ACKNOWLEDGMENTS

This report has been compiled from Division of Water data and from information supplied by the following:

Precipitation data:
U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service; The Miami Conservancy District; U.S. Army Corps of Engineers, Muskingum Area.

Streamflow and reservoir storage data:
U.S. Geological Survey, Water Resources Division.

Lake Erie level data:
U.S. Department of Commerce, NOAA-National Ocean Survey, Lake Survey Center, Detroit, Michigan.

Editing, cartography, and production by staff of the Ohio Division of Geological Survey.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER
FOUNTAIN SQUARE
COLUMBUS, OHIO 43224

SUMMARY

The water-supply situation continues to be most favorable throughout the state. Precipitation for the state as a whole for January was above normal. Reservoir storage, streamflow, and ground-water storage were noticeably above normal throughout the state. Lake Erie level declined only slightly during January.

NOTES AND COMMENTS

NATIONAL FLOOD INSURANCE PROGRAM

Most of Ohio's flood-hazard areas have been identified by the Federal Insurance Administration in accordance with provisions of the National Flood Insurance Program. The procedure includes a letter of formal notification to the identified city or county government explaining the purpose of the notification along with a Flood Hazard Boundary Map, which designates the flood-hazard areas in that community. After notification by the U.S. Department of Housing and Urban Development (HUD), the community is given one year in which to apply and to complete the eligibility requirements for participation in the program.

One year after the community has been notified of its identification no federal or federally related financial assistance for construction or acquisition purposes may be approved for use in a designated flood-hazard area unless the community has qualified for participation in the flood-insurance program. Federal or federally related financial assistance includes Federal Housing Administration and Veterans' Administration insured mortgage loans and conventional mortgage loans from federally regulated lending institutions; HUD, Small Business Administration, Environmental Protection Agency, and other federally sponsored grant or loan programs; and any other federally related financial assistance for construction or acquisition purposes.

Following a community's acceptance into the program, HUD contracts with a federal agency or private engineering firm to provide the community with flood elevation and delineation data necessary to develop required flood-plain-management regulations to minimize future flood damages and risk information necessary to establish an actuarial-rate system for insurance purposes. Once this study is completed the community must, within six months, adopt local flood-plain-management regulations consistent with HUD criteria or lose its eligibility for participation in the flood-insurance program.

As of February 1, 1976, 664 Ohio city and county governments have been identified by HUD as having one or more flood-hazard areas within their jurisdictional boundaries. Of this total, 455 communities have qualified for participation in the flood-insurance program. The Ohio Department of Natural Resources urges all municipalities and counties with flood problems to participate in the flood-insurance program. Information about the program can be obtained from the Flood Plain Management Unit, Division of Water, which serves as the state coordinating agency for this program. The Flood Plain Management Unit is located in Building E, Fountain Square, Columbus, Ohio 43224, telephone 614-466-6294.

DEPARTMENT OF NATURAL RESOURCES

James A. Rhodes Governor *Robert W. Teater Director*

JANUARY 1976

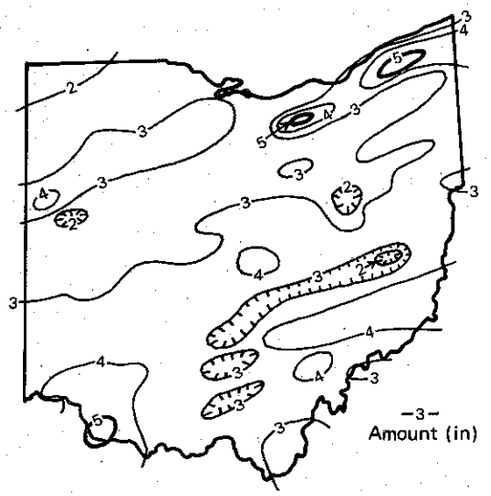
monthly water inventory report for ohio

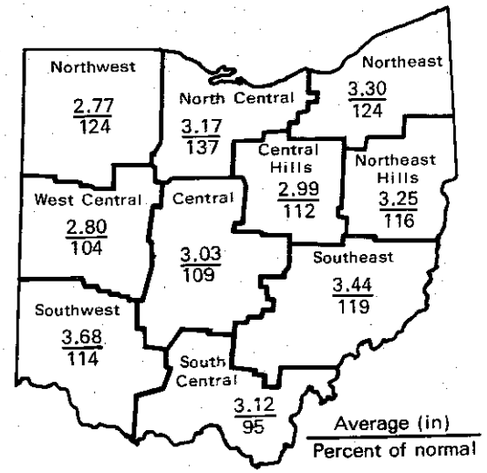
Compiled by Leonard J. Harstine

PRECIPITATION

PRECIPITATION for January was above normal for most of the state; the only exception was the South Central region, where precipitation was slightly below normal. The average for the state as a whole was 3.16 inches, 0.40 inch above normal. Regional averages ranged from 3.68 inches, 0.45 inch above normal, for the Southwest region to 2.77 inches, 0.54 inch above normal, for the Northwest region. Chardon, Geauga County, reported the greatest amount of precipitation, 5.76 inches, for the month, and Montpelier, Williams County, reported the least amount, 1.61 inches. Chardon also reported 49 inches of snow for the month, a new January record high for this station for the period of record, which began in 1946. Other stations reporting record snowfalls for the month were Oberlin, Lorain County, and the Akron-Canton Airport Weather Service Office. There was precipitation in the form of rain, sleet, snow, or ice throughout the month; many stations reported precipitation on 20 or more days of the month. Heavy snow fell in the first half of the month; the snow cover was mostly melted by rains about the middle of the month. Snow on the ground at the month end was minimal except in the northeastern portion of the state. Conditions for recharge to water supplies were generally good during January.

Precipitation was at or above normal throughout the state for the first four months of the 1976 water year. The average for the state as a whole was 11.17 inches, 0.91 inch above normal. Regional averages ranged from 12.99 inches, 1.79 inches above normal, for the Southwest region to 10.14 inches, 0.20 inch above normal, for the West Central region. This is the fifth consecutive water year for which precipitation has been above normal for the first four months. Conditions this year again have been excellent for noticeable recharge to water supplies during the nominal recharge season.

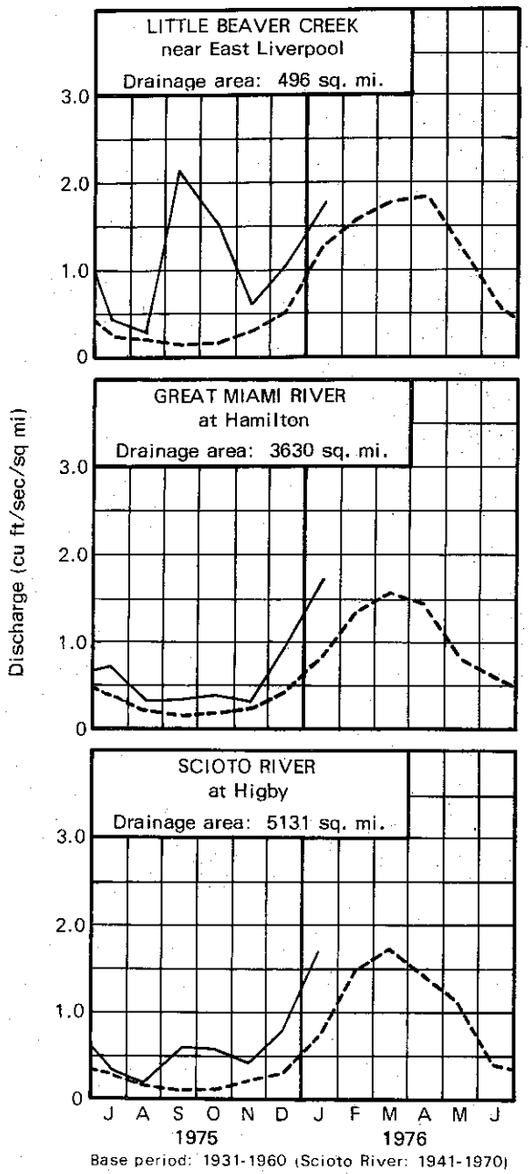




DIVISION OF WATER

Wayne S. Nichols, Chief

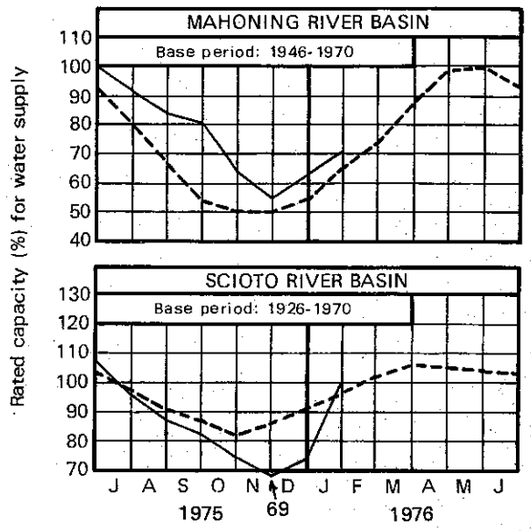
MEAN STREAM DISCHARGE



Base period: 1931-1960 (Scioto River: 1941-1970)

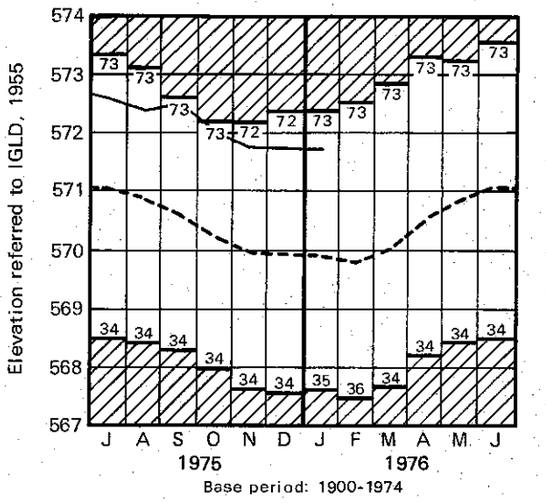
STREAMFLOW was above normal in the northeastern and southwestern areas of the state and excessive in the central portion. Flows have been above normal throughout the state for the first four months of the 1976 water year. Mean discharge and percent of normal for the index gaging stations for January were as follows: Little Beaver Creek, 884 cfs, 139 percent; Great Miami River, 6,194 cfs, 206 percent; Scioto River, 8,527 cfs, 226 percent. Flows at the index gaging stations at the month end were above normal. Cumulative runoff and percent of normal for the 1976 water year thus far for the respective drainage basins are: Little Beaver Creek, 5.68 inches, 178 percent; Great Miami River, 3.96 inches, 171 percent; Scioto River, 3.89 inches, 183 percent.

RESERVOIR STORAGE FOR WATER SUPPLY



RESERVOIR STORAGE for water supply was above normal at the month end in both the Mahoning River basin and the Scioto River basin index reservoirs. Storage in the Mahoning River basin index reservoirs for January was greater than that observed for last month and for January 1975. Storage for the Scioto River basin index reservoirs was noticeably greater than that observed for last month but was below that observed for January 1975.

LAKE ERIE LEVELS

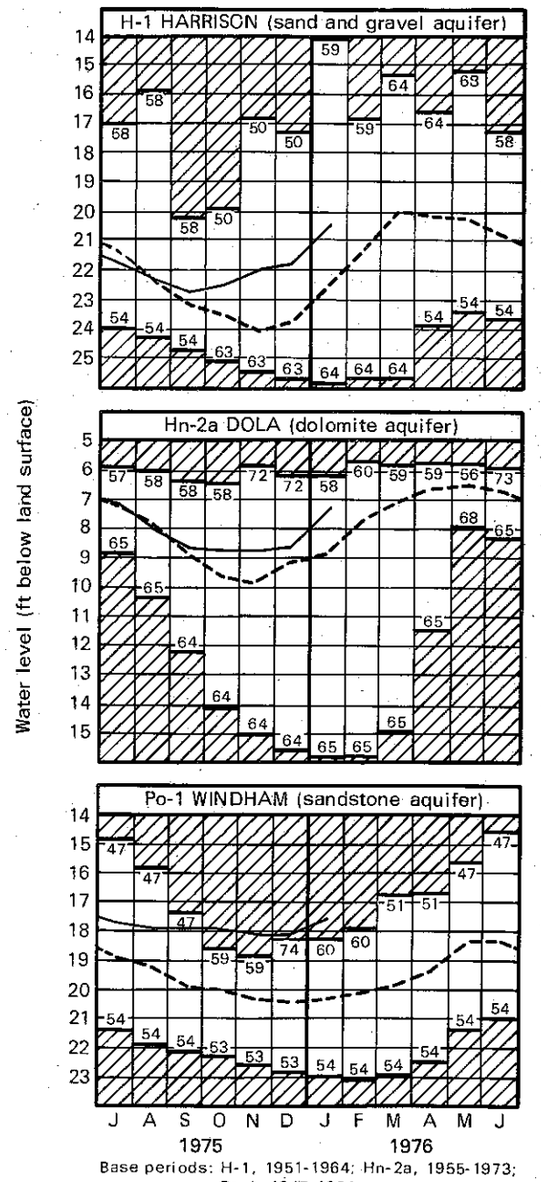


Base period: 1900-1974

LAKE ERIE mean level for January was 571.70 feet above IGLD (1955), 0.02 foot below last month's level and 1.99 feet above normal. The lake level is 0.16 foot below the level observed for January 1975 and 3.10 feet above Low Water Datum. (Correction: the lake level reported for December should have been 571.72 feet above IGLD.)

GROUND-WATER LEVELS throughout the state showed normal rises for January in response to the excellent recharge conditions. Generally, ground-water levels show the greatest rises in response to recharge in January and February; this year was no exception. Ground-water levels are generally above normal and above those levels observed for January 1975. The only exceptions are in wells where the water levels were exceptionally high last year. The level in observation well Po-1 at Windham, Portage County, rose to a record high for January; this is the fourth consecutive month in which Po-1 has recorded a new monthly record-high water level.

GROUND-WATER LEVELS



Base periods: H-1, 1951-1964; Hn-2a, 1955-1973; Po-1, 1947-1964

normal - - - - current ——

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Editing, cartography, and production by staff of the Ohio Division of Geological Survey.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER
FOUNTAIN SQUARE
COLUMBUS, OHIO 43224

SUMMARY

The water-supply situation remains very favorable throughout the state. Precipitation for the state as a whole for February was above normal. Streamflow for the month was excessive throughout the state. The rains of February 16-18 caused minor flooding throughout the state. Reservoir storage increased markedly and ground-water levels were generally above normal. Lake Erie level rose slightly and was 0.78 foot below the all-time high level for February set in 1973.

NOTES AND COMMENTS

Ground water—an underground seismograph

The Guatemala earthquake on February 4, 1976, was detected and recorded by Ohio Division of Water ground-water observation well Vw-1 at Van Wert. This was the latest of several major earthquakes which have caused marked fluctuations in some of the 140 observation wells used by the Division to provide data on natural long-range changes in ground-water levels. In the past, one or more of the wells detected the earthquakes in Chile in 1965, in Alaska in 1964, in Japan in 1952, in Assam, India, in 1950, and in British Columbia in 1949. About 30 of the wells, which range from 20 to 525 feet in depth, respond to seismic activity, but none as consistently or as dramatically as observation well Vw-1. The Alaska earthquake of March 27, 1964, which registered a magnitude of 8.5 on the Richter scale, caused a fluctuation of 5.8 feet in the water level in well Vw-1. The Guatemala earthquake registered a magnitude of 7.5 on the Richter scale and a fluctuation of 0.30 foot in the water level in well Vw-1. Earthquakes with distant epicenters and magnitudes of less than 7.0 on the Richter scale probably will not register any fluctuation in water level in wells in Ohio.

More information on earthquakes in Ohio can be obtained in Ohio Division of Geological Survey Educational Leaflet No. 9, *Earthquakes in Ohio,* by Michael C. Hansen. This folded pamphlet briefly discusses the origin and measurement of earthquakes and the occurrence and cause of earthquakes in Ohio. The pamphlet is illustrated with maps, sketches, and photos. This publication is available for 15 cents from the Ohio Division of Geological Survey, Bldg. B, Fountain Square, Columbus, Ohio 43224.

DEPARTMENT OF NATURAL RESOURCES

James A. Rhodes Governor *Robert W. Teater Director*

FEBRUARY 1976

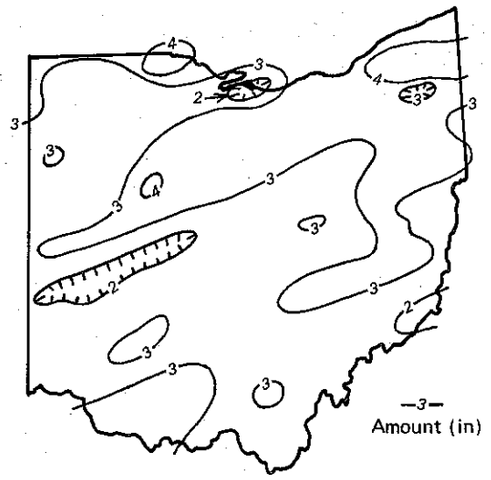
monthly water inventory report for ohio

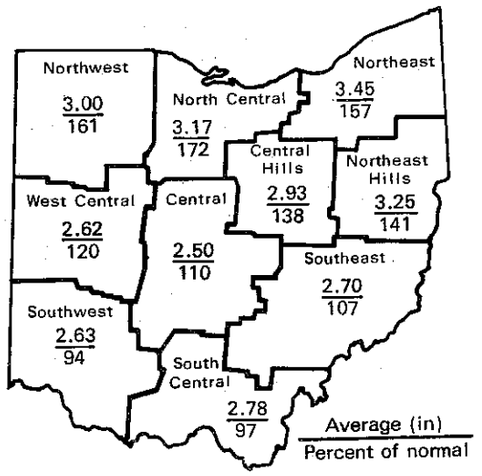
Compiled by Leonard J. Harstine

PRECIPITATION

PRECIPITATION for February was above normal throughout most of the state; the only exceptions were the Southwest and South Central regions. The average for the state as a whole was 2.90 inches, 0.61 inch above normal. Regional averages ranged from 3.45 inches, 1.26 inches above normal, for the Northeast region to 2.50 inches, 0.24 inch above normal, for the Central region. Toledo Express Airport Weather Service office, Lucas County, reported the greatest amount of precipitation, 4.43 inches, for the month, and Sandusky, Erie County, reported the least amount, 1.64 inches. The bulk of the precipitation fell during the first and third weeks of the month. Generally precipitation for February was greatest in the northern portion of the state, diminishing toward the southern portion. Most of the state received between 2.5 and 3.5 inches of precipitation. A narrow band running from West Manchester, Preble County, through Marysville, Union County, received less than 2.0 inches. An area in the northeastern portion of the state east of Cleveland and two isolated stations (Kenton, Hardin County, and Toledo) received more than 4.0 inches of precipitation for the month. Precipitation for the first two months of the 1976 calendar year averages 6.06 inches, 1.01 inches above normal. Regional averages range from 6.75 inches, 1.89 inches above normal, for the Northeast region to 5.42 inches, 0.54 inch above normal, for the West Central region.

Precipitation for the state as a whole has been above normal for the 1976 water year thus far. The average for the first five months of the water year is 14.07 inches, 1.52 inches above normal. Regional averages range from 15.62 inches for both the Southwest and South Central regions, 1.62 inches and 1.57 inches above normal respectively, to 12.73 inches, 0.65 inch above normal, for the Central region.

