE

MILE 362.34 AHP

FIGURE 23



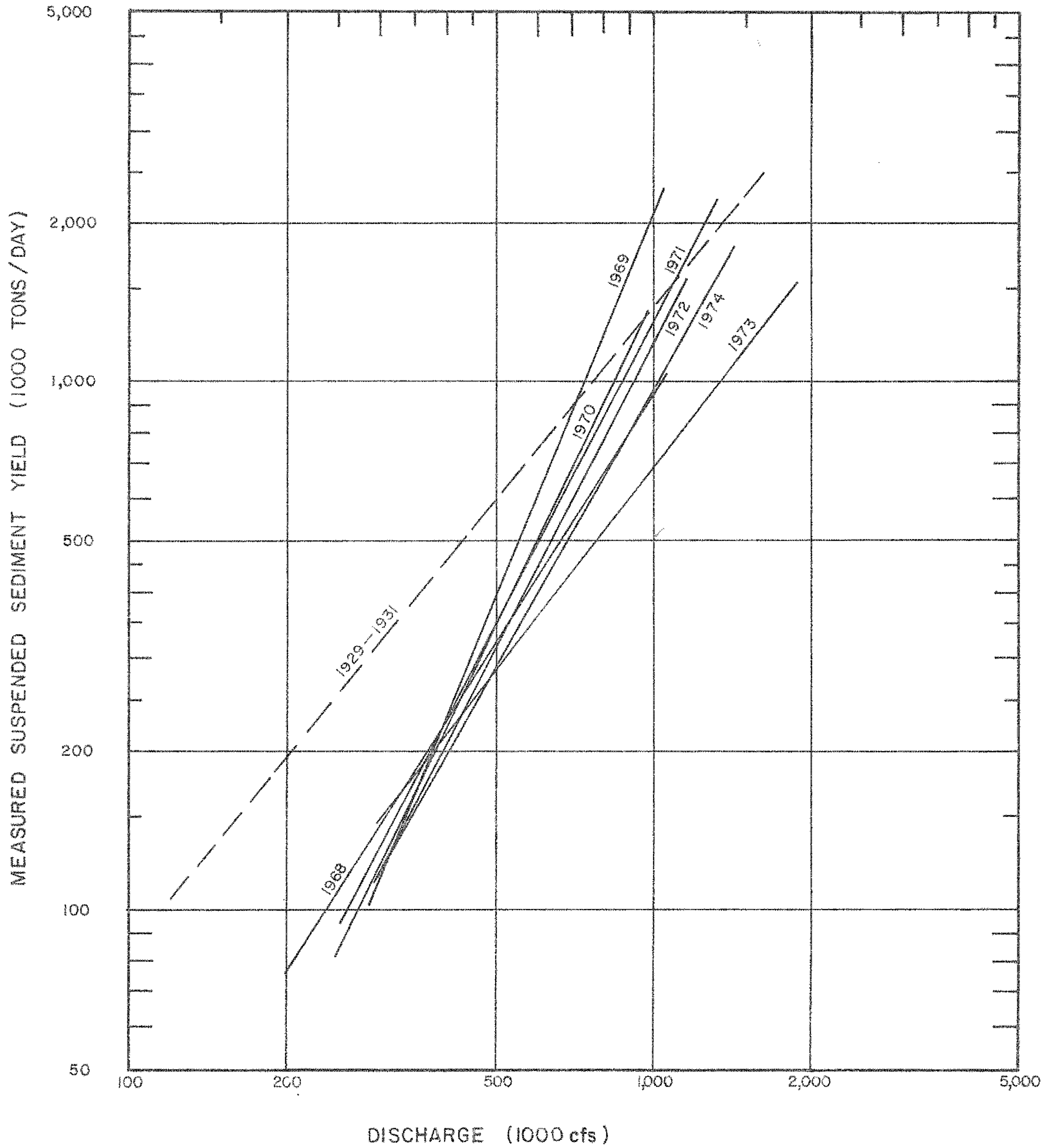

MISSISSIPPI RIVER

POTAMOLOGY STUDIES

MEASURED SUSPENDED SEDIMENT YIELD
VS DISCHARGE BY WATER YEAR
ARKANSAS CITY DISCHARGE RANGE

MILE 565.9 AHP

FIGURE 24



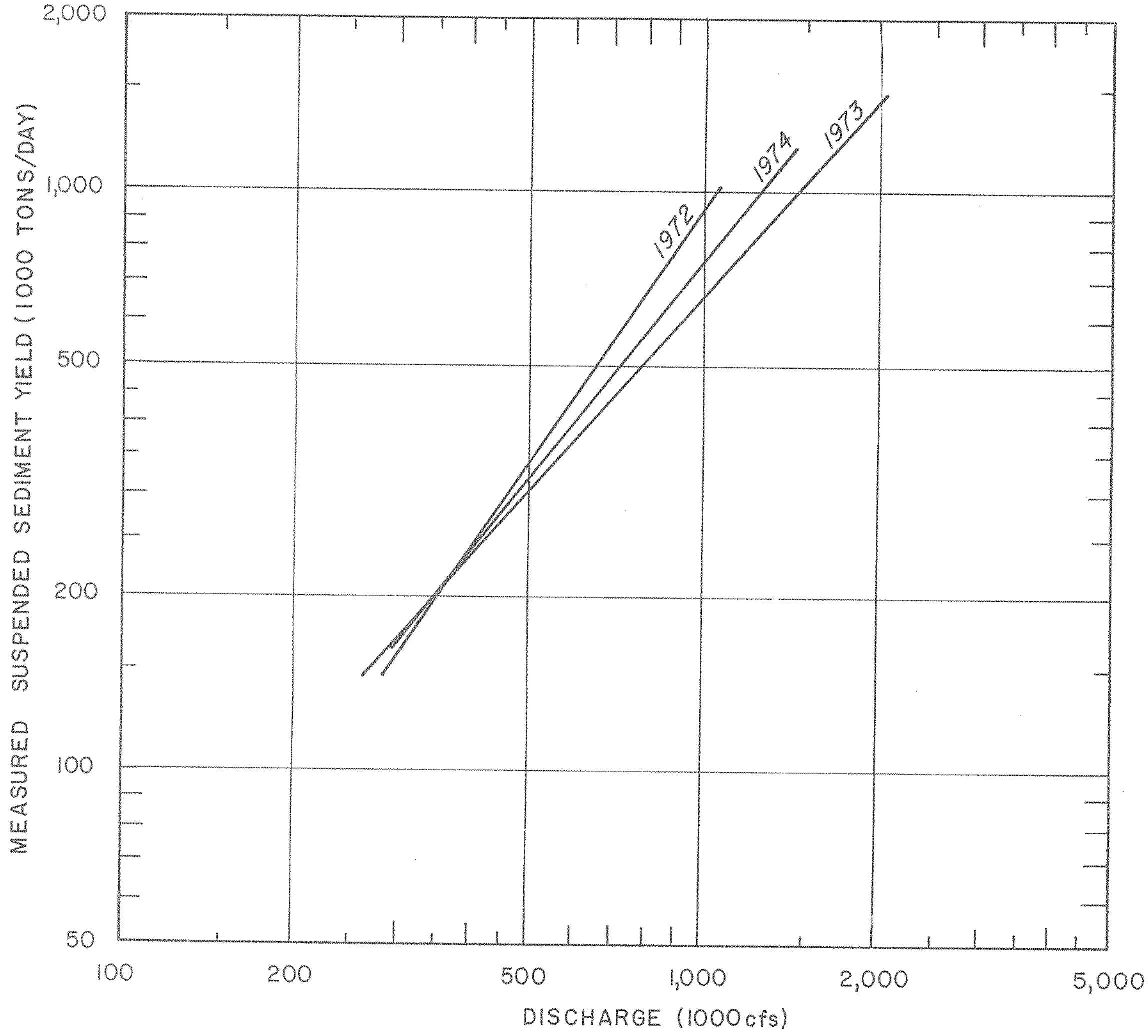

MISSISSIPPI RIVER

POTAMOLOGY STUDIES

MEASURED SUSPENDED SEDIMENT YIELD
VS DISCHARGE BY WATER YEAR
VICKSBURG DISCHARGE RANGE

MILE 435.41 AHP

FIGURE 25



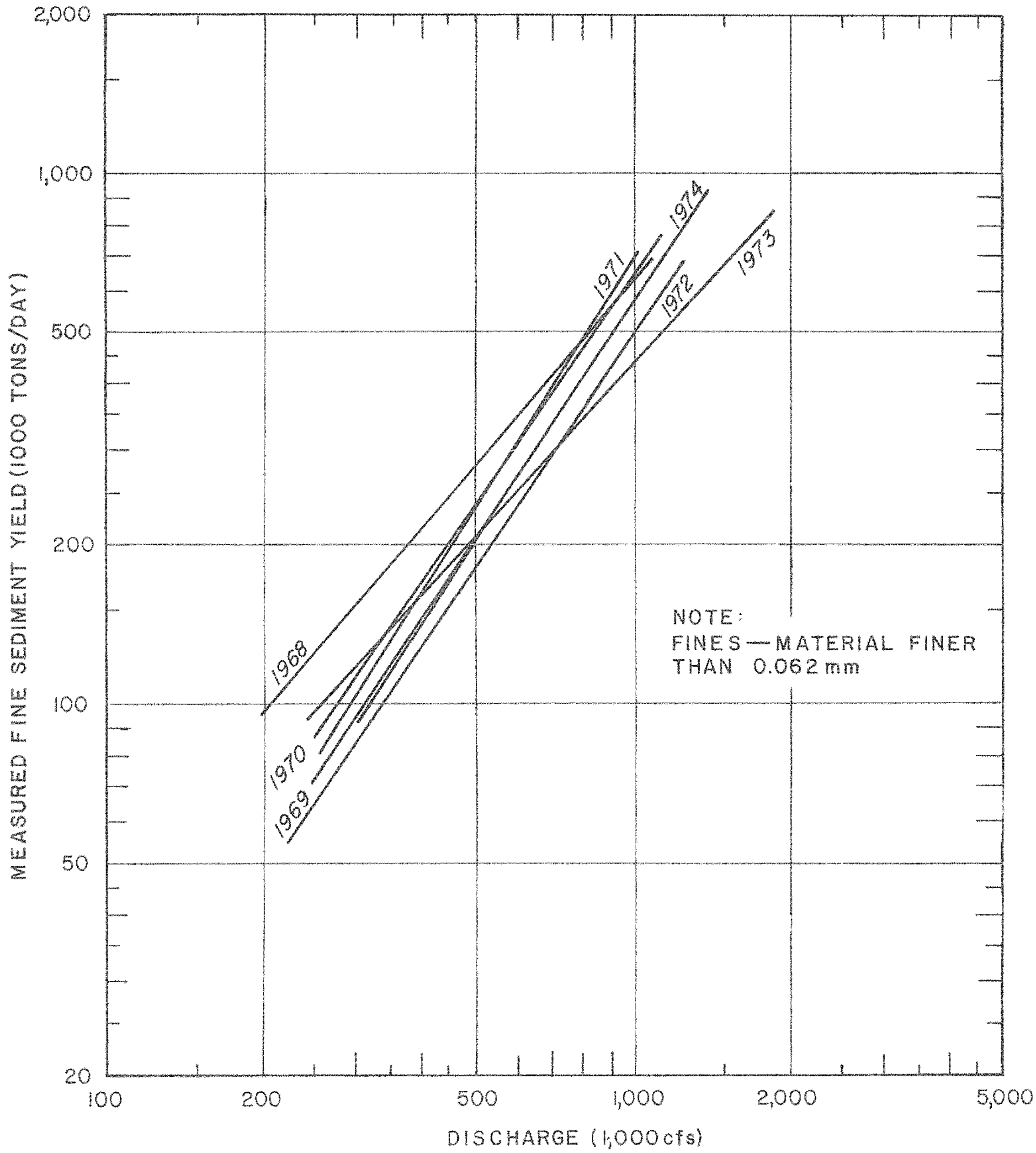

MISSISSIPPI RIVER

POTAMOLOGY STUDIES

MEASURED SUSPENDED SEDIMENT YIELD
VS DISCHARGE BY WATER YEAR
NATCHEZ DISCHARGE RANGE

MILE 362.34 AHP

FIGURE 26



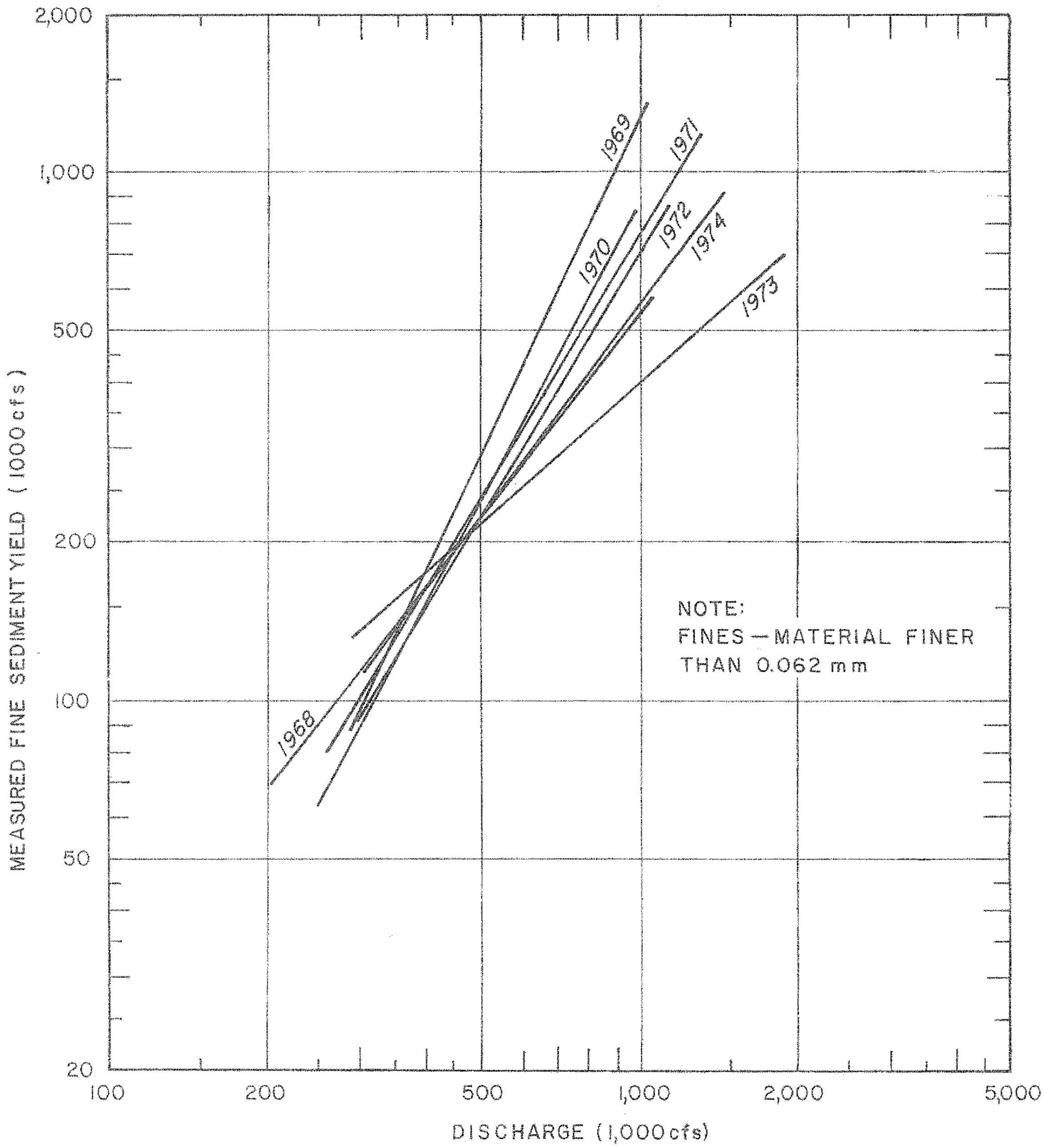

MISSISSIPPI RIVER

POTAMOLOGY STUDIES

MEASURED FINE SEDIMENT YIELD
VS DISCHARGE BY WATER YEAR
ARKANSAS CITY DISCHARGE RANGE

MILE 565.9 AHP

FIGURE 27

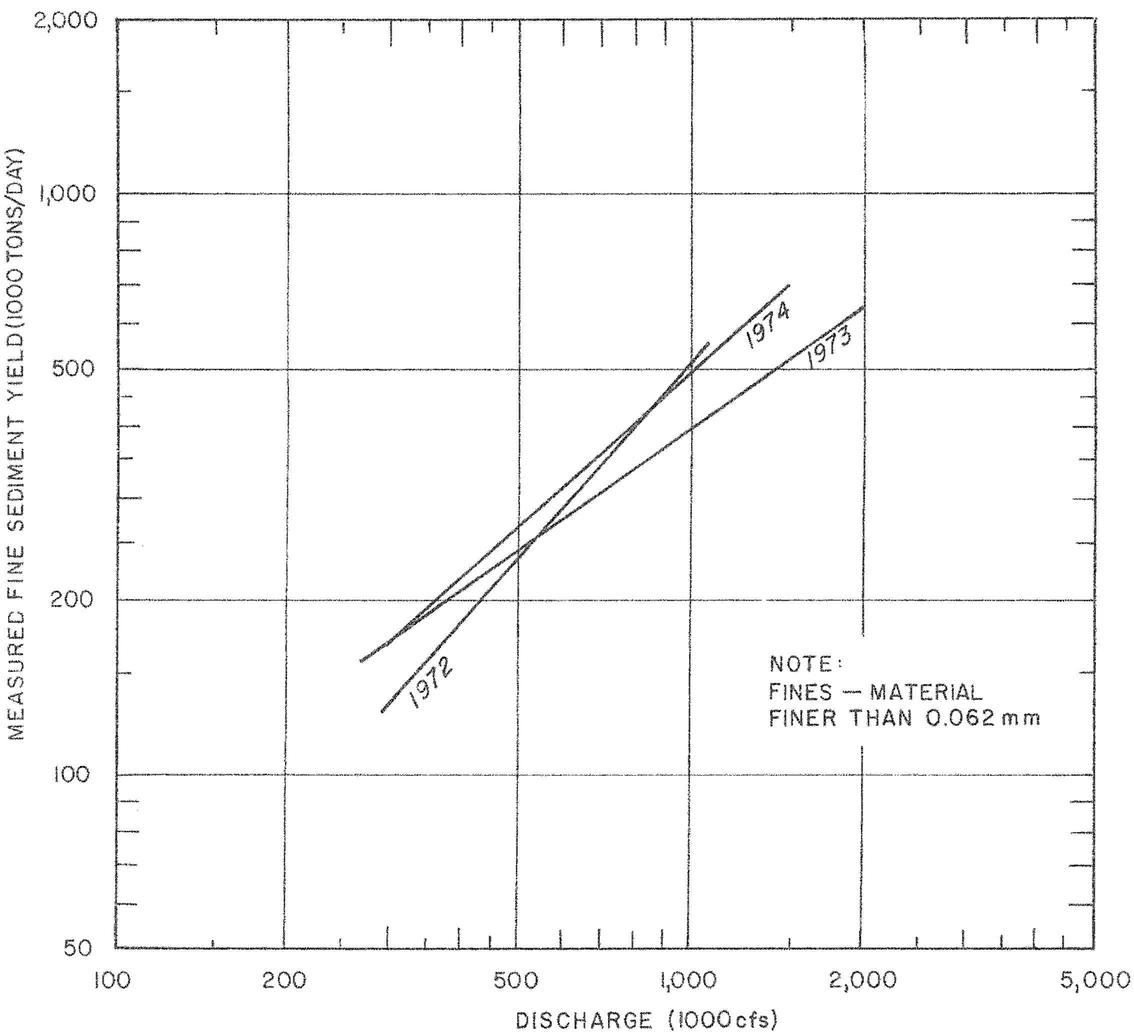



MISSISSIPPI RIVER

POTAMOLOGY STUDIES

MEASURED FINE SEDIMENT YIELD
VS DISCHARGE BY WATER YEAR
VICKSBURG DISCHARGE RANGE
MILE 435.41 AHP

FIGURE 28

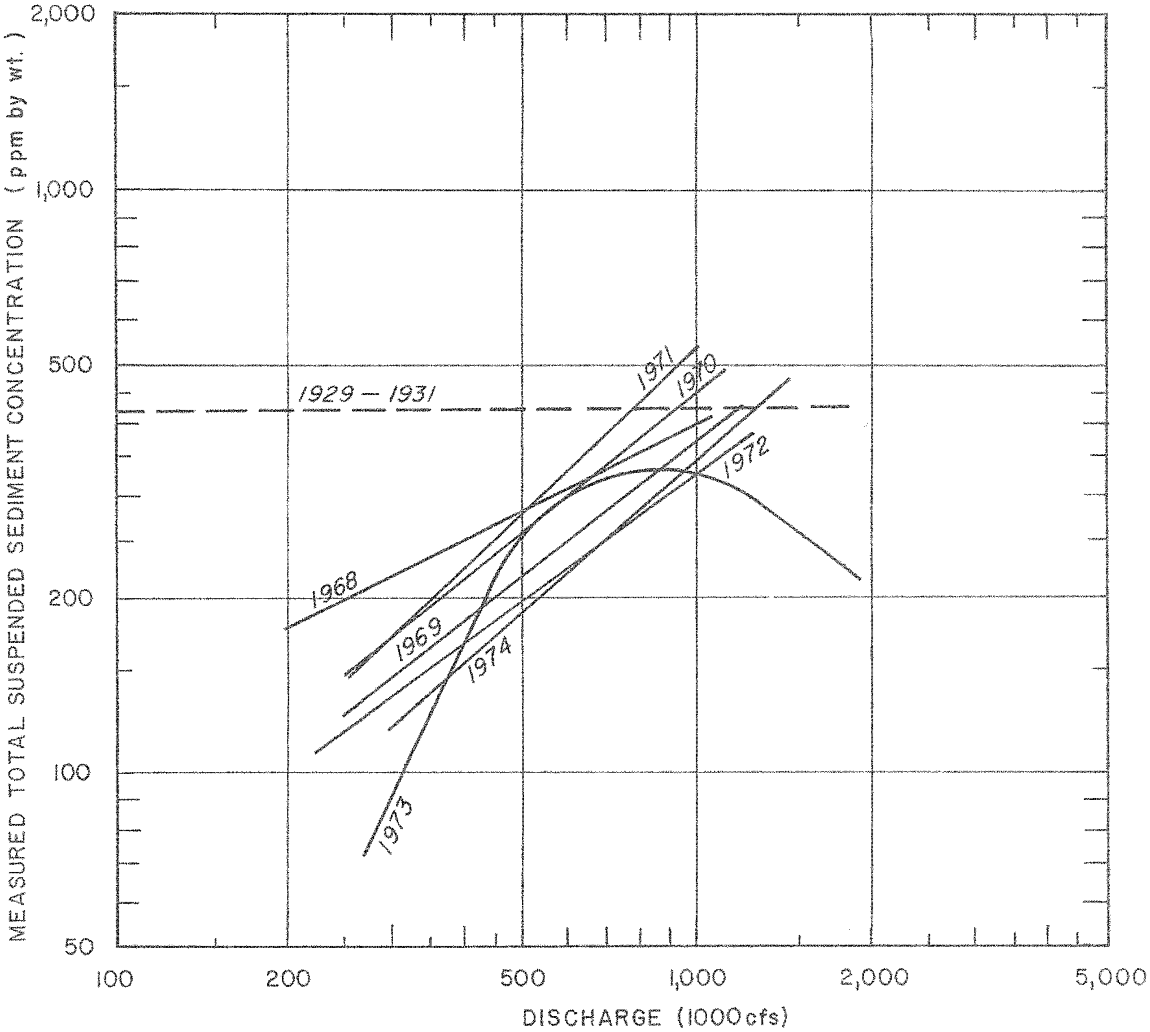



MISSISSIPPI RIVER

POTAMOLOGY STUDIES

MEASURED FINE SEDIMENT YIELD
VS DISCHARGE BY WATER YEAR
NATCHEZ DISCHARGE RANGE
MILE 362.34 AHP

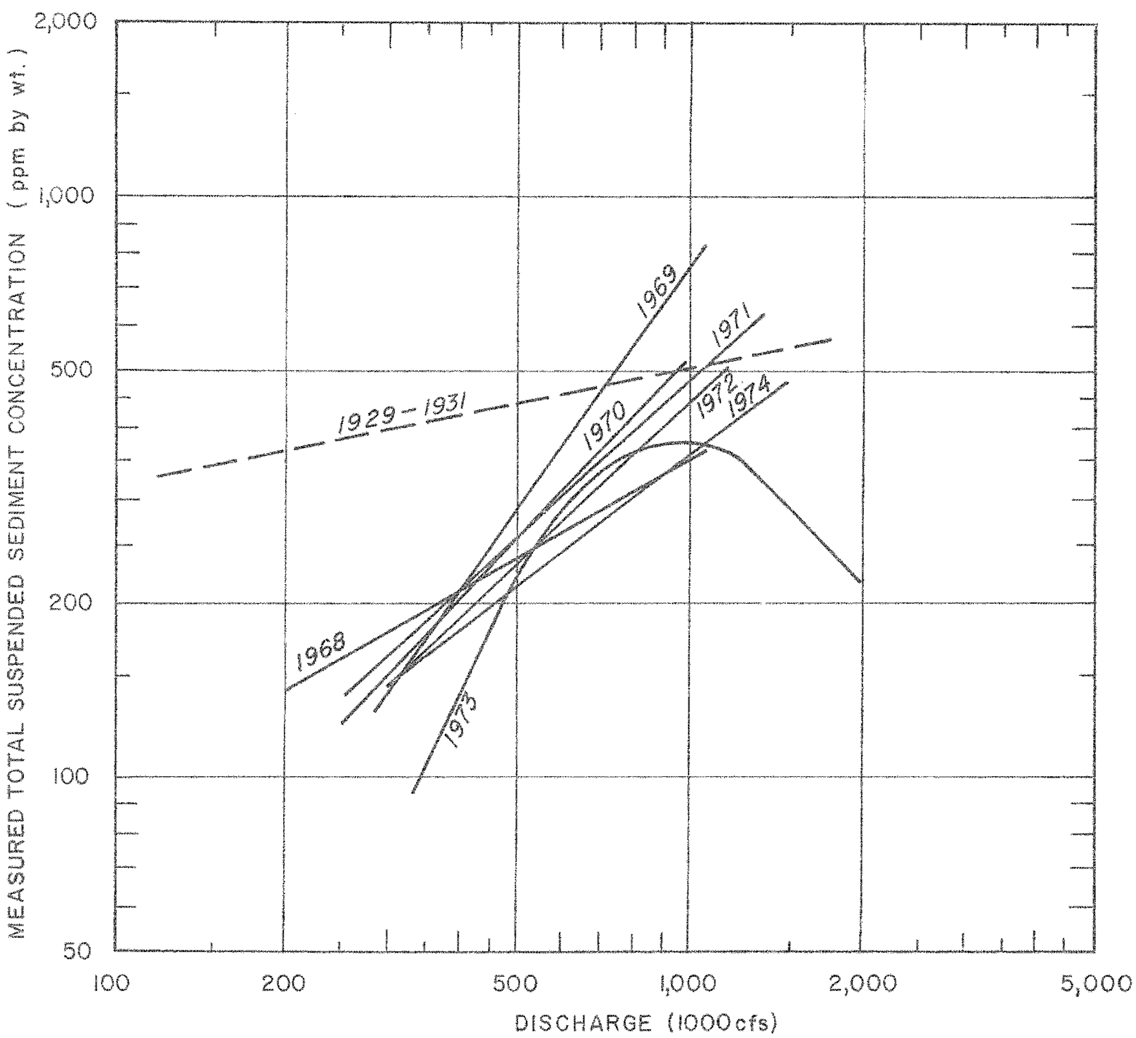
FIGURE 29




MISSISSIPPI RIVER

POTAMOLOGY STUDIES
MEASURED TOTAL SUSPENDED SEDIMENT CONCENTRATION
VS DISCHARGE BY WATER YEAR
ARKANSAS CITY DISCHARGE RANGE
