Floods of March 1964 Along the Ohio River

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1840–A

Prepared in cooperation with the States of Kentucky, Ohio, Indiana, Pennsylvania, and West Virginia, and with agencies of the Federal Government

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By H. C. BEABER *and* J. O. ROSTVEDT

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CONTENTS

ILLUSTRATIONS

TABLES

FLOODS OF 1964 IN THE UNITED STATES

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ABSTRACT

The floods of March 1964 in the Ohio River basin caused widespread damage in six States adjacent to the Ohio River main stem. Flood damage was estimated at over $100 million, of which about 75 percent was along the Ohio River main stem. Over 21,000 homes were damaged or destroyed, and more than 29,000 families suffered losses. Eighteen lives were reported lost.

Floods were caused by two storms; the first occurred March 2–5, and the other March 8–10. Both storms approximately paralleled the Ohio River in a belt extending from western Kentucky through northern Kentucky, southern Indiana, and central Ohio, to western Pennsylvania. In most localities the storm of March 8–10 was the more severe. Total rainfall from the storms exceeded 14 inches in western Kentucky. Greatest 24-hour precipitation was 8.00 inches at Paducah, Ky., on March 4.

Maximum discharges previously known were exceeded at many points in Ohio, Kentucky, and Indiana. Peak discharges of the March 1964 floods exceeded the 50-year flood at many localities. The Licking River at Catawba, Ky., reached the highest stage since 1888. The Ohio River in Kentucky reached stages which were second or third highest since the maximum known flood in 1937.

This report describes the 1964 floods and gives detailed streamflow records and information on precipitation and on damage incurred.

INTRODUCTION

Severe floods occurred along the entire reach of the Ohio River during March 1964, and inflicted heavy damage in western Pennsylvania, northwestern West Virginia, southern Ohio, and Indiana, and northern Kentucky (fig. 1).

Heavy rains in two periods, March 2–5 and 8–10, caused extreme floods on many tributaries to the Ohio River. Floods during the first period were heaviest on Ohio River tributaries in southern Indiana and northern Kentucky. The extreme flooding in the second period was on the Ohio River tributaries in southern Indiana, northern Kentucky,

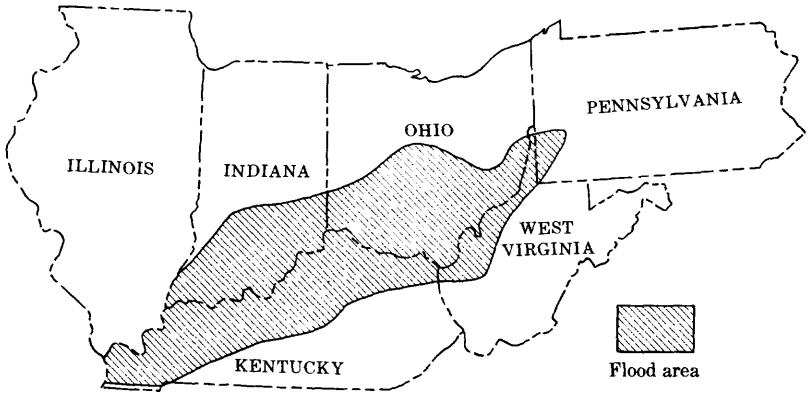


FIGURE 1.—Area covered by this report.

and southwestern and central Ohio. The floods of March 8–10 were, in general, more severe than those of March 2–5.

The severe tributary floods combined with lesser floods on tributaries in eastern Ohio, northwestern West Virginia, and western Pennsylvania and caused the Ohio River to rise above flood stage from Pittsburgh, Pa., to Cairo, Ill. Melted snow in western Pennsylvania added to the volume of flood runoff.

Prior to March 1964, soil moisture was seriously deficient in Ohio, Kentucky, and Indiana. Rainfall in March 1964 marked the first time since the summer of 1963 that monthly precipitation in these States was near normal.

The entire length of the Ohio River was at or near pool stage on March 1. Flow in tributary streams was generally deficient and many reservoirs were at low levels.

Peak stages and discharges during March in Kentucky were the greatest of record on the lower reaches of the Licking River and Eagle Creek in the Kentucky River basin. Maximum discharges for the period of record occurred on many streams in Beargrass Creek, Salt River, Nolin River, and Rough River basins. Recurrence intervals of the March 1964 floods were 50 years or more at 15 gaging stations in Kentucky.

Floods in extreme southern Indiana were the greatest since 1913. Heaviest flooding occurred in the White River and the Patoka River basins and along streams that are directly tributary to the Ohio River. The recurrence interval of the flood was more than 50 years at several places in the above areas.

Floods were maximum of record in the East Fork Little Miami River, Paint Creek, and Hocking River basins in Ohio. Damage was severe, particularly in the Hocking River basin in the of vicinity of

Athens, Ohio, but was not as great as along the Ohio River where the stages were the highest since 1945.

Flood stages on the Ohio River from Maysville, Ky., to Golconda, Ill., were second or third highest since 1937.

The purpose of this report is to supplement, in a more detailed form, data of stage and discharge published in the annual streamflow reports of the Geological Survey. This report discusses precipitation, floods, and flood damage, and relates the magnitude of the March 1964 floods to large known floods of the past. Figure 2 shows locations of sites for which flood data are available in this report. Reference in the text to the flood-determination points shown in figure 2 gives the identifying station number in parenthesis, as follows: Beaver River at Beaver Falls, Pa. (No. 4), ---.

The terms and abbreviations of streamflow and other hydrologic data used in this report are defined as follows:

1. Cubic foot per second (cfs) is the rate of discharge of a stream whose channel is 1 square foot in cross-sectional area and whose average velocity is 1 foot per second.
2. Runoff in inches (in.) shows the depth to which the drainage area would be covered if the runoff for a given time period were uniformly distributed on the surface.
3. Acre-foot (acre-ft) is the quantity of water required to cover an acre to the depth of 1 foot and is equivalent to 43,560 cubic feet.
4. Stage-discharge relation is the relation between gage height, in feet, and the amount of water flowing in a channel expressed as volume per unit of time.
5. Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.
6. Drainage area of a stream at a specified location is that area, measured in a horizontal plane, which is so enclosed by a topographic divide that direct surface runoff from precipitation normally would drain by gravity into the river above the specified point. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise noted.
7. A partial-record station is a site where limited streamflow data are collected systematically over a period of years for use in hydrologic analyses.

Records of discharge in the area covered by this report were collected as part of cooperative programs between the U.S. Geological Survey and the States of Pennsylvania, Ohio, West Virginia, Kentucky, Indiana, and Tennessee, the U.S. Army Corps of Engineers, and other Federal or local agencies. The U.S. Weather Bureau and

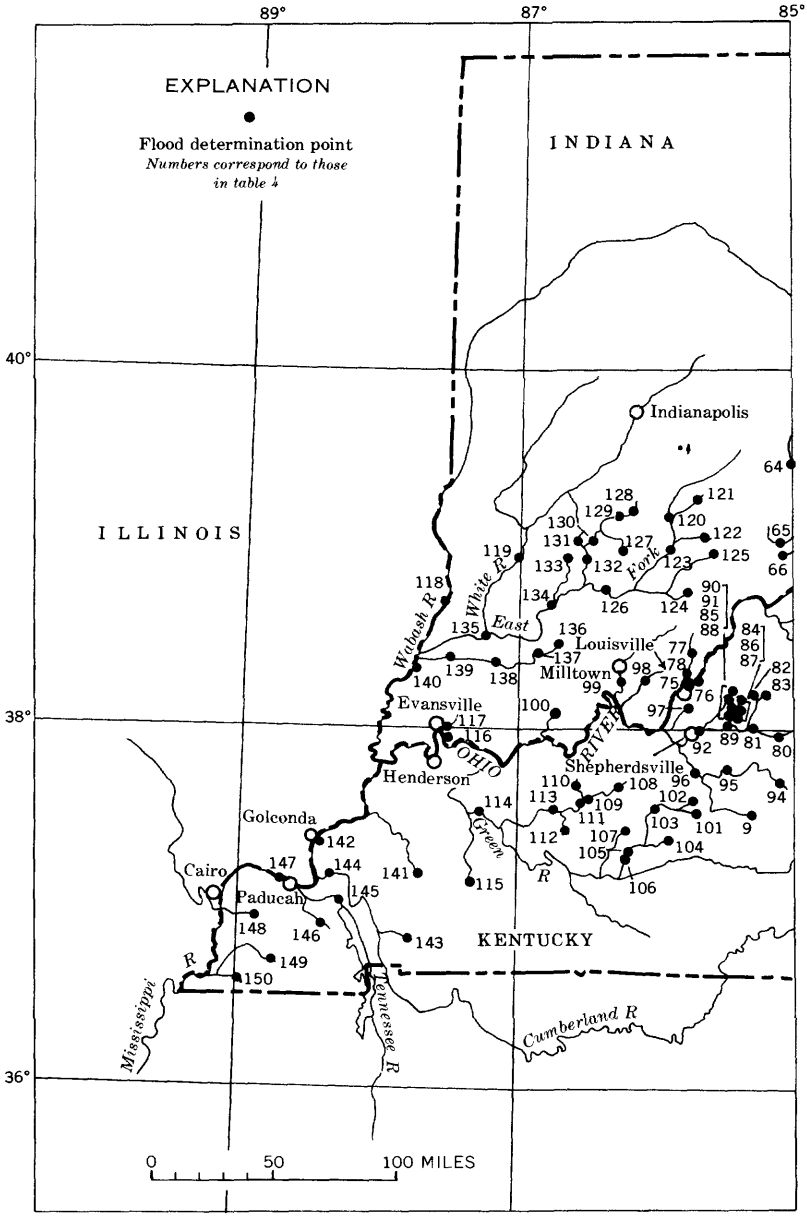
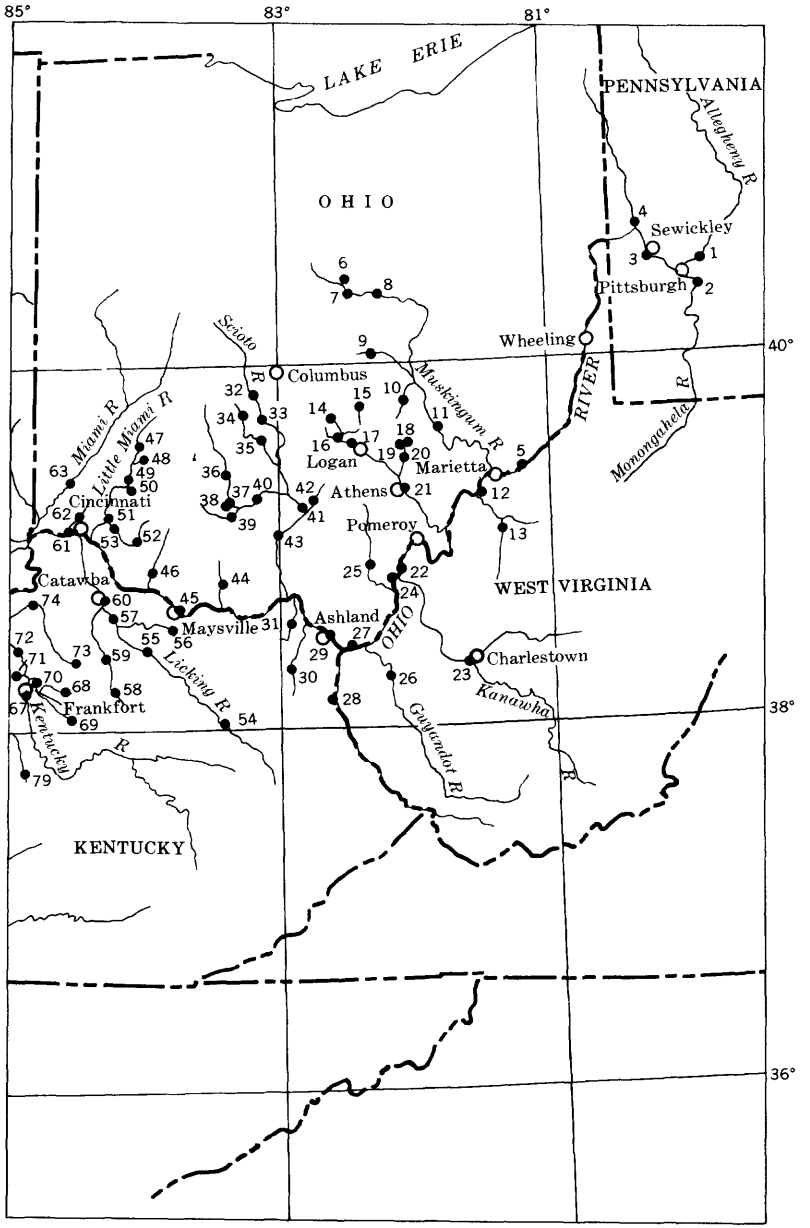


FIGURE 2.—Flood area showing



location of flood-determination sites.

several State, municipal, and private organizations furnished some data or information included in this report, and appropriate acknowledgment is made in the text.

Data were collected and compiled by personnel in the U.S. Geological Survey district offices under supervision of the following: Robert E. Steacy, district engineer, Pennsylvania; W. C. Griffin, district engineer, West Virginia; J. J. Molloy, district engineer, Ohio; F. F. Schrader, district engineer, Kentucky; Malcolm D. Hale, district engineer, Indiana; and J. S. Cragwall, Jr., district hydrologist, Tennessee. The text material describing the floods in Ohio was obtained from the State report "Floods of March 1964 in Ohio," (Bulletin 39) by William P. Cross, hydraulic engineer, Columbus, Ohio.

THE STORMS

The flood-producing rains of early March 1964 marked the end of several months of below-normal precipitation in most of the flood area. This below-normal precipitation had caused soil moisture to be seriously deficient in Kentucky, Ohio, and Indiana for many months prior to the March floods. The period September–December 1963 was the driest comparable period on record in Ohio. Precipitation in Kentucky during March 1964 was near normal to above normal for the first time since July 1963. Monthly rainfall in Indiana had been below normal since late summer of 1963 and had caused soil moisture to be deficient.

Snow depths in the flood area on March 1–2, preceding the rains, were appreciable only in western Pennsylvania and eastern Ohio and averaged 2–4 inches. Lesser amounts were recorded in northwestern West Virginia, and no snow was on the ground in southern Ohio and northern Kentucky.

The flood-producing rains of March 1964 along the Ohio River fell in two principal periods, March 2–5 and 8–10. Heavy rains during the first period extended from southeastern Ohio to extreme western Kentucky in a broad belt approximately paralleling the Ohio River (fig. 3). Heaviest concentrations of rain occurred in northwestern Kentucky and southern Indiana. Greatest 1-day precipitation was 8.00 inches at Paducah, in western Kentucky, on March 4. According to the U.S. Weather Bureau, the probability of rainfalls of this intensity recurring in any month is less than once in 100 years. The March 2–5 rains were accompanied by strong thunderstorm-wind activity in Ohio and Indiana and by damaging tornadoes which killed three persons in western Kentucky.

In less than a week a second series of storms hit the flood area and produced floods that were generally greater in magnitude than those

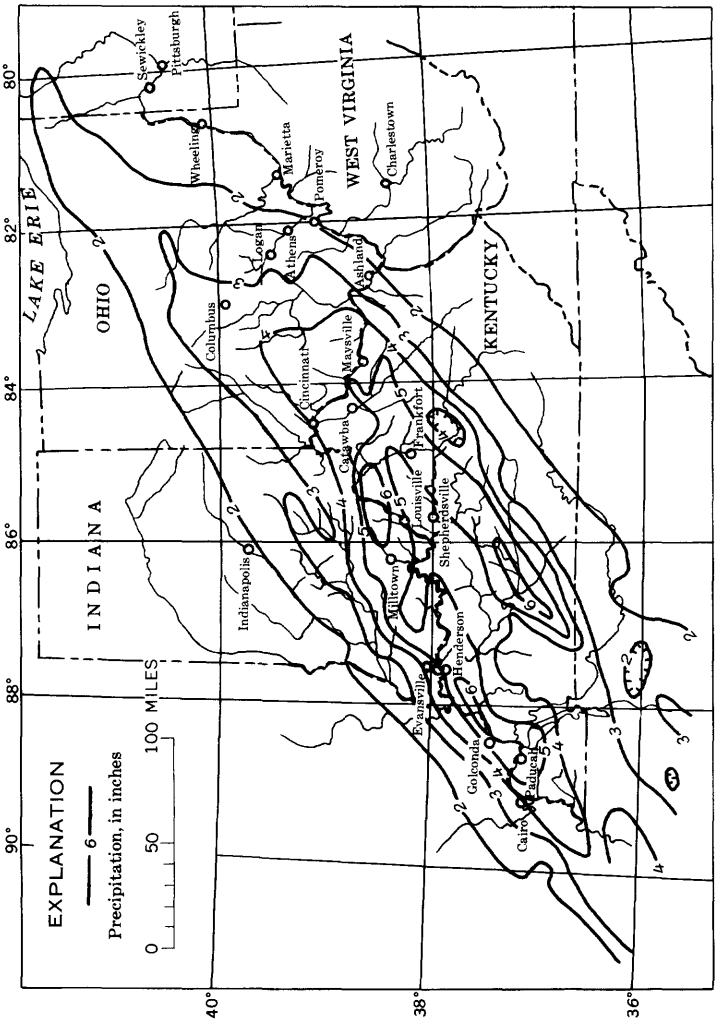


FIGURE 3.—Isohyetal map of total precipitation, March 2–5, 1964, in the flood area. Prepared from U.S. Weather Bureau data.

of the first storm. Heaviest concentrations again were along the Ohio River in northern Kentucky and southern Indiana. However, unlike the first storm, the rains extended into southern and central Ohio and western Pennsylvania (fig. 4). Greatest 24-hour precipitation in the March 8–10 period was 5.32 inches in south-central Ohio, 5.63 inches in southern Indiana, and 6.97 inches at Louisville, Ky. The U.S. Weather Bureau reported that the 24-hour precipitation of 6.97 inches at Louisville on March 9 was the greatest total for a 24-hour period recorded since records began in 1871 at that site.

Total precipitation of the two storms ranged from 4 inches in western Pennsylvania to over 14 inches in western Kentucky (fig. 5). The rainfall together with snowmelt in Pennsylvania produced damaging floods on the Ohio River from Pittsburgh, Pa., to river's mouth. Additional scattered rainfall from March 11 to 31 made March 1964 the wettest March on record in some localities. Rains in Kentucky exceeded previous 24-hour records for March and at several locations exceeded previous 24-hour records for any month.

Temperatures for March 1964 in the flood area were above normal except in southeastern Ohio and north-central Kentucky, where they were slightly below normal.

THE FLOODS

The damaging floods of March 2–5 occurred on Ohio River tributaries in southwestern Ohio, southern Indiana, and northwestern Kentucky. These floods hardly had subsided when the March 8–10 floods hit most of the same tributaries plus additional tributaries in southern and central Ohio. Floods exceeded previous records in Ohio, Kentucky, and Indiana. Tributary floodflows that resulted from both series of storms produced damaging floods on the Ohio River main stem which increased in magnitude as the flood wave progressed downstream. Recurrence intervals of peak discharges upstream from Louisville, Ky., were 12 years or less, increasing to more than 50 years downstream at Evansville, Ind.

PENNSYLVANIA

Below-normal precipitation in January and February was followed by two storms that occurred over western Pennsylvania on March 4–5 and 9–11; these storms were accompanied by snowmelt and caused damaging floods in the Ohio River basin in Pennsylvania. Previous maximum stages or discharges were not exceeded. The Allegheny River was above flood stage, and heavy ice flows from ice jams inflicted considerable damage to barges and boats. The Ohio River at Pittsburgh was above flood stage for 4 days in March. The Corps of

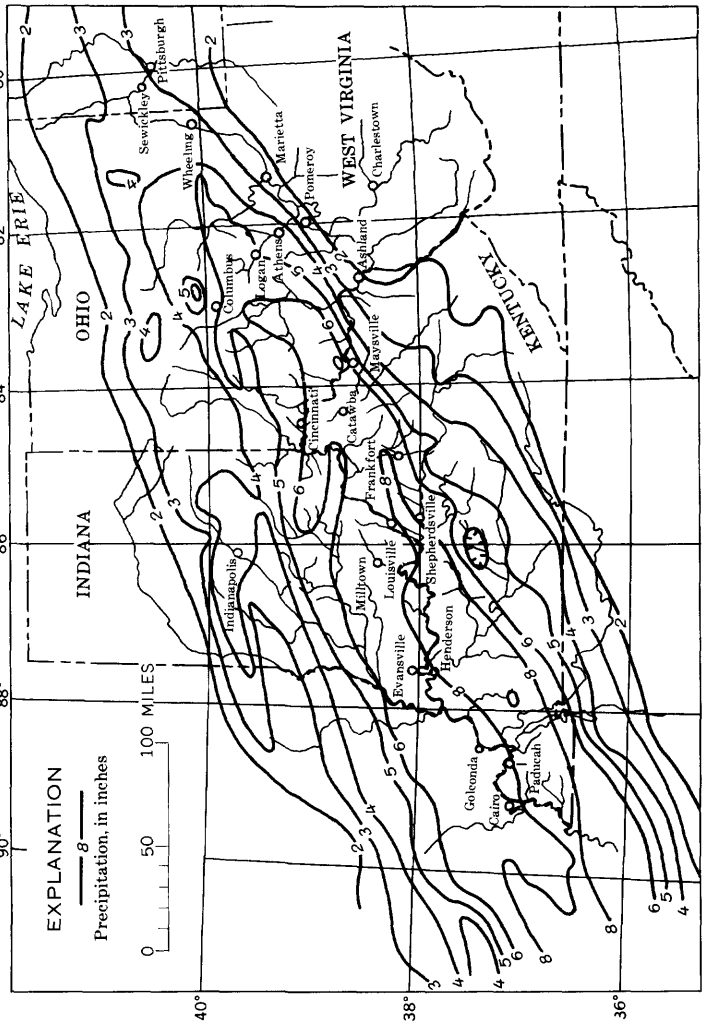


FIGURE 4.—Isohyetal map of total precipitation, March 8–10, 1964, in the flood area. Prepared from U.S. Weather Bureau data.

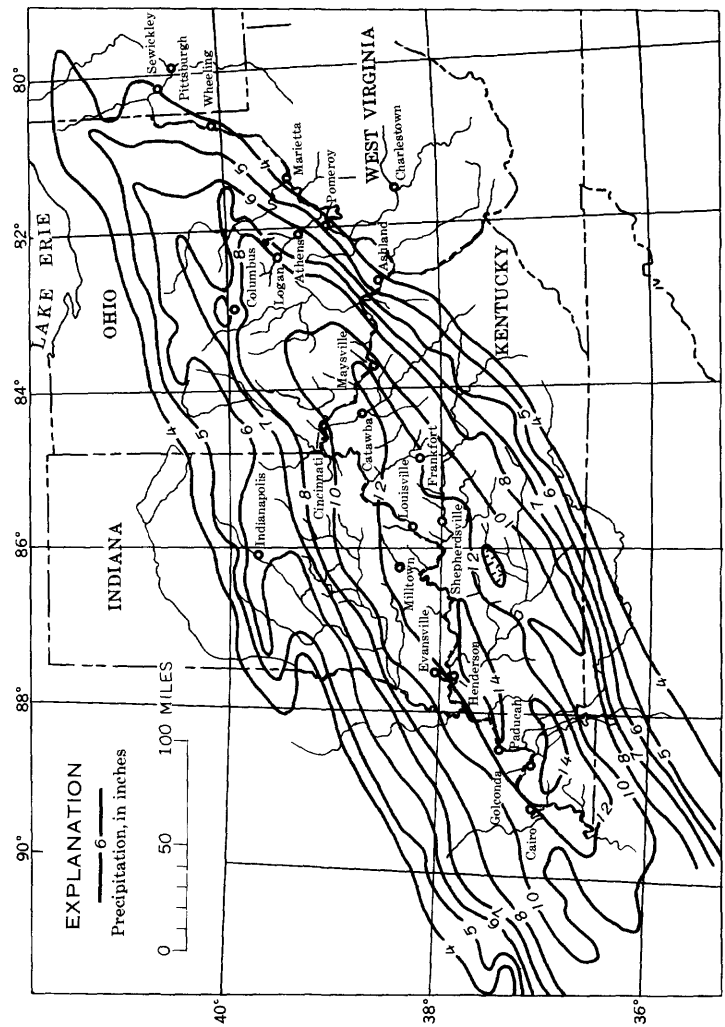


FIGURE 5.—Isohyetal map of total precipitation, March 2–10, 1964, in the flood area. Prepared from U.S. Weather Bureau data.

Engineers estimated that damage in the Ohio River basin in Pennsylvania was $11,740,000. The Corps of Engineers flood-control system on Ohio River headwater streams reduced flood stages on the Ohio River by several feet and prevented approximately $38 million damage. According to the American Red Cross, 2,604 dwellings received major or minor damage and 4,026 families had losses. One death was attributed to the flood.

WEST VIRGINIA

Total precipitation for most of northwestern West Virginia was less than 3 inches during the storms of March 2–10, but about 4 inches fell in the northern panhandle. Flooding in the State was confined mostly to low-lying lands adjacent to the Ohio River. This river was above flood stage along the entire reach within the State, but other streams and rivers in the State were not subject to major flooding. Twelve counties along the Ohio River were declared disaster areas. Damage amounted to millions of dollars, and the American Red Cross reported that 3,850 families had losses and that 3,629 dwellings received major or minor damage. No deaths were attributed to the floods.

OHIO

Heavy rains on March 4–6 and 8–12, 1964, broke the drought of 1963–64, which followed the March 1963 flood period. The rains caused a major Ohio River flood and exceptionally high stages on tributaries in Ohio. Floods were the worst in the Hocking River basin since 1907, and they exceeded all previous records on East Fork Little Miami River and on Paint Creek in the Scioto River basin.

Total damage in Ohio probably exceeded $30 million. The American Red Cross reported 8 lives lost, 84 dwellings destroyed, major damage to 1,026 dwellings, and minor damage to 7,225. From 3,000 to 5,000 persons were evacuated from their homes and more than 3,800 families were given aid.

Discharges at selected gaging stations in Ohio on March 4–13 are shown in figure 6.

MUSKINGUM RIVER BASIN

Fifteen flood-control reservoirs of the Muskingum Conservancy District, operated by the Corps of Engineers, reduced potential flooding by the Muskingum River. Uncontrolled tributaries in the area of heavy rainfall had severe flooding, but not as great as in 1959. In general, the uncontrolled flood peaks were about the same order of magnitude as those in 1963. Wills Creek Reservoir stored more water from this flood than from any other since its construction in 1938.

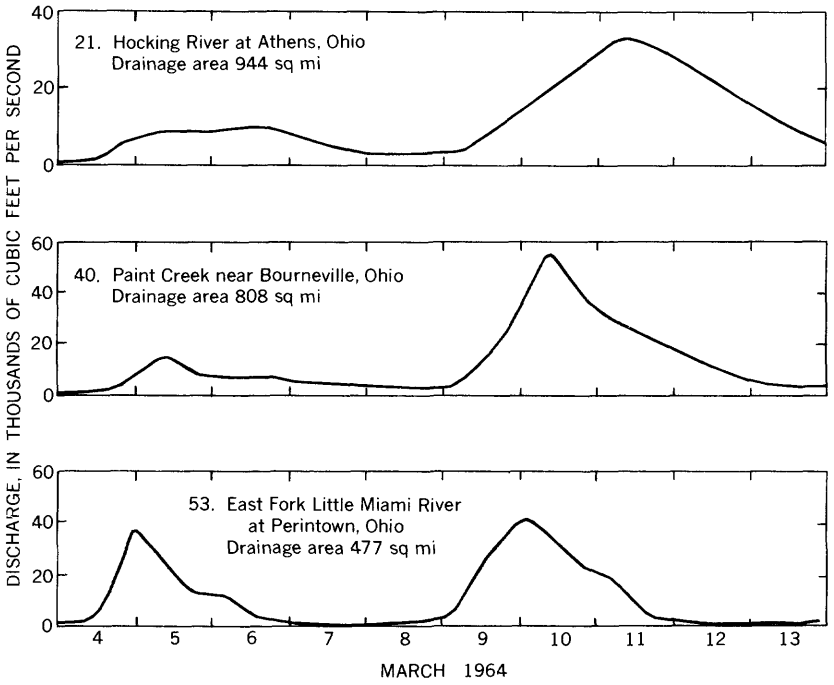


FIGURE 6.—Discharge hydrographs at selected gaging stations, March 4–13, 1964, in Ohio.

Local heavy rains caused floods on Beaverdam Creek at New Philadelphia, Ohio, and on Laurel Creek at Uhrichsville, Ohio. Damage in the Muskingum River basin was widespread and estimates of loss exceeded $1 million. The Corps of Engineers estimated that the stages of the Muskingum River were lower than they would have been had the reservoir not existed; the level was 6.2 feet lower at Coshocton; 11.4, at Dresden; 11.8, at Zanesville; and 6.7, at McConnelsville, Ohio.

HOCKING RIVER BASIN

Athens, on the Hocking River, was the only city in the interior of Ohio that incurred appreciable flood damage. The 1964 peak stage exceeded that estimated for 1913 and was higher than all other known floods except that in 1907.

March 1964 peak stages on the Hocking River and on tributaries that were gaged upstream from Enterprise, Ohio, were lower than they were in 1963, as was the peak stage on Little Rush Creek. The stages on Sunday Creek were also lower in 1964, which suggests that extremely high stages on the Hocking River from Enterprise to Athens, Ohio, were caused by high runoff from Rush Creek and from downstream tributaries above Sunday Creek.

Breman, Ohio, was almost submerged and was isolated by floodwaters. Fourteen hundred students were evacuated from Ohio University dormitories at Athens, Ohio (fig. 7), and 200 families were evacuated at Logan, Ohio. Total damage in the Hocking River basin was estimated at $2,137,000.

SCIOTO RIVER BASIN

The floods on the upper Scioto River above Big Darby Creek were not unusually high. The greatest floods were in the Paint Creek area, where in some places stages were higher than they had been in 1913 and in all subsequent floods. Much of the damage, estimated at $1,351,000, was concentrated in the Paint Creek area in and west of Chillicothe, Ohio. Floods on the Scioto River main stem were not unusual. The Corps of Engineers estimated a reduction of stage of 1.1 feet at Columbus and Chillicothe, Ohio; this reduction of stage is attributable to the Delaware Reservoir.

LITTLE MIAMI RIVER BASIN

Flooding in the Little Miami River basin was not appreciable upstream from Caesar Creek. Except at Milford, Ohio, and in the East Fork area, the flood was lower than in 1963. East Fork Little Miami River at Perintown, Ohio (No. 53), reached a stage of 23.84 feet on March 10, exceeding all records since 1916 and also the estimated stage of 22 feet in 1913. Damage in the Little Miami River basin was estimated at $4,220,000, of which $500,000 was in South Lebanon, Ohio. In Batavia, Ohio, a bottled gas company's bulk plant and office building were destroyed, and other buildings were damaged.

KENTUCKY

Thousands of families were evacuated from low-lying areas along the Ohio River and its tributaries, and 47 counties were declared disaster areas. Hundreds of roads and highways were closed to traffic, and many schools were closed in the severely flooded areas. Communications were interrupted, preventing many people from receiving ample flood warnings. Water supplies were contaminated in some towns, thus necessitating the importing of water. Evacuation centers were established in churches, armories, schools, and private buildings. Total damage in Kentucky was estimated at about $30 million. The death toll in Kentucky was seven persons. The American Red Cross reported that 59 dwellings were destroyed and that 4,277 sustained major or minor damage; 109 farm buildings were destroyed and 190 suffered major damage. Almost 6,000 families suffered losses.

Discharges at selected gaging stations in Kentucky on March 4–13 are shown in figure 8.

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FIGURE 7.—Hocking River near crest stage flooding Ohio University campus at Athens, Ohio, March 11, 1964. Photograph by Humphrey's Studio, Logan, Ohio.

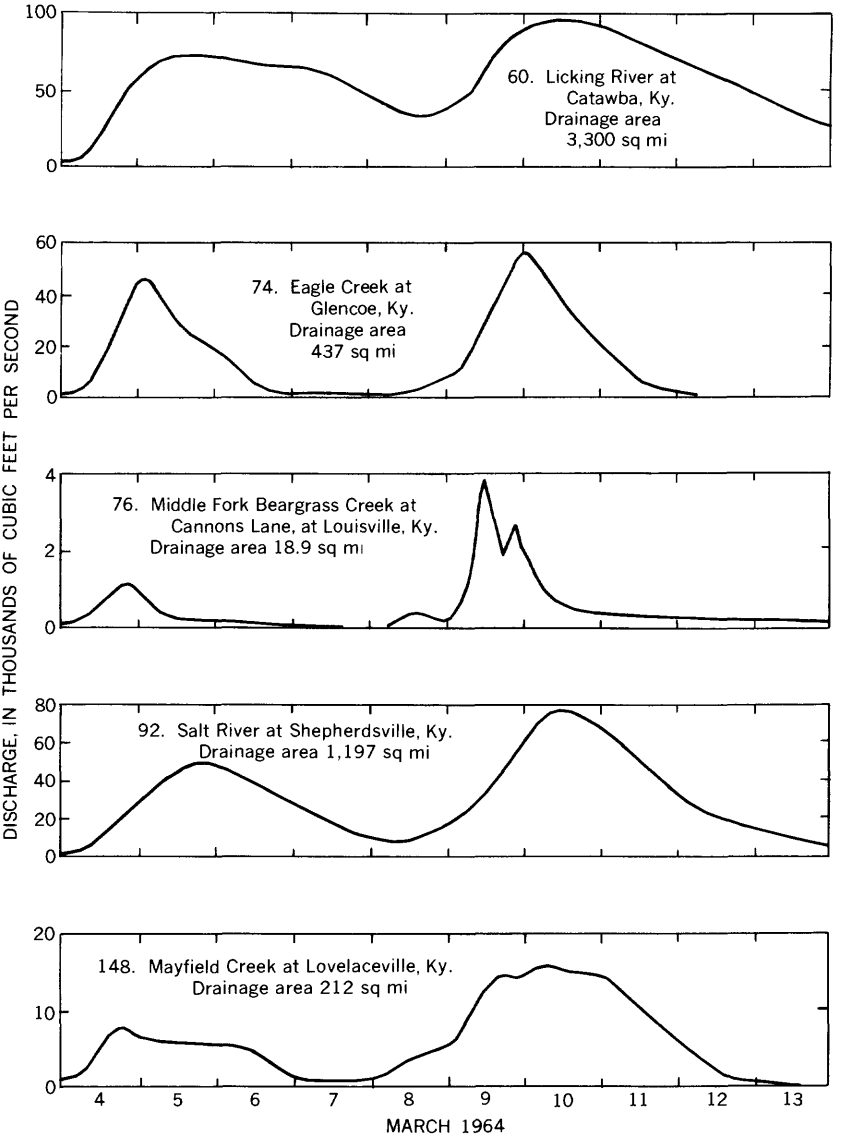

FIGURE 8.—Discharge hydrographs at selected gaging stations, March 4–13, 1964, in Kentucky.

LICKING RIVER BASIN

Record-breaking floods occurred on the lower reaches of the Licking River. The town of Falmouth, Ky., was the most extensively damaged town on the Licking River. The rapidly rising water prevented families from removing household goods. Telephone services were

disrupted and prevented the receiving of flood warnings. About two-thirds of the residents were evacuated and floodwaters reached rooftop level in many sections. The cities of Paris, Ky., on Stoner Creek, and Cynthiana, Ky., on South Fork Licking River also sustained considerable damage.

Stages in the Licking River basin exceeded previously known maximum stages at three gaging stations. The stage on the Licking River at McKinneysburg (No. 57), upstream from Falmouth, exceeded that of the flood of 1937 by 2.5 feet. The Licking River at Catawba (No. 60) reached a stage of 52.60 feet, the highest since 1888, and exceeded by 5.6 feet the flood stage of 1948. A maximum stage of 19.59 feet occurred on Stoner Creek at Paris, Ky. (No. 58).

Total damage in the Licking River basin was estimated by the Corps of Engineers to be $2,630,000, of which $2,530,000 occurred on the main stem and $100,000 occurred on South Fork Licking River.

KENTUCKY RIVER BASIN

Severe flooding occurred in the lower reaches of the Kentucky River basin, and as a result, Frankfort, Lexington, and Georgetown, Ky., were heavily damaged. Peak flow for a gaging station on North Elkhorn Creek (No. 68) had a recurrence interval of more than 50 years. Eagle Creek at Glencoe, Ky. (No. 74), reached a peak stage of 26.05 feet compared with the previous crest of 23.60 feet in 1943.

The Corps of Engineers estimated damage to be $1,500,000 in the Kentucky River basin. Of this total, $1,333,000 was on the main stem, $2,000 on the Red River, and $165,000 on Eagle Creek.

BEARGRASS CREEK BASIN

Beargrass Creek, whose drainage area consists mostly of highly urbanized areas adjacent to Louisville, Ky., was the highest since 1943. The entire basin was in the area of intense rainfall. According to the U.S. Weather Bureau, the 24-hour precipitation of 6.97 inches recorded at Louisville on March 9 was the greatest 24-hour total recorded since 1871. Considerable damage was inflicted on business and residential property.

SALT RIVER BASIN

Severe floods which occurred on the lower reaches of the Salt River and its tributaries incurred $2,280,000 damage as estimated by the Corps of Engineers. The greatest impact was at Shepherdsville, Ky., where water covered the entire business district and most of the residential area (fig. 9). Flooding was caused by backwater from the Ohio River and Rolling Fork in conjunction with headwater

FIGURE 9.—Flooding in Shepherdsville, Ky., on March 10, 1964, by the Salt River, about 1 foot below crest. Circle in right center of illustration shows location of gaging station. Photograph by Courier-Journal and Times, Louisville, Ky.

floods on the Salt River. Damage occurred in Taylorsville, Ky., from surface water which accumulated behind floodwalls built to protect the city from floodwaters of the Salt River and Brashears Creek. The Corps of Engineers estimated that $288,000 potential damage was prevented by the floodwall.

At the gaging station on Salt River at Shepherdsville, Ky. (No. 92), the stage exceeded that of the 1961 flood by 0.7 foot but did not exceed that of the 1937 flood. The maximum discharge during the period of gaging-station operation occurred on Floyds Fork at Fisherville, Ky. (No. 91), and the stage was 1.1 feet lower than that of the 1937 flood. Rolling Fork near Boston, Ky. (No. 96), reached a stage of 51.0 feet, the highest since 1938 but about 4.2 feet below that of the 1937 flood. Potential floods in the Plum Creek basin were reduced to some extent by 11 small detention reservoirs on Plum Creek tributaries.

GREEN RIVER BASIN

Although most of the Green River basin was outside the area of intense rainfall, severe flooding occurred in the Nolin and Rough River basins. The maximum for the period of record occurred on North Fork Nolin River at Hodgenville, Ky. (No. 102). In the Rough River basin the maximum for the period of record occurred on North Fork Rough River near Westview, Ky. (No. 108).

Potential flooding in the Green River basin was reduced by Corps of Engineers flood-control reservoirs on the Rough, Barren, and Nolin Rivers. According to the Corps of Engineers, $2,390,000 in damage was prevented by operation of these reservoirs. Total damage in the Green River basin amounted to $2,107,000, of which about 75 percent occurred on the Green River main stem.

WESTERN KENTUCKY

The entire Tradewater River basin in western Kentucky received heavy concentrations of rainfall during March. The Tradewater River at Olney, Ky. (No. 141), reached a stage of 18.68 feet, which was 0.6 foot less than the maximum known flood in 1937.

Stages on the Cumberland River in Kentucky were not particularly high, as most of the drainage area was outside the area of heavy rainfall and the flow was partly regulated by reservoirs. The flood on Little River, the major Cumberland River tributary in Kentucky, did not exceed the flood of 1951, which was the highest for the tributary's period of record.

Damage due to floodwaters in the Tennessee River basin in Kentucky was confined to Clarks River, which empties into the Tennessee River downstream from Kentucky Lake. McCracken, Marshall, and Graves Counties were especially hard hit by overflow from West and

East Forks of Clarks River. The peak discharge of East Fork Clarks River Near Benton, Ky. (No. 146), did not exceed the floods of either 1937 or 1957; however, the recurrence interval of the March flood was more than 50 years. Flow of the Tennessee River, excluding the Clarks River, was regulated by Kentucky Lake and other upstream reservoirs in the Tennessee River basin. Elevation of Kentucky Lake reached 363.86 feet, fourth highest since storage began, as a result of water impounded in the lake to reduce flood stages on the Ohio River.

Moderate flooding occurred in extreme western Kentucky on tributaries to the Mississippi River; however, peak discharges did not exceed previous maximum stages or discharges.

INDIANA

The floods of March 1964 were the greatest since 1913 in the extreme southern counties of Indiana. In several places the recurrence intervals of the 1964 flood were more than 50 years. In counties farther north, the 1964 flood was less severe than the 1959 flood. Flooding was greatest in the White River and the Patoka River basins and along streams that flow directly into the Ohio River. In the Patoka River basin some stages and discharges exceeded those in 1913 (fig. 10).

Both floods were heaviest in the southern third of the State. Nearly one-third of the average annual rainfall for the area fell during the week of March 3–10. Total precipitation for the two storms exceeded 13 inches at Louisville, Ky., and 10 inches at Evansville, Ind. Unofficial rainfall reports of more than 12 inches were common throughout the flood area. The magnitude of the flood discharges during the period March 3–5 indicates that much greater rainfall must have fallen than was recorded by official rain gages.

Flood damage was estimated to be several million dollars. In 25 southern counties the total damage to publicly owned facilities alone exceeded $700,000, as reported by the State of Indiana Office of Emergency Planning. Indiana highways were closed by floodwaters at more than 40 places on March 10, 1964.

Hundreds of families were evacuated in Evansville, Ind., when storm runoff from Pigeon Creek, augmented by backwater from the Ohio River, flooded residential areas. Milltown and other cities in the Blue River valley were inundated by a flood nearly identical in stage to that in 1959.

The American Red Cross reported that 2 deaths were caused by the floods; 38 dwellings were destroyed and 2,714 received major or minor damage. Families suffering losses totaled 3,687.

Discharges at selected gaging stations in Indiana on March 4–13 are shown in figure 11.

FIGURE 10.—Jasper River flood at Jasper, Ind., March 10, 1964. Photograph by Courier-Journal and Times, Louisville, Ky.

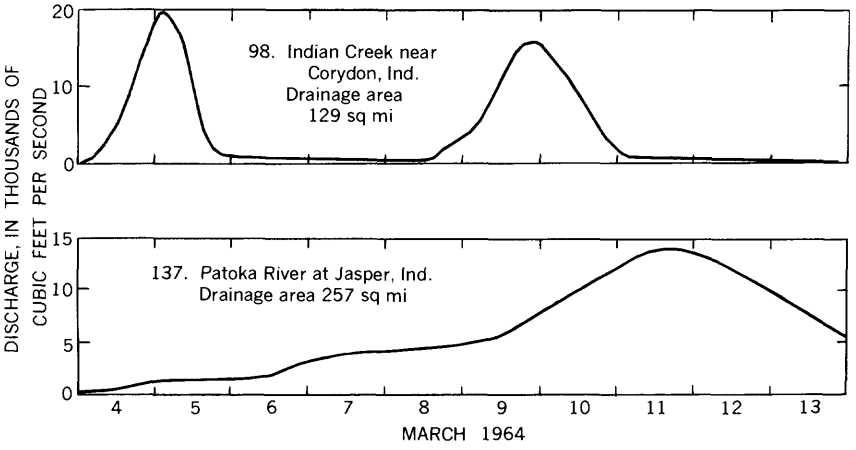

FIGURE 11.—Discharge hydrographs at selected gaging stations, March 4–13, 1964, in Indiana.

OHIO RIVER MAIN STEM

The Ohio River and most of its tributaries received heavy concentrations of rainfall during March 1964. Flood stages were exceeded throughout the entire reach of the main stem from Pittsburgh, Pa., to Cairo, Ill. Many cities, towns, railroads, and highways are situated on the riverbank or along the relatively narrow confines of the flood plains of the Ohio River. Since the floods of 1913, 1936, and 1937, local flood-protection projects, which have prevented damage totaling millions of dollars, have been completed in many cities along the river. The amount of flood damage in March 1964 along the Ohio River main stem was estimated by the Corps of Engineers at $80 million.

Figure 12 shows comparative stages for gaging stations on the Ohio River for March 1964 and the maximum stages previously known. From Sewickley, Pa., to Ashland, Ky., the March 1964 floods were exceeded by several previous floods. At Maysville, Ky., and Golconda, Ill., the crest stages for March were third highest since 1937, and those at Cincinnati, Ohio, Louisville, Ky., and Evansville, Ind., were second highest since 1937.

The March floods closed innumerable roads and highways, inundated bridges, tied up traffic, and interrupted train and bus services at many points. Many cities were isolated by floodwaters. Thousands of persons were evacuated prior to the floods. Floodwaters ran through downtown sections of dozens of towns and cities, encroached upon industrial plants and business houses, and inundated croplands.

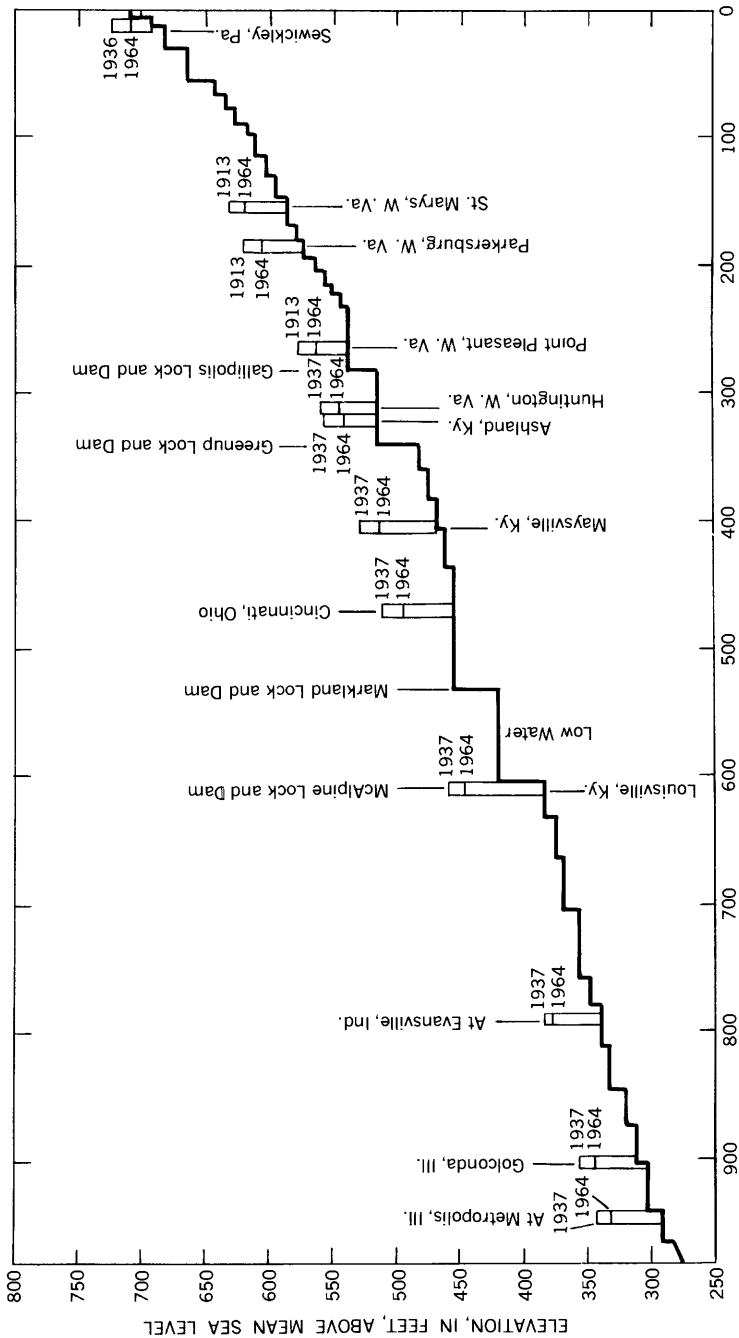

FIGURE 12.—Comparative crest stages for stations on Ohio River, March 1964, and maximum stages previously known.

Stages on the Ohio River in Pennsylvania were not particularly high. The peak discharge for the March flood at Sewickley, Pa. (No. 3), was the sixth highest since records began in 1933. The peak 1964 stage of 21.19 feet was far below that of 34.75 feet in 1936.

The business districts of New Cumberland, Wheeling, and New Martinsville in the northern part of West Virginia were inundated by floodwaters and thousands of homes were damaged. More than 15,000 persons were displaced in the Wheeling region. New Martinsville, W. Va., was virtually isolated. Families were evacuated at Steubenville, Martins Ferry, and Bellaire, Ohio. At Bellaire, just across the river from Wheeling, W. Va., some industrial plants suspended operation.

At Ohio River at St. Marys, W. Va. (No. 5), the maximum stage of 42.75 feet during March was second highest since 1938 but was well under the maximum known stage of 54.2 feet in 1913.

Approximately 1,000 persons were forced from their homes at Marietta, Ohio. Streets were flooded, part of the business district was covered by several feet of water, and major highways into the city were blocked.

The peak discharge on Ohio River at Parkersburg, W. Va. (No. 12), was the largest since the completion of floodwall protection in 1950 but slightly less than that during the floods of 1943 and 1945. During March 1964 many families were forced to move from the low-lying unprotected areas. Highways were closed and passenger train and bus services were disrupted.

The main-street business section at Pomeroy, Ohio, was flooded with several feet of water. Downstream at Point Pleasant, W. Va., which was protected by a floodwall, the peak discharge was fifth highest since beginning of gaging-station operations in 1940 but was far below the flood of 1913. Low-lying areas and streets were flooded and schools closed at Gallipolis, Ohio.

The cities of Huntington, W. Va., Ashland, Ky., and Ironton and Portsmouth, Ohio, were protected from the March flood by floodwalls. Flood stages at gaging stations at Huntington (No. 27) and Ashland (No. 29) were considerably below those of numerous floods in previous years.

Manchester, Ripley, and New Richmond, Ohio, were flooded and many persons were evacuated. New Richmond was especially hard hit by several feet of floodwaters in the business district. Families were evacuated at Vanceburg and Augusta, Ky., and the business district was covered in Augusta.

The peak stage of 62.65 feet at the gaging station near Maysville, Ky. (No. 45), was third highest since the maximum known flood in

1937; however, the city of Maysville, protected by a floodwall, received no serious flooding.

In the Cincinnati, Ohio, metropolitan area, including Covington and Newport, Ky., flooding was confined almost entirely to lowlands unprotected by floodwalls. In these areas streets and basements were flooded, minor landslides occurred, and thousands of persons were evacuated. Disaster headquarters was established in Cincinnati to assist more than 100,000 persons in five States. The peak stage of 66.20 feet at the Cincinnati gaging station (No. 61) was second highest since the maximum known flood in 1937. Six previous floods exceeded the flood of March 1964: those in 1937, 1773, 1884, 1913, 1945, and 1883 (in order of magnitude).

Businesses and homes in Aurora and Madison, Ind., were flooded. U.S. Highway 421 across the Ohio River at Madison was closed to traffic. Foodwaters inundated those parts of the Louisville, Ky., and New Albany and Jeffersonville, Ind., metropolitan areas that were not protected by floodwalls. Basements, roads, streets, and viaducts were flooded in many places. Numerous schools in the area were closed. Evacuees from hundreds of homes were lodged in schools and armories manned by Civil Defense and Red Cross personnel.

In the Louisville, Ky., area fire alarms were the most numerous in years, and the Metropolitan Sewer District received many telephone calls. The Southern Bell Telephone Co. received 3,800 more requests than normal for repair service. Electric power was disrupted in Jefferson and Bullitt Counties, in at least 1,200 homes, if interruption of the power can be based on the number of meters reported inundated by the Louisville Gas and Electric Co. Financial assistance by the American Red Cross to flood victims in Jefferson County was slightly over $231,000.

The peak stage of 73.46 feet on Ohio River at Louisville (No. 78) was the third highest known. This flood was exceeded only by the floods in 1884 and 1945 (each 74.4 feet) and the greatest flood known, in 1937 (85.44 feet).

Numerous towns and cities along the Ohio River between Louisville, Ky., and Evansville, Ind., sustained major damage. About 80 percent of West Point, Ky., was evacuated. Evacuations were also made at Brandenburg, Ky., Lewisport, Ky., and Grandview, Ind., as well as at other communities along the river. Owing to floodwall protection, only minor flooding occurred at Tell City, Ind., Cannelton, Ind., and Hawesville, Ky.

The flood of March 1964 at Evansville, Ind., was sixth highest since 1874. Ohio River at Evansville (No. 116) reached a stage of 47.72 feet, which was 0.6 to 1.1 feet lower than the floods of 1883, 1884, 1913, and

1945, and 6.0 feet lower than the flood of 1937. Many families were displaced in low-lying areas outside the protection of the city's floodwall.

Henderson, Ky., Uniontown, Ky., and Golconda, Ill., had flooding in low-lying areas adjacent to the Ohio River. Both Uniontown and Golconda were protected by floodwalls. The Ohio River reached a peak stage of 52.40 feet at Golconda, Ill. (No. 142), as compared with the highest previous crest of 62.6 feet in 1937. Since 1937 only the 1945 and 1950 floods have exceeded the March 1964 flood at this point.

Flood damage at Paducah, Ky., was extremely high, and although the city was protected by a floodwall, hundreds of homes were inundated in suburban areas owing to local surface runoff and to flow from small tributaries. Barge traffic was tied up at Paducah because of high water on the Ohio River. Hundreds of families were evacuated from low-lying lands in McCracken County in the vicinity of Paducah.

The peak discharge of 1,100,000 cfs at the gaging station at Metropolis, Ill. (No. 147), was not particularly high in comparison with discharges for floods in other years. Flow of the March 1964 flood was considerably reduced by storage in Kentucky Lake and other reservoirs in the Tennessee and the Cumberland River basins.

Downstream from Metropolis, Ill., thousands of acres of land were inundated by the Ohio River and by backwater from tributaries and ditches. Severe flooding, due in part to backwater from the Ohio River, occurred in the Saline River basin in southern Illinois, and, on March 18 near Junction, Ill., 15,200 cfs was measured flowing upstream.

Discharge at gaging stations on the Ohio River on March 3–31 is shown in figure 13.

FLOOD DAMAGE

The floods of March 1964 along the Ohio River caused heavy damage in Pennsylvania, West Virginia, Ohio, Kentucky, Indiana, and Illinois. Most of the damage occurred along the Ohio River main stem and was extensive along the entire reach from Pittsburgh, Pa., to Cairo, Ill.

Flood-damage figures furnished by the Corps of Engineers and the Indiana Flood Control and Water Resources Comm. totaled about $99 million in the six-State area. This total does not include some minor damage from tributaries in various States or damage in the White River basin in Indiana; therefore, total damage is estimated to be slightly over $100 million of which about 75 percent occurred along Ohio River main stem. Estimated figures furnished by the Corps of Engineers were based on stage-damage curves and do not represent detailed damage investigations.