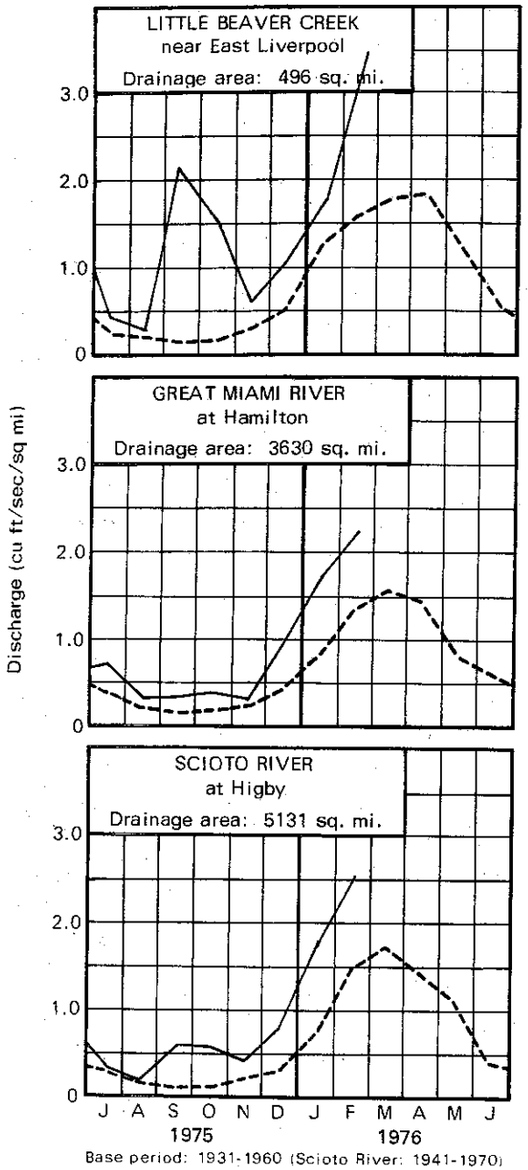




DIVISION OF WATER

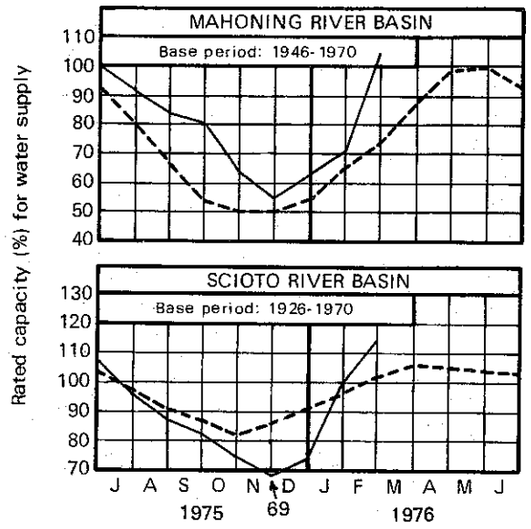
Wayne S. Nichols, Chief

MEAN STREAM DISCHARGE



Base period: 1931-1960 (Scioto River: 1941-1970)

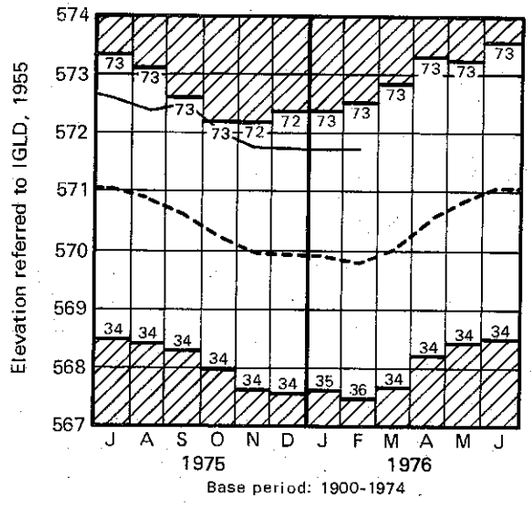
RESERVOIR STORAGE FOR WATER SUPPLY



RESERVOIR STORAGE for water supply improved markedly during February. Storage in both the Mahoning basin and the Scioto basin index reservoirs increased during the month and was significantly greater than that observed last month. Storage in the Mahoning basin index reservoirs was slightly higher than that observed for February 1975; storage in the Scioto basin index reservoirs was lower than that observed a year ago.

STREAMFLOW for the month was excessive throughout the state. The U.S. Geological Survey, Columbus office, reported that the rains of February 16-18 caused minor flooding throughout the state. Mean discharge and percent of normal at the index gaging stations were as follows: Little Beaver Creek, 1,705 cfs, 211 percent; Great Miami River, 7,981 cfs, 162 percent; Scioto River, 12,908 cfs, 167 percent. Flows at the month end were generally at or below normal.

LAKE ERIE LEVELS

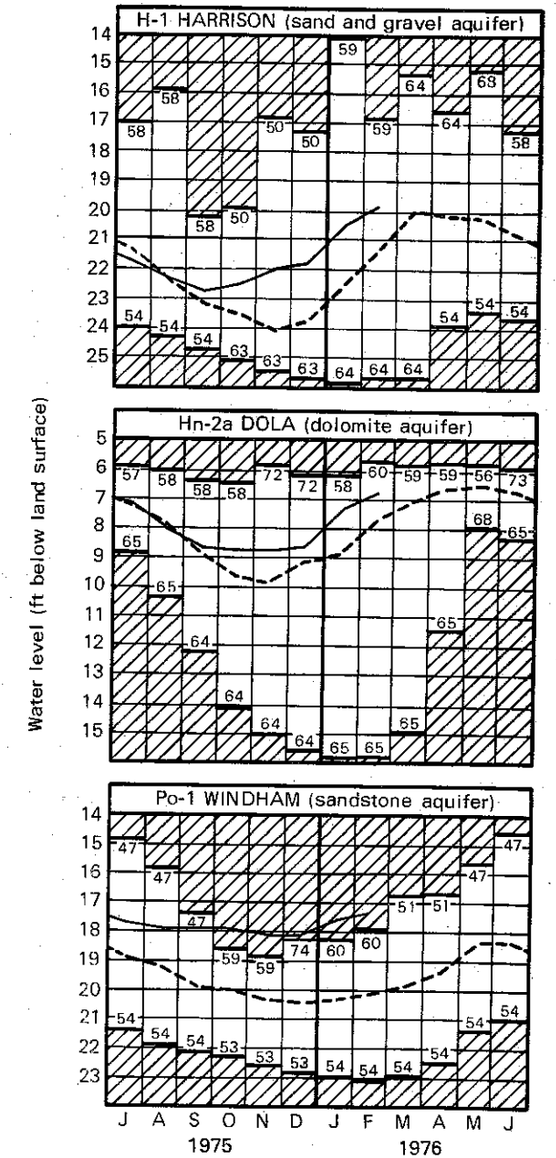


Base period: 1900-1974

LAKE ERIE mean level for February was 571.75 feet above IGLD (1955), 0.05 foot above last month's mean level and 0.31 foot below the level observed for February 1975. The lake level is 2.06 feet above normal and 3.15 feet above Low Water Datum. The lake level for February is 0.78 foot below the all-time high for February set in 1973.

GROUND-WATER LEVELS in most areas of the state remained rather stable during the first half of the month and rose significantly in the last half of the month in response to the rains of February 16-18. Net rises for the month were slightly lower than usual for February. Ground-water levels throughout the state are generally above normal, above those levels observed last month, and at or below those levels observed for February 1975. The water level in observation well Po-1, at Windham, Portage County, rose to a record high for February, the fifth consecutive month in which Po-1 has risen to a new monthly record-high water level.

GROUND-WATER LEVELS



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normal - - - - current ——

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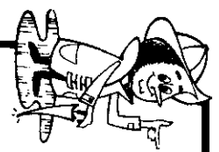


OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER
FOUNTAIN SQUARE
COLUMBUS, OHIO 43224

SUMMARY

The water-supply situation remains very favorable throughout the state. Precipitation for March was generally above normal in the northern part of the state and below normal in the southern part. Streamflow, reservoir storage, and ground-water storage are generally about normal. Lake Erie level rose markedly and was only 0.08 foot below the all-time record-high level for March set in 1973.

NOTES AND COMMENTS

Progress toward statewide water plan

Under the direction of Ohio Department of Natural Resources Director Robert W. Teater, good progress is being made toward completion of comprehensive water plans for the entire state. Water plans for the entire Lake Erie watershed from Williams County to Ashtabula County have been published and are being implemented. The plan for southwest Ohio (the Great Miami River and Little Miami River basins) is in press, and the plans for central and southeast Ohio are in preparation. New public water advisory councils for these areas will be announced shortly. These water plans are prepared cooperatively by several participating agencies in addition to the Ohio Department of Natural Resources: the Ohio Environmental Protection Agency directs water-quality planning (so-called Sec. 303 Basin Plans), and the U.S. Army, Corps of Engineers, the U.S. Geological Survey, the U.S. Soil Conservation Service, and other agencies contribute information vital to other aspects of the program.

Information brochures available

The Ohio Division of Water has released two information brochures—*THE STORY OF OHIO'S LAKES* and *WHAT'S GROUND WATER?* These are available free of charge by writing the Ohio Division of Water, Fountain Square, Building E, Columbus, Ohio 43224.

Lake Erie shore recession-line sketches available

A series of 19 sketch maps compiled by Donald E. Guy, Jr., and showing the fluctuation of Ohio's Lake Erie shoreline between 1876 and 1973 are now available from the Division of Geological Survey. Entitled *Shore recession lines, Lake Erie,* the sketches, open file maps 81 through 99, show the position of the shoreline in 1876, 1937, and 1973 on a scale of approximately 400 feet to an inch. Each map is approximately 3 feet by 4 feet. An index showing the area covered by each sketch map is available without charge from the Ohio Division of Geological Survey, Building B, Fountain Square, Columbus, Ohio 43224. Each map is $3.00 plus 12 cents Ohio sales tax and 30 cents for mailing.

DEPARTMENT OF NATURAL RESOURCES

James A. Rhodes Governor *Robert W. Teater Director*

MARCH 1976

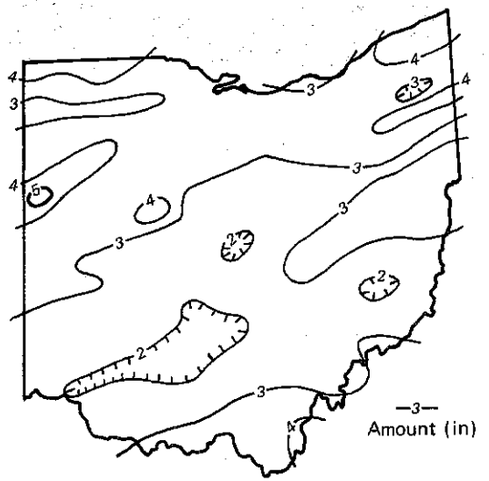
monthly water inventory report for ohio

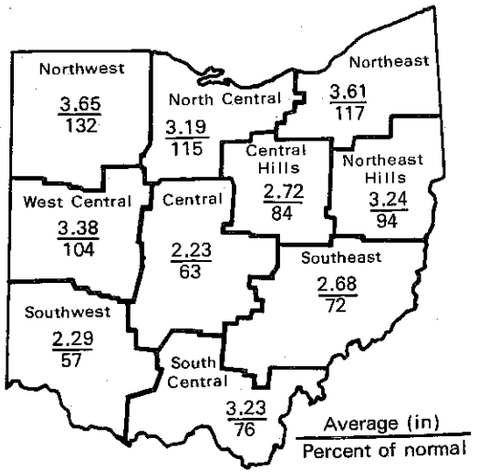
Compiled by Leonard J. Harstine

PRECIPITATION

PRECIPITATION for March was above normal for the Northeast, North Central, Northwest, and West Central regions of the state and was below normal elsewhere. The average for the state was 3.02 inches, 0.39 inch below normal. Regional averages ranged from 3.65 inches, 0.89 inch above normal, for the Northwest region to 2.23 inches, 1.30 inches below normal, for the Central region; the Southwest region showed the greatest departure from normal, 2.29 inches, 1.74 inches below normal. Rockford, Mercer County, reported the greatest amount of precipitation, 5.07 inches, for the month, and Circleville, Pickaway County, reported the least amount, 1.42 inches. There was measurable precipitation during every week of the month. The bulk of the precipitation in the northern portion of the state occurred during the first week of the month. A storm on March 20th produced sizeable amounts of precipitation in many areas of the state. Precipitation for the first three months of the 1976 calendar year for the state as a whole averages 9.08 inches, 0.62 inch above normal. Regional averages range from 10.36 inches, 2.42 inches above normal, for the Northeast region to 7.76 inches, 0.80 inch below normal, for the Central region.

Precipitation for the first six months of the 1976 water year for the state as a whole averages 17.09 inches, 1.13 inches above normal. Regional averages range from 18.85 inches, 0.57 inch above normal, for the South Central region to 14.96 inches, 0.65 inch below normal, for the Central region. The northern regions show greater surpluses; their six-month totals and departures from normal are: Northwest region, 16.87 inches, 2.83 inches above normal; North Central region, 16.56 inches, 2.74 inches above normal; Northeast region, 18.19 inches, 1.78 inches above normal. Generally this has been a good year thus far for recharge to water supplies insofar as precipitation is concerned.

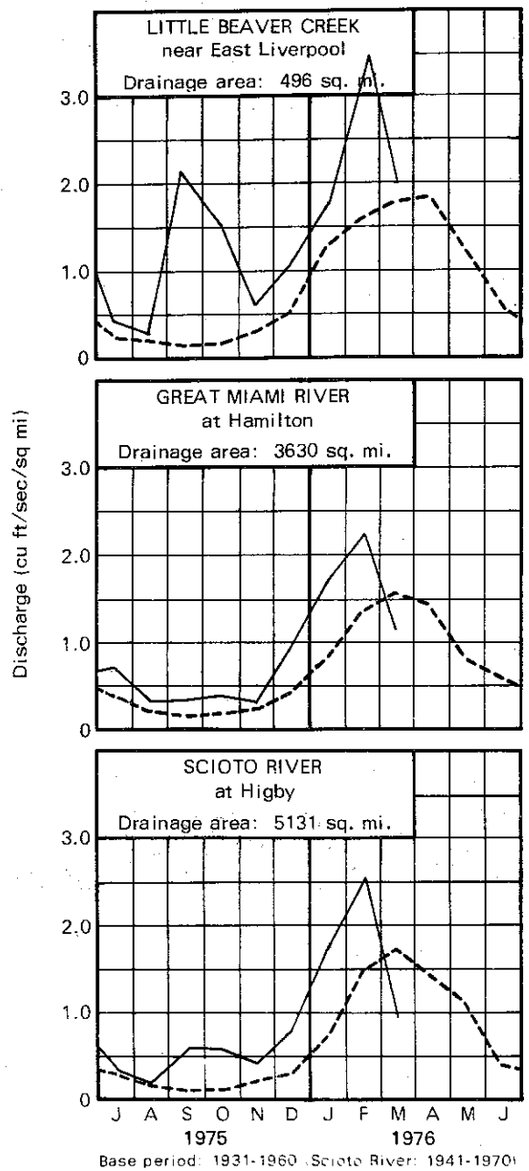




DIVISION OF WATER

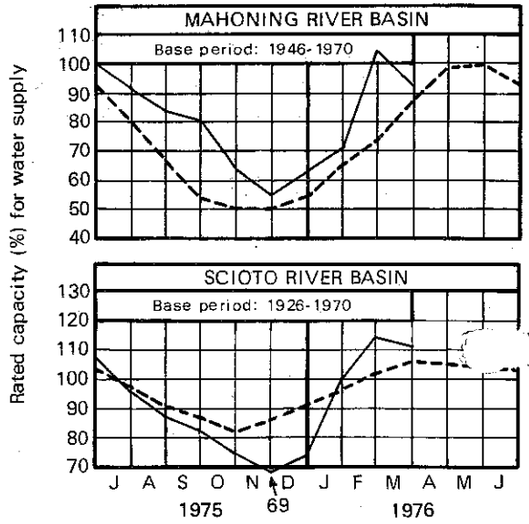
Wayne S. Nichols, Chief

MEAN STREAM DISCHARGE



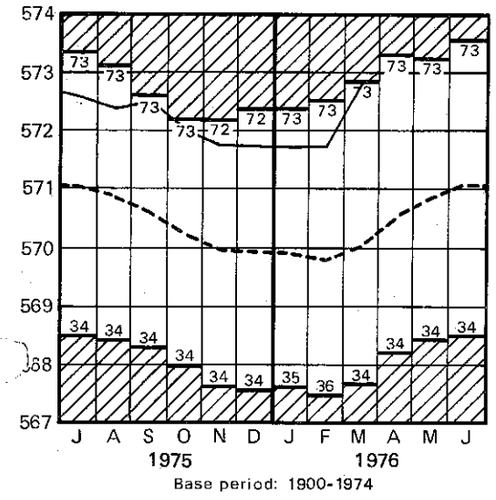
STREAMFLOW for March was normal throughout the state. However, flows at the Great Miami River and the Scioto River index gaging stations were in the lower limits of their normal range of flow for March. This is the first time since May 1975 that streamflow for the Great Miami River and for the Scioto River has been below the median for the respective index gaging stations. Mean discharge and percent of normal at the index gaging stations for March were as follows: Little Beaver Creek, 990 cfs, 110 percent; Great Miami River, 4,095 cfs, 72 percent; Scioto River, 5,050 cfs, 56 percent. Flows at the month end were deficient at all three index gaging stations.

RESERVOIR STORAGE FOR WATER SUPPLY



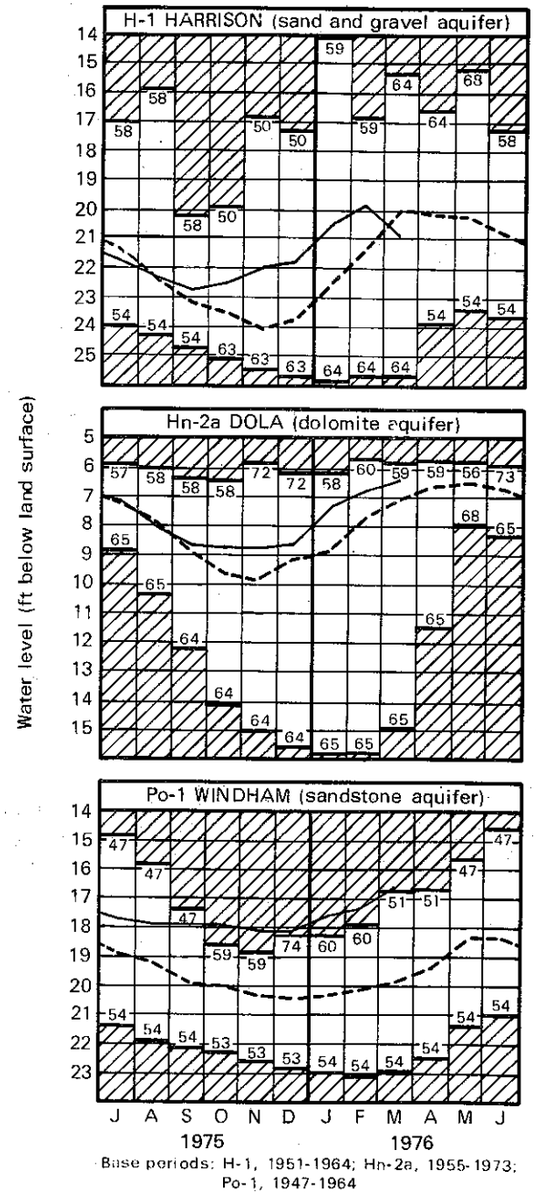
RESERVOIR STORAGE for water supply declined in both the Mahoning and the Scioto index basins but remained above normal for March. Storage in the Mahoning basin index reservoirs was noticeably below that observed last month and slightly lower than that observed for March 1975. Storage in the Scioto basin index reservoirs was nearly the same as that observed last month and for March 1975.

LAKE ERIE LEVELS



LAKE ERIE level rose markedly during March in response to the above-normal precipitation over the Great Lakes. The mean level for March was 572.80 feet above IGLD (1955), 1.05 feet above last month's level and only 0.08 foot below the all-time record-high level for March set in 1973. The lake level is 0.29 foot above the level observed for March 1975, 2.88 feet above normal, and 4.20 feet above Low Water Datum.

GROUND-WATER LEVELS



GROUND-WATER LEVELS showed mixed response to recharge for March. Water levels generally remained fairly stable, rising moderately in the northern portion of the state, where precipitation was above normal, and declining in the southern portion, where precipitation has been below normal. Ground-water levels were generally below those levels observed for March 1975. The water level in observation well Po-1, at Windham, Portage County, rose to a record high for March, the sixth consecutive month in which the water level in this well has risen to a new monthly record high.

normal - - - - current ——

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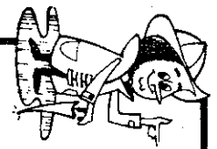


OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER
FOUNTAIN SQUARE
COLUMBUS, OHIO 43224

SUMMARY

The water-supply situation remains about normal. Precipitation for April was below normal throughout the state for the second consecutive month. As a result, the nominal recharge period to water supplies has been shortened by about two months. Streamflow was deficient throughout the state for the first time in several years. Reservoir storage and ground-water storage remain about normal. Lake Erie rose only slightly and remains at a critically high level.

NOTES AND COMMENTS

The Water Resource Development Section of the Division of Water serves Ohioans through these major activities:

The Water Planning unit has completed the Southwest Ohio Water Plan, which is ready for printing. Work is continuing on the central Ohio and southeast Ohio water plans. Water Planning also is involved in small-watershed projects (under Public Law 566) such as Little Auglaize River, Chippewa Creek, and Rush Creek site VI-A. The unit furnishes Ohio Department of Natural Resources (ODNR) input to water-quality management planning, as required by secs. 208 and 303 of the Federal Water Pollution Control Act (Public Law 92-500), and contributes, along with the U.S. Soil Conservation Service, to irrigation assessments and channel design research for such projects as Gordon Creek and Little Auglaize River. The Water Planning unit commonly is called upon to prepare environmental impact statements, to administer consulting service contracts, and to coordinate the state's water interests on studies sponsored by federal agencies.