MILE 565.9 AHP

FIGURE 30

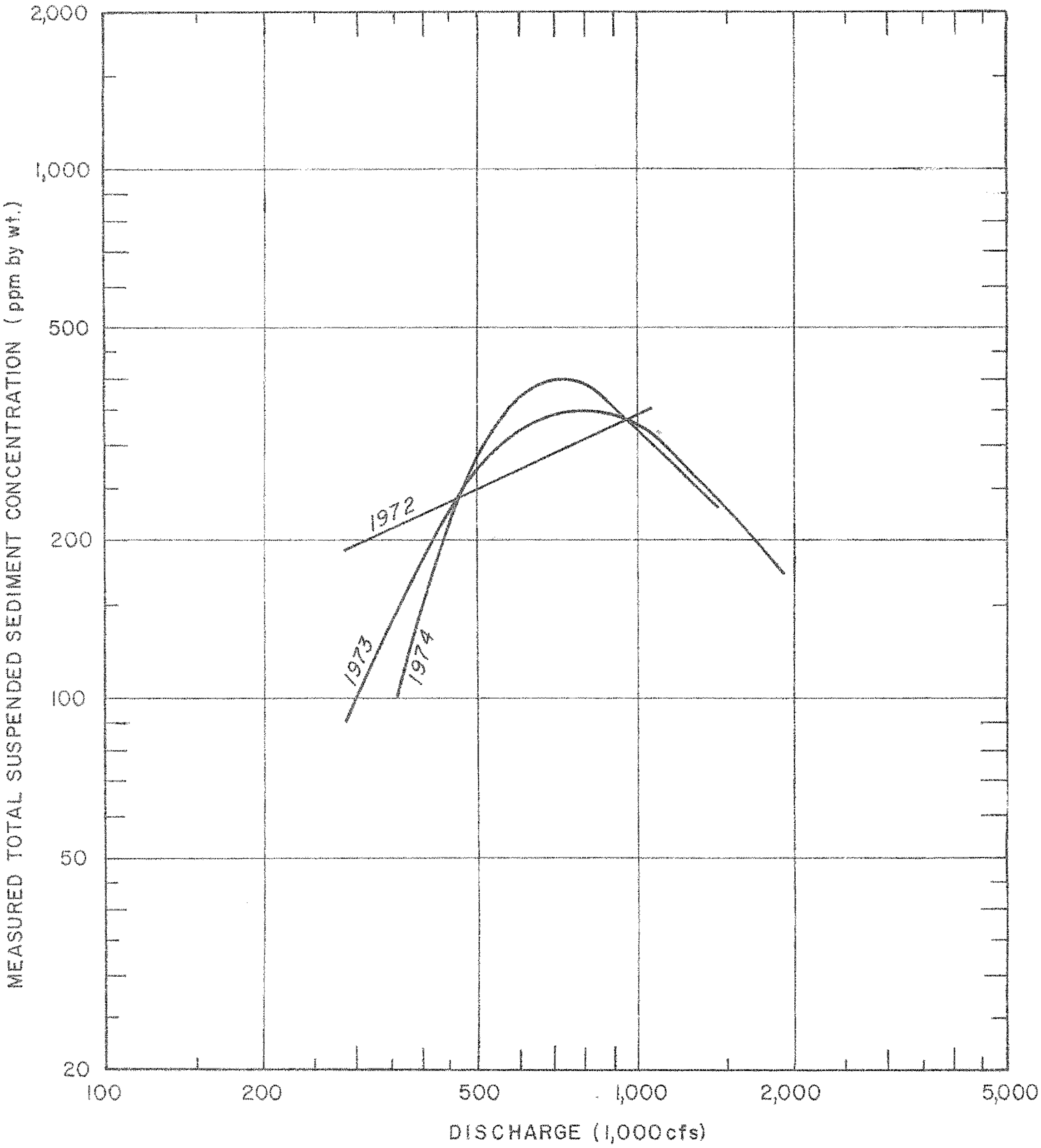



MISSISSIPPI RIVER

POTAMOLOGY STUDIES

MEASURED TOTAL SUSPENDED SEDIMENT CONCENTRATION
VS DISCHARGE BY WATER YEAR
VICKSBURG DISCHARGE RANGE
MILE 435.41 AHP

FIGURE 31

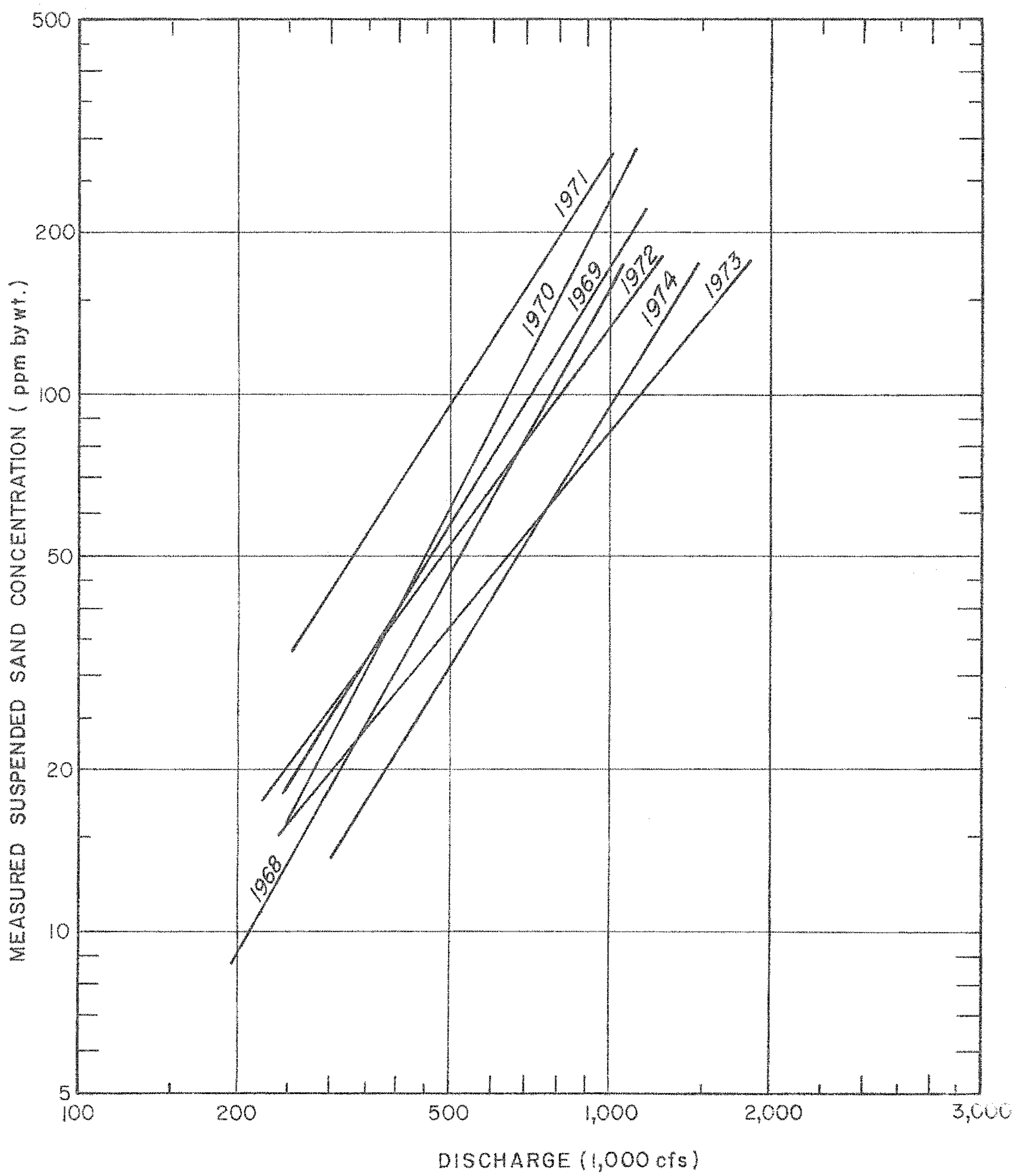



MISSISSIPPI RIVER

POTAMOLOGY STUDIES

MEASURED TOTAL SUSPENDED SEDIMENT
CONCENTRATION VS DISCHARGE BY WATER YEAR
NATCHEZ DISCHARGE RANGE
MILE 362.34 AHP

FIGURE 32

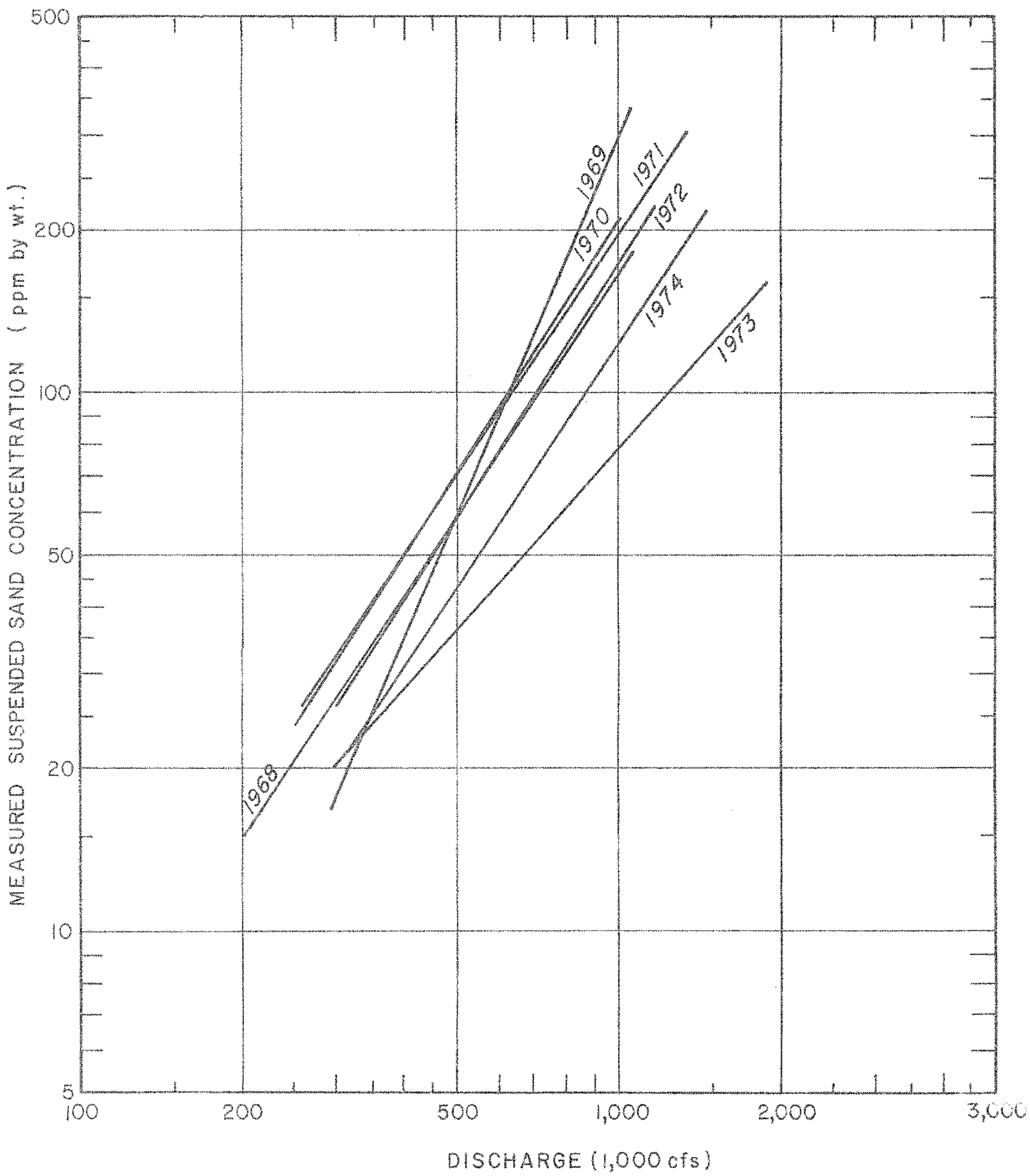



MISSISSIPPI RIVER

POTAMOLOGY STUDIES

MEASURED SUSPENDED SAND CONCENTRATION
VS DISCHARGE BY WATER YEAR
ARKANSAS CITY DISCHARGE RANGE
MILE 565.9 AHP

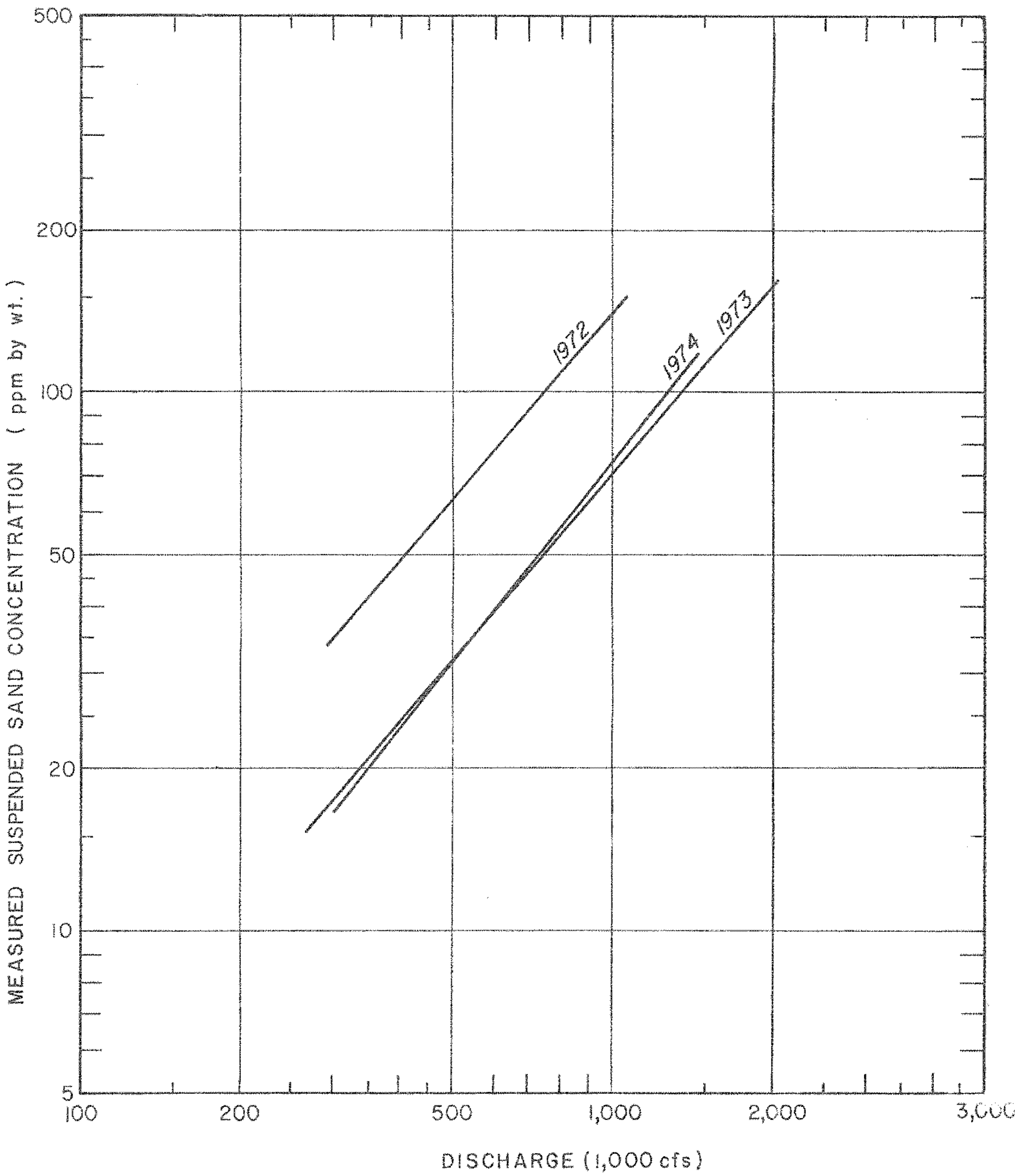
FIGURE 33




MISSISSIPPI RIVER

POTAMOLOGY STUDIES
MEASURED SUSPENDED SAND CONCENTRATION
VS DISCHARGE BY WATER YEAR
VICKSBURG DISCHARGE RANGE
MILE 435.41 AHP

FIGURE 34



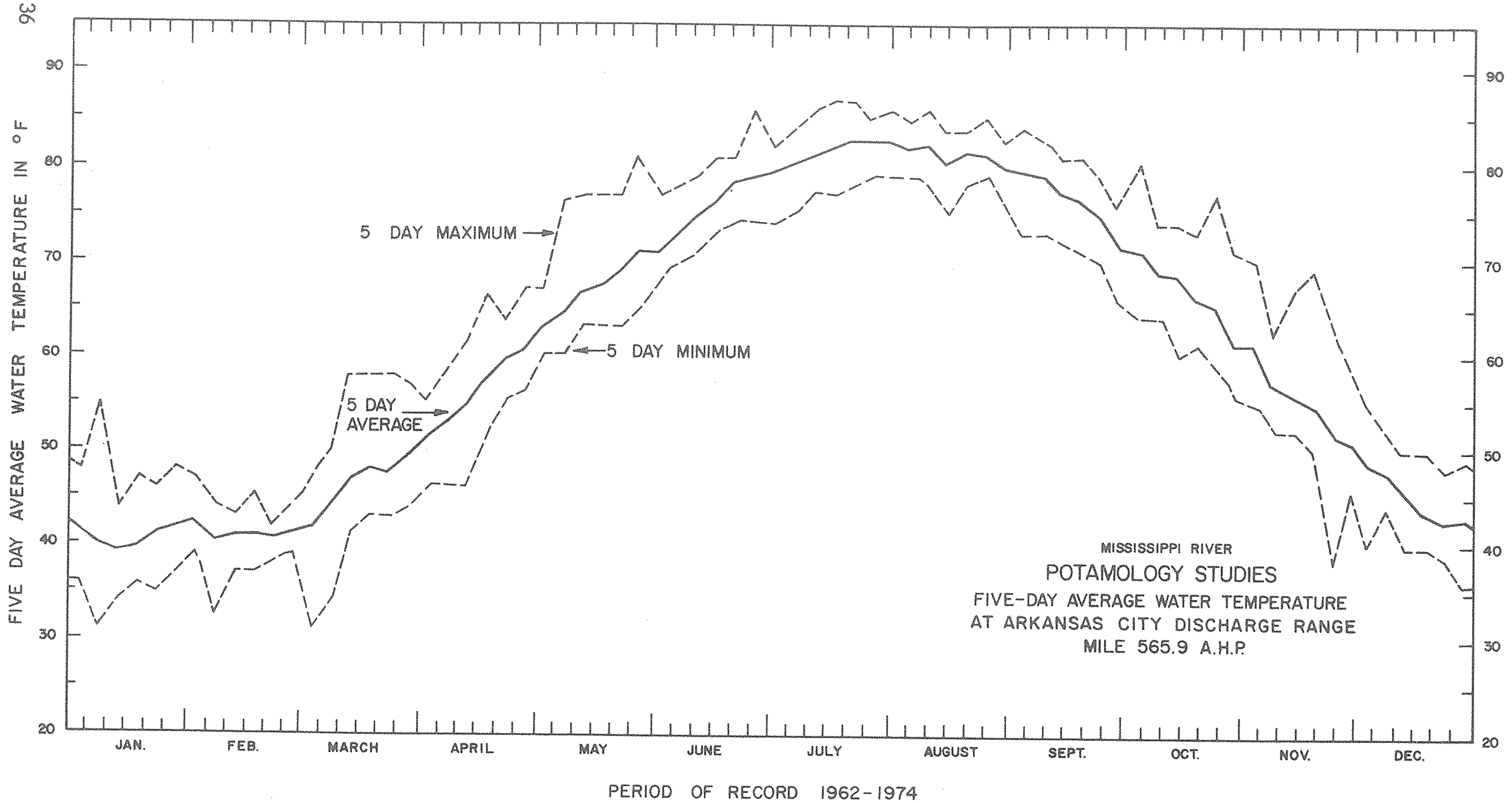

MISSISSIPPI RIVER

POTAMOLOGY STUDIES
MEASURED SUSPENDED SAND CONCENTRATION
VS DISCHARGE BY WATER YEAR
NATCHEZ DISCHARGE RANGE

MILE 362.34 AHP

FIGURE 35

FIGURE 36



FIVE DAY AVERAGE WATER TEMPERATURE IN °F
90
80
70
60
50
40
30
20
5 DAY MAXIMUM
5 DAY MINIMUM
5 DAY AVERAGE
JAN.
FEB.
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPT.
OCT.
NOV.
DEC.
PERIOD OF RECORD 1962-1974
MISSISSIPPI RIVER
POTAMOLOGY STUDIES
FIVE-DAY AVERAGE WATER TEMPERATURE
AT ARKANSAS CITY DISCHARGE RANGE
MILE 565.9 A.H.P.