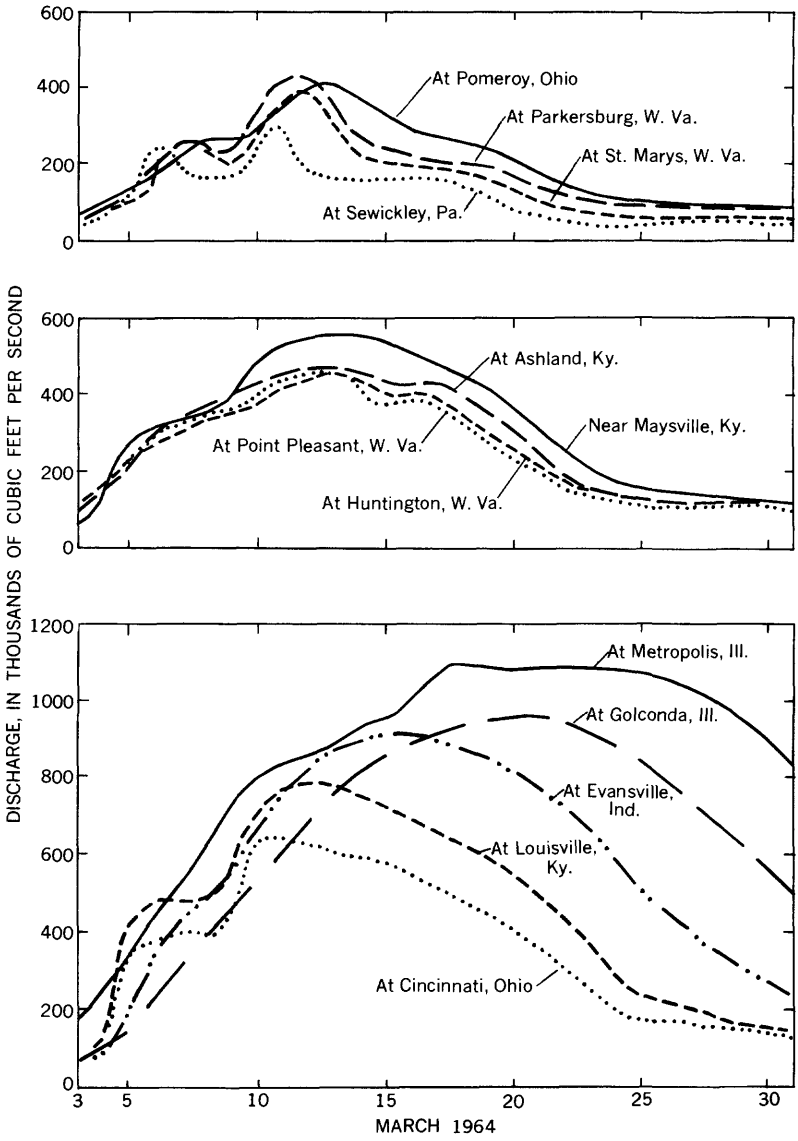

FIGURE 13.—Comparative hydrographs of discharge for stations on the Ohio River, March 3–31, 1964.

Table 1 lists damage by reaches of the Ohio River and by States. A breakdown of main-stem damage by States is not available as stage-damage curves for the Ohio River main stem refer to both sides of the river.

TABLE 1.—*Flood damage along the Ohio River, March 1964*

[Furnished by the Corps of Engineers except where noted]

River reach and State	Flood damage, in thousands of dollars
Ohio River main stem:	
Pennsylvania (including tributaries)	$11,740
Ohio and West Virginia	21,346
Ohio and Kentucky	25,154
Indiana and Kentucky	18,806
Illinois and Kentucky	2,618
Ohio (excluding Ohio River main stem)	9,991
Kentucky (excluding Ohio River main stem)	8,517
Indiana (Patoka River only)[1]	840
Total	[2] 99,012

[1] Furnished by Indiana Flood Control and Water Resources Comm.
[2] Does not include numerous small tributaries to the Ohio River in various States or the White River basin in Indiana.

According to the American Red Cross, 21,745 homes were damaged and 181 were destroyed in Pennsylvania, Ohio, Kentucky, West Virginia, and Indiana. More than 29,000 families suffered losses of various kinds. Eighteen lives were lost in the March 1964 floods. Expenditures by the Red Cross for relief to flood victims are tabulated by States in table 2.

TABLE 2.—*Expenditures by the American Red Cross, by States, as a result of the floods of March 1964 along the Ohio River*

Expenditure classification	Indiana	Kentucky	Ohio	Pennsylvania	West Virginia	Total
Emergency mass care	$11,152	$38,885	$96,734	$5,797	$7,343	$159,911
Individual family care:						
Food, clothing, and maintenance	21,757	70,174	191,911	7,987	10,485	302,314
Building and repair of homes	76,266	214,171	169,401	13,244	15,149	488,231
Household furnishings	86,110	333,483	501,364	31,649	41,623	994,229
Medical and nursing care	2,500	6,068	9,827	324	423	19,142
Occupational supplies and equipment	2,417	9,015	9,032	101	1,269	21,834
Other assistance and costs	15,899	53,350	77,688	4,693	6,059	157,689
Total relief costs	216,101	725,146	1,055,957	63,795	82,351	2,143,350

RECURRENCE INTERVALS OF PEAK DISCHARGES

The recurrence interval, or return period, of a flood of a given magnitude is the average interval of time within which the given flood will be equaled or exceeded once. The recurrence intervals of the peak discharges of the floods of March 1964, shown in the last column of table 4, were mostly computed from Water-Supply Paper 1675,

"Magnitude and frequency of floods in the United States, Part 3–A, Ohio River basin except Cumberland and Tennessee River basins."

Figure 14 shows recurrence intervals at the points of peak determination where the data can be computed. The data cannot be computed for streams that are controlled or appreciably regulated or for streams of drainage areas less than about 30 square miles. The frequency curves in WSP 1675 are defined to 50 years; extrapolation of recurrence intervals beyond 50 years is not recommended. A peak discharge having a recurrence interval greater than 50 years is described as its ratio to the 50-year flood.

Figure 14 also shows the distribution of recurrence intevals of the floods of March 1964. The storm moved in a narrow belt up the Ohio River valley and did not affect the upper ends of the medium and large tributaries that lie, in general, perpendicular to the Ohio River. The short tributaries to the Ohio River and the reaches of streams lying parallel and near to the Ohio River mostly had peaks of high recurrence intervals.

No flood-determination points lying outside the area bounded by the 7-inch isohyet (fig. 5) had peaks of high recurrence intervals. Within the 7-inch isohyet the recurrence interval of 50 years or greater was principally on small streams; however, recurrence intervals of peaks were high on some medium and large streams in which appreciable parts of the drainage basins lie within the area bounded by the 10- and 12-inch isohyets. For example, the peak discharge on Licking River at Catawba, Ky. (No. 60), and on Eagle Creek at Glencoe, Ky. (No. 74), each had recurrence intervals that were greater than 50 years.

The effect of the accumulating discharges from tributary streams on the recurrence interval of the discharge in the Ohio River main stem is shown by table 3.

TABLE 3.—*Recurrence intervals of peak discharges of March 1964 at gaging stations on the Ohio River*

Location of gaging station	Miles downstream from Pittsburgh, Pa.	Drainage area (sq mi)	Recurrence interval (years)
At Huntington, W. Va	311.6	55,900	2
At Ashland, Ky	322.5	60,750	3
Near Maysville, Ky	405.1	70,130	5
At Cincinnati, Ohio	470.5	76,580	12
At Louisville, Ky	607.3	91,170	44
At Evansville, Ind	792.3	107,000	50+
At Golconda, Ill	903.1	143,900	14

As the flood wave moved downstream the recurrence interval continued to increase until the peak discharge at Evansville, Ind. (No. 116), became 1.08 times as large as the 50-year flood. The Wabash

River enters the Ohio River below Evansville. The peak discharge on the farthest downstream gaging station on the Wabash River, at Mount Carmel, Ill. (No. 140)—which has a drainage area, 28,600 square miles—had a recurrence interval of about 2 years. The amount of flow contributed by the Wabash River to the Ohio River main stem was insignificant, and by the time the flood wave on the Ohio River reached Golconda, Ill. (No. 142), the recurrence interval had been reduced to 14 years.

DETERMINATION OF FLOOD DISCHARGES

The operation of a stream-gaging station is principally for the purpose of establishing a relation between stage and discharge from which the discharge can be calculated when the stage is known. The stage-discharge relation (rating curve) is based upon current-meter measurements throughout the range of stage experienced or through a sufficient part of the range so that discharge corresponding to maximum stage can be obtained by a reasonable extension of the rating curve. Short extensions of rating curves are usually made by logarithmic plotting or from velocity-area studies and other measurable hydraulic factors.

During major floods current-meter measurements are often impossible to obtain because of insufficient notice of flood stages on rapidly changing streams and because of impassable roads, heavy floating debris, or destruction of structures from which flood measurements are made. Where necessary, the stage-discharge relation at many gaging stations was extended to peak flow by means of indirect measurements such as computation of flow through contracted openings, slope-area measurements, or a combination of these methods. At several miscellaneous sites where high runoff occurred, the peak flow was determined by indirect measurement.

For a number of gaging stations in this report, fall (or slope) in the reach between two gages was a factor in establishing a relation between stage and discharge and was also a factor in computing discharge. At a few stations, the stage-discharge relation was affected by changing stage. For such stations, rate of change in stage was a factor in determining discharge.

STREAMFLOW DATA AT GAGING STATIONS

EXPLANATION OF DATA

The following section gives detailed information on stage and discharge during the floods of March 1964. Much of the information is in addition to records usually published in annual streamflow reports of the Geological Survey.

The systematic collection of basic data at a stream-gaging station includes a record of stage, measurements of discharge, and any other general information pertinent to determination of daily flow at the station. Record of stage is determined from periodic readings of some type of nonrecording gage, from an automatic water-stage recorder which gives a continuous graph of stage, or from a digital recorder which provides a tape punched at 15-, 30-, or 60-minute intervals. Measurements of discharge generally are made by current meter.

In general, station data consist of a description of the station, a table showing daily mean discharge at gaging stations for March 1964, and a table of stages and discharges at indicated times for many of the gaging stations.

STATION DESCRIPTIONS AND DISCHARGE TABLES

The description of the gaging station gives information concerning location, datum, type of gage, area of drainage basin, details of gage-height and discharge records, and miscellaneous remarks. The paragraph on discharge record briefly explains methods used to define stage-discharge relation over the range of stage that occurred during the floods; use of auxiliary gages or other methods used to obtain discharge; and conditions that may have affected the stage-discharge relation.

Maximum stage and discharge are given for the March 1964 period and for the period of previous record. Information regarding floods outside the period of gaging-station operation also is given in as much detail as possible. Remarks on cooperation, regulation and diversion, and other pertinent information are included where applicable.

The table of daily mean discharges gives data for March 1964; however, for some stations discharges are given for the first few days in April 1964. Periods of daily discharge were chosen to show the relation of flood discharges to discharges of the preceding and the following periods. The table also shows monthly mean discharge and generally shows the volume of runoff, in inches, from the drainage area. The volume was not computed if flow at a station was affected by more than an estimated 10 percent by regulation or if it was known that the storm did not cover the entire drainage basin.

The table of stages and discharges at indicated times generally is presented for the period starting March 2 and ending when the recession reached the point where sufficient definition for a hydrograph is furnished by the table of daily mean discharges. These data are not given for most stations outside of the flooded areas.

The stages at most stations were obtained from records of digital or continuous water-stage recorders. For a station with an incomplete

stage record, the gage height at a specific time may be selected from a graph which has been reconstructed from supplemental gage readings, high-water marks, and other pertinent evidence. Description of the methods used in defining the stage are given in the section of the description concerning gage-height record.

The stations are numbered and arranged in downstream order from headwater to mouth, with stations on tributaries inserted in corresponding order following the order in which the tributaries enter the main stream. The reference number preceding the name of the gaging station is the same as that used in figure 2 and will aid in identifying the site.

SUMMARY OF PEAK STAGES AND DISCHARGES

Maximum floodflows at stream-gaging stations and other sites on streams in the area covered by this report are summarized in table 4. The reference number is the same as that designating the site in figure 2 and will aid in identifying the location at which discharge was determined. As an added means of identification, each gaging station and partial-record station is listed with its permanent station number in the same downstream order used in the annual streamflow reports of the Geological Survey. No distinction is made between partial-record stations and continuous-record gaging stations. Numbers are not consecutive as gaps were left in the number series to allow for new stations that might be established.

In table 4 the first column under maximum floods shows the period of known floods prior to March 1964. This period does not necessarily correspond to that in which continuous records of discharge were obtained, and for some stations the record extends back to an earlier date. More than one period of record is shown for some stations. Time periods are shown when they can be associated with a maximum stage even though the corresponding discharge is not known; a second period of known floods is then given in which maximum discharge and stage are both known.

The last column shows the average interval of time in which the peak discharge of March 1964 can be expected to be equaled or exceeded once. Whenever the peak discharge exceeds that of the 50-year recurrence interval (the maximum defined by frequency curves), the ratio of the peak discharge to the 50-year flood is shown.

Table 4.--Summary of flood stages and discharges

No.	Permanent station number	Stream and place of determination	Drainage area (sq mi)	Maximum previously known				Maximum March 1964			
				Period	Year	Gage height (feet)	Discharge (cfs)	Day	Gage height (feet)	Discharge	
										Cfs	Recurrence interval (years)
		Ohio River main stem									
1	3- 495	Allegheny River at Natrona, Pa.	11,410	1936-64	1936	32.06	365,000	10	25.78	a 216,000	11
		Monongahela River basin									
2	3- 850	Monongahela River at Braddock, Pa.	7,337	1936-64	1936	38.8	210,000	11	22.58	a 105,000	2
		Ohio River main stem									
3	3- 860	Ohio River at Sewickley, Pa.	19,500	1933-64	1936	34.75	574,000	11	21.19	a 295,000	(b)
		Beaver River basin									
4	3-1075	Beaver River at Beaver Falls, Pa.	3,106	1913-64	1913	17.4	103,000	10	13.24	a 57,900	5
		Ohio River main stem									
5	3-1150	Ohio River at St. Marys, W. Va.	26,850	1884-1964 1938-64	1913 1943 1943	54.2 - 46.67	(b) 421,000 -	12 12	- 42.75	a 383,000 -	(b) -
		Muskingum River basin									
6	3-1364	North Branch Kokosing River near Fredericktown, Ohio.	45.0	1959 1962-64	1959 1963	13.4 6.83	(b) 2,430	10	7.50	3,160	7
7	3-1365	Kokosing River at Mount Vernon, Ohio.	200	1953-64	1959	18.19	38,000	10	13.08	10,300	10
8	3-1370	Kokosing River at Millwood, Ohio.	454	1913,1921-64	1959	34.00	75,900	10	20.70	25,400	26
9	3-1465	Licking River near Newark, Ohio.	536	1939-64	1959	20.3	45,000	10	17.18	25,500	18
10	3-1483	Moxahala Creek at Roseville, Ohio.	80.8	1963-64	1963	16.7	5,600	10	16.6	5,540	11
11	3-1500	Muskingum River at McConnelsville, Ohio.	7,411	1913-64	1913	33.5	270,000	10	13.78	a 60,500	< 2
		Ohio River main stem									
12	3-1510	Ohio River at Parkersburg, W. Va.	35,600	1913-64	1913	58.9	593,000	12 12	- 45.07	a 425,000 -	(b) -
		Little Kanawha River basin									
13	3-1550	Little Kanawha River at Palestine, W. Va.	1,515	1939-64	1939	c 32.25	53,000	4	24.45	20,700	< 2
		Hocking River basin									
14	3-1564	Hocking River at Lancaster, Ohio.	48.2	1956-64	1963	15.36	a 3,420	10	15.15	a 2,510	3
15	-	Little Rush Creek near Rushville, Ohio.	30.1	1963-64	1963	-	5,140	10	-	3,970	35
16	3-1570	Clear Creek near Rockbridge, Ohio.	87.7	1939-64	1948	17.68	16,000	10	12.83	5,830	11
17	3-1575	Hocking River at Enterprise, Ohio.	460	1907-64	1907	22.0	36,000	10	21.31	26,000	d 1.17
18	3-1585	Burr Oak Reservoir at Burr Oak, Ohio.	32.8	1952-64	1963	e729.05	f 15,560	13	e729.98	f 16,400	-
19	3-1585.1	Sunday Creek at Burr Oak, Ohio.	57.0	1952-64	1963	e692.72	a 3,690	10	e 691.88	a 2,710	(b)
20	3-1590	Sunday Creek at Glouster, Ohio.	104	1907-64 1951-64	1907 1963	22.0 17.81	(b) a 7,020	10	17.53	a 6,320	(b)
21	3-1595	Hocking River at Athens, Ohio.	944	1907-64	1907	26.7	50,000	11	24.18	32,900	34

		Ohio River main stem									
22	3-1600	Ohio River at Pomeroy, Ohio	40,500	1913-64	1913	c 70.1	633,000	13 13	- 48.87	a 406,000 -	(b) -
		Kanawha River basin									
23	3-1980	Kanawha River at Charleston, W. Va	10,419	1861-1964 1939-64	1861 1940 1955	54.3 - 39.72	(b) 216,000 -	6 6	- 30.23	a 119,000 -	3 -
		Ohio River main stem									
24	3-2015	Ohio River at Point Pleasant, W. Va	52,760	1896-1964 1940-64	1913 1943 1948	62.8 - 55.0	(b) 522,000 -	13 13	- 48.87	a 464,000 -	(b) -
		Raccoon Creek basin									
25	3-2020	Raccoon Creek at Adamsville, Ohio	587	1915-64	1937	25.2	16,000	12	23.49	11,800	5
		Guyandotte River basin									
26	3-2040	Guyandotte River at Branchland, W. Va	1,226	1915-17, 1928-64	1955 1957	42.57 -	- 40,400	10 10	25.33 -	- 15,400	- < 2
		Ohio River main stem									
27	3-2060	Ohio River at Huntington, W. Va	55,900	1934-64	1937 1937	69.45 -	- 654,000	13 13	- 54.79	a 455,000 -	2 -
		Big Sandy River basin									
28	3-2150	Big Sandy River at Louisa, Ky	3,892	1908 1938-64	1908 1955 1958	c 48.4 - 46.37	(b) 89,400 -	10 11	- 33.31	33,700 -	< 2 -
		Ohio River main stem									
29	3-2160	Ohio River at Ashland, Ky	60,750	1884-1964	1937	c 75.2	690,000	13	59.59	a 472,000	3
		Little Sandy River basin									
30	3-2165	Little Sandy River near Grayson, Ky	402	1884-1964	1950 1950	- 27.53	24,500 -	5	18.45	7,260	< 2
		Tygarts Creek basin									
31	3-2170	Tygarts Creek near Greenup, Ky	242	1934,1937, 1940-64	1962	21.38	14,800	5	17.6	7,650	3
		Scioto River basin									
32	3-2304	Big Darby Creek at Darbydale, Ohio	449	-	-	-	-	10	16.56	16,200	7
33	3-2305	Big Darby Creek at Darbyville, Ohio	533	1921-35, 1938-64	1959	17.94	49,000	11	14.31	19,400	8
34	3-2309	Deer Creek at Pancoastburg, Ohio	277	-	-	-	-	10	21.1	19,500	15
35	3-2310	Deer Creek at Williamsport, Ohio	331	1926-35, 1938-56,1959, 1962-64	1959	17.6	39,600	10	15.82	23,400	16
36	3-2320	Paint Creek near Greenfield, Ohio	251	1926-35, 1939-56,1959, 1962-64	1963	12.2	15,600	10	12.3	16,000	22
37	3-2324.7	Paint Creek at damsite near Bainbridge, Ohio	573	1962-64	1963	26.5	42,300	10	27.3	45,000	36
38	3-2324.9	Rocky Fork Lake near Rainsboro, Ohio	115	1953-64	1954	33.96	f 45,250	10	36.13	f 50,680	(b)

See footnotes at end of table.

Table 4.--Summary of flood stages and discharges--Continued

No.	Permanent station number	Stream and place of determination	Drainage area (sq mi)	Maximum previously known				Maximum March 1964			
				Period	Year	Gage height (feet)	Discharge (cfs)	Day	Gage height (feet)	Discharge	
										Cfs	Recurrence interval (years)
		Scioto River basin--Continued									
39	3-2325	Rocky Fork near Barretts Mills, Ohio	141	1939-64	1945	15.56	13,200	10	15.10	a 13,400	46
40	3-2340	Paint Creek near Bourneville, Ohio	808	1921-64	1963	20.08	a 52,700	10	20.50	a 56,900	34
41	3-2345	Scioto River at Higby, Ohio	5,129	1913-64	1913	31.6	(b)	11	25.01	a 130,000	17
				1930-64	1937	26.4	177,000				
					1959	26.4	-				
42	3-2359.95	Salt Creek near Londonderry, Ohio	267	1962-64	1963	22.7	31,600	10	21.7	26,000	d 1.20
43	-	Scioto River at Piketon, Ohio	5,832	1954-64	1959	32.56	a 150,000	11	31.67	a 138,000	14
		Ohio Brush Creek basin									
44	3-2375	Ohio Brush Creek near West Union, Ohio	388	1926-35, 1940-64	1943	26.5	51,600	10	27.91	59,200	d 1.41
		Ohio River main stem									
45	3-2380	Ohio River near Maysville, Ohio	70,130	1937-64	1937	75.3	820,000	13	62.65	a 562,000	5
		Whiteoak Creek basin									
46	3-2385	Whiteoak Creek near Georgetown, Ohio	221	1923-35, 1939-64	1933	20.87	20,500	10	14.64	22,400	50
		Little Miami River basin									
47	3-2420	Little Miami River at Spring Valley, Ohio	361	1925-55, 1939-51, 1959, 1963-64	1963	19.14	38,000	10	15.79	14,400	10
48	3-2423	Caesar Creek at Harveysburg, Ohio	209	1959-64	1959	20.5	(b)	10	14.35	12,900	10
				1960-64	1963	15.63	14,900				
49	3-2425	Little Miami River near Fort Ancient, Ohio	680	1939-52, 1959, 1963-64	1959	21.9	67,000	10	17.0	34,500	18
50	3-2440	Todd Fork near Roachester, Ohio	219	1952-64	1959	19.50	25,500	10	19.10	22,500	d 1.20
51	3-2455	Little Miami River at Milford, Ohio	1,203	1913, 1915-17, 1925-64	1913	25.5	(b)	10	19.96	63,900	50
				1915-17, 1925-64	1959	22.30	84,100				
52	3-2465	East Fork Little Miami River at Williamsburg, Ohio.	237	1949-53, 1959-64	1963	14.34	18,000	10	15.23	19,800	11
53	3-2475	East Fork Little Miami River at Perintown, Ohio	476	1915-20, 1925-64	1945	23.42	39,400	10	23.84	42,400	35
		Licking River basin									
54	3-2495	Licking River at Farmers, Ky	831	1904-64	1918	g 31.1	(b)	5	23.97	-	-
				1938-64	1962	26.70	24,000	11	-	12,200	<2
55	3-2505	Licking River at Blue Lick Springs, Ky	1,785	1854-1964	1937	47.4	(b)	10	41.2	30,500	3
				1938-64	1948	45.0	35,900				
56	3-2510	North Fork Licking River near Lewisburg, Ky	119	1938, 1946-64	1938	22.7	13,300	4	19.29	9,850	7
57	3-2515	Licking River at McKinneysburg, Ky	2,326	1937-64	1937	47.8	55,000	10	50.26	59,100	21

58	3-2520	Stoner Creek at Paris, Ky.....	239	1928-64 1953-64	1951 1962	19.5 17.65	(b) 12,200	5	19.59	17,000	48
59	3-2525	South Fork Licking River at Cynthiana, Ky.....	621	1918-64	1948	23.32	35,300	5	22.59	29,000	19
60	3-2535	Licking River at Catawba, Ky.....	3,300	1898-1964	1948	47.0	86,300	10	52.60	95,000	d 1.07
		Ohio River main stem									
61	3-2550	Ohio River at Cincinnati, Ohio.....	76,580	1773-1964	1937 1937	80.0 -	- 894,000	11 11	- 66.20	a 650,000 -	12 -
		Mill Creek basin									
62	3-2590	Mill Creek at Carthage, Ohio.....	120	1946-64	1959	16.17	a 8,900	9	13.50	a 5,710	(b)
		Great Miami River basin									
63	3-2740	Great Miami River at Hamilton, Ohio.....	3,639	1910-18 1927-64	1913 1959	(b) 79.49	c 352,000 a 108,000	10	73.69	a 59,000	2
64	3-2765	Whitewater River at Brookville, Ind.....	1,239	1913-64 1915-20, 1923-64	1913 1959	39.0 27.78	(b) 81,800	10	21.20	46,000	3
		Hogan Creek basin									
65	3-2767	South Hogan Creek near Dillsboro, Ind.....	38.2	1959-64	1959	14.00	16,300	4	10.08	7,220	9
		Laughery Creek basin									
66	3-2770	Laughery Creek near Farmers Retreat, Ind.....	248	1897-1964	1959	21.13	47,800	9	14.25	19,100	4
		Kentucky River basin									
67	3-2875	Kentucky River at lock 4, at Frankfort, Ky.....	h 5,412	1895-1964	1937 1937	47.46 -	- 115,000	10 11	- 38.71	81,300 -	2 -
68	3-2880	North Elkhorn Creek near Georgetown, Ky.....	h 119	1948-64 1949-64	1948 1952	22 18.41	(b) 5,480	5	1 19.50	8,500	d 1.14
69	3-2890	South Elkhorn Creek at Fort Spring, Ky.....	h 24.0	1950-64	1960	9.15	1,890	10	9.10	1,860	(b)
70	3-2895	Elkhorn Creek near Frankfort, Ky.....	h 473	1915-20,1932, 1937,1939-64	1932	17.5	31,000	5	1 14.35	23,200	30
71	3-2900	Flat Creek near Frankfort, Ky.....	5.63	1951-64	1955	11.50	7,100	25	1 10.07	3,280	(b)
72	3-2905	Kentucky River at lock 2, at Lockport, Ky.....	h 6,180	1884-1964	1937 1937	56.85 -	- 123,000	11 11	- 49.00	101,000 -	4 -
73	3-2910	Big Eagle Creek at Sadieville, Ky.....	42.9	1932 1941-64	1932 1943	22 21.96	(b) 9,870	4	20.51	8,860	32
74	3-2915	Eagle Creek at Glencoe, Ky.....	437	1913,1915-20, 1928-31, 1937-64	1943	23.60	32,900	10	26.05	58,200	d 1.28
		Beargrass Creek basin									
75	3-2925	South Fork Beargrass Creek at Louisville, Ky.....	17.2	1939-64	1943 1945 1960	15.1 13.62 -	(b) - 2,220	9	14.17	4,940	(b)
76	3-2930	Middle Fork Beargrass Creek at Cannons Lane, at Louisville, Ky.	h 18.9	1943 1944-64	1943 1960	8.1 5.83	(b) 3,300	9	1 6.17	3,920	(b)

See footnotes at end of table.

Table 4.--Summary of flood stages and discharges--Continued

No.	Permanent station number	Stream and place of determination	Drainage area (sq mi)	Maximum previously known				Maximum March 1964			
				Period	Year	Gage height (feet)	Discharge (cfs)	Day	Gage height (feet)	Discharge	
										Cfs	Recurrence interval (years)
		Silver Creek basin									
77	3-2940	Silver Creek near Sellersburg, Ind.....	188	1954-64	1959	30.89	19,600	10	30.40	15,600	8
		Ohio River main stem									
78	3-2945	Ohio River at Louisville, Ky.....	91,170	1832,1848, 1858-59, 1866-69, 1872-1964	1937	-	1,110,000	12	-	a 785,000	44
					1937	85.44	-	13	73.46	-	-
		Salt River basin									
79	3-2950	Salt River at Harrodsburg, Ky.....	h 41.4	1952-64	1957	15.1	4,190	10	14.0	3,450	3
80	3-2955	Salt River near Van Buren, Ky.....	h 196	1928-64	1928	22.2	20,000	4	21.16	16,700	17
81	-	Salt River at Taylorsville, Ky.....	359	-	-	-	-	10	e 498.29	40,000	d 1.25
82	-	Bullskin Creek near Simpsonville, Ky.....	66.1	-	-	-	-	9	e 687.95	17,600	d 1.92
83	-	Clear Creek near Shelbyville, Ky.....	52.1	-	-	-	-	9	e 683.44	15,000	d 1.92
84	3-2960	Plum Creek subwatershed No. 4 near Simpsonville, Ky.	1.55	1954-64	1961	22.42	a 153	9	25.06	a 163	(b)
85	3-2965	Plum Creek near Wilsonville, Ky.....	19.1	1954-64	1960	7.92	a 5,180	9	6.62	a 3,920	(b)
86	3-2967	Plum Creek subwatershed No. 15 (Little Plum Creek) near Wilsonville, Ky.	1.03	1957-64	1960	29.0	a 124	9	25.26	a 120	(b)
87	3-2968	Plum Creek subwatershed No. 17 near Waterford, Ky.	.52	1957-64	1960	28.70	a 87	4	21.56	a 78	(b)
88	3-2970	Little Plum Creek near Waterford, Ky.....	5.15	1954-64	1960	6.12	a 3,810	4	4.71	a 1,390	(b)
89	3-2975	Plum Creek at Waterford, Ky.....	31.8	1954-64	1960	11.84	a 13,200	4	8.96	a 8,740	d 1.60
90	-	Floyds Fork near Middletown, Ky.....	101	-	-	-	-	9	e 584.11	22,000	d 1.72
91	3-2980	Floyds Fork at Fisherville, Ky.....	138	1937	1937	16.8	(b)	9	15.70	24,800	d 1.57
				1944-64	1961	14.7	19,800				
92	3-2985	Salt River at Shepherdsville, Ky.....	1,197	1937-64	1937	j 47.3	(b)	10	-	78,200	d 1.41
				1938-64	1961	-	57,700	11	41.50	-	-
					1961	40.84	-				
93	3-2990	Rolling Fork near Lebanon, Ky.....	239	1913-64	1913	24.7	(b)	10	20.54	16,800	3
				1938-64	1945	22.4	26,500				
94	3-3000	Beech Fork near Springfield, Ky.....	85.9	1952-64	1961	27.8	8,840	4,10	30	10,000	d 1.21
95	3-3010	Beech Fork at Bardstown, Ky.....	669	1939-64	1962	39.65	27,900	5	43.5	33,900	34
96	3-3015	Rolling Fork near Boston, Ky.....	1,299	1937-64	1937	c j 55.2	(b)	6	-	42,100	6
				1938-64	1948	-	41,300	12	51.0	-	-
					1962	48.35	-				
97	3-3020	Pond Creek near Louisville, Ky.....	64.0	1937-64	1937	j 23	(b)	9	22.69	8,020	d 1.60
				1944-64	1948	21.78	-				
					1959	-	3,260				
		Indian Creek basin									
98	3-3025	Indian Creek near Corydon, Ind.....	129	1943-64	1959	22.22	23,800	5	22.64	26,700	d 1.41
		Blue River basin									
99	3-3030	Blue River near White Cloud, Ind.....	461	1910-64	1959	23.07	28,500	10	23.03	28,400	25

			Anderson River basin								
100	3-3033	Middle Fork Anderson River at Bristow, Ind.....	41.9	1905-64	1959	20.0	15,000	4 9	19.33 -	- 6,360	- d 1.12
			Green River basin								
101	3-3095	McDougal Creek near Hodgenville, Ky.....	5.34	1953-64	1957	6.27	2,100	4	5.47	1,480	(b)
102	3-3100	North Fork Nolin River at Hodgenville, Ky.....	h 36.4	1941-64	1958	15.50	8,300	4	15.80	8,860	29
103	3-3103	Nolin River at White Mills, Ky.....	h 357	1854 1959-64	1854 1962	35.5 22.59	(b) 8,060	5 5	- 31.74	16,700 -	d 1.28 -
104	3-3104	Bacon Creek near Priceville, Ky.....	h 85.4	1957 1959-64	1957 1962	21.8 13.69	(b) 2,240	10	14.01	2,400	3
105	3-3109	Nolin River Reservoir near Kyrock, Ky.....	h 703	1963-64	1963	e 501.65	f 104,400	17	e 532.17	f 292,400	-
106	3-3110	Nolin River at Kyrock, Ky.....	h 707	1854-1964 1930-32, 1939-50, 1960-64	1937 1932 1962	c 26.35 - j 59.27	(b) 22,700 -	14 26	j 40.06 -	- a 9,620	- (b)
107	3-3120	Bear Creek near Leitchfield, Ky.....	30.8	1949-64	1957	21.33	8,070	9	19.29	6,250	d 1.16
108	3-3175	North Fork Rough River near Westview, Ky.....	h 42.0	1954-64	1959	18.57	3,170	9	20.12	3,890	(b)
109	3-3180.05	Rough River Reservoir near Falls of Rough, Ky....	h 454	1959-64	1961	e 511.07	f 220,200	20	e 513.04	f 235,300	-
110	3-3182	Rock Lick Creek near Glen Dean, Ky.....	20.1	1956-64	1959	18.36	8,720	9	17.28	6,010	(b)
111	3-3185	Rough River at Falls of Rough, Ky.....	h 504	1937 1940-64	1937 1950	34.06 28.87	(b) 12,400	9 9	- 26.13	a 8,320 -	(b) -
112	3-3188	Caney Creek near Horse Branch, Ky.....	124	1956-64	1957	j 14.43	10,000	5	13.44	9,100	d 1.11
113	3-3190	Rough River near Dundee, Ky.....	h 757	1937-64	1937 1950	31.8 28.97	(b) 20,000	10	28.78	a 16,600	5
114	3-3200	Green River at lock 2 at Calhoun, Ky.....	h 7,564	1898-1964	1937 1937	- 43.7	208,000 -	13 17	- 33.96	a 80,300 -	(b) -
115	3-3205	East Fork Pond River near Apex, Ky.....	194	1940-64	1957	20.70	21,800	10	19.60	17,400	50
			Ohio River main stem								
116	3-3220	Ohio River at Evansville, Ind.....	107,000	1832, 1874-1964	1937 1937	- 53.75	1,410,000 -	16 16	- 47.72	a 913,000 -	d 1.08 -
			Pigeon Creek basin								
117	3-3221	Pigeon Creek at Evansville, Ind.....	326	1960-64	1961	27.94	12,100	12 12	- 26.30	8,250 -	7 -
			Wabash River basin								
118	3-3430	Wabash River at Vincennes, Ind.....	13,700	1867-1964	1913	26.3	255,000	11 12	- 14.48	27,500 -	< 2 -
119	3-3605	White River at Newberry, Ind.....	4,696	1875-1964	1913	27.5	130,000	14	20.12	37,300	2
120	3-3640	East Fork White River at Columbus, Ind.....	1,692	1913 1947-64	1913 1952	17.9 16.00	100,000 48,700	11	11.97	28,200	2
121	3-3645	Clifty Creek at Hartsville, Ind.....	88.8	1913 1948-64	1913 1959	25.1 14.29	(b) 11,300	10	11.78	6,820	9
122	3-3650	Sand Creek near Brewersville, Ind.....	156	1897 1948-64	1897 1959	(k) 21.7	(b) 19,900	10	1 18.70	14,000	9
123	3-3655	East Fork White River at Seymour, Ind.....	2,333	1897-1964	1913	21.0	120,000	10	18.72	54,900	9
124	3-3670	Muscatatuck River near Austin, Ind.....	365	1932-64	1959	29.20	53,900	10	27.61	36,600	50
125	3-3695	Vernon Fork at Vernon, Ind.....	201	1897 1898-1964	1897 1959	(m) 32.83	(b) 56,800	9	1 22.66	21,100	8

See footnotes at end of table.

Table 4.--Summary of flood stages and discharges--Continued

No.	Permanent station number	Stream and place of determination	Drainage area (sq mi)	Maximum previously known				Maximum March 1964			
				Period	Year	Gage height (feet)	Discharge (cfs)	Day	Gage height (feet)	Discharge	
										Cfs	Recurrence interval (years)
		Wabash River basin--Continued									
126	3-3715	East Fork White River near Bedford, Ind.....	3,870	1913	1913	c 47.5	155,000	12	-	75,700	8
				1939-64	1961	35.97	-	13	35.22	-	
					1961	-	70,900				
127	3-3716	South Fork Salt Creek at Kurtz, Ind.....	38.1	1959-64	1959	15	(b)	9	13.08	4,960	9
				1960-64	1961	12.93	4,690				
128	3-3716.5	North Fork Salt Creek at Nashville, Ind.....	75.9	1962-64	1963	15.72	7,500	9	15.93	7,130	5
129	3-3720	North Fork Salt Creek near Belmont, Ind.....	120	1913	1913	25.7	(b)	10	21.63	10,100	5
				1946-64	1960	23.10	13,300				
130	3-3725	Salt Creek near Harrodsburg, Ind.....	441	1955-64	1960	-	22,000	10	28.40	a 8,000	< 2
					1961	35.3	-				
131	3-3727	Clear Creek at Harrodsburg, Ind.....	h 55.2	1960-64	1960	16.47	10,200	9	13.07	6,380	d 1.26
132	3-3730	Salt Creek near Peerless, Ind.....	582	1939-50, 1957-64	1961	35.33	25,100	10	29.00	a 10,000	< 2
133	3-3732	Indian Creek near Springville, Ind.....	60.9	1950-51	(b)	18.4	(b)	9	12.95	6,450	d 1.17
				1962-64	1963	11.60	5,120				
134	3-3735	East Fork White River at Shoals, Ind.....	4,954	1847-1964	1913	42.2	160,000	15	31.02	a 62,300	8
135	3-3740	White River at Petersburg, Ind.....	11,139	1907-64	1913	29.5	235,000	16	25.13	108,000	7
136	3-3745	Patoka River near Ellsworth, Ind.....	171	1913-64	1913	19.1	12,300	10	20.02	14,700	d 1.83
137	3-3755	Patoka River at Jasper, Ind.....	257	1913-64	1913	c 15.9	16,000	11	20.20	14,100	d 1.32
138	3-3763	Patoka River at Winslow, Ind.....	603	1937	1937	28.9	(b)	13	28.84	15,500	d 1.18
				1961-64	1961	28.3	13,700				
139	3-3765	Patoka River near Princeton, Ind.....	815	1935-64	1937	-	18,700	16	21.50	15,200	33
					1937	22.8	-				
140	3-3775	Wabash River at Mount Carmel, Ill.....	28,600	1875-1964	1913	31.0	428,000	17	23.97	146,000	2
		Tradewater River basin									
141	3-3830	Tradewater River at Olney, Ky.....	h 255	1937-64	1937	19.27	17,000	10	-	13,600	d 1.31
								10	18.68	-	-
		Ohio River main stem									
142	3-3845	Ohio River at Golconda, Ill.....	143,900	1937-64	1937	62.6	-	20	52.40	-	-
					1937	-	1,470,000	20	-	a 958,000	14
		Cumberland River basin									
143	3-4380	Little River at Cadiz, Ky.....	h 244	1940-64	1951	21.00	14,200	9	20.27	12,600	13
144	3-4385	Cumberland River at Smithland, Ky.....	17,913	1937-64	1937	51.1	(b)	11	-	a 115,000	< 2
				1939-64	1950	43.10	-	21	35.07	-	-
					1950	-	a 201,100				
		Tennessee River basin									
145	3-6095	Tennessee River near Paducah, Ky.....	40,200	1889-1964	1937	62.43	-	17	49.23	-	-
					1948	-	a 500,000	29	-	a 231,000	< 2
146	3-6105	East Fork Clarks River near Benton, Ky.....	227	1937-64	1937	17.8	(b)	9	15.80	21,300	d 1.14
				1938-64	1957	17.10	36,000				

			Ohio River main stem								
147	3-6115	Ohio River at Metropolis, Ill.....	203,000	1928-64	1937 1937	- 66.60	n1,780,000 -	18 21	- 54.36	a1,100,000 -	(b) -
			Mayfield Creek basin								
148	7- 230	Mayfield Creek at Lovelaceville, Ky.....	212	1937-64	1937	21.1	19,800	10	20.16	16,100	d 1.05
			Obion Creek basin								
149	7- 235	Obion Creek at Pryorsburg, Ky.....	36.8	1949 1951-64	1949 1957	13.0 12.60	(b) 5,330	9	12.85	5,000	45
			Bayou du Chien basin								
150	7- 240	Bayou du Chien near Clinton, Ky.....	68.7	1939-64	1951	15.0	6,880	10	14.80	6,140	13

a Flow controlled wholly or in part by one or more reservoirs; see station description.
b Not determined.
c At different site or datum; see station description.
d Ratio of peak discharge to 50-year flood.
e Elevation, in feet.
f Contents, in acre-feet.
g Result of ice jam.
h Part of drainage area noncontributing; see station description.
i From inside gage; floodmark elevation in station description.
j Affected by backwater; see station description.
k Several feet higher than stage of Jan. 21, 1959.
m About equal to stage of Jan. 21, 1959.
n Does not include flow through Bay Creek and Cache River; see station description.

STATION DATA

OHIO RIVER MAIN STEM

(1) 3-495. Allegheny River at Natrona, Pa.

Location.--Lat 40°36'55", long 79°43'10", on right bank 550 ft upstream from dam at lock 4 at Natrona, Allegheny County, 6 miles downstream from Kiskiminetas River, and at mile 24.2.

Drainage area.--11,410 sq mi, approximately.

Gage-height record.--Water-stage recorder graph. Datum of gage is 736.74 ft above mean sea level, adjustment of 1912 (Corps of Engineers bench mark).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--March 1964: Discharge, 216,000 cfs Mar. 10, 2200 hours (gage height, 25.78 ft).
1938 to February 1964: Discharge, 238,000 cfs Dec. 30, 1942 (gage height, 27.46 ft).
Maximum stage known, 32.06 ft Mar. 18, 1936 (discharge, 365,000 cfs, determined by Corps of Engineers).

Remarks.--Flow regulated by Chautauqua Lake and by Tionesta Creek, East Branch Clarion River, Mahoning Creek, Crooked Creek, Conemaugh River, and Loyalhanna Creek Reservoirs and by 12 smaller reservoirs (combined capacity, excluding that of Chautauqua Lake, 864,600 acre-ft). Slight diversion since 1952 from Beaver Run Reservoir into the Monongahela River basin.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	5,800	7.....	131,000	13.....	127,000	19.....	61,300	25.....	26,900
2.....	6,450	8.....	131,000	14.....	117,000	20.....	42,200	26.....	27,200
3.....	10,100	9.....	130,000	15.....	104,000	21.....	32,800	27.....	33,600
4.....	17,300	10.....	188,000	16.....	104,000	22.....	30,000	28.....	37,400
5.....	66,700	11.....	186,000	17.....	100,000	23.....	28,000	29.....	34,000
6.....	159,000	12.....	134,000	18.....	84,000	24.....	27,000	30.....	31,400
								31.....	30,500
Monthly mean discharge, in cubic feet per second.....									72,380

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 2	1200	9.97	6,190	Mar. 8	1200	19.66	133,000	Mar. 14	2400	18.23	112,000
	2400	10.20	7,730		1800	19.57	131,000				
					2400	19.11	125,000	15	0600	18.00	109,000
3	0600	10.39	9,080						1200	17.52	102,000
	1300	10.46	9,590	9	0500	18.82	121,000		1800	17.35	99,200
	1800	10.64	10,900		1200	19.57	131,000		2400	17.56	102,000
	2400	10.96	13,400		1800	19.85	135,000				
					2400	20.40	143,000	16	1200	17.74	105,000
4	0600	11.12	14,800						2400	17.63	103,000
	1200	11.23	15,800	10	0300	21.04	152,000				
	1800	11.60	19,400		0600	22.05	166,000	17	0600	17.68	104,000
	2400	12.02	23,900		0900	23.16	181,000		1800	17.32	98,800
					1200	24.17	194,000		2400	16.93	92,700
5	0600	12.59	30,500		1600	25.14	207,000				
	1200	14.15	50,600		2200	25.78	216,000	18	0600	16.64	88,000
	1400	15.10	64,400		2400	25.73	215,000		1200	16.43	84,700
	1600	15.82	75,600						1800	16.18	80,500
	1800	16.21	82,200	11	0600	24.95	205,000		2400	15.71	72,800
	2000	18.96	124,000		1200	23.69	188,000				
	2200	20.95	152,000		1800	22.11	166,000	19	0600	15.40	67,900
	2400	22.03	166,000		2400	20.95	151,000		1000	15.25	65,600
									1400	14.99	61,800
6	0200	22.49	172,000	12	0600	19.95	137,000		2000	14.30	51,700
	0600	21.84	163,000		1200	19.42	129,000		2400	13.99	47,400
	1200	21.78	162,000		1800	19.44	130,000				
	1800	21.22	154,000		2400	19.50	130,000	20	1200	13.66	43,000
	2400	20.45	144,000						2400	13.11	35,900
				13	0600	19.40	129,000				
7	0600	19.86	136,000		1500	19.16	126,000	21	0600	13.00	34,600
	1200	19.34	128,000		2400	18.93	122,000		1800	12.67	30,600
	1600	19.06	124,000						2400	12.53	29,000
	2400	19.47	130,000	14	0600	18.76	120,000				
					1200	18.59	118,000				
8	0600	19.64	132,000		2000	18.24	112,000				

Note.--Daily means for some days computed from data in addition to figures shown.

MONONGAHELA RIVER BASIN

(2) 3-850. Monongahela River at Braddock, Pa.

Location.--Lat 40°23'30", long 79°51'30", near right bank on river guide wall 380 ft upstream from dam at lock 2, at Braddock, Allegheny County, 1,700 ft downstream from Turtle Creek, and 11.2 miles upstream from confluence with Allegheny River.

Drainage area.--7,337 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 707.16 ft above mean sea level, adjustment of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--March 1964: Discharge, 105,000 cfs Mar. 11, 0500-0600 hours (gage height, 22.58 ft).
1938 to February 1964: Discharge, 201,000 cfs June 5, 1941 (gage height, 31.20 ft).
Maximum stage known, 38.8 ft Mar. 18, 1936, from floodmarks (discharge, 210,000 cfs).

Remarks.--Flow regulated by locks and hydroelectric plants, since 1938 by Tygart Reservoir and since 1926 by Lake Lynn, since 1925 by Deep Creek Reservoir and since 1943 by Youghiogheny River Reservoir, combined capacity, 718,960 acre-ft. Figures of daily discharge include slight diversion from Beaver Run Reservoir and Thorn Run, in the Kiskiminetas River basin, to the Borough of Jeannette and into Turtle Creek, respectively.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	6,600	7.....	45,600	13.....	39,200	19.....	39,300	25.....	14,000
2.....	6,750	8.....	34,700	14.....	41,000	20.....	32,100	26.....	14,900
3.....	20,000	9.....	41,700	15.....	52,800	21.....	25,600	27.....	13,200
4.....	38,100	10.....	73,100	16.....	55,300	22.....	17,300	28.....	12,900
5.....	69,100	11.....	90,200	17.....	47,300	23.....	12,000	29.....	11,400
6.....	90,800	12.....	45,800	18.....	43,800	24.....	13,000	30.....	9,020
								31.....	10,100
Monthly mean discharge, in cubic feet per second.....									34,410

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 1	2400	13.48	6,400	Mar. 8	2400	17.62	38,700	Mar. 15	0600	18.71	51,000
									1200	18.95	53,900
2	0600	13.47	6,350	9	0600	17.80	40,700		1500	19.02	54,700
	1200	13.50	6,500		1200	17.91	41,900		2400	18.96	54,000
	1800	13.54	6,700		1500	17.87	41,500				
	2000	13.65	7,250		1800	17.94	42,200	16	0600	19.10	55,700
	2400	14.03	9,380		2400	18.43	47,700		1100	19.20	56,900
									1900	19.02	54,700
3	0600	14.83	14,400	10	0600	19.36	58,800		2400	18.79	52,000
	1200	15.64	20,300		1200	20.25	70,700				
	1800	16.22	25,200		1800	21.35	87,300	17	0600	18.51	48,600
	2400	16.78	30,200		2400	22.45	104,000		1700	18.26	45,800
									2400	18.20	45,100
4	0600	17.13	33,500	11	0500	22.58	105,000				
	1200	17.54	37,800		0600	22.58	105,000	18	0900	18.11	44,100
	1800	17.97	42,600		1200	21.96	96,600		2000	18.01	43,000
	2400	18.44	47,800		1800	20.71	77,400		2400	17.95	42,400
					2400	19.56	61,400				
5	0600	18.95	53,900					19	0600	17.84	41,100
	1200	20.11	68,700	12	0600	18.66	50,400		1800	17.47	37,100
	1800	21.13	83,800		1200	18.06	43,600		2400	17.39	36,200
	2400	21.78	93,900		1800	17.78	40,500				
					2400	17.65	39,000	20	0600	17.28	35,000
6	0700	22.18	99,700						1500	16.77	30,100
	1200	22.02	97,500	13	0600	17.68	39,400		1900	16.61	28,700
	1800	21.18	84,600		1200	17.70	39,600		2400	16.72	29,700
	2400	20.02	67,500		1800	17.65	39,000				
					2200	17.59	38,400	21	0300	16.73	29,800
7	0600	18.89	53,200		2400	17.60	38,500		0900	16.62	28,800
	1200	18.07	43,700						1200	16.37	26,500
	2400	17.15	33,700	14	0600	17.72	39,800		1500	16.06	23,700
					1200	17.77	40,400		2400	15.58	19,800
8	0500	17.00	32,200		1800	17.93	42,100				
	1400	17.28	35,000		2400	18.36	46,900				

Note.--Daily means for some days computed from data in addition to figures shown.

OHIO RIVER MAIN STEM

(3) 3-860. Ohio River at Sewickley, Pa.

Location.--Lat 40°31'50", long 80°11'20", on left bank 200 ft upstream from highway bridge at Sewickley, Allegheny County, 0.5 mile upstream from Narrows Run, 1.5 miles upstream from Dashields Dam, and 11.8 miles downstream from confluence of Allegheny and Monongahela Rivers.

Drainage area.--19,500 sq mi, approximately.

Gage-height record.--Water-stage recorder graph. Datum of gage is 690.00 ft above mean sea level, adjustment of 1912.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--March 1964: Discharge, 295,000 cfs Mar. 11, 0500 hours (gage height, 21.19 ft).
1933 to February 1964: Discharge, 574,000 cfs Mar. 18, 1936 (gage height, 34.75 ft, from floodmark in gage house).

Remarks.--Some regulation by locks, and by many reservoirs above station. Combined capacity of reservoirs excluding that of Chautauqua Lake but including Lake Lynn and Deep Creek Reservoirs and 12 smaller reservoirs, 1,584,000 acre-ft.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	12,500	7.....	186,000	13.....	164,000	19.....	116,000	25.....	44,400
2.....	14,100	8.....	162,000	14.....	158,000	20.....	84,000	26.....	44,400
3.....	33,400	9.....	170,000	15.....	159,000	21.....	67,100	27.....	49,200
4.....	59,400	10.....	240,000	16.....	162,000	22.....	53,900	28.....	53,300
5.....	116,000	11.....	276,000	17.....	156,000	23.....	44,300	29.....	47,600
6.....	227,000	12.....	192,000	18.....	143,000	24.....	43,300	30.....	41,300
								31.....	42,800
Monthly mean discharge, in cubic feet per second.....									108,500

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 2	0600	3.89	13,500	Mar. 11	0500	21.19	295,000	Mar. 18	0600	10.27	147,000
	1800	3.89	13,500		1200	20.36	283,000		1200	10.05	143,000
	2400	4.26	18,400		1800	18.65	259,000		2400	9.65	134,000
					2400	16.45	231,000				
3	0600	4.77	26,300					19	0600	9.29	125,000
	1200	5.16	33,000	12	0100	16.07	227,000		1400	8.83	113,000
	1800	5.52	39,600		0600	14.48	207,000		1500	9.03	118,000
	2400	5.82	45,400		1200	13.10	189,000		1700	8.54	105,000
					1800	11.98	173,000		2400	8.28	99,200
4	0600	6.05	50,000		2400	11.68	169,000				
	1800	6.80	65,800					20	0300	7.94	91,300
	2400	7.26	75,900	13	0600	11.50	166,000		0900	7.81	88,300
					0900	11.30	164,000		1100	7.52	81,700
5	0600	7.83	88,800		1200	11.35	164,000		1900	7.45	80,100
	1200	8.59	107,000		1800	11.22	162,000		2200	7.26	75,900
	1800	10.10	144,000		2400	11.12	161,000		2400	7.26	75,900
	2400	13.37	192,000								
				14	0600	11.00	159,000	21	0200	7.16	73,700
6	0600	16.30	230,000		0900	10.90	158,000		0400	6.90	68,000
	1200	16.86	236,000		1200	10.92	158,000		0600	7.08	72,000
	2100	16.18	228,000		1700	10.86	157,000		1200	7.11	72,600
	2400	15.64	222,000		1900	10.90	158,000		1800	6.62	61,900
					2100	10.73	155,000		2100	6.32	55,600
7	0600	14.22	203,000		2400	10.84	157,000		2400	6.32	55,600
	1200	12.94	186,000								
	2400	11.09	161,000	15	0300	11.00	159,000	22	0600	6.31	55,400
					0900	11.10	161,000		1200	6.35	56,200
8	0600	11.03	160,000		1200	11.05	160,000		1500	6.50	59,400
	1800	11.27	163,000		1600	10.95	159,000		2000	5.96	48,200
	2400	11.31	164,000		2000	10.80	156,000		2400	5.74	43,800
					2400	11.03	160,000				
9	0600	11.24	163,000					23	0600	5.75	44,000
	1800	12.19	176,000	16	0600	11.16	162,000		1100	5.78	44,600
	2400	13.31	191,000		1200	11.33	164,000		1200	5.89	46,800
					1400	11.48	166,000		1800	5.89	46,800
10	0600	15.04	214,000		1600	11.24	163,000		2100	5.81	45,200
	0900	16.03	226,000		2400	11.09	161,000		2400	5.49	39,000
	1600	18.58	259,000								
	2400	20.74	288,000	17	0300	11.00	159,000				
					1200	10.80	156,000				
11	0200	21.03	292,000		2400	10.50	152,000				

Note.--Daily means for some days computed from data in addition to figures shown.

BEAVER RIVER BASIN

(4) 3-1075. Beaver River at Beaver Falls, Pa.

Location.--Lat 40°45'45", long 80°18'55", on left bank at Beaver Falls, Beaver County, 200 ft upstream from pumping plant of Beaver Valley Water Co., 5.5 miles upstream from mouth, and 7 miles downstream from Connoquenessing Creek.

Drainage area.--3,106 sq mi.

Gage-height record.--Digital recorder tape punched at 60-minute intervals. Datum of gage is 727.48 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 57,000 cfs and extended above by logarithmic plotting.

Maxima.--March 1964: Discharge, 57,900 cfs Mar. 10, 2200 hours (gage height, 13.24 ft).
1935 to February 1964: Discharge, 69,900 cfs Jan. 22, 1959 (gage height, 14.42 ft).
Maximum stage known, 17.4 ft Mar. 27, 1913 (discharge, 103,000 cfs).

Remarks.--Flow regulated since 1942 by Berlin, since 1916 by Milton, since 1943 by Mosquito Creek, since 1929 by Meander Creek, and since 1933 by Pymatuning Reservoirs.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	860	7.....	26,400	13.....	16,200	19.....	6,340	25.....	4,510
2.....	1,050	8.....	15,200	14.....	10,100	20.....	5,070	26.....	4,540
3.....	2,980	9.....	20,000	15.....	10,100	21.....	5,090	27.....	4,670
4.....	9,060	10.....	50,300	16.....	8,480	22.....	6,810	28.....	4,160
5.....	28,400	11.....	49,000	17.....	7,230	23.....	6,330	29.....	3,770
6.....	31,100	12.....	30,400	18.....	7,070	24.....	5,120	30.....	3,230
								31.....	2,890
Monthly mean discharge, in cubic feet per second.....									12,470

Note.--Mean daily discharges computed on basis of 60-minute intervals.