The Flood Plain Planning unit coordinates all flood-plain studies conducted in the state, handles all flood-insurance coordination with federal agencies and with local bodies politic, recommends study-area priorities to the U.S. Department of Housing and Urban Development, furnishes flood-plain management and regulation assistance, provides flood-information service and site analysis, and reviews flood-control plans.

The Water Supply unit is compiling a current water-supply inventory of municipal and some industrial and private water systems. This inventory, which is about 50 percent completed, will be extremely valuable to planning agencies and water administrators. Also under way is an inventory of major waste-water discharges for areas of the state where irrigation may be of interest to local crop growers. The Water Supply unit generally monitors or administers ODNR water-related interests in special projects such as waste disposal, pesticide standards, and emergency spills.

In addition, the Water Resource Development Section maintains a water-management rotary fund and administers contracts for some of the upground reservoirs, on-stream reservoirs, water-treatment facilities, and water-sales arrangements in which ODNR has contractual responsibilities that are managed by the Division of Water.

DEPARTMENT OF NATURAL RESOURCES

James A. Rhodes Governor · *Robert W. Teater Director*

APRIL 1976

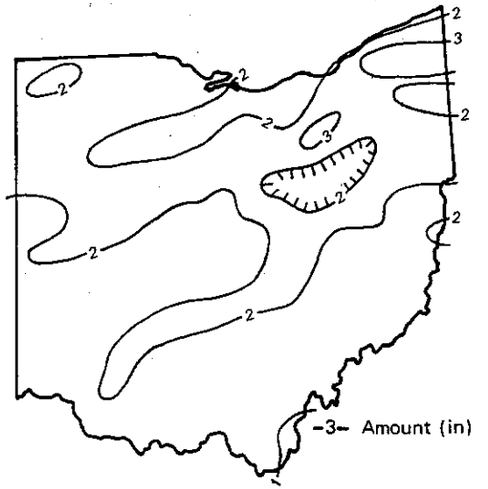
monthly water inventory report for ohio

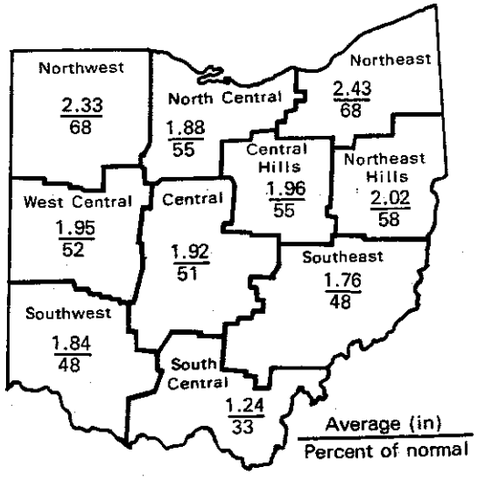
Compiled by Leonard J. Harstine

PRECIPITATION

PRECIPITATION for April was noticeably below normal throughout the state for the first time in more than two years. The average for the month for the state as a whole was 1.93 inches, 1.69 inches below normal. Regional averages ranged from 2.43 inches, 1.13 inches below normal, for the Northeast region to 1.24 inches, 2.51 inches below normal, for the South Central region. Chardon, Geauga County, reported the greatest amount of precipitation, 3.89 inches, for the month, and Chesapeake, Lawrence County, reported the least amount, 0.74 inch. Although there was measurable precipitation during every week of the month in most areas of the state, the bulk of the precipitation occurred during the last 10 days of the month. Generally, most areas of the state received between 1.5 and 2.5 inches of precipitation; three weather stations in the Northeast region reported 3.0 inches or more, and two stations in the South Central region reported amounts less than 1.0 inch. Precipitation for the first four months of the 1976 calendar year was below normal throughout most of the state; the only exceptions were the Northwest, North Central, and Northeast regions. The average thus far for the state as a whole is 11.01 inches, 1.07 inches below normal. Regional averages range from 12.79 inches, 1.29 inches above normal, for the Northeast region to 9.68 inches, 2.67 inches below normal, for the Central region. The southern regions show greater deficiencies; their four-month totals and departures from normal are: Southwest region, 10.44 inches, 3.46 inches below normal; South Central region, 10.37 inches, 3.77 inches below normal; Southeast region, 10.58 inches, 2.19 inches below normal. Precipitation for the South Central region has been below normal during every month of the 1976 calendar year thus far.

Precipitation for the 1976 water year thus far for the state as a whole averages 19.02 inches, 0.56 inch below normal. Regional averages for the seven-month period range from 20.62 inches, 0.65 inch above normal, for the Northeast region to 16.88 inches, 2.52 inches below normal, for the Central region. It is apparent that, insofar as precipitation is concerned, the recharge for water supplies for the 1976 water year is over; thus the nominal recharge period for water supplies has been cut short by approximately two months this water year.

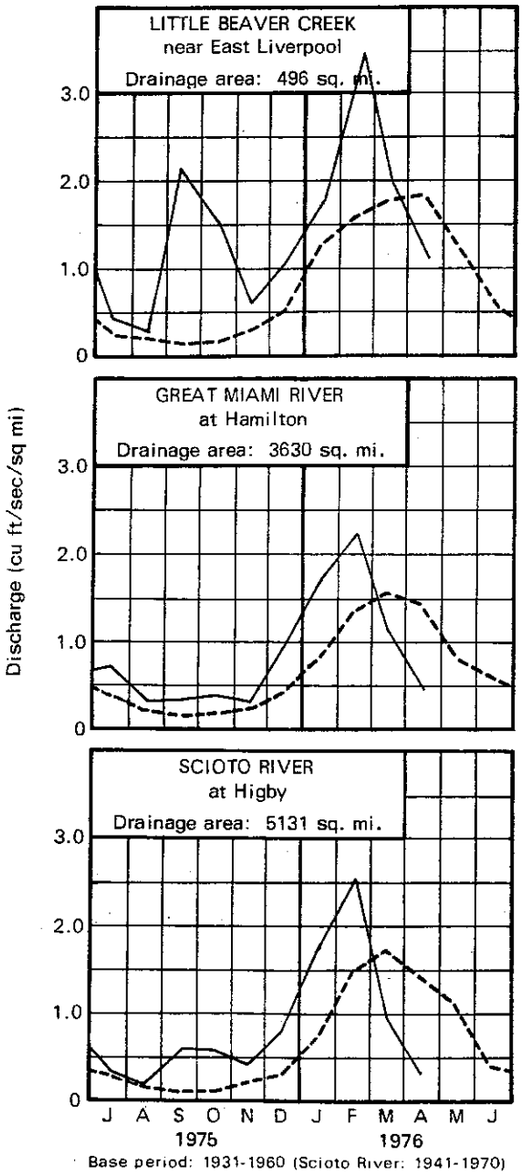




DIVISION OF WATER

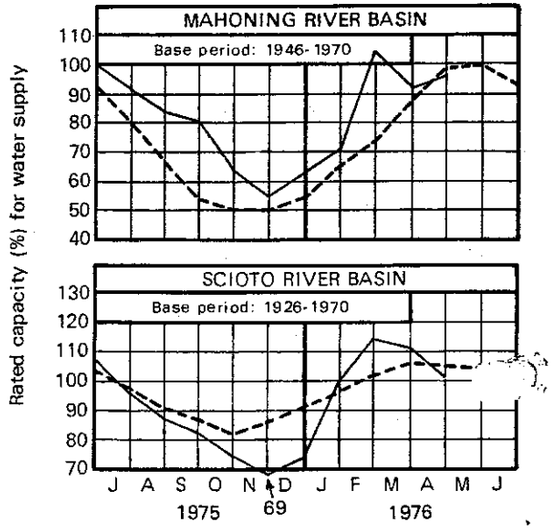
Wayne S. Nichols, Chief

MEAN STREAM DISCHARGE



Base period: 1931-1960 (Scioto River: 1941-1970)

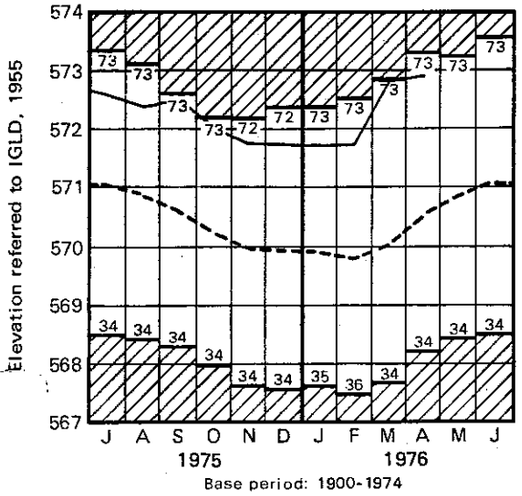
RESERVOIR STORAGE FOR WATER SUPPLY



RESERVOIR STORAGE for water supply was slightly below normal at the month end in both the Mahoning River basin and the Scioto River basin index reservoirs. Storage in the Mahoning basin reservoirs increased slightly during the month and was above that observed last month and that observed for April 1975. Storage for the Scioto basin index reservoirs decreased slightly during the month and was noticeably lower than that observed for last month and for April 1975.

STREAMFLOW for April was deficient throughout the state. This is the first time streamflow has been deficient throughout the state for several years. The deficient flows are in response to the below-normal precipitation in most areas of the state over the past two months. Mean discharge and percent of normal at the index gaging stations for April were as follows: Little Beaver Creek, 557 cfs, 58 percent; Great Miami River, 1,658 cfs, 32 percent; Scioto River, 1,752 cfs, 24 percent; Maumee River, 3,247 cfs, 36 percent. Note that streamflow data are now available for the Maumee River basin; the index gaging station is located at Waterville, Lucas County. The mean discharge and percent of normal at this station for the first six months of the 1976 water year are as follows: October, 1,474 cfs, 290 percent; November, 1,527 cfs, 98 percent; December, 8,310 cfs, 368 percent; January, 5,529 cfs, 125 percent; February, 32,300 cfs, 488 percent; March, 12,52[illegible] 110 percent.

LAKE ERIE LEVELS



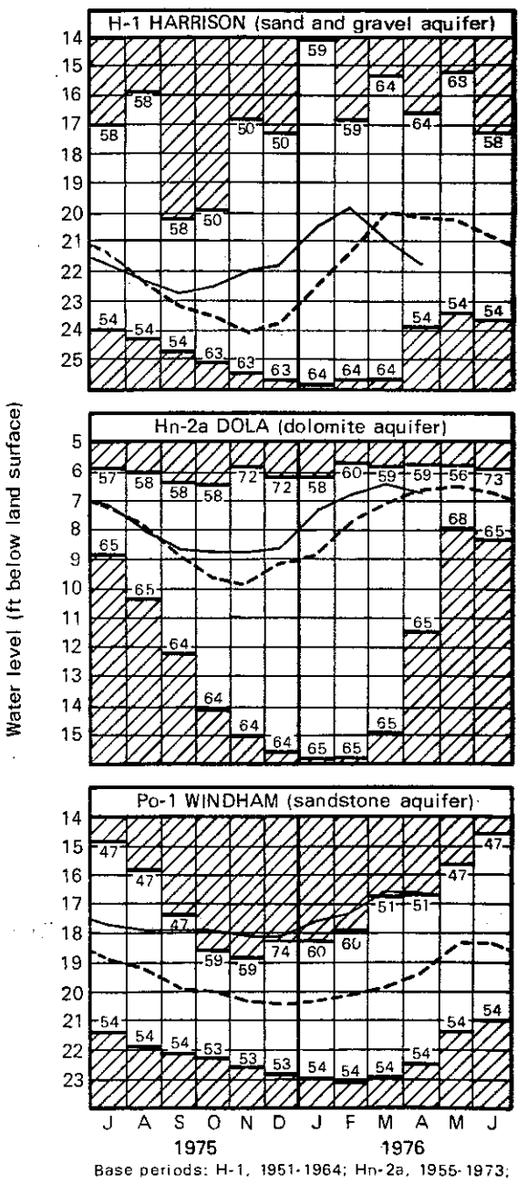
Base period: 1900-1974

LAKE ERIE level rose only slightly during April. The mean level for April was 572.87 feet above IGLD (1955), 0.07 foot above last month's level and 2.39 feet above normal. The lake level is 0.31 foot above the level observed for April 1975, 4.27 feet above Low Water Datum, and 0.43 foot below the all-time record-high level for April set in 1973.

GROUND-WATER LEVELS declined this month. It is very unusual for water levels to show net declines for April; they usually rise slightly in April. Only one index well, Po-1, at Windham, Portage County, representing a sandstone aquifer, showed a net rise over last month's level; Po-1 recorded a record high for April, the seventh consecutive month in which the water level in this well has risen to a new monthly record high. However, the water level in Po-1 declined slightly throughout the month. The declines in water levels are in response to the below-normal precipitation in the past two months. Generally, water levels for April are above normal in the consolidated rock aquifers and below normal in the unconsolidated aquifers. Water levels in general are noticeably below those levels observed for April 1975.

normal - - - - current ——

GROUND-WATER LEVELS



Base periods: H-1, 1951-1964; Hn-2a, 1955-1973; Po-1, 1947-1964

ACKNOWLEDGMENTS

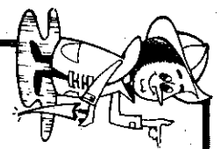
This report has been compiled from Division of Water data and from information supplied by the following:

Precipitation data:
U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service; The Miami Conservancy District; U.S. Army Corps of Engineers, Muskingum Area.

Streamflow and reservoir storage data:
U.S. Geological Survey, Water Resources Division.

Lake Erie level data:
U.S. Department of Commerce, NOAA-National Ocean Survey, Lake Survey Center, Detroit, Michigan.

Editing, cartography, and production by staff of the Division of Geological Survey, Ohio Department of Natural Resources.



OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER
FOUNTAIN SQUARE
COLUMBUS, OHIO 43224

SUMMARY

The water-supply situation for May remains about normal. Precipitation for May was below normal throughout the state. Streamflow was generally deficient throughout the state. Reservoir storage is below normal and ground-water storage is noticeably below normal in most areas of the state. Lake Erie level rose only slightly during the month.

NOTES AND COMMENTS

The first meeting of the Central Ohio Water Advisory Council was held in Chillicothe, Ohio, on June 8, 1976. This meeting was another step in Director Teater's program to complete the state water plans. The Northwest and Northeast plans are completed, the Southwest plan is being printed, and the Central plan is scheduled for publication in early 1977. These plans are designed to provide each community in Ohio with alternative plans for meeting future water needs.

The U.S. Geological Survey has announced that, *effective July 15, 1976,* the price of 7.5-minute topographic maps will increase to *$1.25* each, and the price of 1:250,000 maps will increase to *$2.00* each.

Guidebook 4, *Geology of the Hocking Hills State Park region,* by Michael C. Hansen, is now available. Guidebook 4 details the geologic and glacial history and features in the vicinity of this scenic and popular state park. A road log and numerous photographs are included. Guidebook 4 may be obtained from the Division of Geological Survey, Ohio Department of Natural Resources, Building B, Fountain Square, Columbus, Ohio 43224. Cost is $1.50 plus 6 cents tax in Ohio and 15 cents mailing charge.

DEPARTMENT OF NATURAL RESOURCES

James A. Rhodes Governor *Robert W. Teater Director*

MAY 1976

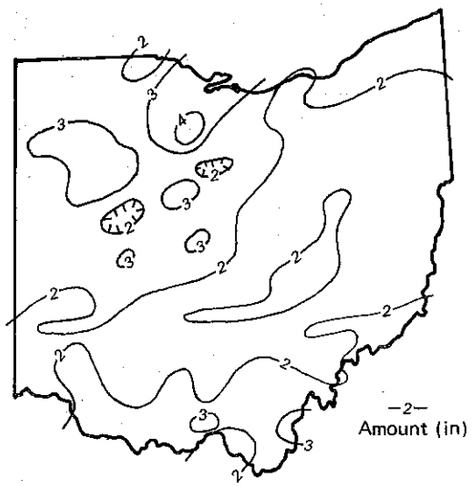
monthly water inventory report for ohio

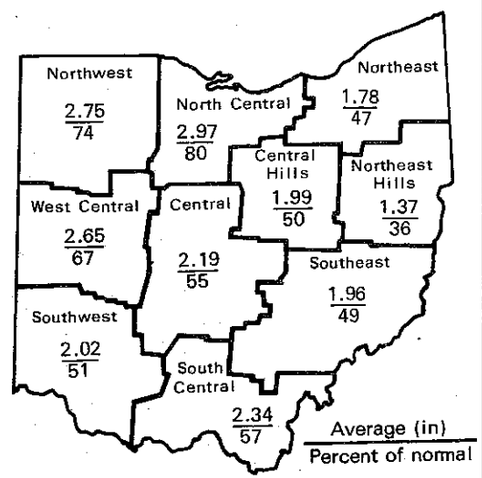
Compiled by Leonard J. Harstine

PRECIPITATION

PRECIPITATION for May was noticeably below normal throughout the state for the second consecutive month. The average for the month for the state as a whole was 2.20 inches, 1.71 inches below normal. Regional averages ranged from 2.97 inches, 0.74 inch below normal, for the North Central region to 1.37 inches, 2.48 inches below normal, for the Northeast Hills region. Tiffin, Seneca County, reported the greatest amount of precipitation, 4.25 inches, for the month, and Utica, Licking County, reported the least amount, 1.02 inches. There was measurable precipitation during every week of the month; however, amounts were small and widely scattered. During the last three days of the month a storm which was widespread throughout the state produced the bulk of the month's precipitation. Even though this precipitation was not too beneficial to water supplies, it proved to be a great relief to agriculture. Precipitation for the first five months of the 1976 calendar year has been below normal throughout most of the state; the only exceptions are the Northwest and North Central regions. The average for the calendar year thus far for the state as a whole is 13.21 inches, 2.78 inches below normal. Regional averages range from 14.57 inches, 0.74 inch below normal, for the Northeast region to 11.87 inches, 4.43 inches below normal, for the Central region. The Northwest and North Central regions are 0.50 and 0.35 inch above normal respectively. The southern regions show greatest deficiencies; their five-month totals and departures from normal are: Southwest region, 12.46 inches, 5.44 inches below normal; South Central region, 12.71 inches, 5.50 inches below normal; Southeast region, 12.54 inches, 4.21 inches below normal.

Precipitation for the 1976 water year for the state as a whole has been below normal for the past two months; the only exceptions are the Northwest and North Central regions. The average for the first seven months is 21.22 inches, 2.27 inches below normal. The Northwest and North Central regions show surpluses of 0.76 and 0.49 inch respectively. Deficiencies for the remaining eight regions range from 4.28 inches below normal for the Central region to 1.38 inches below normal for the Northeast region.