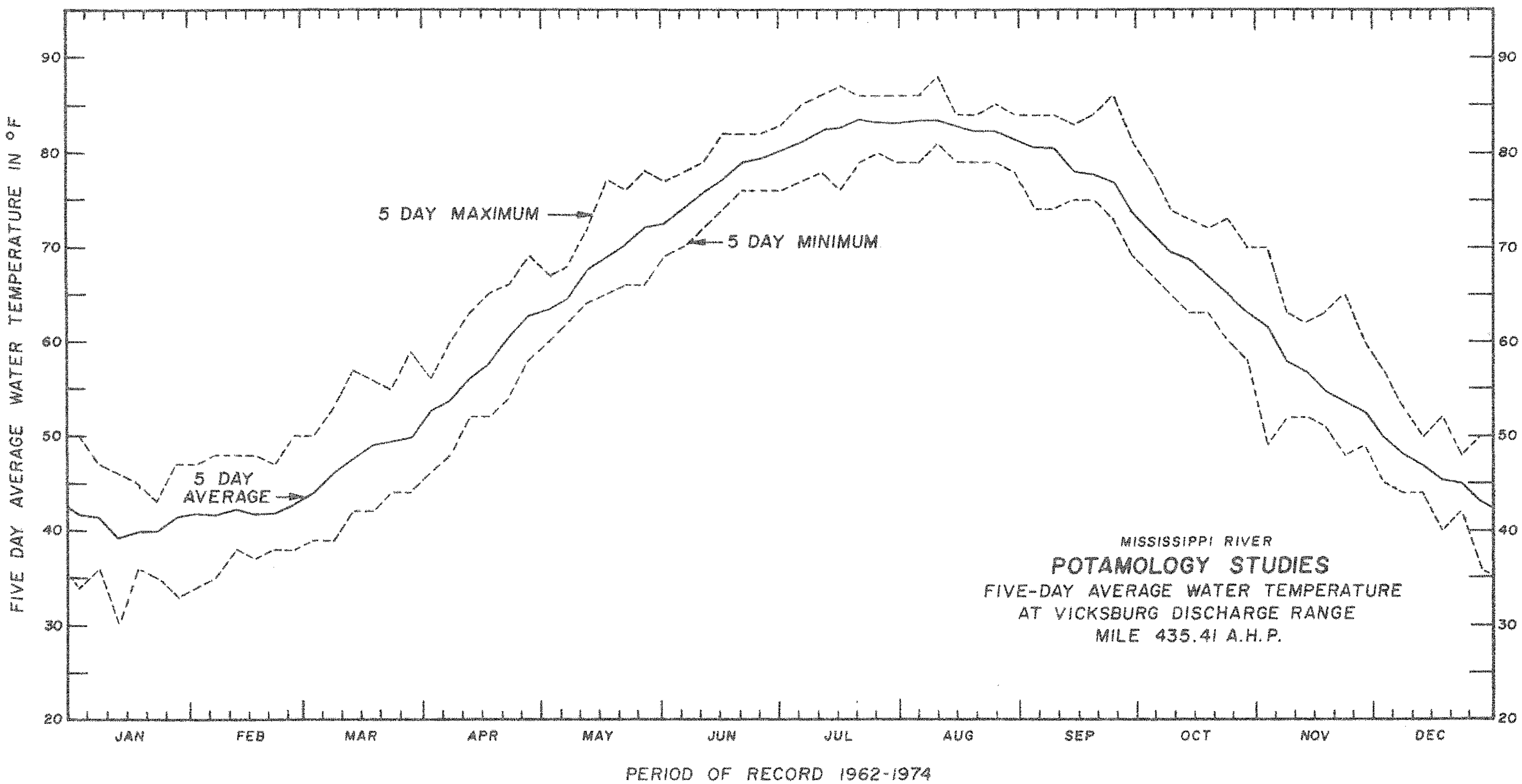
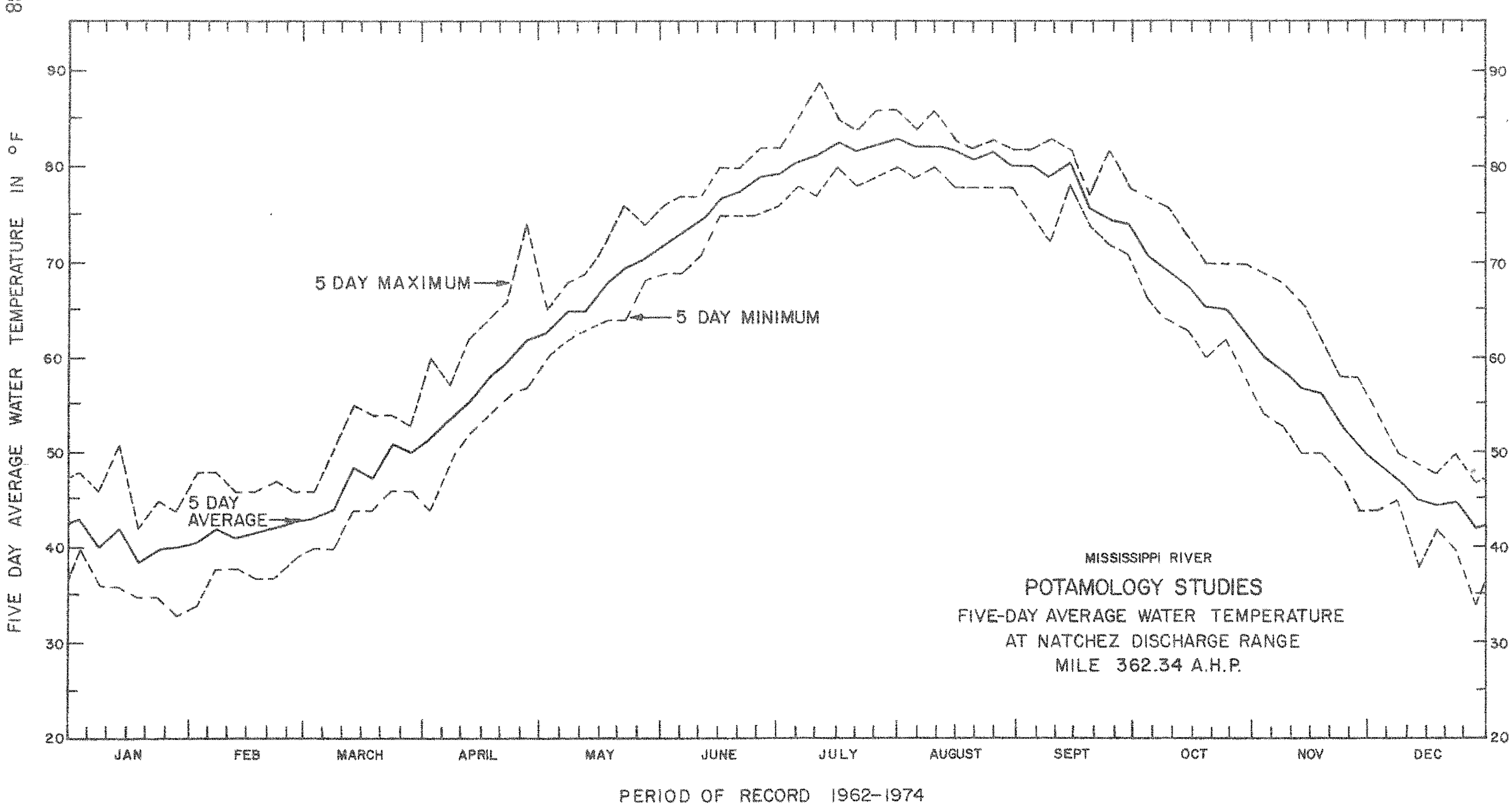
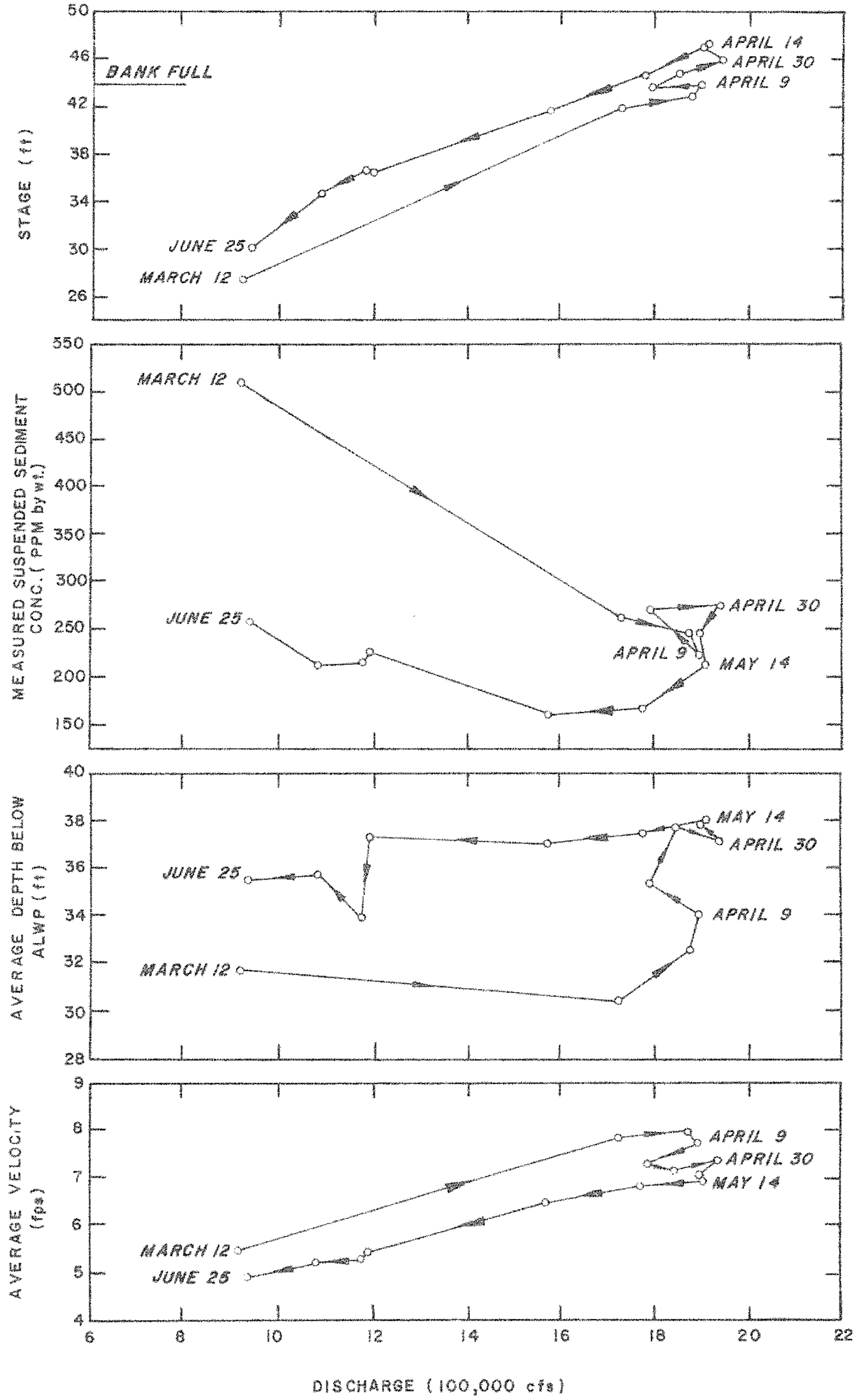

MISSISSIPPI RIVER
POTAMOLOGY STUDIES
FIVE-DAY AVERAGE WATER TEMPERATURE
AT VICKSBURG DISCHARGE RANGE
MILE 435.41 A.H.P.
5 DAY MAXIMUM
5 DAY MINIMUM
5 DAY AVERAGE
FIVE DAY AVERAGE WATER TEMPERATURE IN °F
20
30
40
50
60
70
80
90
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
PERIOD OF RECORD 1962-1974

FIGURE 37



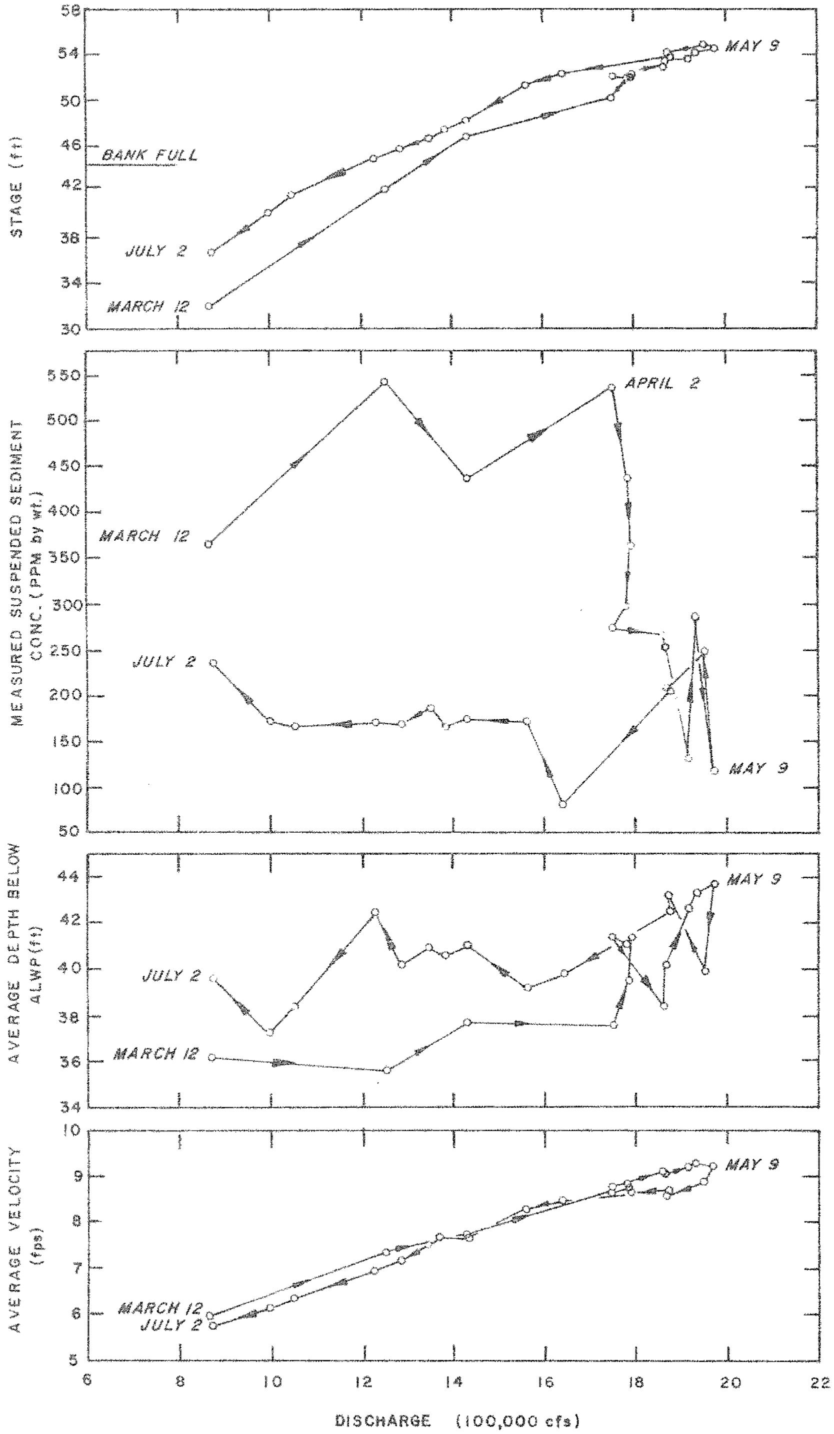
MISSISSIPPI RIVER
POTAMOLOGY STUDIES
FIVE-DAY AVERAGE WATER TEMPERATURE
AT NATCHEZ DISCHARGE RANGE
MILE 362.34 A.H.P.
5 DAY MAXIMUM
5 DAY MINIMUM
5 DAY AVERAGE
FIVE DAY AVERAGE WATER TEMPERATURE IN °F
20
30
40
50
60
70
80
90
JAN
FEB
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPT
OCT
NOV
DEC
PERIOD OF RECORD 1962-1974


FIGURE 38




MISSISSIPPI RIVER
POTAMOLOGY STUDIES
RELATION OF STAGE, SUSPENDED SEDIMENT
CONCENTRATION, DEPTH BELOW ALWP
AND VELOCITY TO DISCHARGE AT ARKANSAS CITY
DISCHARGE RANGE, MILE 565.9 DURING
MAJOR RISE OF 1973

FIGURE 39

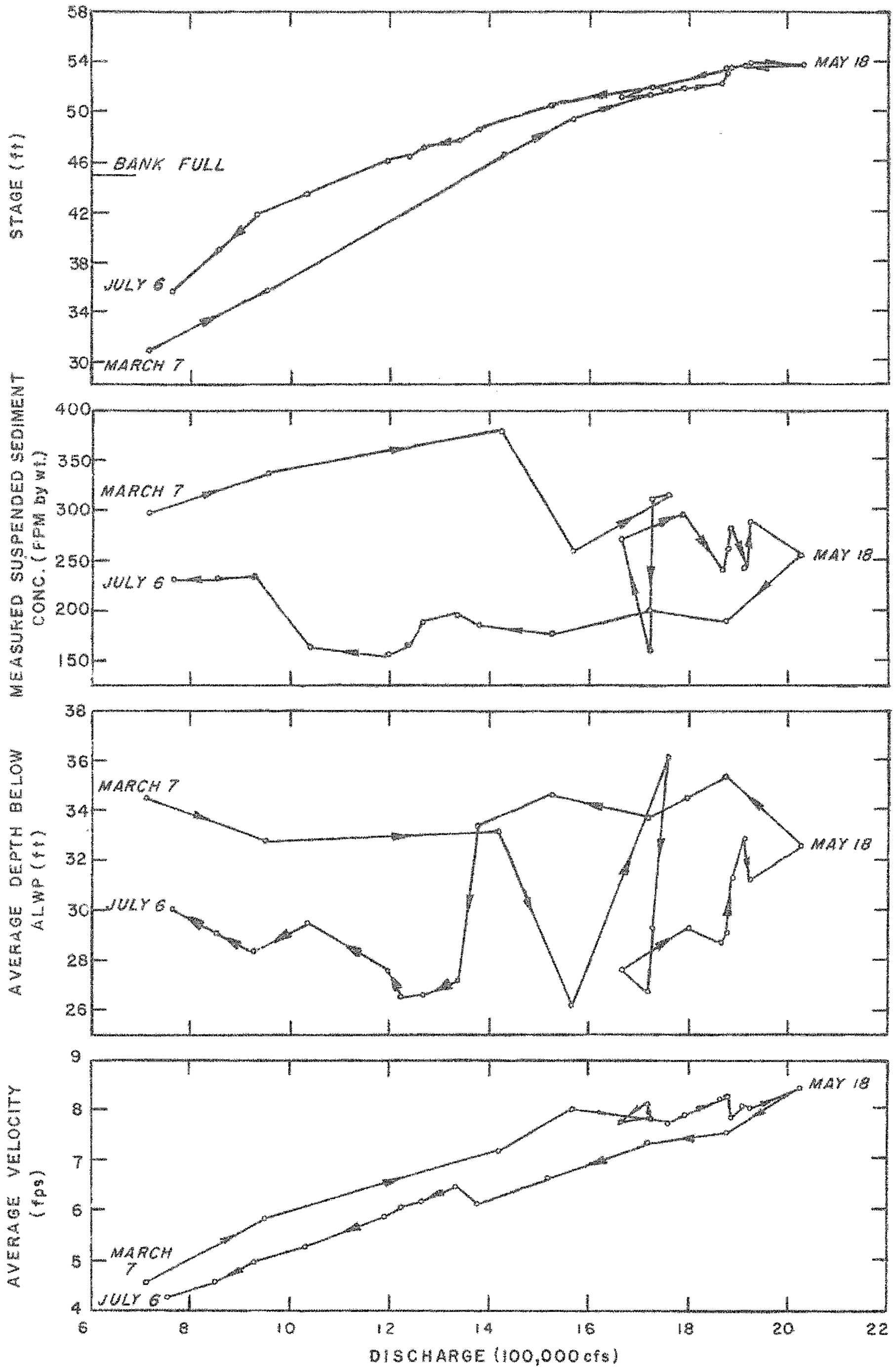



MISSISSIPPI RIVER

POTAMOLOGY STUDIES

RELATION OF STAGE, SUSPENDED SEDIMENT CONCENTRATION, DEPTH BELOW ALWP AND VELOCITY TO DISCHARGE AT VICKSBURG DISCHARGE RANGE, MILE 435.41 DURING MAJOR RISE OF 1973