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Mar. 1	2400	3.85	940	Mar. 7	0600	9.77	28,600	Mar. 11	2400	11.08	38,400
					1200	9.59	27,300				
2	0600	3.87	968		2400	8.66	21,400	12	0600	10.55	34,200
	1200	3.88	982						1200	10.08	30,800
	1800	3.96	1,110	8	0600	8.05	17,700		1800	9.56	27,100
	2400	4.13	1,430		1200	7.57	15,000		2400	8.95	23,100
					2400	6.81	11,200				
3	0600	4.39	2,050					13	0600	8.28	19,100
	1200	4.58	2,570	9	0200	6.73	10,800		0900	8.00	17,400
	2400	5.59	5,780		0600	7.01	12,200		1200	7.71	15,800
					1200	8.42	19,900		2400	6.95	12,000
4	0600	5.96	7,240		1800	9.27	25,100				
	1200	6.01	7,440		2400	10.33	32,500	14	0600	6.68	10,600
	1800	6.52	9,800						1200	6.51	9,750
	2400	7.87	16,600	10	0500	11.29	40,100		2400	6.50	9,700
					0600	11.41	41,100				
5	0600	9.40	26,000		0700	12.07	46,700	15	0600	6.59	10,200
	1200	9.93	29,700		1200	12.73	52,800		1200	6.65	10,400
	1800	10.15	31,200		1600	13.06	56,100		1800	6.56	10,000
	2400	10.25	32,000		1800	13.15	57,000		2400	6.46	9,500
					2200	13.24	57,900				
6	0300	10.28	32,200		2400	13.19	57,400	16	0600	6.35	8,980
	0600	10.28	32,200						1200	6.23	8,440
	1200	10.18	31,500	11	0400	13.06	56,100		1800	6.14	8,030
	2400	9.88	29,400		1200	12.45	50,200		2400	6.07	7,720

Note.--Daily means for some days computed from data in addition to figures shown.

782-001 O-65-4

OHIO RIVER MAIN STEM

(5) 3-1150. Ohio River at St. Marys, W. Va.

Location.--Lat 39°23'25", long 81°12'30", on left bank at downstream side of bridge on U.S. Highway 50 (alternate) at St. Marys, Pleasants County, 0.9 mile downstream from Middle Island Creek at mile 155.0.

Drainage area.--26,850 sq mi, approximately.

Gage-height record.--Water-stage recorder graphs. Auxiliary water-stage recorder graph 1.5 miles upstream from lock and dam 17, and 11 miles downstream from base gage. Datum of gage is 577.30 ft above mean sea level, Sandy Hook datum.

Discharge record.--Stage-fall-discharge relation defined by current-meter measurements below 378,000 cfs. Discharge computed by using fall as a factor.

Maxima.--March 1964: Discharge, 383,000 cfs Mar. 12, 0600-0800 hours; gage height, 42.75 ft Mar. 12, 1000 hours.
1938 to February 1964: Discharge, 421,000 cfs Jan. 1, 1943: gage height, 46.67 ft Jan. 1, 1943.
Maximum stage known since at least 1884, 54.2 ft in Mar. 1913.

Remarks.--Flow partly regulated by locks, dams, and reservoirs upstream.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	15,700	7.....	248,000	13.....	306,000	19.....	153,000	25.....	55,800
2.....	17,400	8.....	233,000	14.....	226,000	20.....	129,000	26.....	54,100
3.....	37,600	9.....	208,000	15.....	200,000	21.....	99,000	27.....	54,100
4.....	62,800	10.....	269,000	16.....	191,000	22.....	81,400	28.....	56,100
5.....	93,900	11.....	345,000	17.....	182,000	23.....	68,100	29.....	59,600
6.....	164,000	12.....	374,000	18.....	170,000	24.....	58,300	30.....	56,200
								31.....	53,500
Monthly mean discharge, in cubic feet per second.....									139,400

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Feb. 29	2400	9.88	14,500	Mar. 7	0600	30.28	240,000	Mar. 13	1200	39.37	307,000
					1200	31.47	255,000		2400	36.41	262,000
Mar. 1	0600	9.81	14,700		1800	32.08	260,000				
	1200	9.79	17,100		2400	32.10	255,000	14	1200	33.34	220,000
	1800	9.76	16,200						2400	31.37	204,000
	2400	9.81	15,000	8	0600	31.73	246,000				
					1200	31.07	234,000	15	1200	30.33	199,000
2	0600	9.86	14,800		1800	30.20	220,000		2400	29.70	196,000
	1200	9.93	15,500		2400	29.37	210,000				
	1800	10.21	21,000					16	1200	29.06	191,000
	2400	10.28	21,300	9	0600	28.68	201,000		2400	28.26	185,000
					1200	28.66	202,000				
3	0600	10.78	29,900		1800	29.62	210,000	17	1200	27.71	184,000
	1200	10.88	36,900		2400	31.07	226,000		2400	27.02	177,000
	1800	11.63	45,400								
	2400	12.10	55,200	10	0600	32.82	242,000	18	1200	26.12	171,000
					1200	34.87	274,000		2400	25.18	162,000
4	0600	12.08	54,800		1800	36.70	291,000				
	1200	12.25	63,500		2400	38.33	312,000	19	1200	24.18	153,000
	1800	13.01	68,400						2400	22.92	143,000
	2400	14.02	74,000	11	0600	39.68	326,000				
					1200	40.83	345,000	20	1200	21.40	130,000
5	0600	15.52	83,200		1800	41.70	365,000		2400	19.51	113,000
	1200	16.95	93,000		2400	42.34	377,000				
	1800	18.44	104,000					21	1200	17.66	97,500
	2400	19.91	117,000	12	0600	42.69	383,000		2400	16.36	88,000
					0800	42.73	383,000				
6	0600	21.81	137,000		1000	42.75	382,000	22	1200	15.60	82,000
	1200	23.93	162,000		1200	42.72	380,000		2400	14.51	73,400
	1800	26.19	189,000		1800	42.35	368,000				
	2400	28.52	219,000		2400	41.63	350,000				

MUSKINGUM RIVER BASIN

(6) 3-1364. North Branch Kokosing River near Fredericktown, Ohio

(Crest-stage station)

Location.--Lat 40°30'10", long 82°34'15", at bridge on county road 2 miles northwest of Fredericktown, Knox County, and 2.7 miles above East Branch.

Drainage area.--45.0 sq mi.

Gage-height record.--Wire-weight gage read twice daily, and crest-stage gage. Datum of gage is 1,092.05 ft above mean sea level, datum of 1929, supplementary adjustment of 1960.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--March 1964: Discharge, 3,160 cfs Mar. 10 (gage height, 7.50 ft).
1959: Gage height, 13.4 ft, from floodmarks (discharge unknown).
June 1962 to February 1964: Discharge, 2,430 cfs Mar. 4, 1963 (gage height, 6.83 ft).

(7) 3-1365. Kokosing River at Mount Vernon, Ohio

Location.--Lat 40°24'25", long 82°30'00", on right bank at downstream side of Tilden Avenue Bridge at Mount Vernon, Knox County, 0.8 mile downstream from North Branch and 2.7 miles upstream from Dry Run.

Drainage area.--200 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 984.16 ft above mean sea level, datum of 1929, supplementary adjustment of 1944 (levels by Corps of Engineers).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 6,400 cfs and by indirect measurements at 7,300 cfs and 38,000 cfs.

Maxima.--March 1964: Discharge, 10,300 cfs Mar. 10, 0930 hours (gage height, 13.08 ft).
1953 to February 1964: Discharge, 38,000 cfs Jan. 21, 1959 (gage height, 18.19 ft).

Remarks.--Some regulation by Knox Lake on East Branch of North Branch (30.3 sq mi, 3,750 acre-ft).

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	30	7.....	465	13.....	925	19.....	302	25.....	241
2.....	41	8.....	286	14.....	935	20.....	266	26.....	294
3.....	82	9.....	2,820	15.....	1,720	21.....	458	27.....	272
4.....	309	10.....	7,390	16.....	860	22.....	546	28.....	224
5.....	3,190	11.....	2,110	17.....	541	23.....	354	29.....	199
6.....	1,160	12.....	1,070	18.....	384	24.....	276	30.....	184
								31.....	181
Monthly mean discharge, in cubic feet per second.....									907
Runoff, in inches.....									5.23

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Mar. 1	2400	2.16	36	Mar. 6	1200	4.62	1,070	Mar. 10	0800	13.00	10,200
					2400	3.86	640		0930	13.08	10,300
2	1200	2.18	38						1200	12.50	9,210
	2400	2.28	50	7	1200	3.48	456		1500	11.08	6,880
					2400	3.23	344		1800	10.00	5,490
3	1200	2.49	91						2400	8.19	3,590
	2400	2.56	109	8	1200	3.08	282				
					2400	3.03	262	11	0600	6.92	2,540
4	0600	2.63	129						1200	5.98	1,890
	1600	2.83	190	9	0400	3.66	540		2400	4.93	1,260
	2000	3.56	492		0600	5.46	1,580				
	2200	4.09	755		0800	7.11	2,690	12	0600	4.65	1,120
	2400	5.75	1,750		1100	7.77	3,220		1200	4.44	1,020
					1400	7.29	2,830		1800	4.33	965
5	0400	8.40	3,780		1600	7.51	3,010		2400	4.53	1,060
	0800	9.51	4,920		2000	8.85	4,220				
	1200	7.96	3,380		2400	10.79	6,470	13	1200	4.25	925
	1800	6.93	2,550						2400	3.94	770
	2400	6.20	2,040	10	0400	12.14	8,560				

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964, of Kokosing River at Mount Vernon, Ohio--Continued

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 14	0600	3.85	725	Mar. 15	1200	5.72	1,730	Mar. 17	2400	3.30	460
	1200	3.88	740		2400	4.77	1,180				
	1800	4.54	1,070					18	1200	3.12	379
	2200	5.12	1,370	16	1200	4.06	830		2400	3.02	338
	2400	5.97	1,880		2400	3.69	645				
								19	2400	2.87	280
15	0300	6.73	2,410	17	1200	3.48	541	20	2400	2.79	252

Note.--Daily means for some days computed from data in addition to figures shown.

(8) 3-1370. Kokosing River at Millwood, Ohio

Location.--Lat 40°23'55", long 82°17'10", on left bank 0.4 mile west of Millwood, Knox County, 1½ miles upstream from Honey Run, 2 miles downstream from Jelloway Creek, and 3½ miles upstream from Brush Run.

Drainage area.--454 sq mi.

Gage-height record.--Water-stage recorder graph, except 1330 hours Mar. 13 to 1100 hours Mar. 15, for which graph was estimated on basis of record before and after this period and record for station at Mount Vernon. Datum of gage is 865.00 ft above mean sea level.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 19,000 cfs and by indirect measurement at 75,900 cfs.

Maxima.--March 1964: Discharge, 25,400 cfs Mar. 10, 1200 hours (gage height, 20.70 ft).
1913, 1921 to February 1964: Discharge, 75,900 cfs Jan. 21, 1959 (gage height, 34.00 ft, from high-water mark in well).

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	62	7.....	1,170	13.....	2,080	19.....	868	25.....	754
2.....	121	8.....	748	14.....	1,700	20.....	772	26.....	790
3.....	202	9.....	6,440	15.....	3,540	21.....	1,010	27.....	766
4.....	889	10.....	20,100	16.....	2,290	22.....	1,180	28.....	692
5.....	7,140	11.....	6,570	17.....	1,740	23.....	892	29.....	648
6.....	2,700	12.....	2,650	18.....	1,200	24.....	802	30.....	626
								31.....	615
Monthly mean discharge, in cubic feet per second.....									2,315
Runoff, in inches.....									5.88

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 1	2400	4.35	79	Mar. 8	1200	5.99	724	Mar. 14	1200	6.95	1,360
					2400	5.95	702		1800	7.25	1,590
2	1200	4.55	124						2400	8.9	3,120
	2400	4.78	189	9	0400	7.50	1,790				
					0600	9.02	3,240	15	0400	10.05	4,400
3	0300	4.86	215		0800	10.36	4,770		1200	9.30	3,540
	1800	4.73	174		1200	12.16	7,270		2400	8.58	2,800
	2400	4.98	257		1800	13.25	9,020				
					2400	15.02	12,200	16	1200	8.00	2,240
4	0600	4.98	257						2400	7.71	1,980
	1200	5.28	376	10	0400	17.06	16,400				
	1600	6.06	766		0800	19.71	22,800	17	1200	7.44	1,740
	2000	7.02	1,410		1200	20.70	25,400		2400	7.10	1,470
	2200	8.61	2,830		1500	20.19	24,000				
	2400	9.88	4,200		1800	19.20	21,500	18	1200	6.70	1,180
					2400	16.11	14,400		2400	6.43	994
5	0400	12.39	7,620								
	0830	13.36	9,210	11	0600	12.63	8,010	19	2400	6.12	802
	1200	13.07	8,720		1200	10.69	5,200				
	1800	11.70	6,580		2400	9.05	3,270	20	2400	6.03	748
	2400	9.92	4,240					21	0600	6.05	760
				12	1200	8.36	2,580		1200	6.38	962
6	1200	8.26	2,480		2400	8.17	2,390		1800	6.86	1,290
	2400	7.27	1,610						2400	6.98	1,380
				13	1200	7.91	2,160				
7	1200	6.66	1,150		2400	7.3	1,630	22	1200	6.68	1,170
	2400	6.24	874						2400	6.43	994

Note.--Daily means for some days computed from data in addition to figures shown.

(9) 3-1465. Licking River near Newark, Ohio

Location.--Lat 40°03'33", long 82°20'23", on right bank at downstream side of Stadden Bridge, 1 mile downstream from Shawnee Run, 1½ miles upstream from Equality Run, and 3½ miles east of Newark, Licking County.

Drainage area.--536 sq mi.

Gage-height record.--Water-stage recorder graph except 0900 hours to 1930 hours Mar. 5, for which graph was estimated on basis of recorded range in stage and record before and after period of clock stoppage. Datum of gage is 779.02 ft above mean sea level, datum of 1929, supplementary adjustment of 1944.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 24,000 cfs and extended on basis of flood-routing studies for station at Toboso for January 1959 peak flow.

Maxima.--March 1964: Discharge, 25,500 cfs Mar. 10, 0830 hours (gage height, 17.18 ft).
1939 to February 1964: Discharge, 45,000 cfs Jan. 21, 1959 (gage height, 20.3 ft, from high-water mark).

Remarks.--Flow slightly regulated by Buckeye Lake on South Fork (27,300 acre-ft; 3,140 acres surface area, 46.2 sq mi). Gates operated intermittently to maintain normal lake level.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	55	7.....	1,270	13.....	3,240	19.....	618	25.....	526
2.....	100	8.....	845	14.....	2,700	20.....	546	26.....	626
3.....	154	9.....	7,070	15.....	3,090	21.....	919	27.....	646
4.....	699	10.....	21,300	16.....	2,080	22.....	1,210	28.....	506
5.....	6,180	11.....	9,090	17.....	1,460	23.....	785	29.....	438
6.....	2,890	12.....	4,700	18.....	800	24.....	610	30.....	398
								31.....	374
Monthly mean discharge, in cubic feet per second.....									2,449
Runoff, in inches.....									5.27

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Mar. 1	2400	0.85	66	Mar. 8	2400	3.10	810	Mar. 14	1400	5.99	2,530
									2400	6.73	3,200
2	1200	1.07	96	9	0200	3.20	860				
	2400	1.37	141		0600	4.52	1,720	15	1000	6.84	3,300
					0800	7.40	3,910		2400	6.02	2,560
3	1200	1.44	154		1000	10.15	6,200				
	2400	1.50	166		1200	11.08	7,200	16	1200	5.44	2,040
					1800	13.18	10,700		2400	5.08	1,710
4	0700	1.52	171		2400	14.98	16,000				
	1030	2.35	452					17	1200	4.92	1,590
	1300	1.96	296	10	0600	16.90	24,100		2400	4.04	994
	1800	2.80	660		0830	17.18	25,500				
	2100	4.05	1,400		1800	14.23	13,600	18	1200	3.68	790
	2400	6.90	3,510		2400	15.10	16,400		2400	3.47	685
5	0400	9.80	5,890	11	0600	13.10	10,500	19	2400	3.22	578
	0800	10.62	6,670		1200	11.71	8,100				
	1500	10.99	7,090		1800	10.61	6,660	20	2400	3.08	522
	2000	10.28	6,330		2400	9.72	5,820				
	2400	8.74	4,990					21	0300	3.08	522
				12	1200	8.33	4,640		0800	3.44	670
6	0600	6.90	3,510		1800	7.78	4,140		1000	3.44	670
	1200	5.86	2,720		2400	7.52	3,910		1400	4.07	1,010
	1800	5.00	2,080						1600	4.33	1,170
	2400	4.47	1,690	13	1200	6.76	3,220		2400	4.80	1,490
					2400	6.10	2,630				
7	1200	3.85	1,260					22	1200	4.41	1,220
	2400	3.42	982	14	0700	5.85	2,400		2400	3.95	940
					0900	5.91	2,460				
8	1200	3.15	835		1100	5.87	2,420				

Note.--Daily means for some days computed from data in addition to figures shown.

(10) 3-1483. Moxahala Creek at Roseville, Ohio

(Recording crest-stage station)

Location.--Lat 39°48'40", long 82°04'10", at pumping station about 2,500 ft below First Street Bridge in Roseville, Muskingum County.

Drainage area.--80.8 sq mi.

Gage-height record.--Crest stage only, from floodmarks, because of faulty operation of bubble gage. Datum of gage is 717.38 ft above mean sea level, datum of 1929, unadjusted.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--March 1964: Discharge, 5,540 cfs Mar. 10, 1100 hours (gage height, 16.6 ft, from floodmarks).
1962 to February 1964: Discharge, 5,600 cfs Mar. 5, 1963 (gage height, 16.7 ft, from floodmarks).

(11) 3-1500. Muskingum River at McConnelsville, Ohio

Location.--Lat 39°38'40", long 81°51'00", on left bank just upstream from dam 7, at McConnelsville, Morgan County, and 3½ miles downstream from Oilspring Run.

Drainage area.--7,411 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 650.31 ft above mean sea level, adjustment of 1912.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 35,000 cfs.

Maxima.--March 1964: Discharge, 60,500 cfs Mar. 10, 1100 hours (gage height, 13.78 ft).
1921 to February 1964: Discharge, 126,000 cfs Jan. 26, 1937 (gage height, 21.14 ft).
Maximum stage known, 33.5 ft Mar. 27, 1913 (discharge, 270,000 cfs, computed by Corps of Engineers).

Remarks.--Flow regulated by 15 flood-control reservoirs (total capacity, 1,813,200 acre-ft, 5,014.5 sq mi controlled) since 1959. Flood stage, 11 ft.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	1,280	7.....	19,100	13.....	22,800	19.....	34,400	25.....	32,500
2.....	1,710	8.....	15,800	14.....	28,600	20.....	34,000	26.....	32,800
3.....	2,590	9.....	31,000	15.....	33,600	21.....	33,900	27.....	32,700
4.....	7,320	10.....	56,600	16.....	34,300	22.....	33,700	28.....	31,500
5.....	28,000	11.....	47,200	17.....	34,000	23.....	33,500	29.....	30,000
6.....	30,100	12.....	33,100	18.....	34,800	24.....	33,000	30.....	28,600
								31.....	24,900
Monthly mean discharge, in cubic feet per second.....									28,300

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 1	2400	1.82	1,430	Mar. 6	1200	9.30	31,400	Mar. 10	0900	13.75	60,200
					1400	9.32	31,500		1100	13.78	60,500
2	1200	2.02	1,710		2400	8.35	25,800		1200	13.71	60,000
	2400	2.23	2,040						1400	13.73	60,100
				7	0600	7.58	21,900		2100	13.10	55,700
3	1200	2.48	2,550		1200	6.82	18,100		2400	13.00	55,000
	2400	2.81	3,320		1800	6.43	16,300				
					2400	6.31	15,800	11	0400	12.9	54,300
4	0900	3.13	4,140						1200	11.85	47,000
	1200	3.48	5,080	8	1200	6.29	15,700		2400	10.70	39,800
	1600	4.60	8,580		2400	6.40	16,200				
	2000	6.12	14,900					12	1200	9.62	33,300
	2400	7.55	21,800	9	0400	6.46	16,500		2400	8.40	26,000
					1200	9.92	35,100				
5	0600	8.51	26,700		1500	10.68	39,700	13	1200	7.53	21,600
	1200	8.67	27,600		1800	10.95	41,300		1700	7.31	20,600
	1800	9.11	30,300		2200	11.11	42,300		2400	8.02	24,100
	2400	9.42	32,100		2400	11.62	45,300				
								14	1200	8.88	28,900
6	0100	9.43	32,200	10	0600	13.37	57,600		2400	9.52	32,700

Note.--Daily means for some days computed from data in addition to figures shown.

OHIO RIVER MAIN STEM

(12) 3-1510. Ohio River at Parkersburg, W. Va.

Location.--Lat 39°16'05", long 81°33'50", on left bank on downstream side of bridge on U.S. Highway 50 at Parkersburg, Wood County, 0.3 mile upstream from Little Kanawha River, and at mile 184.4.

Drainage area.--35,600 sq mi, approximately.

Gage-height record.--Water-stage recorder graphs. Auxiliary water-stage recorder graph 0.4 mile downstream from lock and dam 18 and 4.0 miles upstream from base gage. Datum of gage is 562.01 ft above mean sea level, Sandy Hook datum.

Discharge record.--Stage-fall-discharge relation defined by current-meter measurements. Discharge computed by using fall as a factor.

Maxima.--March 1964: Discharge, 425,000 cfs Mar. 12, 0500 hours: gage height, 45.07 ft Mar. 12, 1700 hours.
January 1940 to February 1964: Discharge, 440,000 cfs Jan. 1, 1943; gage height, 49.03 ft Jan. 1, 1943.
Maximum stage known, 58.9 ft Mar. 29, 1913 (discharge, 593,000 cfs).

Remarks.--Flow partly regulated by locks, dams, and reservoirs upstream.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	16,900	7.....	246,000	13.....	348,000	19.....	190,000	25.....	88,700
2.....	20,800	8.....	240,000	14.....	263,000	20.....	166,000	26.....	85,400
3.....	46,000	9.....	235,000	15.....	238,000	21.....	139,000	27.....	85,200
4.....	71,400	10.....	331,000	16.....	221,000	22.....	119,000	28.....	85,900
5.....	122,000	11.....	410,000	17.....	204,000	23.....	105,000	29.....	89,400
6.....	180,000	12.....	416,000	18.....	202,000	24.....	93,800	30.....	85,100
								31.....	78,400
Monthly mean discharge, in cubic feet per second.....									168,500

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Feb.29	2400	11.05	16,500	Mar. 7	0600	29.66	234,000	Mar. 13	1200	43.60	353,000
					1200	30.89	252,000		2400	41.40	292,000
Mar. 1	0600	10.97	17,300		1800	31.82	260,000				
	1200	10.88	17,400		2400	32.40	259,000	14	1200	38.72	261,000
	1800	10.83	16,600						2400	36.40	247,000
	2400	10.88	16,400	8	0600	32.61	252,000				
					1200	32.46	242,000	15	1200	34.95	238,000
2	0600	10.98	17,400		1800	32.10	227,000		2400	34.04	231,000
	1200	11.38	21,600		2400	31.58	216,000				
	1800	11.43	21,700					16	1200	33.20	220,000
	2400	11.75	28,500	9	0600	31.05	211,000		2400	32.18	211,000
					1200	30.86	225,000				
3	0600	12.00	35,000		1800	31.66	256,000	17	1200	31.12	203,000
	1200	12.22	46,700		2400	33.02	282,000		2400	30.11	201,000
	1800	12.65	58,100								
	2400	12.71	60,000	10	0600	35.02	302,000	18	1200	28.84	205,000
					1200	36.92	329,000		2400	27.80	199,000
4	0600	13.08	60,700		1800	38.68	359,000				
	1200	14.23	71,000		2400	40.30	384,000	19	1200	26.71	191,000
	1800	15.56	77,900						2400	25.52	178,000
	2400	17.10	91,600	11	0600	41.67	404,000				
					1200	42.74	416,000	20	1200	24.10	167,000
5	0600	18.83	110,000		1800	43.57	419,000		2400	22.50	152,000
	1200	20.48	123,000		2400	44.19	422,000				
	1800	21.73	135,000					21	1200	20.72	139,000
	2400	22.72	150,000	12	0500	44.58	425,000		2400	19.21	127,000
					0600	44.65	423,000				
6	0600	23.82	162,000		1200	44.96	421,000	22	1200	18.28	120,000
	1200	24.97	178,000		1700	45.07	412,000		2400	17.42	112,000
	1800	26.42	196,000		1800	45.06	408,000				
	2400	28.13	215,000		2400	44.87	395,000				

LITTLE KANAWHA RIVER BASIN

(13) 3-1550. Little Kanawha River at Palestine, W. Va.

Location.--Lat 39°03'35", long 81°23'25", on left bank at end of Washington Street in Elizabeth, 1.0 mile upstream from Tucker Creek, 2.3 miles northeast of Palestine, Wirt County, and 2.4 miles upstream from old lock 3.

Drainage area.--1,515 sq mi.

Gage-height record.--Water-stage recorder graphs. Auxiliary water-stage recorder graph 3 miles upstream at old lock 4. Datum of gage is 585.51 ft above mean sea level, datum of 1929, Parkersburg-Uniontown supplementary adjustment of 1944.

Discharge record.--Stage-fall-discharge relation or stage-discharge relation defined by current-meter measurements below 39,000 cfs. Fall used as a factor Mar. 11-13.

Maxima.--March 1964: Discharge, 20,700 cfs Mar. 4, 1800-1900 hours (gage height, 24.45 ft).
1939 to February 1964: Discharge, 46,300 cfs Apr. 14, 1948 (gage height, 30.4 ft at datum about 5 ft higher).
Flood of Apr. 17, 1939, reached a stage of 32.25 ft, from floodmarks at lock 4, present datum (discharge, about 53,000 cfs).

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	1,580	7.....	5,620	13.....	3,680	19.....	2,340	25.....	1,160
2.....	2,770	8.....	3,480	14.....	2,750	20.....	1,660	26.....	1,040
3.....	11,500	9.....	6,850	15.....	10,800	21.....	1,360	27.....	970
4.....	19,600	10.....	10,200	16.....	13,300	22.....	1,300	28.....	890
5.....	16,000	11.....	8,240	17.....	7,750	23.....	1,380	29.....	784
6.....	10,500	12.....	5,440	18.....	3,800	24.....	1,350	30.....	736
								31.....	728
Monthly mean discharge, in cubic feet per second.....									5,141
Runoff, in inches.....									3.91

HOCKING RIVER BASIN

(14) 3-1564. Hocking River at Lancaster, Ohio

Location.--Lat 39°42'25", long 82°36'05", on right bank 25 ft upstream from Columbus Street Bridge in Lancaster, Fairfield County, and half a mile downstream from Hunters Run.

Drainage area.--48.2 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 797.9 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,500 cfs by indirect measurement at 2,510 cfs.

Maxima.--March 1964: Discharge, 2,510 cfs Mar. 10, 0300 hours (gage height, 15.15 ft).
1956 to February 1964: Discharge, 3,420 cfs Mar. 4, 1963 (gage height, 15.36 ft).

Remarks.--Floodflow affected by temporary retention in eight retarding basins (combined capacity, 6,245 acre-ft) above station. Controlled area is 24.4 sq mi.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	20	7.....	62	13.....	137	19.....	50	25.....	42
2.....	27	8.....	71	14.....	129	20.....	47	26.....	93
3.....	29	9.....	1,220	15.....	129	21.....	62	27.....	64
4.....	213	10.....	1,830	16.....	85	22.....	54	28.....	51
5.....	308	11.....	542	17.....	68	23.....	46	29.....	45
6.....	104	12.....	204	18.....	56	24.....	42	30.....	41
								31.....	39
Monthly mean discharge, in cubic feet per second.....									191

(15) Little Rush Creek near Rushville, Ohio

(Miscellaneous site)

Location.--Lat 39°48'01", long 82°25'41", at bridge on State Highway 664, 1¼ miles upstream from Indian Creek and 2½ miles north of Rushville, Fairfield County.

Drainage area.--30.1 sq mi.

Discharge record.--Peak discharge by indirect measurement, at same site used for 1963 flood measurement.

Maxima.--March 1964: Discharge, 3,970 cfs Mar. 10.
March 1963: Discharge, 5,140 cfs Mar. 4.

(16) 3-1570. Clear Creek near Rockbridge, Ohio

Location.--Lat 39°35'20", long 82°34'40", on left bank at upstream side of highway bridge, 2 miles upstream from mouth and 3 miles west of Rockbridge, Hocking County.

Drainage area.--89.0 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 760.13 ft above mean sea level, adjustment of 1912.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 4,300 cfs and by indirect measurements at 16,000 and 8,480 cfs.

Maxima.--March 1964: Discharge, 5,830 cfs Mar. 10, 0530 hours (gage height, 12.83 ft).
1939 to February 1964: Discharge, 16,000 cfs July 22, 1948 (gage height, 17.68 ft, from high-water mark in well).

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	21	7.....	104	13.....	345	19.....	136	25.....	91
2.....	29	8.....	103	14.....	370	20.....	149	26.....	178
3.....	32	9.....	2,180	15.....	415	21.....	180	27.....	128
4.....	305	10.....	3,540	16.....	289	22.....	157	28.....	108
5.....	671	11.....	770	17.....	229	23.....	112	29.....	97
6.....	172	12.....	448	18.....	155	24.....	97	30.....	90
								31.....	85
Monthly mean discharge, in cubic feet per second.....									380
Runoff, in inches.....									4.92

(17) 3-1575. Hocking River at Enterprise, Ohio

Location.--Lat 39°33'54", long 82°28'30", on right bank at upstream side of highway bridge at Enterprise, Hocking County, 4 miles downstream from Buck Run.

Drainage area.--459 sq mi.

Gage-height record.--Digital recorder tape punched at 30-minute intervals except 0800 hours to 2400 hours Mar. 9 when float was hung up on frost floor. Water-stage recorder graph is available 0800 hours to 1130 hours Mar. 9, and estimates for remainder of missing record are based on record before and after period. Datum of gage is 723.58 ft above mean sea level, datum of 1929, supplementary adjustment of 1944.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 17,000 cfs and by indirect measurements at 25,200 cfs and 26,000 cfs.

Maxima.--March 1964: Discharge, 26,000 cfs Mar. 10, 1230 hours (gage height, 21.31 ft).
1930 to February 1964: Discharge, 25,200 cfs Apr. 20, 1940 (gage height, 19.94 ft).
Maximum stage known, 22.0 ft in March 1907, from floodmark (discharge, 36,000 cfs), from reports of Corps of Engineers.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	102	7.....	1,240	13.....	2,350	19.....	783	25.....	615
2.....	156	8.....	762	14.....	1,910	20.....	744	26.....	835
3.....	239	9.....	4,440	15.....	1,990	21.....	853	27.....	797
4.....	943	10.....	20,600	16.....	1,610	22.....	937	28.....	660
5.....	3,260	11.....	14,300	17.....	1,180	23.....	755	29.....	611
6.....	2,860	12.....	5,520	18.....	912	24.....	667	30.....	566
								31.....	538
Monthly mean discharge, in cubic feet per second.....									2,379
Runoff, in inches.....									5.97

Note.--Daily mean discharge computed on basis of 30-minute intervals.

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Mar. 1	2400	1.39	115	Mar. 8	1200	3.25	678	Mar. 15	0400	6.69	2,050
					2400	3.98	933		0800	6.75	2,080
2	1200	1.53	146						1400	6.57	2,000
	2400	1.87	230	9	0200	4.18	1,010		2400	6.21	1,830
					0600	5.86	1,680				
3	0600	1.92	243		1200	11.07	4,560	16	1200	5.70	1,620
	1400	1.88	233		1800	13.35	6,550		2400	5.07	1,370
	2400	1.91	241		2400	15.45	9,160				
								17	2400	4.23	1,030
4	0600	1.88	233	10	0400	17.62	12,900				
	1000	2.00	265		0800	20.12	20,100	18	2400	3.68	828
	1400	2.70	485		1230	21.31	26,000				
	1800	4.93	1,310		1600	21.06	24,800	19	1800	3.49	762
	2400	9.41	3,420		2000	20.79	23,200		2000	3.54	779
					2400	20.56	22,000		2400	3.51	768
5	0200	9.92	3,740								
	0600	10.16	3,910	11	0600	19.71	18,500	20	2400	3.38	723
	1000	9.77	3,640		1200	18.02	13,700				
	1400	8.67	3,000		1800	16.27	10,400	21	0600	3.45	748
	2000	7.87	2,600		2400	14.82	8,270		1200	3.85	888
	2400	8.25	2,800	12	1200	12.43	5,680		2400	4.11	984
6	0400	8.72	3,030		2400	8.92	3,130	22	0600	4.15	1,000
	0900	9.06	3,210	13	1200	7.15	2,260		2400	3.71	838
	1400	8.82	3,080		2400	6.50	1,960				
	2000	7.58	2,460					23	2400	3.31	698
	2400	6.59	2,010	14	0400	6.26	1,860				
					0800	6.10	1,780	24	2400	3.14	639
7	0600	5.41	1,500		1200	6.24	1,850				
	1200	4.59	1,180		1800	6.58	2,000	25	2400	3.06	611
	2400	3.64	814		2400	6.61	2,010				

(18) 3-1585. Burr Oak Reservoir at Burr Oak, Ohio

Location.--Lat 39°32'35", long 82°03'30", at Tom Jenkins dam on East Branch Sunday Creek, 0.2 mile upstream from mouth, 0.4 mile southeast of Burr Oak, Athens County, and 3 miles northeast of Glouster.

Drainage area.--33.1 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is at mean sea level (levels by Corps of Engineers).

Maxima.--March 1964: Contents, 16,370 acre-ft Mar. 13, 2100 hours (elevation, 729.98 ft).
1952 to February 1964: Contents, 15,560 acre-ft Mar. 8, 1963 (elevation, 729.05 ft).

Remarks.--Reservoir is formed by earth dam with emergency spillway; storage began Feb. 2, 1952. Capacity at spillway level (elevation, 740 ft), 26,900 acre-ft, of which 9,300 acre-ft is in conservation pool. Dead storage, 35 acre-ft. Reservoir is used for flood control, with conservation pool operated for increased low flow for water supply and for recreation and conservation of fish and wildlife. Outflow is controlled by operation of gates in conduit through dam.

Cooperation.--Gage-height record and capacity curve furnished by Corps of Engineers.

Elevation and contents, February and March 1964

Date	Hour	Elevation (feet)	Contents (acre-feet)	Date	Hour	Elevation (feet)	Contents (acre-feet)
Feb. 29.....	2400	721.12	9,340	Mar. 13.....	2100	729.98	16,400
Mar. 7.....	1000	725.27	12,380	Mar. 31.....	2400	721.20	9,400
Mar. 9.....	0500	722.49	10,290				

(19) 3-1585.1. Sunday Creek at Burr Oak, Ohio

(Unpublished gaging station)

Location.--Lat 39°32'15", long 82°04'00", 400 ft upstream from New York Central railroad bridge, 0.4 mile downstream from East Branch Sunday Creek, and 0.7 mile south of Burr Oak, Athens County.

Drainage area.--57.5 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 679.07 ft above mean sea level, datum of 1929. Gage heights have been computed as elevations above mean sea level.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 900 cfs and by indirect measurement at 3,690 cfs.

Maxima.--March 1964: Discharge, 2,710 cfs Mar. 10, 0730 hours (elevation, 691.88 ft).
1952 to February 1964: Discharge, 3,690 cfs Mar. 5, 1963 (elevation, 692.72 ft).

Remarks.--Affected by storage in Burr Oak Reservoir (see station 3-1585).

(20) 3-1590. Sunday Creek at Glouster, Ohio

Location.--Lat 39°30'00", long 82°05'05", on left bank 150 ft downstream from West Branch Sunday Creek and 200 ft upstream from bridge on State Highway 78 at Glouster, Athens County.

Drainage area.--104 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 665.23 ft above mean sea level, adjustment of 1912.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 3,600 cfs and extended on basis of flow-over-road and velocity-area study of March 1963 peak flow.

Maxima.--March 1964: Discharge, 6,320 cfs Mar. 10, 0600 hours (gage height, 17.53 ft).
1951 to February 1964: Discharge, 7,020 cfs Mar. 5, 1963 (gage height, 17.81 ft).
Maximum stage known, 22.0 ft in March 1907. Flood in March 1913 reached a stage of 18.9 ft and flood in April 1940 a stage of 18.3 ft, from information by the Corps of Engineers.

Remarks.--Flow regulated by Burr Oak Reservoir (see station 3-1585).

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	29	7.....	436	13.....	210	19.....	755	25.....	69
2.....	65	8.....	968	14.....	806	20.....	220	26.....	67
3.....	111	9.....	2,160	15.....	1,140	21.....	110	27.....	57
4.....	607	10.....	4,880	16.....	1,070	22.....	89	28.....	52
5.....	2,010	11.....	823	17.....	909	23.....	74	29.....	52
6.....	511	12.....	249	18.....	931	24.....	68	30.....	51
								31.....	49
Monthly mean discharge, in cubic feet per second.....									633

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 1	2400	2.76	40	Mar. 8	0500	10.29	978	Mar. 14	0400	8.61	688
					0900	10.26	972		0800	9.41	816
2	1200	3.13	66		1200	10.42	1,000		1200	9.83	891
	2400	3.43	87		1800	10.08	936		1500	9.74	875
					2400	10.30	980		1800	9.95	913
3	0600	3.73	110						2400	10.21	962
	1200	3.79	115	9	0400	10.42	1,000				
	2400	3.86	121		0800	12.31	1,390	15	1200	11.48	1,220
					1200	13.72	1,800		1800	11.57	1,230
4	0700	3.84	119		1600	15.58	2,790		2400	11.35	1,190
	0900	4.06	137		2400	16.82	4,840				
	1300	5.88	326					16	1200	10.68	1,060
	1600	9.23	787	10	0300	17.39	5,980		2400	10.21	962
	1900	12.00	1,320		0600	17.53	6,320				
	2400	13.63	1,770		1200	17.34	5,880	17	2200	9.74	875
					1800	16.26	3,720		2400	9.88	900
5	0600	14.69	2,200		2400	14.14	1,940				
	1100	14.98	2,350					18	0300	10.07	935
	1800	14.12	1,930	11	0300	12.92	1,560		0800	10.12	944
	2400	12.21	1,370		0600	11.59	1,240		2400	9.92	908
					1200	7.94	592				
6	0400	10.00	922		1600	6.58	410	19	1400	9.73	873
	0800	7.27	498		2000	6.03	344		1800	8.21	629
	1200	5.95	334		2400	5.68	302		2400	6.29	375
	1800	5.29	256								
	2400	4.91	214	12	1200	5.15	240	20	0300	6.04	345
					2400	5.09	234		0900	5.97	336
7	1100	4.40	165						1500	3.97	130
	1400	6.46	395	13	0600	5.03	227		2400	3.86	121
	1600	8.06	608		1200	4.83	206				
	1800	9.14	772		2200	4.57	180				
	2400	10.14	948		2400	5.65	298				

Note.--Daily means for some days computed from data in addition to figures shown.

(21) 3-1595. Hocking River at Athens, Ohio

Location.--Lat 39°19'45", long 82°05'17", on left bank at upstream side of Mill Street Bridge, three-quarters of a mile east of business section of Athens, Athens County, and 3½ miles downstream from Margaret Creek.

Drainage area.--943 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 614.81 ft above mean sea level, datum of 1929, supplementary adjustment of 1944.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--March 1964: Discharge, 32,900 cfs Mar. 11, 0830 hours (gage height, 24.18 ft).
1915 to February 1964: Discharge, 30,400 cfs Mar. 7, 1945 (gage height, 23.0 ft).
Maximum stage known, 26.7 ft in March 1907, from information by local resident (discharge, 50,000 cfs, computed by Corps of Engineers).

Remarks.--Some regulation by Burr Oak Reservoir (see station 3-1585).

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	178	7.....	4,960	13.....	10,800	19.....	2,340	25.....	1,050
2.....	254	8.....	2,830	14.....	4,940	20.....	1,690	26.....	1,120
3.....	436	9.....	7,260	15.....	5,790	21.....	1,340	27.....	1,250
4.....	2,220	10.....	20,100	16.....	5,130	22.....	1,520	28.....	1,080
5.....	7,740	11.....	31,200	17.....	3,550	23.....	1,350	29.....	958
6.....	8,830	12.....	21,900	18.....	2,740	24.....	1,150	30.....	888
								31.....	836
Monthly mean discharge, in cubic feet per second.....									5,078
Runoff, in inches.....									6.20

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 1	2400	2.88	192	Mar. 9	0600	9.20	3,630	Mar. 16	2400	10.19	4,220
					1200	14.30	7,090				
2	2400	3.26	316		1800	16.82	10,100	17	1200	9.02	3,520
					2400	18.37	13,100		2400	8.18	3,020
3	2400	3.87	556								
				10	1200	21.02	20,400	18	2400	7.26	2,510
4	0600	3.88	561		2400	23.37	28,800				
	1200	4.93	1,160					19	2400	6.55	2,160
	1800	9.50	3,810	11	0500	24.00	31,800				
	2400	13.23	6,180		0830	24.18	32,900	20	1200	5.52	1,620
					1200	24.13	32,600		2400	5.08	1,380
5	0600	14.87	7,650		2400	23.26	28,300				
	1200	15.20	7,990					21	1200	4.96	1,310
	2400	15.40	8,210	12	1200	21.58	22,200		2400	5.19	1,440
					2400	19.34	15,600	22	1200	5.37	1,540
6	0600	16.00	8,910						2400	5.29	1,490
	1300	16.30	9,300	13	1200	17.08	10,500				
	2400	15.04	7,820		2400	13.86	6,690	23	2400	4.79	1,220
7	0600	13.34	6,270	14	0800	10.76	4,570	24	2400	4.55	1,090
	1200	11.29	4,880		1200	10.44	4,370				
	1800	8.86	3,430		2400	11.52	5,020	25	2400	4.48	1,050
	2400	7.60	2,700	15	1200	12.98	6,000				
					1800	13.05	6,040	26	2400	4.79	1,220
8	1200	7.56	2,670		2400	12.94	5,970				
	1800	8.15	3,000					27	0900	4.90	1,280
	2400	8.75	3,360	16	1200	11.78	5,180		2400	4.71	1,180

Note.--Daily means for some days computed from data in addition to figures shown.

OHIO RIVER MAIN STEM

(22) 3-1600. Ohio River at Pomeroy, Ohio

Location.--Lat 38°50'25", long 82°08'30", on left bank at Point Pleasant, Mason County, W. Va., 1,200 ft upstream from Kanawha River and at mile 265.4.

Drainage area.--40,500 sq mi, approximately.

Gage-height record.--Water-stage recorder graphs except Mar. 1-6. Auxiliary water-stage recorder graph for gage 13.8 miles upstream on downstream side of pier of bridge on U.S. Highway 33 to Pomeroy. Datum of gage is 514.10 ft above mean sea level, Sandy Hook datum. Datum of auxiliary gage is 517.50 ft above mean sea level, Sandy Hook datum.

Discharge record.--Stage-fall-discharge relation defined by current-meter measurements below 305,000 cfs. Discharge computed by using fall as a factor. Discharge for period of no gage-height record estimated on basis of records for other Ohio River stations.

Maxima.--March 1964: Discharge, 406,000 cfs Mar. 13, 0200-1000 hours; gage height, 48.87 ft Mar. 13, 0700 hours.
1936-37, 1940 to February 1964: Discharge, 554,000 cfs Jan. 27, 1937 (gage height, 67.7 ft, pass sill gage, lock 24).
Maximum discharge known, 638,000 cfs Mar. 30, 1913 (gage height, 70.1 ft, pass sill gage, lock 24).

Remarks.--Flow partly regulated by locks, dams, and reservoirs upstream.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	23,000	7.....	221,000	13.....	403,000	19.....	232,000	25.....	96,200
2.....	26,000	8.....	259,000	14.....	370,000	20.....	204,000	26.....	93,900
3.....	66,000	9.....	260,000	15.....	324,000	21.....	169,000	27.....	89,800
4.....	88,000	10.....	288,000	16.....	288,000	22.....	137,000	28.....	92,400
5.....	119,000	11.....	347,000	17.....	268,000	23.....	119,000	29.....	93,300
6.....	171,000	12.....	394,000	18.....	252,000	24.....	106,000	30.....	93,200
								31.....	87,800
Monthly mean discharge, in cubic feet per second.....									186,500

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 6	2400	35.43	193,000	Mar. 11	1200	46.73	348,000	Mar. 16	1200	43.93	286,000
					1800	47.20	360,000		2400	43.50	277,000
7	0600	35.92	208,000		2400	47.52	376,000				
	1200	36.51	221,000					17	1200	42.67	269,000
	1800	37.18	235,000	12	0600	47.93	389,000		2400	41.37	258,000
	2400	37.79	246,000		1200	48.24	397,000				
					1800	48.53	401,000	18	1200	39.47	254,000
8	0600	38.24	256,000		2400	48.71	405,000		2400	37.29	244,000
	1200	38.58	262,000								
	1800	39.07	264,000	13	0200	48.78	406,000	19	1200	35.27	232,000
	2400	39.57	264,000		0700	48.87	406,000		2400	33.40	218,000
					1000	48.85	406,000				
9	0600	39.86	262,000		1200	48.85	405,000	20	1200	31.60	204,000
	1200	40.37	258,000		1800	48.73	402,000		2400	29.77	188,000
	1800	40.85	256,000		2400	48.47	391,000				
	2400	41.41	260,000					21	1200	28.29	169,000
				14	0600	48.11	381,000		2400	27.60	150,000
10	0600	42.25	272,000		1200	47.65	370,000				
	1200	43.36	290,000		1800	47.00	358,000	22	1200	27.07	136,000
	1800	44.32	303,000		2400	46.24	348,000		2400	27.12	127,000
	2400	45.24	317,000								
				15	1200	45.01	322,000				
11	0600	45.98	335,000		2400	44.21	302,000				

KANAWHA RIVER BASIN

(23) 3-1980. Kanawha River at Charleston, W. Va.

Location.--Lat 38°22'10", long 81°42'05", on left bank at old lock 6, 1.0 mile upstream from Davis Creek, 1½ miles downstream from Twomile Creek, 2.0 miles downstream from Patrick Street Bridge at Charleston, Kanawha County, and 3.5 miles downstream from Elk River.

Drainage area.--10,419 sq mi.

Gage-height record.--Water-stage recorder graphs. Auxiliary water-stage recorder graph for gage 2.3 miles upstream. Datum of gage is 548.00 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Discharge record.--Stage-fall-discharge relation defined by current-meter measurements. Discharge computed by using fall as a factor.

Maxima.--March 1964: Discharge, 119,000 cfs Mar. 6, 0100 hours: gage height, 30.23 ft Mar. 6, 0400-0500 hours.
1939 to February 1964: Discharge, 216,000 cfs Aug. 15, 1940; gage height, 39.72 ft Mar. 7, 1955.
Maximum stage known, about 54.3 ft Sept. 29, 1861.

Remarks.--Some regulation since 1939 by Claytor Reservoir, since 1949 by Bluestone Reservoir and since 1960 by Sutton Reservoir (combined usable capacity, 982,000 acre-ft).

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	12,200	7.....	80,500	13.....	21,500	19.....	24,900	25.....	16,000
2.....	14,400	8.....	71,800	14.....	16,400	20.....	19,400	26.....	15,800
3.....	37,400	9.....	91,800	15.....	31,500	21.....	18,000	27.....	15,400
4.....	72,400	10.....	93,400	16.....	73,500	22.....	17,800	28.....	15,000
5.....	111,000	11.....	61,600	17.....	68,500	23.....	15,000	29.....	14,100
6.....	106,000	12.....	35,400	18.....	39,900	24.....	14,900	30.....	13,300
								31.....	12,700
Monthly mean discharge, in cubic feet per second.....									40,390

OHIO RIVER MAIN STEM

(24) 3-2015. Ohio River at Point Pleasant, W. Va.

Location.--Lat 38°50'25", long 82°08'30", on left bank at Point Pleasant, Mason County, 1,200 ft upstream from Kanawha River and at mile 265.4. Records include flow of Kanawha River.

Drainage area.--52,760 sq mi, approximately (includes that of Kanawha River).

Gage-height record.--Water-stage recorder graphs except Mar. 4-6. Auxiliary water-stage recorder graph for gage 0.7 mile upstream from Gallipolis lock and dam and 13.1 miles downstream from the base gage. Datum of gage is 514.10 ft above mean sea level, Sandy Hook datum. Datum of auxiliary gage is 505.22 ft above mean sea level, Sandy Hook datum.

Discharge record.--Stage-fall-discharge relation defined by current-meter measurements below 330,000 cfs. Discharge for Mar. 1, 2, 4-6 estimated on basis of records for other Ohio River stations (stage-fall-discharge relation indefinite Mar. 1, 2). Discharge computed by using fall as a factor.

Maxima.--March 1964: Discharge, 464,000 cfs Mar. 13, 0500-1300 hours; gage height, 48.87 ft Mar. 13, 0700 hours.
1940 to February 1964: Discharge, 522,000 cfs Jan. 1, 1943; gage height, 55.00 ft Apr. 16, 1948.
Maximum stage known since at least 1896, 62.8 ft Mar. 30, 1913. Flood of Jan. 27, 1937, reached a stage of 62.7 ft.

Remarks.--Flow partly regulated by locks, dams, and reservoirs upstream.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	27,000	7.....	324,000	13.....	459,000	19.....	274,000	25.....	111,000
2.....	35,000	8.....	350,000	14.....	413,000	20.....	241,000	26.....	109,000
3.....	100,000	9.....	367,000	15.....	381,000	21.....	197,000	27.....	105,000
4.....	160,000	10.....	406,000	16.....	383,000	22.....	156,000	28.....	107,000
5.....	230,000	11.....	440,000	17.....	368,000	23.....	135,000	29.....	106,000
6.....	290,000	12.....	452,000	18.....	322,000	24.....	118,000	30.....	105,000
								31.....	101,000
Monthly mean discharge, in cubic feet per second.....									237,800

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964, of Ohio River at Point Pleasant, W. Va.

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Feb. 29	2400	24.39	-	Mar. 9	1200	40.37	368,000	Mar. 14	1800	47.00	398,000
					1800	40.85	373,000		2400	46.24	384,000
Mar. 1	1200	24.46	-		2400	41.41	378,000				
	2400	24.55	-					15	1200	45.01	380,000
				10	0600	42.25	392,000		2400	44.21	380,000
2	1200	24.71	-		1200	43.36	411,000				
	1800	24.73	-		1800	44.32	417,000	16	1200	43.93	385,000
	2400	24.94	-		2400	45.24	427,000		2400	43.50	381,000
3	0600	25.11	79,900	11	0600	45.98	432,000	17	1200	42.67	371,000
	1100	25.46	97,100		1200	46.73	446,000		2400	41.37	350,000
	1700	25.84	117,000		1800	47.20	447,000				
	2400	26.34	126,000		2400	47.52	446,000	18	1200	39.47	323,000
									2400	37.29	294,000
6	2400	35.43	309,000	12	0600	47.93	452,000				
					1200	48.24	452,000	19	1200	35.27	272,000
7	0600	35.92	315,000		1800	48.53	454,000		2400	33.40	258,000
	1200	36.51	323,000		2400	48.71	457,000				
	1800	37.18	332,000					20	1200	31.60	242,000
	2400	37.79	341,000	13	0500	48.85	464,000		2400	29.77	223,000
					0700	48.87	464,000				
8	0600	38.24	346,000		1300	48.85	464,000	21	1200	28.29	195,000
	1200	38.58	348,000		1800	48.73	457,000		2400	27.60	176,000
	1800	39.07	356,000		2400	48.47	442,000				
	2400	39.57	361,000					22	1200	27.07	152,000
				14	0600	48.11	426,000		2400	27.12	146,000
9	0600	39.86	359,000		1200	47.65	415,000				

RACCOON CREEK BASIN

(25) 3-2020. Raccoon Creek at Adamsville, Ohio

Location.--Lat 38°52'31", long 82°21'18", on right bank at downstream side of highway bridge, 480 ft upstream from U.S. Highway 35, at Adamsville, Gallia County, and 1.3 miles downstream from Indian Creek.

Drainage area.--585 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 570.85 ft above mean sea level, adjustment of 1912.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 11,000 cfs and extended on basis of velocity-area studies.

Maxima.--March 1964: Discharge, 11,800 cfs Mar. 12, 1300 hours (gage height, 23.49 ft).
1915-35, 1938 to February 1964: Discharge, 15,500 cfs Apr. 15, 1948 (gage height, 24.92 ft).
Maximum stage known, 25.2 ft in January 1937, from floodmark (discharge 16,000 cfs).

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	90	7.....	4,010	13.....	10,600	19.....	1,290	25.....	636
2.....	113	8.....	4,170	14.....	7,770	20.....	840	26.....	627
3.....	358	9.....	4,000	15.....	5,710	21.....	755	27.....	935
4.....	1,180	10.....	5,910	16.....	4,060	22.....	815	28.....	788
5.....	3,040	11.....	9,570	17.....	2,900	23.....	815	29.....	640
6.....	3,510	12.....	11,600	18.....	2,070	24.....	742	30.....	541
								31.....	480
Monthly mean discharge, in cubic feet per second.....									2,921
Runoff, in inches.....									5.75

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 1	2400	2.62	99	Mar. 4	1200	6.72	961	Mar. 7	2400	15.92	4,220
					1800	10.25	2,040				
2	1800	2.73	114		2400	11.10	2,330	8	0400	15.94	4,230
	2400	3.02	159						2400	15.67	4,080
				5	0600	13.13	3,040				
3	0600	4.00	340		1200	13.43	3,150	9	1200	15.32	3,900
	1200	4.40	421		2400	13.76	3,280		1800	15.42	3,950
	2400	4.17	374						2100	15.67	4,080
				6	1200	14.33	3,500		2400	16.34	4,490
4	0600	4.16	372		2400	15.00	3,770				
	0800	4.32	404					10	0600	17.53	5,390

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964, of Raccoon Creek at Adamsville, Ohio--Continued

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 10	1200	18.12	5,920	Mar. 13	2400	21.22	9,250	Mar. 19	1200	7.81	1,260
	1800	18.73	6,500						2400	6.78	977
	2400	19.62	7,420	14	1200	19.89	7,720				
					2400	18.78	6,550	20	2400	5.84	740
11	0600	20.64	8,560								
	1200	21.52	9,610	15	1200	17.92	5,740	21	0500	5.77	723
	1800	22.34	10,600		2400	16.95	4,930		2400	6.05	792
	2400	22.98	11,300								
				16	1200	15.71	4,100	22	2400	6.20	830
12	0800	23.41	11,700		2400	14.10	3,410				
	1300	23.49	11,800					23	2400	6.04	790
	1800	23.43	11,700	17	1200	12.78	2,910				
	2400	23.22	11,500		2400	11.43	2,440	24	2400	5.63	690
13	1200	22.44	10,700	18	2400	9.22	1,690	25	2400	5.18	590

Note.--Daily means for some days computed from data in addition to figures shown.

GUYANDOTTE RIVER BASIN

(26) 3-2040. Guyandotte River at Branchland, W. Va.