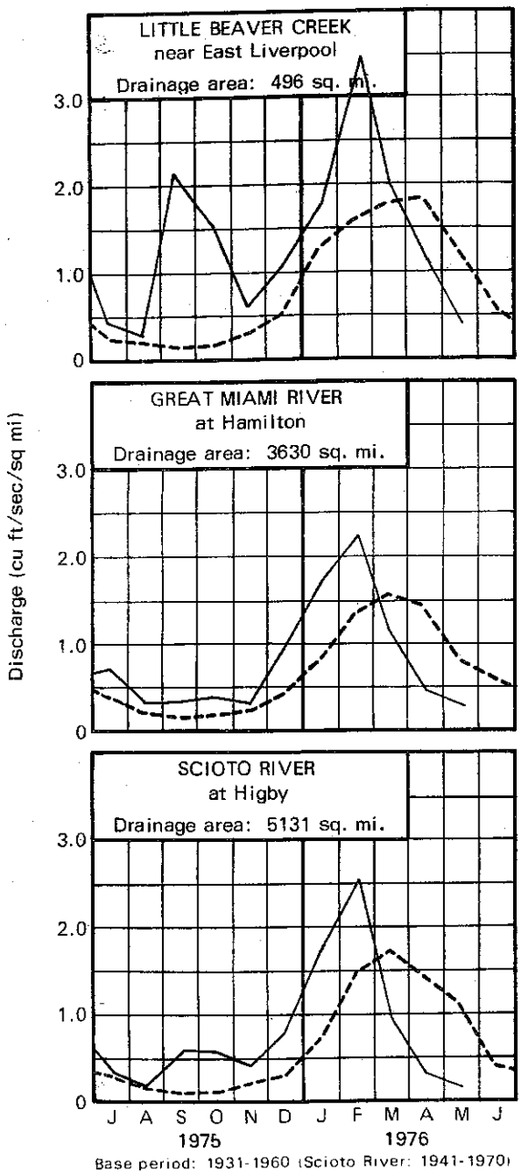




DIVISION OF WATER

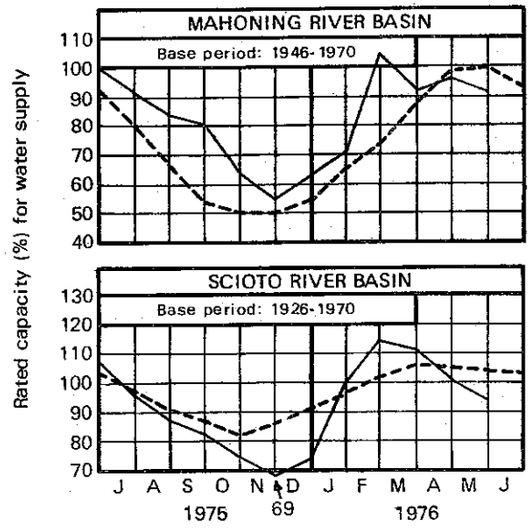
Wayne S. Nichols, Chief

MEAN STREAM DISCHARGE



Base period: 1931-1960 (Scioto River: 1941-1970)

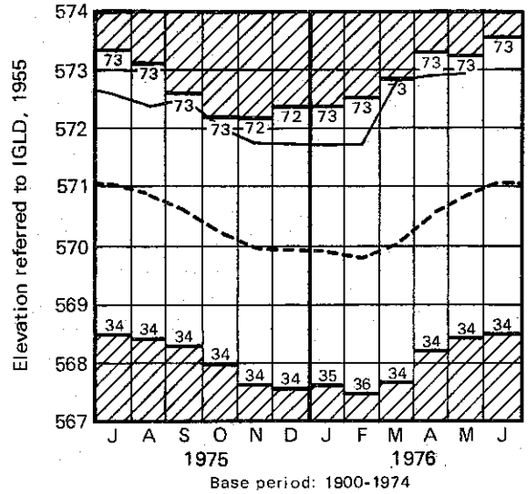
RESERVOIR STORAGE FOR WATER SUPPLY



RESERVOIR STORAGE for water supply declined during May and was below normal in both the Mahoning River basin and the Scioto River basin index reservoirs. Storage in both index basins was noticeably below the month-end storage observed for May 1975.

STREAMFLOW was deficient for the second month in all but the northwestern portion of the state, where flows were only slightly below normal. The deficient flows are in response to the below-normal precipitation throughout the state during the past two months. Mean discharge and percent of normal at the index gaging stations for May were as follows: Little Beaver Creek, 212 cfs, 34 percent; Great Miami River, 1,066 cfs, 35 percent; Scioto River, 813 cfs, 14 percent; Maumee River at Waterville, 2,885 cfs, 44 percent. Flows remained noticeably deficient throughout the state at the month end.

LAKE ERIE LEVELS

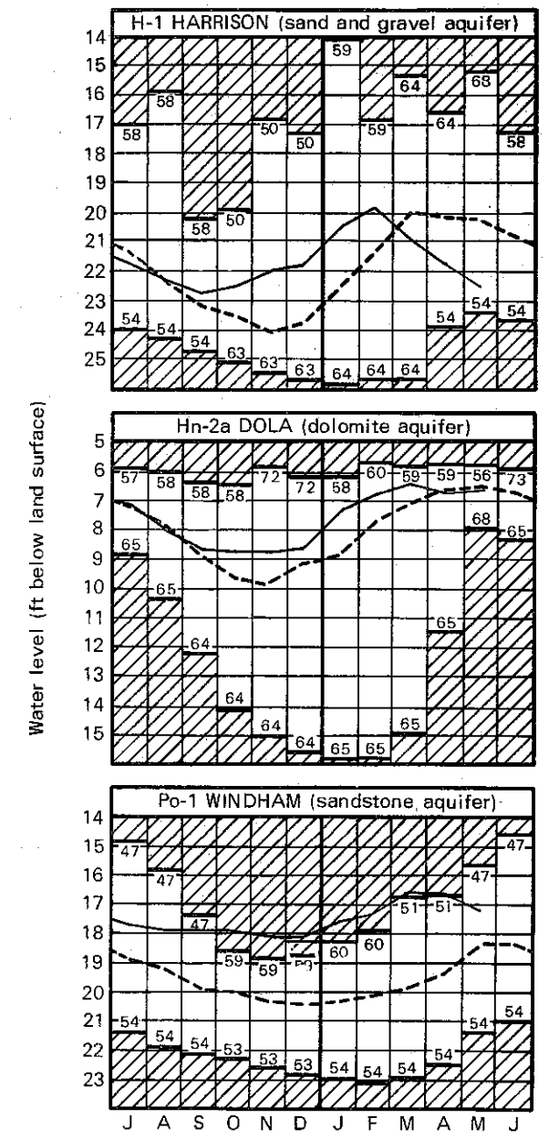


Base period: 1900-1974

LAKE ERIE mean level for May was 572.92 feet above IGLD (1955), 0.05 foot above last month's mean level and 0.32 foot above the level observed for May 1975. The lake level is 2.12 feet above normal and 4.32 feet above Low Water Datum. The lake level for May is only 0.33 foot below the all-time high for May set in 1973.

GROUND-WATER LEVELS declined markedly during May. Generally, ground-water levels reach their peak, level off, and begin their seasonal decline in May. However, this year water levels in most of the index wells began to decline as early as the middle of March. Thus, ground-water levels are generally below those levels observed for last month and below those levels oberved for May 1975. Ground-water levels in most areas of the state are noticeably below normal; the only exceptions are in wells representing consolidated-rock aquifers in the northern portion of the state. Water levels in two index observation wells, F-1, West Rushville, Fairfield County, and Tu-1, Strasburg, Tuscarawas County, have declined to record-low levels for May. Because the ground-water depletion season began early, it is expected that ground-water levels will decline to lower-than-usual levels this summer.

GROUND-WATER LEVELS



Base periods: H-1, 1951-1964; Hn-2a, 1955-1973; Po-1, 1947-1964

normal - - - - current ——

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Streamflow and reservoir storage data:
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Lake Erie level data:
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Editing, cartography, and production by staff of the Division of Geological Survey, Ohio Department of Natural Resources.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER
FOUNTAIN SQUARE
COLUMBUS, OHIO 43224

SUMMARY

The water-supply situation is about normal throughout the state. Precipitation for June was above normal for most of the state. Streamflow, reservoir storage, and ground-water storage remained at or slightly below normal. Lake Erie level declined for the first time since January and is now 0.72 foot below the all-time high set in 1973.

NOTES AND COMMENTS

The purpose of this report is to disseminate current hydrologic data in brief form. Observation points have been selected which are considered to be sufficiently representative of water conditions in the state to permit an evaluation of the current water-supply situation. These key observation stations offer the best available data on the basis of (1) accuracy and length of record, (2) minimal artificial effects on data, and (3) availability of records. Data from these stations are collected by various agencies at the end of each month and processed immediately. Because of the time limitations involved, all data must be considered preliminary and may be subject to revision before publication in regular form by the agencies involved. The remarks in this report include the writer's opinions of the cause and significance of the phenomena reported therein. The reader is urged to examine the data and formulate his own evaluation.

The author is indebted to the various agencies and individuals who make the data available. More complete and detailed information can be obtained by writing to the Division of Water, Ohio Department of Natural Resources, Bldg. E, Fountain Square, Columbus, Ohio 43224.

The Division of Geological Survey has introduced a new series of publications, *Geological Notes.* The first two reports in this series are now available:

Geological Note 1. *Preliminary report on potential hydrocarbon reserves underlying the Ohio portion of Lake Erie,* by Michael J. Clifford. 9 p., 8 figs. 75 cents plus 4 cents tax in Ohio plus 8 cents mailing charge.

Geological Note 2. *Sand and gravel resources of Madison County, Ohio,* by Michael L. Couchot. Map, one sheet with text. 50 cents plus 2 cents tax in Ohio plus 5 cents mailing charge.

These publications are available from the Division of Geological Survey, Ohio Department of Natural Resources, Bldg. B, Fountain Square, Columbus, Ohio 43224.

DNR

DEPARTMENT OF NATURAL RESOURCES

James A. Rhodes Governor *Robert W. Teater Director*

JUNE 1976

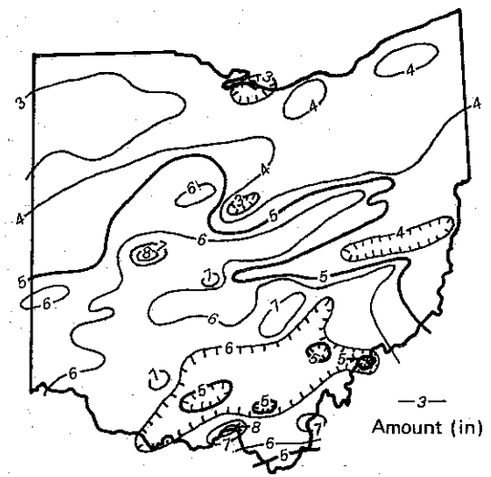
monthly water inventory report for ohio

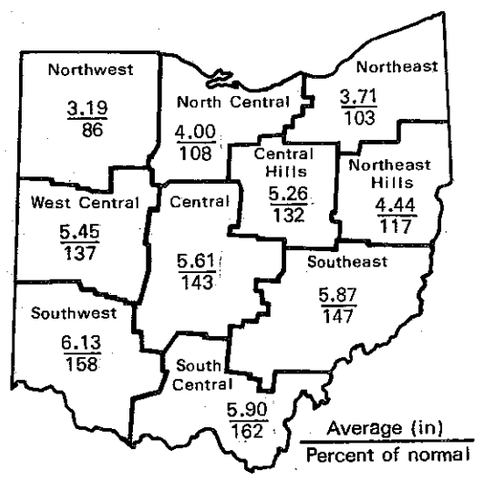
Compiled by Leonard J. Harstine

PRECIPITATION

PRECIPITATION for June was above normal throughout the state; the only exception was the Northwest region, where precipitation was below normal. The average for the state as a whole was 4.96 inches, 1.14 inches above normal. Regional averages ranged from 6.13 inches, 2.26 inches above normal, for the Southwest region to 3.19 inches, 0.54 inch below normal, for the Northwest region. Portsmouth, Scioto County, reported the greatest amount of precipitation, 8.78 inches, for the month, and Bowling Green, Wood County, reported the least amount, 2.06 inches. The northern third of the state generally received 2 to 4 inches of precipitation for the month; the southern two-thirds received between 4 and 8 inches. The first 10 days of June were relatively dry throughout the state. The bulk of the month's precipitation was produced by local heavy thunderstorms throughout the remainder of the month. Several stations in the central and southern portions of the state reported 6 to 8 inches of precipitation for June. It is interesting to note that precipitation for June was most abundant in areas of greatest deficiencies for the calendar year thus far. Precipitation for the first six months of the 1976 calendar year for the state as a whole averages 18.17 inches, 1.64 inches below normal. Regional averages range from 18.85 inches, 1.00 inch below normal, for the West Central region to 17.48 inches, 2.75 inches below normal, for the Central region. However, departures from normal range from 0.65 inch above normal for the North Central region to 3.24 inches below normal for the South Central region.

Precipitation for the first nine months of the 1976 water year thus far averages 26.18 inches, 1.13 inches below normal. Precipitation remains above normal in both the Northwest and North Central regions. Deficiencies for the remainder of the state range from 0.63 inch below normal for the Southeast region to 2.60 inches below normal for the Central region.

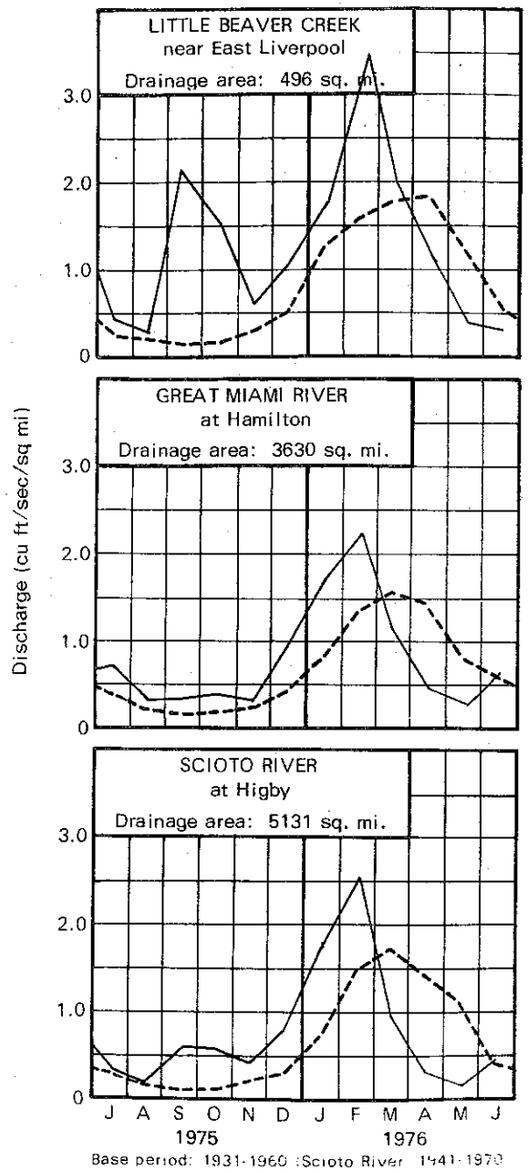




DIVISION OF WATER

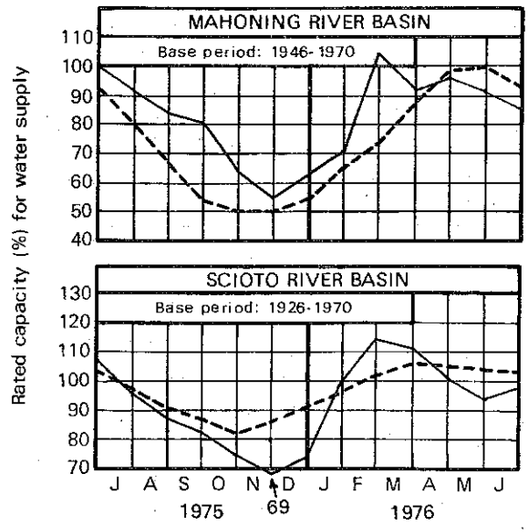
Wayne S. Nichols, Chief

MEAN STREAM DISCHARGE



Base period: 1931-1960 ;Scioto River 1941-1970

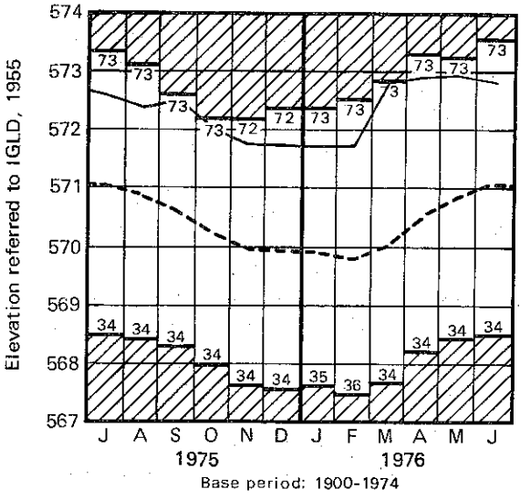
RESERVOIR STORAGE FOR WATER SUPPLY



RESERVOIR STORAGE for water supply in the Mahoning basin index reservoirs declined during June and was slightly below normal at the month end. Storage for June in the Mahoning basin index reservoirs was noticeably lower than that observed for June 1975. Storage for water supply in the Scioto basin index reservoirs increased during June in response to excessive precipitation over the drainage area in the last half of the month. Storage in the Scioto basin index reservoirs was greater than that observed last month but was lower than that observed for June 1975.

STREAMFLOW was normal for the month throughout most of the state; the only exception was the northeastern portion of the state, where streamflow was deficient for the third consecutive month. Mean discharge and percent of normal for the index gaging stations for June were as follows: Little Beaver Creek, 163 cfs, 54 percent; Great Miami River, 2,214 cfs, 102 percent; Scioto River, 2,488 cfs, 122 percent; Maumee River at Waterville, 1,905 cfs, 73 percent. Flows at the month end were noticeably above normal for June, except for streams in the northeastern portion of the state.

LAKE ERIE LEVELS

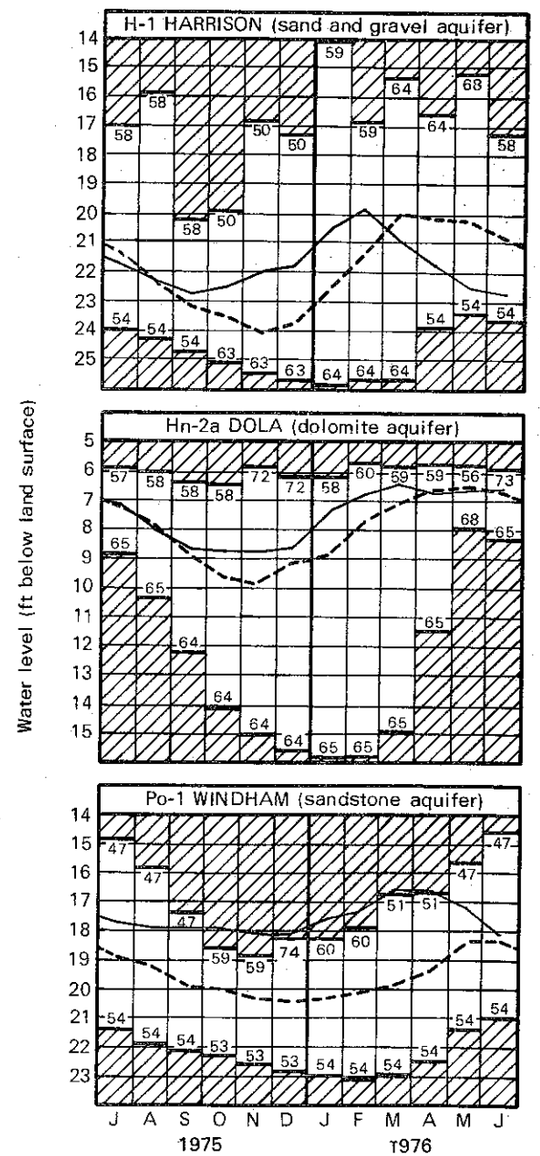


Base period: 1900-1974

LAKE ERIE mean level for June was 572.79 feet above IGLD(1955), 0.13 foot below last month's mean level and 0.05 foot above the level observed for June 1975. The lake level is 1.85 feet above normal for June and 4.19 feet above Low Water Datum. The lake level is now 0.72 foot below the all-time record high for June set in 1973.

GROUND-WATER LEVELS showed very little response to the above-normal precipitation during the latter part of June, and declines for the month were about normal. Ground-water levels in the index observation wells were below those levels observed last month and generally below those levels observed for June 1975. In general, water levels in wells in the southern half of the state are noticeably below normal, and levels in wells in the northern half of the state are above normal. The level in observation well F-1, at West Rushville, Fairfield County, declined to a record low for June, the second consecutive month that this well has declined to a new monthly record low.

GROUND-WATER LEVELS



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normal - - - - current ——

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Editing, cartography, and production by staff of the Division of Geological Survey, Ohio Department of Natural Resources.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER
FOUNTAIN SQUARE
COLUMBUS, OHIO 43224

SUMMARY

The water-supply situation remains favorable throughout the state. Precipitation for July was above normal to excessive in most areas of the state; the only exceptions were the West Central, Southwest, and South Central regions, where precipitation was below normal. Streamflow was normal in the western portion of the state and excessive elsewhere. Reservoir storage and ground-water storage continue to be favorable. Lake Erie level declined only slightly during July.

NOTES AND COMMENTS

FEDERAL GRANT RECEIVED FOR SECOND-YEAR SHORELAND MANAGEMENT PROGRAM

The Division of Water has received its second-year grant from the U.S. Department of Commerce for carrying out Ohio's Shoreland Management Program. The program, authorized by the Federal Coastal Zone Management Act of 1972 (Public Law 92-583), provides $^2/_3$ funding to the State for developing a program to manage the resources of Lake Erie and its shorelands.

The program is being administered by Bruce McPherson, formerly the supervisor of the State's Flood Plain Management Program. Second-year efforts will strongly emphasize local participation in the development of the management program. Several workshops and public meetings will be scheduled for the shoreland communities to provide their input into the program. More information can be obtained by writing:

Shoreland Management Unit
Ohio Department of Natural Resources
Division of Water
Fountain Square, Bldg. E
Columbus, Ohio 43224

NEW PUBLICATIONS

Mr. Horace R. Collins, Chief, Division of Geological Survey, announces the publication of the following reports:

Report of Investigations No. 98, *Land areas in Summit County, Ohio—geologic suitability for solid-waste disposal,* by Robert G. Van Horn, one sheet with text, $1.00 plus 4 cents tax in Ohio plus 10 cents mailing charge.