FIGURE 40

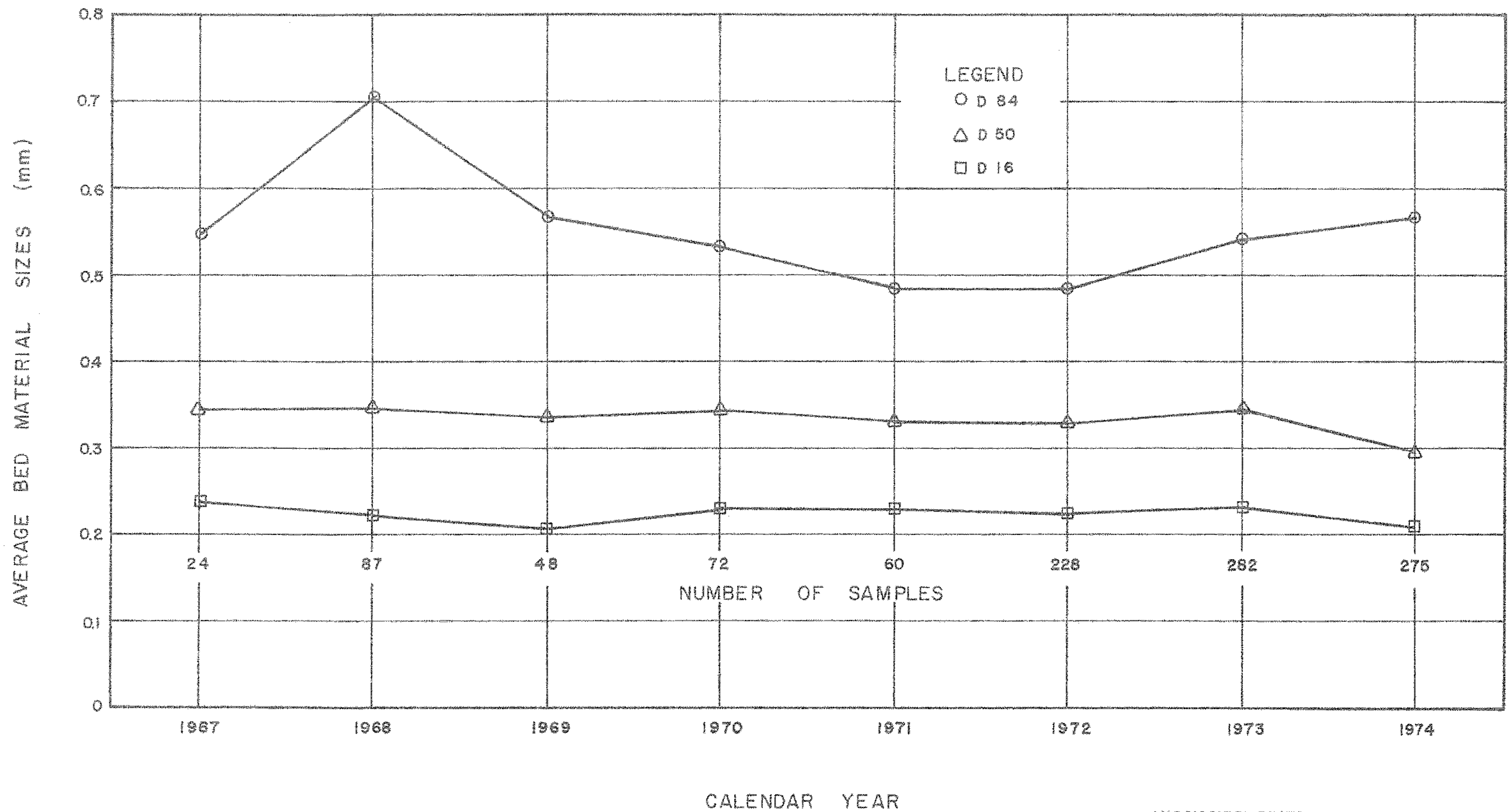



MISSISSIPPI RIVER

POTAMOLOGY STUDIES

RELATION OF STAGE, SUSPENDED SEDIMENT CONCENTRATION, DEPTH BELOW ALWP AND VELOCITY TO DISCHARGE AT NATCHEZ DISCHARGE RANGE, MILE 362.34, DURING MAJOR RISE OF 1973