Location.--Lat 38°13'15", long 82°12'10", on right bank at downstream side of highway bridge at Branchland, Lincoln County, 20 ft downstream from Fourmile Creek.

Drainage area.--1,226 sq mi.

Gage-height record.--Water-stage recorder graph except 1900 hours Mar. 8 to 1300 hours Mar. 13, for which graph was constructed from twice-daily U.S. Weather Bureau readings. Auxiliary gage graph was constructed from once-daily U.S. Corps of Engineers readings. Datum of gage is 547.91 ft above mean sea level.

Discharge record.--Stage-fall-discharge relation defined by current-meter measurements below 32,000 cfs. Fall used as a factor Mar. 9-11.

Maxima.--March 1964: Discharge, 15,400 cfs Mar. 10, 1000 hours; gage height, 25.33 ft Mar. 10, 0800 hours.
1915-17, 1928 to February 1964: Discharge, 40,400 cfs Jan. 30, 1957: gage height, 42.57 ft Mar. 1, 1955.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	1,500	7.....	5,000	13.....	4,220	19.....	3,430	25.....	2,590
2.....	2,080	8.....	4,670	14.....	3,270	20.....	2,690	26.....	2,260
3.....	4,860	9.....	12,200	15.....	4,370	21.....	2,660	27.....	2,100
4.....	7,130	10.....	14,000	16.....	7,800	22.....	3,020	28.....	1,850
5.....	7,780	11.....	8,070	17.....	6,730	23.....	3,260	29.....	1,670
6.....	7,150	12.....	5,440	18.....	4,630	24.....	3,010	30.....	1,610
								31.....	1,480
Monthly mean discharge, in cubic feet per second.....									4,598
Runoff, in inches.....									4.32

Note.--Daily means for some days computed from data in addition to figures shown.

782-001 O-65-5

OHIO RIVER MAIN STEM

(27) 3-2060. Ohio River at Huntington, W. Va.

Location.--Lat 38°24'48", long 82°30'02", on right bank at old lock 28 at Sybene, Lawrence County, Ohio, 0.1 mile upstream from Fourpole Creek, 3.0 miles downstream from Symmes Creek, and at mile 311.6.

Drainage area.--55,900 sq mi, approximately.

Gage-height record.--Water-stage recorder graphs except for doubtful or no gage-height record at auxiliary gage Mar. 6 to 0700 hours Mar. 10, Mar. 16, 17, 21-23. Water-stage recorder graph for auxiliary gage 4.7 miles upstream and 1.5 miles downstream from Guyandotte River. Datum of gage is 490.26 ft above mean sea level, Sandy Hook datum.

Discharge record.--Stage-fall-discharge relation defined by current-meter measurements. Discharge for periods of doubtful or no gage-height record estimated from partly sketched graph and records for other Ohio River stations. Discharge computed by using fall as a factor. The gage height used to compute discharge is the mean of the gage heights at base and auxiliary gages.

Maxima.--March 1964: Discharge, 455,000 cfs Mar. 13, 0800-1700 hours; gage height, 54.79 ft Mar. 13, 1100-1400 hours.
1934 to February 1964: Discharge, 654,000 cfs Jan. 28, 1937; gage height, 69.45 ft Jan. 27, 1937.

Remarks.--Flow partly regulated by locks, dams, and reservoirs upstream.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	28,000	7.....	300,000	13.....	453,000	19.....	297,000	25.....	125,000
2.....	36,700	8.....	340,000	14.....	438,000	20.....	259,000	26.....	122,000
3.....	95,100	9.....	360,000	15.....	404,000	21.....	215,000	27.....	109,000
4.....	160,000	10.....	379,000	16.....	400,000	22.....	174,000	28.....	112,000
5.....	229,000	11.....	418,000	17.....	391,000	23.....	155,000	29.....	113,000
6.....	270,000	12.....	441,000	18.....	346,000	24.....	136,000	30.....	111,000
								31.....	106,000
Monthly mean discharge, in cubic feet per second.....									242,700

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Feb. 29	2400	25.33	26,100	Mar. 5	0600	33.36	212,000	Mar. 13	0600	54.74	450,000
					1200	34.26	234,000		1200	54.79	455,000
Mar. 1	0600	25.40	24,200		1800	35.34	245,000		1800	54.74	454,000
	1200	25.51	26,400		2400	36.43	252,000		2400	54.62	449,000
	1800	25.57	34,000								
	2400	25.59	28,700	9	2400	46.55	288,000	14	0600	54.38	445,000
									1200	54.10	441,000
2	0600	25.59	26,600	10	0600	47.78	366,000		1800	53.72	432,000
	1200	25.52	33,900		1200	48.94	382,000		2400	53.28	418,000
	1800	25.71	45,200		1800	50.11	390,000				
	2400	25.85	53,600		2400	51.13	404,000	15	1200	52.31	401,000
									2400	51.37	393,000
3	0600	26.60	75,700	11	0600	51.98	408,000				
	1200	27.23	96,400		1200	52.61	420,000	18	1200	47.00	351,000
	1800	28.12	116,000		1800	53.19	428,000		2400	45.11	317,000
	2400	28.86	131,000		2400	53.67	431,000				
								19	1200	42.88	296,000
4	0600	29.55	143,000	12	0600	54.02	436,000		2400	40.74	276,000
	1200	30.22	155,000		1200	54.31	440,000				
	1800	31.33	179,000		1800	54.49	447,000	20	1200	38.58	259,000
	2400	32.35	198,000		2400	54.64	449,000		2400	36.52	240,000

BIG SANDY RIVER BASIN

(28) 3-2150. Big Sandy River at Louisa, Ky.

Location.--Lat 38°10'16", long 82°38'05", on left bank 1.6 miles upstream from Blaine Creek, 4.3 miles northwest of Louisa, Lawrence County, and at mile 21.2.

Drainage area.--3,892 sq mi.

Gage-height record.--Water-stage recorder graphs. Auxiliary gage at site 5.0 miles upstream. Datum of gage is 512.81 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation or stage-fall-discharge relation defined by current-meter measurements. Fall used as a factor Mar. 3-11, 17-26. Stage-fall-discharge relation indefinite Mar. 12-16; discharge estimated on basis of records for Tug Fork near Kermit, W. Va. and Levisa Fork at Paintsville, Ky.

Maxima.--March 1964: Discharge, 33,700 cfs Mar. 10, 1830 hours; gage height, 33.31 ft Mar. 11, 0100-0200 hours.
1938 to February 1964: Discharge, 89,400 cfs Mar. 2, 1955; gage height, 46.37 ft May 8, 1958.
Flood of Apr. 3, 1908, reached a stage of 48.4 ft, at site 5 miles upstream at datum 3.65 ft higher.

Cooperation.--Gage-height record furnished by Corps of Engineers.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	2,960	7.....	15,200	13.....	11,000	19.....	10,300	25.....	6,180
2.....	3,360	8.....	12,600	14.....	8,000	20.....	7,100	26.....	5,200
3.....	6,190	9.....	24,200	15.....	6,600	21.....	6,740	27.....	5,010
4.....	9,660	10.....	33,300	16.....	16,000	22.....	8,170	28.....	4,700
5.....	14,300	11.....	27,000	17.....	20,000	23.....	8,440	29.....	4,190
6.....	15,500	12.....	16,000	18.....	16,200	24.....	7,480	30.....	3,830
								31.....	3,560
Monthly mean discharge, in cubic feet per second.....									10,930

OHIO RIVER MAIN STEM

(29) 3-2160. Ohio River at Ashland, Ky.

Location.--Lat 38°28'52", long 82°38'12", on left bank at Ashland, Boyd County, 1,700 ft upstream from Ashland-Coal Grove highway bridge, 1.5 miles upstream from Hood Creek, 5.4 miles downstream from Big Sandy River and at mile 322.5.

Drainage area.--60,750 sq mi, approximately.

Gage-height record.--Water-stage recorder graphs. Datum of gage is 481.50 ft above mean sea level, Ohio River datum (levels by Corps of Engineers); 481.03 ft above mean sea level, datum of 1929. Auxiliary water-stage recorder graph 18.5 miles downstream.

Discharge record.--Stage-fall-discharge relation defined by current-meter measurements. Fall used as a factor in computing discharge. Stage-fall-discharge relation indefinite Mar. 1, 2; discharge estimated on basis of other Ohio River main-stem stations.

Maxima.--March 1964: Discharge, 472,000 cfs Mar. 13, 1200 hours (gage height, 59.59 ft).
1884, 1907, 1913, 1917 to February 1964: Discharge, 690,000 cfs Jan. 27, 1937 (gage height, 75.2 ft, at site 1.6 miles upstream).
Flood of Jan. 27, 1937, is maximum known.

Remarks.--Partly regulated by locks, dams, and reservoirs.

Cooperation.--Gage-height record furnished by Corps of Engineers.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	32,000	7.....	334,000	13.....	470,000	19.....	346,000	25.....	124,000
2.....	40,000	8.....	367,000	14.....	458,000	20.....	302,000	26.....	120,000
3.....	94,900	9.....	403,000	15.....	439,000	21.....	244,000	27.....	111,000
4.....	147,000	10.....	424,000	16.....	432,000	22.....	184,000	28.....	114,000
5.....	225,000	11.....	450,000	17.....	429,000	23.....	158,000	29.....	114,000
6.....	296,000	12.....	463,000	18.....	398,000	24.....	138,000	30.....	114,000
								31.....	110,000
Monthly mean discharge, in cubic feet per second.....									260,700

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964, of Ohio River at Ashland, Ky.

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 2	2400	34.12	52,900	Mar. 9	2400	50.90	414,000	Mar. 17	2400	53.27	422,000
3	0600	34.49	83,700	10	0600	52.27	423,000	18	1200	51.87	400,000
	1200	34.59	101,000		1200	53.51	420,000		2400	50.03	370,000
	2400	35.22	118,000		1800	54.79	427,000				
4	0600	35.55	134,000		2400	55.86	439,000	19	1200	47.87	345,000
	1200	35.88	143,000	11	1200	57.39	452,000		2400	45.70	325,000
	1800	36.37	160,000		1800	58.01	455,000	20	1200	43.48	302,000
	2400	37.09	187,000		2400	58.51	454,000		2400	41.32	278,000
5	0600	37.84	206,000	12	0600	58.84	458,000	21	1200	38.93	245,000
	1200	38.24	226,000		1200	59.16	466,000		2400	37.55	209,000
	1800	39.39	242,000		1800	59.33	467,000				
	2400	40.51	262,000		2400	59.46	469,000	22	1200	36.86	182,000
									2400	36.25	162,000
6	0600	41.65	285,000	13	0600	59.54	470,000				
	1200	42.45	298,000		1200	59.59	472,000	23	1200	36.47	161,000
	2400	43.80	319,000		1800	59.55	471,000		2400	36.06	146,000
					2400	59.40	466,000				
7	0600	44.26	325,000					24	1200	35.45	136,000
	1800	45.05	343,000	14	1200	58.91	458,000		2400	35.28	132,000
	2400	45.45	351,000		2400	58.11	449,000				
								25	1200	34.82	121,000
8	0600	45.83	357,000	15	1200	57.21	437,000		2400	34.90	121,000
	1800	46.84	376,000		2400	56.29	432,000				
	2400	47.54	386,000					26	1200	34.90	121,000
				16	1200	55.54	432,000		2400	34.79	116,000
9	1200	48.97	405,000		2400	54.93	434,000				
	1800	49.87	413,000					27	1200	34.84	110,000
				17	1200	54.19	430,000		2400	35.06	109,000

LITTLE SANDY RIVER BASIN

(30) 3-2165. Little Sandy River near Grayson, Ky.

Location.--Lat 38°20'25", long 82°55'10", on downstream side of center pier of highway bridge, 0.3 mile upstream from Lower Stinson Creek, 1.3 miles downstream from U.S. Highway 60, and 1.7 miles northeast of Grayson, Carter County.

Drainage area.--402 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 557.95 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 5, 1800 hours	7,260	18.45
Mar. 10, 1400 hours	7,020	18.10
1884 to February 1964:		
Sept. 22, 1950	24,500	-
Sept. 22, 1950	-	27.53

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	157	7	1,320	13	994	19	548	25	552
2	292	8	1,990	14	781	20	488	26	495
3	1,600	9	5,820	15	1,430	21	667	27	410
4	3,220	10	6,800	16	1,620	22	919	28	328
5	6,780	11	5,060	17	1,050	23	799	29	290
6	5,110	12	1,650	18	748	24	667	30	255
								31	225
Monthly mean discharge, in cubic feet per second									1,712
Runoff, in inches									4.91

TYGARTS CREEK BASIN

(31) 3-2170. Tygarts Creek near Greenup, Ky.

Location.--Lat 38°33'51", long 82°57'08", on downstream side of center pier of bridge on State Highway 7, 100 ft downstream from Lick Run, 0.4 mile upstream from White Oak Creek, and 6½ miles west of Greenup, Greenup County.

Drainage area.--242 sq mi.

Gage-height record.--Water-stage recorder graph except Mar. 1-17, for which graph was reconstructed on basis of numerous wire-weight-gage readings. Datum of gage is 547.14 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 5, 1700 hours	7,650	17.6
Mar. 10, 2300 hours	5,400	16.1
1934:		
Maximum stage for year	-	20
1940 to February 1964:		
Feb. 28, 1962	14,800	21.38

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	68	7	685	13	525	19	373	25	365
2	135	8	1,080	14	525	20	318	26	361
3	1,100	9	3,500	15	1,050	21	385	27	308
4	3,450	10	4,620	16	1,020	22	665	28	244
5	6,750	11	3,300	17	525	23	541	29	216
6	2,700	12	895	18	493	24	433	30	192
								31	168
Monthly mean discharge, in cubic feet per second									1,193
Runoff, in inches									5.68

SCIOTO RIVER BASIN

(32) 3-2304. Big Darby Creek at Darbydale, Ohio

(Crest-stage station)

Location.--Lat 39°50'55", long 83°11'20", near left abutment at downstream side of McKinley Bridge at Darbydale, Franklin County.

Drainage area.--449 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 790.00 ft above mean sea level (levels by Corps of Engineers).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--March 1964: Discharge, 16,200 cfs Mar. 10, 0800 hours (gage height, 16.56 ft).

(33) 3-2305. Big Darby Creek at Darbyville, Ohio

Location.--Lat 39°42'05", long 83°06'35", near right bank on downstream side of pier of bridge on State Highway 316, three-eighths of a mile northeast of Darbyville, Pickaway County, and 3 miles downstream from Greenbrier Creek.

Drainage area.--534 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 713.6 ft above mean sea level, adjustment of 1912.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 22,000 cfs and by indirect measurement of 49,000 cfs.

Maxima.--March 1964: Discharge, 19,400 cfs Mar. 11, 0230 hours (gage height, 14.31 ft).
1921-35, 1938 to February 1964: Discharge, 49,000 cfs Jan. 22, 1959 (gage height, 17.94 ft).

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	34	7.....	2,040	13.....	3,140	19.....	780	25.....	571
2.....	35	8.....	1,040	14.....	2,570	20.....	680	26.....	600
3.....	38	9.....	5,030	15.....	2,720	21.....	796	27.....	508
4.....	363	10.....	13,100	16.....	2,060	22.....	948	28.....	454
5.....	3,740	11.....	15,000	17.....	1,360	23.....	763	29.....	399
6.....	5,440	12.....	5,800	18.....	984	24.....	630	30.....	370
								31.....	338
Monthly mean discharge, in cubic feet per second.....									2,333
Runoff, in inches.....									5.04

(34) 3-2309. Deer Creek at Pancoastburg, Ohio

(Crest-stage station)

Location.--Lat 39°37'14", long 83°12'47", on left bank at downstream side of bridge on Crownover Mill Road, 1.2 miles downstream from Clark Run, 2.8 miles east of Pancoastburg, Fayette County, and 5.2 miles northwest of Williamsport.

Drainage area.--277 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 760.00 ft above mean sea level (levels by Corps of Engineers).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 4,700 cfs and extended above by logarithmic plotting.

Maxima.--March 1964: Discharge, 19,500 cfs Mar. 10, 0330 hours (gage height, 21.1 ft).

(35) 3-2310. Deer Creek at Williamsport, Ohio

Location.--Lat 39°35'09", long 83°07'22", on left bank at downstream side of bridge on U.S. Highway 22 at west edge of Williamsport, Pickaway County, 2 miles downstream from Dry Run.

Drainage area.--333 sq mi.

Gage-height record.--Water-stage recorder graph from bubble gage. Datum of gage is 718.7 ft above mean sea level, adjustment of 1912.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 25,000 cfs, and by indirect measurements at 37,600 and 39,600 cfs.

Maxima.--March 1964: Discharge, 23,400 cfs Mar. 10, 0600 hours (gage height, 15.82 ft).
1926-35, 1938-56, 1962 to February 1964: Discharge, 37,600 cfs Mar. 5, 1963 (gage height, 17.5 ft, from floodmarks).
Flood of January 1959 reached a stage of 17.6 ft, from floodmarks (discharge, 39,600 cfs).

Mean discharge, in cubic feet per second, March 1964, of Deer Creek at Williamsport, Ohio

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	30	7.....	919	13.....	1,540	19.....	493	25.....	389
2.....	31	8.....	718	14.....	1,310	20.....	444	26.....	567
3.....	34	9.....	6,790	15.....	1,600	21.....	548	27.....	500
4.....	679	10.....	19,600	16.....	1,060	22.....	644	28.....	395
5.....	4,620	11.....	9,690	17.....	772	23.....	532	29.....	337
6.....	3,250	12.....	2,140	18.....	610	24.....	444	30.....	294
								31.....	270
Monthly mean discharge, in cubic feet per second.....									1,976
Runoff, in inches.....									6.84

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Mar. 3	2400	2.41	37	Mar. 7	1200	5.92	893	Mar. 12	0600	8.12	2,340
					2400	5.50	728		1200	7.80	2,060
4	0600	2.47	42	8	1200	5.28	656		2400	7.38	1,730
	1200	2.78	76		2400	5.85	863				
	1600	4.07	318					13	2400	6.77	1,320
	2000	6.85	1,370	9	0300	6.00	928				
	2200	8.88	3,140		0600	9.50	3,920	14	0700	6.56	1,200
	2400	9.48	3,890		1200	11.30	7,050		1900	6.85	1,370
					1800	12.15	9,080		2400	7.15	1,560
5	0500	10.12	4,870		2400	14.00	14,800				
	1000	9.90	4,520					15	1100	7.35	1,700
	1400	9.85	4,440	10	0600	15.82	23,400		1800	7.16	1,570
	2400	10.18	4,970		1200	15.38	21,000		2400	6.88	1,390
					2400	14.42	16,500				
6	0030	10.20	5,000					16	1200	6.23	1,040
	0600	10.00	4,680	11	0600	13.68	13,700		2400	5.85	860
	1200	9.23	3,560		1200	12.45	9,850				
	1800	7.26	1,640		1800	10.40	5,340	17	1200	5.63	772
	2400	6.59	1,210		2400	8.94	3,210		2400	5.42	697

Note.--Daily means for some days computed from data in addition to figures shown.

(36) 3-2320. Paint Creek near Greenfield, Ohio

(Crest-stage station)

Location.--Lat 39°22'45", long 83°22'30", at bridge on State Highway 753 in Fayette County, a quarter of a mile north of county line, 0.6 mile above Stone Run, and 2 miles north of Greenfield, Highland County.

Drainage area.--249 sq mi.

Gage-height record.--Crest stages only. Datum of gage is 845.30 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 6,000 cfs, and by indirect measurement at 15,600 cfs.

Maxima.--March 1964: Discharge, 16,000 cfs Mar. 10 (gage height, 12.3 ft, from floodmarks).
1926-35, 1939-56, 1959, 1962 to February 1964: Discharge, 15,600 cfs Mar. 5, 1963 (gage height, 12.2 ft, from floodmarks).

Remarks.--Crest-stage gage is at discontinued station site 1926-35, 1939-56.

(37) 3-2324.7. Paint Creek at damsite near Bainbridge, Ohio

(Recording crest-stage station)

Location.--Lat 39°15'05", long 83°20'45", 4.5 miles west of Bainbridge, Ross County, and 1.5 miles upstream from Rocky Fork.

Drainage area.--573 sq mi.

Gage-height record.--Crest stages from floodmarks, because of faulty operation of bubble gage. Datum of gage is 742.6 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,900 cfs and extended above on basis of current-meter measurement made Mar. 10, 1964, below the mouth of Rocky Fork, at gage height 20.78 ft, adjusted for storage changes and Rocky Fork flow, and estimated flow for the March 1963 peak.

Maxima.--March 1964: Discharge, 45,000 cfs (estimated) Mar. 10 (gage height, 27.3 ft, from floodmarks).
August 1962 to February 1964: Discharge, 42,300 cfs (estimated) Mar. 5, 1963 (gage height, 26.5 ft, from floodmarks).

(38) 3-2324.9. Rocky Fork Lake near Rainsboro, Ohio

Location.--Lat 39°11'05", long 83°26'20", at dam on Rocky Fork, 2½ miles southwest of Rainsboro, Highland County.

Drainage area.--114 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 851.32 ft above mean sea level.

Maxima.--March 1964: Contents, 50,680 acre-ft Mar. 10, 0630 hours (gage height, 36.13 ft).
1953 to February 1964: Contents, 45,250 acre-ft July 21, 1954 (gage height, 33.96 ft).

Remarks.--Reservoir formed by earth dam with concrete spillway; lake filled for recreational use in 1952. Capacity at spillway level (elevation, 29.2 ft gage datum), 34,100 acre-ft.

Cooperation.--Capacity curve furnished by Ohio Department of Natural Resources, Division of Parks.

Gage height and contents, February and March 1964

Date	Hour	Gage height (feet)	Contents (acre-feet)	Date	Hour	Gage height (feet)	Contents (acre-feet)
Feb. 29...	2400	25.72	26,400	Mar. 10...	0630	36.13	50,680
Mar. 5...	0900	30.49	36,640	Mar. 31...	2400	29.63	34,630
Mar. 9...	0300	29.83	35,090				

(39) 3-2325. Rocky Fork near Barretts Mills, Ohio

Location.--Lat 39°13'05", long 83°23'05", on left bank at downstream side of highway bridge, 1.1 miles north of Barretts Mills, Highland County, 2 miles east of Rainsboro, 2¾ miles upstream from mouth, and 6 miles downstream from Rocky Fork Lake.

Drainage area.--140 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 770.7 ft above mean sea level (levels by Corps of Engineers).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 8,800 cfs and extended above on basis of velocity-area studies.

Maxima.--March 1964: Discharge, 13,400 cfs Mar. 10, 0230 hours (gage height, 15.10 ft).
1939 to February 1964: Discharge, 13,200 cfs Mar. 6, 1945 (gage height, 15.56 ft).

Remarks.--Flow regulated by Rocky Fork Lake (see station 3-2324.9).

Mean discharge, in cubic feet per second, March 1964, of Rocky Fork near Barretts Mills, Ohio

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	65	7.....	409	13.....	780	19.....	162	25.....	143
2.....	67	8.....	318	14.....	700	20.....	139	26.....	241
3.....	70	9.....	4,470	15.....	695	21.....	219	27.....	196
4.....	592	10.....	9,520	16.....	445	22.....	214	28.....	166
5.....	1,030	11.....	3,160	17.....	312	23.....	182	29.....	145
6.....	635	12.....	1,390	18.....	206	24.....	155	30.....	126
								31.....	110
Monthly mean discharge, in cubic feet per second.....									873

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 3	2400	2.82	72	Mar. 9	0300	4.02	357	Mar. 12	1200	6.12	1,370
					0600	5.65	1,120		2400	5.43	1,020
4	0600	2.82	72		0800	8.35	2,830				
	1200	3.83	294		1200	10.40	4,620	13	1200	4.93	765
	1800	5.05	825		1500	11.82	6,230		2400	4.57	586
	2200	7.08	1,950		1900	12.15	6,670				
	2400	6.88	1,830		2400	14.40	11,300	14	0600	4.45	532
									1200	5.00	800
5	0400	5.42	1,010	10	0230	15.10	13,400		1900	4.92	760
	0800	5.58	1,090		0600	14.72	12,300		2400	5.08	840
	2400	5.03	815		1200	13.75	9,680				
					1800	12.36	6,980	15	1200	4.78	690
6	1200	4.68	640		2400	10.98	5,240		2400	4.48	546
	2400	4.39	506								
				11	0600	9.52	3,790	16	2400	4.02	357
7	2400	3.94	329		1200	8.44	2,900				
					1800	7.72	2,370	17	1100	3.87	306
8	0800	3.85	300		2400	7.00	1,900		1400	4.00	350
	2400	3.97	340						2400	3.69	252

Note.--Daily means for some days computed from data in addition to figures shown.

(40) 3-2340. Paint Creek near Bourneville, Ohio

Location.--Lat 39°15'49", long 83°10'01", on downstream side of left pier of highway bridge, 1¼ miles southwest of Bourneville, Ross County, and 1¼ miles upstream from Upper Twin Creek.

Drainage area.--807 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 665.2 ft above mean sea level, adjustment of 1912.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 27,000 cfs and by indirect measurement at 52,700 cfs.

Maxima.--March 1964: Discharge, 56,900 cfs Mar. 10, 0900 hours (gage height, 20.50 ft).
1921 to February 1964: Discharge, 52,700 cfs Mar. 5, 1963 (gage height, 20.08 ft).

Remarks.--Flow slightly regulated by Rocky Fork Lake (see station 3-2324.9).

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	130	7.....	5,480	13.....	5,370	19.....	1,590	25.....	1,230
2.....	132	8.....	3,490	14.....	4,290	20.....	1,390	26.....	1,830
3.....	144	9.....	10,400	15.....	4,410	21.....	1,550	27.....	1,810
4.....	1,450	10.....	44,600	16.....	3,340	22.....	1,710	28.....	1,510
5.....	11,900	11.....	25,300	17.....	2,500	23.....	1,550	29.....	1,280
6.....	7,880	12.....	11,500	18.....	1,970	24.....	1,380	30.....	1,140
								31.....	1,030
Monthly mean discharge, in cubic feet per second.....									5,267
Runoff, in inches.....									7.53

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964, of Paint Creek near Bourneville, Ohio

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 3	2400	2.94	150	Mar. 8	1200	7.16	3,320	Mar. 13	2400	9.53	4,400
					1800	7.08	3,230				
4	0600	2.96	153		2400	7.27	3,450	14	0900	9.13	3,820
	1000	3.10	175						1700	9.75	4,720
	1500	4.25	430	9	0500	7.57	3,810		2400	9.55	4,420
	1800	5.60	1,600		0700	8.35	4,750				
	2100	8.00	4,330		1200	13.25	12,800	15	0700	9.75	4,720
	2400	11.35	8,920		1800	15.50	20,500		2400	9.23	3,960
					2400	17.40	30,400				
5	0600	13.80	14,400					16	2400	8.44	2,920
	0900	14.00	15,000	10	0600	19.80	49,900				
	1200	13.85	14,600		0900	20.50	56,900	17	2400	7.78	2,200
	1500	13.20	12,700		1200	20.28	54,700				
	2000	11.20	8,670		1800	19.00	42,700	18	2400	7.30	1,770
	2400	10.60	7,690		2400	17.80	34,000				
								19	2400	6.90	1,480
6	0300	10.53	7,580	11	1200	16.20	25,000				
	1600	11.00	8,330		2400	14.77	18,200	20	2400	6.73	1,340
	2400	10.40	7,390								
				12	1200	12.92	11,500	21	0800	6.83	1,410
7	1200	8.83	5,330		2400	11.13	7,100		1600	7.21	1,700
	2400	7.80	4,090						2400	7.27	1,750
				13	1200	10.00	5,110				

Note.--Daily means for some days computed from data in addition to figures shown.

(41) 3-2345. Scioto River at Higby, Ohio

Location.--Lat 39°12'44", long 82°51'35", on left bank at downstream side of highway bridge, three-quarters of a mile downstream from Walnut Creek and 1¼ miles north of Higby, Ross County.

Drainage area.--5,131 sq mi.

Gage-height record.--Digital recorder tape punched at hourly intervals. Datum of gage is 567.6 ft above mean sea level, adjustment of 1912.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 120,000 cfs.

Maxima.--March 1964: Discharge, 130,000 cfs Mar. 11, 0500 hours (gage height, 25.01 ft).
1930 to February 1964: Discharge, 177,000 cfs Jan. 23, 1937; gage height, 26.4 ft Jan. 23, 1937, from floodmarks, and Jan. 23, 1959.
Maximum stage known, 31.6 ft Mar. 26, 1913.

Remarks.--Flow slightly regulated by O'Shaughnessy Reservoir (16,940 acre-ft, 987 sq mi), Griggs Reservoir (4,415 acre-ft, 1,052 sq mi, 65 sq mi plus O'Shaughnessy Reservoir) Delaware Reservoir (132,000 acre-ft, 381 sq mi), Hoover Reservoir (60,340 acre-ft, 190 sq mi) and Rocky Fork Lake (34,100 acre-ft, 115 sq mi).

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	569	7.....	24,700	13.....	58,200	19.....	14,300	25.....	8,910
2.....	571	8.....	19,100	14.....	35,700	20.....	11,800	26.....	10,000
3.....	612	9.....	30,700	15.....	29,100	21.....	10,800	27.....	8,350
4.....	2,980	10.....	86,100	16.....	23,900	22.....	11,200	28.....	7,130
5.....	24,700	11.....	122,000	17.....	22,200	23.....	11,400	29.....	6,240
6.....	27,600	12.....	96,800	18.....	18,400	24.....	9,180	30.....	5,450
								31.....	4,860
Monthly mean discharge, in cubic feet per second.....									23,990

Note.--Daily mean discharges computed on basis of 60-minute intervals.

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 2	2400	1.97	596	Mar. 5	0600	11.70	19,600	Mar. 7	1200	13.60	24,800
					1200	13.78	25,300		2400	12.84	22,700
3	2400	2.01	628		1800	15.13	29,900				
					2400	15.74	32,400	8	1200	11.57	19,300
4	0600	2.02	637						2400	10.06	15,600
	1000	2.27	862	6	0200	15.63	31,900				
	1200	2.72	1,350		1400	14.01	26,000	9	0200	9.85	15,100
	1400	3.07	1,810		2400	14.25	26,800		0600	10.11	15,700
	2000	5.51	5,700						1200	14.69	28,300
	2400	8.10	11,100	7	0400	14.17	26,500		1800	17.43	42,200

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964, of Scioto River at Higby, Ohio--Continued

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 9	2400	18.76	52,700	Mar. 14	2400	15.53	31,500	Mar. 21	2400	8.08	11,000
10	0600	20.15	65,500	15	1200	15.02	29,500	22	2400	8.23	11,400
	1200	21.47	79,200		2400	13.99	26,000				
	1800	23.50	104,000					23	0800	8.26	11,400
	2400	24.81	126,000	16	1200	13.21	23,700		1800	8.22	11,300
					2400	12.94	23,000		2400	8.12	11,100
11	0200	24.95	128,000								
	0500	25.01	130,000	17	1200	12.74	22,400	24	0600	7.74	10,300
	1200	24.69	124,000		2400	12.17	20,900		2400	6.57	7,780
	2400	24.03	112,000								
				18	2400	10.25	16,100	25	1200	7.21	9,120
12	0600	23.70	107,000						2400	7.33	9,390
	1200	23.11	98,700	19	2400	8.88	12,900				
	2400	21.31	77,400					26	0800	7.42	9,580
				20	1200	8.41	11,800		1600	7.93	10,700
13	1200	19.36	58,100		2400	8.06	11,000		2400	7.57	9,910
	2400	17.69	44,000								
				21	1400	7.89	10,600	27	1200	6.75	8,160
14	1200	16.30	35,100		2000	7.99	10,800		2400	6.49	7,610

(42) 3-2359.95. Salt Creek near Londonderry, Ohio

(Crest-stage station)

Location.--Lat 39°17'25", long 82°44'45", at bridge on State Highway 671 in Vinton County, half a mile east of county line, 2.8 miles northeast of Londonderry, Ross County.

Drainage area.--268 sq mi.

Gage-height record.--Twice-daily wire-weight-gage readings and crest-stage gage. Datum of gage is 600.14 ft above mean sea level, unadjusted.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 12,000 cfs and by indirect measurement at 31,600 cfs.

Maxima.--March 1964: Discharge, 26,000 cfs Mar. 10 (gage height, 21.7 ft, from floodmarks).
August 1962 to February 1964: Discharge, 31,600 cfs Mar. 5, 1963 (gage height, 22.7 ft, from floodmarks).

(43) Scioto River at Piketon, Ohio

(Weather Bureau stage station)

Location.--Lat 39°04'15", long 83°01'00", at pumping station of Atomic Energy Commission plant west of Piketon, Pike County.

Drainage area.--5,836 sq mi.

Gage-height record.--Twice-daily wire-weight-gage readings, supplemented by additional readings during high-water periods. Datum of gage is 531.39 ft above mean sea level (U.S. Weather Bureau).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 128,000 cfs.

Maxima.--March 1964: Discharge, 132,000 cfs Mar. 11, 1100 hours (gage height, 31.67 ft).
June 1954 to February 1964: Discharge, 150,000 cfs Jan. 24, 1959 (gage height, 32.56 ft).

Remarks.--Flow slightly regulated (see station 3-2345).

OHIO BRUSH CREEK BASIN

(44) 3-2375. Ohio Brush Creek near West Union, Ohio

Location.--Lat 38°48'13", long 83°25'16", on right bank at downstream side of bridge on State Highway 348, 0.3 mile downstream from Cedar Run, 2 miles southwest of Cedar Mills, and 7 miles east of West Union, Adams County.

Drainage area.--381 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 510.6 ft above mean sea level, adjustment of 1912.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 22,000 cfs and by indirect measurements at 35,500 cfs, 51,600 cfs, and 59,200 cfs. Backwater from Ohio River Mar. 11-15; discharge estimated on basis of records for Whiteoak Creek and East Fork Little Miami River.

Maxima.--March 1964: Discharge, 59,200 cfs Mar. 10, 0630 hours (gage height, 27.91 ft).
1926-35, 1940 to February 1964: Discharge, 51,600 cfs Mar. 19, 1943 (gage height, 26.5 ft).

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	67	7.....	730	13.....	1,200	19.....	345	25.....	315
2.....	75	8.....	1,480	14.....	2,500	20.....	311	26.....	1,680
3.....	698	9.....	26,400	15.....	5,000	21.....	1,230	27.....	656
4.....	8,950	10.....	40,500	16.....	2,120	22.....	883	28.....	413
5.....	17,300	11.....	2,400	17.....	799	23.....	508	29.....	340
6.....	1,550	12.....	1,400	18.....	444	24.....	371	30.....	274
								31.....	240
Monthly mean discharge, in cubic feet per second.....									3,909
Runoff, in inches.....									11.64

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 1	2400	2.66	65	Mar. 8	2400	6.94	3,020	Mar. 14	2400	10.88	4,930
2	2400	2.86	110	9	0430	6.48	2,570	15	0400	11.94	6,980
					0600	7.80	3,880		0600	11.54	6,380
3	0400	3.26	233		0800	12.80	10,000		1200	9.18	4,960
	0600	3.79	464		1000	16.73	16,400		1800	7.97	4,010
	1600	4.76	1,120		1200	19.10	22,400		2400	7.18	3,260
	2400	4.24	744		1500	23.00	36,700				
					1800	26.10	50,000	16	1200	5.96	2,100
4	0600	3.97	566		2000	26.73	53,200		2400	4.97	1,290
	1000	6.07	2,200		2400	26.89	54,000				
	1200	10.09	6,490					17	2400	3.93	542
	1400	13.90	11,600	10	0200	27.02	54,600				
	1800	16.90	16,800		0630	27.91	59,200	18	2400	3.61	376
	2400	19.54	23,800		0900	27.22	55,600				
					1200	25.30	46,000	19	2400	3.48	319
5	0400	21.08	29,100		1800	20.10	25,600				
	0600	21.42	30,400		2400	10.30	6,740	20	2400	3.47	315
	0800	21.25	29,700								
	1200	19.26	22,900	11	0600	8.53	2,410	21	0400	3.58	362
	1500	12.00	8,910		1200	8.02	1,960		0800	5.14	1,420
	1800	7.33	3,410		1800	8.08	1,790		1100	4.87	1,210
	2400	6.24	2,360		2400	8.45	1,630		1400	5.63	1,810
									1800	5.53	1,730
6	1200	5.24	1,500	12	2400	9.40	1,230		2400	4.99	1,300
	2400	4.60	1,000								
				13	1200	9.44	1,150	22	1200	4.40	855
7	2400	3.93	542		2400	9.15	1,150		2400	4.06	623
8	1000	3.83	486	14	1200	8.88	1,310	23	2400	3.70	418
	1500	6.06	2,190		1800	10.88	4,870				
	1600	6.02	2,160		2200	10.29	3,990	24	2400	3.52	336
	2200	6.90	2,980								

Note.--Daily means for some days computed from data in addition to figures shown.

OHIO RIVER MAIN STEM

(45) 3-2380. Ohio River near Maysville, Ky.

Location.--Lat 38°38'05", long 83°42'11", on left bank at lock and dam 33, 1.8 miles upstream from city limits of Maysville, Mason County, 2.2 miles downstream from Cabin Creek, and at mile 405.1.

Drainage area.--70,130 sq mi, approximately.

Gage-height record.--Graph drawn from hourly staff-gage readings. Graph drawn for auxiliary staff gage, 29.0 miles downstream, from once-daily or more frequent readings, except Mar. 21, 24, 26, Mar. 31 to Apr. 2, when no readings were made. Graph for Mar. 21, 24, 26 drawn on basis of recession graph at base gage and readings on adjacent days. Datum of gage is 452.57 ft above mean sea level, Ohio River datum.

Discharge record.--Stage-fall-discharge relation defined by current-meter measurements. Fall used as a factor in computing discharge. Discharge for periods of no gage-height record Mar. 30 to Apr. 2 and indefinite stage-fall-discharge relation Mar. 1-3 estimated on basis of records for other Ohio River main-stem stations.

Maxima.--March 1964: Discharge, 562,000 cfs Mar. 13, 1200 hours (gage height, 62.65 ft).
1937, 1939 to February 1964: Discharge, 820,000 cfs Jan. 27, 1937 (gage height, 75.3 ft).

Remarks.-- Partly regulated by locks, dams, and reservoirs.

Cooperation.--Gage-height record furnished by Corps of Engineers.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	34,000	7.....	332,000	13.....	559,000	19.....	414,000	25.....	164,000
2.....	42,000	8.....	352,000	14.....	548,000	20.....	358,000	26.....	149,000
3.....	60,000	9.....	403,000	15.....	533,000	21.....	307,000	27.....	144,000
4.....	148,000	10.....	491,000	16.....	504,000	22.....	253,000	28.....	137,000
5.....	280,000	11.....	527,000	17.....	478,000	23.....	207,000	29.....	133,000
6.....	313,000	12.....	547,000	18.....	448,000	24.....	183,000	30.....	125,000
								31.....	120,000
Monthly mean discharge, in cubic feet per second.....									299,800

Mean discharge, in cubic feet per second, April 1964

Apr. 1..... 115,000
2..... 110,000

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 3	2400	18.50	83,300	Mar. 11	0600	59.95	518,000	Mar. 19	2400	50.55	389,000
					1200	60.45	530,000				
4	0600	21.35	103,000		2400	61.50	540,000	20	1200	48.60	358,000
	1200	24.85	141,000						2400	46.40	326,000
	2400	34.45	238,000	12	1200	62.25	545,000				
					1800	62.40	553,000	21	1200	44.45	309,000
5	0600	37.25	259,000		2400	62.50	554,000		2400	42.25	283,000
	1200	39.30	285,000								
	1800	41.10	304,000	13	0600	62.60	561,000	22	1200	39.55	251,000
	2400	42.05	306,000		1200	62.65	562,000		2400	36.75	228,000
					1800	62.55	561,000				
6	0600	42.70	306,000		2400	62.40	553,000	23	1200	34.10	202,000
	1200	43.25	312,000						2400	32.65	198,000
	2400	44.30	324,000	14	0600	62.25	551,000				
					1200	62.05	548,000	24	1200	30.75	182,000
7	1200	45.05	332,000		2400	61.70	543,000		2400	29.30	171,000
	2400	45.60	341,000								
				15	0600	61.45	539,000	25	1200	28.40	165,000
8	0600	45.90	348,000		1200	61.10	534,000		2400	27.20	154,000
	1200	46.15	351,000		2400	60.05	519,000				
	2400	47.50	363,000					26	1200	26.55	148,000
				16	1200	59.00	504,000		2400	26.40	146,000
9	0600	48.15	371,000		2400	58.05	491,000				
	1200	50.80	404,000					27	1200	26.15	145,000
	1800	52.50	426,000	17	1200	57.10	478,000		2400	25.20	141,000
	2400	55.10	461,000		2400	56.05	464,000				
								28	1200	24.55	137,000
10	0600	57.15	474,000	18	1200	55.10	447,000		2400	24.50	134,000
	1200	58.00	496,000		2400	53.90	436,000				
	1800	58.90	508,000					29	1200	24.45	133,000
	2400	59.60	513,000	19	1200	52.35	416,000		2400	24.40	133,000

WHITEOAK CREEK BASIN

(46) 3-2385. Whiteoak Creek near Georgetown, Ohio

Location.--Lat 38°50'42", long 83°55'16", on left bank at upstream side of bridge on State Highway 221, 600 ft downstream from Opossum Run, 1¾ miles southwest of Georgetown, Brown County, and 6½ miles upstream from mouth.

Drainage area.--222 sq mi.

Gage-height record.--Water-stage recorder graph above a stage of 6.9 ft and graph based on twice-daily wire-weight-gage readings below this stage. Datum of gage is 569.21 ft above mean sea level, adjustment of 1912.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 20,000 cfs.

Maxima.--March 1964: Discharge, 22,400 cfs Mar. 10, 0500 hours (gage height, 14.64 ft).
1923-35, 1939 to February 1964: Discharge, 20,500 cfs May 14, 1933 (gage height, 20.87 ft), from rating curve extended above 10,000 cfs by logarithmic plotting.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	18	7.....	304	13.....	351	19.....	98	25.....	105
2.....	17	8.....	474	14.....	781	20.....	98	26.....	537
3.....	72	9.....	10,900	15.....	1,470	21.....	431	27.....	302
4.....	3,680	10.....	19,400	16.....	417	22.....	450	28.....	144
5.....	10,100	11.....	2,530	17.....	212	23.....	238	29.....	98
6.....	1,120	12.....	446	18.....	130	24.....	144	30.....	85
								31.....	69
Monthly mean discharge, in cubic feet per second.....									1,781
Runoff, in inches.....									9.25

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 2	2400	1.92	19	Mar. 8	1800	4.25	715	Mar. 14	2400	6.75	2,130
					2100	5.02	1,130				
3	0600	2.00	24		2400	4.93	1,110	15	0200	7.05	2,500
	1130	2.95	172						0330	7.00	2,440
	1800	2.35	60	9	0600	8.40	5,050		1200	5.85	1,260
	2200	2.15	38		1100	11.00	12,600		2400	4.83	605
	2400	2.52	83		1130	11.09	12,900				
					1330	10.95	12,400	16	1200	4.37	392
4	0600	4.92	1,070		1800	11.60	14,600		2400	4.12	279
	0900	6.10	1,860		2400	13.70	21,000				
	1030	6.20	1,940					17	1200	3.95	202
	1300	5.94	1,730	10	0100	14.20	21,300		2400	3.87	168
	1400	6.00	1,780		0230	13.82	20,400				
	1800	8.90	6,110		0500	14.64	22,400	18	2400	3.70	108
	2130	10.57	11,000		1200	14.20	21,300				
	2400	10.13	9,500		1800	12.90	18,000	19	2400	3.63	90
					2400	10.85	12,000				
5	0300	9.70	8,150					20	2400	3.69	105
	1200	11.03	12,700	11	0600	6.90	2,310				
	1500	11.12	13,000		1200	5.35	900	21	0300	3.71	111
	1900	10.50	10,800		1800	4.93	656		0500	3.79	137
	2400	7.70	3,780		2400	4.70	540		1100	5.00	695
									1200	5.00	695
6	0600	4.94	1,080	12	0600	4.55	472		2000	4.51	454
	1200	4.23	705		1200	4.46	432		2200	4.52	459
	2400	3.68	441		2400	4.38	396		2400	4.84	610
7	1200	3.37	312	13	2400	4.20	315	22	0100	4.85	615
	2400	3.15	232						0400	4.72	550
				14	0600	4.27	346		1200	4.47	436
8	1200	3.01	189		2000	5.67	1,120		2400	4.20	315

Note.--Daily means for some days computed from data in addition to figures shown.

LITTLE MIAMI RIVER BASIN

(47) 3-2420. Little Miami River at Spring Valley, Ohio

(Discontinued gaging station)

Location.--Lat 39°36'20", long 84°00'50", at site of bridge, now destroyed, on U.S. Highway 42, three-eighths of a mile southwest of Spring Valley, Greene County, and 2½ miles downstream from Sugar Creek.

Drainage area.--361 sq mi.

Gage-height record.--Floodmark. Datum of gage is 737.9 ft above mean sea level, adjustment of 1912.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 12,400 cfs, prior to 1952, and indirect measurement of 1959 peak flow of 36,400 cfs.

Maxima.--March 1964: Discharge, 14,400 cfs Mar. 10 (gage height, 15.79 ft, from floodmark).
1925-35, 1939-51, 1959, 1963: Discharge, 38,000 cfs Mar. 5, 1963 (gage height, 19.14 ft, from floodmark).

(48) 3-2423. Caesar Creek at Harveysburg, Ohio

Location.--Lat 39°30'27", long 84°00'42", at downstream side of bridge on State Highway 73, a quarter of a mile north of Harveysburg, Warren County.

Drainage area.--209 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 781.90 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 12,000 cfs.

Maxima.--March 1964: Discharge, 12,900 cfs Mar. 10, 1000 hours (gage height, 14.35 ft).
1960 to February 1964: Discharge, 14,900 cfs Mar. 5, 1963 (gage height, 15.63 ft).
Maximum stage known, 20.5 ft Jan. 21, 1959, from floodmark.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	18	7.....	526	13.....	823	19.....	267	25.....	204
2.....	19	8.....	449	14.....	990	20.....	227	26.....	521
3.....	20	9.....	7,260	15.....	939	21.....	275	27.....	387
4.....	1,030	10.....	11,500	16.....	557	22.....	299	28.....	287
5.....	3,400	11.....	2,720	17.....	407	23.....	255	29.....	227
6.....	1,010	12.....	1,330	18.....	319	24.....	216	30.....	189
								31.....	174
Monthly mean discharge, in cubic feet per second.....									1,189
Runoff, in inches.....									6.56

(49) 3-2425. Little Miami River near Fort Ancient, Ohio

(Discontinued gaging station)

Location.--Lat 39°22'42", long 84°05'32", at highway bridge 2 miles south of Fort Ancient, Warren County, 2½ miles northeast of Morrow, and 2¾ miles upstream from Todd Fork.

Drainage area.--680 sq mi.

Gage-height record.--Floodmark. Datum of gage is 643.65 ft above mean sea level, adjustment of 1912.

Discharge record.--Stage-discharge relation defined by current-meter measurements; prior to 1952, below 25,700 cfs.

Maxima.--March 1964: Discharge, 34,500 cfs (estimated) Mar. 10 (gage height, 17.0 ft, from floodmark).
1939-52, 1959, 1963: Discharge, 67,000 cfs Jan. 21, 1959 (gage height, 21.9 ft from floodmark).

(50) 3-2440. Todd Fork near Roachester, Ohio

Location.--Lat 39°20'05", long 84°05'10", on right bank at downstream side of bridge on State Highway 123, 0.3 mile downstream from Lick Run, 1.6 miles southeast of Roachester, Warren County, 2¾ miles southeast of Morrow, and 4 miles upstream from mouth.

Drainage area.--219 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 679.40 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 12,000 cfs, and by indirect measurement at 25,500 cfs.

Maxima.--March 1964: Discharge, 22,500 cfs Mar. 10, 0200 hours (gage height, 19.10 ft).
1952 to February 1964: Discharge, 25,500 cfs Jan. 21, 1959 (gage height, 19.50 ft).

Remarks.--Flow slightly regulated by Cowan Lake on Cowan Creek (capacity, 12,000 acre-ft, 51 sq mi).

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	18	7.....	595	13.....	735	19.....	204	25.....	173
2.....	19	8.....	846	14.....	980	20.....	182	26.....	1,030
3.....	22	9.....	13,500	15.....	1,110	21.....	364	27.....	469
4.....	2,950	10.....	14,100	16.....	585	22.....	365	28.....	310
5.....	6,100	11.....	2,040	17.....	378	23.....	283	29.....	231
6.....	1,120	12.....	1,110	18.....	266	24.....	207	30.....	180
								31.....	155
Monthly mean discharge, in cubic feet per second.....									1,632

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 3	2400	5.28	23	Mar. 9	0200	9.50	2,020	Mar. 14	2400	8.51	1,350
					0600	15.30	9,180				
4	0600	5.34	30		0800	16.58	11,900	15	0300	8.59	1,390
	0900	5.60	71		1000	17.36	14,000		0600	8.50	1,340
	1200	7.05	555		1200	17.59	14,000		1200	8.12	1,110
	1500	8.50	1,340		2400	19.05	22,200		2400	7.50	780
	1800	12.70	5,160								
	2300	16.88	12,600	10	0200	19.10	22,500	16	2400	6.82	453
	2400	16.77	12,300		0600	18.85	20,800				
					1200	17.67	15,000	17	2400	6.41	310
5	0230	17.02	13,000		1800	14.17	7,200				
	0600	15.83	10,200		2400	11.21	3,490	18	2400	6.13	225
	0900	13.00	5,540								
	1200	12.55	4,980	11	1200	9.14	1,770	19	2400	5.98	186
	1500	11.35	3,630		2400	8.18	1,150				
	1800	10.10	2,480					20	2400	5.97	184
	2400	9.15	1,780	12	0500	8.00	1,040				
					1200	8.38	1,270	21	0400	6.06	207
6	1200	8.05	1,070		1800	8.09	1,090		0600	6.35	291
	2400	7.48	770		2400	7.82	940		0900	6.47	331
									1200	6.77	434
7	2400	6.83	454	13	1200	7.37	715		1500	6.83	457
					2400	7.10	580		2400	6.79	442
8	0900	6.70	400								
	1100	6.74	416	14	0400	7.04	550	22	2400	6.38	301
	1300	7.39	725		0700	7.10	580				
	1500	7.60	830		0900	7.38	720	23	2400	6.15	231
	1800	8.58	1,390		1200	8.30	1,220				
	2400	9.22	1,820		2000	8.44	1,300	24	2400	5.97	184

Note.--Daily means for some days computed from data in addition to figures shown.

(51) 3-2455. Little Miami River at Milford, Ohio

Location.--Lat 39°10'17", long 84°17'53", on right bank 500 ft downstream from Wooster Pike Bridge (U.S. Highway 50) in Milford, Clermont County, and 1¼ miles upstream from East Fork.

Drainage area.--1,203 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 499.35 ft above mean sea level, adjustment of 1912.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 60,000 cfs and by indirect measurement at 84,100 cfs.

Maxima.--March 1964: Discharge, 63,900 cfs Mar. 10, 0300 hours (gage height, 19.96 ft).
1915-17, 1925-36, 1938 to February 1964: Discharge, 84,100 cfs Jan. 22, 1959 (gage height, 22.30 ft).
Flood in March 1913 reached a stage of 25.5 ft, from information by Corps of Engineers.

Remarks.--Some regulation by Cowan Lake (capacity, 12,000 acre-ft, 51 sq mi).

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	155	7.....	3,400	13.....	4,870	19.....	1,550	25.....	1,130
2.....	155	8.....	2,570	14.....	4,430	20.....	1,360	26.....	2,980
3.....	155	9.....	31,200	15.....	5,430	21.....	1,710	27.....	2,300
4.....	5,750	10.....	55,400	16.....	3,490	22.....	1,950	28.....	1,550
5.....	23,600	11.....	26,200	17.....	2,480	23.....	1,520	29.....	1,250
6.....	6,300	12.....	10,100	18.....	1,910	24.....	1,290	30.....	1,070
								31.....	957
Monthly mean discharge, in cubic feet per second.....									6,717
Runoff, in inches.....									6.43

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 3	2400	0.15	155	Mar. 9	0900	12.15	29,200	Mar. 15	1200	4.66	5,220
					1200	13.99	36,100		2400	4.13	4,250
4	0600	.08	177		1800	16.95	47,500				
	1200	.90	600		2400	19.50	60,900	16	1200	3.65	3,460
	1800	5.24	6,470						2400	3.27	2,900
	2100	9.30	18,900	10	0300	19.96	63,900				
	2400	12.68	31,100		0600	19.75	62,100	17	1200	2.96	2,470
					1200	18.78	56,900		2400	2.78	2,260
5	0330	14.06	36,300		1800	17.40	50,800				
	0600	13.48	34,100		2400	15.87	44,700	18	2400	2.24	1,680
	1200	11.18	25,700								
	1800	7.55	13,000	11	0600	13.43	34,900	19	2400	1.96	1,410
	2400	6.14	8,710		1200	10.90	25,700				
					1800	8.49	19,200	20	2400	1.85	1,320
6	1200	5.11	6,170		2400	7.50	14,900				
	2400	4.61	5,110					21	1200	2.28	1,720
				12	1200	6.17	9,800		2400	2.70	2,160
7	1200	3.49	3,190		2400	5.25	6,750				
	2400	2.89	2,390					22	2400	2.28	1,720
8	1200	2.62	2,070	13	1200	4.40	4,740				
	1800	3.16	2,730		2400	3.97	3,970	23	2400	1.92	1,380
	2400	4.40	4,700								
				14	0800	3.78	3,670	24	2400	1.72	1,210
9	0300	4.80	5,490		1600	4.40	4,740				
	0600	8.02	14,600		2400	5.02	6,080	25	2400	1.63	1,130

Note.--Daily means for some days computed from data in addition to figures shown.

782-001 O-65-6

(52) 3-2465. East Fork Little Miami River at Williamsburg, Ohio

Location.--Lat 39°03'10", long 84°03'05", on right bank at downstream side of Main Street Bridge in Williamsburg, Clermont County, 1.1 miles upstream from Todd Run.