On a topographic map of Summit County, 23 types of areas of differing degrees of suitability for disposal of solid waste are outlined. The text discusses the influence of hydrogeologic factors on containment of refuse.

Report of Investigations No. 99, *Lake Erie shore erosion, Lake County, Ohio: setting, processes, and recession rates from 1876 to 1973,* by Charles H. Carter, 105 p., 71 figs., 49 tables, 4 pls., $5.00 plus 20 cents tax in Ohio and 50 cents mailing charge.

This comprehensive report on shore erosion in Lake County examines physical setting and shore erosion processes and rates from an historical point of view based on maps and aerial photographs from 1876 to 1973. Changes in land use, location and number of manmade structures, distribution and size of beaches, and shoreline shape are documented. A recession forecast for 2010 A.D. and erosion-control suggestions are included. A large-scale (1:4,800) map shows the position of the recession line in Lake County in 1876, 1937, 1973, and 2010 (projected).

Both RI 98 and RI 99 may be obtained from the Division of Geological Survey, Ohio Department of Natural Resources, Fountain Square, Bldg. B, Columbus, Ohio 43224.

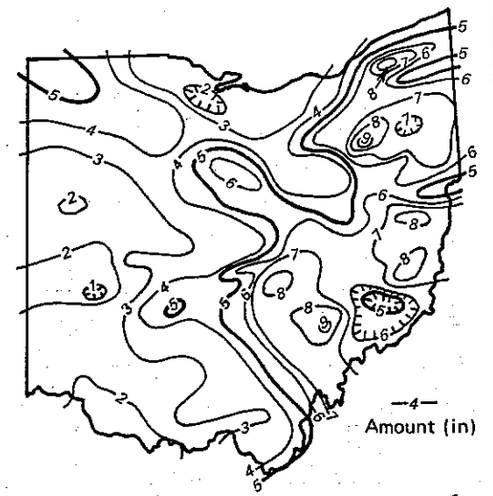
DEPARTMENT OF NATURAL RESOURCES
James A. Rhodes Governor . *Robert W. Teater Director*

JULY 1976

monthly water inventory report for ohio

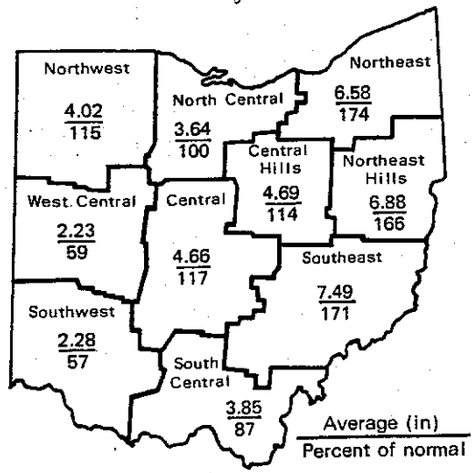
Compiled by Leonard J. Harstine

PRECIPITATION



PRECIPITATION for July was above normal to excessive in most regions of the state; the only exceptions were the West Central and Southwest regions, where precipitation was noticeably below normal, and the South Central region, where precipitation was slightly below normal. The average for the state as a whole was 4.63 inches, 0.65 inch above normal. Regional averages ranged from 7.49 inches, 3.11 inches above normal, for the Southeast region to 2.23 inches, 1.58 inches below normal, for the West Central region. Ringgold, Morgan County, reported the greatest amount of precipitation, 9.16 inches, for the month, and Dayton Airport Weather Service Office at Vandalia, Montgomery County, reported the least amount, 0.95 inch. Generally the western half of the state received between 1 and 5 inches of precipitation for the month and the eastern half received between 4 and 9 inches. There was measurable precipitation during every week of the month throughout the state; the eastern area of the state received an excessive amount of precipitation from numerous heavy thunderstorms throughout the month. Major storms occurred on July 11-12 and July 21-22 and caused some flooding. An unofficial source reported 5 inches of rain in 2 hours on July 11 at Charlestown, Portage County. Precipitation for the state as a whole for the calendar year thus far averages 22.80 inches, 0.99 inch below normal. Regional averages range from 25.90 inches, 0.79 inch above normal, for the Southeast region to 20.87 inches, 4.91 inches below normal, for the Southwest region.

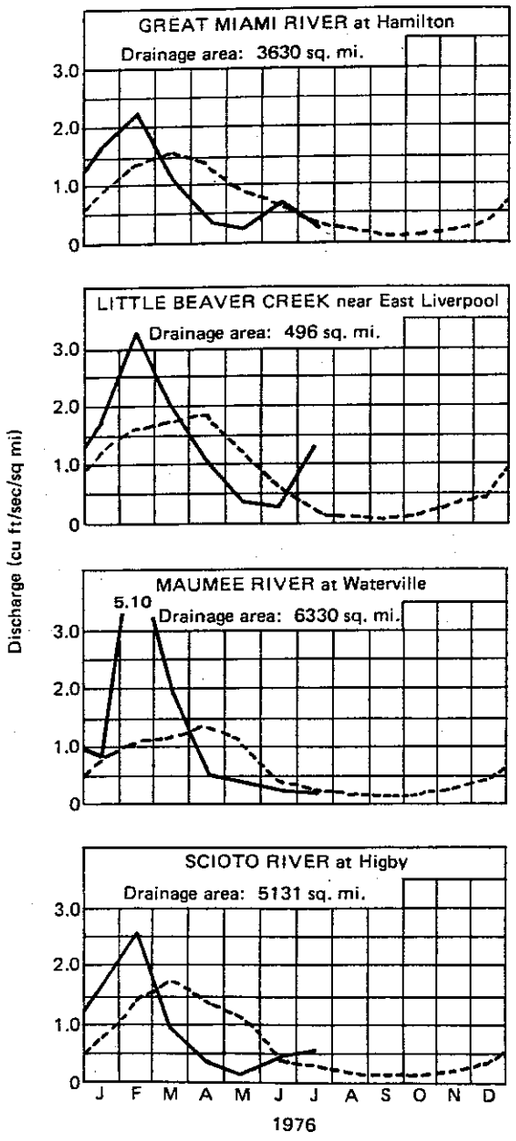
Precipitation for the 1976 water year thus far averages 30.81 inches, 0.48 inch below normal. Regional averages range from 35.08 inches, 2.48 inches above normal, for the Southeast region to 28.42 inches, 2.48 inches below normal, for the West Central region.



DIVISION OF WATER

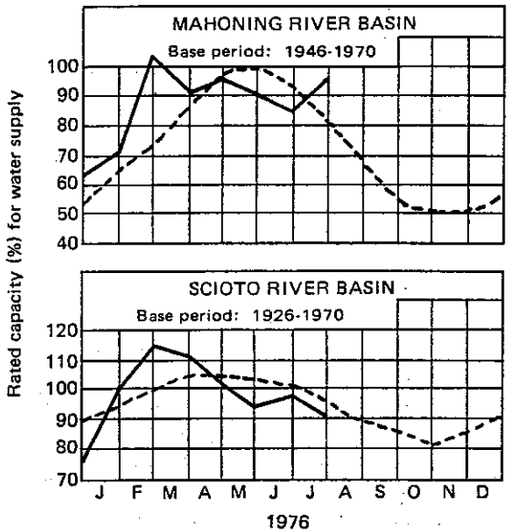
Wayne S. Nichols, Chief

MEAN STREAM DISCHARGE



Base periods: Little Beaver Creek and Great Miami River, 1931-1960; Scioto River and Maumee River, 1941-1970

RESERVOIR STORAGE FOR WATER SUPPLY

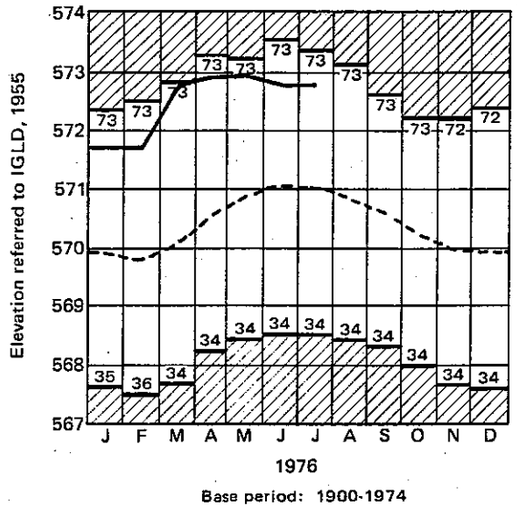


RESERVOIR STORAGE for water supply in the Mahoning basin index reservoirs rose during July and was above normal at the month end. Storage for July in the Mahoning basin was noticeably above that observed for last month and slightly above that observed for July 1975. Storage for water supply in the Scioto basin index reservoirs declined during July and was below normal at the month end. Storage in the Scioto basin was noticeably below that observed for last month and for July 1975. Reservoir storage for water supply throughout the state remains very satisfactory at the month end.

STREAMFLOW was normal for July in the western portion of the state and excessive in the central and eastern portions in response to unusually heavy precipitation during the month. Prior to July, streamflow in the eastern portion of the state had been deficient for three consecutive months. In many areas of the central and eastern portions of the state minor flooding occurred following the heavy storms around the 12th and 22nd of the month. The U.S. Geological Survey, Water Resources Division, Columbus, Ohio, reported that on July 11th Hinkley Creek at Charlestown, Portage County, reached peak flood stage with a gage height of 13.59 feet (estimated discharge of 1,500 cfs). Mean discharge and percent of normal for the index gaging stations for July were as follows: Great Miami River, 1,308 cfs, 87 percent; Little Beaver Creek, 630 cfs, 488 percent; Maumee River, 1,158 cfs, 86 percent; Scioto River, 2,806 cfs, 178 percent.

normal - - - - - current ———

LAKE ERIE LEVELS

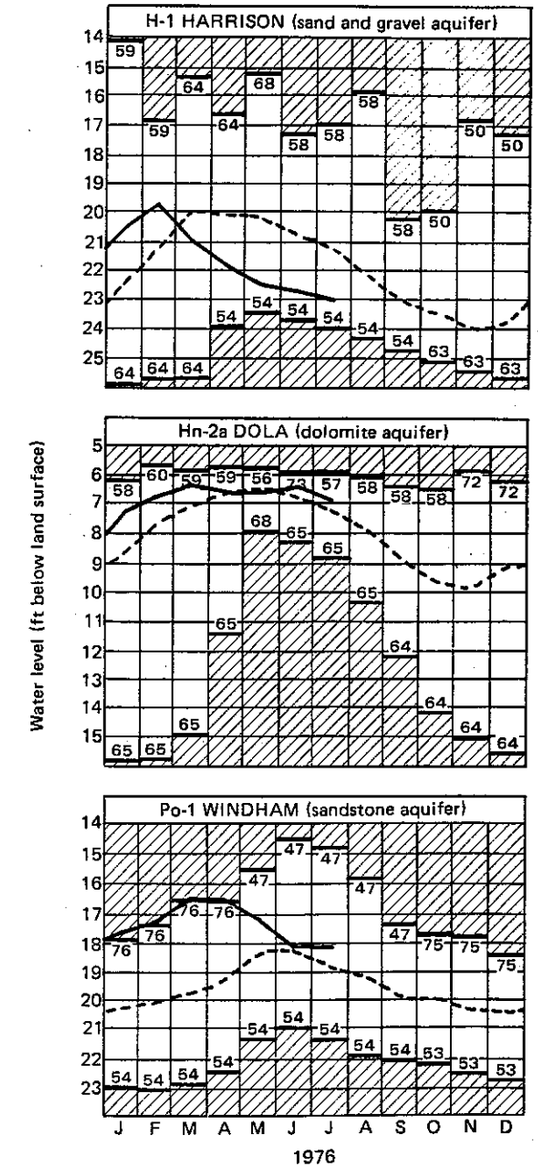


Base period: 1900-1974

LAKE ERIE mean level for July was 572.77 feet above IGLD (1955), 0.02 foot below last month's mean level and 0.17 foot above the level observed for July 1975. The lake level is 1.77 feet above normal for July and 4.17 feet above Low Water Datum.

GROUND-WATER LEVELS in general continued their downward trend during July; however, the declines were not as great as expected. The above-normal precipitation in the latter part of June and during July in the eastern portion of the state produced enough recharge to retard the normal downward trend. In general, ground-water levels in index wells representing consolidated aquifers remained above normal, with the exception of wells in the southern portion of the state. Water levels continued to be below normal in most wells representing unconsolidated aquifers. Observation well F-1, near West Rushville, Fairfield County, was the only index well in which the water level rose significantly during the month; nevertheless, the water level in this well was a record low for July, the third consecutive month that a new monthly record low was recorded for this well.

GROUND-WATER LEVELS



Base periods: H-1, 1951-1964; Hn-2a, 1955-1973; Po-1, 1947-1964

ACKNOWLEDGMENTS

This report has been compiled from Division of Water data and from information supplied by the following:

Precipitation data:
U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service; The Miami Conservancy District; U.S. Army Corps of Engineers, Muskingum Area.

Streamflow and reservoir storage data:
U.S. Geological Survey, Water Resources Division.

Lake Erie level data:
U.S. Department of Commerce, NOAA-National Ocean Survey, Lake Survey Center, Detroit, Michigan.

Editing, cartography, and production by staff of the Division of Geological Survey, Ohio Department of Natural Resources.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER
FOUNTAIN SQUARE
COLUMBUS, OHIO 43224

SUMMARY

The water-supply situation remains very favorable throughout most of the state; the only exceptions are areas in the western portion of the state, where precipitation has been deficient during the past four months. Precipitation for August was generally above normal to excessive except in the Northwest and Southeast regions, where precipitation was below normal. Streamflow, reservoir storage, and ground-water storage remain very favorable in most areas. Lake Erie level declined slightly but remained above the level observed at this time last year.

NOTES AND COMMENTS

PRECIPITATION DATA

Precipitation data, in addition to that collected by the Ohio Department of Natural Resources, Division of Water, are furnished by the following organizations: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service Offices in Ohio, Indiana, Kentucky, Michigan, Pennsylvania, and West Virginia; Miami Conservancy District, Dayton, Ohio; U.S. Army, Corps of Engineers, Muskingum Area, Dover, Ohio, and Pittsburgh Area, Pittsburgh, Pennsylvania; and numerous local National Weather Service observers, who mail their records directly to a central collecting center at Asheville, North Carolina. These data are used for drawing the isohyetal map and to compute regional averages published on the first page of this report. Percent-of-normal data are based on normals for Climatic Divisions as published by the U.S. Department of Commerce in their publication, *Climatography of the United States No. 85 (by state) Monthly Averages of Temperature and Precipitation for State Climatic Divisions 1941-70, OHIO.*

NEW PUBLICATION

Mr. Horace R. Collins, Chief, Division of Geological Survey, announces the reprinting of *Map of Ohio showing original land subdivisions,* by C. E. Sherman. Printed in color on plastic-impregnated paper; scale 6 miles to an inch. The original land subdivisions map was first printed in 1922. Although a black-and-white map has been available, the color map has been out of print for many years. The reprinted color map shows the original land survey districts with township and range numbers and section or lot numbers, as well as county and civil township names and boundaries and principal cities and streams.

The map may be obtained from the Division of Geological Survey, Ohio Department of Natural Resources, Fountain Square, Building B, Columbus, Ohio 43224 for $5.00 plus 20 cents sales tax in Ohio and 50 cents mailing charge for folded copies or $1.00 for rolled copies. The 235-page book, *Original land subdivisions,* by C. E. Sherman, was reprinted in 1972 and is available for $3.00 plus 12 cents tax in Ohio and 30 cents mailing charge. The black-and-white version of the map is available for $1.00 plus 4 cents tax in Ohio and 10 cents mailing charge.

DEPARTMENT OF NATURAL RESOURCES

James A. Rhodes Governor *Robert W. Teater Director*

AUGUST 1976

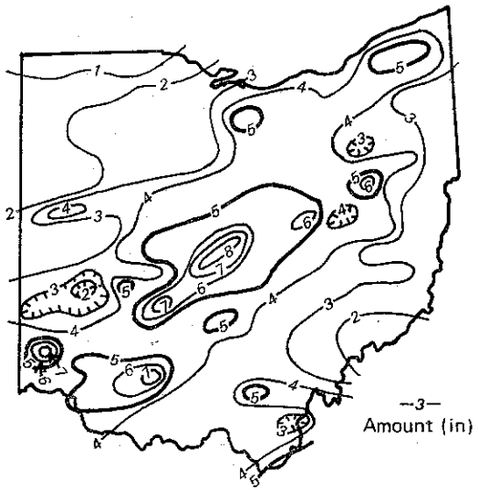
monthly water inventory report for ohio

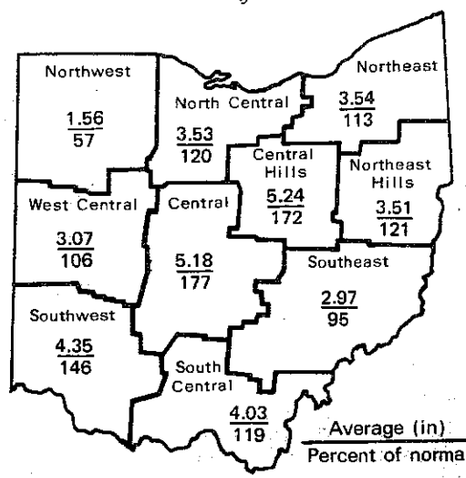
Compiled by Leonard J. Harstine

PRECIPITATION

PRECIPITATION for August was generally above normal to excessive throughout the state; the only exceptions were the Northwest region, where precipitation was noticeably below normal, and the Southeast region, where precipitation was slightly below normal. The average for the state as a whole was 3.70 inches, 0.70 inch above normal. Regional averages ranged from 5.24 inches, 2.20 inches above normal, for the Central Hills region to 1.56 inches, 1.20 inches below normal, for the Northwest region. Hilliard, Franklin County, reported the greatest amount of precipitation, 8.64 inches, for the month, and Wauseon, Fulton County, reported the least amount, 0.38 inch. Generally the northwestern portion of the state received between 0.5 inch and 4.0 inches of precipitation for the month, and the southeastern portion received between 1.5 and 4.0 inches; a band about 60 miles wide running southwest-northeast across the state from Cincinnati through Columbus and Canton to Chardon received between 4.0 and 8.0 inches. There was measurable precipitation in most areas of the state during every week of August. Heavy thunderstorms, generally in the above-mentioned southwest-northeast band, occurred around the 5th, the 15th, and the 28th of the month. Storms of unusually high intensity occurred in many areas on the evening of August 28th; an unofficial observer at Bentleyville, Cuyahoga County, reported more than 2.90 inches of precipitation in less than 1 hour and 4.65 inches for the duration of the storm. Many other areas reported 1 to 2 inches in less than 1 hour during this same storm. Precipitation for the state as a whole for the first eight months of the 1976 calendar year averages 26.50 inches, 0.29 inch below normal. Regional averages range from 28.87 inches, 0.65 inch above normal, for the Southeast region to 23.27 inches, 0.73 inch below normal, for the Northwest region. Departures from normal range from 2.59 inches above normal for the Northeast region to 3.54 inches below normal for the Southwest region.

Precipitation for the first 11 months of the 1976 water year averages 34.51 inches, 0.22 inch above normal. Regional averages range from 38.05 inches, 2.34 inches above normal, for the Southeast region to 30.72 inches, 0.47 inch below normal, for the Northwest region. Generally insofar as precipitation is concerned the water-supply situation for the state as a whole is about normal; however, some areas in the western portion of the state continue to be noticeably deficient in rainfall.