FIGURE 41

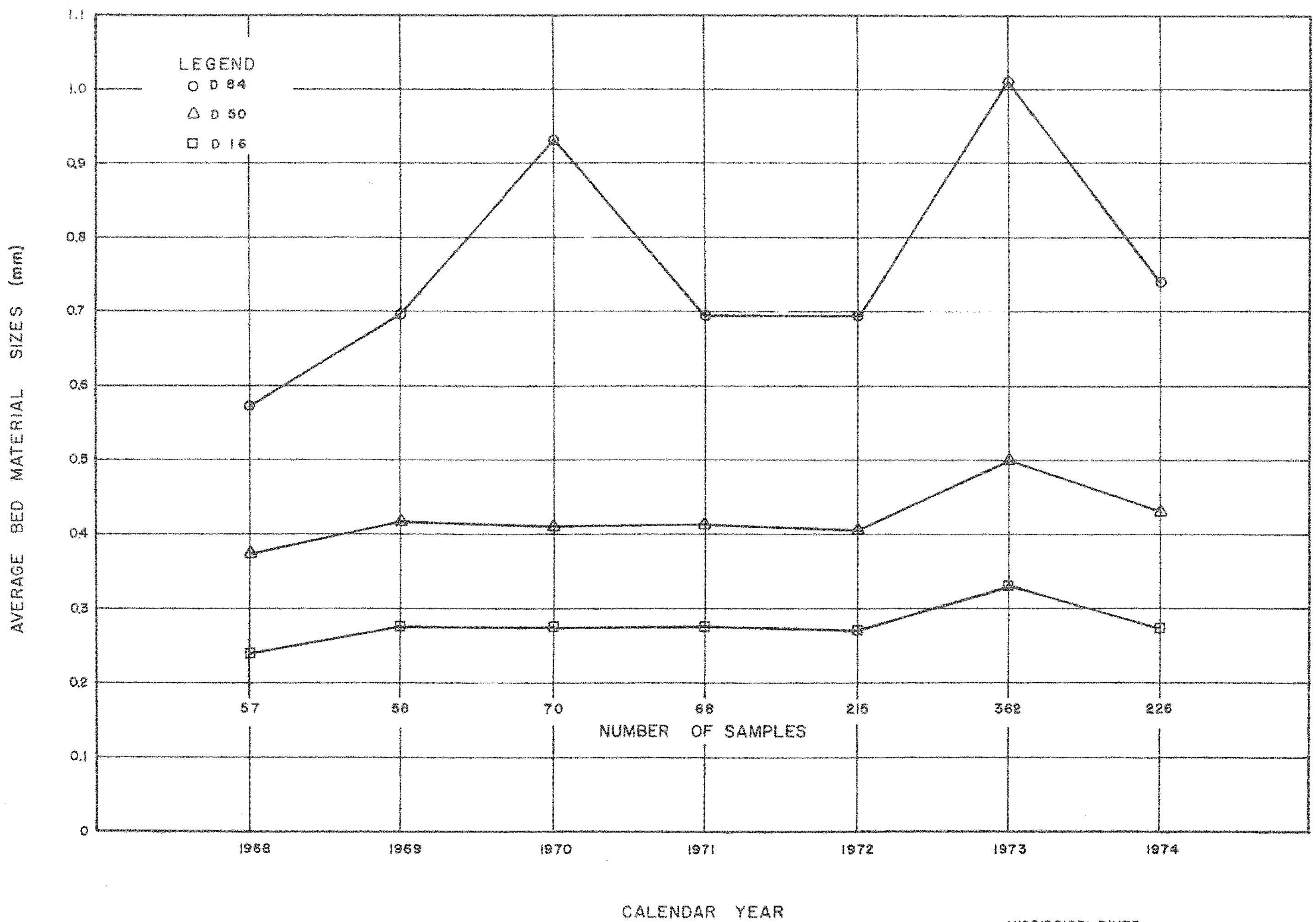



MISSISSIPPI RIVER

POTAMOLOGY STUDIES

VARIATION IN AVERAGE BED MATERIAL SIZES
AT ARKANSAS CITY DISCHARGE RANGE

MILE 565.9 AHP




MISSISSIPPI RIVER

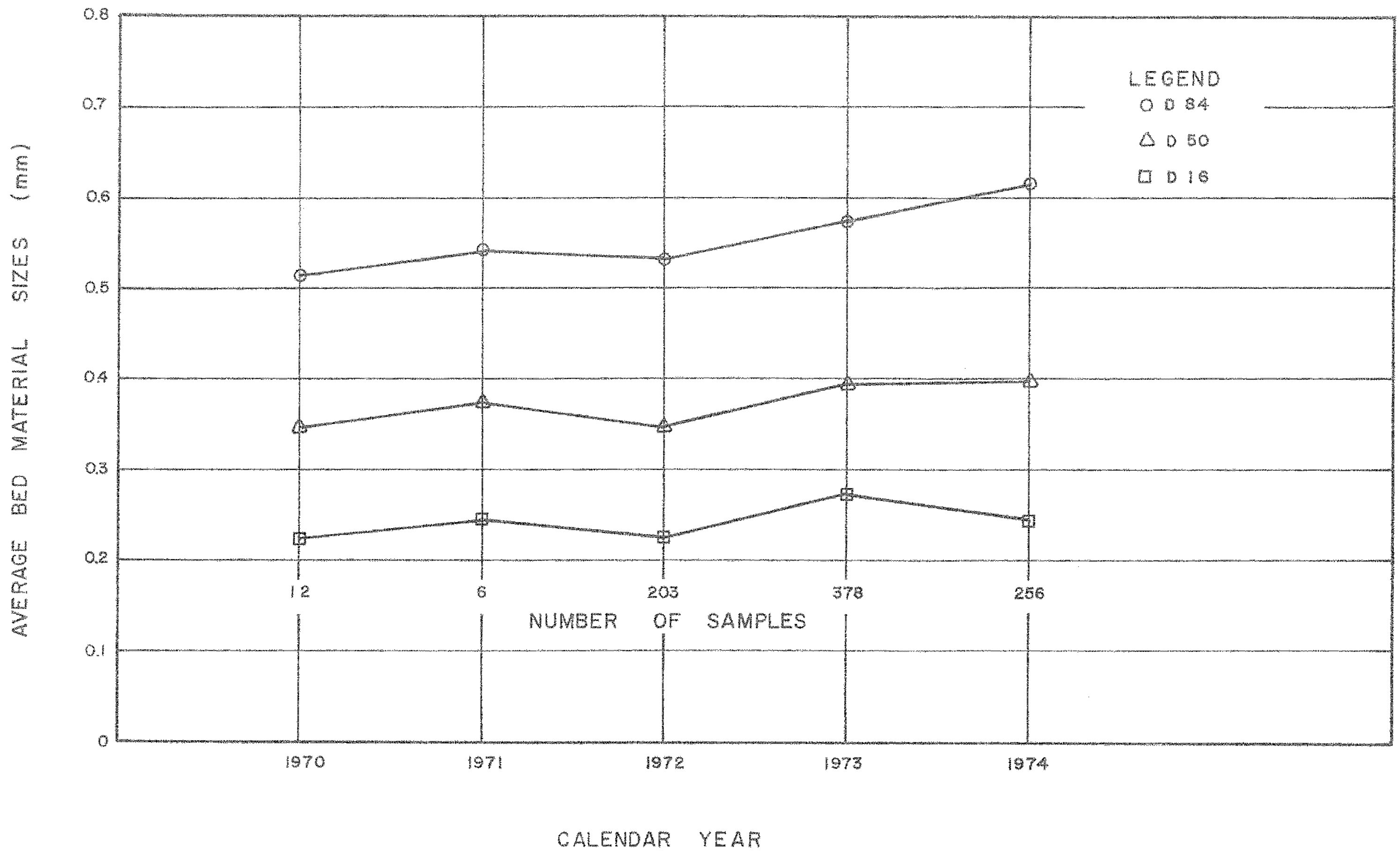
POTAMOLOGY STUDIES

VARIATION IN AVERAGE BED MATERIAL SIZES AT VICKSBURG DISCHARGE RANGE

MILE 435.41 AHP

FIGURE 43

FIGURE 44

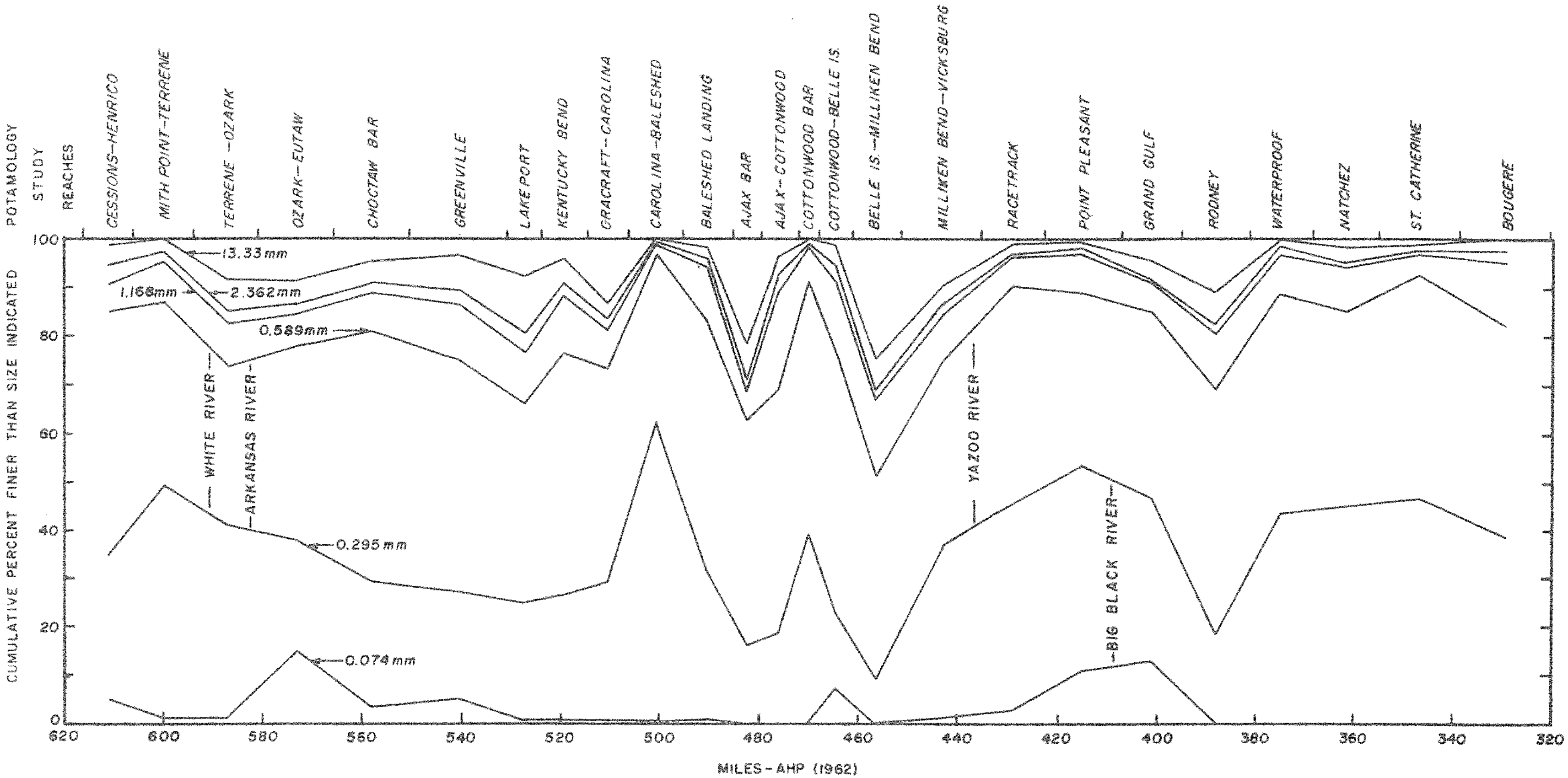



MISSISSIPPI RIVER

POTAMOLOGY STUDIES

VARIATION IN AVERAGE BED MATERIAL SIZES
AT NATCHEZ DISCHARGE RANGE

MILE 362.34 AHP




MISSISSIPPI RIVER

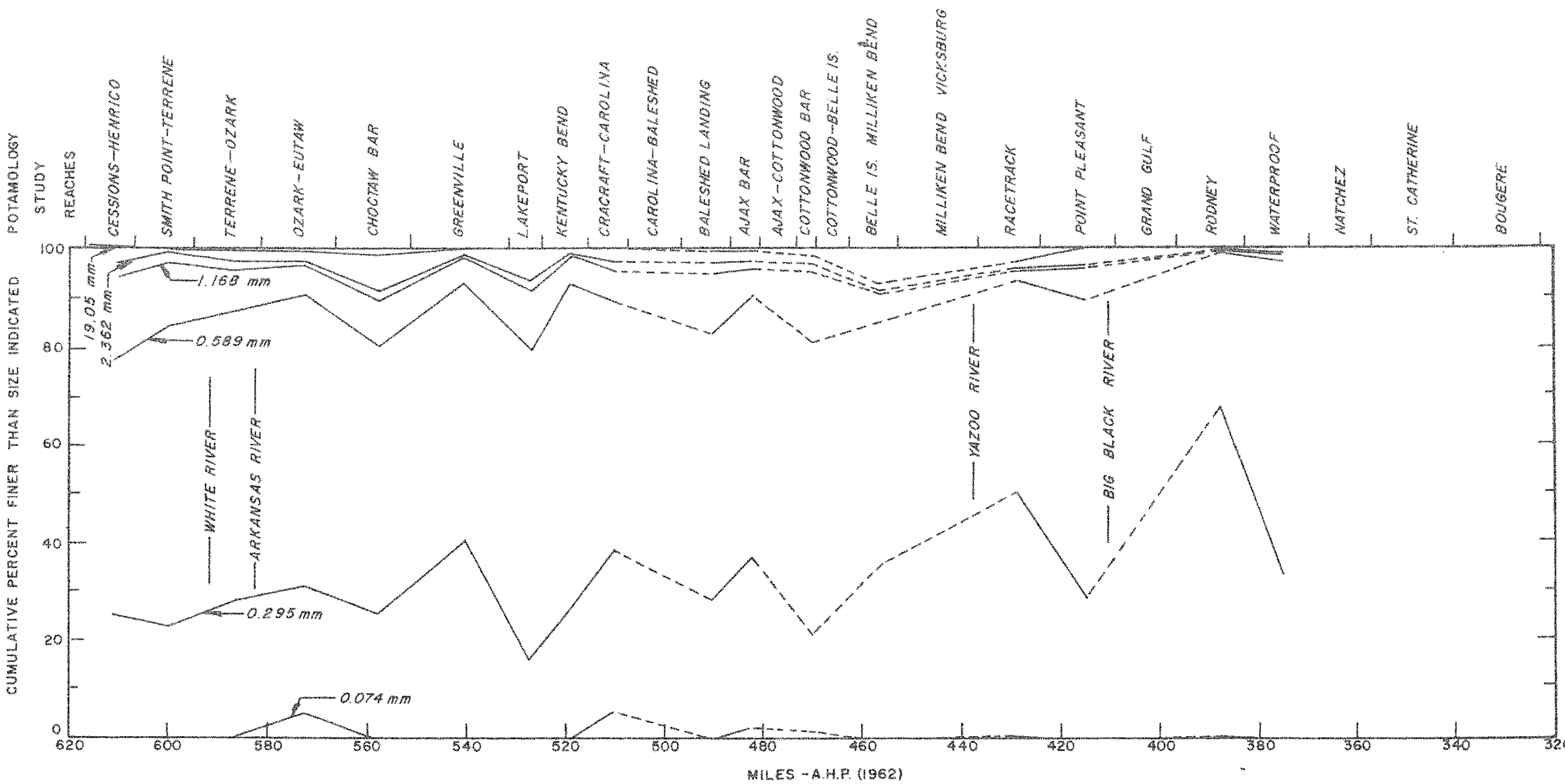
POTAMOLOGY STUDIES

VARIATION IN COMPOSITION OF BED MATERIALS IN THE VICKSBURG DISTRICT DURING AUG-SEPT 1932

304 SAMPLES AVERAGED BY STUDY REACHES
BASED ON DATA IN WES PAPER 17 DATED 1935

FIGURE 45

FIGURE 46



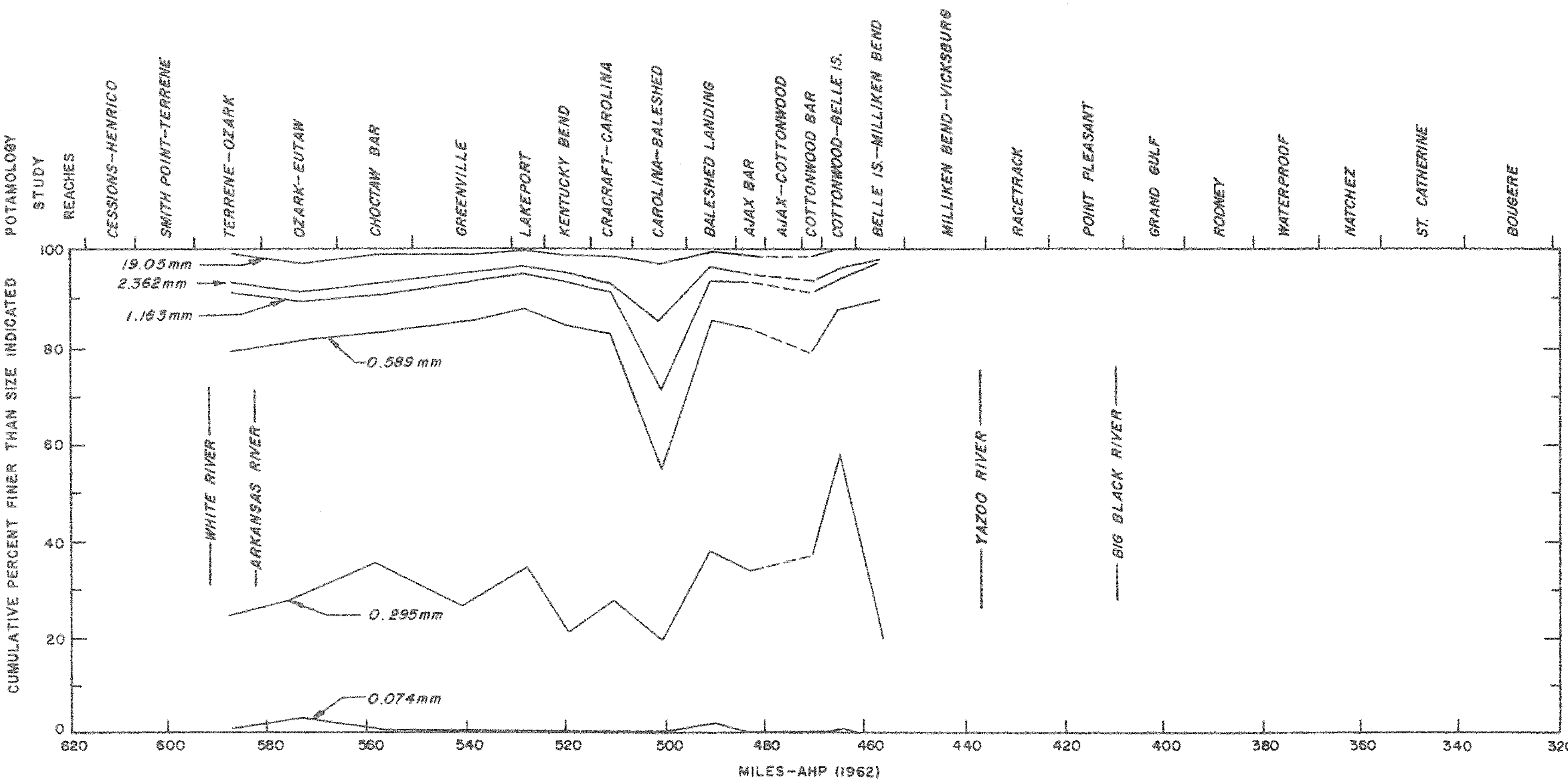

— — — INTERPOLATED

MISSISSIPPI RIVER

POTAMOLOGY STUDIES

VARIATION IN COMPOSITION OF BED MATERIALS IN THE VICKSBURG DISTRICT DURING CALENDAR YEAR 1966

375 SAMPLES AVERAGED BY STUDY REACHES




— — — INTERPOLATED

MISSISSIPPI RIVER

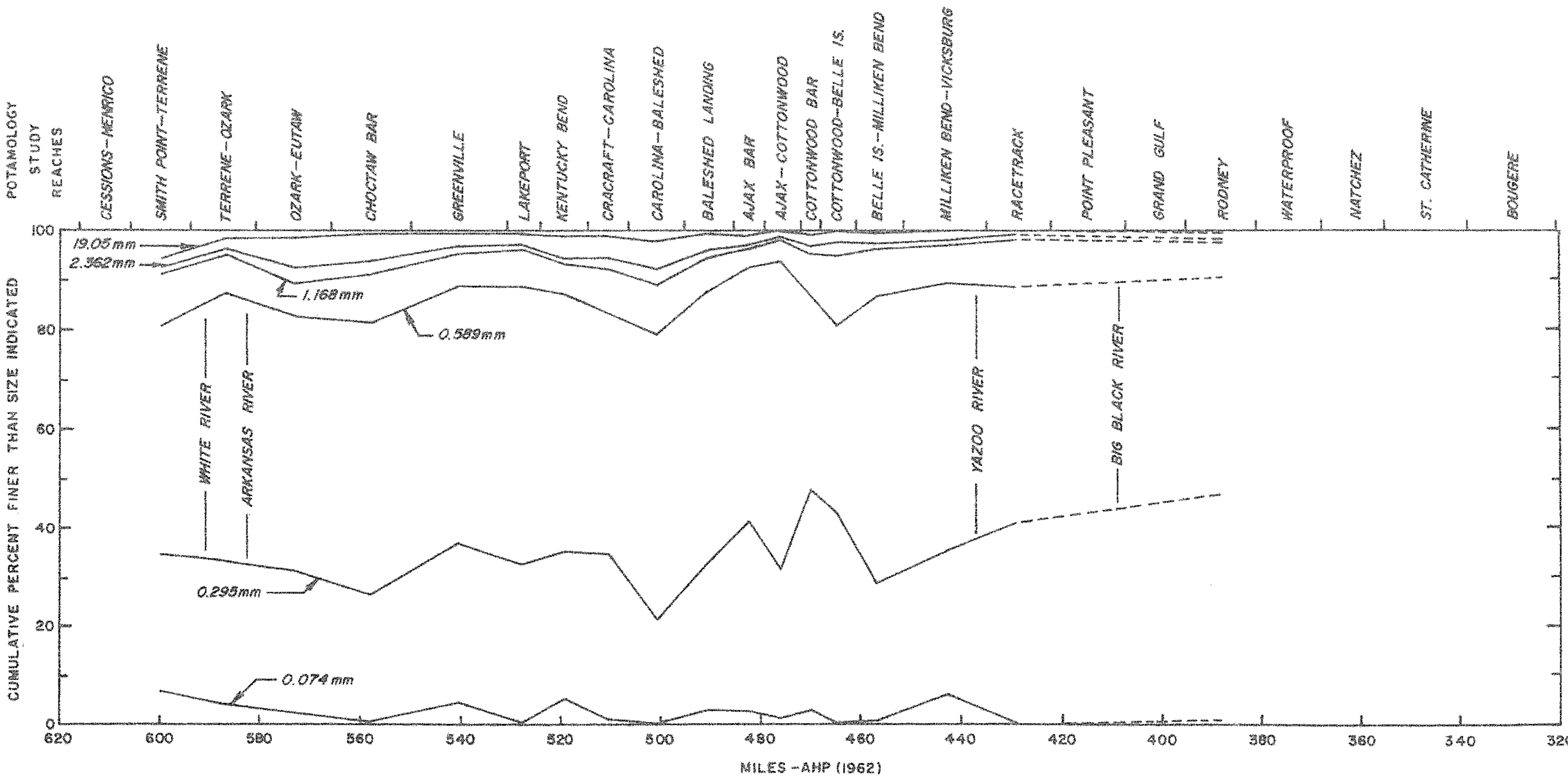
POTAMOLOGY STUDIES

VARIATION IN COMPOSITION OF BED MATERIALS IN THE VICKSBURG DISTRICT DURING CALENDAR YEAR 1967

450 SAMPLES AVERAGED BY STUDY REACHES

FIGURE 47

FIGURE 48



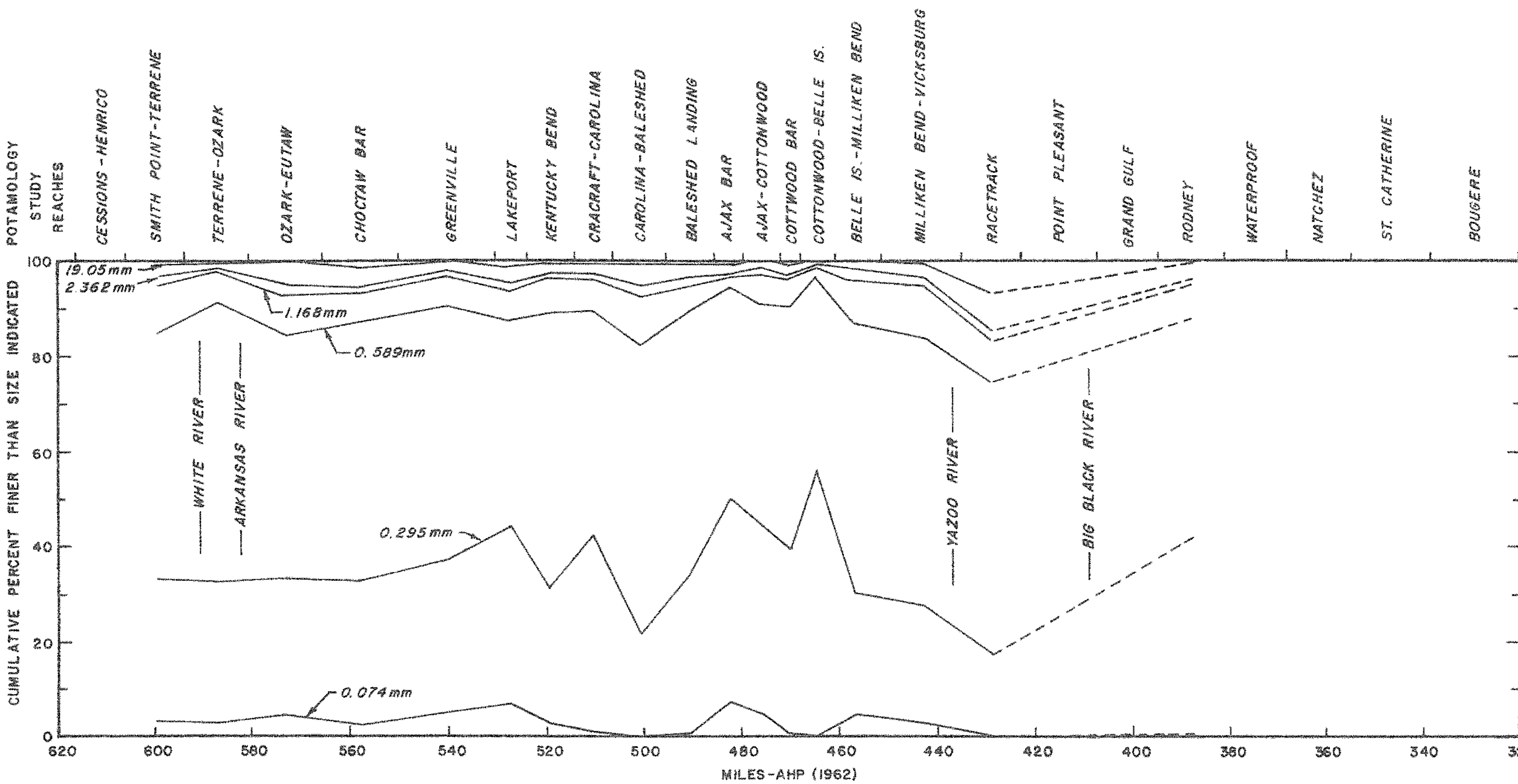

------ INTERPOLATED

MISSISSPPI RIVER

POTAMOLOGY STUDIES

VARIATION IN COMPOSITION OF BED MATERIALS IN THE VICKSBURG DISTRICT DURING CALENDAR YEAR 1968

989 SAMPLES AVERAGED BY STUDY REACHES




------ INTERPOLATED

MISSISSIPPI RIVER

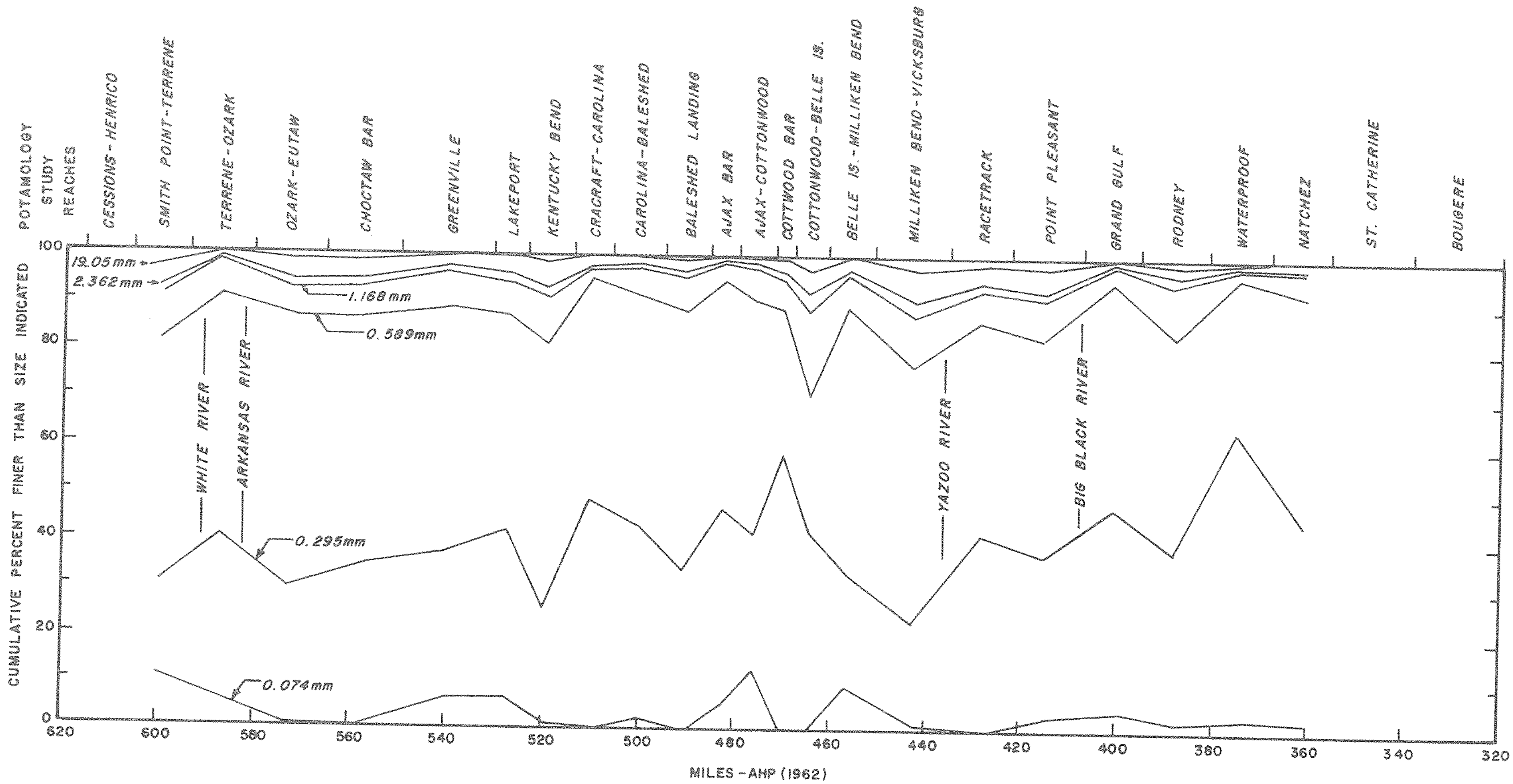
POTAMOLOGY STUDIES

VARIATION IN COMPOSITION OF BED MATERIALS IN THE VICKSBURG DISTRICT DURING CALENDAR YEAR 1969

1125 SAMPLES AVERAGED BY STUDY REACHES

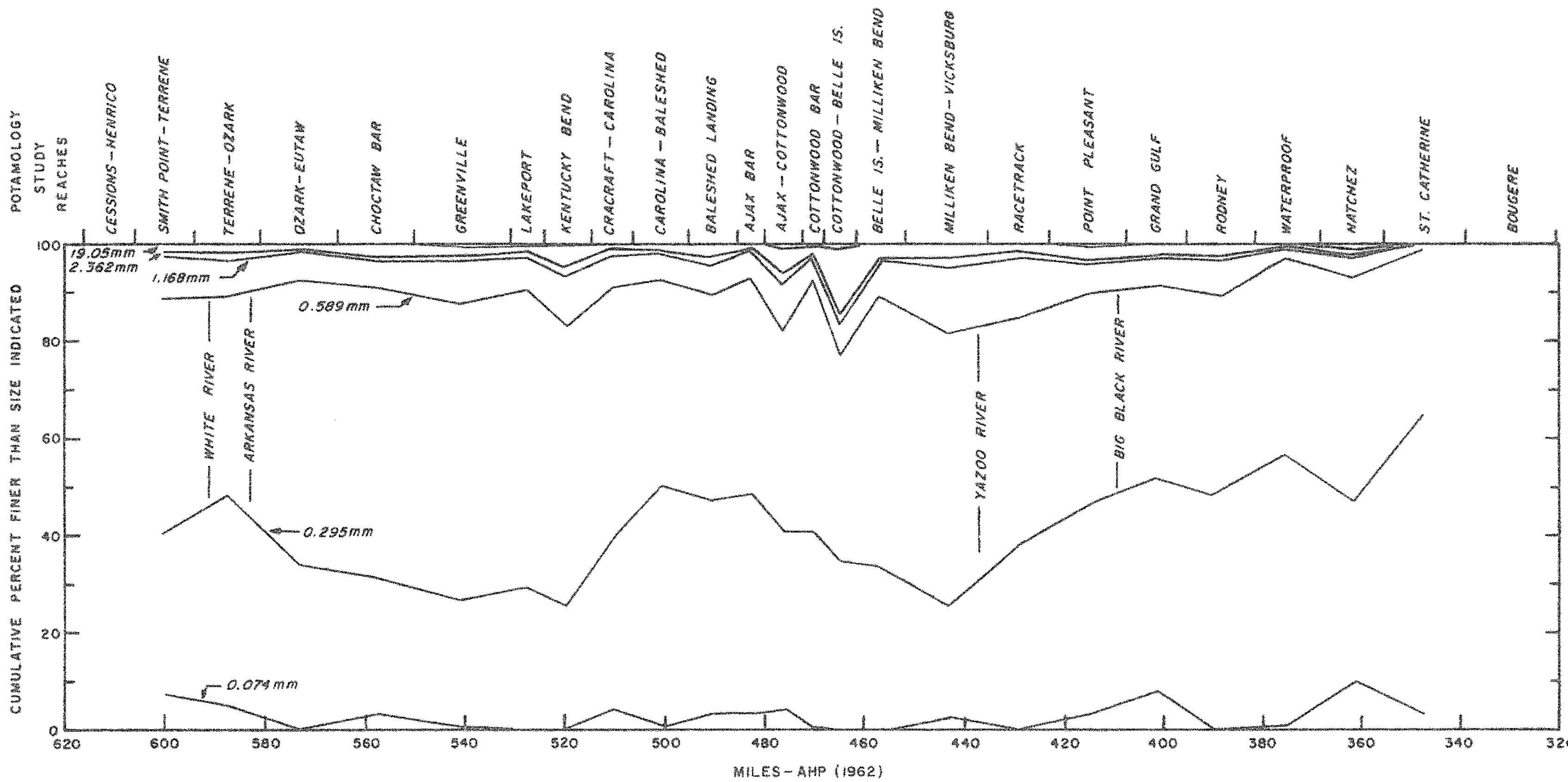
FIGURE 49

FIGURE 50




MISSISSIPPI RIVER
POTAMOLOGY STUDIES
VARIATION IN COMPOSITION OF BED
MATERIALS IN THE VICKSBURG DISTRICT
DURING CALENDAR YEAR 1970