Drainage area.--237 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 784.09 ft above mean sea level, datum of 1929, supplementary adjustment of 1944.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 14,000 cfs and by indirect measurement at 19,800 cfs.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 5, 0230 hours	13,700	12.18
Mar. 10, 0700 hours	19,800	15.23
1949-53, 1959 to February 1964:		
Mar. 5, 1963	18,000	14.34

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	17	7	345	13	400	19	111	25	119
2	18	8	410	14	923	20	101	26	1,180
3	38	9	9,490	15	1,440	21	297	27	454
4	3,030	10	18,200	16	420	22	395	28	195
5	12,600	11	4,640	17	216	23	206	29	141
6	2,360	12	561	18	150	24	141	30	111
								31	91
Monthly mean discharge, in cubic feet per second									1,897
Runoff, in inches									9.22

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 1	2400	1.21	17	Mar. 8	1800	2.80	505	Mar. 14	1000	2.74	492
					2400	3.40	910		1400	3.65	1,110
2	1800	1.20	17						2400	4.67	2,020
	2400	1.32	34	9	0300	4.00	1,420				
					0600	7.10	4,460	15	0200	4.78	2,120
3	1200	1.35	27		0900	9.60	7,820		1200	4.05	1,460
	2400	1.65	74		1200	11.10	11,000		2400	3.10	705
					1800	12.25	13,800				
4	0600	1.73	91		2400	14.18	17,700	16	1200	2.58	405
	0900	1.97	155						2400	2.30	270
	1200	2.43	330	10	0300	14.93	19,200				
	1500	4.18	1,580		0700	15.23	19,800	17	2400	2.03	173
	1800	8.00	5,580		1200	14.82	18,900				
	2100	10.68	9,950		1800	14.13	17,600	18	2400	1.87	127
	2400	11.91	13,000		2400	12.95	15,200				
								19	2400	1.76	98
5	0230	12.18	13,700	11	0300	11.95	13,100				
	1200	11.58	12,200		0600	10.00	8,520	20	2400	1.82	113
	1800	11.58	12,200		0900	5.75	3,050				
	2400	11.02	10,800		1200	4.07	1,480	21	0600	2.09	192
					1800	3.44	942		1200	2.47	350
6	0300	9.00	6,900		2400	3.12	718		2400	2.64	437
	0600	4.70	2,050								
	1200	3.33	861	12	1200	2.82	537	22	0600	2.71	476
	2400	2.72	481		2400	2.76	503		2400	2.32	279
				13	1200	2.57	400				
7	2400	2.27	258		2400	2.34	288	23	2400	1.99	161
8	0900	2.18	223	14	0530	2.32	279	24	2400	1.86	124

Note.--Daily means for some days computed from data in addition to figures shown.

(53) 3-2475. East Fork Little Miami River at Perintown, Ohio

Location.--Lat 39°08'13", long 84°14'17", on left bank at downstream side of highway bridge at Perintown, Clermont County, 5 miles upstream from mouth.

Drainage area.--476 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 507.28 ft above mean sea level, adjustment of 1912.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 5, 0030 hours	38,200	23.00
Mar. 10, 0200 hours	42,400	23.84
1915-20, 1925 to February 1964:		
Mar. 6, 1945	39,400	23.42

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	41	7	800	13	945	19	328	25	335
2	42	8	890	14	1,810	20	307	26	1,790
3	72	9	21,700	15	2,930	21	1,160	27	1,160
4	9,910	10	33,000	16	1,160	22	1,090	28	548
5	22,300	11	10,200	17	622	23	645	29	374
6	5,220	12	1,290	18	422	24	419	30	291
								31	240
Monthly mean discharge, in cubic feet per second									3,937
Runoff, in inches									9.53

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 2	2400	1.64	46	Mar. 8	2400	5.79	2,030	Mar. 14	2400	7.98	3,710
3	1200	1.88	81	9	0200	5.96	2,150	15	0300	8.20	3,910
	2400	1.93	90		0600	13.52	9,870		0600	8.08	3,800
					1200	19.15	23,500		1200	7.01	2,930
4	0600	2.26	182		1800	21.81	32,800		2400	5.50	1,830
	0800	2.50	273		2400	23.69	41,600	16	1200	4.34	1,100
	1200	7.58	3,570						2400	3.72	790
	1800	17.05	17,500	10	0200	23.84	42,400				
	2400	22.97	37,700		0800	23.28	39,600	17	2400	3.05	500
					1200	21.93	33,300				
5	0030	23.00	38,200		1800	19.71	25,200	18	2400	2.70	370
	0600	21.31	30,800		2400	18.42	21,300				
	1200	17.92	19,800					19	2400	2.50	300
	1800	15.45	13,400	11	0600	17.05	17,500				
	2400	14.76	12,000		1200	13.08	9,320	20	2400	2.66	356
					1800	6.40	2,460				
6	0600	13.77	10,200		2400	5.33	1,710	21	0600	4.00	930
	1200	6.63	2,620						1400	4.92	1,450
	1800	4.97	1,480	12	1200	4.62	1,270		1900	4.95	1,470
	2400	4.38	1,130		2400	4.33	1,100		2400	4.78	1,370
7	1200	3.69	776	13	2400	3.70	780	22	2400	3.82	840
	2400	3.26	584								
				14	0600	3.60	735	23	2400	3.05	500
8	0600	3.11	524		1000	5.43	1,780				
	1000	3.13	532		1400	5.48	1,820	24	2400	2.67	360
	1500	4.18	1,020		1600	6.44	2,490				
	1800	4.53	1,220		1800	6.62	2,620	25	2300	2.57	324
	2100	5.42	1,770		2200	7.92	3,660		2400	2.74	384

Note.--Daily means for some days computed from data in addition to figures shown.

LICKING RIVER BASIN

(54) 3-2495. Licking River at Farmers, Ky.

Location.--Lat 38°08'25", long 83°33'30", near right bank on downstream side of bridge on U.S. Highway 60, 300 ft upstream from Chesapeake and Ohio Railway bridge, three-quarters of a mile west of Farmers, Rowan County, and 1.1 miles upstream from Triplett Creek.

Drainage area.--831 sq mi.

Gage-height record.--Water-stage recorder graph. Graph drawn for auxiliary staff gage 4.1 miles upstream, from twice-daily readings. Datum of gage is 646.55 ft above mean sea level, datum of 1929.

Discharge record.--Stage-fall-discharge relation or stage-discharge relation defined by current-meter measurements. Fall used as a factor Mar. 4-18, 21, 22.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 5, 1200 hours	-	23.97
Mar. 6, 0200 hours	11,800	-
Mar. 10, 1500 hours	-	23.47
Mar. 11, 0400 hours	12,200	-
1938 to February 1964:		
Feb. 28, 1962	24,000	26.70

Maximum stage known since at least 1904 was 31.1 ft on Feb. 9, 1918 (ice jam), from reports of U.S. Weather Bureau.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	518	7	5,380	13	5,260	19	1,860	25	1,640
2	675	8	4,800	14	2,610	20	1,480	26	1,420
3	3,070	9	9,100	15	2,820	21	1,750	27	1,230
4	5,580	10	11,300	16	4,060	22	2,510	28	1,040
5	8,990	11	11,600	17	3,750	23	2,500	29	885
6	10,300	12	9,410	18	2,780	24	2,020	30	785
								31	710
Monthly mean discharge, in cubic feet per second									3,930
Runoff, in inches									5.45

(55) 3-2505. Licking River at Blue Lick Springs, Ky.

(Gaging station discontinued 1959; crest-stage station)

Location.--Lat 38°25'19", long 83°59'57", near center of span on downstream side of bridge on U.S. Highway 68, at Blue Lick Springs, Nicholas County, 1½ miles upstream from Indian Run, 10 miles upstream from Johnson Creek, and 10 miles downstream from Fleming Creek.

Drainage area.--1,785 sq mi.

Gage-height record.--Graph drawn on basis of floodmark and twice-daily wire-weight-gage readings. Datum of gage is 560.99 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 5, 1000 hours	28,700	39.9
Mar. 10, 1300 hours	30,500	41.2
1938 to February 1964:		
Apr. 13, 1948	35,900	45.0

Flood of 1937 reached a stage of 47.4 ft, exceeding all known floods since at least 1854.

Mean discharge, in cubic feet per second, March 1964, of Licking River at Blue Lick Springs, Ky.

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	880	7.....	21,000	13.....	20,000	19.....	4,240	25.....	3,620
2.....	910	8.....	19,700	14.....	16,400	20.....	3,900	26.....	3,400
3.....	2,280	9.....	23,200	15.....	13,300	21.....	3,480	27.....	3,120
4.....	11,800	10.....	29,300	16.....	8,370	22.....	3,090	28.....	2,280
5.....	27,300	11.....	26,600	17.....	6,670	23.....	3,160	29.....	1,640
6.....	23,500	12.....	23,200	18.....	5,530	24.....	4,240	30.....	1,420
								31.....	1,280
Monthly mean discharge, in cubic feet per second.....									10,280
Runoff, in inches.....									6.64

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 2	2400	7.0	1,090	Mar. 7	2400	31.6	19,600	Mar. 12	2400	33.6	21,400
3	0600	8.1	1,880	8	0400	30.7	18,900	13	1200	32.1	20,000
	1200	8.95	2,560		0600	30.5	18,700		1800	31.4	19,400
	2400	9.35	2,840		0800	30.8	18,900		2400	30.2	18,500
					1200	31.3	19,300				
4	0400	9.5	2,950		2400	33.5	21,300	14	0600	28.3	16,900
	0600	9.9	3,230						1200	27.3	16,200
	0800	12.3	4,910	9	0600	34.5	22,300		2400	25.6	15,000
	1200	20.2	11,200		1200	35.2	23,000				
	1800	31.6	19,600		1800	35.9	23,800	15	1200	23.6	13,600
	2400	36.4	24,400		2400	37.6	25,800		1800	22.0	12,500
									2400	19.4	10,500
5	0400	38.5	26,900	10	0400	39.5	28,200				
	0600	39.3	27,900		0800	40.7	29,800	16	0400	17.5	8,900
	0800	39.8	28,500		1000	41.1	30,300		1200	16.7	8,260
	1000	39.9	28,700		1200	41.15	30,400		2400	15.5	7,300
	1200	39.8	28,500		1300	41.2	30,500				
	1600	39.3	27,900		1400	41.15	30,400	17	1200	14.7	6,660
	2000	38.4	26,800		1800	41.0	30,200		2400	13.95	6,060
	2400	37.6	25,800		2400	40.1	28,900				
								18	1200	13.3	5,610
6	0600	36.3	24,300	11	0600	39.0	27,500		1800	12.8	5,280
	1200	35.4	23,200		1200	38.1	26,400		2400	12.05	4,740
	2400	34.2	22,000		1800	37.6	25,800				
					2400	36.9	24,900	19	0600	11.45	4,320
7	1200	33.4	21,200						1800	11.05	4,040
	1800	32.8	20,600	12	1200	35.4	23,200		2400	11.1	4,070

(56) 3-2510. North Fork Licking River near Lewisburg, Ky.

Location.--Lat 38°25'55", long 83°47'30", on left bank at downstream side of bridge on State Highway 419, 1¼ miles west of Lewisburg, Mason County, and 1½ miles downstream from Mill Creek.

Drainage area.--119 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 680 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 4, 2330 hours.....	9,850	19.29
Mar. 10, 0200 hours.....	7,620	16.83
1938, 1946 to February 1964:		
July 1938.....	13,300	22.7

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	34	7.....	270	13.....	203	19.....	125	25.....	151
2.....	42	8.....	1,490	14.....	404	20.....	123	26.....	567
3.....	389	9.....	3,670	15.....	1,280	21.....	388	27.....	243
4.....	4,260	10.....	4,420	16.....	416	22.....	313	28.....	166
5.....	6,060	11.....	800	17.....	246	23.....	218	29.....	130
6.....	820	12.....	310	18.....	164	24.....	162	30.....	103
								31.....	87
Monthly mean discharge, in cubic feet per second.....									905
Runoff, in inches.....									8.77

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964, of North Fork Licking River near Lewisburg, Ky.

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 1	2400	1.46	34	Mar. 5	1200	14.37	5,860	Mar. 9	1600	10.16	3,400
					1800	11.60	4,200		1700	10.43	3,540
2	0600	1.48	36		2400	8.50	2,570		1800	10.50	3,570
	1200	1.53	41						1900	10.52	3,580
	1800	1.57	45	6	0400	6.30	1,470		2000	10.85	3,750
	2400	1.68	56		0600	5.35	1,030		2400	15.85	6,840
					0800	4.62	728				
3	0200	1.76	65		1100	4.00	548	10	0100	16.62	7,460
	0300	1.89	83		1400	3.62	457		0200	16.83	7,620
	0500	2.50	192		1900	3.32	385		0300	16.50	7,360
	0600	3.61	454		2400	3.14	342		0600	14.21	5,770
	0700	4.07	565						0800	13.00	5,040
	0830	4.18	591	7	1200	2.82	265		0900	12.50	4,740
	1000	4.12	577		2400	2.58	210		1200	11.18	3,950
	1600	3.57	445						1700	9.41	3,020
	1900	3.40	404	8	0600	2.50	192		2200	8.15	2,400
	2400	3.29	378		0900	2.63	221		2400	7.58	2,110
					1000	2.89	282				
4	0500	3.11	334		1400	8.00	2,320	11	0300	6.46	1,550
	0600	3.12	337		1500	8.40	2,520		0600	5.33	1,020
	0700	3.27	373		1600	8.53	2,580		0800	4.70	760
	0800	3.75	488		1900	9.30	2,970		1000	4.32	626
	1000	5.87	1,260		2000	9.40	3,020		1200	4.06	562
	1200	8.80	2,720		2100	9.58	3,110		1400	3.85	512
	1600	16.85	7,640		2200	9.67	3,160		1600	3.70	476
	1700	18.00	8,560		2400	9.11	2,880		1800	3.58	447
	1800	18.49	9,050						2100	3.46	418
	1830	18.52	9,080	9	0300	8.13	2,380		2400	3.36	394
	2000	18.44	9,000		0400	7.91	2,280				
	2100	18.62	9,180		0500	8.15	2,400	12	0600	3.16	346
	2200	19.05	9,610		0700	10.68	3,660		1200	3.00	308
	2330	19.29	9,850		0800	11.35	4,050		1800	2.83	267
	2400	19.23	9,790		0930	11.73	4,280		2400	2.72	241
					1000	11.66	4,240				
5	0200	19.00	9,560		1300	10.39	3,520	13	1200	2.53	199
	0400	18.10	8,660		1400	10.09	3,360		2400	2.40	172
	0800	16.12	7,060		1500	9.95	3,300				

(57) 3-2515. Licking River at McKinneysburg, Ky.

Location.--Lat 38°35'52", long 84°16'00", on right bank at downstream side of highway bridge at McKinneysburg, Pendleton County, 6.5 miles southeast of Falmouth, 9.0 miles upstream from Blanket Creek, and 12.8 miles upstream from South Fork.

Drainage area.--2,326 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 520.83 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 42,000 cfs.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 5, 2200 hours	43,000	42.14
Mar. 10, 1100 hours	59,100	50.26
1937 to February 1964:		
January 1937	55,000	47.8

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	1,100	7	32,900	13	24,700	19	5,570	25	4,470
2	1,110	8	25,200	14	19,800	20	4,200	26	7,600
3	3,220	9	38,000	15	18,600	21	6,080	27	4,230
4	17,600	10	57,400	16	12,700	22	5,710	28	3,140
5	41,300	11	49,100	17	9,040	23	6,430	29	2,410
6	40,800	12	35,300	18	6,910	24	5,510	30	1,990
								31	1,700
Monthly mean discharge, in cubic feet per second									15,930
Runoff, in inches									7.90

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964, of Licking River at McKinneysburg, Ky.

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	1,100	7.....	32,900	13.....	24,700	19.....	5,570	25.....	4,470
2.....	1,110	8.....	25,200	14.....	19,800	20.....	4,200	26.....	7,600
3.....	3,220	9.....	38,000	15.....	18,600	21.....	6,080	27.....	4,230
4.....	17,600	10.....	57,400	16.....	12,700	22.....	5,710	28.....	3,140
5.....	41,300	11.....	49,100	17.....	9,040	23.....	6,430	29.....	2,410
6.....	40,800	12.....	35,300	18.....	6,910	24.....	5,510	30.....	1,990
								31.....	1,700
Monthly mean discharge, in cubic feet per second.....									15,930
Runoff, in inches.....									7.90

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 1	2400	6.57	1,070	Mar. 7	1200	35.15	33,200	Mar. 13	0600	29.87	26,300
					2400	30.52	27,200		1200	28.32	24,500
2	0800	6.56	1,060						1600	26.95	22,800
	1800	6.69	1,130	8	0800	27.87	23,900		2400	25.89	21,600
	2400	6.85	1,230		1000	27.48	23,500				
					1100	27.50	23,500	14	0600	24.97	20,500
3	0200	6.98	1,310		1200	27.73	23,800		1200	24.16	19,500
	0300	7.17	1,440		2200	30.04	26,600		1900	23.59	18,800
	0800	9.32	3,190		2400	30.35	27,000		2400	24.03	19,300
	1000	10.02	3,820								
	1200	10.28	4,080	9	0300	30.55	27,200	15	0400	24.29	19,600
	1400	10.29	4,090		0400	30.80	27,500		0700	24.53	19,900
	2200	9.89	3,700		0600	32.30	29,500		1000	24.37	19,700
	2400	9.96	3,760		0800	34.85	32,600		1200	24.07	19,400
					1200	39.83	39,400		1600	22.37	17,300
4	0400	10.25	4,050		1600	41.95	42,800		2400	21.21	16,000
	0500	10.45	4,250		2000	44.10	46,500				
	0600	11.50	5,300		2400	46.97	52,200	16	0600	19.51	13,900
	0800	16.40	10,400						1200	18.12	12,300
	1200	21.43	16,200	10	0400	49.10	56,500		1800	17.17	11,300
	1600	27.20	23,100		0600	49.70	57,300		2400	16.48	10,500
	2000	34.45	32,300		0800	50.05	58,600				
	2400	38.35	37,400		1000	50.23	59,000	17	1200	15.13	9,040
					1100	50.26	59,100		1800	14.43	8,270
5	0400	39.90	39,500		1200	50.23	59,000		2400	13.89	7,690
	0800	40.90	41,000		1600	49.97	58,400				
	1200	41.50	41,900		2000	48.45	57,300	18	0600	13.43	7,230
	1600	41.88	42,300		2400	48.80	55,900		1200	13.08	6,880
	2000	42.12	42,900						2400	12.45	6,250
	2200	42.14	43,000	11	0600	47.15	52,600				
	2400	42.12	42,900		1200	45.48	49,300	19	1200	11.79	5,590
					1800	43.58	45,500		2400	11.04	4,840
6	0600	41.76	42,300		2400	41.43	41,800				
	1200	41.02	41,100					20	1200	10.31	4,110
	1800	39.98	39,600	12	0600	39.23	38,500		1800	10.08	3,880
	2400	38.68	37,800		1200	36.84	35,400		2400	10.06	3,860
					1800	34.22	32,000				
7	0600	37.15	35,800		2400	31.87	28,900				

(58) 3-2520. Stoner Creek at Paris, Ky.

Location.--Lat 38°13'45", long 84°15'22", on left bank at upstream side of bridge on county road, 0.5 mile north of Paris, Bourbon County, and 1.5 miles downstream from Huston Creek.

Drainage area.--239 sq mi.

Gage-height record.--Digital recorder tape punched at 15-minute intervals. Datum of gage is 770.43 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 5, 0400 hours	17,000	19.59
Mar. 10, 0815 hours	12,000	17.24
1953 to February 1964:		
Feb. 28, 1962	12,200	17.65

Prior to 1964, highest stage known since about 1928 was about 19.5 ft in winter of 1951, from information by local resident.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	138	7	933	13	645	19	324	25	296
2	141	8	1,940	14	515	20	304	26	262
3	274	9	5,760	15	1,190	21	417	27	211
4	5,240	10	9,700	16	1,040	22	535	28	176
5	14,200	11	3,400	17	597	23	422	29	156
6	4,320	12	1,020	18	420	24	350	30	133
								31	115
Monthly mean discharge, in cubic feet per second									1,780
Runoff, in inches									8.59

Note.--Daily mean discharges computed on basis of 15-minute intervals.

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 1	2400	2.75	138	Mar. 6	2000	6.07	1,490	Mar. 11	1200	8.36	2,870
					2200	5.79	1,340		1800	6.61	1,820
2	2000	2.77	146		2400	5.61	1,260		2400	5.82	1,360
	2400	2.83	174								
				7	1200	4.81	914	12	1200	5.02	998
3	1200	2.97	240		2400	4.28	718		2400	4.44	774
	1800	3.15	330								
	2400	3.61	508	8	0800	4.07	651	13	1200	4.02	636
					1000	4.31	728		2400	3.73	549
4	0200	3.75	555		1200	5.31	1,110				
	0600	3.79	567		1600	7.95	2,620	14	0600	3.63	515
	0800	3.92	606		2400	10.98	4,890		1800	3.57	494
	1000	4.24	704						2400	3.76	558
	1200	5.41	1,160	9	0300	11.72	5,560				
	1500	12.87	6,670		0600	11.85	5,680	15	0300	4.15	675
	2300	19.14	15,800		1200	12.22	6,020		0800	5.22	1,080
	2400	19.30	16,200		1500	11.95	5,760		1200	5.65	1,280
					2000	11.37	5,240		2100	6.22	1,580
5	0200	19.51	16,800		2200	12.23	6,030		2400	6.14	1,530
	0400	19.59	17,000		2400	13.93	7,730				
	0800	19.30	16,200					16	1200	5.01	994
	2400	15.75	9,900	10	0300	15.65	9,780		2400	4.29	722
					0700	17.10	11,800				
6	0600	13.23	7,030		0815	17.24	12,000	17	1200	3.87	591
	1200	9.14	3,380		1000	17.04	11,700		2400	3.57	494
	1400	7.98	2,640		1800	14.56	8,470				
	1600	7.11	2,120		2400	13.31	7,110	18	1200	3.35	418
	1800	6.48	1,740						2400	3.23	368

(59) 3-2525. South Fork Licking River at Cynthiana, Ky.

Location.--Lat 38°23'27", long 84°18'11", on left bank at downstream side of bridge on State Highways 356 and 36, at Cynthiana, Harrison County, 0.4 mile downstream from Grays Run and in pool formed by old milldam 2.6 miles downstream.

Drainage area.--621 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 688.52 ft above mean sea level, datum of 1929, supplementary adjustment of 1944.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 5, 1730 hours	29,000	22.59
Mar. 10, 0830 hours	28,100	22.33
1918 to February 1964:		
Apr. 13, 1948	35,300	23.32

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	284	7	7,780	13	2,380	19	906	25	914
2	270	8	4,450	14	1,650	20	746	26	1,180
3	440	9	15,400	15	3,780	21	1,200	27	626
4	8,750	10	26,000	16	3,950	22	1,640	28	500
5	28,000	11	15,800	17	2,150	23	1,330	29	395
6	22,200	12	6,080	18	1,300	24	1,010	30	353
								31	310
Monthly mean discharge, in cubic feet per second									5,219
Runoff, in inches									9.69

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 2	2400	4.80	290	Mar. 6	2100	16.10	15,300	Mar. 10	0500	22.08	27,300
					2400	14.62	12,800		0830	22.33	28,100
3	1800	5.08	486						1000	22.32	28,100
	2400	5.37	706	7	0600	12.80	9,830		1200	22.07	27,300
					1200	11.29	7,610		1800	21.13	24,900
4	0600	5.95	1,200		1800	9.60	5,380		2400	20.15	22,800
	0900	6.89	2,120		2400	8.31	3,770				
	1200	8.20	3,640					11	0600	18.41	19,500
	2100	20.00	22,500	8	0400	7.72	3,060		1200	16.25	15,600
	2300	21.23	25,200		0800	7.36	2,640		1800	14.25	12,200
	2400	21.45	25,700		0900	7.35	2,620		2400	12.53	9,400
					1100	7.80	3,160				
5	0300	21.80	26,600		1300	8.11	3,530	12	0600	11.28	7,590
	0600	22.12	27,500		1500	8.35	3,820		1200	10.05	5,960
	0900	22.32	28,100		2400	12.50	9,350		1800	8.83	4,400
	1200	22.46	28,500						2400	7.96	3,350
	1500	22.57	28,900	9	0500	13.75	11,400				
	1730	22.59	29,000		1200	16.60	16,200	13	0600	7.39	2,670
	1900	22.57	28,900		1500	17.25	17,400		1200	7.02	2,260
	2100	22.50	28,600		1700	17.44	17,700		2400	6.56	1,770
	2400	22.32	28,100		1900	17.49	17,800				
					2000	17.65	18,100	14	0600	6.43	1,640
6	0600	21.64	26,200		2200	18.60	19,800		1800	6.33	1,540
	0900	21.16	25,000		2400	20.65	23,800		2400	6.70	1,910
	1200	20.52	23,500								
	1800	17.95	18,600	10	0300	21.78	26,500				

(60) 3-2535. Licking River at Catawba, Ky.

Location.--Lat 38°42'37", long 84°18'39", on left bank 1 mile southeast of Catawba, Pendleton County, 1.6 miles upstream from Kincaid Creek, and 2.3 miles north of Falmouth.

Drainage area.--3,300 sq mi.

Gage-height record.--Water-stage recorder graph except 2400 hours Mar. 9 to 1400 hours Mar. 24, for which graph was reconstructed on basis of high-water mark in gage house and inside gage readings. Datum of gage is 500.01 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 5, 1700 hours	72,100	48.05
Mar. 10, 1200 hours	95,000	52.60
1888 to February 1964:		
Apr. 14, 1948	86,300	47.0

Highest flood known prior to 1888, in 1854 (gage height, 41.1 ft, discharge, 84,900 cfs), at Falmouth, at site 3.8 miles upstream at datum 13.8 ft higher.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	1,430	7	57,500	13	35,900	19	7,160	25	5,870
2	1,370	8	36,200	14	24,900	20	5,420	26	13,600
3	3,380	9	62,000	15	25,500	21	7,750	27	6,240
4	25,300	10	93,400	16	18,700	22	6,100	28	4,280
5	69,500	11	81,300	17	13,100	23	6,870	29	3,370
6	69,200	12	59,400	18	9,310	24	7,030	30	2,770
								31	2,380
Monthly mean discharge, in cubic feet per second									24,720
Runoff, in inches									8.64

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 1	2400	6.73	1,380	Mar. 7	0400	39.87	64,500	Mar. 11	2400	42.70	71,300
					0800	38.93	62,200				
2	1800	6.70	1,350		1200	37.48	58,800	12	0600	40.30	65,500
	2400	6.78	1,430		1800	34.57	52,300		1800	35.15	53,500
					2400	31.00	44,400		2400	32.20	47,000
3	0600	6.93	1,580								
	0800	7.16	1,830	8	0600	27.88	38,000	13	0600	29.10	40,400
	1200	8.52	3,400		1000	26.12	34,400		1200	26.35	34,900
	1600	9.65	4,910		1200	25.58	33,400		1800	24.25	30,800
	1800	9.92	5,300		1300	25.42	33,000		2400	22.75	27,900
	2000	9.97	5,380		1500	25.31	32,800				
	2400	9.69	4,970		1600	25.35	32,900	14	0600	21.55	25,600
					1700	25.48	33,200		1200	20.85	24,300
4	0400	9.53	4,740		1800	25.72	33,600		1900	20.45	23,600
	0500	9.57	4,800		2400	27.32	36,800		2400	21.00	24,600
	0600	9.85	5,200								
	0800	12.70	9,670	9	0300	27.90	38,000	15	0600	21.80	26,100
	1000	16.05	15,400		0600	29.90	44,200		1000	22.20	26,900
	1200	18.50	19,800		1200	39.10	62,600		1200	22.10	26,700
	1400	23.50	29,400		1800	45.90	79,000		1400	21.95	26,400
	2000	33.15	49,100		2400	50.50	90,000		1800	21.35	25,300
	2400	37.75	59,400						2400	20.05	22,800
				10	0200	51.20	91,700				
5	0400	40.60	66,200		0400	51.75	93,000	16	0600	18.90	20,600
	0600	41.43	68,200		0600	52.10	93,800		1200	17.70	18,300
	0800	42.07	69,800		0800	52.35	94,400		1800	16.80	16,700
	1000	42.47	70,700		1000	52.50	94,800		2400	16.10	15,400
	1200	42.75	71,400		1200	52.60	95,000	17	2400	13.40	10,800
	1400	42.94	71,900		1400	52.50	94,800				
	1700	43.05	72,100		1600	52.35	94,400	18	0600	12.80	9,830
	2000	42.99	72,000		1800	52.10	93,800		1200	12.40	9,190
	2400	42.80	71,500		2000	51.70	92,900		2400	11.80	8,230
					2200	51.25	91,800				
6	0400	42.57	71,000		2400	50.70	90,500	19	1200	11.10	7,110
	0800	42.24	70,200						2400	10.50	6,170
	1600	41.57	68,600	11	0600	48.80	85,900				
	2000	41.10	67,400		1200	46.95	81,500	20	1200	9.95	5,340
	2400	40.55	66,100		1800	45.00	76,800		2400	9.60	4,840

OHIO RIVER MAIN STEM

(61) 3-2550. Ohio River at Cincinnati, Ohio

Location.--Lat 39°05'40", long 84°30'40", on right bank at downstream side of Covington-Cincinnati suspension bridge, Cincinnati, Hamilton County, 0.2 mile downstream from Licking River, 1.9 miles upstream from Mill Creek, and at mile 470.5.

Drainage area.--76,580 sq mi, approximately.

Gage-height record.--Water-stage recorder graph. Graph drawn for auxiliary staff gage, 12.7 miles downstream, from twice-daily readings, except Mar. 10, 13, when one reading was made and Mar. 11, 12, 14, when no readings were made. Graph for Mar. 11, 12, 14 was drawn on basis of shape of graph at base gage and readings on adjacent days. Datum of gage is 429.61 ft above mean sea level, Ohio River datum.

Discharge record.--Stage-fall-discharge relation defined by current-meter measurements. Fall used as a factor in computing discharge. Stage-fall-discharge relation indefinite Mar. 1 to 0600 hours Mar. 4; discharge estimated on basis of records for other Ohio River main-stem stations.

Maxima.--March 1964: Discharge, 650,000 cfs Mar. 11, 0100 hours; gage height, 66.20 ft Mar. 11, 1200 hours.
1773, 1792-93, 1832, 1848, 1858 to February 1964: Discharge, 894,000 cfs Jan. 26, 1937; gage height, 80.0 ft Jan. 25, 26, 1937.
Flood in January 1937 is maximum known.

Remarks.--Partly regulated by locks, dams, and reservoirs.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	36,000	7.....	394,000	13.....	606,000	19.....	444,000	25.....	174,000
2.....	42,000	8.....	392,000	14.....	588,000	20.....	404,000	26.....	168,000
3.....	50,000	9.....	476,000	15.....	573,000	21.....	359,000	27.....	156,000
4.....	119,000	10.....	625,000	16.....	542,000	22.....	306,000	28.....	147,000
5.....	323,000	11.....	643,000	17.....	518,000	23.....	252,000	29.....	147,000
6.....	373,000	12.....	626,000	18.....	487,000	24.....	206,000	30.....	132,000
								31.....	126,000
Monthly mean discharge, in cubic feet per second.....									336,600

Mean discharge, in cubic feet per second, April 1964

Apr. 1..... 121,000
2..... 116,000

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 3	2400	26.80	55,000	Mar. 10	1200	63.92	635,000	Mar. 18	2400	56.07	466,000
					1800	65.00	645,000				
4	0600	27.25	70,000		2400	65.76	649,000	19	1200	54.78	445,000
	1200	29.16	106,000						2400	53.30	421,000
	1800	32.72	157,000	11	0100	65.84	650,000				
	2400	38.70	232,000		0600	66.09	647,000	20	1200	51.62	405,000
					1200	66.20	642,000		2400	49.75	385,000
5	1200	44.07	339,000		1800	66.07	641,000				
	1800	45.40	367,000		2400	66.00	633,000	21	1200	47.88	357,000
	2400	46.17	370,000						2400	46.12	336,000
				12	1200	66.00	627,000				
6	0600	46.72	366,000		2400	65.87	618,000	22	1200	43.86	303,000
	1200	47.18	372,000						2400	41.82	282,000
	2400	47.79	383,000	13	1200	65.50	607,000				
					2400	65.03	594,000	23	1200	39.58	250,000
7	0600	48.12	392,000						2400	37.74	225,000
	1200	48.35	395,000	14	1200	64.52	588,000				
	2400	48.68	399,000		2400	64.13	583,000	24	1200	36.32	205,000
									2400	35.01	188,000
8	0600	48.74	400,000	15	1200	63.58	575,000				
	1800	48.92	382,000		2400	62.81	559,000	25	1200	34.02	173,000
	2400	49.14	394,000						2400	33.43	164,000
				16	1200	61.83	541,000				
9	0600	50.53	442,000		2400	60.83	528,000	26	1200	33.30	168,000
	1200	53.73	479,000						2400	33.22	172,000
	1800	56.77	506,000	17	1200	59.62	518,000				
	2400	60.00	562,000		2400	58.40	507,000	27	1200	32.57	152,000
									2400	31.98	150,000
10	0600	62.37	613,000	18	1200	57.25	487,000				

MILL CREEK BASIN

(62) 3-2590. Mill Creek at Carthage, Ohio

Location.--Lat 39°12'05", long 84°28'10", on right bank 100 ft downstream from Anthony Wayne Avenue Bridge in Carthage, Hamilton County, 1 mile downstream from West Fork Mill Creek, and 11 miles upstream from mouth.

Drainage area.--115 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 512.00 ft above mean sea level, Ohio River datum.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 4,000 cfs and by indirect measurement at 8,900 cfs.

Maxima.--March 1964: Discharge, 5,710 cfs Mar. 9, 2400 hours (gage height, 13.50 ft).
1946 to February 1964: Discharge, 8,900 cfs Jan. 21, 1959 (gage height, 16.17 ft).

Remarks.--Flow regulated by West Fork Mill Creek Reservoir (capacity, 11,380 acre-ft, drainage area, 29.9 sq mi).

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	4.1	7.....	55	13.....	754	19.....	44	25.....	54
2.....	6.5	8.....	163	14.....	1,240	20.....	63	26.....	463
3.....	11	9.....	3,740	15.....	1,200	21.....	189	27.....	105
4.....	1,200	10.....	3,080	16.....	1,160	22.....	90	28.....	68
5.....	1,290	11.....	826	17.....	186	23.....	73	29.....	51
6.....	258	12.....	345	18.....	57	24.....	57	30.....	39
								31.....	40
Monthly mean discharge, in cubic feet per second.....									546

GREAT MIAMI RIVER BASIN

(63) 3-2740. Great Miami River at Hamilton, Ohio

Location.--Lat 39°23'28", long 84°34'20", on right bank 1,000 ft downstream from Columbia Bridge at Hamilton, Butler County, and 3 miles downstream from Four Mile Creek.

Drainage area.--3,639 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 499.98 ft above mean sea level, adjustment of 1912.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 74,000 cfs and by indirect measurement at 108,000 cfs.

Maxima.--March 1964: Discharge, 59,000 cfs Mar. 10, 0730 hours (gage height, 73.69 ft).
1910-1918: Discharge, 352,000 cfs Mar. 26, 1913 (computed by Miami Conservancy District) at site 0.7 mile upstream.
1927 to February 1964: Discharge, 108,000 cfs Jan. 21, 1959 (gage height, 79.49 ft).

Remarks.--Floodflow regulated by five retarding basins above station beginning in 1920. Base data furnished by Miami Conservancy District.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	414	7.....	6,940	13.....	21,500	19.....	5,490	25.....	3,660
2.....	389	8.....	4,660	14.....	17,800	20.....	4,640	26.....	4,170
3.....	468	9.....	28,500	15.....	16,500	21.....	5,020	27.....	4,070
4.....	3,640	10.....	52,600	16.....	12,900	22.....	4,980	28.....	3,790
5.....	18,600	11.....	41,200	17.....	8,830	23.....	4,640	29.....	3,260
6.....	12,700	12.....	31,700	18.....	6,800	24.....	4,130	30.....	2,960
								31.....	2,760
Monthly mean discharge, in cubic feet per second.....									10,960
Runoff, in inches.....									3.47

(64) 3-2765. Whitewater River at Brookville, Ind.

Location.--Lat 39°24'24", long 85°00'45", in NW¼ sec. 32, T.9 N., R.2 W., on right bank at downstream side of highway bridge, 0.3 mile downstream from East Fork and 1.1 miles south of Brookville.

Drainage area.--1,239 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 595.71 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 46,000 cfs and by contracted-opening measurement at 81,800 cfs.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 5, 0100 hours	12,700	10.44
Mar. 10, 0600 hours	46,000	21.20
1913 to February 1964:		
Mar. 25, 1913	(a)	39.0
1915-20, 1923 to February 1964:		
Jan. 21, 1959	81,800	27.78

a Not determined.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	181	7	1,280	13	4,070	19	1,450	25	1,170
2	194	8	1,010	14	3,290	20	1,350	26	1,880
3	239	9	19,900	15	3,650	21	1,530	27	1,560
4	2,900	10	35,400	16	2,560	22	1,570	28	1,310
5	6,430	11	10,800	17	2,040	23	1,380	29	1,160
6	2,050	12	6,160	18	1,670	24	1,240	30	1,030
								31	970
Monthly mean discharge, in cubic feet per second									3,917
Runoff, in inches									3.64

HOGAN CREEK BASIN

(65) 3-2767. South Hogan Creek near Dillsboro, Ind.

Location.--Lat 38°01'47", long 85°02'17", in NW¼ sec.7, T.4 N., R.2 W., on left downstream abutment of bridge on county road at Dillsboro station, 1¼ miles northeast of Dillsboro, and 1½ miles downstream from Whitaker Creek.

Drainage area.--38.2 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 571.00 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 3,300 cfs and by contracted-opening measurement at 16,300 cfs.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 4, 2100 hours	7,220	10.08
Mar. 9, 2200 hours	5,750	9.21
1959 to February 1964:		
Jan. 21, 1959	16,300	14.00

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	2.6	7	23	13	35	19	15	25	28
2	2.7	8	33	14	106	20	15	26	104
3	10	9	3,460	15	104	21	17	27	29
4	1,520	10	944	16	34	22	16	28	22
5	566	11	114	17	22	23	15	29	16
6	43	12	62	18	17	24	12	30	14
								31	12
Monthly mean discharge, in cubic feet per second									239
Runoff, in inches									7.22

LAUGHERY CREEK BASIN

(66) 3-2770. Laughery Creek near Farmers Retreat, Ind.

Location.--Lat 38°57'05", long 85°04'22", in sec.2, T.4 N., R.3 W., on right bank 2 miles southeast of Farmers Retreat and 3¾ miles downstream from Bear Creek.

Drainage area.--248 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 526 ft (by barometer).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 14,000 cfs and by slope-area measurement at 47,800 cfs.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 4, 2300 hours	16,600	13.35
Mar. 9, 2300 hours	19,100	14.25
1897 to February 1964:		
Jan. 21, 1959	47,800	21.13

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	17	7	335	13	845	19	172	25	143
2	16	8	316	14	785	20	153	26	488
3	31	9	11,200	15	1,220	21	191	27	466
4	4,060	10	12,700	16	626	22	207	28	273
5	5,500	11	5,680	17	335	23	218	29	191
6	1,250	12	1,100	18	226	24	166	30	148
								31	116
Monthly mean discharge, in cubic feet per second									1,586
Runoff, in inches									7.38

KENTUCKY RIVER BASIN

(67) 3-2875. Kentucky River at lock 4, at Frankfort, Ky.

Location.--Lat 38°12'06", long 84°52'54", on left bank at downstream side of Broadway Street Bridge at Frankfort, Franklin County, 300 ft upstream from Benson Creek, 0.9 mile upstream from lock 4, and at mile 65.9. Records include flow of Benson Creek.

Drainage area.--5,412 sq mi (includes that of Benson Creek), of which about 120 sq mi does not contribute directly to surface runoff.

Gage-height record.--Water-stage recorder graph except Mar. 4, 1700 hours to Mar. 5, 1700 hours, for which graph was reconstructed on basis of twice-daily staff-gage readings at lock 4 and shape of recorder graph on adjacent days. Graph drawn for auxiliary staff gage, 16.3 miles upstream, from twice-daily readings. Datum of gage is 462.10 ft above mean sea level, datum of 1929.

Discharge record.--Stage-fall-discharge relation or stage-discharge relation defined by current-meter measurements. Fall used as a factor Mar. 4-26.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 5, 1900 hours	65,100	-
Mar. 5, 2300 hours	-	30.72
Mar. 10, 2000 hours	81,300	-
Mar. 11, 0300 hours	-	38.71
1895 to February 1964:		
Jan. 25, 1937	115,000	-
Jan. 25, 1937	-	47.46

Remarks.--Flow partly regulated by Buckhorn Reservoir, Herrington Lake, and by hydroelectric plant at lock 7.

Cooperation.--Auxiliary gage readings furnished by Corps of Engineers.

Mean discharge, in cubic feet per second, March 1964, of Kentucky River at lock 4, at Frankfort, Ky.

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	4,050	7.....	41,700	13.....	37,500	19.....	18,300	25.....	14,900
2.....	4,250	8.....	32,600	14.....	20,100	20.....	14,700	26.....	13,500
3.....	7,930	9.....	55,900	15.....	16,800	21.....	14,400	27.....	12,400
4.....	33,300	10.....	76,100	16.....	23,900	22.....	15,700	28.....	11,200
5.....	62,800	11.....	76,800	17.....	28,200	23.....	16,400	29.....	10,600
6.....	55,700	12.....	63,400	18.....	24,200	24.....	16,100	30.....	9,890
								31.....	8,300
Monthly mean discharge, in cubic feet per second.....									27,150

(68) 3-2880. North Elkhorn Creek near Georgetown, Ky.

Location.--Lat 38°12'20", long 84°30'49", on left bank at upstream side of bridge on Crumbull Pike, 1.7 miles downstream from Miller Run, 2½ miles east of Georgetown, Scott County, and 2.6 miles upstream from Lanes Run.

Drainage area.--119 sq mi, of which about 8 sq mi does not contribute directly to surface runoff.

Gage-height record.--Digital recorder tape punched at 30-minute intervals and crest-stage gage. Datum of gage is 796.49 ft above mean sea level, unadjusted.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 5, 0330 hours.....	8,500	a19.50
Mar. 10, 0630 hours.....	7,380	b18.75
1948:		
April.....	Unknown	22
1949 to February 1964:		
Mar. 23, 1952.....	6,480	18.41

a From inside gage; floodmark elevation, 19.93 ft.
b From inside gage; floodmark elevation, 19.51 ft.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	73	7.....	764	13.....	564	19.....	244	25.....	181
2.....	70	8.....	1,200	14.....	476	20.....	210	26.....	162
3.....	117	9.....	3,450	15.....	991	21.....	360	27.....	128
4.....	2,380	10.....	5,950	16.....	640	22.....	324	28.....	109
5.....	6,850	11.....	1,970	17.....	455	23.....	265	29.....	96
6.....	1,540	12.....	851	18.....	709	24.....	218	30.....	82
								31.....	74
Monthly mean discharge, in cubic feet per second.....									995
Runoff, in inches.....									9.64

Note.--Daily mean discharges computed on basis of 30-minute intervals.

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 2	2400	3.20	77	Mar. 5	0200	19.23	9,100	Mar. 6	2400	6.03	990
					0300	19.48	9,470				
3	0600	3.26	89		0330	19.50	9,500	7	0600	5.64	854
	1200	3.39	118		0400	19.48	8,470		1200	5.35	752
	1800	3.47	138		0600	19.34	8,060		2400	4.93	608
	2400	3.58	165		0800	19.21	5,660				
					1000	18.99	7,740	8	0600	4.79	563
4	0600	3.64	182		1200	18.84	7,540		0900	4.83	576
	0900	3.72	207		1400	18.83	7,710		1000	4.92	604
	1000	4.78	560		1600	18.91	8,410		1100	5.19	696
	1200	7.18	1,380		2400	18.18	3,140		1200	5.98	973
	1400	10.91	2,700						1300	6.68	1,220
	1600	13.26	3,530	6	0200	10.24	2,420		2000	8.84	1,970
	1800	14.79	4,190		0400	9.93	2,010		2400	10.09	2,410
	2000	16.17	4,890		0600	9.24	1,780				
	2200	17.60	6,010		0800	7.61	1,210	9	0200	10.49	2,550
	2400	18.71	7,330		1000	7.50	1,800		0400	10.74	2,640
					1400	8.89	2,330		0600	11.14	2,780
5	0100	19.01	7,760		1800	8.59	1,190		0700	11.59	2,940

(71) 3-2900. Flat Creek near Frankfort, Ky.

Location.--Lat 38°17'53", long 84°56'32", on left bank at downstream side of bridge on U.S. Highway 421, 0.4 mile downstream from confluence of Goose Creek and Bald Knob Branch and 7 miles northwest of Frankfort, Franklin County.

Drainage area.--5.63 sq mi.

Gage-height record.--Water-stage recorder graph and crest-stage gage. Recorder graph corrected for drawdown by relation curve. Datum of gage is 668.65 ft above mean sea level, unadjusted.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 500 cfs and by slope-area measurement at 1,840 cfs and contracted-opening measurement at 7,100 cfs.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 4, 0600 hours	1,740	a7.66
Mar. 9, 0900 hours	2,120	b8.64
Mar. 25, 2200 hours	3,280	c10.07
1951 to February 1964:		
July 8, 1955	7,100	11.50

a From inside gage; floodmark elevation, 8.04 ft.
b From inside gage; floodmark elevation, 8.99 ft.
c From inside gage; floodmark elevation, 10.53 ft.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	0.4	7	2.0	13	2.2	19	1.4	25	178
2	2.0	8	130	14	50	20	2.4	26	37
3	17	9	928	15	16	21	22	27	4.7
4	685	10	75	16	3.6	22	3.4	28	2.6
5	33	11	6.7	17	2.2	23	2.2	29	2.0
6	3.4	12	3.1	18	1.7	24	1.8	30	1.6
								31	1.6
Monthly mean discharge, in cubic feet per second									71.7
Runoff, in inches									14.7

(72) 3-2905. Kentucky River at lock 2, at Lockport, Ky.

Location.--Lat 38°26'20", long 84°57'48", on left bank at lock 2 at Lockport, Henry County, 0.1 mile downstream from Sixmile Creek and at mile 31.0.

Drainage area.--6,180 sq mi, of which about 200 sq mi does not contribute directly to surface runoff.

Gage-height record.--Graph drawn from twice-daily upper staff-gage readings, except Mar. 12, when several readings were made. Graph drawn for auxiliary staff gage, 11.0 miles upstream, from twice-daily readings. Datum of gage is 433.36 ft above mean sea level, datum of 1929.

Discharge record.--Stage-fall-discharge relation or stage-discharge relation defined by current-meter measurements below 96,500 cfs.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 6, 0600 hours	81,000	-
Mar. 6, 0800 hours	-	41.05
Mar. 11, 0400 hours	101,000	-
Mar. 11, 1200 hours	-	49.00
1884 to February 1964:		
Jan. 24, 1937	-	56.85
Jan. 26, 1937	123,000	-

Remarks.--Flow partly regulated by Buckhorn Reservoir, Herrington Lake, and hydroelectric plant at lock 7.

Cooperation.--Gage-height record furnished by Corps of Engineers.

Mean discharge, in cubic feet per second, March 1964, of Kentucky River at lock 2, at Lockport, Ky.

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	4,400	7.....	58,900	13.....	62,800	19.....	23,800	25.....	15,000
2.....	4,100	8.....	43,800	14.....	35,600	20.....	16,500	26.....	16,200
3.....	6,580	9.....	66,400	15.....	15,900	21.....	17,900	27.....	13,000
4.....	34,200	10.....	97,100	16.....	25,600	22.....	20,600	28.....	12,000
5.....	75,100	11.....	99,000	17.....	32,800	23.....	19,600	29.....	11,200
6.....	76,400	12.....	86,700	18.....	31,400	24.....	16,400	30.....	10,400
								31.....	9,000
Monthly mean discharge, in cubic feet per second.....									34,140

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 2	2400	9.30	4,100	Mar. 8	2400	27.55	41,600	Mar. 15	2400	32.50	15,500
3	0600	9.80	5,750	9	0200	28.20	43,800	16	0600	32.30	22,800
	1200	10.40	7,850		0600	31.20	50,400		1200	32.10	27,300
	2400	10.00	6,450		1200	38.20	66,600		2400	31.90	31,100
					1600	42.80	77,100				
4	0400	10.50	8,200		2000	45.50	86,300	17	1200	31.50	33,300
	0600	11.25	11,200		2400	46.50	91,100		2400	31.05	33,400
	0800	13.55	22,200								
	1200	19.10	36,500	10	0600	47.30	95,600	18	0600	30.70	33,000
	1600	25.10	46,200		1200	47.75	97,900		1200	30.05	32,200
	2000	30.30	57,500		1800	48.20	99,200		2400	28.35	27,800
	2200	32.85	62,200		2400	48.60	100,000				
	2400	34.35	66,300					19	1200	26.65	23,900
				11	0400	48.80	101,000		2400	24.75	19,500
5	0400	36.65	71,300		1000	48.95	100,000				
	0800	38.10	74,500		1200	49.00	99,400	20	1200	23.00	15,700
	1200	38.85	76,100		2000	48.60	97,100		1800	22.10	15,200
	2200	40.20	79,100		2400	48.30	95,100		2400	21.50	15,700
	2400	40.45	79,700								
				12	0600	47.75	91,400	21	1200	20.30	18,200
6	0200	40.65	80,200		1200	46.90	87,000		2400	19.05	19,600
	0600	41.00	81,000		1800	46.10	82,700				
	0800	41.05	80,200		2400	45.10	76,200	22	1200	17.50	20,000
	1000	40.95	79,100						1800	16.55	21,500
	1200	40.75	77,800	13	1200	42.70	63,000		2400	15.50	22,200
	1800	40.00	72,700		1800	40.95	56,200				
	2400	39.10	68,300		2400	39.30	48,600	23	0600	14.75	21,400
									1200	14.00	19,700
7	0600	37.85	64,300	14	0600	37.60	42,300		1800	13.15	17,600
	1200	36.00	59,200		1200	35.90	35,600		2400	12.90	17,200
	1800	33.75	53,600		1800	34.65	28,300				
	2400	31.40	48,700		2400	34.05	24,200	24	1200	12.60	16,300
									2400	12.45	15,800
8	0600	29.55	45,000	15	0600	33.60	18,200				
	1200	28.35	42,900		1200	33.10	13,800	25	1200	12.30	14,900
	1800	27.75	41,900		1800	32.75	11,600		2400	12.20	14,400

(73) 3-2910. Big Eagle Creek at Sadieville, Ky.

Location.--Lat 38°23'22", long 84°32'36", on left bank 15 ft upstream from Spoon Branch, a quarter of a mile west of Sadieville, Scott County, and 5.8 miles upstream from Little Eagle Creek. Records include flow of Spoon Branch.

Drainage area.--42.9 sq mi, includes that of Spoon Branch.

Gage-height record.--Water-stage recorder graph. Datum of gage is 757.18 ft above mean sea level, unadjusted.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 4,100 cfs and extended above by logarithmic plotting.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 4, 2200 hours	8,860	20.51
Mar. 10, 0230 hours	6,710	17.35
1932:		
August	Unknown	22
1941 to February 1964:		
Mar. 19, 1943	9,870	21.96

782-001 O-65-8

Mean discharge, in cubic feet per second, March 1964, of Big Eagle Creek at Sadieville, Ky.

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	7.5	7.....	57	13.....	46	19.....	20	25.....	236
2.....	18	8.....	725	14.....	165	20.....	38	26.....	479
3.....	202	9.....	3,610	15.....	360	21.....	449	27.....	57
4.....	4,180	10.....	2,760	16.....	77	22.....	83	28.....	39
5.....	2,100	11.....	134	17.....	44	23.....	48	29.....	28
6.....	96	12.....	69	18.....	28	24.....	34	30.....	21
								31.....	18
Monthly mean discharge, in cubic feet per second.....									524
Runoff, in inches.....									14.1

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 1	2400	1.70	7.5	Mar. 5	0600	12.32	3,830	Mar. 9	1300	15.09	5,350
					0800	8.20	2,030		1400	14.76	5,160
2	0600	1.73	8.8		1000	4.50	785		1600	13.90	4,640
	1200	1.79	12		1200	3.43	410		1800	13.10	4,220
	1800	1.91	22		1600	2.97	256		1900	12.88	4,110
	2400	2.08	48		2000	2.74	192		2000	13.35	4,340
					2400	2.58	150		2200	15.30	5,480
3	0200	2.48	125						2300	15.90	5,840
	0400	2.82	215	6	0600	2.42	112		2400	16.30	6,080
	0600	2.89	232		1200	2.30	87				
	0800	3.12	302		1800	2.24	75	10	0200	17.32	6,690
	0900	3.19	326		2400	2.20	67		0230	17.35	6,710
	1000	3.17	320						0300	17.28	6,670
	1200	3.05	280	7	1200	2.13	56		0400	17.00	6,500
	1800	2.62	160		2400	2.08	48		0600	15.85	5,810
	2400	2.38	103						0900	11.93	3,640
				8	0400	2.07	46		1200	6.58	1,440
4	0500	2.30	87		0900	2.09	50		1400	4.36	736
	0600	3.43	410		1000	2.40	107		1600	3.65	488
	0700	8.57	2,180		1200	3.80	540		2000	3.15	312
	0800	10.28	2,860		1300	3.90	575		2400	2.87	228
	1000	11.12	3,230		1400	4.15	662				
	1200	12.57	3,960		1600	6.76	1,510	11	0600	2.62	160
	1500	15.36	5,520		1700	7.28	1,690		1200	2.46	121
	1600	15.73	5,740		1800	7.40	1,730		1800	2.37	101
	1700	16.33	6,100		1900	7.42	1,740		2400	2.30	87
	2000	20.13	8,590		2000	7.44	1,740				
	2100	20.30	8,710		2100	7.21	1,660	12	1200	2.20	67
	2200	20.51	8,860		2400	6.15	1,290		2400	2.12	54
	2300	20.25	8,680								
	2400	19.60	8,220	9	0200	5.11	973	13	1200	2.06	45
					0400	4.17	669		2400	2.04	42
5	0200	18.00	7,100		0600	7.66	1,820				
	0400	15.68	5,710		1200	14.92	5,250				

(74) 3-2915. Eagle Creek at Glencoe, Ky.

Location.--Lat 38°42'18", long 84°49'26", on left bank 600 ft upstream from bridge on State Highway 16, 0.6 mile south of Glencoe, Gallatin County, 5.8 miles downstream from Tenmile Creek, and 22 miles upstream from mouth.

Drainage area.--437 sq mi.

Gage-height record.--Water-stage recorder graph except Mar. 9, 2100 hours to Mar. 10, 0900 hours, for which graph was reconstructed on the basis of high-water mark on gage house. Datum of gage is 508.36 ft above mean sea level, unadjusted.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 40,000 cfs.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 5, 0100 hours.....	51,100	24.95
Mar. 10, 0200 hours.....	58,200	26.05
1913, 1915-20, 1928-31, 1937 to February 1964:		
Mar. 19, 1948.....	32,900	23.60

Mean discharge, in cubic feet per second, March 1964, of Eagle Creek at Glencoe, Ky.