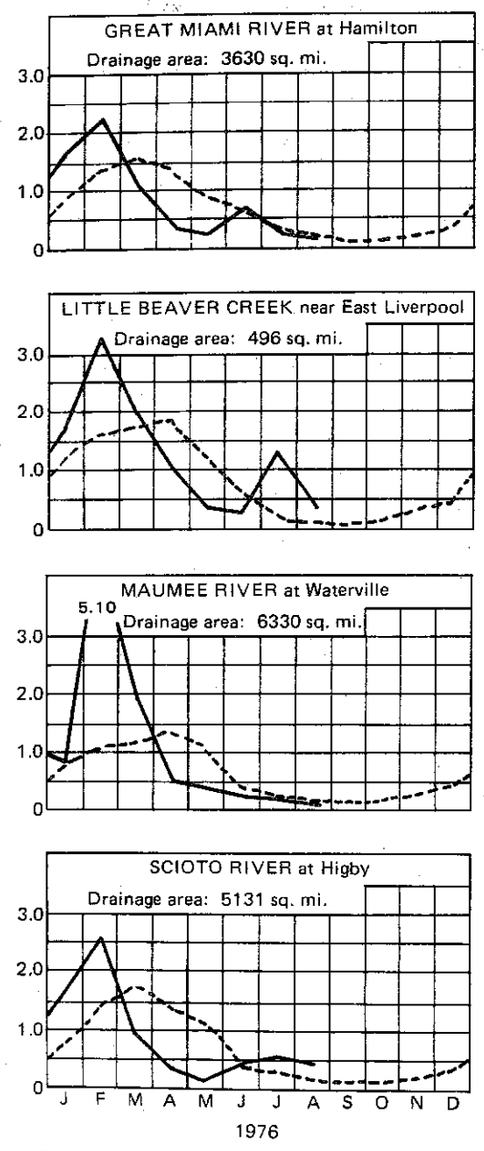




DIVISION OF WATER

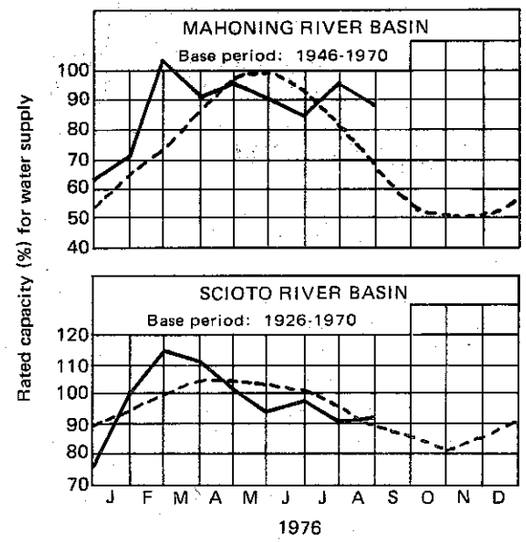
Wayne S. Nichols, Chief

MEAN STREAM DISCHARGE



Base periods: Little Beaver Creek and Great Miami River, 1931-1960; Scioto River and Maumee River, 1941-1970

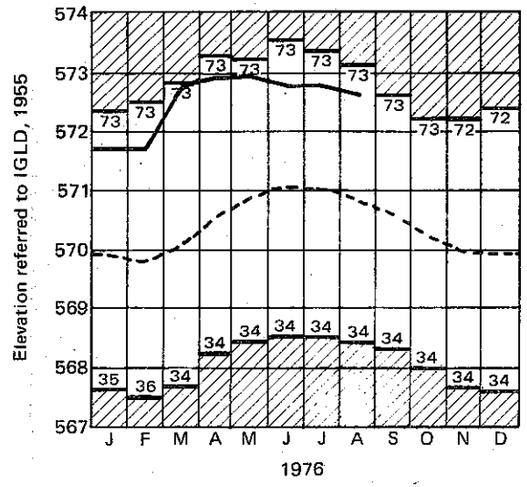
RESERVOIR STORAGE FOR WATER SUPPLY



RESERVOIR STORAGE for water supply in the Mahoning basin index reservoirs decreased slightly during August but remained noticeably above normal. Storage at the month end was slightly greater than that observed for August 1975. Reservoir storage in the Scioto basin index reservoirs increased slightly for the month and was slightly above normal for the first time in five months. Storage at the month end for the Scioto basin reservoirs was slightly greater than that observed for August 1975.

STREAMFLOW was generally normal throughout the state for August; the only exception was the central portion of the state, where streamflow was excessive. Some very localized flooding occurred as a result of intense thunderstorms in the central portion of the state. Mean discharge and percent of normal for the index gaging stations were as follows: Great Miami River, 783 cfs, 91 percent; Little Beaver Creek, 177 cfs, 178 percent; Maumee River, 562 cfs, 94 percent; Scioto River, 2,101 cfs, 232 percent. Flows generally declined during the month but were about normal at the month end.

LAKE ERIE LEVELS

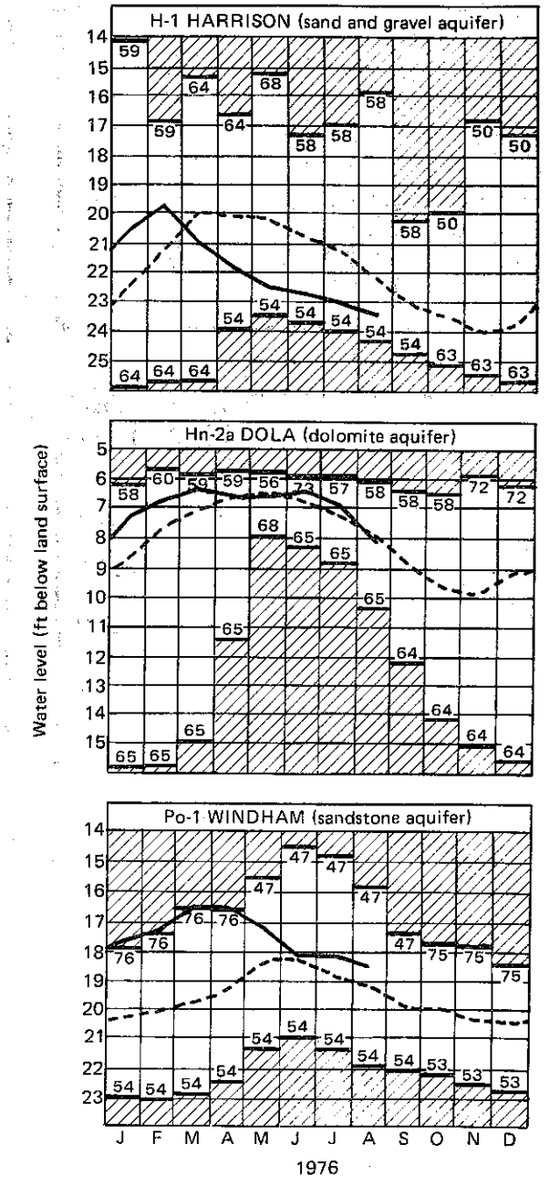


Base period: 1900-1974

LAKE ERIE mean level for August was 572.59 feet above IGLD (1955), 0.18 foot below last month's mean level and 1.88 feet above normal. The lake level was 0.21 foot above the level observed for August 1975 and 3.99 feet above Low Water Datum.

GROUND-WATER LEVELS in general showed normal declines for the month; the exceptions were aquifers in which water levels showed unusual rises in response to above-normal precipitation during the last two months and aquifers in which water levels showed unusual declines due to lack of precipitation. Water levels in index observation wells F-1 at West Rushville, Fairfield County, Fr-10 at Columbus, Franklin County, and Tu-1 at Strasburg, Tuscarawas County, showed net rises for the month in response to above-normal precipitation in those areas. It is significant that the water level in observation well F-1, which has had record-low levels during the previous three months, showed a net rise of 2.42 feet for August. Index observation well Hn-2a at Dola, Hancock County, showed a significant decline during August in response to deficient precipitation in that area during the past four months. Generally ground-water storage in most areas of the state remains very favorable.

GROUND-WATER LEVELS



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normal - - - - current ——

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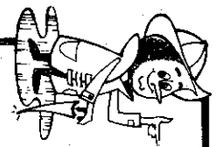
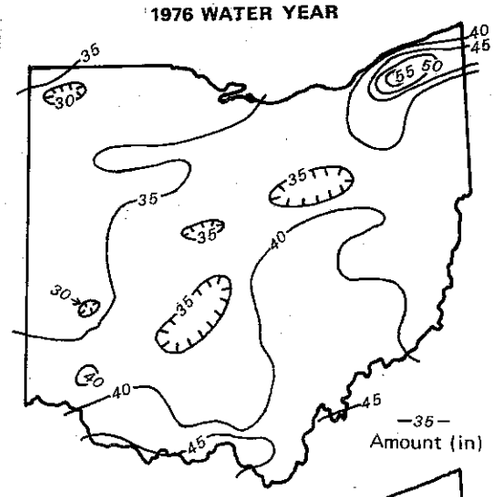


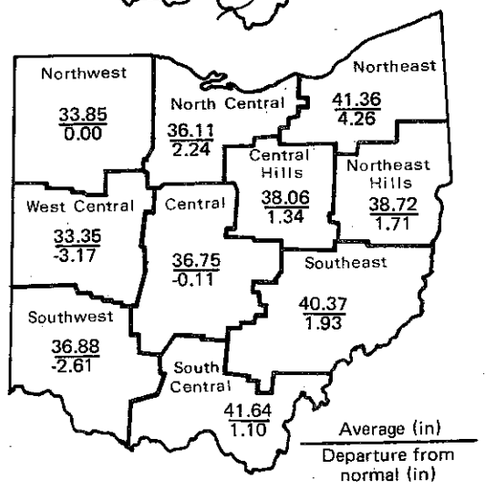
OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER
FOUNTAIN SQUARE
COLUMBUS, OHIO 43224

SUMMARY

The water-supply situation was very favorable throughout the 1976 water year despite the lack of recharge in March, April, and May. The distribution of precipitation throughout the water year helped to alleviate any serious problems. Precipitation for September was generally above normal. Streamflow, reservoir storage, and ground-water storage remained very favorable. Lake Erie level declined during September but remains relatively high.

1976 WATER YEAR





STREAMFLOW *(continued)*

percent; Scioto River, 3,855 cfs, 85 percent. Cumulative runoff and departure from normal for the respective drainage areas were as follows: Great Miami River, 10.01 inches, 2.31 inches below normal; Little Beaver Creek, 16.08 inches, 1.92 inches above normal; Maumee River, 12.64 inches, 2.12 inches above normal; Scioto River, 10.22 inches, 1.72 inches below normal.

DEPARTMENT OF NATURAL RESOURCES

James A. Rhodes Governor *Robert W. Teater Director*

SEPTEMBER 1976

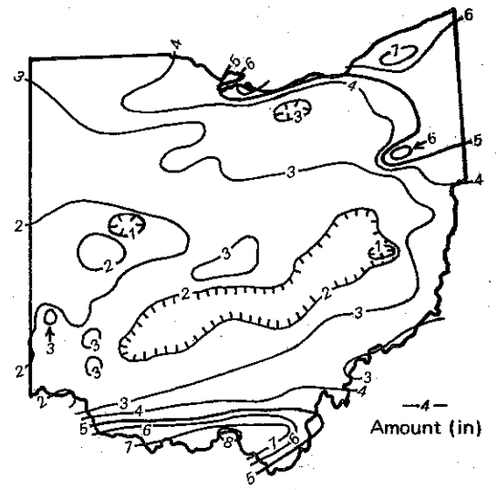
monthly water inventory report for ohio

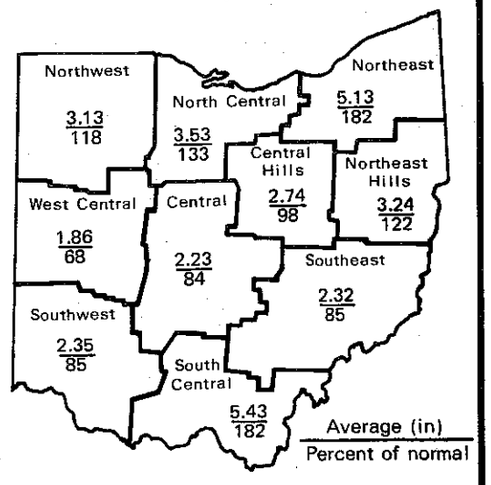
Compiled by Leonard J. Harstine

PRECIPITATION

PRECIPITATION for September was above normal in the three northern regions, the Northeast Hills region, and the South Central region of the state and below normal in the remaining regions. The average for the state as a whole was 3.20 inches, 0.45 inch above normal. Regional averages ranged from 5.43 inches, 2.44 inches above normal, for the South Central region to 1.86 inches, 0.86 inch below normal, for the West Central region. Portsmouth, Scioto County, reported the greatest amount of precipitation, 8.96 inches, for the month, and Middlebourne, Guernsey County, reported the least amount, 0.90 inch. Precipitation during the first half of the month was generally very sparse. The bulk of the precipitation in the northern and eastern portions of the state occurred between September 15 and September 20. An unusually heavy and prolonged storm on the 26th and 27th produced the bulk of the precipitation in the south-central portion of the state. Portsmouth, Scioto County, reported 6.33 inches of precipitation for the 36-hour period. Most of the state received between 1.5 and 3.0 inches of precipitation for the month. Precipitation for the first nine months of the 1976 calendar year for the state as a whole averages 29.70 inches, 0.16 inch above normal. Regional averages range from 33.53 inches, 4.90 inches above normal, for the Northeast region to 26.01 inches, 3.27 inches below normal, for the West Central region.

Precipitation for the 1976 water year, October 1, 1975, to September 30, 1976, for the state as a whole averaged 37.71 inches, 0.67 inch above normal. Regional averages ranged from 41.64 inches, 1.10 inches above normal, for the South Central region to 33.35 inches, 3.17 inches below normal, for the West Central region. An isohyetal map of precipitation and a map showing the regional averages and departures from normal for the 1976 water year appear on the last page of this report. Precipitation for the state as a whole was below normal during four months of the water year: November 1975 and March, April, and May 1976. Declining trends in water supplies began early in March and generally continued throughout the remainder of the water year. Above-normal precipitation during the nominal depletion period for water supplies slowed the declining trends, and water supplies were generally about normal for the remainder of the year.

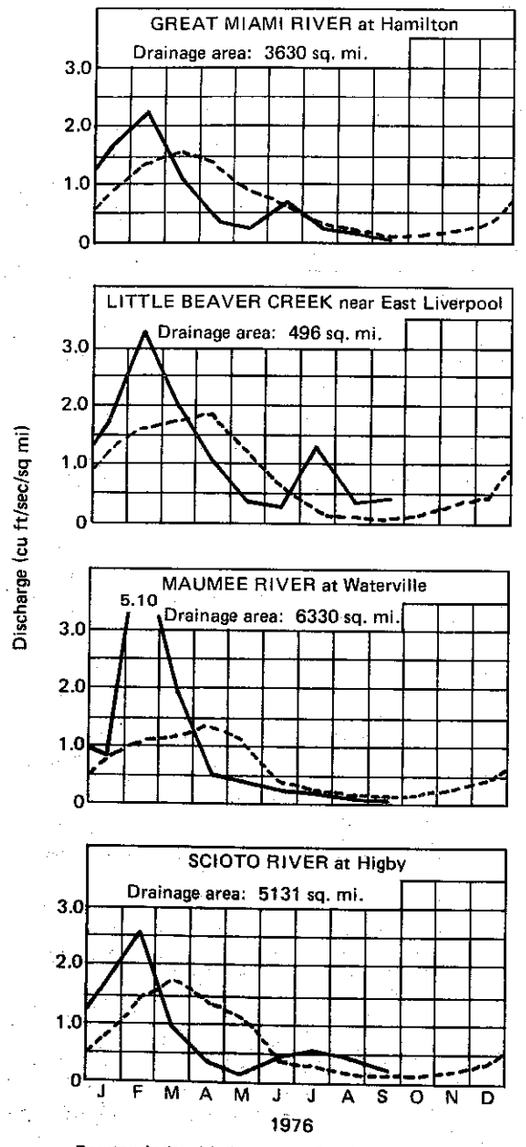




DIVISION OF WATER

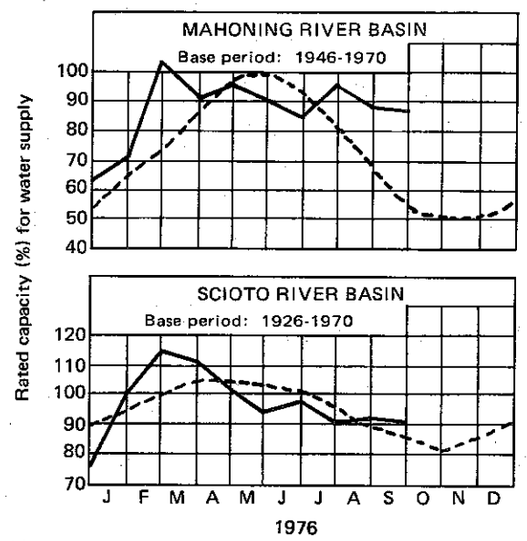
Wayne S. Nichols, Chief

MEAN STREAM DISCHARGE



Base periods: Little Beaver Creek and Great Miami River, 1931-1960; Scioto River and Maumee River, 1941-1970

RESERVOIR STORAGE FOR WATER SUPPLY



RESERVOIR STORAGE for water supply declined slightly during September in both index basins. Storage in the Mahoning basin index reservoirs remained noticeably above normal at the month end for the third consecutive month. Storage in the Scioto basin index reservoirs was slightly above normal for the second consecutive month. Reservoir storage for water supply was generally very favorable throughout the state during the 1976 water year.

STREAMFLOW for September was normal in the western part of the state and slightly excessive in the northeastern and central portions. Because of the length of the storm, no serious flooding resulted from the excessive precipitation on the 26th and 27th in the south-central area of the state. Mean discharge and percent of normal at the index gaging stations were as follows: Great Miami River, 580 cfs, 92 percent; Little Beaver Creek, 186 cfs, 258 percent; Maumee River, 259 cfs, 70 percent; Scioto River, 1,320 cfs, 219 percent.

Streamflow at the index gaging stations was generally above normal during the first six months of the 1976 water year. Flows fell below normal throughout the state in March, April, and May in response to deficient precipitation during these months. Flows in general continued to be below normal for the remainder of the water year in the western portion of the state and above normal to excessive in the central and eastern portions. Mean discharge and percent of normal for the water year at the index gaging stations were as follows: Great Miami River, 2,668 cfs, 80 percent; Little Beaver Creek, 587 cfs, 112 percent; Maumee River, 5,875 cfs, 120

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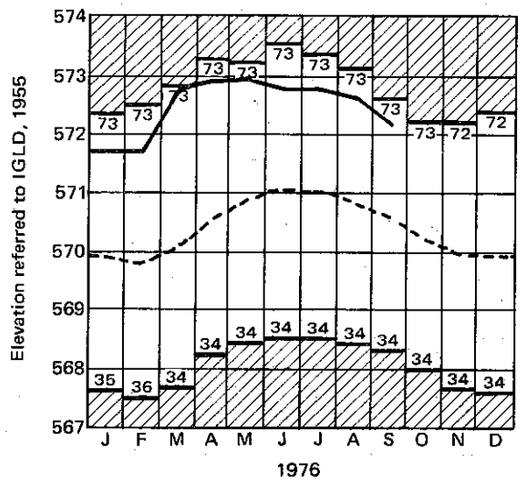
LAKE ERIE LEVELS



Base period: 1900-1974

LAKE ERIE mean level for September was 572.13 feet above IGLD (1955), 0.46 foot below last month's mean level and 1.72 feet above normal. The lake level is 0.34 foot below the level observed for September 1975 and 3.53 feet above Low Water Datum. The lake level remained noticeably high throughout the 1976 water year and in March was only 0.08 foot below the all-time monthly record high set in 1973.

GROUND-WATER LEVELS generally showed about normal declines for September; the only exception was in index observation well Hn-2a, Hancock County, where, in response to continued deficient precipitation in that area, the decline was about twice that normally observed. Ground-water levels are generally only slightly above or below normal in most areas of the state. The ground-water storage situation for the 1976 water year was very favorable throughout most of the state for the fifth consecutive year. The only exception was the western portion of the state, where precipitation had been noticeably below normal for most of the year; in this area some problems with low water levels have been observed.

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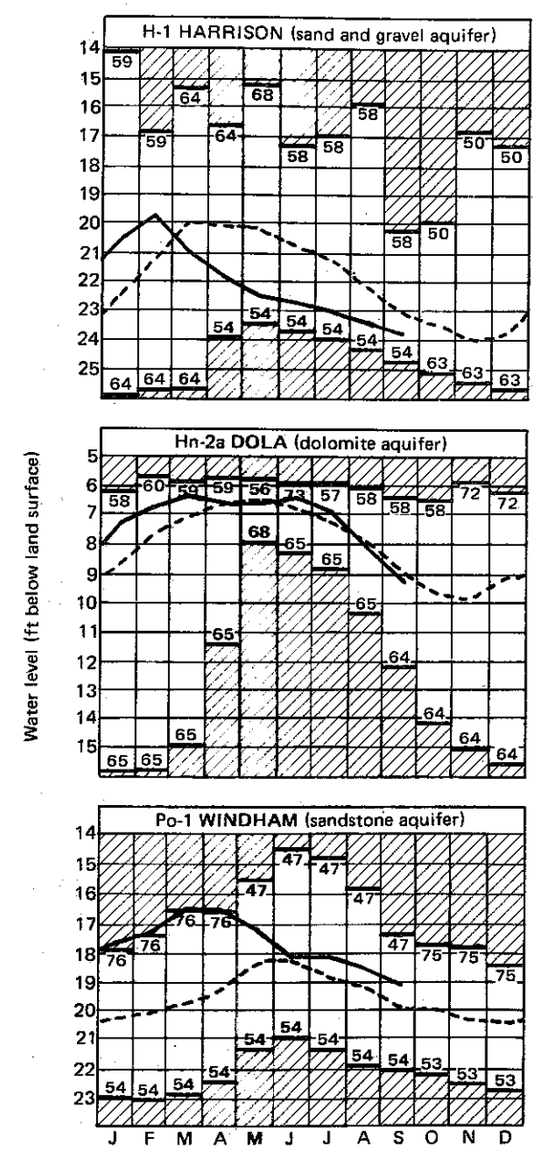
GROUND-WATER LEVELS



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U.S. Geological Survey, Water Resources Division.