986 SAMPLES AVERAGED BY STUDY REACHES




MISSISSIPPI RIVER

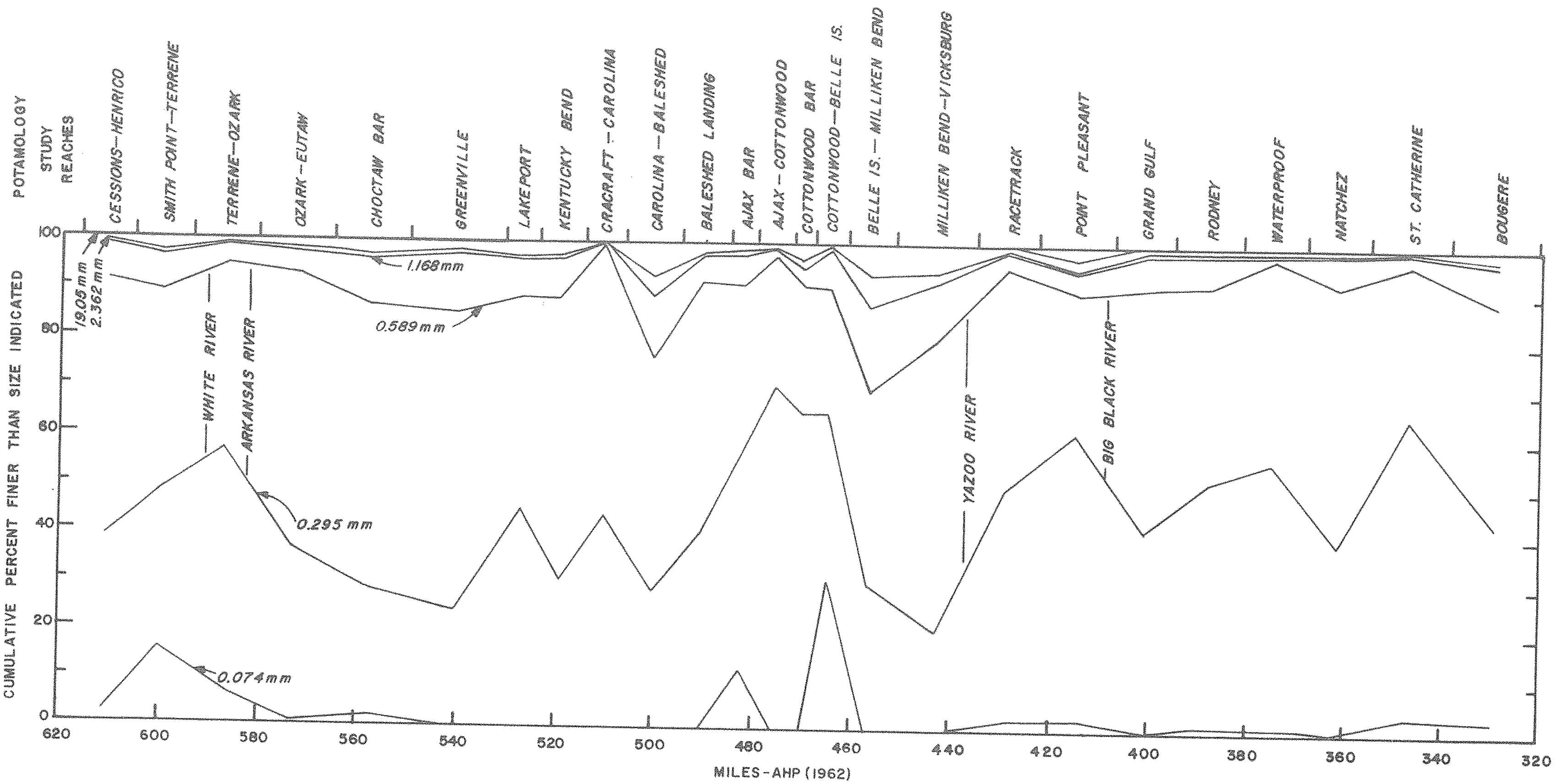
POTAMOLOGY STUDIES

VARIATION IN COMPOSITION OF BED MATERIALS IN THE VICKSBURG DISTRICT DURING CALENDAR YEAR 1971

965 SAMPLES AVERAGED BY STUDY REACHES

FIGURE 51

FIGURE 52

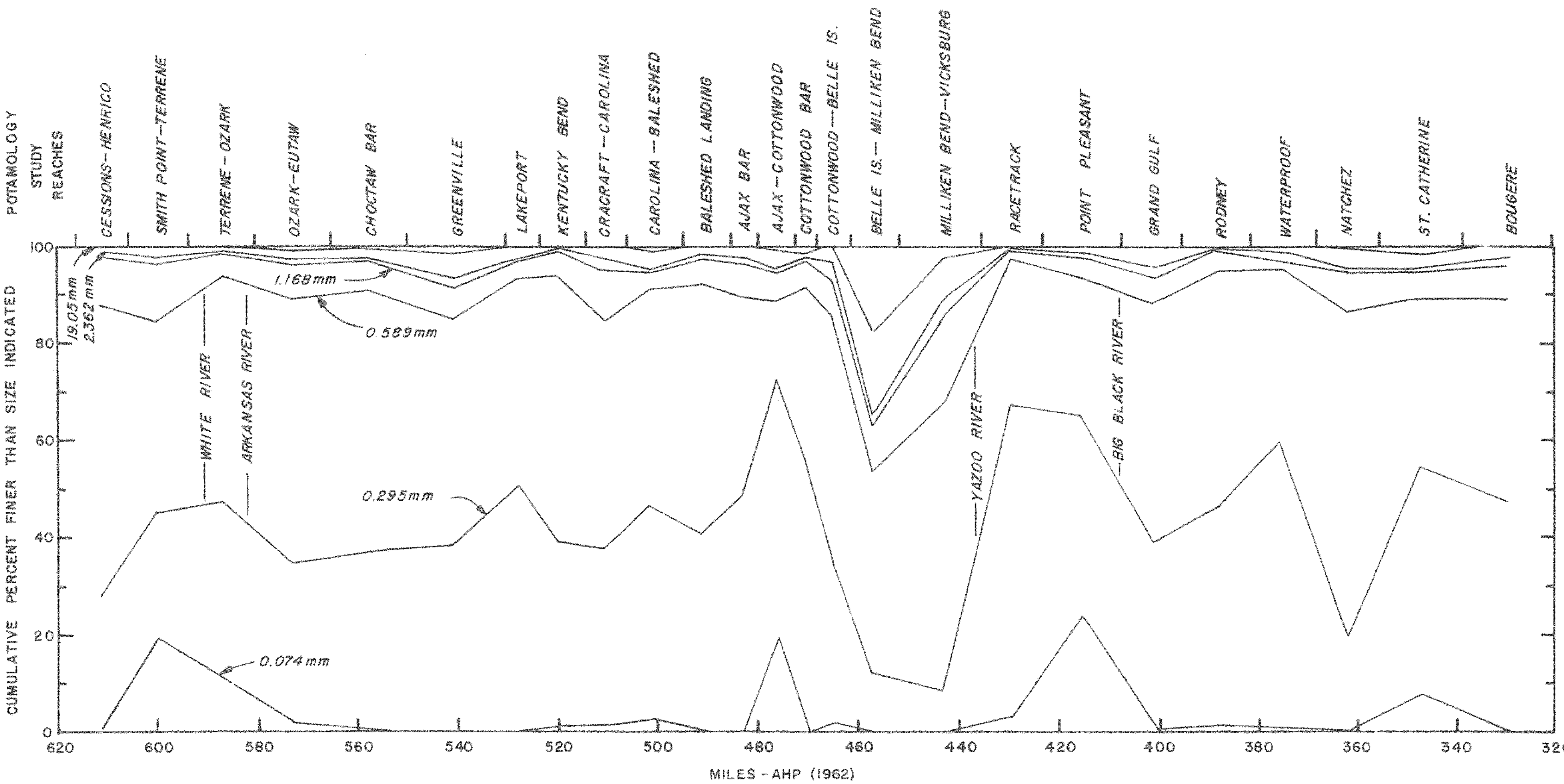



MISSISSIPPI RIVER

POTAMOLOGY STUDIES

VARIATION IN COMPOSITION OF BED MATERIALS IN THE VICKSBURG DISTRICT DURING CALENDAR YEAR 1972

1227 SAMPLES AVERAGED BY STUDY REACHES




MISSISSIPPI RIVER

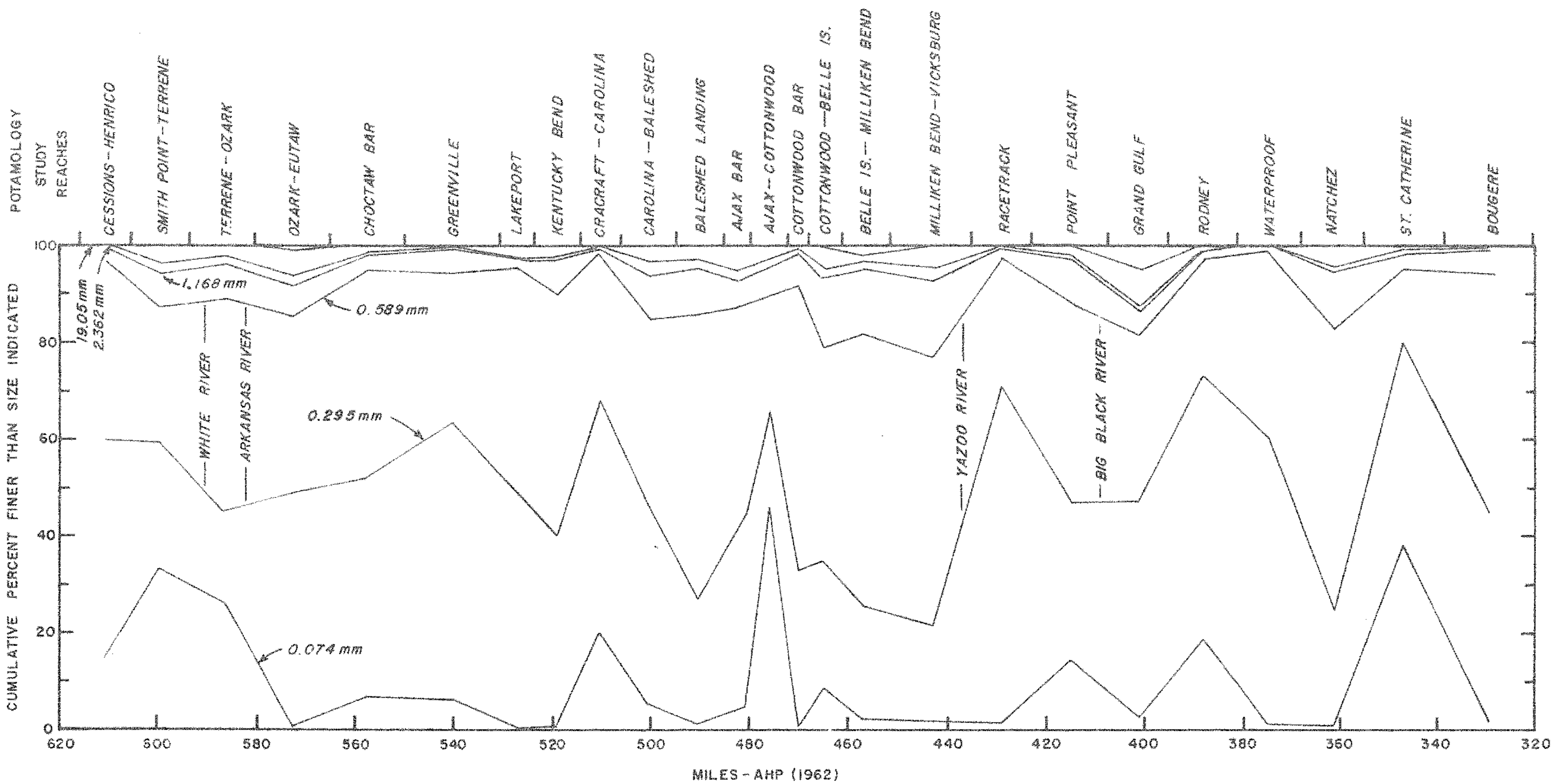
POTAMOLOGY STUDIES

VARIATION IN COMPOSITION OF BED MATERIALS IN THE VICKSBURG DISTRICT DURING CALENDAR YEAR 1973

1425 SAMPLES AVERAGED BY STUDY REACHES

FIGURE 53

FIGURE 54

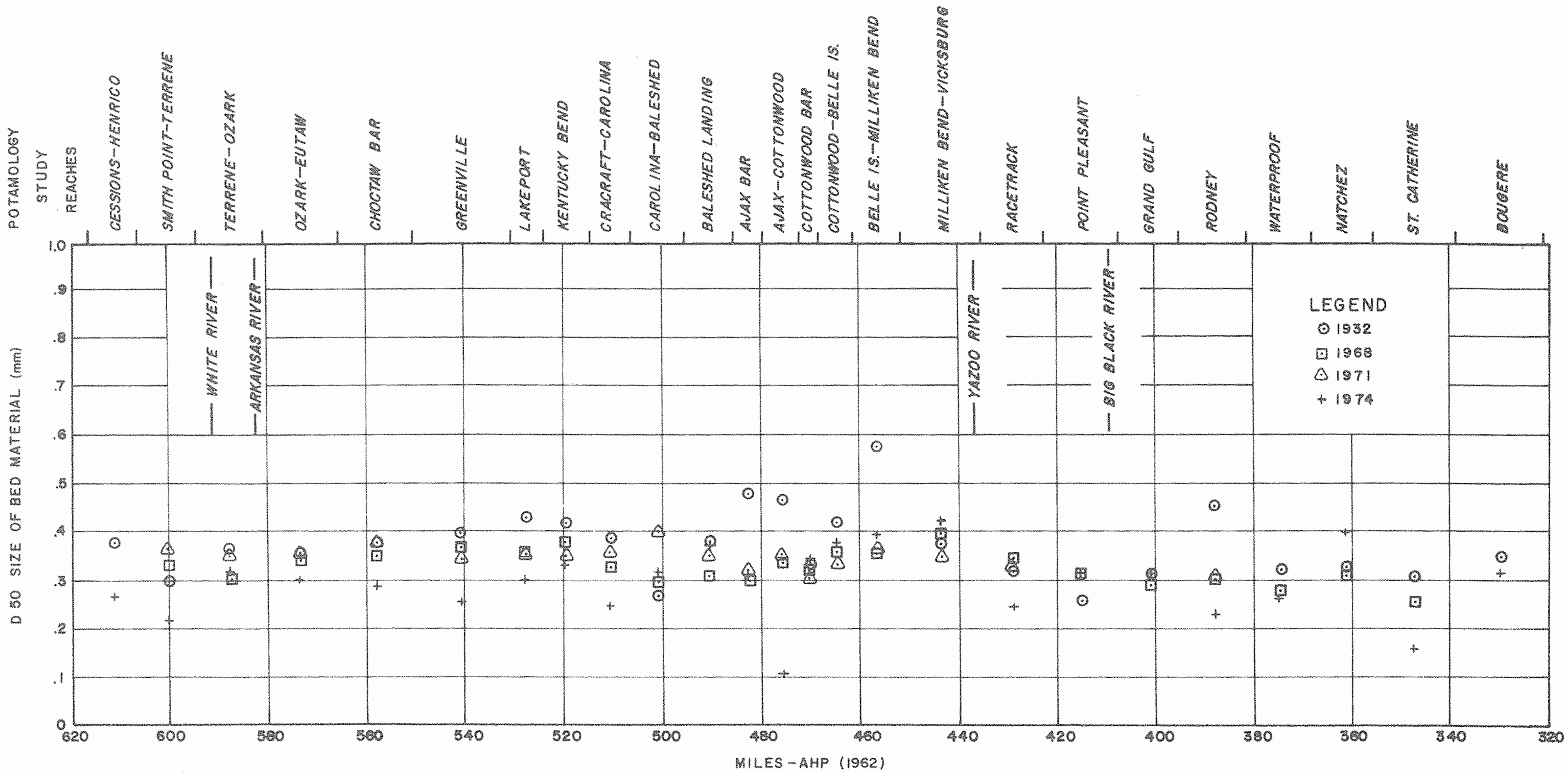



MISSISSIPPI RIVER

POTAMOLOGY STUDIES

VARIATION IN COMPOSITION OF BED MATERIALS IN THE VICKSBURG DISTRICT DURING CALENDAR YEAR 1974

1061 SAMPLES AVERAGED BY STUDY REACHES




MISSISSIPPI RIVER

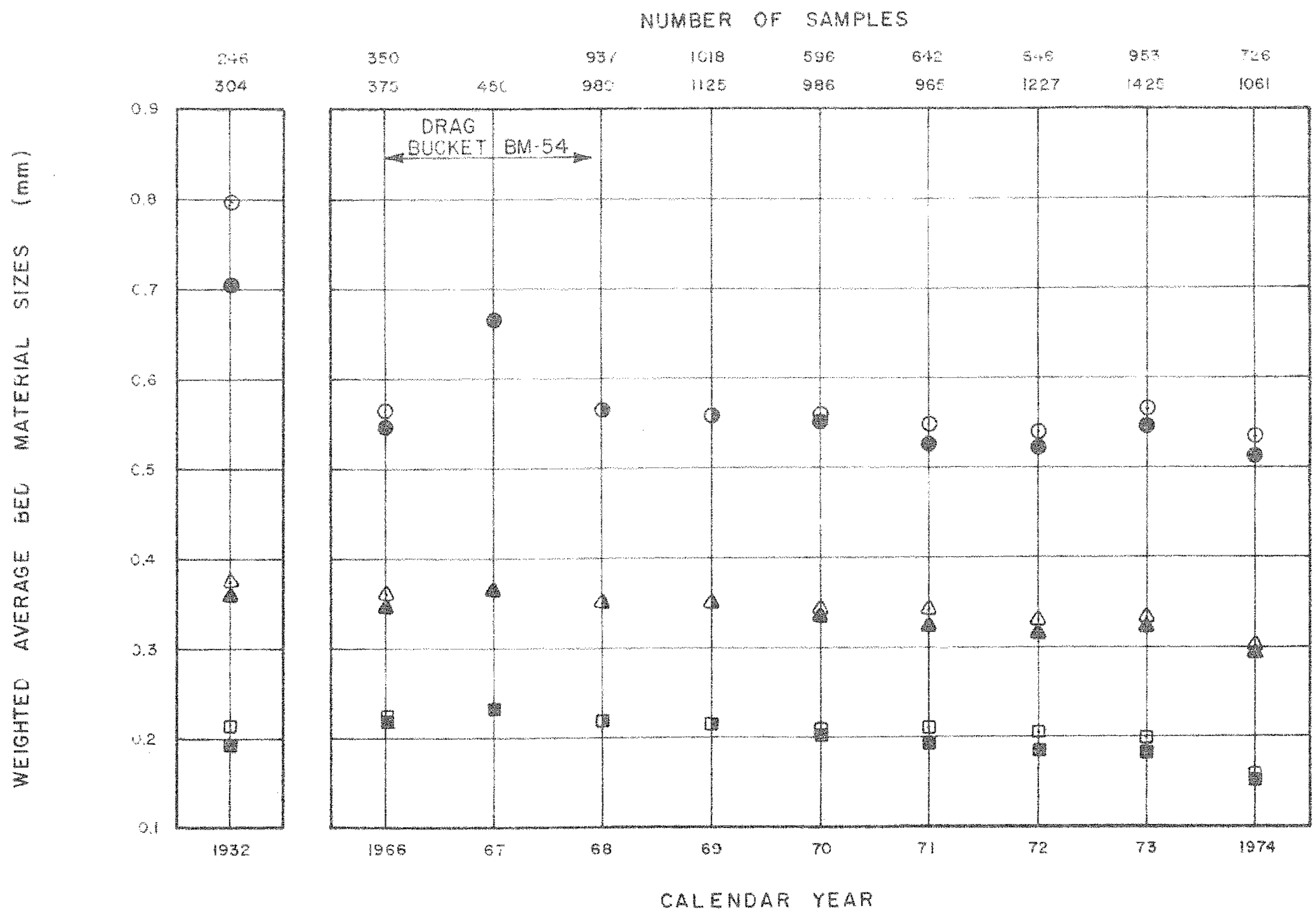
POTAMOLOGY STUDIES

VARIATION IN $D_{50}$ SIZE OF BED MATERIALS

FOR THE VICKSBURG DISTRICT

FIGURE 55

FIGURE 56



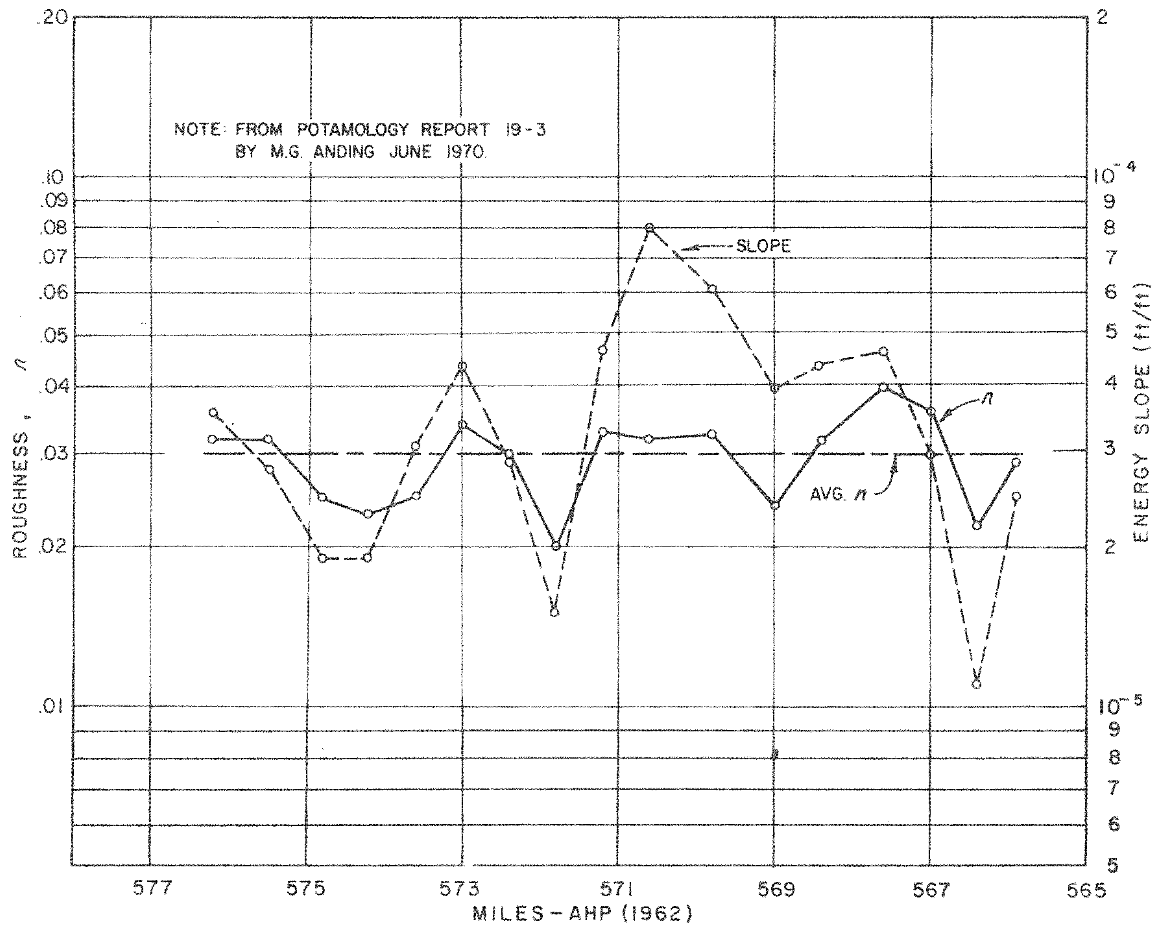

LEGEND

| D84 | D50 | D16 | |
|---|---|---|---|
| ○ | △ | □ | MILES 422.8-606.0 AHP |
| ● | ▲ | ■ | ALL DATA AVAILABLE |

MISSISSIPPI RIVER

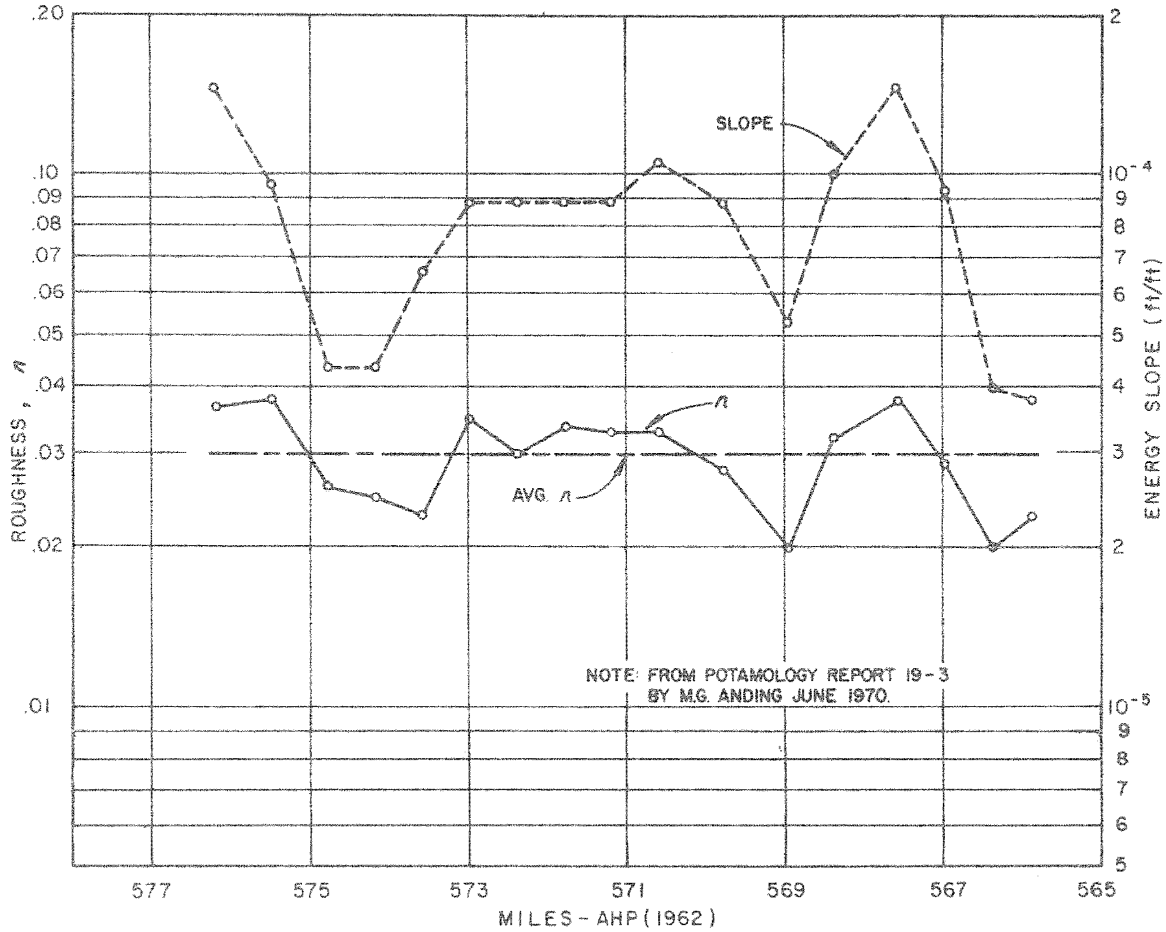
POTAMOLOGY STUDIES

VARIATION IN WEIGHTED AVERAGE BED MATERIAL SIZES FOR THE VICKSBURG DISTRICT



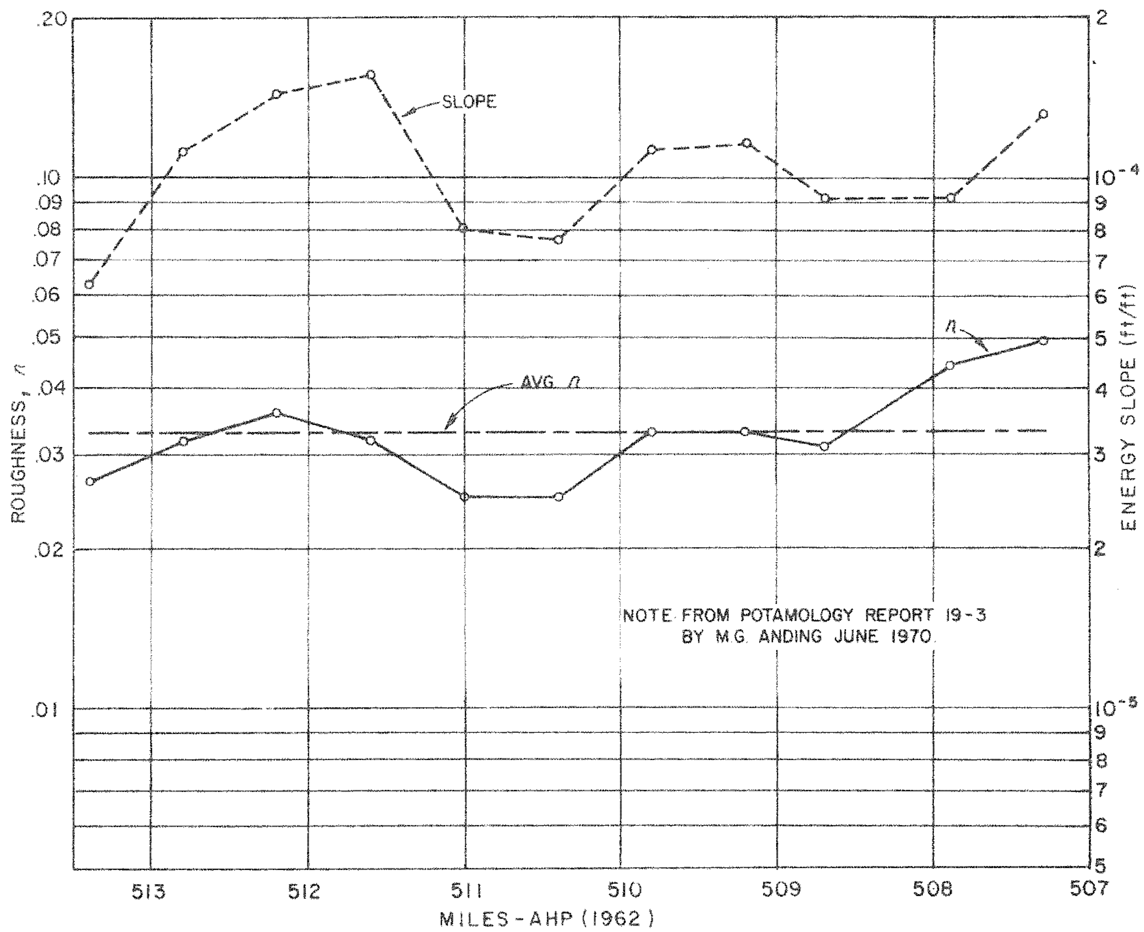

MISSISSIPPI RIVER
POTAMOLOGY STUDIES
VARIATION OF ROUGHNESS AND ENERGY SLOPE
WITH DISTANCE, OZARK-EUTAW REACH
(MEANDERING REACH)
FOR 25-27 OCT 66 ALWP STAGE 4 FT

FIGURE 57



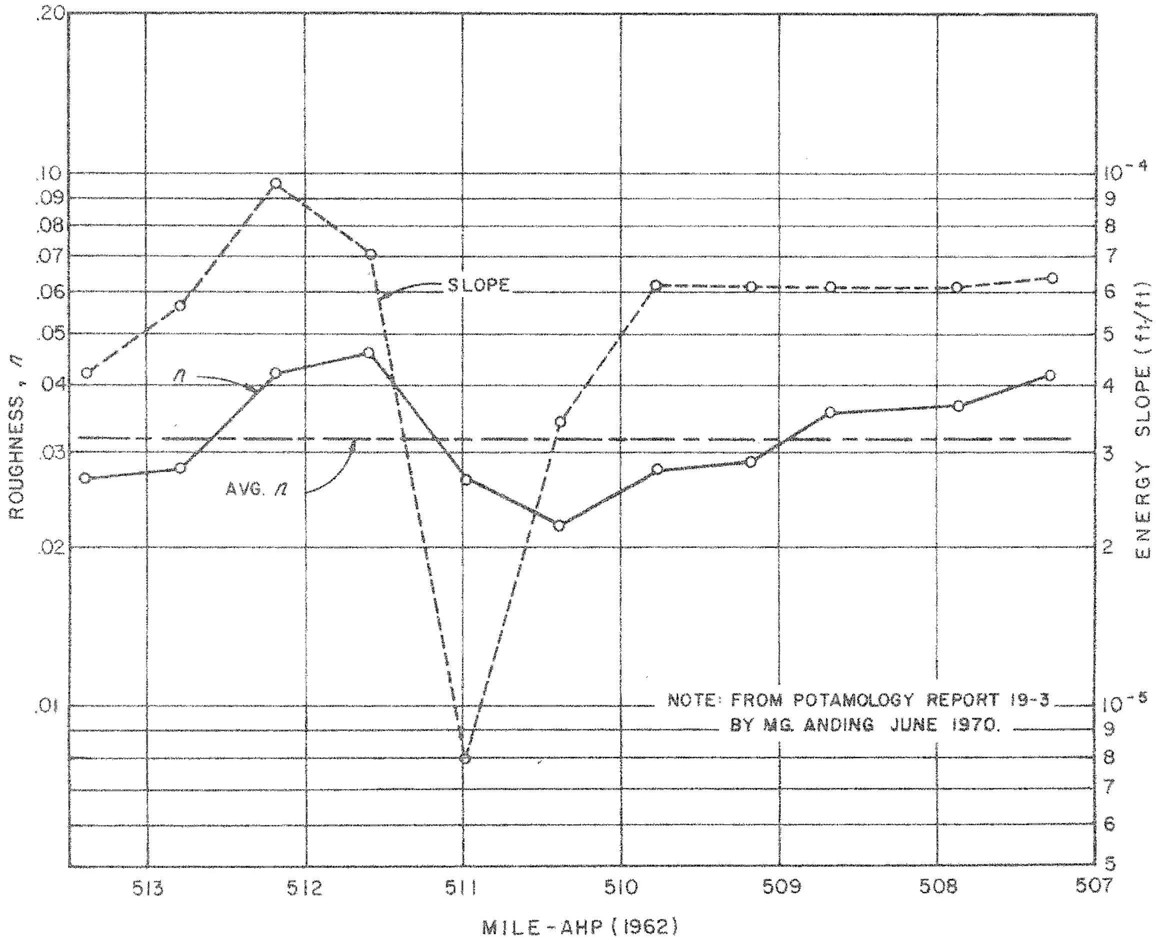

MISSISSIPPI RIVER
POTAMOLOGY STUDIES
VARIATION OF ROUGHNESS AND ENERGY SLOPE
WITH DISTANCE, OZARK-EUTAW REACH
(MEANDERING REACH)
FOR 1 - 5 JUNE 67 ALWP STAGE 30 FT.