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	50	7.....	894	13.....	737	19.....	270	25.....	287
2.....	48	8.....	2,630	14.....	2,160	20.....	220	26.....	4,410
3.....	196	9.....	29,000	15.....	3,610	21.....	1,450	27.....	1,970
4.....	17,500	10.....	39,300	16.....	1,670	22.....	1,930	28.....	614
5.....	32,000	11.....	8,440	17.....	739	23.....	725	29.....	361
6.....	7,370	12.....	1,290	18.....	426	24.....	400	30.....	248
								31.....	155
Monthly mean discharge, in cubic feet per second.....									5,197
Runoff, in inches.....									13.71

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 1	2400	2.59	48	Mar. 5	1400	19.88	26,900	Mar. 9	0400	12.02	9,130
					1800	18.79	23,600		0800	16.50	17,800
2	2400	2.59	48		2400	17.09	19,200		1200	20.61	29,400
									1600	22.79	38,800
3	0600	2.61	51	6	0300	15.94	16,400		2000	24.31	47,300
	1000	2.67	60		0900	11.81	8,830		2200	25.00	51,400
	1800	2.97	126		1200	8.80	4,780		2400	25.85	56,900
	1900	3.05	155		1500	6.68	2,740				
	2000	3.39	329		1800	5.62	1,900	10	0100	26.00	57,900
	2200	4.12	809		2100	5.07	1,470		0200	26.05	58,200
	2400	4.55	1,110		2400	4.72	1,230		0300	25.95	57,600
									0400	25.58	55,200
4	0200	4.82	1,300	7	0600	4.42	1,020		0600	24.80	50,200
	0400	4.93	1,380		1200	4.21	872		1200	22.50	37,400
	0500	5.04	1,450		1800	4.03	746		1800	20.27	28,200
	0600	5.57	1,860		2400	3.88	647		2400	17.87	21,200
	0700	6.65	2,720								
	1000	12.67	10,100	8	0600	3.81	602	11	0400	15.88	16,200
	1200	15.01	14,100		0800	3.79	588		0800	13.43	11,300
	1400	17.23	19,600		0900	3.85	628		1200	10.12	6,470
	1600	18.94	24,100		1000	4.04	753		1600	7.13	3,120
	1800	20.09	27,600		1100	4.33	956		2000	5.75	2,040
	2200	23.67	43,600		1200	4.56	1,120		2400	5.18	1,780
	2300	24.41	47,900		1300	5.72	1,980				
	2400	24.85	50,500		1400	6.51	2,610	12	0600	4.72	1,440
					1600	7.56	3,500		1200	4.46	1,260
5	0100	24.95	51,100		2000	9.65	5,840		1800	4.21	1,080
	0200	24.91	50,900		2400	10.76	7,360		2400	4.03	956
	0300	24.64	49,200								
	0600	22.76	38,700	9	0200	11.03	7,740	13	1200	3.79	718
	1000	21.08	31,100		0300	11.47	8,360		2400	3.59	556

BEARGRASS CREEK BASIN

(75) 3-2925. South Fork Beargrass Creek at Louisville, Ky.

Location.--Lat 38°12'39", long 85°42'07", on upstream side of right abutment of Trevilian Way Bridge at Louisville, Jefferson County, 4.9 miles upstream from confluence with Middle Fork and 6.4 miles upstream from Ohio River.

Drainage area.--17.2 sq mi.

Gage-height record.--Water-stage recorder graph (no low-water record). Datum of gage is 448.60 ft above mean sea level, Louisville city datum, adjustment of 1912.

Discharge record.--Stage-discharge relation defined by current-meter measurements. Discharge for periods Mar. 3, 2400 hours to Mar. 4, 0400 hours and Mar. 12, 1800 hours to 2400 hours, estimated on basis of records for Middle Fork Beargrass Creek.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 4, 1900 hours.....	1,370	8.67
Mar. 9, 1400 hours.....	4,940	14.17
1939 to February 1964:		
Mar. 19, 1943.....	Unknown	15.1
Mar. 6, 1945.....	-	13.62
June 23, 1960.....	2,220	-

Mean discharge, in cubic feet per second, March 1964, of South Fork Beargrass Creek at Louisville, Ky.

Mar. 4	760	Mar. 9	2,810
5	234	10	816
6	46	11	126
7	42	12	33
8	183		

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 3	2400	-	5.0	Mar. 6	1800	1.28	43	Mar. 9	1600	13.60	4,260
					2400	1.37	50		1800	13.16	3,760
4	0300	-	5.0						1900	13.02	3,620
	0400	-	6.5	7	1200	1.26	41		2000	12.98	3,580
	0500	2.25	172		2400	1.20	37		2100	13.01	3,610
	0600	4.53	514						2200	12.99	3,590
	0700	5.00	585	8	0500	1.17	35		2300	12.91	3,510
	0800	5.68	707		0600	1.21	38		2400	12.66	3,260
	0900	6.02	769		0800	1.56	71				
	1000	6.22	809		0900	2.56	219	10	0300	10.50	1,940
	1100	6.23	811		1000	3.57	370		0600	6.28	821
	1200	6.02	769		1100	3.79	404		0900	4.90	570
	1300	5.79	727		1200	3.60	375		1200	4.16	459
	1400	6.21	807		1300	3.25	322		1500	3.65	382
	1500	7.99	1,200		1400	3.02	288		1800	3.26	324
	1600	8.24	1,260		1700	2.58	222		2400	2.71	242
	1700	8.56	1,340		1800	2.67	236				
	1800	8.54	1,340		1900	2.72	243	11	0200	2.57	220
	1900	8.67	1,370		2000	2.65	232		0300	2.36	189
	2000	8.56	1,340		2400	1.99	134		1200	1.88	117
	2200	7.60	1,100						1800	1.63	80
	2400	6.35	835	9	0100	1.91	122		2100	1.52	66
					0200	2.07	146		2400	1.42	55
5	0200	5.00	585		0300	4.72	543				
	0400	3.76	399		0400	7.12	991	12	0200	1.37	50
	0600	3.11	302		0500	8.21	1,250		0300	1.42	55
	0900	2.53	214		0600	8.63	1,360		0400	1.42	55
	1200	2.16	159		0800	10.72	2,030		0500	1.37	50
	1800	1.69	89		1000	12.38	2,960		0700	1.31	45
	2400	1.45	58		1200	13.53	4,180		0900	1.16	35
					1300	14.04	4,790		1200	1.07	29
6	0600	1.32	46		1400	14.17	4,940		1800	-	21
	1200	1.25	40		1500	13.96	4,690		2400	-	16

(76) 3-2930. Middle Fork Beargrass Creek at Cannons Lane, at Louisville, Ky.

Location.--Lat 38°14'14", long 85°39'52", on right bank at downstream side of bridge on Cannons Lane, at Louisville, Jefferson County, 1.7 miles downstream from Weicher Creek, 5.7 miles upstream from confluence with South Fork, and 7.4 miles upstream from Ohio River.

Drainage area.--18.9 sq mi, of which about 0.5 sq mi does not contribute directly to surface runoff.

Gage-height record.--Digital recorder tape punched at 15-minute intervals. Datum of gage is 477.70 ft above mean sea level, Louisville city datum, 1912 adjustment.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 4, 2145 hours	1,160	4.48
Mar. 9, 1145 hours	3,920	a 6.17
1943:		
February	Unknown	8.1
1944 to February 1964:		
June 23, 1960	3,300	5.83

a From inside gage; floodmark elevation, 6.6 ft.

Mean discharge, in cubic feet per second, March 1964, of Middle Fork Beargrass Creek at Cannons Lane, at Louisville, Ky.

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	8.0	7.....	92	13.....	183	19.....	38	25.....	79
2.....	9.1	8.....	196	14.....	191	20.....	37	26.....	168
3.....	15	9.....	2,000	15.....	144	21.....	38	27.....	59
4.....	612	10.....	745	16.....	97	22.....	27	28.....	43
5.....	304	11.....	322	17.....	66	23.....	24	29.....	36
6.....	137	12.....	245	18.....	47	24.....	22	30.....	28
								31.....	25
Monthly mean discharge, in cubic feet per second.....									195
Runoff, in inches.....									11.9

Note.--Daily mean discharges computed on basis of 15-minute intervals.

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 1	2400	1.16	7.7	Mar. 5	0400	3.33	412	Mar. 9	0700	4.59	1,310
					0600	3.07	346		0800	4.88	1,720
2	1200	1.16	7.7		0800	2.88	302		0900	5.18	2,190
	1800	1.17	8.2		1200	2.62	245		1000	5.67	3,020
	2400	1.37	20		1600	2.45	210		1100	5.95	3,520
					2400	2.26	172		1145	6.17	3,920
3	0600	1.29	15						1300	6.05	3,700
	1200	1.29	15	6	0600	2.15	150		1400	5.87	3,380
	1800	1.26	13		1200	2.08	136		1600	5.08	2,030
	2400	1.25	13		2400	1.96	112		1700	4.89	1,740
									1800	4.90	1,750
4	0300	1.24	12	7	1200	1.85	92		2000	5.27	2,330
	0400	1.31	16		2400	1.77	77		2200	5.50	2,720
	0500	2.04	126						2400	5.22	2,250
	0600	2.40	200	8	0400	1.74	71				
	0800	3.35	418		0600	1.80	82	10	0200	4.70	1,460
	1000	3.87	602		0800	2.00	120		0400	4.47	1,150
	1200	3.97	654		1000	2.57	235		0600	4.28	918
	1300	3.97	654		1200	3.80	284		1200	3.82	578
	1400	4.02	684		1300	2.99	327		1800	3.50	460
	1500	4.21	841		1400	2.95	318		2400	3.25	391
	1600	4.32	964		1600	2.78	280				
	1700	4.33	976		1800	2.67	256	11	0600	3.07	346
	1800	4.36	1,010		2200	2.55	230		1200	2.96	320
	1900	4.43	1,100		2400	2.45	210		2400	2.77	277
	2000	4.45	1,120								
	2145	4.48	1,160	9	0100	2.41	202	12	1200	2.62	245
	2300	4.36	1,010		0200	2.44	208		2400	2.47	214
	2400	4.28	918		0300	3.40	431				
					0400	3.99	665	13	1200	2.32	180
5	0200	3.84	588		0600	4.37	1,020		2400	2.22	160

SILVER CREEK BASIN

(77) 3-2940. Silver Creek near Sellersburg, Ind.

Location.--Lat 38°22'15", long 85°43'35", in SW¼ lot 68, Clark Military Grant, on upstream side of Straws Mill bridge on Watson Road, 0.3 mile downstream from Pleasant Run, 2.4 miles southeast of Sellersburg, and 11.9 miles upstream from mouth.

Drainage area.--188 sq mi.

Gage-height record.--Graph drawn on basis of wire-weight-gage readings usually made twice daily. Peak stage of Mar. 10 was determined from high-water marks. Altitude of gage is 430 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 15,000 cfs and by contracted-opening measurements at 16,600 and 19,500 cfs. Backwater from Ohio River Mar. 12-20; discharge estimated on basis of records for stations on nearby streams.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 5, 1200 hours.....	14,800	29.76
Mar. 10, 0800-1000 hours.....	15,600	30.40
1954 to February 1964:		
Jan. 22, 1959.....	a19,600	30.89

a From rating curve extended above 6,300 cfs on basis of contracted-opening measurements of peak flow, at site 5.2 miles upstream (drainage area, 164 sq mi), adjusted to gage site.

Mean discharge, in cubic feet per second, March 1964, of Silver Creek near Sellersburg, Ind.

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	20	7.....	1,100	13.....	1,290	19.....	258	25.....	182
2.....	23	8.....	1,010	14.....	844	20.....	225	26.....	513
3.....	56	9.....	7,490	15.....	1,120	21.....	227	27.....	240
4.....	3,410	10.....	15,100	16.....	688	22.....	166	28.....	157
5.....	13,800	11.....	9,480	17.....	410	23.....	140	29.....	126
6.....	8,070	12.....	3,040	18.....	304	24.....	126	30.....	106
								31.....	90
Monthly mean discharge, in cubic feet per second.....									2,252
Runoff, in inches.....									13.81

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 2	2400	4.65	40	Mar. 7	1200	9.05	872	Mar. 11	2400	20.05	5,040
					1800	7.65	558				
3	0600	4.74	47		2400	7.00	421	12	0400	18.70	4,170
	1800	4.80	52						0800	18.05	3,400
	2400	5.35	114	8	0600	6.80	381		1200	17.72	2,800
					1000	7.20	461		1800	17.40	2,200
4	0400	6.10	241		1400	8.30	701		2400	17.48	1,800
	0800	8.20	679		1600	9.30	929				
	1200	12.65	1,710		1800	11.60	1,460	13	1200	17.50	1,200
	1400	15.20	2,530		2000	14.20	2,170		2400	17.30	950
	1600	18.40	4,000		2200	15.20	2,530				
	1800	21.65	6,320		2400	16.20	2,940	14	1800	17.15	700
	2000	24.25	8,550						2400	17.22	1,100
	2200	25.30	9,630	9	0400	18.15	3,880				
	2400	26.35	10,800		0800	20.20	5,160	15	0600	17.10	1,280
					1200	22.20	6,760		1200	16.45	1,160
5	0200	27.35	11,900		1600	24.45	8,750		1800	15.70	1,030
	0400	28.35	13,100		2000	27.10	11,600		2400	15.17	900
	0600	29.30	14,300		2200	28.35	13,100				
	0800	29.65	14,700		2400	29.55	14,600	16	1200	14.30	670
	1200	29.76	14,800						2400	13.50	510
	1600	29.55	14,600	10	0200	30.03	15,100				
	1800	29.30	14,300		0400	30.22	15,400	17	1200	12.60	395
	2000	28.95	13,800		0600	30.33	15,500		2400	11.60	340
	2200	28.40	13,200		0800	30.40	15,600				
	2400	27.75	12,400		1000	30.40	15,600	18	1200	10.55	300
					1200	30.33	15,500		2400	9.45	278
6	0400	26.50	11,000		1600	30.08	15,200				
	0800	25.30	9,630		2000	29.65	14,700	19	1200	8.27	257
	1200	24.00	8,300		2400	29.00	13,900		2400	7.25	238
	1600	22.20	6,760								
	2000	20.10	5,080	11	0400	27.90	12,600	20	1200	6.30	219
	2400	16.20	2,940		0800	26.50	11,000		1800	6.04	219
					1200	25.05	9,360		2400	6.04	229
7	0400	12.70	1,720		1600	23.65	7,980				
	0800	10.40	1,180		2000	21.85	6,480				

OHIO RIVER MAIN STEM

(78) 3-2945. Ohio River at Louisville, Ky.

Location.--Lat 38°16'49", long 85°47'57", on left bank at downstream end of lock guide wall in lower pool at McAlpine locks at Louisville, Jefferson County, 5.3 miles downstream from Beargrass Creek and at mile 607.3.

Drainage area.--91,170 sq mi, approximately.

Gage-height record.--Water-stage recorder graph. Graph drawn for auxiliary upper staff gage, 26.4 miles downstream, from hourly readings. Datum of gage is 374.00 ft above mean sea level, Ohio River datum.

Discharge record.--Stage-fall-discharge relation or stage-discharge relation defined by current-meter measurements. Fall used as a factor in computing discharge Mar. 1 to 0600 hours Mar. 4; rate of change in stage used as a factor thereafter.

Maxima.--March 1964: Discharge, 785,000 cfs Mar. 12, 0900 hours; gage height, 73.46 ft Mar. 13, 0500 hours.
1832, 1848, 1858-59, 1866-69, 1872 to February 1964: Discharge, 1,110,000 cfs Jan. 26, 27, 1937; gage height, 85.44 ft Jan. 27, 1937.

Remarks.--Partly regulated by locks, dams and reservoirs.

Cooperation.--Auxiliary gage-height record and 5 discharge measurements furnished by Corps of Engineers.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	38,900	7.....	477,000	13.....	770,000	19.....	584,000	25.....	236,000
2.....	42,000	8.....	482,000	14.....	747,000	20.....	539,000	26.....	218,000
3.....	54,400	9.....	587,000	15.....	717,000	21.....	487,000	27.....	200,000
4.....	151,000	10.....	706,000	16.....	688,000	22.....	435,000	28.....	177,000
5.....	411,000	11.....	770,000	17.....	654,000	23.....	362,000	29.....	160,000
6.....	475,000	12.....	780,000	18.....	619,000	24.....	290,000	30.....	154,000
								31.....	148,000
Monthly mean discharge, in cubic feet per second.....									424,500

Mean discharge, in cubic feet per second, April 1964

Apr. 1..... 142,000
2..... 136,000

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 1	2400	11.52	34,700	Mar. 11	1200	70.95	777,000	Mar. 21	2400	56.75	465,000
					1800	71.82	780,000				
2	1200	11.64	43,200		2400	72.41	777,000	22	1200	54.81	437,000
	2400	12.34	47,400						2400	52.45	402,000
				12	0600	72.84	778,000				
3	1200	13.61	55,300		0900	73.00	785,000	23	1200	49.57	363,000
	2400	14.12	59,400		1200	73.16	782,000		2400	46.33	321,000
					1800	73.33	780,000				
4	0600	14.62	74,600		2400	73.41	774,000	24	1200	43.07	292,000
	1200	18.50	122,000						2400	39.85	257,000
	1800	24.85	213,000	13	0500	73.46	775,000				
	2400	32.60	330,000		1200	73.40	774,000	25	1200	35.68	228,000
					1800	73.33	765,000		2400	34.24	229,000
5	0600	38.50	392,000		2400	73.18	762,000				
	1200	42.43	417,000					26	1200	32.89	217,000
	1800	45.23	438,000	14	1200	72.76	746,000		2400	31.90	210,000
	2400	47.82	463,000		2400	72.22	735,000				
								27	1200	30.96	201,000
6	0600	49.70	473,000	15	1200	71.57	716,000		2400	29.81	189,000
	1200	51.07	478,000		2400	70.83	702,000				
	2400	52.75	478,000					28	1200	28.36	177,000
				16	1200	70.09	688,000		2400	27.00	166,000
7	0600	53.30	480,000		2400	69.27	674,000				
	1200	53.62	475,000					29	1200	25.67	159,000
	2400	54.00	475,000	17	1200	68.37	652,000		2400	24.95	155,000
					2400	67.45	636,000				
8	1200	54.27	478,000					30	1200	24.57	154,000
	2400	54.64	493,000	18	1200	66.40	619,000		2400	24.18	151,000
					2400	65.40	603,000				
9	0600	55.28	540,000					31	1200	23.84	148,000
	1200	57.38	596,000	19	1200	64.34	581,000		2400	23.28	146,000
	2400	61.98	669,000		2400	63.10	570,000				
								Apr. 1	1200	22.90	141,000
10	1200	65.57	701,000	20	1200	61.74	539,000		2400	22.72	139,000
	1800	67.24	732,000		2400	60.26	508,000				
	2400	68.70	746,000					2	1200	22.38	137,000
				21	1200	58.60	487,000		2400	21.80	132,000

SALT RIVER BASIN

(79) 3-2950. Salt River near Harrodsburg, Ky.

Location.--Lat 37°45'26", long 84°52'23", near center of span on downstream side of bridge on State Highway 152, 1½ miles west of Harrodsburg, Mercer County, and 11 miles downstream from Quirks Run.

Drainage area.--41.4 sq mi, of which about 2 sq mi does not contribute directly to surface runoff.

Gage-height record.--Graph drawn from twice-daily wire-weight-gage readings and peak from crest-stage gage, except Mar. 1, 15, when no readings were made. Datum of gage is 810.60 ft above mean sea level, unadjusted.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 2,400 cfs. Discharge for Mar. 1, 15 estimated on basis of records for stations on nearby streams.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 4, 1600 hours	3,400	13.9
Mar. 10, 0800 hours	3,450	14.0
1952 to February 1964:		
Nov. 18, 1957	4,190	15.1

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	14	7	89	13	69	19	42	25	35
2	13	8	800	14	56	20	36	26	28
3	79	9	325	15	250	21	31	27	21
4	1,500	10	1,450	16	99	22	28	28	17
5	1,150	11	200	17	76	23	41	29	15
6	160	12	89	18	55	24	39	30	12
								31	11
Monthly mean discharge, in cubic feet per second									220
Runoff, in inches									6.14

(80) 3-2955. Salt River near Van Buren, Ky.

Location.--Lat 37°58'06", long 85°08'03", on right bank at downstream side of Goodnight Bridge, 1.8 miles east of Van Buren, Anderson County, and 2.3 miles upstream from Crooked Creek.

Drainage area.--196 sq mi, of which about 4 sq mi does not contribute directly to surface runoff.

Gage-height record.--Digital recorder tape punched at 30-minute intervals. Datum of gage is 535.38 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 9,000 cfs and extended above by logarithmic plotting.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 4, 2000 hours	16,700	21.16
Mar. 9, 2200 hours	11,100	17.62
1928, 1937 to February 1964:		
1928	20,000	22.2

Flood in 1928 is maximum known.

Mean discharge, in cubic feet per second, March 1964, of Salt River near Van Buren, Ky.

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	74	7.....	707	13.....	438	19.....	211	25.....	180
2.....	84	8.....	2,810	14.....	420	20.....	198	26.....	165
3.....	237	9.....	7,620	15.....	1,310	21.....	666	27.....	133
4.....	9,090	10.....	7,170	16.....	706	22.....	379	28.....	111
5.....	8,130	11.....	3,100	17.....	368	23.....	255	29.....	99
6.....	2,470	12.....	757	18.....	267	24.....	209	30.....	85
								31.....	74
Monthly mean discharge, in cubic feet per second.....									1,565
Runoff, in inches.....									9.21

Note.-- Daily mean discharges computed on basis of 30-minute intervals.

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 1	2400	3.14	86	Mar. 5	2400	12.86	5,370	Mar. 9	1500	15.09	7,710
									1600	15.24	7,890
2	0400	3.18	93	6	0400	12.37	4,930		1700	14.92	7,510
	1200	3.11	82		0600	11.58	4,260		1900	14.71	7,280
	1800	3.07	76		0800	9.90	3,040		2100	17.13	10,400
	2400	3.13	85		1000	8.43	2,160		2200	17.62	11,100
					1200	7.54	1,680		2300	17.38	10,700
3	0500	3.79	200		1600	6.65	1,240		2400	17.08	10,300
	0800	3.81	204		2000	6.24	1,030				
	1000	4.02	244		2400	5.99	926	10	0200	17.10	10,300
	1200	4.01	242						0300	17.11	10,400
	1400	4.09	258	7	0600	5.67	798		0400	16.95	10,100
	2000	4.31	302		1200	5.43	702		0600	16.21	9,090
	2400	4.28	296		1800	5.22	618		0800	15.02	7,620
					2400	5.03	542		1000	14.03	6,530
4	0400	4.22	284						1200	13.63	6,130
	0500	4.33	306	8	0600	4.92	498		1800	13.30	5,800
	0600	8.92	2,450		0700	4.95	510		2400	12.89	5,400
	0700	13.50	6,000		0800	5.14	586				
	0800	15.19	7,830		0900	7.18	1,500	11	0600	12.45	5,000
	1000	13.41	5,910		1000	9.39	2,730		0800	12.17	4,750
	1200	16.47	9,460		1200	9.07	2,540		1000	11.36	4,090
	1400	18.68	12,700		1400	10.59	3,510		1200	9.67	2,900
	1500	18.32	12,100		1600	11.88	4,500		1600	7.43	1,620
	1600	18.46	12,300		1800	12.31	4,880		2000	6.60	1,210
	1800	20.81	16,100		2000	12.12	4,710		2400	6.23	1,020
	1900	21.13	16,600		2200	12.52	5,070				
	2000	21.16	16,700		2400	12.99	5,490	12	0600	5.84	866
	2100	21.08	16,500						1200	5.55	750
	2200	20.67	15,900	9	0400	12.95	5,460		1800	5.29	646
	1400	19.65	14,200		0600	14.90	7,490		2400	5.08	562
					0700	15.13	7,760				
5	0600	17.10	10,300		0800	15.03	7,640	13	1200	4.75	430
	1200	14.50	7,050		1000	14.85	7,440		2400	4.50	350
	1800	13.46	5,960		1400	14.82	7,400				

(81) Salt River at Taylorsville, Ky.

(Miscellaneous site)

Location.--Lat 38°01'41", long 85°20'34", at State Highway 55 bridge at Taylorsville, Spencer County, and 0.3 mile upstream from Brashears Creek.

Drainage area.--359 sq mi.

Discharge record.--Stage-discharge relation defined by two current-meter measurements at 18,000 and 21,700 cfs.

Maxima.--Given in the following table.

	Discharge (cfs)	Elevation (feet)
March 1964:		
Mar. 5.....	27,000	495.84
Mar. 10.....	40,000	498.29

Cooperation.--Two discharge measurements and elevations from high-water marks furnished by Corps of Engineers.

(82) Bullskin Creek near Simpsonville, Ky.

(Miscellaneous site)

Location.--Lat 38°12'10", long 85°18'58", at bridge on Interstate Highway 64, 200 ft downstream from Little Bullskin Creek, and 2.5 miles southeast of Simpsonville, Shelby County, Ky.

Drainage area.--66.1 sq mi.

Discharge record.--Peak discharge by contracted-opening measurement.

Maximum.--March 1964: Discharge, 17,600 cfs Mar. 9, 1964 (elevation, 687.95 ft above mean sea level, datum of 1929).

(83) Clear Creek near Shelbyville, Ky.

(Miscellaneous site)

Location.--Lat 38°11'07", long 85°14'47", at bridge on Interstate Highway 64, 2.3 miles southwest of Shelbyville, Shelby County, Ky.

Drainage area.--52.1 sq mi.

Discharge record.--Peak discharge by contracted-opening measurement.

Maximum.--March 1964: Discharge, 15,000 cfs Mar. 9, 1964 (elevation, 683.44 ft above mean sea level, datum of 1929).

(84) 3-2960. Plum Creek subwatershed No. 4 near Simpsonville, Ky.

Location.--Lat 38°10'27", long 85°22'05", near center of upstream side of Tucker Dam on tributary to Plum Creek, a quarter of a mile upstream from mouth and 3.5 miles south of Simpsonville, Shelby County.

Drainage area.--1.55 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 687.99 ft above mean sea level (levels by Soil Conservation Service).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 4, 2230 hours	152	22.0
Mar. 9, 2145 hours	163	25.06
1954 to February 1964:		
May 7, 1961	153	22.42

Remarks.--Records of discharge are outflow from reservoir, determined from stage-discharge relation for outlet structure. Reservoir is formed by earth dam; dam completed and storage began in October 1954. Outlet structure is a 4-foot square concrete drop inlet connected to a 36-inch concrete outlet pipe. A 120° V-notch weir with notch at gage height 15.18 ft is set in upstream side of drop inlet. Top of drop inlet is at gage height 15.96 ft, emergency spillway at gage height 27.0 ft. Reservoir capacity at top of drop inlet, 90.0 acre-ft. Capacity at emergency spillway level, 365 acre-ft.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	0.20	7	2.1	13	1.9	19	0.80	25	3.9
2	.25	8	18	14	4.4	20	.80	26	4.9
3	.35	9	132	15	3.4	21	1.6	27	1.8
4	78	10	63	16	2.0	22	1.3	28	1.5
5	44	11	4.3	17	1.5	23	.95	29	1.1
6	2.9	12	2.5	18	1.1	24	.70	30	.75
								31	.55
Monthly mean discharge, in cubic feet per second									12.3

(85) 3-2965. Plum Creek near Wilsonville, Ky.

(Gaging station, discontinued 1961; crest-stage station)

Location.--Lat 38°06'20", long 85°26'14", on left bank 1.0 mile downstream from Drakes Branch, 2.2 miles southwest of Wilsonville, Spencer County, and 3.7 miles upstream from Little Plum Creek.

Drainage area.--19.1 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 582.99 ft above mean sea level (levels by Soil Conservation Service).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 2,400 cfs and by contracted-opening measurement at 5,180 cfs.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 4, 2000 hours	3,890	6.59
Mar. 9, 1000 hours	3,920	6.62
1954 to February 1964:		
June 23, 1960	5,180	7.92

Remarks.--Flow appreciably regulated by seven small detention reservoirs.

(86) 3-2967. Plum Creek subwatershed No. 15 (Little Plum Creek) near Wilsonville, Ky.

(Gaging station, discontinued 1961; stage station)

Location.--Lat 38°05'44", long 85°24'41", on right bank on upstream side of dam on Reservoir No. 15 on Little Plum Creek, 2.1 miles south of Wilsonville, Spencer County, and 2.8 miles upstream from mouth.

Drainage area.--1.03 sq mi.

Gage-height record.--Water-stage recorder graph except Mar. 9. Crest-stage obtained from high-water mark.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 4, 2100 hours	120	24.80
Mar. 9, 2100 hours	120	25.26
1957 to February 1964:		
June 23, 1960	124	29.0

Remarks.--Records of discharge are outflow from reservoir, determined from stage-discharge relation for outlet structure. Reservoir is formed by earth dam; dam completed and storage began in February 1957. Outlet structure is a 4-foot square concrete drop inlet connected to a 30-inch concrete outlet pipe. A 120° V-notch weir with notch at gage height 16.39 ft is set in downstream side of drop inlet. Top of drop inlet is at gage height 17.14 ft, emergency spillway at gage height 29.6 ft. Reservoir capacity at top of drop inlet, 63.5 acre-ft. Capacity at emergency spillway level, 225 acre-ft.

(87) 3-2968. Plum Creek subwatershed No. 17 near Waterford, Ky.

(Gaging station discontinued 1961; stage station)

Location.--Lat 38°04'07", long 85°24'48", near center of upstream side of dam on Reservoir No. 17, 0.3 mile upstream from confluence with unnamed tributary to Little Plum Creek, and 2.6 miles northeast of Waterford, Spencer County.

Drainage area.--0.52 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 577.20 ft above mean sea level (levels by Soil Conservation Service).

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 4, 2000 hours	78	21.56
Mar. 9, 2030 hours	76	20.54
1957 to February 1964:		
June 23, 1960	87	28.70

Remarks.--Records of discharge are outflow from reservoir, determined from stage-discharge relation for outlet structure. Reservoir is formed by earth dam; dam completed and storage began in May 1957. Outlet structure is a 4-foot square concrete drop inlet connected to a 24-inch concrete outlet pipe. A 120° V-notch weir with notch at gage height 15.13 ft is set in downstream side of drop inlet. Top of drop inlet is at gage height 15.84 ft, emergency spillway at gage height 30.8 ft. Reservoir capacity at top of drop inlet, 28.7 acre-ft. Capacity at emergency spillway level, 119 acre-ft.

(88) 3-2970. Little Plum Creek near Waterford, Ky.

(Gaging station, discontinued 1961; crest-stage station)

Location.--Lat 38°03'44", long 85°25'45", on right bank 800 ft upstream from mouth and 1.7 miles north of Waterford, Spencer County.

Drainage area.--5.15 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 506.37 ft above mean sea level (levels by Soil Conservation Service).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 900 cfs and by slope-area measurement at 3,810 cfs.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 4, 1800 hours	1,390	4.71
Mar. 9, 1930 hours	1,260	4.55
1954 to February 1964:		
June 23, 1960	3,810	6.12

Remarks.--Flow appreciably regulated by three small detention reservoirs.

(89) 3-2975. Plum Creek at Waterford, Ky.

Location.--Lat 38°03'05", long 85°25'55", on right bank 0.7 mile downstream from Little Plum Creek, 1.0 mile north of Waterford, Spencer County, and 3.2 miles upstream from mouth.

Drainage area.--31.8 sq mi.

Gage-height record.--Digital recorder tape punched at 15-minute intervals. Datum of gage is 479.70 ft above mean sea level (levels by Soil Conservation Service).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 3,200 cfs and by contracted-opening measurement at 13,200 cfs.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 4, 1830 hours	8,740	8.96
Mar. 9, 1945 hours	7,940	8.43
1954 to February 1964:		
June 23, 1960	13,200	11.84

Remarks.--Flow slightly regulated by 11 small detention reservoirs.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	8.7	7	58	13	42	19	19	25	71
2	9.5	8	640	14	137	20	22	26	155
3	16	9	4,580	15	88	21	44	27	34
4	3,160	10	1,140	16	46	22	27	28	25
5	603	11	124	17	32	23	23	29	19
6	83	12	59	18	23	24	19	30	14
								31	12
Monthly mean discharge, in cubic feet per second									366
Runoff, in inches									13.25

Note.--Daily mean discharges computed on basis of 15-minute intervals.

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 1	2400	1.08	8.7	Mar. 5	1900	2.04	177	Mar. 9	1200	7.64	6,760
					2400	1.78	111		1300	7.14	6,010
2	1600	1.08	8.7						1400	6.34	4,810
	2400	1.17	15	6	0600	1.68	91		1500	6.15	4,520
					1800	1.59	73		1600	5.47	3,500
3	1200	1.19	16		2400	1.57	70		1700	5.05	2,880
	2400	1.18	16						1800	5.74	3,910
				7	1200	1.50	57		1900	7.54	6,610
4	0300	1.18	16		2400	1.47	52		1945	8.43	7,940
	0400	1.24	22						2100	7.61	6,720
	0500	1.64	83	8	0400	1.46	51		2200	7.11	5,960
	0600	3.26	818		0500	1.49	55		2300	6.24	4,660
	0700	3.92	1,420		0700	1.68	91		2400	5.17	3,060
	0800	4.34	1,910		0800	1.96	155				
	0900	4.82	2,540		0900	3.27	826	10	0100	4.58	2,210
	1000	5.33	3,300		1000	3.88	1,380		0200	4.70	2,370
	1100	5.88	4,120		1100	3.90	1,400		0300	4.61	2,250
	1200	5.75	3,920		1200	3.62	1,120		0400	4.33	1,900
	1300	5.65	3,780		1300	3.35	890		0600	3.97	1,470
	1400	5.45	3,480		1400	3.44	962		0900	3.71	1,210
	1500	5.13	3,000		1500	3.81	1,310		1200	3.34	882
	1600	5.30	3,250		1600	3.79	1,290		1500	3.20	770
	1700	6.11	4,460		1700	3.69	1,190		1800	3.11	707
	1800	8.21	7,620		1800	3.51	1,020		2100	2.92	574
	1830	8.96	8,740		2100	2.96	602		2400	2.54	368
	1900	8.56	8,140		2400	2.54	368				
	2000	8.43	7,940					11	0300	2.15	212
	2100	7.95	7,220	9	0200	2.37	298		0600	1.91	142
	2200	6.35	4,820		0300	2.58	386		0900	1.77	109
	2300	5.04	2,860		0400	4.54	2,160		1800	1.62	79
	2400	4.27	1,820		0500	6.59	5,180		2400	1.57	70
					0600	6.65	5,280				
5	0100	3.97	1,470		0700	6.27	4,700	12	1200	1.51	59
	0200	3.78	1,280		0800	6.74	5,410		2400	1.44	47
	0600	3.43	954		0900	7.29	6,240				
	1200	2.79	494		1000	7.51	6,560	13	1200	1.41	43
	1800	2.21	234		1100	7.90	7,150		2400	1.36	35

(90) Floyds Fork near Middletown, Ky.

(Miscellaneous site)

Location.--Lat 38°17'17", long 85°28'18", at bridge on Interstate Highway 64, 1.1 miles southwest of Eastwood and 4.0 miles southeast of Middletown, Jefferson County, Ky.

Drainage area.--101 sq mi.

Discharge record.--Peak discharge by contracted-opening measurement.

Maximum.--March 1964: Discharge, 22,000 cfs Mar. 9, 1964 (elevation, 584.11 ft above mean sea level, datum of 1929).

(91) 3-2980. Floyds Fork at Fisherville, Ky.

Location.--Lat 38°11'18", long 85°27'37", on left bank on downstream side of bridge on former State Highway 155, at Fisherville, Jefferson County, 0.2 mile downstream from Brush Run and 1.5 miles upstream from Poke Lick.

Drainage area.--138 sq mi.

Gage-height record.--Water-stage recorder graph except Mar. 9, 0700 hours to Mar. 10, 1000 hours for which graph was constructed on basis of high-water marks and outside gage readings. Datum of gage is 542.60 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 4, 2100 hours	17,800	a14.03
Mar. 9, 1200 and 2100 hours	24,800	b15.25
1937:		
January 1937	Unknown	c16.8
1944 to February 1964:		
May 8, 1961	19,800	d14.45

a From inside gage; floodmark gage height 14.30 ft.
b From inside gage; floodmark gage height 15.70 ft.
c From floodmark.
d From inside gage; floodmark gage height 14.7 ft.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	19	7	268	13	289	19	110	25	245
2	19	8	1,490	14	443	20	113	26	1,110
3	29	9	15,400	15	500	21	250	27	306
4	7,140	10	9,420	16	276	22	175	28	208
5	6,710	11	676	17	200	23	127	29	145
6	448	12	450	18	137	24	108	30	110
								31	91
Monthly mean discharge, in cubic feet per second									1,517
Runoff, in inches									12.67

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964, of Floyds Fork at Fisherville, Ky.

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 2	2400	1.12	22	Mar. 5	1600	4.78	1,190	9	1500	14.47	18,600
					1800	4.31	915		1600	13.96	16,200
3	0800	1.18	25		2400	3.74	643		1800	14.41	18,400
	1600	1.29	32						2100	15.70	24,800
	2400	1.35	36	6	0600	3.42	508		2400	14.90	20,800
					1200	3.20	425				
4	0300	1.41	41		1800	3.04	372	10	0200	14.25	17,600
	0400	1.47	46		2400	2.90	330		0300	14.12	16,900
	0500	1.72	72						0500	13.96	16,200
	0600	3.36	484	7	1200	2.67	262		0800	13.55	14,600
	0900	8.58	4,100		2400	2.50	220		1200	12.28	9,840
	1000	9.04	4,570						1400	11.25	7,650
	1300	10.89	7,020	8	0800	2.66	260		1700	6.45	2,340
	1500	11.25	7,650		0900	3.25	442		1800	5.70	1,810
	1600	11.60	8,300		1100	5.20	1,460		2000	5.06	1,360
	1800	13.30	13,600		1200	5.83	1,900		2200	4.68	1,130
	1900	13.91	16,000		1230	5.87	1,930		2400	4.43	978
	2000	14.15	17,000		1400	5.57	1,720				
	2100	14.30	17,800		1500	5.82	1,890	11	0600	3.96	742
	2200	14.15	17,000		1700	6.82	2,590		0900	3.80	670
	2300	13.88	15,900		1900	7.40	3,040		1200	3.67	612
	2400	13.49	14,400		2030	7.59	3,190		1800	3.47	528
					2400	6.48	2,360		2400	3.80	670
5	0200	12.89	12,000								
	0700	12.92	12,100	9	0230	5.93	1,970	12	1200	3.12	397
	0800	12.84	11,800		0300	6.16	2,130		2400	2.92	336
	1000	12.50	10,500		0700	12.00	9,100				
	1200	11.45	8,010		1100	15.43	23,400	13	1200	2.75	285
	1400	7.40	3,040		1200	15.70	24,800		2400	2.62	250
	1500	5.38	1,590		1300	15.42	23,400				

(92) 3-2985. Salt River at Shepherdsville, Ky.

Location.--Lat 37°59'06", long 85°43'03", near right bank on downstream side of pier of bridge on State Highway 61 at Shepherdsville, Bullitt County, 500 ft downstream from Louisville & Nashville Railroad bridge and 2.5 miles downstream from Floyds Fork.

Drainage area.--1,197 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 406.62 ft above mean sea level, datum of 1929.

Discharge record.--Stage-fall-discharge relation or stage-discharge relation defined by current-meter measurements. Fall used as a factor Mar. 4 to 25.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 5, 2100 hours	50,900	-
Mar. 6, 0030 hours	-	33.40
Mar. 10, 1200 hours	78,200	-
Mar. 11, 0300 hours	-	41.50
1938 to February 1964:		
May 9, 1961	57,700	-
May 9, 1961	-	40.84

Maximum stage known, 47.3 ft Jan. 26, 1937, from floodmark (backwater from Ohio River.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	365	7	18,500	13	11,500	19	4,470	25	1,210
2	342	8	10,800	14	8,410	20	4,050	26	4,330
3	417	9	34,900	15	9,810	21	3,540	27	3,260
4	11,200	10	73,500	16	9,600	22	3,920	28	1,640
5	43,800	11	50,500	17	7,190	23	3,150	29	1,230
6	39,100	12	22,600	18	6,100	24	2,190	30	960
								31	763
Monthly mean discharge, in cubic feet per second									12,690
Runoff, in inches									12.22

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964, of Beech Fork at Bardstown, Ky.

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 3	2400	6.0	770	Mar. 8	0800	14.0	3,950	Mar. 12	0400	31.3	15,400
					1000	15.8	4,760		0800	28.1	12,300
4	0400	10.2	2,380		1200	18.7	6,150		1200	24.8	9,660
	0800	17.2	5,400		1600	24.0	9,100		1600	21.3	7,480
	1200	24.6	9,520		1800	26.8	11,100		2000	18.4	6,000
	1600	31.6	15,700		2000	28.6	12,700		2400	16.4	5,030
	2000	37.4	22,800		2200	29.4	13,500				
	2400	41.2	29,400		2400	30.0	14,100	13	0600	14.3	4,080
									1200	13.0	3,520
5	0200	42.5	31,900	9	0400	31.1	15,200		1800	12.3	3,220
	0400	43.2	33,300		1200	32.6	16,800		2400	11.8	3,020
	0700	43.5	33,900		1600	33.6	17,900				
	1000	43.2	33,300		2000	35.9	20,600	14	1200	10.8	2,620
	1400	42.8	32,500		2400	39.0	25,400		2400	10.0	2,300
	1800	42.4	31,700								
	2400	41.6	30,100	10	0200	40.7	28,400	15	0400	9.9	2,260
					0400	41.6	30,100		0800	12.8	3,440
6	0600	40.6	28,200		0600	42.2	31,300		1200	16.7	5,160
	1200	39.1	25,600		0800	42.6	32,100		1600	19.2	6,400
	1800	36.2	21,000		0900	42.7	32,300		1800	19.8	6,700
	2400	32.5	16,600		1000	42.6	32,100		2000	19.6	6,600
					1200	42.4	31,700		2400	18.8	6,200
7	0600	28.1	12,300		1600	41.4	29,800				
	1200	23.2	8,620		2000	40.3	27,700	16	0600	17.2	5,400
	1600	19.8	6,700		2400	39.6	26,400		1200	15.3	4,540
	2000	16.3	4,980						1800	13.4	3,700
	2400	14.4	4,130	11	0600	38.5	24,600		2400	11.7	2,980
					1800	35.8	20,400				
8	0400	13.4	3,700		2400	33.6	17,900	17	1200	9.6	2,140
	0600	13.2	3,610						2400	8.2	1,580

(96) 3-3015. Rolling Fork near Boston, Ky.

Location.--Lat 37°46'02", long 85°42'14", on downstream side near center of span of bridge on U.S. Highway 62 and State Highway 61, 0.4 mile downstream from Beech Fork and 2.3 miles southwest of Boston, Nelson County.

Drainage area.--1,299 sq mi.

Gage-height record.--Graph drawn on basis of floodmarks and twice-daily wire-weight-gage readings. Graph drawn for auxiliary wire-weight gage, 7.6 miles downstream, from floodmark and once- or twice-daily gage readings. Datum of gage is 400.42 ft above mean sea level, datum of 1929.

Discharge record.--Stage-fall-discharge or stage-discharge relation defined by current-meter measurements. Fall used as a factor Mar. 4-25.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 6, 1400 hours	42,100	-
Mar. 7, 0200 hours	-	48.0
Mar. 11, 2400 hours	35,900	-
Mar. 12, 0900 hours	-	51.0
1938 to February 1964:		
Feb. 15, 1948	41,300	-
Mar. 1, 1962	-	48.35

Maximum stage known, 55.2 ft in January 1937, former site, 1,400 ft upstream, from floodmarks (backwater from Ohio River).

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	472	7	31,200	13	8,720	19	4,720	25	1,730
2	440	8	18,000	14	4,420	20	3,570	26	1,330
3	681	9	18,500	15	6,390	21	3,600	27	1,120
4	7,580	10	24,700	16	10,200	22	4,090	28	968
5	31,300	11	33,100	17	9,530	23	3,820	29	823
6	41,600	12	29,000	18	6,550	24	2,630	30	718
								31	656
Monthly mean discharge, in cubic feet per second									10,070
Runoff, in inches									8.94

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964, of Rolling Fork near Boston, Ky.

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 2	2400	7.45	432	Mar. 9	0600	45.0	16,800	Mar. 16	2400	44.3	10,700
					1200	45.3	18,400				
3	1200	7.5	440		1800	45.9	20,300	17	0600	43.9	10,600
	1600	7.7	472		2400	46.6	21,500		1200	43.5	9,720
	1800	8.9	673						2400	42.3	7,590
	2400	14.9	2,040	10	0600	47.4	23,100				
					1200	48.0	24,500	18	1200	41.1	6,470
4	1200	26.8	5,800		1800	48.7	26,000		2400	39.9	5,660
	1800	32.5	10,800		2400	49.4	28,800				
	2400	37.4	17,600					19	1200	38.6	4,620
				11	0400	49.8	29,400		2400	37.2	3,970
5	0600	40.5	26,200		1200	50.5	34,200				
	1200	42.4	32,600		1800	50.8	35,600	20	1200	35.8	3,420
	1600	43.3	35,900		2400	50.9	35,900		2400	34.4	3,480
	2000	44.2	38,700								
	2400	44.9	40,400	12	0600	50.95	35,200	21	1200	33.2	3,560
					0900	51.0	33,100		2400	32.0	3,810
6	0200	45.3	41,300		1200	50.9	30,400				
	0600	45.9	41,700		1800	50.7	24,100	22	1200	30.7	4,230
	1000	46.5	42,000		2400	50.3	16,600		2400	29.3	4,100
	1400	47.0	42,100								
	1800	47.4	41,700	13	0600	49.9	11,100	23	1200	27.5	3,910
	2400	47.9	40,700		1200	49.5	7,360		2400	25.1	3,380
					1800	49.0	5,820				
7	0200	48.0	39,900		2400	48.6	4,640	24	0600	23.4	2,980
	0600	47.9	36,600						1200	21.5	2,610
	1200	47.6	31,700	14	1200	47.8	4,080		1800	19.4	2,220
	1800	47.1	25,300		2400	47.0	4,880		2400	17.1	2,030
	2400	46.5	21,300								
				15	1200	46.3	6,170	25	1200	13.6	1,710
8	0600	46.0	19,400		2400	45.7	8,350		2400	12.6	1,460
	1200	45.5	17,800								
	2400	44.9	15,200	16	0600	45.4	10,100	26	1200	12.0	1,320
					1200	45.0	10,600		2400	11.5	1,210
9	0300	44.9	16,200		1800	44.7	10,700				

(97) 3-3020. Pond Creek near Louisville, Ky.

Location.--Lat 38°07'11", long 85°47'45", on downstream side of bridge on Manslick Road, near center of span, 0.4 mile south of Third Street Road, 0.6 mile downstream from Bee Lick Creek, 1.5 miles downstream from confluence of Northern and Southern ditches, and 2.4 miles south of Louisville city limits, Jefferson County.

Drainage area.--64.0 sq mi.

Gage-height record.--Digital recorder tape punched at 30-minute intervals. Datum of gage is 430.38 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements. Backwater from Ohio River Mar. 11-21; discharge estimated on basis of records for Middle Fork Beargrass Creek at Louisville.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 4, 2130 hours	5,460	19.52
Mar. 9, 2200 hours	8,020	22.69
1944 to February 1964:		
Apr. 13, 1948	-	21.78
Jan. 21, 1959	3,260	-

Maximum stage known, about 23 ft in January 1937 (backwater from Ohio River), from information by local residents.

Mean discharge, in cubic feet per second, March 1964, of Pond Creek near Louisville, Ky.

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	*12	7.....	*125	13.....	412	19.....	76	25.....	*150
2.....	*14	8.....	*842	14.....	392	20.....	67	26.....	*364
3.....	*36	9.....	*5,530	15.....	335	21.....	74	27.....	*95
4.....	*3,030	10.....	*6,340	16.....	220	22.....	*56	28.....	*66
5.....	*2,060	11.....	1,370	17.....	148	23.....	*43	29.....	*46
6.....	*219	12.....	562	18.....	101	24.....	*38	30.....	*31
								31.....	*29
Monthly mean discharge, in cubic feet per second.....									738
Runoff, in inches.....									13.30

* Mean daily discharges computed on basis of 30-minute intervals.

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 1	2400	2.52	12	Mar. 6	2400	3.97	158	Mar. 10	0600	22.05	7,440
									0800	21.88	7,300
2	0600	2.48	11	7	1200	3.70	123		1000	21.49	6,990
	1800	2.53	13		2400	3.53	102		1200	21.19	6,750
	2200	2.80	24						1400	20.80	6,440
	2400	3.00	39	8	0400	3.48	96		1600	20.22	5,980
					0500	3.50	98		1700	19.91	5,740
3	0600	3.06	46		0600	3.62	113		2000	18.71	4,900
	1200	2.97	36		0700	3.96	157		2200	17.51	4,110
	1800	2.90	30		0800	4.57	245		2400	16.11	3,360
	2400	2.82	25		0900	5.80	454				
					1000	7.59	808	11	0200	14.45	2,680
4	0300	2.81	25		1100	8.82	1,080		0400	12.78	2,130
	0400	2.90	30		1200	9.60	1,280		0600	11.24	1,680
	0500	3.88	146		1300	10.08	1,400		1200	9.33	1,000
	0600	6.65	620		1400	10.18	1,420		2400	9.96	700
	0800	10.81	1,580		1600	10.18	1,420				
	0900	12.75	2,120		1700	10.10	1,400	12	1200	10.76	550
	1100	15.39	3,060		1900	10.10	1,400		2400	11.06	450
	1200	16.33	3,460		2100	9.69	1,300				
	1600	18.57	4,800		2200	9.32	1,200	13	1200	11.09	400
	2000	19.40	5,380		2400	8.43	982		2400	10.90	400
	2130	19.52	5,460								
	2300	19.45	5,420	9	0200	7.73	836	14	1200	10.79	400
	2400	19.38	5,370		0300	8.20	930		2400	10.42	370
					0400	11.14	1,660				
5	0100	19.13	5,190		0500	13.94	2,480	15	1200	9.59	350
	0200	18.79	4,950		0600	16.53	3,560		2400	8.89	270
	0300	18.32	4,620		0700	18.12	4,480				
	0400	17.77	4,260		0900	18.96	5,070	16	1200	8.20	220
	0800	14.79	2,620		1200	21.13	6,700		2400	7.36	170
	1000	12.81	2,140		1400	21.53	7,020				
	1200	10.67	1,540		1600	21.76	7,210	17	1200	6.59	150
	1400	8.70	1,050		1800	22.15	7,540		2400	6.08	120
	1600	7.27	744		2000	22.53	7,880				
	1800	6.32	554		2100	22.63	7,970	18	1200	4.67	100
	2000	5.81	456		2200	22.69	8,020		2400	4.05	85
	2400	5.19	344		2400	22.68	8,010				
								19	1200	3.09	75
6	0600	4.61	252	10	0200	22.46	7,810		2400	3.09	68
	1200	4.31	206		0400	22.28	7,650				

INDIAN CREEK BASIN

(98) 3-3025. Indian Creek near Corydon, Ind.

(Formerly published as Big Indian Creek near Corydon, Ind.)

Location.--Lat 38°16'35", long 86°06'35", in SE¼ sec.6, T.3 S., R.4 E., on upstream side of bridge on State Highway 335, 0.6 mile upstream from Raccoon Branch and 4½ miles north of Corydon.

Drainage area.--129 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 577.12 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 5, 0230 hours	26,700	22.64
Mar. 9, 2200 hours	17,600	21.13
1943 to February 1964:		
Jan. 21, 1959	23,800	22.22

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	25	7	496	13	482	19	174	25	144
2	26	8	1,210	14	600	20	162	26	700
3	46	9	11,200	15	598	21	179	27	261
4	6,840	10	9,450	16	374	22	152	28	188
5	11,500	11	1,260	17	273	23	132	29	147
6	849	12	737	18	211	24	121	30	122
								31	110
Monthly mean discharge, in cubic feet per second									1,573
Runoff, in inches									14.05

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 2	2400	4.75	29	Mar. 5	0700	21.27	18,400	Mar. 8	1700	9.84	1,950
					0800	20.69	16,000		1900	10.69	2,510
3	0600	4.80	32		0900	20.05	14,300		2100	11.22	2,940
	1200	4.90	39		1000	19.30	12,800		2200	11.31	3,010
	1600	5.01	48		1100	18.40	11,300		2300	11.27	2,980
	2200	5.30	78		1200	17.48	9,920		2400	11.20	2,920
	2400	5.32	80		1300	16.35	8,300				
					1400	14.88	6,470	9	0100	11.44	3,110
4	0200	5.40	89		1500	13.20	4,700		0200	12.20	3,780
	0300	5.55	111		1600	11.80	3,420		0300	13.20	4,700
	0400	6.05	202		1700	10.50	2,380		0400	13.85	5,350
	0500	6.32	268		1800	9.68	1,860		0500	14.46	6,010
	0600	6.97	478		1900	9.30	1,630		0600	14.97	6,570
	0700	7.60	756		2000	9.08	1,500		0800	16.06	7,930
	0800	9.43	1,710		2200	8.73	1,300		1000	17.18	9,470
	0900	11.10	2,840		2400	8.50	1,190		1200	18.37	11,300
	1000	12.05	3,640						1400	19.50	13,200
	1100	12.65	4,180	6	0400	8.13	1,000		1600	20.35	15,100
	1200	13.35	4,850		0600	8.05	965		1800	20.77	16,200
	1300	14.40	5,940		1200	7.68	793		2000	21.06	17,300
	1400	15.15	6,780		1400	7.59	751		2100	21.11	17,600
	1500	16.07	7,940		1500	7.67	788		2200	21.13	17,600
	1600	17.10	9,350		1600	7.65	779		2300	21.11	17,600
	1700	18.13	10,900		2000	7.48	701		2400	21.05	17,200
	1800	19.18	12,600		2400	7.35	645				
	1900	19.86	13,900					10	0300	20.82	16,400
	2000	20.19	14,700	7	0600	7.12	552		0500	20.55	15,600
	2100	20.52	15,500		1200	6.92	483		0700	20.00	14,200
	2200	20.96	16,800		1800	6.76	428		0900	19.10	12,400
	2300	21.45	19,200		2400	6.66	394		1100	17.95	10,600
	2400	22.05	22,800						1300	16.67	8,740
				8	0500	6.56	362		1500	15.10	6,720
5	0100	22.36	24,700		0700	6.58	368		1600	14.22	5,740
	0200	22.58	26,300		0900	6.67	398		1700	13.13	4,630
	0230	22.64	26,700		1100	6.86	462		1800	12.14	3,730
	0300	22.63	26,600		1300	7.38	658		1900	11.25	2,960
	0400	22.44	25,300		1400	7.87	880		2000	10.68	2,510
	0500	22.24	23,900		1500	8.39	1,140		2200	10.00	2,050
	0600	21.78	21,200		1600	9.05	1,480		2400	9.63	1,830

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964, of Indian Creek near Corydon, Ind.--Continued

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 11	0600	9.06	1,490	Mar. 13	1700	6.81	445	Mar. 15	0200	7.54	728
	1200	8.50	1,190		2400	6.70	408		0500	7.51	715
	1800	8.14	1,010						1200	7.19	580
	2400	7.87	880	14	0600	6.65	391		1800	7.00	510
					0900	6.74	422		2400	6.85	459
12	0600	7.67	788		1200	7.14	560				
	1400	7.56	738		1600	7.82	857	16	0600	6.69	405
	1700	7.45	688		1700	7.86	876		1200	6.58	368
	2400	7.19	580		1800	7.85	871		1800	6.48	338
					2100	7.62	765		2400	6.39	311
13	0900	6.95	493		2400	7.60	756				

BLUE RIVER BASIN

(99) 3-3030. Blue River near White Cloud, Ind.

Location.--Lat 38°14'15", long 86°13'50", in NW¼SE¼ sec.19, T.3 S., R.3 E., on left bank, 400 ft downstream from Spring Creek, 0.2 mile upstream from bridge on State Highway 62, and three-quarters of a mile north of White Cloud.