Lake Erie level data:
U.S. Corps of Engineers, Detroit District.

Editing, cartography, and production by staff of the Division of Geological Survey, Ohio Department of Natural Resources.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER
FOUNTAIN SQUARE
COLUMBUS, OHIO 43224

SUMMARY

The water-supply situation remains favorable throughout the state. Precipitation for October was above normal for most of the state. Reservoir storage, streamflow, and ground-water storage were generally about normal. Lake Erie level declined markedly and was the lowest level observed for any month since March 1972.

NOTES AND COMMENTS

Department of Natural Resources publications formerly distributed by the Publications Center are now being distributed by the Division of Geological Survey, Bldg. B, Fountain Square, Columbus, Ohio 43224. Telephone requests and inquiries concerning Natural Resources publications can still be made by calling(614) 466-5409, or by calling the Division of Geological Survey number, 466-5344. The Division of Geological Survey continues to distribute Division of Water publications.

RECENT PUBLICATIONS OF THE DIVISION OF GEOLOGICAL SURVEY

Information Circular No. 42. *Catalog of oil and gas wells in "Newburg" (Silurian) of Ohio,* by A. Janssens. 19 p., 3 figs., 1975. $1.00 plus 4 cents tax in Ohio plus 10 cents mailing charge.

Information Circular No. 43. *Subsurface liquid-waste injection in Ohio,* by Michael J. Clifford. 27 p., 19 figs., 3 tables, 1975. $1.25 plus 5 cents tax in Ohio plus 13 cents mailing charge.

Information Circular No. 44. *Coal production in Ohio—1800-1974,* compiled by Horace R. Collins. 33 p., 7 figs., 1976. 75 cents plus 4 cents tax in Ohio plus 8 cents mailing charge.

DEPARTMENT OF NATURAL RESOURCES
James A. Rhodes Governor *Robert W. Teater Director*

OCTOBER 1976

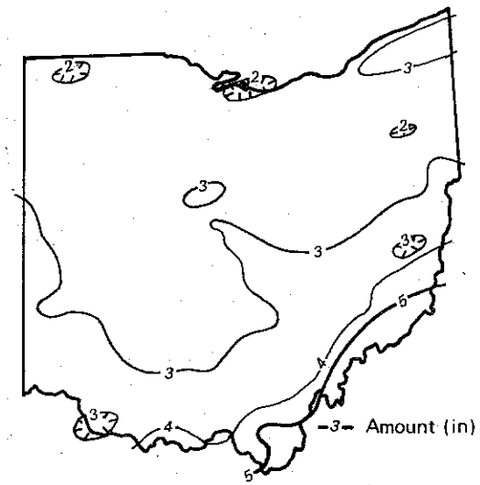
monthly water inventory report for ohio

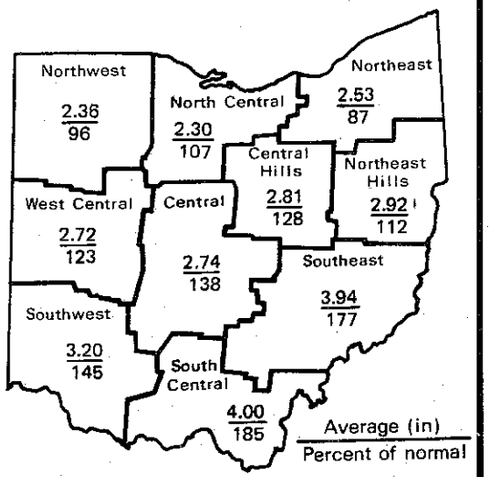
Compiled by Leonard J. Harstine

PRECIPITATION

PRECIPITATION for October was above normal in most regions of the state; the only exceptions were the Northwest and Northeast regions, where precipitation was below normal. The average for the state as a whole was 2.95 inches, 0.64 inch above normal. Regional averages ranged from 2.30 inches, 0.16 inch above normal, for the North Central region to 4.00 inches, 1.84 inches above normal, for the South Central region. Marietta, Washington County, reported the greatest amount of precipitation, 5.71 inches, for the month, and Sandusky, Erie County, reported the least amount, 1.59 inches. Precipitation was greatest through a narrow band along the Ohio River from Portsmouth, Scioto County, to Bridgeport, Belmont County; amounts ranged from 4.0 to 5.7 inches. Three stations in the northern section of the state reported less than 2.0 inches during October. Generally, about two-thirds of the state received between 2.0 and 3.0 inches of precipitation for the month. Measurable snowfall was reported at several stations in the northern portion of the state, and record-low temperatures for October 28th were reported at locations throughout the state. Precipitation for the first 10 months of the 1976 calendar year for the state as a whole averaged 32.65 inches, 0.80 inch above normal. Regional averages ranged from 36.06 inches, 4.51 inches above normal, for the Northeast region to 28.73 inches, 2.77 inches below normal, for the West Central region.

This is the first month of the 1977 water year, which began October 1, 1976, and ends September 30, 1977. The water year, a common reference period for surface-water reports, also is useful in discussion of ground-water phenomena. Precipitation for the first month of the 1977 water year may have produced some recharge to water supplies, but it was not sufficient to reverse the downward trends of the current depletion period.

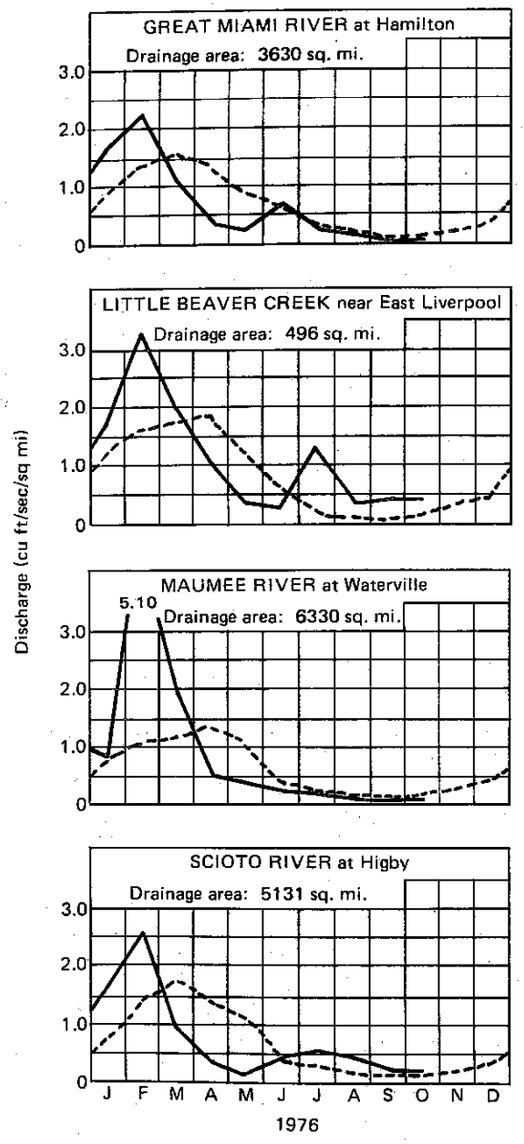




DIVISION OF WATER

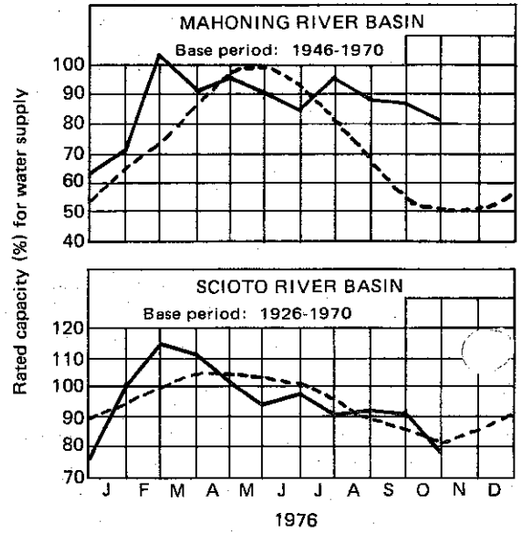
Wayne S. Nichols, Chief

MEAN STREAM DISCHARGE



Base periods: Little Beaver Creek and Great Miami River, 1931-1960; Scioto River and Maumee River, 1941-1970

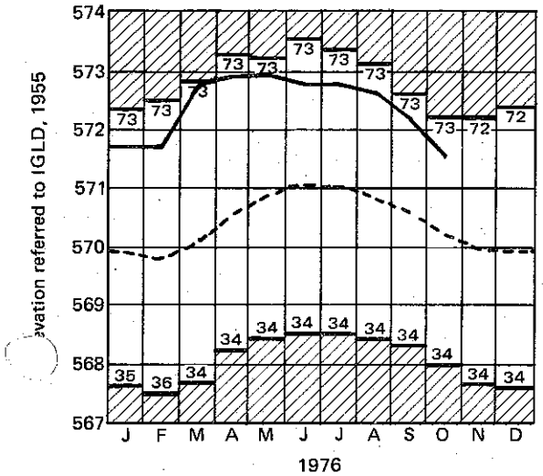
RESERVOIR STORAGE FOR WATER SUPPLY



RESERVOIR STORAGE for water supply showed normal declines for October. Storage in the Mahoning basin index reservoirs was noticeably above normal and noticeably above storage observed at the month end for October 1975. Storage in the Scioto basin index reservoirs was normal for the month and above storage observed for October 1975.

STREAMFLOW for October was excessive in the eastern and central portions of the state and normal in the western and northwestern portions. The continued excessive flow in the eastern and central portions of the state is probably in response to above-normal precipitation in these areas during the past three months. Mean discharge and percent of normal for the month at the index gaging stations were as follows: Great Miami River, 628 cfs, 105 percent; Little Beaver Creek, 200 cfs, 264 percent; Maumee River, 376 cfs, 74 percent; Scioto River, 1,193 cfs, 205 percent.

LAKE ERIE LEVELS



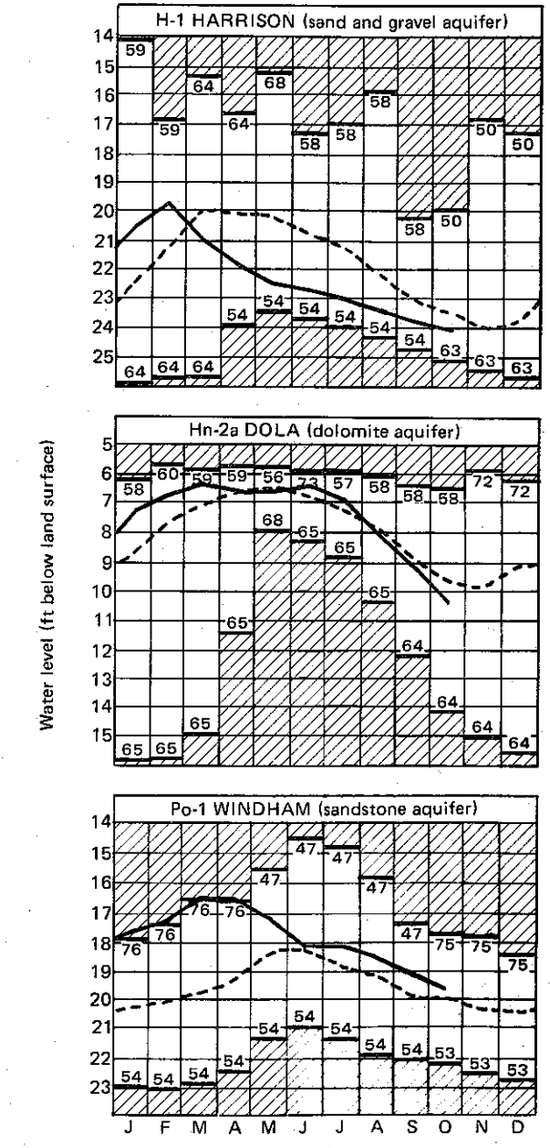
Base period: 1900-1974

LAKE ERIE mean level for October was 571.54 feet above IGLD (1955), 0.59 foot below last month's mean level and 1.45 feet above normal. The lake level is 0.58 foot below the level observed for October 1975 and 2.94 feet above Low Water Datum. The lake level this month is the lowest it has been for any month since March 1972.

GROUND-WATER LEVELS generally declined during October and were noticeably below those levels observed last month. In general, water levels throughout the state are below normal and lower than they were last year at this time. Only index observation wells Fr-10 at Columbus, Franklin County, and Po-1 at Windham, Portage County, had water levels above normal for the month. Even though water levels generally decline through October and November, conditions appear to be favorable this year for early recharge to ground-water storage.

normal - - - - current ——

GROUND-WATER LEVELS



Base periods: H-1, 1951-1964; Hn-2a, 1955-1973; Po-1, 1947-1964

ACKNOWLEDGMENTS

This report has been compiled from Division of Water data and from information supplied by the following:

Precipitation data:
U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service; The Miami Conservancy District; U.S. Army Corps of Engineers, Muskingum Area.

Streamflow and reservoir storage data:
U.S. Geological Survey, Water Resources Division.

Lake Erie level data:
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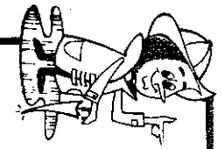
Editing, cartography, and production by staff of the Division of Geological Survey, Ohio Department of Natural Resources.



OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER
FOUNTAIN SQUARE
COLUMBUS, OHIO 43224

SUMMARY

The water-supply situation, although favorable, is rather unstable at the present time. Precipitation for the month was markedly below normal throughout the state. Reservoir storage for water supply remains favorable. Streamflow was generally normal with the exception of the northwestern portion of the state, where streamflow was deficient. Ground-water storage was generally below normal. Lake Erie mean level was the lowest since 1972 for the second consecutive month. Improvements in the water-supply situation depend greatly on the recharge conditions during the coming months.

NOTES AND COMMENTS

GROUND-WATER LEGISLATION

Last year the Ohio Department of Natural Resources introduced a bill in the Ohio General Assembly to provide for improved ground-water management. This legislation, known as H.B. 969, passed the House and was approved by the Senate Committee but did not reach the Senate floor. It is the intention of the Department of Natural Resources to introduce a similar bill in the coming General Assembly. We would urge that you become familiar with this proposed legislation and express your thoughts to your representatives in the Assembly.

NEW PUBLICATION OF THE DIVISION OF GEOLOGICAL SURVEY

Information Circular No. 45. *Place names directory: northeast Ohio,* compiled by Madge R. Fitak. 41 p., 1976. $1.00 plus 4 cents tax in Ohio plus 10 cents mailing charge.

This directory covers Ashtabula, Columbiana, Cuyahoga, Geauga, Lake, Lorain, Mahoning, Medina, Portage, Stark, Summit, Trumbull, and Wayne Counties. All place names which appear on the 7.5-minute U.S. Geological Survey topographic maps are listed along with the name of the map or maps on which that place name is found. Included in the listing are townships, cities, villages, and communities; streams and lakes; schools, churches, and cemeteries; and other named natural and cultural features.

This publication is available from the Division of Geological Survey, Ohio Department of Natural Resources, Building B, Fountain Square, Columbus, Ohio 43224.

DEPARTMENT OF NATURAL RESOURCES **NOVEMBER 1976**

James A. Rhodes Governor *Robert W. Teater Director*

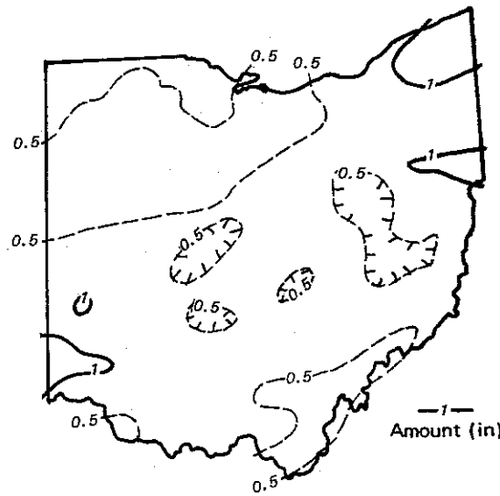
monthly water inventory report for ohio

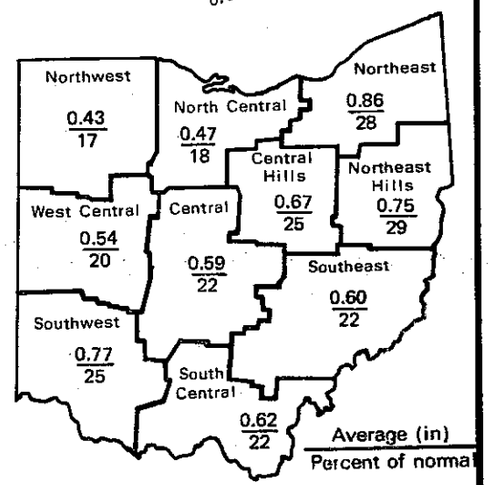
Compiled by Leonard J. Harstine

PRECIPITATION

PRECIPITATION for November was markedly below normal throughout the state. The average for the state as a whole was 0.63 inch, 2.11 inches below normal; this was the lowest monthly average for the state as a whole since February 1968. Regional averages ranged from 0.86 inch, 2.19 inches below normal, for the Northeast region to 0.43 inch, 2.13 inches below normal, for the Northwest region. Departures from normal ranged from 2.26 inches below normal for the Southwest region to 1.88 inches below normal for the Northeast Hills region. Percent of normal averages ranged from 17 percent for the Northwest region to 29 percent for the Northeast Hills region. North Georgetown, Columbiana County, reported the greatest amount of precipitation, 1.33 inches, for the month, and St. Marys, Auglaize County, reported the least amount, 0.16 inch. The bulk of November precipitation occurred during the last week of the month. Generally, only traces of precipitation were observed during the first three weeks of November with the exception of those areas in northeastern Ohio which observed more than 1.0 inch of precipitation for the month. Although these greater amounts in the northeastern part of the state were recorded for the first day of November, because of time of observation this precipitation more than likely fell on the last day of October. Most of the state received between 0.5 and 1.0 inch of precipitation. A large area in the northwest and north-central portions of the state, several isolated areas in the central and the eastern portions, and an area along the Ohio River between Greenup Dam, Lawrence County, and Marietta, Washington County, received less than 0.5 inch for the month. Two areas in the southwest and two areas in the northeast received in excess of 1.0 inch. Precipitation for the first eleven months of the 1976 calendar year for the state as a whole averages 33.28 inches, 1.31 inches below normal. Regional averages range from 36.92 inches, 2.32 inches above normal, for the Northeast region to 29.19 inches, 2.48 inches below normal, for the Northwest region. Departures from normal for the calendar year range from 5.22 inches below normal for the Southwest region to 2.32 inches above normal for the Northeast region. As far as water supplies were concerned, there was no precipitation in November; in other words, there was no recharge to water supplies.

Precipitation for the first two months of the 1977 water year for the state as a whole averages 3.58 inches, 1.47 inches below normal. Regional averages range from 4.62 inches, 0.41 inch below normal, for the South Central region to 2.77 inches, 1.96 inches below normal, for the North Central region. Precipitation for the 1977 water year thus far is below normal throughout the state, and the downward trend in water supplies during the current water-supply depletion period continues.