FIGURE 58



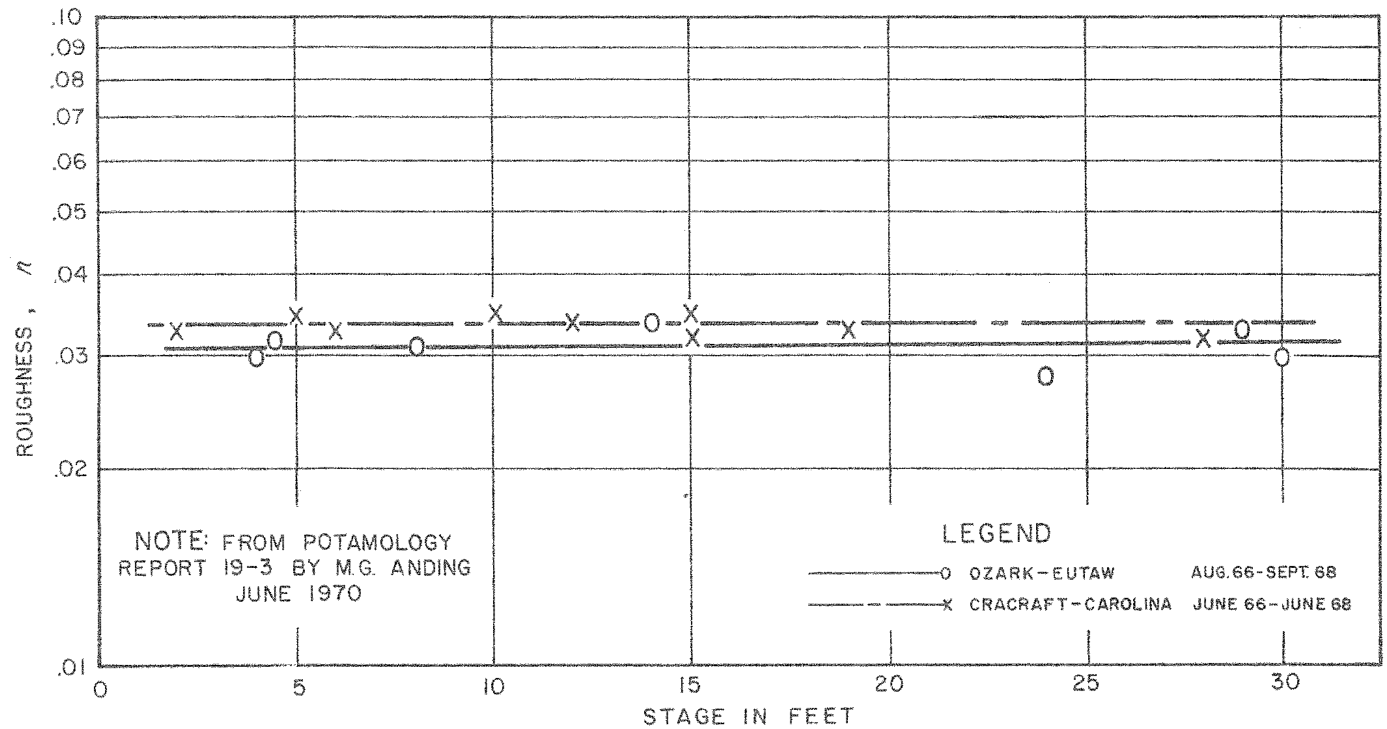

MISSISSIPPI RIVER
POTAMOLOGY STUDIES
VARIATION OF ROUGHNESS AND ENERGY SLOPE
WITH DISTANCE, CRACRAFT-CAROLINA REACH
(STRAIGHT REACH)
FOR 18-19 OCT 66 ALWP STAGE 2 FT.

FIGURE 59




MISSISSIPPI RIVER
POTAMOLOGY STUDIES
VARIATION OF ROUGHNESS AND ENERGY SLOPE
WITH DISTANCE, CRACRAFT-CAROLINA REACH
(STRAIGHT REACH)
FOR 23-26 APR. 68 ALWP STAGE 28 FT.

FIGURE 60




MISSISSIPPI RIVER

POTAMOLOGY STUDIES

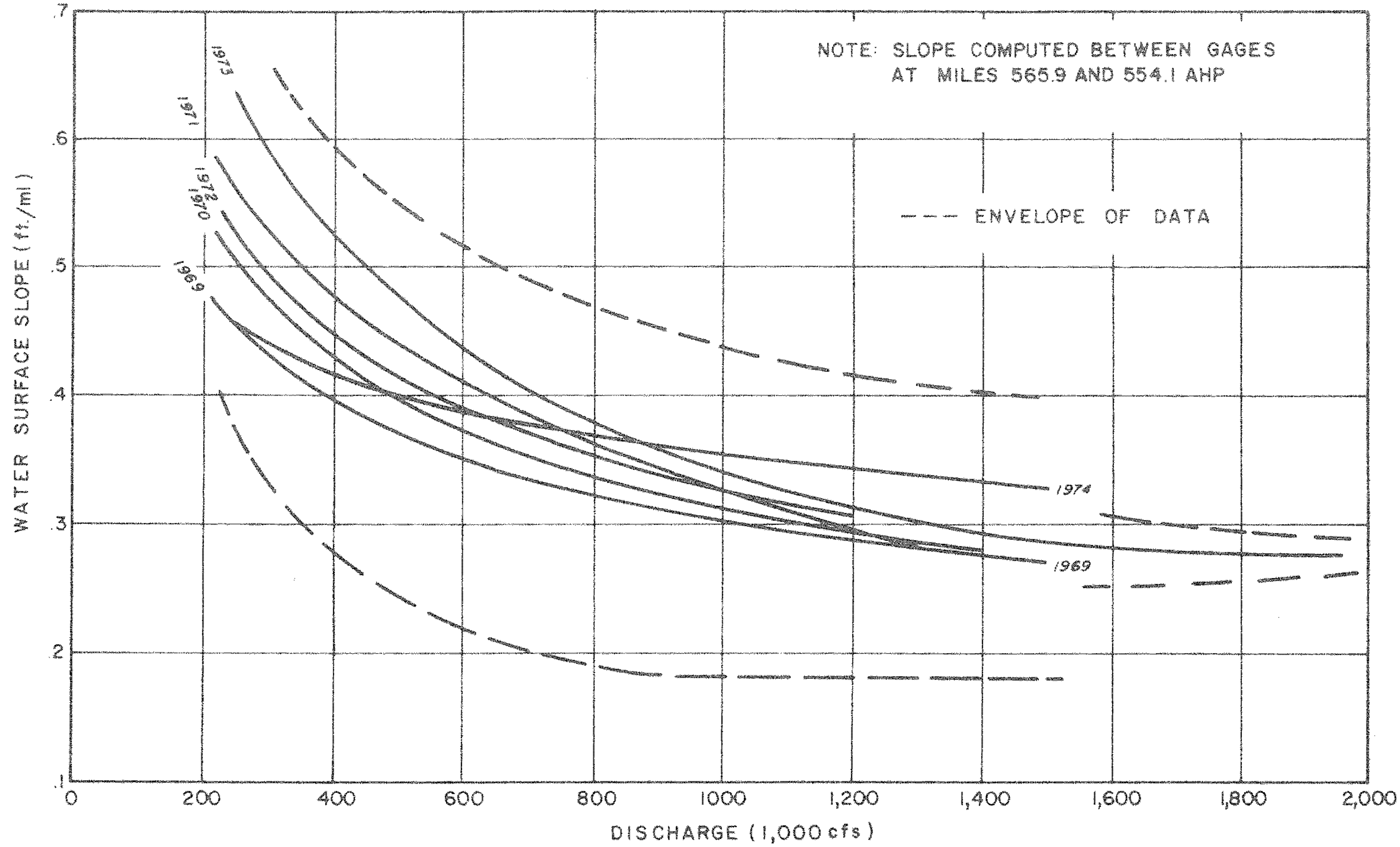
VARIATION OF AVERAGE ROUGHNESS WITH STAGE

VICKSBURG DISTRICT

1966-1968

FIGURE 61

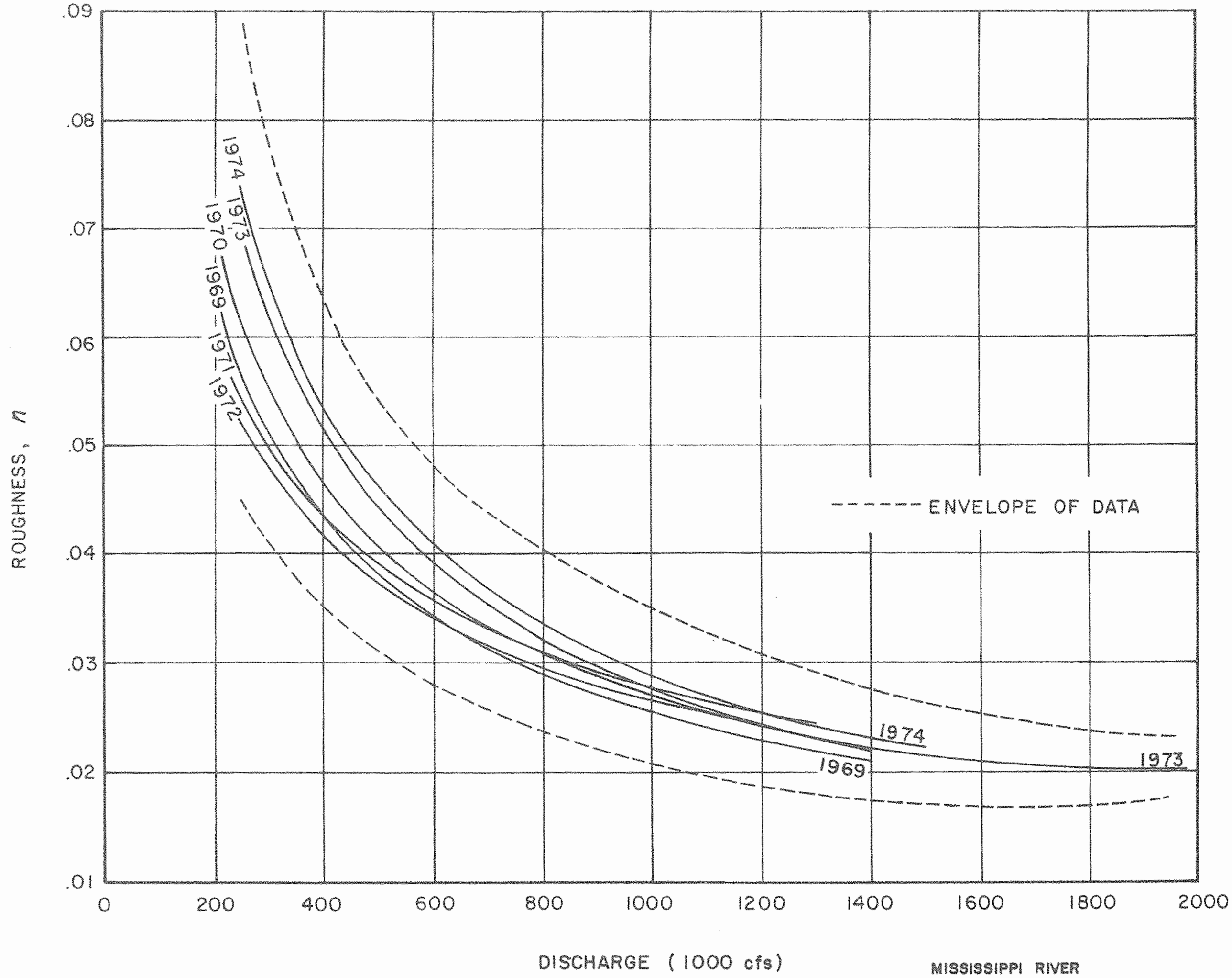
FIGURE 62




MISSISSIPPI RIVER

POTAMOLOGY STUDIES

WATER SURFACE SLOPE VS. DISCHARGE
ARKANSAS CITY DISCHARGE RANGE
MILE 565.9 AHP
WATER YEARS 1969 – 1974




MISSISSIPPI RIVER

POTAMOLOGY STUDIES

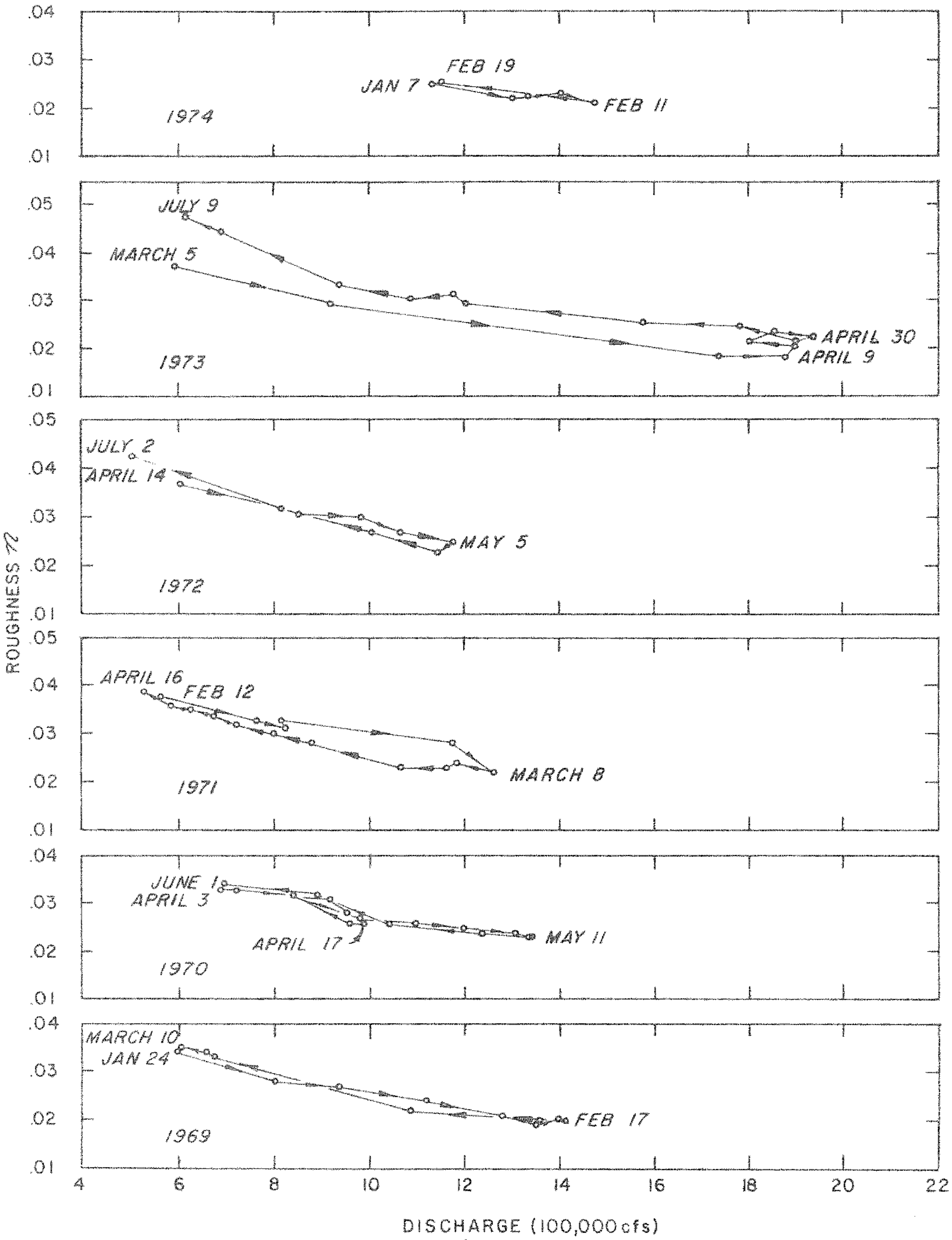
ROUGHNESS VS. DISCHARGE

ARKANSAS CITY DISCHARGE RANGE

MILE 565.9 AHP

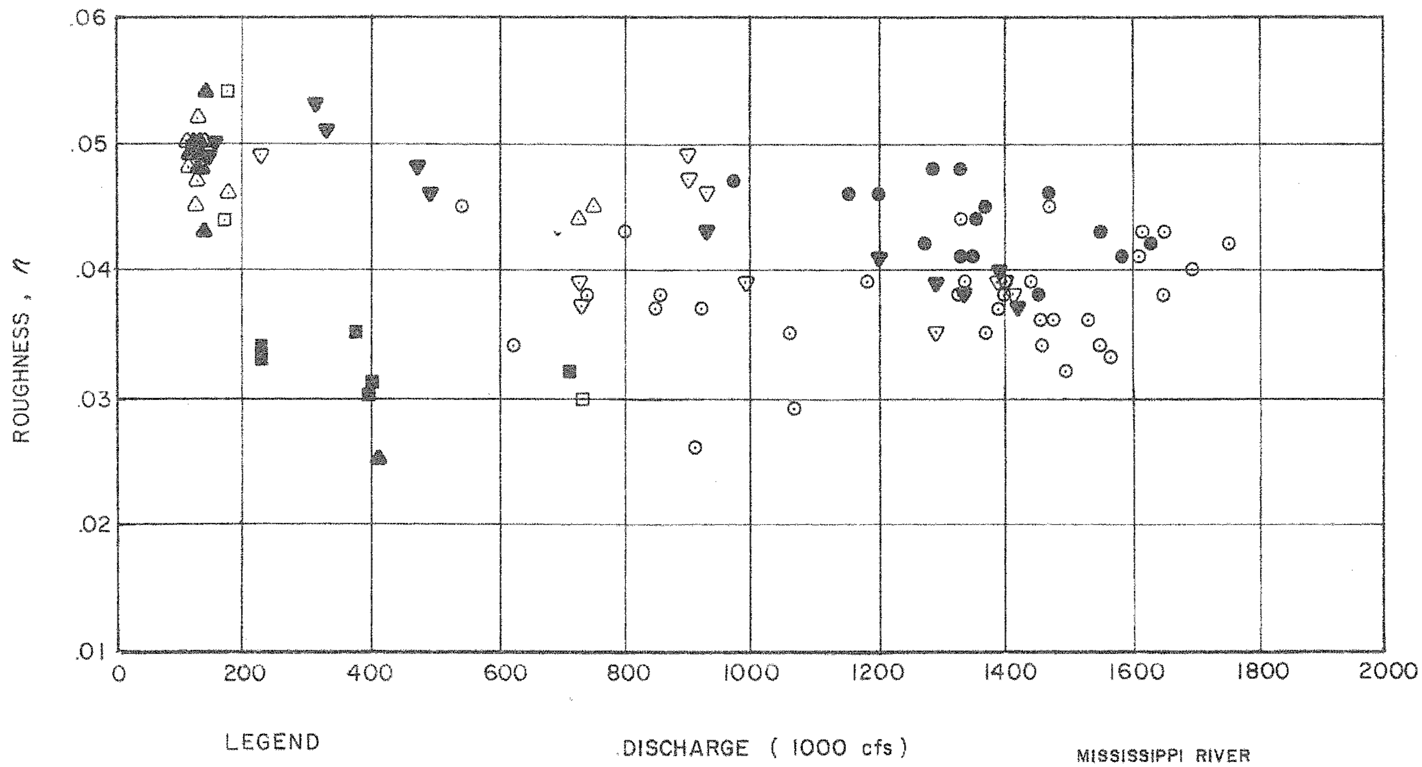
WATER YEARS 1969—1974

FIGURE 63




MISSISSIPPI RIVER
POTAMOLOGY STUDIES
VARIATION OF ROUGHNESS WITH
DISCHARGE DURING MAJOR RISES (1969-74)
ARKANSAS CITY DISCHARGE RANGE
MILE 565.9 AHP