Drainage area.--461 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 434.30 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 22,000 cfs and by contracted-opening measurement at 28,500 cfs.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 6, 0130 hours	16,300	16.40
Mar. 10, 2130 hours	28,400	23.03
1910 to February 1964:		
Jan. 22, 1959	28,500	23.07

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	117	7	2,430	13	3,550	19	1,250	25	664
2	110	8	2,230	14	3,020	20	1,100	26	819
3	124	9	14,000	15	3,870	21	1,020	27	960
4	4,040	10	26,000	16	2,630	22	903	28	756
5	14,000	11	20,400	17	1,940	23	786	29	670
6	9,600	12	5,450	18	1,540	24	708	30	594
								31	531
Monthly mean discharge, in cubic feet per second									4,058
Runoff, in inches									10.14

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 2	2400	2.15	112	Mar. 4	2300	14.67	13,600	Mar. 6	0130	16.40	16,300
					2330	14.68	13,600		0200	16.39	16,300
3	1200	2.20	125		2400	14.64	13,600		0400	16.22	16,100
	2400	2.24	135						0600	15.78	15,300
				5	0200	14.36	13,100		0800	15.02	14,100
4	0300	2.26	140		0300	14.24	13,000		0900	14.43	13,200
	0500	2.34	160		0400	14.17	12,900		1000	13.63	12,000
	0700	2.57	230		0500	14.16	12,800		1100	12.70	10,600
	1000	3.44	606		0700	14.23	12,900		1200	11.63	9,090
	1300	4.43	1,220		1000	14.41	13,200		1300	10.54	7,600
	1400	5.01	1,650		1300	14.72	13,700		1400	9.66	6,460
	1500	6.90	3,300		1600	15.13	14,300		1500	8.97	5,580
	1600	7.77	4,170		1900	15.66	15,200		1600	8.45	4,960
	1700	9.35	6,060		2100	16.00	15,700		1700	8.05	4,480
	1800	9.98	6,870		2400	16.33	16,200		1800	7.75	4,150
	1900	13.03	11,100						2000	7.30	3,700
	2100	14.09	12,700	6	0100	16.39	16,300		2100	7.14	3,540

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964, of Blue River near White Cloud, Ind.--Continued

Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge	Date	Hour	Gage height	Dis-charge
Mar. 6	2200	7.02	3,420	Mar. 10	2130	23.03	28,400	Mar. 15	0200	7.66	4,060
	2400	6.79	3,190		2200	23.02	28,400		0300	7.65	4,050
					2300	23.00	28,300		0600	7.59	3,990
7	0300	6.52	2,930		2400	22.95	28,200		0700	7.58	3,980
	0600	6.29	2,720						0800	7.58	3,980
	1000	6.03	2,490	11	0100	22.87	27,900		1000	7.63	4,030
	1400	5.78	2,260		0200	22.76	27,600		1100	7.65	4,050
	1900	5.54	2,070		0400	22.50	27,000		1200	7.66	4,060
	2400	5.31	1,890		0700	21.87	25,800		1300	7.65	4,050
					1000	20.90	23,900		1400	7.63	4,030
8	0400	5.15	1,760		1300	19.57	21,600		1500	7.59	3,990
	0700	5.07	1,700		1500	18.25	19,300		1700	7.45	3,850
	1000	5.02	1,660		1700	16.51	16,500		2100	7.09	3,490
	1200	5.06	1,690		1800	15.61	15,100		2400	6.84	3,240
	1300	5.13	1,740		1900	14.55	13,400				
	1400	5.26	1,850		2100	12.55	10,400	16	0400	6.56	2,960
	1500	5.52	2,060		2300	11.15	8,420		0600	6.45	2,860
	1700	6.25	2,680		2400	10.64	7,730		1200	6.15	2,600
	1900	6.83	3,230						1800	5.88	2,350
	2000	6.93	3,330	12	0200	10.05	6,960		2400	5.68	2,180
	2100	6.95	3,350		0400	9.65	6,440				
	2200	6.93	3,330		0600	9.35	6,060	17	0800	5.46	2,010
	2400	6.87	3,270		0800	9.10	5,740		1600	5.28	1,860
					1100	8.80	5,380		2400	5.11	1,730
9	0030	6.87	3,270		1500	8.44	4,950				
	0100	6.89	3,290		1900	8.13	4,580	18	0800	4.94	1,590
	0200	7.50	3,900		2400	7.83	4,230		1600	4.79	1,470
	0300	8.42	4,920						2400	4.65	1,380
	0400	9.18	5,840	13	0600	7.45	3,850				
	0500	10.42	7,450		1200	7.12	3,520	19	0800	4.52	1,280
	0600	11.36	8,710		1800	6.83	3,230		1600	4.42	1,210
	0700	12.00	9,610		2100	6.71	3,110		2400	4.34	1,160
	0800	13.15	11,300		2400	6.59	2,990				
	0900	14.11	12,800					20	1200	4.26	1,100
	1000	14.64	13,600	14	0300	6.49	2,900		2400	4.20	1,060
	1100	15.13	14,300		0400	6.48	2,890				
	1200	15.62	15,100		0600	6.42	2,840	21	1200	4.14	1,020
	1300	16.04	15,800		0900	6.35	2,780		1800	4.10	990
	1500	17.03	17,300		1200	6.32	2,750		2400	4.09	984
	1700	17.93	18,800		1400	6.31	2,740				
	1900	18.66	20,000		1500	6.33	2,760	22	0800	3.99	924
	2200	19.72	21,800		1600	6.34	2,770		1600	3.91	876
	2400	20.17	22,600		1700	6.36	2,780		2400	3.84	834
					1800	6.49	2,900				
10	0500	20.94	24,000		1900	6.82	3,220	23	1200	3.76	786
	1000	21.75	25,500		2000	7.09	3,490		2400	3.68	738
	1400	22.42	26,800		2100	7.29	3,690	24	1200	3.63	708
	1700	22.81	27,700		2200	7.44	3,840		2400	3.58	678
	1800	22.90	28,000		2300	7.55	3,950				
	1900	22.95	28,200		2400	7.62	4,020	25	1200	3.54	654
	2000	23.00	28,300						1800	3.53	648
	2100	23.02	28,400	15	0100	7.65	4,050		2400	3.61	696

ANDERSON RIVER BASIN

(100) 3-3033. Middle Fork Anderson River at Bristow, Ind.

Location.--Lat 38°08'19", long 86°43'16", in E½ sec.27, T.4 S., R.3 W., at bridge on State Highway 145 at Bristow, 2.0 miles downstream from Coon Branch, and 6.0 miles upstream from Sulphur Fork Creek.

Drainage area.--41.9 sq mi.

Gage-height record.--Digital recorder tape punched at 15-minute intervals. Datum of gage is 395.00 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 4,000 cfs and by contracted-opening measurements to 6,000 cfs, and extended above on basis of logarithmic plotting.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 4, 1915 hours	5,500	19.33
Mar. 9, 0830 hours	6,360	19.18
1905 to February 1964:		
Jan. 21, 1959	15,000	20.0

Mean discharge, in cubic feet per second, March 1964, of Middle Fork Anderson River at Bristow, Ind.

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	4.1	7.....	64	13.....	71	19.....	28	25.....	33
2.....	4.5	8.....	520	14.....	118	20.....	35	26.....	135
3.....	10	9.....	4,870	15.....	121	21.....	34	27.....	55
4.....	2,050	10.....	2,330	16.....	64	22.....	26	28.....	42
5.....	903	11.....	226	17.....	46	23.....	22	29.....	32
6.....	120	12.....	113	18.....	34	24.....	20	30.....	26
								31.....	23
Monthly mean discharge, in cubic feet per second.....									393
Runoff, in inches.....									10.81

Note.--Daily mean discharges computed on basis of 15-minute intervals.

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 1	2400	7.21	4.0	Mar. 6	1600	8.81	101	Mar. 10	0600	17.44	3,570
					2000	8.70	93		0800	17.25	3,320
3	2400	7.44	13		2400	8.59	85		1000	16.77	2,740
									1200	16.09	2,060
4	0200	7.47	15	7	0200	8.51	80		1400	15.42	1,500
	0400	8.69	92		0800	8.37	70		1600	14.85	1,160
	0600	10.32	206		1600	8.19	57		1800	14.32	900
	0800	12.28	358		2400	8.08	51		2000	13.84	696
	1000	13.69	558						2200	13.37	541
	1200	14.62	920	8	0200	8.06	50		2400	12.90	445
	1400	16.50	2,050		0400	8.06	50				
	1600	17.93	3,440		0600	8.18	57	11	0200	12.36	371
	1700	18.56	4,350		0800	8.83	102		0400	11.76	309
	1800	19.13	5,200		1000	10.30	205		0600	11.23	270
	1915	19.33	5,500		1200	12.21	354		0800	10.82	241
	2000	19.23	5,360		1400	13.50	580		1000	10.51	220
	2200	18.61	4,420		1600	14.17	828		1200	10.26	202
	2400	17.80	3,310		1800	14.59	1,040		1400	10.05	188
					2000	14.82	1,150		1600	9.81	175
5	0200	16.94	2,450		2200	14.86	1,170		1800	9.72	164
	0400	16.13	1,750		2400	14.96	1,230		2000	9.61	157
	0600	15.42	1,320						2200	9.51	150
	0800	14.80	1,010	9	0200	15.84	1,820		2400	9.42	143
	1000	14.20	730		0400	16.69	2,660				
	1200	13.58	536		0600	18.24	4,710	12	0400	9.29	134
	1400	12.96	435		0800	19.13	6,260		0800	9.16	125
	1600	12.27	357		0830	19.18	6,360		1200	9.01	115
	1800	11.48	288		1000	19.09	6,180		1600	8.83	102
	2000	10.85	244		1200	19.04	6,080		2000	8.69	92
	2200	10.38	211		1400	18.90	5,830		2400	8.59	85
	2400	10.04	187		1600	18.65	5,400				
					1800	18.63	5,370	13	0400	8.51	80
6	0200	9.78	169		2000	18.62	5,350		0800	8.43	74
	0400	9.56	153		2200	18.54	5,220		1200	8.37	70
	0600	9.37	140		2400	18.48	5,120		1600	8.32	66
	0800	9.21	129						2000	8.27	63
	1000	9.07	119	10	0200	18.36	4,910		2400	8.23	60
	1200	8.97	112		0400	17.86	4,120				

GREEN RIVER BASIN

(101) 3-3095. McDougal Creek near Hodgenville, Ky.

Location.--Lat 37°32'37", long 85°40'19", on left bank 0.3 mile upstream from bridge on State Highway 470, 4½ miles southeast of Hodgenville, Larue County, and 4¾ miles upstream from mouth.

Drainage area.--5.34 sq mi.

Gage-height record.--Digital recorder tape punched at 15-minute intervals. Datum of gage is 774.34 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 850 cfs.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 4, 1300 hours	1,480	5.47
Mar. 9, 2115 hours	1,320	5.21
1953 to February 1964:		
Nov. 18, 1957	2,100	6.27

Mean discharge, in cubic feet per second, March 1964, of McDougal Creek near Hodgenville, Ky.

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	2.31	7.....	14.1	13.....	12.8	19.....	8.30	25.....	7.34
2.....	2.43	8.....	162	14.....	23.8	20.....	11.4	26.....	7.31
3.....	4.51	9.....	293	15.....	33.1	21.....	18.3	27.....	5.79
4.....	477	10.....	111	16.....	15.3	22.....	10.6	28.....	5.20
5.....	55.8	11.....	23.5	17.....	12	23.....	8.88	29.....	4.79
6.....	20	12.....	16.3	18.....	9.68	24.....	7.55	30.....	4.14
								31.....	4.00
Monthly mean discharge, in cubic feet per second.....									44.9
Runoff, in inches.....									9.70

(102) 3-3100. North Fork Nolin River at Hodgenville, Ky.

Location.--Lat 37°34'33", long 85°44'23", on right bank 10 ft upstream from bridge on State Highway 61 at Hodgenville, Larue County, and 0.6 mile downstream from McDougal Creek.

Drainage area.--36.4 sq mi, of which about 0.8 sq mi does not contribute directly to surface runoff.

Gage-height record.--Water-stage recorder graph except Mar. 1-3, 6, 7, 11-31, for which graph was drawn on basis of twice-daily wire-weight-gage readings. Datum of gage is 701.64 ft above mean sea level, unadjusted.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 4,400 cfs.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 4, 1330 hours.....	8,860	15.80
Mar. 9, 2130 hours.....	6,190	14.87
1941 to February 1964:		
July 11, 1958.....	8,300	15.50

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	12	7.....	162	13.....	147	19.....	66	25.....	40
2.....	12	8.....	883	14.....	142	20.....	64	26.....	40
3.....	16	9.....	1,550	15.....	187	21.....	81	27.....	30
4.....	2,560	10.....	1,100	16.....	130	22.....	60	28.....	27
5.....	724	11.....	306	17.....	104	23.....	50	29.....	18
6.....	249	12.....	194	18.....	88	24.....	46	30.....	16
								31.....	13
Monthly mean discharge, in cubic feet per second.....									294
Runoff, in inches.....									9.31

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 3	2400	1.92	18	Mar. 5	1200	6.08	502	8	1300	11.98	2,030
					1800	5.37	396		1400	11.87	1,950
4	0400	2.03	26		2400	4.86	319		1600	11.31	1,610
	0500	2.40	44						1800	9.94	1,090
	0600	3.97	193	6	0600	4.55	273		2000	7.79	758
	0700	4.19	223		0900	4.40	252		2200	6.87	620
	0800	7.08	652		1200	4.33	242		2400	6.31	536
	1000	10.55	1,240		1800	4.20	224				
	1100	11.32	1,610		2400	4.05	204	9	0300	5.93	480
	1200	12.95	3,040						0330	5.90	475
	1300	15.60	8,220	7	0600	3.88	181		0400	5.99	488
	1330	15.80	8,860		1200	3.70	158		0500	6.34	541
	1400	15.70	8,540		1800	3.56	141		0600	8.24	826
	1500	14.83	6,090		2400	3.48	132		0700	9.02	943
	1600	13.92	4,310						0800	8.54	871
	1730	13.20	3,340	8	0600	3.58	144		1000	6.99	638
	1800	13.30	3,460		0700	4.10	210		1200	6.29	534
	2100	13.68	3,950		0800	5.74	451		1300	6.16	514
	2400	12.44	2,480		0900	8.59	878		1400	6.49	564
					1000	10.75	1,300		1500	8.39	848
5	0200	11.52	1,730		1100	11.62	1,790		1600	10.06	1,120
	0400	9.55	1,020		1200	11.94	2,000		1700	10.29	1,180
	0600	7.81	762		1230	11.99	2,040		1800	10.79	1,310

Mean discharge, in feet, and discharge, in cubic feet per second, at indicated time, 1964, of North Fork Nolin River at Hodgenville, Ky.--Continued

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 9	1900	11.45	1,690	Mar. 10	0400	12.04	2,090	Mar. 11	1200	4.72	298
	2000	12.94	3,040		0600	11.08	1,470		2400	4.30	238
	2100	14.59	5,520		0800	8.77	906				
	2130	14.87	6,190		1000	7.42	703	12	1200	3.95	188
	2200	14.84	6,120		1200	6.74	601		2400	3.78	163
	2400	13.84	4,180		1800	5.82	454				
					2400	5.32	388	13	1200	3.65	146
10	0200	12.71	2,780						2400	3.55	133

(103) 3-3103. Nolin River at White Mills, Ky.

Location.--Lat 37°33'03", long 86°02'43", on right bank 0.8 mile southwest of White Mills, Hardin County, and 2.2 miles downstream from bridge on State Highway 84.

Drainage area.--357 sq mi, of which about 120 sq mi does not contribute directly to surface runoff.

Gage-height record.--Water-stage recorder graph. Datum of gage is 583.08 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements. Rate of change in stage used as a factor Mar. 5, 6, 9-11.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 5, 1700 hours	16,700	-
Mar. 5, 1800 hours	-	31.74
Mar. 10, 2000 hours	15,200	-
Mar. 10, 2130 hours	-	30.67
1854	Unknown	35.5
1959 to February 1964:		
Feb. 28, 1962	8,060	22.59

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	127	7	2,230	13	1,970	19	1,070	25	745
2	122	8	2,730	14	1,700	20	1,020	26	730
3	129	9	6,820	15	2,070	21	1,070	27	667
4	1,910	10	11,900	16	1,620	22	964	28	613
5	12,800	11	9,490	17	1,370	23	853	29	571
6	8,400	12	2,990	18	1,210	24	793	30	529
								31	496
Monthly mean discharge, in cubic feet per second									2,571
Runoff, in inches									8.30

(104) 3-3104. Bacon Creek near Priceville, Ky.

Location.--Lat 37°21'31", long 85°59'53", on right bank 1.2 miles southwest of Priceville, Hart County, 1.3 miles downstream from small unnamed tributary, 2.1 miles upstream from unnamed tributary, and 7.2 miles upstream from mouth.

Drainage area.--85.4 sq mi, of which about 31 sq mi does not contribute directly to surface runoff.

Gage-height record.--Digital recorder tape punched at 15-minute intervals. Datum of gage is 568.13 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,600 cfs.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 5, 0530 hours	2,380	13.96
Mar. 10, 1130 hours	2,400	14.01
1957:		
November	Unknown	21.8
1959 to February 1964:		
Feb. 28, 1962	2,240	13.69

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	12	7	157	13	170	19	90	25	62
2	12	8	427	14	155	20	89	26	60
3	13	9	714	15	181	21	112	27	55
4	673	10	1,710	16	138	22	86	28	50
5	1,620	11	327	17	116	23	73	29	47
6	243	12	218	18	102	24	67	30	44
								31	42
Monthly mean discharge, in cubic feet per second									254
Runoff, in inches									3.43

(105) 3-3109. Nolin River Reservoir near Kyrock, Ky.

Location.--Lat 37°16'40", long 86°14'51", in intake structure of Nolin River Dam on Nolin River, 0.3 mile upstream from Dismal Creek, 1.1 miles northeast of Kyrock, Edmonson County, and at mile 7.8.

Drainage area.--703 sq mi, of which about 223 sq mi does not contribute directly to surface runoff.

Gage-height record.--Water-stage recorder graph. Datum of gage is at mean sea level (levels by Corps of Engineers).

Maxima.--March 1964: Contents, 292,400 acre-ft Mar. 17, 1300 hours (elevation, 532.17 ft).
1963 to February 1964: Contents, 104,400 acre-ft Mar. 22, 1963 (elevation, 501.65 ft).

Remarks.--Reservoir is formed by rolled earthfill dam. Releases normally controlled by three gates, 7.25 ft wide and 14 ft high, in semi-elliptical concrete conduit through dam with inlet invert elevation at 422.00 ft, contents, 90 acre-ft. Total capacity at ungated spillway level, elevation, 560.00 ft, is 609,400 acre-ft, of which a maximum of 570,100 acre-ft (contents between elevations 480.00 and 560.00 ft) or a minimum of 439,300 acre-ft (contents between elevations of 515.00 and 560.00 ft) is reserved for flood control depending on season. Contents of 130,800 acre-ft between minimum pool elevation of 480.00 ft and seasonal pool elevation of 515.00 ft is available for seasonal low-flow augmentation. Capacity at minimum pool elevation, 480.00 ft, is 39,280 acre-ft. Reservoir is used for flood control, low-flow augmentation, and recreation. Figures of contents include dead storage below invert of conduit. Gates closed and storage began Mar. 4, 1963.

Cooperation.--Capacity table furnished by Corps of Engineers.

Elevation and contents, February to April 1964, of Nolin River Reservoir near Kyrock, Ky.

Date	Hour	Elevation (feet)	Contents (acre-feet)	Date	Hour	Elevation (feet)	Contents (acre-feet)
Feb. 29...	2400	479.99	39,260	Mar. 31...	2400	500.95	101,600
Mar. 4...	0400	480.08	39,450	Apr. 4...	0700	488.65	60,020
Mar. 17...	1300	532.17	292,400				

(106) 3-3110. Nolin River at Kyrock, Ky.

Location.--Lat 37°16'27", long 86°15'03", on right bank 470 ft downstream from Dismal Creek, 0.3 mile downstream from Nolin River Dam, 0.9 mile northeast of Kyrock, Edmonson County, 1.2 miles upstream from Pigeon Creek, and 7.5 miles upstream from mouth.

Drainage area.--707 sq mi (including that of Dismal Creek), of which about 223 sq mi does not contribute directly to surface runoff.

Gage-height record.--Digital recorder tapes punched at 60-minute intervals. Auxiliary gage at site 9.1 miles downstream. Datum of gage is 400.00 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Discharge record.--Stage-fall-discharge relation defined by current-meter measurements. Fall used as a factor Mar. 1-4, 8, 9, 17-31. Stage-fall-discharge relation indefinite Mar. 5-7, 10-16; discharge estimated on basis of releases from Nolin River Reservoir.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 14, 1300 hours	-	a40.06
Mar. 26, 2000 hours	9,620	-
1930-32, 1939-50, 1960 to February 1964:		
Jan. 30, 1932	22,700	-
Mar. 2, 1962	-	a59.27

a Backwater from Green River.

Maximum stage known since 1854, 26.35 ft in January 1937 at site 11.9 miles upstream at datum 48.36 ft higher.

Remarks.--Flow regulated by Nolin River Reservoir (see station 3109).

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	283	7.....	310	13.....	320	19.....	4,530	25.....	8,980
2.....	249	8.....	318	14.....	320	20.....	5,780	26.....	9,210
3.....	298	9.....	357	15.....	320	21.....	8,030	27.....	9,360
4.....	3,140	10.....	310	16.....	320	22.....	9,260	28.....	9,110
5.....	300	11.....	310	17.....	2,180	23.....	9,420	29.....	8,900
6.....	300	12.....	320	18.....	4,120	24.....	9,160	30.....	8,600
								31.....	8,310
Monthly mean discharge, in cubic feet per second.....									3,959

(107) 3-3120. Bear Creek near Leitchfield, Ky.

Location.--Lat 37°25'35", long 86°15'50", near center of span on upstream side of bridge on State Highway 65, just downstream from Taylor Fork, 0.8 mile upstream from McClure Fork and 4 miles south of Leitchfield, Grayson County.

Drainage area.--30.8 sq mi.

Gage-height record.--Graph drawn on basis of twice-daily wire-weight-gage readings and crests from crest-stage gage. Altitude of gage is 500 ft (from topographic map).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 3,060 cfs and extended above by logarithmic plotting.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 4, 1100 hours	6,060	19.05
Mar. 9, 1200 hours	6,250	19.29
1949 to February 1964:		
Nov. 18, 1957	8,070	21.33

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	3.9	7	113	13	49	19	20	25	20
2	4.1	8	855	14	262	20	24	26	26
3	6.9	9	2,380	15	220	21	68	27	18
4	2,350	10	378	16	60	22	31	28	14
5	342	11	132	17	40	23	22	29	12
6	151	12	80	18	28	24	14	30	9.0
								31	9.4
Monthly mean discharge, in cubic feet per second									250
Runoff, in inches									9.35

(108) 3-3175. North Fork Rough River near Westview, Ky.

Location.--Lat 37°41'32", long 86°23'29", on left bank 25 ft downstream from bridge on State Highway 520, 1.0 mile southeast of Westview, Breckinridge County, and 2.1 miles downstream from Buffalo Creek.

Drainage area.--42.0 sq mi, of which about 19 sq mi does not contribute directly to surface runoff.

Gage-height record.--Water-stage recorder graph. Datum of gage is 500.88 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 1,400 cfs. Backwater from Rough River Reservoir Mar. 11-31; discharge estimated on basis of records for Rock Lick Creek near Glen Dean and Bear Creek near Leitchfield.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 4, 1930 hours	2,030	15.30
Mar. 9, 2030 hours	3,890	20.12
1954 to February 1964:		
Jan. 21, 1959	3,170	18.57

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	5.0	7	79	13	75	19	20	25	25
2	5.2	8	1,030	14	150	20	50	26	30
3	7.8	9	2,700	15	60	21	60	27	20
4	800	10	1,690	16	45	22	35	28	15
5	492	11	392	17	35	23	20	29	12
6	123	12	111	18	25	24	15	30	10
								31	10
Monthly mean discharge, in cubic feet per second									263
Runoff, in inches									7.21

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964, of North Fork Rough River near Westview, Ky.

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 1	2400	1.40	5.0	Mar. 5	2100	3.88	178	Mar. 9	0500	14.22	1,710
					2400	3.71	161		0600	14.65	1,840
2	1200	1.40	5.0						0800	16.64	2,460
	1800	1.41	5.2	6	0300	3.56	146		1000	17.56	2,790
	2400	1.44	6.0		0600	3.44	136		1100	17.73	2,850
					0900	3.35	128		1200	17.72	2,840
3	1200	1.50	7.8		1200	3.27	120		1400	17.78	2,860
	2400	1.54	9.4		1800	3.14	109		1500	17.88	2,900
					2400	3.02	98		1600	18.15	3,000
4	0200	1.55	9.8						1800	19.43	3,540
	0300	1.57	11	7	1200	2.78	78		1900	19.78	3,720
	0400	2.03	30		1800	2.68	70		2030	20.12	3,890
	0500	3.82	172		2100	2.63	66		2200	19.87	3,760
	0600	4.71	261		2400	2.55	60		2400	18.95	3,320
	0800	6.12	413								
	0900	6.52	457	8	0100	2.52	58	10	0200	17.47	2,750
	1200	7.10	521		0200	2.52	58		0400	16.02	2,250
	1400	8.36	660		0300	2.55	60		0600	15.00	1,940
	1600	9.40	776		0400	2.93	90		0800	14.34	1,740
	1800	13.88	1,620		0600	5.45	340		1000	13.87	1,620
	1900	15.19	2,000		0700	6.28	431		1200	13.43	1,510
	1930	15.30	2,030		0800	6.68	475		1600	12.83	1,380
	2000	15.25	2,020		1000	6.92	501		1800	12.32	1,270
	2100	15.10	1,970		1200	7.13	524		2000	11.67	1,140
	2300	14.48	1,780		1300	7.88	607		2200	11.22	1,060
	2400	13.83	1,610		1500	12.25	1,260		2400	11.01	1,020
					1600	15.10	1,970				
5	0100	13.17	1,440		1700	16.28	2,330	11	1200	10.79	200
	0300	11.54	1,120		1830	16.84	2,530		2400	10.74	150
	0600	8.32	655		2000	16.30	2,340				
	0800	6.67	474		2200	15.00	1,940	12	1200	10.75	110
	0900	6.00	400		2400	13.44	1,510		2400	10.91	75
	1000	5.48	343								
	1200	4.90	280	9	0100	12.85	1,380	13	1200	11.05	60
	1500	4.43	233		0200	12.98	1,410		2400	11.17	105
	1800	4.09	199		0400	13.73	1,580				

(109) 3-3180.05. Rough River Reservoir near Falls of Rough, Ky.

Location.--Lat 37°37'11", long 86°29'59", in intake structure of Rough River Dam on Rough River, Breckinridge County, 3.0 miles upstream from Cane Run, 3.1 miles northeast of Falls of Rough, Grayson County, and at mile 89.3.

Drainage area.--454 sq mi, of which about 110 sq mi does not contribute directly to surface runoff.

Gage-height record.--Water-stage recorder graph. Datum of gage is at mean sea level (levels by Corps of Engineers).

Maxima.--March 1964: Contents, 235,300 acre-ft Mar. 20, 1200 hours (elevation, 513.04 ft).
1959 to February 1964: Contents, 220,200 acre-ft May 16, 1961 (elevation, 511.07 ft).

Remarks.--Reservoir is formed by rolled earthfill dam. Releases controlled by three gates, 4.75 ft wide and 9.5 ft high, in semi-elliptical concrete conduit through dam with inlet invert elevation at 430.00 ft, contents 92 acre-ft. Total capacity at ungated spillway level, elevation, 524.00 ft, is 334,400 acre-ft, of which a maximum of 314,200 acre-ft (contents between elevations 465.00 and 524.00 ft) or a minimum of 214,400 acre-ft (contents between elevations 495.00 and 524.00 ft) is reserved for flood control depending on season. Contents of 99,840 acre-ft between minimum pool elevation of 465.00 ft and seasonal pool elevation of 495.00 ft is available for seasonal low-flow augmentation. Capacity at minimum pool elevation, 465.00 ft, is 20,170 acre-ft. Reservoir is used for flood control, low-flow augmentation, and recreation. Figures of contents include dead storage below invert of conduit. Gates closed and storage began Oct. 1, 1959.

Cooperation.--Capacity table furnished by Corps of Engineers.

Elevation and contents, February to April 1964

Date	Hour	Elevation (feet)	Contents (acre-feet)	Date	Hour	Elevation (feet)	Contents (acre-feet)
Feb. 29...	2400	465.07	20,290	Mar. 31...	2400	509.02	205,000
Mar. 4...	0300	465.08	20,310	Apr. 30...	2400	495.99	125,100
Mar. 20...	1200	513.04	235,300				

(110) 3-3182. Rock Lick Creek near Glen Dean, Ky.

Location.--Lat 37°39'24", long 86°33'43", on left bank 8 ft downstream from old bridge abutments on abandoned county road, 0.5 mile downstream from Black Lick Creek, 1.2 miles west of Glen Dean, Breckinridge County, and 7.0 miles upstream from mouth.

Drainage area.--20.1 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 448.29 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 2,400 cfs and by slope-area measurement at 8,720 cfs.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 4, 1900 hours	2,330	14.63
Mar. 9, 1730 hours	6,010	17.28
1956 to February 1964:		
Jan. 21, 1959	8,720	18.36

Mean discharge, in cubic feet per second, March 1964, of Rock Lick Creek near Glen Dean, Ky.

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	2.0	7.....	32	13.....	56	19.....	18	25.....	22
2.....	2.6	8.....	1,350	14.....	88	20.....	75	26.....	35
3.....	8.5	9.....	2,810	15.....	77	21.....	67	27.....	17
4.....	1,270	10.....	458	16.....	43	22.....	40	28.....	15
5.....	190	11.....	121	17.....	30	23.....	22	29.....	11
6.....	62	12.....	95	18.....	22	24.....	13	30.....	9.6
								31.....	9.2
Monthly mean discharge, in cubic feet per second.....									228
Runoff, in inches.....									13.08

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 1	2400	3.09	2.0	Mar. 5	1200	5.22	155	Mar. 9	0730	15.75	3,360
					1800	4.83	118		1000	15.28	2,870
2	1200	3.10	2.2		2400	4.56	91		1200	14.48	2,240
	1500	3.10	2.2						1300	14.32	2,140
	1800	3.13	2.8	6	0600	4.36	71		1500	14.97	2,590
	2400	3.19	4.5		1200	4.22	57		1600	16.40	4,290
					1800	4.16	51		1730	17.28	6,010
3	0600	3.27	7.2		2400	4.07	43		1900	16.55	4,550
	0900	3.32	9.2						2200	13.80	1,880
	1200	3.34	10	7	1200	3.90	30		2400	11.12	1,020
	1800	3.34	10		2400	3.82	26				
	2400	3.31	8.8					10	0130	10.13	796
				8	0100	3.82	26		0330	11.65	1,150
4	0200	3.32	9.2		0200	3.85	28		0600	10.15	800
	0300	3.36	11		0300	4.05	42		0900	7.78	407
	0400	3.87	31		0500	8.78	557		1200	6.43	264
	0600	9.42	654		0700	13.10	1,570		1800	5.65	194
	0900	12.90	1,500		0800	13.48	1,720		2400	5.27	159
	1100	14.33	2,150		0900	13.20	1,610				
	1130	14.43	2,210		1100	11.80	1,190	11	0900	4.90	125
	1200	14.35	2,160		1200	14.45	2,280		1900	4.72	104
	1400	13.90	1,930		1330	16.83	5,060		2200	4.64	95
	1500	13.54	1,750		1400	16.45	4,380		2400	4.67	98
	1700	12.78	1,460		1800	11.30	1,060				
	1900	14.63	2,330		2000	8.60	530	12	0400	4.88	123
	2000	14.30	2,130		2200	7.18	329		0600	4.83	116
	2200	12.48	1,370		2400	6.49	269		1200	4.63	94
	2400	9.25	628						2400	4.40	69
				9	0100	8.10	455				
5	0200	7.25	336		0200	14.00	1,980	13	1200	4.29	56
	0400	6.33	255		0300	15.03	2,640		2400	4.19	45
	0600	5.85	212		0530	14.72	2,390				

(111) 3-3185. Rough River at Falls of Rough, Ky.

Location.--Lat 37°35'20", long 86°33'05", on left bank 150 ft downstream from bridge on State Highway 110 at Falls of Rough, Grayson County, 3.0 miles downstream from Rock Lick Creek, and 6½ miles downstream from Rough River Dam.

Drainage area.--504 sq mi, of which about 110 sq mi does not contribute directly to surface runoff.

Gage-height record.--Water-stage recorder graph. Datum of gage, 420.94 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements. Rate of change in stage used as a factor Mar. 4, 5, 8-11.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 4, 1700 hours	4,590	-
Mar. 5, 0030 hours	-	21.26
Mar. 9, 2200 hours	8,320	-
Mar. 9, 2400 hours	-	26.13
1940 to February 1964:		
Jan. 14, 1950	12,400	28.87

Floods of Jan. 12, 1913, 1915, March 1935, and Jan. 25, 1937, reached stages of 28.96, 28.93, 29.31 and 34.06 ft, respectively, from floodmarks.

Remarks.--Flow appreciably regulated by Rough River Reservoir (see station 3180.05).

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	53	7	229	13	298	19	185	25	1,920
2	116	8	2,640	14	310	20	1,000	26	1,930
3	174	9	6,100	15	364	21	2,050	27	1,900
4	2,730	10	5,710	16	255	22	2,220	28	1,880
5	2,640	11	2,120	17	222	23	2,050	29	1,880
6	897	12	726	18	200	24	1,930	30	1,860
								31	1,940
Monthly mean discharge, in cubic feet per second									1,565

(112) 3-3188. Caney Creek near Horse Branch, Ky.

Location.--Lat 37°27'50", long 86°39'20", on right bank 9 ft downstream from bridge on U.S. Highway 62, 0.6 mile upstream from Horse Branch, 1.5 miles northeast of village of Horse Branch, Ohio County, and 11.2 miles upstream from mouth.

Drainage area.--124 sq mi, includes that of Horse Branch at U.S. Highway 62.

Gage-height record.--Water-stage recorder graph. Datum of gage is 417.30 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 5, 0530	9,100	13.44
Mar. 10, 0930	8,900	13.40
1956 to February 1964:		
Nov. 18, 1957	a10,000	b14.43

a About.
b Backwater from Rough River or debris.

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964, of Pigeon Creek at Evansville, Ind.--Continued

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 4	2300	12.10	2,510	Mar. 9	0200	17.96	1,730	Mar. 13	0400	26.11	7,200
	2400	11.88	2,640		0400	18.48	1,810		0800	26.05	6,860
					0600	19.20	2,240		1200	25.99	6,510
5	0200	11.55	2,720		0800	20.01	2,800		1600	25.90	6,090
	0400	11.39	2,720		1000	20.55	3,060		2000	25.80	5,910
	0700	11.40	2,760		1200	21.06	3,460		2400	25.70	5,680
	0900	11.34	2,700		1400	21.48	3,750				
	1000	11.25	2,650		1600	21.99	4,190	14	0400	25.68	5,450
	1200	10.95	2,490		1800	22.58	4,670		0600	25.66	5,440
	1500	10.46	2,310		2000	23.02	4,970		0800	25.61	5,230
	1800	10.04	2,140		2200	23.36	5,370		1000	25.58	5,150
	2100	9.68	2,000		2400	23.58	5,650		1200	25.58	5,220
	2400	9.42	1,890						1400	25.56	4,960
				10	0200	23.73	6,010		1600	25.50	4,680
6	0200	9.31	1,820		0400	23.84	6,280		2000	25.41	4,570
	0300	9.26	1,760		0600	23.97	6,530		2400	25.32	4,460
	0400	9.25	1,720		0800	24.12	6,780				
	0500	9.25	1,680		1000	24.25	7,150	15	0400	25.21	4,270
	0600	9.26	1,620		1200	24.38	6,930		0800	25.15	4,050
	0700	9.29	1,560		1400	24.49	6,950		1000	25.14	3,840
	0800	9.36	1,530		1600	24.61	7,050		1200	25.10	3,600
	1000	9.54	1,440		1800	24.72	7,140		1600	25.04	3,340
	1200	9.76	1,340		2000	24.83	7,240		2000	24.95	3,380
	1300	9.92	1,330		2200	24.95	7,280		2400	24.89	3,280
	1600	10.38	1,230		2400	25.07	7,460				
	2000	11.02	1,220					16	0400	24.82	2,920
	2400	11.63	1,290	11	0200	25.18	7,490		0600	24.80	2,910
					0400	25.29	7,590		1000	24.79	2,910
7	0300	12.08	1,230		0600	25.39	7,600		1200	24.77	2,630
	0600	12.45	1,130		0800	25.50	7,620		1600	24.72	2,320
	0900	12.80	1,060		1000	25.64	7,750		2000	24.65	2,300
	1200	13.18	961		1200	25.75	7,850		2400	24.55	2,170
	1500	13.52	994		1400	25.83	7,920				
	1800	13.83	1,020		1600	25.91	7,990	17	0400	24.47	2,040
	2100	14.10	1,050		1800	25.98	8,090		0600	24.45	2,030
	2400	14.32	966		2000	26.07	8,220		1000	24.43	1,790
					2200	26.11	8,180		1200	24.39	1,650
8	0300	14.55	863		2400	26.16	8,230		1400	24.37	1,500
	0600	14.86	932						1600	24.33	1,340
	0900	15.22	961	12	0400	26.21	8,230		2000	24.22	1,320
	1200	15.65	1,110		0800	26.27	8,250		2400	24.15	1,310
	1500	16.09	1,360		1200	26.30	8,020				
	1800	16.34	1,420		1600	26.29	7,820	18	0600	24.06	1,290
	2200	16.61	1,480		2000	26.23	7,630		1200	24.04	1,120
	2300	16.76	1,540		2400	26.18	7,450		1800	23.95	638
	2400	17.27	1,640						2400	23.83	888

WABASH RIVER BASIN

(118) 3-3430. Wabash River at Vincennes, Ind.

Location.--Lat 38°40'52", long 87°32'04", near center of span on downstream side of bridge on U.S. Highway 50 at Vincennes, Knox County, 4.8 miles downstream from Maria Creek, 5.8 miles upstream from Embarrass River, and at mile 127.8.

Drainage area.--13,700 sq mi, approximately.

Gage-height record.--Graph drawn from twice-daily wire-weight-gage readings. Auxiliary water-stage recorder graph, except Mar. 23-26, 4.7 miles upstream at datum 0.80 ft higher. Datum of gage is 394.43 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge or stage-fall-discharge relation defined by current-meter measurements below 106,000 cfs. Fall used as a factor Mar. 9-22, 27-31. Discharge for period of no gage-height record at auxiliary gage estimated on basis of records for nearby stations.

Maxima.--March 1964: Discharge, 27,500 cfs Mar. 11, 2400 hours; gage height, 14.48 ft Mar. 12, 0800 hours.
1867 to February 1964: Discharge, 255,000 cfs (estimated) Mar. 29, 1913 (gage height, 26.3 ft, from floodmarks, by Corps of Engineers).

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	2,150	7.....	7,510	13.....	26,300	19.....	23,300	25.....	12,000
2.....	2,220	8.....	8,700	14.....	26,000	20.....	22,700	26.....	12,000
3.....	2,260	9.....	14,500	15.....	25,500	21.....	19,600	27.....	14,000
4.....	2,610	10.....	25,200	16.....	25,100	22.....	16,200	28.....	15,500
5.....	4,490	11.....	27,100	17.....	24,400	23.....	14,000	29.....	17,600
6.....	6,280	12.....	27,100	18.....	23,600	24.....	13,000	30.....	18,800
								31.....	17,400
Monthly mean discharge, in cubic feet per second.....									16,040

(119) 3-3605. White River at Newberry, Ind.

Location.--Lat 38°55'42", long 87°01'00", in sec.25, T.6 N., R.6 W., on right bank 500 ft upstream from bridge on State Highway 57 at Newberry, 2.3 miles downstream from Doans Creek, at mile 118.0.

Drainage area.--4,696 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 465.59 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 80,000 cfs.

Maxima.--March 1964: Discharge, 37,300 cfs Mar. 14 (gage height, 20.12 ft).
1875 to February 1964: Discharge, 130,000 cfs (estimated) Mar. 27, 1913 (gage height, 27.5 ft, from floodmarks, by State Highway Department of Indiana).

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	782	7.....	6,950	13.....	34,100	19.....	11,300	25.....	7,080
2.....	796	8.....	5,590	14.....	36,200	20.....	9,250	26.....	7,210
3.....	789	9.....	11,700	15.....	32,100	21.....	8,300	27.....	7,370
4.....	1,210	10.....	23,700	16.....	27,300	22.....	8,110	28.....	7,340
5.....	5,460	11.....	26,200	17.....	21,600	23.....	7,920	29.....	7,000
6.....	8,460	12.....	27,900	18.....	15,900	24.....	7,470	30.....	6,470
								31.....	5,610
Monthly mean discharge, in cubic feet per second.....									12,490
Runoff, in inches.....									3.07

(120) 3-3640. East Fork White River at Columbus, Ind.

Location.--Lat 39°12', long 86°56', in NW¼ sec.25, T.9 N., R.5 E., on left bank at abutment of abandoned bridge at west end of Second Street in Columbus, 0.6 mile downstream from confluence of Driftwood River and Flatrock River, and 1.4 miles upstream from Haw Creek.

Drainage area.--1,692 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 603.12 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 52,000 cfs.

Maxima.--March 1964: Discharge, 28,200 cfs Mar. 11, 0800 hours.
1913: Gage height, 17.9 ft, from floodmarks (discharge, about 100,000 cfs).
1947 to February 1964: Discharge, 48,700 cfs Jan. 28, 1952 (gage height, 16.00 ft).

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	296	7.....	3,620	13.....	16,800	19.....	2,930	25.....	1,680
2.....	290	8.....	2,560	14.....	10,600	20.....	2,530	26.....	1,990
3.....	290	9.....	7,820	15.....	7,540	21.....	2,280	27.....	2,220
4.....	1,400	10.....	20,600	16.....	5,840	22.....	2,130	28.....	1,960
5.....	4,740	11.....	27,800	17.....	4,630	23.....	1,960	29.....	1,710
6.....	4,890	12.....	25,400	18.....	3,650	24.....	1,790	30.....	1,500
								31.....	1,370
Monthly mean discharge, in cubic feet per second.....									5,639
Runoff, in inches.....									3.84

(121) 3-3645. Clifty Creek at Hartsville, Ind.

Location.--Lat 39°16'25", long 85°42'10", in NW¼ sec.36, T.10 N., R.7 E., at downstream side of left abutment of highway bridge, a quarter of a mile north of Hartsville and 5 miles upstream from Duck Creek.

Drainage area.--88.8 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 677.34 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 5,900 cfs.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 5, 0400 hours.....	1,420	5.27
Mar. 10, 0630 hours.....	6,820	11.78
1913:		
Date unknown.....	Unknown	25.1
1948 to February 1964:		
Jan. 21, 1959.....	11,300	14.29

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	9.0	7.....	161	13.....	342	19.....	106	25.....	101
2.....	9.0	8.....	140	14.....	310	20.....	99	26.....	156
3.....	11	9.....	3,340	15.....	310	21.....	146	27.....	133
4.....	314	10.....	4,760	16.....	208	22.....	156	28.....	108
5.....	811	11.....	804	17.....	164	23.....	128	29.....	92
6.....	237	12.....	514	18.....	128	24.....	108	30.....	75
								31.....	68
Monthly mean discharge, in cubic feet per second.....									453
Runoff, in inches.....									5.88

(122) 3-3650. Sand Creek near Brewersville, Ind.

Location.--Lat 39°05'05", long 85°39'30", in NW¼ sec.5, T.7 N., R.8 E., on left bank at downstream side of county highway bridge, 2½ miles west of Brewersville, and 5.2 miles upstream from Bear Creek.

Drainage area.--156 sq mi.

Gage-height record.--Water-stage recorder graph. Altitude of gage is 630 ft (by barometer).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 13,000 cfs and by contracted-opening measurement at 19,900 cfs.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 5, 0300 hours	4,300	11.00
Mar. 10, 0100 hours	14,000	a18.70
1897:		
March 1897	Unknown	(b)
1948 to February 1964:		
Jan. 21, 1959	19,900	21.7

a From inside gage; floodmark elevation, 19.3 ft.
b Several feet higher than stage of Jan. 21, 1959.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	22	7	246	13	495	19	121	25	126
2	22	8	200	14	489	20	128	26	246
3	30	9	8,700	15	686	21	204	27	189
4	1,070	10	9,360	16	312	22	204	28	145
5	2,260	11	1,180	17	220	23	162	29	124
6	471	12	819	18	168	24	138	30	108
								31	92
Monthly mean discharge, in cubic feet per second									927
Runoff, in inches									6.85

(123) 3-3655. East Fork White River at Seymour, Ind.

Location.--Lat 38°58'57", long 85°53'57", in NW¼ sec.7, T.6 N., R.6 E., on left bank 1,700 ft downstream from highway bridge, 1 mile north of Seymour, 9.6 miles downstream from Sand Creek, and at mile 219.2.

Drainage area.--2,333 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 550.67 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 59,000 cfs.

Maxima.--March 1964: Discharge, 54,900 cfs Mar. 10, 2000 hours (gage height, 18.72 ft).
1897 to February 1964: Discharge, 120,000 cfs Mar. 26, 1913 (gage height, 21.0 ft, from information by Corps of Engineers and State Highway Dept. of Indiana).

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	379	7	5,290	13	27,000	19	4,490	25	2,740
2	368	8	3,740	14	18,400	20	3,840	26	2,950
3	379	9	9,500	15	13,100	21	3,810	27	3,280
4	933	10	44,800	16	9,710	22	3,590	28	3,080
5	7,580	11	40,700	17	7,310	23	3,210	29	2,770
6	7,460	12	30,900	18	5,690	24	2,920	30	2,490
								31	2,260
Monthly mean discharge, in cubic feet per second									8,860
Runoff, in inches									4.38

(124) 3-3670. Muscatatuck River near Austin, Ind.

Location.--Lat 38°46', long 85°49', in sec.23, T.4 N., R.6 E., on right bank 15 ft downstream from bridge on U.S. Highway 31, 2 miles north of Austin, and 4 miles upstream from Stucker Fork.

Drainage area.--365 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 513.96 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 34,000 cfs. Discharge not computed when gage height is below 13.0 ft.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 5, 2100 hours	13,200	23.71
Mar. 10, 0900 hours	36,600	27.61
1932 to February 1964:		
Jan. 22, 1959	53,900	29.20

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	-	7	2,810	13	1,820	19	-	25	-
2	-	8	1,120	14	1,060	20	-	26	-
3	-	9	6,650	15	1,380	21	-	27	-
4	-	10	30,400	16	756	22	-	28	-
5	6,860	11	11,700	17	-	23	-	29	-
6	8,400	12	4,120	18	-	24	-	30	-
								31	-

(125) 3-3695. Vernon Fork at Vernon, Ind.

Location.--Lat 38°57', long 85°37', in sec.10, T.6 N., R.8 E., on right bank just downstream from highway bridge, 1 mile southwest of Vernon and 2 miles downstream from confluence of North and South Forks.

Drainage area.--201 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 587.30 ft above mean sea level, datum of 1929, supplementary adjustment of 1944 (levels by Indiana Flood Control and Water Resources Commission).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 25,000 cfs and by slope-area measurement at 56,800 cfs.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 5, 0130 hours	7,500	13.07
Mar. 9, 2330 hours	21,100	a22.66
1897	Unknown	(b)
1898 to February 1964:		
Jan. 21, 1959	56,800	32.83

a From inside gage; floodmark elevation, 22.8 ft.
b About equal to the stage of Jan. 21, 1959.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	16	7	233	13	446	19	125	25	96
2	16	8	194	14	472	20	113	26	242
3	21	9	13,700	15	768	21	159	27	216
4	1,620	10	11,400	16	335	22	173	28	139
5	3,070	11	1,350	17	223	23	130	29	111
6	428	12	752	18	161	24	106	30	90
								31	77
Monthly mean discharge, in cubic feet per second									1,192
Runoff, in inches									6.84

(126) 3-3715. East Fork White River near Bedford, Ind.

Location.--Lat 38°46'10", long 86°24'30", in NE¼ sec.21, T.4 N., R.1 E., on downstream side of center pier of bridge on county road, 0.4 mile upstream from Mill Creek, 2.9 miles downstream from Sugar Creek, 3.9 miles northeast of Mitchell, and 7.8 miles southeast of Bedford.

Drainage area.--3,870 sq mi.

Gage-height record.--Water-stage recorder graphs. Datum of gage is 473.59 ft above mean sea level, datum of 1929. Auxiliary gage, 9.7 miles downstream, is at datum 4.39 ft lower.

Discharge record.--Stage-discharge or stage-fall-discharge relation defined by current-meter measurements. Fall used as a factor Mar. 9-20.

Maxima.--March 1964: Discharge, 75,700 cfs Mar. 12, 1400 hours; gage height, 35.22 ft Mar. 13, 0200 hours.
1913: Gage height, 47.5 ft, from floodmarks determined by Corps of Engineers at site 9.7 miles downstream (discharge, 155,000 cfs).
1939 to February 1964: Discharge, 70,900 cfs May 11, 1961; gage height, 35.97 ft May 11, 1961.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	600	7.....	8,900	13.....	69,200	19.....	21,000	25.....	5,180
2.....	581	8.....	11,100	14.....	60,200	20.....	16,200	26.....	4,860
3.....	575	9.....	17,800	15.....	50,400	21.....	12,200	27.....	5,080
4.....	1,440	10.....	27,600	16.....	39,700	22.....	9,270	28.....	5,530
5.....	6,660	11.....	40,700	17.....	31,300	23.....	7,010	29.....	5,370
6.....	7,670	12.....	73,100	18.....	25,800	24.....	5,830	30.....	4,840
								31.....	4,310
Monthly mean discharge, in cubic feet per second.....									18,710
Runoff, in inches.....									5.57

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 3	2400	2.98	572	Mar. 9	2400	24.24	23,100	Mar. 14	2400	33.17	55,500
4	1200	3.22	728	10	0600	25.16	25,300	15	1200	32.20	50,500
	1500	3.82	1,120		1200	26.38	29,200		2400	31.12	45,200
	1800	5.08	1,990		1500	26.58	29,500				
	2100	6.82	3,340		1800	26.68	29,600	16	1200	29.92	39,400
	2400	7.84	4,240		2400	26.82	29,800		2400	28.75	34,900
5	0600	9.58	5,800	11	0300	26.90	30,000	17	1200	27.58	30,900
	1000	10.84	6,940		0800	27.23	31,500		2400	26.45	29,800
	1300	11.37	7,420		1200	27.95	35,200				
	1700	11.54	7,580		1800	30.07	49,500	18	1200	25.28	25,800
	2400	11.47	7,510		2400	32.28	65,600		2400	24.02	23,300
6	0400	11.46	7,500	12	0600	33.70	72,400	19	1200	22.66	21,000
	0900	11.52	7,560		1100	34.43	74,800		2400	21.11	18,700
	1800	11.73	7,760		1200	34.55	74,800				
	2400	12.03	8,040		1300	34.65	75,300	20	1200	19.35	16,100
					1400	34.76	75,700		2400	17.57	13,800
7	1200	12.87	8,870		1500	34.83	75,400				
	2400	13.82	9,820		1800	35.00	74,700	21	1200	15.93	12,100
					2400	35.20	73,800		2400	14.56	10,600
8	0800	14.57	10,600								
	1400	15.08	11,100	13	0200	35.22	73,300	22	1200	13.27	9,270
	2000	15.88	12,000		0600	35.18	71,600		2400	11.93	7,950
	2400	16.42	12,600		1200	35.03	69,100				
					1800	34.82	66,900	23	1200	10.82	6,920
9	0600	18.52	15,300		2400	34.53	64,500		2400	10.08	6,250
	1200	20.55	17,900								
	1800	22.32	20,800	14	1200	33.90	60,300				

(127) 3-3716. South Fork Salt Creek at Kurtz, Ind.

Location.--Lat 38°57'46", long 86°12'12", in SW¼ sec.9, T.6 N., R.3 E., on right bank at downstream side of county road bridge, at the north edge of Kurtz, 0.8 mile upstream from unnamed tributary from the right, and 6.1 miles upstream from Little Salt Creek.

Drainage area.--38.1 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 568.00 ft above mean sea level, datum of 1929 (unadjusted).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 3,700 cfs and extended above by logarithmic plotting.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 4, 2200 hours	2,470	10.44
Mar. 9, 2200 hours	4,960	13.08
1959-1964:		
1959	Unknown	a15
1960 to February 1964:		
May 7, 1961	4,690	12.93

a About.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	2.2	7	36	13	76	19	26	25	38
2	2.6	8	92	14	133	20	40	26	71
3	5.8	9	3,870	15	101	21	45	27	41
4	1,050	10	1,910	16	57	22	36	28	34
5	220	11	180	17	39	23	30	29	28
6	57	12	137	18	30	24	28	30	24
								31	22
Monthly mean discharge, in cubic feet per second									273
Runoff, in inches									8.27

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 3	2400	2.85	6	Mar. 7	1200	3.14	35	Mar. 10	0900	10.30	2,400
					2400	3.08	30		1000	8.50	1,630
4	0600	3.21	28						1100	7.20	1,120
	0800	4.45	250	8	1200	3.20	40		1200	6.41	844
	1000	4.85	342		1800	3.65	104		1400	5.66	598
	1200	5.72	586		2100	4.14	198		1600	5.39	517
	1300	7.00	1,030		2300	4.40	253		1800	5.18	454
	1400	8.35	1,570		2400	5.85	655		2000	4.95	388
	1500	9.00	1,830						2200	4.77	335
	1600	9.40	1,990	9	0030	8.25	1,530		2400	4.57	293
	1800	10.12	2,310		0100	9.25	1,930				
	2000	10.33	2,420		0200	10.20	2,350	11	0300	4.36	244
	2200	10.44	2,470		0300	10.85	2,710		0600	4.21	213
	2300	9.25	1,930		0400	11.60	3,250		0900	4.09	188
	2400	7.25	1,140		0500	12.10	3,710		1200	3.98	165
					0600	12.56	4,380		1500	3.90	149
5	0100	5.85	655		0700	12.80	4,560		1800	3.84	138
	0200	5.25	475		0800	12.72	4,460		2100	3.81	132
	0300	4.88	370		1200	12.16	3,780		2400	3.82	134
	0500	4.52	280		1500	11.90	3,510				
	0700	4.27	226		1800	12.45	4,100	12	0600	4.07	184
	1000	4.03	175		2000	12.97	4,800		1200	3.82	134
	1300	3.86	141		2100	13.07	4,940		2400	3.60	95
	1600	3.73	117		2200	13.08	4,960				
	2000	3.60	95		2400	12.92	4,720	13	1200	3.47	74
	2400	3.49	77						2400	3.38	61
				10	0400	12.38	4,020				
6	1200	3.32	54		0600	12.20	3,820				
	2400	3.23	43		0800	11.97	3,570				

(128) 3-3716.5. North Fork Salt Creek at Nashville, Ind.

Location.--Lat 39°12'05", long 86°14'50", in SW¼ sec.19, T.9 N., R.3 E., near center of stream at downstream side of bridge on State Highway 46, 700 ft downstream from Greasy Creek, and 0.4 mile south of center of Nashville, Brown County.

Drainage area.--75.9 sq mi.

Gage-height record.--Graph drawn on basis of wire-weight-gage readings usually made twice daily. Peak stage of Mar. 9 was determined from high-water mark. Datum of gage is 579.576 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 2,000 cfs and extended above by logarithmic plotting.

Maxima.--March 1964: Discharge, 7,130 cfs Mar. 9, 2400 hours (gage height, 15.93 ft).
1962 to February 1964: Discharge, 7,500 cfs Mar. 4, 1963 (gage height, 15.72 ft, from floodmark).