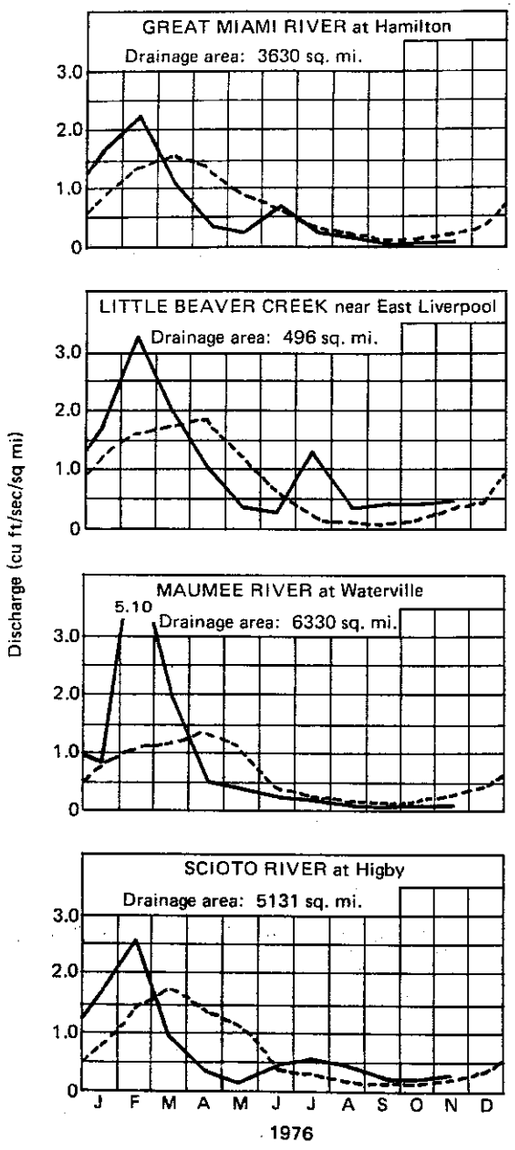




DIVISION OF WATER

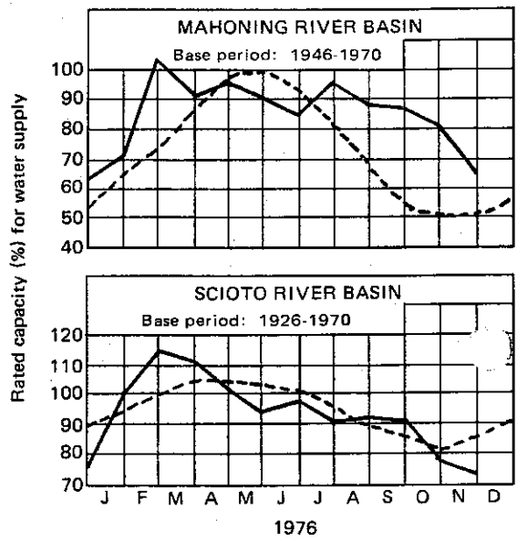
Wayne S. Nichols, Chief

MEAN STREAM DISCHARGE



Base periods: Little Beaver Creek and Great Miami River, 1931-1960; Scioto River and Maumee River, 1941-1970

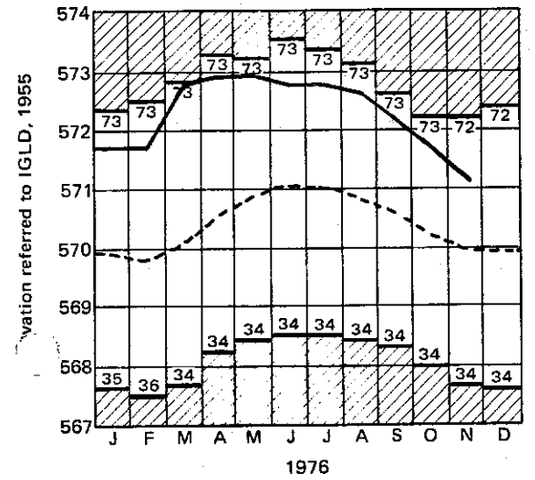
RESERVOIR STORAGE FOR WATER SUPPLY



RESERVOIR STORAGE for water supply declined markedly during November in response to the below-normal precipitation. Storage in the Mahoning basin index reservoirs was noticeably below that storage observed last month but remained above normal and above that storage observed for November 1975. Storage in the Scioto basin index reservoirs was noticeably below normal and below that storage observed last month, but was significantly above that level observed for November 1975.

STREAMFLOW for November was deficient in the northwestern part of the state and normal throughout the remainder of the state. Generally, discharge in terms of cubic feet per second per square mile of drainage basin is about normal throughout the state. Streamflow throughout the state remains very favorable despite the lack of precipitation during the month. Mean discharge and percent of normal for the month at the index gaging stations were as follows: Great Miami River, 630 cfs, 63 percent; Little Beaver Creek, 238 cfs, 165 percent; Maumee River, 358 cfs, 22 percent; Scioto River, 1 552 cfs, 137 percent.

LAKE ERIE LEVELS

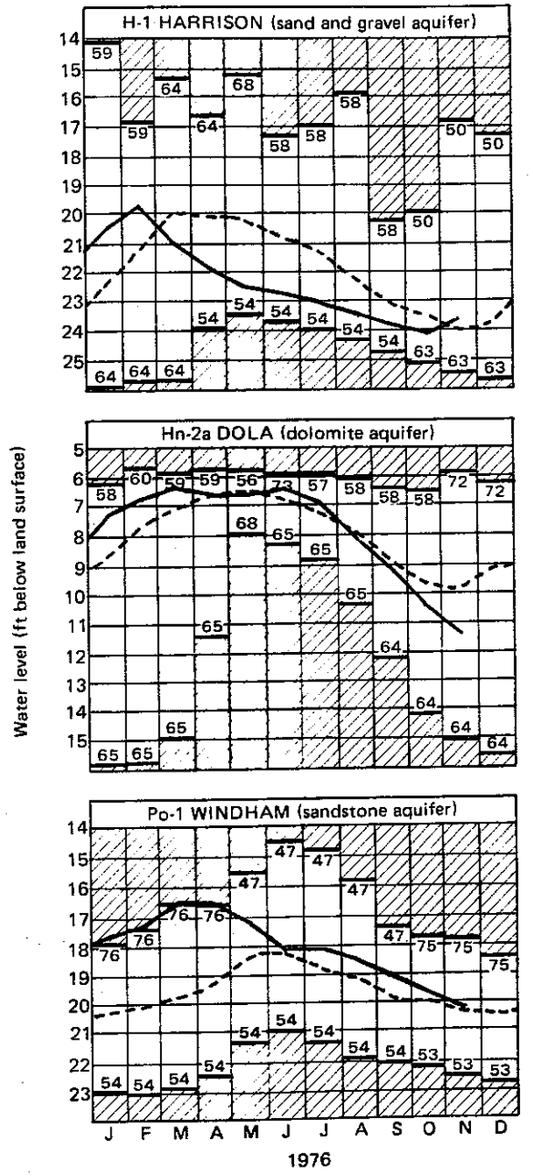


Base period: 1900-1974

LAKE ERIE mean level for November was 571.19 feet above IGLD (1955), 0.55 foot below last month's mean level and 1.37 feet above normal. The lake level is 0.62 foot below the level observed for November 1975 and 2.59 feet above Low Water Datum. The lake level this month is the lowest it has been for any month since February 1972. (Correction: Lake Erie mean level reported for October 1976 should have been 571.74 feet above IGLD; this revised level was still the lowest level observed for any month since April 1972.)

GROUND-WATER LEVELS in general continued to decline during November. The declines were greater than normally observed for November. Only one index well, H-1, Hamilton County, showed a net rise for the month. Water levels in all the index wells are at or below those levels observed for November 1975. Ground-water levels throughout the state are generally below normal. Only three index wells, Fr-10, Franklin County, H-1, Hamilton County, and Po-1, Portage County, had water levels above normal for the month. The deficient precipitation during November precludes any previous expectations for early recharge to ground-water storage by the beginning of the 1977 water year.

GROUND-WATER LEVELS



Base periods: H-1, 1951-1964; Hn-2a, 1955-1973; Po-1, 1947-1964

normal ----- current ——

ACKNOWLEDGMENTS

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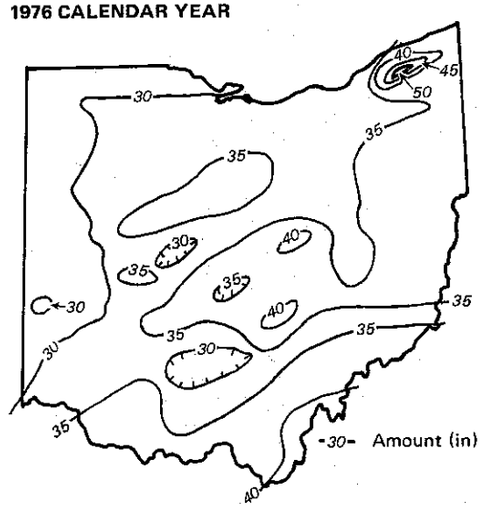
Editing, cartography, and production by staff of the Division of Geological Survey, Ohio Department of Natural Resources.

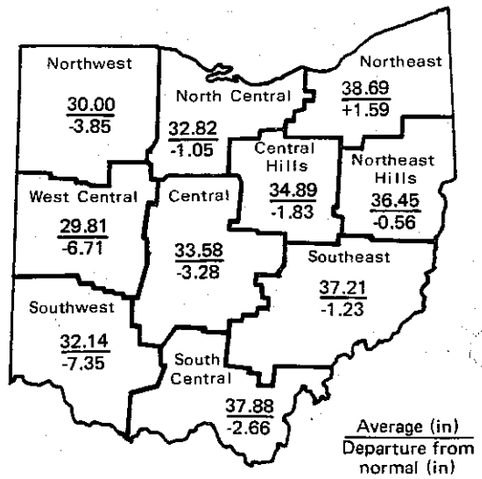
OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER
FOUNTAIN SQUARE
COLUMBUS, OHIO 43224

SUMMARY

The water-supply situation remains favorable for most of the state; however, water supply is rather uncertain and critical in some areas in western Ohio. Precipitation was markedly below normal for the second consecutive month. Reservoir storage, streamflow, and ground-water storage continued to show unusual declines through December. Lake Erie mean level continued to decline and was the lowest since November 1971. Improvements in water supply will depend solely on when and if we receive sufficient precipitation for recharge.

1976 CALENDAR YEAR





DEPARTMENT OF NATURAL RESOURCES
James A. Rhodes Governor *Robert W. Teater Director*

DECEMBER 1976

monthly water inventory report for ohio

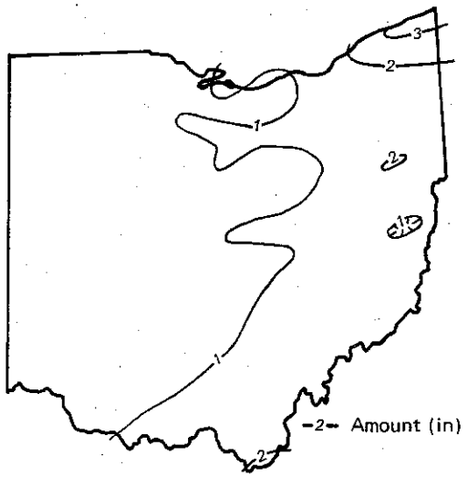
Compiled by Leonard J. Harstine

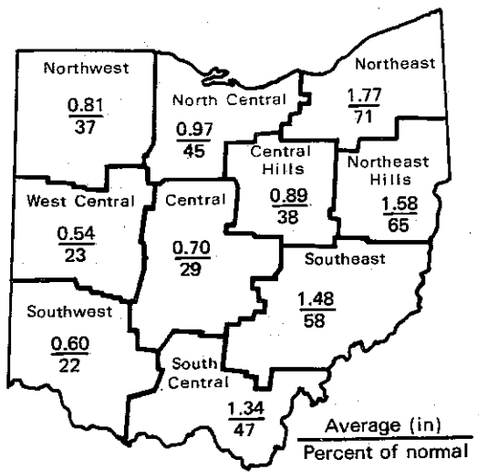
PRECIPITATION

PRECIPITATION for December was markedly below normal throughout the state for the second consecutive month. The average for the state as a whole was 1.07 inches, 1.38 inches below normal. Regional averages ranged from 1.77 inches, 0.73 inch below normal, for the Northeast region to 0.54 inch, 1.82 inches below normal, for the West Central region. Departures from normal ranged from 0.73 inch below normal for the Northeast region to 2.13 inches below normal for the Southwest region. Ashtabula, Ashtabula County, reported the greatest amount of precipitation, 3.86 inches, for the month, and Miamisburg, Montgomery County, reported the least amount, 0.35 inch. Generally, the eastern half of the state received 1.0 to 2.0 inches of precipitation for the month and the western half received between 0.5 and 1.0 inch. A few stations in the western portion of the state received slightly less than 0.5 inch, and an area north and east of Chardon received between 2.0 and 4.0 inches. Chardon reported 42.7 inches of snow for the month, nearly twice that normally observed for December at this station.

Precipitation for the 1976 calendar year was generally below normal throughout the state. The average for the state as a whole was 34.35 inches, 2.69 inches below normal. An isohyetal map and regional averages and departures from normal for 1976 appear on the last page of this report. Regional averages range from 38.69 inches, 1.59 inches above normal, for the Northeast region to 29.81 inches, 6.71 inches below normal, for the West Central region. Departures from normal for the year range from 1.59 inches above normal for the Northeast region to 7.35 inches below normal for the Southwest region. Chardon, Geauga County, reported the greatest amount of precipitation, 54.45 inches, 10.61 inches above normal, for the year, and Dayton-Vandalia Airport Weather Service Office, Montgomery County, reported the least amount, 25.63 inches, 8.73 inches below normal.

Precipitation for the first three months of the 1977 water year is below normal throughout the state. The average for the water year for the state as a whole is 4.65 inches, 2.85 inches below normal. Regional averages range from 6.02 inches, 1.47 inches below normal, for the Southeast region to 3.60 inches, 3.59 inches below normal, for the Northwest region. The below-normal precipitation in the past two months has had a noticeable effect on the water-supply situation throughout the state.

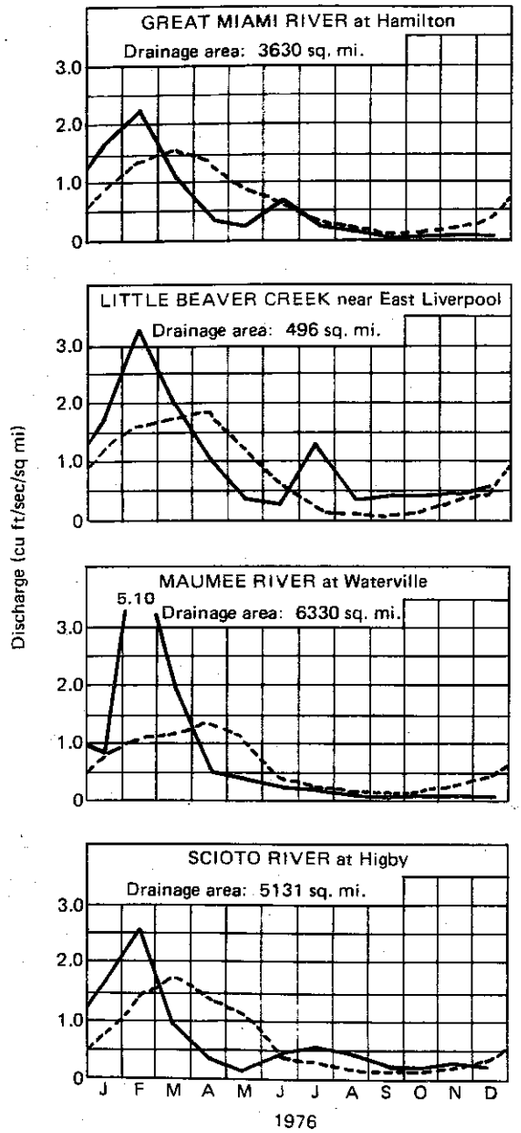




DIVISION OF WATER

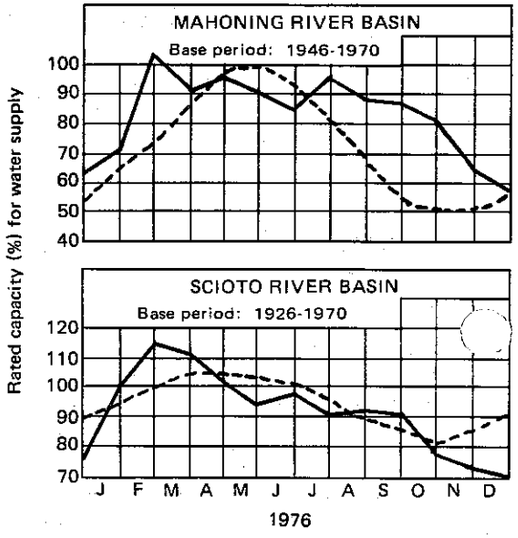
Wayne S. Nichols, Chief

MEAN STREAM DISCHARGE



Base periods: Little Beaver Creek and Great Miami River, 1931-1960. Scioto River and Maumee River, 1941-1970

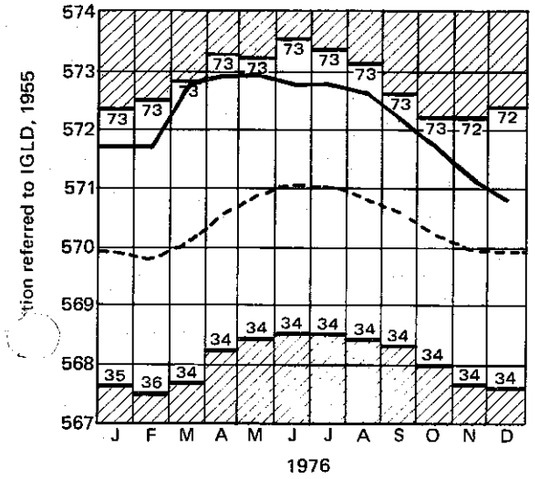
RESERVOIR STORAGE FOR WATER SUPPLY



RESERVOIR STORAGE for water supply showed unusual declines in December in both index basins in response to the below-normal precipitation for the second consecutive month. Storage in the Mahoning basin index reservoirs remained above normal but was the lowest it has been since November 1975. Storage in the Scioto basin index reservoirs was below normal for the third consecutive month and the lowest since November 1975. The lack of precipitation in the past two months has caused some concern in many areas of the state, particularly in areas where upground reservoirs are a primary source of water supply.

STREAMFLOW for December was generally deficient throughout the state; the only exception was the northeastern portion of the state, where precipitation was only moderately below normal. Flows have become critically low in some areas of the state. Mean discharge and percent of normal for the month at the index gaging stations were as follows: Great Miami River, 549 cfs, 34 percent; Little Beaver Creek, 280 cfs, 118 percent; Maumee River, 302 cfs, 13 percent; Scioto River, 1,037 cfs, 64 percent. Flows at all four index gaging stations at the month end were unusually low.

LAKE ERIE LEVELS



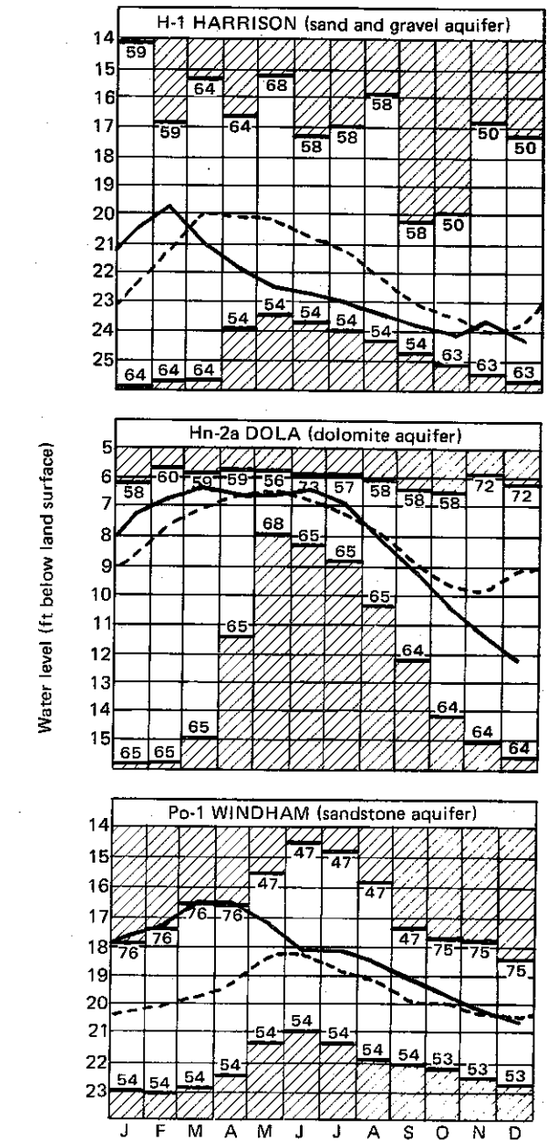
Base period: 1900-1974

LAKE ERIE mean level for December was 570.79 feet above IGLD (1955), 0.40 foot below last month's mean level and 1.04 feet above normal. The lake level is 1.01 feet below the level observed for December 1975 and 2.19 feet above Low Water Datum. The lake level this month was the lowest it has been for any month since November 1971.

GROUND-WATER LEVELS in general continued to decline or remained stable during December. Water levels in all index wells recorded net declines for the month, a very unusual occurrence for December. Water levels in most index wells were noticeably below normal and below those levels observed for December 1975; the only exception was in observation well Fr-10, Franklin County, where the level was slightly above that level observed for December 1975 and noticeably above normal. Although the effect of continued deficient precipitation on ground-water supply will not be apparent for some time, continued lack of recharge may have serious effects on the ground-water supply situation in the coming year.

normal - - - - current ——

GROUND-WATER LEVELS



Base periods: H-1, 1951-1964; Hn-2a, 1955-1973; Po-1, 1947-1964