FIGURE 64




LEGEND

| | STAGE | |
|---|---|---|
| | RISING | FALLING |
| 1929 | ○ | ● |
| 1930 | △ | ▲ |
| 1931 | □ | ■ |
| 1932 | ▽ | ▼ |

MISSISSIPPI RIVER

POTAMOLOGY STUDIES

ROUGHNESS VS. DISCHARGE

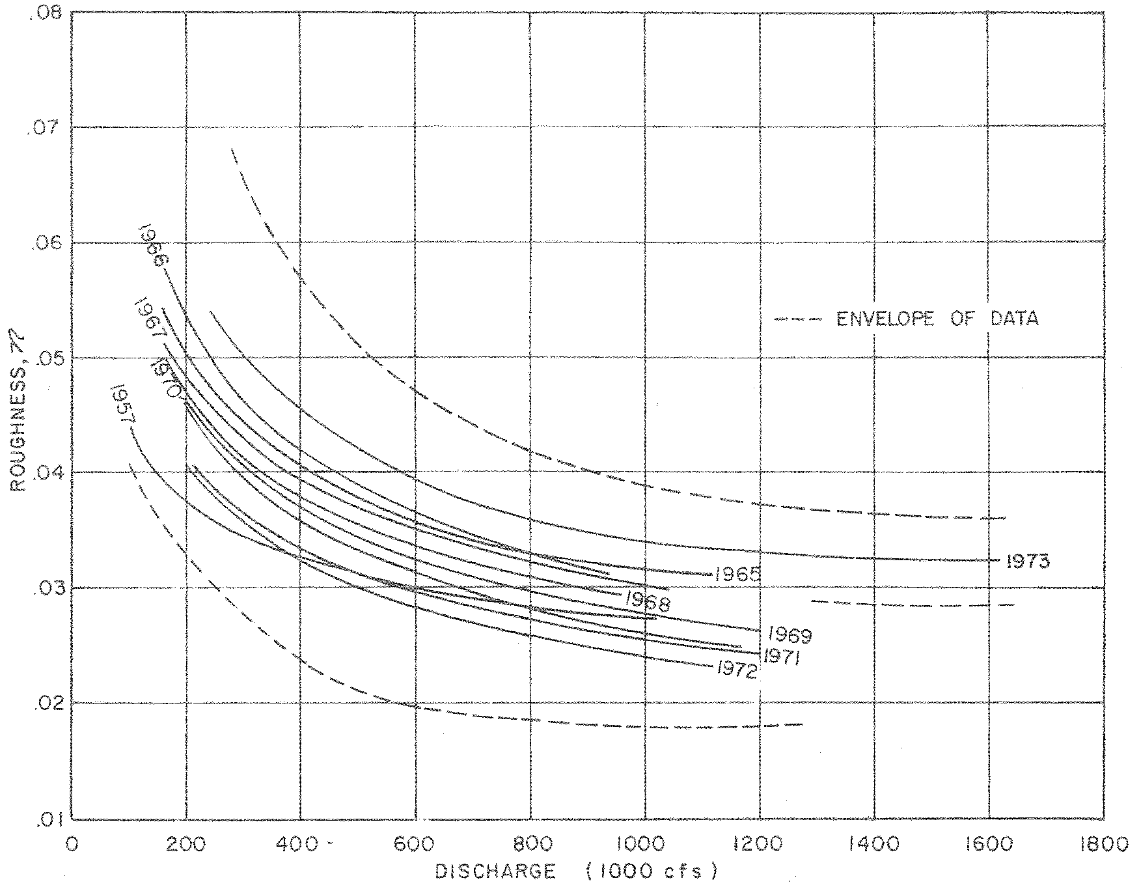
ARKANSAS CITY DISCHARGE RANGE

MILE 565.9 AHP

1929—1932

FIGURE 65

FIGURE 66




MISSISSIPPI RIVER

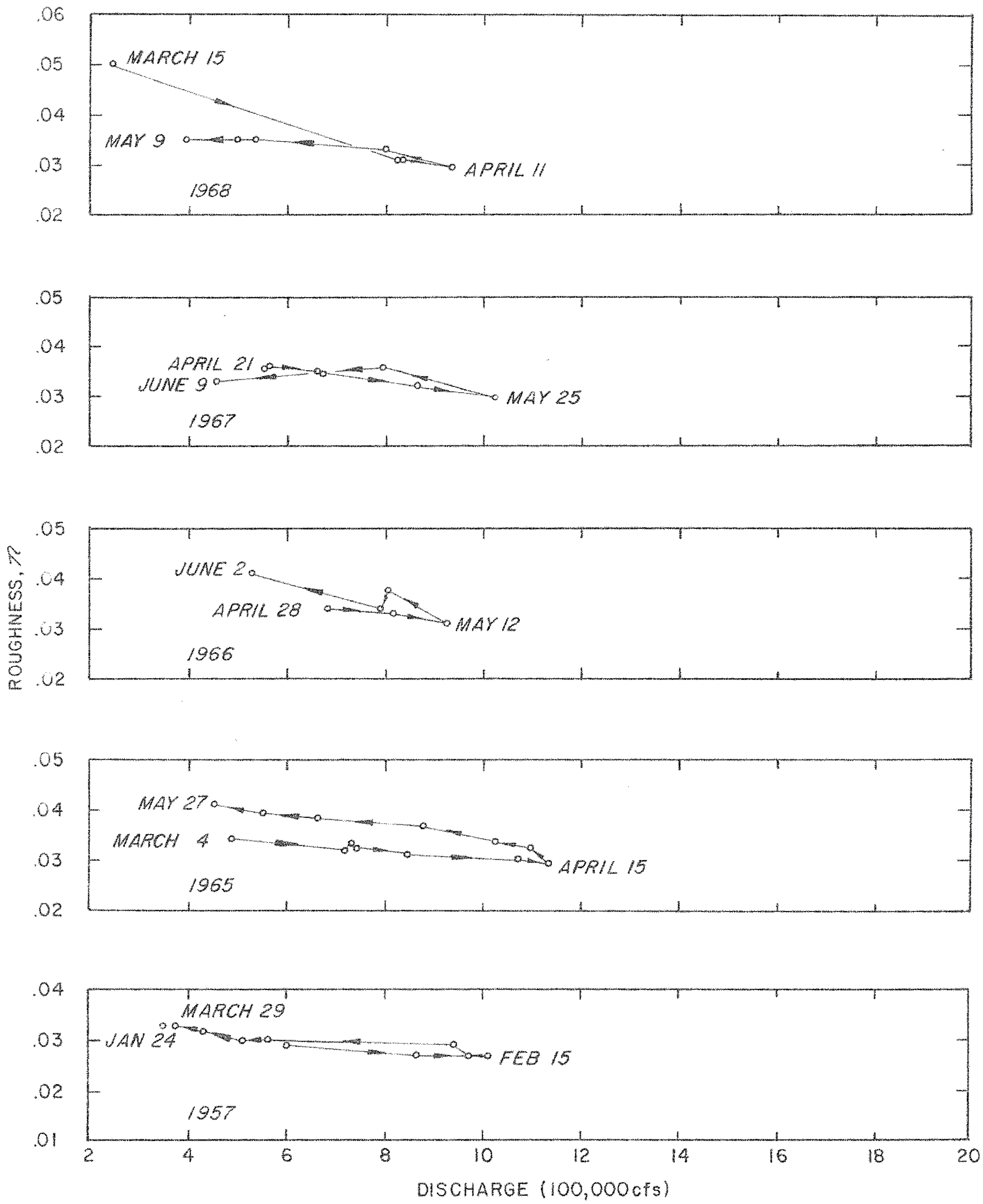
POTAMOLOGY STUDIES

ROUGHNESS VS. DISCHARGE

HELENA DISCHARGE RANGE

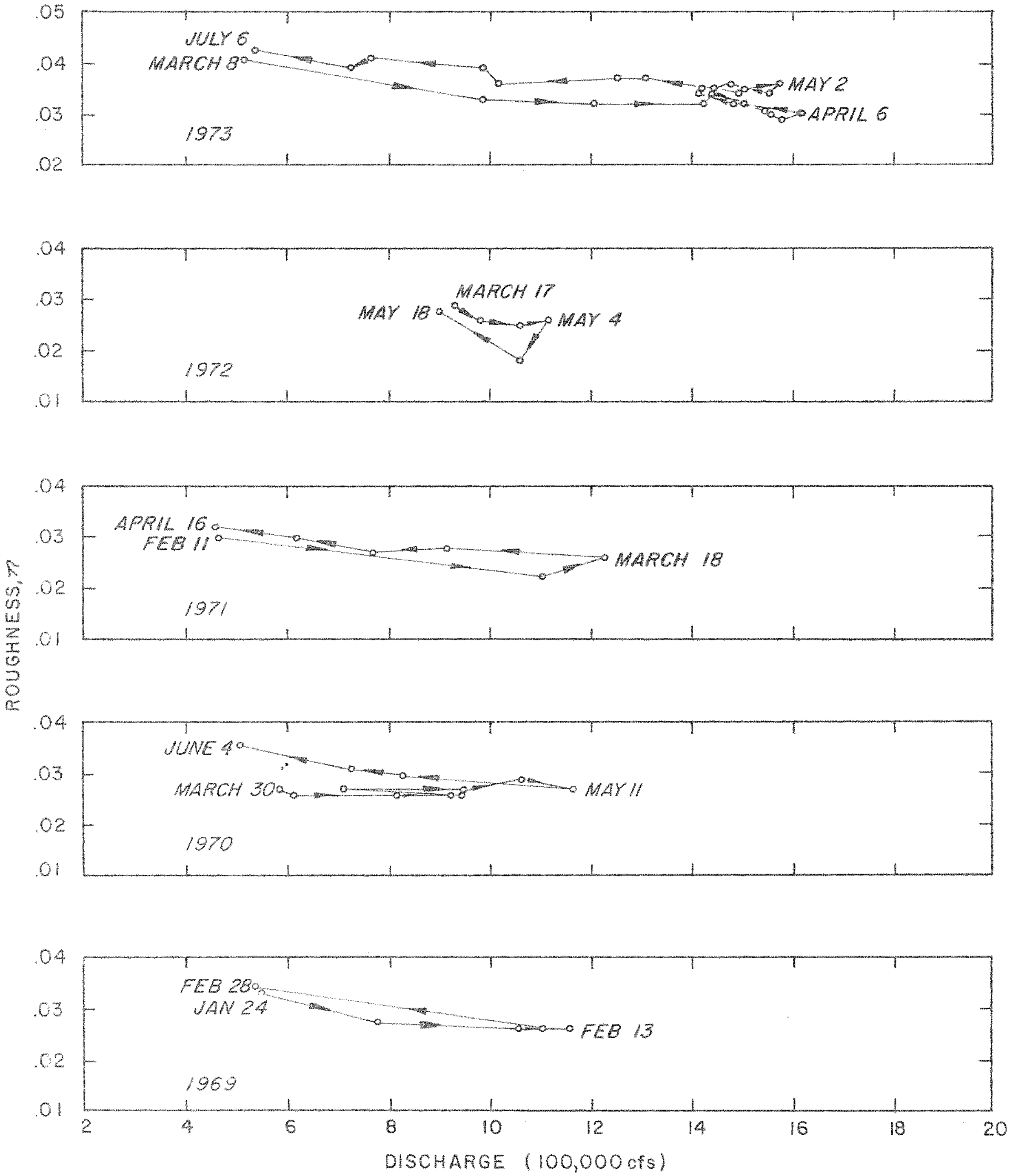
MILE 662.7 AHP

WATER YEARS 1957,1965-1973




MISSISSIPPI RIVER
POTAMOLOGY STUDIES
VARIATION OF ROUGHNESS WITH
DISCHARGE DURING MAJOR RISES (1957, 1965-68)
HELENA DISCHARGE RANGE
MILE 662.7 AHP

FIGURE 67

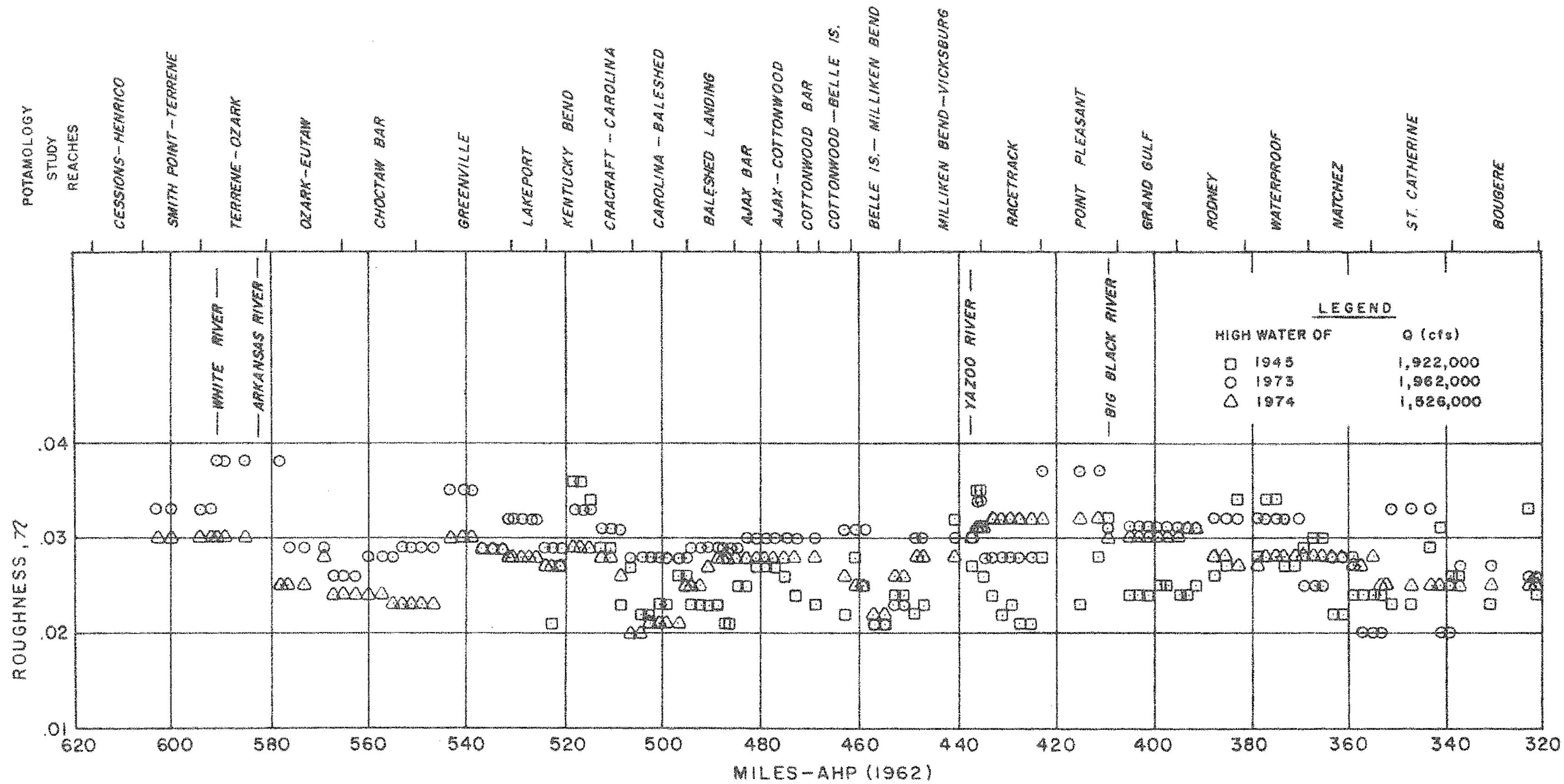



MISSISSIPPI RIVER

POTAMOLOGY STUDIES

VARIATION OF ROUGHNESS WITH
DISCHARGE DURING MAJOR RISES (1969-73)
HELENA DISCHARGE RANGE
MILE 662.7 AHP

FIGURE 68




MISSISSIPPI RIVER

POTAMOLOGY STUDIES

VARIATION IN ROUGHNESS FOR FLOOD DISCHARGES IN THE VICKSBURG DISTRICT

FIGURE 69

# Appendix D: Photographs

Photo 1. Gravel cover at head of Cottonwood Bar, mile 470, 26 September 1975

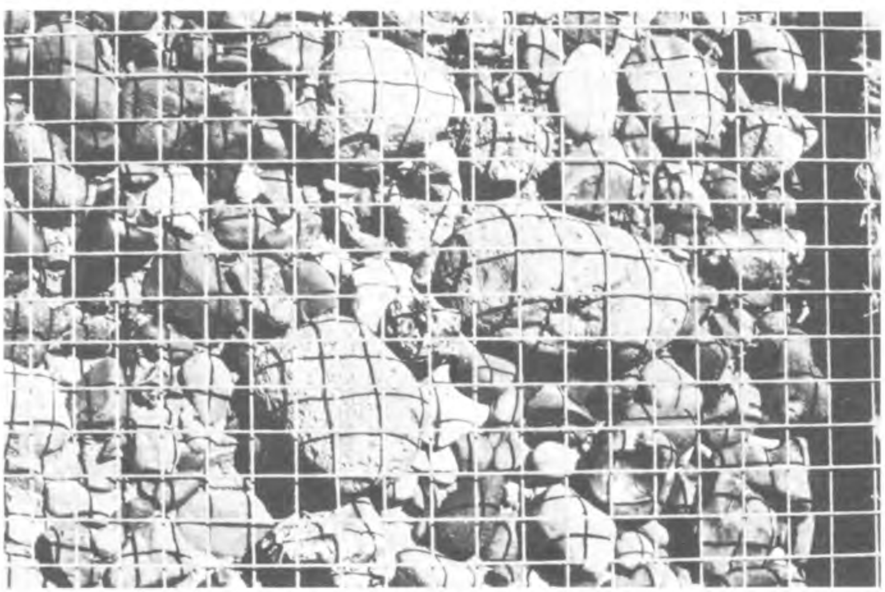


Photo 2. Cobbles on Cottonwood Bar, mile 470, 26 September 1975. Grid divisions are 2 cm

Photo 3. Togo Island Dike No. 2, mile 416, 23 September 1975

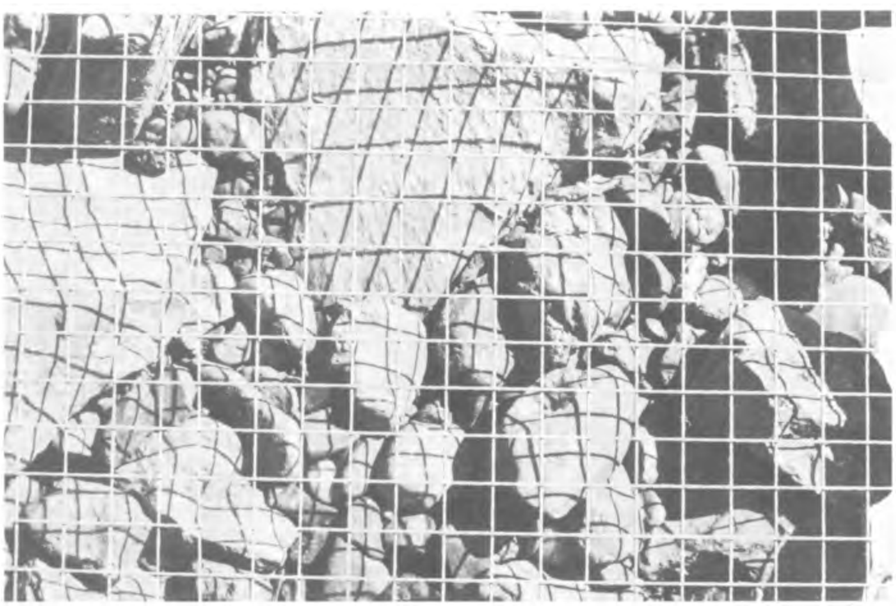


Photo 4. Gravel deposits on top of Togo Island Dike No. 2, mile 416, 23 September 1975. Large angular material is quarry-run dike stone. Grid divisions are 2 cm

Photo 5. Gravel cover at head of Middle Ground Island, mile 409, 3 October 1973

Photo 6. Gravel cover at head of Middle Ground Island, mile 409, 7 August 1974, 6-in. rule for scale

Photo 7. Gravel cover at head of Middle Ground Island, mile 409, 7 August 1974. Trench cut to expose underlying sand. Six-in. rule for scale

Photo 8. Gravel cover at head of middle bar, mile 388.4, 22 September 1975

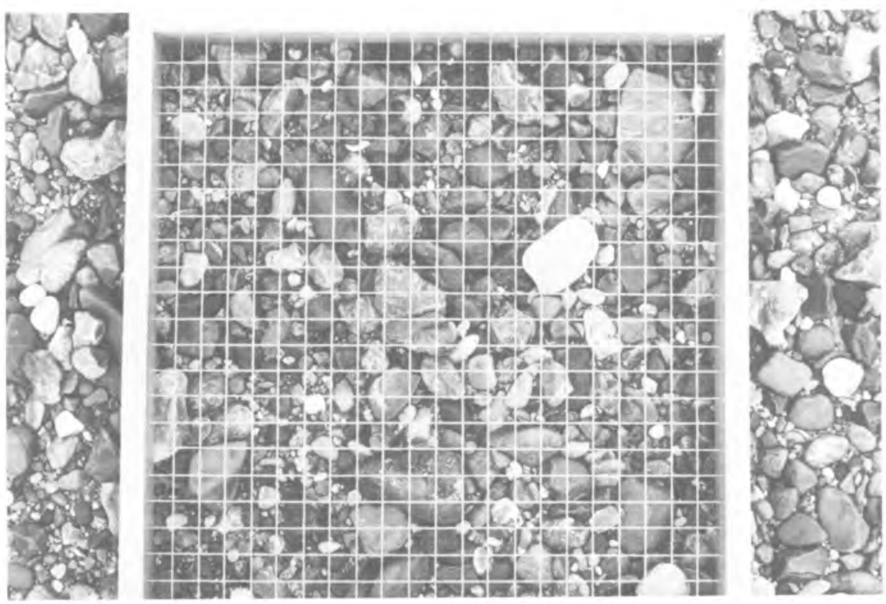


Photo 9. Gravel cover at head of middle bar, mile 388.4, 22 September 1975. Grid divisions are 2 cm

Photo 10. Sand waves on lower end of middle bar, mile 387, 22 September 1975. View upstream at left channel. Waves are 6 to 8 ft high

Photo 11. Sand waves on lower end of middle bar, mile 387, 22 September 1975. View upstream

Photo 12. Sand waves on lower end of middle bar, mile 387, 22 September 1975. View downstream at left channel. Waves are 8 to 10 ft high

# Appendix E: Notation

| | |
|---|---|
| $C$ | Suspended sediment concentration, ppm by weight |
| $C_s$ | Concentration of suspended sands, ppm by weight |
| $C_T$ | Total suspended concentration, ppm by weight |
| $\overline{D}$ | Average depth of flow, ft |
| $D_{84}$ | Sediment size for which 84 percent is finer, mm |
| $D_{50}$ | Sediment size for which 50 percent is finer, mm |
| $D_{16}$ | Sediment size for which 16 percent is finer, mm |
| $Q$ | Water discharge, cfs |
| $Q_s$ | Suspended sediment discharge, tons/day |
| $Q_{sf}$ | Suspended fines discharge (material $<0.062$ mm), tons/day |
| $S$ | Slope of energy grade line |
| $\overline{V}$ | Average velocity, fps |
| $W$ | Width of flow, ft |
| $a$ | Coefficient in the formula $W = aQ^b$ |
| $b$ | Exponent in the formula $W = aQ^b$ |
| $c$ | Coefficient in the formula $\overline{D} = cQ^f$ |
| $f$ | Exponent in the formula $\overline{D} = cQ^f$ |
| $j$ | Exponent in the formula $Q_s = pQ^j$ |
| $k$ | Coefficient in the formula $\overline{V} = kQ^m$ |
| $m$ | Exponent in the formula $\overline{V} = kQ^m$ |
| $n$ | Coefficient in the formula $C_s = nQ^z$ |
| "n" | Channel roughness coefficient |
| $p$ | Coefficient in the formula $Q_s = pQ^j$ |
| $r$ | Coefficient in the formula $C_T = rQ^y$ |
| $t$ | Coefficient in the formula $Q_{sf} = tQ^x$ |
| $x$ | Exponent in the formula $Q_{sf} = tQ^x$ |
| $y$ | Exponent in the formula $C_T = rQ^y$ |
| $z$ | Exponent in the formula $C_s = nQ^z$ |