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	8.7	7.....	82	13.....	166	19.....	58	25.....	63
2.....	7.9	8.....	155	14.....	150	20.....	52	26.....	238
3.....	18	9.....	5,030	15.....	144	21.....	50	27.....	157
4.....	388	10.....	3,350	16.....	122	22.....	48	28.....	120
5.....	568	11.....	419	17.....	84	23.....	47	29.....	86
6.....	196	12.....	206	18.....	66	24.....	46	30.....	52
								31.....	47
Monthly mean discharge, in cubic feet per second.....									394
Runoff, in inches.....									5.98

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 2	2400	3.09	8	Mar. 8	1200	3.57	69	Mar. 10	0300	15.81	7,010
					1800	3.66	85		0400	15.71	6,910
3	1200	3.10	9		2000	4.00	152		0500	15.59	6,790
	2400	3.43	44		2100	4.41	252		0600	15.38	6,580
					2200	5.28	462		0800	14.70	5,900
4	0600	3.73	92		2300	6.48	772		0900	13.58	4,820
	0900	3.98	141		2400	7.75	1,270		1000	12.08	3,560
	1200	4.57	285						1100	10.15	2,340
	1500	5.26	498	9	0100	9.08	1,790		1200	8.65	1,610
	1800	5.90	720		0200	10.38	2,480		1300	8.13	1,400
	2000	6.20	840		0300	11.68	3,280		1500	7.35	1,120
	2100	6.26	864		0400	12.78	4,120		1700	6.93	976
	2200	6.22	848		0500	13.11	4,400		2000	6.37	791
	2400	6.11	804		0600	13.30	4,570		2200	6.12	716
					0700	13.46	4,710		2400	5.90	650
5	0600	5.78	678		0800	13.58	4,820				
	1200	5.45	562		1200	13.77	4,990	11	0600	5.45	515
	1800	5.11	453		1600	14.00	5,200		0900	5.31	478
	2400	4.77	351		1800	14.90	6,100		1200	5.13	432
					2000	15.66	6,860		1500	4.76	340
6	0600	4.40	250		2100	15.76	6,960		1800	4.55	288
	1200	4.11	177		2200	15.85	7,050		2400	4.37	245
	1800	3.88	126		2300	15.88	7,080				
	2400	3.79	108		2400	15.93	7,130	12	1200	4.18	201
									2400	4.08	178
7	1200	3.61	76	10	0100	15.89	7,090				
	2400	3.57	69		0200	15.88	7,080				

(129) 3-3720. North Fork Salt Creek near Belmont, Ind.

Location.--Lat 39°09'00", long 86°20'14", in NW¼ sec.5, T.8 N., R.2 E., on right bank 15 ft downstream from bridge on State Highway 46, 100 ft upstream from Schooner Creek, 0.7 mile northeast of Belmont, 6½ miles upstream from Brummett Creek, and 20 miles upstream from mouth. Records include flow of Schooner Creek.

Drainage area.--120 sq mi, includes Schooner Creek.

Gage-height record.--Water-stage recorder graph. Datum of gage is 543.62 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 9,600 cfs and by contracted-opening measurement at 12,700 cfs. Rate of change in stage used as a factor Mar. 4-6, 9-13, 25-27.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 5, 0600 hours	2,380	-
Mar. 5, 0900 hours	-	17.08
Mar. 10, 0600 hours	10,100	21.63
1913	Unknown	25.7
1946 to February 1964:		
June 23, 1960	13,300	23.10

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	11	7	137	13	309	19	69	25	123
2	11	8	117	14	266	20	75	26	616
3	12	9	4,610	15	274	21	95	27	282
4	770	10	8,080	16	175	22	85	28	168
5	1,620	11	1,190	17	124	23	72	29	119
6	311	12	508	18	87	24	64	30	87
								31	73
Monthly mean discharge, in cubic feet per second									663
Runoff, in inches									6.36

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 3	2400	2.99	13	Mar. 8	1200	4.38	103	Mar. 10	2000	19.35	5,180
					1800	4.52	119		2200	18.77	4,030
4	0600	3.28	24		2200	4.70	142		2400	18.17	3,090
	1000	3.66	50		2300	4.98	178				
	1200	4.35	122		2400	6.00	311	11	0200	17.56	2,280
	1300	5.20	231						0400	16.76	1,560
	1400	6.50	400	9	0100	9.00	1,060		0600	15.90	1,310
	1500	8.10	803		0200	12.00	1,680		0800	15.00	1,230
	1600	10.00	1,150		0300	14.40	2,460		1000	14.05	1,120
	1700	12.00	1,510		0400	15.50	2,410		1200	12.97	1,060
	1800	13.70	1,860		0600	16.54	2,570		1400	11.90	968
	2000	15.30	2,250		0800	17.23	2,760		1600	10.95	863
	2200	16.00	2,220		1000	17.72	2,970		1800	10.03	757
	2400	16.36	2,170		1200	18.15	3,300		2000	9.28	678
					1400	18.63	3,870		2200	8.65	617
5	0600	16.96	2,380		1600	19.30	5,080		2400	8.22	582
	0800	17.07	2,370		1800	20.10	6,720				
	0900	17.08	2,280		2000	21.03	8,770	12	0300	7.97	561
	1000	17.00	2,060		2200	21.50	9,800		0600	7.90	558
	1200	16.57	1,550		2300	21.56	9,930		0900	7.82	543
	1600	14.66	1,090		2400	21.58	9,980		1200	7.65	521
	2000	12.00	930						1500	7.45	495
	2400	9.27	640	10	0100	21.59	10,000		1800	7.22	465
					0200	21.58	9,980		2100	6.92	427
6	0400	7.30	451		0300	21.59	10,000		2400	6.69	401
	0800	6.16	332		0400	21.61	10,000				
	1200	5.60	259		0500	21.62	10,100	13	0600	6.27	346
	1800	5.18	204		0600	21.63	10,100		1200	5.94	303
	2400	4.95	174		0700	21.62	10,100		1800	5.66	267
					0800	21.59	10,000		2400	5.44	238
7	0600	4.78	152		0900	21.54	9,890				
	1200	4.64	134		1000	21.46	9,710	14	0200	5.42	236
	1800	4.55	123		1200	21.22	9,180		0800	5.48	243
	2400	4.41	106		1400	20.88	8,440		1400	5.62	262
					1600	20.44	7,470		1600	5.76	280
8	0600	4.35	100		1800	19.92	6,320		1800	5.89	297

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964, of North Fork Salt Creek near Belmont, Ind.--Continued

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 14	2000	5.96	306	Mar. 15	2400	5.23	211	Mar. 17	0400	4.63	133
	2400	6.00	311						1000	4.56	124
				16	1200	4.93	172		1200	4.59	128
15	0400	6.04	316		1800	4.81	156		1400	4.57	125
	0800	5.94	303		2100	4.76	150		1800	4.51	118
	1200	5.76	280		2200	4.77	151		2100	4.42	107
	1800	5.47	242		2400	4.76	150		2400	4.41	106

(130) 3-3725. Salt Creek near Harrodsburg, Ind.

Location.--Lat 39°00'16", long 86°30'31", in NW¼ sec.34, T.7 N., R.1 W., on right bank 1,300 ft downstream from Monroe Reservoir, 0.9 mile upstream from Clear Creek, 2.2 miles southeast of Harrodsburg, and 25.1 miles upstream from mouth.

Drainage area.--441 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 480.00 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 19,500 cfs and extended above by logarithmic plotting. Backwater from return of overbank flow or from the East Fork White River Mar. 10-18.

Maxima.--March 1964: Discharge, 8,000 cfs Mar. 10, 0300 hours (gage height, 28.40 ft).
1955 to February 1964: Discharge, 22,000 cfs June 25, 1960 (gage height 32.76 ft, from graph based on gage readings at site 3,500 ft upstream and datum 2.41 ft higher); gage height at present site and datum, 35.35 ft May 9, 1961.

Remarks.--Flow regulated by Monroe Reservoir (flood control storage capacity, 258,800 acre-ft).

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	50	7.....	2,120	13.....	384	19.....	2,580	25.....	3,210
2.....	47	8.....	2,210	14.....	295	20.....	2,750	26.....	2,580
3.....	47	9.....	5,200	15.....	303	21.....	3,020	27.....	3,410
4.....	644	10.....	7,050	16.....	310	22.....	2,930	28.....	3,810
5.....	2,270	11.....	4,880	17.....	316	23.....	3,030	29.....	3,750
6.....	1,910	12.....	1,940	18.....	1,300	24.....	3,230	30.....	3,470
								31.....	3,070
Monthly mean discharge, in cubic feet per second.....									2,326

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 3	2400	6.05	46	Mar. 6	0800	16.20	1,870	Mar. 10	0600	28.17	7,770
					1200	16.24	1,880		0900	27.75	7,350
4	0600	6.21	54		1800	16.47	1,940		1200	27.38	6,980
	1000	6.52	73		2400	16.75	2,010		1800	26.93	6,540
	1200	6.87	99						2400	26.84	5,900
	1300	7.37	145	7	0600	16.98	2,070				
	1400	8.15	238		1200	17.23	2,150	11	1200	26.62	4,800
	1500	9.24	388		1800	17.35	2,180		2400	26.47	4,000
	1600	10.64	618		2400	17.37	2,190				
	1700	12.35	944					12	0600	26.40	3,600
	1800	14.15	1,320	8	0600	17.32	2,180		0900	26.37	3,000
	1900	15.42	1,560		1300	17.27	2,160		1000	25.95	2,500
	2100	17.07	2,030		1700	17.37	2,190		1100	25.62	2,000
	2300	17.95	2,280		2000	17.42	2,210		1200	25.25	1,500
	2400	18.12	2,420		2400	18.26	2,460		1300	24.83	1,250
									1500	24.37	430
5	0100	18.13	2,420	9	0100	19.90	2,950		2000	23.55	440
	0500	18.07	2,400		0200	21.25	3,450		2400	23.00	440
	0900	18.11	2,410		0400	22.28	3,860				
	1200	17.98	2,370		0800	23.68	4,490	13	0700	22.17	440
	1500	17.63	2,270		1200	24.83	5,100		0800	22.02	440
	1800	17.12	2,120		1600	26.52	6,220		1200	21.62	440
	2100	16.72	2,000		2400	28.08	7,680		1800	21.23	290
	2400	16.44	1,930						2400	20.97	290
				10	0300	28.40	8,000				
6	0300	16.28	1,890		0400	28.38	7,980	14	1200	20.57	295

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964, of Salt Creek near Harrodsburg, Ind.--Continued

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 14	2400	20.18	300	Mar. 18	1000	13.36	320	28	2400	22.16	3,810
					1100	14.30	700				
15	0600	19.95	300		1200	15.05	1,580	29	1200	22.02	3,760
	1200	19.62	305		1300	15.10	1,600		2400	21.77	3,660
	1800	19.28	305		1400	15.95	1,810	30	1200	21.38	3,500
	2400	18.89	305		1600	17.20	2,140		2400	20.67	3,220
					1900	18.16	2,430				
16	1200	18.02	310		2400	18.43	2,510	31	0600	20.36	3,110
	2400	16.98	315						1200	20.20	3,050
				28	0600	22.15	3,810		1800	20.07	3,000
17	1200	15.80	315		1200	22.22	3,840		2100	20.20	3,050
	2400	14.48	320		1800	22.20	3,830		2400	20.00	2,980

(131) 3-3727. Clear Creek at Harrodsburg, Ind.

Location.--Lat 39°02'03", long 86°34'01", in NW¼ sec.19, T.7 N., R.1 W., on left bank at downstream side of county road bridge, 1.9 miles northwest of Harrodsburg, 3.9 miles upstream from Little Clear Creek, and 5.1 miles upstream from mouth.

Drainage area.--55.2 sq mi, of which 6.4 sq mi does not contribute directly to surface runoff.

Gage-height record.--Digital recorder tape punched at 15-minute intervals. Datum of gage is 517.00 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 3,600 cfs and by contracted-opening measurement at 10,200 cfs.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 4, 1845 hours	1,900	8.12
Mar. 9, 2200 hours	6,380	13.07
1960 to February 1964:		
June 23, 1960	10,200	16.47

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	13	7	90	13	268	19	71	25	98
2	14	8	117	14	196	20	95	26	171
3	16	9	3,650	15	143	21	88	27	119
4	538	10	1,430	16	115	22	76	28	100
5	335	11	520	17	95	23	72	29	82
6	131	12	381	18	80	24	65	30	69
								31	63
Monthly mean discharge, in cubic feet per second									300
Runoff, in inches									6.26

Note.--Daily mean discharges computed on basis of 15-minute intervals.

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 3	2400	3.56	17	Mar. 6	0600	4.66	143	Mar. 9	0200	9.24	2,790
					1200	4.55	124		0300	9.75	3,200
4	0800	3.81	31		1800	4.52	119		0400	9.84	3,270
	1000	4.75	160		2400	4.44	106		0500	9.29	2,830
	1200	4.57	127						0600	8.41	2,130
	1400	5.16	258	7	1200	4.30	86		0700	8.32	2,060
	1600	6.98	1,080		2400	4.25	79		0800	8.52	2,220
	1800	8.08	1,860						1000	8.90	2,520
	1845	8.12	1,900	8	0600	4.23	76		1200	9.16	2,730
	2000	7.58	1,500		1000	4.26	80		1400	9.64	3,110
	2200	6.75	940		1200	4.49	114		1600	10.54	3,840
	2400	6.30	710		1400	4.47	111		1800	11.62	4,870
					1800	4.54	122		1900	12.40	5,650
5	0600	5.66	424		2200	4.68	146		2000	12.71	5,980
	1200	5.32	306		2400	6.24	680		2100	12.88	6,170
	1800	5.01	218						2200	13.07	6,380
	2400	4.82	174	9	0100	8.06	1,850		2300	12.95	6,250

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964, of Clear Creek at Harrodsburg, Ind.--Continued

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 9	2400	12.55	5,810	Mar. 11	1200	5.85	500	Mar. 15	1200	4.64	139
					1800	5.72	448		2400	4.56	126
10	0100	11.16	4,410		2400	5.72	448				
	0200	9.30	2,840					16	1200	4.48	112
	0300	8.56	2,250	12	0400	5.75	460		2400	4.43	105
	0400	8.30	2,040		1200	5.52	368				
	0600	7.76	1,620		2400	5.36	318	17	1200	4.35	93
	0900	7.22	1,240						2400	4.31	87
	1200	6.89	1,020	13	1200	5.20	270				
	1600	6.68	900		2400	5.04	225	18	1200	4.22	75
	2000	6.49	805						2400	4.23	76
	2400	6.29	705	14	1200	4.89	188				
11	0600	6.04	580		2400	4.79	168				

(132) 3-3730. Salt Creek near Peerless, Ind.

Location.--Lat 38°56'35", long 86°30'38", in NW¼ sec.22, T.6 N., R.1 W., on downstream side near center of Monon Railroad bridge, 3,400 ft downstream from Little Salt Creek, 1.5 miles north of Peerless, and 18.6 miles upstream from mouth.

Drainage area.--582 sq mi.

Gage-height record.--Graph drawn from twice-daily wire-weight-gage readings. Datum of gage is 476.02 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 22,000 cfs. Backwater from return of overbank flow or from East Fork White River Mar. 8, 11-20.

Maxima.--March 1964: Discharge, 10,000 cfs Mar. 10, 1000 hours (gage height, 29.00 ft, from graph based on gage readings).
1939-50, 1957 to February 1964: Discharge, 25,100 cfs May 10, 1961 (gage height, 35.33 ft, from graph based on gage readings).

Remarks.--Flow regulated by Monroe Reservoir (flood control storage capacity, 258,800 acre-ft).

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	67	7.....	2,460	13.....	670	19.....	2,700	25.....	3,260
2.....	63	8.....	2,200	14.....	510	20.....	2,900	26.....	2,820
3.....	67	9.....	5,190	15.....	460	21.....	3,320	27.....	3,240
4.....	362	10.....	8,910	16.....	440	22.....	3,170	28.....	3,720
5.....	3,100	11.....	5,700	17.....	430	23.....	3,080	29.....	3,770
6.....	2,470	12.....	2,400	18.....	1,450	24.....	3,290	30.....	3,650
								31.....	3,310
Monthly mean discharge, in cubic feet per second.....									2,554

(133) 3-3732. Indian Creek near Springville, Ind.

Location.--Lat 38°57'01", long 86°40'30", in SW¼ sec.18, T.6 N., R.2 W., on left bank at downstream side of State Highway 54 bridge, a quarter of a mile downstream from Popcorn Creek, and 4 miles northwest of Springville.

Drainage area.--60.9 sq mi.

Gage-height record.--Water-stage recorder graph and digital recorder tape punched at 15-minute intervals. Datum of gage is 580.00 ft above mean sea level, datum of 1929, unadjusted.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 5,000 cfs, and extended to 6,500 cfs by logarithmic plotting.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 4, 1745 hours	2,670	8.29
Mar. 9, 2115 hours	6,450	12.95
1950 or 1951	Unknown	18.4
1962 to February 1964:		
Mar. 4, 1963	5,120	11.60

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	5.3	7	67	13	145	19	38	25	58
2	5.5	8	136	14	116	20	52	26	148
3	5.9	9	4,770	15	92	21	65	27	80
4	785	10	1,780	16	67	22	56	28	63
5	332	11	345	17	54	23	47	29	50
6	108	12	254	18	41	24	42	30	41
								31	38
Monthly mean discharge, in cubic feet per second									319
Runoff, in inches									6.04

(134) 3-3735. East Fork White River at Shoals, Ind.

Location.--Lat 38°40'02", long 86°47'32", in sec.30, T.3 N., R.3 W., in first pier from left bank on highway bridge at Shoals, 400 ft upstream from Baltimore and Ohio Railroad bridge, 1 mile upstream from Beaver Creek, and at mile 107.6.

Drainage area.--4,954 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 442.25 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 100,000 cfs and extended above by logarithmic plotting.

Maxima.--March 1964: Discharge, 62,300 cfs Mar. 15, 0030 hours (gage height, 31.02 ft).
1847 to February 1964: Discharge, 160,000 cfs Mar. 28, 1913 (gage height, 42.2 ft).

Remarks.--Floodflow affected by storage in Monroe Reservoir (flood-control storage capacity, 258,800 acre-ft).

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	724	7	10,800	13	53,900	19	39,000	25	8,900
2	706	8	12,400	14	61,000	20	31,800	26	8,440
3	697	9	23,500	15	61,400	21	23,400	27	8,050
4	1,200	10	39,200	16	57,300	22	16,500	28	8,660
5	10,200	11	44,500	17	51,500	23	12,100	29	9,060
6	12,500	12	46,100	18	45,500	24	9,780	30	8,720
								31	8,050
Monthly mean discharge, in cubic feet per second									23,400
Runoff, in inches									5.44

(135) 3-3740. White River at Petersburg, Ind.

Location.--Lat 38°30'39", long 87°17'22", in SW¼ sec.15, T.1 N., R.8 W., on left bank, 300 ft downstream from bridge on State Highway 61, three-eighths of a mile upstream from Prides Creek, 1 mile north of Petersburg, and at mile 47.7.

Drainage area.--11,139 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 400.00 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--March 1964: Discharge, 108,000 cfs Mar. 16, 2100 hours (gage height, 25.13 ft).
1907 to February 1964: Discharge, 235,000 cfs (estimated) Mar. 29, 1913 (gage height, 29.5 ft, from floodmarks, by Corps of Engineers).

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	1,710	7.....	19,000	13.....	78,900	19.....	79,700	25.....	21,800
2.....	1,680	8.....	19,800	14.....	84,200	20.....	68,600	26.....	19,400
3.....	1,680	9.....	29,600	15.....	98,000	21.....	58,300	27.....	18,200
4.....	2,160	10.....	47,200	16.....	108,000	22.....	49,900	28.....	17,700
5.....	7,090	11.....	57,200	17.....	105,000	23.....	39,300	29.....	18,000
6.....	14,200	12.....	68,000	18.....	92,800	24.....	28,200	30.....	17,800
								31.....	17,100
Monthly mean discharge, in cubic feet per second.....									41,620
Runoff, in inches.....									4.31

(136) 3-3745. Patoka River near Ellsworth, Ind.

Location.--Lat 38°26'29", long 86°43'31", in SE¼ sec.10, T.1 S., R.3 W., on right bank, 200 ft upstream from county road bridge (revised), 1.0 mile northwest of Ellsworth, 2.9 miles upstream from Dillon Creek, and 4 miles east of Dubois.

Drainage area.--171 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 477.00 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 13,500 cfs and extended above by logarithmic plotting.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 6, 0630 hours.....	4,930	15.74
Mar. 10, 0930 hours.....	14,700	20.02
1913 to February 1964:		
March 1913.....	12,300	19.1

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	11	7.....	2,620	13.....	1,690	19.....	203	25.....	141
2.....	10	8.....	1,350	14.....	1,070	20.....	190	26.....	502
3.....	11	9.....	6,260	15.....	1,170	21.....	202	27.....	539
4.....	1,280	10.....	13,500	16.....	905	22.....	186	28.....	294
5.....	4,350	11.....	7,560	17.....	424	23.....	166	29.....	214
6.....	4,430	12.....	3,040	18.....	265	24.....	144	30.....	171
								31.....	148
Monthly mean discharge, in cubic feet per second.....									1,711
Runoff, in inches.....									11.53

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 3	2400	2.10	13	Mar. 4	0800	2.76	141	Mar. 4	1300	9.64	1,130
					0900	3.08	216		1400	10.60	1,230
4	0300	2.15	17		1000	3.46	298		1500	11.21	1,310
	0400	2.20	22		1100	4.22	438		1600	11.85	1,400
	0500	2.32	35		1130	5.75	683		1700	12.54	1,700
	0600	2.40	66		1200	7.84	932		1800	12.97	1,960
	0700	2.48	81		1230	8.94	1,050		1900	13.51	2,310

782-001 O-65-11

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964, of Patoka River near Ellsworth, Ind.--Continued

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 4	2000	14.19	2,890	Mar. 8	2200	11.20	1,310	Mar. 14	0200	8.85	1,040
	2100	14.77	3,520		2400	11.84	1,400		0300	8.65	1,020
	2200	15.20	4,080						0500	8.48	1,000
	2300	15.48	4,510	9	0200	12.36	1,610		0700	8.48	1,000
	2400	15.65	4,780		0400	12.86	1,900		0800	8.51	1,010
					0600	13.49	2,990		1100	8.52	1,010
5	0100	15.71	4,880		0800	14.44	3,140		1200	8.49	1,000
	0200	15.75	4,950		1000	15.54	4,600		1300	8.84	1,040
	0300	15.74	4,930		1200	16.54	6,480		1400	9.11	1,070
	0400	15.70	4,860		1400	17.17	7,770		1800	9.60	1,130
	0900	15.41	4,400		1600	17.57	8,650		2400	10.32	1,200
	1400	15.15	4,010		1800	17.99	9,580				
	1500	15.11	3,950		2400	19.02	12,100	15	0200	10.44	1,210
	1700	15.08	3,910						0300	10.47	1,220
	1900	15.12	3,970	10	0300	19.44	13,100		0600	10.46	1,220
	2000	15.17	4,040		0600	19.81	14,100		0800	10.38	1,210
	2400	15.45	4,460		0700	19.91	14,400		1200	10.17	1,190
					0800	19.97	14,500		1800	9.74	1,140
6	0100	15.54	4,600		0900	20.01	14,600		2400	9.30	1,090
	0200	15.60	4,700		0930	20.02	14,700				
	0300	15.65	4,780		1000	20.01	14,600	16	0200	9.15	1,080
	0400	15.70	4,860		1100	19.98	14,500		0400	8.97	1,060
	0500	15.72	4,900		1200	19.94	14,400		0600	8.77	1,030
	0600	15.74	4,930		1400	19.82	14,100		0800	8.54	1,010
	0700	15.74	4,930		1600	19.67	13,700		1000	8.22	974
	0800	15.72	4,900		1800	19.48	13,200		1200	7.86	935
	0900	15.71	4,880		2100	19.17	12,400		1800	6.59	787
	1000	15.68	4,830		2400	18.79	11,500		2400	5.34	622
	1100	15.64	4,760								
	1200	15.59	4,680	11	0600	17.92	9,420	17	0300	4.87	547
	1800	15.18	4,050		1200	16.99	7,380		0600	4.50	485
	2400	14.70	3,440		1800	16.09	5,580		0900	4.21	436
					2400	15.29	4,210		1200	4.01	402
7	0600	14.25	2,950						1500	3.86	375
	1200	13.86	2,590	12	0600	14.67	3,400		1800	3.72	350
	1800	13.45	2,260		1200	14.21	2,910		2100	3.63	332
	2100	13.20	2,100		1800	13.85	2,580		2400	3.55	316
	2400	12.86	1,900		2400	13.51	2,310				
8	0200	12.54	1,700					18	0300	3.47	300
	0400	12.14	1,500	13	0300	13.33	2,180		0600	3.40	285
	0600	11.64	1,360		0600	13.13	2,060		1200	3.28	260
	0800	11.10	1,290		0900	12.88	1,910		1800	3.20	242
	1000	10.64	1,240		1100	12.65	1,770		2400	3.13	227
	1200	10.47	1,220		1200	12.51	1,690				
	1300	10.41	1,210		1400	12.18	1,520	19	0600	3.07	213
	1500	10.39	1,210		1600	11.77	1,380		1200	3.02	202
	1800	10.66	1,240		1800	11.25	1,310		1800	2.98	192
	2000	10.91	1,270		2400	9.40	1,100		2400	2.95	186

(137) 3-3755. Patoka River at Jasper, Ind.

Location.--Lat 38°24'49", long 86°52'36", in SE¼ sec.20, T.1 S., R.4 W., on left bank 0.3 mile upstream from unnamed outlet of Jasper Lake, 1.0 mile downstream from Coon Seitz bridge, 1.2 miles downstream from Beaver Creek, and 3.3 miles northeast of Jasper.

Drainage area.--257 sq mi.

Gage-height record.--Water-stage recorder graph except Mar. 6-17 for which graph was drawn on basis of readings at supplementary gage. Datum of gage is 446.19 ft above mean sea level, datum of 1929. Supplementary gage, 5.6 miles downstream, is at datum 0.34 ft lower.

Discharge record.--Stage-discharge relation defined by current-meter measurements. Discharge, Mar. 6, 0000-1200 hours and Mar. 15, 1200 hours, to Mar. 17, 2400 hours, adjusted for channel storage between base gage and supplementary gage.

Maxima.--March 1964: Discharge, 14,100 cfs Mar. 11, 1400 hours (gage height, 15.17 ft at supplementary gage, 20.20 ft at base gage, from floodmark).
1913 to February 1964: Discharge, 16,000 cfs March 1913 (gage height, 15.9 ft at supplementary gage, from floodmark, furnished by local residents).

Mean discharge, in cubic feet per second, March 1964, of Patoka River at Jasper, Ind.

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	22	7.....	3,590	13.....	7,740	19.....	659	25.....	176
2.....	20	8.....	4,330	14.....	4,800	20.....	371	26.....	272
3.....	20	9.....	5,770	15.....	3,500	21.....	306	27.....	624
4.....	530	10.....	9,970	16.....	2,470	22.....	281	28.....	589
5.....	1,290	11.....	13,600	17.....	1,740	23.....	240	29.....	378
6.....	1,890	12.....	11,900	18.....	1,220	24.....	198	30.....	256
								31.....	190
Monthly mean discharge, in cubic feet per second.....									2,550
Runoff, in inches.....									11.44

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 3	2400	3.75	22	Mar. 7	1800	10.75	3,830	Mar. 14	2400	11.00	4,100
					2400	10.94	4,030				
4	0600	3.84	26					15	1200	10.42	3,500
	0800	3.92	31	8	0600	11.17	4,300		2400	9.90	2,920
	1000	4.18	49		1200	11.27	4,440				
	1100	4.33	60		1800	11.24	4,400	16	1200	9.46	2,450
	1200	5.60	188		2400	11.20	4,340		2400	9.10	2,050
	1300	6.90	361								
	1400	8.10	529	9	0600	11.60	4,920	17	1200	8.80	1,730
	1500	9.10	670		1200	12.00	5,640		2400	8.54	1,460
	1530	10.20	837		1800	12.42	6,560				
	1600	10.97	960		2400	12.87	7,550	18	0600	13.30	1,340
	1700	12.20	1,160						1200	12.66	1,230
	1900	13.10	1,310	10	0600	13.35	8,680		1800	11.87	1,100
	2100	13.24	1,330		1200	13.85	9,970		2400	10.92	949
	2400	13.08	1,300		1800	14.30	11,300				
					2400	14.64	12,300	19	0600	9.92	784
5	0200	12.95	1,280						1200	8.98	635
	0600	12.85	1,260	11	0600	14.92	13,200		1800	8.21	523
	1600	13.00	1,290		1200	15.15	14,000		2400	7.66	441
	2000	13.20	1,320		1400	15.17	14,100				
	2400	13.53	1,380		1800	15.15	14,000	20	0600	7.33	395
					2400	15.06	13,600		1200	7.12	365
6	0400	7.30	1,440						1800	6.95	341
	0800	7.38	1,520	12	0600	14.82	12,900		2400	6.82	323
	1200	7.64	1,680		1200	14.52	12,000				
	1500	8.10	1,850		1800	14.18	10,900	21	0600	6.73	311
	1800	8.97	2,310		2400	13.80	9,840		1200	6.68	304
	2100	9.48	2,680						1800	6.66	301
	2400	9.84	2,970	13	1200	12.92	7,660		2400	6.63	297
					2400	12.07	5,790				
7	0600	10.32	3,400					22	1200	6.52	283
	1200	10.56	3,640	14	1200	11.42	4,650		2400	6.36	282

(138) 3-3763. Patoka River at Winslow, Ind.

Location.--Lat 38°22'48", long 87°13'00", in SW¼ sec.32, T.1 S., R.7 W., on right bank at abandoned bridge abutment, 65 ft upstream from State Road 61 bridge, 100 ft downstream from dam of Winslow Water Co., and 41.3 miles above mouth.

Drainage area.--603 sq mi.

Gage-height record.--Water-stage recorder graph, except Mar. 4, 0800 hours, to Mar. 17, 1730 hours, for which graph was drawn on basis of readings of wire-weight gage on downstream side of State Road 61 bridge.

Discharge record.--Stage-discharge relation defined by current-meter measurements.

Maxima.--March 1964: Discharge, 15,500 cfs Mar. 13, 0200 hours (gage height, 28.84 ft).
1937: Gage height, 28.9 ft (discharge unknown).
1961 to February 1964: Discharge, 13,700 cfs May 12, 1961 (gage height 28.3 ft).

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	40	7.....	1,950	13.....	15,200	19.....	6,040	25.....	1,800
2.....	37	8.....	2,850	14.....	14,600	20.....	4,740	26.....	1,480
3.....	37	9.....	5,850	15.....	13,600	21.....	3,960	27.....	1,290
4.....	544	10.....	10,900	16.....	11,900	22.....	3,420	28.....	1,120
5.....	1,960	11.....	13,300	17.....	9,940	23.....	2,930	29.....	1,010
6.....	1,850	12.....	15,100	18.....	7,910	24.....	2,370	30.....	862
								31.....	704
Monthly mean discharge, in cubic feet per second.....									5,126
Runoff, in inches.....									9.8

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964, of Patoka River at Winslow, Ind.

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 3	2400	6.57	37	Mar. 9	0400	23.45	3,520	Mar. 16	1200	27.66	11,800
					0600	23.64	3,670		1800	27.50	11,400
4	0200	6.60	38		0800	23.93	3,930		2400	27.30	10,900
	0500	6.81	47		1000	24.30	4,360				
	0800	6.95	52		1200	24.66	4,860	17	0600	27.11	10,400
	0900	7.20	62		1400	25.07	5,640		1200	26.91	9,870
	1000	7.63	80		1600	25.58	6,680		1800	26.79	9,550
	1100	8.33	115		1800	26.05	7,720		2400	26.57	8,980
	1200	10.22	270		2000	26.36	8,460				
	1400	11.98	410		2200	26.60	9,060	18	1200	26.12	7,890
	1500	12.85	485		2400	26.80	9,580		2400	25.67	6,870
	1700	14.54	675								
	1800	15.60	814	10	0200	27.00	10,100	19	1200	25.27	6,040
	1900	16.91	1,010		0300	27.10	10,400		2400	24.86	5,220
	2000	18.20	1,260		0600	27.22	10,700				
	2100	19.45	1,560		0700	27.23	10,700	20	1200	24.57	4,710
	2200	20.55	1,940		0900	27.25	10,800		2400	24.25	4,300
	2300	20.79	2,040		1100	27.27	10,800				
	2400	20.84	2,060		1500	27.36	11,000	21	1200	23.94	3,940
					1800	27.46	11,300		2400	23.62	3,660
5	0200	20.80	2,040		2400	27.71	12,000				
	0600	20.68	1,990					22	1200	23.32	3,430
	1200	20.57	1,950	11	0600	27.95	12,700		2400	22.96	3,180
	1800	20.50	1,920		1200	28.17	13,300				
	2400	20.44	1,900		1800	28.40	14,000	23	1200	22.60	2,940
					2100	28.50	14,300		1800	22.40	2,820
6	1200	20.32	1,850		2400	28.57	14,500		2400	22.10	2,650
	1800	20.25	1,820								
	2000	20.23	1,810	12	0300	28.63	14,700	24	1200	21.56	2,380
	2200	20.23	1,810		0600	28.67	14,900		2400	20.88	2,070
	2400	20.25	1,820		1200	28.75	15,200				
					1800	28.80	15,300	25	1200	20.15	1,780
7	0300	20.28	1,830		2400	28.83	15,400		2400	19.57	1,590
	0900	20.43	1,890								
	1200	20.53	1,930	13	0200	28.84	15,500	26	1200	19.10	1,470
	1800	20.77	2,030		0600	28.83	15,400		2400	18.70	1,370
	2400	21.04	2,140		1200	28.78	15,300				
					1800	28.72	15,000	27	1200	18.35	1,300
8	0600	21.33	2,260		2400	28.68	14,900		2400	17.89	1,200
	0900	21.50	2,350					28	1200	17.51	1,120
	1200	21.77	2,480	14	0600	28.66	14,800		2400	17.20	1,060
	1400	22.09	2,640		1200	28.63	14,700				
	1500	22.33	2,780		1800	28.57	14,500	29	1200	16.93	1,010
	1600	22.60	2,940		2400	28.48	14,200		1800	16.74	978
	1700	22.75	3,040						2400	16.50	940
	1800	22.85	3,100	15	0600	28.38	13,900				
	2000	23.02	3,220		1200	28.28	13,600	30	1200	15.96	864
	2200	23.15	3,320		1800	28.17	13,300		2400	15.34	778
	2400	23.24	3,380		2400	28.04	12,900				
								31	1200	14.75	700
9	0200	23.34	3,450	16	0600	27.87	12,400		2400	14.22	636

(139) 3-3765. Patoka River near Princeton, Ind.

Location.--Lat 38°23'30", long 87°32'55", in NE¼NW¼ sec.32, T.1 S., R.10 W., on left bank 75 ft upstream from dam of Princeton Water and Lighting Co., 270 ft upstream from bridge on State Highway 65, half a mile downstream from Indian Creek, and 2 miles northeast of Princeton.

Drainage area.--815 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 394.138 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 12,000 cfs, and extended above by logarithmic plotting.

Maxima.--March 1964: Discharge, 15,200 cfs Mar. 16, 0700 hours (gage height, 21.50 ft).
1935 to February 1964: Discharge, 18,700 cfs Jan. 26, 1937; gage height, 22.8 ft Jan. 28, 1937.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	46	7.....	1,300	13.....	11,600	19.....	12,300	25.....	4,840
2.....	43	8.....	1,570	14.....	13,200	20.....	11,000	26.....	4,230
3.....	41	9.....	2,910	15.....	14,700	21.....	9,360	27.....	3,780
4.....	371	10.....	4,770	16.....	15,100	22.....	8,100	28.....	3,360
5.....	1,120	11.....	7,670	17.....	14,500	23.....	6,790	29.....	2,910
6.....	1,200	12.....	10,100	18.....	13,600	24.....	5,660	30.....	2,600
								31.....	2,360
Monthly mean discharge, in cubic feet per second.....									6,166
Runoff, in inches.....									8.73

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 3	2400	1.03	40	Mar. 10	0600	15.16	4,260	Mar. 19	1800	20.32	12,000
					1200	15.62	4,600		2400	20.17	11,700
4	0600	1.07	49		1800	16.32	5,200				
	1000	1.12	61		2400	17.04	6,050	20	0600	20.01	11,400
	1200	1.27	101						1200	19.82	11,000
	1300	1.57	198	11	0600	17.67	6,900		1800	19.58	10,600
	1500	2.07	406		1200	18.13	7,670		2400	19.33	10,100
	1600	2.72	560		1800	18.56	8,520				
	1800	3.82	784		2400	18.88	9,160	21	0600	19.14	9,680
	2000	4.52	924						1200	18.96	9,320
	2200	4.92	1,000	12	0600	19.12	9,640		1800	18.81	9,020
	2400	5.14	1,050		1200	19.33	10,100		2400	18.68	8,760
					1800	19.53	10,500				
5	0300	5.36	1,090		2400	19.72	10,800	22	0600	18.52	8,440
	0600	5.47	1,110						1200	18.36	8,120
	1200	5.53	1,130	13	0600	19.92	11,200		1800	18.18	7,760
	1800	5.59	1,140		1200	20.12	11,600		2400	17.98	7,400
	2400	5.66	1,150		1800	20.32	12,000				
					2400	20.50	12,400	23	0600	17.78	7,070
6	0600	5.75	1,170						1200	17.59	6,790
	1200	5.87	1,190	14	0600	20.67	12,700		1800	17.38	6,490
	1800	6.02	1,220		1200	20.86	13,300		2400	17.17	6,220
	2400	6.15	1,250		1800	21.00	13,700				
					2400	21.16	14,200	24	1200	16.72	5,640
7	0600	6.28	1,280						2400	16.28	5,160
	1200	6.42	1,300	15	0600	21.28	14,500				
	1800	6.57	1,330		1200	21.37	14,800	25	1200	15.91	4,830
	2400	6.73	1,370		1800	21.42	15,000		2400	15.53	4,520
					2400	21.47	15,100				
8	0600	6.93	1,410					26	1200	15.08	4,210
	1200	7.47	1,510	16	0700	21.50	15,200		2400	14.70	3,970
	1400	7.85	1,590		1200	21.48	15,100				
	1600	8.49	1,720		1800	21.45	15,000	27	1200	14.40	3,790
	1800	8.72	1,760		2400	21.40	14,900		2400	14.07	3,590
	1900	8.72	1,760								
	2200	8.64	1,750	17	0600	21.38	14,800	28	1200	13.68	3,360
	2400	9.04	1,830		1200	21.24	14,400		2400	13.26	3,110
					1800	21.19	14,300				
9	0200	9.94	2,010		2400	21.14	14,100	29	1200	12.83	2,900
	0500	10.50	2,170						2400	12.36	2,730
	0700	11.52	2,480	18	0600	21.08	13,900				
	1000	12.07	2,640		1200	21.01	13,700	30	1200	11.95	2,600
	1400	12.83	2,900		1800	20.89	13,400		2400	11.56	2,490
	1600	13.52	3,260		2400	20.77	13,000				
	1800	14.20	3,670					31	1200	11.13	2,360
	2000	14.48	3,840	19	0600	20.62	12,600		2400	10.63	2,210
	2400	14.74	3,990		1200	20.50	12,400				

(140) 3-3775. Wabash River at Mount Carmel, Ill.

Location.--Lat 38°24'07", long 87°45'10", in sec.28, T.1 S., R.12 W., on right bank on downstream side of Southern Railway bridge at Mount Carmel, Wabash County, and 0.1 mile downstream from Patoka River.

Drainage area.--28,600 sq mi, approximately.

Gage-height record.--Water-stage recorder graph. Datum of gage is 371.46 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 310,000 cfs.

Maxima.--March 1964: Discharge, 146,000 cfs Mar. 17, 1900 hours (gage height, 23.97 ft).
1875 to February 1964: Discharge, 428,000 cfs Mar. 30, 1913 (gage height, 31.0 ft).

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	4,450	7.....	23,000	13.....	92,800	19.....	137,000	25.....	56,300
2.....	4,270	8.....	27,700	14.....	110,000	20.....	128,000	26.....	45,700
3.....	4,270	9.....	38,000	15.....	124,000	21.....	115,000	27.....	40,600
4.....	5,050	10.....	58,200	16.....	137,000	22.....	99,600	28.....	40,500
5.....	8,290	11.....	69,600	17.....	146,000	23.....	83,300	29.....	40,600
6.....	15,600	12.....	79,900	18.....	144,000	24.....	69,200	30.....	41,400
								31.....	41,000
Monthly mean discharge, in cubic feet per second.....									65,500

TRADEWATER RIVER BASIN

(141) 3-3830. Tradewater River at Olney, Ky.

Location.--Lat 37°13'26", long 87°46'53", on downstream side of left abutment of highway bridge at Olney, Hopkins County, 1.1 miles upstream from Cave Creek, 5.1 miles downstream from Flynn Creek, and 9½ miles northeast of Princeton.

Drainage area.--255 sq mi, of which about 9 sq mi does not contribute directly to surface runoff.

Gage-height record.--Digital recorder tape punched at 30-minute intervals. Datum of gage is 362.80 ft above mean sea level, adjustment of 1907.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 12,000 cfs and by slope-area measurement at 17,000 cfs. Rate of change in stage used as a factor Mar. 4, 2400 hours, to Mar. 9, 0600 hours.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 10, 1200 hours.....	13,600	-
Mar. 10, 1730 hours.....	-	18.68
1937 to February 1964:		
January 1937.....	17,000	19.27

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	8.3	7.....	1,610	13.....	6,550	19.....	417	25.....	141
2.....	7.8	8.....	2,560	14.....	4,550	20.....	258	26.....	133
3.....	7.4	9.....	7,150	15.....	3,040	21.....	224	27.....	128
4.....	407	10.....	13,200	16.....	2,090	22.....	200	28.....	113
5.....	1,530	11.....	12,200	17.....	1,290	23.....	179	29.....	102
6.....	1,520	12.....	9,340	18.....	754	24.....	160	30.....	89
								31.....	77
Monthly mean discharge, in cubic feet per second.....									2,259
Runoff, in inches.....									10.21

Note.--Daily mean discharges computed on basis of 30-minute intervals.

Gage height, in feet, and discharge, in cubic feet per second, at indicated time, 1964, of Tradewater River at Olney, Ky.

Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge	Date	Hour	Gage height	Discharge
Mar. 3	2400	2.17	7.4	Mar. 9	1200	16.34	6,650	Mar. 15	0600	15.10	3,310
					1400	16.71	7,750		1200	14.88	3,000
4	0800	2.44	26		1600	17.12	8,720		1800	14.66	2,750
	1000	3.37	133		1800	17.43	9,280		2400	14.44	2,550
	1200	4.40	272		2000	17.65	9,880				
	2400	10.00	1,240		2200	17.85	10,700	16	0600	14.19	2,340
					2400	18.07	11,700		1200	13.89	2,110
5	0600	11.05	1,470						1800	13.52	1,840
	1000	11.72	1,570	10	0200	18.30	12,800		2400	13.10	1,610
	2000	12.52	1,640		0400	18.45	13,000				
	2400	12.61	1,620		0600	18.55	13,300	17	0600	12.61	1,460
					1200	18.66	13,600		1200	12.00	1,280
6	0800	12.52	1,530		1730	18.68	13,400		1800	11.27	1,120
	1800	12.24	1,480		2200	18.65	13,100		2400	10.52	989
	2400	12.16	1,490		2400	18.63	13,000				
								18	0600	9.72	858
7	0400	12.16	1,500	11	0600	18.57	12,700		2400	7.21	537
	0800	12.23	1,540		1800	18.38	11,700				
	1800	12.62	1,680		2400	18.24	11,100	19	0600	6.41	450
	2400	12.93	1,790						1200	5.70	434
				12	1200	17.84	9,270		1800	5.11	363
8	0400	13.23	1,980		2400	17.35	7,730		2400	4.67	307
	1200	14.11	2,620								
	1800	14.56	2,930	13	0600	17.09	7,080	20	0600	4.41	273
	2200	14.76	3,140		1200	16.82	6,520		1800	4.14	236
	2400	14.89	3,450		2400	16.28	5,480		2400	4.10	230
9	0400	15.45	4,580	14	0600	16.03	5,000	21	0600	4.10	230
	0600	15.74	5,140		1200	15.79	4,540		2400	3.99	214
	0800	15.95	5,560		1800	15.55	4,080				
	1000	16.12	5,930		2400	15.33	3,660				

OHIO RIVER MAIN STEM

(142) 3-3845. Ohio River at Golconda, Ill.

Location.--Lat 37°21'28", long 88°28'57", on right bank at lock and dam 51, at Golconda, Pope County, 0.5 mile upstream from McGilligan Creek, 0.7 mile downstream from Lusk Creek, and at mile 903.1.

Drainage area.--143,900 sq mi, approximately.

Gage-height record.--Graphs drawn from hourly upper-staff-gage readings. Auxiliary gage 26.3 miles downstream. Datum of gage is 294.6 ft above mean sea level, Ohio River datum.

Discharge record.--Stage-fall-discharge relation defined by current-meter measurements. Fall used as a factor in computing discharge. Stage-fall-discharge relation indefinite Mar. 1-4; discharge estimated on basis of records for other Ohio River main-stem stations.

Maxima.--March 1964: Discharge, 958,000 cfs Mar. 20, 1800 hours; gage height, 52.40 ft Mar. 20, 1200 hours.
1937 to February 1964: Discharge, 1,470,000 cfs Feb. 2, 3, 1937; gage height, 62.6 ft Feb. 1-3, 1937.

Remarks.--Partly regulated by locks, dams, and reservoirs.

Cooperation.--Gage-height record furnished by Corps of Engineers.

Mean gage height, in feet, and discharge, in cubic feet per second, 1964

Date	Gage height	Discharge	Date	Gage height	Discharge	Date	Gage height	Discharge
Mar. 1....	15.30	45,000	Mar. 13....	46.82	749,000	Mar. 25....	50.79	837,000
2....	15.50	50,000	14....	48.32	812,000	26....	49.74	798,000
3....	15.13	60,000	15....	49.45	854,000	27....	48.50	732,000
4....	15.26	90,000	16....	50.47	887,000	28....	47.00	681,000
5....	18.36	140,000	17....	51.48	913,000	29....	45.11	615,000
6....	22.90	223,000	18....	52.04	923,000	30....	43.08	554,000
7....	29.32	335,000	19....	52.24	942,000	31....	40.74	492,000
8....	33.30	396,000	20....	52.34	956,000	Apr. 1....	37.64	430,000
9....	37.78	462,000	21....	52.30	954,000	2....	34.13	376,000
10....	40.84	528,000	22....	52.18	930,000	3....	30.93	327,000
11....	42.67	598,000	23....	51.88	915,000	4....	28.06	280,000
12....	44.89	683,000	24....	51.43	883,000	5....	26.38	260,000

Note.--Monthly mean discharge for March 1964, 614,100 cfs.

CUMBERLAND RIVER BASIN

(143) 3-4380. Little River near Cadiz, Ky.

Location.--Lat 36°46'40", long 87°43'18", on right bank at upstream side of highway bridge, 50 ft downstream from Casey Creek and 8¾ miles southeast of Cadiz, Trigg County.

Drainage area.--244 sq mi, of which about 94 sq mi does not contribute directly to surface runoff.

Gage-height record.--Water-stage recorder graph. Datum of gage is 391.45 ft above mean sea level, unadjusted.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 10,000 cfs.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 5, 1100 hours	3,500	11.63
Mar. 9, 2000 hours	12,600	20.27
1940 to February 1964:		
Jan. 14, 1951	14,200	21.00

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	58	7	677	13	1,620	19	677	25	482
2	57	8	3,830	14	1,290	20	630	26	466
3	55	9	7,140	15	1,150	21	605	27	418
4	1,490	10	7,230	16	986	22	564	28	394
5	2,960	11	5,380	17	850	23	502	29	350
6	1,050	12	1,980	18	752	24	494	30	330
								31	314
Monthly mean discharge, in cubic feet per second									1,445
Runoff, in inches									6.83

(144) 3-4385. Cumberland River at Smithland, Ky.

Location.--Lat 37°08'45", long 88°24'25", on downstream side of left center pier of bridge on U.S. Highway 60 at Smithland, Livingston County, 1 mile downstream from McCormick Creek and 2.8 miles upstream from mouth.

Drainage area.--17,913 sq mi.

Gage-height record.--Water-stage recorder graphs. Auxiliary gage 16.8 miles upstream. Datum of gage is 300.00 ft above mean sea level, Sandy Hook datum.

Discharge record.--Stage-fall-discharge relation defined by current-meter measurements.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 11, 1800 hours	115,000	-
Mar. 21, 1100 hours	-	35.07
1939 to February 1964:		
Feb. 13, 1950	-	43.10
Feb. 18, 1950	201,000	-

Maximum stage known, 51.1 ft January to February 1937.

Remarks.--Some regulation by navigation dams on Cumberland River, and by Great Falls Lake, Lake Cumberland, Dale Hollow and Center Hill Reservoirs and Old Hickory Lake.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	21,000	7	79,300	13	89,200	19	71,700	25	60,800
2	20,400	8	74,600	14	67,900	20	63,900	26	60,400
3	23,400	9	97,100	15	56,500	21	61,100	27	69,700
4	32,800	10	114,000	16	59,800	22	64,400	28	74,100
5	58,000	11	113,000	17	70,800	23	67,000	29	72,000
6	74,400	12	106,000	18	75,400	24	66,400	30	66,200
								31	60,500
Monthly mean discharge, in cubic feet per second									67,480

TENNESSEE RIVER BASIN

(145) 3-6095. Tennessee River near Paducah, Ky.

Location.--Lat 37°01'11", long 88°16'50", on left bank at Gilbertsville, Marshall County, 4,000 ft downstream from Kentucky Dam, 2.3 miles upstream from Shadie Creek, 16 miles east of Paducah, McCracken County, and at mile 21.6.

Drainage area.--40,200 sq mi, approximately (at Gilbertsville).

Gage-height record.--Water-stage recorder graph. Datum of gage is 286.35 ft above mean sea level, datum of 1929.

Discharge record.--Stage-fall-discharge relation defined by current-meter measurements.

Maxima.--March 1964: Discharge, 231,000 cfs Mar. 29, 1800 hours; gage height, 49.23 ft Mar. 17, 1000 hours.
1889 to February 1964: Discharge, 500,000 cfs Feb. 17, 1948; maximum gage height, 62.43 ft Feb. 2, 1937, at Gilbertsville, present datum.

Remarks.--Flow regulated by Kentucky Lake.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	56,300	7.....	192,000	13.....	116,000	19.....	106,000	25.....	150,000
2.....	69,600	8.....	199,000	14.....	105,000	20.....	104,000	26.....	174,000
3.....	101,000	9.....	201,000	15.....	107,000	21.....	105,000	27.....	189,000
4.....	142,000	10.....	205,000	16.....	167,000	22.....	102,000	28.....	205,000
5.....	180,000	11.....	165,000	17.....	168,000	23.....	121,000	29.....	222,000
6.....	196,000	12.....	125,000	18.....	130,000	24.....	136,000	30.....	225,000
								31.....	204,000
Monthly mean discharge, in cubic feet per second.....									150,600

(146) 3-6105. East Fork Clarks River near Benton, Ky.

Location.--Lat 36°52'24", long 88°20'48", on downstream side of right pier of bridge on U.S. Highway 641 and State Highway 58, 1 mile north of Benton, Marshall County, and 6.8 miles upstream from Middle Fork Creek.

Drainage area.--227 sq mi.

Gage-height record.--Digital recorder tape punched at 30-minute intervals. Datum of gage is 344.53 ft above mean sea level, datum of 1929 (Tennessee Valley Authority bench mark).

Discharge record.--Stage-discharge relation defined by current-meter measurements below 16,000 cfs.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 5, 0930 hours.....	6,460	13.79
Mar. 9, 1730 hours.....	21,300	15.80
1938 to February 1964:		
Nov. 19, 1957.....	36,000	17.10

Maximum stage known, 17.8 ft in February 1937, from floodmarks.

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1.....	29	7.....	1,270	13.....	430	19.....	95	25.....	73
2.....	29	8.....	2,810	14.....	259	20.....	106	26.....	76
3.....	31	9.....	13,600	15.....	198	21.....	102	27.....	71
4.....	1,460	10.....	15,100	16.....	164	22.....	90	28.....	64
5.....	5,170	11.....	5,770	17.....	128	23.....	79	29.....	58
6.....	4,280	12.....	1,860	18.....	106	24.....	73	30.....	52
								31.....	48
Monthly mean discharge, in cubic feet per second.....									1,732
Runoff, in inches.....									8.79

OBION CREEK BASIN

(149) 7-235. Obion Creek at Pryorsburg, Ky.

Location.--Lat 36°41'10", long 88°43'35", on right bank at downstream side of bridge on U.S. Highway 45, 0.5 mile southwest of Pryorsburg, Graves County, and 3.1 miles upstream from Cane Creek.

Drainage area.--36.8 sq mi.

Gage-height record.--Digital recorder tape punched at 15-minute intervals. Datum of gage is 393.55 ft above mean sea level, datum of 1929.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 4,560 cfs.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 4, 1600 hours	4,520	12.37
Mar. 9, 1830 hours	5,000	12.85
1949:		
Feb. 14, 1949	Unknown	13.0
1951 to February 1964:		
Nov. 18, 1957	5,330	12.60

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	0.6	7	13.1	13	25.9	19	7.8	25	5.1
2	.7	8	1,960	14	18.2	20	8.4	26	8.2
3	.9	9	3,700	15	12.4	21	6.9	27	4.2
4	2,590	10	1,210	16	10.2	22	6.0	28	3.6
5	292	11	98	17	8.8	23	5.4	29	3.2
6	30.4	12	45.6	18	7.6	24	5.1	30	2.8
								31	2.8
Monthly mean discharge, in cubic feet per second									326
Runoff, in inches									10.20

BAYOU DU CHIEN BASIN

(150) 7-240. Bayou du Chien near Clinton, Ky.

Location.--Lat 36°37'43", long 88°57'50", on left bank at upstream side of bridge on U.S. Highway 51, 1.1 miles upstream from Cane Creek, 3½ miles southeast of Clinton, Hickman County, and 13½ miles upstream from mouth.

Drainage area.--68.7 sq mi.

Gage-height record.--Water-stage recorder graph. Datum of gage is 307.71 ft above mean sea level, unadjusted.

Discharge record.--Stage-discharge relation defined by current-meter measurements below 4,000 cfs.

Maxima.--Given in the following table.

	Discharge (cfs)	Gage height (feet)
March 1964:		
Mar. 5, 0830 hours	4,660	14.36
Mar. 10, 0300 hours	6,140	14.80
1939 to February 1964:		
Jan. 15, 1951	6,880	15.0

Mean discharge, in cubic feet per second, March 1964

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
1	18	7	35	13	95	19	32	25	26
2	18	8	1,420	14	71	20	46	26	28
3	22	9	5,180	15	49	21	30	27	20
4	1,320	10	4,500	16	37	22	26	28	20
5	3,500	11	1,000	17	32	23	24	29	18
6	579	12	168	18	28	24	24	30	17
								31	18
Monthly mean discharge, in cubic feet per second									594
Runoff, in inches									9.96

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